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STATE OF MAINE PETITION TO REQUIRE AGENCY RULEMAKING

We, the qualified voters of the State of Maine, whose signatures are appended to the attached petitions, hereby petition the

Maine Department of Agriculture, Conservation, and Forestry pursuant to 5 M.R.S.A., Section 8055 to: (Check one)

 X Adopt a New Rule Modify Chapter , Sec. Repeal chapter , Sec.

The proposed change would (summarize content and impact of proposal):* The attached petition calls for two actions. The first is to formally acknowledge and implement the Department's oversight of the welfare of fish in aquaculture facilities. This requires development and distribution of a new policy statement, training of Animal Welfare Program staff, and implementation of new protocol to conduct proactive inspections of aquaculture facilities. The second action is to establish Best Management Practices for the welfare of fish kept in aquaculture facilities and requires the Department to engage in formal rulemaking. Combined, these actions will help ensure that the millions of fish kept in state aquaculture facilities are not subject to cruelty and neglect.

The text of the new or modified rule would read:*

1. The Department shall issue a new policy statement entitled "Welfare of Fish in Aquaculture Facilities." The policy statement shall confirm the Department's statutory authority and commitment to ensuring fish confined to state aquaculture facilities are kept in optimal environments, receive proper care and treatment, and are free from cruelty and neglect. The policy statement shall also state the Department's policy to enact appropriate training to implement this policy and to conduct proactive inspections of aquaculture facilities to enforce the policy.
2. CMR-01-001-701 (Animal Welfare) shall be amended to include a new chapter numbered Section VIII to be entitled "Standards for the Care of Fish in Aquaculture Facilities." This chapter will contain Best Management Practices for the welfare of fish kept in aquaculture facilities as determined by the Department through formal rulemaking. Moreover, Section I entitled "Definitions" shall be modified as appropriate to accommodate the new section.

*Use additional page(s), if necessary

For the purposes of communication with the agency concerning this petition, the petitioners designate as their representative the following individual:

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**MAINE DEPARTMENT OF AGRICULTURE,
CONSERVATION, AND FORESTRY**

**IN RE: CITIZEN PETITION FOR RULEMAKING
TO REQUIRE THE MAINE DEPARTMENT OF
AGRICULTURE, CONSERVATION, AND
FORESTRY TO FULFILL ITS STATUTORY
DUTY UNDER 7-A M.R.S. § 202 TO PROTECT
THE WELL-BEING OF FISH USED IN
AQUACULTURE.**

Filed by

**152 VOTERS REGISTERED IN THE STATE OF
MAINE**

and

ANIMAL OUTLOOK

ORGANIC CONSUMERS ASSOCIATION

REGENERATION INTERNATIONAL

**FRIENDS OF HARRIET L. HARTLEY
CONSERVATION AREA**

ANIMAL EQUALITY

FARM SANCTUARY

MAINE SEAWEED EXCHANGE

AQUATIC LIFE INSTITUTE

**CITIZEN PETITION
TO INITIATE RULEMAKING
PURSUANT TO
5 M.R.S. § 8055**

Filed August 1, 2022

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**IN RE: CITIZEN PETITION FOR RULEMAKING TO REQUIRE THE MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION, AND FORESTRY TO
FULFILL ITS STATUTORY DUTY UNDER 7-A M.R.S. § 202 TO PROTECT THE
WELL-BEING OF FISH USED IN AQUACULTURE.**

NOW COME 152 registered voters in the state of Maine and 8 organizations pursuant to 5 M.R.S. § 8055 to petition the Department of Agriculture, Conservation and Forestry ("DACF") to initiate rulemaking to protect the welfare of millions of fish confined in aquaculture facilities across the state and:

1. Officially designate the DACF—and more specifically, the agency's Animal Welfare Program ("AWP")—as the agency responsible for overseeing and enforcing compliance with animal cruelty laws and Best Management Practices ("BMPs") in aquaculture facilities throughout the state.
2. Require that the DACF establishes BMPs for the welfare of fish in aquaculture facilities through administrative rulemaking and not through arbitrary deference to the private aquaculture industry.

Pursuant to 21-A M.R.S. § 354(7), the verified and certified signatures and the oath of the petition circulator have been submitted to the DACF simultaneously with this petition.

I. SUMMARY

The aquaculture industry in Maine is booming and across the state, millions of fish are confined to tanks and pens in aquaculture facilities. The highest levels of state government have committed to expand the industry, fueling growth with millions of dollars and long-term commitments to jobs and economic development. Maine has declared its intent to become a global leader in aquaculture.

Yet, while the state invests mightily in the growth of the aquaculture industry, a troubling vacuum in oversight exists. No single agency within the state of Maine is accountable for the humane and proper treatment of the millions of fish used in the state's aquaculture industry. Despite overwhelming scientific evidence that fish are sentient, conscious, capable of pain,

suffering, and logical thought, the state provides no regulatory oversight to ensure Maine's Animal Welfare Act is enforced across the hundreds of aquaculture facilities in the state. In fact, the agency statutorily designated by the Maine Legislature to enforce these laws—the Department of Agriculture, Conservation, and Forestry (“DACF”)—has openly disavowed this responsibility. Moreover, in the lone instance in which the DACF was compelled to enforce these laws—prompted only by the investigation of a non-profit organization—the agency deferred to insufficient standards set by the private aquaculture industry, an industry with no incentive to prioritize the welfare of animals.

The growth of aquaculture in Maine has outpaced the state's ability to ensure the “humane and proper treatment” of animals used by this industry. Pursuant to this petition, the DACF must initiate rulemaking proceedings (1) to formally accept oversight for the welfare of fish in aquaculture facilities, including enacting appropriate training, policies and procedures, and (2) adopting Best Management Practices (“BMPs”) that ensure the humane and proper treatment of these animals as required by law.¹

II. THE PARTIES

A. The Petitioners

This petition is brought by 152 **registered Maine voters** who live throughout Maine in 35 municipalities and represent a variety of interests. Each petitioner is concerned about the welfare of millions of fish confined in aquaculture facilities throughout the state and respectfully requests that the DACF use this petition as an opportunity to improve the living conditions of these animals by (1) formally accepting oversight for their welfare and (2) requiring the passage of BMPs through rulemaking versus deference to the aquaculture industry.

¹ See 5.M.R.S. § 8055(3).

Founded in 1995, **Animal Outlook** (formerly “Compassion Over Killing”) is a national 501(c)(3) animal protection organization dedicated to exposing truth and inspiring change. Animal Outlook represents thousands of supporters nationwide including many residing in the state of Maine. Animal Outlook advocates against government policies that encourage or allow cruelty to farmed animals, conducts public education on the realities of industrialized animal agriculture, coordinates public campaigns to encourage the adoption of vegan diets, and conducts undercover investigations to expose cruelty at industrialized factory farms. In 2019, Animal Outlook (then known as Compassion Over Killing) conducted an undercover investigation of the Cooke Aquaculture hatchery² in Bingham, Maine. The investigation—widely covered by both local and national media³—documented Atlantic Salmon being slammed, stomped, violently thrown, and left in buckets to painfully suffocate and die.⁴ Moreover, the investigation depicted fish living in filthy conditions, many suffering from spinal deformities and fungus that ate away their faces.⁵

Organic Consumers Association is an online and grassroots 501(c)(3) nonprofit public interest organization whose mission is to protect and advocate for consumers’ right to safe, healthful food and other consumer products, a just food and farming system and an environment rich in biodiversity and free of pollutants. OCA educates and advocates on behalf of organic

² *Aquaculture: Sea of Suffering*, ANIMAL OUTLOOK, <https://animaloutlook.org/investigations/aquaculture/#:~:text=In%202019%2C%20Animal%20Outlook%20released,salmon%20aquaculture%20in%20the%20U.S.> (last visited Feb. 22, 2021).

³ See N. Sambides, *Fish cruelty allegations prompt changes at Bingham salmon hatchery*, BANGOR DAILY NEWS, (Nov. 23, 2019), <https://bangordailynews.com/2019/11/23/news/fish-cruelty-allegations-prompt-changes-at-bingham-salmon-hatchery/> (last visited Mar. 14, 2021); N. Sambides, *State investigating Bingham salmon hatchery for alleged animal cruelty*, WGME, (Oct. 8, 2019), <https://wgme.com/news/local/state-investigating-bingham-salmon-hatchery-for-alleged-animal-cruelty> (last visited Mar. 14, 2021); *Seafood company under investigation after allegations of animal abuse*, THE GUARDIAN, <https://www.theguardian.com/environment/2019/oct/08/seafood-company-under-investigation-after-allegations-of-animal-abuse> (last visited Mar. 14, 2021); AP NEWS, *Hatchery investigated after hidden camera shows salmon abuse*, <https://apnews.com/article/003c5169d2a74c949b6844fdcabf90d6> (last visited Mar. 14, 2021).

⁴ *Aquaculture: Sea of Suffering*, ANIMAL OUTLOOK, <https://animaloutlook.org/investigations/aquaculture/#:~:text=In%202019%2C%20Animal%20Outlook%20released,salmon%20aquaculture%20in%20the%20U.S.> (last visited Feb. 22, 2021).

⁵ *Ibid.*

consumers, engages consumers in marketplace pressure campaigns, and works to advance sound food and farming policy through grassroots lobbying. We address crucial issues around food safety, industrial agriculture, genetic engineering, children's health, corporate accountability, Fair Trade, environmental sustainability, including pesticide use, and other food- and agriculture-related topics.

Regeneration International is a U.S.-based international nonprofit organization whose mission is to promote, facilitate and accelerate the global transition to regenerative food, farming and land management for the purpose of restoring climate stability, ending world hunger and rebuilding deteriorated social, ecological and economic systems. We work with multiple stakeholders in key regions of the world who are committed to building alternative food and farming systems on a regional or national level. We are currently assisting in the building of numerous Regeneration Alliances, including those in South Africa, India, Mexico, Guatemala, Belize, Canada, and in the Midwest region of the U.S.A.

The Friends of Harriet L Hartley Conservation Area was formed in the Fall of 2019 to safeguard the coastal and intertidal land at the mouth of the Little River in Belfast and Northport, Maine, from industrial development, consistent with the wishes of the late Dr. Harriet L Hartley. Our long-range vision is to lead efforts to reclaim, restore, and conserve environmentally critical coastal and intertidal land around Penobscot Bay. Our immediate goal is to defend the registered, legally deeded conservation area against unlawful taking and development by a massive industrial-scale land-based fish CAFO. In so doing, we are committed to educating the public and policy makers in Maine about the regulatory challenges, animal welfare implications, and environmental risks of industrial scale aquaculture. We are a 501 C-3 Member Organization.

Animal Equality is a registered 501(c)(3) nonprofit animal protection organization whose

mission is to end cruelty to farmed animals, including fish. To that end, Animal Equality works to educate the public about the treatment of animals in the aquaculture industry and advocates for more meaningful standards to safeguard their welfare. Through petitions, social media, films, newsletters, undercover investigations, email alerts, litigation, and legislative initiatives, Animal Equality mobilizes its supporters to manifest a world in which all animals are respected and protected.

Farm Sanctuary is a 501(c)(3) nonprofit organization with 1.2 million members and constituents nationwide. Founded in 1986, Farm Sanctuary works to combat the abuses of animal agriculture, advocate for institutional reforms, and encourage a new understanding of farm animals through education and public awareness. The organization provides lifelong care for rescued farm animals at sanctuary locations in New York and California, and advocates for the protection of farm animals and the promotion of a just and compassionate food system through ballot initiatives, state and federal legislation, litigation, petitions for agency rulemaking, and corporate and consumer outreach.

The **Maine Seaweed Exchange**, a non-profit organization working towards the development of a responsible seaweed aquaculture industry, believes that our aquaculture industry practices should be conducted with integrity, respect, and accountability. The Maine Seaweed Exchange is dedicated to seaweed farming education; supporting seaweed farmers and their communities; research on seaweed farming and seaweed products; assisting industry partners in developing markets for seaweed products and increase distribution channels; identifying and assisting industry partners to develop branding/marketing opportunities; and creating and supporting innovation in the aquaculture seaweed industry.

The Aquatic Life Institute is a U.S.-based internationally focused non-profit dedicated to

improving fish welfare in both aquaculture and wild capture fisheries. ALI has grown a global coalition of over 100 animal rights and conservation non-profits and is deeply engaged in partnership with various certifiers including the ASC, MSC, and GLOBALG.A.P. Operating from effective altruism principles, ALI seeks to support and accelerate activities that positively impact aquatic life, focusing on the highest-impact welfare interventions for all aquatic animals on a global scale.

B. The Respondent

The DACF is a state agency established “for the improvement of agriculture and the advancement of the interests of husbandry.”⁶ The AWP is a division of the DACF⁷ whose express purpose is to “ensure humane and proper treatment of animals by developing, implementing and administering a comprehensive program that upholds the animal welfare laws of Maine through communication, education and enforcement.”⁸ The AWP “develops and implements policies and programs to effectively address complaints of animal cruelty.”⁹

III. STATUTORY AND REGULATORY FRAMEWORK

A. The DACF has been charged by the Maine Legislature with ensuring the “humane and proper treatment” of all animals within the state—including fish used in aquaculture—and possesses the statutory authority to do so under the Maine Administrative Procedure Act, the DACF’s enabling statute, and Maine’s animal cruelty statute.

The DACF’s responsibility to protect *all* animals across the state of Maine and its authority to adopt rules in order to fulfill this legislative mandate are equally clear. The DACF should invoke rulemaking proceedings to (1) formally accept accountability to safeguard the welfare of fish in

⁶ 7 M.R.S. § 1.

⁷ Hereinafter, the phrase “the DACF” is used to collectively refer to the DACF as well as the AWP.

⁸ *Animal Welfare*, DEP’T OF AGRIC., CONSERVATION AND FORESTRY, https://www.maine.gov/dacf/ahw/animal_welfare/ (last visited Dec. 4, 2020).

⁹ *Maine’s Animal Welfare Program Review for 2019*, DEP’T OF AGRIC., CONSERVATION AND FORESTRY, http://ldc.mainelegislature.org/Open/Rpts/hv4764_a5m34_2019.pdf (last visited Feb. 22, 2021).

aquaculture facilities and (2) adopt BMPs through rulemaking to promote the welfare of these animals.

Maine law plainly charges the DACF with providing for “the humane and proper treatment of animals.”¹⁰ The statute does not exclude any specific animal from these protections. Maine law explicitly defines an animal as “every living, sentient creature not a human being,”¹¹ a definition that unquestionably encompasses the millions of fish confined to aquaculture facilities throughout the state.

Maine’s Administrative Procedure Act (“MAPA”) grants express authority to the DACF and other agencies to pass rules such as those requested by this petition.¹² Under the MAPA, the term “rule” is used broadly to encompass “the whole or any part of every regulation, standard, code, statement of policy, or other agency guideline or statement of general applicability, including the amendment, suspension or repeal of any prior rule, that is or is intended to be judicially enforceable and implements, interprets or makes specific the law administered by the agency, or describes the procedures or practices of the agency.”¹³

This rulemaking authority is echoed in the DACF’s own enabling statute which provides that the DACF “shall adopt, consistent with the Maine Administrative Procedure Act, . . . rules for carrying out this Title and all other statutes delegating responsibility to [the commissioner] or the department.”¹⁴ Further emphasizing the DACF’s responsibility to make rules specifically for the protection of animals, Maine’s Animal Welfare Act places rulemaking responsibility on the DACF and states that it “may adopt any rules necessary or useful to carry out this chapter pursuant

¹⁰ 7 M.R.S.A. § 3902.

¹¹ 17 M.R.S. § 1011(2) and 7 M.R.S. § 3907(2).

¹² 5 M.R.S. § 8052.

¹³ 5 M.R.S. § 8002(9).

¹⁴ 7 M.R.S. § 12.

to the Maine Administrative Procedure Act.”¹⁵

Maine’s statutory scheme is clear—the DACF, as statutorily designated protectors of *all* animals within the state of Maine, including fish—possesses the lawful authority to adopt rules in furtherance of this obligation. Pursuant to this authority and obligation, the DACF should adopt rules formalizing its accountability for fish in aquaculture facilities and adopt meaningful BMPs through rulemaking to promote their well-being.

B. The DACF must initiate rulemaking per 5 M.R.S. §§ 8001–11008.

Because this petition was signed by 150 or more registered voters, the DACF is compelled to initiate the rulemaking requested herein. The right of Maine citizens to petition for rulemaking is safeguarded by the Maine Constitution which holds that “the people have a right at all times in an orderly and peaceable manner to assemble to consult upon the common good, to give instructions to their representatives, and to request, of either department of the government by petition or remonstrance, redress of their wrongs and grievances.”¹⁶

This right is further enshrined in the MAPA. The MAPA expressly sanctions citizen petitions, stating “any person may petition an agency for the adoption or modification of any rule.”¹⁷ This principle has been upheld in Maine courts.¹⁸

In addition to their right to petition, Maine citizens have a right to require an agency to undertake rulemaking if their numbers are sufficient, which they are here. The MAPA provides that when 150 or more registered voters of the state submit a petition to adopt or modify a rule, “the agency shall initiate appropriate rulemaking proceedings within 60 days after receipt of the

¹⁵ 7 M.R.S. § 4017.

¹⁶ ME. CONST. art. I, § 15.

¹⁷ 5 M.R.S. § 8055.

¹⁸ *Lewis v. State Dept. of Human Services*, 433 A.2d 743, 749 (Me., 1981).

petition.”¹⁹

The text of the proposed rules and signed petitions from over 150 Maine citizens, as verified and certified pursuant to 21-A M.R.S. § 354(7), have been submitted to the DACF simultaneously with this petition. Accordingly, by law, the DACF must initiate rulemaking proceedings pursuant to this petition within 60 days of its receipt.

IV. STATEMENT OF REASONS

A. The rapid growth of Maine’s aquaculture industry means millions more fish will be deprived of government oversight to ensure even the most basic protections.

In Maine and across the globe, aquaculture is a booming industry, meaning that more and more aquatic animals are subjected to life in industrial aquaculture facilities. According to the United Nations Food and Agriculture Organization (“FAO”), “[a]quaculture is the fastest growing food production sector in the world.”²⁰ The University of Maine estimates that across the world, 62% of food fish will be produced by aquaculture by the year 2030, requiring a 70% increase in global production.²¹ In keeping with international trends, the aquaculture sector in the United States is growing rapidly and now constitutes a thriving industry. For example, in 2014, aquaculture production in the United States amounted to “608 million pounds [of fish] with a value of \$1.33 billion.”²² In Maine—which is already recognized for producing high quality seafood²³—aquaculture is also experiencing a surge in growth and is currently one of the state’s leading

¹⁹ 5 M.R.S. § 8055.

²⁰ *Maine Aquaculture-Economic Impact Report*, UNIVERSITY OF MAINE, (Jan. 2017), <https://cpb-us-w2.wpmucdn.com/wpsites.maine.edu/dist/1/43/files/2017/01/Aquaculture-Econ-Report-25i1qf3.pdf> (last visited Feb. 28, 2021).

²¹ *Ibid.*

²² *Office of Science and Technology*, NATIONAL MARINE FISHERIES SERVICE, https://www.st.nmfs.noaa.gov/Assets/commercial/fus/fus15/documents/03_%20Aquaculture2015.pdf (last visited Feb. 28, 2021).

²³ Abigail Curtis, *How Maine Became a Magnet for Land-Based Fish Farms*, BANGOR DAILY NEWS (June 3, 2019), <https://bangordailynews.com/2019/06/03/news/how-maine-became-a-magnet-for-land-based-fish-farms/>.

industries.²⁴

While economists measure the growth of aquaculture in Maine by dollars and job growth, another important measurement is often overlooked—the number of individual, sentient animals the aquaculture industry uses. The number of animals used in aquaculture is so vast that—unlike other animals such as pigs, cows, and chickens—an accurate count of the individual animals involved is often abandoned in favor of an assessment of the total weight of animals used. As noted above, the United States’ aquaculture industry produced 608 million pounds of fish in 2014,²⁵ a number that translates to tens of millions of individual fish. The scale of industrial aquaculture facilities is staggering; in some cases individual tanks or pens can house a hundred thousand fish or more,²⁶ each one a living, conscious animal capable of experiencing pain and suffering.

Given the number of individual animals bred, raised, and killed in Maine by the aquaculture industry, it seems unconscionable that Maine’s regulatory scheme is virtually devoid of measures to ensure their welfare. In order to provide the most rudimentary protections to these animals, the DAF must accept the responsibility the state legislature has delegated to it by taking formal ownership over their welfare and establishing BMPs through rigorous rulemaking procedures.

B. The science is clear: fish are conscious and sentient, and capable of experiencing fear and pain, forming relationships, and making logical decisions, all of which entitle them to legal protection.

In recent years, the scientific community has reached a consensus that fish experience

²⁴ *Maine Aquaculture-Economic Impact Report*, UNIVERSITY OF MAINE, (Jan. 2017), <https://cpb-us-w2.wpmucdn.com/wpsites.maine.edu/dist/1/43/files/2017/01/Aquaculture-Econ-Report-2511qf3.pdf> (last visited Feb. 28, 2021).

²⁵ *Aquaculture*, NATIONAL MARINE FISHERIES SERVICE, https://www.st.nmfs.noaa.gov/Assets/commercial/fus/fus15/documents/03_%20Aquaculture2015.pdf (last visited Feb. 28, 2021).

²⁶ Joaquin Palomino, NATIONAL GEOGRAPHIC, *Is Salmon Raised on Land the Future of Seafood?*, June 7, 2015, <https://www.nationalgeographic.com/culture/article/150607-salmon-aquaculture-canada-fish-farm-food-world> (last visited Mar. 14, 2021); J. Bourne, Jr., NATIONAL GEOGRAPHIC, *How to Farm a Better Fish*, <https://www.nationalgeographic.com/foodfeatures/aquaculture/> (last visited Mar. 14, 2021).

conscious pain that cannot be dismissed as merely instinctive responses to harmful stimuli.²⁷ In other words, when fish are hurt, they suffer. The supporting evidence—including research showing that fish experience physiological reactions and change their behavior in response to painful stimuli²⁸—conclusively shatters the myth that fish are unconscious and incapable of any sensations or reactions remotely recognizable to humans.²⁹

In fact, fish anatomy, physiology, and behavioral responses show that fish feel pain in a way similar to many other animals.³⁰ Studies show that fish and other animals have specialized receptors called nociceptors.³¹ These nociceptors detect potentially harmful stimuli³² and sense harmful stimulants such as a variety of environmental factors including, but not limited to, changes in physical pressure, heat, and chemicals such as acid.³³ Studies of fish nociceptors and other neurologic characteristics have determined that fish possess the neuroanatomy necessary to experience pain.³⁴ Other studies prove that they experience pain by demonstrating that their behavior changes immediately after they are exposed to a harmful stimulus.³⁵

In addition to experiencing pain, science has confirmed that fish can experience fear, but

²⁷ Ferris Jabr, *It's Official: Fish Feel Pain*, SMITHSONIAN MAGAZINE (Jan. 8, 2018), <https://www.smithsonianmag.com/science-nature/fish-feel-pain-180967764/>.

²⁸ Donald M. Broom, *Fish Brains and Behaviour Indicate Capacity for Feeling Pain*, ANIMAL SENTIENCE (2016), <https://www.wellbeingintlstudiesrepository.org/cgi/viewcontent.cgi?article=1031&context=animsent>.

²⁹ V. Braithwaite, *Hooked on a myth*, LOS ANGELES TIMES, (Oct. 8, 2006), <https://www.latimes.com/archives/la-xpm-2006-oct-08-oe-braithwaite8-story.html> (last visited Mar. 14, 2021).

³⁰ Donald M. Broom, *Fish Welfare and the Public Perception of Farmed Fish*, PROCEEDINGS OF AQUAVISION (1999).

https://www.researchgate.net/profile/Donald_Broom/publication/299658973_Fish_welfare_and_the_public_perception_of_farmed_fish/links/5703f7aa08aef745f71489d3/Fish-welfare-and-the-public-perception-of-farmed-fish.pdf.

³¹ Victoria Braithwaite and Philip Boulcott, *Pain Perception, Aversion, and Fear in Fish*, 75 DISEASES OF AQUATIC ORGANISMS 131 (2007).

³² Lynne U. Sneddon, *Evolution of Nociception and Pain: Evidence from Fish Models*, THE ROYAL SOC'Y. 374 (2019).

³³ Victoria Braithwaite and Philip Boulcott, *Pain Perception, Aversion, and Fear in Fish*, 75 DISEASES OF AQUATIC ORGANISMS 131 (2007).

³⁴ Lynne U. Sneddon, *Pain Perception in Fish: Indicators and Endpoints*, 50 ILAR J. 338 (2009).

³⁵ *Ibid.*

that in some cases, their pain can be so severe that it overpowers their fear.³⁶ In a 2003 study of rainbow trout, researchers dropped colored Lego blocks in the fishes' tanks and observed that the trout displayed a typical fear response to the Legos—as they do with most unfamiliar objects, choosing to actively avoid these objects and breathing faster.³⁷ But when the researchers injected the trout with a painful stimulus (acetic acid), the trout didn't avoid the Legos as much. Researchers concluded that the pain “captures the animal's attention with only a relatively small amount of attention directed at responding to the fear of the novel object.”³⁸ Thus, fish are capable of experiencing both fear and pain, and the two adverse emotions may often compete for attention.

Yet another study demonstrated that fish remember pain.³⁹ In the study, researchers attached small heaters to goldfish and slowly increased the temperature.⁴⁰ Researchers injected half of the goldfish with morphine, and injected the other half with saline—hypothesizing that the fish injected with morphine would withstand higher temperatures than the fish injected with saline.⁴¹ Both sets of fish reacted similarly to increasing levels of heat.⁴² However, the study revealed that, following the test, the fish injected with morphine continued displaying normal behavior, while the fish injected with saline changed behavior—displaying “defensive behaviors, indicating wariness, or fear and anxiety.”⁴³ Researchers concluded that the fish cognitively processed and remembered the pain caused by increasing levels of heat; the memory of that pain

³⁶Lynne U. Sneddon, Victoria A. Braithwaite, Michael J. Gentle, *Novel Object Test: Examining Nociception and Fear in Rainbow Trout*, 4 THE J. OF PAIN 431 (2003).

³⁷ *Ibid.*

³⁸ *Ibid.*

³⁹ Janicke Nordgreen, et al., *Thermonociception in Fish: Effects of Two Different Doses of Morphine on Thermal Threshold and Post-Test Behaviour in Goldfish (Carassius auratus)*, 119 APPLIED ANIMAL BEHAVIOUR SCIENCE 101 (2009).

⁴⁰ *Ibid.*

⁴¹ *Ibid.*

⁴² *Ibid.*

⁴³ *Ibid.*

later led to behavior indicative of fear and anxiety.⁴⁴

In addition to their capacity to experience fear and to feel and remember pain, research has shown that fish are conscious and use logic to make decisions.⁴⁵

Fish exhibit social intelligence, which provides evidence that fish experience self-consciousness. Self-consciousness has been defined as the “experience of thinking about one’s own actions, contemplating potential scenarios in one’s head, and then acting in accordance with which scenario one deems best.”⁴⁶ For example, studies support that fish develop complex social interactions, including a 2001 study that focused on the relationship between two different fish, the blue streak cleaner wrasse and its “client” fish.⁴⁷ The blue streak cleaner wrasse eats parasites off the “client” fish, but the relationship and interaction between the two fish does not stop there. The study showed that the blue streak cleaner wrasse engaged in behavior, like touching the dorsal fins of the “client” fish in different ways to “alter client decisions over how long to stay for an inspection” and “stop clients from fleeing or aggressive chasing of the cleaner in response to a cleaner fish bite that made them jolt.”⁴⁸ The study demonstrated that fish can be “surprisingly intelligent”⁴⁹ and can engage in positive social collaborations with other fish.⁵⁰ Researchers concluded that this behavior would be impossible if both kinds of fish lacked self-consciousness and did not understand the consequences of their actions.⁵¹

⁴⁴ *Ibid.*

⁴⁵ Logan Grosenick, Tricia S. Clement, & Russell D. Fernald, Fish can Infer Social Rank by Observation alone, 445 NATURE 429 (2007).

⁴⁶ Maximilian Padden Elder, *The Fish Pain Debate: Broadening Humanity’s Moral Horizon*, J. OF ANIMAL ETHICS (2014).

⁴⁷ Redouan Bshary & Manuela Würth, *Cleaner Fish Labroides dimidiatus Manipulate Client Reef Fish by Providing Tactile Stimulation*, 268 THE ROYAL SOC’Y. 1495 (2001).

⁴⁸ *Ibid.*

⁴⁹ Ed Yong, *The Fish That Makes Other Fish Smarter*, THE ATLANTIC, (Mar. 7, 2018), <https://www.theatlantic.com/science/archive/2018/03/the-fish-that-makes-other-fish-smarter/554924/> (last visited Mar. 23, 2021).

⁵⁰ Redouan Bshary & Manuela Würth, *Cleaner Fish Labroides dimidiatus Manipulate Client Reef Fish by Providing Tactile Stimulation*, 268 THE ROYAL SOC’Y. 1495 (2001).

⁵¹ *Ibid.*

No longer are fish strange, alien beings whose experience bears no resemblance to our own. Science has conclusively proven that fish are conscious, sentient beings capable of logical decision-making and the formation of relationships. Moreover, fish can not only experience pain and fear, but remember them. Thus, fish, just like animals farmed on land, deserve protections to ensure their welfare in Maine's booming aquaculture industry.

C. Inadequate oversight of animal welfare in aquaculture facilities creates risks to human health, including zoonotic diseases and food safety concerns.

The welfare of fish in industrial aquaculture facilities raises important concerns for human health. Welfare-related practices ranging from veterinary treatment to the provision of food and clean water can have profound impacts on humans who interact with or consume fish in industrial aquaculture facilities. According to the Center for Food Safety:

Industrial aquaculture also raises significant human health and food safety concerns. The antibiotics, pesticides and other chemicals that are heavily used to prevent disease and parasites in fish farming can accumulate in fish tissues. Additionally, the feed given to fish in aquaculture is made from wild-caught fish that may be heavily contaminated with dioxins and Polychlorinated Biphenyls (PCBs). Studies have found farmed fish to be less healthful than their wild counterparts, refuting the alleged advantages of eating aquaculture-sourced seafood.⁵²

The Food and Agriculture Organization of the United Nations further states that:

Foodborne parasitic infections, foodborne disease associated with pathogenic bacteria, residues of agro-chemicals, veterinary drugs and heavy metal contamination have all been identified as potential hazards of aquaculture products.⁵³

Even the industry association, the Global Aquaculture Alliance ("GAA"), notes the risk to human health, stating that "[a]s the practice of aquaculture increase globally, more and more individuals

⁵² *About Aquaculture*, CENTER FOR FOOD SAFETY, <https://www.centerforfoodsafety.org/issues/312/aquaculture/about-aquaculture#:~:text=Industrial%20aquaculture%20also%20raises%20significant,can%20accumulate%20in%20fish%20tissues.> (last visited Mar. 2, 2021).

⁵³ *Food safety and products from aquaculture*, UNITED NATIONS FOOD AND AGRICULTURE ORGANIZATION, <http://www.fao.org/3/w9542e/W9542e3.htm> (last visited Mar. 2, 2021).

will come into contact with zoonotic diseases specific to aquatic animals that have the potential to be transmitted to humans.”⁵⁴

Importantly, many of the symptoms of disease in fish are visibly apparent and could be detected during routine animal welfare inspections, including “ulcerative lesions of the skin, lesions around the bases of the fins and anus, raised scales, abdominal distension and exophthalmia” as well as “lethargy, poor body condition, pigment changes, abdominal distention, exophthalmia, scale loss and skin ulcers.”⁵⁵

Petitioner Animal Outlook’s investigation of Cooke Aquaculture in Bingham, Maine documented numerous instances of fish destined for human consumption showing visible signs of disease, parasites, or other potential food safety concerns.⁵⁶ The image below depicts one such instance in which fungus has eaten away the face of a fish:

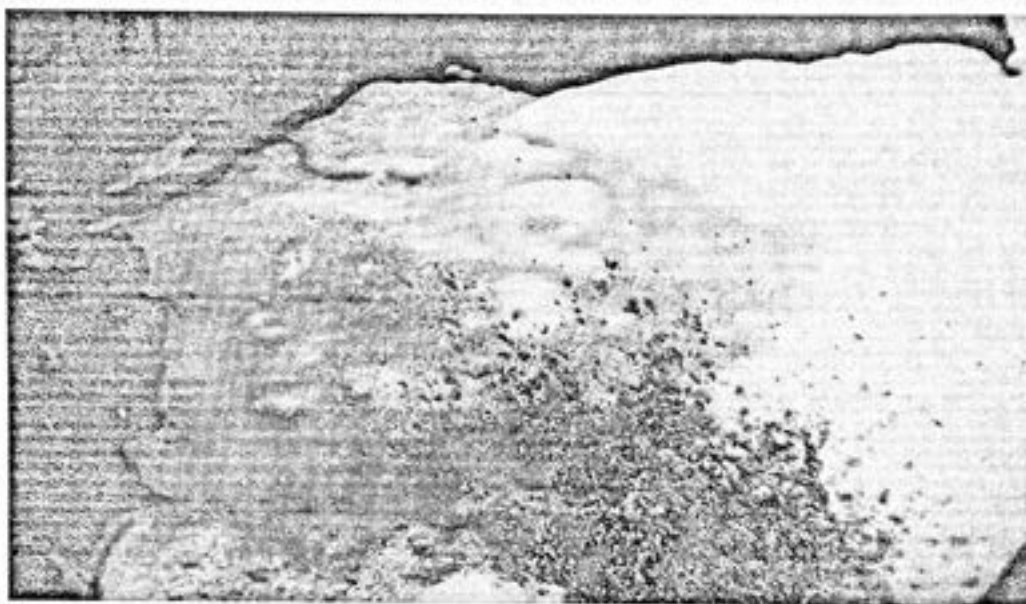


⁵⁴ *with fish, limiting zoonotic diseases*, GLOBAL AQUACULTURE ALLIANCE, *Working* <https://www.aquaculturealliance.org/advocate/working-with-fish-limiting-zoonotic-diseases/#:~:text=Zoonotic%20infections%20of%20Mycobacterium%20species,arms%20due%20to%20the%20bacteria's> (last visited Mar. 2, 2021).

⁵⁵ *Ibid*.

⁵⁶ *Aquaculture: A Sea of Suffering*, ANIMAL OUTLOOK, <https://animaloutlook.org/investigations/aquaculture/> (last visited Mar. 1, 2021).

The following image, taken during the same investigation, depicts a filthy “mortality pit”—mere feet from tanks housing fish destined for human consumption—where Cooke Aquaculture workers disposed of fungus-infected eggs as well as dead and deformed juvenile fish, all possible sources of contamination:



In addition to potential zoonotic diseases, problematic animal welfare practices such as those documented at Cooke Aquaculture could lead to “adulterated” fish and food safety concerns. Under the Federal Food, Drug, and Cosmetic Act (FDCA)—which covers fish sold for food—food is adulterated if “it consists in whole or in part of any filthy, putrid, or decomposed substance, or if it is otherwise unfit for food.”⁵⁷ Maine’s Food Law says the same.⁵⁸ Food may also be adulterated “if it has been prepared, packed, or held under insanitary conditions whereby it may have become contaminated with filth, or whereby it may have been rendered injurious to health.”⁵⁹

Animal Outlook’s investigation of Cooke Aquaculture’s Maine facility documented fungal

⁵⁷ 21 U.S.C. § 342.

⁵⁸ 22 M.R.S. § 2156(A)(1)(F).

⁵⁹ 21 U.S.C. § 342; accord 22 M.R.S. § 2156(A)(1)(D).

infections in tanks, including fungal growth on the mats supporting eggs and freshly hatched fish, as well as salmon with parts of their heads eaten away by fungus.⁶⁰ To protect against this fungus, workers sprayed formaldehyde—capable of burning the gills of fish swimming too close, and also injurious to humans—into the tanks of live fish,⁶¹ exemplifying the connection between animal welfare and human health concerns.

The welfare of fish in aquaculture facilities is closely related to risks to humans consuming or interacting with these fish, including zoonotic diseases and food safety concerns. Not only does the absence of robust BMPs and oversight for the welfare of animals in aquaculture facilities compromise the well-being of fish confined to these facilities, it poses substantial risks to human health. The DACF must remedy its failure to monitor these facilities and establish meaningful BMPs by rulemaking pursuant to this petition.

V. PROPOSED REGULATORY CHANGES AND ADDITIONS

A. The DACF should formally accept and acknowledge its oversight of the welfare of fish in aquaculture facilities and institute the necessary training and protocols to protect these animals from cruelty and neglect.

As the agency explicitly designated by the Maine Legislature to ensure the humane treatment of animals across the state, the DACF must accept and acknowledge its responsibility for the welfare of animals used in aquaculture. In recognition of this responsibility, the DACF should institute the appropriate organizational, procedural, and training measures necessary to enforce the Maine Animal Welfare Act at aquaculture facilities across the state.

1. The Maine State Legislature has tasked the DACF with ensuring the welfare of fish used in aquaculture.

Maine law does not grant the DACF discretion to decide which animals it will and will not

⁶⁰ ANIMAL OUTLOOK, Summary of Findings from Undercover Investigation of Cooke Aquaculture, p.5 (June 12, 2019).

⁶¹ *Ibid.*

protect. The law is unambiguous in declaring that the DACF is accountable for the welfare of *all* animals in the state and nowhere in the law are fish used in aquaculture expressly or even impliedly excluded. The DACF must provide for “the humane and proper treatment of animals.”⁶² The term “animal” means “every living, sentient creature not a human being,”⁶³ a definition that plainly encompasses fish. As discussed above,⁶⁴ fish are not only “living, sentient creature(s),” but they experience fear and pain, build relationships, and think logically. Maine’s statutory scheme makes clear that the humane treatment of fish—as with other animals—falls under the purview of the DACF.

In addition to tasking the DACF with ensuring the humane treatment of animals, the law prescribes the methods by which the agency shall achieve this goal, stating that “the (DACF) shall develop, implement and administer a comprehensive program that upholds the animal welfare laws of the State through communication, education and enforcement.”⁶⁵ As part of this “comprehensive program,” the DACF, “in cooperation with animal control officers, shall investigate complaints of cruelty to animals and enforce cruelty-to-animal laws.”⁶⁶

The DACF must do this, as Maine law does not grant it discretion to selectively choose which statutes it will and will not enforce. Maine’s Animal Welfare Act makes clear that the DACF “shall diligently enforce *all* provisions of (the Maine Animal Welfare Act) and all other statutes delegating responsibility to . . . the department.”⁶⁷ In addition to Maine’s Animal Welfare Act, the DACF’s enabling statute emphasizes this point, stating that “[t]he commissioner is the chief

⁶² 7 M.R.S. § 3902.

⁶³ 17 M.R.S. § 1011(2).

⁶⁴ See *supra* § IV(B).

⁶⁵ 7 M.R.S. § 3902.

⁶⁶ 7 M.R.S. § 3906-B(11).

⁶⁷ 7 M.R.S. § 13 (emphasis added).

executive charged with the enforcement of *all* statutes delegating responsibility to him or the department and shall be vigilant in discovering violations thereof and making complaint to the proper authorities.”⁶⁸

2. The DACF has abdicated its responsibility to ensure the humane and proper treatment of fish in aquaculture facilities.

The DACF has publicly touted its responsibility to protect the welfare of the state’s animals, proclaiming in a recent annual report that “Maine has been a leader in the animal welfare world for many years and it is our intention to continue those efforts using education and enforcement,”⁶⁹ yet has simultaneously abdicated that responsibility when it comes to fish in aquaculture facilities.

The DACF’s own records bear out this abdication. Most pointedly, as part of its inspection of Cooke Aquaculture following the Animal Outlook investigation, the DACF repeatedly asserted that it has no formal accountability for the welfare of animals in aquaculture facilities and, in fact, suggested that **no agency within the entire state** has such accountability. In the DACF’s final investigative report on Cooke Aquaculture, the DACF stated that they “determined that this type of operation *was not regulated by any state agency in Maine.*”⁷⁰ Moreover, despite the numerous statutes pointing to the DACF as accountable for ensuring the humane treatment of all of Maine’s animals, the DACF sought to shift responsibility elsewhere, recommending that “another state agency that specializes in aquatic animals look into developing oversight in animal care at this type of Aquaculture facility to ensure proper compliance with BMP’s in the future.”⁷¹ The report

⁶⁸ 7 M.R.S. § 2. (emphasis added).

⁶⁹ *Maine’s Animal Welfare Program Review for 2018*, DEP’T. OF AGRIC., CONSERVATION AND FORESTRY, http://llec.mainelegislature.org/Open/Rpts/hv4764_a5m34_2018.pdf (last visited Feb. 22, 2021).

⁷⁰ Dep’t of Agric., Conservation, and Forestry, *Animal Welfare Program Final Investigative Report on Cooke Aquaculture, Complaint #20687* p.1. (emphasis added).

⁷¹ *Id.* at p. 4.

concluded by suggesting specific agencies and remarking that “[h]aving other agencies such as DMR (the Department of Marine Resources) or IF&W (the Department of Inland Fisheries and Wildlife) oversee these operations with regular inspections could help prevent these kinds of complaints in the future.”⁷²

The DACF’s abdication of its obligation to ensure the humane and proper treatment of fish in aquaculture facilities is borne out by other agency records beyond the Cooke Aquaculture investigation report. In March 2021, Animal Outlook submitted a request to the DACF under the Maine Freedom of Access Act.⁷³ The request sought “any inspection, audit, enforcement, or similar action taken by the Department of Agriculture, Conservation, and Forestry on any aquaculture facility or business” since January 1, 2018.⁷⁴ In response to the request, the DACF advised that the Cooke Aquaculture investigation report “is *the only record* our Department possesses in response to your request.”⁷⁵

This response demonstrates that, aside from the Cooke Aquaculture investigation—which was initiated by pressure from Animal Outlook, a private non-profit organization—the agency has failed to undertake a single inspection, audit, or enforcement action at any aquaculture facility across the entire state in more than three years. The DACF has entirely shirked its responsibility for the welfare of fish in Maine aquaculture facilities, despite:

- The fact that the DACF is legally bound to ensure the humane treatment of *all* animals in Maine pursuant to numerous statutes;

⁷² *Ibid*.

⁷³ See 1 M.R.S. § 400, et seq.; Email containing Freedom of Access Act Request from Will Lowrey, Legal Counsel, Animal Outlook to Shannon Ayotte, Secretary Specialist, Dep’t. of Agric., Conservation, and Forestry (Mar. 5, 2021, 4:31pm).

⁷⁴ Email from Shannon Ayotte, Secretary Specialist, Dep’t. of Agric., Conservation, and Forestry to Will Lowrey, Legal Counsel, Animal Outlook (Mar. 8, 2021, 9:41am).

⁷⁵ *Ibid*.

- The presence of over 200 aquaculture facilities in the state⁷⁶ containing millions upon millions of conscious, sentient fish; and
- The fact that the DACF has publicly touted the value of proactive inspections of animal facilities in detecting cruelty.⁷⁷

Despite its claims of being a leader in animal welfare, the DACF has elected not to enforce Maine's animal cruelty laws in aquaculture facilities across the state. As a result, millions of fish in these facilities are deprived of government oversight and left to the whims of the private aquaculture industry, a problem the DACF must correct.

3. The DACF's abdication of its responsibility for the welfare of fish in aquaculture is not justified by lack of expertise or deference to other state agencies.

The DACF's refusal to assume responsibility for the welfare of fish in aquaculture facilities may be born from a lack of expertise, yet the absence of expertise is no justification to defy multiple statutory mandates, leaving millions of sentient creatures to the whims of an industry with little incentive to prioritize their well-being. In the Cooke Aquaculture investigative report, the DACF flatly states that it "has no experience investigating land-based aquaculture or Salmon up to this point"⁷⁸ and notes that its staff is lacking in "any fishery experience"⁷⁹ as it "traditionally investigates animal cruelty concerning [only] domestic animals such as dogs, cats, horses, and

⁷⁶ *The future looks bright for Maine's growing aquaculture industry*, NEWS CENTER MAINE, (May 2019), [https://www.newscentermaine.com/article/money/business/the-future-looks-bright-for-maines-growing-aquaculture-industry/97-946190fe-288b-465e-8052-9cea206528a0#:~:text=There%20are%20about%20200%20aquaculture,double%20over%20the%20next%20decade.\(last%20visited%20Mar.%208,%202021\).](https://www.newscentermaine.com/article/money/business/the-future-looks-bright-for-maines-growing-aquaculture-industry/97-946190fe-288b-465e-8052-9cea206528a0#:~:text=There%20are%20about%20200%20aquaculture,double%20over%20the%20next%20decade.(last%20visited%20Mar.%208,%202021).)

⁷⁷ See *Maine's Animal Welfare Program Review for 2019*, DEP'T. OF AGRIC., CONSERVATION AND FORESTRY, (stating that "Some of the larger cruelty cases that Animal Welfare has investigated over the past year resulted from problems discovered during facility inspections.").

⁷⁸ Dep't of Agric., Conservation, and Forestry, *Animal Welfare Program Final Investigative Report on Cooke Aquaculture*, Complaint #20687, p.1.

⁷⁹ *Ibid.*

other land-based livestock.”⁸⁰

But in areas beyond aquaculture, the DACF has assumed a broad scope of responsibilities and has shown itself capable of obtaining necessary training and expertise. For instance, the DACF’s scope—while inclusive of dogs and cats—also includes responsibility for such diverse subject areas as ensuring the state’s prohibition on veal and gestation crates is enforced⁸¹ and investigating the detrimental impacts of animal waste on the waters of the state.⁸² Moreover, the DACF has recently touted its abilities to learn new information, heralding a new animal control officer training program in its 2019 Annual Report.⁸³ The welfare of animals in aquaculture facilities is but a new and important subject area in which the DACF must bolster its internal training and protocol in order to fulfill its statutory mission.

The DACF’s abdication of oversight for the humane treatment of fish in aquaculture facilities is also not justified by its assertion that another state agency, such as the Department of Marine Resources (“DMR”), should bear responsibility for the welfare these animals. Under Maine law, the DMR was established:

to conserve and develop marine and estuarine resources; to conduct and sponsor scientific research; to promote and develop the Maine coastal fishing industries; to advise and cooperate with local, state and federal officials concerning activities in coastal waters; and to implement, administer and enforce the laws and regulations necessary for these enumerated purposes, as well as the exercise of all authority conferred by this Part.⁸⁴

Even putting aside the fact that the DACF’s statutory mandate clearly holds it alone

⁸⁰ *Ibid.*

⁸¹ 7 M.R.S. § 4020.

⁸² 7 M.R.S. § 17.

⁸³ *Maine’s Animal Welfare Program Review for 2019*, DEP’T. OF AGRIC., CONSERVATION AND FORESTRY, http://ldc.mainelegislature.org/Open/Rpts/hv4764_a5m34_2019.pdf (last visited Feb. 22, 2021) (noting that “In 2019, Animal Welfare entered into a contract with JPMA Staff Development Solutions to create a training program that would give the best information available for animal control officers while keeping the training cost low for the municipalities”).

⁸⁴ 12 M.R.S. § 6021.

accountable for “the humane and proper treatment of animals,”⁸⁵ the DMR’s statutory purpose is plainly incompatible with undertaking this same responsibility. First, the DMR’s purpose is devoid of any mention of animals, animal welfare, or humane treatment. In fact, the DMR is expressly tasked with “promot[ing] and develop[ing] the Maine coastal fishing industries,” a purpose that may often be at odds with the humane treatment of animals used by the industry.

Second, even if the DMR’s purpose were read to include the welfare of animals—which it does not—the agency’s purpose is focused largely on “coastal” regions and may not encompass inland aquaculture facilities such as Cooke Aquaculture’s Bingham hatchery, where Animal Outlook documented numerous instances of abuse and neglect.

Finally, if the legislature intended the DMR to bear this responsibility, evidence suggests that such a duty could have been—but was not—transitioned from the DACF to the DMR. In 2019, the Maine Legislature passed L.D. 1763, a bill that transitioned the responsibility for licensing of land-based aquaculture facilities from the DACF to the DMR.⁸⁶ While L.D. 1763 explicitly transferred the aquaculture facility licensing portion of the DACF’s duties to the DMR, the bill lacks any transfer of authority regarding oversight for the welfare of animals in these facilities. Clearly, Maine law provides a vehicle to transfer such responsibility between agencies and in fact, L.D. 1763 or another bill could have transferred oversight for the welfare of fish in aquaculture facilities, but did not. Accordingly, the responsibility for the welfare of animals in aquaculture facilities remains squarely with the DACF.

The DACF’s assertion that the Department of Inland Fisheries and Wildlife (“DIFW”) bears this responsibility fares only slightly better. The DIFW was established:

to preserve, protect and enhance the inland fisheries and wildlife resources of the State;

⁸⁵ 7 M.R.S. § 3902.

⁸⁶ An Act To Transfer Responsibility for Licensing of Land-based Aquaculture from the Department of Agriculture, Conservation and Forestry to the Department of Marine Resources L.D. 1763, 129th Me. Legis. (2019).

to encourage the wise use of these resources; to ensure coordinated planning for the future use and preservation of these resources; to provide for effective management of these resources; and to use regulated hunting, fishing and trapping as the basis for the management of these resources whenever feasible.⁸⁷

Admittedly, the DIFW “has responsibility for investigations carried out on behalf of the State in matters related to the status and needs of any inland fisheries and wildlife species,”⁸⁸ a delegation that could theoretically encompass the welfare of fish in aquaculture facilities. However, a closer look at the duties of the DIFW reveals that the agency’s fishing responsibilities are largely focused on things such as fishing licenses and permits,⁸⁹ the stocking of inland lakes and streams,⁹⁰ and the protection of endangered species near proposed aquaculture facilities—not on commercial aquaculture.⁹¹ Safeguarding the welfare of fish used in industrial aquaculture is not within the DIFW’s scope.

4. The DACF should formally acknowledge accountability for and take measures to provide robust oversight for the welfare of animals in aquaculture facilities.

Maine cannot simultaneously seek to “become a global leader in land-based aquaculture”⁹² and exercise no oversight of the welfare of fish in aquaculture facilities. Aquaculture is already a large industry in Maine, and Governor Mills’s 10-year plan to expand it⁹³ only makes this a bigger issue. Maine law requires that the DACF is accountable for the welfare of *all* animals in the state, including animals used in the state’s booming aquaculture industry. DACF’s arguments that it is

⁸⁷ 12 M.R.S. § 10051.

⁸⁸ 12 M.R.S. § 10103.

⁸⁹ *Fishing in Maine*, MAINE DEP’T. OF INLAND FISHERIES AND WILDLIFE, <https://www.maine.gov/ifw/fishing-boating/fishing/index.html> (last visited Mar. 14, 2021).

⁹⁰ *Hatcheries*, MAINE DEP’T. OF INLAND FISHERIES AND WILDLIFE, <https://www.maine.gov/ifw/fish-wildlife/hatcheries/index.html> (last visited Mar. 14, 2021).

⁹¹ *Aquaculture in Maine*, MAINE DEP’T. OF MARINE RESOURCES, *Conducting* <https://seagrant.umaine.edu/wp-content/uploads/sites/467/2019/03/2011-dmr-conducting-aquaculture-in-maine.pdf> (last visited Mar. 14, 2021).

⁹² *Land Based Aquaculture*, MAINE DEP’T. OF ECONOMIC AND COMMUNITY DEVELOPMENT, <https://www.maine.gov/decd/businessdevelopment/landbasedaquaculture> (last visited Feb. 28, 2021).

⁹³ Sam Hill, *Maine’s 10-year economic development plan spotlights aquaculture*, SEAFOOD SOURCE, (Jan. 23, 2020), <https://www.seafoodsource.com/news/aquaculture/maine-10-year-economic-development-plan-spotlights-aquaculture> (last visited Feb. 28, 2021).

ill-equipped and underprepared do not justify its shirking of this mandatory mission. The DACF should undertake rulemaking to formally acknowledge its accountability for the welfare of fish used in aquaculture in Maine and should adopt and implement the measures it needs—such as staff training—to ensure the agency can protect the millions of animals used in this industry from cruelty and neglect, as the Maine State Legislature has tasked it to do.

B. Maine should pass aquaculture BMPs through robust rulemaking and not arbitrarily defer to low standards set by the aquaculture industry.

Maine law places the momentous responsibility of determining the legality of practices impacting the welfare of millions of animals on the DACF, a determination that should be made with great care and deliberation. Maine’s animal cruelty statute provides for an affirmative defense to animal cruelty when “the animal is kept as part of an agricultural operation and in compliance with best management practices for animal husbandry as determined by the department.”⁹⁴

The investigation of Cooke Aquaculture reveals the critical nature of such a determination. In the course of that investigation, the DACF arbitrarily accepted guidance from the aquaculture industry—the very industry that profits from packing more fish into each tank and handling them more rapidly—and without any further consultation or public input, turned that industry guidance into law for millions of sentient animals across the state of Maine. The DACF’s investigative report on Cooke Aquaculture plainly states that the DACF, short on resources, undertrained, and ill-equipped to handle an aquaculture investigation, simply deferred to the aquaculture industry itself to set BMPs that will dictate the suffering of millions of animals for years to come. The report states that the AWP reviewed GAA Best Aquaculture Practices (“BAPs”) online and then directly contacted GAA.⁹⁵ After the call, the AWP was “able to ascertain that the BAP’s [sic] are what the

⁹⁴ 7 M.R.S. § 4011.

⁹⁵ Dep’t of Agric., Conservation, and Forestry, Animal Welfare Program Final Investigative Report on Cooke

state would consider Best Management Practices (BMPs) for this type of farming.”⁹⁶ Moreover, “[u]pon review of (a blank inspection form provided by GAA), it was determined by AWP that the state can recognize GAA BAPs as best management practices by the state for the purpose of the investigation since the state does not currently have BMPs in place for this type of agriculture.”⁹⁷

The consequences of this decision cannot be overstated. Faced with a complex and unfamiliar subject matter, the Maine government’s organization in charge of animal welfare—the AWP—unilaterally and without any input or consideration beyond a single telephone conversation with the aquaculture industry and review of a blank form, accepted the industry’s low standards as the state’s BMPs, standards that will ultimately dictate how countless animals will be treated, handled, and killed in aquaculture facilities across the state.

At Cooke Aquaculture, a single tank often held more than 100,000 fish. Across Maine, there are millions of fish in hundreds of aquaculture facilities. Each fish is a living, sentient being capable of experiencing fear and pain, and yet, with a self-avowed lack of experience, minimal deliberation, and complete deference to the private aquaculture industry, the AWP established unacceptably weak animal welfare standards for every single one of these animals.

The GAA certification program adopted by the DACF has been roundly criticized for lenient standards that allow cruel practices. For example, a 2020 study of aquaculture certification schemes⁹⁸ by Compassion in World Farming found the GAA standards deficient in a number of critical animal welfare areas, including:

Aquaculture, Complaint #20687, p. 2.

⁹⁶ *Ibid.*

⁹⁷ *Ibid.*

⁹⁸ *Fish Certification Schemes*, COMPASSION IN WORLD FARMING, <https://www.ciwf.org.uk/our-campaigns/rethink-fish/fish-certification-schemes/> (last visited Mar. 14, 2021).

- Failure to “enforce a maximum number of fish per square meter for any species other than Atlantic Salmon – and even this number is far higher than what (is recommended) for good welfare”;
- Allowing farms to “use a constant stream of antibiotics as a preventative measure for disease with vet oversight, which increases the chance of antibiotic resistance in humans”;
- Failing to limit how long a fish can be deprived of food, allowing farmers to starve fish for days or weeks, a practice witnessed during Animal Outlook’s investigation that resulted in fish pecking out the pupils of other fish in search of food;⁹⁹
- Failing to require enrichment for farmed fish, “resulting in barren farm environments (that) limit the expression of natural behaviors” and “negative impacts on the physical and mental health of the fish, with many experiencing inescapable and debilitating boredom”; and
- Failing to specify the methods of stunning and killing that should be used for each species, meaning that “countless fish could endure painful deaths . . . that can last over an hour” due to unique physiological characteristics.

The DACF has been tasked with developing robust, meaningful BMPs that would alleviate significant suffering among the millions of fish confined to Maine’s aquaculture facilities. The DACF need not—and should not—defer to the aquaculture industry’s anemic and toothless standards. The agency “may adopt any rules necessary or useful to carry out” Maine’s animal cruelty laws.¹⁰⁰ In fact, Maine law encourages the DACF commissioner to personally acquaint himself or herself with the animal welfare practices and not simply defer to the industry. The law states that the commissioner “shall by personal observation, investigation and correspondence acquaint himself with the methods and wants of practical husbandry.”¹⁰¹

At least one other state has established robust aquaculture BMPs without arbitrary deference to the aquaculture industry, and Maine should follow suit. Florida, one of the leaders in

⁹⁹ See *Aquaculture: A Sea of Suffering*, ANIMAL OUTLOOK, <https://animaloutlook.org/investigations/aquaculture/> (last visited Mar. 14, 2021).

¹⁰⁰ 7 M.R.S. § 4017.

¹⁰¹ 7 M.R.S. § 2.

domestic aquaculture, has created aquaculture BMPs through rulemaking¹⁰² that are “specifically for Florida aquaculture.”¹⁰³ These BMPs explicitly prioritize animal welfare, stating:

Successful aquatic animal husbandry demands that animals be held in optimal environments and fed a high quality diet. Aquatic animals intended for human consumption shall be quickly prepared for rapid processing. Euthanasia, slaughter, or depopulation shall be performed quickly and in a manner to limit the stress to the animal. Aquatic animals reared for stocking in public waters shall be transported under optimal environmental conditions.¹⁰⁴

Pursuant to the state’s emphasis on animal welfare, the BMPs specify other rules and practices focused on animal welfare, including euthanasia, cruelty, shipment, transportation, and the use of chemicals and drugs.¹⁰⁵

The DACF’s deference to the GAA for establishing animal welfare standards is doubly concerning given the GAA’s failure to enforce these low standards, a fact that suggests the entire certification program is more focused on consumer perception than actually improving the operation of aquaculture facilities. While the GAA purportedly strives to ensure animal welfare, food safety, fair labor practices, and environmental sustainability through its BMPs, it has repeatedly failed. In fact, Cooke Aquaculture was a GAA-certified facility at the time of Animal Outlook’s investigation. Yet despite the evidence Animal Outlook captured, the GAA conducted an audit afterward and allowed Cooke to retain its certification—essentially dismissing the hours of cruelty and neglect *documented on video* and concluding instead that it “accepted the corrective actions that Cooke Aquaculture enacted.”¹⁰⁶ When asked why GAA audits failed to detect

¹⁰² Rule 5L-3.004 - Aquaculture Best Management Practices Manual, FLORIDA DEP’T OF AGRIC. AND CONSUMER SERV., Rule <https://www.flrules.org/gateway/ruleNo.asp?id=5L-3.004> (last visited Mar. 24, 2021) (“Latest version of the final adopted rule presented in Florida Administrative Code.”)

¹⁰³ *Aquaculture Best Management Practices, 2016*, FLORIDA DEP’T OF AGRIC. AND CONSUMER SERV., https://www.fdacs.gov/content/download/64045/file/BMP_Rule_and_Manual_FINAL.pdf (last visited Mar. 14, 2021).

¹⁰⁴ *Ibid.*

¹⁰⁵ *Ibid.*

¹⁰⁶ C. White, *Maine, GAA conclude audits into Cooke’s Bingham facility accused by vegan activist group of cruelty*

conditions exposed and recorded by Animal Outlook, GAA said that it was “not in a position to comment”¹⁰⁷ and provided no further explanation for its program’s failure.

Cooke Aquaculture is not the only example where GAA failed to enforce its own standards. In 2013, a GAA-certified seafood facility was found responsible for instances of labor abuse. This behavior fell out of line with both GAA’s BAPs as well as labor laws.¹⁰⁸ Yet despite noncompliance with BAPs, the facility did not lose GAA certification as an audit conducted well after the violations occurred concluded that there was “no evidence . . . substantiating the severe allegations.”¹⁰⁹

Both in Maine and beyond, the GAA certification program and its low standards have proven incapable of preventing violations, including cruelty to and neglect of fish confined to aquaculture facilities. The DACF is fully authorized to pass aquaculture BMPs through rulemaking. Florida, a leader in the aquaculture industry has done just that and has chosen to prioritize the welfare of fish in aquaculture facilities. Maine, with its burgeoning aquaculture industry, should follow suit and initiate the development of aquaculture BMPs through rulemaking versus simply deferring to the aquaculture industry.

to animals, SEAFOOD SOURCE, (Nov. 22, 2019), <https://www.seafoodsource.com/news/aquaculture/maine-gaa-conclude-audits-into-cooke-s-bingham-facility-accused-by-vegan-activist-group-of-cruelty-to-animals> (last visited Mar. 12, 2021).

¹⁰⁷ P. Withers, *N.B. seafood giant won’t be disciplined after animal cruelty investigation*, CBC, (Dec. 11, 2019), <https://www.cbc.ca/news/canada/nova-scotia/cooke-aquaculture-hidden-camera-maine-agriculture-department-investigation-1.5392581> (last visited Mar. 12, 2021).

¹⁰⁸ *GAA Responds to Labor Abuse Accusations at Thai Facility*, GLOBAL AQUACULTURE ALLIANCE, (June 2013), <https://www.aquaculturealliance.org/blog/gaa-responds-to-labor-abuse-accusations-at-thai-facility/> (last visited Mar. 24, 2021).

¹⁰⁹ *GAA Takes Action Following Labor Allegations at Narong Seafood*, GLOBAL AQUACULTURE ALLIANCE ((July 2013), <https://www.aquaculturealliance.org/blog/gaa-takes-action-following-labor-allegations-at-narong-seafood/> (last visited Mar. 24, 2021).

VI. CONCLUSION

Maine law plainly designates the DACF as the agency accountable for ensuring the humane and proper treatment of animals across the state. This responsibility unquestionably includes fish used in aquaculture facilities. Science has demonstrated that these animals are conscious, sentient beings capable of pain and suffering and worthy of protection. Yet, while the Maine aquaculture industry booms, the millions of fish languishing in aquaculture facilities across the state have essentially no protections from cruelty and neglect.

The DACF has openly abdicated its responsibility for oversight of these animals' welfare and, in doing so, has allowed the private aquaculture industry to establish its own self-serving standards for how fish may be treated in Maine. The DACF must remedy this troubling gap in Maine's regulatory scheme. Pursuant to this petition, the DACF should initiate rulemaking proceedings to (1) formally acknowledge its oversight of the welfare of fish in state aquaculture facilities, and (2) adopt meaningful BMPs to ensure their protection.

VII. APPENDIX

1. Verified and certified signatures of registered voters
2. Oath of petition circulator
3. Materials circulated during petition drive
4. Animal Outlook's Summary of Findings from Undercover Investigation of Cooke Aquaculture (June 12, 2019)
5. Letter from Becca Franks, Ph.D., Visiting Assistant Professor, Department of Environmental Studies, New York University to Mike Wolf, former Director of Investigations, Animal Outlook regarding Cooke Aquaculture Investigation (June 6, 2019)
6. Animal Outlook's Cooke Aquaculture Animal Cruelty Documentation and Legal Evaluation (June 12, 2019)
7. Department of Agriculture, Conservation, and Forestry's Animal Welfare Program Final Investigative Report on Cooke Aquaculture – Complaint #20687
8. Freedom of Access Act request from Will Lowrey, Legal Counsel, Animal Outlook to Shannon Ayotte, Secretary Specialist, Department of Agriculture, Conservation, and Forestry (March 5, 2021)
9. Email from Shannon Ayotte, Secretary Specialist, Department of Agriculture, Conservation, and Forestry to Will Lowrey, Legal Counsel, Animal Outlook (March 8, 2021) responding to Freedom of Access Act request
10. Florida Department of Agriculture and Consumer Services, Aquaculture Best Management Practices Manual (November 2016)

APPENDIX 1-2

STATE OF MAINE PETITION TO REQUIRE AGENCY RULEMAKING

INSTRUCTIONS FOR CIRCULATION

PETITIONER - MUST:

- BE A MAINE REGISTERED VOTER
- SIGN NAME AS IT APPEARS ON THE VOTING LIST
- SIGN ONLY ONCE
- NOT SIGN ANOTHER'S NAME
- PRINT NAME, DATE OF SIGNING, STREET ADDRESS & MUNICIPALITY OF RESIDENCE (UNLESS PRINTED BY CIRCULATOR)

PETITION CIRCULATOR - MUST:

- BE A MAINE RESIDENT & REGISTERED VOTER
- COMPLETE THE CIRCULATOR'S VERIFICATION
- TAKE THE OATH BEFORE A NOTARY PUBLIC
- NOT COLLECT SIGNATURES AFTER TAKING OATH

REGISTRAR - MUST:

- COMPLETE AND SIGN THE CERTIFICATION BY INDICATING WHICH NAMES ON THE PETITION APPEAR ON THAT MUNICIPALITY'S VOTING LIST
- NOTE: IF THE SIGNATURE ALONE SUFFICIENTLY IDENTIFIES THE VOTER, IT SHOULD BE ACCEPTED

WARNING:

MAKING A FALSE STATEMENT BY THE CIRCULATOR, SIGNING A PETITION WITH THE NAME OF ANOTHER, OR SIGNING A NAME MORE THAN ONCE ON THESE PETITIONS IS A CLASS E CRIME.

CERTIFICATION CODES & COMMON REASONS FOR REJECTION

4 PETITIONER IS A REGISTERED VOTER

INDIVIDUAL SIGNATURES MAY BE REJECTED IF:

- NR PETITIONER IS NOT A REGISTERED VOTER
- DUP PETITIONER PREVIOUSLY SIGNED THE PETITION (DUPLICATE NAME)
- DATE PETITIONER SIGNED AFTER THE DATE OF CIRCULATOR'S VERIFICATION

AND PETITIONER SIGNED THE NAME OF ANOTHER
SG PETITIONER DID NOT SIGN THE PETITION (PRINTED NAME ONLY)

ENTIRE PETITIONS MAY BE REJECTED IF:

- CERT THE REGISTRAR'S CERTIFICATION IS NOT COMPLETED OR NOT SIGNED
- ALT INDIVIDUALS ALTER THE REGISTRAR'S CERTIFICATION
- OATH CIRCULATOR'S VERIFICATION IS NOT COMPLETED OR NOT SIGNED
- OATH CIRCULATOR DID NOT TAKE OATH BEFORE VALID NOTARY PUBLIC
- OATH THE NOTARY DID NOT COMPLETE OR SIGN THE NOTARIZATION

OR: THE NOTARY IS AN IMMEDIATE FAMILY MEMBER OF CIRCULATOR

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
1. ✓	<i>[Signature]</i>	4/25/22	90 Crown Ave, Portland ME 04103	Portland	Carly Cosgrove
2. ✓	<i>[Signature]</i>	4/27/22	15 Moore St #404, Portland, ME 04101	Portland	Arietta M Bell
3. ✓	<i>[Signature]</i>	5/16/22	83 MacKintosh St Portland ME 04103	Portland	Karen Murphy
4. ✓	<i>[Signature]</i>	5/16/22	115 Read St. Barbora	Portland	Sara Cressedy
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					

PLEASE SEE REVERSE FOR ADDITIONAL SIGNATURES, CIRCULATOR'S OATH AND REGISTRAR'S CERTIFICATION

STATE OF MAINE

PETITION TO REQUIRE AGENCY RULEMAKING

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					

CIRCULATOR'S OATH

I hereby make oath that I am the Circulator of this petition, that all the signatures to this petition were made in my presence and, to the best of my knowledge and belief, each signature is that of the person it purports to be.

Signature of Circulator Alison Briggs Printed Name Alison Briggs

Signature of Notary Jessica C. Lovitz Printed Name Jessica C. Lovitz

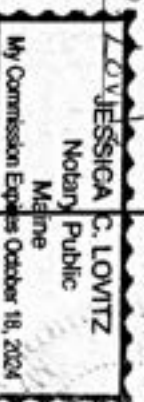
Subscribed to and sworn before me on this date: May 19, 2022
Date must be completed by Notary

REGISTRAR'S CERTIFICATION

Municipality Portland TOTAL VALID 4 TOTAL INVALID 0

I hereby certify that the names of all the petitioners listed as valid appear on the voting list as qualified to vote for Governor.

Signature of Registrar: Peter M. Mallett Date: MAY 28 2022



STATE OF MAINE

PETITION TO REQUIRE AGENCY RULEMAKING

INSTRUCTIONS FOR CIRCULATION

PETITIONER - *MUST*:

- BE A MAINE REGISTERED VOTER
- SIGN NAME AS IT APPEARS ON THE VOTING LIST
- SIGN ONLY ONCE
- NOT SIGN ANOTHER'S NAME
- PRINT NAME, DATE OF SIGNING, STREET ADDRESS & MUNICIPALITY OF RESIDENCE (UNLESS PRINTED BY CIRCULATOR)

REGISTRAR - *MUST*:

- COMPLETE AND SIGN THE CERTIFICATION BY INDICATING WHICH NAMES ON THE PETITION APPEAR ON THAT MUNICIPALITY'S VOTING LIST
- NOTE: IF THE SIGNATURE ALONE SUFFICIENTLY IDENTIFIES THE VOTER, IT SHOULD BE ACCEPTED

WARNING:

MAKING A FALSE STATEMENT BY THE CIRCULATOR, SIGNING A PETITION WITH THE NAME OF ANOTHER, OR SIGNING A NAME MORE THAN ONCE ON THESE PETITIONS IS A CLASS E CRIME.

CERTIFICATION CODES & COMMON REASONS FOR REJECTION

4 PETITIONER IS A REGISTERED VOTER

INDIVIDUAL SIGNATURES MAY BE REJECTED IF:

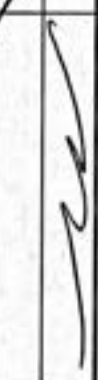
- NR PETITIONER IS NOT A REGISTERED VOTER
- DUP PETITIONER PREVIOUSLY SIGNED THE PETITION (DUPLICATE NAME)
- DATE PETITIONER SIGNED AFTER THE DATE OF CIRCULATOR'S VERIFICATION

AND PETITIONER SIGNED THE NAME OF ANOTHER
AND PETITIONER DID NOT SIGN THE PETITION (PRINTED NAME ONLY)

ENTIRE PETITIONS MAY BE REJECTED IF:

- CERT THE REGISTRAR'S CERTIFICATION IS NOT COMPLETED OR NOT SIGNED
- ALT INDIVIDUALS ALTER THE REGISTRAR'S CERTIFICATION
- OATH CIRCULATOR'S VERIFICATION IS NOT COMPLETED OR NOT SIGNED
- OATH CIRCULATOR DID NOT TAKE OATH BEFORE VALID NOTARY PUBLIC
- OATH THE NOTARY DID NOT COMPLETE OR SIGN THE NOTARIZATION
- CHRG THE NOTARY IS AN INADEQUATE, EXAMINABLE, VERIFIED CIRCULATOR

- BE A MAINE RESIDENT & REGISTERED VOTER
- COMPLETE THE CIRCULATOR'S VERIFICATION
- TAKE THE OATH BEFORE A NOTARY PUBLIC
- NOT COLLECT SIGNATURES AFTER TAKING OATH

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
1. <input checked="" type="checkbox"/>		5/16/22	299 Faith Hill Rd	Cowham	Molly Butler Bailey
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					

PLEASE SEE REVERSE FOR ADDITIONAL SIGNATURES, CIRCULATOR'S OATH AND REGISTRAR'S CERTIFICATION

STATE OF MAINE
PETITION TO REQUIRE AGENCY RULEMAKING

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					

CIRCULATOR'S OATH

I hereby make oath that I am the Circulator of this petition, that all the signatures to this petition were made in my presence and, to the best of my knowledge and belief, each signature is that of the person it purports to be.

Signature of Circulator Allyson Briggs Printed Name Allyson Briggs

Signature of Notary Jessica C. Lovitz Printed Name Jessica C. Lovitz

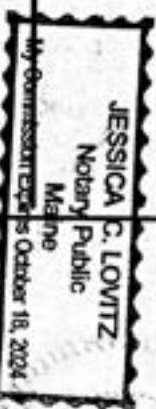
Subscribed to and sworn before me on this date: May 19, 2022
Date must be completed by Notary

REGISTRAR'S CERTIFICATION

Municipality Gorham TOTAL VALID 1 TOTAL INVALID 0

I hereby certify that the names of all the petitioners listed as valid appear on the voting list as qualified to vote for Governor.

Signature of Registrar Samuel Date: 5/23/22



STATE OF MAINE PETITION TO REQUIRE AGENCY RULEMAKING

INSTRUCTIONS FOR CIRCULATION

PETITIONER - MUST:

- BE A MAINE REGISTERED VOTER
- SIGN NAME AS IT APPEARS ON THE VOTING LIST
- SIGN ONLY ONCE
- NOT SIGN ANOTHER'S NAME
- PRINT NAME, DATE OF SIGNING, STREET ADDRESS*
- MUNICIPALITY OF RESIDENCE (UNLESS PRINTED BY CIRCULATOR)

PETITION CIRCULATOR - MUST:

- BE A MAINE RESIDENT & REGISTERED VOTER
- COMPLETE THE CIRCULATOR'S VERIFICATION
- TAKE THE OATH BEFORE A NOTARY PUBLIC
- NOT COLLECT SIGNATURES AFTER TAKING OATH

REGISTRAR - MUST:

- COMPLETE AND SIGN THE CERTIFICATION BY INDICATING WHICH NAMES ON THE PETITION APPEAR ON THAT MUNICIPALITY'S VOTING LIST
- NOTE: IF THE SIGNATURE ALONE SUFFICIENTLY IDENTIFIES THE VOTER, IT SHOULD BE ACCEPTED

WARNING:

MAKING A FALSE STATEMENT BY THE CIRCULATOR, SIGNING A PETITION WITH THE NAME OF ANOTHER, OR SIGNING A NAME MORE THAN ONCE ON THESE PETITIONS IS A CLASS E CRIME.

CERTIFICATION CODES & COMMON REASONS FOR REJECTION

4 PETITIONER IS A REGISTERED VOTER

INDIVIDUAL SIGNATURES MAY BE REJECTED IF:

- NR PETITIONER IS NOT A REGISTERED VOTER
- DUP PETITIONER PREVIOUSLY SIGNED THE PETITION (DUPLICATE NAME)
- DATE PETITIONER SIGNED AFTER THE DATE OF CIRCULATOR'S VERIFICATION

AND PETITIONER SIGNED THE NAME OF ANOTHER
SIC PETITIONER DID NOT SIGN THE PETITION (PRINTED NAME ONLY)

ENTIRE PETITIONS MAY BE REJECTED IF:

- CERT THE REGISTRAR'S CERTIFICATION IS NOT COMPLETED OR NOT SIGNED
- ALT INDIVIDUALS ALTER THE REGISTRAR'S CERTIFICATION
- OATH CIRCULATOR'S VERIFICATION IS NOT COMPLETED OR NOT SIGNED
- OATH CIRCULATOR DID NOT TAKE OATH BEFORE VALID NOTARY PUBLIC
- OATH THE NOTARY DID NOT COMPLETE OR SIGN THE NOTARIZATION
- OATH THE NOTARY IS AN IMMEDIATE FAMILY MEMBER OF CIRCULATOR

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
1. ✓	<i>[Signature]</i>	5/5/22	106 Granite St. Biddeford, ME 04005	Biddeford	Trisha Trepanier
2. ✓	<i>[Signature]</i>	5/5/22	106 Granite St. Biddeford	Biddeford	Nicholas Desmarais
3.					
4.					
5.					
6.					
7.					
8.					
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10.					
11.					
12.					
13.					
14.					
15.					

PLEASE SEE REVERSE FOR ADDITIONAL SIGNATURES, CIRCULATOR'S OATH AND REGISTRAR'S CERTIFICATION

STATE OF MAINE
PETITION TO REQUIRE AGENCY RULEMAKING

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					

CIRCULATOR'S OATH

I hereby make oath that I am the Circulator of this petition, that all the signatures to this petition were made in my presence and, to the best of my knowledge and belief, each signature is that of the person it purports to be.

Signature of Circulator Alexis Briggs Printed Name Alexis Briggs

Signature of Notary Jessica C. Lovitz Printed Name Jessica C. Lovitz

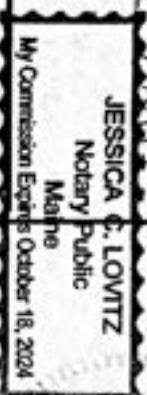
Subscribed to and sworn before me on this date: May 19, 2022
Date must be completed by Notary

REGISTRAR'S CERTIFICATION

Municipality Baldwin TOTAL VALID two TOTAL INVALID zero

I hereby certify that the names of all the petitioners listed as valid appear on the voting list as qualified to vote for Governor.

Signature of Registrar: Lorray Belvin Date: 5/23/2022



STATE OF MAINE PETITION TO REQUIRE AGENCY RULEMAKING

INSTRUCTIONS FOR CIRCULATION

PETITIONER - AGENT

- BE A MAINE REGISTERED VOTER
- SIGN NAME AS IT APPEARS ON THE VOTING LIST
- SIGN ONLY ONCE
- **NOT** SIGN ANOTHER'S NAME
- PRINT NAME, DATE OF SIGNING, STREET ADDRESS & MUNICIPALITY OF RESIDENCE (LINESS PRINTED BY CIRCULATOR)

PETITION CIRCULATOR - AGENT

- BE A MAINE RESIDENT & REGISTERED VOTER
- COMPLETE THE CIRCULATOR'S VERIFICATION
- TAKE THE OATH BEFORE A NOTARY PUBLIC
- **NOT** COLLECT SIGNATURES AFTER TAKING OATH

REGISTRAR - AGENT

- COMPLETE AND SIGN THE CERTIFICATION BY INDICATING WHICH NAMES ON THE PETITION APPEAR ON THAT MUNICIPALITY'S VOTING LIST
- NOTE: IF THE SIGNATURE ALONE SUFFICIENTLY IDENTIFIES THE VOTER, IT SHOULD BE ACCEPTED


WARNING: MAKING A FALSE STATEMENT BY THE CIRCULATOR, SIGNING A PETITION WITH THE NAME OF ANOTHER, OR SIGNING A NAME MORE THAN ONCE ON THESE PETITIONS IS A CLASS C CRIME.

CERTIFICATION CODES & COMMON REASONS FOR REJECTION

4 PETITIONER IS A REGISTERED VOTER

INDIVIDUAL SIGNATURES MAY BE REJECTED IF:

- **NR** PETITIONER IS NOT A REGISTERED VOTER
- **DRP** PETITIONER PREVIOUSLY SIGNED THE PETITION (DUPLICATE NAME)
- **DATE** PETITIONER SIGNED AFTER THE DATE OF CIRCULATOR'S VERIFICATION
- **AND** PETITIONER SIGNED THE NAME OF ANOTHER
- **NO** PETITIONER DID NOT SIGN THE PETITION (PRINTED NAME ONLY)
- **ENTIRE PETITIONS MAY BE REJECTED IF:**
- **CRF** THE REGISTRAR'S CERTIFICATION IS NOT COMPLETED OR NOT SIGNED
- **ALT** INDIVIDUALS AFTER THE REGISTRAR'S CERTIFICATION
- **DATE** CIRCULATOR'S VERIFICATION IS NOT COMPLETED OR NOT SIGNED
- **DATE** CIRCULATOR DID NOT TAKE OATH BEFORE VALID NOTARY PUBLIC
- **DATE** THE NOTARY DID NOT COMPLETE OR SIGN THE NOTARIZATION

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
1.		13 August 2021	1300 Belfast Rd.	Knox	Eleanor F. Weisman
2.					Jay M. Haves
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					

PLEASE SEE REVERSE FOR ADDITIONAL SIGNATURES, CIRCULATOR'S OATH AND REGISTRAR'S CERTIFICATION

STATE OF MAINE
PETITION TO REQUIRE AGENCY RULEMAKING

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					

CIRCULATOR'S OATH

I hereby make oath that I am the Circulator of this petition, that all the signatures to this petition were made in my presence and, to the best of my knowledge and belief, each signature is that of the person it purports to be.

Signature of Circulator *Alyson Briggs* Printed Name *Alyson Briggs*

Signature of Notary *Jessica C. Lovitz* Printed Name *Jessica C. Lovitz*

Subscribed to and sworn before me on this date: *May 19, 2022*

Date must be completed by Notary

REGISTRAR'S CERTIFICATION

Municipality *Knox* TOTAL VALID *2* TOTAL INVALID *0*

I hereby certify that the names of all the petitioners listed as valid appear on the voting list as qualified to vote for Governor.

Signature of Registrar *Joni-Anne Spaulding* Date *3/3/22*



STATE OF MAINE PETITION TO REQUIRE AGENCY RULEMAKING






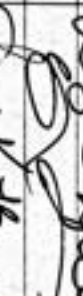
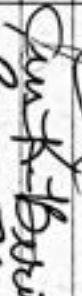


INSTRUCTIONS FOR CIRCULATION

PETITIONER *MC N*
BE A MAINE REGISTERED VOTER
SIGN NAME AS IT APPEARS ON THE VOTING LIST
SIGN ONLY ONCE
NOT SIGN ANOTHER'S NAME
PRINT NAME, DATE OF SIGNING, STREET ADDRESS
& MUNICIPALITY OF RESIDENCE (UNLESS PRINTED BY CIRCULATOR)
PETITION CIRCULATOR *MUST*
BE A MAINE RESIDENT & REGISTERED VOTER
COMPLETE THE CIRCULATOR'S VERIFICATION
TAKE THE OATH BEFORE A NOTARY PUBLIC
NOT COLLECT SIGNATURES AFTER TAKING OATH

REGISTRAR *MC N*
COMPLETE AND SIGN THE CERTIFICATION BY
INDICATING WHICH NAMES ON THE PETITION
APPEAR ON THE MUNICIPALITY'S VOTING LIST
NOTE: IF THE SIGNATURE ALONE, SUFFICIENTLY
IDENTIFIES THE VOTER, IT SHOULD BE ACCEPTED
WARNING: MAKING A FALSE
STATEMENT BY THE CIRCULATOR,
SIGNING A PETITION WITH THE
NAME OF ANOTHER, OR SIGNING A
NAME MORE THAN ONCE ON THESE
PETITIONS IS A CLASS C CRIME.

CERTIFICATION CODES & COMMON REASONS FOR REJECTION

4 PETITIONER IS A REGISTERED VOTER
INDIVIDUAL SIGNATURES MAY BE REJECTED IF:
NR PETITIONER IS NOT A REGISTERED VOTER
PR PETITIONER PREVIOUSLY SIGNED THE PETITION (DATE, NAME)
DATE PETITIONER SIGNED AFTER THE DATE OF CIRCULATOR'S
VERIFICATION
AND PETITIONER SIGNED THE NAME OF ANOTHER
SG PETITIONER DID NOT SIGN THE PETITION (PRINTED NAME ONLY)
ENTIRE PETITIONS MAY BE REJECTED IF:
CERT THE REGISTRAR'S CERTIFICATION IS NOT COMPLETED OR NOT SIGNED
ALL INDIVIDUALS ALTER THE REGISTRAR'S CERTIFICATION
DATE THE CIRCULATOR'S VERIFICATION IS NOT COMPLETED OR NOT SIGNED
DATE CIRCULATOR DID NOT TAKE OATH BEFORE VALID NOTARY PUBLIC
DATE THE NOTARY DID NOT COMPLETE OR SIGN THE NOTARIZATION
OTHER THE REGISTRAR IS AN INADMISSIBLE CANDIDATE FOR OFFICE

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
1. ✓		09/15/2021	132 BRADLEY ST	PORTLAND	HENRY D. CHACKEL
2. ✓		09/13/2021	667 CONGRESS ST 504	Portland	XARA SOUWE
3. ✓		09/13/2021	11 Boynton St	Portland	CORY LINBERGER
4. ✓		09/13/2021	45 Sauve St, Unit 1	Portland	MIKALA BOLMER
5. ✓		09/13/21	39 CONGRESS ST. APT. 3	Portland	CECANNU TALADE
6. ✓		09/13/21	18 Springbrook way	Portland	SALWA HASSAN
7. ✓		09/19/21	87 STATE ST. Unit #1	Portland	SUSAN BERNAT
8. ✓		10/13/21	75 Granite St. Unit #1	Portland	MATTHEW COX
9. NR		10/13/21	122 Starbird Rd	Portland	MICHAEL H. SCHULTE
10.					
11.					
12.					
13.					
14.					
15.					

PLEASE SEE REVERSE FOR ADDITIONAL SIGNATURES, CIRCULATOR'S OATH AND REGISTRAR'S CERTIFICATION

STATE OF MAINE

PETITION TO REQUIRE AGENCY RULEMAKING

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
16.					
17.					
18.			10101 Mt Sterling Rd	Portland	Walter W. Goffe
19.			10135 32 George St. Unit 41	Portland	Metropen Co
20.					
21.					
22.					
23.					
24.					
25.					

CIRCULATOR'S OATH

I hereby make oath that I am the Circulator of this petition, that all the signatures to this petition were made in my presence and, to the best of my knowledge and belief, each signature is that of the person it purports to be.

Signature of Circulator

Alison Briggs

Printed Name

Alison Briggs

Signature of Notary

Jessica C. Lovitz

Printed Name

Jessica C. Lovitz

Subscribed to and sworn before me on this date

May 19, 2002

Date made be completed by Notary

REGISTRAR'S CERTIFICATION

Municipality

Portland

TOTAL VALID

8

TOTAL INVALID

1

I hereby certify that the names of all the petitioners listed as valid appear on the voting list as qualified to vote for Governor.

Signature of Registrar:

Wendy King

Date:

02/24/2002



STATE OF MAINE

PETITION TO REQUIRE AGENCY RULEMAKING

INSTRUCTIONS FOR CIRCULATION

PETITIONER - MUST:

- BE A MAINE REGISTERED VOTER
- SIGN NAME AS IT APPEARS ON THE VOTING LIST
- SIGN ONLY ONCE
- NOT SIGN ANOTHER'S NAME
- PRINT NAME, DATE OF SIGNING, STREET ADDRESS & MUNICIPALITY OF RESIDENCE (UNLESS PRINTED BY CIRCULATOR)

PETITION CIRCULATOR - MUST:

- BE A MAINE RESIDENT & REGISTERED VOTER
- COMPLETE THE CIRCULATOR'S VERIFICATION
- TAKE THE OATH BEFORE A NOTARY PUBLIC
- NOT COLLECT SIGNATURES AFTER TAKING OATH

REGISTRAR - MUST:

- COMPLETE AND SIGN THE CERTIFICATION BY INDICATING WHICH NAMES ON THE PETITION APPEAR ON THAT MUNICIPALITY'S VOTING LIST
- NOTE: IF THE SIGNATURE ALONE SUFFICIENTLY IDENTIFIES THE VOTER, IT SHOULD BE ACCEPTED

WARNING: MAKING A FALSE STATEMENT BY THE CIRCULATOR, SIGNING A PETITION WITH THE NAME OF ANOTHER, OR SIGNING A NAME MORE THAN ONCE ON THESE PETITIONS IS A CLASS E CRIME.

CERTIFICATION CODES & COMMON REASONS FOR REJECTION

4 PETITIONER IS A REGISTERED VOTER

INDIVIDUAL SIGNATURES MAY BE REJECTED IF:

- NR PETITIONER IS NOT A REGISTERED VOTER
- DUP PETITIONER PREVIOUSLY SIGNED THE PETITION (DUPLICATE NAME)
- DATE PETITIONER SIGNED AFTER THE DATE OF CIRCULATOR'S VERIFICATION
- AND PETITIONER SIGNED THE NAME OF ANOTHER
- SIG PETITIONER DID NOT SIGN THE PETITION (PRINTED NAME ONLY)

ENTIRE PETITIONS MAY BE REJECTED IF:

- CERT - THE REGISTRAR'S CERTIFICATION IS NOT COMPLETED OR NOT SIGNED
- ALT - INDIVIDUALS ALTER THE REGISTRAR'S CERTIFICATION
- GATH - CIRCULATOR'S VERIFICATION IS NOT COMPLETED OR NOT SIGNED
- OATH - CIRCULATOR DID NOT TAKE OATH BEFORE VALID NOTARY PUBLIC
- DATE - THE NOTARY DID NOT COMPLETE OR SIGN THE NOTARIZATION
- AND - THE NOTARY IS AN UNLICENSED CLERK, A MEMBER OF CIRCULATOR

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
1. ✓	Annabelle Hayes	8-12-21	45 Bay Haven RD	York	Annabelle Hayes
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
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13.					
14.					
15.					

PLEASE SEE REVERSE FOR ADDITIONAL SIGNATURES, CIRCULATOR'S OATH AND REGISTRAR'S CERTIFICATION

STATE OF MAINE

PETITION TO REQUIRE AGENCY RULEMAKING

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					

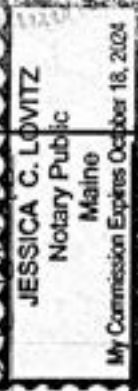
CIRCULATOR'S OATH

I hereby make oath that I am the Circulator of this petition, that all the signatures to this petition were made in my presence and, to the best of my knowledge and belief, each signature is that of the person it purports to be.

Signature of Circulator Allyson Briggs Printed Name Allyson Briggs

Signature of Notary Jessica C. Lovitz Printed Name Jessica C. Lovitz

Subscribed to and sworn before me on this date: May 19, 2022
Date must be completed by Notary



REGISTRAR'S CERTIFICATION

Municipality York TOTAL VALID 1 TOTAL INVALID 0

I hereby certify that the names of all the petitioners listed as valid appear on the voting list as qualified to vote for Governor.

Signature of Registrar: Deborah Lynne E. Brock Date: 07/25/22

STATE OF MAINE PETITION TO REQUIRE AGENCY RULEMAKING

INSTRUCTIONS FOR CIRCULATION

PETITIONER *ME/S/*

BE A MAINE REGISTERED VOTER
SIGN NAME AS IT APPEARS ON THE VOTING LIST
SIGN ONLY ONCE
NOT SIGN ANOTHER'S NAME
PRINT NAME, DATE OF SIGNING, STREET ADDRESS,
& MUNICIPALITY OR RESIDENT ADDRESS PRINTED
BY CIRCULATOR

REGISTRAR *ME/S/*

COMPLETED AND SIGN THE CIRCULATION BY
ENTERING WITH NAMES ON THE PETITION
APPEAR ON THAT MUNICIPALITY'S VOTING LIST
NOTE: IF THE SIGNATURE ALONE SUFFICIENTLY
IDENTIFIES THE VOTER, IT SHOULD BE ACCEPTED
WARNING: MAKING A FALSE
STATEMENT BY THE CIRCULATOR,
SIGNING A PETITION WITH THE
NAME OF ANOTHER, OR SIGNING A
NAME MORE THAN ONCE ON THESE
PETITIONS IS A CLASS C CRIME.

CERTIFICATION CODES & COMMON REASONS FOR REJECTION

4 THE PETITIONER IS A REGISTERED VOTER

INDIVIDUAL SIGNATURES MAY BE REJECTED IF:

OR PETITIONER IS NOT A REGISTERED VOTER

OR PETITIONER PREVIOUSLY SIGNED THE PETITION (DUPLICATE NAME)

OR PETITIONER SIGNED AFTER THE DATE OF CIRCULATOR'S

VERIFICATION

OR PETITIONER SIGNED THE NAME OF ANOTHER

OR PETITIONER DID NOT SIGN THE PETITION (PRINTED NAME ONLY)

ENTIRE PETITIONS MAY BE REJECTED IF:

OR THE REGISTRAR'S CIRCULATION IS NOT COMPLETED (OR NOT SIGNED)

OR INDIVIDUALS AT THE REGISTRAR'S CIRCULATION

OR CIRCULATOR'S VERIFICATION IS NOT COMPLETED (OR SIGNED)

OR CIRCULATOR DID NOT TAKE DATE BEFORE VALID NOTARY PUBLIC

OR THE NOTARY DID NOT COMPLETE OR SIGN THE NOTARIZATION

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
1. ✓	<i>Frankie Leubley</i>	11-07-2021	72 Summer St.	Hampden	<i>Frankie Leubley</i>
2. <i>NR</i>	<i>Ed Maden</i>	11-7-21	72 Summer St.	Hampden	<i>Ed Maden</i>
3. ✓	<i>Opportunity Camp</i>	11-7-21	1389 Kennebec Rd	Hampden	<i>Sennitt Camp</i>
4. ✓	<i>Ed Maden</i>	11-7-21	1389 Kennebec Rd	Hampden	<i>Steven Cousins</i>
5. ✓	<i>Kelsey Conley</i>	11/7/21	93 Highland Ridge Dr	Hampden	<i>Kelsey Conley</i>
6.					
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STATE OF MAINE PETITION TO REQUIRE AGENCY RULEMAKING

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					

CIRCULATOR'S OATH

I hereby make oath that I am the Circulator of this petition, that all the signatures to this petition were made in my presence and, to the best of my knowledge and belief, each signature is that of the person it purports to be.

Signature of Circulator

Allyn Briggs

Printed Name

Allyn Briggs

Signature of Notary

Jessica C. Lovitz

Printed Name

Jessica C. Lovitz

Subscribed to and sworn before me on this date

May 19, 2022

(Date must be completed by Notary)

REGISTRAR'S CERTIFICATION

Municipality

Hampden

TOTAL VALID

4

TOTAL INVALID

1

I hereby certify that the names of all the petitioners listed as valid appear on the voting list as qualified to vote for Governor.

Signature of Registrar

Jessica C. Lovitz

Date:

2-28-2022



STATE OF MAINE PETITION TO REQUIRE AGENCY RULEMAKING

INSTRUCTIONS FOR CIRCULATION

PETITIONER - MUST:

- BE A MAINE REGISTERED VOTER
- SIGN NAME AS IT APPEARS ON THE VOTING LIST
- SIGN ONLY ONCE
- NOT SIGN ANOTHER'S NAME
- PRINT NAME, DATE OF SIGNING, STREET ADDRESS & MUNICIPALITY OF RESIDENCE (UNLESS PRINTED BY CIRCULATOR)

PETITION CIRCULATOR - MUST:

- BE A MAINE RESIDENT & REGISTERED VOTER
- COMPLETE THE CIRCULATOR'S VERIFICATION
- TAKE THE OATH BEFORE A NOTARY PUBLIC
- NOT COLLECT SIGNATURES AFTER TAKING OATH

REGISTRAR - MUST:

- COMPLETE AND SIGN THE CERTIFICATION BY INDICATING WHICH NAMES ON THE PETITION APPEAR ON THAT MUNICIPALITY'S VOTING LIST
- NOTE: IF THE SIGNATURE ALONE SUFFICIENTLY IDENTIFIES THE VOTER, IT SHOULD BE ACCEPTED

MAKING A FALSE STATEMENT BY THE CIRCULATOR,

- SIGNING A PETITION WITH THE NAME OF ANOTHER, OR SIGNING A NAME MORE THAN ONCE ON THESE PETITIONS IS A CLASS E CRIME.

CERTIFICATION CODES & COMMON REASONS FOR REJECTION


4 PETITIONER IS A REGISTERED VOTER

INDIVIDUAL SIGNATURES MAY BE REJECTED IF:

- NR PETITIONER IS NOT A REGISTERED VOTER
- DUPLICATE NAME) PETITIONER PREVIOUSLY SIGNED THE PETITION (DUPLICATE NAME)
- DATE PETITIONER SIGNED AFTER THE DATE OF CIRCULATOR'S VERIFICATION
- AND PETITIONER SIGNED THE NAME OF ANOTHER
- SIG PETITIONER DID NOT SIGN THE PETITION (PRINTED NAME ONLY)

ENTIRE PETITIONS MAY BE REJECTED IF:

- CERT THE REGISTRAR'S CERTIFICATION IS NOT COMPLETED OR NOT SIGNED
- ALL INDIVIDUALS ALTER THE REGISTRAR'S CERTIFICATION
- OATH CIRCULATOR'S VERIFICATION IS NOT COMPLETED OR NOT SIGNED
- OATH CIRCULATOR DID NOT TAKE OATH BEFORE VALID NOTARY PUBLIC
- OATH THE NOTARY DID NOT COMPLETE OR SIGN THE NOTARIZATION
- ORAL THE NOTARY IS AN IMMEDIATE FAMILY MEMBER OF CIRCULATOR

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
1. <input checked="" type="checkbox"/>		8-12-21	2260 Major Rd	Appleton	Robert C. Harden
2.					
3.					
4.					
5.					
6.					
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PLEASE SEE REVERSE FOR ADDITIONAL SIGNATURES, CIRCULATOR'S OATH AND REGISTRAR'S CERTIFICATION

STATE OF MAINE

PETITION TO REQUIRE AGENCY RULEMAKING

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
16.					
17.					
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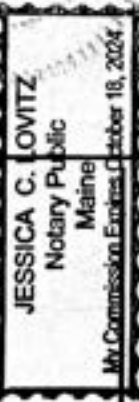
CIRCULATOR'S OATH

I hereby make oath that I am the Circulator of this petition, that all the signatures to this petition were made in my presence and, to the best of my knowledge and belief, each signature is that of the person it purports to be.

Signature of Circulator Walter Briggs Printed Name Walter Briggs

Signature of Notary Jessica C. Lovitz Printed Name Jessica C. Lovitz

Subscribed to and sworn before me on this date: May 19, 2022
Date must be completed by Notary



REGISTRAR'S CERTIFICATION

Municipality Appleton TOTAL VALID 1 TOTAL INVALID 0

I hereby certify that the names of all the petitioners listed as valid appear on the voting list as qualified to vote for Governor.

Signature of Registrar: Ante Wellman Date: 3/1/22

STATE OF MAINE

PETITION TO REQUIRE AGENCY RULEMAKING

INSTRUCTIONS FOR CIRCULATION

PETITIONER - MUST:

- BE A MAINE REGISTERED VOTER
- SIGN NAME AS IT APPEARS ON THE VOTING LIST
- SIGN ONLY ONCE
- NOT SIGN ANOTHER'S NAME
- PRINT NAME: DATE OF SIGNING: STREET ADDRESS & MUNICIPALITY OF RESIDENCE (UNLESS PRINTED BY CIRCULATOR)

REGISTRAR - MUST:

- COMPLETE AND SIGN THE CERTIFICATION BY INDICATING WHICH NAMES ON THE PETITION APPEAR ON THAT MUNICIPALITY'S VOTING LIST
- NOTE: IF THE SIGNATURE ALONE SUFFICIENTLY IDENTIFIES THE VOTER, IT SHOULD BE ACCEPTED

WARNING:

- MAKING A FALSE STATEMENT BY THE CIRCULATOR, SIGNING A PETITION WITH THE NAME OF ANOTHER, OR SIGNING A NAME MORE THAN ONCE ON THESE PETITIONS IS A CLASS E CRIME.

CERTIFICATION CODES & COMMON REASONS FOR REJECTION


4 PETITIONER IS A REGISTERED VOTER

INDIVIDUAL SIGNATURES MAY BE REJECTED IF:

- NR PETITIONER IS NOT A REGISTERED VOTER
- DUPLICATE PETITIONER PREVIOUSLY SIGNED THE PETITION (DUPLICATE NAME)
- DATE PETITIONER SIGNED AFTER THE DATE OF CIRCULATOR'S VERIFICATION
- AND PETITIONER SIGNED THE NAME OF ANOTHER
- SIC PETITIONER DID NOT SIGN THE PETITION (PRINTED NAME ONLY)
- ENTIRE PETITIONS MAY BE REJECTED IF:
- CERT THE REGISTRAR'S CERTIFICATION IS NOT COMPLETED OR NOT SIGNED
- ALL INDIVIDUALS ALTER THE REGISTRAR'S CERTIFICATION
- DATE CIRCULATOR'S VERIFICATION IS NOT COMPLETED OR NOT SIGNED
- DATE CIRCULATOR DID NOT TAKE OATH BEFORE VALID NOTARY PUBLIC
- OATH THE NOTARY DID NOT COMPLETE OR SIGN THE NOTARIZATION
- OR THE NOTARY IS AN IMMEDIATE FAMILY MEMBER OF CIRCULATOR

PETITION CIRCULATOR - MUST:

- BE A MAINE RESIDENT & REGISTERED VOTER
- COMPLETE THE CIRCULATOR'S VERIFICATION
- TAKE THE OATH BEFORE A NOTARY PUBLIC
- NOT COLLECT SIGNATURES AFTER TAKING OATH

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
1. <input checked="" type="checkbox"/>		6/23/21	5 Tremont St	South Portland	Jessica King
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
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14.					
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PLEASE SEE REVERSE FOR ADDITIONAL SIGNATURES, CIRCULATOR'S OATH AND REGISTRAR'S CERTIFICATION

STATE OF MAINE
PETITION TO REQUIRE AGENCY RULEMAKING

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					

CIRCULATOR'S OATH

I hereby make oath that I am the Circulator of this petition, that all the signatures to this petition were made in my presence and, to the best of my knowledge and belief, each signature is that of the person it purports to be.

Signature of Circulator Alison Briggs Printed Name Alison Briggs

Signature of Notary Jessica C. Lovitz Printed Name Jessica C. Lovitz

Subscribed to and sworn before me on this date: May 19, 2022

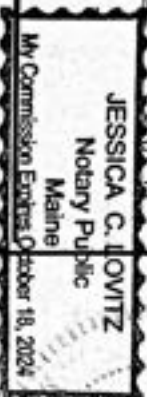
Date must be completed by Notary

REGISTRAR'S CERTIFICATION

Municipality South Portland TOTAL VALID 1 TOTAL INVALID 0

I hereby certify that the names of all the petitioners listed as valid appear on the voting list as qualified to vote for Governor.

Signature of Registrar: Angela Kelly Date: 3-1-2022



STATE OF MAINE PETITION TO REQUIRE AGENCY RULEMAKING

INSTRUCTIONS FOR CIRCULATION

PETITIONER - MUST:

- BE A MAINE REGISTERED VOTER
- SIGN NAME AS IT APPEARS ON THE VOTING LIST
- SIGN ONLY ONCE
- NOT SIGN ANOTHER'S NAME
- PRINT NAME, DATE OF SIGNING, STREET ADDRESS & MUNICIPALITY OF RESIDENCE (UNLESS PRINTED BY CIRCULATOR)

REGISTRAR - MUST:

- COMPLETE AND SIGN THE CERTIFICATION BY INDICATING WHICH NAMES ON THE PETITION APPEAR ON THAT MUNICIPALITY'S VOTING LIST
- NOTE: IF THE SIGNATURE ALONE SUFFICIENTLY IDENTIFIES THE VOTER, IT SHOULD BE ACCEPTED
- WARNING: MAKING A FALSE STATEMENT BY THE CIRCULATOR, SIGNING A PETITION WITH THE NAME OF ANOTHER, OR SIGNING A NAME MORE THAN ONCE ON THESE PETITIONS IS A CLASS E CRIME.

CERTIFICATION CODES & COMMON REASONS FOR REJECTION

4 PETITIONER IS A REGISTERED VOTER

INDIVIDUAL SIGNATURES MAY BE REJECTED IF:

- NR PETITIONER IS NOT A REGISTERED VOTER
- DUP PETITIONER PREVIOUSLY SIGNED THE PETITION (DUPLICATE NAME)
- DATE PETITIONER SIGNED AFTER THE DATE OF CIRCULATOR'S VERIFICATION
- AND PETITIONER SIGNED THE NAME OF ANOTHER
- SIG PETITIONER DID NOT SIGN THE PETITION (PRINTED NAME ONLY)
- ENTIRE PETITIONS MAY BE REJECTED IF:
- CERT THE REGISTRAR'S CERTIFICATION IS NOT COMPLETED OR NOT SIGNED
- ALL INDIVIDUALS ALTER THE REGISTRAR'S CERTIFICATION
- DATE CIRCULATOR'S VERIFICATION IS NOT COMPLETED OR NOT SIGNED
- DATE CIRCULATOR DID NOT TAKE OATH BEFORE VALID NOTARY PUBLIC
- DATE THE NOTARY DID NOT COMPLETE OR SIGN THE NOTARIZATION
- OR THE NOTARY IS AN INADMISSIBLE FAMILY MEMBER OF CIRCULATOR

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
1. ✓	<i>Patricia Frey-Davis</i>	6/12/21	4 Lilac St	Beth	Patricia Frey-Davis
2. ✓	<i>Matthew Frey-Davis</i>	6/12/21	4 Lilac St	Beth	Matthew Frey-Davis
3.					
4.					
5.					
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14.					
15.					

NO MORE SIGNATURES ALLOWED

PLEASE SEE REVERSE FOR ADDITIONAL SIGNATURES, CIRCULATOR'S OATH AND REGISTRAR'S CERTIFICATION

STATE OF MAINE

PETITION TO REQUIRE AGENCY RULEMAKING

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					

NO MORE SIGNATURES ALLOWED

CIRCULATOR'S OATH

I hereby make oath that I am the Circulator of this petition, that all the signatures to this petition were made in my presence and, to the best of my knowledge and belief, each signature is that of the person it purports to be.

Signature of Circulator

Alison Briggs

Printed Name

Alison Briggs

Signature of Notary

Jessica G. Lovitt

Printed Name

Jessica G. Lovitt

Subscribed to and sworn before me on this date:

May 19, 2022

Date must be completed by Notary

My Commission Expires October 18, 2024

REGISTRAR'S CERTIFICATION

Municipality Bath

TOTAL VALID 2

TOTAL INVALID 0

I hereby certify that the names of all the petitioners listed as valid appear on the voting list as qualified to vote for Governor.

Signature of Registrar

[Signature]

Date:

3/1/2022



STATE OF MAINE PETITION TO REQUIRE AGENCY RULEMAKING

INSTRUCTIONS FOR CIRCULATION

PETITIONER - MUST:

- BE A MAINE REGISTERED VOTER
- SIGN NAME AS IT APPEARS ON THE VOTING LIST
- SIGN ONLY ONCE
- NOT SIGN ANOTHER'S NAME
- PRINT NAME, DATE OF SIGNING, STREET ADDRESS & MUNICIPALITY OF RESIDENCE (UNLESS PRINTED BY CIRCULATOR)

REGISTRAR - MUST:

- COMPLETE AND SIGN THE CERTIFICATION BY INDICATING WHICH NAMES ON THE PETITION APPEAR ON THAT MUNICIPALITY'S VOTING LIST
- NOTE: IF THE SIGNATURE ALONE SUFFICIENTLY IDENTIFIES THE VOTER, IT SHOULD BE ACCEPTED

WARNING:

- MAKING A FALSE STATEMENT BY THE CIRCULATOR, SIGNING A PETITION WITH THE NAME OF ANOTHER, OR SIGNING A NAME MORE THAN ONCE ON THESE PETITIONS IS A CLASS E CRIME.

CERTIFICATION CODES & COMMON REASONS FOR REJECTION

4 PETITIONER IS A REGISTERED VOTER

INDIVIDUAL SIGNATURES MAY BE REJECTED IF:

- NR PETITIONER IS NOT A REGISTERED VOTER
- DR/P PETITIONER PREVIOUSLY SIGNED THE PETITION (DUPLICATE NAME)
- DATE PETITIONER SIGNED AFTER THE DATE OF CIRCULATOR'S VERIFICATION
- AND PETITIONER SIGNED THE NAME OF ANOTHER
- SIG PETITIONER DID NOT SIGN THE PETITION (PRINTED NAME ONLY)

ENTIRE PETITIONS MAY BE REJECTED IF:

- CERT THE REGISTRAR'S CERTIFICATION IS NOT COMPLETED OR NOT SIGNED
- ALT INDIVIDUALS ALTER THE REGISTRAR'S CERTIFICATION
- DATE CIRCULATOR'S VERIFICATION IS NOT COMPLETED OR NOT SIGNED
- OATH CIRCULATOR DID NOT TAKE OATH BEFORE VALID NOTARY PUBLIC
- OATH THE NOTARY DID NOT COMPLETE OR SIGN THE NOTARIZATION
- ORIG THE NOTARY IS AN UNLICENSED, EXPIRED, LAMELY MEMBER OF CIRCULATOR

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
1. <input checked="" type="checkbox"/>	<i>Heather Ryan</i>	6/8/21	186 Payne Rd	Seabrook	Heather Ryan
2. <input checked="" type="checkbox"/>	<i>Myr</i>	10/12/21	W. Wynnman	Seabrook	ES Say
3. <input checked="" type="checkbox"/>					
4. <input checked="" type="checkbox"/>					
5. <input checked="" type="checkbox"/>					
6. <input checked="" type="checkbox"/>					
7. <input checked="" type="checkbox"/>					
8. <input checked="" type="checkbox"/>					
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12. <input checked="" type="checkbox"/>					
13. <input checked="" type="checkbox"/>					
14. <input checked="" type="checkbox"/>					
15. <input checked="" type="checkbox"/>					

PLEASE SEE REVERSE FOR ADDITIONAL SIGNATURES, CIRCULATOR'S OATH AND REGISTRAR'S CERTIFICATION

STATE OF MAINE

PETITION TO REQUIRE AGENCY RULEMAKING

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					

CIRCULATOR'S OATH

I hereby make oath that I am the Circulator of this petition, that all the signatures to this petition were made in my presence and, to the best of my knowledge and belief, each signature is that of the person it purports to be.

Signature of Circulator Alison Briggs Printed Name Alison Briggs

Signature of Notary Jessica C. Lovitz Printed Name Jessica C. Lovitz

Subscribed to and sworn before me on this date: May 19, 2022
Date must be completed by Notary

REGISTRAR'S CERTIFICATION

Municipality Saco TOTAL VALID 1 TOTAL INVALID 0

I hereby certify that the names of all the petitioners listed as valid appear on the voting list as qualified to vote for Governor.

Signature of Registrar: Willie Date: 3/1/2022

Received October 9, 2024



STATE OF MAINE PETITION TO REQUIRE AGENCY RULEMAKING

INSTRUCTIONS FOR CIRCULATION

PETITIONER - MUST:

- BE A MAINE REGISTERED VOTER
- SIGN NAME AS IT APPEARS ON THE VOTING LIST
- SIGN ONLY ONCE
- NOT SIGN ANOTHER'S NAME
- PRINT NAME; DATE OF SIGNING; STREET ADDRESS & MUNICIPALITY OF RESIDENCE (UNLESS PRINTED BY CIRCULATOR)

REGISTRAR - MUST:

- COMPLETE AND SIGN THE CERTIFICATION BY INDICATING WHICH NAMES ON THE PETITION APPEAR ON THAT MUNICIPALITY'S VOTING LIST
- NOTE: IF THE SIGNATURE ALONE SUFFICIENTLY IDENTIFIES THE VOTER, IT SHOULD BE ACCEPTED

WARNING: MAKING A FALSE STATEMENT BY THE CIRCULATOR, SIGNING A PETITION WITH THE NAME OF ANOTHER, OR SIGNING A NAME MORE THAN ONCE ON THESE PETITIONS IS A CLASS E CRIME.

CERTIFICATION CODES & COMMON REASONS FOR REJECTION

4 PETITIONER IS A REGISTERED VOTER

INDIVIDUAL SIGNATURES MAY BE REJECTED IF:

- NR PETITIONER IS NOT A REGISTERED VOTER
- DU/P PETITIONER PREVIOUSLY SIGNED THE PETITION (DUPLICATE NAME)
- DATE PETITIONER SIGNED AFTER THE DATE OF CIRCULATOR'S VERIFICATION


AND PETITIONER SIGNED THE NAME OF ANOTHER AND PETITIONER DID NOT SIGN THE PETITION (PRINTED NAME ONLY)

ENTIRE PETITIONS MAY BE REJECTED IF:

- CERT THE REGISTRAR'S CERTIFICATION IS NOT COMPLETED OR NOT SIGNED
- ALT INDIVIDUALS ALTER THE REGISTRAR'S CERTIFICATION
- CIRCULATOR'S VERIFICATION IS NOT COMPLETED OR NOT SIGNED
- OATH CIRCULATOR DID NOT TAKE OATH BEFORE VALID NOTARY PUBLIC
- OATH THE NOTARY DID NOT COMPLETE OR SIGN THE NOTARIZATION
- OATH THE NOTARY IS AN IMMEDIATE FAMILY MEMBER OF CIRCULATOR

PETITION CIRCULATOR - MUST:

- BE A MAINE RESIDENT & REGISTERED VOTER
- COMPLETE THE CIRCULATOR'S VERIFICATION
- TAKE THE OATH BEFORE A NOTARY PUBLIC
- NOT COLLECT SIGNATURES AFTER TAKING OATH

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
1.		6/8/2021	806 Foreside Road	Topsham, ME	Jacob Demosthenes
2.					
3.					
4.					
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PLEASE SEE REVERSE FOR ADDITIONAL SIGNATURES, CIRCULATOR'S OATH AND REGISTRAR'S CERTIFICATION

STATE OF MAINE

PETITION TO REQUIRE AGENCY RULEMAKING

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
16.					
17.					
18.					
19.					
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21.					
22.					
23.					
24.					
25.					

CIRCULATOR'S OATH

I hereby make oath that I am the Circulator of this petition, that all the signatures to this petition were made in my presence and, to the best of my knowledge and belief, each signature is that of the person it purports to be.

Signature of Circulator Allysa Briggs Printed Name Allysa Briggs

Signature of Notary Jessica C. Lovitz Printed Name Jessica C. Lovitz

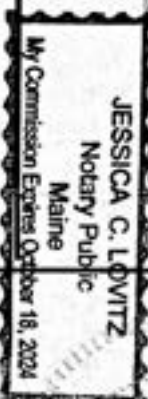
Subscribed to and sworn before me on this date: May 19, 2022
Date must be completed by Notary

REGISTRAR'S CERTIFICATION

Municipality Topsham TOTAL VALID 1 TOTAL INVALID 0

I hereby certify that the names of all the petitioners listed as valid appear on the voting list as qualified to vote for Governor.

Signature of Registrar: [Signature] Date: 2/28/22



STATE OF MAINE

PETITION TO REQUIRE AGENCY RULEMAKING

INSTRUCTIONS FOR CIRCULATION

PETITIONER - MUST:

- BE A MAINE REGISTERED VOTER
- SIGN NAME AS IT APPEARS ON THE VOTING LIST
- SIGN ONLY ONCE
- NOT SIGN ANOTHER'S NAME
- PRINT NAME, DATE OF SIGNING, STREET ADDRESS & MUNICIPALITY OF RESIDENCE (UNLESS PRINTED BY CIRCULATOR)

PETITION CIRCULATOR - MUST:

- BE A MAINE RESIDENT & REGISTERED VOTER
- COMPLETE THE CIRCULATOR'S VERIFICATION
- TAKE THE OATH BEFORE A NOTARY PUBLIC
- NOT COLLECT SIGNATURES AFTER TAKING OATH

REGISTRAR - MUST:

- COMPLETE AND SIGN THE CERTIFICATION BY INDICATING WHICH NAMES ON THE PETITION APPEAR ON THAT MUNICIPALITY'S VOTING LIST
- NOTE: IF THE SIGNATURE ALONE SUFFICIENTLY IDENTIFIES THE VOTER, IT SHOULD BE ACCEPTED

WARNING: MAKING A FALSE STATEMENT BY THE CIRCULATOR, SIGNING A PETITION WITH THE NAME OF ANOTHER, OR SIGNING A NAME MORE THAN ONCE ON THESE PETITIONS IS A CLASS E CRIME.

CERTIFICATION CODES & COMMON REASONS FOR REJECTION

4 PETITIONER IS A REGISTERED VOTER

INDIVIDUAL SIGNATURES MAY BE REJECTED IF:

- MR PETITIONER IS NOT A REGISTERED VOTER
- DATE PETITIONER PREVIOUSLY SIGNED THE PETITION (DUPLICATE NAME)
- DATE PETITIONER SIGNED AFTER THE DATE OF CIRCULATOR'S VERIFICATION
- AND PETITIONER SIGNED THE NAME OF ANOTHER
- SIG PETITIONER DID NOT SIGN THE PETITION (PRINTED NAME ONLY)

ENTIRE PETITIONS MAY BE REJECTED IF:

- CERT THE REGISTRAR'S CERTIFICATION IS NOT COMPLETED OR NOT SIGNED
- ALT INDIVIDUALS ALTER THE REGISTRAR'S CERTIFICATION
- DATE CIRCULATOR'S VERIFICATION IS NOT COMPLETED OR NOT SIGNED
- OATH CIRCULATOR DID NOT TAKE OATH BEFORE VALID NOTARY PUBLIC
- DATE THE NOTARY DID NOT COMPLETE OR SIGN THE NOTARIZATION
- DATE THE NOTARY'S AN IMMEDIATE FAMILY MEMBER OR CIRCULATOR

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
1. <input checked="" type="checkbox"/>	<i>George Mendell</i>	<i>8-12-11</i>	<i>155 Grosvenor Bldg</i>	<i>Montville</i>	<i>George Mendell</i>
2.					
3.					
4.					
5.					
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PLEASE SEE REVERSE FOR ADDITIONAL SIGNATURES, CIRCULATOR'S OATH AND REGISTRAR'S CERTIFICATION

STATE OF MAINE
PETITION TO REQUIRE AGENCY RULEMAKING

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
16.					
17.					
18.					
19.					
20.					
21.					
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23.					
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25.					

CIRCULATOR'S OATH

I hereby make oath that I am the Circulator of this petition, that all the signatures to this petition were made in my presence and, to the best of my knowledge and belief, each signature is that of the person it purports to be.

Signature of Circulator Allyson Briggs Printed Name Allyson Briggs

Signature of Notary Jessica C. Lovitz Printed Name Jessica C. Lovitz

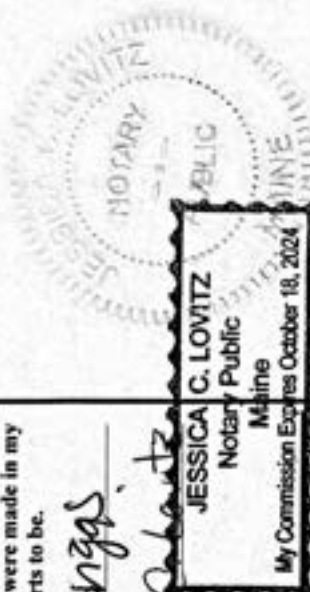
Subscribed to and sworn before me on this date: May 19 2022
Date must be completed by Notary

REGISTRAR'S CERTIFICATION

Municipality Montville TOTAL VALID 1 TOTAL INVALID 0

I hereby certify that the names of all the petitioners listed as valid appear on the voting list as qualified to vote for Governor.

Signature of Registrar Jodie M. Martin Date: 3/2/22



STATE OF MAINE PETITION TO REQUIRE AGENCY RULEMAKING

INSTRUCTIONS FOR CIRCULATION

CERTIFICATION CODES & COMMON REASONS FOR REJECTION

PETITIONER MUST

- BE A MAINE REGISTERED VOTER
- SIGN NAME AS IT APPEARS ON THE VOTING LIST
- SIGN ONLY ONCE
- NOT SIGN ANOTHER'S NAME
- PRINT NAME, DATE OF SIGNING, STREET ADDRESS & MUNICIPALITY OR RESIDENT (IF NOT PRINTED BY CIRCULATOR)

REGISTRAR MUST

- COMPLETE AND SIGN THE CIRCULATION BY INDICATING WITH NAMES ON THE PETITION
- APPEAR ON THAT MUNICIPALITY'S VOTING LIST
- NOTE: IF THE SIGNATURE ALONE STREET ONLY IDENTIFIES THE VOTER, IT SHOULD BE ACCEPTED

WARNING: MAKING A FALSE STATEMENT BY THE CIRCULATOR, SIGNING A PETITION WITH THE NAME OF ANOTHER, OR SIGNING A NAME MORE THAN ONCE ON THESE PETITIONS IS A CLASS C CRIME.

4 THE PETITIONER IS A REGISTERED VOTER

INDIVIDUAL SIGNATURES MAY BE REJECTED IF:

- OR PETITIONER IS NOT A REGISTERED VOTER
- OR PETITIONER PREVIOUSLY SIGNED THE PETITION (DUPLICATE NAME)
- OR PETITIONER SIGNED AFTER THE DATE OF CIRCULATOR'S DATE
- OR PETITIONER SIGNED THE NAME OF ANOTHER
- OR PETITIONER DID NOT SIGN THE PETITION (PRINTED NAME ONLY)

ENTIRE PETITIONS MAY BE REJECTED IF:

- OR THE REGISTRAR'S CIRCULATION IS NOT COMPLETED OR NOT SIGNED
- OR INDIVIDUALS AT THE REGISTRAR'S CIRCULATION
- OR CIRCULATOR'S VERIFICATION IS NOT COMPLETED OR NOT SIGNED
- OR CIRCULATOR DID NOT TAKE DATE FOR VALUATION
- OR THE NOTARY DID NOT COMPLETE OR SIGN THE NOTARIZATION

PETITION CIRCULATOR MUST
BE A MAINE RESIDENT & REGISTERED VOTER
COMPLETE THE CIRCULATOR'S VERIFICATION
TAKE THE CIRCULATOR A NOTARY PUBLIC
NOT COLLECT SIGNATURES AT THE TAKING DATE

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
1. ✓	<i>Angela Weber</i>	11-7	13 Rock St Yezzer ME	04401 Yezzer	Angela Weber
2. ✓	<i>Ann Rollins</i>	11-7	1113 Chase Rd, Yezzer ME	Yezzer	Ann Rollins
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STATE OF MAINE PETITION TO REQUIRE AGENCY RULEMAKING

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
16					
17					
18					
19					
20					
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23					
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25					

CIRCULATOR'S OATH

I hereby make oath that I am the Circulator of this petition, that all the signatures to this petition were made in my presence and, to the best of my knowledge and belief, each signature is that of the person it purports to be.

Signature of Circulator *Oliver Briggs* Printed Name *Oliver Briggs*

Signature of Notary *Chris Briggs* Printed Name *Jessica C. Lovitz*

Subscribed to and sworn before me on this date *May 19, 2022*

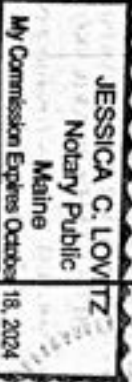
Have noted be completed by Notary

REGISTRAR'S CERTIFICATION

Municipality *Wiscasset* TOTAL VALID *2* TOTAL INVALID *0*

I hereby certify that the names of all the petitioners listed as valid appear on the voting list as qualified to vote for Governor.

Signature of Registrar: *Jessica Lovitz* Date: *3-1-2022* *0:52PM*



STATE OF MAINE PETITION TO REQUIRE AGENCY RULEMAKING

INSTRUCTIONS FOR CIRCULATION

PETITIONER - MUST:

- BE A MAINE REGISTERED VOTER
- SIGN NAME AS IT APPEARS ON THE VOTING LIST
- SIGN ONLY ONCE
- NOT SIGN ANOTHER'S NAME
- PRINT NAME, DATE OF SIGNING, STREET ADDRESS & MUNICIPALITY OF RESIDENCE (LINES PRINTED BY CIRCULATOR)

PETITION CIRCULATOR - MUST:

- BE A MAINE RESIDENT & REGISTERED VOTER
- COMPLETE THE CIRCULATOR'S VERIFICATION
- TAKE THE OATH BEFORE A NOTARY PUBLIC
- NOT COLLECT SIGNATURES AFTER TAKING OATH

REGISTRAR - MUST:

- COMPLETE AND SIGN THE CERTIFICATION BY INDICATING WHICH NAMES ON THE PETITION APPEAR ON THAT MUNICIPALITY'S VOTING LIST
- NOTE: IF THE SIGNATURE ALONE SUFFICIENTLY IDENTIFIES THE VOTER, IT SHOULD BE ACCEPTED

WARNING: MAKING A FALSE STATEMENT BY THE CIRCULATOR, SIGNING A PETITION WITH THE NAME OF ANOTHER, OR SIGNING A NAME MORE THAN ONCE ON THESE PETITIONS IS A CLASS C CRIME.

CERTIFICATION CODES & COMMON REASONS FOR REJECTION

4 PETITIONER IS A REGISTERED VOTER

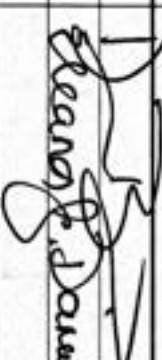
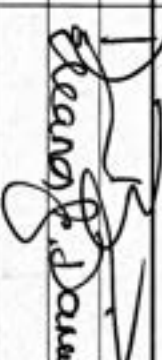
INDIVIDUAL SIGNATURES MAY BE REJECTED IF:

- NR PETITIONER IS NOT A REGISTERED VOTER
- PREV PETITIONER PREVIOUSLY SIGNED THE PETITION (DUPLICATE NAME)
- DATE PETITIONER SIGNED AFTER THE DATE OF CIRCULATOR'S VERIFICATION

AND PETITIONER SIGNED THE NAME OF ANOTHER INDIVIDUAL (PRINTED NAME ONLY)

ENTIRE PETITIONS MAY BE REJECTED IF:

- CERT THE REGISTRAR'S CERTIFICATION IS NOT COMPLETED OR NOT SIGNED
- ALT INDIVIDUALS ALTER THE REGISTRAR'S CERTIFICATION
- DATE CIRCULATOR'S VERIFICATION IS NOT COMPLETED OR NOT SIGNED
- DATE CIRCULATOR DID NOT TAKE OATH BEFORE NOTARY PUBLIC
- DATE THE NOTARY DID NOT COMPLETE OR SIGN THE NOTARIZATION

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
1. ✓		8/13/21	95 Sirota Dr.	Searsport ME	Donna Broderick
2. ✓		8/13/21	95 Sirota Dr.	Searsport ME	Eleanor Daniels
3.					
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PLEASE SEE REVERSE FOR ADDITIONAL SIGNATURES, CIRCULATOR'S OATH AND REGISTRAR'S CERTIFICATION

STATE OF MAINE

PETITION TO REQUIRE AGENCY RULEMAKING

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
16.					
17.					
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20.					
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25.					

CIRCULATOR'S OATH

I hereby make oath that I am the Circulator of this petition, that all the signatures to this petition were made in my presence and, to the best of my knowledge and belief, each signature is that of the person it purports to be.

Signature of Circulator Allysa Briggs Printed Name Allysa Briggs

Signature of Notary Jessica C. Ldwitz Printed Name Jessica C. Ldwitz

Subscribed to and sworn before me on this date: May 19, 2022

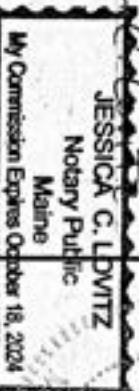
Date must be completed by Notary

REGISTRAR'S CERTIFICATION

Municipality Barnstable TOTAL VALID 2 TOTAL INVALID 0

I hereby certify that the names of all the petitioners listed as valid appear on the voting list as qualified to vote for Governor.

Signature of Registrar Antoniaa Joseph Date 2-28-22



STATE OF MAINE PETITION TO REQUIRE AGENCY RULEMAKING

INSTRUCTIONS FOR CIRCULATION

PETITIONER - MUST:

- BE A MAINE REGISTERED VOTER
- SIGN NAME AS IT APPEARS ON THE VOTING LIST
- SIGN ONLY ONCE
- NOT SIGN ANOTHER'S NAME
- PRINT NAME; DATE OF SIGNING; STREET ADDRESS & MUNICIPALITY OF RESIDENCE (UNLESS PRINTED BY CIRCULATOR)

REGISTRAR - MUST:

- COMPLETE AND SIGN THE CERTIFICATION BY INDICATING WHICH NAMES ON THE PETITION APPEAR ON THAT MUNICIPALITY'S VOTING LIST
- NOTE: IF THE SIGNATURE ALONE SUFFICIENTLY IDENTIFIES THE VOTER, IT SHOULD BE ACCEPTED

WARNING: MAKING A FALSE STATEMENT BY THE CIRCULATOR, SIGNING A PETITION WITH THE NAME OF ANOTHER, OR SIGNING A NAME MORE THAN ONCE ON THESE PETITIONS IS A CLASS E CRIME.

CERTIFICATION CODES & COMMON REASONS FOR REJECTION

4 PETITIONER IS A REGISTERED VOTER

INDIVIDUAL SIGNATURES MAY BE REJECTED IF:


- NR PETITIONER IS NOT A REGISTERED VOTER
- DU/P PETITIONER PREVIOUSLY SIGNED THE PETITION (DUPLICATE NAME)
- DATE PETITIONER SIGNED AFTER THE DATE OF CIRCULATOR'S VERIFICATION
- AND PETITIONER SIGNED THE NAME OF ANOTHER INDIVIDUAL
- SIG PETITIONER DID NOT SIGN THE PETITION (PRINTED NAME ONLY)

ENTIRE PETITIONS MAY BE REJECTED IF:

- CERT THE REGISTRAR'S CERTIFICATION IS NOT COMPLETED OR NOT SIGNED
- ALT INDIVIDUALS ALTER THE REGISTRAR'S CERTIFICATION
- DATE CIRCULATOR'S VERIFICATION IS NOT COMPLETED OR NOT SIGNED
- DATE CIRCULATOR DID NOT TAKE OATH BEFORE VALID NOTARY PUBLIC OATH
- DATE THE NOTARY DID NOT COMPLETE OR SIGN THE NOTARIZATION
- NOTE: THE NOTARY IS AN IMMEDIATE FAMILY MEMBER OF CIRCULATOR

PETITION CIRCULATOR - MUST:

- BE A MAINE RESIDENT & REGISTERED VOTER
- COMPLETE THE CIRCULATOR'S VERIFICATION
- TAKE THE OATH BEFORE A NOTARY PUBLIC
- NOT COLLECT SIGNATURES AFTER TAKING OATH

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
1.		8/12/21	23 Huls Knight Rd	Litchfield	Frank G. Sills
2.					
3.					
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PLEASE SEE REVERSE FOR ADDITIONAL SIGNATURES, CIRCULATOR'S OATH AND REGISTRAR'S CERTIFICATION

STATE OF MAINE
PETITION TO REQUIRE AGENCY RULEMAKING

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					

CIRCULATOR'S OATH

I hereby make oath that I am the Circulator of this petition, that all the signatures to this petition were made in my presence and, to the best of my knowledge and belief, each signature is that of the person it purports to be.

Signature of Circulator Alison Briggs Printed Name Alison Briggs

Signature of Notary Jessica C. Lovitz Printed Name Jessica C. Lovitz

Subscribed to and sworn before me on this date: May 19 2022

Date may be completed by Notary

REGISTRAR'S CERTIFICATION

Municipality Limeville TOTAL VALID 1 TOTAL INVALID 0

I hereby certify that the names of all the petitioners listed as valid appear on the voting list as qualified to vote for Governor.

Signature of Registrar Jessica C. Lovitz Date: 3/20/2022



STATE OF MAINE PETITION TO REQUIRE AGENCY RULEMAKING

INSTRUCTIONS FOR CIRCULATION

PETITIONER - MUST:

- BE A MAINE REGISTERED VOTER
- SIGN NAME AS IT APPEARS ON THE VOTING LIST
- SIGN ONLY ONCE
- NOT SIGN ANOTHER'S NAME
- PRINT NAME, DATE OF SIGNING, STREET ADDRESS & MUNICIPALITY OF RESIDENCE (UNLESS PRINTED BY CIRCULATOR)

PETITION CIRCULATOR - MUST:

- BE A MAINE RESIDENT & REGISTERED VOTER
- COMPLETE THE CIRCULATOR'S VERIFICATION
- TAKE THE OATH BEFORE A NOTARY PUBLIC
- NOT COLLECT SIGNATURES AFTER TAKING OATH

REGISTRAR - MUST:

- COMPLETE AND SIGN THE CERTIFICATION BY INDICATING WHICH NAMES ON THE PETITION APPEAR ON THAT MUNICIPALITY'S VOTING LIST
- NOTE: IF THE SIGNATURE ALONE SUFFICIENTLY IDENTIFIES THE VOTER, IT SHOULD BE ACCEPTED

WARNING: MAKING A FALSE STATEMENT BY THE CIRCULATOR, SIGNING A PETITION WITH THE NAME OF ANOTHER, OR SIGNING A NAME MORE THAN ONCE ON THESE PETITIONS IS A CLASS E CRIME.

CERTIFICATION CODES & COMMON REASONS FOR REJECTION

4 PETITIONER IS A REGISTERED VOTER


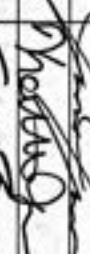


INDIVIDUAL SIGNATURES MAY BE REJECTED IF:

- NR PETITIONER IS NOT A REGISTERED VOTER
- DUPLICATE NAME) PETITIONER PREVIOUSLY SIGNED THE PETITION (DUPLICATE NAME)
- DATE PETITIONER SIGNED AFTER THE DATE OF CIRCULATOR'S VERIFICATION

AND PETITIONER SIGNED THE NAME OF ANOTHER
SIC PETITIONER DID NOT SIGN THE PETITION (PRINTED NAME ONLY)

ENTIRE PETITIONS MAY BE REJECTED IF:

- CERT THE REGISTRAR'S CERTIFICATION IS NOT COMPLETED OR NOT SIGNED
- ALT INDIVIDUALS ALTER THE REGISTRAR'S CERTIFICATION
- OATH CIRCULATOR'S VERIFICATION IS NOT COMPLETED OR NOT SIGNED
- OATH CIRCULATOR DID NOT TAKE OATH BEFORE VALID NOTARY PUBLIC
- OATH THE NOTARY DID NOT COMPLETE OR SIGN THE NOTARIZATION
- OATH THE NOTARIZATION IS AN UNAUTHORIZED, FALSIFIED, OR COUNTERFEIT

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
1. ✓		6/12/21	955 Methodist Rd.	Westbrook, ME	Gerald E. Johnson
2. ✓		6/12/21	955 Methodist Rd	Westbrook, ME	Matthew Johnson
3. NR		10/13/21	57 Brydon Way	Westbrook, ME	Timothy Dussert
4.					
5.					
6.					
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PLEASE SEE REVERSE FOR ADDITIONAL SIGNATURES, CIRCULATOR'S OATH AND REGISTRAR'S CERTIFICATION

STATE OF MAINE
PETITION TO REQUIRE AGENCY RULEMAKING

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
16.					
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CIRCULATOR'S OATH

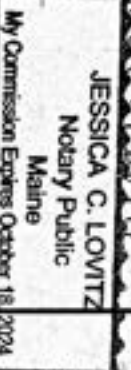
I hereby make oath that I am the Circulator of this petition, that all the signatures to this petition were made in my presence and, to the best of my knowledge and belief, each signature is that of the person it purports to be.

Signature of Circulator William Briggs Printed Name William Briggs

Signature of Notary Jessica C. Lovitz Printed Name Jessica C. Lovitz

Subscribed to and sworn before me on this date: May 19, 2022

Date must be completed by Notary



REGISTRAR'S CERTIFICATION

Municipality Nestbrook TOTAL VALID 2 TOTAL INVALID 1

I hereby certify that the names of all the petitioners listed as valid appear on the voting list as qualified to vote for Governor.

Signature of Registrar: Nancy M. LeDuc Date: 3/2/2022

STATE OF MAINE PETITION TO REQUIRE AGENCY RULEMAKING

INSTRUCTIONS FOR CIRCULATION

PETITIONER - MUST:

- BE A MAINE REGISTERED VOTER
- SIGN NAME AS IT APPEARS ON THE VOTING LIST
- SIGN ONLY ONCE
- NOT SIGN ANOTHER'S NAME
- PRINT NAME, DATE OF SIGNING, STREET ADDRESS & MUNICIPALITY OF RESIDENCE (UNLESS PRINTED BY CIRCULATOR)

PETITION CIRCULATOR - MUST:

- BE A MAINE RESIDENT & REGISTERED VOTER
- COMPLETE THE CIRCULATOR'S VERIFICATION
- TAKE THE OATH BEFORE A NOTARY PUBLIC
- NOT COLLECT SIGNATURES AFTER TAKING OATH

REGISTRAR - MUST:

- COMPLETE AND SIGN THE CERTIFICATION BY INDICATING WHICH NAMES ON THE PETITION APPEAR ON THAT MUNICIPALITY'S VOTING LIST
- NOTE: IF THE SIGNATURE ALONE SUFFICIENTLY IDENTIFIES THE VOTER, IT SHOULD BE ACCEPTED

WARNING: MAKING A FALSE STATEMENT BY THE CIRCULATOR, SIGNING A PETITION WITH THE NAME OF ANOTHER, OR SIGNING A NAME MORE THAN ONCE ON THESE PETITIONS IS A CLASS E CRIME.

CERTIFICATION CODES & COMMON REASONS FOR REJECTION









4 PETITIONER IS A REGISTERED VOTER

INDIVIDUAL SIGNATURES MAY BE REJECTED IF:

- NR PETITIONER IS NOT A REGISTERED VOTER
- DUPLICATE PETITIONER PREVIOUSLY SIGNED THE PETITION (DUPLICATE NAME)
- DATE PETITIONER SIGNED AFTER THE DATE OF CIRCULATOR'S VERIFICATION
- AND PETITIONER SIGNED THE NAME OF ANOTHER
- SIG PETITIONER DID NOT SIGN THE PETITION (PRINTED NAME ONLY)

ENTIRE PETITIONS MAY BE REJECTED IF:

- CERT THE REGISTRAR'S CERTIFICATION IS NOT COMPLETED OR NOT SIGNED
- ALT INDIVIDUALS ALTER THE REGISTRAR'S CERTIFICATION
- DATE CIRCULATOR'S VERIFICATION IS NOT COMPLETED OR NOT SIGNED
- DATE CIRCULATOR DID NOT TAKE OATH BEFORE VALID NOTARY PUBLIC
- DATE THE NOTARY DID NOT COMPLETE OR SIGN THE NOTARIZATION

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
1. <input checked="" type="checkbox"/>		6/17/21	791 Rocky Road	Northrop	John Krueger
2. <input checked="" type="checkbox"/>		8/12/21	79 Garfield Road	Northrop	Anne Walker
3. <input checked="" type="checkbox"/>		8-10-21	100 Cliff Rd	Northrop	Anne Walker
4. <input checked="" type="checkbox"/>		8/12/21	1485 Atlantic Hwy	Northrop	Martha M. Black
5. <input checked="" type="checkbox"/>		8/13/21	1485 Atlantic Hwy	Northrop	S.J. Bessie
6. <input checked="" type="checkbox"/>		8/13/21	100 Garfield St	Northrop	Robert H. Hurdman
7. <input checked="" type="checkbox"/>		8/13/21	58 Knish Pond Rd.	Northrop	Joseph L. Berube
8. <input checked="" type="checkbox"/>		8/13/21	58 Knish Pond Rd	Northrop	Anne N. Wallace
9.					
10.					
11.					
12.					
13.					
14.					
15.					

PLEASE SEE REVERSE FOR ADDITIONAL SIGNATURES, CIRCULATOR'S OATH AND REGISTRAR'S CERTIFICATION

STATE OF MAINE

PETITION TO REQUIRE AGENCY RULEMAKING

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
16.					
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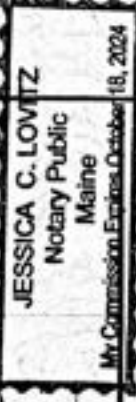
CIRCULATOR'S OATH

I hereby make oath that I am the Circulator of this petition, that all the signatures to this petition were made in my presence and, to the best of my knowledge and belief, each signature is that of the person it purports to be.

Signature of Circulator Alison Briggs Printed Name Alison Briggs

Signature of Notary Jessica C. Lovitz Printed Name Jessica C. Lovitz

Subscribed to and sworn before me on this date: May 19, 2022
Date must be completed by Notary



REGISTRAR'S CERTIFICATION

Municipality Northport TOTAL VALID 7 TOTAL INVALID _____

I hereby certify that the names of all the petitioners listed as valid appear on the voting list as qualified to vote for Governor.

Signature of Registrar: Amy E. Eldridge Date: 3/2/22



Received
2-25-22
@ 11:45 AM

STATE OF MAINE PETITION TO REQUIRE AGENCY RULEMAKING

INSTRUCTIONS FOR CIRCULATION

PETITIONER - MUST:

- BE A MAINE REGISTERED VOTER
- SIGN NAME AS IT APPEARS ON THE VOTING LIST
- SIGN ONLY ONCE
- NOT SIGN ANOTHER'S NAME
- PRINT NAME, DATE OF SIGNING, STREET ADDRESS & MUNICIPALITY OF RESIDENCE (UNLESS PRINTED BY CIRCULATOR)

REGISTRAR - MUST:

- COMPLETE AND SIGN THE CERTIFICATION BY INDICATING WHICH NAMES ON THE PETITION APPEAR ON THAT MUNICIPALITY'S VOTING LIST
- NOTE: IF THE SIGNATURE ALONE SUFFICIENTLY IDENTIFIES THE VOTER, IT SHOULD BE ACCEPTED

PETITION CIRCULATOR - MUST:

- BE A MAINE RESIDENT & REGISTERED VOTER
- COMPLETE THE CIRCULATOR'S VERIFICATION
- TAKE THE OATH BEFORE A NOTARY PUBLIC
- NOT COLLECT SIGNATURES AFTER TAKING OATH

WARNING: MAKING A FALSE STATEMENT BY THE CIRCULATOR, SIGNING A PETITION WITH THE NAME OF ANOTHER, OR SIGNING A NAME MORE THAN ONCE ON THESE PETITIONS IS A CLASS E CRIME.

CERTIFICATION CODES & COMMON REASONS FOR REJECTION

4 PETITIONER IS A REGISTERED VOTER

INDIVIDUAL SIGNATURES MAY BE REJECTED IF:

- NR PETITIONER IS NOT A REGISTERED VOTER
- DR PETITIONER PREVIOUSLY SIGNED THE PETITION (DUPLICATE NAME)
- DATE PETITIONER SIGNED AFTER THE DATE OF CIRCULATOR'S VERIFICATION

AND PETITIONER SIGNED THE NAME OF ANOTHER
SIC PETITIONER DID NOT SIGN THE PETITION (PRINTED NAME ONLY)

ENTIRE PETITIONS MAY BE REJECTED IF:

- CERT THE REGISTRAR'S CERTIFICATION IS NOT COMPLETED OR NOT SIGNED
- ALT INDIVIDUALS ALTER THE REGISTRAR'S CERTIFICATION
- GATH CIRCULATOR'S VERIFICATION IS NOT COMPLETED OR NOT SIGNED
- GATH CIRCULATOR DID NOT TAKE OATH BEFORE VALID NOTARY PUBLIC
- GATH THE NOTARY DID NOT COMPLETE OR SIGN THE NOTARIZATION

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
1. <i>By</i>	<i>Gami Mearfield</i>	<i>11/12/2021</i>	<i>7 Hammond Dr.</i>	<i>Standish</i>	<i>Gami Mearfield</i>
2.	<i>Dani Mearfield</i>	<i>06/12/2021</i>	<i>7 Hamerlin Dr.</i>	<i>Standish</i>	<i>Sabrina Mearfield</i>
3.					
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PLEASE SEE REVERSE FOR ADDITIONAL SIGNATURES, CIRCULATOR'S OATH AND REGISTRAR'S CERTIFICATION

STATE OF MAINE
PETITION TO REQUIRE AGENCY RULEMAKING

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
16.					
17.					
18.					
19.					
20.					
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22.					
23.					
24.					
25.					

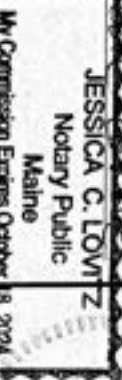
CIRCULATOR'S OATH

I hereby make oath that I am the Circulator of this petition, that all the signatures to this petition were made in my presence and, to the best of my knowledge and belief, each signature is that of the person it purports to be.

Signature of Circulator Alison Briggs Printed Name ALISON BRIGGS

Signature of Notary Jessica C. Lovitz Printed Name Jessica C. Lovitz

Subscribed to and sworn before me on this date: May 19, 2022
Date must be completed by Notary



REGISTRAR'S CERTIFICATION

Municipality Sharon TOTAL VALID 1 TOTAL INVALID 1

I hereby certify that the names of all the petitioners listed as valid appear on the voting list as qualified to vote for Governor.

Signature of Registrar: Mary E. Caper Date: 3/3/22



STATE OF MAINE PETITION TO REQUIRE AGENCY RULEMAKING

INSTRUCTIONS FOR CIRCULATION

PETITIONER - MUST:

- BE A MAINE REGISTERED VOTER
- SIGN NAME AS IT APPEARS ON THE VOTING LIST
- SIGN ONLY ONCE
- NOT SIGN ANOTHER'S NAME
- PRINT NAME, DATE OF SIGNING, STREET ADDRESS & MUNICIPALITY OF RESIDENCE (UNLESS PRINTED BY CIRCULATOR)

REGISTRAR - MUST:

- COMPLETE AND SIGN THE CERTIFICATION BY INDICATING WHICH NAMES ON THE PETITION APPEAR ON THAT MUNICIPALITY'S VOTING LIST
- NOTE: IF THE SIGNATURE ALONE SUFFICIENTLY IDENTIFIES THE VOTER, IT SHOULD BE ACCEPTED

WARNING:

MAKING A FALSE STATEMENT BY THE CIRCULATOR, SIGNING A PETITION WITH THE NAME OF ANOTHER, OR SIGNING A NAME MORE THAN ONCE ON THESE PETITIONS IS A CLASS E CRIME.

CERTIFICATION CODES & COMMON REASONS FOR REJECTION

4 PETITIONER IS A REGISTERED VOTER

INDIVIDUAL SIGNATURES MAY BE REJECTED IF:

- NR PETITIONER IS NOT A REGISTERED VOTER
- DUPLICATE PETITIONER PREVIOUSLY SIGNED THE PETITION (DUPLICATE NAME)
- DATE PETITIONER SIGNED AFTER THE DATE OF CIRCULATOR'S VERIFICATION

AND PETITIONER SIGNED THE NAME OF ANOTHER
SIC PETITIONER DID NOT SIGN THE PETITION (PRINTED NAME ONLY)

ENTIRE PETITIONS MAY BE REJECTED IF:

- CERT THE REGISTRAR'S CERTIFICATION IS NOT COMPLETED OR NOT SIGNED
- ALL INDIVIDUALS ALTER THE REGISTRAR'S CERTIFICATION
- DATE CIRCULATOR'S VERIFICATION IS NOT COMPLETED OR NOT SIGNED
- DATE CIRCULATOR DID NOT TAKE OATH BEFORE VALID NOTARY PUBLIC
- DATE THE NOTARY DID NOT COMPLETE OR SIGN THE NOTARIZATION

NOTE: THE NOTARY IS AN INDIVIDUAL, NOT A FIRM, AND MUST BE A MAINE RESIDENT.

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
1. ✓		6/4/21	129 Grant St, Apt 8	Portland, ME	CAMRIN RIVERA
2. ✓		6/8/21	158 Pearl St, Apt 10	Portland, ME	Daya J. Taylor
3. ✓		6/12/21	87 Pine St Apt 2	Portland, ME	Joane Colf
4. ✓		6/12/21	12 Kellogg St #2	Portland, ME	MARY STANTON
5. ✓		6/12/21	32 Veranda Street Apt #2	Portland, ME	Jess Jean
6. ✓		6/12/21	79 Exeter Street	Portland, ME	Theo Jean-Martin
7. ✓		6/12/21	84 Basins Rd	Portland, ME	Silas Leavitt
8. ✓		6/12/2021	84 Parsons Rd	Portland, ME	Emma Morgenstern
9. ✓		6/12/21	10 White Birch Ln Apt 448	Portland, ME	Christina Sireva
10. ✓		6/12/21	151 Elmwood St	Portland, ME	Stephanie Rogers
11. ✓		6/23/21	151 Noyes St	Portland, ME	David Leonard
12. ✓		6/23/21	467 Congress St. Apt 520	Portland, ME	RICHARD QUANEY
13. ✓		6/23/21	8 Fernside St	Portland, ME	Justin Levesque
14. ✓		7/19/21	21 Gray St. Apt. 1	Portland, ME	Kelli Musick
15. ✓		7/18/21	21 Gray St. Apt 1	Portland, ME	Farnie Burnett

PLEASE SEE REVERSE FOR ADDITIONAL SIGNATURES, CIRCULATOR'S OATH AND REGISTRAR'S CERTIFICATION

STATE OF MAINE

PETITION TO REQUIRE AGENCY RULEMAKING

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
16. ✓	<i>Susan Thomas</i>	08/12/2021	303 Stevens Ave, Portland	Portland	Susan Thomas
17. ✓	<i>Mark L. J.</i>	8/12/21	303 Stevens Ave Portland	Portland	Merritt Major
18. ✓	<i>Paula Reilly</i>	8/12/21	114 Glenwood Ave Pld	Portland	Paula Reilly
19. ✓	<i>Edward Simpson</i>	8/23/21	52 Astorment St. #1	Portland	Edward Simpson
20.	<i>Shannon Linneman</i>	8/23/21	57 High St #3, Portland Portland	Portland	Shannon Linneman
21. ✓	<i>Michael Rogers</i>	8/24/21	655 Congress St. Apt 109	Portland	Michael Rogers
22. ✓	<i>Josh Rozor</i>	8/24/21	366 Park Ave. Apt 2	Portland	Josh Rozor
23. ✓	<i>Josephine Simon</i>	8/24/21	18 Parsons RD	Portland	Josephine Simon
24. ✓	<i>Mary Morrissey</i>	8/24/21	64 Melbourne St. Apt 3	Portland	Mary Morrissey
25. ✓	<i>Andrie Kenney</i>	8/24/21	115 Reed St.	Portland	Andrie Kenney

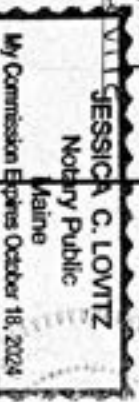
CIRCULATOR'S OATH

I hereby make oath that I am the Circulator of this petition, that all the signatures to this petition were made in my presence and, to the best of my knowledge and belief, each signature is that of the person it purports to be.

Signature of Circulator *Alison Briggs* Printed Name Alison Briggs

Signature of Notary *Jessica C. Lowitz* Printed Name Jessica C. Lowitz

Subscribed to and sworn before me on this date: May 17, 2022
Date made be completed by Notary



REGISTRAR'S CERTIFICATION

Municipality Portland TOTAL VALID 24 TOTAL INVALID 0

I hereby certify that the names of all the petitioners listed as valid appear on the voting list as qualified to vote for Governor.

Signature of Registrar: *Paul King* Date: 08/24/2022

STATE OF MAINE PETITION TO REQUIRE AGENCY RULEMAKING

INSTRUCTIONS FOR CIRCULATION

PETITIONER: *ME/XY*

BE A MAINE-REGISTERED VOTER
SIGN NAME AS IT APPEARS ON THE VOTING LIST
SIGN ONLY ONCE
DO NOT SIGN ANOTHER'S NAME
PRINT NAME, DATE OF SIGNING, STREET ADDRESS
& MUNICIPALITY OR RESIDENT (IF NOT AS PRINTED
BY CIRCULATOR)

REGISTRAR: *ME/XY*

COMPLETE AND SIGN THE CIRCULATION BY
INDICATING WITH NAMES ON THE PETITION
APPEAR ON THAT MUNICIPALITY'S VOTING LIST
NOTE: IF THE SIGNATURE ALONE, SUFFICIENTLY
IDENTIFIES THE VOTER, IT SHOULD BE ACCEPTED

**WARNING: MAKING A FALSE
STATEMENT BY THE CIRCULATOR,
SIGNING A PETITION WITH THE
NAME OF ANOTHER, OR SIGNING A
NAME MORE THAN ONCE ON THESE
PETITIONS IS A CLASS E CRIME.**

CERTIFICATION CODES & COMMON REASONS FOR REJECTION

4. PETITIONER IS A REGISTERED VOTER

INDIVIDUAL SIGNATURES MAY BE REJECTED IF:
OR PETITIONER IS NOT A REGISTERED VOTER
OR PETITIONER PREVIOUSLY SIGNED THE PETITION (DUPLICATE NAME)
DATE PETITIONER SIGNED AFTER THE DATE OF CIRCULATOR'S
CIRCULATION
AND PETITIONER SIGNED THE NAME OF ANOTHER
VOTER
AND PETITIONER DID NOT SIGN THE PETITION (PRINTED NAME ONLY)

ENTIRE PETITIONS MAY BE REJECTED IF:

THE REGISTRAR'S CERTIFICATION IS NOT COMPLETED OR NOT SIGNED
ALL INDIVIDUALS AT THE REGISTRAR'S CERTIFICATION
CIRCULATOR'S VERIFICATION IS NOT COMPLETED OR NOT SIGNED
CIRCULATOR DID NOT TAKE OATH TO FORGIVE VALID NOTARY PUBLIC
THE NOTARY DID NOT COMPLETE OR SIGN THE NOTARIZATION

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
1. ✓	<i>[Signature]</i>	11/4/21	25 Turnpike Rd	Seaside	Josephine Harriman
2. ✓	<i>[Signature]</i>	11/7/21	25 Turnpike Rd	Seaside	Christopher Sossand
3.					
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STATE OF MAINE

PETITION TO REQUIRE AGENCY RULEMAKING

For Registrar use (Only)	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
16.					
17.					
18.					
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23.					
24.					
25.					

CIRCULATOR'S OATH

I hereby make oath that I am the Circulator of this petition, that all the signatures to this petition were made in my presence and, to the best of my knowledge and belief, each signature is that of the person it purports to be.

Signature of Circulator Allyson Briggs Printed Name Allyson Briggs

Signature of Notary Jessica C. Lomtz Printed Name Jessica C. Lomtz

Subscribed to and sworn before me on this date May 19, 2022

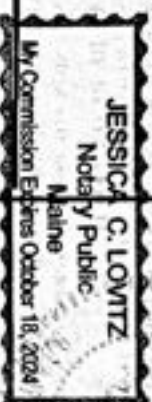
(Date must be completed by Notary)

REGISTRAR'S CERTIFICATION

Municipality Seabrook TOTAL VALID 2 TOTAL INVALID 0

I hereby certify that the names of all the petitioners listed as valid appear on the voting list as qualified to vote for Governor.

Signature of Registrar: Allyson C. Clark Date: 3/1/2022
Clark Registrar



STATE OF MAINE PETITION TO REQUIRE AGENCY RULEMAKING

INSTRUCTIONS FOR CIRCULATION

PETITIONER - MC/ST

- BE A MAINE REGISTERED VOTER
- SIGN NAME AS IT APPEARS ON THE VOTING LIST
- SIGN ONLY ONCE
- **DON'T SIGN ANOTHER'S NAME**
- PRINT NAME, DATE OF SIGNING, STREET ADDRESS & MUNICIPALITY OF RESIDENCE (UNLESS PRINTED BY CIRCULATOR)

PETITION CIRCULATOR - MC/ST

- BE A MAINE RESIDENT & REGISTERED VOTER
- COMPLETE THE CIRCULATOR'S VERIFICATION
- TAKE THE OATH BEFORE A NOTARY PUBLIC
- **DON'T COLLECT SIGNATURES AFTER TAKING OATH**

REGISTRAR - MC/ST

- COMPLETE AND SIGN THE CERTIFICATION BY INDICATING WHICH NAMES ON THE PETITION APPEAR ON THAT MUNICIPALITY'S VOTING LIST
- **NOTE: IF THE SIGNATURE ALONE SUFFICIENTLY IDENTIFIES THE VOTER, IT SHOULD BE ACCEPTED**

WARNING: MAKING A FALSE STATEMENT BY THE CIRCULATOR, SIGNING A PETITION WITH THE NAME OF ANOTHER, OR SIGNING A NAME MORE THAN ONCE ON THESE PETITIONS IS A CLASS C CRIME.

CERTIFICATION CODES & COMMON REASONS FOR REJECTION

4 PETITIONER IS A REGISTERED VOTER

INDIVIDUAL SIGNATURES MAY BE REJECTED IF:

- NR** PETITIONER IS NOT A REGISTERED VOTER
- DR** PETITIONER PREVIOUSLY SIGNED THE PETITION (DUPLICATE NAME)
- DATE** PETITIONER SIGNED AFTER THE DATE OF CIRCULATOR'S VERIFICATION
- END** PETITIONER SIGNED THE NAME OF ANOTHER
- MC** PETITIONER DID NOT SIGN THE PETITION (PRINTED NAME ONLY)

ENTIRE PETITIONS MAY BE REJECTED IF:

- CERT** THE REGISTRAR'S CERTIFICATION IS NOT COMPLETED OR NOT SIGNED
- ALT** INDIVIDUALS AFTER THE REGISTRAR'S CERTIFICATION
- DATE** CIRCULATOR'S VERIFICATION IS NOT COMPLETED OR NOT SIGNED
- DATE** CIRCULATOR DID NOT TAKE OATH BEFORE A NOTARY PUBLIC
- DATE** THE NOTARY DID NOT COMPLETE FOR SIGN THE NOTARIZATION

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
1. ✓	<i>ML</i>	8/13/12	79 Pleasant Street 04091	Yarmouth	Jenrika Lundy
2.					
3.					
4.					
5.					
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PLEASE SEE REVERSE FOR ADDITIONAL SIGNATURES, CIRCULATOR'S OATH AND REGISTRAR'S CERTIFICATION

STATE OF MAINE
PETITION TO REQUIRE AGENCY RULEMAKING

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					

CIRCULATOR'S OATH

I hereby make oath that I am the Circulator of this petition, that all the signatures to this petition were made in my presence and, to the best of my knowledge and belief, each signature is that of the person it purports to be.

Signature of Circulator

Alyssa Briggs

Printed Name

Alyssa Briggs

Signature of Notary

Jessica C. Lovitz

Printed Name

Jessica C. Lovitz

Subscribed to and sworn before me on this date:

May 19, 2022

Date made be completed by Notary

REGISTRAR'S CERTIFICATION

Municipality *Hamden*

TOTAL VALID

TOTAL INVALID

I hereby certify that the names of all the petitioners listed as valid appear on the voting list as qualified to vote for Governor.

Signature of Registrar

Jessica C. Lovitz

Date:

2/28/2022



12-20-22A11:07 RCVD

STATE OF MAINE PETITION TO REQUIRE AGENCY RULEMAKING

INSTRUCTIONS FOR CIRCULATION

PETITIONER - AG/ST

- BE A MAINE REGISTERED VOTER
- SIGN NAME AS IT APPEARS ON THE VOTING LIST
- SIGN ONLY ONCE
- NOT SIGN ANOTHER'S NAME
- PRINT NAME, DATE OF SIGNING, STREET ADDRESS & MUNICIPALITY OF RESIDENCE (UNLESS PRINTED BY CIRCULATOR)

REGISTRAR - AG/ST

- COMPLETE AND SIGN THE CERTIFICATION BY INDICATING WHICH NAMES ON THE PETITION APPEAR ON THAT MUNICIPALITY'S VOTING LIST
- NOTE: IF THE SIGNATURE ALONE SUBSEQUENTLY IDENTIFIES THE VOTER, IT SHOULD BE ACCEPTED

CERTIFICATION CODES & COMMON REASONS FOR REJECTION

4 PETITIONER IS A REGISTERED VOTER

INDIVIDUAL SIGNATURES MAY BE REJECTED IF:

- PETITIONER IS NOT A REGISTERED VOTER
- PETITIONER PREVIOUSLY SIGNED THE PETITION (DUPLICATE NAME)
- PETITIONER SIGNED AFTER THE DATE OF CIRCULATOR'S DATE



ENTIRE PETITIONS MAY BE REJECTED IF:

- THE REGISTRAR'S CERTIFICATION IS NOT COMPLETED OR NOT SIGNED
- INDIVIDUALS ALTER THE REGISTRAR'S CERTIFICATION
- CIRCULATOR'S VERIFICATION IS NOT COMPLETED OR NOT SIGNED
- CIRCULATOR DID NOT TAKE OATH BEFORE VALID NOTARY PUBLIC OATH
- THE NOTARY DID NOT COMPLETE OR SIGN THE NOTARIZATION

PETITION CIRCULATOR - AG/ST

- BE A MAINE RESIDENT & REGISTERED VOTER
- COMPLETE THE CIRCULATOR'S VERIFICATION
- TAKE THE OATH BEFORE A NOTARY PUBLIC
- NOT COLLECT SIGNATURES AFTER TAKING OATH

WARNING: MAKING A FALSE STATEMENT BY THE CIRCULATOR, SIGNING A PETITION WITH THE NAME OF ANOTHER, OR SIGNING A NAME MORE THAN ONCE ON THESE PETITIONS IS A CLASS C CRIME.

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
1. ✓		11/7/21	3 Hawthorne St, Brunswick	Brunswick	Christina Razi
2. ✓		7/10/21	3 Hawthorne St.	Brunswick	Justin Luvier
3.					
4.					
5.					
6.					
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13.					
14.					
15.					

PLEASE SEE REVERSE FOR ADDITIONAL SIGNATURES, CIRCULATOR'S OATH AND REGISTRAR'S CERTIFICATION

STATE OF MAINE

PETITION TO REQUIRE AGENCY RULEMAKING

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					

I hereby make oath that I am the Circulator of this petition, that all the signatures to this petition were made in my presence and, to the best of my knowledge and belief, each signature is that of the person it purports to be.

Signature of Circulator *Allyson Briggs* Printed Name **Allyson Briggs**

Signature of Notary *Jessica C. Lovitz* Printed Name **Jessica C. Lovitz**

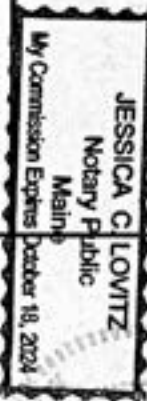
Subscribed to and sworn before me on this date: *May 19, 2022*
 Their names be completed by Notary

REGISTRAR'S CERTIFICATION

Municipality *Brunswick* TOTAL VALID *2* TOTAL INVALID *0*

I hereby certify that the names of all the petitioners listed as valid appear on the voting list as qualified to vote for Governor.

Signature of Registrar: *Wendine H. Wright* Date: *March 1, 2022*



STATE OF MAINE PETITION TO REQUIRE AGENCY RULEMAKING

INSTRUCTIONS FOR CIRCULATION

PETITIONER - MUST:

- BE A MAINE REGISTERED VOTER
- SIGN NAME AS IT APPEARS ON THE VOTING LIST
- SIGN ONLY ONCE
- NOT SIGN ANOTHER'S NAME
- PRINT NAME, DATE OF SIGNING, STREET ADDRESS & MUNICIPALITY OF RESIDENCE (UNLESS PRINTED BY CIRCULATOR)

PETITION CIRCULATOR - MUST:

- BE A MAINE RESIDENT & REGISTERED VOTER
- COMPLETE THE CIRCULATOR'S VERIFICATION
- TAKE THE OATH BEFORE A NOTARY PUBLIC
- NOT COLLECT SIGNATURES AFTER TAKING OATH

REGISTRAR - MUST:

- COMPLETE AND SIGN THE CERTIFICATION BY INDICATING WHICH NAMES ON THE PETITION APPEAR ON THAT MUNICIPALITY'S VOTING LIST

NOTE: IF THE SIGNATURE ALONE SUPERINTENDENT IDENTIFIES THE VOTER, IT SHOULD BE ACCEPTED

WARNING: MAKING A FALSE STATEMENT BY THE CIRCULATOR, SIGNING A PETITION WITH THE NAME OF ANOTHER, OR SIGNING A NAME MORE THAN ONCE ON THESE PETITIONS IS A CLASS C CRIME.

CERTIFICATION CODES & COMMON REASONS FOR REJECTION

4 PETITIONER IS A REGISTERED VOTER

INDIVIDUAL SIGNATURES MAY BE REJECTED IF:

OR PETITIONER IS NOT A REGISTERED VOTER

OR PETITIONER PREVIOUSLY SIGNED THE PETITION (DUPLICATE NAME)

OR PETITIONER SIGNED AFTER THE DATE OF CIRCULATOR'S VERIFICATION

AND PETITIONER SIGNED THE NAME OF ANOTHER

AND PETITIONER DID NOT SIGN THE PETITION (PRINTED NAME ONLY)

ENTIRE PETITIONS MAY BE REJECTED IF:

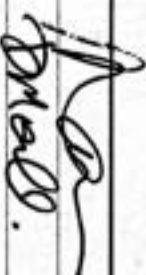

OR CERT THE REGISTRAR'S CERTIFICATION IS NOT COMPLETED OR NOT SIGNED

OR ALL INDIVIDUALS ALTER THE REGISTRAR'S CERTIFICATION

OR CIRCULATOR'S VERIFICATION IS NOT COMPLETED OR NOT SIGNED

OR CIRCULATOR DID NOT TAKE OATH BEFORE A VALID NOTARY PUBLIC

OR THE NOTARY DID NOT COMPLETE OR SIGN THE NOTARIZATION

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
1. ✓		11/7/21	1189 Chisholm Pond Road	Palermo	Melissa Andrews
2. ✓		11/7/21	1185 Chisholm Pond Road	Palermo	Dennis Moalli
3.					
4.					
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PLEASE SEE REVERSE FOR ADDITIONAL SIGNATURES, CIRCULATOR'S OATH AND REGISTRAR'S CERTIFICATION

STATE OF MAINE

PETITION TO REQUIRE AGENCY RULEMAKING

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
16.					
17.					
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25.					

I hereby make oath that I am the Circulator of this petition, that all the signatures to this petition were made in my presence and, to the best of my knowledge and belief, each signature is that of the person it purports to be.

Signature of Circulator

Alison Briggs

Printed Name

Alison Briggs

Signature of Notary

Jessica C. Lovitz

Printed Name

Jessica C. Lovitz

Subscribed to and sworn before me on this date:

May 19, 2022

Date must be completed by Notary

REGISTRAR'S CERTIFICATION

Municipality

Bedford

TOTAL VALID

2

TOTAL INVALID

0

I hereby certify that the names of all the petitioners listed as valid appear on the voting list as qualified to vote for Governor.

Signature of Registrar:

J. Kenna

Date:

3/1/22



STATE OF MAINE

PETITION TO REQUIRE AGENCY RULEMAKING

INSTRUCTIONS FOR CIRCULATION

PETITIONER - MUST:

- BE A MAINE REGISTERED VOTER
- SIGN NAME AS IT APPEARS ON THE VOTING LIST
- SIGN ONLY ONCE
- **NOT** SIGN ANOTHER'S NAME
- PRINT NAME, DATE OF SIGNING, STREET ADDRESS & MUNICIPALITY OF RESIDENCE (LIST AS PRINTED BY CIRCULATOR)

PETITION CIRCULATOR - MUST:

- BE A MAINE RESIDENT & REGISTERED VOTER
- COMPLETE THE CIRCULATOR'S VERIFICATION
- TAKE THE OATH BEFORE A NOTARY PUBLIC
- **NOT** COLLECT SIGNATURES AFTER TAKING OATH

REGISTRAR - MUST:

- COMPLETE AND SIGN THE CERTIFICATION BY INDICATING WHICH NAMES ON THE PETITION APPEAR ON THAT MUNICIPALITY'S VOTING LIST
- NOTE: IF THE SIGNATURE ALONE SUBSEQUENTLY IDENTIFIES THE VOTER, IT SHOULD BE ACCEPTED

WARNING: MAKING A FALSE STATEMENT BY THE CIRCULATOR, SIGNING A PETITION WITH THE NAME OF ANOTHER, OR SIGNING A NAME MORE THAN ONCE ON THESE PETITIONS IS A CLASS E CRIME.

CERTIFICATION CODES & COMMON REASONS FOR REJECTION

4 PETITIONER IS A REGISTERED VOTER

INDIVIDUAL SIGNATURES MAY BE REJECTED IF:

- **NR** PETITIONER IS NOT A REGISTERED VOTER
- **WR** PETITIONER PREVIOUSLY SIGNED THE PETITION (DATE NAME)
- **DR** PETITIONER SIGNED AFTER THE DATE OF CIRCULATOR'S VERIFICATION
- **AR** PETITIONER SIGNED THE NAME OF ANOTHER
- **SR** PETITIONER DID NOT SIGN THE PETITION (PRINTED NAME ONLY)

ENTIRE PETITIONS MAY BE REJECTED IF:

- **CR** THE REGISTRAR'S CERTIFICATION IS NOT COMPLETED OR NOT SIGNED
- **AL** INDIVIDUALS ALTER THE REGISTRAR'S CERTIFICATION
- **AT** CIRCULATOR'S VERIFICATION IS NOT COMPLETED OR NOT SIGNED
- **DT** CIRCULATOR DID NOT TAKE OATH BEFORE VALID NOTARY PUBLIC
- **OT** THE NOTARY DID NOT COMPLETE OR SIGN THE NOTARIZATION

CODES: THE NUMBER OF SIGNATURES REJECTED FOR EACH REASON ARE CIRCLED AT THE BOTTOM

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
1. ✓	<i>[Signature]</i>	11/19/21	59 POVERTY RIDGE ROAD	Bucksport, ME	Thomas S. Andrews
2. ✓	<i>[Signature]</i>	11/19/21	59 Poverty Ridge Rd	Bucksport ME	Exverlay A. Andrews
3.					
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15.					

PLEASE SEE REVERSE FOR ADDITIONAL SIGNATURES, CIRCULATOR'S OATH AND REGISTRAR'S CERTIFICATION

STATE OF MAINE
PETITION TO REQUIRE AGENCY RULEMAKING

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					

I hereby make oath that I am the Circulator of this petition, that all the signatures to this petition were made in my presence and, to the best of my knowledge and belief, each signature is that of the person it purports to be.

Signature of Circulator

Audun Briggs

Printed Name **AUDUN BRIGGS**

Signature of Notary

Jessica C. Lovitz

Printed Name **Jessica C. Lovitz**

Subscribed to and sworn before me on this date

May 19, 2022

Date must be completed by Notary

REGISTRAR'S CERTIFICATION

Municipality

Buckport

TOTAL VALID

2

TOTAL INVALID

0

I hereby certify that the names of all the petitioners listed as valid appear on the voting list as qualified to vote for Governor.

Signature of Registrar:

Janet R. Long

Date:

3/1/22



STATE OF MAINE PETITION TO REQUIRE AGENCY RULEMAKING

INSTRUCTIONS FOR CIRCULATION

PETITIONER - *MC/ST*

BE A MAINE REGISTERED VOTER
SIGN NAME AS IT APPEARS ON THE VOTING LIST
SIGN ONLY ONCE
NOT SIGN ANOTHER'S NAME
PRINT NAME, DATE OF SIGNING, STREET ADDRESS
& MUNICIPALITY OF RESIDENCE (UNLESS PRINTED
BY CIRCULATOR)

REGISTRAR - *MC/ST*

COMPLETE AND SIGN THE CERTIFICATION BY
CIRCULATING WITH NAME(S) ON THE PETITION
APPEAR ON THAT MUNICIPALITY'S VOTING LIST
NOTE: IF THE SIGNATURE ALONE SUBSEQUENTLY
IDENTIFIES THE VOTER, IT SHOULD BE ACCEPTED

WARNING: MAKING A FALSE
STATEMENT BY THE CIRCULATOR,
SIGNING A PETITION WITH THE
NAME OF ANOTHER, OR SIGNING A
NAME MORE THAN ONCE ON THESE
PETITIONS IS A CLASS C CRIME.

CERTIFICATION CODES & COMMON REASONS FOR REJECTION

4 PETITIONER IS A REGISTERED VOTER

INDIVIDUAL SIGNATURES MAY BE REJECTED IF:

NR PETITIONER IS NOT A REGISTERED VOTER
DUPE PETITIONER PREVIOUSLY SIGNED THE PETITION (DUPLICATE NAME)
DATE PETITIONER SIGNED AFTER THE DATE OF CIRCULATOR'S
VERIFICATION
AND PETITIONER SIGNED THE NAME OF ANOTHER
SIC PETITIONER DID NOT SIGN THE PETITION (PRINTED NAME ONLY)
ENTIRE PETITIONS MAY BE REJECTED IF:
CERT THE REGISTRAR'S CERTIFICATION IS NOT COMPLETED OR NOT SIGNED
ALL INDIVIDUALS ALTER THE REGISTRAR'S CERTIFICATION
CIRCULATOR'S VERIFICATION IS NOT COMPLETED OR NOT SIGNED
CIRCULATOR DID NOT TAKE OATH BEFORE VALID NOTARY PUBLIC
CIRCU THE NOTARY DID NOT COMPLETE OR SIGN THE NOTARIZATION
CIRCU THE NOTARY IS AN UNLICENSED CLERK'S SIGNATURE

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
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1. ✓	<i>MM</i>	11-07-21	1111 Littlefield Rd	Brooks, Me.	Danielle M. Tessier
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2. ✓	<i>Yma Can</i>	11-7-21	117 S Brooks Rd	Brooks, ME	Emily Carman
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3. ME	<i>Mc Ceck</i>	11-7-21	1261 Littlefield Rd.	Brooks, ME	Mayla Clayton
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4.					
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14.					
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15.					
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PLEASE SEE REVERSE FOR ADDITIONAL SIGNATURES, CIRCULATOR'S OATH AND REGISTRAR'S CERTIFICATION

STATE OF MAINE

PETITION TO REQUIRE AGENCY RULEMAKING

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					

I hereby make oath that I am the Circulator of this petition, that all the signatures to this petition were made in my presence and, to the best of my knowledge and belief, each signature is that of the person it purports to be.

Signature of Circulator

Allyson Brooks

Printed Name **Allyson Brooks**

Signature of Notary

Jessica C. Lovitz

Printed Name **Jessica C. Lovitz**

Subscribed to and sworn before me on this date:

May 19, 2022

Date must be completed by Notary

REGISTRAR'S CERTIFICATION

Municipality **Brooks**

TOTAL VALID **2**

TOTAL INVALID **1**

I hereby certify that the names of all the petitioners listed as valid appear on the voting list as qualified to vote for Governor.

Signature of Registrar:

Jane McLaughlin

Date: *3/1/22*



9

CERTIFICATION CODES & COMMON REASONS FOR REJECTION

REGISTRATION

WARNING: MAKING A FALSE STATEMENT OR SIGNING THE CERTIFICATION BY IMITATING ANOTHER PERSON'S NAME ON THE PETITION APPEAR ON THAT MEMBER'S PALLETY'S VOTING LIST NOTE: IF THE SIGNATURE ALONE SUPERFICIALLY IDENTIFIES THE VOTER, IT SHOULD BE ACCEPTED

4. PETITIONER IS A REGISTERED VOTER

INDIVIDUAL SIGNATURES MAY BE REJECTED IF:

ONE PETITIONER IS NOT A REGISTERED VOTER

TWO PETITIONERS PREVIOUSLY SIGNED THE PETITION ON PLATE NAME

THREE PETITIONERS SIGNED AFTER THE DATE OF CHIEF MAGISTRATE'S

FOUR PETITIONERS SIGNED THE SAME PETITIONER

FIVE PETITIONERS DID NOT SIGN THE PETITION PRINTED NAME ONLY

PETITION CIRCULATOR M/S/

WARNING: MAKING A FALSE STATEMENT BY THE CIRCULATOR, SIGNING A PETITION WITH THE NAME OF ANOTHER, OR SIGNING A NAME MORE THAN ONCE ON THESE PETITIONS IS A CLASS E CRIME.

UNLIKE PETITIONS MAY BE RECEIVED IF

[illegible]

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
1.	<i>KC</i>	11/7/21	44 Stony Point Rd	Belgrade	Kristen Carlson
2.					
3.					
4.					
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6.					
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11.					
12.					
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STATE OF MAINE

PETITION TO REQUIRE AGENCY RULEMAKING

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					

CIRCULATOR'S OATH

I hereby make oath that I am the Circulator of this petition, that all the signatures to this petition were made in my presence and, to the best of my knowledge and belief, each signature is that of the person it purports to be.

Signature of Circulator Alison Briggs Printed Name Alison Briggs

Signature of Notary Jessica C. Lovitz Printed Name Jessica C. Lovitz

Subscribed to and sworn before me on this date May 19, 2022

(Date must be completed by Notary)

REGISTRAR'S CERTIFICATION

Municipality Baldade TOTAL VALID 1 TOTAL INVALID 0

I hereby certify that the names of all the petitioners listed as valid appear on the voting list as qualified to vote for Governor.

Signature of Registrar: William J. Vogel, Deputy Date: 3-1-22



STATE OF MAINE
PETITION TO REQUIRE AGENCY RULEMAKING

INSTRUCTIONS FOR CIRCULATION

PETITIONER - MC/ST

- BE A MAINE REGISTERED VOTER
- SIGN NAME AS IT APPEARS ON THE VOTING LIST
- SIGN ONLY ONCE
- NOT SIGN ANOTHER'S NAME
- PRINT NAME, DATE OF SIGNING, STREET ADDRESS & MUNICIPALITY OF RESIDENCE (UNLESS PRINTED BY CIRCULATOR)

REGISTRAR - MC/ST

- COMPLETE AND SIGN THE CIRCULATION BY INDICATING WHERE THE NAMES ON THE PETITION APPEAR ON THAT MUNICIPALITY'S VOTING LIST
- NOTE: IF THE SIGNATURE ALONE SUFFICIENTLY IDENTIFIES THE VOTER, IT SHOULD BE ACCEPTED

WARNING: MAKING A FALSE

- STATEMENT BY THE CIRCULATOR, SIGNING A PETITION WITH THE NAME OF ANOTHER, OR SIGNING A NAME MORE THAN ONCE ON THESE PETITIONS IS A CLASS E CRIME.

CERTIFICATION CODES & COMMON REASONS FOR REJECTION

4 PETITIONER IS A REGISTERED VOTER

INDIVIDUAL SIGNATURES MAY BE REJECTED IF:

- NR PETITIONER IS NOT A REGISTERED VOTER
- DR/P PETITIONER PREVIOUSLY SIGNED THE PETITION (DUPLICATE NAME)
- DATE PETITIONER SIGNED AFTER THE DATE OF CIRCULATOR'S VERIFICATION
- AND PETITIONER SIGNED THE NAME OF ANOTHER
- SIG PETITIONER DID NOT SIGN THE PETITION (PRINTED NAME ONLY)
- ENTIRE PETITIONS MAY BE REJECTED IF:
- CR/T THE REGISTRAR'S CERTIFICATION IS NOT COMPLETED OR NOT SIGNED
- ALT INDIVIDUALS AFTER THE REGISTRAR'S CERTIFICATION
- DATE CIRCULATOR'S VERIFICATION IS NOT COMPLETED OR NOT SIGNED
- DATE CIRCULATOR DID NOT TAKE OATH BEFORE VALID NOTARY PUBLIC
- DATE THE NOTARY DID NOT COMPLETE OR SIGN THE NOTARIZATION

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
1. ✓	Mary Bradstreet	11/7/2020	43 Main St	Fairfield	Mary Bradstreet
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					

PLEASE SEE REVERSE FOR ADDITIONAL SIGNATURES, CIRCULATOR'S OATH AND REGISTRAR'S CERTIFICATION

STATE OF MAINE
PETITION TO REQUIRE AGENCY RULEMAKING

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					

CIRCULATOR'S OATH

I hereby make oath that I am the Circulator of this petition, that all the signatures to this petition were made in my presence and, to the best of my knowledge and belief, each signature is that of the person it purports to be.

Signature of Circulator

Alvin Briggs

Printed Name **Alvin San Briggs**

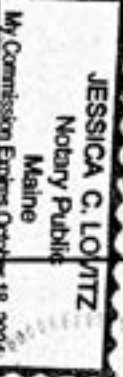
Signature of Notary

Jessica C. Lomitz

Printed Name **Jessica C. Lomitz**

Subscribed to and sworn before me on this date **May 19, 2022**

Date must be completed by Notary



REGISTRAR'S CERTIFICATION

Town Clerk

Municipality

Town of Fairfield
PO Box 149

TOTAL VALID

TOTAL INVALID

I hereby certify that the **Fairfield, ME 04937** petitioners listed as valid appear on the voting list as qualified to vote for Governor.

Signature of Registrar:

Christine Keller

Christine Keller
Town Clerk

Date:

08-28-2022



STATE OF MAINE PETITION TO REQUIRE AGENCY RULEMAKING

INSTRUCTIONS FOR CIRCULATION

PETITIONER: *ME/S/*
 IN A MAINE REGISTERED VOTER
 SIGN NAME AS IT APPEARS ON THE VOTING LIST.
 SIGN ONLY ONCE.
 NEXT SIGN ANOTHER'S NAME.
 PRINT NAME, DATE OF SIGNING, STREET ADDRESS
 & MUNICIPALITY OR RESIDENT ADDRESS PRINTED
 BY CIRCULATOR.

PETITION CIRCULATOR: *ME/S/*
 IN A MAINE RESIDENT & REGISTERED VOTER
 COMPLETE THE CIRCULATOR'S VERIFICATION
 TAKE THE OATH BEFORE A NOTARY PUBLIC
 NOT OBJECT SIGNATURES AFTER TAKING OATH

REGISTRAR: *ME/S/*

COMPLETE AND SIGN THE CERTIFICATION BY
 INDICATING WHETHER NAMES ON THE PETITION
 APPEAR ON THAT MUNICIPALITY'S VOTING LIST
 NOTE: IF THE SIGNATURE ALONE SUFFICIENTLY
 IDENTIFIES THE VOTER, IT SHOULD BE ACCEPTED.

WARNING: MAKING A FALSE
 STATEMENT BY THE CIRCULATOR,
 SIGNING A PETITION WITH THE
 NAME OF ANOTHER, OR SIGNING A
 NAME MORE THAN ONCE ON THESE
 PETITIONS IS A CLASS C CRIME.

CERTIFICATION CODES & COMMON REASONS FOR REJECTION

4. PETITIONER IS A REGISTERED VOTER

INDIVIDUAL SIGNATURES MAY BE REJECTED IF:

OR PETITIONER IS NOT A REGISTERED VOTER

DATE PETITIONER PREVIOUSLY SIGNED THE PETITION (DUPLICATE NAME)

DATE PETITIONER SIGNED AFTER THE DATE OF CIRCULATOR'S

VERIFICATION

ENTIRE PETITIONS MAY BE REJECTED IF:

OR THE REGISTRAR'S CERTIFICATION IS NOT COMPLETE (E.D. OR NOT SIGNED)

DATE CIRCULATOR'S VERIFICATION IS NOT COMPLETE (E.D. OR NOT SIGNED)

DATE CIRCULATOR DID NOT TAKE OATH BEFORE NOTARY PUBLIC

DATE THE NOTARY DID NOT COMPLETE OR SIGN THE NOTARIZATION

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
1. <input checked="" type="checkbox"/>	<i>[Signature]</i>	11/7/21	898 High St.	West Gardiner	Kshanti Greene
2. <input checked="" type="checkbox"/>	<i>[Signature]</i>	11/7/21	898 High St.	West Gardiner	Thomas Young
3.					
4.					
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STATE OF MAINE PETITION TO REQUIRE AGENCY RULEMAKING

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

CIRCULATOR'S OATH

I hereby make oath that I am the Circulator of this petition, that all the signatures to this petition were made in my presence and, to the best of my knowledge and belief, each signature is that of the person it purports to be.

Signature of Circulator *Melissa Briggs* Printed Name **Melissa Briggs**

Signature of Notary *Chris C. Foss* Printed Name **Jessica Cloutier**

Subscribed to and sworn before me on this date **May 19, 2022**

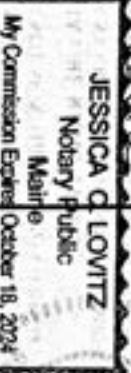
(Date made completed by Notary)

REGISTRAR'S CERTIFICATION

Municipality **West Gardiner** TOTAL VALID **2** TOTAL INVALID **0**

I hereby certify that the names of all the petitioners listed as valid appear on the voting list as qualified to vote for Governor.

Signature of Registrar: *Angela Pulli* Date: **3/2/2022**



STATE OF MAINE PETITION TO REQUIRE AGENCY RULEMAKING

INSTRUCTIONS FOR CIRCULATION

CERTIFICATION CODES & COMMON REASONS FOR REJECTION

PETITIONER - MUST:

- BE A MAINE REGISTERED VOTER
- SIGN NAME AS IT APPEARS ON THE VOTING LIST
- SIGN ONLY ONCE
- NOT SIGN ANOTHER'S NAME
- PRINT NAME, DATE OF SIGNING, STREET ADDRESS & MUNICIPALITY OF RESIDENCE (UNLESS PRINTED BY CIRCULATOR)

REGISTRAR - MUST:

- COMPLETE AND SIGN THE CERTIFICATION BY INDICATING WHICH NAMES ON THE PETITION APPEAR ON THAT MUNICIPALITY'S VOTING LIST
- NOTE: IF THE SIGNATURE ALONE SUFFICIENTLY IDENTIFIES THE VOTER, IT SHOULD BE ACCEPTED

WARNING: MAKING A FALSE STATEMENT BY THE CIRCULATOR, SIGNING A PETITION WITH THE NAME OF ANOTHER, OR SIGNING A NAME MORE THAN ONCE ON THESE PETITIONS IS A CLASS E CRIME.

4 PETITIONER IS A REGISTERED VOTER

INDIVIDUAL SIGNATURES MAY BE REJECTED IF:


- MR PETITIONER IS NOT A REGISTERED VOTER
- DUPLICATE NAME
- DATE PETITIONER SIGNED AFTER THE DATE OF CIRCULATOR'S VERIFICATION
- ANO PETITIONER SIGNED THE NAME OF ANOTHER
- SG PETITIONER DID NOT SIGN THE PETITION (PRINTED NAME ONLY)

ENTIRE PETITIONS MAY BE REJECTED IF:

- CERT THE REGISTRAR'S CERTIFICATION IS NOT COMPLETED OR NOT SIGNED
- ALT INDIVIDUALS ALTER THE REGISTRAR'S CERTIFICATION
- DATE CIRCULATOR'S VERIFICATION IS NOT COMPLETED OR NOT SIGNED
- DATE CIRCULATOR DID NOT TAKE OATH BEFORE VALID NOTARY PUBLIC
- DATE THE NOTARY DID NOT COMPLETE OR SIGN THE NOTARIZATION
- OVER THE NOTARY IS AN INADEQUATE FAMILY MEMBER OF CIRCULATOR

PETITION CIRCULATOR - MUST:

- BE A MAINE RESIDENT & REGISTERED VOTER
- COMPLETE THE CIRCULATOR'S VERIFICATION
- TAKE THE OATH BEFORE A NOTARY PUBLIC
- NOT COLLECT SIGNATURES AFTER TAKING OATH

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
1.		8/12/21	214 Hewett Rd.	Somerville	Amanda Atchuck
2.					
3.					
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7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					

PLEASE SEE REVERSE FOR ADDITIONAL SIGNATURES, CIRCULATOR'S OATH AND REGISTRAR'S CERTIFICATION

STATE OF MAINE
PETITION TO REQUIRE AGENCY RULEMAKING

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					

CIRCULATOR'S OATH

I hereby make oath that I am the Circulator of this petition, that all the signatures to this petition were made in my presence and, to the best of my knowledge and belief, each signature is that of the person it purports to be.

Signature of Circulator Alison Briggs Printed Name Alison Briggs

Signature of Notary Jessica C. Lovitz Printed Name Jessica C. Lovitz

Subscribed to and sworn before me on this date: May 19, 2022

Date must be completed by Notary

REGISTRAR'S CERTIFICATION

Municipality Somerville TOTAL VALID 1 TOTAL INVALID 8

I hereby certify that the names of all the petitioners listed as valid appear on the voting list as qualified to vote for Governor.

Signature of Registrar: Shawn Date: 3-2-2027



STATE OF MAINE PETITION TO REQUIRE AGENCY RULEMAKING

INSTRUCTIONS FOR CIRCULATION

PETITIONER - *MC/ST*

- BE A MAINE REGISTERED VOTER
- SIGN NAME AS IT APPEARS ON THE VOTING LIST
- SIGN ONLY ONCE
- NOT SIGN ANOTHER'S NAME
- PRINT NAME, DATE OF SIGNING, STREET ADDRESS & MUNICIPALITY OF RESIDENCE (UNLESS PRINTED BY CIRCULATOR)

PETITION CIRCULATOR - *MC/ST*

- BE A MAINE RESIDENT & REGISTERED VOTER
- COMPLETE THE CIRCULATOR'S VERIFICATION
- TAKE THE OATH BEFORE A NOTARY PUBLIC
- NOT COLLECT SIGNATURES AFTER TAKING OATH

REGISTRAR - *MC/ST*

- COMPLETE AND SIGN THE CERTIFICATION BY INDICATING WHICH NAMES ON THE PETITION APPEAR ON THAT MUNICIPALITY'S VOTING LIST
- NOTE: IF THE SIGNATURE ALONE SUFFICIENTLY IDENTIFIES THE VOTER, IT SHOULD BE ACCEPTED

WARNING: MAKING A FALSE STATEMENT BY THE CIRCULATOR, SIGNING A PETITION WITH THE NAME OF ANOTHER, OR SIGNING A NAME MORE THAN ONCE ON THESE PETITIONS IS A CLASS E CRIME.

CERTIFICATION CODES & COMMON REASONS FOR REJECTION

4 PETITIONER IS A REGISTERED VOTER

INDIVIDUAL SIGNATURES MAY BE REJECTED IF:

- PETITIONER IS NOT A REGISTERED VOTER
- PETITIONER PREVIOUSLY SIGNED THE PETITION (DUPLICATE NAME)
- PETITIONER SIGNED AFTER THE DATE OF CIRCULATOR'S VERIFICATION
- PETITIONER SIGNED THE NAME OF ANOTHER
- PETITIONER DID NOT SIGN THE PETITION (PRINTED NAME ONLY)

ENTIRE PETITIONS MAY BE REJECTED IF:

- THE REGISTRAR'S CERTIFICATION IS NOT COMPLETED OR NOT SIGNED
- INDIVIDUALS ALTER THE REGISTRAR'S CERTIFICATION
- CIRCULATOR'S VERIFICATION IS NOT COMPLETED OR NOT SIGNED
- CIRCULATOR DID NOT TAKE OATH BEFORE VALID NOTARY PUBLIC
- THE NOTARY DID NOT COMPLETE OR SIGN THE NOTARIZATION
- THE NOTARY IS AN INDIVIDUAL WHOSE EXPIRATION DATE HAS PASSED

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
1. <input checked="" type="checkbox"/>	<i>M Terry</i>	<i>8/24</i>	<i>27 W. Old Orchard Ave</i>	<i>Old Orchard Beach</i>	<i>Healy Holly</i>
2. <input type="checkbox"/>					
3. <input type="checkbox"/>					
4. <input type="checkbox"/>					
5. <input type="checkbox"/>					
6. <input type="checkbox"/>					
7. <input type="checkbox"/>					
8. <input type="checkbox"/>					
9. <input type="checkbox"/>					
10. <input type="checkbox"/>					
11. <input type="checkbox"/>					
12. <input type="checkbox"/>					
13. <input type="checkbox"/>					
14. <input type="checkbox"/>					
15. <input type="checkbox"/>					

PLEASE SEE REVERSE FOR ADDITIONAL SIGNATURES, CIRCULATOR'S OATH AND REGISTRAR'S CERTIFICATION

STATE OF MAINE

PETITION TO REQUIRE AGENCY RULEMAKING

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					

CIRCULATOR'S OATH

I hereby make oath that I am the Circulator of this petition, that all the signatures to this petition were made in my presence and, to the best of my knowledge and belief, each signature is that of the person it purports to be.

Signature of Circulator *Alison Briggs*

Printed Name *Alison Briggs*

Signature of Notary *Jessica C. Lovitz*

Printed Name *Jessica C. Lovitz*

Subscribed to and sworn before me on this date:

May 19, 2022

Date may be completed by Notary

REGISTRAR'S CERTIFICATION

Municipality *Old Orchard Beach* TOTAL VALID *1*

TOTAL INVALID *0*

I hereby certify that the names of all the petitioners listed as valid appear on the voting list as qualified to vote for Governor.

Signature of Registrar: *Kim M. Daughlin*

Date: *2-28-22*



STATE OF MAINE PETITION TO REQUIRE AGENCY RULEMAKING

INSTRUCTIONS FOR CIRCULATION

PETITIONER: *ME/S/*

BE A MAINE REGISTERED VOTER
SIGN NAME AS IT APPEARS ON THE VOTING LIST
SIGN ONLY ONCE
NOT SIGN ANOTHER'S NAME
PRINT NAME, DATE OF SIGNING, STREET ADDRESS
& MUNICIPALITY OR RESIDENT ADDRESS PRINTED
BY CIRCULATOR

REGISTRAR: *ME/S/*

COMPLETE AND SIGN THE CIRCULATION BY
INDICATING WITH NAMES ON THE PETITION
APPEAR ON THAT MUNICIPALITY'S VOTING LIST
NOTE: IF THE SIGNATURE ALONE SUPERFICIALLY
RESEMBLES THE VOTER, IT SHOULD BE ACCEPTED

**WARNING: MAKING A FALSE
STATEMENT BY THE CIRCULATOR,
SIGNING A PETITION WITH THE
NAME OF ANOTHER, OR SIGNING A
NAME MORE THAN ONCE ON THESE
PETITIONS IS A CLASS C CRIME.**

CERTIFICATION CODES & COMMON REASONS FOR REJECTION

4 THE PETITIONER IS A REGISTERED VOTER

INDIVIDUAL SIGNATURES MAY BE REJECTED IF:

OR PETITIONER IS NOT A REGISTERED VOTER
OR PETITIONER PREVIOUSLY SIGNED THE PETITION (DUPLICATE NAME)
OR PETITIONER SIGNED AFTER THE DATE OF CIRCULATOR'S
VERIFICATION
OR PETITIONER SIGNED TO THE SAME OF ANOTHER
OR PETITIONER DID NOT SIGN THE PETITION (PRINTED NAME ONLY)

ENTIRE PETITIONS MAY BE REJECTED IF:

OR THE REGISTRAR'S CERTIFICATION IS NOT COMPLETE OR NOT SIGNED
OR INDIVIDUALS AFTER THE REGISTRAR'S CERTIFICATION
OR CIRCULATOR'S VERIFICATION IS NOT COMPLETE OR NOT SIGNED
OR CIRCULATOR DID NOT TAKE OATH BEFORE VALID NOTARY PUBLIC
OR THE NOTARY DID NOT COMPLETE OR SIGN THE NOTARIZATION

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
1. <i>N</i>	<i>Cheryl Miller</i>	<i>11/7/21</i>	<i>6 Maple St, Apt 2</i>	<i>Augsusta</i>	<i>Cheryl Miller</i>
2.					
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STATE OF MAINE PETITION TO REQUIRE AGENCY RULEMAKING

For Registrar use (Only)	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

CIRCULATOR'S OATH

I hereby make oath that I am the Circulator of this petition, that all the signatures to this petition were made in my presence and, to the best of my knowledge and belief, each signature is that of the person it purports to be.

Signature of Circulator

Oliver Briggs

Printed Name

Oliver Briggs

Signature of Notary

Jessica C. Lovitz

Printed Name

Jessica C. Lovitz

Subscribed to and sworn before me on this date

May 19, 2022

Notary Public

REGISTRAR'S CERTIFICATION

Municipality *Augusta*

TOTAL VALID *1*

TOTAL INVALID *0*

I hereby certify that the names of all the petitioners listed as valid appear on the voting list as qualified to vote for Governor.

Signature of Registrar

Kerry J. Steadman

Date

02/05/2022



STATE OF MAINE PETITION TO REQUIRE AGENCY RULEMAKING

INSTRUCTIONS FOR CIRCULATION

PETITIONER - MUST

- BE A MAINE REGISTERED VOTER
- SIGN NAME AS IT APPEARS ON THE VOTING LIST
- SIGN ONLY ONCE
- NOT SIGN ANOTHER'S NAME
- PRINT NAME, DATE OF SIGNING, STREET ADDRESS & MUNICIPALITY OF RESIDENCE (UNLESS PRINTED BY CIRCULATOR)

PETITION CIRCULATOR - MUST

- BE A MAINE RESIDENT & REGISTERED VOTER
- COMPLETE THE CIRCULATOR'S VERIFICATION
- TAKE THE OATH BEFORE A NOTARY PUBLIC
- NOT COLLECT SIGNATURES AFTER TAKING OATH

REGISTRAR - MUST

- COMPLETE AND SIGN THE CERTIFICATION BY INDICATING WHERE NAMES ON THE PETITION APPEAR ON THAT MUNICIPALITY'S VOTING LIST
- NOTE: IF THE SIGNATURE ALONE, SUFFICIENTLY IDENTIFIES THE VOTER, IT SHOULD BE ACCEPTED

WARNING:

- MAKING A FALSE STATEMENT BY THE CIRCULATOR, SIGNING A PETITION WITH THE NAME OF ANOTHER, OR SIGNING A NAME MORE THAN ONCE ON THESE PETITIONS IS A CLASS C CRIME.

CERTIFICATION CODES & COMMON REASONS FOR REJECTION

4 PETITIONER IS A REGISTERED VOTER

INDIVIDUAL SIGNATURES MAY BE REJECTED IF:

- OR PETITIONER IS NOT A REGISTERED VOTER
- DATE PETITIONER PREVIOUSLY SIGNED THE PETITION (DUPLICATE NAME)
- DATE PETITIONER SIGNED AFTER THE DATE OF CIRCULATOR'S VERIFICATION
- AND PETITIONER SIGNED THE NAME OF ANOTHER PETITIONER DID NOT SIGN THE PETITION (PRINTED NAME ONLY)
- ENTIRE PETITIONS MAY BE REJECTED IF:
- CERT THE REGISTRAR'S CERTIFICATION IS NOT COMPLETED OR NOT SIGNED
- DATE INDIVIDUALS AT THE REGISTRAR'S CERTIFICATION
- DATE CIRCULATOR'S VERIFICATION IS NOT COMPLETED OR NOT SIGNED
- DATE CIRCULATOR DID NOT TAKE OATH BEFORE VALID NOTARY PUBLIC
- DATE THE NOTARY DID NOT COMPLETE OR SIGN THE NOTARIZATION

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
1. ✓	<i>Brian Kellogg</i>	11-7-21	19 Montgomery Lane	Owls Head	Brian Kellogg
2. ✓	<i>David Kellogg</i>	11-7-21	19 Montgomery Lane	Owls Head	David Kellogg
3.			No signatures below this line		
4.					
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PLEASE SEE REVERSE FOR ADDITIONAL SIGNATURES, CIRCULATOR'S OATH AND REGISTRAR'S CERTIFICATION

STATE OF MAINE

PETITION TO REQUIRE AGENCY RULEMAKING

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
16.			<i>NO Signature below this line</i>		
17.					
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24.					
25.					

Don't know

11-5-21 1540460000-0000

Don't know

Don't know

I hereby make oath that I am the Circulator of this petition, that all the signatures to this petition were made in my presence and, to the best of my knowledge and belief, each signature is that of the person it purports to be.

Signature of Circulator

Alison Briggs

Printed Name

Alison Briggs

Signature of Notary

Jessica C. Lovitz

Printed Name

Jessica C. Lovitz

Subscribed to and sworn before me on this date

May 19, 2022

(Date must be completed by Notary)

REGISTRAR'S CERTIFICATION

Municipality *OWLS HEAD*

TOTAL VALID *2*

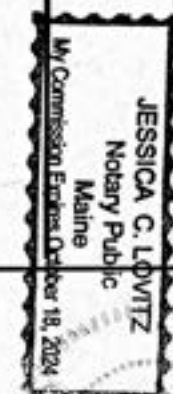
TOTAL INVALID *0*

I hereby certify that the names of all the petitioners listed as valid appear on the voting list as qualified to vote for Governor.

Signature of Registrar:

Shelly Kelly

Date: *3/2/2022*



STATE OF MAINE PETITION TO REQUIRE AGENCY RULEMAKING

INSTRUCTIONS FOR CIRCULATION

PETITIONER - MUST:

- BE A MAINE REGISTERED VOTER
- SIGN NAME AS IT APPEARS ON THE VOTING LIST
- SIGN ONLY ONCE
- NOT SIGN ANOTHER'S NAME
- PRINT NAME, DATE OF SIGNING, STREET ADDRESS & MUNICIPALITY OF RESIDENCE (UNLESS PRINTED BY CIRCULATOR)

PETITION CIRCULATOR - MUST:

- BE A MAINE RESIDENT & REGISTERED VOTER
- COMPLETE THE CIRCULATOR'S VERIFICATION
- TAKE THE OATH BEFORE A NOTARY PUBLIC
- NOT COLLECT SIGNATURES AFTER TAKING OATH

REGISTRAR - MUST:

- COMPLETE AND SIGN THE CERTIFICATION BY INDICATING WHICH NAMES ON THE PETITION APPEAR ON THAT MUNICIPALITY'S VOTING LIST
- NOTE: IF THE SIGNATURE ALONE SUFFICIENTLY IDENTIFIES THE VOTER, IT SHOULD BE ACCEPTED

WARNING: MAKING A FALSE STATEMENT BY THE CIRCULATOR, SIGNING A PETITION WITH THE NAME OF ANOTHER, OR SIGNING A NAME MORE THAN ONCE ON THESE PETITIONS IS A CLASS E CRIME.

CERTIFICATION CODES & COMMON REASONS FOR REJECTION

4 PETITIONER IS A REGISTERED VOTER

INDIVIDUAL SIGNATURES MAY BE REJECTED IF:

- NR PETITIONER IS NOT A REGISTERED VOTER
- DU/P PETITIONER PREVIOUSLY SIGNED THE PETITION (DUPLICATE NAME)
- DATE PETITIONER SIGNED AFTER THE DATE OF CIRCULATOR'S VERIFICATION
- AND PETITIONER SIGNED THE NAME OF ANOTHER
- SG PETITIONER DID NOT SIGN THE PETITION (PRINTED NAME ONLY)

ENTIRE PETITIONS MAY BE REJECTED IF:

- CERT THE REGISTRAR'S CERTIFICATION IS NOT COMPLETED OR NOT SIGNED
- ALT INDIVIDUALS ALTER THE REGISTRAR'S CERTIFICATION
- DATE CIRCULATOR'S VERIFICATION IS NOT COMPLETED OR NOT SIGNED
- DATE CIRCULATOR DID NOT TAKE OATH BEFORE VALID NOTARY PUBLIC
- DATE THE NOTARY DID NOT COMPLETE OR SIGN THE NOTARIZATION
- DATE THE NOTARY IS AN IMMEDIATE FAMILY MEMBER OF CIRCULATOR

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
1. ✓	<i>Peoile Greider</i>	8/12/21	101 Ward Ave Unit 34	Belfast	Peoile Greider
2. ✓	<i>Christoph Hyk</i>	8/12/21	38 Church Street	Belfast	Christoph Hyk
3. ✓	<i>Karen Spink</i>	8/12/21	21 Brady St. #5	Belfast	KAREN SPINK
4. ✓	<i>Andrew E. Stevenson</i>	8/12/21	143 Head of the Tide Rd	Belfast	Andrew E. Stevenson
5. ✓	<i>Lewis McGregor</i>	8/12/21	38 ROBINS RD	Belfast	LEWIS M'GREGOR
6. ✓	<i>Jim Grant</i>	8/12/21	67 Perkins Trl	Belfast	Jim Grant
7. ✓	<i>David Wharf</i>	8/12/21	12 Vine St.	Belfast	David Wharf
8. ✓	<i>Peter Wilkinson</i>	8/12/21	12 Vine Street	Belfast	Peter Wilkinson
9. ✓	<i>Sophie Pickley</i>	8-12-21	47 Village Rd	Belfast	Sophie Pickley
10. ✓	<i>Helda Reader</i>	8-12-21	106 Miller St.	Belfast	Helda Reader
11. ✓	<i>David Wharf</i>	8-12-21	106 Miller St.	Belfast	David Wharf
12. ✓	<i>Diane Otrazewski</i>	8-12-21	21 Bridge St	Belfast	Diane Otrazewski
13. ✓	<i>Any Grant</i>	8-12-21	67 Perkins Rd	Belfast	Any Grant
14. ✓	<i>Eileen Walker</i>	8-12-21	1079 E. Hancock Rd	Belfast	Eileen Walker
15. ✓	<i>Lewis McGregor</i>	8-12-21	243 Village St	Belfast	LEWIS M'GREGOR

PLEASE SEE REVERSE FOR ADDITIONAL SIGNATURES, CIRCULATOR'S OATH AND REGISTRAR'S CERTIFICATION

STATE OF MAINE

PETITION TO REQUIRE AGENCY RULEMAKING

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
16. ✓	Deborah Carnwell	8/12/21	22 Wight St	Belfast	DEBORAH CARNWELL
17. ✓	Josephine Carolyn	8/12/21	43 Union St	Belfast	Josephine Carolyn
18. ✓	Gueneke Reichard	8/12/21	6 Congress St. # 202	Belfast	Gueneke Reichard
19. ✓	Lisa Kushner	8/12/21	8 Jolly St	Belfast	Lisa Kushner
20. ✓	Francis King	8-12-21	56 Village Rd	Belfast	Francis King
21. ✓	Susan Guthrie	8-12-21	249 High Street	Belfast	Susan Guthrie
22. ✓	Elizabeth Townsend	8-12-21	210 Main St	Belfast	Elizabeth Townsend
23. ✓	Kathy Duffy	8-12-21	21 Elm St	Belfast	Kathy Duffy
24. ✓	BRACHTEL HERBERGER	8/12/21	94 Kahler Rd	Belfast	BRACHTEL HERBERGER
25. NR	Phoebe Norman	8/12/21	8 Alto St	Belfast	Phoebe Norman

CIRCULATOR'S OATH

I hereby make oath that I am the Circulator of this petition, that all the signatures to this petition were made in my presence and, to the best of my knowledge and belief, each signature is that of the person it purports to be.

Signature of Circulator Alison Briggs

Printed Name Alison Briggs

Signature of Notary Jessica C. Lovitz

Printed Name Jessica C. Lovitz

Subscribed to and sworn before me on this date: May 19 2022

Date must be completed by Notary

JESSICA C. LOVITZ
Notary Public
Maine
My Commission Expires October 18, 2024

REGISTRAR'S CERTIFICATION

Municipality Belfast

TOTAL VALID 24

TOTAL INVALID 1

I hereby certify that the names of all the petitioners listed as valid appear on the voting list as qualified to vote for Governor.

Signature of Registrar: [Signature]

Date: 3/9/2022

STATE OF MAINE
PETITION TO REQUIRE AGENCY RULEMAKING

INSTRUCTIONS FOR CIRCULATION

PETITIONER - *MUST*:

- BE A MAINE REGISTERED VOTER
- SIGN NAME AS IT APPEARS ON THE VOTING LIST
- SIGN ONLY ONCE
- NOT SIGN ANOTHER'S NAME
- PRINT NAME, DATE OF SIGNING, STREET ADDRESS & MUNICIPALITY OF RESIDENCE (UNLESS PRINTED BY CIRCULATOR)

REGISTRAR - *MUST*:

- COMPLETE AND SIGN THE CERTIFICATION BY INDICATING WHICH NAMES ON THE PETITION APPEAR ON THAT MUNICIPALITY'S VOTING LIST
- NOTE: IF THE SIGNATURE ALONE SUBSEQUENTLY IDENTIFIES THE VOTER, IT SHOULD BE ACCEPTED

WARNING:

MAKING A FALSE

STATEMENT BY THE CIRCULATOR, SIGNING A PETITION WITH THE NAME OF ANOTHER, OR SIGNING A NAME MORE THAN ONCE ON THESE PETITIONS IS A CLASS C CRIME.

CERTIFICATION CODES & COMMON REASONS FOR REJECTION

4 PETITIONER IS A REGISTERED VOTER

INDIVIDUAL SIGNATURES MAY BE REJECTED IF:

- PETITIONER IS NOT A REGISTERED VOTER
- PETITIONER PREVIOUSLY SIGNED THE PETITION (DUPLICATE NAME)
- PETITIONER SIGNED AFTER THE DATE OF CIRCULATOR'S VERIFICATION

AND PETITIONER SIGNED THE NAME OF ANOTHER
SIC PETITIONER DID NOT SIGN THE PETITION (PRINTED NAME ONLY)

ENTIRE PETITIONS MAY BE REJECTED IF:

- THE REGISTRAR'S CERTIFICATION IS NOT COMPLETED OR NOT SIGNED
- INDIVIDUALS ALTER THE REGISTRAR'S CERTIFICATION
- CIRCULATOR'S VERIFICATION IS NOT COMPLETED OR NOT SIGNED
- CIRCULATOR DID NOT TAKE OATH BEFORE VALID NOTARY PUBLIC OATH
- THE NOTARY DID NOT COMPLETE OR SIGN THE NOTARIZATION

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
1	<i>Paul Bernacki</i>	<i>Aug 12/21</i>	<i>144 Lincolnville Rd</i>	<i>West Me</i>	<i>Paul Bernacki</i>
2					
3					
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13					
14					
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PLEASE SEE REVERSE FOR ADDITIONAL SIGNATURES, CIRCULATOR'S OATH AND REGISTRAR'S CERTIFICATION

STATE OF MAINE
PETITION TO REQUIRE AGENCY RULEMAKING

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
16.					
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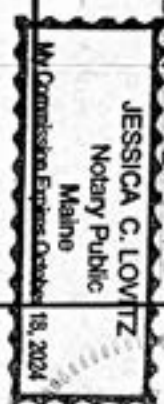
CIRCULATOR'S OATH

I hereby make oath that I am the Circulator of this petition, that all the signatures to this petition were made in my presence and, to the best of my knowledge and belief, each signature is that of the person it purports to be.

Signature of Circulator Alison Briggs Printed Name Alison Briggs

Signature of Notary Jessica C. Lovitz Printed Name Jessica C. Lovitz

Subscribed to and sworn before me on this date: May 19, 2022
Date must be completed by Notary



REGISTRAR'S CERTIFICATION

Municipality Baldwin TOTAL VALID 1 TOTAL INVALID 0

I hereby certify that the names of all the petitioners listed as valid appear on the voting list as qualified to vote for Governor.

Signature of Registrar [Signature] Date 03/09/2022

STATE OF MAINE PETITION TO REQUIRE AGENCY RULEMAKING

INSTRUCTIONS FOR CIRCULATION

- PETITIONER - MUST:**
- BE A MAINE REGISTERED VOTER
 - SIGN NAME AS IT APPEARS ON THE VOTING LIST
 - SIGN ONLY ONCE
 - NOT SIGN ANOTHER'S NAME
 - PRINT NAME, DATE OF SIGNING, STREET ADDRESS & MUNICIPALITY OF RESIDENCE (UNLESS PRINTED BY CIRCULATOR)

- PETITION CIRCULATOR - MUST:**
- BE A MAINE RESIDENT & REGISTERED VOTER
 - COMPLETE THE CIRCULATOR'S VERIFICATION
 - TAKE THE OATH BEFORE A NOTARY PUBLIC
 - NOT COLLECT SIGNATURES AFTER TAKING OATH

REGISTRAR - MUST:

- COMPLETE AND SIGN THE CERTIFICATION BY INDICATING WHICH NAMES ON THE PETITION APPEAR ON THAT MUNICIPALITY'S VOTING LIST
- NOTE: IF THE SIGNATURE ALONE SUFFICIENTLY IDENTIFIES THE VOTER, IT SHOULD BE ACCEPTED

WARNING: MAKING A FALSE STATEMENT BY THE CIRCULATOR, SIGNING A PETITION WITH THE NAME OF ANOTHER, OR SIGNING A NAME MORE THAN ONCE ON THESE PETITIONS IS A CLASS E CRIME.

CERTIFICATION CODES & COMMON REASONS FOR REJECTION

4 PETITIONER IS A REGISTERED VOTER

INDIVIDUAL SIGNATURES MAY BE REJECTED IF:

- NR PETITIONER IS NOT A REGISTERED VOTER
- DUP PETITIONER PREVIOUSLY SIGNED THE PETITION (DUPLICATE NAME)
- DATE PETITIONER SIGNED AFTER THE DATE OF CIRCULATOR'S VERIFICATION
- AND PETITIONER SIGNED THE NAME OF ANOTHER PETITIONER DID NOT SIGN THE PETITION (PRINTED NAME ONLY)

ENTIRE PETITIONS MAY BE REJECTED IF:

- CERT THE REGISTRAR'S CERTIFICATION IS NOT COMPLETED OR NOT SIGNED
- ALT INDIVIDUALS ALTER THE REGISTRAR'S CERTIFICATION
- DATE CIRCULATOR'S VERIFICATION IS NOT COMPLETED OR NOT SIGNED
- OATH CIRCULATOR DID NOT TAKE OATH BEFORE VALID NOTARY PUBLIC
- OATH THE NOTARY DID NOT COMPLETE OR SIGN THE NOTARIZATION
- DATE THE NOTARY'S AN IMMEDIATE FAMILY MEMBER OR CIRCULATOR

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
1. ✓	Neddy Francis	8/12/21	27 Hillside Way	Sugar Hill ME	ALFRED H. FRANCIS JR.
2.					
3.					
4.					
5.					
6.					
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PLEASE SEE REVERSE FOR ADDITIONAL SIGNATURES, CIRCULATOR'S OATH AND REGISTRAR'S CERTIFICATION

STATE OF MAINE
PETITION TO REQUIRE AGENCY RULEMAKING

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
16.					
17.					
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19.					
20.					
21.					
22.					
23.					
24.					
25.					

CIRCULATOR'S OATH

I hereby make oath that I am the Circulator of this petition, that all the signatures to this petition were made in my presence and, to the best of my knowledge and belief, each signature is that of the person it purports to be.

Signature of Circulator Alison Briggs Printed Name Alison Briggs

Signature of Notary Jessica C. Lovitz Printed Name Jessica C. Lovitz

Subscribed to and sworn before me on this date: May 19, 2022
Date must be completed by Notary



REGISTRAR'S CERTIFICATION

Municipality Swinville TOTAL VALID 1 TOTAL INVALID 0

I hereby certify that the names of all the petitioners listed as valid appear on the voting list as qualified to vote for Governor.

Signature of Registrar: Walter Christensen Date: 3-2-22

STATE OF MAINE PETITION TO REQUIRE AGENCY RULEMAKING

INSTRUCTIONS FOR CIRCULATION

PETITIONER - MUST:

- BE A MAINE REGISTERED VOTER
- SIGN NAME AS IT APPEARS ON THE VOTING LIST
- SIGN ONLY ONCE
- NOT SIGN ANOTHER'S NAME
- PRINT NAME, DATE OF SIGNING, STREET ADDRESS & MUNICIPALITY OR RESIDENT ADDRESS PRINTED BY CIRCULATOR

REGISTRAR - MUST:

- COMPLETE AND SIGN THE CERTIFICATION BY INDICATING WHICH NAMES ON THE PETITION APPEAR ON THAT MUNICIPALITY'S VOTING LIST
- NOTE: IF THE SIGNATURE ALONE SUBSEQUENTLY IDENTIFIES THE VOTER, IT SHOULD BE ACCEPTED

WARNING: MAKING A FALSE STATEMENT BY THE CIRCULATOR, SIGNING A PETITION WITH THE NAME OF ANOTHER, OR SIGNING A NAME MORE THAN ONCE ON THESE PETITIONS IS A CLASS C CRIME.

PETITION CIRCULATOR - MUST:

- BE A MAINE RESIDENT & REGISTERED VOTER
- COMPLETE THE CIRCULATOR'S VERIFICATION
- TAKE THE OATH BEFORE A NOTARY PUBLIC
- NOT COLLECT SIGNATURES AFTER TAKING OATH

CERTIFICATION CODES & COMMON REASONS FOR REJECTION

4 PETITIONER IS A REGISTERED VOTER

INDIVIDUAL SIGNATURES MAY BE REJECTED IF:

- NR PETITIONER IS NOT A REGISTERED VOTER
- DR/P PETITIONER PREVIOUSLY SIGNED THE PETITION (DUPLICATE NAME)
- DATE PETITIONER SIGNED AFTER THE DATE OF CIRCULATOR'S VERIFICATION

AND PETITIONER SIGNED THE NAME OF ANOTHER PERSON (PRINTED NAME ONLY)

ENTIRE PETITIONS MAY BE REJECTED IF:

- CERT THE REGISTRAR'S CERTIFICATION IS NOT COMPLETED OR NOT SIGNED
- AT INDIVIDUALS ALTER THE REGISTRAR'S CERTIFICATION
- DATE CIRCULATOR'S VERIFICATION IS NOT COMPLETED OR NOT SIGNED
- DATE CIRCULATOR DID NOT TAKE OATH BEFORE A VALID NOTARY PUBLIC
- DATE THE NOTARY DID NOT COMPLETE OR SIGN THE NOTARIZATION

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
1. 4	<i>[Signature]</i>	11-7-21	613 Deane Bridge Rd	Newport ME	PAT Demos
2. 4	<i>[Signature]</i>	11/7/21	" "	" "	George Demos
3.					
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PLEASE SEE REVERSE FOR ADDITIONAL SIGNATURES, CIRCULATOR'S OATH AND REGISTRAR'S CERTIFICATION

STATE OF MAINE PETITION TO REQUIRE AGENCY RULEMAKING

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
16.					
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20.					
21.					
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CIRCULATOR'S OATH

I hereby make oath that I am the Circulator of this petition, that all the signatures to this petition were made in my presence and, to the best of my knowledge and belief, each signature is that of the person it purports to be.

Signature of Circulator

William Briggs

Printed Name **William Briggs**

Signature of Notary

Jessica C. Lovitz

Printed Name **Jessica C. Lovitz**

Subscribed to and sworn before me on this date:

May 19, 2022

Date must be completed by Notary

REGISTRAR'S CERTIFICATION

Municipality *Newport*

TOTAL VALID *2*

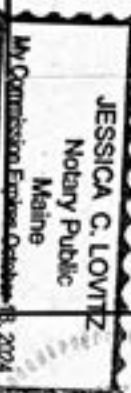
TOTAL INVALID *0*

I hereby certify that the names of all the petitioners listed as valid appear on the voting list as qualified to vote for Governor.

Signature of Registrar:

Jessie M. Davis

Date: *03/02/2022*



Received

03/01/2022

KMH

STATE OF MAINE PETITION TO REQUIRE AGENCY RULEMAKING

INSTRUCTIONS FOR CIRCULATION

PETITIONER - M/ST:
- BE A MAINE REGISTERED VOTER
- SIGN NAME AS IT APPEARS ON THE VOTING LIST
- SIGN ONLY ONCE

NOT SIGN ANOTHER'S NAME
- PRINT NAME, DATE OF SIGNING, STREET ADDRESS & MUNICIPALITY OF RESIDENCE (UNLESS PRINTED BY CIRCULATOR)

PETITION CIRCULATOR - M/ST:
- BE A MAINE RESIDENT & REGISTERED VOTER
- COMPLETE THE CIRCULATOR'S VERIFICATION
- TAKE THE OATH BEFORE A NOTARY PUBLIC
- NOT COLLECT SIGNATURES AFTER TAKING OATH

REGISTRAR - M/ST:
- COMPLETE AND SIGN THE CERTIFICATION BY INDICATING WHICH NAMES ON THE PETITION APPEAR ON THAT MUNICIPALITY'S VOTING LIST
- NOTE: IF THE SIGNATURE ALONE SUPERFICIALLY IDENTIFIES THE VOTER, IT SHOULD BE ACCEPTED

WARNING: MAKING A FALSE STATEMENT BY THE CIRCULATOR, SIGNING A PETITION WITH THE NAME OF ANOTHER, OR SIGNING A NAME MORE THAN ONCE ON THESE PETITIONS IS A CLASS E CRIME.

CERTIFICATION CODES & COMMON REASONS FOR REJECTION

4 PETITIONER IS A REGISTERED VOTER

INDIVIDUAL SIGNATURES MAY BE REJECTED IF:

AT PETITIONER IS NOT A REGISTERED VOTER

DATE PETITIONER PREVIOUSLY SIGNED THE PETITION (DUPLICATE NAME)

DATE PETITIONER SIGNED AFTER THE DATE OF CIRCULATOR'S VERIFICATION

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DATE PETITIONER DID NOT SIGN THE PETITION (PRINTED NAME ONLY)

PLEASE SEE REVERSE FOR ADDITIONAL SIGNATURES, CIRCULATOR'S OATH AND REGISTRAR'S CERTIFICATION

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
1. <input checked="" type="checkbox"/>	<i>David P. Grasso</i>	8-13-21	26 Pastorelday	Lanaine	David P. Grasso
2.					
3.					
4.					
5.					
6.					
7.					
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13.					
14.					
15.					

STATE OF MAINE

PETITION TO REQUIRE AGENCY RULEMAKING

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
16.					
17.					
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20.					
21.					
22.					
23.					
24.					
25.					

CIRCULATOR'S OATH

I hereby make oath that I am the Circulator of this petition, that all the signatures to this petition were made in my presence and, to the best of my knowledge and belief, each signature is that of the person it purports to be.

Signature of Circulator Allison Briggs Printed Name Allison Briggs

Signature of Notary Jessica C. Lovitz Printed Name Jessica C. Lovitz

Subscribed to and sworn before me on this date: May 19, 2022

Date must be completed by Notary

REGISTRAR'S CERTIFICATION

Municipality LANOUÉ TOTAL VALID 1 TOTAL INVALID 0

I hereby certify that the names of all the petitioners listed as valid appear on the voting list as qualified to vote for Governor.

Signature of Registrar: Shirley Anderson, Deputy Date: 2/25/2022



STATE OF MAINE PETITION TO REQUIRE AGENCY RULEMAKING

INSTRUCTIONS FOR CIRCULATION

PETITIONER *ME/ST*
BE A MAINE REGISTERED VOTER
SIGN NAME AS IT APPEARS ON THE VOTING LIST
SIGN ONLY ONCE
NOT SIGN ANOTHER'S NAME
PRINT NAME, DATE OF SIGNING, STREET ADDRESS
& MUNICIPALITY OF RESIDENCE (PRINT IN PREPARED
BY CIRCULATOR)

REGISTRAR *ME/ST*
COMPLETE AND SIGN THE CERTIFICATION BY
INDICATING WHETHER NAME'S ON THE PETITION
APPEAR ON THAT MUNICIPALITY'S VOTING LIST
NOTE: IF THE SIGNATURE ALONE SUFFICIENTLY
IDENTIFIES THE VOTER, IT SHOULD BE ACCEPTED
WARNING: MAKING A FALSE
STATEMENT BY THE CIRCULATOR,
SIGNING A PETITION WITH THE
NAME OF ANOTHER, OR SIGNING A
NAME MORE THAN ONCE ON THESE
PETITIONS IS A CLASS C CRIME.

CERTIFICATION CODES & COMMON REASONS FOR REJECTION

4. PETITIONER IS A REGISTERED VOTER
INDIVIDUAL SIGNATURES MAY BE REJECTED IF:
NR PETITIONER IS NOT A REGISTERED VOTER
PR/P PETITIONER PREVIOUSLY SIGNED THE PETITION (DUPLICATE NAME)
DATE PETITIONER SIGNED AFTER THE DATE OF CIRCULATOR'S
VERIFICATION
AND PETITIONER SIGNED THE NAME OF ANOTHER
SIC PETITIONER DID NOT SIGN THE PETITION (PRINTED NAME ONLY)
ENTIRE PETITIONS MAY BE REJECTED IF:
CERT THE REGISTRAR'S CERTIFICATION IS NOT COMPLETED OR NOT SIGNED
ALT INDIVIDUALS ALTER THE REGISTRAR'S CERTIFICATION
DATE CIRCULATOR'S VERIFICATION IS NOT COMPLETED OR NOT SIGNED
DATE CIRCULATOR DID NOT TAKE OATH BEFORE VALID NOTARY PUBLIC
DATE THE NOTARY DID NOT COMPLETE OR SIGN THE NOTARIZATION
DATE THE NOTARY'S ADDRESS/DATE SIGNED WAS INCORRECTLY CIRCULATED

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
1. ✓	<i>Peter McBrine</i>	8/13/21	74 Village Rd Belfast	Belfast	Peter McBrine
2. ✓	<i>Margaret Shannon</i>	8/13/21	76 Village Rd, Belfast	Belfast	Margaret Shannon
3. ✓	<i>Michael Shannon</i>	8/13/21	76 Village Rd. Belfast ME	Belfast	Michael Shannon
4. ✓	<i>Alison</i>	8-13-21	78 Village Rd.	Belfast	Alison G. Picton
5. ✓	<i>Susan H. Nelson</i>	8-13-21	16 Storer Lane	Belfast	Susan H. Nelson
6. ✓	<i>Joseph M. Kaur</i>	8-13-21	16 Storer Lane	Belfast	Joseph M. Kaur
7. ✓	<i>Edward Sheridan</i>	8-13-21	21 Village Rd	Belfast	Edward Sheridan
8. ✓	<i>Amy Johnson</i>	8/13/21	29 Village Rd	Belfast	Amy Johnson
9. ✓	<i>Tim Merkel</i>	8/13/21	97 Ratherson Hill Rd	Belfast	Tim Merkel
10. ✓	<i>ERDA GRASS</i>	08/13/21	29 BRIDGE STREET	Belfast	ERDA GRASS
11. ✓	<i>Mary E Sullivan</i>	8/14/21	91 Seta Robbins Rd	Belfast	Mary E Sullivan
12.					
13.					
14.					
15.					

PLEASE SEE REVERSE FOR ADDITIONAL SIGNATURES, CIRCULATOR'S OATH AND REGISTRAR'S CERTIFICATION

STATE OF MAINE
PETITION TO REQUIRE AGENCY RULEMAKING

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
16.	<i>[Signature]</i>	11/18/2021	10000 Main Street	Bangor	11/18/2021
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					

CIRCULATOR'S OATH

I hereby make oath that I am the Circulator of this petition, that all the signatures to this petition were made in my presence and, to the best of my knowledge and belief, each signature is that of the person it purports to be.

Signature of Circulator

Arlene Briggs

Printed Name

Arlene Briggs

Signature of Notary

Jessica C. Lovitz

Printed Name

Jessica C. Lovitz

Subscribed to and sworn before me on this date

May 19, 2023

Date made completed by Notary

REGISTRAR'S CERTIFICATION

Municipality

Belfast

TOTAL VALID

11

TOTAL INVALID

0

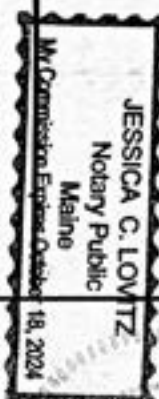
I hereby certify that the names of all the petitioners listed as valid appear on the voting list as qualified to vote for Governor.

Signature of Registrar

[Signature]

Date:

3/9/2021



STATE OF MAINE PETITION TO REQUIRE AGENCY RULEMAKING

INSTRUCTIONS FOR CIRCULATION

PETITIONER - MUST:

- BE A MAINE REGISTERED VOTER
- SIGN NAME AS IT APPEARS ON THE VOTING LIST
- SIGN ONLY ONCE
- NOT SIGN ANOTHER'S NAME
- PRINT NAME, DATE OF SIGNING, STREET ADDRESS & MUNICIPALITY OF RESIDENCE (UNLESS PRINTED BY CIRCULATOR)

REGISTRAR - MUST:

- COMPLETE AND SIGN THE CERTIFICATION BY INDICATING WHICH NAMES ON THE PETITION APPEAR ON THAT MUNICIPALITY'S VOTING LIST
- NOTE: IF THE SIGNATURE ALONE SUFFICIENTLY IDENTIFIES THE VOTER, IT SHOULD BE ACCEPTED

WARNING: MAKING A FALSE STATEMENT BY THE CIRCULATOR, SIGNING A PETITION WITH THE NAME OF ANOTHER, OR SIGNING A NAME MORE THAN ONCE ON THESE PETITIONS IS A CLASS E CRIME.

PETITION CIRCULATOR - MUST:

- BE A MAINE RESIDENT & REGISTERED VOTER
- COMPLETE THE CIRCULATOR'S VERIFICATION
- TAKE THE OATH BEFORE A NOTARY PUBLIC
- NOT COLLECT SIGNATURES AFTER TAKING OATH

CERTIFICATION CODES & COMMON REASONS FOR REJECTION

4 PETITIONER IS A REGISTERED VOTER

INDIVIDUAL SIGNATURES MAY BE REJECTED IF:

- MR PETITIONER IS NOT A REGISTERED VOTER
- DATE PETITIONER PREVIOUSLY SIGNED THE PETITION (DUPLICATE NAME)
- DATE PETITIONER SIGNED AFTER THE DATE OF CIRCULATOR'S VERIFICATION
- AND PETITIONER SIGNED THE NAME OF ANOTHER
- SIC PETITIONER DID NOT SIGN THE PETITION (PRINTED NAME ONLY)

ENTIRE PETITIONS MAY BE REJECTED IF:

- CERT THE REGISTRAR'S CERTIFICATION IS NOT COMPLETED OR NOT SIGNED
- ALT INDIVIDUALS ALTER THE REGISTRAR'S CERTIFICATION
- CERT CIRCULATOR'S VERIFICATION IS NOT COMPLETED OR NOT SIGNED
- CERT CIRCULATOR DID NOT TAKE OATH BEFORE VALID NOTARY PUBLIC
- CERT THE NOTARY DID NOT COMPLETE OR SIGN THE NOTARIZATION
- OVER THE NOTARY IS AN INADEQUATE, EXCEEDS EXPIRATION OF CIRCULATOR

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
1. ✓	Shirleya Dally	8/12/21	49 Village Rd	Belfast	Frances Pan
2. ✓	Lucretia White	8/12/21	383 High Street	Belfast	KEVIN RICHARDSON-WHITE
3. ✓	Michaela White	8/12/21	145 Charles St.	Belfast	Michelle RATTÉ
4. ✓	Shirleya Dally	8/12/21	5 Kerry Garden	Belfast	MARILYN McKINNEY
5. ✓	Constance N Hadd	8/12/21	20 Broadway St	Belfast	Constance N Hadd
6. ✓	Eric Shewhorn	8/12/21	145 Charles St.	Belfast	Eric Shewhorn
7. ✓	KC Roper	8/12/21	1004 Miller St.	Belfast	Kathryn L. Roby
8. ✓	Amie Moffatt	8/12/21	38 Robbinc Rd.	Belfast	Amie Moffatt-Alperer
9. ✓	Linda S. Deon	8/12/21	118 High St. Apt 3H	Belfast	Linda S. Deon
10. ✓	Deborah Falls	8/12/21	761 Oak Rd	Belfast	DEBORAH FALLS
11. ✓	Deborah Falls	8/12/21	761 Oak Rd	Belfast	Deborah Falls
12. ✓	Deborah Falls	8/12/21	761 Oak Rd	Belfast	Deborah Falls
13. ✓	Natalie Charles	8-13-21	27 Village Rd.	Belfast	Natalie Charles
14. ✓	Jane M Phillips	8-13-21	143 Head of the Tide Rd	Belfast	Jane M Phillips
15. ✓	Jacqueline Robb	8-13-21	54 Village Rd	Belfast	Jacqueline Robb

PLEASE SEE REVERSE FOR ADDITIONAL SIGNATURES, CIRCULATOR'S OATH AND REGISTRAR'S CERTIFICATION

STATE OF MAINE

PETITION TO REQUIRE AGENCY RULEMAKING

For Registrar use Only	SIGNATURE	DATE SIGNED	ACTUAL STREET ADDRESS (Not P.O. Box or R.F.D.)	MUNICIPALITY (Where Registered)	NAME PRINTED
16. ✓		8-13	80 VILLAGE RD	BELFAST	Susan Capwell
17. ✓		8-13-21	33 Village Rd	Belfast	Gail Wantell
18. ✓		8-13-24	58 Village Rd	Belfast	Penelope P. West
19. ✓		8-13-21	39 Village Rd.	Belfast	Paul McKinney
20. ✓		8-13-21	43 Village Rd	Belfast	Jenny Siebenhaar
21. ✓		8-13-21	49 Village Rd	Belfast	Donald Pan
22. ✓		8-13-21	44 Village Rd	Belfast	Jeffrey Hake
23. ✓		8-13-21	290 Nantuxport Ave	Belfast	Judith Grace
24. ✓		8-13-21	60 Village Rd	Belfast	Barbara Chasson
25. ✓		8-13-21	424 Village Rd	Belfast	W. B. Paul

CIRCULATOR'S OATH

I hereby make oath that I am the Circulator of this petition, that all the signatures to this petition were made in my presence and, to the best of my knowledge and belief, each signature is that of the person it purports to be.

Signature of Circulator Alison Briggs Printed Name Alison Briggs

Signature of Notary Jessica C. Lovitz Printed Name Jessica C. Lovitz

Subscribed to and sworn before me on this date: May 19, 2022
Date must be completed by Notary

REGISTRAR'S CERTIFICATION

Municipality Belfast TOTAL VALID 24 TOTAL INVALID 0

I hereby certify that the names of all the petitioners listed as valid appear on the voting list as qualified to vote for Governor.

Signature of Registrar: [Signature] Date: 3/9/2022



APPENDIX 3



HELP US

Recent investigation of a Maine salmon hatchery by a non-profit organization discovered fish being slammed and stomped, violently thrown, left in buckets to suffocate, underfed, suffering from grotesque fungal infections, and crowded to live in overcrowded tanks.

SUMMARY OF CITIZEN PETITION TO REQUIRE THE MAINE DEPARTMENT OF AGRICULTURE, CONSERVATION AND FORESTRY TO PROTECT THE WELL-BEING OF FISH USED IN AQUACULTURE

- There are hundreds of aquaculture facilities across the state of Maine that breed, rear and slaughter fish, primarily for human consumption. These facilities are both on the Maine coast as well as inland.
- These facilities house millions of individual fish, including salmon, trout, halibut and others.
- Scientists have concluded that fish suffer pain, experience fear, make logical decisions and form meaningful relationships.
- Maine's aquaculture industry is growing, but there is currently no government agency in the state accountable for the humane and proper treatment of fish used in aquaculture.

THIS CITIZEN PETITION SEEKS TO:

1. Designate the Department of Agriculture, Conservation and Forestry as the Maine agency formally accountable for ensuring the welfare of fish used in aquaculture.
2. Require the Department to create formal rules defining proper treatment and care of fish in aquaculture facilities.

With just 150 signatures of registered Maine voters, we can force the Department of Agriculture, Conservation, and Forestry to consider this petition.

PLEASE SIGN TODAY!

APPENDIX 4-6



P.O. Box 9773, Washington, DC 20016

June 12, 2019

Director Liam R. Hughes
Animal Welfare Office
Department of Agriculture, Conservation, and Forestry
90 Blossom Lane, Deering Building
Augusta, ME 04333

District Attorney Maeghan Maloney
Prosecutorial District Number 4
95 State Street
Augusta, ME 04330

Lt. Mark Brooks
Troop C
Maine State Police
162 West Front Street
Skowhegan, ME 04976

Sheriff Dale P. Lancaster
Somerset County Sheriff's Office
131 East Madison Road
Madison ME 04950

Animal Control Officer William Shaw
Animal Control Officer Steve Steward
Somerset Humane Society
123 Middle Road
Skowhegan, ME 04976

Dear Director Hughes, District Attorney Maloney, Lt. Brooks, Sheriff Lancaster, Animal Control Officer Shaw,
and Animal Control Officer Steward:

I represent Compassion Over Killing ("COK"), a nonprofit animal protection organization based in Washington, D.C. I write to report numerous acts of criminal animal abuse discovered by a COK investigator at an Atlantic salmon hatchery operated by Cooke Aquaculture ("Cooke") at 36 River Street in Bingham, Maine.

Much of the evidence of legal violations was captured on video by the COK investigator during employment at Cooke's facility. The footage showing all of the violations and potential violations may be found here (spread

across three videos due to length): (1) <https://vimeo.com/334106190>; (2) <https://vimeo.com/339840577>; (3) <https://vimeo.com/339838595>. The password for all three videos is invLE101.

Enclosed, please find an Incident Statement relating the factual details of COK's investigation; an expert statement from Becca Franks, Ph.D.; and a legal memorandum analyzing Cooke's violations of Maine law.

COK requests that law enforcement file charges against Cooke and certain of its employees, and would be glad to assist any prosecution by conducting factual research, providing legal analysis, procuring experts, and so forth. Our investigator is also available to answer any questions. Please feel free to contact me regarding the investigation at (301) 891-2458 or kjamieson@cok.net.

Best regards,

Keith Jamieson
Counsel, Compassion Over Killing

**REPORT OF FINDINGS FROM UNDERCOVER INVESTIGATION OF COOKE
AQUACULTURE**

JUNE 12, 2019

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 - e) Rough Handling
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B. Specific Incidents

I. COOKE AQUACULTURE IN BINGHAM, ME

A Compassion Over Killing ("COK") investigator was employed at a Cooke Aquaculture hatchery located at 36 River St. in Bingham, ME. The investigator was employed between January 22 and April 10, 2019 as a Hatchery Technician. The investigator's job duties included removing dead eggs and fish from the tanks, feeding, and general tank cleaning. While the investigator was employed, the condition and treatment of live animals at the facility was documented with a covert camera.

Cooke Aquaculture is a vertically-integrated aquaculture corporation. The site that the investigator worked at is an Atlantic Salmon Hatchery. The total number of fish at the hatchery is unknown, but it is in the millions. During the investigator's time there, one of the buildings alone ("B" building), had 28 tanks in it holding fish, with all but 2 of the tanks numbering 100,000 fish each in them.

A list of employees with whom the investigator worked with is:

- Brian Wheeler - Hatchery Manager
- Chuck (last name unknown)
- Ciara G. (full last name unknown)
- Clay (last name unknown)
- Daniel (last name unknown)
- Eric (last name unknown)
- Jake (last name unknown)
- Jeff Bessey
- Jeff Washburne
- Josh Beane - Hatchery Supervisor
- Ryan O'Neill
- Tony (last name unknown)

II. DOCUMENTED AND WITNESSED INSTANCES OF INHUMANE ANIMAL TREATMENT

A. Overview

1. Cruelty by Individual Workers

a) Slamming and Stomping Fish

On five occasions, the investigator documented workers attempting to cull fish using blunt force trauma. In most cases, workers slammed the heads of fish against the sides of the concrete tanks the fish were pulled from. On one occasion that we know of, the fish was still alive after being slammed against the side of the tank. Tony then dropped the animal on the ground and proceeded to stomp on the fish's head. After Tony stomped on the animal and walked away, the fish was still moving on the ground.

b) Attempting to Slap Fish Out of the Air

On 3 instances, the investigator documented workers attempting to throw fish into barrels, and as the fish were being thrown through the air, Josh Beane would raise his arms and attempt to slap the fish out of the air, as if the animal was a basketball.

c) "Trick Shots"

The investigator documented Josh Beane attempting several "trick shots" while attempting to throw fish into barrels. Josh would attempt to throw the fish from behind his back or over his shoulder, instead of with a more accurate method. The fish only made it into the barrel in one out of four attempts, with the fish slamming into the ground the remaining times. The fish who made it into the barrel hit the side of the container before falling in.

d) Throwing Fish

While transferring fish, workers often opted to throw them into other tanks or cull barrels from considerable distances rather than walking them over to the new tank or the barrel. The fish were netted in one tank and dumped into a bin from the nets. The bin had some anesthesia in it to make handling the fish easier for the workers. The workers would then throw the fish into a new tank, or into cull barrels if the fish were deformed or too small. The cull barrels are large trash cans with no water in them, so the fish thrown into them would end up dying from suffocation or the weight of the other fish. A few fish were thrown a distance of approximately 20 feet and some reached heights of 10–15 feet. A majority of the fish are thrown at least 10 feet. This method was practiced as a matter of course throughout the entire time fish were being transferred that the investigator was present for. In one day alone, hundreds of fish were thrown considerable distances. Many of the fish who were thrown into the cull barrels hit the rim on the side of the barrel. The fish who were thrown into other tanks would land several feet into the tank. That additional distance is not accounted for in our estimates; therefore, they were thrown longer distances than we can estimate.

e) Rough Handling

While attempting to catch fish for transfer, workers would frequently handle fish roughly or drop them on the ground after catching them. In one instance, Daniel held a live fish out of the water and simulated a sexual act by positioning the animal's mouth near his groin and thrusting his hips up and down. He yelled for the animal to "Taste it!" Employees would also catch fish they didn't need to transfer anywhere, seemingly for enjoyment. These animals were held aloft out of the water, only to be dropped back in after the employees were satisfied. After Daniel was having trouble catching fish, Josh told him to "fucking squeeze" on the tails of the fish he was grabbing. Fish were frequently caught in this way, with a worker using a hand to grip the tails of the animals and pull them up out of the water single-handedly. When fish were caught, they were sometimes held aloft while workers would bend their bodies or other workers would rub them. On three documented occasions, workers caught fish and dropped them several feet onto the ground or onto wooden pallets while trying to transfer the fish to different tanks or bins.

2. Cruelty Directed by Management

a) Suffocation

Fish were frequently culled at this facility, either for deformities or because they were too small relative to other fish of the same age. The most common method of culling at this facility was simply to keep the fish out of water, either in buckets or barrels, to let the fish suffocate slowly. These buckets were frequently full of other fish or dead eggs and the animals would be piled up on top of one another. The containers did not contain any anesthetic or chemical of any kind for the purpose of euthanasia. Instead, the fish died of anoxia. According to AVMA guidelines on the euthanasia of fish, anoxia and desiccation are unacceptable methods in any situation.

b) Anesthesia

This facility uses tricaine to put fish under anesthesia while vaccinating and fin clipping the animals. Prior to these procedures, the fish are dumped into a bath containing tricaine and sodium bicarbonate to anesthetize them via immersion. While the fish are in the bath, they thrash about as if trying to escape from the water. Brian explained to the investigator how the anesthetic in the water gets weaker over time, causing it to take longer for the fish to become anesthetized. He also explained that fish shouldn't be left in the anesthetic too long, as they would "never wake up again." There seemed to be no standard procedure for how long the workers would leave the fish in the anesthesia bath, it was more so based on if the workers performing the vaccinations or fin clipping were ready for more fish on the table. The workers would also just randomly replace the tricaine rather than having a timed system.

c) Vaccinations

The fish were dumped onto a metal table from the anesthesia baths so that the workers could inject them with a vaccine. Frequently, fish who had already been anesthetized were still actively moving around on the table during vaccinations. Despite fish still moving on the table, the workers still vaccinated the animals. This could lead to injuries in the fish, if they moved as the needle was in them. The investigator saw fish who had deep cuts along their bodies from this, and was told by workers that this could happen.

d) Fin Clipping

At this facility, some fish had their pelvic fins clipped as a method of identification, used to differentiate between fish of various genetic lines or in case of escape. As in vaccination, fish are immersed in an anesthetic bath prior to this procedure. Also similarly to vaccination, fish were often still able to move after they had been dumped out of the anesthetic bath and onto the table. Despite fish still moving on the table, the workers still clipped the fins of the animals.

3. Context - Netting

Workers used nets to transfer the larger sized fish from outdoor tanks into bins or when transferring the smaller fish to the holding tank before vaccination or fin clipping. While in the nets, the fish frequently struggle and thrash about, leading to accidents like the fish being dropped out of the nets before reaching the bins. This also led to the loss and/or damage of their scales

4. Inhumane Conditions

a) Eye Pecking

On approximately 14 documented instances, fish would be found with red, bloody eyes or with empty eye sockets. The investigator spoke with Josh Beane about this phenomenon, who confirmed this behavior occurred when the fish did not receive enough feed. He said the larger fish who weren't fed enough would mistake the pupils of other fish for food and attack and eat them.

b) Fungus Infected, Crowded Tanks

Much of the mortality amongst the fry and eggs at this hatchery can be attributed to fungal infections within the tanks. Salmon are called 'fry' in the period of time after they hatch and consume their yolk sac. The fungus would grow on the mats in the tanks with the eggs and freshly hatched fish and even grow on the fish themselves, eventually killing them. Clumps of fungus infested dead fry were constantly found in, and removed from, tanks. Even with workers trying to remove these clumps, it was nearly impossible to remove all the fungus, which would spread to live fry. Even with the larger salmon, fungus can be problematic. Two larger salmon were found with parts of their heads eaten away by fungus.

c) Incorrect Oxygen Levels

The investigator was told that anything below 80% oxygen in the water was cause for concern. Despite this, the investigator documented one tank in which the oxygen level had fallen as low as 72%.

d) Use of Formaldehyde

Formaldehyde was used to kill the bacteria and fungus present in tanks. This chemical was sprayed into tanks containing live fish by workers wearing no protective equipment. The investigator was warned by coworkers that the formaldehyde would burn the gills of fish if they

swam too close to the surface during treatment. According to Jeff, some of the workers do not dilute the formaldehyde before its application, making it more dangerous for the fish inside the tanks.

e) Use of Salt

In addition to formaldehyde, salt was also applied to the tanks to kill off fungus and bacteria. Salt is also potentially damaging to the fish. Jeff tells the investigator about fish who needed treatment trying to get away from the salt as it was "burning them".

f) Deformities

There were many fish with documented deformities at Cooke Aquaculture. The majority of these were spinal deformities, resulting in fish who appeared to be "bent". This deformity can make it more difficult for fish to swim correctly and obtain food. In other fish, a deformity reduced the surface area of the gill covers, leaving them unable to protect the entirety of the gill. Other fish suffered from "pug-headedness", in which the upper jaw was shortened significantly. This deformity is thought to reduce a fish's ability to breathe and collect food. Other deformities included fish with an enlarged yolk sac, fish with two heads, and conjoined fish. The investigator found an increased incidence of deformities in the fry who came from the USDA. In one documented incident, Josh explains how spinal deformities can also occur because of rough handling while the fish are young. At Cooke, fry with deformities were culled if they were found.

g) High Mortality

Both eggs and successfully hatched fish were subject to high mortality rates at Cooke Aquaculture. The investigator documented numerous barrels and buckets full of dead eggs and fish at the facility. One of the largest contributors to mortality at the facility was the presence of bacteria or fungus in the tanks. These would grow on the eggs, fry, or less commonly on the adults and eventually kill them if treatment was not administered. Fish were also culled at a high rate, either for deformities or for being too small at certain life stages. Jeff told the investigator in one documented event that in some instances, too many fish are culled just because of their inadequate size. Workers also frequently killed healthy fry while trying to remove dead fry from the tanks using wires.

When workers pulled dead eggs and/or fish, they would throw them into a mortality bucket, or 'mort bucket' as it was called. Live fish who had deformities or were too small were also pulled and thrown into the buckets to suffocate. The mort buckets were then typically dumped into the 'mort pool', which is an open concrete pool outside. Rain and snow would build up in the pool, and could wash the contents from the mort buckets out of the pool. Workers told the investigator that the pool would build up for months until someone would come collect the contents, and that once it would start to get warm out, the whole town would smell from the mort pool.

h) Miscellaneous

The investigator documented several instances of live fry swimming in the trench below the large tanks. These trenches feed right out into a river, making it possible for fry from the facility

to escape into the wild. Jeff did not know how these live fish made it into the trench, but the investigator documented him saying he was throwing bleach into the trench in order to kill the fish.

The broodstock at the facility are not fed for about a month before spawning. Fish who are not yet able to spawn at this point are thrown into another tank and do not receive food for two to three months afterwards, according to Jeff.

Fry were sometimes overfed. In these cases, the feed would collect at the bottom of the tank and cover much of the floor. In one instance, Chuck confirms with the investigator that the overfeeding is causing deaths in the fry.

The tanks were maintained poorly in some cases, leading to the death of fry. Jeff spoke with the investigator about fry being sucked through a screen while a part was being replaced, potentially leading to the bellies of the fry being injured. In another tank, a rubber piece was malfunctioning, causing fry to be sucked below the tank. Tanks in which fungus and bacteria were allowed to grow had high mortality rates.

On one day, Jeff explained how other workers had caused a biosecurity risk by moving pump equipment from one building to another. He said the bacteria that had built up on the machinery could infect the building the equipment was moved to, potentially leading to large die offs.

B. Specific Incidents

1. Cruelty by Individual Workers

a) Slamming and Stomping Fish

Incident 1	4/9/2019	Cooke Aquaculture Video 1	00:00:05-00:01:04
<p>Josh holds a fish whose face has been deteriorated by a fungal infection. The flesh on the fish's head is exposed.</p> <p>Josh: "Fungus ate away his face. I'm gonna kill him."</p> <p>He then slams the fish against the side of the concrete tank as Daniel laughs. This fails and the fish is handed to Ryan.</p> <p>Daniel: "You wait 'til spawning, Josh'll be hitting them with bats, man. Ping! Ping! Ping!... He won't make it."</p> <p>Josh: "No, he's just gonna suffer until he's fucking dead."</p> <p>Ryan then walks away and hits the fish's head against a pole to cull him/her.</p>			
Incident 2	4/9/2019	Cooke Aquaculture Video 1	00:01:04-00:01:33
<p>Tony tries to cull a fish unsuccessfully by slamming him/her into the side of a tank. The fish falls from his grasp.</p>			

<p>Tony: "I dropped you, I'm sorry!"</p> <p>He then grabs the fish's tail and stomps on the head of the fish and walks away. The fish is still writhing around on the ground.</p> <p>Tony: "I fucked up... fucking went to throw him and uhh..."</p>			
Incident 3	4/9/2019	Cooke Aquaculture Video 1	00:01:33-00:02:09
<p>The fish who Tony slammed against the side of a tank and stomped on continues to writhe around on the ground. Ryan then picks up the fish and slams his/her head against the pole.</p> <p>Tony: "I'm a horrible fish killer!"</p>			
Incident 4	4/9/2019	Cooke Aquaculture Video 1	00:02:09-00:02:25
<p>Tony says he when he first started his job he culled every fish who fell out of a tank instead of throwing them back.</p> <p>Tony: "[I thought that] every fish that hit the fucking ground, I had to kill so I was fucking literally stomping on everything... Then I see everybody taking 'em and throwin' 'em back in, I'm like, oh."</p>			
Incident 5	4/9/2019	Cooke Aquaculture Video 1	00:02:25-00:03:24
<p>Josh catches 2 fish for no reason, then attempts to cull a third fish by slamming him/her against the wall of the tank.</p> <p>Josh: "I don't feel as bad."</p> <p>Ryan then hits a fish's head against a pole to kill the animal.</p>			
Incident 6	4/9/2019	Cooke Aquaculture Video 1	00:03:24-00:04:11
<p>Four culled fish on the ground, bleeding into the snow.</p>			
Incident 7	4/9/2019	Cooke Aquaculture Video 1	00:04:11-00:04:28
<p>Six culled fish on the ground. One fish is missing an eye and blood has pooled around the head.</p>			
Incident 8	4/10/2019	Cooke Aquaculture Video 1	00:04:28-00:06:14
<p>Josh holds a fish in one hand and attempts to cull the animal by slamming the fish against the side of the tank. The fish falls to the ground and shortly after, Josh kicks the fish out of the way while passing.</p>			
Incident 9	4/10/2019	Cooke Aquaculture Video 1	00:06:14-00:12:46
<p>Josh culls a fish by slamming his/her head against the side of a concrete tank. He then tosses the fish into a bucket behind him.</p>			

b) Attempting to Slap Fish Out of the Air

Incident 10	4/10/2019	Cooke Aquaculture Video 1	00:12:49-00:17:09
As workers throw fish into tanks and cull barrels, Josh slaps one of the fish out of air and into a plastic tank, as if he were trying to block a basketball. This clip is also used for Incident 40.			
Incident 11	4/10/2019	Cooke Aquaculture Video 1	00:17:09-00:17:58
As Clay attempted to throw 2 fish into a cull barrel, Josh uses his hand to try to slap the fish out of the air like he was blocking a basketball. This clip is also used for Incident 28.			
Incident 12	4/10/2019	Cooke Aquaculture Video 1	00:17:58-00:23:08
After a worker had thrown a fish at a cull barrel, Josh attempted to slap the fish out of the air. Josh misses the fish and the animal made it inside the barrel. The worker cheers. This clip is also used for Incident 32.			

c) "Trick Shots"

Incident 13	4/10/2019	Cooke Aquaculture Video 1	00:23:11-00:25:45
Josh attempts 3 "trick shots" with the same live fish. He throws the fish behind his back once, then picks up the fish and throws the animal behind his back again, failing both times to get fish into cull barrel. Josh picks up same fish again and attempts to throw the animal behind him over his shoulder. The fish flies up into the air and lands on the ground. Josh finally picks the fish up and drops the animal into the cull barrel. In total, Josh and Clay throw 14 fish into the cull barrel. This clip is also used for Incident 36.			
Incident 14	4/10/2019	Cooke Aquaculture Video 1	00:25:45-00:27:27
Josh throws three fish at the cull barrel in quick succession without turning his body towards the barrels. One of the fish hits the side of the barrel before falling in. This clip is also used for Incident 41.			

d) Throwing Fish

Incident 15	4/10/2019	Cooke Aquaculture Video 1	00:27:30-00:32:06
Josh throws fish into tanks and barrels. 20 of these throws cover a distance of approximately 10 feet. 10 of these fish were thrown in a cull barrel. Two other workers throw fish as well. Clay throws 14 fish, 2 of them approximately 10 feet. The third worker misses the cull barrel with one of his throws and the fish hits the floor.			

Incident 16	4/10/2019	Cooke Aquaculture Video 1	00:32:06-00:33:40
Josh throws 2 fish approximately 5 feet and 3 fish about 10 feet. 6 fish were thrown in the cull barrel. Clay throws 1 fish approximately 5 feet and 4 fish about 10 feet. 1 fish went into the cull barrel. Fish can be seen flopping around in the barrel. Another worker throws a fish approximately 10 feet. This clip is also used for Incident 73.			
Incident 17	4/10/2019	Cooke Aquaculture Video 1	00:33:40-00:38:21
Josh drops a fish on the ground, then picks the animal up and tosses him/her high up into the air into a tank. He also throws a fish too far and the animal flies over the barrel and hits the pavement off camera. 4 of the fish thrown by Josh appear to travel 10-15 feet in the air. Josh throws 7 fish into the cull barrel. Clay throws 5 fish approximately 5 feet and 11 fish about 10 feet.			
Incident 18	4/10/2019	Cooke Aquaculture Video 1	00:38:21-00:43:46
Josh throws a fish at a cull barrel, but the fish hits the rim of that barrel and bounces to the rim of another barrel. He throws 20 fish approximately 10 feet and 4 fish about 15 feet. Clay throws 6 fish approximately 10 feet. 1 fish was thrown 10-15 feet in the air. 3 fish were thrown into the cull barrel.			
Incident 19	4/10/2019	Cooke Aquaculture Video 1	00:43:46-00:46:57
1 fish thrown by Josh travels 10-15 feet into the air. Josh throws 7 fish into the cull barrel, while Clay throws 2 fish into the barrel.			
Incident 20	4/10/2019	Cooke Aquaculture Video 1	00:46:57-00:48:03
Josh throws a fish approximately 15 feet. Clay throws a fish approximately 5 feet and 4 fish about 10 feet.			
Incident 21	4/10/2019	Cooke Aquaculture Video 1	00:48:03-00:57:03
Josh throws 3 fish approximately 10 feet and 2 fish about 15 feet. Of these fish, one travels 10-15 feet in the air. Clay throws 4 fish about 10 feet and 2 fish about 15 feet. Clay also drops a fish on the ground. The fish starts flopping around. Another worker drops a fish on the ground and does not pick the animal up. The fish flops around on the ground. This clip is also used for Incident 354.			
Incident 22	4/10/2019	Cooke Aquaculture Video 1	00:57:03-00:59:53
Josh throws 1 fish approximately 10 feet and another about 15 feet. 8 fish go into the cull barrel. Clay throws 2 fish into the cull barrel.			
Incident 23	4/10/2019	Cooke Aquaculture Video 1	00:59:53-01:02:54
Josh throws 5 fish into the cull barrel. Clay throws 4 fish into the barrel. They both walk off camera multiple times with fish in their hands.			
Incident 24	4/10/2019	Cooke Aquaculture Video 1	01:02:54-01:05:27

Josh throws 7 fish approximately 10 feet and 2 fish about 15 feet. 5 fish appear to have traveled 10-15 feet in the air. Clay throws 2 fish approximately 10 feet. Josh and Clay each throw one fish into a cull barrel.			
Incident 25	4/10/2019	Cooke Aquaculture Video 1	01:05:27-01:11:59
Josh throws 2 fish forcefully from 15 feet away into a tank. One fish makes a large splash upon hitting the water. In total, Josh throws 7 fish approximately 15 feet and 2 fish about 10 feet. Clay throws 4 fish approximately 10 feet. Josh throws 16 fish into the cull barrel, while Clay throws 6.			
Incident 26	4/10/2019	Cooke Aquaculture Video 1	01:11:59-01:14:19
Fish flop around in the cull barrels. Josh throws 4 fish approximately 15 feet. Clay throws 2 fish about 10 feet. One fish he throws falls to the ground. A fish thrown by another worker hits the edge of the barrel and falls to the ground. Josh picks up the fish and another one on the ground and slams the fish into the barrel on top of the others.			
Incident 27	4/10/2019	Cooke Aquaculture Video 1	01:14:19-01:15:48
Josh throws a fish forcefully about 15 feet to a tank not in view. Clay throws 1 fish approximately 10 feet. Josh and Clay throw a combined 4 fish into the cull barrel.			
Incident 28	4/10/2019	Cooke Aquaculture Video 1	01:15:48-01:16:37
Josh throws 1 fish overhand approximately 10 feet. Clay attempts to throw 2 fish into the cull barrel. While the 2nd fish was traveling through the air, Josh tried to slap the animal out of the air. This clip is also used for Incident 11.			
Incident 29	4/10/2019	Cooke Aquaculture Video 1	01:16:37-01:19:34
Josh throws 3 fish in the cull barrel. Clay throws 6 fish into the cull barrel. Both of them go out of view of the camera multiple times with fish in their hands. This clip is also used for Incident 72.			
Incident 30	4/10/2019	Cooke Aquaculture Video 1	01:19:34-01:22:18
Josh throws 3 fish approximately 10 feet and 2 fish about 15 feet. 1 fish is thrown 10-15 feet in the air. Clay throws 5 fish approximately 10 feet and 5 fish about 15 feet. Fish can be seen alive and struggling in the cull barrel. This clip is also used for Incident 74.			
Incident 31	4/10/2019	Cooke Aquaculture Video 1	01:22:18-01:25:19
Josh throws 6 fish approximately 10 feet into tanks not in view. Clay throws 3 fish about 5 feet into a tank not in view. Another worker also throws fish into tanks.			
Incident 32	4/10/2019	Cooke Aquaculture Video 1	01:25:19-01:30:30
Josh throws 2 fish approximately 5 feet and 1 fish overhand about 10 feet. Clay throws 1 fish about 10 feet. Another worker throws a fish at a cull barrel, but Josh attempts to slap the fish away. Josh misses and the other worker cheers. Tony misses two of his throws, resulting in the fish landing on the ground.			

This clip is the same as in Incident 12.			
Incident 33	4/10/2019	Cooke Aquaculture Video 1	01:30:30-01:38:02
Josh throws 2 fish approximately 10 feet. Clay throws 2 fish about 10 feet and another 2 about 15 feet. 2 of these fish traveled 10-15 feet up in air. Another worker throws 2 fish into a cull barrel from about 10 feet away. He shakes one of these fish while smiling before throwing the animal into the barrel. A third worker misses his toss and the fish hits the edge of the barrel and falls to the ground. The fish is picked up more than a minute later.			
Incident 34	4/10/2019	Cooke Aquaculture Video 1	01:38:02-01:41:34
Josh and Clay throw a combined 9 fish into a cull barrel. They each walk off screen multiple times with a total of 41 fish.			
Incident 35	4/10/2019	Cooke Aquaculture Video 1	01:41:34-01:42:14
A worker throws a fish towards a plastic bin. Another worker attempts to catch the fish, but the animal slips through his hands and goes inside the bin. Josh throws 1 fish and both he and Clay walk off screen with fish in their hands.			
Incident 36	4/10/2019	Cooke Aquaculture Video 1	01:42:14-01:44:49
Josh and Clay throw a combined 14 fish into a cull barrel. They both walk out of view of the camera multiple times while holding fish. This clip is the same as in Incident 13.			
Incident 37	4/10/2019	Cooke Aquaculture Video 1	01:44:49-01:45:36
Josh holds a fish up in the air by the tail fin. He then tosses the animal into the cull bin. Clay is seen picking up a fish from the ground, indicating he missed one of his throws. Both Josh and Clay walks out of view of the camera holding fish.			
Incident 38	4/10/2019	Cooke Aquaculture Video 1	01:45:36-01:47:47
Josh throws 1 fish approximately 10 feet. He is seen picking a fish up off the ground after missing his toss. Clay drops another fish on the ground and the animal slides about 5 feet across the pavement. Combined, Josh and Clay throw 7 fish into a cull barrel. Another worker throws a fish about 5 feet into a barrel.			
Incident 39	4/10/2019	Cooke Aquaculture Video 1	01:47:47-01:50:02
Clay drops a fish on the ground and picks the animal up on his way back from a tank out of view of the camera. He then throws the animal about 10 feet to the tank. He and Josh walk out of view multiple times holding a combined 28 fish.			

Incident 40	4/10/2019	Cooke Aquaculture Video 1	01:50:02-01:54:22
Josh throws a fish towards a cull barrel, but the fish hits the rim of the barrel and falls to the ground. Another worker throws a fish and Josh slaps the fish down into the tank. Josh also throws 2 other fish approximately 20 feet. 11 fish are thrown into the cull barrel. This clip is also used for Incident 10.			
Incident 41	4/10/2019	Cooke Aquaculture Video 1	01:54:22-01:56:04
Josh throws 2 fish approximately 10 feet. Clay drops a fish on the ground and leaves the animal there while he throws another fish into a tank. He then goes back and throws the fish on the ground into a tank. 7 fish are thrown into the cull barrel. Both Josh and Clay go out of view multiple times while holding fish. Tony throws 1 fish into the cull barrel from a distance of about 10 feet. This clip is the same as in Incident 14.			
Incident 42	4/10/2019	Cooke Aquaculture Video 1	01:56:04-01:58:27
Josh throws 2 fish approximately 20 feet through the air. Tony attempts to throw a fish about 10 feet, but misses. The fish bounces off the barrel and slides across the pavement for about 10 feet. Josh then picks up the fish and throws him/her into the cull barrel. Clay and Josh walk out of view of the camera multiple times while holding fish.			
Incident 43	4/10/2019	Cooke Aquaculture Video 1	01:58:27-01:58:55
Ryan grasps a live fish by the tail and throws the animal into another tank			
Incident 44	4/10/2019	Cooke Aquaculture Video 1	01:58:55-01:59:11
Ryan grasps a live fish by the tail and throws the animal into a tank			
Incident 45	4/10/2019	Cooke Aquaculture Video 1	01:59:11-01:59:41
Ryan picks a live fish up from the ground by the tail and throws the animal into another tank			
Incident 46	4/10/2019	Cooke Aquaculture Video 1	01:59:41-02:02:08
Josh pulls a live fish out of an anesthetic bath and throws the fish down hard at a bucket on the ground. The impact creates a wet sound. The worker next to the bucket reacts to this and appears to move the fish. This clip is also used for Incidents 62, 83, 100, and 207.			
Incident 47	4/10/2019	Cooke Aquaculture Video 1	02:02:08-02:06:03
Josh tosses 11 live fish into a bucket at the side of the vaccinating table. This clip is also used for Incident 63.			
Incident 48	4/10/2019	Cooke Aquaculture Video 1	02:06:03-02:08:24

Josh tossing 2 live fish hard into a bucket at the side of the vaccinating table. This clip is also used for Incidents 64 and 435.			
Incident 49	4/10/2019	Cooke Aquaculture Video 1	02:08:24-02:09:41
Josh tossing 5 live fish hard into a bucket at the side of the vaccinating table. This clip is also used for Incident 65.			
Incident 50	4/10/2019	Cooke Aquaculture Video 1	02:09:41-02:10:32
Josh tosses a live fish into a bucket at the side of the vaccinating table. This clip is also used for Incidents 66 and 182.			
Incident W-1	3/26/2019	Witnessed-Only	
The investigator was handing a small amount of fish to Josh one by one in order to move them. Upon handing the last fish over to Josh, the investigator witnessed him grab the fish with one hand and throw the fish roughly over 50 feet to the other side of the building. Josh then stated that he had "made it in" when he attempted to throw the fish into the tank on the opposite side of the building. The investigator did not witness the fish landing in the tank.			

e) Rough Handling

Incident 51	4/9/2019	Cooke Aquaculture Video 1	02:10:35-02:11:24
<p>Daniel simulates a sexual act with a live fish he has caught. He positions the fish's mouth near his groin and thrusts his hips at the fish's face.</p> <p>Daniel: "Yeah! Taste it! Taste it!"</p> <p>He then holds the fish aloft.</p> <p>Daniel: "You thought you was better than me, huh?"</p> <p>He then releases the fish.</p>			
Incident 52	4/10/2019	Cooke Aquaculture Video 1	02:11:24-02:12:55
Tony attempts to catch a live fish by the tail with his left hand. He tries to pull the fish up by the tail, but the fish gets away.			
Incident 53	4/10/2019	Cooke Aquaculture Video 1	02:12:55-02:13:24
Josh drops a fish and struggles to pick the animal up with one hand. He eventually succeeds and tosses the fish a few feet into a bin.			

Incident 54	4/10/2019	Cooke Aquaculture Video 1	02:13:24-02:16:40
<p>Tony catches a live fish for no reason. Daniel then rubs the fish's head before he/she is released by Tony. Then, Tony reaches into the water with his right hand and grabs a fish's tail and pulls the animal out of the water for no reason. He then releases the fish back into the water.</p> <p>The fish moving crew suggests a dead fish has been present in an outdoor tank for weeks alongside live fish.</p> <p>Investigator: "There's a dead one right there, behind you, floating."</p> <p>Josh: "Oh yeah! That looks good."</p> <p>Tony: "This one's been hiding for weeks!"</p> <p>Daniel: "Kiss it, Tony! [laughs]"</p>			
Incident 55	4/10/2019	Cooke Aquaculture Video 1	02:16:41-02:18:27
<p>Tony catches a live fish for no reason. He then releases the animal.</p>			
Incident 56	4/9/2019	Cooke Aquaculture Video 1	02:18:27-02:18:46
<p>Tony briefly holds a live fish in the air before placing the animal back in the water. The fish's mouth is gaping while he/she is being held.</p>			
Incident 57	4/9/2019	Cooke Aquaculture Video 1	02:18:46-02:21:51
<p>Daniel catches a fish in a net and leaves the animal in the net for 50 seconds before handing the net to a coworker to place into a large bin outside the tank. The fish thrashes in the net.</p>			
Incident 58	4/9/2019	Cooke Aquaculture Video 1	02:21:51-02:22:10
<p>Josh and Daniel agitating fish by trying to catch and release them for no reason.</p>			
Incident 59	4/9/2019	Cooke Aquaculture Video 1	02:22:10-02:22:30
<p>Josh holds a live fish by his/her tail. The fish thrashes wildly while being held.</p>			
Incident 60	4/9/2019	Cooke Aquaculture Video 1	02:22:30-02:24:27
<p>Daniel repeatedly attempts to catch a live fish for no reason. He briefly grasps the tails of 2 of them before they get away. He finally catches one live fish and celebrates happily.</p>			
Incident 61	3/26/2019	Cooke Aquaculture Video 1	02:24:27-02:28:25

Josh dumps fish who were in an anesthetic bath onto the table. One fish who was not anesthetized is thrown back to Josh, who blocks the fish with his hand so he/she falls back into an anesthetic bath. This clip is also used for Incident 91.			
Incident 62	3/26/2019	Cooke Aquaculture Video 1	02:28:25-02:30:53
Josh pulls a live fish out of an anesthetic bath and throws the fish down hard at a bucket on the ground. The impact creates a wet sound. The worker next to the bucket reacts to this and appears to move the fish. This clip is also used for Incidents 46, 83, 100, and 207.			
Incident 63	3/26/2019	Cooke Aquaculture Video 1	02:30:53-02:34:48
Josh tosses 11 live fish into a bucket at the side of the vaccinating table. This clip is also used for Incident 47.			
Incident 64	3/26/2019	Cooke Aquaculture Video 1	02:34:48-02:37:09
Josh tosses 2 live fish hard into a bucket at the side of the vaccinating table. This clip is also used for Incidents 48 and 435.			
Incident 65	3/26/2019	Cooke Aquaculture Video 1	02:37:09-02:38:25
Josh tosses 5 live fish hard into a bucket at the side of the vaccinating table. This clip is also used for Incident 49.			
Incident 66	3/26/2019	Cooke Aquaculture Video 1	02:38:25-02:39:16
Josh tosses a live fish into a bucket at the side of the vaccinating table. This clip is also used for Incidents 50 and 182.			
Incident 67	4/9/2019	Cooke Aquaculture Video 1	02:39:16-02:42:32
Tony tries to dump a fish from a net into a large bin, but ends up dropping the animal onto a wooden pallet.			
Incident 68	4/9/2019	Cooke Aquaculture Video 1	02:42:32-02:43:51
Josh holds a live fish out of the water as he speaks with Daniel. Josh bends the fish's body while speaking.			
Incident 69	4/9/2019	Cooke Aquaculture Video 1	02:43:51-02:46:03
Tony tries to dump a fish from a net into a large bin, but ends up dropping the animal onto a wooden pallet.			
Incident 70	4/9/2019	Cooke Aquaculture Video 1	02:46:03-02:46:51

<p>Josh gives Daniel advice on how to catch fish.</p> <p>Josh: "Gotta grab the tail and fucking squeeze."</p>			
Incident 71	3/26/2019	Cooke Aquaculture Video 1	02:46:51-02:47:48
<p>Josh confirms the pump equipment is still broken and causing injury to fish.</p> <p>Investigator: "Did that pump get fixed?"</p> <p>Josh: "Nope. It's still damaging them. Well, actually he did change a few things, but we don't know yet because these fish are already damaged from the last—from vaccinating. But we'll try our broodstock next, after this tank. So we'll figure out if it's still damaging, they have to fix that."</p> <p>Investigator: "So they're still losing scales and all that?"</p> <p>Josh: "Yeah. We tried it just the other day and it was still damaging them. Messed them all up."</p>			
Incident W-2	3/26/2019	Witnessed-Only	
<p>The investigator witnessed one of the members of the vaccination crew (Caucasian male, roughly 6', long brown hair in ponytail, brown eyes, wearing a yellow smock) holding one of the fish in his hand while roughly handling the fish and laughing with Josh before tossing the fish back into the head tank.</p>			
Incident W-3	3/26/2019	Witnessed-Only	
<p>The investigator witnessed a conversation between Brian and other workers where Brian stated that there were issues with the pump used in the vaccination process for the fish, causing them to lose scales which leaves them susceptible to fungus, open sores and infection. Brian also stated his intent to use a tank full of fish as "guinea pigs" to test whether the pump would injure the fish or not. He went on to explain that the fish in the tank were not needed as they would be leftover due to an abundance of fish on site.</p>			
Incident W-4	3/26/2019	Witnessed-Only	
<p>As the broodstock fish were being pumped into the head tank to be vaccinated, the investigator witnessed the head tank filled with scales scattered throughout the water and workers pointing out the amount of scales present in the head tank.</p>			

2. Cruelty Directed by Management

a) Suffocation

Incident 72	4/10/2019	Cooke Aquaculture Video 1	02:47:54-02:50:51
<p>Live fish in the cull barrel. Some fish are still flopping around in the barrel. This clip is also used for Incident 29.</p>			

Incident 73	4/10/2019	Cooke Aquaculture Video 1	02:50:51-02:52:25
Live fish in the cull barrel. At least one fish is still flopping around in the barrel. This clip is also used for Incident 16.			
Incident 74	4/10/2019	Cooke Aquaculture Video 1	02:52:25-02:55:08
Live fish in the cull barrel. At least one fish is still flopping around in the barrel. This clip is also used for Incident 30.			
Incident 75	4/10/2019	Cooke Aquaculture Video 1	02:55:08-02:55:41
Live fish in the cull barrel, left there to suffocate over break. Some of the fish are still trembling.			
Incident 76	4/10/2019	Cooke Aquaculture Video 1	02:55:41-02:55:58
Live fish left to suffocate in the cull barrel. Some fish are still moving within the barrel.			
Incident 77	2/18/2019	Cooke Aquaculture Video 1	02:55:58-02:57:07
The inside of a mortality bucket. The bottom is covered in dead fry and eggs. One fry is still moving in the bucket. This clip is also used for Incidents 468 and 485.			
Incident 78	3/3/2019	Cooke Aquaculture Video 1	02:57:07-02:58:04
The inside of a mortality bucket. The bottom is covered in dead fry and eggs. One fry is still moving in the bucket. This clip is also used for Incident 488.			
Incident 79	3/5/2019	Cooke Aquaculture Video 1	02:58:04-02:58:22
The inside of a mortality bucket. The bottom is covered in dead fry. At least one fry is still moving in the bucket.			
Incident 80	3/5/2019	Cooke Aquaculture Video 1	02:58:22-02:58:37
The inside of a mortality bucket. The bottom is covered in dead fry. At least one fry is still moving in the bucket.			
Incident 81	3/26/2019	Cooke Aquaculture Video 1	02:58:37-02:59:21
Live fish inside a mortality bucket. The fish are still very active and flopping around inside the bucket.			
Incident 82	3/26/2019	Cooke Aquaculture Video 1	02:58:37-02:59:21

Live fish inside a mortality bucket. The fish are still very active and flopping around inside the bucket. This is the same bucket from the previous clip.			
Incident 83	3/26/2019	Cooke Aquaculture Video 1	02:59:21-03:01:48
Josh tossing live fish from the anesthesia bath into a mortality bucket. This clip is also used for Incidents 46, 62, 100, and 207.			
Incident 84	3/21/2019	Cooke Aquaculture Video 1	03:01:48-03:02:12
A live fish with a gill deformity writhing on the ground, covered in feed. Tony and Ryan later tell the investigator to throw the fish into the mortality bucket (not shown).			
Incident 85	2/14/2019	Cooke Aquaculture Video 1	03:02:12-03:02:57
A live fry still moving inside the mortality bucket, which contains a number of dead fry.			
Incident 86	3/26/2019	Cooke Aquaculture Video 1	03:02:57-03:04:47
Josh and Ryan dumping live fish into the barrels filled with dead fish outside the vaccination tent. This clip is also used for Incident 476.			
Incident 87	3/15/2019	Cooke Aquaculture Video 1	03:04:47-03:05:33
The inside of a mortality bucket. The bottom is covered in dead fry and eggs. One fry is still moving in the bucket. This clip is also used for Incident 443.			
Incident 88	2/13/2019	Cooke Aquaculture Video 1	03:05:33-03:06:06
Dead fry in a mortality bucket.			
Incident 89	4/7/2019	Cooke Aquaculture Video 1	03:06:06-03:06:54
The inside of a mortality bucket containing dead fry. At least one fry is alive and still moving in the bucket.			
Incident 90	4/10/2019	Cooke Aquaculture Video 1	03:06:54-03:07:14
<p>Josh states that he used to be conflicted about killing fish using the practices at the facility, but gradually became desensitized.</p> <p>Josh: "It really bummed me out killing fish like we do. 'Cause they just suffocate. It's so rough. Over the years you kinda get desensitized."</p> <p>Daniel: "Oh, yeah. It's just another day."</p> <p>Josh: "It sucks. Part of farming, everything, you know. Animals die."</p>			

b) Anesthesia

Incident 91	3/26/2019	Cooke Aquaculture Video 1	03:07:17-03:11:15
Fish in an anesthetic bath. The fish have lost their equilibrium and are floating upside down. One fish's body moves slightly. This clip is also used for Incident 61.			
Incident 92	3/26/2019	Cooke Aquaculture Video 1	03:11:15-03:16:15
A fish in the anesthetic bath attempts to jump out, but the fish is pushed back in by Josh. This clip is also used for Incidents 194 and 205.			
Incident 93	3/26/2019	Cooke Aquaculture Video 1	03:16:15-03:22:19
Multiple fish trying to jump out of the anesthesia baths. This clip is also used for Incident 199.			
Incident 94	3/26/2019	Cooke Aquaculture Video 1	03:16:15-03:22:19
A fish jumps out of the anesthesia bath on the right onto the table. A worker puts the fish back into the bath on the left. As the baths are emptied at different times, this means the fish will get the wrong dose of anesthesia.			
Incident 95	3/26/2019	Cooke Aquaculture Video 1	03:16:15-03:22:19
Josh picks up a live fish who has fallen beneath the anesthesia bath and places the animal back in the bath.			
Incident 96	3/26/2019	Cooke Aquaculture Video 1	03:22:19-03:23:55
Fish in the anesthesia bath. Several individuals still show movement. This clip is also used for Incident 191.			
Incident 97	3/26/2019	Cooke Aquaculture Video 1	03:23:55-03:27:30
Fish thrashing around, trying to escape from the left side of the anesthesia bath.			
Incident 98	3/26/2019	Cooke Aquaculture Video 1	03:27:30-03:30:08
Fish thrashing around, trying to escape from the left side of the anesthesia bath.			
Incident 99	3/26/2019	Cooke Aquaculture Video 1	03:30:08-03:30:30
Finquel and baking soda vials on a table in the vaccination shack.			

Incident 100	3/26/2019	Cooke Aquaculture Video 1	03:30:30-03:32:57
Fish thrashing around, trying to escape from the right side of the anesthesia bath. This clip is also used for Incidents 46, 62, 83, and 207.			
Incident 101	4/10/2019	Cooke Aquaculture Video 1	03:32:57-03:34:18
A container of Tricaine, used to anesthetize fish before vaccinations.			
Incident 102	4/10/2019	Cooke Aquaculture Video 1	03:32:57-03:34:18
The investigator asks Josh if the tricaine is used to anesthetize the fish. Josh: "Yeah. Tricaine. Bad stuff. We call it the finquel stuff..."			
Incident 103	3/26/2019	Cooke Aquaculture Video 1	03:34:18-03:40:50
The investigator speaks with Josh about how long fish should be left in the anesthesia bath. Josh: "Too long is probably... oh, I don't know. Probably a minute and a half, two minutes." This clip is also used for Incident 192.			
Incident 104	3/26/2019	Cooke Aquaculture Video 1	03:40:50-03:41:42
Josh explaining to the investigator how often to change the water in the anesthesia bath. Josh: "I don't really even pay attention to time at this point, it's when the fish are taking forever to go to sleep... When they go on the table, you can start telling, they'll start waking up on the table real fast. We don't really want that, either."			
Incident W-5	3/26/2019	Witnessed-Only	
Throughout the vaccination process, the investigator witnessed Josh leaving fish inside the anesthesia water for well over 2 minutes several times.			

c) Vaccinations

Incident 105	3/19/2019	Cooke Aquaculture Video 1	03:41:45-04:01:23
The outside of the vaccination tent. Fish slide out from the tent into a tube feeding into a bin.			
Incident 106	3/19/2019	Cooke Aquaculture Video 1	03:41:45-04:01:23

The crew vaccinating fish inside the tent. The crew uses vaccination guns to inject the vaccine into the fish as they're anesthetized.			
Incident 107	3/19/2019	Cooke Aquaculture Video 1	03:41:45-04:01:23
The tank holding fish who have yet to be vaccinated.			
Incident 108	3/19/2019	Cooke Aquaculture Video 1	03:41:45-04:01:23
<p>The crew vaccinating fish as Brian explains the anesthetic.</p> <p>Brian: "The problem with this... size of the fish is different... when you change the anesthesia, it's stronger when you change it right away... it's stronger so they go out quicker, as time goes on it gets weaker and weaker and weaker, so they don't go out as fast."</p> <p>Then, a worker dumps fish out of the anesthetic bath onto the table.</p> <p>Brian: "That's too many fish."</p>			
Incident 109	3/19/2019	Cooke Aquaculture Video 1	03:41:45-04:01:23
<p>Workers vaccinate fish while a few fish continue to move on the table. Fish in the anesthetic bath thrash around and try to escape. As this is happening, Brian explains the problems with having too many fish on the table.</p> <p>Brian: "This is too many on the table. Because, they'll be sitting in there too long... thrashing, they'll be losing scales... you know what I mean? The whole point is not to lose scales."</p>			
Incident 110	3/19/2019	Cooke Aquaculture Video 1	03:41:45-04:01:23
<p>Workers vaccinate fish while Brian explains the dangers of leaving the fish in the anesthetic bath for too long.</p> <p>Brian: "You can't let 'em go too long. You do, and they'll never come back... You leave them in there too long, they'll never wake up again. That's what I'm saying, you gotta be careful, you can't leave them sitting in there, waiting for them to finish a table, so they're still in there... They're better off not in the water, than they are in there."</p>			
Incident 111	3/19/2019	Cooke Aquaculture Video 1	03:41:45-04:01:23
The powder mix for the anesthesia and the baking soda on a table close to the the vaccination table.			
Incident 112	3/19/2019	Cooke Aquaculture Video 1	03:41:45-04:01:23
<p>Brian talks about the need for baking soda while using the anesthetic.</p> <p>Brian: "That's acidic. So if you don't put baking soda in with that... it'll burn their gills."</p>			

Incident 113	3/19/2019	Cooke Aquaculture Video 1	03:41:45-04:01:23
Fish are dumped out onto the vaccination table. Many fish flop around on the table, indicating they are not adequately anesthetized.			
Incident 114	3/19/2019	Cooke Aquaculture Video 1	03:41:45-04:01:23
The fish on the table continue to move around, indicating they are not adequately anesthetized.			
Incident 115	3/19/2019	Cooke Aquaculture Video 1	03:41:45-04:01:23
The fish on the table continue to move around, indicating they are not adequately anesthetized.			
Incident 116	3/19/2019	Cooke Aquaculture Video 1	03:41:45-04:01:23
Jake nets fish in the holding tank and dumps them into an anesthetic bath. The fish struggle while in the net.			
Incident 117	3/19/2019	Cooke Aquaculture Video 1	03:41:45-04:01:23
Jake nets fish in the holding tank and dumps them into an anesthetic bath. The fish struggle while in the net.			
Incident 118	3/19/2019	Cooke Aquaculture Video 1	03:41:45-04:01:23
Fish are dumped out onto the vaccination table. Many fish flop around on the table, indicating they are not adequately anesthetized.			
Incident 119	3/19/2019	Cooke Aquaculture Video 1	03:41:45-04:01:23
Jake nets fish in the holding tank and dumps them into an anesthetic bath. The fish struggle while in the net.			
Incident 120	3/19/2019	Cooke Aquaculture Video 1	03:41:45-04:01:23
<p>Brian explains to the investigator that another worker should have waited to dump the still moving fish onto the table.</p> <p>Brian: "He could've waited longer, put them on the table when they're completely out."</p>			
Incident 121	3/19/2019	Cooke Aquaculture Video 1	03:41:45-04:01:23
<p>Brian continues to explain how the fish should have been completely anesthetized.</p> <p>Brian: "Every once in a while you'll put one on the table they ain't right, way it is, but try to make sure they go out. That's too much flopping... that's too much."</p>			

He then points to the table.			
Incident 122	3/19/2019	Cooke Aquaculture Video 1	03:41:45-04:01:23
A large bin nearly full of dead fish. One of these fish has a deformed gill cover and is held up out of the bin. The gills of the fish are exposed.			
Incident 123	3/19/2019	Cooke Aquaculture Video 1	03:41:45-04:01:23
Brian comments on the moving fish on the table. Brian: "They're still flopping a bit. They shouldn't be flopping like that."			
Incident 124	3/19/2019	Cooke Aquaculture Video 1	03:41:45-04:01:23
Jake nets fish in the holding tank as workers vaccinate fish who are still flopping around on the table.			
Incident 125	3/19/2019	Cooke Aquaculture Video 1	03:41:45-04:01:23
Brian pulls a live fish with a jaw deformity from the anesthetic bath. Brian: "See, they're pulling this stuff off the table, see? That's not a good fish, see that jaw problem, here? So they throw that away..." He then tosses the fish into the mortality bucket.			
Incident 126	3/19/2019	Cooke Aquaculture Video 1	03:41:45-04:01:23
Brian pulls a live fish with a deformed gill cover from the anesthetic bath. The investigator asks Brian how the fish become deformed. Brian: "Deformities. Genetics... This one here's worse than others."			
Incident 127	3/19/2019	Cooke Aquaculture Video 1	03:41:45-04:01:23
Fish are netted from the holding tank and dumped into the anesthetic bath as workers vaccinate fish on the table.			
Incident 128	3/19/2019	Cooke Aquaculture Video 1	03:41:45-04:01:23
Fish in the anesthesia bins. The fish in the left bath are still moving slightly and trying to escape.			
Incident 129	3/19/2019	Cooke Aquaculture Video 1	03:41:45-04:01:23
Fish are dumped out of the anesthetic bath onto the table. Then, Jake nets fish from the holding tank and dumps them into the anesthetic bath as workers vaccinate fish on the table. Some of the fish move			

weakly on the table.			
Incident 130	3/19/2019	Cooke Aquaculture Video 1	03:41:45-04:01:23
Brian tosses a deformed fish from the metal waiting tank into a mortality bucket. The fish cannot be seen.			
Incident 131	3/19/2019	Cooke Aquaculture Video 1	03:41:45-04:01:23
Clay netting fish to toss into the waiting tank before vaccinations.			
Incident 132	3/19/2019	Cooke Aquaculture Video 1	04:01:23-04:17:20
Jake nets fish from the holding tank and dumps them into the anesthetic bath as workers vaccinate fish on the table. Fish are still moving on the table.			
Incident 133	3/19/2019	Cooke Aquaculture Video 1	04:01:23-04:17:20
Workers vaccinating fish on the table. Several fish are still flopping around.			
Incident 134	3/19/2019	Cooke Aquaculture Video 1	04:01:23-04:17:20
Fish being dumped into the anesthesia baths from the holding tank.			
Incident 135	3/19/2019	Cooke Aquaculture Video 1	04:01:23-04:17:20
Fish being dumped out of the anesthesia bath onto the table.			
Incident 136	3/19/2019	Cooke Aquaculture Video 1	04:01:23-04:17:20
Jake nets fish from the holding tank and dumps them into the anesthetic bath as workers vaccinate fish on the table.			
Incident 137	3/19/2019	Cooke Aquaculture Video 1	04:01:23-04:17:20
Jake removes a small live fish from an anesthesia bath and tosses the fish into a bucket.			
Incident 138	3/19/2019	Cooke Aquaculture Video 1	04:01:23-04:17:20
Fish being dumped out of the anesthesia bath onto the table. Many of the fish are still moving, indicating they have not been anesthetized properly.			

Incident 139	3/19/2019	Cooke Aquaculture Video 1	04:01:23-04:17:20
Jake nets fish from the holding tank and dumps them into the anesthetic bath as workers vaccinate fish on the table. Some of the fish on the table are still moving.			
Incident 140	3/19/2019	Cooke Aquaculture Video 1	04:01:23-04:17:20
Workers vaccinate the fish on the table.			
Incident 141	3/19/2019	Cooke Aquaculture Video 1	04:01:23-04:17:20
Live fish in the anesthesia baths.			
Incident 142	3/19/2019	Cooke Aquaculture Video 1	04:01:23-04:17:20
Fish are dumped out of an anesthesia bath onto the table. Some of the fish are still moving, indicating they have not been anesthetized properly. Fish are then dumped into the anesthesia baths from the holding tank.			
Incident 143	3/19/2019	Cooke Aquaculture Video 1	04:17:20-04:23:15
Fish are dumped out of an anesthesia bath onto the table. Many of the fish are still moving, indicating they have not been anesthetized properly. Fish are then dumped into the anesthesia baths from the holding tank.			
Incident 144	3/19/2019	Cooke Aquaculture Video 1	04:17:20-04:23:15
Workers vaccinate the fish on the table.			
Incident 145	3/19/2019	Cooke Aquaculture Video 1	04:17:20-04:23:15
Live fish in the anesthesia baths.			
Incident 146	3/19/2019	Cooke Aquaculture Video 1	04:17:20-04:23:15
Fish being dumped out of the anesthesia bath onto the table. A few fish are still flopping around on the table, indicating they have not been adequately anesthetized.			
Incident 147	3/19/2019	Cooke Aquaculture Video 1	04:17:20-04:23:15
Jake picks up a fish who fell on the floor near the anesthesia baths and throws the animal into a bucket.			
Incident 148	3/19/2019	Cooke Aquaculture Video 1	04:17:20-04:23:15

Fish in the anesthesia bath thrashing around wildly.			
Incident 149	3/19/2019	Cooke Aquaculture Video 1	04:23:15-04:35:25
Workers vaccinate the fish on the table. Some of the fish still flop around on the table, indicating they have not been adequately anesthetized.			
Incident 150	3/19/2019	Cooke Aquaculture Video 1	04:23:15-04:35:25
Jake nets fish from the holding tank and dumps them into the anesthetic bath as workers vaccinate fish on the table. Some of the fish on the table are still moving.			
Incident 151	3/19/2019	Cooke Aquaculture Video 1	04:23:15-04:35:25
Fish are dumped out of an anesthesia bath onto the table. At least one of the fish is still moving, indicating he/she has not been anesthetized properly. Fish are then dumped out of a net into an anesthesia bath.			
Incident 152	3/19/2019	Cooke Aquaculture Video 1	04:23:15-04:35:25
Jake pours anesthetic powder into one of the baths, then stirs it up with his gloved hand. As he does this, other workers vaccinate fish on the table.			
Incident 153	3/19/2019	Cooke Aquaculture Video 1	04:23:15-04:35:25
Fish being dumped out of the anesthesia bath onto the table. Many fish are still flopping around on the table, indicating they have not been adequately anesthetized.			
Incident 154	3/19/2019	Cooke Aquaculture Video 1	04:23:15-04:35:25
Several fish are still flopping around on the table as workers vaccinate.			
Incident 155	3/19/2019	Cooke Aquaculture Video 1	04:23:15-04:35:25
Jake pulls a deformed fish out of an anesthesia bath and throws the animal into a mortality bucket.			
Incident 156	3/19/2019	Cooke Aquaculture Video 1	04:23:15-04:35:25
Jake pours anesthetic powder into the anesthetic bath, then stirs it up with his gloved hands. As he does this, other workers vaccinate fish on the table.			
Incident 157	3/19/2019	Cooke Aquaculture Video 1	04:23:15-04:35:25
Jake takes a net full of fish from the holding tank and dumps them in the anesthetic bath.			

Incident 158	3/19/2019	Cooke Aquaculture Video 1	04:23:15-04:35:25
Fish in an anesthesia tin. Most have lost their equilibrium but some are still moving within the bath.			
Incident 159	3/19/2019	Cooke Aquaculture Video 1	04:23:15-04:35:25
Jake takes a net full of fish from the holding tank and dumps them in the anesthetic bath.			
Incident 160	3/19/2019	Cooke Aquaculture Video 1	04:23:15-04:35:25
Fish are dumped out of the right side of the anesthesia bath. Workers begin to vaccinate the fish, but several fish are still flopping on the table. This indicates some of the fish were not adequately anesthetized.			
Incident 161	3/19/2019	Cooke Aquaculture Video 1	04:35:25-04:42:04
Fish scales floating in the holding tank. The investigator asks Clay about objects floating in the tank. Clay: "Scales off the fish. Which isn't good. That really ain't that bad compared to what it's been."			
Incident 162	3/19/2019	Cooke Aquaculture Video 1	04:35:25-04:42:04
Jake takes a net full of fish from the holding tank and dumps them in the anesthetic bath. Workers continue to vaccinate fish on the table.			
Incident 163	3/19/2019	Cooke Aquaculture Video 1	04:35:25-04:42:04
Jake takes a net full of fish from the holding tank and dumps them in the anesthetic bath. Workers continue to vaccinate fish on the table.			
Incident 164	3/19/2019	Cooke Aquaculture Video 1	04:42:04-04:46:46
Jake takes a net full of fish from the holding tank and dumps them in the anesthetic bath. Workers continue to vaccinate fish on the table.			
Incident 165	3/19/2019	Cooke Aquaculture Video 1	04:46:46-04:47:32
Fish sliding into a large bin after being vaccinated. This clip is also used for Incident 474.			
Incident 166	3/19/2019	Cooke Aquaculture Video 1	04:47:32-04:49:45
Daniel explains to the investigator that he leaves the fish in the anesthetic for longer than the normal time. Daniel: "Those fish are pretty tough. I'd leave them in the water for a while. They look dead, but-- no one's bitched at me about dead fish outside, so..."			

He then smiles at the investigator.			
Incident 167	3/19/2019	Cooke Aquaculture Video 1	04:49:45-05:00:25
Jake dumps fish in the anesthetic bath out onto the table so the other workers can vaccinate them. He then uses a net to catch fish in the holding tank and dumps them into the anesthetic bath.			
Incident 168	3/19/2019	Cooke Aquaculture Video 1	04:49:45-05:00:25
Jake uses his net twice to catch fish from the holding tank and dump then into the anesthetic bath. Other workers continue to vaccinate fish on the table.			
Incident 169	3/19/2019	Cooke Aquaculture Video 1	04:49:45-05:00:25
<p>Josh converses with Jake about how long to keep the fish in the anesthetic bath.</p> <p>Josh: "It's definitely worse, in my opinion, to put them on the table all floppy, than to keep them in there a few extra fucking seconds or minutes. When you think about it, not only is it dangerous for these guys, think about the health of the fish... And then, once the needle's in them and they flop, that tears a fucking huge hole in them."</p>			
Incident 170	3/19/2019	Cooke Aquaculture Video 1	05:00:25-05:09:24
Jake dumps fish in the anesthetic bath out onto the table so the other workers can vaccinate them. Several fish flop around on the table.			
Incident 171	3/19/2019	Cooke Aquaculture Video 1	05:00:25-05:09:24
Jake dumps fish from a net into the anesthetic bath. Workers continue to vaccinate fish on the table, where some fish are still flopping around.			
Incident 172	3/19/2019	Cooke Aquaculture Video 1	05:00:25-05:09:24
A live fish who has fallen onto the floor. Jake picks the fish up and tosses the fish into the mortality bucket.			
Incident 173	3/19/2019	Cooke Aquaculture Video 1	05:00:25-05:09:24
Jake and Josh examine a fish with a jaw deformity. Then, another fish is grabbed from the anesthetic bath and both fish are thrown into the mortality bucket.			
Incident 174	3/19/2019	Cooke Aquaculture Video 1	05:00:25-05:09:24
Workers vaccinate fish while many fish flop around on the table. Josh then catches fish from the holding tank with his net and dumps them in the anesthetic bath.			
Incident 175	3/19/2019	Cooke Aquaculture Video 1	05:00:25-05:09:24

Fish thrashing around in the right side of the anesthesia bath.			
Incident 176	3/19/2019	Cooke Aquaculture Video 1	05:00:25-05:09:24
Jake dumps fish in the anesthetic bath onto the table for vaccinations. Many of the fish are still active and flopping around on the table.			
Incident 177	3/19/2019	Cooke Aquaculture Video 1	05:00:25-05:09:24
<p>Jake talks to the investigator about what workers look for regarding deformities in fish.</p> <p>Jake: "They're just looking for any type of deformity or anything, you know, any big cuts or gouges out of them, throw'em. 'Cause they're gonna die anyway. Might as well end it here, versus letting them die out in the bigger tank."</p>			
Incident 178	3/19/2019	Cooke Aquaculture Video 1	05:00:25-05:09:24
Workers vaccinating fish on the table. Several fish are still flopping around.			
Incident 179	3/19/2019	Cooke Aquaculture Video 1	05:00:25-05:09:24
A dead fish on the floor near the vaccination table.			
Incident 180	3/26/2019	Cooke Aquaculture Video 1	05:09:24-05:11:46
The crew setting up the equipment for vaccinating the fish.			
Incident 181	3/26/2019	Cooke Aquaculture Video 1	05:11:46-05:13:49
The head tank filled with live fish. This clip is also used for Incidents 478 and 479.			
Incident 182	3/26/2019	Cooke Aquaculture Video 1	05:13:49-05:14:41
Fish are dumped out onto the vaccination table. Several fish flop around on the table, indicating they are not adequately anesthetized. Then, more fish are netted from the holding tank and dumped in the anesthesia bath. This clip is also used for Incidents 50 and 66.			
Incident 183	3/26/2019	Cooke Aquaculture Video 1	05:14:41-05:16:35
Workers vaccinate fish on the table and fish are netted from the holding tank and dumped into the anesthesia bath. On the table, a few fish continue to move.			
Incident 184	3/26/2019	Cooke Aquaculture Video 1	05:14:41-05:16:35

Workers vaccinate fish on the table and fish are netted from the holding tank and dumped into the anesthesia bath. On the table, a few fish continue to move.			
Incident 185	4/3/2019	Cooke Aquaculture Video 1	05:16:35-05:24:56
<p>Jeff explains the negative impact vaccination has on the fish.</p> <p>Jeff: "Once you vaccinate them, it takes them like a week before they start eating again, and it's like they get sluggish or something."</p> <p>This clip is also used for Incidents 236, 347, 508, 515, 516, 517, and 544.</p>			
Incident 186	4/3/2019	Cooke Aquaculture Video 1	05:24:56-05:27:14
<p>Jeff explains the negative impact vaccination has on the fish.</p> <p>Jeff: "The vaccinating stresses them out, takes its toll on some of them, some of them die off, the other ones don't. Then, shipping, we'll be shipping 'em, some die off, some don't."</p> <p>This clip is also used for Incidents 509 and 518.</p>			
Incident 187	3/26/2019	Cooke Aquaculture Video 1	05:27:14-05:27:45
Workers vaccinate fish on the table. More fish are then dumped out of the anesthetic bath onto the table.			
Incident W-6	3/4/2019	Witnessed-Only	
The investigator witnessed Jeff and Clay stating that the condition of the tanks will be poor once the vaccinations are completed, as the fish won't eat for 2 weeks after the process.			
Incident W-7	3/6/2019	Witnessed-Only	
The investigator witnessed a conversation between Brian and Jeff Washburne, where Brian stated that some of the fish being vaccinated had missing gills and certain fish had the potential to carry an infection that could negatively impact the entire hatchery if they weren't sorted out. Jeff also stated that the vaccination crew had filled a mort bucket with at least 60,000 fish.			

d) Fin Clipping

Incident 188	3/26/2019	Cooke Aquaculture Video 1	05:27:48-05:28:24
Workers clipping the pelvic fins of fish. Some of the fish flop around on the table.			
Incident 189	3/26/2019	Cooke Aquaculture Video 1	05:28:24-05:29:44

Workers clipping the pelvic fins of fish. Some of the fish flop around on the table.			
Incident 190	3/26/2019	Cooke Aquaculture Video 1	05:28:24-05:29:44
Workers clipping the pelvic fins of fish. Many of the fish flop around on the table.			
Incident 191	3/26/2019	Cooke Aquaculture Video 1	05:29:44-05:31:20
Workers clipping the pelvic fins of fish. Many fish are flopping on the table. This clip is also used for Incident 96.			
Incident 192	3/26/2019	Cooke Aquaculture Video 1	05:31:20-05:37:53
Workers clipping the pelvic fins of fish. This clip is also used for Incident 103.			
Incident 193	3/26/2019	Cooke Aquaculture Video 1	05:31:20-05:37:53
Workers clipping the pelvic fins of fish. Some of the fish on the table are still flopping around on the table. Fish are put into the anesthesia bath and are dumped out 2 minutes later.			
Incident 194	3/26/2019	Cooke Aquaculture Video 1	05:37:53-05:42:53
Fish are dumped out onto the table so workers can clip their pelvic fins. Some of the fish move weakly on the table. This clip is also used for Incidents 92 and 205.			
Incident 195	3/26/2019	Cooke Aquaculture Video 1	05:42:53-05:45:36
Fish are netted from the holding tank and dumped in the anesthesia bath. Workers clipping the pelvic fins of fish while some fish flop weakly on the table.			
Incident 196	3/26/2019	Cooke Aquaculture Video 1	05:45:36-05:48:21
Workers clipping the pelvic fins of fish. Some of the fish flop weakly on the table. Then, more fish are dumped on the table from the anesthetic bath.			
Incident 197	3/26/2019	Cooke Aquaculture Video 1	05:48:21-05:48:37
Fish in the holding tank, on their way to having their pelvic fins clipped.			
Incident 198	3/26/2019	Cooke Aquaculture Video 1	05:48:37-05:48:53
The equipment used for pelvic fin clipping.			

Incident 199	3/26/2019	Cooke Aquaculture Video 1	05:48:53-05:54:57
Fish being dumped out of the anesthesia bath onto the table. Workers clip the pelvic fins of the fish on the table as fish are netted and dumped into the anesthesia bath. This clip is also used for Incident 93.			
Incident 200	3/26/2019	Cooke Aquaculture Video 1	05:54:57-05:57:54
Fish are dumped into the anesthetic bath. A few fish flop around on the table as working clip pelvic fins.			
Incident 201	3/26/2019	Cooke Aquaculture Video 1	05:57:54-06:01:29
Workers clipping the pelvic fins of fish and more fish and being dumped out onto the table and into the anesthetic bath. Many fish continue to flop around on the table.			
Incident 202	3/26/2019	Cooke Aquaculture Video 1	06:01:29-06:02:16
Workers clipping the pelvic fins of fish.			
Incident 203	3/26/2019	Cooke Aquaculture Video 1	06:02:16-06:05:32
Workers clipping the pelvic fins of fish. Some of the fish continue to flop around on the table after they had already spent time in the anesthetic bath.			
Incident 204	3/26/2019	Cooke Aquaculture Video 1	06:02:16-06:05:32
Workers clipping the pelvic fins of fish. Some of the fish continue to flop around on the table after they had already spent time in the anesthetic bath.			
Incident 205	3/26/2019	Cooke Aquaculture Video 1	06:05:32-06:10:32
<p>As workers clip the pelvic fins of fish, Josh explains why this procedure is performed.</p> <p>Josh: "They're getting clipped because they're going into their own place, it's a way to—if they escape, or if anything like that happens...you can tell that they're...farmed fish or whatever. We're supposed to keep genetics different, and it's a big deal, genetics and stuff."</p> <p>This clip is also used for Incidents 92 and 194.</p>			

3. Context - Netting

Incident 206	2019	Cooke Aquaculture Video 2	00:00:02-01:29:19
Josh, Clay, Tony, Ryan, and Daniel netting the fish. They are netting them to dump them into a bin for transfer to another tank, as well as netting them to put them into anesthesia tins prior to vaccinations and fin clipping. The fish thrash about while they are in the nets.			

4. Inhumane Conditions

a) Eye Pecking

Incident 207	3/26/2019	Cooke Aquaculture Video 2	01:29:25-01:31:52
<p>Workers vaccinate anesthetized fish. Josh explains that fish sometimes eat each others' eyes. He also throws several fish into the mortality bucket near the table.</p> <p>Josh: "Remember how I was telling you about eye pecks? You see that? Eye peck. They obviously at some point didn't get enough feed. The bigger ones ate the eyeball."</p> <p>This clip is also used for Incidents 46, 62, 83, and 100.</p>			
Incident 208	2/27/2019	Cooke Aquaculture Video 2	01:31:52-01:33:28
<p>Josh explains what happens when the fish aren't fed enough.</p> <p>Josh: "If the fish aren't fed enough, they'll actually think the little pupil of the other fish is food, and they'll come after and they'll peck the eye out. So if you're picking like that them bigger fish that's more active and you're counting or whatever, you're looking over your fish, just glance for 'em and mark it down on there. There's a checkbox for eye pecks, just so we know we should feed more.... I'm surprised nobody's told you this already."</p>			
Incident 209	2/27/2019	Cooke Aquaculture Video 2	01:31:52-01:33:28
<p>Josh explains how fish attack each other. to each the eyes of other fish.</p> <p>Josh: "You happen to see some missing eyeballs, that's the reason. Isn't that crazy? They just-- you can actually watch them sometimes. They'll just they'll be swimming side by side and one will just go, wham!"</p>			
Incident 210	2/27/2019	Cooke Aquaculture Video 2	01:31:52-01:33:28
<p>Josh confirms that fry cannibalism is due to lack of feed.</p> <p>Investigator: "I'll drop them back in when they're alive and there's nothing's wrong with them I'll see some of them just come right at them."</p> <p>Josh: "Yeah, They're aggressive. It's strange. Pretty weird."</p> <p>Investigator: "And that's because they're not getting enough feed?"</p> <p>Josh: "Yeah. Yeah... Or they're just fish being fish, I don't know, sometimes they're odd. These are bad though."</p>			
Incident 211	4/8/2019	Cooke Aquaculture Video 2	01:33:28-01:36:06

A dead fish in a trash can. The fish's eye is red with blood. This clip is also used for the following 3 Incidents as well as Incidents 335, 494, 497, and 498.			
Incident 212	4/8/2019	Cooke Aquaculture Video 2	01:33:28-01:36:06
A dead fish in a trash can. The fish's eye is red with blood. This clip is also used for Incidents 211, 213, 214, 335, 494, 497, and 498.			
Incident 213	4/8/2019	Cooke Aquaculture Video 2	01:33:28-01:36:06
A dead fish in a trash can. The fish's eye is red with blood. This is the same fish as the previous shot. This clip is also used for Incidents 211, 212, 214, 335, 494, 497, and 498.			
Incident 214	4/8/2019	Cooke Aquaculture Video 2	01:33:28-01:36:06
A dead fish in a trash can. The fish's eye is red with blood. This is the same fish as the previous shot. This clip is also used for Incidents 211, 212, 213, 335, 494, 497, and 498.			
Incident 215	3/3/2019	Cooke Aquaculture Video 2	01:36:06-01:38:26
A fry with a red eye. There are also 2 pairs of conjoined fry. This clip is also used for the following Incident as well as Incident 409.			
Incident 216	3/3/2019	Cooke Aquaculture Video 2	01:36:06-01:38:26
A fry with a red eye. This is the same fish from the previous shot. This clip is also used for Incident 409.			
Incident 217	3/5/2019	Cooke Aquaculture Video 2	01:38:26-01:39:04
A fry with a red eye.			
Incident 218	3/11/2019	Cooke Aquaculture Video 2	01:39:04-01:40:14
A fry with a red eye.			
Incident 219	3/12/2019	Cooke Aquaculture Video 2	01:40:14-01:40:50
A dead fry who is missing an eye.			
Incident 220	3/14/2019	Cooke Aquaculture Video 2	01:40:50-01:41:34
A live fry who is missing an eye.			

Incident 221	3/17/2019	Cooke Aquaculture Video 2	01:41:34-01:42:20
Two dead fry who are missing eyes.			
Incident 222	3/18/2019	Cooke Aquaculture Video 2	01:42:20-01:44:04
A dead fry who is missing both eyes. This clip is also used in the following Incident as well as Incident 290.			
Incident 223	3/18/2019	Cooke Aquaculture Video 2	01:42:20-01:44:04
A dead fry who is missing both eyes. This is the same fry from the previous shot. This clip is also used in Incident 290.			
Incident 224	3/20/2019	Cooke Aquaculture Video 2	01:44:04-01:44:30
A dead fry on the lip of a tank. The fry has no eyes.			
Incident 225	3/21/2019	Cooke Aquaculture Video 2	01:44:30-01:45:18
A fry with a red eye.			
Incident 226	4/1/2019	Cooke Aquaculture Video 2	01:45:18-01:46:17
A live fry with no eyes and a facial deformity.			
Incident 227	2/13/2019	Cooke Aquaculture Video 2	01:46:17-01:48:10
<p>The investigator notices live fry in the tank eating a dead one.</p> <p>Chuck: "Yeah, they will... they'll go right after and grab him."</p> <p>This clip is also used for Incidents 431, 432, 502, and 521.</p>			

b) Fungus Infested, Crowded Tanks

Incident 228	4/9/2019	Cooke Aquaculture Video 2	01:48:13-01:48:56
Two dead fish on the ground. These fish had parts of the heads eaten away by fungus. In one fish, almost the entire side of the face behind the eye is gone.			
Incident 229	4/9/2019	Cooke Aquaculture Video 2	01:48:56-01:49:15

Two dead fish on the ground. These fish had parts of the heads eaten away by fungus. In one fish, almost the entire side of the face behind the eye is gone. These fish are the same as the ones from the previous shot.			
Incident 230	4/9/2019	Cooke Aquaculture Video 2	01:49:15-01:49:50
<p>Josh wades through the water, trying to catch live fish. He then jokes about fish afflicted with fungus.</p> <p>Josh: "That's a weird thing to have. 'Hey, what's wrong with you? Oh, I got fungus eatin' away at my face."</p>			
Incident 231	4/9/2019	Cooke Aquaculture Video 2	01:49:15-01:49:50
<p>Josh wades through a tank with fungus in it.</p> <p>Worker: "I've got fungus in my eye!"</p>			
Incident 232	4/9/2019	Cooke Aquaculture Video 2	01:49:50-01:50:17
A dead fish with a missing eye and an open, bloody wound around the animal's head. This wound was created by fungus.			
Incident 233	4/9/2019	Cooke Aquaculture Video 2	01:50:17-01:51:14
<p>Daniel wading through one of the tanks.</p> <p>Daniel: "So much fungus!"</p>			
Incident 234	4/7/2019	Cooke Aquaculture Video 2	01:51:14-01:53:11
<p>Jeff explains to the investigator that he thinks the fungus and high mortality is due to rough handling.</p> <p>Jeff: "Yeah, it's fungus. I think a lot of it's handling 'em when they vaccinate. You handle each one of them, if they squeeze too hard or anything you're gonna rub that natural oils off them... a lot of them's got little places where it looks like somebody just grabbed it, where the fungus is growing."</p> <p>This clip is also used for Incidents 500 and 508.</p>			
Incident 235	4/7/2019	Cooke Aquaculture Video 2	01:53:11-01:55:55
<p>Jeff tells the investigator how bad the fungus problem was the previous year.</p> <p>Jeff: "See the fungus on 'em?...By the gills...fungus all over 'em. He ain't gonna make it. No way should you be able to pick one of them up. Last year they got so bad that we had to go around and, every tank, almost every single day and pick--all the ones with fungus would come right out to the edge and just be kind of sitting there, had to go around and net 'em all out, everyday, everyday. Crazy."</p> <p>This clip is also used for Incident 495.</p>			
Incident 236	4/3/2019	Cooke Aquaculture Video 2	01:55:55-02:04:16

<p>Jeff and Ryan speak with the investigator about lesions on the fish.</p> <p>Investigator: "There still those bloody fish in there?"</p> <p>Ryan: "Yeah, bleeding like a bastard."</p> <p>Investigator: "Why?"</p> <p>Ryan: "I think the bleeding is bacteria... The bleeding is bacteria, usually. Or is it fungus, too?"</p> <p>Jeff: "...Also because we have some diseases..."</p> <p>Ryan: "Yeah. They get like lesions and stuff from the fungus, it kinda eats away at them and they start bleeding from that... just a whole bunch of shit. Wash your hands."</p> <p>This clip is also used for Incidents 185, 347, 508, 515, 516, 517, and 544.</p>			
Incident 237	3/5/2019	Cooke Aquaculture Video 2	02:04:16-02:04:42
<p>Brian talks to the investigator about fungus accumulating on the biomats.</p> <p>Brian: "Pull it out and then go grab that fungus... Soon as you pull it up, you'll see some shit fall off, probably, because they're dirty..."</p>			
Incident 238	3/14/2019	Cooke Aquaculture Video 2	02:04:42-02:06:14
<p>Jeff converses with the investigator about the relationship between water temperature and fungus.</p> <p>Investigator: "So the hotter it gets, more fungus shows up?"</p> <p>Jeff: "Oh yeah. That water's pretty warm right now. I bet that's close to 60 degrees [Fahrenheit]."</p> <p>Investigator: "60?"</p> <p>Jeff: "50 something, probably... Yeah, pretty warm."</p>			
Incident 239	2/13/2019	Cooke Aquaculture Video 2	02:06:14-02:07:28
<p>Dead, clumped up fry still present in a tank amongst live fish. This clip is also used in Incident 454.</p>			
Incident 240	2/13/2019	Cooke Aquaculture Video 2	02:07:28-02:09:03
<p>A shallow tank housing live fry.</p>			
Incident 241	2/13/2019	Cooke Aquaculture Video 2	02:07:28-02:09:03
<p>A shallow tank housing live fry.</p>			

Incident 242	2/13/2019	Cooke Aquaculture Video 2	02:07:28-02:09:03
Live fry swimming in the bottom of a tank.			
Incident 243	2/14/2019	Cooke Aquaculture Video 2	02:09:03-02:10:03
Live fry swimming in a shallow tank. This clip is also used in Incident 465.			
Incident 244	2/15/2019	Cooke Aquaculture Video 2	02:10:03-02:12:51
A tank inside "B" building. Fry are swimming around the tank.			
Incident 245	2/21/2019	Cooke Aquaculture Video 2	02:12:51-02:13:26
Dead fry clumped up together with fungus growing on their bodies. Live fry swim around them.			
Incident 246	2/25/2019	Cooke Aquaculture Video 2	02:13:26-02:14:10
Live fry in a shallow tank.			
Incident 247	2/25/2019	Cooke Aquaculture Video 2	02:14:10-02:14:55
Dead fry clumped together, embedded in a substrate mat. Live fry are also present.			
Incident 248	2/25/2019	Cooke Aquaculture Video 2	02:14:55-02:15:18
Dead fry clumped together, embedded in a substrate mat. Live fry are also present.			
Incident 249	2/25/2019	Cooke Aquaculture Video 2	02:15:19-02:16:08
Large, white clumps of dead fry in Tank 79. Live fry are also present.			
Incident 250	2/25/2019	Cooke Aquaculture Video 2	02:16:08-02:16:54
Large, white clumps of dead fry in Tank 79. Live fry are also present.			
Incident 251	2/25/2019	Cooke Aquaculture Video 2	02:16:54-02:17:35
Large, white clumps of dead fry in Tank 79. Live fry are also present.			

Incident 252	2/26/2019	Cooke Aquaculture Video 2	02:17:35-02:20:18
A live worm pulled out of a tank in a net. The net also contains live fry along with dead fry and fungus. This clip is also used for Incidents 437, 546, 547, and 550.			
Incident 253	2/26/2019	Cooke Aquaculture Video 2	02:20:18-02:21:08
Large, white clumps of dead fry in Tank 82. Live fry are also present.			
Incident 254	2/28/2019	Cooke Aquaculture Video 2	02:21:08-02:21:39
Large, white clumps of dead fry. Many live fry swim around the clumps.			
Incident 255	2/28/2019	Cooke Aquaculture Video 2	02:21:39-02:22:16
Large, white clumps of dead fry. Many live fry swim around the clumps.			
Incident 256	2/28/2019	Cooke Aquaculture Video 2	02:22:16-02:23:10
Clumps of dead fry stuck in and underneath the standpipe in the tank.			
Incident 257	2/28/2019	Cooke Aquaculture Video 2	02:23:10-02:23:43
Clumps of dead fry stuck in and underneath the standpipe in the tank.			
Incident 258	3/1/2019	Cooke Aquaculture Video 2	02:23:43-02:25:11
The inside of Tank 1. Fry are swimming inside the tank. This clip is also used for Incidents 356 and 357.			
Incident 259	3/1/2019	Cooke Aquaculture Video 2	02:25:11-02:25:31
The inside of a tank in "B" building. Fry are swimming inside the tank.			
Incident 260	3/1/2019	Cooke Aquaculture Video 2	02:25:31-02:26:17
The inside of a tank in "B" building. Fry are swimming inside the tank.			
Incident 261	3/1/2019	Cooke Aquaculture Video 2	02:26:17-02:27:36
Clumps of dead fry in a shallow tank. Live fry are also present.			

Incident 262	3/3/2019	Cooke Aquaculture Video 2	02:27:36-02:28:29
Live fry from the USDA inside a tank.			
Incident 263	3/4/2019	Cooke Aquaculture Video 2	02:28:29-02:29:04
Large, white clumps of dead fry. Live fry are also present.			
Incident 264	3/4/2019	Cooke Aquaculture Video 2	02:29:04-02:29:46
Live fry swimming on top of clumps of dead fry. At least one fry is stuck in a hole in the tank's standpipe.			
Incident 265	3/5/2019	Cooke Aquaculture Video 2	02:29:46-02:30:42
The inside of a tank in "B" building. Fry are swimming inside the tank.			
Incident 266	3/5/2019	Cooke Aquaculture Video 2	02:30:42-02:31:03
Clumps of dead fry and fungus on the bottom of a tank. Live fry are swimming in the tank.			
Incident 267	3/5/2019	Cooke Aquaculture Video 2	02:31:03-02:31:26
Large, white clumps of dead fry. Live fry are also present.			
Incident 268	3/6/2019	Cooke Aquaculture Video 2	02:31:26-02:31:52
Clumps of dead fry and fungus on the bottom of a tank. Live fry are swimming in the tank.			
Incident 269	3/7/2019	Cooke Aquaculture Video 2	02:31:52-02:32:45
Large, white clumps of dead fry and eggs in Tank 77.			
Incident 270	3/7/2019	Cooke Aquaculture Video 2	02:32:46-02:33:09
Tony roughly scraping through fry in a tank with a metal wire while trying to remove dead fry.			
Incident 271	3/7/2019	Cooke Aquaculture Video 2	02:33:09-02:33:31
Tony grabbing clumps of dead fry from a tray inside a tank. He then drops the clumps into a bottle.			

Incident 272	3/7/2019	Cooke Aquaculture Video 2	02:33:31-02:34:39
Large, white clumps of dead fry embedded in a tank's substrate mat. Live fry are also present.			
Incident 273	3/7/2019	Cooke Aquaculture Video 2	02:34:39-02:35:49
Ciara using a wire and a net to remove dead fry from a tank.			
Incident 274	3/7/2019	Cooke Aquaculture Video 2	02:35:49-02:36:19
Live fry swimming around Tank 77. A few clumps of dead fry are also present in the tank.			
Incident 275	3/7/2019	Cooke Aquaculture Video 2	02:36:19-02:36:57
Large, white clumps of fungus and dead fry in Tank 78. Live fry are also present.			
Incident 276	3/11/2019	Cooke Aquaculture Video 2	02:36:57-02:37:11
Live fry swimming in a tank.			
Incident 277	3/11/2019	Cooke Aquaculture Video 2	02:37:11-02:38:25
Large, white clumps of dead fry in Tank 77. Live fry are also present.			
Incident 278	3/11/2019	Cooke Aquaculture Video 2	02:37:11-02:38:25
Large, white clumps of dead fry in Tank 78. Live fry are also present.			
Incident 279	3/11/2019	Cooke Aquaculture Video 2	02:37:11-02:38:25
Large, white clumps of dead fry in Tank 78. A large number of live fry are also present.			
Incident 280	3/13/2019	Cooke Aquaculture Video 2	02:38:25-02:38:38
Large, white clumps of fungus and dead fry in a tank. Live fry are also present.			
Incident 281	3/13/2019	Cooke Aquaculture Video 2	02:38:38-02:39:19
Large, white clumps of fungus and dead fry in Tank 82. Live fry are also present.			

Incident 282	3/14/2019	Cooke Aquaculture Video 2	02:39:19-02:39:49
Large clumps of dead fry and fungus embedded in a tank's substrate mat. Live fry are also present.			
Incident 283	3/14/2019	Cooke Aquaculture Video 2	02:39:49-02:40:25
A large section of dead, clumped fry and fungus around the base of a tank's standpipe. Live fry are also present.			
Incident 284	3/15/2019	Cooke Aquaculture Video 2	02:40:25-02:41:01
Dead clumps of fry covered in fungus. These clumps are embedded in the substrate mat of tank 73, which also contains live fry.			
Incident 285	3/17/2019	Cooke Aquaculture Video 2	02:41:01-02:41:43
Clumps of fungus and dead fry on the bottom on Tank 1. Live fry are also present in the tank.			
Incident 286	3/17/2019	Cooke Aquaculture Video 2	02:41:43-02:42:10
Dead fry clumped up at the bottom of a tank. Live fry swim above them.			
Incident 287	3/17/2019	Cooke Aquaculture Video 2	02:42:10-02:43:02
Live fry stuck on the inside of the tank equipment. Clumps of dead fry are on the tank's standpipe.			
Incident 288	3/17/2019	Cooke Aquaculture Video 2	02:43:02-02:43:12
Large clumps of dead fry and fungus embedded in a tank's substrate mat. Live fry are also present.			
Incident 289	3/17/2019	Cooke Aquaculture Video 2	02:43:12-02:43:30
A tank nearly overflowing with water. Large clumps of dead fry are on the bottom of the tank, as live fry swim around above.			
Incident 290	3/18/2019	Cooke Aquaculture Video 2	02:43:30-02:45:14
A dead fry with fungus present on the gills. This clip is also used for Incidents 222 and 223.			
Incident 291	3/18/2019	Cooke Aquaculture Video 2	02:43:30-02:45:14
A dead fry with fungus present on the gills. This is the same fry as the previous shot.			

Incident 292	3/18/2019	Cooke Aquaculture Video 2	02:45:14-02:45:32
Feed and fungus built up on the bottom of Tank 1.			
Incident 293	3/20/2019	Cooke Aquaculture Video 2	02:45:32-02:46:30
A huge number of dead fry on the bottom of Tank 2. Live fry swim above them.			
Incident 294	3/20/2019	Cooke Aquaculture Video 2	02:46:30-02:46:57
Large clumps of dead fry and fungus embedded in a tank's substrate mat. Live fry are also present.			
Incident 295	3/21/2019	Cooke Aquaculture Video 2	02:46:57-02:47:23
Clumps of dead fry around the bottom of a tank's standpipe. Live fry are also present.			
Incident 296	3/25/2019	Cooke Aquaculture Video 2	02:47:23-02:47:59
A pile of feed on the bottom of Tank 1 in "A" building.			
Incident 297	3/27/2019	Cooke Aquaculture Video 2	02:47:59-02:48:38
Live fry swim around in cloudy water.			
Incident 298	3/27/2019	Cooke Aquaculture Video 2	02:48:38-02:49:53
Live fry swim around in cloudy water.			
Incident 299	3/28/2019	Cooke Aquaculture Video 2	02:49:53-02:50:26
Live fry swim around in cloudy water.			
Incident 300	3/28/2019	Cooke Aquaculture Video 2	02:50:26-02:51:09
Large clumps of dead fry in a tank with live fry.			
Incident 301	2/22/2019	Cooke Aquaculture Video 2	02:51:09-02:52:47
Four tanks full of live and dead eggs.			

Incident 302	2/22/2019	Cooke Aquaculture Video 2	02:51:09-02:52:47
A tank with a large amount of live eggs and a few dead eggs.			
Incident 303	2/22/2019	Cooke Aquaculture Video 2	02:52:47-02:53:28
A tank with a large amount of dead eggs clumped together amongst live ones.			
Incident 304	2/22/2019	Cooke Aquaculture Video 2	02:53:28-02:54:22
A close-up shot of dead eggs in a net.			
Incident 305	2/22/2019	Cooke Aquaculture Video 2	02:54:22-02:54:53
A close-up shot of dead eggs in a net.			
Incident 306	2/22/2019	Cooke Aquaculture Video 2	02:54:53-02:55:40
Dead and live eggs in a tank.			
Incident 307	2/22/2019	Cooke Aquaculture Video 2	02:55:40-02:56:36
Dead and live eggs in a tank.			
Incident 308	2/22/2019	Cooke Aquaculture Video 2	02:56:36-02:57:14
Dead and live eggs in a tank.			
Incident 309	2/22/2019	Cooke Aquaculture Video 2	02:57:14-02:58:07
A tank full of eggs.			
Incident 310	2/22/2019	Cooke Aquaculture Video 2	02:58:07-02:58:36
A tank full of eggs.			
Incident 311	3/3/2019	Cooke Aquaculture Video 2	02:58:36-02:58:57
Newly hatched fry amongst live and dead eggs in a tank.			

Incident 312	3/3/2019	Cooke Aquaculture Video 2	02:58:57-02:59:50
Newly hatched fry amongst live and dead eggs in a tank.			
Incident 313	3/3/2019	Cooke Aquaculture Video 2	02:58:57-02:59:50
Newly hatched fry amongst live and dead eggs in a tank.			
Incident 314	4/8/2019	Cooke Aquaculture Video 2	02:59:50-03:01:21
Dead fish float on the surface of an outdoor tank. Live fish swim below them. The water level in the tank is low and clumps of salt can be seen on the left.			
Incident 315	4/8/2019	Cooke Aquaculture Video 2	02:59:50-03:01:21
Dead fish float upside down on the surface of an outdoor tank. Live fish swim below them. The water level in the tank is low and clumps of salt can be seen on the left.			
Incident 316	4/8/2019	Cooke Aquaculture Video 2	03:01:21-03:01:53
An outdoor tank with many dead fish floating upside down at the surface of the water.			
Incident 317	3/17/2019	Cooke Aquaculture Video 2	03:01:53-03:04:35
<p>Jeff talks to the investigator about the fungus and dead fry covering the stand pipes.</p> <p>Jeff: "When you're picking, and you're fluffing stuff up, so the fungus it- goes all over the place. And the water sucks right into it, anyway. All water going back to the sump."</p>			
Incident 318	3/12/2019	Cooke Aquaculture Video 2	03:04:35-03:07:03
<p>Brian and Jeff converse while working on Tank 18.</p> <p>Brian: "Are they starving?"</p> <p>Jeff: "...some fungus there."</p>			

c) Incorrect Oxygen Levels

Incident 319	2/26/2019	Cooke Aquaculture Video 2	03:07:06-03:07:55
Josh uses a device to measure the oxygen levels inside a tank. He says the result is "145," which Chuck reacts negatively to.			

Incident 320	2/27/2019	Cooke Aquaculture Video 2	03:07:55-03:11:21
The oxygen meter on the side of the tank reads 114% (numbers are upside down). Inside the tank, fry are swimming about.			
Incident 321	2/27/2019	Cooke Aquaculture Video 2	03:07:55-03:11:21
The inside of Tank 1, where the oxygen meter shown previously is being used.			
Incident 322	2/27/2019	Cooke Aquaculture Video 2	03:11:21-03:12:06
The oxygen meter on the side of Tank 1.			
Incident 323	3/12/2019	Cooke Aquaculture Video 2	03:12:06-03:15:21
Jeff checking the oxygen meter on Tank 1. He says the oxygen level is 95%.			
Incident 324	3/12/2019	Cooke Aquaculture Video 2	03:12:06-03:15:21
Jeff talks to the investigator about appropriate oxygen levels. Jeff: "Anything below 80[%], you wanna start getting nervous."			
Incident 325	3/12/2019	Cooke Aquaculture Video 2	03:12:06-03:15:21
The oxygen meter on Tank 18, which reads 101% oxygen saturation. This later falls to 96%.			
Incident 326	3/18/2019	Cooke Aquaculture Video 2	03:15:21-03:16:36
The oxygen meter on Tank 13, which reads 75-76% oxygen, 7.9-8.0 mg/L of oxygen, and 12 degrees Celsius.			
Incident 327	3/25/2019	Cooke Aquaculture Video 2	03:16:36-03:17:11
The oxygen meter on Tank 13, which is registering 75% oxygen saturation, 7.7 mg/L oxygen, and 13.1 degrees Celsius.			
Incident 328	3/25/2019	Cooke Aquaculture Video 2	03:17:11-03:18:26
The investigator reports the low oxygen level (75%) of Tank 13 to Jeff. Jeff: "The little ones will survive, but... don't want it much lower than that."			
Incident 329	3/25/2019	Cooke Aquaculture Video 2	03:18:26-03:19:27

The oxygen meter on Tank 13, which now reads at 73% oxygen saturation, 7.6 mg/L oxygen, and 12.8 degrees Celsius. The oxygen saturation then drops to 72%.			
Incident 330	3/26/2019	Cooke Aquaculture Video 2	03:19:27-03:20:27
The investigator reports to Josh that the oxygen level in the empty holding tank beside the vaccination tent is 460%.			
Josh: "Oh my god... So I could shut everything off because that's way too high."			
Incident 331	3/26/2019	Cooke Aquaculture Video 2	03:20:27-03:25:40
The investigator tells Josh that the oxygen meter still reads 400% saturation.			
Josh: "I know. It will go down. The reason why is, we had the pump off over lunch so there wasn't no freshwater coming in. So we had the (oxygen) stones on, there's no freshwater, it's like a big pool, just oxygenating until it went through the roof."			
This clip is also used for Incident 506.			
Incident 332	3/26/2019	Cooke Aquaculture Video 2	03:25:40-03:26:48
The investigator asks Josh at what level would oxygen be too low.			
Josh: "I would start telling somebody... once it hits like, 100. You kinda have to--they're fine, 100 is actually perfect for these fish, but it can drop to 50 in like, no time. See, it dropped like, 40 points in no time."			
Incident 333	3/26/2019	Cooke Aquaculture Video 2	03:25:40-03:26:48
Josh explains to the investigator how stress affects the fish in the holding tank.			
Josh: "Once they get stressed out in here, they keep using it, using oxygen."			
Incident 334	3/15/2019	Cooke Aquaculture Video 2	03:26:48-03:29:34
Jeff explains to the investigator the indicators for lack of oxygen in the tanks.			
Jeff: "If they're right on top, going [mimics vibrating noise] like this, they're all over the place... 'cause that's lack of oxygen. And that means they're almost ready to die."			
This clip is also used for Incidents 353 and 527.			
Incident W-8	3/25/2019	Witnessed-Only	
The investigator witnessed Jeff informing Eric that the oxygen level for tank 13 had dropped to 64%.			

d) Use of Formaldehyde

Incident 335	4/8/2019	Cooke Aquaculture Video 2	03:29:37-03:32:15
A black barrel labeled "Formaldehyde." Dead fish are inside. The fish cannot be seen in this shot. This clip is also used for Incidents 211, 212, 213, 214, 494, 497, and 498.			
Incident 336	3/22/2019	Cooke Aquaculture Video 2	03:32:15-03:32:57
Jeff spraying a formalin solution into a tank while wearing no protective equipment. Jeff: "Formalin, yeah."			
Incident 337	3/28/2019	Cooke Aquaculture Video 2	03:32:57-03:33:29
A barrel of "Formaldehyde solutions" near the outdoor tanks.			
Incident 338	3/28/2019	Cooke Aquaculture Video 2	03:33:29-03:34:06
A barrel of "Formaldehyde solutions" in "B" building.			
Incident 339	3/28/2019	Cooke Aquaculture Video 2	03:33:29-03:34:06
A barrel of "Formaldehyde solutions" in "B" building.			
Incident 340	4/3/2019	Cooke Aquaculture Video 2	03:34:06-03:35:00
A barrel of "Formaldehyde solutions."			
Incident 341	4/3/2019	Cooke Aquaculture Video 2	03:35:00-03:40:51
Jeff pouring formaldehyde into a bottle from the larger container on top of a barrel marked "Formaldehyde solutions." This clip is also used for Incidents 342, 343, 344, 345, 346, and 561.			
Incident 342	4/3/2019	Cooke Aquaculture Video 2	03:35:00-03:40:51
Jeff pours formaldehyde into a watering container. This clip is also used for Incidents 341, 343, 344, 345, 346, and 561.			
Incident 343	4/3/2019	Cooke Aquaculture Video 2	03:35:00-03:40:51
A barrel of 35% concentration hydrogen peroxide. This clip is also used for Incidents 341, 342, 344, 345, 346, and 561.			
Incident 344	4/3/2019	Cooke Aquaculture Video 2	03:35:00-03:40:51

Jeff places a watering container filled with formalin into a tank. This clip is also used for Incidents 341, 342, 343, 345, 346, and 561.			
Incident 345	4/3/2019	Cooke Aquaculture Video 2	03:35:00-03:40:51
<p>Jeff talks to the investigator about the effects of formalin on fish.</p> <p>Jeff: "Yeah, you just watch the fish... So all you got to do is flick water at 'em, and they'll go right down... You do that, just to protect their gills... You wanna keep them down as far as you can so they don't come up and burn their gills."</p> <p>This clip is also used for Incidents 341, 342, 343, 344, 346, and 561.</p>			
Incident 346	4/3/2019	Cooke Aquaculture Video 2	03:35:00-03:40:51
<p>Jeff explains how some employees use the formalin incorrectly, potentially endangering the fish.</p> <p>Jeff: "Some people don't even bother mixing water with this. You should."</p> <p>Investigator: "What happens if you don't mix it with the water?"</p> <p>Jeff: "It's just making it that less potent for the fish... Sometimes you have— when they're real young, they're stupid, and they won't even go down. You know, we just don't wanna burn their gills."</p> <p>This clip is also used for Incidents 341, 342, 343, 344, 345, and 561.</p>			
Incident 347	4/3/2019	Cooke Aquaculture Video 2	03:40:52-03:49:12
Jeff talking about using the chemicals at the formaldehyde station. This clip is also used for Incidents 185, 236, 508, 515, 516, 517, and 544.			

e) Use of Salt

Incident 348	2/26/2019	Cooke Aquaculture Video 2	03:49:15-03:50:09
The inside of a tank in "B" building after salt was applied to the tank.			
Incident 349	2/26/2019	Cooke Aquaculture Video 2	03:50:09-03:50:36
The equipment used to apply salt to the tanks in "B" building.			
Incident 350	2/27/2019	Cooke Aquaculture Video 2	03:50:36-03:53:33
The equipment used to apply salt to the tanks. The barrel is labeled "Salt." This clip is also used for Incident 448.			

Incident 351	2/28/2019	Cooke Aquaculture Video 2	03:53:33-03:55:13
Jeff with the salting equipment.			
Incident 352	2/28/2019	Cooke Aquaculture Video 2	03:53:33-03:55:13
<p>Jeff explains the purpose of applying salt to the tanks.</p> <p>Jeff: "It's like a treatment for them, it takes away the stress, takes the fungus off the fish."</p>			
Incident 353	3/15/2019	Cooke Aquaculture Video 2	03:55:13-03:58:00
<p>Jeff explaining the negative effects of the salt application on the fish.</p> <p>Jeff: "Just something was bothering their gills. And it-- they was trying to get away from the salt 'cause it was burning 'em, 'cause they had bacteria on their gills, that's why, I-- when I salt, I blow it right-- straight at that screen... And that's what happened, all that salt was towards the middle, and they was trying to get away from it."</p> <p>This clip is also used for Incidents 334 and 527.</p>			

f) Deformities

Incident 354	4/10/2019	Cooke Aquaculture Video 2	03:58:03-04:07:02
Josh picks up a fish with a spinal deformity, then throws the animal into a cull barrel. This clip is also used for Incident 21.			
Incident 355	3/1/2019	Cooke Aquaculture Video 2	04:07:02-04:08:03
A live fry with a spinal deformity from the tank of USDA fish.			
Incident 356	3/3/2019	Cooke Aquaculture Video 2	04:08:03-04:09:35
A live fry with a spinal deformity from Tank 3.			
Incident 357	3/3/2019	Cooke Aquaculture Video 2	04:08:03-04:09:35
A live fry with a spinal deformity from Tank 3. This fish is the same one as in the previous shot.			
Incident 358	3/3/2019	Cooke Aquaculture Video 2	04:09:35-04:11:31

A live fry with a spinal deformity. This clip is also used for Incident 398.			
Incident 359	3/4/2019	Cooke Aquaculture Video 2	04:11:31-04:13:04
A live fry with a spinal deformity.			
Incident 360	3/4/2019	Cooke Aquaculture Video 2	04:13:04-04:14:26
A live fry with a spinal deformity.			
Incident 361	3/5/2019	Cooke Aquaculture Video 2	04:14:26-04:15:27
A live fry with a spinal deformity.			
Incident 362	3/5/2019	Cooke Aquaculture Video 2	04:15:27-04:16:35
A live fry with a spinal deformity.			
Incident 363	3/5/2019	Cooke Aquaculture Video 2	04:16:35-04:17:08
Two live fry with spinal deformities.			
Incident 364	3/6/2019	Cooke Aquaculture Video 2	04:17:08-04:18:14
A live fry with a spinal deformity.			
Incident 365	3/11/2019	Cooke Aquaculture Video 2	04:18:14-04:19:33
A live, deformed fry.			
Incident 366	3/11/2019	Cooke Aquaculture Video 2	04:19:33-04:20:26
Two live, deformed fry.			
Incident 367	3/12/2019	Cooke Aquaculture Video 2	04:20:26-04:21:22
A live fry with a spinal deformity.			
Incident 368	3/12/2019	Cooke Aquaculture Video 2	04:21:22-04:22:19

A live fry with a spinal deformity.			
Incident 369	3/12/2019	Cooke Aquaculture Video 2	04:21:22-04:22:19
A live fry with a spinal deformity. This fry is the same one from the previous shot.			
Incident 370	3/12/2019	Cooke Aquaculture Video 2	04:22:19-04:23:09
A live fry with a spinal deformity.			
Incident 371	3/12/2019	Cooke Aquaculture Video 2	04:22:19-04:23:09
A live fry with a spinal deformity. This fry is the same one from the previous shot.			
Incident 372	3/13/2019	Cooke Aquaculture Video 2	04:23:09-04:24:41
Multiple live, deformed fry. Most of them suffer from spinal deformities. This clip is also used for the following Incident as well as Incident 420.			
Incident 373	3/13/2019	Cooke Aquaculture Video 2	04:23:09-04:24:41
Multiple live, deformed fry. Most of them suffer from spinal deformities. These fish are the same individuals as in the previous shot. This clip is also used for Incident 420.			
Incident 374	3/13/2019	Cooke Aquaculture Video 2	04:24:41-04:25:40
Multiple live, deformed fry. Most of them suffer from spinal deformities.			
Incident 375	3/14/2019	Cooke Aquaculture Video 2	04:25:40-04:26:30
A live fry with a spinal deformity.			
Incident 376	3/17/2019	Cooke Aquaculture Video 2	04:26:30-04:27:35
Three live fry with spinal deformities.			
Incident 377	3/18/2019	Cooke Aquaculture Video 2	04:27:35-04:28:21
A live fry with a spinal deformity.			
Incident 378	3/18/2019	Cooke Aquaculture Video 2	04:28:21-04:28:48

A live fry with a spinal deformity.			
Incident 379	3/18/2019	Cooke Aquaculture Video 2	04:28:48-04:29:46
A live fry with a spinal deformity.			
Incident 380	3/18/2019	Cooke Aquaculture Video 2	04:28:48-04:29:46
A live fry with a spinal deformity. This fish is the same individual from the previous shot.			
Incident 381	3/20/2019	Cooke Aquaculture Video 2	04:29:46-04:30:38
Multiple deformed fry. Most of them have spinal deformities, but there is also a two-headed fry amongst them.			
Incident 382	3/20/2019	Cooke Aquaculture Video 2	04:30:38-04:31:30
Multiple live, deformed fry.			
Incident 383	3/22/2019	Cooke Aquaculture Video 2	04:31:31-04:32:08
A live fry with a spinal deformity.			
Incident 384	3/27/2019	Cooke Aquaculture Video 2	04:32:08-04:33:19
A live fry with a spinal deformity.			
Incident 385	3/27/2019	Cooke Aquaculture Video 2	04:33:19-04:34:29
Multiple live, deformed fry.			
Incident 386	3/28/2019	Cooke Aquaculture Video 2	04:34:29-04:35:12
Multiple live, deformed fry.			
Incident 387	3/28/2019	Cooke Aquaculture Video 2	04:35:12-04:35:55
Multiple live, deformed fry.			
Incident 388	3/28/2019	Cooke Aquaculture Video 2	04:35:55-04:36:38

Multiple live, deformed fry.			
Incident 389	3/28/2019	Cooke Aquaculture Video 2	04:36:38-04:37:31
Two live, deformed fry.			
Incident 390	4/1/2019	Cooke Aquaculture Video 2	04:37:31-04:38:17
A live fry with a spinal deformity.			
Incident 391	4/1/2019	Cooke Aquaculture Video 2	04:38:17-04:39:12
A live fry with a spinal deformity.			
Incident 392	2/27/2019	Cooke Aquaculture Video 2	04:39:12-04:41:32
A live, two-headed fry. This clip is also used for Incidents 393 and 433.			
Incident 393	2/27/2019	Cooke Aquaculture Video 2	04:39:12-04:41:32
Dead, two-headed fry. This clip is also used for Incidents 392 and 433.			
Incident 394	2/28/2019	Cooke Aquaculture Video 2	04:41:32-04:43:30
A live, two-headed fry on the side of the tank.			
Incident 395	2/28/2019	Cooke Aquaculture Video 2	04:41:32-04:43:30
A live, two-headed fry.			
Incident 396	3/1/2019	Cooke Aquaculture Video 2	04:43:30-04:45:45
A live, two-headed fry from the USDA tank. This clip is also used for Incident 408.			
Incident 397	3/3/2019	Cooke Aquaculture Video 2	04:45:45-04:47:29
A live, two-headed fry.			
Incident 398	3/3/2019	Cooke Aquaculture Video 2	04:47:30-04:49:26

A live, two-headed fry. This clip is also used for Incident 358.			
Incident 399	3/5/2019	Cooke Aquaculture Video 2	04:49:26-04:50:15
A live, two-headed fry.			
Incident 400	3/5/2019	Cooke Aquaculture Video 2	04:50:15-04:53:43
A two-headed fry pulled from a tank.			
Incident 401	3/6/2019	Cooke Aquaculture Video 2	04:53:43-04:55:32
A two-headed fry pulled from a tank.			
Incident 402	3/20/2019	Cooke Aquaculture Video 2	04:55:32-04:56:14
A live, two-headed fry pulled from a tank.			
Incident 403	3/21/2019	Cooke Aquaculture Video 2	04:56:14-04:57:24
Two live, two-headed fry.			
Incident 404	3/6/2019	Cooke Aquaculture Video 2	04:57:24-04:58:14
A live, deformed fry with an enlarged yolk sac.			
Incident 405	3/11/2019	Cooke Aquaculture Video 2	04:58:14-04:59:03
A fry with an enlarged yolk sac.			
Incident 406	3/27/2019	Cooke Aquaculture Video 2	04:59:03-05:00:06
A fry with an enlarged yolk sac.			
Incident 407	4/1/2019	Cooke Aquaculture Video 2	05:00:06-05:01:17
A fry with an enlarged yolk sac.			
Incident 408	3/1/2019	Cooke Aquaculture Video 2	05:01:17-05:03:33

A live fry with a facial deformity. This clip is also used for Incident 396.			
Incident 409	3/3/2019	Cooke Aquaculture Video 2	05:03:33-05:05:53
Two live pairs of conjoined fry. The fry appear to be connected to each other via their yolk sacs. This clip is also used for Incidents 215 and 216.			
Incident 410	3/4/2019	Cooke Aquaculture Video 2	05:05:53-05:07:01
A live pair of conjoined fry. The fry appear to be connected via their yolk sacs.			
Incident 411	3/6/2019	Cooke Aquaculture Video 2	05:07:01-05:07:18
A fry with a facial deformity.			
Incident 412	3/17/2019	Cooke Aquaculture Video 2	05:07:18-05:08:16
A live fry with a facial deformity.			
Incident 413	3/17/2019	Cooke Aquaculture Video 2	05:07:18-05:08:16
A live fry with a facial deformity. This fry is the same one as in the previous shot.			
Incident 414	3/17/2019	Cooke Aquaculture Video 2	05:08:16-05:08:57
A live fry with a facial deformity.			
Incident 415	3/17/2019	Cooke Aquaculture Video 2	05:08:16-05:08:57
A live fry with a facial deformity. This fry is the same one as in the previous shot.			
Incident 416	3/17/2019	Cooke Aquaculture Video 2	05:08:57-05:09:54
A live fry with a facial deformity.			
Incident 417	3/21/2019	Cooke Aquaculture Video 2	05:09:54-05:10:38
A live fry with a facial deformity.			
Incident 418	3/21/2019	Cooke Aquaculture Video 2	05:10:38-05:11:37

A live fry with a facial deformity.			
Incident 419	3/22/2019	Cooke Aquaculture Video 2	05:11:37-05:12:05
A live fry with a facial deformity.			
Incident 420	3/13/2019	Cooke Aquaculture Video 2	05:12:05-05:13:38
Deformed fry around the base of the standpipe in Tank 83. This clip is also used for Incidents 372 and 373.			
Incident 421	3/11/2019	Cooke Aquaculture Video 2	05:13:38-05:14:34
Two dead fry with deformed gills.			
Incident 422	3/11/2019	Cooke Aquaculture Video 2	05:13:38-05:14:34
Two dead fry with deformed gills. These are the same fish as in the previous shot.			
Incident 423	2/26/2019	Cooke Aquaculture Video 2	05:14:34-05:15:24
A fry with a spinal deformity.			
Incident 424	4/1/2019	Cooke Aquaculture Video 2	05:15:24-05:16:51
A live fry with the lower half of his/her body almost completely detached.			
Incident 425	2/13/2019	Cooke Aquaculture Video 2	05:16:51-05:17:21
Chuck looking at a deformed fry. Chuck: "That's a deformity right there... just throw him away."			
Incident 426	2/13/2019	Cooke Aquaculture Video 2	05:16:51-05:17:21
The investigator asks Chuck if they should throw away deformed fry. Chuck: "Yeah, throw them right away."			
Incident 427	4/9/2019	Cooke Aquaculture Video 2	05:17:21-05:19:37
Tony points out conjoined fry and other deformed fry in the tank.			

<p>Tony: "They're both still alive. Stuck together like that."</p> <p>Investigator: "Yeah, I see a lot of them over there in 'B' building."</p> <p>Tony: "They're gonna die eventually. Sucks though. Wow, there's a lot of deformities in there."</p> <p>This clip is also used for Incident 514.</p>			
Incident 428	4/7/2019	Cooke Aquaculture Video 2	05:19:37-05:20:11
<p>Jeff confirms the high number of deformities in "B" building.</p> <p>Jeff: "About 40 of 'em jump out and only one of 'em swims off, and they all [makes erratic hand gesture]— all fucked up. I've been throwing them right in the bucket."</p>			
Incident 429	3/26/2019	Cooke Aquaculture Video 2	05:20:11-05:22:15
<p>The investigator brings up the fish with "red gills."</p> <p>Josh: "That's fine. I mean, if they're bleeding, that's another story. If you see blood coming out of the gills, definitely want to cull them."</p> <p>Investigator: "So it's because of water quality?"</p> <p>Josh: "Yeah. It's something that causes it— they're not supposed to be like that, it's a deformity. And I think it's water quality. We have a lot of iron and rust in our water. And it also could be something when they're small, and developing, could be something there, too. Genetic problem."</p>			
Incident 430	3/26/2019	Cooke Aquaculture Video 2	05:20:11-05:22:15
<p>Josh further explains the problems with the genetics of the fish.</p> <p>Josh: "We've been using the same genetics for like, 30 years. So eventually, ... you get to the point where the children are getting deformed and shit. You know the babies. That's what I think's going on. They're just getting weaker and weaker. That's what happens when you keep using the same genetics over and over and over without introducing something else."</p>			
Incident 431	2/13/2019	Cooke Aquaculture Video 2	05:22:15-05:24:08
<p>Chuck explaining how to spot deformed fry.</p> <p>Chuck: "They don't even look right.... he's just spinning around and around".</p> <p>This clip is also used for the following Incident as well as Incidents 227, 502, and 521.</p>			
Incident 432	2/13/2019	Cooke Aquaculture Video 2	05:22:15-05:24:08
<p>Chuck picking through a small net, removing a deformed fry.</p> <p>Chuck: "See, that's a deformity... watch him when he hits the water. See how crooked he is? Yeah, I'll get him later."</p>			

This clip is also used for the previous Incident as well as Incidents 227, 502, and 521.			
Incident 433	2/27/2019	Cooke Aquaculture Video 2	05:24:08-05:26:28
<p>Jeff commenting on the survival of two-headed fry.</p> <p>Jeff: "They don't make it past this stage very much."</p> <p>This clip is also used for Incidents 392 and 393.</p>			
Incident 434	2/27/2019	Cooke Aquaculture Video 2	05:26:28-05:26:50
<p>Josh explaining what to do with deformed fry.</p> <p>Josh: "Yeah, just like that [points to deformed fry in the net]. Toss them. They're gonna die eventually anyway, so... better to get rid of them now."</p>			
Incident 435	3/26/2019	Cooke Aquaculture Video 2	05:26:50-05:29:11
<p>While fish are being vaccinated, Josh explains how some spinal deformities develop.</p> <p>Josh: "Spinal deformity. Happens when they're babies in 'B' building. If you're too rough with them, you'll break their back and they'll grow back like that. And they'll survive. Well, until now."</p> <p>This clip is also used for Incidents 48 and 64.</p>			
Incident 436	2/15/2019	Cooke Aquaculture Video 2	05:29:11-05:32:10
<p>The investigator tells Chuck about 5 deformed fry from the USDA. Chuck confirms these are USDA fish.</p> <p>Investigator: "I got about 5 of them deformed in there.... Those are USDA ones, right?"</p> <p>Chuck: "Right."</p>			
Incident 437	2/26/2019	Cooke Aquaculture Video 2	05:32:10-05:34:54
<p>Chuck commenting on two-headed fry.</p> <p>Chuck: "There's a two-headed one in this one."</p> <p>Investigator: "Two-headed? Yeah, I saw one of them in Tank 10. With two heads"</p> <p>Chuck: "Yeah? I thought they'd be out of here by now."</p> <p>This clip is also used for Incidents 252, 542, 543, and 546.</p>			
Incident 438	3/11/2019	Cooke Aquaculture Video 2	05:34:54-05:36:02

Jeff talks the investigator about gill deformities.			
Jeff: "If it's bleeding, that's what you want to look out for."			
Incident 439	3/15/2019	Cooke Aquaculture Video 2	05:36:02-05:36:28
The investigator speaks to Jeff about the frequency of deformities.			
Investigator: "With the 90 I pulled out, about 20 of them were deformed...."			
Jeff: "Good, get 'em the heck outta there."			
Incident 440	3/6/2019	Cooke Aquaculture Video 2	05:36:28-05:37:19
A two-headed fry pulled from a tank.			
Incident 441	3/14/2019	Cooke Aquaculture Video 2	05:37:19-05:37:50
A deformed fry.			
Incident 442	3/23/2019	Cooke Aquaculture Video 2	05:37:50-05:38:28
A deformed fry pulled from a tank.			

g) High Mortality

Incident 443	3/15/2019	Cooke Aquaculture Video 3	00:00:02-00:00:48
The inside of a mortality bucket with dead fish inside. Some of the fish have deep cuts or missing scales. This clip is also used for Incident 87.			
Incident 444	3/15/2019	Cooke Aquaculture Video 3	00:00:48-00:01:24
The inside of a mortality bucket, with fish blood covering the inside. This clip is also used for Incident 500.			
Incident 445	3/17/2019	Cooke Aquaculture Video 3	00:01:24-00:02:17
The inside of a mortality bucket, with several dead fish inside. There is also snack food inside the bucket.			
Incident 446	2/25/2019	Cooke Aquaculture Video 3	00:01:24-00:02:17

The inside of a mortality bucket, with a large number of dead eggs inside.			
Incident 447	2/26/2019	Cooke Aquaculture Video 3	00:02:17-00:05:09
A mortality bucket in "B" building. The entire bottom of the bucket is covered in dead fry.			
Incident 448	2/27/2019	Cooke Aquaculture Video 3	00:05:09-00:08:05
The inside of a mortality bucket. The entire bottom of the bucket is covered in dead fry. This clip is also used for Incident 350.			
Incident 449	2/28/2019	Cooke Aquaculture Video 3	00:08:06-00:08:43
The inside of a mortality bucket. The entire bottom of the bucket is covered in dead fry.			
Incident 450	3/3/2019	Cooke Aquaculture Video 3	00:08:44-00:09:29
The inside of a mortality bucket. There are a large number of dead fry inside.			
Incident 451	2/13/2019	Cooke Aquaculture Video 3	00:09:29-00:10:36
<p>Chuck picks through a net full of dead fry.</p> <p>Chuck: "There might be twenty dead in there."</p> <p>He then removes the live fish from the net.</p>			
Incident 452	2/13/2019	Cooke Aquaculture Video 3	00:10:36-00:11:40
Dead, clumped up fry still present in a tank amongst live fish.			
Incident 453	2/13/2019	Cooke Aquaculture Video 3	00:11:40-00:12:19
Dead, clumped up fry still present in a tank amongst live fish.			
Incident 454	2/13/2019	Cooke Aquaculture Video 3	00:12:19-00:13:33
Dead, clumped up fry still present in a tank amongst live fish. This clip is also used for Incident 239.			
Incident 455	2/13/2019	Cooke Aquaculture Video 3	00:13:33-00:14:48
Dead, clumped up fry still present in a tank amongst live fish.			

Incident 456	2/13/2019	Cooke Aquaculture Video 3	00:13:33-00:14:48
Dead, clumped up fry still present in a tank amongst live fish.			
Incident 457	2/13/2019	Cooke Aquaculture Video 3	00:14:48-00:16:00
Large, white clumps of dead fry in a tank. Live fry are also present.			
Incident 458	2/13/2019	Cooke Aquaculture Video 3	00:14:48-00:16:00
Live fry in a tank, swimming amongst dead fry.			
Incident 459	2/13/2019	Cooke Aquaculture Video 3	00:16:00-00:17:00
Large, white clumps of dead fry in a tank. Live fry are also present.			
Incident 460	2/13/2019	Cooke Aquaculture Video 3	00:17:00-00:17:48
Large, white clumps of dead fry in a tank. Live fry are also present.			
Incident 461	2/14/2019	Cooke Aquaculture Video 3	00:17:48-00:19:26
Dead fry in the mortality bucket.			
Incident 462	2/14/2019	Cooke Aquaculture Video 3	00:19:26-00:23:40
Large, white clumps of dead fry in a tank. Live fry are also present. This clip is also used for Incidents 463, 522, 523, and 524.			
Incident 463	2/14/2019	Cooke Aquaculture Video 3	00:19:26-00:23:40
Dead fry together with live fry in a tank. This clip is also used for Incidents 462, 522, 523, and 524.			
Incident 464	2/14/2019	Cooke Aquaculture Video 3	00:23:40-00:24:16
Dead fry together with live fry in a tank.			
Incident 465	2/14/2019	Cooke Aquaculture Video 3	00:24:16-00:25:16
Ciara removing dead fry from a tank using a wire. This clip is also used for Incident 243.			

Incident 466	2/15/2019	Cooke Aquaculture Video 3	00:25:17-00:26:12
The inside of a mortality bucket. There are a large number of dead fry inside.			
Incident 467	2/15/2019	Cooke Aquaculture Video 3	00:26:12-00:27:31
Ryan removing dead eggs from a tank.			
Incident 468	2/18/2019	Cooke Aquaculture Video 3	00:27:31-00:28:41
The inside of a mortality bucket. The bottom of the bucket is completely covered in dead eggs and fry. This clip is also used for Incidents 77 and 485.			
Incident 469	2/26/2019	Cooke Aquaculture Video 3	00:28:41-00:34:13
A clump of dead fry netted from a tank.			
Incident 470	3/17/2019	Cooke Aquaculture Video 3	00:34:13-00:34:52
A dead fry netted from a tank.			
Incident 471	2/15/2019	Cooke Aquaculture Video 3	00:34:52-00:36:30
The inside of a mortality bucket. There are a large number of dead eggs inside. This clip is also used for Incident 483.			
Incident 472	2/13/2019	Cooke Aquaculture Video 3	00:36:30-00:37:48
A large bucket halfway full of dead eggs.			
Incident 473	2/13/2019	Cooke Aquaculture Video 3	00:37:48-00:39:01
Dead eggs and dead fry thrown together in a mortality bucket. This clip is also used for Incident 482.			
Incident 474	3/19/2019	Cooke Aquaculture Video 3	00:39:01-00:39:46
Large barrels filled with dead fish in the vaccination area. This clip is also used for Incident 165.			
Incident 475	3/26/2019	Cooke Aquaculture Video 3	00:39:46-00:39:58
Large barrels filled with dead fish in the vaccination area.			

Incident 476	3/26/2019	Cooke Aquaculture Video 3	00:39:58-00:41:48
Workers moving buckets full of dead or close to dead fish out of the vaccination tent. The fish are dumped into the large barrels of dead fish. This clip is also used for Incident 86.			
Incident 477	3/26/2019	Cooke Aquaculture Video 3	00:39:58-00:41:48
Large barrels filled with dead fish in the vaccination area.			
Incident 478	3/26/2019	Cooke Aquaculture Video 3	00:41:48-00:43:51
A dead fish on the ground next to the large barrels full of dead fish. This clip is also used for Incident 181 and 479.			
Incident 479	3/26/2019	Cooke Aquaculture Video 3	00:41:48-00:43:51
Large barrels filled with dead fish in the vaccination area. This clip is also used for Incidents 181 and 478.			
Incident 480	4/4/2019	Cooke Aquaculture Video 3	00:43:51-00:44:25
Three dead fish on the ground next to an outdoor tank.			
Incident 481	4/4/2019	Cooke Aquaculture Video 3	00:44:25-00:45:14
A dead fish on the ground next to an outdoor tank. The fish's head has been smashed. Ciara: "Look at all the fish!"			
Incident 482	2/13/2019	Cooke Aquaculture Video 3	00:45:14-00:46:27
A concrete pool filled with water, dead eggs, and dead fry. The water gave off a foul scent. This clip is also used for Incident 473.			
Incident 483	2/15/2019	Cooke Aquaculture Video 3	00:46:27-00:48:05
A concrete mortality pool filled with dead eggs and fry. This clip is also used for Incident 471.			
Incident 484	2/15/2019	Cooke Aquaculture Video 3	00:48:05-00:49:17
A concrete mortality pool filled with dead eggs and fry. Some dead eggs and fry have been dumped out onto the ice instead of into the pool.			
Incident 485	2/18/2019	Cooke Aquaculture Video 3	00:49:17-00:50:26

A concrete mortality pool filled with dead eggs and fry. This clip is also used for Incidents 77 and 468.			
Incident 486	2/21/2019	Cooke Aquaculture Video 3	00:50:26-00:52:33
A concrete mortality pool outdoors. This clip is also used for Incident 535.			
Incident 487	2/22/2019	Cooke Aquaculture Video 3	00:52:33-00:53:05
A concrete mortality pool outdoors.			
Incident 488	3/3/2019	Cooke Aquaculture Video 3	00:53:05-00:54:01
A concrete mortality pool outdoors. This clip is also used for Incident 78.			
Incident 489	3/13/2019	Cooke Aquaculture Video 3	00:54:01-00:54:43
The inside of a mortality pool outdoors. Dead fry and eggs are piled up past the water line.			
Incident 490	3/20/2019	Cooke Aquaculture Video 3	00:54:43-00:55:40
A concrete mortality pool outdoors.			
Incident 491	3/20/2019	Cooke Aquaculture Video 3	00:54:43-00:55:40
A concrete mortality pool outdoors.			
Incident 492	3/23/2019	Cooke Aquaculture Video 3	00:55:40-00:56:17
A bird feeding from the outdoor mortality pool.			
Incident 493	4/3/2019	Cooke Aquaculture Video 3	00:56:17-00:56:43
A small pond which has formed from runoff from the mortality pool.			
Incident 494	4/8/2019	Cooke Aquaculture Video 3	00:56:43-00:59:21
Dead fish in a large barrel outdoors. This clip is also used for Incidents 211, 212, 213, 214, 335, 497, and 498.			
Incident 495	4/7/2019	Cooke Aquaculture Video 3	00:59:21-01:02:05

Daniel dumping dead fish from an outdoor pool into a mortality bucket. This clip is also used for Incident 235.			
Incident 496	4/7/2019	Cooke Aquaculture Video 3	01:02:05-01:04:02
Daniel netting dead fish from an outdoor tank. This clip is also used for Incidents 234 and 508.			
Incident 497	4/8/2019	Cooke Aquaculture Video 3	01:04:02-01:06:40
Dead fish from "C" building inside of a large barrel outdoors. This clip is also used for Incidents 211, 212, 213, 214, 335, 494, and 498.			
Incident 498	4/8/2019	Cooke Aquaculture Video 3	01:04:02-01:06:40
A dead fish from the barrel. The fish appears to have some kind of sac protruding from near the gills. This clip is also used for Incidents 211, 212, 213, 214, 335, 494, and 497.			
Incident 499	3/15/2019	Cooke Aquaculture Video 3	01:06:40-01:07:13
A pile of compost next to the composter.			
Incident 500	3/15/2019	Cooke Aquaculture Video 3	01:07:13-01:07:48
The composting machine outside of the facility. This clip is also used for Incident 444.			
Incident 501	4/9/2019	Cooke Aquaculture Video 3	01:07:48-01:08:30
Daniel throwing dead fish into the composter.			
Incident 502	2/13/2019	Cooke Aquaculture Video 3	01:08:30-01:10:23
<p>Chuck explains that when netting dead fry from the tank, live fish also get caught.</p> <p>Chuck: "I mean, you're gonna get some live sometimes, the biggest thing is just try best to get them out."</p> <p>This clip is also used for Incidents 227, 431, 432, and 521.</p>			
Incident 503	2/27/2019	Cooke Aquaculture Video 3	01:10:23-01:11:24
<p>Jeff tells the investigator to throw live fry in with the dead ones.</p> <p>Investigator: "When we put the deformed ones in there, are we supposed to make sure that they're dead before we put 'em in or we just toss them in there?"</p> <p>Jeff: "No, no. No. If they're deformed and you see that they're swimming around, just scoop them out</p>			

and throw 'em right in. That's what we've been doing over there [points in direction of "A" building], going in with a net, trying to get all the deformities out before we bring them over here... Throw 'em right in."			
Incident 504	4/7/2019	Cooke Aquaculture Video 3	01:11:24-01:13:21
<p>Jeff tells the investigator about the high mortality rates.</p> <p>Jeff: "A lot of dead fish in there. We got 283 out of it already. Probably almost that many more in there."</p> <p>This clip is also used for Incidents 234 and 496.</p>			
Incident 505	3/26/2019	Cooke Aquaculture Video 3	01:13:21-01:13:41
<p>Dead fish in large barrels outside the vaccination tent.</p> <p>Worker: "You raise them, and then you kill 'em. [laughs]"</p>			
Incident 506	3/26/2019	Cooke Aquaculture Video 3	01:13:41-01:18:54
<p>When asked what will happen to the small fish during vaccination, Josh states that small fish will be sorted out and culled instead of vaccinated with the other fish.</p> <p>Josh: "No, they're gonna cull them. We're just keeping the big fish."</p> <p>This clip is also used for Incident 331.</p>			
Incident 507	3/26/2019	Cooke Aquaculture Video 3	01:18:54-01:20:33
<p>Josh talking to another member of the vaccination crew.</p> <p>Worker: "There's a lot of dinks. I'm assuming he wants all those little dinky fuckers tossed."</p> <p>Josh: "Yeah."</p>			
Incident 508	4/3/2019	Cooke Aquaculture Video 3	01:20:33-01:28:54
<p>Jeff states that in some instances, too many fish are culled.</p> <p>Jeff: "Sometimes we weed 'em out too much, we throw away all the ones that are deformed and everything else. 'Oh it's too small, it's too small'..."</p> <p>This clip is also used for Incidents 185, 236, 347, 515, 516, 517, and 544.</p>			
Incident 509	4/3/2019	Cooke Aquaculture Video 3	01:28:54-01:31:12
<p>Jeff talking about the high mortality rates in the tanks.</p> <p>Jeff: "I think it was Ryan, today. He pulled one out of D4, no, D3, he pulled 265 out of there. But it hadn't been picked for 2 days. But still, we're getting less in these tanks."</p>			

This clip is also used for Incidents 186 and 518.			
Incident 510	3/25/2019	Cooke Aquaculture Video 3	01:31:12-01:32:56
<p>Jeff talking to the investigator about the high mortality rates in Tank 2.</p> <p>Jeff: "Fucking awful."</p> <p>Investigator: "Yeah, that looks like it's gonna be a lot of 'em."</p> <p>Jeff: "Yeah."</p> <p>Investigator: "Why they keep dying like that?"</p> <p>Jeff: "I have no idea, I don't understand it. I thought the water was turned up too high, so I adjusted it yesterday. Turned it...so there's not so much current, they're...going right in the center and suffocating each other."</p>			
Incident 511	3/25/2019	Cooke Aquaculture Video 3	01:31:12-01:32:56
<p>Jeff continues to speak to the investigator about the reasons for the high mortality rates.</p> <p>Investigator: "And we can't fix the current or anything like that?"</p> <p>Jeff: "Well, Brian came and looked at it, and he thought it was alright the way it was."</p>			
Incident 512	3/25/2019	Cooke Aquaculture Video 3	01:31:12-01:32:56
<p>Jeff talking to the investigator about dead fry accumulating on the screen at the bottom of Tank 2.</p> <p>Jeff: "Been sweeping them out of there like every hour, 'cause they been just suffocating each other."</p>			
Incident 513	4/9/2019	Cooke Aquaculture Video 3	01:32:56-01:33:51
<p>The investigator talking to Daniel about the mortality pool and when it is emptied.</p> <p>Investigator: "When are they coming to take that mort pool out, or drain it?"</p> <p>Daniel: "They have a pump come pump it out, I think it's--in July or something they have it done."</p> <p>Investigator: "Once it gets hot, it's gonna be--"</p> <p>Daniel: "Oh yeah, it fucking stinks. You can smell it down the street. That's fucking nasty, man."</p> <p>Investigator: "Where they end up dumping that at?"</p> <p>Daniel: "Oh, they must take it to a recycling plant, maybe. Probably where they bring sewage water and shit. Maybe? ...They probably just...go and empty the truck in the river or something."</p>			
Incident 514	4/9/2019	Cooke Aquaculture Video 3	01:33:51-01:36:07

<p>The investigator talking to Tony about the mortality pool and how it is emptied.</p> <p>Investigator: "I was asking Daniel if he knew when they're supposed to take that mort pool..."</p> <p>Tony: "Not 'til everything's thawed out and dry, and the truck parks like, right there, right next to it. I can't wait...when it gets really bad, it makes the whole town fucking stink. For like a day or two."</p> <p>Investigator: "And where they end up taking all of that?"</p> <p>Tony: "I think they spray it on fields. If I remember correctly, I think that's what they do... I think they come and pick it up for free and then they either donate it or something like that."</p> <p>This clip is also used for Incident 427.</p>			
Incident 515	4/3/2019	Cooke Aquaculture Video 3	01:36:07-01:44:28
<p>Jeff confirms the leftover fish are culled instead of kept for the following year.</p> <p>Jeff: "The silvers now, if we don't spawn 'em, we used to keep 'em, till next year. Then we could try spawning them again. But now they figured that we always have so many broodstock, there's no sense so, normally we throw the silvers in a different tank, and then when we're all done, as long as we have enough eggs to sell, we'll just usually kill 'em. Kill 'em, call people and you know, call people up, 'hey you want some fish?' [smiles]."</p> <p>This clip is also used for Incidents 185, 236, 347, 508, 516, 517, and 544.</p>			
Incident 516	4/3/2019	Cooke Aquaculture Video 3	01:36:07-01:44:28
<p>Jeff confirms the leftover fish are killed and distributed amongst employees.</p> <p>Jeff: "By rights, we're not supposed to give 'em to anybody...because it's a private company... We all do it, I mean, I was taking home 17 a night, there, for one year. We had like, 4,000 males left over one year. Said, 'well, we're just gonna kill 'em all, take all you want'. Everyday I had a cooler...I'd fill it with about 17 everyday."</p> <p>This clip is also used for Incidents 185, 236, 347, 508, 515, 517, and 544.</p>			
Incident 517	4/3/2019	Cooke Aquaculture Video 3	01:36:07-01:44:28
<p>Jeff states he gave some leftover fish to members of his extended family and attempted to trade some salmon for food at a restaurant.</p> <p>Jeff: "I was handing them out to everybody... I brought it to one of my niece's, and her...husband, I brought him 2 nice salmon about that big, and he took one of them up to the Chinese restaurant in Madison, and he said, 'I'll trade you this salmon...'"</p> <p>This clip is also used for Incidents 185, 236, 347, 508, 515, 516, and 544.</p>			
Incident 518	4/3/2019	Cooke Aquaculture Video 3	01:44:28-01:46:46
<p>Jeff talks about the negative effects of letting the fish stay in freshwater for too long.</p>			

Jeff: "And once it gets closer to shipping, the fish themselves start becoming soft, and you'll see them, they'll start bloating up, and you walk around and see there's 3 or 4 of 'em floating upside down and still alive. That's 'cause, what they're doing is, they should be in saltwater already. They get ready to go to saltwater, sooner we get them out there, the better. Sometimes we gotta wait till, the end of July, even into August sometimes, to ship 'em. But normally, May, they gotta go by May or else they start craving the salt, it drives them nuts. They'll start swimming backwards."

This clip is also used for Incidents 186 and 509.

Incident 519	4/10/2019	Cooke Aquaculture Video 3	01:46:46-01:47:01
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Daniel and Josh talk about the wastefulness of culling so many fish on site.

Daniel: "You know what I'm saying? That's so many meals. Especially during spawning."

Josh: "It's crazy."

Incident 520	4/9/2019	Cooke Aquaculture Video 3	01:47:01-01:47:20
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After Tony had admitted to stomping on fish's heads after they had fallen out of tanks instead of throwing them back in, Ryan reassures him his behavior was acceptable.

Tony: "Exactly! They're supposed to die."

Incident 521	2/13/2019	Cooke Aquaculture Video 3	01:47:20-01:49:14
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Chuck looking at a fry in a net.

Chuck: "That one's gonna die."

This clip is also used for Incidents 227, 431, 432, and 502.

Incident 522	2/14/2019	Cooke Aquaculture Video 3	01:49:14-01:53:28
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Jake converses with the investigator on why a large number of fry die.

Jake: "A lot of it is 'cause they suffocate each other... and a lot of it is from us, poking around-- you know what I mean? It's hard to... pluck every one."

This clip is also used for the following 2 Incidents as well as Incidents 462 and 463.

Incident 523	2/14/2019	Cooke Aquaculture Video 3	01:49:14-01:53:28
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Jake continues to talk to the investigator about the deaths of fry.

Jake: "Kind of a sad way for them to go, really... [inaudible] especially when we're grading them and filling a 55 lb barrel full of..." Nothing can be seen.

This clip is also used for Incidents 462, 463, 522, and 524.

Incident 524	2/14/2019	Cooke Aquaculture Video 3	01:49:14-01:53:28
<p>Jake comments to the investigator on how many fry die. He says, "You know you got it bad when you start apologizing to the fish... sorry guys." The view is obscured.</p> <p>This clip is also used for the previous 2 Incidents as well as Incidents 462 and 463.</p>			
Incident 525	2/25/2019	Cooke Aquaculture Video 3	01:53:28-01:54:00
<p>Chuck tells the investigator to remove a large number of dead fry from Tank 79.</p> <p>Chuck: "Is there anything you think you can do here to try to clean this up a little?"</p> <p>Investigator: "Oh, yeah, I mean it's real bad."</p>			
Incident 526	2/26/2019	Cooke Aquaculture Video 3	01:54:00-01:55:54
<p>Chuck comments on the amount of feed in a tank relative to the number of fish.</p> <p>Chuck: "Jeez, what a mess. There's not many fish left in here."</p> <p>Brian: "I flushed these two this morning, just a little bit. But there's a lot of feed, too."</p> <p>This clip is also used for Incident 555.</p>			
Incident 527	3/15/2019	Cooke Aquaculture Video 3	01:55:54-01:58:41
<p>The investigator converses with Jeff about the cause of the high mortality rate in Tank 13.</p> <p>Jeff: "I looked at it when I initially salted it and it looked fine. But then I come back in the afternoon and that whole tank, everything that was on top, pushed right up against the side—all the way around the tank, and everything on the bottom, was pushed up against the side on the bottom... You weren't over there when 18 died, right?"</p> <p>Investigator: "I was."</p> <p>Jeff: "Yeah well, 13 looks about like that...probably, probably close to a thousand..."</p> <p>Investigator: "A thousand dead?"</p> <p>Jeff: "Yeah. You know, it's not your fault, it's because it's bacteria."</p> <p>This clip is also used for Incidents 334 and 353.</p>			
Incident W-9	2/1/2019	Witnessed-Only	
<p>While removing the dead eggs, the investigator witnessed an excessive number of dead eggs amongst live eggs, causing the live eggs to develop a white fungus on their surfaces.</p>			
Incident W-10	2/1/2019	Witnessed-Only	

The investigator witnessed many clumped eggs in one tank and worked on one singular tank for several hours without being able to remove every dead egg as many had accumulated within the tank. At the end of the shift, the investigator witnessed in the log book that the tank had not been serviced since Sunday, which had been 5 days prior.			
Incident W-11	2/4/2019	Witnessed-Only	
The investigator witnessed dead eggs numbering slightly under 1000 dead eggs per tank as the investigator removed eggs from at least 4 tanks.			
Incident W-12	2/19/2019	Witnessed-Only	
The investigator witnessed Chuck state that he removed at least 700 dead fry from a tank in "B" building. For the 3 days prior, a large number of dead fry had been removed from the tanks in "B" building, with Chuck attributing the high mortality rate to another worker overfeeding the fry.			
Incident W-13	3/12/2019	Witnessed-Only	
The investigator witnessed Jeff state that he had removed over 3,000 dead fry from tank 18.			

h) Miscellaneous

Incident 528	2/27/2019	Cooke Aquaculture Video 3	01:58:44-02:00:38
Dirty water in a trench under the tanks.			
Incident 529	2/28/2019	Cooke Aquaculture Video 3	02:00:38-02:02:39
<p>The investigator talking to Jeff about live fry in the trench under the tanks and how this may lead to escapes.</p> <p>Investigator: "And they're alive? In the trench?"</p> <p>Jeff: "Yeah... You can see 'em swimming."</p> <p>Investigator: "Oh, yeah, I see 'em... How'd they get in there?"</p> <p>Jeff: "I don't know. That's one thing we gotta be careful of. Well, it doesn't really matter right now, but, if-when they have that audit, and then they see fish swimming in that trench, that's major. Only place they'll go from there is right out--right out in the river."</p>			
Incident 530	3/14/2019	Cooke Aquaculture Video 3	02:02:39-02:03:39
<p>Jeff confirms that dead fry can be dumped into the trench under the tanks.</p> <p>Jeff: "Yeah, I would do it down on the deeper side."</p>			

Incident 531	3/23/2019	Cooke Aquaculture Video 3	02:03:39-02:04:41
<p>Jeff says he has been pouring bleach into the trench to kill live fish there.</p> <p>Investigator: "You said you use what?"</p> <p>Jeff: "CT, to kill 'em off, it's like a type of bleach...it's actually a treatment."</p>			
Incident 532	3/23/2019	Cooke Aquaculture Video 3	02:03:39-02:04:41
<p>Jeff dumps fungus from his net into the trench, where live fry are present.</p> <p>Investigator: "Yeah, I see 'em still. Yup. A lot of 'em."</p> <p>Jeff: "Where the hell are they coming from?"</p> <p>Investigator: "Isn't that when we flush, maybe they're going through the screen?"</p> <p>Jeff: "Shouldn't be. They're big enough..."</p> <p>Investigator: "We're getting more and more of them down there."</p> <p>Jeff: "Yeah... I don't know what's going on."</p>			
Incident 533	4/7/2019	Cooke Aquaculture Video 3	02:04:41-02:06:12
Live fish of various sizes in the drum house.			
Incident 534	4/7/2019	Cooke Aquaculture Video 3	02:04:41-02:06:12
Live fish of various sizes in the drum house.			
Incident 535	2/21/2019	Cooke Aquaculture Video 3	02:06:12-02:08:18
Tanks outside in the snow. This clip is also used for Incident 486.			
Incident 536	2/13/2019	Cooke Aquaculture Video 3	02:08:18-02:10:21
Tanks outside in the snow.			
Incident 537	3/4/2019	Cooke Aquaculture Video 3	02:10:21-02:11:41
Tanks outside in the snow.			
Incident 538	3/4/2019	Cooke Aquaculture Video 3	02:11:41-02:13:47

Tanks outside in the snow. Snow is also present on the netting above the tanks.			
Incident 539	3/4/2019	Cooke Aquaculture Video 3	02:11:41-02:13:47
Tanks outside in the snow.			
Incident 540	3/4/2019	Cooke Aquaculture Video 3	02:13:47-02:15:50
Snow falling into one of the outdoor tanks.			
Incident 541	3/4/2019	Cooke Aquaculture Video 3	02:13:47-02:15:50
Tanks outside in the snow.			
Incident 542	2/26/2019	Cooke Aquaculture Video 3	02:15:50-02:18:33
A live worm the investigator netted from a tank containing live fish. This clip is also used for the following Incident as well as Incidents 252, 437, and 546.			
Incident 543	2/26/2019	Cooke Aquaculture Video 3	02:15:50-02:18:33
A live worm the investigator netted from a tank containing live fish. This is the same worm from the previous shot. Chuck: "That's crazy! A worm in that tank!" Investigator: "Yeah, it's alive, too." Chuck: "Jesus Christ! I've never heard of such a thing." This clip is also used for the previous Incident as well as Incidents 252, 437, and 546.			
Incident 544	4/3/2019	Cooke Aquaculture Video 3	02:18:33-02:26:54
Jeff stating the broodstock aren't fed for a month before spawning. Jeff: "The broodstock, when we do the broodstock, before we spawn, we don't feed 'em for like a month, before we even spawn. So that's 30 days worth of no feed. And they do fine. And then some of them...not ready this year to spawn, we throw them in another tank and sometimes we don't feed them for 2, 3 months afterwards." Investigator: "We're not supposed to feed them?" Jeff: "Well, yeah...we'll throw them a little bit once in a while." This clip is also used for Incidents 185, 236, 347, 508, 515, 516, and 517.			

Incident 545	3/28/2019	Cooke Aquaculture Video 3	02:26:54-02:28:15
<p>Jeff explains why the water is cloudy in some tanks.</p> <p>Investigator: "The water's still cloudy on all these tanks."</p> <p>Jeff: "Yeah. They sure are."</p> <p>Investigator: "Still the same thing that's going on with them?"</p> <p>Jeff: "The ammonia's higher than it was. The nitrates are higher than it was. They're so small, you can't treat enough to keep everything down where it should be. More damage to the fish. Gotta wait until they get a little bit bigger, that way we can actually salt more and formula treat more..."</p> <p>Investigator: "The tanks are gonna be like this for a while then?"</p> <p>Jeff: "Oh yeah. Probably the rest of the time they're in here. They always get this way. It's just recirculating water, that's why. It's hard to clean it out."</p>			
Incident 546	2/26/2019	Cooke Aquaculture Video 3	02:28:15-02:30:59
<p>Chuck comments on a worm found in a tank.</p> <p>Chuck: "Freaking worm in there! Look at that! That's a weird looking worm."</p> <p>Investigator: "Yeah, it's alive, it's moving and everything."</p> <p>Chuck: "The color's even weird. Wow..."</p> <p>This clip is also used for Incidents 252, 437, 542, and 543.</p>			
Incident 547	3/11/2019	Cooke Aquaculture Video 3	02:30:59-02:31:22
<p>Jeff comments on how Eric has overfed the fish in one tank.</p> <p>Jeff: "It'll just—make a mess, that's all. I'm surprised there weren't a bigger mess... Well, we'll see how it does tomorrow morning."</p>			
Incident 548	3/11/2019	Cooke Aquaculture Video 3	02:31:22-02:32:01
<p>Jeff comments on the poor conditions of the tanks in "A" building. These tanks have large amounts of fungus in them.</p> <p>Investigator: "Tank 73, 77...all of 'em?"</p> <p>Jeff: "Quite a few of them are pretty freaking bad. It's nobody over there anymore."</p> <p>Investigator: "Guess we're trying to save the tanks, then."</p> <p>Jeff: "Yeah."</p>			

Incident 549	3/17/2019	Cooke Aquaculture Video 3	02:32:01-02:33:40
<p>Jeff talks to the investigator about a malfunction in the tank equipment, causing fry to be sucked below the tank.</p> <p>Investigator: "A lot of them were on the bottom of this. I don't know if they got sucked through, because there's a lot of them down there."</p> <p>Jeff: "Sometimes the holes aren't cut right, so they can sneak right out through there."</p> <p>Investigator: "Yeah, I know, a lot of them are on the bottom, too."</p> <p>Jeff: "Yeah, that rubber was fucked up. Quite a few weeks ago I fixed it, I don't know, there might still be a few going down. Ain't much we can do about it now, until we pull it."</p>			
Incident 550	3/13/2019	Cooke Aquaculture Video 3	02:33:40-02:34:12
<p>Tony talks about the poor condition of the tanks in "A" building. These tanks have large amounts of fungus in them.</p> <p>Tony: "These four here and the one over there are really, really bad ones... gotta get all that shit picked out...before the weekend."</p>			
Incident 551	3/23/2019	Cooke Aquaculture Video 3	02:34:12-02:35:19
<p>Jeff explains the biosecurity risks of the pump equipment used in "C" building being left in "B" building.</p> <p>Jeff: "Not supposed to have anything in here from the other building."</p> <p>Investigator: "So that's not supposed to be there?"</p> <p>Jeff: "No, it's been dragged all through the mud and outdoors, in "C" building, [they] just bring it right in... Biosecurity, there's gotta be bacteria all over, all over the hoses...that's gonna end up right in these tanks... They didn't do nothing to this, just dragged it right in. It's not their fault, Brian wanted them to. Said, 'oh, just bring it in "B" building'... And if any of the fish that went through there had any bacteria or diseases or anything, now it's in here."</p>			
Incident 552	3/23/2019	Cooke Aquaculture Video 3	02:35:19-02:36:02
<p>Jeff commenting on the possibility of all the fish in "B" building being dead by Monday morning due to the biosecurity risk of equipment being moved from building to building.</p> <p>Jeff: "...Hopefully by Monday morning all the fish aren't dead in here... You never know, could wipe out this whole building. You never know if there's any germs or bacteria or anything on it."</p> <p>Investigator: "How would it get into the tanks?"</p> <p>Jeff: "Well, it being on the floor and us walking around..."</p>			
Incident 553	2/21/2019	Cooke Aquaculture Video 3	02:36:02-02:36:36

<p>Conversation with Chuck after the tanks were flushed out and salted.</p> <p>Investigator: "Are they gonna start dying off more because the water's like that?"</p> <p>Chuck: "They could...it could give them bacteria."</p>			
Incident 554	3/13/2019	Cooke Aquaculture Video 3	02:36:36-02:38:19
<p>Tony complaining about the flow in the tanks in the 2nd room.</p> <p>Tony: "Sometimes they overfill it too much... and a bunch of feed drops."</p>			
Incident 555	2/26/2019	Cooke Aquaculture Video 3	02:38:19-02:40:14
<p>A conversation between Chuck and the investigator about overfeeding causing death in fry. The investigator asks if the fry are getting too much feed.</p> <p>Chuck: "Yes, they are."</p> <p>This clip is also used for Incident 526.</p>			
Incident 556	3/22/2019	Cooke Aquaculture Video 3	02:40:14-02:40:57
<p>A conversation with Jeff about fry potentially getting sucked through a screen.</p> <p>Jeff: "It could hurt 'em pretty good, when they're small... Their bellies will stick to it and scar 'em up."</p>			
Incident 557	3/22/2019	Cooke Aquaculture Video 3	02:40:57-02:45:38
<p>Jeff explaining why eggs are shocked .</p> <p>Jeff: "To shock 'em, it speeds up the process of them hatching...usually after we shock 'em, about a week later they pretty much hatch."</p>			
Incident 558	3/14/2019	Cooke Aquaculture Video 3	02:45:38-02:46:39
<p>A conversation with Jeff about fry who are smaller than others.</p> <p>Jeff: "They're pinheads, but eventually they might start eating, start to catch up..hopefully."</p>			
Incident 559	3/15/2019	Cooke Aquaculture Video 3	02:46:39-02:47:43
<p>Jeff commenting on the poor condition of Tank 73 as the investigator removes dead fry from the tank.</p> <p>Jeff: "Still a mess, huh?"</p>			

III. HUMANS

A. Overview

1. Human Health

The employees at Cooke work with various hazardous chemicals, including formaldehyde and tricaine. Employees did not wear protective equipment when applying these chemicals. In one documented incident, Tony describes the effects of exposure to tricaine. Josh told the investigator that at one point, Brian had not been forthcoming with another employee about the hazards of working with these chemicals, asking Josh, "You didn't tell him it was dangerous, did you?" Jeff also spoke to the investigator about a previous employee of the hatchery who may have been sprayed with formaldehyde when a hose came loose.

Jeff also told the investigator about a seemingly high incidence of cancer in the human population of Bingham.

C. Specific Incidents

Incident 560	2/28/2019	Cooke Aquaculture Video 3	02:47:46-02:49:06
<p>Jeff stating that cancer diagnosis are common in Bingham.</p> <p>Jeff: "Yeah, a lot of people here...get cancer. You walk out the front door of the hatchery, that white house, right across...he's got cancer. Met a guy in the store, day before yesterday, he was talking about his wife, had cancer."</p>			
Incident 561	4/3/2019	Cooke Aquaculture Video 3	02:49:06-02:54:57
<p>Jeff recounts how a previous employee being exposed to hazardous chemicals while working.</p> <p>Jeff: "Anyways, [Josh Farmer] was pumping, I can't remember it was HP or if it was formalin, and the freaking hose fell off and squirted all over him."</p> <p>This clip is also used for Incidents 341 through 346.</p>			
Incident 562	4/10/2019	Cooke Aquaculture Video 3	02:54:57-02:55:39
<p>Tony and Josh discussing working with hazardous chemicals on site.</p> <p>Josh: "You ain't supposed to touch it with your skin, you ain't supposed to breathe it in."</p> <p>Tony: "Too much of it will really fuck your shit up. This is--the irritation's not bad, the swelling sucks. It's like somebody injected a bunch of liquid right in your fucking eye socket, it just sits there on your brain."</p> <p>Investigator: "That's from the tricaine?"</p> <p>Tony: "Yup."</p>			
Incident 563	4/10/2019	Cooke Aquaculture Video 3	02:55:39-02:56:39
<p>Josh states that Brian attempted to hide information about hazardous chemicals from workers using the chemicals on site.</p> <p>Josh: "If you're in a enclosed area like that, and for like, all day or even 4 hours, it's not good for your</p>			

respiratory system. Fucks with your lungs and shit like that."

Investigator: "Where's that?"

Josh: "It's in "B" building. This was before they had the system hooked up and figured out, [Brian] just-- he doesn't give a fuck. He came up, he was like, 'you didn't tell him it was dangerous, did you?' I go, what? Yes, I did! I said, he wants to know!"

IV. CONTEXT

A. Overview

The context category contains general footage taken while the investigator worked at Cooke Aquaculture. This encompasses footage of the fish, facility, and other miscellaneous shots.

B. Specific Incidents

Incident 564	2019	Cooke Aquaculture Video 3	02:56:40-04:42:37
General context footage of Cooke Aquaculture.			
Incident 565	2019	Cooke Aquaculture Video 3	04:42:38-05:47:48
Additional general context footage of Cooke Aquaculture.			

June 6, 2019

Mike Wolf
Compassion Over Killing
P.O. Box 9773
Washington, DC 20016

Dear Mr. Wolf:

For more than ten years I have been researching and publishing on animal welfare with a specialty in aquatic organisms. I hold a doctoral degree from Columbia University (New York, NY) and completed a Killam Postdoctoral Research Fellowship with the Animal Welfare Program at The University of British Columbia (Vancouver, CA). Through my current position as a Visiting Assistant Professor in the Department of Environmental Studies at New York University (NYU), I have taught undergraduate and graduate level seminars on statistics and animal behavior, consulted on the development of fish welfare key performance indicators (KPIs) for Farm Animal Investment Risk and Return (FAIRR), spoke about fish welfare and protection to international academic, professional, and public audiences, served on the editorial board for *The Proceedings of The Royal Society B: Biological Sciences* (a prestigious, peer-reviewed scientific journal), and helped the Canadian Council on Animal Care develop their guidelines for zebrafish (now one of the most used animals in biomedical research).

The science on fish sentience is clear: fish have the capacity to suffer and feel pain. In addition to having sophisticated cognitive abilities (e.g., learning, memory, creative problem solving) and distinct personalities, fish are highly sensitive to their surroundings and have strong preferences for particular environmental conditions. For example, my colleagues and I found that coho salmon (*Oncorhynchus kisutch*) overwhelmingly prefer black tanks to the industry standard blue—and that their aggression drops by over 75% when they are housed according to their preferences. Other work has shown that autonomy and self-control also matters to fish: providing fish with control over their feeding schedule lowers stress levels (cortisol) and improves immune function.

The large body of work on fish pain has established that fish will respond to a potentially painful stimulus (e.g., having a fin clipped or being injected subcutaneously with acid) by rocking, rubbing and protecting the affected area, ignoring other stimuli (e.g., food or potential threats), learning to avoid the potentially painful stimulus, and even self-administering analgesia (pain-killers). Importantly, these responses are greatly reduced when fish are given an analgesic before treatment. Collectively this evidence shows that the behaviors are driven by a felt experience of pain rather than by a simple automatic reflex. A 2016 target article on fish pain received 38 commentaries from various academic groups; only 4 of the commentaries argued against the possibility of fish pain—the rest (90%) weighed in favor of fish experiencing pain.

In sum, the scientific data show that fish are sentient and as sentient beings, fish, like other animals, deserve moral consideration and protection from unnecessarily harmful treatment.

On May 20, I received a video that documented conditions on what appears to be a commercial salmon facility. After carefully reviewing the footage, I noted abundant evidence of mistreatment, cruelty and failure to adhere to minimally acceptable animal welfare standards. It is important to note that 1) several different workers engaged in harsh, even at times malicious fish handling and 2) needlessly harmful acts were carried out in full view of co-workers. Together, these observations indicate that the problems at this facility stem from the managerial, perhaps corporate level and should not be attributed to any single individual shown in the video. In other words, the abuse is structural. Evidently, at this facility, animal welfare guidelines are either not provided, trained, enforced, or encouraged. Indeed, it seems that the reverse is true: that the facility tolerates and even approves of inhumane treatment.

Of the many examples of unacceptable worker behavior one of the most problematic was ineffective and brutal euthanasia attempts such as stomping, kicking, or hitting sick fish. The workers sometimes laughed while engaging in this behavior and often do not kill the fish on the first, second, or even third attempt, thus inflicting prolonged periods of suffering and repeated pain. I also did not see any evidence that they checked that the fish were actually killed, which is a crucial step in all euthanasia protocol. The fishes subjected to this senseless treatment would have experienced a great deal of pain and fear, potentially for extended periods of time while they suffocated in buckets or froze to death in the snow. Other excessively harsh treatment included throwing, tossing, and whacking fish. And other unacceptable, substandard procedures included leaving fish suffocating out of water for prolonged periods of time and partial (instead of complete) sedation prior to painful procedures (tagging and fin-clipping).

These abuses and callous disregard for life have no place in a humane society.

Sincerely,



Becca Franks, Ph.D.

Visiting Assistant Professor
Department of Environmental Studies
New York University

MEMORANDUM

TO: Liam R. Hughes, Director, Animal Welfare Office, Maine Department of Agriculture, Conservation, and Forestry

CC: Maeghan Maloney, District Attorney, Prosecutorial District Number 4; Lt. Mark Brooks, Commanding Officer, Troop C, Maine State Police; Dale P. Lancaster, Sheriff, Somerset County, Maine; William Shaw, Animal Control Officer; Steve Steward, Animal Control Officer

FROM: Keith Jamieson, Counsel, Compassion Over Killing

DATE: June 12, 2019

RE: Cooke Aquaculture Animal Cruelty Documentation and Legal Evaluation

I. Introduction

From January 22 through April 10, 2019, a Compassion Over Killing (“COK”) investigator witnessed and recorded numerous incidents of animal cruelty at an Atlantic salmon hatchery operated by Cooke Aquaculture (“Cooke”) at 36 River Street in Bingham, Maine. The acts—which often were committed by Cooke’s supervisors, in their presence, or at their requests—violated Maine’s animal cruelty laws.

Illegal activity witnessed and recorded by COK’s investigator included:

- Stomping, throwing and mishandling conscious fish;
- Slowly killing conscious fish through suffocation and crushing;
- Injuring fish during vaccinations and by clipping their fins after improperly anesthetizing them;
- Failing to provide fish with humanely standard living conditions, causing them to painfully suffer and die during frequent fungal infestations; and
- Neglecting fish so that they suffered from abnormally high or low oxygen levels, frequent deformities, and high rates of mortality.

Cooke’s conduct violated Maine’s animal cruelty laws. Those laws prohibit “[c]aus[ing] extreme physical pain to an animal,” “[c]aus[ing] the death of an animal,” or “[p]hysically

tortur[ing] an animal”;¹ “[i]njur[ing], . . . torment[ing], . . . cruelly beat[ing] or intentionally mutilat[ing] an animal”;² and “[d]epriv[ing] an animal . . . of necessary sustenance, necessary medical attention, . . . or humanely clean conditions.”³ The cruelty laws apply to natural persons as well as to business entities,⁴ and may be enforced by either civil or criminal penalties.⁵

Maine’s animal cruelty laws protect farm animals—including fish—when the charged conduct is not “in compliance with best management practices for animal husbandry.”⁶ At Cooke, treatment of animals was well below the standards prescribed by the Global Aquaculture Alliance’s Best Aquaculture Practices (“BAP”) program, in which Cooke appears to participate, as well as below the recommendations of the American Veterinary Medical Association (“AVMA”), the European Food Safety Authority, and the Royal Society for the Prevention of Cruelty to Animals (“RSPCA”). Accordingly, Cooke did not adhere to “best management practices for animal husbandry,”⁷ and it and its employees should be held civilly and criminally liable for their many violations of Maine’s animal cruelty laws.

II. Statement of Facts

COK’s investigator was hired to work as a hatchery technician at Cooke’s Atlantic salmon hatchery in Bingham, Maine. The investigator was employed from January 22 to April 10, 2019, with duties that included removing dead eggs and fish from the tanks; feeding; and general tank cleaning. While the investigator was employed, the condition and treatment of live animals at the facility was documented with a covert camera.

Cooke is a vertically-integrated aquaculture corporation. Although the total number of fish at the Bingham hatchery is unknown, the figure is at least in the millions. During the investigator’s time there, one of the buildings alone—B-building—had 25 holding tanks, all but two of which housed at least 100,000 fish each.

A. Cruelty

COK’s investigator documented many instances in which Cooke’s employees committed the crime of cruelty to animals by “kill[ing] . . . an animal by a method that does not cause

¹ 17 Me. Rev. Stat. § 1031(1-B)

² *Id.* § 1031(1)(D).

³ *Id.* § 1031(1)(E).

⁴ See 17-A Me. Rev. Stat. § 2(19)–(20) (defining “[p]erson,” for purposes of the criminal code, to “mean[] a human being or an organization,” and “[o]rganization” to “mean[] a corporation, partnership or unincorporated association”).

⁵ Compare 7 Me. Rev. Stat. § 4016(1) (civil penalties) with 17 Me. Rev. Stat. §§ 1031(1), 1031(1-B), 1035, 1036, & 1037.

⁶ 17 Me. Rev. Stat. §§ 1031(2), 1037-A.

⁷ 17 Me. Rev. Stat. §§ 1031(2), 1037-A.

instantaneous death,”⁸ and by “[i]njur[ing], . . . tortur[ing], torment[ing], . . . or cruelly beat[ing] or intentionally mutilate[ing] an animal.”⁹ Several employees also committed the crime of aggravated cruelty to animals by “intentionally, knowingly or recklessly”—and “in a manner manifesting a depraved indifference to animal life or suffering”—“[c]aus[ing] extreme physical pain to an animal, . . . [c]aus[ing] the death of an animal,” or “[p]hysically tortur[ing] an animal.”¹⁰ All of the acts described below violated Maine’s criminal laws and expose Cooke and its employees to criminal prosecution.

1. Cruelty by Individual Workers

Some instances of cruelty represented egregious mistreatment by individual workers. Although the following acts were certainly encouraged and exacerbated by conditions at Cooke, they were not expressly directed by management.

a) Slamming and Stomping Fish

On five occasions, the investigator documented workers attempting to cull fish using blunt force trauma.¹¹ In most cases, workers slammed the heads of fish against the sides of the concrete tanks the fish were pulled from. A fish expert consulted by COK—Becca Franks, Ph.D., Visiting Assistant Professor at New York University’s Department of Environmental Studies—reviewed COK’s footage and concluded that workers “often d[id] not kill the fish on the first, second, or even third attempt,” thereby “inflicting prolonged periods of suffering and repeated pain.”¹² Dr. Franks “also did not see any evidence that [workers] checked that the fish were actually killed, which is a crucial step in all euthanasia protocol.”¹³

Indeed, on at least one occasion, a fish clearly remained alive after being slammed against the side of the tank. The worker known to COK’s investigator as “Tony” then dropped the animal on the ground and proceeded to stomp on the fish’s head.¹⁴ After Tony stomped on the animal and walked away, the fish was still moving on the ground.¹⁵

⁸ *Id.* § 1031(1)(B).

⁹ *Id.* § 1031(1)(D).

¹⁰ *Id.* § 1031(1-B).

¹¹ See Incident Statement at 3. In aquaculture, “culling” refers to the selective slaughter of weak or sick fish. See Merriam-Webster, *Cull* (2019), <https://www.merriam-webster.com/dictionary/cull> (defining “cull” as “to reduce or control the size of (something, such as a herd) by removal (as by hunting or slaughter) of especially weak or sick individuals”).

¹² Expert Statement from Becca Franks, Ph.D., at 2 (June 6, 2019).

¹³ *Id.*

¹⁴ See Incident Statement at Incident 2.

¹⁵ *Id.*

b) Attempting to Slap Fish Out of the Air

On three instances, while workers were throwing fish into barrels, the investigator documented hatchery supervisor Josh Beane attempting to slap the fish out of the air (as though the animals were basketballs).¹⁶

c) "Trick Shots"

The investigator documented Josh Beane attempting several "trick shots" while throwing fish into barrels.¹⁷ Josh would try to throw the fish from behind his back or over his shoulder, instead of with a more accurate method.¹⁸ Josh threw the same fish three times, each time missing the cull barrel, picking the fish off the ground, and trying again (before finally giving up and dropping the animal into the barrel).¹⁹ Only one of the fish tossed with a "trick shot" made it into the barrel, and that fish struck the side of the container before falling in.²⁰

d) Throwing Fish

While transferring fish from one tank to another (or to the cull barrel), workers generally opted to throw fish rather than walking them over to the new tank. Most of the fish were thrown at least 10 feet, and some were thrown up to 15 or 20 feet. This method was practiced as a matter of course throughout all of the transfers witnessed by COK's investigator. Hundreds of fish were thrown in the course of a single day, and for those that were thrown into the cull barrel, many hit the barrel's rim during their descent.²¹ Dr. Franks stated that workers' policy of "throwing, tossing, and whacking fish" constituted "excessively harsh treatment."²²

e) Rough Handling

While attempting to catch fish for transfer, workers would frequently handle fish roughly or drop them on the ground after catching them. Sometimes—seemingly out of boredom—employees caught fish they did not need to transfer, removed them from the water, and then dropped them back in.²³ After reviewing the footage recorded by COK, Dr. Franks described workers' mishandling of the fish as "harsh, [and] even at times malicious."²⁴

¹⁶ See *id.* at 3, Incidents 10–12.

¹⁷ See *id.* at 3.

¹⁸ See *id.*

¹⁹ *Id.* at Incidents 13–14.

²⁰ *Id.*

²¹ See *id.* at 3, Incidents 15–50.

²² Expert Statement, *supra*, at 2.

²³ See Incident Statement at 3–4, Incidents 51–71.

²⁴ Expert Statement, *supra*, at 2.

In a bizarre pantomime of a sex act, the worker known to COK's investigator as "Daniel" pulled a live fish out of the water, held the animal's mouth near his groin, and thrust his genitals at the fish while yelling, "Taste it! Taste it!" He then released the animal back into the water.²⁵

When Daniel had trouble catching fish, Josh told him "grab the [animal's] tail and fucking squeeze."²⁶ This method—in which a worker would grab the tails of the animals and pull them out of the water with one hand—was often used to catch fish. After fish were caught, they were sometimes held aloft while workers bent their bodies or rubbed them. On three documented occasions, workers caught fish and dropped them several feet onto the ground or onto wooden pallets while trying to transfer the fish to different tanks or bins.²⁷

2. Cruelty Directed by Management

Other instances of cruelty were caused by the decisions of Cooke's management or at management's behest. Based on the widespread, systematic mistreatment documented by COK at Cooke's facility, Dr. Franks opined that "the abuse [was] structural."²⁸ She concluded that "at this facility, animal welfare guidelines [were] either not provided, trained, enforced, or encouraged," and that it even "seem[ed] that the reverse [was] true: . . . the facility tolerate[d] and even approve[d] of inhumane treatment."²⁹

a) Suffocation

Fish were frequently culled at this facility, sometimes for deformities, but also if they were too small relative to other fish of the same age.³⁰ The most common method of culling at this facility was to remove the fish from water, drop them in buckets or barrels, and let them slowly suffocate. These buckets frequently were already full of dying or dead fish or dead eggs, and the animals would be piled up on top of one another.³¹ The cull buckets did not contain any anesthetic or chemical of any kind for the purpose of euthanasia. Instead, the fish slowly died from lack of oxygen.

"Asphyxiation in air . . . is extremely aversive to fish, who often show violent escape behaviors accompanied by maximum stress responses. According to the AVMA's *Guidelines for the Euthanasia of Animals*, "death by anoxia and desiccation after removal from the water" is an

²⁵ Incident Statement at Incident 51.

²⁶ *Id.* at Incident 70.

²⁷ *Id.* at Incidents 53, 67, & 69.

²⁸ Expert Statement, *supra*, at 2.

²⁹ *Id.*

³⁰ See *id.* at 4, Incidents 72–90.

³¹ See, e.g., *id.* at Incidents 77–80, 87, & 89.

"unacceptable method[] of euthanasia in any situation,"³² and the British government's expert Farm Animal Welfare Committee ("FAWC") states that "asphyxiation without prior stunning in air . . . [is] considered to cause unacceptable levels of pain and suffering for fish."³³ ³⁴ After reviewing COK's footage, Dr. Franks stated that the fish at Cooke who "suffocated in buckets" would "have experienced a great deal of pain and fear, potentially for extended periods of time."³⁵ She concluded that Cooke's methods of "euthanasia" were "substandard," "unacceptable," and "senseless."³⁶

b) Anesthesia

This facility used tricaine methanesulfonate ("tricaine") to anesthetize fish while vaccinating and fin clipping the animals.³⁷ Prior to these procedures, the fish were dumped into a bath containing tricaine and sodium bicarbonate.³⁸ While the fish were in the bath, they thrashed about as if trying to escape. Brian Wheeler, Cooke's hatchery manager, explained to COK's investigator that the anesthetic in the water becomes weaker over time, which means that it takes longer for the fish to become anesthetized.³⁹ He also explained that fish shouldn't be left in the anesthetic too long, as they would "never wake up again."⁴⁰

The facility did not appear to have a standard for how long fish would be left in the anesthesia bath. Instead, animals would be arbitrarily removed from the bath depending on whether workers performing the vaccinations or clipping fins were ready for more fish.

³² AVMA, *AVMA Guidelines for the Euthanasia of Animals* 71 (2013 ed.). "Anoxia" means lack of oxygen, while "desiccation" refers to drying up due to "removal or loss of moisture." See Merriam-Webster, *Anoxia* (2019), <https://www.merriam-webster.com/dictionary/anoxia>; *id.*, *Desiccation*, <https://www.merriam-webster.com/dictionary/desiccation>.

³³ FAWC, *Opinion on the Welfare of Farmed Fish at the Time of Killing* ¶ 78 (2014).

³⁴ Stephanie Yue, Humane Soc'y of the United States, *The Welfare of Farmed Fish at Slaughter* 4 (2008) (citing D.H.F. Robb & S.C. Kestin, *Methods used to kill fish: field observations and literature reviewed*, 11 *Animal Welfare* 269 (2002)).

³⁵ Expert Statement, *supra*, at 2.

³⁶ *Id.*

³⁷ Tricaine "is the only FDA-approved anesthetic for use in fish in the United States." Michael K. Stoskopf, *Biology and Management of Laboratory Fishes*, in *Laboratory Animal Medicine* (James G. Fox et al. eds., 3d ed. 2015).

³⁸ Tricaine becomes acidic when dissolved in water, so it must be buffered, usually with sodium bicarbonate. See *id.*; cf. Incident Statement at Incident 112 (hatchery manager Brian Wheeler explains that tricaine is "acidic," meaning that "if you don't put baking soda in with that . . . it'll burn their gills").

³⁹ Incident Statement at Incident 108.

⁴⁰ *Id.* at Incident 110.

Likewise, workers replaced tricaine in the bath seemingly at random rather than following a schedule.⁴¹

c) Vaccinations

Fish were removed from the anesthesia baths and dumped onto a metal table so that workers could inject them with a vaccine.⁴² Fish that have been anesthetized successfully should only show movement in their gill covers and not be able to react to outside stimuli. “[A]ny sign of controlled and coordinated movement”—such as rhythmic breathing, “struggling, swimming activity[,] or efforts to remain upright or regain equilibrium”—may “indicate that the fish was not adequately stunned.”⁴³

At Cooke, fish who had been anesthetized often actively “struggl[ed]” and writhed on the table during vaccinations.⁴⁴ The hatchery manager, Brian Wheeler, noted that the fish were displaying “too much flopping” and that “they shouldn’t be flopping like that.”⁴⁵ After reviewing footage of the fish being anesthetized, Dr. Franks concluded that the animals experienced only “partial (instead of complete) sedation” before undergoing “painful procedures.”⁴⁶

Despite ample “indicat[ions] that the fish w[ere] not adequately stunned,”⁴⁷ the workers nevertheless vaccinated the animals. Vaccinating fish while conscious is not only painful, but also may cause additional injuries if the fish continue to move while the needle is inside them. Hatchery supervisor Josh Beane told COK’s investigator that “once the needle’s in them and they flop, that tears a fucking huge hole in them,”⁴⁸ and the investigator observed fish who had deep cuts along their bodies as a result of flailing during vaccination.⁴⁹

d) Fin Clipping

At Cooke, fishes’ pelvic fins were clipped as a method of identification, in order to mark which fish had been vaccinated and to differentiate between fish of various genetic lines or in case of escape. As was the case for vaccination, fish were immersed in an anesthetic bath prior to

⁴¹ See *id.* at 4.

⁴² See *id.* at 4–5; *id.* at Incidents 105–187.

⁴³ J.A. Lines & J. Spence, *Humane harvesting and slaughter of farmed fish*, 33 *Sci. & Tech. Rev. Off. Int’l des Epizooties* 255, 259 (2014).

⁴⁴ *Id.*

⁴⁵ Incident Statement at Incidents 121 & 123.

⁴⁶ Expert Statement, *supra*, at 2.

⁴⁷ See Lines & Spence, *supra*, at 259.

⁴⁸ Incident Statement at Incident 169.

⁴⁹ See *id.* at 4.

the procedure, but some were inadequately stunned and remained able to move.⁵⁰ Again, Dr. Franks opined that the animals were only “partial[ly] (instead of complete[ly]) sedat[ed].”⁵¹

Fish fins consist of “living tissue” and “possess nociceptors”⁵²—“specialized peripheral sensory neurons” that detect “physical and noxious chemical stimuli” and trigger the experience of pain⁵³—which indicates that clipping fins without adequate anesthesia very likely “cause[s] pain.”⁵⁴ Nevertheless, Cooke workers continued to clip fish fins even as the animals flopped and writhed on the table during the procedure.⁵⁵ Dr. Franks concluded that the treatment of the fish during fin clipping was “substandard” and “unacceptable.”⁵⁶

e) Burning Fish with Formalin and Salt

Cooke’s workers added formalin and salt to fish tanks in order to kill bacteria, parasites, and fungus.⁵⁷ Formalin is a liquid form of formaldehyde, which is a known carcinogen.⁵⁸ Cooke did not appear to have a specific method of formalin or salt application, and workers sometimes used the chemicals improperly and burned the animals’ gills. Employee Jeff Bessey warned COK’s investigator to dilute the formalin and “keep [the fish] down” toward the bottom of the tank by flicking the water in order to avoid harming them.⁵⁹ He acknowledged that some workers “d[id]n’t even bother mixing water with [the formalin] . . . [to] mak[e] it that less potent for the fish,” which increased the likelihood that the animals would “burn their gills.”⁶⁰ Likewise, Jeff told COK’s investigator that fish would “try[] to get away from the salt ’cause it was burning

⁵⁰ *Id.* at 5, Incidents 188–205.

⁵¹ Expert Statement, *supra*, at 2.

⁵² C. Noble et al., Nofima, *Welfare indicators for farmed Atlantic salmon—tools for assessing fish welfare* 57 (2018).

⁵³ Adrienne E. Dubin & Ardem Patapoutian, *Nociceptors: the sensors of the pain pathway*, 120 J. Clin. Investigation 3760, 3760 (2010).

⁵⁴ Noble et al., *supra*, at 58.

⁵⁵ Incident Statement at 5; *see, e.g., id.* at Incidents 188–193 & 201.

⁵⁶ Expert Statement, *supra*, at 2.

⁵⁷ Incident Statement at 5–6.

⁵⁸ Specifically formalin is a commercially available solution of formaldehyde, water, and methyl alcohol. *See* East Carolina University, Office of Environmental Health & Safety, *Formalin* (2019), <http://www.ecu.edu/cs-admin/oehs/envmgmnt/Formalin.cfm>. Although “[m]ost people think of formaldehyde as a liquid,” the compound actually “in its basic form, is a gas.” *Id.* Here, formalin refers to the liquid form, which the general public typically would call “formaldehyde.” *See also* Martin H. Fischer, *The Toxic Effects of Formaldehyde and Formalin*, 6 J. Experimental Med. 487 (1905).

⁵⁹ Incident Statement at Incident 345.

⁶⁰ *Id.* at Incident 346.

'em."⁶¹ He advised the investigator to avoid applying the salt in a manner that would "bother[] their gills."⁶²

B. *Inhumane Conditions*

Along with the affirmative cruelty detailed above, Cooke and its employees also neglected animals by "[d]epriv[ing] [] animal[s] . . . of necessary sustenance, necessary medical attention, . . . [and] humanely clean conditions."⁶³

1. Eye Pecking

COK's investigator recorded numerous fish that were found with red, bloody eyes or with empty eye sockets, which resulted from fish resorting to cannibalism due to insufficient food.⁶⁴ Hatchery supervisor Josh Beane explained to the investigator, "If the fish aren't fed enough, they'll actually think the little pupil of the other fish is food, and they'll come after and they'll peck the eye out."⁶⁵ On another occasion, upon seeing fish with damaged eyes, Josh remarked, "They obviously at some point didn't get enough feed. The bigger ones ate the eyeball."⁶⁶ Josh also told COK's investigator to "mark down" whether injuries were present using "a checkbox for eye pecks," so that Cooke's supervisors would "know [they] should feed [the fish] more."⁶⁷

2. Fungus-Infested Crowded Tanks

Cooke's high level of mortality among fry (juvenile salmon) and eggs can partially be attributed to fungal infections within the tanks.⁶⁸ Fungus grew on mats in the tanks that housed eggs and freshly hatched fish, and could grow on the fish themselves, eventually killing them. Clumps of dead fry that had been infected with fungus were constantly found in, and removed from, tanks.⁶⁹ Fungal infections also afflicted larger salmon, several of whom died after fungal infections ate away much of their heads and faces.⁷⁰ Cooke employee Ryan O'Neill

⁶¹ *Id.* at Incident 353.

⁶² *Id.*

⁶³ 17 Me. Rev. Stat. § 1031(1)(E); see 7 Me. Rev. Stat. § 4013–15 (civil offenses).

⁶⁴ See Incident Statement at Incidents 207–227.

⁶⁵ *Id.* at Incident 208.

⁶⁶ *Id.* at Incident 207.

⁶⁷ *Id.* at Incident 208.

⁶⁸ "Fry" are juvenile salmon that have finished feeding on their yolk and feed on plankton. See Marine Inst., *Salmon Life Cycle* (2019), <https://www.marine.ie/Home/site-area/areas-activity/fisheries-ecosystems/salmon-life-cycle>.

⁶⁹ See Incident Statement at 5, Incidents 228–318.

⁷⁰ See, e.g., *id.* at Incidents 228–229, 232.

acknowledged that the fungal infections were harmful to the fish, stating: "They get like lesions and stuff from the fungus, it kinda eats away at them and they start bleeding" ⁷¹

The precise nature of the fungus at Cooke is not known, but it appears likely to be *Saprolegnia*, which "can result in serious disease conditions in fresh water stages of salmon production." ⁷² *Saprolegnia* fungal spores "lead to the development of serious skin, fin and tail lesions," ⁷³ and "can cause extensive destruction of the epidermis, osmotic imbalance and haemodilution, in severe cases leading to death." ⁷⁴ Because the fungus "is largely resistant to available chemical treatments," fish "with significant saprolegniasis do not normally recover." ⁷⁵

"Environmental stress factors, including poor water quality, adverse water temperatures[,] and . . . handling or overcrowding, can all result in increased incidence of fungal infections." ⁷⁶ In particular, "[o]vercrowding, handling, [and] temperature changes . . . increase the likelihood of *Saprolegnia* and other infections." ⁷⁷ Because "stress and epidermal damage" from "handling and vaccination . . . render [salmon] particularly vulnerable," ⁷⁸ the RSPCA's *Welfare Standards for Farmed Atlantic Salmon* recommend that "[p]riority . . . be given to farming practices which are aimed at *minimising handling the fish*." ⁷⁹

Cooke's employees were aware that *Saprolegnia* infestations were exacerbated by excessive handling and lax temperature control. Worker Jeff Bessey opined, "[A] lot of it's handling 'em when they vaccinate. You handle each one of them, they squeeze too hard or anything you're gonna rub that natural oils off them [A] lot of them's got little places where it looks like somebody just grabbed it, where the fungus is growing." ⁸⁰ When asked by COK's investigator whether "the hotter it gets, more fungus shows up," Jeff responded, "Oh yeah," and observed, "That water's pretty warm right now." ⁸¹

3. Incorrect Oxygen Levels

Correct oxygen levels in the water are extremely important for the health of fish. The BAP program guide specifically notes that "low levels of dissolved oxygen . . . can cause fish to

⁷¹ *Id.* at Incident 236.

⁷² RSPCA, *RSPCA Welfare Standards for Farmed Atlantic Salmon* 65 (2018).

⁷³ *Id.*

⁷⁴ Eur. Food Safety Auth., *Scientific Report on animal welfare aspects of husbandry systems for farmed Atlantic salmon*, 736 EFSA J. Annex I, at 59 (2008).

⁷⁵ *Id.* at 60.

⁷⁶ *Id.* at 59.

⁷⁷ *Id.* at 60.

⁷⁸ *Id.*

⁷⁹ RSPCA, *supra*, at 65 (emphasis added).

⁸⁰ Incident Statement at Incident 234.

⁸¹ *Id.* at Incident 238.

be distressed.”⁸² The program requires that “[d]issolved-oxygen levels shall be maintained above 80 percent saturation.”⁸³ Cooke’s workers were aware of that requirement: employee Jeff Bessey told COK’s investigator, “Anything below 80 [percent], you wanna start getting nervous.”⁸⁴ Nevertheless, COK’s investigator repeatedly documented oxygen levels that had fallen as low as 75 percent, 73 percent, and 72 percent.⁸⁵ When COK’s investigator told Jeff that the oxygen level in one tank had fallen below 80 percent, he appeared to take no action, saying, “The little ones will survive.”⁸⁶

On other occasions, COK’s investigator recorded excessive oxygen levels of 114 percent, 145 percent, and even 460 percent.⁸⁷ When told about the last number, hatchery supervisor Josh Beane exclaimed, “Oh my God. . . . [T]hat’s way too high.”⁸⁸

4. Deformities

Deformities among the fish were rampant at Cooke.⁸⁹ Most prominent were vertebral (spinal) deformities, which caused fish to appear to be “bent.” Although “[i]t is currently not clear if fish with vertebral deformities experience pain,” they “are undoubtedly inferior swimmers and less able to compete for food,” and “also appear to have a reduced tolerance to handling and stress.”⁹⁰ Thus, vertebral deformities “ha[ve] a direct impact on the current and future welfare of the fish.”⁹¹

Other common deformities included deformities of the operculum—the bony flap that protects the gills—and “pug-headedness,” a deformity that substantially shortens the fishes’ upper jaws.⁹² “Pug-headedness may have a debilitating effect on the ability of the fish to breathe and feed, resulting in a lack of competitive ability for food.”⁹³ COK’s investigator also

⁸² Global Aquaculture Alliance, Best Aquaculture Practices, *Aquaculture Facility Certification: Salmon Farms* 16 (2016).

⁸³ See *id.*

⁸⁴ Incident Statement at Incident 324.

⁸⁵ *Id.* at Incidents 326–329.

⁸⁶ *Id.* at Incident 328.

⁸⁷ *Id.* at Incidents 319–320 & 330.

⁸⁸ *Id.* at Incident 330.

⁸⁹ See, e.g., *id.* at Incident 427 (Tony noting, “Wow, there’s a lot of deformities in there.”).

⁹⁰ Noble et al., *supra*, at 56.

⁹¹ *Id.* at 57.

⁹² See RSPCA, *supra*, at 66.

⁹³ L.A. Jawad et al., *On the record of pug-headedness in cultured Atlantic salmon, Salmo salar Linnaeus, 1758 (Salmoniformes, Salmonidae) from Norway*, 30 J. Appl. Ichthyol. 537, 538 (2014); accord Peter B. Adams & Constance J. Ryan, *Morphology and Growth of a Pugheaded Brown Rockfish, Sebastes Auriculatus*, 68 Cal. Fish & Game 54, 56 (1982) (“[P]ugheadedness limits the fish’s growth. . . .

documented fish with an enlarged yolk sac; fish with two heads; and conjoined fish.⁹⁴ The investigator noticed that fry who came from the U.S. Department of Agriculture appeared to have an increased incidence of deformities.⁹⁵

Deformities often result from mishandling of eggs and young fish, which are “very vulnerable to physical disturbance. . . . Any stress and physical damage that occur at this stage may result in deformities later in life.”⁹⁶ “Deformities in the vertebral column” also can be produced by mishandling during vaccination.⁹⁷ Hatchery supervisor Josh Beane told COK’s investigator that “[s]pinal deformit[ies] . . . [h]appen[] . . . [i]f you’re too rough with them, you’ll break their back and they’ll grow it back like that.”⁹⁸

Fish with deformities at Cooke were culled. The employee known to COK’s investigator as “Chuck” said to “just throw . . . away” deformed fry and to “throw them right away.”⁹⁹ Josh told the investigator that they “definitely want[ed] to cull” fish with gill deformities, and that because deformed fish were “gonna die eventually anyway,” it was “better to get rid of them now.”¹⁰⁰ When the investigator informed employee Jeff Bessey that twenty fish out of a group of ninety were deformed, he replied, “Good, get ’em the heck outta there.”¹⁰¹ As noted above, fish who were culled were left to slowly “suffocate[] in buckets” while “experienc[ing] a great deal of pain and fear.”¹⁰²

5. High Mortality

The result of the aforementioned animal abuse and inhumane conditions was a very high rate of mortality. COK’s investigator filmed many barrels and buckets filled with dead eggs and fish.¹⁰³ Fish died due to infestation with *Saprolegnia* fungus, and also were culled at a high rate. In addition to fish that were culled for deformities, others were killed simply for being too small. Employee Jeff Bessey told COK’s investigator that Cooke “[s]ometimes . . . weed[ed] ’em out too much,” culling fish that were “too small” as well as the ones that were “deformed.”¹⁰⁴ Workers also sometimes would knowingly cull live, healthy fish while trying to remove dead or

[D]uring periods of population stress and increased intraspecific competition, the pugheaded fish’s fitness is lowered probably through reduced feeding efficiency.”)

⁹⁴ E.g., Incident Statement at Incidents 392–407 & 409–410.

⁹⁵ See *id.* at Incident 396, 436.

⁹⁶ Eur. Food Safety Auth., *supra*, Annex I, at 50.

⁹⁷ See *id.* at 72.

⁹⁸ Incident Statement at Incident 435.

⁹⁹ *Id.* at Incidents 425–426.

¹⁰⁰ *Id.* at Incidents 429 & 434.

¹⁰¹ *Id.* at Incident 439.

¹⁰² Expert Statement, *supra*, at 2.

¹⁰³ See, e.g., Incident Statement at Incident 443–527.

¹⁰⁴ *Id.* at Incident 508.

sick ones.¹⁰⁵ Cooke employees appeared to sense that their facility had an unusually high rate of mortality. After removing more than 280 dead fish from one tank, Jeff told COK's investigator that there were "[p]robably almost that many more in there," and that there were "[a] lot of dead fish."¹⁰⁶ Later, Jeff reported that another worker had "pulled 265 [dead fish] out of" a tank,¹⁰⁷ and on another occasion, he said that "probably close to a thousand" dead fish were found in a tank.¹⁰⁸ Workers called the mortality rate "crazy" and "[f]ucking awful."¹⁰⁹ One worker even apologized to the fish for how many died at Cooke.¹¹⁰

6. Miscellaneous

Live fry often escaped into the trench below the large tanks. Those trenches feed right out into a river, making it possible for fry from the facility to escape into the wild. According to Jeff Bessey, fish escaping into the wild would be a "major" problem for Cooke during an audit.¹¹¹ Jeff also told COK's investigator that he would pour "CT, . . . a type of bleach" into the trench to kill the live fish.¹¹² Jeff may have been referring to Chloramine-T, a disinfectant used to treat gill disease that can be toxic to salmon in large doses.¹¹³

According to Jeff, broodstock at Cooke were not fed "for like a month, before . . . spawn[ing]."¹¹⁴ The RSPCA's *Welfare Standard for Farmed Atlantic Salmon* advise that "depriving a farmed fish that has previously been fed regularly will usually have an adverse effect on welfare," and recommend that "fasting time must . . . not exceed 72 hours."¹¹⁵

Fry also sometimes were overfed, which would cause the feed to collect at the bottom of the tank and cover much of the floor. In one instance, Chuck suggested to COK's investigator that fry were dying as a result of being overfed.¹¹⁶

Finally, fish were harmed or killed as a result of Cooke's generally poor standards of maintenance and sanitation. COK's investigator documented an instance in which a large, live

¹⁰⁵ E.g., *id.* at Incident 502.

¹⁰⁶ *Id.* at Incident 504.

¹⁰⁷ *Id.* at Incident 509.

¹⁰⁸ *Id.* at Incident 527.

¹⁰⁹ *Id.* at Incidents 510 & 519.

¹¹⁰ See *id.* at Incident 524.

¹¹¹ *Id.* at Incident 529.

¹¹² *Id.* at Incident 531.

¹¹³ See Mark Powell & James Harris, *Influence of Oxygen on the Toxicity of Chloramine-T to Atlantic Salmon Smolts in Freshwater and Seawater*, 16 J. Aquatic Animal Health 83 (2004).

¹¹⁴ Incident Statement at Incident 544.

¹¹⁵ RSPCA, *supra*, at 22.

¹¹⁶ See Incident Statement at Incident 555.

worm appeared in a tank,¹¹⁷ which worker Chuck thought was “crazy.”¹¹⁸ Chuck also noted that the worm was “weird looking” and oddly colored.¹¹⁹ Jeff told COK’s investigator that fish would “sneak right out through” the bottom of the tanks because “the holes [were]n’t cut right.”¹²⁰ He also noted that fish could be sucked through a screen, which would “hurt ‘em pretty good” because “[t]heir bellies will stick to [the screen] and scar ‘em up.”¹²¹ On another occasion, Jeff stated that other workers had caused a biosecurity risk by moving pump equipment from one building to another. He explained that “germs or bacteria” that which built up on the machinery “could wipe out th[e] whole building” to which the equipment was moved, and said, “Hopefully by Monday morning all the fish aren’t dead in here.”¹²²

III. Cooke Aquaculture’s Employees Violated Maine’s Animal Cruelty Laws

The aforementioned cruelty, neglect, and substandard practices at Cooke violated Maine’s animal cruelty laws. By statute, Maine criminalizes aggravated cruelty to animals, cruelty to animals, and various forms of neglect of animals.¹²³ Those laws apply to “every living, sentient creature not a human being,”¹²⁴ a category that includes fish. They also prohibit the “mistreatment, cruelty and failure to adhere to minimally acceptable animal welfare standards” at Cooke described at length above.¹²⁵

A. *Maine’s Animal Cruelty Laws Apply to “Every Living, Sentient Creature Not a Human Being,” Including Fish*

Maine’s animal cruelty laws apply to “any animal,”¹²⁶ defined to “mean[] every living, sentient creature not a human being.”¹²⁷ That definition includes fish. Biologically, fish are animals—they are vertebrates within the kingdom Animalia, along with frogs, birds, and

¹¹⁷ *Id.* at Incidents 542–543.

¹¹⁸ *Id.* at Incident 543.

¹¹⁹ *Id.* at Incident 546.

¹²⁰ *Id.* at Incident 549.

¹²¹ *Id.* at Incident 556.

¹²² *Id.* at Incident 552.

¹²³ See 17 Me. Rev. Stat. §§ 1031, 1035–37.

¹²⁴ 7 Me. Rev. Stat. § 3907(2).

¹²⁵ See Expert Statement, *supra*, at 2.

¹²⁶ See, e.g., 17 Me. Rev. Stat. § 1031(1).

¹²⁷ 7 Me. Rev. Stat. § 3907(2). The definitions in that section apply “in every law relating to or affecting animals, unless the context indicates otherwise.” *Id.*

mammals¹²⁸—and they have been recognized as “animals” by Maine courts.¹²⁹ In addition, fish obviously are “living . . . creature[s]” within the ordinary meaning of those words.¹³⁰

Finally, fish are “sentient.”¹³¹ According to COK’s expert, Dr. Franks, “[t]he science on fish sentience is clear: fish have the capacity to suffer and feel pain.”¹³² First, “there is absolutely no doubt that fish have all the hardware associated with pain perception”¹³³; “Fish have neurons known as nociceptors, which detect potential harm,” they “produce the same opioids . . . that mammals do,” and “their brain activity during injury is analogous to that in terrestrial vertebrates.”¹³⁴ Second, fish also seem to experience pain psychologically. “[P]ain appears to distract fish and prevents them from carrying out other tasks or paying attention to external stimuli,” and they “rapidly learn to associate certain objects, smells and contexts with potential harm and avoid such things in future.”¹³⁵ Dr. Franks states that such “evidence shows that the behaviors are driven by a felt experience of pain rather than by a simple automatic reflex.”¹³⁶

As a result of the aforementioned research, there now exists “a broad scientific consensus that fish are sentient.”¹³⁷ Dr. Franks notes that of the 38 academic commentaries responding to a 2016 article on fish pain, 34 (almost 90 percent) “weighed in favor of fish experiencing pain.”¹³⁸ Pennsylvania State University biologist Victoria Braithwaite agrees that “[t]he scientific consensus . . . is that fish do feel pain.”¹³⁹ And the AVMA has concluded that “the

¹²⁸ See, e.g., Culum Brown, *Fish intelligence, sentience and ethics*, 18 *Animal Cognition* 1, 3–4 (2014).

¹²⁹ See, e.g., *Treat v. Parsons*, 84 Me. 520, 520 (1892) (describing “[f]ish” as “animals *feræ naturæ*,” i.e. of a wild nature); see also *State v. Leonard*, 470 A.2d 1262, 1263 (Me. 1984) (reasoning that “[t]here is no reason why the term ‘domestic animal’ . . . should be given anything other than its common meaning,” and that Maine statutes “contemplate[] that a common meaning will be given to this and other terms”).

¹³⁰ See 7 Me. Rev. Stat. § 3907(2).

¹³¹ See *id.* The adjective “sentient” means “able to see or feel things” or “responsive to or conscious of sense impressions.” *Sentient*, English—Oxford Living Dictionaries (2019), <https://en.oxforddictionaries.com/definition/sentient>.

¹³² Expert Statement, *supra*, at 1.

¹³³ Brown, *supra*, at 12.

¹³⁴ Jabr, *supra*.

¹³⁵ Brown, *supra*, at 13.

¹³⁶ Expert Statement, *supra*, at 1.

¹³⁷ J.A. Lines & J. Spence, *Humane harvesting and slaughter of farmed fish*, 33 *Sci. & Tech. Rev. Off. Int’l des Epizooties* 255, 255 (2014).

¹³⁸ Expert Statement, *supra*, at 1.

¹³⁹ See Tim Carman, *Scientists say fish feel pain. It could lead to major changes in the fishing industry*, *Wash. Post*, May 24, 2018, <https://www.washingtonpost.com/news/food/wp/2018/05/24/scientists-say-fish-feel-pain-it-could-lead-to-major-changes-in-the-fishing-industry/>.

preponderance of accumulated evidence supports the position that finfish should be accorded the same considerations as terrestrial vertebrates in regard to relief from pain.¹⁴⁰ In short, because fish are “responsive to or conscious of sense impressions”¹⁴¹—including pain—they are “sentient” for purposes of Maine’s animal cruelty laws.¹⁴²

Prosecutors, legislators, and judges in the United States increasingly have recognized that legal protections for animals should extend to fish.¹⁴³ Oregon explicitly defines “animal” to include “fish” for purposes of its animal cruelty laws.¹⁴⁴ With respect to Georgia’s cruelty to animals statute, the state legislature “expressed its intent by . . . declar[ing] the statute ‘covers all animals,’” and stated in a committee note that “the public’s sensibilities are as likely to be outraged by wanton acts of inhumanity to goldfish . . . as when the acts are suffered by more frequently encountered or more valuable animals.”¹⁴⁵

New York—much like Maine—defines “animal” as “every living creature except a human being” for purposes of the animal cruelty laws.¹⁴⁶ A state court previously held that definition “plain[ly] and unambiguous[ly]” encompassed a pet goldfish because “nothing . . . suggests that an animal as so defined must be a mammal.”¹⁴⁷ The court noted that earlier decisions had held that other non-mammals, such as sea turtles, fell within the definition of “every living creature.”¹⁴⁸ Similarly, Massachusetts’s Appellate Court held that a goldfish was an “animal” covered by a “statute designed to protect animals subject to possible neglect.”¹⁴⁹ Although the Massachusetts statute “d[id] not define the word ‘animal,’” the court relied upon

¹⁴⁰ AVMA, *AVMA Guidelines for the Euthanasia of Animals* 13 (2013 ed.).

¹⁴¹ *Sentient*, Merriam-Webster (2019), <https://www.merriam-webster.com/dictionary/sentient>.

¹⁴² See 7 Me. Rev. Stat. § 3907(2).

¹⁴³ This trend is not limited to the United States. In 2004, “the European Union . . . imposed legal requirements for the welfare of farmed fish,” and in 2013, “a new EU protocol came into force, requiring that animals (including fish) ‘be spared any avoidable pain, distress or suffering during their killing and related operations.’” See Vladic Ravich, *Consider the Mort*, The Believer, May 1, 2014, <https://believermag.com/consider-the-mort/>. Norway, “by far the largest producer of farmed fish in Europe, has protected their welfare since 1974.” See *id.* In the United Kingdom—another major aquaculture producer, in the form of Scottish salmon—animal welfare laws “typically cover[] all nonhuman vertebrates.” See Ferris Jabr, *Fish Feel Pain. Now What?*, Haki Magazine (Jan. 2, 2018), <https://www.hakaimagazine.com/features/fish-feel-pain-now-what/>.

¹⁴⁴ Or. Rev. Stat. § 167.310 (“‘Animal’ means any nonhuman mammal, bird, reptile, amphibian or fish.”).

¹⁴⁵ See *Brckett v. State*, 142 Ga. App. 601, 602 (1977).

¹⁴⁶ N.Y. Agric. & Mkts. L. § 350(1).

¹⁴⁷ *People v. Garcia*, 777 N.Y.S.2d 846, 850 (Sup. Ct. 2004), *aff’d*, *People v. Garcia*, 29 A.D.3d 255 (1st Dep’t 2006).

¹⁴⁸ *Garcia*, 777 N.Y.S.2d at 850–51 (citing *People v. Downs*, 136 N.Y.S. 440 (N.Y.C. Magistrates’ Ct. 1911)).

¹⁴⁹ *Knox v. Mass. Soc’y for Prevention of Cruelty to Animals*, 12 Mass. App. Ct. 407, 410 (1981).

precedent that deemed “[t]he word ‘animal,’ in its common acceptance, [to] include[] all irrational beings.”¹⁵⁰

Like Oregon, Georgia, New York, and Massachusetts, Maine has sensibly chosen to protect from cruelty *all* living creatures that are capable of experiencing pain.¹⁵¹ Because fish are “living, sentient creature[s]” as well as biological “animal[s],” they are protected under Maine’s animal cruelty laws.¹⁵²

B. *The Documented Acts Are Not Exempt from the Animal Cruelty Laws as “Best Management Practices for Animal Husbandry”*

Maine recognizes accepted agricultural practices as an affirmative defense to civil or criminal prosecution for animal cruelty. A defendant charged with cruelty to an animal may claim an affirmative defense if that “[t]he animal is kept as part of an agricultural operation and in compliance with best management practices for animal husbandry as determined by the Department of Agriculture, Conservation and Forestry.”¹⁵³ Because the “agricultural operation” defense is an affirmative one, “the defendant bears the burden of proving the facts necessary to [support it] by a preponderance of the evidence.”¹⁵⁴ Thus, in order to receive the benefit of the defense, Cooke Aquaculture and its employees must show that the salmon were “kept . . . in compliance with best management practices for animal husbandry.”¹⁵⁵ They cannot do so.

¹⁵⁰ *Id.* at 409–10 (quoting *Commonwealth v. Turner*, 145 Mass. 296, 301 (1887)).

¹⁵¹ Other states still restrict legal protections to certain categories of animals. North Carolina, for example, only provides protection to “living vertebrate[s] in the classes Amphibia, Reptilia, Aves, and Mammalia except human beings.” N.C. Gen. Stat. § 14-360(c). This restrictive definition recently prevented a man from being prosecuted for animal cruelty after abandoning his pet fish. See Alex Horton & Lindsey Bever, *He faced animal cruelty charges for abandoning a pet in N.C. But state law doesn’t protect fish*, Wash. Post, Apr. 10, 2019, <https://www.washingtonpost.com/science/2019/04/10/he-faced-animal-cruelty-charges-abandoning-pet-nc-state-law-doesnt-protect-fish/>. Similarly, Delaware excludes “fish, crustacea [and] mollusks” from its definition of animals. 11 Del. Code § 1325(a)(2). By contrast, the laws in Maine do not restrict the definition of animals to certain biological classes and do not explicitly exclude fish.

¹⁵² 7 Me. Rev. Stat. § 3907(2); see, e.g., 17 Me. Rev. Stat. § 1031(1).

¹⁵³ 17 Me. Rev. Stat. §§ 1031(2) & 1037-A; see also 7 Me. Rev. Stat. § 4016(3) (affirmative defense in civil actions).

¹⁵⁴ *State v. LaVallee-Davidson*, 26 A.3d 828, 833 (Me. 2011) (emphasis omitted) (citing 17-A Me. Rev. Stat. § 101(2)).

¹⁵⁵ See 17 Me. Rev. Stat. §§ 1031(2) & 1037-A.

1. What Are “Best Management Practices for Animal Husbandry”?

Although the “accepted agricultural practice” defense is widespread, its contours have not been clearly established, either in Maine or in most other states.¹⁵⁶ Maine somewhat circularly defines a “best management practice” as “a method or practice . . . consistent with efficient, practical, technically and environmentally sound animal or crop production practices,” and “best suited to preventing, reducing, or correcting agriculture-related problems.”¹⁵⁷ Notwithstanding that “best management practices for animal husbandry” are to be “determined by the Department of Agriculture, Conservation and Forestry,” the state’s *Manual of Best Management Practices for Maine Agriculture* “essentially is an annotated list of known [best management practice]s” and is intended only as “a starting point.”¹⁵⁸ The manual’s descriptions of best management practices are often quite vague: a representative one advises farmers to “[u]tilize appropriate housing for optimal productivity and health of various species.”¹⁵⁹ Of the nearly 400 sources listed in the manual, only three appear to pertain to aquaculture, one to salmon, and one to “generally accepted agricultural and management practices for the care of farm animals.”¹⁶⁰

Cooke does appear to participate in the Global Aquaculture Alliance’s BAP program, which provides more specific requirements for aquaculture facilities.¹⁶¹ The BAP program requires that “[p]roducers . . . demonstrate that all operations on farms that involve fish . . . are conducted with animal welfare in mind,” and that “[e]mployees . . . [are] trained to provide

¹⁵⁶ A few states, such as New Mexico and Vermont, require the state Department of Agriculture or Livestock Board to weigh in regarding whether an allegedly cruel act is a “commonly accepted agricultural animal husbandry practice[.]” See, e.g., *State ex rel. Collier v. N.M. Livestock Bd.*, 316 P.3d 195, 200–01 (N.M. Ct. App. 2013) (noting that a criminal defendant may seek a hearing before the Livestock Board “to determine whether . . . conduct is a commonly accepted agricultural animal husbandry practice”); *State v. Bona*, 2015 WL 5793234, at *1–*2 (Vt. Sept. 30, 2015) (unpublished entry order) (noting that statutory requirement of “consultation with the Secretary of Agriculture, Food and Markets . . . prior to any enforcement action . . . which involves livestock and poultry” was “intended to assure that accepted livestock practices are not a basis for an enforcement action under the animal cruelty statutes”). Other states appear to rely on the parties to provide expert testimony regarding what constitutes “proper animal husbandry.” *State v. Schott*, 222 Neb. 456, 460 (1986) (discussing expert testimony by professor of animal science).

¹⁵⁷ Me. Dep’t of Agric., Food & Rural Res., Div. of Animal Health & Indus., *Manual of Best Management Practices for Maine Agriculture* 6 (2007).

¹⁵⁸ See 17 Me. Rev. Stat. §§ 1031(2) & 1037-A; Me. Dep’t of Agric., *supra*, at 2–3.

¹⁵⁹ *Id.* at 27.

¹⁶⁰ See *id.* at 47, 48, 52, 55, 57.

¹⁶¹ See Me. Aquaculture Innovation Ctr., *Atlantic Salmon* (2019), <https://www.maineaquaculture.org/atlantic-salmon/> (stating that “all Maine salmon farming companies participate in the Global Aquaculture Alliance Best Aquaculture Practices program”).

appropriate levels of husbandry and care.”¹⁶² The BAP program recommends that “[f]ish . . . always be treated with care,” and mandates that “[f]arms . . . provide facilities for holding and rearing fish that allow them to thrive,” with “[h]igh-quality feed . . . offered at regular intervals.”¹⁶³ The program also recommends that “[w]hen morphological abnormalities”—such as “snout injuries, jaw deformities, cutaneous ulcers and poor fin condition or scale loss”—“are present, their causes should be determined and corrected,” and that “[f]ish that are obviously impaired should be removed . . . and euthanized in a humane fashion.”¹⁶⁴ The program directs that “[f]ish . . . be stunned instantly by humane means” prior to slaughter, and that “[d]issolved-oxygen levels shall be maintained above 80 percent saturation.”¹⁶⁵ “For additional information,” the guide cites favorably to the *RSPCA Welfare Standards for Farmed Atlantic Salmon* and the FAWC’s *Opinion on the Welfare of Farmed Fish at the Time of Killing*.¹⁶⁶ Finally, the BAP program’s standards for certified facilities include:

9.6: When impaired fish and unwanted species are removed, . . . [t]hey shall be killed by humane techniques

9.7: The applicant shall exercise care in handling fish and manage them within specified limits for crowding and time out of water, and limit other sources of outside disturbances. . . .

9.12: Prior to slaughter, fish shall be stunned humanely.¹⁶⁷

Beyond the BAP program and the *Manual of Best Management Practices for Maine Agriculture*, Maine courts have not indicated what constitutes an “accepted agricultural practice.” Decisions from other states, however, made clear that the egregious cruelty at issue in this case does not qualify. For example, a Pennsylvania decision, *Commonwealth v. Barnes*,¹⁶⁸ held that Pennsylvania’s version of the “accepted agricultural practice” exception only applies to “routine and accepted agricultural practices,” a standard that did not encompass the defendants’ “utter neglect of their horses” in that case.¹⁶⁹ Similarly, an Oregon decision, *Oregon Game Fowl Breeders Ass’n v. Smith*,¹⁷⁰ rejected an argument that cockfighting should be “exempt from the

¹⁶² Global Aquaculture Alliance, Best Aquaculture Practices, *Aquaculture Facility Certification: Salmon Farms* 16 (2016) (hereinafter “BAP Guide”).

¹⁶³ *Id.*

¹⁶⁴ *Id.*

¹⁶⁵ *Id.* at 17.

¹⁶⁶ *Id.*

¹⁶⁷ *Id.*

¹⁶⁸ 427 Pa. Super. 326 (1993).

¹⁶⁹ *Id.* at 337–38.

¹⁷⁰ 15 Or. App. 487 (1973).

[animal cruelty laws] because it is a practice of good livestock husbandry.”¹⁷¹ The court noted that cockfighting was itself proscribed as “cruel mistreatment” of animals, and concluded that because “the practice itself [was] against the law,” it “could not logically qualify as ‘good livestock husbandry.’”¹⁷² *Smith, Barnes*, and like cases indicates that egregiously cruel practices (such as those employed here) necessarily violate the animal cruelty laws and cannot be shielded as “good livestock husbandry” or “best management practices.”¹⁷³

2. Cooke Aquaculture Did Not Follow “Best Management Practices for Animal Husbandry”

In the present case, Cooke and its employees cannot claim the benefit of the affirmative defense, because (a) they did not comply with the best management practices set forth in the BAP program, and (b) some of their conduct was so egregiously inhumane that it cannot have been intended to fall within the accepted agricultural practices exception.

As will be discussed in detail below, Cooke repeatedly violated the standards set by the BAP program. Cooke failed to “train[] [employees] to provide appropriate levels of husbandry and care” and did not “provide facilities for holding and rearing fish that allow them to thrive.”¹⁷⁴ Cooke’s employees did not “euthanize[] [impaired fish] in a humane fashion,” did not “stun[] [fish] instantly by humane means” before killing them, and did not properly “determine[] and correct[]” the causes of “snout injuries, jaw deformities, cutaneous ulcers and poor fin condition or scale loss” (all of which were widespread at the facility).¹⁷⁵ Cooke’s workers neglected to “maintain[] [dissolved-oxygen levels] above 80 percent saturation” and failed to “exercise care in handling fish.”¹⁷⁶ Overall, standards at the facility were so low—and violations of the BAP program so frequent—that Cooke cannot carry its burden to show that fish were “kept . . . in compliance with best management practices for animal husbandry.”¹⁷⁷

Moreover, some of the cruelty at Cooke was so extreme that “persons of common intelligence could be expected to conclude that [the conduct] . . . would not fall within the purview of the exception.”¹⁷⁸ Such conduct would inherently constitute “cruel mistreatment” and “could not logically qualify as ‘good livestock husbandry.’”¹⁷⁹ For example, Cooke workers

¹⁷¹ See *id.* at 496.

¹⁷² *Id.* at 496–97.

¹⁷³ *Id.*; cf. 17 Me. Rev. Stat. §§ 1031(2) & 1037-A.

¹⁷⁴ BAP Guide, *supra*, at 16.

¹⁷⁵ *Id.*

¹⁷⁶ *Id.*

¹⁷⁷ 17 Me. Rev. Stat. §§ 1031(2) & 1037-A; see also 7 Me. Rev. Stat. § 4016(3) (affirmative defense in civil actions).

¹⁷⁸ See *Barnes*, 427 Pa. Super. at 337–38.

¹⁷⁹ See *Smith*, 15 Or. App. at 496–97.

improperly stunned fish that they culled and allowed them to slowly die of asphyxiation while conscious, acts that the AVMA has concluded “cause unacceptable levels of pain and suffering for fish” and are “unacceptable methods of euthanasia in any situation.”¹⁸⁰ Such inherently cruel acts “[c]ause[] extreme physical pain” and are justly proscribed as “torture[]” by Maine’s criminal code.¹⁸¹ They cannot be regarded as acceptable agricultural practices. Therefore, the affirmative defense does not avail Cooke or its employees.

C. *Cooke’s Employees Committed Aggravated Cruelty to Animals, Cruelty to Animals, and Neglect of Animals in Violation of 17 Me. Rev. Stat. §§ 1031 & 1035–37 and 7 Me. Rev. Stat. §§ 4011 & 4013–15*

During COK’s investigator’s time at Cooke, the investigator filmed workers—individually or at the behest of management—committing numerous acts of cruelty prohibited by Maine law. The acts are punishable both as criminal cruelty to animals under 17 Me. Rev. Stat. §§ 1031 & 1035–37, as well as civil cruelty to animals 7 Me. Rev. Stat. §§ 4011 & 4013–15. In any given case, “[t]he attorney for the State may elect to charge a defendant with either the crime of cruelty to animals . . . or the civil violation of cruelty to animals.”¹⁸² That election must be informed by such factors as (i) “the severity of the cruelty displayed,” (ii) “the number of animals involved,” (iii) “any prior convictions or adjudications of animal cruelty entered against the defendant,” and (iv) “such other factors as may be relevant to a determination of whether criminal or civil sanctions will best accomplish the goals of the animal welfare laws in the particular case before the attorney for the State.”¹⁸³ The prosecutor’s decision whether to charge a defendant with a criminal or civil violation is “not subject to judicial review.”¹⁸⁴

1. Aggravated cruelty to animals

By statute, Maine punishes the crime of aggravated cruelty to animals.¹⁸⁵ A person commits aggravated cruelty to animals when that person, “in a manner manifesting a depraved indifference to animal life or suffering, intentionally, knowingly or recklessly”¹⁸⁶:

- A. Causes extreme physical pain to an animal;
- B. Causes the death of an animal; or
- C. Physically tortures an animal.¹⁸⁷

¹⁸⁰ AVMA, *supra*, at 71.

¹⁸¹ See 17 Me. Rev. Stat. § 1031(1-B).

¹⁸² 7 Me. Rev. Stat. § 4016(2).

¹⁸³ *Id.*

¹⁸⁴ *Id.*

¹⁸⁵ There is no civil equivalent to aggravated cruelty to animals.

¹⁸⁶ 17 Me. Rev. Stat. § 1031(1-B)

¹⁸⁷ *Id.* §

Aggravated cruelty to animals is a Class C crime,¹⁸⁸ punishable by up to five years' imprisonment and "a fine of not less than \$1,000 and not more than \$10,000,"¹⁸⁹ plus an additional fine of "not less than \$500 for each violation."¹⁹⁰ A person convicted of aggravated cruelty to animals "[s]hall [be] prohibit[ed] . . . from owning, possessing or having on the defendant's premises an animal for a period of at least 5 years, up to and including permanent relinquishment."¹⁹¹ In addition, the court

[m]ay impose any other reasonable restrictions on a defendant's future ownership or custody of an animal as determined by the court to be necessary for the protection of animals, including but not limited to reasonable restrictions on future ownership, possession or custody and prohibiting the person from employment that involves the care of animals or any other contact with animals,¹⁹²

and also "[m]ay order as a condition of probation that probationer be evaluated to determine the need for psychiatric or psychological counseling and, if it is determined to be appropriate by the court, receive psychiatric or psychological counseling at the defendant's expense."¹⁹³

a) Slamming and Stomping Fish

On five occasions, COK's investigator documented workers attempting to cull fish using blunt force trauma, often by slamming or stomping fish.¹⁹⁴ COK's expert, Dr. Franks, opined that those clumsy attempts at euthanasia were both "ineffective and brutal."¹⁹⁵ Because workers "often d[id] not kill the fish on the first, second, or even third attempt," they "inflict[ed] prolonged periods of suffering and repeated pain" upon the animals.¹⁹⁶

Although the AVMA considers "[m]anually applied blunt force trauma" (also referred to as "percussive stunning") an acceptable method of euthanasia for fish, it "should be followed by pithing"—i.e., "piercing or severing the spinal cord"¹⁹⁷—in order to ensure "destruction of brain

¹⁸⁸ *Id.*

¹⁸⁹ *Id.* §§ 1031(1-B), § 1252(2).

¹⁹⁰ *Id.* § 1031(3-B)(A).

¹⁹¹ *Id.* § 1031(3-B)(D)(2), as added by 2019 Me. Legis. Serv. ch. 99 (H.P. 61) (L.D. 64) (effective Sept. 17, 2019).

¹⁹² *Id.* § 1031(3-B)(D)(3), as added by 2019 Me. Legis. Serv. ch. 99 (H.P. 61) (L.D. 64) (effective Sept. 17, 2019).

¹⁹³ *Id.* § 1031(3-B)(D)(4), as added by 2019 Me. Legis. Serv. ch. 99 (H.P. 61) (L.D. 64) (effective Sept. 17, 2019).

¹⁹⁴ See Incident Statement at 3.

¹⁹⁵ Expert Statement, *supra*, at 2.

¹⁹⁶ *Id.*

¹⁹⁷ Merriam-Webster, *Pith (v.)* (2019), <https://www.merriam-webster.com/dictionary/pith>.

tissue” and death.¹⁹⁸ Blunt force trauma alone is not guaranteed to “cause immediate unconsciousness and [] death.”¹⁹⁹ In addition, use of percussive stunning “requires training and monitoring for proficiency.”²⁰⁰ The technique requires a “blow [that] is strong enough and . . . applied at the correct location,” factors that “are dependent on the ability, training and state of fatigue of the operator.”²⁰¹ Many salmon slaughter facilities have adopted “[a]utomated percussive stunning equipment” in order to avoid those problems.²⁰² In fact, the RSPCA recommends that “[h]umane mechanical devices must be used in preference to a manual percussive blow.”²⁰³

Here, Cooke’s employees’ “technique” for stunning salmon consisted largely of slamming the animals against the sides of concrete tanks or “stomping, kicking, or hitting sick fish.”²⁰⁴ Neither of those methods are proper for percussive stunning, which, according to the AVMA, requires “a rapid, accurately placed blow of sufficient energy to the cranium with an appropriate-sized club.”²⁰⁵ Failing to accurately target the animals’ heads created an unacceptably high risk that the fish would not experience “immediate unconsciousness,” but would instead experience severe pain and suffering while slowly suffocating to death.²⁰⁶ Cooke’s workers also never employed pithing after stunning to destroy the animals’ brain tissue, which the AVMA recommends to ensure a swift and painless death.²⁰⁷

On at least one occasion, COK’s investigator recorded a fish that remained alive and likely conscious after a clumsy stunning. The worker known as “Tony” slammed a fish against the side of a concrete tank, then dropped the animal on the ground and stomped on the fish’s head.²⁰⁸ After Tony stomped on the animal and walked away,²⁰⁹ the fish was still struggling on

¹⁹⁸ AVMA, *supra*, at 70–71.

¹⁹⁹ *Id.*

²⁰⁰ *Id.* at 71. “[S]emiautomatic percussive stunning” (such as with use of a captive bolt) is now “the most common method used in both Scotland and Chile,” two major salmon producing countries. Yue, *supra*, at 6.

²⁰¹ Lines & Spence, *supra*, at 259.

²⁰² *Id.*

²⁰³ RSPCA, *supra*, at 50.

²⁰⁴ Expert Statement, *supra*, at 2.

²⁰⁵ AVMA, *supra*, at 70–71.

²⁰⁶ *See id.* at 71.

²⁰⁷ *See id.*

²⁰⁸ *See* Incident Statement at Incidents 2–3.

²⁰⁹ As COK’s expert, Dr. Franks, noted, Cooke workers routinely failed to “check[] that the fish were actually killed,” thereby failing to follow “a crucial step in all euthanasia protocol.” Expert Statement, *supra*, at 2.

the ground—a strong indication that “the fish was not adequately stunned.”²¹⁰ Instead, the animal likely “experienced a great deal of pain and fear” while “fr[eezing] to death in the snow.”²¹¹

Cooke’s workers actions “manifest[ed] a depraved indifference to animal life or suffering.”²¹² The Supreme Judicial Court has construed “depraved indifference” in the animal cruelty laws to align with identical language in the criminal prohibition on murder. For the latter, “depraved indifference involves conduct that creates ‘a very high degree of risk of death or serious bodily injury.’”²¹³ Thus, conduct “manifest[s] a depraved indifference to animal life or suffering” when “a reasonable person would find [the defendant’s] conduct to be morally debased, posing a high degree of risk, and manifesting a total lack of concern for the [animal]’s death or suffering.”²¹⁴ Here, Cooke’s employees’ clumsy and amateurish efforts to stun fish “pos[ed] a high degree of risk” of injuring the animals, and their failure either to learn from their errors or correct inadequate stuns “manifest[ed] a total lack of concern for the [animal]’s death or suffering.”²¹⁵ Accordingly, they “manifest[ed] a depraved indifference to animal life or suffering” in violation of the prohibition on aggravated cruelty to animals.²¹⁶

Cooke’s employees’ actions were also, at the very least, “reckless.” “A person acts recklessly with respect to a result of the person’s conduct when the person consciously disregards a risk that the person’s conduct will cause such a result.”²¹⁷ Here, Cooke’s workers necessarily “disregard[ed] a risk” that the animals would experience “extreme physical pain.”²¹⁸ Fish are sentient beings that are capable of feeling pain, and—unless properly stunned—they plainly would have suffered “extreme physical pain” from being removed from water, slammed against the side of a tank, dropped on the ground, stomped on, and then left to slowly die from oxygen deprivation.²¹⁹ Those actions would rightly be viewed as shockingly cruel and inhumane if done to a dog or chicken; there is no reason to judge them otherwise when done to a fish.

Considering that the AVMA specifically states that both “death by anoxia and desiccation after removal from the water” and “death including prolonged traumatic injury prior to unconsciousness are unacceptable,”²²⁰ Cooke’s workers must have “consciously disregard[ed] a

²¹⁰ Incident Statement at Incidents 2–3; Lines & Spence, *supra*, at 259.

²¹¹ Expert Statement, *supra*, at 2.

²¹² See 17 Me. Rev. Stat. § 1031(1-B).

²¹³ *State v. Witham*, 876 A.2d 40, 42 (Me. 2005) (quoting *State v. Joy*, 452 A.2d 408, 411 (Me. 1982)).

²¹⁴ *Id.*

²¹⁵ *Id.*

²¹⁶ See 17 Me. Rev. Stat. § 1031(1-B).

²¹⁷ See *id.*; 17-A Me. Rev. Stat. § 35(3).

²¹⁸ See 17 Me. Rev. Stat. § 1031(1-B)(A); 17-A Me. Rev. Stat. § 35(3).

²¹⁹ See *id.*

²²⁰ AVMA, *supra*, at 71.

risk” that employing those methods would cause the fish to experience “extreme physical pain.”²²¹ Indeed, it is both intuitive and obvious that violently striking an animal and leaving the animal to slowly suffocate would “[c]ause[] extreme physical pain.”²²² Cooke’s workers’ reckless cruelty and “depraved indifference” to the extreme suffering they inflicted merits prosecution for aggravated cruelty to animals.²²³

b) Suffocation and Crushing

For smaller fish, Cooke workers’ standard approach to culling was to remove fish from water, throw them into buckets filled with other dying or dead fish, and let them slowly suffocate.²²⁴ This method “[c]ause[d] extreme physical pain to [the] animal[s],” and by “knowingly” or “recklessly” employing it, Cooke and its employees “manifest[ed] a depraved indifference to animal life or suffering.”²²⁵

As mentioned above, “[a]sphyxiation in air . . . is extremely aversive to fish, who often show violent escape behaviors accompanied by maximum stress responses.”²²⁶ Experts ranging from the British government’s advisory committee to the AVMA have concluded that “asphyxiation without prior stunning in air . . . cause[s] unacceptable levels of pain and suffering for fish” and is an “unacceptable method[] of euthanasia in any situation.”²²⁷ Pennsylvania State University professor Victoria Braithwaite has observed that “it can take several minutes for [fish] to die” from asphyxiation, a process that is visibly “painful”—“It’s not much fun watching a fish flopping around, not breathing normally.”²²⁸ COK’s expert, Dr. Franks, concluded that the fish at Cooke “would have experienced a great deal of pain and fear, potentially for extended periods of time while they suffocated in buckets.”²²⁹

In addition, Cooke’s workers piled fish on top of one another inside the cull buckets. As more and more fish were added to the bucket, fish at the bottom of the bucket were slowly crushed to death even as they gradually suffocated. The result was even more “pain and fear” inflicted upon the animals trapped at the bottom of the bucket.²³⁰

Killing animals by slowly suffocating or crushing them clearly “pos[es] a high degree of risk” of “[c]aus[ing] extreme physical pain,” a fact that is so obvious that Cooke’s workers’

²²¹ See *id.*; 17-A Me. Rev. Stat. § 35(3).

²²² See 17 Me. Rev. Stat. § 1031(1-B)(A).

²²³ See *id.*

²²⁴ See, e.g., Incident Statement at Incident 76.

²²⁵ See 17 Me. Rev. Stat. § 1031(1-B)(A).

²²⁶ Yue, *supra*, at 4 (2008) (citing Robb & Kestin, *supra*).

²²⁷ FAWC, *supra*, ¶ 78; AVMA, *supra*, at 71.

²²⁸ See Carman, *supra*.

²²⁹ Expert Statement, *supra*, at 2.

²³⁰ See *id.*

“conscious[] disregard[] [of] [the] risk” shows “a total lack of concern for the [animal]’s death or suffering.”²³¹ Again, those actions would immediately be regarded as “depraved,” shocking, and immoral if done to any other vertebrates, such as cattle and hogs.²³² They must be viewed the same way when done to fish, who are likewise “living, sentient creature[s]” protected by Maine’s animal cruelty laws.²³³ Cooke’s workers use of this inhumane method of euthanasia warrants prosecution for aggravated cruelty to animals.

c) Vaccination

Cooke and its workers also violated Maine’s animal cruelty laws by vaccinating fish without properly anesthetizing them. Anesthesia is needed both to spare the animals from the pain of being stabbed with needles as well as to prevent them from thrashing around during vaccination, which can cause further injury by—in the vivid phrase of Cooke’s hatchery supervisor, Josh Beane—“tear[ing] a fucking huge hole in them.”²³⁴

Cooke did perfunctorily attempt to anesthetize fish, but did not bother to ensure that the animals were stunned prior to vaccinating them. Workers did not appear to measure how much anesthetic had been added to the tank, nor did they keep track of when more was needed. Even when hatchery manager Brian Wheeler could see that fish were showing “too much flopping,” workers vaccinated the animals anyway.²³⁵ Dr. Franks opined that the fish were only “partial[ly] (instead of complete[ly]) sedat[ed]” when they underwent the “painful procedure[.]”²³⁶

By vaccinating improperly sedated fish—despite knowing that the needles might “tear[] a fucking huge hole” in the animals²³⁷—Cooke’s employees “recklessly . . . disregard[ed]” a “very high degree of risk” that the fish would be harmed.²³⁸ That risk ultimately came to pass: COK’s investigator observed fish who had deep cuts along their bodies as a result of flailing during vaccination,²³⁹ and those large lacerations that certainly would have “[c]ause[d] extreme physical pain to [the] animal[s].”²⁴⁰ Even though Cooke’s supervisor and its employees knew that the fish would be harmed by being vaccinated without proper anesthesia, they nevertheless failed to ensure that the animals were properly stunned before the procedure. By doing so, they

²³¹ See 17 Me. Rev. Stat. § 1031(1-B); *Witham*, 876 A.2d at 42.

²³² See *id.*

²³³ See 7 Me. Rev. Stat. § 3907(2).

²³⁴ Incident Statement at Incident 169.

²³⁵ See *id.* at Incident 121.

²³⁶ Expert Statement, *supra*, at 2.

²³⁷ Incident Statement at Incident 169.

²³⁸ See 17-A Me. Rev. Stat. § 35(3); *Witham*, 876 A.2d at 42.

²³⁹ See Incident Statement at 4.

²⁴⁰ See 17 Me. Rev. Stat. § 1031(1-B)(A).

“manifest[ed] a depraved indifference to animal life or suffering,”²⁴¹ and their callous cruelty should be criminally prosecuted as aggravated cruelty to animals.

2. Cruelty to animals

Maine punishes the crime of cruelty to animals. A person, “including an owner or the owner’s agent,” commits the crime of cruelty to animals when—among other things—that person “intentionally, knowingly or recklessly”²⁴²:

- A. Kills or attempts to kill any animal belonging to another person without the consent of the owner or without legal privilege. . . .
- B. Except for a licensed veterinarian . . . , kills or attempts to kill an animal by a method that does not cause instantaneous death. . . .
- C. If that person is a licensed veterinarian . . . , kills or attempts to kill an animal by a method that does not conform to standards adopted by a national association of licensed veterinarians.
- D. Injures, overworks, tortures, torments, abandons or cruelly beats or intentionally mutilates an animal . . . [or]
- E. Deprives an animal that the person owns or possesses of necessary sustenance, necessary medical attention, proper shelter, protection from the weather or humanely clean conditions.²⁴³

Cruelty to animals is a Class D crime,²⁴⁴ punishable by a maximum of less than one year’s imprisonment and a \$2,000 fine.²⁴⁵ If the offender “has 2 or more prior convictions for violations of this section . . . or essentially similar crimes in other jurisdictions,” however, then cruelty to animals is a Class C crime,²⁴⁶ punishable by a maximum of five years’ imprisonment and a \$5,000 fine.²⁴⁷

If a person is convicted of Class D cruelty to animals, then the court may “prohibit [the] defendant . . . from owning, possessing or having on the defendant’s premises an animal for a period of time that the court determines to be reasonable, up to and including permanent relinquishment.”²⁴⁸ If a person is convicted of Class C cruelty to animals, then the prohibition on

²⁴¹ *See id.*

²⁴² *Id.* § 1031(1).

²⁴³ *Id.*

²⁴⁴ *Id.*

²⁴⁵ *Id.* §§ 1252(2), 1301(1-A).

²⁴⁶ *See, e.g.,* § 1031(1)(A-1).

²⁴⁷ *Id.* §§ 1252(2), 1301(1-A).

²⁴⁸ *Id.* § 1031(3-B)(D)(1), as added by 2019 Me. Legis. Serv. ch. 99 (H.P. 61) (L.D. 64) (effective Sept. 17, 2019).

“owning, possessing or having on the defendant’s premises an animal” is mandatory.²⁴⁹ In addition, the court

[m]ay impose any other reasonable restrictions on a defendant’s future ownership or custody of an animal as determined by the court to be necessary for the protection of animals, including but not limited to reasonable restrictions on future ownership, possession or custody and prohibiting the person from employment that involves the care of animals or any other contact with animals,²⁵⁰

and also “[m]ay order as a condition of probation that probationer be evaluated to determine the need for psychiatric or psychological counseling and, if it is determined to be appropriate by the court, receive psychiatric or psychological counseling at the defendant’s expense.”²⁵¹

As well as being a crime, cruelty to animals may be punished as a civil offense. The legal standard for civil cruelty to animals is essentially identical to its criminal counterpart, except that civil cruelty to animals does not require proof of a culpable mental state.²⁵² Civil cruelty to animals is punishable by “a civil fine of not less than \$500 nor more than \$2,500 for the first violation, none of which may be suspended, and a civil fine of not less than \$1,000 nor more than \$5,000 for a 2nd or subsequent violation . . . , none of which may be suspended.”²⁵³ The court also “may order a person adjudicated as having violated the laws against cruelty to animals to pay the costs of the care, housing and veterinary medical treatment for the animal,”²⁵⁴ and “may prohibit a person adjudicated as having violated the laws against cruelty to animals from owning, possessing or having on the defendant’s premises an animal for a period of time up to and including permanent relinquishment.”²⁵⁵ Finally, as part of a judgment for civil cruelty to animals, “[t]he court . . . may order that the defendant submit to and complete a psychological evaluation for in camera review by the court.”²⁵⁶

²⁴⁹ See *id.* § 1031(3-B)(D)(2), as added by 2019 Me. Legis. Serv. ch. 99 (H.P. 61) (L.D. 64) (effective Sept. 17, 2019).

²⁵⁰ *Id.* § 1031(3-B)(D)(3), as added by 2019 Me. Legis. Serv. ch. 99 (H.P. 61) (L.D. 64) (effective Sept. 17, 2019).

²⁵¹ *Id.* § 1031(3-B)(D)(4), as added by 2019 Me. Legis. Serv. ch. 99 (H.P. 61) (L.D. 64) (effective Sept. 17, 2019).

²⁵² See 7 Me. Rev. Stat. § 4011(1).

²⁵³ *Id.* § 4016(1)(A).

²⁵⁴ *Id.* § 4016(1)(B).

²⁵⁵ *Id.* § 4016(1)(C).

²⁵⁶ *Id.* § 4016(1)(D).

a) Slapping, Throwing, and Mishandling Fish

COK's investigator repeatedly filmed Cooke's employees "[i]njur[ing], . . . tortur[ing], torment[ing], . . . or cruelly beat[ing]" fish by slapping, throwing, and roughly mishandling them.²⁵⁷ All of the actions appear to have been, at the very least, reckless—COK's expert, Dr. Franks, thought that they were "even at times malicious."²⁵⁸ Most prominently, workers threw fish between tanks (or to the cull barrel) rather than properly transporting them. Most fish were thrown at least 10 feet, and some were thrown as far as 15 or 20 feet. Hundreds of fish were thrown every day, often hitting the rim of the cull barrel as they descended.²⁵⁹ Being thrown into other objects obviously would have been painful and traumatic for the fish, and comfortably fits within the definitions of "[i]njur[ing]" and "torment[ing]."²⁶⁰

On several occasions, COK's investigator filmed hatchery supervisor Josh Beane attempting to slap fish out of the air and make "trick shots" while throwing the animals (as though they were basketballs).²⁶¹ Because of the inaccuracy of the "trick shots," Josh threw one fish three times—each time missing the cull barrel—before picking the animal up and dropping the fish into the barrel.²⁶² Another fish was thrown into the side of the barrel before falling in.²⁶³ Those actions also would have caused "[i]njur[y]" as well as "severe" and "persistent . . . distress" to the fish, in violation of Maine's animal cruelty laws.²⁶⁴

Finally, Cooke's employees routinely and needlessly mishandled fish, which would have caused them distress and pain. Hatchery supervisor Josh Beane told a worker to catch fish by "grab[bing] the [animal's] tail and fucking squeez[ing]."²⁶⁵ Workers also bent fishes' bodies while holding them out of the water, dropped them on the ground while moving them,²⁶⁶ and—on one occasion—thrust their genitals at an animal's mouth while yelling, "Taste it! Taste it!"²⁶⁷ Workers often caught and removed fish that they did not need to transfer before returning them to the water, apparently out of boredom.²⁶⁸ Such mishandling not only would have been stressful and painful to the fish in and of itself, but also would contribute to "injury, stress and increased

²⁵⁷ See 17 Me. Rev. Stat. § 1031(1)(D).

²⁵⁸ Expert Statement, *supra*, at 2.

²⁵⁹ See Incident Statement at 3, Incidents 15–50.

²⁶⁰ Merriam-Webster, *Torment* (v.) (2019), <https://www.merriam-webster.com/dictionary/torment> (defining "torment" to mean "to cause severe usually persistent or recurrent distress of body or mind").

²⁶¹ See Incident Statement at 3, Incidents 13–14.

²⁶² *Id.* at Incident 13.

²⁶³ *Id.* at Incident 14.

²⁶⁴ See Merriam-Webster, *Torment* (v.) (2019), <https://www.merriam-webster.com/dictionary/torment>; 17 Me. Rev. Stat. § 1031(1)(D).

²⁶⁵ Incident Statement at Incident 70.

²⁶⁶ *E.g., id.* at Incidents 53, 66–67, & 69, .

²⁶⁷ *Id.* at Incident 51.

²⁶⁸ See *id.* at 3–4.

disease incidence.”²⁶⁹ Unnecessary handling contributes to *Saprolegnia* infestations, which—as discussed above—were rampant at Cooke.²⁷⁰ That is why the European Food Safety Authority recommends that “[h]andling of salmon should be minimised and proper equipment and handling protocols used to avoid stress and physical damage associated with handling procedures.”²⁷¹

All of the aforementioned conduct plainly entailed a serious risk of injury to the fish, which Cooke’s employees must have “consciously disregard[ed]” by choosing to engage in it.²⁷² Indeed, as Dr. Franks observed, Cooke’s workers “sometimes laughed while engaging in th[at] behavior” and “carried out [their acts] in full view of co-work[er]s.”²⁷³ Because Cooke’s employees at least recklessly “[i]njure[d], . . . torture[d], torment[ed], . . . or cruelly beat[] . . . animal[s],” they violated Maine’s criminal prohibition on cruelty to animals.²⁷⁴

b) Fin Clipping

Cooke’s employees committed cruelty to animals by clipping fishes’ pelvic fins without adequate anesthetic. Fish fins contain sensory neurons called nociceptors, which indicates that clipping fins without adequate anesthetic likely “cause[s] pain” and “[i]njure[y].”²⁷⁵ Dr. Franks stated that fin clipping is a “painful procedure[]” that requires anesthesia.²⁷⁶ Although fish were immersed in an anesthetic bath prior to fin clipping, some were only “partial[ly] (instead of complete[ly]) sedat[ed],” and Cooke workers continued to clip their fins even as the animals flopped and writhed on the table during the procedure.²⁷⁷

Any person of normal intelligence should know that cutting “living tissue” on a conscious animal is painful.²⁷⁸ By proceeding to cut the animals even when they were obviously “not adequately stunned”²⁷⁹—because they were visibly flopping and “struggling”—Cooke’s employees “consciously disregard[ed] a risk” that the animals were sensible to pain.²⁸⁰

²⁶⁹ Eur. Food Safety Auth., *supra*, at 19.

²⁷⁰ See *id.* Annex I, at 59.

²⁷¹ *Id.* at 19.

²⁷² See 17-A Me. Rev. Stat. § 35(3).

²⁷³ Expert Statement, *supra*, at 2.

²⁷⁴ 17 Me. Rev. Stat. § 1031(1)(D).

²⁷⁵ Noble et al., *supra*, at 58; see 17 Me. Rev. Stat. § 1031(1)(D).

²⁷⁶ See Expert Statement, *supra*, at 2.

²⁷⁷ *Id.*; see Incident Statement at 5, Incidents 188–205.

²⁷⁸ See Noble et al., *supra*, at 57.

²⁷⁹ See Lines & Spence, *supra*, at 259.

²⁸⁰ 17-A Me. Rev. Stat. § 35(3).

Therefore, they “act[ed] recklessly” under Maine law,²⁸¹ and may be held liable for criminally “[i]njur[ing]” or “tortur[ing]” animals in violation of Maine’s animal cruelty laws.²⁸²

c) Burning Fish with Formalin and Salt

Cooke’s workers committed cruelty to animals by improperly applying formalin and salt to fish tanks, burning the animals’ sensitive gills. Employee Jeff Bessey told COK’s investigator that some workers “d[id]n’t even bother mixing water with [the formalin] . . . [to] mak[e] it that less potent for the fish,” which increased the likelihood that the animals would “burn their gills.”²⁸³ Jeff also told COK’s investigator that fish would “try[] to get away from the salt ’cause it was burning ’em,” and recommended that the investigator try to dilute the concentration of salt throughout the tank.²⁸⁴

As Jeff noticed, fish demonstrated avoidance behavior when they encountered high concentrations of formalin and salt, a convincing indicator that the substances “[i]njure[d]” the animals.²⁸⁵ In the context of euthanasia, the AVMA recommends that “immersion agents [be] added to water” only when they are “nonirritating to skin, eyes, and oral and respiratory tissues” and cause “minimal signs of distress or avoidance behavior.”²⁸⁶ Presumably, the use of irritating chemicals should similarly be avoided when non-euthanizing agents are added to water.

Cooke’s workers knew or should have known that the fish would experience pain if the formalin and salt were applied improperly: Jeff warned COK’s investigator to try to “protect their gills.”²⁸⁷ Nevertheless, a number of workers “d[id]n’t even bother mixing water with [the formalin]” and failed to dilute the salt throughout the tank.²⁸⁸ By failing to follow proper procedures, the employees “consciously disregard[ed] a risk” that the fish would be “[i]njure[d],”²⁸⁹ and when injury resulted, they thereby violated Maine’s animal cruelty laws.

²⁸¹ *Id.*

²⁸² 17 Me. Rev. Stat. § 1031(1)(D).

²⁸³ Incident Statement at Incident 346.

²⁸⁴ *Id.* at Incident 353.

²⁸⁵ 17 Me. Rev. Stat. § 1031(1)(D); *see, e.g.,* Noble et al., *supra*, at 33 (explaining that “escape type behaviours” are “indicator[s] of poor welfare”); Expert Statement, *supra*, at 1 (observing that by “learning to avoid [a] potentially painful stimulus,” fish demonstrate “a felt experience of pain rather than . . . a simple automatic reflex”).

²⁸⁶ AVMA, *supra*, at 28.

²⁸⁷ Incident Statement at Incident 345.

²⁸⁸ *See id.* at Incident 346.

²⁸⁹ *See* 17-A Me. Rev. Stat. § 35(3); 17 Me. Rev. Stat. § 1031(1)(D).

d) Failing to Maintain Correct Oxygen Levels

Cooke's employees committed cruelty to animals by failing to maintain correct oxygen levels. As the BAP program guide states, "low levels of dissolved oxygen . . . can cause fish to be distressed," and the program requires that "[d]issolved-oxygen levels shall be maintained above 80 percent saturation."²⁹⁰ Notwithstanding that requirement, COK's investigator documented oxygen levels that had fallen as low as 75 percent, 73 percent, and 72 percent.²⁹¹ Likewise, COK's investigator also observed oxygen levels that wildly exceeded the BAP program's recommendations: 114 percent, 145 percent, and even 460 percent.²⁹²

Cooke's workers knew that the facility's oxygen levels were a problem. Employee Jeff Bessey told COK's investigator, "Anything below 80 [percent], you wanna start getting nervous,"²⁹³ and when told that a tank's oxygen levels had skyrocketed to 460 percent, hatchery supervisor Josh Beane exclaimed, "Oh my God. . . . [T]hat's way too high."²⁹⁴ But despite being aware of the "risk" from excessively low or high oxygen levels, Cooke's employees "consciously disregard[ed] [that] risk" and failed to consistently ensure a proper supply of dissolved oxygen.²⁹⁵ The tanks' wildly fluctuating oxygen levels caused the fish to become "injur[ed],"²⁹⁶ thereby violating Maine's laws against cruelty to animals.

e) Causing Deformities by Mishandling Fish

Fish at Cooke suffered from a high rate of deformities, a form of "injur[y]" caused by Cooke's workers' reckless conduct.²⁹⁷ Fish suffered from vertebral deformities—which rendered them "inferior swimmers and less able to compete for food"²⁹⁸—as well as "pug-headedness," enlarged yolk sacs, multiple heads, and conjoined bodies.²⁹⁹ Such deformities often are caused by mishandling and "physical disturbance" of eggs and young fish,³⁰⁰ a fact of which Cooke's workers appeared to be aware. Hatchery supervisor Josh Beane told COK's investigator that

²⁹⁰ Global Aquaculture Alliance, Best Aquaculture Practices, *Aquaculture Facility Certification: Salmon Farms* 16 (2016).

²⁹¹ Incident Statement at Incidents 326–327 & 329.

²⁹² *Id.* at Incidents 319–320 & 330.

²⁹³ *Id.* at Incident 324.

²⁹⁴ *Id.* at Incident 330.

²⁹⁵ See 17-A Me. Rev. Stat. § 35(3).

²⁹⁶ See 17 Me. Rev. Stat. § 1031(1)(D).

²⁹⁷ See *id.*

²⁹⁸ Noble et al., *supra*, at 56.

²⁹⁹ See Incident Statement at Incidents 392–407 & 409–410.

³⁰⁰ See Eur. Food Safety Auth., *supra*, Annex I, at 50, 72.

“[s]pinal deformit[ies] . . . [h]appen[] . . . [i]f you're too rough with them, you'll break their back and they'll grow it back like that.”³⁰¹

Cooke's workers' only response to deformities was to cull fish, without bothering to investigate what caused the deformities or to try to decrease their incidence in the future. (As noted above, the method by which fish were culled at Cooke—being left to slowly suffocate in a bucket without anesthesia—was itself “unacceptable” and “substandard.”³⁰²) The employee known to COK's investigator as “Chuck” said to “just throw . . . away” deformed fry and to “throw them right away.”³⁰³ Josh told the investigator that they “definitely want[ed] to cull” fish with gill deformities, and that because deformed fish were “gonna die eventually anyway,” it was “better to get rid of them now.”³⁰⁴ When the investigator informed Jeff Bessey that twenty fish out of a group of ninety were deformed, he replied, “Good, get 'em the heck outta there.”³⁰⁵

Thus, Cooke's employees were aware of a substantial “risk” that fish would experience “injur[ies]” in the form of deformities and that the deformities would continue absent corrective action.³⁰⁶ Nevertheless, the workers “consciously disregard[ed] [that] risk” by failing to improve or minimize their handling of animals in order to reduce the incidence of deformities.³⁰⁷ Cooke's persistent mishandling of deformed animals constitutes a violation of Maine's criminal laws.

3. Neglect of animals

Maine criminalizes neglect of animals. Specifically, Maine bars anyone from “[d]epriv[ing] an animal that the person owns or possesses of necessary sustenance, necessary medical attention, proper shelter, protection from the weather or humanely clean conditions.”³⁰⁸

³⁰¹ Incident Statement at Incident 435.

³⁰² See Expert Statement, *supra*, at 2.

³⁰³ *Id.* at Incidents 425–426.

³⁰⁴ *Id.* at Incidents 429 & 434.

³⁰⁵ *Id.* at Incident 439.

³⁰⁶ See 17-A Me. Rev. Stat. § 35(3); 17 Me. Rev. Stat. § 1031(1)(D).

³⁰⁷ See 17-A Me. Rev. Stat. § 35(3); 17 Me. Rev. Stat. § 1031(1)(D).

³⁰⁸ 17 Me. Rev. Stat. § 1031(1)(E).

Maine actually prohibits neglect of animals in multiple sections of the criminal code. First, subsection 1031(1)(E) of the cruelty to animals statute, 17 Me. Rev. Stat. § 1031, prohibits “[d]epriv[ing] an animal that the person owns or possesses of necessary sustenance, necessary medical attention, proper shelter, protection from the weather or humanely clean conditions.” Second, the same conduct is prohibited by sections 1035, 1036, and 1037 of the same title. See *id.* §§ 1035 (“No person owning or responsible for confining or impounding any animal may fail to supply the animal with a sufficient supply of food and water . . .”), 1036 (“A person owning or responsible for confining or impounding any animal may not fail to supply the animal with necessary medical attention when the animal is or has been suffering from illness, injury, disease, excessive parasitism or malformed or overgrown hoof.”), & 1037 (“No person owning or responsible for confining or impounding any animal may fail to provide the

All of those forms of neglect of animals are prohibited as Class D crimes,³⁰⁹ punishable by a maximum of less than one year's imprisonment and a \$2,000 fine.³¹⁰ If the offender "has 2 or more prior convictions for violations of this section . . . or essentially similar crimes in other jurisdictions," however, then neglect of animals is prohibited as a Class C crime,³¹¹ punishable by a maximum of five years' imprisonment and a \$5,000 fine.³¹²

Upon a conviction for criminal neglect of animals, the court may "prohibit [the] defendant . . . from owning, possessing or having on the defendant's premises an animal for a period of time that the court determines to be reasonable, up to and including permanent relinquishment."³¹³ If a person is convicted of Class C neglect of animals, then the prohibition on "owning, possessing or having on the defendant's premises an animal" is mandatory.³¹⁴ In addition, the court

[m]ay impose any other reasonable restrictions on a defendant's future ownership or custody of an animal as determined by the court to be necessary for the protection of animals, including but not limited to reasonable restrictions on future ownership, possession or custody and prohibiting the person from employment that involves the care of animals or any other contact with animals,³¹⁵

animal with proper shelter, protection from the weather or humanely clean conditions . . ."). The primary differences between the two groups of prohibitions are (1) section 1031(1)(E) requires a culpable mental state of intent, knowledge, or recklessness, whereas sections 1035, 1036, and 1037 do not; and (2) repeat violations of section 1031(1)(E) are punishable as Class C crimes, whereas violations of sections 1035, 1036, and 1037 are punishable only as Class D crimes. Sections 1035, 1036, and 1037 are also more specific about what conduct constitutes neglect of animals.

For purposes of this memorandum, because Cooke and its employees satisfy the necessary mental states, I will characterize their misconduct as a violation of section 1031(1)(E). I will, however, refer to sections 1035, 1036, and 1037 in order to clarify what constitutes a violation.

³⁰⁹ *Id.* § 1035(3).

³¹⁰ *Id.* §§ 1252(2), 1301(1-A).

³¹¹ *Id.* § 1031(1)(E-1).

³¹² *Id.* §§ 1252(2), 1301(1-A).

³¹³ *Id.* § 1031(3-B)(D)(1), as added by 2019 Me. Legis. Serv. ch. 99 (H.P. 61) (L.D. 64) (effective Sept. 17, 2019).

³¹⁴ See *id.* § 1031(3-B)(D)(2), as added by 2019 Me. Legis. Serv. ch. 99 (H.P. 61) (L.D. 64) (effective Sept. 17, 2019).

³¹⁵ *Id.* § 1031(3-B)(D)(3), as added by 2019 Me. Legis. Serv. ch. 99 (H.P. 61) (L.D. 64) (effective Sept. 17, 2019).

and also “[m]ay order as a condition of probation that probationer be evaluated to determine the need for psychiatric or psychological counseling and, if it is determined to be appropriate by the court, receive psychiatric or psychological counseling at the defendant’s expense.”³¹⁶

As well as being a crime, neglect of animals may be punished as a civil offense. The legal standard for civil neglect of animals is essentially identical to its criminal counterpart, except that civil neglect of animals does not require proof of a culpable mental state.³¹⁷ Civil neglect of animals is punishable by “a civil fine of not less than \$500 nor more than \$2,500 for the first violation, none of which may be suspended, and a civil fine of not less than \$1,000 nor more than \$5,000 for a 2nd or subsequent violation . . . , none of which may be suspended.”³¹⁸ The court also “may order a person adjudicated as having violated the laws against cruelty to animals to pay the costs of the care, housing and veterinary medical treatment for the animal,”³¹⁹ and “may prohibit a person adjudicated as having violated the laws against cruelty to animals from owning, possessing or having on the defendant’s premises an animal for a period of time up to and including permanent relinquishment.”³²⁰ Finally, as part of a judgment for civil neglect of animals, “[t]he court . . . may order that the defendant submit to and complete a psychological evaluation for in camera review by the court.”³²¹

a) Failure to provide necessary sustenance

Under Maine law, “[n]o person owning or responsible for confining or impounding any animal may fail to supply the animal with a sufficient supply of food and water.”³²² Furthermore, “[t]he food shall be of sufficient quantity and quality to maintain all animals in good health.”³²³ Cooke’s employees grossly violated those mandates.

At Cooke, COK’s investigator recorded numerous fish that were found with red, bloody eyes or with empty eye sockets, which resulted from fish resorting to cannibalism due to insufficient food.³²⁴ Hatchery supervisor Josh Beane explained to the investigator, “If the fish aren’t fed enough, they’ll actually think the little pupil of the other fish is food, and they’ll come after and they’ll peck the eye out.”³²⁵ On another occasion, upon seeing fish with damaged eyes,

³¹⁶ *Id.* § 1031(3-B)(D)(4), as added by 2019 Me. Legis. Serv. ch. 99 (H.P. 61) (L.D. 64) (effective Sept. 17, 2019).

³¹⁷ See 7 Me. Rev. Stat. §§ 4013–15.

³¹⁸ *Id.* § 4016(1)(A).

³¹⁹ *Id.* § 4016(1)(B).

³²⁰ *Id.* § 4016(1)(C).

³²¹ *Id.* § 4016(1)(D).

³²² 17 Me. Rev. Stat. § 1035; see also 7 Me. Rev. Stat. § 4013 (civil offense).

³²³ 17 Me. Rev. Stat. § 1035(1).

³²⁴ See Incident Statement at Incidents 207–227.

³²⁵ *Id.* at Incident 208.

Josh remarked, "They obviously at some point didn't get enough feed. The bigger ones ate the eyeball."³²⁶ Thus, the high prevalence of fish with eye injuries and empty eye sockets indicates that fish were not being provided with "a sufficient supply of food" necessary "to maintain all animals in good health," in violation of Maine law.³²⁷

The extent of enforced fasting at Cooke also violated best aquacultural practices. "Many farmed fish have their food withdrawn for a period before handling, transport or slaughter," but "excessive periods of fasting are likely to infringe the first of the Five Freedoms of Animal Welfare (freedom from hunger and thirst)."³²⁸ Two authors writing in the World Organization for Animal Health's *Science and Technical Review* recommend that fasting not exceed "one to five days."³²⁹ The RSPCA's *Welfare Standards for Farmed Atlantic Salmon* advise that "depriving a farmed fish that has previously been fed regularly will usually have an adverse effect on welfare," and state that "fasting time must . . . not exceed 72 hours."³³⁰ Likewise, the Global Aquacultural Alliance's BAP Guide provides that "fasting periods . . . should be minimized."³³¹ Notwithstanding those recommendations, employee Jeff Bessey told COK's investigator that broodfish would not be fed for "like a month, before . . . spawn[ing]," and "for two, three months afterwards."³³² Thus, some fish at Cooke were subjected to enforced starvation for far longer than aquacultural experts recommend.

Even if they were not being starved for months at a time, fish that were reduced to eating one another's eyes clearly were not being adequately fed. "[A]ggression . . . ha[s] been linked with acute and chronic stressors in aquaculture" and is an "established sign[] of disease and poor welfare."³³³ As Christopher Noble, a senior scientist with Nofima (the Norwegian Institute of Food, Fisheries and Aquaculture Research), writes:

The potential welfare consequences of not giving fish sufficient food to satisfy their appetite in the short-term are increased competition for a limited feed resource, which can increase aggression, injury and increase stress levels in juvenile salmon. Prolonged feeding of maintenance rations to maintain fish size or limit growth rate can lead to a marked deterioration of welfare, including increased competition and injury.³³⁴

³²⁶ *Id.* at Incident 207.

³²⁷ 17 Me. Rev. Stat. § 1035(1) & (3).

³²⁸ Lines & Spence, *supra*, at 256.

³²⁹ *See id.*

³³⁰ RSPCA, *supra*, at 26.

³³¹ BAP Guide, *supra*, at 31.

³³² Incident Statement at Incident 544.

³³³ Noble et al., *supra*, at 34 (emphasis omitted).

³³⁴ *Id.* at 35.

Plainly, increased “aggression” and “competition” to the extent that fish are resorting to cannibalism indicates that fish are not being given “a sufficient supply of food.”³³⁵

Cooke’s workers’ failure to provide the fish with sufficient food was at least reckless. If fish are eating one another’s eyes due to starvation, then obviously there is a “risk”—indeed, a virtual certainty—that the fish are not being adequately fed.³³⁶ In fact, Josh told COK’s investigator to “mark down” whether injuries were present using “a checkbox for eye pecks,” so that Cooke’s supervisors would “know [they] should feed [the fish] more.”³³⁷ The existence of the checkbox indicates that Cooke and its supervisors knew that the fish were starving. At any rate, any reasonable person should have known that it was necessary to provide the fish with more food. By failing to do so, Cooke’s employees “consciously disregard[ed] a risk” that the fish would “fail to [be] suppl[ied] . . . with a sufficient supply of food,” and thereby violated the laws against animal neglect.³³⁸

b) Failure to provide necessary medical attention

Maine prohibits failing to provide necessary medical attention to an animal: “A person owning or responsible for confining or impounding any animal may not fail to supply the animal with necessary medical attention when the animal is or has been suffering from illness, injury, disease, [or] excessive parasitism”³³⁹

The terrible conditions at Cooke produced a very high rate of mortality among the fish. On several days over the course of COK’s investigation, hundreds of dead fish were removed from tanks by Cooke’s employees.³⁴⁰ Workers seemed to know that the mortality rate was unusually high, calling it “crazy” and “[f]ucking awful.”³⁴¹ One worker even apologized to the fish for how many died at Cooke.³⁴² But nobody at the facility displayed an interest in *why* the death rate was so high, nor did anyone take meaningful action to correct it.

Despite being aware that fish at Cooke were dying in large numbers from “illness, injury, disease, [and] excessive parasitism,” workers “consciously disregard[ed] [the] risk” created by their sloppy and inadequate procedures.³⁴³ They did not “supply . . . necessary medical attention”

³³⁵ See 17 Me. Rev. Stat. § 1035(1) & (3).

³³⁶ 17-A Me. Rev. Stat. § 35(3).

³³⁷ Incident Statement at Incident 208.

³³⁸ See *id.*; 17 Me. Rev. Stat. § 1035.

³³⁹ 17 Me. Rev. Stat. § 1036; see also 7 Me. Rev. Stat. § 4014 (civil offense).

³⁴⁰ E.g., Incident Statement at Incidents 509, 527.

³⁴¹ *Id.* at Incidents 510 & 519.

³⁴² See *id.* at Incident 524.

³⁴³ See 17-A Me. Rev. Stat. § 35(3); 17 Me. Rev. Stat. § 1036.

or take corrective action even when nearly a thousand fish were found dead in a single day.³⁴⁴ By their inactions, Cooke's employees violated Maine's prohibition on neglect of animals.

c) Failure to provide humanely clean conditions

Finally, Maine prohibits keeping an animal in inhumanely filthy conditions: "No person owning or responsible for confining or impounding any animal may fail to provide the animal with . . . humanely clean conditions . . ."³⁴⁵ "Minimum standards of sanitation necessary to provide humanely clean conditions . . . shall include periodic cleanings to remove excretions and other waste materials, dirt and trash to minimize health hazards."³⁴⁶

i. General unsanitary conditions

Cooke's facility did not meet the "[m]inimum standards" for sanitation set by Maine law. The water in Cooke's tanks was "cloudy," apparently from an excess of nitrates and ammonia.³⁴⁷ On one occasion, a live worm was discovered in a tank. An employee commented that the worm was "weird looking" and had a "weird . . . color[]." ³⁴⁸ In addition, as mentioned above, the facility's tanks were rife with fungus and bacteria. Several employees called the extent of the fungal infestations "pretty freaking bad" and "really, really bad."³⁴⁹ Employee Jeff Bessey told COK's investigator that the previous year, Cooke's workers would need to remove fungus infested fish from "every tank, almost every single day."³⁵⁰

Cloudy water, worms, and rampant fungal infestations do not amount to "humanely clean conditions."³⁵¹ To the contrary, they created an environment in which illness and injury thrived. Cooke's workers failed to conduct sufficient "cleanings to remove excretions and other waste materials," nor did they take other steps to ensure that the fish were housed in a sanitary environment, even though they knew that the grime and fungal infestations were harmful to the animals.³⁵² By failing to act, Cooke's employees "consciously disregard[ed] a risk" that they would "fail to provide the animal[s] with . . . humanely clean conditions."³⁵³ Therefore, Cooke and its workers violated Maine's prohibition on "fail[ing] to provide [an] animal with . . . humanely clean conditions."³⁵⁴

³⁴⁴ See 17 Me. Rev. Stat. § 1036; Incident Statement at Incident 527.

³⁴⁵ 17 Me. Rev. Stat. § 1037; see also 7 Me. Rev. Stat. § 4015 (civil offense).

³⁴⁶ 17 Me. Rev. Stat. § 1037(4).

³⁴⁷ See Incident Statement at Incidents 297-299, 545.

³⁴⁸ See *id.* at Incident 546.

³⁴⁹ *Id.* at Incident 548.

³⁵⁰ See *id.* at Incident 235.

³⁵¹ See 17 Me. Rev. Stat. § 1037.

³⁵² See *id.* § 1037(4).

³⁵³ 17-A Me. Rev. Stat. § 35(3); 17 Me. Rev. Stat. § 1037.

³⁵⁴ 17 Me. Rev. Stat. § 1037.

ii. Fungus-infested crowded tanks

Cooke also violated Maine law by keeping fish in tanks overrun with fungus. As noted above, fungal infestations were rampant at Cooke. Clumps of dead fry that had been infected with fungus were constantly found in, and removed from, tanks.³⁵⁵ Fungal infections also afflicted larger salmon, several of whom died after fungal infections ate away much of their heads and faces.³⁵⁶ Cooke employee Ryan O'Neill acknowledged that the fungal infections were harmful to the fish, stating: "They get like lesions and stuff from the fungus, it kinda eats away at them and they start bleeding"³⁵⁷

The fungus at Cooke most likely was *Saprolegnia*, which "lead[s] to the development of serious skin, fin and tail lesions" in freshwater salmon.³⁵⁸ The European Food Safety Agency has observed that "[e]nvironmental stress factors, including poor water quality, adverse water temperatures[,] and . . . handling or overcrowding, can all result in increased incidence of fungal infections," and that "[o]vercrowding, handling, [and] temperature changes . . . increase the likelihood of *Saprolegnia* and other infections."³⁵⁹

Cooke's employees were aware of the connection among fungal infestations, excessive handling, and lax temperature control. Worker Jeff Bessey told COK's investigator, "[A] lot of it's handling 'em when they vaccinate. You handle each one of them, they squeeze too hard or anything you're gonna rub that natural oils off them [A] lot of them's got little places where it looks like somebody just grabbed it, where the fungus is growing."³⁶⁰ When asked by the investigator whether "the hotter it gets, more fungus shows up," Jeff responded, "Oh yeah," and observed, "That water's pretty warm right now."³⁶¹

In short, Cooke's employees were aware of a "risk" that poor handling practices, high temperatures, and inadequate sanitation would result in fungal infestations, and they chose to "consciously disregard[]" it.³⁶² Their failure to prevent or adequately treat fungal infestations constituted a "fail[ure] to provide the animal[s] with . . . humanely clean conditions"³⁶³ By failing to act, Cooke and its employees violated Maine's laws against neglect of animals.

³⁵⁵ See Incident Statement at 5; see also, e.g., *id.* at Incidents 239, 245.

³⁵⁶ See e.g., *id.* at Incidents 228–229, 232.

³⁵⁷ *Id.* at Incident 236.

³⁵⁸ RSPCA, *RSPCA Welfare Standards for Farmed Atlantic Salmon* 65 (2018).

³⁵⁹ Eur. Food Safety Auth., *Scientific Report on animal welfare aspects of husbandry systems for farmed Atlantic salmon*, 736 EFSA J. Annex I, at 59–60 (2008).

³⁶⁰ Incident Report at Incident 234.

³⁶¹ *Id.* at Incident 238.

³⁶² See 17-A Me. Rev. Stat. § 35(3).

³⁶³ 17 Me. Rev. Stat. § 1037.

D. *Cooke Did Not Follow "Best Management Practices for Animal Husbandry"*

The foregoing parade of horrors should make abundantly clear that Cooke did not, in any sense, follow "best management practices for animal husbandry."³⁶⁴ Instead—as demonstrated by COK's footage and confirmed by COK's expert, Dr. Franks—Cooke and its workers "fail[ed] to adhere to minimally acceptable animal welfare standards."³⁶⁵ That failure makes Cooke and its workers ineligible for Maine's affirmative defense against charges of cruelty to animals.

As noted above, Maine's Department of Agriculture, Conservation and Forestry defines a "best management practice" as "a method or practice . . . consistent with efficient, practical, technically and environmentally sound animal or crop production practices," and "best suited to preventing, reducing, or correcting agriculture-related problems."³⁶⁶ Pennsylvania—which has gone farther than most other states in clarifying its "accepted agricultural practices" defense—limits the defense to operations that follow "routine and accepted agricultural practices."³⁶⁷ Thus, practices that are not "routine and accepted" in the industry and do not conform to "best management practices" cannot claim the benefit of Maine's affirmative defense.³⁶⁸

COK's investigation demonstrates that Cooke did not follow "best management practices."³⁶⁹ Instead, Cooke's employees mishandled, abused, and cruelly mistreated animals in a ghoulish pantomime of an agricultural operation. As described at length above, fish at Cooke were beaten; suffocated; cut; stabbed; burned with chemicals; starved; and neglected until they died of fungal infestations, insufficient oxygen, or deformities. Those practices violated standards set by expert groups such as the AVMA, the European Food Safety Authority, the Global Aquaculture Alliance, and the RSPCA. Conduct that did not adhere to standards set by experts in the industry necessarily did not comply with "best management practices for animal husbandry," regardless of whether it occurred on a farm.³⁷⁰

Cooke's employees may have attempted to conceal their sadistic abuse under a thin veneer of agricultural justification, but that cannot allow them to escape the consequences of their criminal acts. Because the "agricultural operation" defense is an affirmative one, Cooke and its employees "bear[] the burden of proving . . . by a preponderance of the evidence" that the

³⁶⁴ Cf. *id.* §§ 1031(2), 1037-A.

³⁶⁵ Expert Statement, *supra*, at 2.

³⁶⁶ Me. Dep't of Agric., Food & Rural Res., Div. of Animal Health & Indus., *Manual of Best Management Practices for Maine Agriculture* 6 (2007).

³⁶⁷ *Barnes*, 427 Pa. Super. at 337–38.

³⁶⁸ See *id.* at 344; 17 Me. Rev. Stat. §§ 1031(2), 1037-A.

³⁶⁹ 17 Me. Rev. Stat. §§ 1031(2), 1037-A.

³⁷⁰ See *id.* §§ 1031(2), 1037-A; see also *Smith*, 15 Or. App. at 496–97 (noting that a "practice [that] itself [was] against the law . . . could not logically qualify as 'good livestock husbandry'").

salmon were “kept . . . in compliance with best management practices for animal husbandry.”³⁷¹ Cooke’s employees cannot possibly show that their gratuitously cruel and inhumane treatment of animals constituted “best management practices.”³⁷² Therefore, the affirmative defense does not apply, and Cooke, its owner, and its employees may be prosecuted for their cruel misconduct.

IV. Cooke Is Criminally Liable for the Illegal Acts of Its Employees

Along with its employees, Cooke Aquaculture bears responsibility for the aforementioned criminal conduct. In her expert statement, Dr. Franks made the following observations with respect to Cooke’s culpability:

[S]everal different workers engaged in harsh, even at times malicious fish handling and . . . needlessly harmful acts were carried out in full view of co-work[er]s. Together, these observations indicate that the problems at this facility stem from the managerial, perhaps corporate level and should not be attributed to any single individual shown in the video. In other words, the abuse is structural. Evidently, at this facility, animal welfare guidelines are either not provided, trained, enforced, or encouraged. Indeed, it seems that the reverse is true: that the facility tolerates and even approves of inhumane treatment.³⁷³

In Maine, business entities such as corporations may be subject to criminal prosecution. Maine courts have stated that “[t]he word person includes a corporation,”³⁷⁴ and the Maine Criminal Code specifically provides that the term “[p]erson” means a human being or an organization,” and an “[o]rganization” means a corporation, partnership or unincorporated

³⁷¹ *LaVallee-Davidson*, 26 A.3d at 833 (emphasis omitted) (citing 17-A Me. Rev. Stat. § 101(2)); see 17 Me. Rev. Stat. §§ 1031(2) & 1037-A.

³⁷² See 17 Me. Rev. Stat. §§ 1031(2), 1037-A.

³⁷³ Expert Statement, *supra*, at 2.

³⁷⁴ *Stevens v. Rollingsford Sav. Bank*, 70 Me. 180, 181 (1879); see also 1 Me. Rev. Stat. § 72 (“The following rules shall be observed in the construction of statutes relating to words and phrases ‘Person’ may include a body corporate.”).

association.”³⁷⁵ Thus, “corporations are generally regarded as indictable” for crimes,³⁷⁶ and “may be liable criminally for crimes that [their] agents are capable of committing on [their behalf].”³⁷⁷

“Generally, corporations may be held criminally responsible for the illegal acts of its employees if such acts are (1) related to and committed within the course of employment, (2) committed in furtherance of the business of the corporation and (3) authorized or acquiesced in by the corporation.”³⁷⁸ “Criminal responsibility can be predicated on the acts of an agent who is neither a director nor an officer of the corporation.”³⁷⁹

In the present case, there is no question that Cooke’s employees’ criminal acts were “related to and committed within the course of employment.”³⁸⁰ Many of them were also “committed in furtherance of the business of the corporation.”³⁸¹ Culling fish that were weak, vaccinating them against disease, and clipping their fins in order to identify them all ultimately were done for the benefit of the corporation in order to increase its profits.

Finally, the acts were “authorized or acquiesced in by the corporation.”³⁸² This is not a case where workers went off on a “frolic” and engaged in “act[s] wholly unauthorized by [their] employers.”³⁸³ To the contrary, the conduct was known to and acquiesced in—implicitly or

³⁷⁵ 17-A Me. Rev. Stat. § 2(19)–(20).

³⁷⁶ See *State v. City of Portland*, 74 Me. 268, 270 (1883); cf. *Vaughan & Sons v. State*, 737 S.W.2d 805, 806 (Tex. Ct. Crim. App. 1987) (although “[a]t common law a corporation could not commit a crime, . . . [t]oday, . . . the general rule is that a corporation may be held liable for criminal acts performed by its agents acting on its behalf”) (citing, among other cases, *Androscoggin Water Power Co. v. Bethel Steam Mill Co.*, 64 Me. 441 (1875); *State v. Great Works Milling & Mfg. Co.*, 20 Me. 41 (1841)).

³⁷⁷ 10 Fletcher, *Cyclopedia of the Law of Corporations* § 4942 (2019).

³⁷⁸ *Id.* (citing, among other cases, *United States v. Agosto-Vega*, 617 F.3d 541 (1st Cir. 2010); *United States v. Potter*, 463 F.3d 9 (1st Cir. 2006); *Commonwealth v. Life Care Centers of Am.*, 456 Mass. 826, 833 (2010) (“[A] corporation may be vicariously liable for crimes committed by an employee when that employee acts pursuant to authority vested in him by the corporation. . . . [I]n order to establish corporate criminal liability, the Commonwealth must show that (1) an individual committed a criminal offense; (2) at the time of the offense that individual was involved in a corporate project; and (3) that individual had been vested with authority to act for the corporation with respect to that project.”); *Commonwealth v. Ben. Fin. Co.*, 360 Mass. 188, 260 (1971) (“[A] corporation can be held criminally responsible for the acts of one who is neither a director nor officer.”); see *Bell v. Town of Wells*, 557 A.2d 168, 175 (Me. 1989) (relying on Massachusetts law in absence of Maine precedent).

³⁷⁹ *Id.*

³⁸⁰ *Id.*

³⁸¹ *Id.*

³⁸² *Id.*

³⁸³ Cf. *Potter Title & Tr. Co. v. Knox*, 381 Pa. 202, 209 (1955).

explicitly—by Cooke’s hatchery manager and hatchery supervisor.³⁸⁴ Cooke employees were provided with a “checkbox for eye pecks” to “mark down” which fish were missing eyes, showing that Cooke’s supervisors were aware of the high prevalence of certain injuries.³⁸⁵ And as Dr. Franks noted, the extent of the cruelty at Cooke shows that “animal welfare guidelines [were] either not provided, trained, enforced, or encouraged,” and indicates that “the facility tolerate[d] and even approve[d] of inhumane treatment.”³⁸⁶ Therefore, because the cruel acts were “(1) related to and committed within the course of employment, (2) committed in furtherance of the business of the corporation and (3) authorized or acquiesced in by the corporation,”³⁸⁷ Cooke may fairly be held criminally liable for the misconduct of its employees.

In addition to direct liability, “[a] corporation may be convicted for the criminal acts of its agents, under a theory of respondeat superior.”³⁸⁸ “Maine law is well settled that any business . . . or other organization is responsible for misconduct of employees or agents that occurs in the course and scope of the organization’s business or activity and causes harm to others.”³⁸⁹ Maine relies follows the Restatement (Second) of Agency,³⁹⁰ which states:

(1) Conduct of a servant is within the scope of employment if, but only if:

³⁸⁴ See, e.g., Incident Statement at Incidents 1, 5, 8–9, 10–42, 46–50, 53, 58–59, 61–66, 68, 70–71, 86, 90, 104, 112, 121, 123, 169, 205, 208–210, 319, 330, 429–430, 435 (misconduct committed by or in the presence of hatchery manager Brian Wheeler or hatchery supervisor Josh Beane).

³⁸⁵ See *id.* at Incident 208.

³⁸⁶ Expert Statement, *supra*, at 2.

³⁸⁷ *Id.* (citing, among other cases, *United States v. Agosto-Vega*, 617 F.3d 541 (1st Cir. 2010); *United States v. Potter*, 463 F.3d 9 (1st Cir. 2006); *Commonwealth v. Life Care Centers of Am.*, 456 Mass. 826, 833 (2010) (“[A] corporation may be vicariously liable for crimes committed by an employee when that employee acts pursuant to authority vested in him by the corporation. . . . [I]n order to establish corporate criminal liability, the Commonwealth must show that (1) an individual committed a criminal offense; (2) at the time of the offense that individual was involved in a corporate project; and (3) that individual had been vested with authority to act for the corporation with respect to that project.”); *Commonwealth v. Ben. Fin. Co.*, 360 Mass. 188, 260 (1971) (“[A] corporation can be held criminally responsible for the acts of one who is neither a director nor officer.”); see *Bell v. Town of Wells*, 557 A.2d 168, 175 (Me. 1989) (relying on Massachusetts law in absence of Maine precedent).

³⁸⁸ *United States v. Cincotta*, 689 F.2d 238, 241 (1st Cir. 1982); cf. *DiCentes v. Michaud*, 719 A.2d 509, 513 (Me. 1998) (“Under the doctrine of respondeat superior, liability for tortious acts of a servant may be imputed to the master, and the acts of an agent may be imputed to the principal.”) (citing *W. Page Keeton et al., Prosser and Keeton on the Law of Torts* §§ 69, 70, at 499, 501 (5th ed. 1984); *Bonk v. McPherson*, 605 A.2d 74, 78 (Me. 1992)).

³⁸⁹ *Fortin v. Roman Catholic Bishop of Portland*, 871 A.2d 1208, 1232–33 (Me. 2005) (Alexander, J., concurring and dissenting) (citing *DiCentes v. Michaud*, 719 A.2d 509, 513 (Me. 1998)).

³⁹⁰ *Mahar v. StoneWood Transport*, 823 A.2d 540, 544 (Me. 2003).

- (a) it is of the kind he is employed to perform;
- (b) it occurs substantially within the authorized time and space limits;
- (c) it is actuated, at least in part, by a purpose to serve the master, and
- (d) if force is intentionally used by the servant against another, the use of force is not unexpected by the master.

(2) Conduct of a servant is not within the scope of employment if it is different in kind from that authorized, far beyond the authorized time or space limits, or too little actuated by a purpose to serve the master.³⁹¹

In the present case, the cruel mistreatment of the fish clearly was “within the scope of employment” and “authorized” by Cooke in the sense required to apply respondeat superior. “[A]cts relating to work and done in the workplace during working hours”—which these were—“are within the scope [of employment].”³⁹² The cruelty to the fish was “actuated, at least in part, by a purpose to serve the master,” and the types of misconduct done and degree of “force . . . used” were “not unexpected by the master.”³⁹³ Although the employees’ acts were criminal, that does not, in itself, excuse Cooke from liability.³⁹⁴ Cooke may still be criminally punished for permitting—indeed, encouraging—its agents to commit cruelty to animals.

Far from “engaging in . . . ‘frolic[s]’ of [their] own,” Cooke’s workers mistreated animals in order to “carry out the function[s] which [they] w[ere] there to perform.”³⁹⁵ Thus, Cooke may be held liable for its employees’ misdeeds under the doctrine of respondeat superior.

V. In Recent Years, an Increasing Number of Prosecutors Have Recognized the Need to Apply the Animal Cruelty Laws to Protect Farm Animals

Both nationally and internationally, prosecutors and government officials have increasingly recognized the importance of protecting fish in general (and salmon in particular) from inhumane cruelty. Notable recent cases are listed below.

³⁹¹ *Id.* (quoting Restatement (Second) of Agency § 228).

³⁹² *Id.* (quoting *Lyons v. Brown*, 158 F.3d 605, 609–10 (1st Cir. 1998)).

³⁹³ *Id.* (quoting Restatement (Second) of Agency § 228(1)(c)–(d)).

³⁹⁴ See *Fortin*, 871 A.2d at 1232 (holding that a Roman Catholic diocese was potentially liable for sexual abuse of a child by one of its priests).

³⁹⁵ See *Orr v. William J. Burns Int’l Detective Agency*, 337 Pa. 587, 592 (1940).

A. *Lice-infested Scottish salmon farm investigated for animal cruelty*

In August 2018, the Scottish government and the Scottish Society for the Prevention of Cruelty to Animals ("SSPCA") received a video documenting horrific conditions for salmon at Vacasay fish farm in Scotland's Outer Hebrides. The video revealed "[s]carred, frayed and lice-infested salmon . . . with open wounds and damaged tails and fins."³⁹⁶ Corin Smith, a photographer and fly fishing guide who recorded the video, expressed "shock[]" at . . . the very high proportion of fish in poor health with mortal sea lice infestation."³⁹⁷ Smith "estimated that as many as 80 per cent of the salmon at Vacasay were suffering from lice damage," and argued that "[a]t least 40 per cent of stock need [to be] euthanised immediately on the grounds of compassion."³⁹⁸

After watching the video, the Scottish government and the SSPCA both launched investigations.³⁹⁹ Investigators from the Marine Scotland Fish Health Inspectorate and the SSPCA visited Vacasay fish farm, as did veterinarians from the Animal and Plant Health Agency.⁴⁰⁰ Although the investigators found that "[t]he site ha[d] experienced a high level of lice infestation," they ultimately concluded that "the treatment of the fish . . . ha[d] been appropriate" and did not take any further action.⁴⁰¹

B. *Criminal charges sought after deaths of 175,000 Scottish salmon*

In November 2016, Global Alliance Against Industrial Aquaculture ("GAAIA")—an advocacy group—"called for those responsible to be prosecuted" after workers killed 175,000 salmon while attempting to treat them for parasites and disease.⁴⁰² At a farm operated by Norwegian multinational Marine Harvest on the Isle of Skye, workers killed over 95,000 salmon

³⁹⁶ Rob Edwards, *Sick salmon at Scottish fish farm revealed on film*, The Ferret (Sept. 3, 2018), <https://theferret.scot/sick-salmon-scottish-fish-farm-film/>.

³⁹⁷ *Id.*

³⁹⁸ *Id.*

³⁹⁹ *Id.*

⁴⁰⁰ See Fish Farming Expert, *Fish farmer "taking all measures possible" at Loch Roag says Scottish SPCA* (Sept. 10, 2018), <https://www.fishfarmingexpert.com/article/fish-farmer-taking-all-measures-possible-at-loch-roag-says-sspc/>; Fish Farming Expert, *Inspector: SSC response to Loch Roag lice outbreak "appropriate and timely"* (Feb. 14, 2019), <https://www.fishfarmingexpert.com/article/salmon-farmers-action-appropriate-and-timely-at-loch-roag/>.

⁴⁰¹ Fish Farming Expert, *Inspector: SSC response to Loch Roag lice outbreak "appropriate and timely," supra*; see also Fish Farming Expert, *Fish farmer "taking all measures possible" at Loch Roag says Scottish SPCA, supra*.

⁴⁰² Patrick Sawyer, *Thousands of fish poached alive in lice treatment bungle that could hit Christmas salmon prices*, Telegraph, Nov. 18, 2016, <https://www.telegraph.co.uk/news/2016/11/18/thousands-of-fish-poached-alive-in-lice-treatment-bungle-that-co/>.

by overheating water with a device called a Thermolicer, which is intended to kill sea lice.⁴⁰³ Another 20,000 salmon were killed at the same site after workers tried to poison the sea lice with chemicals.⁴⁰⁴ At a separate Marine Harvest farm off Scotland's Isle of Lewis, workers killed more than 60,000 salmon by dousing them with hydrogen peroxide in an attempt to treat their amoebic gill disease.⁴⁰⁵ In a response, Marine Harvest called it "extremely regrettable [that it] lost fish," and admitted that "[h]uman error played a part in this incident."⁴⁰⁶ The company insisted that the Thermolicer was safe and promised to "prevent further incidents . . . by raising awareness with staff and increased training."⁴⁰⁷

C. *Charges filed against managers of Scottish salmon farm for animal cruelty*

In January 2011, two managers of a salmon farm in the Shetland Islands were charged with animal cruelty after they used chemicals to poison more than 20,000 fish.⁴⁰⁸ According to the SSPCA, the two men were "charge[d] under the Animal Health and Welfare (Scotland) Act 2006 for allegedly causing unnecessary suffering and failing to ensure welfare of livestock."⁴⁰⁹ Apparently, the men had attempted to treat a sea lice infestation by using chemicals that were not approved for salmon.⁴¹⁰ Nine months later, the charges were dropped due to a procedural error, but shortly thereafter the same men were charged with animal cruelty for "trapping and killing seals."⁴¹¹ One of the men subsequently pleaded guilty and was fined £800.⁴¹²

⁴⁰³ *Id.*

⁴⁰⁴ *Id.*

⁴⁰⁵ *Id.*

⁴⁰⁶ Undercurrent News, *Marine Harvest defends itself with clarification over Thermolicer incident* (Dec. 14, 2016), <https://www.undercurrentnews.com/2016/12/14/marine-harvest-defends-itself-with-clarification-over-thermolicer-incident/>.

⁴⁰⁷ *Id.*

⁴⁰⁸ Shetland News, *Hoganess Salmon managers face new charges* (Dec. 7, 2011), <https://www.shetnews.co.uk/2011/12/07/hoganess-salmon-managers-face-new-charges/>.

⁴⁰⁹ Fish Information & Services, *Salmon farm managers charged with animal cruelty over salmon deaths* (Jan. 28, 2011), <https://www.fis.com/fis/worldnews/worldnews.asp?l=c&country=0&special=&monthyear=&day=&id=40267&ndb=1&df=0>.

⁴¹⁰ *Id.*

⁴¹¹ Shetland News, *Hoganess Salmon managers face new charges* (Dec. 7, 2011), <https://www.shetnews.co.uk/2011/12/07/hoganess-salmon-managers-face-new-charges/>.

⁴¹² See Pete Bevington, *Acquitted over raising finger at witness*, Shetland News (June 12, 2013), <https://www.shetnews.co.uk/2013/06/12/acquitted-over-raising-finger-at-witness/>.

D. *Undercover investigation of Maine egg farm leads to historic settlement*

In June 2010, Quality Egg of New England (“QENE”) settled criminal charges that stemmed from a 2008–09 MFA investigation at QENE’s Turner, Maine egg farm.⁴¹³ After the investigation, MFA—assisted by legal counsel from COK—had filed a complaint with Maine officials that outlined QENE’s numerous violations of the state’s anti-cruelty laws. Incidents of mistreatment included (1) “[w]orkers and managers killing birds by grabbing their necks and swinging them around in circles—attempts to break their necks which often resulted in prolonged, torturous deaths for the hens,” (2) “[s]upervisors and workers throwing live birds into trash cans,” (3) “[b]irds suffering from broken bones, bloody open wounds, untreated infections and uterine prolapses,” (4) “[h]ens confined four to six in tiny wire cages so small they were unable to stretch their wings, move freely or engage in other basic behaviors,” (5) “[b]irds trapped in the wire of their cages or under the feeding trays without access to food or water,” and (6) “[r]otting carcasses in cages with live hens still laying eggs for human consumption.”⁴¹⁴

Working with Maine Animal Welfare Director Norma Worley and then–Assistant District Attorney Andrew S. Robinson, MFA and COK negotiated a settlement that included the most comprehensive civil enforcement scheme for farmed birds ever seen. QENE’s owner—Austin “Jack” DeCoster—“pleaded guilty to 10 counts of cruelty to animals.”⁴¹⁵ The company also “agreed to pay over \$130,000 in fines and restitution,” and “hand[ed] over authority to the state of Maine to conduct unannounced inspections of the factory farm for the next five years.”⁴¹⁶

(Subsequently, in June 2017, DeCoster and his son Peter began three-month prison sentences for violating federal food safety laws.⁴¹⁷ In 2010, the DeCosteres had sickened an estimated 56,000 Americans across the country by selling salmonella-tainted eggs.⁴¹⁸ Their company, Quality Egg, was fined \$6.8 million in connection with the same crime.⁴¹⁹)

⁴¹³ Mercy for Animals, *The Rotten Truth: Egg Industry Cruelty Revealed* (2010), <http://maine-eggs.mercyforanimals.org/>.

⁴¹⁴ *Id.*

⁴¹⁵ *Id.*

⁴¹⁶ *Id.*

⁴¹⁷ Joe Fassler, *Egg mogul Jack DeCoster sickened 56,000 people. He’ll serve just three months in prison*, *The New Food Economy* (June 30, 2017), <https://newfoodeconomy.org/egg-mogul-jack-decoster-sickened-56000-people-hell-do-just-three-months-in-prison/>.

⁴¹⁸ *Id.*

⁴¹⁹ *Id.*

E. *Cooke Aquaculture pleads guilty to use of illegal pesticides*

In November 2011, Environment Canada criminally charged Kelly Cove Salmon (a subsidiary of Cooke Aquaculture) with 11 counts of violating Canada's Fisheries Act.⁴²⁰ Also charged were three senior Cooke Aquaculture executives, including the company's CEO.⁴²¹ The charges stemmed from Kelly Cove Salmon's use of the pesticide cypermethrin—which is banned in Canada due to its toxicity to lobsters and other crustaceans—in order to kill sea lice.⁴²² Each defendant faced a maximum total penalty of \$11 million and 30 years' imprisonment.⁴²³

As part of a plea agreement, prosecutors dropped charges against the Cooke Aquaculture executives, and Kelly Cove Salmon pleaded guilty to two charges of "using cypermethrin in waters frequented by fish."⁴²⁴ The company was fined C\$50,000 on each charge and agreed to pay C\$400,000 in additional penalties, which would be used to "fund environmental research and study at University of New Brunswick and restoration and enhancement of fish habitat in the Bay of Fundy region."⁴²⁵ The total penalty of C\$500,000 (at the time, about \$490,000 in U.S. currency) was "one of the largest financial judgments ever levied in Canada for violating the Fisheries Act."⁴²⁶

VI. **Conclusion**

For the reasons stated above, COK believes that the evidentiary and legal standards are clearly met to establish numerous violations of Maine's cruelty laws by Cooke and its employees (as identified in the incident statement). During the time in which COK's investigator was employed at Cooke, workers routinely and deliberately tormented and neglected the animals in their care with the encouragement or at the direction of Cooke's supervisors, Brian Wheeler and Josh Beane. Wheeler and Beane themselves also regularly engaged in cruel mistreatment.

COK is willing and available to assist law enforcement in the course of any prosecution. COK can provide factual and legal research and analysis, procure experts, and so forth. Should you have questions concerning this memorandum or would like COK to provide further assistance, please feel free to contact me at (301) 891-2458 or kjamieson@cok.net.

Thank you for your consideration, and I look forward to hearing from you.

⁴²⁰ Bill Trotter, *Cooke Aquaculture to pay \$490,000 after illegal pesticides kill lobsters in Canada*, Bangor Daily News, Aug. 27, 2013.

⁴²¹ *Id.*

⁴²² *Id.*

⁴²³ *Id.*

⁴²⁴ *Id.*

⁴²⁵ *Id.*

⁴²⁶ *Id.*

APPENDIX 7



JANET T. MILLS
GOVERNOR

STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY
ANIMAL WELFARE PROGRAM
28 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0028

AMANDA E. BEAL
COMMISSIONER

Complaint # 20687

Cooke Aquaculture
Bingham, Maine

Investigator: Liam Hughes, Director of Animal Welfare

On June 12th, 2019 Animal Welfare received an email (attachment 1) from a group called Compassion Over Killing (COK) accusing the Cooke Aquaculture hatchery in Bingham Maine of committing acts of animal cruelty in the processing and harvesting of the fish at the facility. This email had links to 3 videos totaling over 17 hours of unedited video of a COK member that had worked at the plant. This video was obtained through a hidden camera and showed Cooke Staff members moving fish from one large tank to another. In the process of moving the fish they were thrown 20 to 30 feet from one tank to another, attempts to cull or euthanize fish were mishandled by the staff according to the complaint.

Upon receiving the complaint, AWP had to determine what department has jurisdiction over this type of complaint since AWP traditionally investigates animal cruelty concerning domesticated animals such as dogs, cats, horses, and other land-based livestock. Our program has had no experience investigating land-based aquaculture or Salmon up to this point. We determined that this type of operation was not regulated by any state agency in Maine and the animal cruelty accusations would need to be investigated by AWP. The agent assigned to the area that the violations took place (Rachel Welch) was already investigating several other large cases and could not take on another large case. She requested another agent or myself look into the matter using her as support or backup. With no other staff that could take on such a complaint or with any fishery experience the case was assigned to myself, the director of the program.

On June 21st, I responded to the counsel for COK, Keith Jamison, that we had received the complaint. The policy of AWP for receiving complaints is that we need to have the person who witnessed the alleged crime to report the crime and speak to an investigating agent. Mr. Jamison agreed to schedule a time with his client that made the video and witnessed the actions would be available to be interviewed and review the footage with AWP staff. He stated that all of the video footage recorded at the facility had been provided in the original email. It was agreed that the witness would be interviewed on July 19th, 2019 at the AWP offices. 7§3909. *Enforcement 6. Confidential information.* prohibits the release of the identity of the witness and therefore will be referred to as "the witness" in this report. Mr. Jamison is acting as the witness's attorney in this matter.

LIAM HUGHES, DIRECTOR
ANIMAL WELFARE PROGRAM
90 BLOSSOM LANE, DEERING BUILDING



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WWW.MAINE.GOV/DACF

Prior to the interview scheduled on July 19th, I began to review all of the videos and start looking for subject matter experts that could give better insight into what was on the videos. I also began the process of looking into best management practices for salmon farming.

I was able to find that the Cooke facility was part of Global Aquaculture Alliance (GAA) and was regularly audited to adhere to Best Aquaculture Practices (BAPs). Upon reviewing the available information online about BAPs I contacted Steven Hedlund from GAA and spoke to him about the BAP review process, standards and audits. I was able to ascertain that the BAP's are what the state would consider Best Management Practices (BMPs) for this type of farming. Their inspections cover animal health and welfare concerns, environmental responsibility, social responsibility and food safety. Mr. Hedlund provided me with a blank inspection form and standards that their inspectors look for (attachment 2). Upon review of these documents it was determined by AWP that the state can recognize the GAA BAPs as best management practices by the state for the purpose of this investigation since the state does not currently have BMPs in place for this type of agriculture.

I reached out to Inland Fisheries and Wildlife (IF&W) and Department of Marine Resources (DMR) for assistance in understanding salmon operations and was put in contact with David Russell who is a Fish Pathologist for IF&W.

On June 28th I was able to sit down and review several sections of the videos I had questions and concerns about with David. We discussed the following:

- Salmon fishing and Land based aquaculture. What this facility's role is and how it ties in to the off-shore nets.
- That a concussive blow to the head was an acceptable practice for culling fish from the tanks, but it was not being done properly on the video.
- Handling the fish in the way they were handled in the video could damage the fish and make them more at risk for infections and damage.
- Anesthetic use for fish vaccinations and fin clipping process.
- Anesthetic use for moving the fish and euthanizing them
- Fin clipping as an accepted practice to determine hatchery raised salmon compared to wild salmon. This is a federal mandate.
- The culling process and the amount of acceptable losses at a hatchery and the documentation process of those losses.
- The use of formaldehyde and salt to help control disease outbreaks in the tanks.
- Oxygen regulators and how they work.

After reviewing the videos, we developed a list of potential questions for the witness and for Cooke Aquaculture. This type of agriculture is very complicated and time consuming. It takes years to develop and raise salmon from eggs which is very different from other types of farming operations that AWP regularly interacts with.

On July 19th 2019, Mr. Jamieson, COK counsel, the witness, and Mike Wolf, Director of Investigations for COK, arrived to be interviewed by myself and Assistant Attorney General Mark Randlett. The witness detailed the following experiences at the Cooke Plant in Bingham, Maine that included:

- Lack of formal training. All training was done peer to peer.
- Concerns about the amount of fish being culled and methods of euthanasia
- Some of the fry were being composted while still alive.
- Anesthetic was not being used properly or tracked.
- Concerns about safety issues in chemical use (referred to Dept. of Labor)
- Concerns about lack of staff and drive to make goals
- Was told by another staff member that the fungus outbreaks might have been caused by the handling of the fish.
- In general, a work culture that was very stressful for the staff and also the fish.
- There were less than ten workers at the plant and the supervisors were trying to manage the chaos.
- The witness felt there was an abnormal amount of deformities in the fish at the facility.

After reviewing certain sections of the video to confirm certain questions with the witness we concluded the interview.

* Note: at this time, Animal Welfare had started another large investigation elsewhere in the state and resources were diverted to that separate investigation.

In the beginning of September, I contacted Greg Lambert, fresh water production manager for Cooke Aquaculture, and informed him that AWP received a complaint about how the fish were being handled and we set up a time to meet and tour the facility. It is worth noting that the summer months are a quiet time for the facility and most of the activity happens during the fall and winter.

On September 17th, I arrived at the Bingham Plant and met with Mr. Lambert and Brian Wheeler, Hatchery Manager. I informed them that they had had an undercover investigation at that location recently and there was video of staff throwing fish great distances, improperly handling and euthanizing fish. I explained that I could not show the video to them because I was responsible for protecting the identity of the witness but described to them what I witnessed on the video. They were very concerned with these accusations and took this information seriously. At that point we reviewed the plant's health management plan with specific detail given to the animal welfare section on handling and euthanasia methods. It is worth noting that the health management plan contains proprietary information and details of the plan are not public. After that we toured the plant where I was shown the entire operation and was able to see many of the fish and discussed the stocking densities that the plant operates under. I confirmed the name of the Aquatic Health Professional that the plant is required to have and gave them some recommendations on improving their health plan to include:

- Better training for the staff on the safe handling of fish,
- Proper euthanasia techniques,
- Proper equipment for euthanasia and instructions on its use,
- Disease protocols for the staff to recognize and prevent health issues with the fish

I included this in a letter to Mr. Lambert sent on September 18th and told him I would return in about a month's time to follow up. Mr. Lambert said that the timing was good for the training since it was scheduled to start with staff in the next few weeks.

On October 7th 2019, COK released an edited video of the activities at the Cooke facility to the public on their website. As stated before, AWP is obligated to protect the witness identity and will not release any information that could lead to witness identification. That same day, Glenn Cooke, CEO of Cooke Aquaculture released a statement admitting that the behavior on the video was unacceptable and did not meet the standards of care that they expect from their staff. New training methods were being implemented and the staff retrained in the BAPs as well as an updated health management plan were being implemented.

On October 22nd, I returned to do a follow up visit with Greg Lambert and review the changes based on my recommendations. I was shown a copy of the updated Health Management plan that included updates to the euthanasia, safe handling, and disease recognition as well and a training PowerPoint that covered these changes. All of the 12 of the plant employees signed off that they received the training. I had an opportunity to speak to one of the staff members, Ryan O'Neil about the trainings, the video, and if he felt there were changes. He stated to me that the trainings were necessary, and he understood that the ways he was shown in the past were not the best way to do things. He also said he has good open dialog with the management so if there is any questions or problems, it could be addressed quickly. Mr. Lambert then showed me the new machine they would be using for culling and processing of the fish. A table mounted captive bolt machine specifically designed for use on fish and that is widely used in the fishing industry is now part of the process as well as euthanasia by overdose of Tricaine S in water for the culling of fish if needed during the moving process. Since this is the beginning of the spawning I will plan on additional visit to see these procedures in action during November/ December time frame.

Under the Animal Cruelty laws, an affirmative defense is permitted for agricultural operations using best practices. During the course of this inquiry I noted a work place culture where bad techniques for handling and euthanasia were being taught by one staff member to another with no formal structure. The intent of the staff in the video was to euthanize fish that needed to be culled, not to intentionally cause suffering to the fish. The hidden camera footage from COK highlighted this and may have been instrumental in highlighting the problems to Cooke Aquaculture that has inspired them to take action. There have been several human resource matters that have been dealt with internally at Cooke Aquaculture as well as new training for the staff per our recommendations. On my visit from October 22nd there was a current BAP audit in progress from Global Aquaculture Alliance with more detailed follow up from that organization scheduled in the near future. Cooke Aquaculture did take responsibility for what happened and has taken appropriate action to improve training and operations.

At this point, except for another follow up visit during the winter, I will be closing this complaint.

It is my recommendation that another state agency that specializes in aquatic animals look into developing oversight in animal care at this type of Aquaculture facility to ensure proper compliance with BMP's in the future. One of the biggest challenges to this investigation was the lack of experience with this species and type of aquaculture. Having other agencies such as DMR or IF&W oversee these operations with regular inspections could help prevent these kinds of complaints in the future.

Animal Welfare Program - Complaint Report

Complaint ID	20687 Old Ref#		
Complaint Date	6 /20/2019	Status	P
Accused1	Cooke Aquaculture	Address	36 River st
Accused2		Town	BINGHAM
		County	SOM
Animals	Complaint		
Other-Salmon	Report of improper euthanasia and handling of the fish. See attached videos		
Complainant	Anonymous		
	SecondHand		
Address	Home Number		
City	Work Number		
State			
Agent1	Hughes	Agent2	CROCE
		Dispatched Means	
Charges Filed?	Animals Surrendered?	DA?	Court Judgement
Charges Description	Due to current workload and nature of complaint, Agent Croce asked Director Hughes to investigate		Court Sentence
Comments			

Attachment 1

Hughes, Liam

From: Keith Jamieson <kjamieson@cok.net>
Sent: Wednesday, June 12, 2019 4:29 PM
To: Welfare, Animal
Subject: COK Investigation - Cooke Aquaculture
Attachments: COK Investigation - Cooke Aquaculture.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

EXTERNAL: This email originated from outside of the State of Maine Mail System. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Dear Director Hughes:

I represent Compassion Over Killing ("COK"), a nonprofit animal protection organization based in Washington, D.C. I write to report numerous acts of criminal animal abuse discovered by a COK investigator at an Atlantic salmon hatchery operated by Cooke Aquaculture ("Cooke") at 36 River Street in Bingham, Maine.

Much of the evidence of legal violations was captured on video by the COK investigator during employment at Cooke's facility. The footage showing all of the violations and potential violations may be found here (spread across three videos due to length): (1) [https://www.youtube.com/watch?v=...](#) (2) [https://www.youtube.com/watch?v=...](#) (3) [https://www.youtube.com/watch?v=...](#) The password for all three videos is: [https://www.youtube.com/watch?v=...](#)

Attached, please find an Incident Statement relating the factual details of COK's investigation; an expert statement from Becca Franks, Ph.D.; and a legal memorandum analyzing Cooke's violations of Maine law.

COK requests that law enforcement file charges against Cooke and certain of its employees, and would be glad to assist any prosecution by conducting factual research, providing legal analysis, procuring experts, and so forth. Our investigator is also available to answer any questions. Please feel free to contact me regarding the investigation at (301) 891-2458 or kjamieson@cok.net.

Best regards,

Keith Jamieson
Counsel, Compassion Over Killing

Keith Jamieson | Counsel | (301) 891-2458



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Compassion Over Killing investigation of Cooke Aquaculture - Part 1

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Compassion Over Killing #90

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00:00 Cruelty by Individual Workers00:02 Cruelty by Individual Workers - Slamming and stomping Fish12:46 Cruelty by Individual Workers - Attempting to slap fish out of air23:08 Cruelty by Individual Workers - "Trick Shots"27:27 Cruelty by Individual Workers - Throwing Fish2:10:32 Cruelty by Individual Workers - Rough Handling2:47:48 Cruelty Directed by Management2:47:51 Cruelty Directed by Management - Suffocation3:07:14 Cruelty Directed by Management - Anesthesia3:41:42 Cruelty Directed by Management - Vaccinations5:27:45 Cruelty Directed by Management - Fin Clipping

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00:00 Context - Netting

1:29:19 Inhumane Conditions

1:29:22 Inhumane Conditions - Eye Pecking

1:48:10 Inhumane Conditions - Fungus Infested Crowded Tanks

3:07:03 Inhumane Conditions - Incorrect Oxygen Levels

3:29:34 Inhumane Conditions - Use of Formaldehyde

3:49:12 Use of Salt

3:58:00 Inhumane Conditions - Deformities

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[00:00](#) Inhumane Conditions - High Mortality
[1:58:41](#) Inhumane Conditions - Miscellaneous
[2:47:43](#) Human Health
[2:56:40](#) Context
[4:42:38](#) Added Context

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Attachment 2

Aquaculture Facility Certification

Finfish and Crustacean Farms

Best Aquaculture Practices

Certification Standards, Guidelines



Community • Environment • Animal Welfare • Food Safety • Traceability

Aquaculture Facility Certification

Finfish and Crustacean Farm Standard (FCFS)

Issue 2.4 – 23-May-2017

Best Aquaculture Practices

Certification Standards, Guidelines

Community • Environment • Animal Welfare • Food Safety • Traceability

BEST AQUACULTURE PRACTICES CERTIFICATION

The following Best Aquaculture Practices standards and guidelines apply to the farming of all crustacean and finfish species except salmonids reared in cages and net pens in marine waters (refer to BAP's Salmon Standards). They cover all production methods, including flow-through, partial exchange, and closed or recirculating water systems operated in ponds, cages, net pens, tanks, raceways or closed-containment vessels.

Some requirements are system-specific, applying, for example, only to earthen ponds, farms that produce effluents, farms using cages or marine cages. Each section of the standards and guidelines identifies which standards apply to the different production systems. Please reference the chart on the following page. Several species-specific standards for shrimp and tilapia appear at the end of this document.

The BAP standards are achievable, science-based and continuously improved global performance standards for the aquaculture supply chain that assure healthful foods produced through environmentally and socially

responsible means. They are designed to assist program applicants in performing self-assessments of the environmental and social impacts, and food safety controls of their facilities, and to lead to third-party certification of compliance, thereby eliminating the most significant negative impacts. For further information, please refer to the additional resources listed throughout this document.

BAP standards demand compliance with local regulations as the first step toward certification. However, not all regulations are equally rigorous. For this reason, BAP standards set out requirements for documentation and procedures that must be in farm management plans, whether they are prescribed by local regulations or not. By so doing, they seek, where possible, to impose consistency in performance among facilities in different producing regions and to engage the industry as a whole in a process of continuous improvement.

In common with ISO usage, these standards use the words "shall" to mean compliance is required and "should" to mean compliance is recommended. Auditable points are "shall" statements listed at the end of each standard.

To obtain BAP certification, applicants shall be audited by an independent, BAP-approved certification body. To apply for certification, contact:

Best Aquaculture Practices Management

2 International Drive – Suite 105

Portsmouth, NH 03801

Telephone: +603-317-5000

Web: www.bestaquaculturepractices.org – E-mail: info@aquaculturecertification.org

The audit consists of an opening meeting, a site assessment, the collection of necessary samples, a review of management records and procedures, and a closing meeting. All points in the standards shall be addressed. Any non-conformity raised during the evaluation is recorded by the auditor in the formal report as:

Critical – When there is a failure to comply with a critical food safety, social compliance or legal issue, or a risk to the integrity of the program, the auditor immediately informs the certification body, which then informs BAP Management. Pending clarifications, failure to certify or immediate temporary suspension can ensue.

Major – When there is a substantial failure to meet the requirements of a standard but no food safety risk social accountability or immediate risk to the integrity of the program, the auditor notifies the certification

body and records this in the report. Verification of the implementation of corrective actions shall be submitted to the certification body within 28 days of the evaluation. (Major non-conformities typically reflect issues with general policies.)

Minor – When full compliance with the intent of the standards has not been demonstrated, the auditor notifies the certification body and records this in the report. Verification of the implementation of corrective actions shall be submitted to the certification body within 28 days of the evaluation. (Minor non-conformities typically reflect general housekeeping issues.)

BAP standards are developed by committees of technical experts following a process aligned to the FAO Technical Guidelines on Aquaculture Certification. See www.gaalliance.org/bap/standardsdevelopment.php.

BAP Standards Compliance Requirements

BAP Standard	Applies To
1. Community: Property Rights and Regulatory Compliance	All production systems
2. Community: Community Relations	All production systems
3. Community: Worker Safety and Employee Relations	All production systems
4. Environment: Mangrove and Wetland Conservation	Ponds and other land-based systems only
5. Environment: Effluent Management	Ponds and other land-based systems only
6. Environment: Water Quality and Sediment Control	Cages or pens in fresh or brackish water only
7. Environment: Sediment Control	Marine cages only
8. Environment: Soil and Water Conservation, Pond Sludge Management	Ponds and other land-based systems only
9. Environment: Fishmeal and Fish Oil Conservation	All production systems
10. Environment: Stocking Sources and GMOs	All production systems
11. Environment: Control of Escapes	All production systems, several sections for cages only
12. Environment: Biodiversity and Wildlife Protection	All production systems
13. Environment: Storage, Disposal of Farm Supplies and Wastes	All production systems
14. Animal Health and Welfare: Culture Conditions and Practices	All production systems
15. Food Safety: Drug and Chemical Management	All production systems
16. Food Safety: Microbial Sanitation, Hygiene, Harvest and Transport	All production systems
17. Biosecurity: Disease Control	All production systems
18. Traceability: Record-Keeping Requirement	All production systems
19. Shrimp-Specific Standards	Shrimp farms only
20. Tilapia-Specific Standards	Tilapia farms only

1. Community (All Production Systems)

Property Rights and Regulatory Compliance

Farms shall comply with local and national laws and environmental regulations, and provide current documentation that demonstrates legal rights for land use, water use, construction, operation and waste disposal.

Reasons for Standard

Regulations are needed to assure that farms provide pertinent information to governments and pay fees to support relevant programs. The BAP program requires compliance with applicable business-related laws and environmental regulations, including those concerning protection of sensitive habitats, effluents, operation of landfills and predator control, because it recognizes that not all governmental agencies have sufficient resources to effectively enforce laws.

Some aquaculture farms have been sited in water bodies or on coastal land to which farm owners do not have legal right. Such farms are usually found in undeveloped areas under government ownership where land use is poorly controlled. This land may be occupied by landless people or used by coastal communities for hunting, fishing and gathering. Water bodies in which cages have been installed can be an important fishery for local people. These waters can also have other important uses for domestic water supplies, irrigation, recreation or tourism.

Implementation

Regulations regarding the operation and resource use of farms vary significantly from place to place. Among other requirements, such laws can call for:

- business licenses
- aquaculture licenses
- land deeds, leases or concession agreements
- land use taxes
- construction permits
- water use permits
- protection of mangroves or other sensitive habitats

- effluent permits
- adherence to veterinary and animal health regulations
- therapeutics use
- permits related to non-native species
- predator control permits
- well operation permits
- landfill operation permits
- adherence to environmental regulations
- environmental impact assessments.

Individual auditors cannot know all laws that apply to aquaculture farms in all nations. Participating farms have the responsibility to obtain all necessary documentation for siting, constructing and operating their facilities.

Assistance in determining these necessary permits and licenses can be sought from governmental agencies responsible for agriculture, environmental protection, fisheries, aquaculture, water management and transportation, as well as local aquaculture associations. Auditors shall also become familiar with the legal requirements within the areas they service.

The BAP program imposes repeated environmental audits on participating facilities. It strengthens existing regulations that may require aquaculture facilities to perform environmental impact assessments before beginning construction and to comply with effluent standards or other regulations during operation.

During the BAP site inspection, the representative of the farm shall present all necessary documents to the auditor. Farms shall be in compliance with the requirements stipulated by the documents. For example, if a farm has an effluent discharge permit with water quality standards, those standards shall be enforced. In cases where governmental agencies have waived one or more permits, proof of these waivers shall be available.

Standards

- 1.1: Current documents shall be available to prove legal land and water use by the applicant.
- 1.2: Current documents shall be available to prove all business and operating licenses have been acquired.
- 1.3: Current documents shall be available to prove compliance with applicable environmental regulations for construction and operation.

2. Community (All Production Systems)

Community Relations

Farms shall strive for good community relations and not block access to public areas, common land, fishing grounds or other traditional natural resources used by local communities.

Reasons for Standard

Aquaculture farms are often located in rural areas, where some individuals may rely on varied natural resources to supplement their livelihoods. Some local residents benefit from employment or infrastructure improvements associated with large-scale aquaculture development, but others may face reduced access to areas used for fishing, hunting, gathering, domestic water supply or recreation.

Implementation

Farm management shall attempt to accommodate traditional uses of coastal resources through a cooperative attitude toward established local interests

and environmental stewardship. Farms shall not block traditional access corridors to public ma-n-grove areas and fishing grounds. In some cases, it may be necessary to provide a designated access route across the farm.

Farms shall maintain a neat and attractive appearance to avoid becoming an eyesore to local residents. Sanitary measures shall be employed to prevent odors from affecting nearby neighbors. (See Section 11.) Machinery shall be maintained in good repair to avoid unnecessary noises that may disturb neighbors.

During facility inspection, the auditor shall verify compliance with this standard through examination of maps that define public and private zones; inspection of fences, canals and other barriers; and interviews with local people and farm workers. The auditor shall select the individuals for interview. This selection can include, but not be limited to, interviewees provided by farm management.

Standards

- 2.1: The applicant shall accommodate local inhabitants by not blocking traditional access routes to fishing grounds, wetland areas and other public resources.
- 2.2: The applicant shall manage water usage to avoid restricting the amount of water available to other users.
- 2.3: The applicant shall demonstrate interaction with the local community to avoid or resolve conflicts through meetings, committees, correspondence, service projects or other activities performed annually or more often.

3. Community (All Production Systems)

Worker Safety and Employee Relations

Farms shall comply with local and national labor laws, including those related to young and/or underage workers, to assure adequate worker safety, compensation and, where applicable, on-site living conditions.

Reasons for Standard

Farm work is potentially dangerous due to manual errors in the use of machinery, the risks of drowning and electrocution, and the use of hazardous materials. Workers may not be well educated nor fully appreciate

the risks at farms, and sometimes safety instruction may not be adequate.

Both local and foreign workers may be employed at farms. Instances of employment of illegal foreign workers have been reported in some countries. Therefore, BAP certification requires proof of legal foreign worker documentation.

Much aquaculture takes place in developing nations where pay scales are low, and labor laws may not be consistently enforced. Large farms that employ several hundred workers commonly provide on-site living quarters, which shall provide decent living conditions.

Implementation

At a minimum, certified farms shall provide legal wages, a safe working environment and adequate living conditions. Auditors shall take into account national regulations and local standards to evaluate this aspect. Efforts should be made to exceed the minimum requirements, because certified farms should be progressive and socially responsible. When hiring foreign workers, farms shall require documentation of legal status.

Safety equipment such as goggles, gloves, hard hats, life jackets and ear protection, shall be provided when appropriate. Machinery shall have protective guards or covers where appropriate, and electrical devices shall be correctly and safely wired. Tractors should have roll bars, shields over power take-offs and other appropriate safety devices.

Standards

Wages and Benefits

- 3.1: The applicant shall meet or exceed the minimum wage rate, benefits, required by local and national labor laws.
- 3.2: The facility shall not make deductions from wages as part of a disciplinary process.
- 3.3: The facility shall maintain all relevant documents that verify piece workers (those paid a fixed "piece rate" for each unit produced or action performed regardless of time) are paid in compliance with local law, including regulations regarding equivalence to or exceeding minimum requirements for wages, hours, overtime and holiday pay.

Working Hours

- 3.4: The applicant shall abide by the national mandated work week where applicable.
- 3.5: The applicant shall comply with national labor laws for pay, overtime and holiday compensation for hours worked beyond the regular work day or week.

Staff and workers shall be given initial training as well as refresher training on safety in all areas of farm operations. Workers shall also be trained in first aid for electrical shock, profuse bleeding, drowning and other possible medical emergencies. A plan shall be available for obtaining medical assistance for injured or ill workers.

Living quarters shall be well ventilated and have adequate shower and toilet facilities. Food services, where provided, shall provide wholesome meals for workers, with food storage and preparation done in a responsible manner. Trash and garbage shall not accumulate in living, food preparation or dining areas. (See Section 11.)

Farms that use divers to clear sludge from pond bottoms or perform other underwater tasks shall develop a written plan to assure safety and require directly employed or contracted divers to follow the plan. The plan shall require specialized diver safety training, maintenance records for diving equipment and procedures for diving emergencies. If sulphites are used during harvesting, procedures shall be adopted to minimize health risks to employees.

During facility inspection, the auditor will evaluate whether conditions comply with labor laws. The auditor will also interview a random sample of workers to obtain their opinions about wages, safety and living conditions.

Forced, Bonded, Indentured, Trafficked, and Prison Labor

- 3.6: All work, including overtime, must be voluntary. The facility shall not engage in any form of forced or bonded labor. This includes human trafficking, the holding of original identity papers, prohibiting workers from leaving the premises after their shift or other coercion intended to force anyone to work. Where the holding of original identity papers is required by national law, such papers must be immediately returned to employees upon request and readily available to them at all times.
- 3.7: The facility shall not require the payment of deposits, deduction from wages or withholding of pay that is not part of a legal contractual agreement with the employee and/or that is not provided for or permitted by national law.
- 3.8: Workers shall have the right to terminate their employment after reasonable notice.

Child Labor and Young Workers

- 3.9: The applicant shall not engage in or support the use of child labor. The applicant shall comply with national child labor laws regarding minimum working age or ILO Minimum Age Convention 138, whichever is higher. ILO Minimum Age Convention 138 states the minimum age shall be 15, unless local law in developing nations is set at 14 – in accordance with developing nations exceptions under this convention.
- 3.10: The employment of young workers above the minimum age but under 18 years old shall be in compliance with local laws, including required access to compulsory school attendance and any restrictions on hours and time of day.
- 3.11: Young workers above the minimum age but under 18 years old shall not be subjected to hazardous work that can compromise their health and safety.
- 3.12: The applicant shall only employ legally documented workers, whether nationals or migrants.
- 3.13: The facility shall maintain all relevant documents that verify any contracted/subcontracted workers, whether contracted through a labor service or otherwise, are paid in compliance with all local wage, hour and overtime laws.
- 3.14: All labor, recruiting or employment services used by the facility must be licensed to operate by the local or national government as a labor provider.
- 3.15: The facility shall provide to all workers, whether hourly, salaried, piece-rate, temporary, seasonal or otherwise, prior to hire and during employment, written and understandable information regarding the terms of employment, worker rights, benefits, compensation, hours expected, details of wages for each pay period and facility policies regarding disciplinary actions, grievance procedures, authorized deductions from pay and similar labor-related issues. This information must be provided in the prevalent language of the majority of employees.
- 3.16: Where contracted/subcontracted or temporary workers are hired through a labor or employment service, the facility shall ensure that the labor or employment service provides the above information prior to and during hire, in appropriate languages, to ensure workers are aware of their rights and conditions of employment as described above.
- 3.17: The facility shall appoint a management person responsible for ensuring worker health, safety and training.
- 3.18: The facility shall identify and eliminate or minimize any workplace health and safety hazards by conducting a thorough risk assessment. This includes a requirement for accident investigation.
- 3.19: If provided, employee housing shall meet local and national standards (e.g., water-tight structures, adequate space, heating/ventilation/cooling), and shall be free of accumulated trash and garbage.
- 3.20: Safe drinking water shall be readily available to employees. If meals are provided, they shall be wholesome and commensurate with local eating customs.
- 3.21: Running water, toilets and hand-washing facilities shall be readily available to employees.
- 3.22: In the event of accidents or emergencies, the applicant shall provide basic medical care, including access to or communication with medical authorities. Additionally, first aid kits shall be readily available to employees, and any expired content shall be replaced.

- 3.23: The applicant shall provide training in general health, personal hygiene and safety (including aquatic safety and the use of boats and associated equipment), first aid and contamination risks to all employees. Safety documents must be available in a language understood by the workforce.
- 3.24: An emergency response plan shall be prepared for serious illnesses or accidents.
- 3.25: Select workers shall be made familiar with details in emergency response plans and trained in the first aid of electrical shock, profuse bleeding, drowning and other possible medical emergencies.
- 3.26: Protective gear and equipment in good working order shall be provided for employees (e.g., eye protection for welding, gloves for shop work, boots for wet areas). Auditor to verify deployment.
- 3.27: Electrical pumps and aerators shall be wired according to standard safe procedures. Machinery shall have proper driveshaft and/or drive belt safety guards.
- 3.28: The applicant shall comply with laws that govern diving on aquaculture farms and develop a written dive safety plan that requires diver training and the maintenance of logs that document procedures, safety-related incidents and equipment maintenance. Limits for time under water shall be established and monitored.
- 3.29: The applicant shall provide written procedures and staff training for handling diving emergencies and regularly audit records and procedures. Emergency response equipment for divers shall include oxygen for resuscitation.

Discrimination, Discipline, Abuse and Harassment

- 3.30: The facility shall provide for equal opportunity with respect to recruitment, compensation, access to training, promotion, termination and retirement.
- 3.31: The facility shall treat workers with respect and not engage in or permit physical, verbal or sexual abuse, bullying or harassment.

Freedom of Association and Collective Bargaining

- 3.32: Workers shall have the right to collective bargaining, or at least one employee shall be elected by the workers to represent them to management.
- 3.33: There shall be a written worker grievance process, made available to all workers, that allows for the anonymous reporting of grievances to management without fear of retaliation.

4. Environment (Ponds and Other Land-Based Systems Only)

Mangrove and Wetland Conservation

Aquaculture facilities shall not be located in mangrove or other wetland areas where they displace important natural habitats. Farm operations shall not damage wetlands except for allowable purposes, which shall be mitigated.

Mangroves and other wetlands are important components of many coastal and inland ecosystems in aquaculture producing nations. They represent important breeding and nursery grounds for many aquatic species, and provide habitat for birds and other wildlife. Wetlands are often called the “kidneys” of the landscape because of their important role in improving the quality of water runoff before it enters streams, lakes or estuaries. Wetlands and mangrove areas, in particular, protect coastal areas from heavy winds,

waves and storm surges. Both coastal and inland wetlands are also important resources for local people.

Implementation

For the purposes of this standard, wetlands are defined as areas that are inundated or saturated by surface or ground–water at a frequency and duration sufficient to support – and that under normal conditions do support – a prevalence of perennial vegetation typically adapted for life in saturated soil conditions. This standard does not apply to former wetland habitats converted or lost prior to the publication of the Global Aquaculture Alliance’s *Codes of Practice for Responsible Shrimp Farming* and the signing of the Ramsar treaty in 1999.

Farm construction and operations, including all building works, shall take place outside wetland areas and not lead to their loss. In coastal zones, aquaculture ponds shall be located behind mangrove areas on land that is above the average tidal zone and inundated no more than a few times per month by the highest tides. Particular care shall be taken to assure that hydrological conditions are not altered in a way that deprives or leads to the loss of wetland vegetation, including erosion and sedimentation at farm outfalls.

In some cases, the use of constructed wetlands can provide effective treatment for effluents before they are discharged into public waters. Constructed wetlands must be wholly within farm boundaries, or the farm must have the necessary permits for off-site land use.

Excessive pond construction on a flood plain can reduce the cross-sectional area of flow and increase flood levels and water velocities. This can result in water overtopping pond embankments, erosion of farm earthwork and damage to other property on the flood plain. The problem usually can be avoided if no more than 40% of the plain is blocked by pond embankments.

Allowable Wetland Removal

If a farm operation requires access to water resources, removal of wetland vegetation shall only be allowed for the installation of inlet and outlet canals, pump stations and docks. Wetland removed for such purposes shall be mitigated by restoring an appropriately diverse area of wetland three times the size of the area removed. This practice is only allowable if local regulations don't prohibit it.

Farms constructed in former mangrove or wetland areas are encouraged to demonstrate environmental stewardship by re-establishing mangrove or wetland vegetation, or by contributing to mangrove or wetland rehabilitation projects. When ponds constructed in former mangrove or wetland areas are closed, embankments shall be breached to restore natural water flow so that wetland vegetation can reestablish. The most reliable mitigation procedure is to contribute to mangrove or wetland restoration programs, for farm operators may not have suitable habitat and expertise for creating wetland areas. The donation should be equivalent to the local cost of mangrove or wetland restoration of an appropriately sized area. Whether the restoration is conducted by the farm or through an independent restoration program, the auditor will verify that the wetland is viable by confirming it is initially healthy, appropriately diverse and still healthy at subsequent annual audits. In cases where the auditor has not been able to inspect the restored wetlands in person, the farm shall provide the auditor with evidence (e.g., maps, GPS coordinates, recent photographs and aerial photographs) of the wetland viability.

During initial inspection, the auditor will record farm areas occupied by mangroves or wetland vegetation. If dying vegetation is observed around farms, the auditor will determine if the mortality is the result of farm operations. If it is, a warning will be issued and the deficiency shall be corrected for continuation of certification. Wetland removal for unapproved purposes or failure to mitigate allowable removal will result in loss of certification.

Standards

- 4.1: If net loss of wetland habitat (delineated by evaluation of hydrological conditions and the presence of wetland vegetation) occurred on facility property since 1999, the loss shall have been due to allowable purposes.
- 4.2: If net loss of wetland habitat occurred on facility property since 1999, the loss shall have been mitigated by restoring an area three times as large or by an equivalent donation to restoration projects.
- 4.3: Farm activities shall not alter the hydrological conditions of the surrounding watershed, and the normal flow of brackish water to mangroves or freshwater to wetlands shall not be altered, unless specific permits apply.
- 4.4: If wetland restoration has been conducted, the restored vegetation shall be maintained in a healthy state, viable and appropriately diverse.

5. Environment (Ponds and Other Land-Based Systems Only)

Effluent Management

Aquaculture facilities shall monitor their effluents to confirm compliance with the BAP effluent water quality criteria defined in Appendix A. Water quality measurements taken during the audit shall meet both BAP criteria and those of applicable government permits. Facilities shall comply with BAP's final criteria within five years.

Reasons for Standard

Only a portion of the nutrients added to aquaculture facilities to increase production is converted to animal tissue. The remainder becomes waste that can cause increased concentrations of nutrients, organic matter and suspended solids in and around culture systems.

Land-based farms discharge effluents during water exchange or when growout units are cleaned or drained for harvest. Effluents can contain nitrogen, phosphorus, suspended solids and organic matter at greater than ambient concentrations.

The substances in effluents can contribute to eutrophication, sedimentation and high oxygen demand in receiving water. Effluents with low dissolved-oxygen concentrations or high pH can negatively affect aquatic organisms in receiving water bodies.

Implementation

This standard is designed to demonstrate that compliance with other BAP standards through the application of good management practices is effective in reducing the volume and improving the quality of farm effluents. The water quality criteria also assure that effluents from aquaculture facilities have no greater concentrations of pollutants than typically allowed for effluents from other point sources.

At farms supplied by naturally saline groundwater with over 550 mg/L of chloride, pond effluent should be captured in a reservoir and reused. When effluents are regularly released, applicants in the BAP program shall maintain records for effluent data. (See sample form in Appendix B). To minimize discharges of pollutants to natural waters, farms that release effluents are

encouraged to use this water for irrigation or other beneficial purposes where possible.

To confirm compliance with BAP water quality criteria at farms, the auditor will during the inspection process witness effluent sampling and preparation for analysis by an independent laboratory.

Analysis of the samples collected under the supervision of the auditor shall be done by a private or government laboratory following standard methods as published by the American Public Health Association, American Water Works Association and Water Environment Federation – <http://www.standardmethods.org>.

Sampling

- Samples shall be collected near the point where effluents enter natural water bodies or exit the farm property. A water control structure at the sampling site or suitable sampling method should be used to prevent mixing of effluent and water from the receiving body.
- For farms with multiple effluent outfalls, all or several outfalls shall be sampled to prepare a composite sample for analysis. Where there are more than four outfalls, three outfalls shall be selected as sampling locations.
- Water shall be collected directly from the discharge stream of pipes or dipped from the surface of ditches or canals with a clean plastic bottle. The sample will be placed on ice in a closed, insulated chest to prevent exposure to light.
- Samples or direct measurements for dissolved oxygen and pH shall be obtained between 0500 and 0700 hours, and 1300 and 1500 hours on the same day. The average of the two measurements for each variable will be used for verification of compliance.
- Samples for other variables shall be collected between 0500 and 0700 hours.

- The number of ponds or growout units being drained for harvest at the time of sampling shall be recorded.
- Source water samples shall be collected quarterly directly in front of the pump station or from the pump discharge outlet but before pumped water mixes with the supply canal. These samples enable the calculation of annual loads (see Appendix C) and establish if the Limited Option is applicable.

Analysis

- Hach and Merck water analysis equipment are approved for total ammonia nitrogen, soluble phosphorus, and chloride analyses. However, auditors can reject analytical results if sampling, in situ measurements or lab protocols are deficient.
- Measurements for dissolved oxygen and pH shall be taken in situ with portable meters. Auditors shall verify the correct application of calibration procedures.
- Salinity should be determined by a conductivity meter with a salinity scale, rather than a hand-held, refractometer-type salinity meter. Alternatively, specific conductance can be measured. Assume that water with specific conductance above 2,000 mmhos/cm exceeds 1.5 ppt salinity, and water with specific conductance over 1,500 mmhos/cm exceeds 1.0 ppt salinity. Note: 1 mS/m = 10 mmhos/cm, and 1 mmho/cm = 1 mS/cm.

Rules for Compliance

At least three months of effluent data are required for initial farm certification. Initially, for each variable measured monthly, at least 10 values obtained during a 12-month period shall comply with the criteria. After five years, the target is no more than one annual case of non-compliance for each variable. For variables measured quarterly, one non-compliance is initially permitted for each variable during a 12-month period. The target after five years is no more than one case of non-compliance for each variable during a 24-month period. When non-compliances occur, farms should make every effort to correct the problems within 90 days.

Limited Option: Allowable Deviation From Standard Water Quality Criteria

Limited Option: The source water for aquaculture farms can have higher concentrations of water quality variables than allowed by the initial criteria. In these cases, demonstration that the concentrations of the variables do not increase (or, in the case of dissolved oxygen, decrease) between the source water and farm effluent is an acceptable alternative to compliance with the criteria. This option does not apply to pH and chloride.

To qualify for the Limited Option, farms must collect samples of both influent and effluent water according to the frequencies stated in Appendix A.

Exemptions from Effluent Monitoring Requirements

Irrigation Systems – Freshwater Farms

Where the farm is within an irrigation system, and effluents are used only for crop irrigation, operations shall be exempt from water quality monitoring and effluent limitations.

Limited-Exchange Systems

Where the farm maintains water-exchange rates below 1% daily on an annual basis, including harvest effluents, operations shall be exempt from water quality monitoring and effluent nutrient limitations. This exemption may not be applied for farms with more than 50 ha of production ponds.

Farms qualifying for this exemption are required to report an annual effluent discharge volume.

Annual Effluent Volume

An estimation of annual effluent volume, water use and nutrient load indices shall be determined as described in Appendix C.

Production Practices for Ponds

Compliance with the effluent management standard usually requires farms to improve their production practices in some areas. These areas can include practices for erosion control, feed management, water and bottom soil quality, and water exchange that can reduce and improve pond effluents.

The main practices for improving water quality are the use of stocking and feeding rates that do not exceed the assimilative capacity of ponds, application of good-quality feed and feed management, installation of mechanical aeration, liming of acidic ponds and erosion control.

Management practices that reduce effluent volume include harvesting by seining rather than draining, maintaining storage volume to capture normal rainfall and runoff by diverting excess runoff around ponds, and maintaining water quality by mechanical aeration rather than pond flushing.

If adoption of these practices is not sufficient to meet the BAP water quality criteria, a settling basin shall be installed to provide water treatment before final discharge. If a settling basin is used, the water quality criteria shall apply to its final outfall.

In cases where source water has high concentrations of suspended solids, a pre-settling basin to improve water quality before the water reaches production ponds can lessen sediment accumulation in ponds and possibly benefit effluent quality.

In some cases, the use of a natural or constructed "filter strip" can provide effective treatment for effluents before they are discharged into public waters. Effluent water flows in a thin sheet across the strips, which allows the capture of sediment, organic matter and other pollutants by deposition, infiltration, absorption, decomposition, and volatilization.

Another approach is the use of retention, evaporation or percolation ponds in areas with highly porous soils. For freshwater effluent, application for irrigation purposes to fields with sustained vegetative cover at less than the rate that causes runoff into natural waters is an option.

Effluent Management – Flow-Through or Water-Reuse Systems

Flow-Through Systems

Fish culture in flow-through systems shall be in compliance with BAP effluent criteria. An exception shall be allowed for culture in irrigation systems where effluent is discharged back into the irrigation system, and the irrigation water has no use other than application to crops. Such culture operations shall be exempt from water quality monitoring and effluent limitations.

Water-Reuse Systems

Some water reuse systems exchange water between outdoor treatment ponds and culture units. Treatment ponds can overflow during periods of heavy rainfall or when they are drained for renovation.

Effluent samples shall be collected during discharge and shall comply with BAP effluent criteria. Indoor systems treat water from culture units for reuse by mechanical and biological means, and then discharge when dissolved-solids concentrations need to be reduced. Flushing occurs by means of exchange of culture water for fresher water or when parts of the system are cleaned.

Standards

- 5.1: If the facility is claiming the Limited Option as a justification for deviating from standard water quality criteria, it shall collect the requisite influent and effluent water quality data.
- 5.2: If the applicant's facility operates within an irrigation system such that effluent water is exclusively destined to irrigate agricultural crops, Clauses 5.5 and 5.6 do not apply. Must be verified by auditor.
- 5.3: Clauses 5.5 and 5.6 do not apply for farms of less than 50 ha that avoid regular discharges of effluents into natural water bodies such that less than 1% of the culture water is exchanged daily on an annual basis – for example, by reusing all water or practicing infrequent, limited exchange of water.
- 5.4: Records on volume of farm intake water use and results of effluent monitoring (if applicable) shall be maintained and available, as detailed in the Implementation Guidelines.
- 5.5: Effluent water quality concentrations shall comply with BAP water quality criteria or applicable regulations if they are equivalent or more rigorous, or if this is not possible because of high concentrations in the intake water, concentrations shall reflect no deterioration between intake and discharge.

- 5.6: Farms shall continue compliance with these criteria to maintain certification and comply with BAP's final criteria within five years.
- 5.7: The farm shall provide the auditor with an estimated annual water use during the last calendar year, as illustrated in Appendix C, and the input data shall also be available for review.

6. Environment (Cages or Pens in Fresh or Brackish Water Only)

Water Quality and Sediment Control

Aquaculture facilities with cages or net pens shall monitor water quality in compliance with BAP water quality criteria, and when limits are exceeded, shall reduce feeding rates as required until water quality improves. In lakes, reservoirs and estuaries, operations shall comply with feeding rate limits and shall monitor benthic conditions as required.

Additional Data

After the first year of water quality monitoring, the auditor will use data provided by the facility's application forms to calculate annual load indices for total suspended solids, soluble phosphorus, total ammonia nitrogen and five-day biochemical oxygen demand, determined as described below.

Load indices for nitrogen and phosphorus will be estimated for cage and net pen culture operations in lakes and reservoirs.

Implementation

Applicants to the BAP program shall maintain records for water quality data as detailed in Appendix D.

Sampling – Cages, Net Pens in Lakes, Reservoirs

- A minimum of four sampling stations shall be established. One shall be in the approximate center of the cage farm or net pen area. The other three stations must be from 50 to 500 m away from the cages, considering the direction of the predominant wind, and at regular intervals away from the cage farm or net pen area so as to create a sampling transect.
- The auditor must approve the locations of the stations, which shall be set following a study on prevailing surface currents. For methods, refer to: Estimating Surface Currents Using Dyes and Drogues, U.S.

Army Corps of Engineers –
<http://chl.ercd.usace.army.mil/library/publications/chetn/pdf/chetn-vi-37.pdf>.

- Water should be collected with a Kemmerer or van Dorn water sampler, or by use of a weighted bottle from which the stopper can be removed by jerking the calibrated line. Samples should be transferred to clean plastic bottles and placed on ice in a closed, insulated chest to avoid exposure to light.

Analysis

- Analysis of the samples shall be done by a private or government laboratory following standard methods as published by the American Public Health Association, American Water Works Association and Water Environment Federation – www.standardmethods.org.
- Hach and Merck water analysis equipment is approved for total ammonia nitrogen, soluble phosphorus, and chloride analyses. However, auditors can reject analytical results if sampling, in situ measurements or lab protocols are deficient.
- Measurements for dissolved oxygen and pH should be taken in situ with portable meters. Auditors must verify the correct application of calibration procedures.

Cages, Net Pens

Growout cages and net pens may be installed in lakes, reservoirs, rivers, streams, irrigation systems, ponds, estuaries and embayments. They do not discharge point source effluents, but uneaten feed, fish feces and metabolic excretions of fish enter the water bodies that contain the cages or net pens.

Natural water bodies can already be eutrophic when certification is sought. Sites at which water quality in the water body containing cages or net pens does not comply with BAP effluent guidelines shall not be eligible for certification.

Rules for compliance with the BAP effluent standard differ among the types of water bodies in which the cages and pens are installed.

Cages, Net Pens in Lakes, Reservoirs

The potential of cage and net pen culture to cause eutrophication of lakes and reservoirs depends primarily upon the location of facilities, the amount of feed input compared with the assimilation capacity of the water body, and the hydraulic retention time (HRT) or flushing rate of the water body.

Cages or net pens placed in areas with restricted water circulation, such as narrow embayments, can cause localized eutrophication without causing generalized water quality problems in the entire water body. The assimilation capacity is impractical to measure for purposes of aquaculture certification, but major factors governing the ability of a water body to assimilate wastes are its size and especially its volume.

Nutrients and organic matter are removed from water bodies by outflow, and systems with short HRTs are less likely to become eutrophic as a result of aquaculture operations than systems with longer HRTs. Of course, the nutrients and organic matter flushed from lakes and reservoirs enter downstream waters and can have adverse impacts.

Lakes and reservoirs used for cage and net pen culture shall be classified according to HRT as follows:

- Long HRT – Over 3 years
- Moderate HRT – 1-3 years
- Short HRT – Less than 1 year

Applicants for certification may choose to determine HRT by one of the techniques below.

Annual lake discharge is measured and recorded.

$HRT = \text{Lake volume (m}^3\text{)} \div \text{Lake discharge (m}^3\text{/yr)}$

Stream inflow to lake is measured and recorded.

$HRT = \text{Lake volume (m}^3\text{)} \div [\text{Stream inflow (m}^3\text{/yr)} + \text{Direct rainfall (m}^3\text{/yr)}] - \text{Lake evaporation (m}^3\text{/yr)}$

Where lake evaporation = Pan evaporation (m/yr) \times 0.7 \times Lake surface area (m²) and direct rainfall = Annual rainfall (m/yr) \times Lake surface area (m²).

Catchment area is known, but discharge or stream inflow is measured:

$HRT = \text{Lake volume (m}^3\text{)} \div [\text{Catchment runoff (m}^3\text{/yr)} + \text{Direct rainfall (m}^3\text{/yr)}] - \text{Lake evaporation (m}^3\text{/yr)}$

Where catchment runoff = Catchment area (m²) \times Annual rainfall (m/yr) \times 0.3.

See methods for direct rainfall and lake evaporation above. Otherwise, the auditor and applicant seeking certification will agree upon the HRT level according to the following indicators.

Long HRT: Arid climate, catchment area:water surface area ratio of 5 or less, discharge occurs only after periods of heavy rainfall, annual water level fluctuation of 2 m or more.

Moderate HRT: Humid area, catchment area:water surface area ratio 5-15, frequent or continuous discharge, annual water level fluctuation of 2 m or less.

Short HRT: Humid area, catchment area:water surface area ratio more than 15, continuous large discharge, annual water level fluctuation of 0.5 m or less, riverine system. Note: Some riverine lakes and reservoirs in arid climates have short HRTs.

The BAP maximum allowable daily feed input to cages and net pens in lakes and reservoirs shall be based on HRT as follows.

- Long HRT – 2.5 kg/ha/day \times lake water surface area (ha)
- Moderate HRT – 5.0 kg/ha/day \times lake water surface area (ha)
- Short HRT – 7.5 kg/ha/day \times lake water surface area (ha)

If cages or net pens are installed in an embayment with restricted water exchange, the maximum daily feed input shall be reduced by 50%. If there are multiple cage and net pen operations in a water body, the total daily feed inputs of all operations shall not exceed the maximum allowable daily feed input based on HRT.

Once every three months, a water sample shall be taken and the percentage of blue-green or other potentially

harmful algae assessed. See phytoplankton methods manual at <http://nps.gov.au/files/products/national-river-health-program/pr990300/pr990300.pdf>.

Feed input shall be reduced until water quality improves when:

- Dissolved-oxygen concentrations are consistently below 5 mg/L in early morning at any sampling location.
- The average annual Secchi disk visibility decreases by 25% after certification is achieved.
- Blue-green algae or other potentially harmful algae comprise more than 60% of the phytoplankton.
- The thermocline becomes 25% shallower after certification is achieved.

Discharges from water bodies containing cages or net pens can cause water pollution downstream. Thus, if the feed input to the water body must be reduced because of signs of increasing eutrophication, the discharge of the lake shall be monitored. Aquaculture operations shall not be eligible for certification unless the discharge is in compliance with BAP effluent criteria.

Cages, Net Pens in Ponds

Ponds are privately owned but usually discharge into public waters. Effluents from ponds containing cages or net pens shall comply with BAP water quality criteria.

Cages, Net Pens in Streams and Rivers

Stream and river flow is variable and too difficult to measure to use as a guide to establish maximum daily feed inputs. Thus, soluble phosphorus and total ammonia nitrogen concentrations shall be used as indicators for cage and net pen operations.

Soluble phosphorus and total ammonia nitrogen shall be measured monthly at a depth of 50 cm and immediately upstream of cages and 200 m downstream of the cages. The downstream concentrations shall not exceed the upstream concentrations by more than 25%. Feed input shall be adjusted downward when compliance cannot be achieved.

Cages, Net Pens in Irrigation Systems

Where water from irrigation systems is used only for crop irrigation, cage and net pen operations shall be

exempt from feed input limits and water quality monitoring and effluent limitations. However, if water has other uses, production facilities in irrigations systems shall be treated for BAP certification as facilities installed in streams.

Cages, Net Pens in Estuaries

As a general rule, cage and net pen areas in estuaries are well flushed. Thus, daily feed input of 7.5 kg/ha of the surface area of the estuary is allowed. Monitoring shall be the same as for operations in lakes or reservoirs with two exceptions: There is not a thermocline in estuaries as in lakes and reservoirs, and it is not necessary to monitor discharges of estuaries for compliance with BAP water quality criteria.

Load Indices for Cages, Net Pens

Water use indices cannot be applied to cages and pens. The loads of nitrogen and phosphorus imposed by cages and net pens on receiving water bodies can be estimated as indicated in Appendix E.

Production Practices for Cages, Net Pens

The most reliable way of reducing nutrient outputs from cage and net pen culture is to increase feed use efficiency. This can be done mainly by using high-quality feed that contains no more nitrogen and phosphorus than necessary and by assuring that fish consume all of the feed offered.

Thus, fish should have access to the feed for enough time so that they consume it before the pellets pass through the cage or pen mesh. Also, feeding rates should be monitored to avoid overfeeding.

Observations of fish-feeding activity are enhanced by using floating feed for certain species. For waters less than 30 m deep, a diver should periodically go beneath cages to determine if uneaten feed is accumulating on the bottom.

Dead fish should be removed promptly and disposed of on land by responsible procedures. Carcasses should never be discarded in water bodies where cage culture is conducted.

Nets of cages and pens often are removed and cleaned on shore. Cleaning waste shall be diverted into a sedimentation pond, sanitary sewer or other treatment system.

It is not feasible to treat wastes from cages and net pens. The main precaution against pollution is to locate culture units in open-water areas where water circulation is sufficiently high to transport wastes away from cages and rapidly mix and dilute wastes. The distance between cage bottoms and the bottoms of water bodies should be at least 1 to 2 m to promote water movement beneath cages.

High biomass in a particular location can obviously increase the likelihood of pollution. While there are no specific guidelines for the biomass that can be safely sustained at a particular cage site, monitoring shall be used to track the status of water quality. In bodies of water that stratify thermally, a high biomass can result in severe organic enrichment and

dissolved-oxygen depletion in the hypolimnion. Subsequent sudden thermal destratification can result in dissolved-oxygen depletion throughout the water column. This phenomenon has been responsible for serious fish mortality both inside and outside cages.

Wastes can accumulate beneath cages and cause deterioration of sediment quality. This is environmentally undesirable and can have negative impacts on the fish in cages, as well. Sediment quality in areas with fish cages can be protected by fallowing – periodically moving cages to new sites and allowing the original sites to recover. Observations on sediment quality shall be used to determine when to move cages.

Standards

Cages, Net Pens in Lakes, Reservoirs

- 6.1: The water quality of the water body, including its discharge point if applicable, shall meet the BAP effluent water quality criteria, with sampling conducted following the implementation guidelines above.
- 6.2: Facilities shall maintain accurate records of daily feed inputs that reflect compliance with the BAP maximum allowable daily feed input levels.
- 6.3: Total feed input for all culture operations on the lake or reservoir shall not exceed the BAP maximum allowable daily feed input.
- 6.4: Water quality-monitoring records shall be applied in the management of feeding rates when dissolved oxygen levels are consistently below 5 mg/L in the early morning.
- 6.5: Water quality-monitoring records shall be applied in the management of feeding rates when mean annual Secchi disk visibility decreases by 25% since initial certification.
- 6.6: Water quality-monitoring records shall be applied in the management of feeding rates when blue-green or other potentially harmful algae comprise more than 60% of total phytoplankton.
- 6.7: Water quality-monitoring records shall be applied in the management of feeding rates when the thermocline becomes 25% shallower since initial certification.
- 6.8: For cages in water less than 30m deep where sediments are (in the absence of cages) usually aerobic, divers or cameras shall periodically, at least once per production cycle, inspect for accumulation of feces and uneaten feed and where necessary sites shall restore aerobic benthic conditions by fallowing or other means.

Cages, Net Pens in Streams and Rivers

- 6.9: Monthly records of upstream and downstream total ammonia nitrogen and soluble phosphorus concentrations shall be available.
- 6.10: Maximum daily feeding rates shall be managed such that downstream concentrations of nutrients do not exceed upstream concentrations by more than 25%.

Cages, Net Pens in Estuaries

- 6.11: Feeding records shall demonstrate that the maximum daily feeding rate of 7.5 kg/ha of estuary is not exceeded.
- 6.12: Water quality-monitoring records shall be maintained as specified.

7. Environment (Marine Cages Only)

Sediment Control

Marine cage farms shall be located and operated such that they minimize negative impacts on sediment quality outside a defined sediment impact zone.

Reasons for Standard

Marine cage farms have the potential to cause environmental harm due to sediment accumulation under farms. The causes include settlement of feces and uneaten food, detachment of fouling debris from nets or sloughing of antifouling materials. Sediment monitoring is the most practical means of detecting change.

Implementation

In some countries and regions, cage farms are subject to specific regulations on benthic impacts, but in other places, regulations may be inadequate or non-existent. This standard reinforces any existing regulations and describes minimum requirements where effective rules are not already in place.

Cage farms are usually located following a hydrographic, biological and physical study of the site to determine that farm operations will not have significant negative impacts on animal populations that comprise the benthos under or near the farm. Then "allowable" benthic impacts are set as conditions in the operating permits for the farm, which are defined in terms of one or more of several chemical properties of the sediments. Sometimes these are then correlated with species density and diversity determinations, which are based on prior knowledge of local sediment biology or analysis of sediment reference samples collected from the farm location.

Production cycles and fallowing shall be coordinated with other neighboring BAP applicants or BAP-certified farms, or with members of an established Area Management Agreement. Neighbors should participate in the creation and implementation of Area Management Agreements to address cumulative impacts associated with multiple farms. BAP-certified operations that operate in isolation should have a statement of intent to enter an AMA, should another operation move into the area.

Farm permits and/or local regulations usually define an allowed "sediment impact zone," "allowable zone of effect" or "footprint of deposition," and prescribe monitoring protocols to check it. Because biological sampling of sediments requires special expertise and is time-consuming and expensive, chemical sediment properties are usually used as leading indicators of sediment condition. Biological sampling is only required in some jurisdictions if an indicator trigger point is exceeded.

Chemical indicators used for this purpose include oxygen concentration in the sediment, sulfide, REDOX potential, total organic carbon or total volatile solids, or visual inspection with documentation by video. Some methods are better suited to some environments than others.

For example, sulfide determination works well in silt or clay sediments containing up to 50% sand, as does determination of total organic carbon. Above this level of sand, an indicator such as total organic carbon works better. On hard bottoms with over 10% gravel, visual recording by video is best because grab sampling is impossible, and many such sea bottoms are erosional in nature, not depositional.

Since different methods or combinations of methods may be required in different jurisdictions based on local hydrographic or benthic conditions, no preferred method is specified in this standard, only that whatever method is used shall be undertaken using standard methods of sampling and analysis that conform to generally accepted international standards.

In situations where sediment monitoring is a statutory requirement and allowed sediment impact zones are defined, all applicants for BAP certification shall:

- Provide documents that describe local standards for benthic impacts under cage farms.
- Existing farms shall provide at least three years of monitoring data to show that the farms meet or exceed benthic standards required by operating permits at current production levels.

- New farms shall have completed a baseline study, with review by an independent expert, that describes hydrographic and benthic conditions at the farm site, and that in the expert's opinion (given without liability), the farm can meet or exceed the benthic standards required by its operating permits at current or proposed production levels. This opinion shall be verified by reference to sampling results at the next audit.
- Provide documents to show that sediment quality was determined using generally accepted sample collection and analytical methods.
- Collect and store data from which the farm's feed-based carbon and nitrogen discharges can be calculated. This means recording the carbon and nitrogen content of feed fed, the weight of all fish harvested plus dead fish removed during farming, less the weight of the juveniles stocked.

In countries or regions where sediment monitoring is not required as described above and/or where an allowed sediment impact zone is not defined, applicants shall write and implement a monitoring plan that requires them to:

- Nominate an independent individual or company with demonstrated expertise in sediment sampling and analysis to design a sediment sampling and analysis program appropriate to the farm conditions and to conduct sediment monitoring as required below.
- Chart an allowable sediment impact zone that shall not exceed the total area of the farm plus a boundary zone of 40 m around it. The footprint may be shifted in any direction to account for normally occurring uneven current patterns, as long as the total area remains the same.
- Monitor the organic build-up on the seabed within this zone by the method deemed best for the type of sediment that exists there. The choice of method shall be justified by prior documentation of the type of sediments over which the farm is located.

- Conduct sediment sampling to coincide with the period of peak feeding during each crop cycle. Samples shall be taken along at least two transects that pass directly through the farm and align with the dominant flow of water at the farm site. One sample with three replicates shall be taken at the edge of the farm and another at the 25-m or 40-m boundary. (See above.)
- Five replicate samples shall also be taken from at least two reference stations within 1 km of the farm that have similar depth and sediment characteristics as occur at the farm and where there is no fish production.
- Demonstrate by statistical analysis of the results that there is no organic build-up due to farm activity at the boundary of the allowable sediment impact zone in comparison to the reference station, as determined by the monitoring method chosen.
- Collect and store data from which the farm's feed-based carbon and nitrogen discharges can be calculated.

Additional Information

Australia Marine Farm License Conditions, Schedule 3 Farm Site Inspection Checklist

British Columbia Salmon Farmers and Province
of British Columbia – 2001

<http://www.salmonfarmers.org>

Guide to the Assessment of Sediment Condition at Marine Finfish Farms in Tasmania

C. Macleod and S. Forbes (editors)

Tasmanian Aquaculture and Fisheries Institute
University of Tasmania

Hobart, Tasmania, Australia

http://www.imas.utas.edu.au/data/assets/pdf_file/0011/68384/AquafinCRC_ProjectNo4.1.pdf

Norwegian Standard N.S. 9410.E

Environmental Monitoring of Marine Fish Farms

Code of Good Practice for Scottish Finfish Culture

Scottish Salmon Producers' Organization

<http://www.scottishsalmon.co.uk>

Standards

- 7.1: The applicant shall provide documents that describe local standards for benthic impacts under cage farms, which shall include the benthic indicator “trigger level” above which the farm would not be in full compliance with the local standard, where this is clearly defined, or with its intent where it is not clearly defined.
- 7.2: For established farms, the applicant shall provide three years of monitoring data to show that the farm meets or exceeds sediment quality criteria specified in its operating permits and/or its own monitoring plan at current operating levels.
- 7.3: For newly established farms or farms that have expanded and do not yet have enough monitoring data, the applicant shall provide an independent study that characterizes the hydrographic and benthic characteristics of the area and provides a consultant’s opinion (without liability) that the farm can meet or exceed sediment and water quality criteria if operated correctly. This opinion shall be verified by reference to sampling results at the next audit.
- 7.4: Monitoring of sediment conditions shall be undertaken at the time of peak feeding during the production cycle and shall be conducted according to the requirements of the farm’s operating permits or its own plan in countries or regions where sediment monitoring is not required, and as specified in the implementation requirements.
- 7.5: Sediment sampling and analysis performed as part of the monitoring program shall apply generally accepted international methods and be adapted to the local hydrographic or benthic conditions.
- 7.6: The results of sediment monitoring shall be reported to and reviewed and accepted by the appropriate regulators. Where regulatory approval is conditional upon implementing a program of remedial action, this shall have been implemented and completed.
- 7.7: Data that will enable the farm’s feed-based carbon and nitrogen discharge to be calculated shall be collected and recorded.
- 7.8: Production cycles and fallowing shall be coordinated with other neighboring BAP applicants or BAP-certified farms, or with members of an established Area Management Agreement.
- 7.9: Where an AMA has not been established, applicants shall nevertheless demonstrate cooperation on matters of stocking, fallowing, animal health and biosecurity with BAP-certified farms within an area twice the regulatory minimum separation distance to an upper limit of a 5-km radius.

8. Environment (Ponds and Other Land-Based Systems Only)

Soil and Water Conservation

Pond Sludge Management

Farm construction and operations shall not cause soil and water salinization or deplete groundwater in surrounding areas. Farms shall properly manage and dispose of sediment from ponds, raceways, canals and settling basins.

Reasons for Standard

In some locations, freshwater from underground aquifers is used to dilute salinity in brackish water ponds or as the main water supply for freshwater ponds. Farming can cause salinization if saline water from ponds infiltrates freshwater aquifers or is

discharged into freshwater lakes or streams. Farms can potentially lower water tables and negatively affect groundwater availability. Where other suitable water sources are available, the use of well water is discouraged.

Sediments that accumulate in canals, raceways, ponds and settling basins can negatively impact water movement and affect pond soil and water conditions, necessitating periodic dredging and removal. Sediments are mostly mineral soil enriched with organic material, but at some farms also contain water-soluble salt from contact with saline water. Improper disposal of salt-laden sediments from ponds can cause salinization of soil and water.

Implementation

When brackish ponds are drained into a freshwater stream, the water should be discharged when stream flow is high. The water shall be discharged slowly to avoid increases in chloride concentration greater than 250 mg/L in the receiving water body.

Several practices can be adopted to lessen the risk of salinization. One of the most important is to avoid constructing ponds in highly permeable, sandy soil, or to provide clay or plastic liners to minimize seepage.

Other useful practices:

- Do not discharge saline water into freshwater areas.
- Avoid excessive pumping of groundwater from freshwater aquifers, and do not use freshwater from wells to dilute salinity in growout ponds.
- Monitor chloride concentration in freshwater wells near farms to determine if salinization is occurring.

In freshwater ponds, use the drop-fill method to capture rainfall and runoff, and reduce the use of water from other sources. In applying this method, water should not be added to ponds during dry weather until the water level has fallen 15 to 20 cm below the overflow level. Water should then be added to increase the water surface level by not more than 7.5 to 10 cm. This practice provides storage volume sufficient to capture normal rainfall and runoff.

Farm ponds should be surrounded by a ditch to intercept seepage. This ditch should be large enough to capture overflow from ponds following rainfall. When

ponds are drained for harvest, water should be stored in a reservoir or transferred to other ponds for reuse. A vegetative barrier of salt-sensitive vegetation around farms can help detect movement of salt into adjacent areas.

When freshwater from wells is used to supply ponds or other production facilities, water levels in nearby wells shall be monitored by appropriate agencies to determine if aquaculture use is contributing to a decline in the water table level. Use of water from irrigation systems shall be in accordance with regulations, and effluents shall be returned to the irrigation system.

Where possible, seine harvest fish and do not drain ponds for several years. This practice is highly recommended, for it conserves water, and reduces effluent volume and pumping costs.

Sediment and Sludge Management

Aquaculture ponds have high hydraulic retention times and function as sedimentation basins, but negative environmental impacts can arise when sediments are resuspended during harvest or when sediment is pumped from ponds during the culture period and discharged as a highly fluid sludge. The sludge contains organic material from feces and uneaten feed, but often mainly comprises mineral particles that enter the ponds in source water from a river.

Discharge of sludge may not be an issue for ponds with production of less than 20 MT/ha/crop, but above this threshold, the use of sedimentation basins for sludge disposal is needed. If sediment is disposed of outside water-holding structures, care shall be exercised to prevent the formation of spoil piles that can disrupt local ecological processes through erosion and transport to surrounding areas. Runoff from spoil piles onto non-saline soil or into freshwater can cause salinization. Downward seepage can result in salinization of freshwater aquifers.

Implementation

The first principles of sediment management on farms are to prevent excessive sedimentation through good management practices and confine sedimentation to specific parts of the farm. Where farm supply water has a large sediment load, reservoirs for pre-sedimentation

can remove much of the suspended material so it will not settle in supply canals and production ponds.

Sediment accumulation in ponds and canals can be reduced by:

- implementing proper earthen infrastructure design to lessen erosion by rainfall and water currents
- placing aerators to avoid impingement of water currents on embankments
- reinforcing erosion-prone areas with stone or other lining materials
- covering bare areas with gravel or grass.

On large farms, sediments removed by dredging shall discharge into containment areas rather than directly into streams or other estuarine areas. These can be installed along the margins of canals or on areas of salt flats above high tide. Pond sediment from bank erosion can usually be placed back on eroded areas.

Farms shall not dredge or fill in sensitive wetlands or wetland buffers to increase the area available for pond construction.

Prevention of erosion avoids re-sedimentation of soil material from effluents downstream from farms. The control of erosion from effluent involves reducing the impact energy of discharges upon soil and reducing water velocity in ditches to prevent scouring. Drainpipes should extend at least 1 m beyond embankments at an elevation near the ditch bottom. The pipe outlet area should be protected with a splash shield or riprap to reduce effluent energy. Drainpipes that discharge directly into streams should extend over the stream bank to prevent erosion and be located near the stream's normal water level.

When sediment is disposed of outside the immediate farm area, it shall be confined to an earthen containment area where soils are saline to prevent runoff. Overflow or seepage of saline soil and water from the confinement shall not cause harm in the area.

In inland shrimp farming, saline sediment shall be confined to prevent overflow after rainfall events. The confinement structures shall be large enough to hold the largest amount of rainfall expected within any 24-hour period over 25 years. If the soil is highly pervious, the confinement area shall be lined to prevent seepage.

Once sediment is leached of salt by rainfall, it can be used for landfill or other purposes.

When sediment is stored, it shall be confined within a diked area so that solids suspended by rainfall can be retained. When sediment must be removed, it should ideally be reused to repair pond earthworks or applied as fill material. The sediment can also be spread in a thin layer over the land and vegetative cover established.

Sedimentation Basins

The minimum required sedimentation basin volume can be estimated using the following equation:

$$\text{Sedimentation basin volume} = 37.5 \times [\text{Fish production (MT)} \div \text{Sludge transfers (times/crop)}] + [\text{Fish production (MT)} \div 0.6]$$

In the above equation, fish production is the total quantity of fish produced in all ponds that discharge into the sedimentation basin, and sludge transfers are the mean frequency at which sludge is moved from ponds to the sedimentation basin. It is also assumed that:

- The minimum hydraulic retention time to allow coarse and medium solids to settle out is six hours.
- One MT of fish production equates to 1 MT sediment.
- Sludge removal can be spread over a 24-hour period.
- Sediment bulk density is 0.6 t/m³.
- The solids content of sludge is 6.5 kg/m³.
- Accumulated sediments in the basin are removed at the end of each crop to return the basin to its original capacity.

Note: If sludge is removed more frequently from ponds, the required size of the sedimentation basin is reduced. The farm operator shall provide the auditor with mean values for fish production and sludge transfer frequency so the required sedimentation basin volume can be calculated. The auditor will verify that the farm has the required volume of basins in use and available for sludge containment.

Basins should be configured so that raw sludge enters at the top of the basin and resulting effluent exits at the top on the other side of the basin. Five or six calibrated poles should be installed in basins to allow the build-up of settled solids to be monitored and ensure the



remaining capacity supports a minimum six-hour hydraulic retention time. Sediments removed from sludge basins shall be confined at the farm or used for landfill or agriculture.

Raceways or similar flow-through systems have short retention times, and in high-intensity operations, sediment loads can often exceed acceptable limits.

Therefore, such farms must incorporate suitably sized settling zones or other engineered solutions that assure removal of the majority of settleable solids. Accumulated solids must be pumped or siphoned periodically to offline sludge basins, where they can be dewatered and subsequently removed for use as fertilizer in land-based agriculture crops

Standards

- 8.1: If ponds are constructed on permeable soil, measures such as the use of pond liners shall be taken to control seepage and avoid contamination of aquifers, lakes, streams and other natural bodies of freshwater.
- 8.2: For inland brackish ponds, quarterly monitoring of neighboring well and surface water shall not show that chloride levels are increasing due to farm operations.
- 8.3: If a farm is extracting groundwater, water levels in nearby wells shall be monitored at least annually during the dry season to establish that aquaculture is not lowering the water table.
- 8.4: Use of water from wells, lakes, streams, springs or other natural sources shall not cause ecological damage or subsidence in surrounding areas.
- 8.5: Farm operations shall not cause wetland vegetation at the facility perimeter to die off.
- 8.6: Dredge and fill activities shall not be conducted in sensitive wetlands or wetland buffers to increase the area available for pond construction.
- 8.7: Any accumulated sludge removed from ponds, reservoirs or sedimentation basins shall be confined within the farm property or consolidated and used locally for landfill or agriculture.
- 8.8: Removed sediment shall be properly contained and located to prevent the salinization of soil and groundwater and not cause other ecological nuisances.
- 8.9: Facilities shall avoid the creation of degraded areas such as borrow pits and piles of soil.
- 8.10: Dredged material shall be properly contained and not placed in mangrove areas or other sensitive habitats.
- 8.11: The applicant shall take measures to control erosion and other impacts caused by outfalls.
- 8.12: If the applicant's facility produces more than 20 MT/ha/crop, the facility shall possess sufficient sedimentation basin capacity to handle the associated sludge/sediment. The facility shall process all sludge/sediment in sedimentation basins and not dump material in sensitive wetland or mangrove areas, or public water bodies.

9. Environment (All Production Systems)

Fishmeal and Fish Oil Conservation

Farms shall accurately monitor feed inputs and minimize the use of fishmeal and fish oil derived from wild fisheries.

Reasons for Standard

The majority of feeds manufactured for use in aquaculture contain fishmeal and fish oil as protein and lipid sources. Although fishmeal and fish oil are renewable resources derived primarily from small fish that are not generally utilized for direct human consumption, there are limits to the amounts of these products the world's oceans can supply.

The BAP program therefore supports the use of protein feed ingredients derived from terrestrial sources, as well as fishmeal and fish oil produced from fish processing and fishery by-products. Fishery-based ingredients from wild sources should come from responsibly managed fisheries.

In addition, by improving the efficiency with which feed is converted into fish biomass, farmers can lessen the amount of fishmeal and fish oil used. More efficient feed conversion also has a direct beneficial impact on

water quality and limits the release of excess nutrients to the environment.

Implementation

Aquaculture feeds are typically manufactured at commercial facilities and delivered to farms. Farmers shall obtain feed from suppliers that provide reliable information on the crude protein and fishmeal and fish oil content in the feeds. Farmers shall record the characteristics of all feeds used, the total amounts of each feed used each year and the total annual fish production. Although BAP criteria for feed conversion have not been established, producers should strive to reduce their facilities' feed-conversion ratios as low as practicable. Also, certified farms should maintain or lower feed conversion in the years following their initial certification. Harvest size shall be considered when assessing the evolution of feed conversion.

To promote the responsible sourcing of marine ingredients, the applicant shall obtain feed from a BAP-certified feed mill or a feed mill that declares and documents compliance with BAP feed mill standards 3.1 and 3.3. These standards address sourcing policies on marine ingredients, covering traceability for species and origin, and the exclusion of any species designated on the IUCN Redlist as endangered or critically endangered.

The BAP Feed Mill Standard requires that: After June 2015, for fishmeal and fish oil derived from reduction fisheries, at least 50% (calculation based on mass balance) shall come from sources that are certified by either the Marine Stewardship Council (MSC) or to the International Fishmeal and Fish Oil Organization Responsible Supply standards (IFFO RS).

Alternatively, where MSC- or IFFO RS certified fishmeal and fish oil are not produced nationally, the above minimum percentage can comprise material from active approved improvers programs as verified by IFFO (<http://www.iffonet/node/493>), the Sustainable Fisheries Partnership (SFP, <http://fisheryimprovementprojects.org/view-fips/>) or World Wildlife Fund (WWF, <https://sites.google.com/site/fisheryimprovementprojects/home>). This 50% target will be periodically reassessed with the ultimate goal that all fishmeal and fish oil are derived from certified sources.

Additional Data

Feed-Conversion Ratio

The feed-conversion ratio is a measure of the amount of feed needed to produce a unit weight of the culture species. Farms shall calculate and record FCR yearly using the following:

Equation 1

Feed-conversion ratio = Annual feed use (MT) ÷
Net fish harvested (MT)

The feed-conversion ratio is also known as the economic FCR. Note that economic FCR is very sensitive to survival rate, rising sharply if the survival rate drops significantly. For precise calculation, the total weight of stocked juveniles is subtracted from the total weight of the harvested fish.

"Fish In:Fish Out" Ratio

The so-called "fish in:fish out" ratio is one means of measuring the ecological efficiency of an aquaculture system. It compares the amount of fish consumed by the system (usually in the form of fishmeal and fish oil) with the amount of fish produced.

Aquaculture producers should strive to obtain the lowest fish in:fish out ratio practicable in order to conserve industrial fish resources. Since many aquaculture diets incorporate only small amounts of fishmeal and fish oil, farms that use these feeds can have fish in:fish out ratios of less than 1, indicating they actually make a net contribution to global fish supplies.

Farms shall calculate and record a final yearly fish in:fish out ratio using Equation 2 below. In the absence of better, specific data from the feed supplier, the transformation yields for industrial fish to fishmeal and fish oil to be used are 22.5% and 5%, respectively.

Metric standards for some key aquaculture species have been set, and anonymous, pooled fish in:fish out data shall be used in the future to establish metric standards for other species.

Equation 2

Fish in:fish out ratio = Feed fish inclusion factor of feed (from manufacturer) x feed-conversion ratio

Where feed fish inclusion factor = [Level of fishmeal in diet (%) + Level of fish oil in diet (%)] ÷ [Yield of fishmeal from wild fish (%) + Yield of fish oil from wild fish (%)]

The inclusion levels in Equation 2 shall include any meal or oil derived from wild-caught fish, squid, krill,

mollusks or any other wild marine animals. However, they shall exclude meal or oil derived from fishery by-products such as trimmings, offal and squid liver powder and aquaculture by-products such as shrimp head meal.

Standards

- 9.1: The applicant's facility shall use feed for which the manufacturer has provided data on the wild fishmeal and fish oil content or feed fish inclusion factor.
- 9.2: The facility shall record the characteristics of all feeds used, the total amounts of each feed used each year and the total annual crustacean or fish production.
- 9.3: The facility shall calculate and record a yearly feed-conversion ratio for completed crops.
- 9.4: The facility shall calculate and record a final yearly fish in:fish out ratio for completed crops.
- 9.5: The fish in:fish out ratio shall not exceed the following values: *Litopenaeus vannamei* – 1.2, *Penaeus monodon* – 1.7, tilapia – 0.7, *Pangasius* – 0.5. Limits have not yet been fixed for other species, and will be added once adequate data has been accumulated. For other species the values shall be recorded as information only.
- 9.6: The applicant shall obtain feed from a BAP-certified feed mill or a feed mill that declares and documents compliance with standards 3.1 and 3.3 of the BAP feed mill standards.

(Note: the referenced BAP Feed Mill Standards are FM 3.1: The applicant shall obtain declarations from suppliers on the species and fishery origins of each batch of fishmeal and fish oil. FM3.3: The applicant shall develop and implement a clear, written plan of action defining policies for responsibly sourcing fishmeal and fish oil.)

10. Environment (All Production Systems)

Stocking Sources and GMOs

Wild juveniles shall not be stocked. Certified farms shall comply with governmental regulations regarding the use of native and non-native species, and genetically modified aquaculture species.

Reasons for Standard

Most nations allow the importation of native species, and some allow specified non-native imports. Among other factors, regulation is required because diseases can be transferred between countries and species by importations of eggs, fry and broodstock. Regulations usually require health certificates and quarantine.

GMOs

Genetically modified organisms (GMOs or transgenic organisms) are defined as organisms that have been genetically modified by artificial transfer of genetic material from another species. Sterile or sex-reversed

organisms and their offspring, and organisms created by hybridization and polyploidy are not GMOs.

Should genetically modified fish or crustaceans be commercialized in the future, producers shall comply with all regulations in producing and consuming countries regarding such organisms. Since some consumers do not desire genetically modified foods, they should be provided with reliable information to enable informed food choices.

Implementation

Participating farms shall keep records of their sources and purchases of stocking material and record the number stocked in each culture unit for each crop. A sample Traceability Form that records these data is provided in Appendix F. In the future, farms that stock GMO species shall also note this information. During site inspection, documentation of compliance with

government regulations relating to the import of fry or postlarvae shall be available. The applicant should establish a link to the domestic competent authority (veterinary authority or other government body) to verify international importation requirements and follow the International Health Certificate protocol defined by OIE.

Regulations differ by country, and the certification body cannot maintain complete records of the requirements in every country. Auditors should become familiar with relevant regulations in countries that they serve.

Non-Native Species

Introductions of species to countries where such species are not native, not feral or not already farmed shall be subject to the provisions of the 2005 ICES Code of Practice on the Introductions and Transfers of Marine Organisms or, in the case of freshwater species, FAO 1988: Codes of Practice and Manual of Procedures for Consideration of Introduction and Transfers of Marine and Freshwater Organisms. To reduce the potential impact of escapes, technologies such as sterility, ploidy and monosexing are encouraged.

Standards

- 10.1: The facility shall maintain accurate records of the species farmed and, where relevant, any significant stock characteristics, including but not limited to non-native, specific pathogen-free, specific pathogen-resistant, hybrid, triploid, sex-reversed or genetically modified (GMO) status.
- 10.2: If government regulations control the use or importation of any of the species or stocks farmed, relevant permits shall be made available for inspection, even if imported fry were purchased from an intermediary.
- 10.3: The facility shall keep records of sources and purchases of stocking material, and record the number stocked in each culture unit for each crop.
- 10.4: Wild juveniles shall not be stocked, other than as incidental introductions when extensive ponds are first filled.
- 10.5: Where the species farmed is not native, not feral or not already farmed, further documents shall be provided to demonstrate that regulatory approval for farming is based on the 2005 ICES Code of Practice on Introductions and Transfers of Marine Organisms or, for freshwater species, the Codes of Practice and Manual of Procedures for Consideration of Introduction and Transfers of Marine and Freshwater Organisms, FAO 1988.

11. Environment (All Production Systems, several sections for cages only)

Control of Escapes

Certified farms shall take all practical steps to prevent escapes and minimize possible adverse effects on aquatic wildlife if escapes occur.

Additional Information

ICES Code of Practice on Introductions and Transfers of Marine Organisms 2005

International Council for the Exploration of the Sea
<http://www.ices.dk/publications/Documents/Miscellaneous%20pubs/ICES%20Code%20of%20Practice.pdf>

Codes of Practice and Manual of Procedures for Consideration of Introduction and Transfers of Marine and Freshwater Organisms

European Inland Fisheries Advisories Commission Food and Agriculture Organization of the United Nations
Rome – 1988

<ftp://ftp.fao.org/docrep/fao/009/ae989e/ae989e.pdf>

OIE Aquatic Animal Health Code

<http://www.oie.int/doc/ged/D7821.PDF>

OIE Manual of Diagnostic Tests for Aquatic Animals

<http://www.oie.int/en/international-standard-setting/aquatic-manual/access-online>

Reasons for Standard

The escape of domesticated and/or non-native culture species or the release of their eggs or larvae could lead through interbreeding to the alteration of the gene pools of local crustacean or fish populations. Escapes of non-native species could also lead to competition with

native species for food and/or habitat, and possibly have other detrimental ecological consequences. Diseases can also be transmitted from escapees to wild fish.

Typically escapes occur when holes develop in nets due to wear and tear, collisions with boats, human error or attack by large predators. Damage can also occur during severe weather, which can tear nets and lead to substantial losses. Escapes sometimes happen when fish are removed from the water for grading or harvesting, or if net meshes are too large for the smallest fish stocked in the cages.

Implementation

All incidents involving animal escapes shall be accurately documented. Farms should demonstrate reductions in escapes over time. All systems shall be designed to minimize the escape of culture animals. For example, ponds and other culture systems shall have intact screens on water inlets and outlets. Acceptable filter devices include a series of mesh screens capable of screening all water, dry-bed filters constructed with gravel and sand, microscreen solids filters, and pond traps with screened discharge. Production facilities shall be constructed so as to prevent overtopping by storm surges, waves or flood water. When heavy rainfall is expected, pond levels should be drawn down to prevent the rain from raising water levels and overtopping embankments.

Cages, Net Pens

Cages, nets and pens shall be tagged and maintained in good condition, and records of repairs shall be kept. Periodic inspections of mooring lines shall be documented. Jump nets that extend above the water line should surround the perimeters of net cages. Applicants shall adhere to any local cage design and construction standards approved by local producer associations.

Every effort shall be made to assure that fish do not escape from enclosures in water bodies. Cages and net pens shall be constructed of sturdy material and maintained in good condition to minimize the likelihood of holes and rips through which fish can escape. It is particularly important to use material that does not corrode, as holes can suddenly appear without warning in nets made of corrodible wire.

Cages and pens should be placed in areas where there is little danger of collisions with boats or floating debris and where heavy waves are not likely to damage them. Placement of cages and pens in navigable waters may need approval from governmental authorities. Divers or underwater cameras shall periodically inspect cages for holes, rips and tears.

Cages – Fish Containment Plan

Applicants operating cages shall have a written Fish Containment Plan that covers escape prevention and deals with known or suspected escapes.

Escape Prevention

- Documents shall show the farm's moorings were installed according to the manufacturer's and/or marine engineer's specifications.
- A site risk analysis updated at least annually shall identify the potential and actual causes of fish escapes, determine their relative likelihood of occurrence or recurrence at the farm site, and identify critical control points for effective escape risk monitoring, reduction and response by farm staff.
- Procedures based on the risk analysis shall include management protocols and actions designed to monitor escape risks, reduce them when identified and respond to escape events in a timely and effective manner. The efficacy of these measures shall be verified and documented through the year.
- Procedures shall require the main surface components of the system to be inspected at least annually and repaired or replaced as needed. The sub-surface components must be inspected and replaced as needed at least every two years or between each crop cycle, whichever is shorter. Equipment shall be replaced as needed.
- Net inventory management procedures shall track the ages of all nets on the farm or in storage, and provide strength tests on all nets between crops or every two years, whichever period is shorter. Nets shall be retired when their strength is below levels specified in local regulations or, where there are none, below the manufacturer's or supplier's recommendations.

- Cage inspection procedures shall ensure all operational nets are surface checked for holes at least weekly and checked sub-surface at least every four weeks. Nets and cage superstructure shall be checked for holes and other indications of structural damage after risk events such as storms or big tides.
- Predator deterrence procedures shall minimize the risk that predators can make holes in nets.
- Boat equipment shall include guards on propellers and staff training procedures that minimize the risk of contact between boats and farm nets.
- At marine sites, procedures and equipment consistent with local Coast Guard rules shall warn non-farm marine traffic of the farm's presence.
- Procedures for handling live fish shall prevent "spillage."
- As part of their initial training, all staff shall receive training on all procedures in the Fish Containment Plan.

Known and Suspected Escapes

- BAP applicants shall maintain equipment for attempted recapture of escaped animals and have written procedures for its use. The procedures must enable rapid response, subject to legal constraints on the types of equipment that can be used.
- If an escape is known or suspected to have occurred, the cause shall be investigated immediately, and steps shall be taken to correct it. These actions shall be documented in farm records.
- If, after investigation, there are grounds for believing an escape occurred, the fish remaining in the cage or cages shall be counted, if and/or when water and welfare indicators indicate this can be done without causing excessive distress to the fish, and any loss of inventory shall be recorded.

Standards

All Production Systems

- 11.1: All holding, transport and culture systems shall be designed, operated and maintained to minimize the release of eggs, larval forms, juveniles and adult animals.
- 11.2: Screens and nets sized to retain the smallest farmed animals present shall be installed on water outlet pumps, pipes or sluices. Screens, nets or other controls shall be installed on or near pump intakes to minimize the introduction of local aquatic fauna.
- 11.3: During harvesting and stock transfer operations, effective secondary containment measures shall be applied to control the escape of animals.
- 11.4: All incidents involving escapes of aquaculture animals shall be accurately documented.

Cages

- 11.5: Cages, nets and pens shall be tagged and maintained in good condition, and records of repairs shall be kept. Periodic inspections of mooring lines shall be documented. Jump nets that extend above the water line should surround the perimeters of net cages.
- 11.6: Applicants shall adhere to any local cage design and construction standards approved by local producer associations.
- 11.7: The applicant shall demonstrate that the farm meets the BAP procedural, performance, documentation and reporting requirements for fish containment required by the Fish Containment Plan outlined in the implementation requirements.
- 11.8: The applicant shall provide documents to show that all staff members have received training in the Fish Containment Plan, which shall be verifiable by training certificates in employees' files and verified at audit by a subset of interviews



- 11.9: If an escape is suspected or has occurred since the last audit, the applicant shall provide reports and farm records to show that the incident was dealt with in a manner consistent with the Fish Containment Plan.

12. Environment (All Production Systems, several standards for cages only)

Biodiversity and Wildlife Protection

Certified farms shall manage physical interactions with wildlife.

Reasons for Standard

Farms shall obey laws related to the destruction of birds and other predators. Where applicable, permits and records shall be available. The BAP program strongly encourages farms to employ humane, non-lethal measures for predator control, even when lethal methods are permitted.

Implementation

Farms shall record all predator mortalities (species and numbers). Additionally, all species listed as "endangered" and "critically endangered" by the International Union for Conservation of Nature (IUCN) Red List or protected by local or national laws shall be subjected to passive deterrence methods only, and no active or lethal means shall be used.

Cages – Wildlife Interaction Plan

Applicants operating cages shall have a written Wildlife Interaction Plan (WIP) that includes provisions stipulated in local laws and the farms' operating permits, as well as the following requirements, if not so stipulated.

The WIP shall include but not be limited to:

- A list of relevant local laws and specific conditions of the farm's operating permits that apply to wildlife management and protection.
- A list of local species classified as endangered or threatened under local laws and/or listed as "Critically Endangered" or "Endangered" on the IUCN Red List.
- At marine sites, a map that identifies officially designated "critical" and/or "sensitive" marine and coastal habitat in the region. If the farm is in an area so designated, a list of the classified or endangered sedentary species within a 2-km radius of the farm and of mobile coastal species within the region, updated where

necessary to show wildlife established after the farm was started, shall also be included.

- Training for farm staff in recognizing endangered, threatened and protected species they may see from the farm and a system for recording and reporting such observations to farm management and members of the public who have expressed interest.
- Designation of one member of staff to carry out lethal control measures, if needed, and for training of that individual in humane slaughter methods.
- Description of the farm's passive measures to deter the entry into cages of predatory birds or small mammals.
- At marine sites with carnivorous marine mammals, description of the farm's passive measures to protect cages from underwater attack.
- Procedures for the regular inspection of cages to check and report the integrity of the passive measures.
- Documentation to show that any active but non-lethal deterrent measures used are approved by regulators through a review of environmental impacts with specific reference to endangered, protected, threatened or cetacean species in the area. Such devices shall not be deployed if the review shows they can adversely affect these species.
- Reporting procedures in the event that control measures cause the accidental death of wildlife and for proposed action to prevent the same from happening again.
- Procedures that state lethal methods shall only be used after all non-lethal methods are attempted and must be legally approved.
- Procedures that make it clear that deliberate lethal controls on species classified as endangered or critically endangered are not to be used except under exceptional circumstances, such as risk to human life, and

then only after specific written authorization is obtained from regulators.

- Procedures for regulatory authorization, implementation and reporting of lethal control measures when these are deemed necessary.

Standards

All Production Systems

- 12.1: The facility shall use humane methods of predator deterrents and actively favor non-lethal methods. Where applicable, government permits for predator control shall be made available for review. No controls, other than non-lethal exclusion, shall be applied to species that are listed as endangered or highly endangered on the IUCN Red List or that are protected by local or national laws.
- 12.2: The facility shall record, and report where required, the species and numbers of all avian, mammalian and reptilian mortalities.

Cages

- 12.3: The applicant shall have a written Wildlife Interaction Plan consistent with the implementation requirements listed above and that complies with the procedural, performance and reporting requirements therein.
- 12.4: Farm employees shall be familiar with the provisions of the WIP and trained in aspects of it that they may be called upon to implement.

13. Environment (All Production Systems)

Storage, Disposal of Farm Supplies and Wastes

Fuel, lubricants and agricultural chemicals shall be stored and disposed of in a safe and responsible manner. Paper and plastic refuse shall be disposed of in a prompt, sanitary and responsible way. Excessive accumulation of waste and/or discarded farm supplies and equipment shall be removed and disposed of responsibly.

Reasons for Standard

Farms use fuel, oil and grease to power and lubricate vehicles, pumps, aerators and other mechanical devices. The main agricultural chemicals used in aquaculture include fertilizers, liming materials and zeolite. Some farms use insecticides, herbicides, parasiticides and algicides. Other products employed include preservatives, paints, disinfectants, detergents and antifoulants.

Fuels and some fertilizers are highly flammable and/or explosive, and pesticides, herbicides and algicides are toxic. They shall therefore be considered potential hazards to workers.

Spills or careless disposal of petroleum products and agricultural chemicals can also affect aquatic organisms and other wildlife in the immediate vicinity, and result in water pollution over a wider area.

Farms generate considerable waste that can cause pollution, odors and human health hazards on the farm and in surrounding areas when not disposed of properly. Human food scraps, out-of-date feed, other organic waste, and discarded equipment or supplies can attract pests and scavengers. Runoff from refuse piles can cause pollution and contaminate ground water. Empty plastic bags and other containers used for feed, fertilizer and liming materials do not decompose quickly. They can be a hazard to animals.

Implementation

Fuel, lubricants and agricultural chemicals shall be labeled and safely stored. Used chemicals shall be disposed of in a responsible manner.

Secondary containment shall be provided for individual or multiple fuel storage tanks. The containment volume shall be equivalent to the total stored volume plus 10%.

Oil leaks from tractors, trucks and other equipment shall be prevented through good maintenance. Oil changes and refueling shall avoid spills, with used oil sent to a recycling center.

Chemicals such as insecticides, herbicides, algicides, sodium metabisulfite used in shrimp, and detergents shall be stored in locked, well-ventilated water-tight

buildings. The buildings' concrete floors should slope to a center basin for containing spills. Warning signs shall be posted.

Feed shall be properly stored off the floor and away from walls, and protected from moisture, pests and other contaminants.

Fertilizers, liming materials, salt and other less hazardous agricultural chemicals shall be stored under a roof, where rainfall will not wash them into surface water. Particular care shall be taken with nitrate fertilizers, which are strong oxidants that are particularly explosive when contaminated with diesel fuel or other oils.

Procedures shall be developed for managing spills of chemicals and other products, and the supplies needed for cleaning up spills shall be readily available. Workers

shall be trained to properly use the equipment and handle the contained waste.

Trash, garbage and other farm waste, including discarded farm machinery and equipment, shall not be dumped in mangrove areas, wetlands or vacant land, or allowed to accumulate on farm property. Such waste shall be disposed of responsibly. Composting shall be done by a procedure that does not create an odor problem or attract wild animals.

Paper and plastic should be recycled if possible. Waste collection for recycling requires readily accessible waste containers that are serviced at regular intervals. All containers must be appropriately labeled with risk indicators (poisonous/explosive, etc.).

Standards

- 13.1: Fuel, lubricants, feed and agricultural chemicals shall be labeled, stored, used and disposed of in a safe and responsible manner.
- 13.2: Fuel, lubricants and agricultural chemicals shall not be stored near feed, in employee housing or kitchen areas, or near harvest equipment and supplies.
- 13.3: Fuel, lubricant and chemical storage areas shall be marked with warning signs.
- 13.4: Precautions shall be taken to prevent spills, fires and explosions, and procedures and supplies shall be readily available to manage chemical and fuel spills or leaks. Designated staff shall be trained to manage such spills and leaks.
- 13.5: Garbage from housing and food waste shall be retained in water-tight receptacles with covers to protect contents from insects, rodents and other animals.
- 13.6: Garbage and other solid waste, including fouling organisms, shall be disposed of to comply with local regulations and avoid environmental contamination and odor problems (e.g., recycling, burning, composting or placing in a legal landfill).
- 13.7: Household trash and other farm wastes shall not be dumped in mangrove areas, wetlands or other vacant land and shall be removed promptly and properly to avoid accumulation.
- 13.8: Discarded farm supplies and equipment (e.g., tires, pallets, bags, barrels, aeration paddles or engines) shall not be dumped in mangrove areas, wetlands or other vacant land, and shall be removed properly to avoid excessive accumulation.
- 13.9: Measures shall be taken to prevent infestation by animal and insect vectors and pests.
- 13.10: Secondary fuel containment shall conform to BAP guidelines for fuel storage.

14. Animal Health and Welfare (All Production Systems)

Culture Conditions and Practices

Producers shall demonstrate that all operations on farms are designed and operated with animal welfare in mind, and maximum survival shall be sought.

Employees shall be trained to provide appropriate levels of husbandry.

Reasons for Standard

Since society seeks to avoid needless animal suffering, numerous regulations address animal welfare. Although few such regulations address crustaceans and fish, many consumers would like to know that farmed aquatic animals were produced by humane techniques.

When farmed animals are exposed to continuing stress, their feed consumption and growth rates can decline. Stressed animals are also less resistant to diseases, and mortality usually increases.

Animal suffering can be prevented and production efficiency enhanced by applying good husbandry techniques to avoid stressful culture conditions.

Implementation

Farms shall provide well-designed facilities for holding and rearing crustaceans and fish with adequate space and shade. The temperature and chemical composition of culture water should be appropriately maintained, and changes in water quality should be made slowly so the species being cultivated can adjust to the changes. Adequate levels of dissolved oxygen shall be maintained.

Feed appropriate for the culture species should be offered at regular intervals. Although fasting periods may be needed to enable harvesting in hygienic conditions, they should be minimized.

Aquaculture farms should minimize stressful situations during handling by limiting crowding time and time out of water. Culture conditions should be managed to avoid situations that could lead to stress, injury or disease.

Standards

- 14.1: The applicant's facility shall apply a maximum biomass limit based on performance measures for aquatic animal health and survival records, and any applicable national regulations.
- 14.2: Feeding shall be managed to avoid stress caused by under- or overfeeding.
- 14.3: The facility shall define upper limits for time periods of fasting, crowding and time out of water to ensure best welfare practices and provide accurate records showing that these limits are respected.
- 14.4: Facility staff shall make regular inspections of the culture facility, water quality, and behavior and condition of crustaceans or fish.
- 14.5: Disease outbreaks shall be managed through rapid diagnosis and treatment, and when necessary, humane slaughter.
- 14.6: Humane slaughter techniques shall be used that are appropriate for the culture species.

Accessible, dead animals shall be removed from ponds or cages at least daily and disposed of properly. Ill and unwanted fish specimens shall be eliminated in a humane fashion, for example by dispatching them with a blow to the head.

Farm staff shall regularly inspect the culture facility, noting water quality as well as the appearance (e.g., fin condition) and behavior (e.g., loss of appetite) of the animals in their charge. Swift action shall be taken to correct deficiencies or symptoms.

Although reliable scientific data on the effects of stocking density on aquatic animal welfare are limited, and many factors influence this relationship, the BAP standard requires operators to establish and implement their own limits.

The crowding and handling of aquacultured animals during harvesting and transport are potentially stressful, so measures shall be taken to prevent unnecessary animal suffering.

When aquacultured animals are rendered insensitive or their physiological activity greatly reduced during transport, the process shall be accomplished by humane methods.

Animals that are accidentally dropped on the ground during harvest should not be left out of water to suffocate. Live transport of animals should maintain adequate water quality during transport. This usually requires the application of mechanical aeration or oxygenation in the transport containers. Temperature control may also be necessary.

- 14.7: When ill, deformed or unmarketable specimens are removed, they shall be documented and killed by humane techniques, with the carcasses disposed of responsibly in accordance with applicable local and state regulations.
- 14.8: Health management procedures shall be defined in a health management plan or operating manual, reviewed and approved by a fish health professional, that includes procedures to avoid the introduction of diseases, protocols for water quality management, health monitoring and disease diagnosis techniques.
- 14.9: The adequacy and duration of live haul transport methods shall be assessed through documented mortality rates during transport.

15. Food Safety (All Production Systems)

Chemical and Drug Management

Proactively prohibited antibiotics, drugs and other chemical compounds shall not be used. Other therapeutic agents shall be used as directed on product labels for control of diagnosed diseases or required pond management, and not for prophylactic purposes without veterinary oversight.

Reasons for Standard

Residues of some therapeutic agents can accumulate in fish tissue and present a potential health hazard to humans. Therefore, certain compounds have been proactively prohibited, and residue limits mandated for others. Apart from compromising food safety, failure to comply with such regulations can have serious economic consequences to all involved in the food supply chain.

Improper use of chemicals can harm other organisms that live around farms. Moreover, prolonged use of antibiotics can lead to antibiotic resistance in disease organisms that affect fish and other aquaculture species.

Some farms are built on land previously used for agricultural or other purposes. Pesticides, heavy metals and other chemicals applied during these previous uses can remain in the land's soil and water in small amounts and be taken up by fish in production ponds. Such compounds pose a potential health risk to some elements of the human population. It is also important to ensure that feed and feed ingredients do not contain unsafe levels of these or other contaminants.

Use of certain antifouling materials on farm facilities and containment structures can introduce potential environmental contaminants. The application of certain

approved food additives to maintain product quality or appearance during harvest, transport and various stages of post-harvest processing can exceed recommended levels or duration of exposure and impart a residual level in excess of legal food safety limits or product-labeling requirements regarding prior use.

Critical Concerns for Antibiotic Use

- Chloramphenicol and nitrofurans antibiotics are proactively prohibited for use in food production in all countries.
- Other drugs and chemicals, such as antibiotics, malachite green, heavy metals, parasiticides and hormones, may be proactively prohibited in specific countries.

When antibiotics that are not proactively prohibited for use in both the local and importing country are used for therapeutic purposes, antibiotic residue tests shall be carried out after the withdrawal period to ensure regulatory limits on residues are met. Where available, farms may use residue testing data from government surveillance or processing plant preharvest screening programs.

- Records for disease diagnoses should provide supporting evidence to justify cases where therapeutants are used.
- Vaccines and anesthetics, where employed, shall be approved and used only according to manufacturers' instructions.
- Cage farms making use of antifoulants shall obtain all necessary authorizations for their use. Land-based farms shall obtain any required discharge permits from government agencies.

Implementation

When considering site locations for new pond construction, soil samples shall be taken in areas of high-risk contamination, such as low areas where runoff collects, previously used pesticide storage or disposal sites, and washing and loading sites for spray applicators and agricultural aircraft.

In addition to the above-mentioned risks, producers should consider prior use of a site for crops where pesticides have been used and periodically review land use changes in the immediate vicinity that may result in potential increases in environmental contaminants. Surveys of land use or agricultural practice changes can be an internally conducted and documented risk-based analysis. If contamination is suspected, laboratory analysis of the surrounding watershed may be required to verify safety of the water supply.

Any use of approved food additives must involve monitoring the amount and method of application to prevent illegal residues in the edible portion of the products and assure product labeling to designate prior usage.

Good health management focuses on the prevention of disease rather than disease treatment with chemical compounds. The best ways of controlling disease are to avoid stocking diseased fish, adopt fallowing and "all in, all out" stocking procedures at cage and net pen sites, and avoid environmental stress by maintaining good water quality in culture systems. In pond culture,

limiting water exchange lessens the risk of disease spreading from one farm to another.

Health management plans shall explain the steps to be taken when a diagnosed disease will be treated with approved chemicals. Lists of approved chemicals can usually be obtained from regulatory authorities, processing plants, health and agricultural agencies, or university fisheries research and extension programs. The BAP program aims to exclude the use of antimicrobials that the World Health Organization (WHO) categorizes as 'critically important' to human medicine and sensitivity testing shall accompany any application of antibiotics. To promote awareness and to assess the feasibility of this target, farms shall report usage data for all antimicrobials.

During inspections, auditors shall have access to full records as described above for all applications of drugs, antibiotics and hormones. A sample Traceability Form for use at the pond, tank or cage level is provided in Appendix F.

For Additional Information: WHO (2011) Critically Important Antimicrobials for Human Medicine, 3rd Revision, 32pp.
<http://www.who.int/foodsafety/publications/antimicrobials-third/en/>

Standards

- 15.1: The facility shall conduct an assessment of the watershed surrounding the facility to identify any potential watershed contamination risks. This includes monitoring any changes to land use practices over time. Potential watershed contamination risks may involve such things as pesticides, PCBs and heavy metals introduced from nearby industrial or agricultural operations.
- 15.2: If used, drug treatments shall be based on recommendations and authorizations overseen by a fish health specialist only to treat diagnosed diseases, accompanied by antibiotic sensitivity testing in accordance with instructions on product labels and national regulations.
- 15.3: Records shall be maintained for every application of drugs and other chemicals that include the date, compound used, reason(s) for use, antibiotic sensitivity test results, dose and harvest date for treated production lots. See the Traceability requirement. Periodic verification testing of the effectiveness of the withdrawal period shall be conducted. The auditor shall collect usage data for all antimicrobials.
- 15.4: Any use of antifouling agents must involve recognized applications of approved materials in a manner that can be monitored for potential contamination of the aquacultured animals.
- 15.5: Any use of food additives shall involve approved materials and be monitored for time and method of application.
- 15.6: Antibiotics or chemicals that are proactively prohibited in the producing or importing country shall not be used in feeds, pond additives or any other treatment.

- 15.7: Statements from fry, fingerling or postlarvae suppliers that declare no proactively prohibited drugs or other chemicals were applied to seed are required.
- 15.8: For feed suppliers that are not BAP-certified, statements are required attesting to the application of production procedures that exclude proactively prohibited drugs, by-products from same species, unsafe levels of heavy metals and physical or other contaminants.
- 15.9: Feed, nutritional supplements or pond additives used, manufactured, or prepared on the farm shall include procedures to ensure these substances do not contain unsafe levels of contaminants and contain only substances permitted by the appropriate national authorities.
- 15.10: Antibiotics, antimicrobials or hormones shall not be used as growth promoters.
- 15.11 All records specified in Section 15 shall be retained for a period that exceeds both 12 months and the expected shelf life of the aquaculture products.

16. Food Safety (All Production Systems)

Microbial Sanitation, Hygiene, Harvest and Transport

Human waste and untreated animal manure shall be prevented from contaminating pond waters. Domestic sewage shall be treated and not contaminate surrounding areas. Aquacultured products shall be harvested and transported to processing plants or other markets in a manner that maintains temperature control and prevents physical damage or contamination.

Reasons for Standard

Sewage contains microorganisms that can be harmful to humans. It can also pollute the water into which it is discharged.

Organic fertilizers have been used widely in pond aquaculture for promoting phytoplankton blooms. These materials include animal manure, grass, by-products from harvesting or processing agricultural products, and fisheries and aquaculture processing plant waste. Trash fish and processing wastes are also used as feed.

There is a possibility of health hazards to humans who consume inadequately cooked fish or crustaceans grown in waters that receive human waste, untreated animal manure or organic fertilizers containing *Salmonella* or other potential food-borne pathogens.

Manure from animal production facilities can be contaminated with drugs added to animal feeds for the

prevention or treatment of disease. These substances can potentially pass from the manure to aquatic animals and cause food safety concerns.

The use of uncooked organisms and their by-products or trash fish as feed in fish ponds encourages the spread of fish diseases. Also, this raw food has a high oxygen demand that can deteriorate pond water quality.

Implementation

Housing for owners or workers sometimes is located near production ponds. Sewage from bathrooms, kitchens and other facilities shall be treated in septic tanks. Waste oxidation lagoons are also an acceptable treatment method on large farms. In all cases, raw sewage and runoff from barns and other facilities for holding livestock shall not enter ponds.

Domestic animals other than family pets or watch dogs shall not circulate freely within farms. Livestock is permitted in pastures that serve as pond watersheds, but fences shall be installed to prevent the animals from drinking or wading in ponds.

In the unlikely case that culture water is drawn from water bodies that could receive untreated human waste in the immediate vicinity of the farm, water holding or pretreatment is recommended. Also, some farms can have toilets located near canals or waste treatment systems that discharge or leak into ponds or farm canals. Such situations shall be corrected.

At cage farms, workers often spend long hours on the floating cage platforms. Portable toilets shall be provided, and sanitary procedures for disposal of wastes onshore shall be established.

It is in the best interests of the aquaculture industry to use pelleted or extruded feeds, and in ponds to use chemical fertilizers or organic manure that has been treated to kill potential food-borne pathogens.

Transport

Unclean water and transport containers can cause contamination of fish during transit from ponds to plants or markets. For fish or crustaceans placed on ice or in iced water at the farm, alternating layers of ice and

product are recommended to avoid temperature fluctuations.

For Additional Information

**CODEX Alimentarius, Code of Practice
for Fish and Fishery Products**

<ftp://ftp.fao.org/docrep/fao/011/a1553e/a1553e00.pdf>

Standards

- 16.1: Domestic sewage shall be treated and properly disposed of to avoid contamination of surrounding areas (e.g., sewer system, septic system, portable toilet or outhouse).
- 16.2: Farm animals and domestic pets shall not be allowed to access production ponds.
- 16.3: Human waste and untreated animal manure shall not be used to fertilize ponds.
- 16.4: Uncooked organisms and their by-products shall not be used as feed in growout ponds.
- 16.5: Fish and crustaceans shall be harvested and transported in a manner that maintains temperature control.
- 16.6: Ice shall be made from water that complies with microbial limits for potable water.
- 16.7: Equipment and containers used to harvest and transport fish or crustaceans shall be cleaned, sanitized, and be free of lubricants, fuel, metal fragments and other foreign material.
- 16.8: Non-approved chemicals shall not be applied directly or indirectly to aquacultured products during transport.
- 16.9: Workers with wounds, open sores or skin infections shall be prohibited from handling harvested products.
- 16.10: Workers shall be trained in good hygienic practices to ensure they are aware of their roles and responsibilities for protecting aquaculture products from food safety risks such as contamination and deterioration.

17. Biosecurity (All Production Systems)

Disease Control

Biosecurity controls shall be in place to prevent the introduction and/or spread of disease agents and disease on the farm. These include regular disease surveillance, sanitation of equipment and personnel, quarantine of diseased animals and controlled movement of personnel and equipment. Farm staff and visitors shall be trained in and apply biosecurity measures.

Reason for Standard

Disease of aquacultured animals is considered by many to be the single largest threat to the growth and stability of the global aquaculture industry. The spread of diseases affecting aquaculture crops has been traced, in many cases, to poor biosecurity at farms.

Mass mortalities occasionally occur at aquaculture farms, and dead carcasses or animal remains can potentially spread disease. When these mortalities

occur, facilities shall have a plan to dispose of the carcasses through incineration or sanitary burial.

Implementation

Measures shall be taken to avoid the spread of disease within the BAP farm or to neighboring farms or client farms to which animals are transferred for further growout. For marine cage farms, see also area management requirements, Standard 7.

Proper biosecurity controls shall prevent the introduction or spread of disease agents within the farm. The likely vectors for these risks shall be identified in a detailed written biosecurity plan that identifies specific farm staff responsible for its implementation, includes specific control measures and at a minimum:

- Identifies the likely disease risks for the culture species within its culture region.

- Links the biosecurity plan to the overall farm animal health and welfare plan.
- Requires routine disease surveillance and characterization of the health status of the farm.
- Identifies critical control points such as movement of animals and equipment, and farm access by visitors.
- Establishes active control measures to reduce the risk of introduction and/or spread of disease agents past these control points.
- Establishes hygiene and sanitization protocols and standards for equipment and personnel.
- Establishes quarantine protocols for diseased animals, where possible.
- Prevents the movement of personnel and equipment from diseased areas both within

the applicant farm and from neighboring farms.

- Establishes protocols that allow the tracking of animal and equipment movements.
- Establishes a visitor and delivery log.
- Establishes a method of tracking actions taken to reduce the risk of disease and/or control disease if it occurs.

Where movement of equipment and personnel from diseased or suspect areas to other areas is unavoidable, cleaning and sanitization measures shall be employed to disinfect all equipment and personnel prior to entry to non-diseased areas.

Where slaughtering is conducted at the farm, blood water and other effluents generated through processing shall be contained or treated so they do not contaminate the environment or present a biosecurity risk.

Standards

- 17.1: The applicant shall have in place biosecurity controls that seek to prevent the introduction and spread of disease agents and disease on the farm, including the sanitization of equipment and personnel when disease is suspected or confirmed at the farm site, and these shall be detailed in a biosecurity plan as described in the Implementation guidelines above.
- 17.2: Farm staff shall be trained in biosecurity procedures and shall, along with all visitors, comply with them.
- 17.3: A plan for prompt and responsible disposal of excessive mortalities of culture animals by incineration, burial, composting or removal by a competent contractor shall be available for inspection and applied.
- 17.4: Where slaughtering is conducted at the farm, blood water and other effluents generated through processing shall be contained or treated so they do not contaminate the environment or present a biosecurity risk.

18. Traceability (All Production Systems)

Record-Keeping Requirement

To establish product traceability, the following data shall be recorded for each culture unit and each production cycle:

- culture unit identification number
- unit area or volume
- stocking date
- quantity of fingerlings or postlarvae stocked
- source of fingerlings or postlarvae (hatchery)
- antibiotic and drug use
- sulfite use in shrimp
- herbicide, algicide and other pesticide use
- manufacturer and lot number for each feed used

- harvest date
- harvest quantity
- movement document number (if applicable)
- processing plant(s) or purchaser(s) (identify all if any harvest quantity goes to more than one plant or purchaser)

Reasons for Requirement

Product traceability is a crucial component of the BAP program. It interconnects links in the production chain and allows tracing of each processed lot back to the culture unit and inputs of origin. Food quality and safety analyses by accredited laboratories can also be included. Traceability ultimately assures purchasers that

all steps in the production process were in compliance with environmental, social and food safety standards.

Implementation

Farms may utilize any traceability system that meets the BAP requirements. This can be an online system; the farm's own in-house database, paper records, files and documents; or a combination thereof.

Where paper records, documents or notebooks are used, if possible, the information should also be transferred to computer database files to allow electronic transmission. The original files or paper records shall be kept to allow verification of the electronic data.

The data referenced in BAP's standards on egg, postlarvae and fingerling sources, chemical management, etc., are required for traceability. This information and other pond-, net pen- or cage-related records can be captured on the sample Product Traceability Form in Appendix F. Each form corresponds to the harvest on a particular day from a particular culture unit.

The record-keeping process requires a high degree of care and organization. On large farms, managers could collect initial data for those aquacultured products for which they are responsible. A single clerk or team could then be given the task of collecting the data from managers and transferring it to a computer database. Farm management shall, of course, review the effort at intervals to verify it satisfies BAP requirements.

Product Identity Preservation

To assure the integrity of the Best Aquaculture Practices "star" system, traceability controls must be in place that allow verification of all facilities that contribute to the claim of multiple-star BAP-certified status.

Standards

- 18.1: The facility shall operate an effective record-keeping system that provides timely, organized, accurate entries, performed and overseen by a designated trained person or team responsible for collecting the data, ensuring it is complete and accurate, and that traceability requirements are met.
- 18.2: The facility shall keep complete and accurate records for each culture unit and production cycle, including the culture unit identification number, unit area and volume, species stocked and, if applicable, species specifications such as triploid or GMO.
- 18.3: The facility shall keep complete and accurate records concerning any antibiotic or other drug use at both the hatchery and the farm.
- 18.4: Complete and accurate records shall be maintained on the use of sulfites or other approved food-processing aids/additives in shrimp, as well as the use of herbicides, algicides and other pesticides.

To insure the proper separation and traceability of all farm inputs and outputs, the following components must be in place:

- Farms that purchase all of their shrimp postlarvae, fish fry or fingerlings, and feed from BAP-certified sources shall maintain records of the sources of stocking material and feeds used.
- Farms that purchase stocking material and feed from both BAP- and non-BAP-certified sources shall identify all sources and have adequate systems in place to prevent mixing of BAP and non-BAP production lots.
- To enable mass balance verification of multiple-star products, certified farms shall maintain a list, including harvest dates and volumes, of the processors to which they sell or deliver products.
- The number of backward and forward trace exercises conducted by the auditor will be determined by farm volume.

BAP Logo Use

Use of the Best Aquaculture Practices logo, a registered trademark of the Global Aquaculture Alliance, for any purpose shall be approved by BAP in advance and used in compliance with the BAP trademark usage agreement.

Customer Complaints

The applicant must prepare and implement an effective system for the management of complaints and complaint data to control and correct shortcomings related to its products' compliance with the BAP standards.

- 18.5: Complete and accurate records regarding manufacturer and lot numbers for each feed used shall be maintained.
- 18.6: The facility shall maintain complete and accurate records of the sources and numbers of postlarvae or fingerlings stocked, stocking dates and all feeds used for each culture unit.
- 18.7: Complete and accurate records regarding the harvest date, harvest quantity, movement document number (if applicable) and processing plant(s) or purchaser(s) shall be maintained. If product lots are destined to more than one plant or purchaser, each lot shall be separately identified.
- 18.8: In order to use the BAP logo, facilities shall have such use approved and registered in advance with BAP Management.
- 18.9: The facility shall keep records of any customer complaints related to its products' compliance with the BAP standards.
- 18.10: The facility shall keep records of investigations of such complaints and actions taken to address/correct them.

19. Shrimp-Specific Standards

Environment

Effluent Management

Water exchange shall be limited to reduce overall environmental impacts.

Food Safety

Harvest and Transport

Sulfites shall be handled responsibly to control risks to consumers and the environment.

If shrimp are treated on farm at harvest with sulfites, the protocol for this practice shall be provided. Because used sulfite solutions can cause localized dissolved-

oxygen depletion in discharge water bodies, these solutions shall be held in a tank or small pond until the sulfites have oxidized completely, typically for at least 48 hours. Mechanical aeration accelerates the oxidation.

When the dissolved-oxygen concentration of the solution reaches 4 or 5 mg/L, the sulfite has been completely converted to sulfate. Example: Sulfite solution can be treated with 0.4 kg lime/L to neutralize acidity before final release into natural waters.

Standards

- 19.1: The mean water exchange rate shall not exceed 10% per day (i.e., on an annual basis, 36 x total pond volume). This limit does not apply to shrimp ponds in deserts.
- 19.2: If used, sulfites shall be applied in a manner that will yield a tissue concentration within regulatory limits.
- 19.3: Sulfite solutions shall be deactivated or neutralized, for example by 48-hour retention, prior to release into natural water bodies.

20. Tilapia-Specific Standards

Environment

Use of Hormones for Producing All-Male Fry

When hormones are used to produce all-male fry, records of hormone applications shall be maintained. Employees who work with methyl testosterone shall be instructed to wear protective clothing and masks with air filters. The facility shall avoid releasing methyl testosterone-treated water directly into the environment.

Implementation

Analyses of tilapia fillets have shown that the use of methyl testosterone or related hormones for producing all-male fry has not resulted in residues of testosterone higher than those naturally found in control fish. Nevertheless, producers are encouraged to use other methods of obtaining all-male fry. To minimize any environmental impacts, onsite biofiltration/bioremediation, such as a trickling filter or constructed wetlands, can be used.

Standard

- 20.1: If hormones are used during fry production, workers shall be trained in the handling of hormones and wear protective clothing and masks with air filters.
- 20.2: The facility shall avoid releasing methyl testosterone-treated water directly into the environment, for example by retaining for a minimum of 48 hours.
- 20.3: Any antibiotic usage shall not exceed 3 treatments per on-growing cycle, where a treatment comprises a single course of antibiotics given to address a specific disease issue over a prescribed period.
- 20.4: Antimicrobials that are critically important for human medicine* shall not be used.
- 20.5: In watersheds where Tilapia species are not indigenous and not established**, tilapia farms shall have at least two independent containment systems to prevent escapes. Additionally, they shall only stock monosex juveniles (minimum 99% phenotypically monosex).

*Critically Important Antimicrobials for Human Medicine, 3rd Revision World Health Organization, 2011

<http://www.who.int/foodsafety/publications/antimicrobials-third/en>

** A non-indigenous species is considered established if it has a reproducing population within the watershed, as inferred from multiple discoveries of adult and juvenile life stages over at least two consecutive years. Given that successful establishment may require multiple introductions, species are not considered established if their records of discoveries are based on only one or a few non-reproducing individuals whose occurrence may reflect merely transient species or unsuccessful invasions. (adapted from National Oceanic and Atmospheric Administration).

Appendix A

BAP Effluent Water Quality Criteria – All Pond Farms

Variable (units)	Initial Value	Final (after 5 years)	Collection Frequency
pH (standard pH units)	6.0-9.5	6.0-9.0	Monthly
Total suspended solids (mg/L)	50 or less	25 or less	Quarterly
Soluble phosphorus (mg/L)	0.5 or less	0.3 or less	Monthly
Total ammonia nitrogen (mg/L)	5 or less	3 or less	Monthly
5-day biochemical oxygen demand (mg/L)	50 or less	30 or less	Quarterly
Dissolved oxygen (mg/L)	4 or more	5 or more	Monthly
Chloride	No discharge above	No discharge above	Monthly
Water with less than 1 ppt salinity, specific conductance below 1,500 mmhos/cm or chloride less than 550 mg/L is considered fresh.	800 mg/L chloride into freshwater	550 mg/L chloride into freshwater	

Appendix B

Sample Effluent Monitoring Form – pH and Dissolved Oxygen

Date (day/month/ year)	pH (standard units)			Dissolved Oxygen (mg/L)			No. Units Harvested
	Morning	Evening	Average	Morning	Evening	Average	
___/01/___							
___/02/___							
___/03/___							
___/04/___							
___/05/___							
___/06/___							
___/07/___							
___/08/___							
___/09/___							
___/10/___							
___/11/___							
___/12/___							
Annual Average							

Sample Effluent Monitoring Form – Soluble Phosphorus, Total Ammonia Nitrogen, Chloride

Date (day/month/year)	Soluble Phosphorus (mg/L)	Total Ammonia Nitrogen (mg/L)	Chloride (mg/L)	Number of Units Harvested
___/01/___				
___/02/___				
___/03/___				
___/04/___				
___/05/___				
___/06/___				
___/07/___				
___/08/___				
___/09/___				
___/10/___				
___/11/___				
___/12/___				
Annual Average				

Sample Effluent Monitoring Form – Total Suspended Solids, 5-Day Biochemical Oxygen Demand

Quarter	Date (day/month/ year)	Total Suspended Solids (mg/L)	5-Day Biochemical Oxygen Demand (mg/L)	Number of Units Harvested
1				
2				
3				
4				
Annual Average				

Appendix C

Calculation of Annual Effluent Volume

An estimation of annual effluent volume shall be determined using one of the following equations.

Farm Discharge Calculation

Equation 1 – Pump Discharge Method

Farm discharge (m^3/yr) = Pump discharge (m^3/min) x
Average time of pump operation (hr/day) x
60 min/hr x 365 days/yr

Equation 2 – Water Exchange Method

Farm discharge in m^3/yr =
[Volume of ponds in m^3 x Number of crops/yr] +
[Volume of ponds in m^3 x Average daily water exchange rate as fraction of pond volume x Crop in days x
Number of crops/yr]

Equation 3 – Watershed Method

Effluent = (Water added + Precipitation + Runoff) –
(Seepage + Evaporation) + (Farm volume, day 1 –
Farm volume, day 365)

The terms of this equation can be estimated as follows:

Water added (m^3) = Pump capacity (m^3/hr) x
Pump operation (hr/yr) or other appropriate method

Precipitation (m^3) = Annual precipitation (m) x
Farm water surface area (m^2)

Runoff (m^3) = Annual precipitation (m) x
Watershed area (m^2) x 0.25

Seepage (m^3) = Farm water surface area (m^2) x 0.55 m/yr

Evaporation (m^3) = Class A pan evaporation (m/yr) x
0.8 x Farm water surface area (m^2)

Farm volume = [Average depth of ponds (m) –
Average distance of water level below overflow structure (m)] x Farm water surface area (m^2)

Additional Data

The BAP program will use data provided by facilities' application forms to calculate:

- an annual water use index, determined as described below
- annual load indices for total suspended solids, soluble phosphorus, total ammonia nitrogen and five-day biochemical oxygen demand, determined as described below.

Pooled, anonymous data for loads and indices will be used as the basis for setting metric standards by June 2015.

Annual Effluent Loads

Loads of water quality variables are more indicative of the pollution potential of farm effluents than separate measurements of concentrations of these variables and effluent volume. After the first year of effluent monitoring, annual loads for total suspended solids, soluble phosphorus, total ammonia nitrogen and five-day biochemical oxygen demand shall be calculated as follows:

Equation 4

Load of variable (kg/yr) = Farm discharge (m³/yr) x
[Mean annual variable concentration in effluent -
mean annual variable concentration in source water
(mg/L, same as g/m³)] x 10⁻³ kg/g

Water Use and Load Indices

While not a recommended practice, it is possible to comply with numerical water quality criteria by increasing the amount of water passing through a farm to dilute the concentrations of tested variables. Compliance with the water use index assures that farms meet water quality criteria through good management rather than diluting effluents before they are released into natural waters.

After the first year of effluent monitoring, water use and load indices shall be estimated using the following equations.

Equation 5

Water use index (m³/kg fish or shrimp) =
Annual effluent volume (m³) ÷ Annual fish production (kg)

Equation 6

Load index (kg variable/MT fish or shrimp) =
Annual load of variable (kg/yr) ÷ Annual fish production (MT/yr)

Example: Water Use, Load Indices

For Annual Effluent Estimated

By Pond Volume-Water Exchange Method

A farm has 100 ha of ponds that average 1 m deep, with average water exchange of 2.5% pond volume/day. There are 2.3 crops/year, and the average length of each crop is 120 days. The source water of the farm contains an average of 10 mg/L total suspended solids (TSS), 0.03 mg/L soluble phosphorus (S.P.), 0.15 mg/L total ammonia nitrogen (TAN) and 1.5 mg/L biochemical oxygen demand (BOD).

The farm effluent contains an average of 45 mg/L TSS, 0.19 mg/L S.P., 0.87 mg/L TAN and 9.6 mg/L BOD. Shrimp/fish production for the past year was 230,000 kg (230 MT).

Calculations

Pond volume = 100 ha x 10,000 m²/ha x 1 m =
1,000,000 m³

Annual effluent volume = [1,000,000 m³/crop x
2.3 crops/yr] + [1,000,000 m³ x 0.025 pond volume/day x
120 days/crop x 2.3 crops/yr] = 9,200,000 m³/yr

TSS load = (45 - 10 g/m³)(9,200,000 m³/yr)10⁻³ = 322,000 kg/yr

$$\text{S.P. load} = (0.19 - 0.03 \text{ g/m}^3)(9,200,000 \text{ m}^3/\text{yr})10^{-3} = 1,472 \text{ kg/yr}$$

$$\text{TAN load} = (0.87 - 0.15 \text{ g/m}^3)(9,200,000 \text{ m}^3/\text{yr})10^{-3} = 6,624 \text{ kg/yr}$$

$$\text{BOD load} = (9.6 - 1.5 \text{ g/m}^3)(9,200,000 \text{ m}^3/\text{yr})10^{-3} = 74,520 \text{ kg/yr}$$

$$\text{Water use index} = (9,200,000 \text{ m}^3/\text{yr}) / (230,000 \text{ kg shrimp or fish/yr}) = 40 \text{ m}^3/\text{kg shrimp/fish}$$

$$\text{TSS index} = (322,000 \text{ kg/yr}) / (230 \text{ MT shrimp or fish}) = 1,400 \text{ kg TSS/MT shrimp/fish}$$

$$\text{S.P. index} = (1,472 \text{ kg/yr}) / (230 \text{ MT shrimp or fish}) = 6.4 \text{ kg S.P./MT shrimp/fish}$$

$$\text{TAN index} = (6,624 \text{ kg/yr}) / (230 \text{ MT shrimp or fish}) = 28.8 \text{ kg TAN/MT shrimp/fish}$$

$$\text{BOD index} = (74,520 \text{ kg/yr}) / (230 \text{ MT shrimp or fish}) = 324 \text{ kg BOD/MT shrimp/fish}$$

Example: Water Use, Load Indices For Annual Effluent Estimated By Pump Operation Method

A farm has two pumps that discharge a combined volume of $136 \text{ m}^3/\text{min}$. The pumps operate an average of 8 hr/day . The source water of the farm contains an average 10 mg/L total suspended solids (TSS), 0.03 mg/L soluble phosphorus (S.P.), 0.15 mg/L total ammonia nitrogen (TAN) and 1.5 mg/L biochemical oxygen demand (BOD). The farm effluent contains 91 mg/L total suspended solids, 0.23 mg/L soluble phosphorus, 1.20 mg/L total ammonia nitrogen and 12.7 mg/L biochemical oxygen demand. Fish production during the past year was $378,000 \text{ kg}$ (378 MT).

Calculations

$$\begin{aligned} \text{Annual effluent volume} &= 136 \text{ m}^3/\text{min} \times 60 \text{ min/hr} \times \\ &8 \text{ hr/day} \times 365 \text{ days/yr} = 23,827,200 \text{ m}^3/\text{yr} \end{aligned}$$

$$\text{TSS load} = (23,827,200 \text{ m}^3/\text{yr})(91 - 10 \text{ g/m}^3)10^{-3} = 1,930,000 \text{ kg/yr}$$

$$\text{S.P. load} = (23,827,200 \text{ m}^3/\text{yr})(0.23 - 0.03 \text{ g/m}^3)10^{-3} = 4,765 \text{ kg/yr}$$

$$\text{TAN load} = (23,827,200 \text{ m}^3/\text{yr})(1.20 - 0.15 \text{ g/m}^3)10^{-3} = 25,018 \text{ kg/yr}$$

$$\text{BOD load} = (23,827,200 \text{ m}^3/\text{yr})(12.7 - 1.5 \text{ g/m}^3)10^{-3} = 266,865 \text{ kg/yr}$$

$$\text{Water use index} = (23,827,200 \text{ m}^3/\text{yr}) / (378,000 \text{ kg shrimp or fish/yr}) = 63.0 \text{ m}^3/\text{kg shrimp/fish}$$

$$\text{TSS index} = (1,930,000 \text{ kg/yr}) / 378 \text{ MT shrimp or fish} = 5,106 \text{ kg TSS/MT shrimp/fish}$$

$$\begin{aligned} \text{S.P. index} &= (4,765 \text{ kg/yr}) / (378 \text{ MT shrimp or fish}) = \\ &12.6 \text{ kg S.P./MT shrimp/fish} \end{aligned}$$

TAN index = (25,018 kg/yr) / (378 MT shrimp or fish) = 66.2 kg TAN/MT shrimp/fish

BOD index = (266,865 kg/yr) / (378 MT shrimp or fish) = 706 kg BOD/MT shrimp/fish

TAN index = (6,624 kg/yr) / (230 MT shrimp or fish) =
28.8 kg TAN/MT shrimp/fish

BOD index = (74,520 kg/yr) / (230 MT shrimp or fish) =
324 kg BOD/MT shrimp/fish

Appendix D

BAP Water Quality Monitoring Cages and Net Pens in Lakes and Reservoirs

Variable	Sample Depth	Collection Frequency
Temperature	Vertical profile, 2-m	Monthly
Dissolved oxygen	Intervals	Monthly
pH	Vertical profile, 2-m	Quarterly
Chlorophyll a	Intervals	Quarterly
5-day biochemical oxygen demand	Equal to cage mid-depth	Quarterly
Secchi disk visibility	Equal to cage mid-depth	Weekly
Soluble phosphorus	Equal to cage mid-depth	Quarterly
Total ammonia nitrogen	Not applicable	Quarterly
Phytoplankton abundance and species	Equal to cage mid-depth	Quarterly
	Equal to cage mid-depth	
	Equal to cage mid-depth	

Appendix E

Load Indices for Cages, Net Pens

Water use indices cannot be applied to cages and pens. The loads of nitrogen and phosphorus imposed by cages and net pens on receiving water bodies can be estimated as follows:

Equation 1

$$\text{Nitrogen load (kg/yr)} = [\text{Total feed (kg)} \times \text{Nitrogen (\% in feed)} \div 100] - [\text{Harvested fish* (kg)} \times \text{Nitrogen (\% in fish)} \div 100]$$

Equation 2

$$\text{Phosphorus load (kg/yr)} = [\text{Total feed (kg)} \times \text{Phosphorus (\% in feed)} \div 100] - [\text{Harvested fish* (kg)} \times \text{Phosphorus (\% in fish)} \div 100]$$

*In Equations 1 and 2, the mass of harvested fish can also include the mass of any dead fish removed from the cages before harvest.

Equation 3

$$\text{Nitrogen load index (kg/MT fish)} = \text{Nitrogen load (kg/yr)} \div \text{Fish production (MT/yr)}$$

Equation 4

$$\text{Phosphorus load index (kg/MT fish)} = \text{Phosphorus load (kg/yr)} \div \text{Fish production (MT/yr)}$$

The percentage nitrogen in feed is percentage crude protein divided by 6.25. The phosphorus content in tilapia feed is about 1%, but the exact value should be measured or obtained from the feed manufacturer. For example, live tilapia typically contain 2.2% nitrogen and 0.72% phosphorus.

Appendix F

Sample Product Traceability Form

Farm Name		Pond or Cage Number	Pond Area (ha)
POSTLARVAE OR FINGERLINGS		FEED	
Stocking Date		Feed Type	
Stocking Quantity	Species	Manufacturer	
Any Species Specifications (e.g., triploid, G.M.)		Lot Number(s)	
Hatchery		BAP No.	
Confirmation: No Use of Proactively Prohibited Chemicals		Confirmation: No Use of Proactively Prohibited Chemicals	
Yes No		Yes No	
THERAPEUTIC DRUG USE		PESTICIDE USE	
Compound 1		Compound 1	
Disease Treated		Condition Treated	
Application Rate		Application Rate	
Application Period		Application Period	
Compound 2		Compound 2	
Disease Treated		Condition Treated	
Application Rate		Application Rate	
Application Period		Application Period	
HARVEST		Harvest	
Harvest Date		Purchaser	
Harvest Quantity (kg)		Name/ Address	

BAP FCFS Standard - Issue 2.4 Change-Log (23-May-2017)

Approved (SOC May 2017)

20.5 In watersheds where Tilapia species are not indigenous and not established, tilapia farms shall have at least two independent containment systems to prevent escapes. Additionally, they shall only stock monosex juveniles (minimum 99% phenotypically monosex).

Added social accountability to descriptions of Critical and major NC's.



Finfish, Crustacean and Mollusk Hatcheries & Nurseries Standard
Aquaculture Facility Certification
Standard Issue 1 September 2014
Certification Application Form - Part 2
Application Issue 4.2 - 17-July-2018

To apply for certification in BAP's Aquaculture Facility Certification program, please complete the following information and return the forms to the BAP office by email to the Email address given below.

Best Aquaculture Practices
Two International Drive, Suite 105, Portsmouth, NH 03861 USA
Telephone: +1-603-317-5225
Email: BAPCert@bapcertification.org
Website: <https://www.bapcertification.org/>

For a further explanation of BAP standards, refer to the BAP website (<https://www.bapcertification.org/bap-standards/>). Please take the time to fully review these materials before contacting BAP for more information.

BAP Application Form Part 2. Self-Audit - Finfish, Crustacean and Mollusk Hatcheries & Nurseries Standard

The GAA BAP standard does not allow exclusions in conducting assessments of any facilities against any of the standards. All facilities seeking certification against any of the GAA BAP standards, and C&E performing assessments, must conduct a full evaluation against all parts of the facility, and for all GAA BAP eligible aquacultured species, product forms and their by-products, that the facility produces. Whether or not they are sold as BAP. For example, exclusion of particular rooms, lines, cooked versus raw products, aquaculture species, ponds or cages is not permitted.

Facility must answer all questions in both Parts 1 and 2. Do not add rows or columns to make additional space - row height may be expanded if space is needed.

Answering the questions will help ensure that the facility will be prepared when an Auditor comes for the certification inspection. It is recommended that all documents mentioned be organized in a manner to assure they can be easily retrieved during the facility audit.

The applicant agrees to comply with the requirements for certification and to supply any information needed to complete the audit process.

To be filled out by facility representative

Application Date:

Name of Facility to be Certified:

Species to be Certified:

Specify below which phase of your hatchery/nursery operation this application concerns (if multi-phase):

Note - All applicants shall answer all questions in the self-assessment portion of the application.

Standard Requirements:

Community

1. Property Rights and Regulatory Compliance (All Production Systems)

Conformance

1.1: Current documents shall be available to prove legal land and water use for the applicant.

Yes

No

N/A

Details

1.2: Current documents shall be available to prove all business and operating licenses have been acquired.

Yes

No

N/A

Details

1.3: Current documents shall be available to prove compliance with applicable environmental regulations for construction and operation.

Yes

No

N/A

Details

Community

2. Community Relations (All Production Systems)

Yes

No

N/A

2.1: The applicant shall accommodate local inhabitants by not blocking traditional access routes to fishing grounds, wetland areas and other public resources.

Details

2.2: The applicant shall manage water usage to avoid restricting the amount of water available to other users.

Details

2.3: The applicant shall demonstrate interaction with the local community to avoid or resolve conflicts through meetings, committees, correspondence, service projects or other activities performed annually or more often.

Details

Community

3. Worker Safety and Employee Relations (All Production Systems)

Yes

No

N/A

3.1: The applicant shall meet or exceed the minimum wage rate, including benefits, required by local and national labor laws.

Details

3.2: The applicant shall not engage in or support the use of child labor. The applicant shall comply with national child labor laws regarding minimum working age or ILO Minimum Age Convention 138, whichever is higher. ILO Minimum Age Convention 138 states the minimum age shall be 15, unless local law in developing nations is set at 14 - in accordance with developing nations exceptions under this convention.

Details

3.3: The employment of young workers above the minimum age but under 18 years old shall be in compliance with local laws, including required access to compulsory school attendance and any restrictions on hours and time of day.

Details			
3.4: Young workers above the minimum age but under 18 years old shall not be subjected to hazardous work that can compromise their health and safety.			
Details			
3.5.a: All work, including overtime, must be voluntary. The facility shall not engage in any form of forced or bonded labor. This includes human trafficking, the holding of original identity papers, prohibiting workers from leaving the premises after their shift or other coercion intended to force anyone to work. 3.5.b: Where the holding of original identity papers is required by national law, such papers must be immediately returned to employees upon request and readily available to them at all times.			
Details			
3.6: The applicant shall abide by the national mandated work week where applicable.			
Details			
3.7: The applicant shall comply with national labor laws for pay, overtime and holiday compensation for hours worked beyond the regular work day or week.			
Details			
3.8: The facility shall not require the payment of deposits, deduction from wages or withholding of pay that is not part of a legal contractual agreement with the employee and/or that is not provided for or permitted by national law.			
Details			
3.9: The facility shall not make deductions from wages as part of a disciplinary process.			
Details			
3.10: The applicant shall only employ legally documented workers, whether nationals or migrants.			
Details			
3.11: The facility shall maintain all relevant documents that verify any contracted/subcontracted workers, whether contracted through a labor service or otherwise, are paid in compliance with all local wage, hour and overtime laws.			
Details			
3.12: All labor, recruiting or employment services used by the facility must be licensed to operate by the local or national government as a labor provider.			
Details			
3.13: The facility shall maintain all relevant documents that verify piece workers (those paid a fixed "piece rate" for each unit produced or action performed regardless of time) are paid in compliance with local law, including regulations regarding equivalence to or exceeding minimum requirements for wages, hours, overtime and holiday pay.			
Details			
3.14.a: The facility shall provide to all workers, whether hourly, salaried, piece-rate, temporary, seasonal or otherwise prior to hire and during employment, written and understandable information regarding the terms of employment, worker rights, benefits, compensation, hours expected, details of wages for each pay period and facility policies regarding disciplinary actions, grievance procedures, authorized deductions from pay and similar labor-related issues. 3.14.b: This information must be provided in the prevalent language of the majority of employees.			
Details			
3.15: Where contracted/subcontracted or temporary workers are hired through a labor or employment service, the facility shall ensure that the labor or employment service provides the above information prior to and during hire, in appropriate languages, to ensure workers are aware of their rights and conditions of employment as described above.			
Details			
3.16: Workers shall have the right to terminate their employment after reasonable notice.			
Details			
3.17: The facility shall appoint a management person responsible for ensuring worker health, safety and training.			
Details			
3.18.a: The facility shall identify and eliminate or minimize any workplace health and safety hazards by conducting a thorough risk assessment. 3.18.b: This includes a requirement for accident investigation.			
Details			
3.19: Workers shall have the right to collective bargaining, or at least one employee shall be elected by the workers to represent them to management.			
Details			
3.20: There shall be a written worker grievance process, made available to all workers, that allows for the anonymous reporting of grievances to management without fear of retaliation.			
Details			
3.21: The facility shall provide for equal opportunity with respect to recruitment, compensation, access to training, promotion, termination or retirement.			
Details			
3.22: The facility shall treat workers with respect and not engage in or permit physical, verbal or sexual abuse, bullying or harassment.			
Details			
3.23: If provided, employee housing shall meet local and national standards (e.g., water-tight structures, adequate space, heating/ventilation/cooling), and shall be free of accumulated trash and pests, as well as equipment and fixtures.			
Details			

3.24: Safe drinking water shall be readily available to employees. If meals are provided, they shall be wholesome and commensurate with local eating customs. Details			
3.25: Running water, toilets and hand-washing facilities shall be readily available to employees. Details			
3.26.a: In the event of accidents or emergencies, the applicant shall provide basic medical care, including access to or communication with medical authorities. 3.26.b: Additionally, first aid kits shall be readily available to employees, and any required content shall be replaced. Details			
3.27.a: The applicant shall provide training in general health, personal hygiene and safety (including aquatic safety and the use of boats and associated equipment), first aid and contamination risks to all employees within eight weeks after hiring. 3.27.b: Safety documents must be available in a language understood by the workforce. Details			
3.28: Employees shall be appropriately licensed to drive or use equipment for which public licenses are required, and a list of such licensed employees and copies of their licenses shall be available for inspection. Details			
3.29: An emergency response plan shall be prepared for serious illnesses or accidents. Details			
3.30: Select workers shall be made familiar with details in emergency response plans and trained in the first aid of electrical shock, profuse bleeding, drowning and other possible medical emergencies. Details			
3.31: Protective gear and equipment in good working order shall be provided for employees (e.g., eye protection for welding, gloves for shop work, and boots for wet areas). Auditor to verify equipment. Details			
3.32.a: Electrical pumps and sensors shall be wired according to standard safe procedures. 3.32.b: Machinery shall have proper driveshaft and/or drive belt safety guards. Details			
3.33.a: The applicant shall comply with laws that govern diving on aquaculture facilities and develop a written dive safety plan that requires diver training and the maintenance of logs that document procedures, safety-related incidents and equipment maintenance. 3.33.b: Limits for time under water shall be established, monitored and enforced. Details			
Environment	Yes	No	N/A
4. Protection of Ecologically Sensitive Areas (Land-Based Systems Only)			
4.1: Where the site plan shows that an ESA has been damaged by facility construction and/or operation since 1999, the loss shall have been only for allowable purposes. Details			
4.2: If net loss of ecologically sensitive area occurred on facility property since 1999, the loss shall have been mitigated by restoring an area three times as large or by an equivalent donation to restoration projects. Details			
4.3: For facilities constructed before 1999 and where an ESA was damaged but not restored, the applicant shall propose a plan, subject to local regulations, that within five years from the date of initial BAP certification shall either restore the damaged area, mitigate the damage by restoring an equal area of similar habitat or make a donation of equivalent value to other restoration projects. Alternatively, the applicant shall provide an explanation of the extenuating circumstances regarding the damage for consideration of exemption from this standard. Details			
4.4: Operation of the facility shall not lead to erosion or beach deterioration, or cause other ecosystem damage that will not recover within the natural life cycle of the major fauna or flora damaged. Details			
4.5: Unless specific permits apply, hatchery activities shall not alter the hydrological conditions of the surrounding watershed, and the normal flow of brackish water to mangroves or freshwater to wetlands shall not be altered. Details			
Environment	Yes	No	N/A
5. Metabolic Wastes and Uneaten Feed (All Production Systems)			
5i. Land-Based Systems			
5.1: If the facility is claiming the Limited Option as a justification for deviating from standard water quality criteria, it shall collect the requisite influent and effluent water quality data and concentrations shall reflect no deterioration between intake and discharge. Details			
5.2: If the applicant's facility is claiming exemption because the facility releases no effluent, or its effluent is exclusively destined to irrigate agricultural crops, an explanation of how this is achieved shall be provided, and these Section 5 standards do not apply. Must be verified by auditor. Details			
5.3: If the applicant is claiming exemption because daily water exchange rates on an annual basis are less than 1% of system volume, data for annual effluent discharge volume, water use and nutrient load shall be provided. Details			
5.4: If the applicant is claiming exemption because the facility produces less than 3,000 kg of live aquatic products per year, an explanation of how this is met shall be provided.			

Details:									
5.5: Records on intake water and effluent monitoring shall be maintained and available.									
Details:									
5.6: Effluent water quality concentrations shall comply with BAP water quality criteria or applicable regulations if they are equivalent or more									
Detailed:									
Details:									
If none of the effluent monitoring exemptions apply, new facilities must have at least three (3) months of data prior to the BAP audit being conducted. At least one month of data must be supplied with the application if 3 months of data is not available.									
Variable	Frequency	Initial Standard Value	Month 1	Month 2	Month 3				
pH (standard units)	Monthly	6.0 - 9.5							
Total suspended solids (mg/L)	Quarterly	≤ 50							
Soluble phosphorus (mg/L)	Monthly	≤ 0.5							
Total ammonia nitrogen (mg/L)	Monthly	≤ 5.0							
5-day biochemical oxygen demand (mg/L)	Quarterly	≤ 50.0							
Dissolved oxygen (mg/L)	Monthly	≥ 4.0							
Chloride (mg/L) - no discharge above stated values into freshwater	Monthly	≤ 800							
*Water with less than 1.0 ppt salinity or specific conductance below 1,000 micromhos or chloride less than 550 mg/L is considered fresh.									
5.7: Hatcheries shall continue compliance with these criteria to maintain certification and comply with BAP's final criteria within five years.									
Details:									
5.8: The hatchery shall provide the auditor with an estimated annual water use during the last calendar year, as illustrated in Appendix C, and the input data shall also be available for review.									
Details:									
5II. Cages in Fresh- or Brackish Water							Yes	No	N/A
Cages in Lakes, Reservoirs									
5.9: The water quality of the water body, including its discharge point if applicable, shall meet the BAP effluent water quality criteria, with sampling conducted following the procedures in Appendix D.									
Details:									
Use the table under Standard 5.5 above to report average annual values for effluent from water bodies in which cage farm operations are operating, in cases where farms were required to sample discharge from the water body due to signs of increasing eutrophication (if applicable). Use the table below to record observations about water quality monitoring being done by cage farms.									
Water Quality Monitoring Variable	Sample Depth	Frequency	Does the farm monitor this variable as specified?						
Temperature	Vertical profile, 2-m intervals	Monthly							
Dissolved oxygen	Vertical profile, 2-m intervals	Monthly							
pH	Equal to cage mid-depth	Quarterly							
Chlorophyll a	Equal to cage mid-depth	Quarterly							
5-day biochemical oxygen demand	Equal to cage mid-depth	Quarterly							
Secchi disk visibility	Not applicable	Weekly							
Soluble phosphorus	Equal to cage mid-depth	Quarterly							
Total ammonia nitrogen	Equal to cage mid-depth	Quarterly							
Phytoplankton abundance and species	Equal to cage mid-depth	Quarterly							
5.10: Facilities shall maintain accurate records of daily feed inputs that reflect compliance with the BAP maximum allowable daily feed input levels.									
Details:									
5.11: Water quality-monitoring records shall be applied in the management of feeding rates (Appendix E) when dissolved-oxygen levels are consistently below 5 mg/L in the early morning, when mean annual Secchi disk visibility decreases by 25% since initial certification, when blue-green algae comprise more than 60% of total phytoplankton or when the thermocline becomes 25% shallower since initial certification. Water quality and feeding records shall be available to substantiate compliance.									
Details:									
Cages in Streams, Irrigation Systems									
5.12: Monthly records of upstream and downstream total ammonia nitrogen and soluble phosphorus concentrations shall be available.									
Details:									
5.13: Maximum daily feeding rates shall be managed such that concentrations of nutrients at 50cm depth and 200m downstream of the cages do not exceed upstream concentrations by more than 25%.									
Details:									
Cages in Brackish Water									
5.14: Feeding records shall demonstrate that the maximum daily feeding rate of 7.5 kg/ha of the water body surface area is not exceeded and that feeding levels were reduced when BAP water quality criteria were exceeded.									
Details:									
5.15: Water quality-monitoring records shall be maintained as specified.									
Details:									
5III. Cages in Marine Water Above 25-ppt Salinity							Yes	No	N/A
5.16: The applicant shall provide documents that describe local standards for benthic impacts under cage facilities, which shall include the benthic indicator "trigger level" above which the facility would not be in full compliance with the local standard, where this is clearly defined, or with its intent where it is not clearly defined.									

Details			
5.17: For established facilities, the applicant shall provide three years of monitoring data to show that the facility meets or exceeds sediment quality criteria specified in its operating permits and/or its own monitoring plan at current operation levels.			
Details			
5.18: For newly established facilities or those that have expanded and do not yet have enough monitoring data, the applicant shall provide an independent study that characterizes the hydrographic and benthic characteristics of the area and provides a consultant's opinion (without liability) that the facility can meet or exceed sediment and water quality criteria if operated correctly. This opinion shall be verified by reference to sampling results at the next audit.			
Details			
5.19: Monitoring of sediment conditions shall be undertaken at the time of peak feeding during the production cycle and shall be conducted according to the requirements of the facility's operating permits or its own plan in countries or regions where sediment monitoring is not required, and as specified in the implementation guidelines.			
Details			
5.20: Sediment sampling and analysis performed as part of the monitoring program shall apply generally accepted international methods and be adjusted to the local hydrographic or benthic conditions.			
Details			
5.21: The results of sediment monitoring shall be reported to and be reviewed and accepted by the appropriate regulators. Where regulatory approval is conditional upon implementing a program of remedial action, this shall have been implemented and completed.			
Details			
5.22: Production cycles and fallowing shall be coordinated with other neighboring BAP applicants or BAP-certified facilities, or with members of an established Area Management Agreement.			
Details			
5.23: Where an AMA has not been established, applicants shall nevertheless demonstrate cooperation in matters of stocking, fallowing, animal health and biosecurity with BAP-certified facilities within an area twice the regulatory minimum separation distance to an upper limit of a 5-km radius.			
Details			
Environment			
6. Soil and Water Conservation (Land-Based Systems Only)	Yes	No	N/A
6.1: If ponds with saline water are constructed on permeable soil, measures such as tile use or pond liners shall be taken to control seepage and avoid contamination of aquifers, lakes, streams and other natural bodies of freshwater.			
Details			
6.2: For inland brackish ponds, quantify monitoring of neighboring well and surface water shall show that chloride levels are not increasing due to hatchery operations.			
Details			
6.3: Data on water levels at neighboring wells shall be requested from the well owners, and water analysis shall show that the water body is not adversely affected by the facility's use of water for hatchery processes.			
Details			
6.4: Use of water from wells, lakes, streams, springs or other natural sources shall not restrict the amount of water available to other users or cause damage to ecologically sensitive areas or subsidence in surrounding areas.			
Details			
6.5: The facility shall process all sludge/sediment in sedimentation basins or by other proven sediment concentration methods, such as filters and presses, and shall not dump material in ecologically sensitive areas.			
Details			
6.6: If the applicant's facility uses tanks, raceways or similar systems with short retention times, sedimentation basin capacity shall be provided to handle the associated sludge/sediment, and documents shall be available to show how the capacity was calculated.			
Details			
6.7: Any accumulated sludge removed from ponds, reservoirs or sedimentation basins shall be confined within the facility property until it is disposed of harmlessly.			
Details			
6.8: Removed sediment shall be properly contained and located to prevent the salinization of soil and groundwater, and shall not be placed in mangrove areas or other sensitive habitats.			
Details			
6.9: The applicant shall take measures to control erosion and other impacts caused by outfalls.			
Details			
Environment			
7. Feed Biosecurity, Fishmeal and Fish Oil Conservation (All Production Systems)	Yes	No	N/A
7.1: Accurate records shall be kept of all feeds used, their sources and any tests undertaken for the presence of contaminants or toxicants.			
Details			
7.2: Live, fresh or frozen feeds brought into the hatchery from an outside source shall be accompanied by a certificate from the supplier warranting that the feeds are fresh or were frozen when they were fresh, and have not been treated with toxic preservatives such as formalin.			
Details			
7.3: All feed shall be stored under cover with temperature control (as needed) and enough space from the walls to allow ventilation and movement for inspection.			

Details				
7.4: Feeds and feed additives (primers) shall be protected from moisture and pests, and stored away from fuels, chemicals and other potential contaminants.				
Details				
7.5: Biosecurity provisions for feeds brought into or produced at the facility shall be followed as described in the Health Management Plan (See Section 14). Records shall be available to demonstrate this.				
Details				
7.6: No feeds that contain material derived from the fish or carcasses of the same species that is reared in the facility shall be used, even if such materials have supposedly been disinfected by cooking or other treatment.				
Details				
Hatcheries Using Over 500 mt Dry Feed/Year				
7.7: The applicant's facility shall use feed for which the manufacturer has provided data on the wild-harvested fishmeal and fish oil content or feed fish inclusion factor.				
Details				
7.8: The facility shall record the characteristics of all feeds used, the total amounts of each feed used each year, and the total annual production.				
Details				
7.9: The facility shall calculate and record a feed-conversion ratio for each completed production cycle.				
Details				
7.10: The facility shall calculate and record a fish in/ fish out ratio for each completed production cycle.				
Details				
7.11: The fish in/ fish out ratio shall not exceed 1.5.				
Details				
7.12: The applicant shall obtain feed from a GAP-certified feed mill or a feed mill that declares and documents compliance with standards 3.1 and 3.3 of the GAP feed mill standards.				
Details				
(Note: the referenced GAP Feed Mill Standards are FM 3.1: The applicant shall obtain declarations from suppliers on the species and fishery origins of each batch of fishmeal and fish oil. FM 3.3: The applicant shall develop and implement a clear, written plan of action defining policies for responsibly sourcing fishmeal and fish oil.)				
Environment		Yes	No	N/A
8. Stocking Sources (All Production Systems)				
8.1: The facility shall maintain accurate records of the species produced and, where relevant, any significant stock characteristics, including but not limited to non-native, specific pathogen-free, specific pathogen-resistant, sterile, hybrid, triploid, sex-reversed or genetically modified status. Records shall also include documentation to support the stock characteristic claims made.				
Details				
8.2: If government regulations control the use or importation of any of the species or stocks produced, relevant permits shall be made available for inspection, even if imported eggs, juveniles or fry were purchased from an intermediary.				
Details				
8.3: The facility shall keep records of sources and purchases of stocking material, and record the number stocked in each culture unit for each production lot. Numbers shall be determined either by physical count or by estimation using batch weight and average individual animal weight, with records available that also provide an estimated margin of error.				
Details				
8.4: The facility shall comply with all government regulations regarding importation of native and non-native gametes, juveniles and/or broodstock, where applicable.				
Details				
8.5: Wild juveniles shall not be deliberately stocked. (This standard does not apply to the collection of seed of certain wild mollusks, which when practiced must comply with applicable regulations.)				
Details				
8.6: If wild-caught broodstock are used, documents from the appropriate government agency shall be available to show their capture was approved, and the broodstock were caught from regulated and sustainable fisheries, where such information is available.				
Details				
8.7: Where the species produced is neither native nor already approved for farming, further documents shall be provided to demonstrate that approval for farming is based on the 2005 ICES Code of Practice on the Introductions and Transfers of Marine Organisms or, for freshwater species, the United Nations Food and Agriculture Organization's 1988 Codes of Practice and Manual of Procedures for Consideration of Introduction and Transfers of Marine and Freshwater Organisms.				
Details				
8.8: Hatcheries that engage in genetic improvement of stock through selective breeding shall have a written Genetic Improvement Plan that describes improvement goals and how genetic fitness will be maintained as these goals are pursued.				
Details				
Environment		Yes	No	N/A
9. Control of Escapes (All Production Systems, Several Standards for Cages Only)				
(All Production Systems)				
9.1: A site risk analysis, updated at least annually, shall be conducted that identifies the potential and actual causes of escapes, determines the relative likelihood of their occurrence or recurrence, and identifies critical control points for effective escape risk monitoring, reduction and response.				
Details				
9.2: Based on the risk analysis, employees shall be trained in its findings and the efficacy of procedures to monitor and reduce escape risks and effectively respond to escape events shall be documented through the year.				

Details			
9.3: All holding, transport and culture systems shall be designed, operated and maintained to minimize the unintended release of eggs, larval forms, juveniles and adult animals.			
Details			
9.4: Screens, nets or other controls sized to retain the smallest live aquatic animals present shall be installed on water outlet pumps, pipes or structures.			
Details			
9.5: Screens, nets or other controls shall be installed on or near pump intakes to minimize the introduction of local aquatic fauna.			
Details			
9.6: All screens shall be well maintained and checked for damage at least daily and effluents shall be monitored for the presence of live organisms with records kept to demonstrate compliance.			
Details			
(Cages)			
9.7: The applicant shall provide documents that show the facility's moorings were installed according to the manufacturer's and/or marine engineer's specifications.			
Details			
9.8: Based on the escape risk analysis, the applicant shall have a Stock Containment Plan that describes how cage system integrity is assured and maintained. Unless it can be demonstrated by engineering specifications, operational considerations and/or government regulations that alternative procedures provide equal or better safeguards against escapes or are unnecessary, the procedures outlined in standards 9.9 to 9.14 shall be followed.			
Details			
9.9: The main surface components of the cage system shall be inspected at least annually and repaired or replaced as needed. The subsurface components shall be inspected at least every two years and replaced as needed.			
Details			
9.10: The ages of all nets at the facility shall be tracked, and strength tests shall be conducted on them every two years using a recognized net strength testing method - see Additional Information (in guidelines) for an example. Nets shall be retired when their strength is below 80% of the strength of new nets.			
Details			
9.11: All operational nets shall be surface checked for holes at least weekly and checked subsurface with an underwater camera or by a diver at least every four weeks. Nets and cage superstructure shall be checked for holes and other indications of structural damage after risk events such as storms or bio-fouling.			
Details			
9.12: Boats shall have guards on propellers, and staff that drive boats shall be trained to avoid contact between boats and cage nets.			
Details			
9.13: At marine sites, procedures and equipment consistent with local Coast Guard rules shall be in place to warn marine traffic of the facility's presence.			
Details			
9.14: The facility shall maintain equipment for the recapture of escapes and have written procedures for its use. The procedures must enable rapid response, subject to legal constraints on the types of equipment used.			
Details			
9.15: The applicant shall be able to verify that all staff have been trained in all aspects of the Stock Containment Plan.			
Details			
Environment			
10. Wildlife Interactions (All Production Systems, Several Standards for Cages Only)	Yes	No	N/A
(All Production Systems)			
10.1: The facility shall use humane methods of predator deterrence and actively favor non-lethal control methods. Where applicable, government permits for predator control shall be made available for review.			
Details			
10.2: The facility shall maintain a list of species that occur within the vicinity of the hatchery that are classified as endangered or threatened under regional laws and/or the IUCN Red List.			
Details			
10.3: Except in exceptional circumstances, such as the risk to human life, no controls other than non-lethal exclusion shall be applied to predator species listed as endangered or critically endangered on the IUCN Red List or that are protected by local or national laws.			
Details			
10.4: The facility shall record the species and numbers of all avian, mammalian and reptilian mortalities resulting from predator control actions and shall report them as required by local authorities.			
Details			
10.5: Specific members of staff designated to carry out lethal control measures shall be trained in humane slaughter methods.			
Details			
(Cages)			

10.6: The applicant shall provide a list of relevant local laws and specific conditions of operating permits that apply to wildlife management and protection.			
Details			
10.7: Marine sites shall maintain maps that identify officially designated "critical" and/or "sensitive" marine and coastal habitat in the region. If a facility is in an area so designated, a list shall be included of the classified or endangered sedentary species within a 2-km radius of the facility and of mobile coastal species within the region. The list shall be updated where necessary to show wildlife established after the facility began operations.			
Details			
10.8: Documents shall be available that describe the passive measures in place to deter the entry into cages of would-be predators and procedures for the routine inspection and maintenance of the measures.			
Details			
10.9: Documents shall be available to show that any active but non-lethal deterrent measures used are approved by regulators through a review of environmental impacts with specific reference to endangered, protected or cetacean species in the area. Such devices shall not be deployed if the review shows they can adversely affect these species.			
Details			
Environment			
11. Storage, Disposal of Supplies and Wastes (All Production Systems)	Yes	No	N/A
11.1: Fuel, lubricants, feed and chemicals used at the facility shall be labeled, stored, used and disposed of in a safe and responsible manner. A list of such materials together with Material Safety Data Sheets for them shall be maintained and be made available to the auditor.			
Details			
11.2: Chemicals used for hatchery operations shall be neutralized or diluted before discharge into natural bodies of water.			
Details			
11.3: Fuel, lubricants and agricultural chemicals shall not be stored near feed, in employee housing or kitchen areas, or near harvest equipment and supplies.			
Details			
11.4: Fuel, lubricants and chemical storage areas shall be marked with warning signs.			
Details			
11.5: Precautions shall be taken to prevent spills, fires and explosions, and procedures and supplies shall be readily available to manage chemical and fuel spills or leaks. Designated staff shall be trained to manage such spills and leaks.			
Details			
11.6: Garbage from housing and food waste shall be retained in water-tight receptacles with covers to protect contents from insects, rodents and other animals.			
Details			
11.7: Garbage and other solid waste shall be disposed of to comply with local regulations and avoid environmental contamination and odor problems (e.g., recycling, burning, composting or placing in a legal landfill).			
Details			
11.8: Household trash and other facility wastes shall not be dumped in mangrove areas, wetlands or other vacant land and shall be removed regularly and properly to avoid accumulation.			
Details			
11.9: Discarded hatchery supplies and equipment (e.g. tires, pallets, bags, barrels, aeration paddles or engines) shall be stored tidily and shall not be dumped in mangrove areas, wetlands or other vacant land and shall be removed properly to avoid excessive accumulation.			
Details			
11.10: Measures shall be taken to prevent infestation by animal and insect vectors and pests.			
Details			
11.11: Secondary fuel containment shall conform to BAP guidelines for fuel storage.			
Details			
11.12: Domestic sewage shall be treated and properly disposed of to avoid contamination of surrounding areas (e.g., sewer system, septic system, portable toilet or outhouse).			
Details			
Animal Welfare			
12. Animal Welfare (All Production Systems)	Yes	No	N/A
12.1: The facility shall include within its Health Management Plan an Animal Welfare Section (AWS), and all facility personnel shall receive training in its provisions.			
Details			
12.2: The AWS shall be written and/or approved by a qualified aquatic animal health professional (AAHP), and overseen by a member of facility management or the AAHP, one of whom shall be available at audit to answer questions.			
Details			
12.3: The AWS shall include procedures for the humane treatment of brood animals during spawning and/or taking of eggs and sperm (whether induced or naturally occurring), and for slaughter where this is required. The procedures shall be designed to minimize unnecessary or inadvertent animal suffering and records shall be available to demonstrate compliance with the procedures.			
Details			

12.4: The AWS shall specify methods for the slaughter of surplus, unwanted or compromised animals that minimize animal suffering. Records shall be available to show these methods are followed when animals are euthanized. Details			
12.5: The AWS shall define and justify acceptable minimum water quality limits for the species being reared. Daily or more frequent monitoring records shall show that when these limits are breached, immediate corrective action is taken. Details			
12.6: The appearance and behavior of all hatchery stocks shall be observed at least daily for signs of distress or ill health. Actions taken to correct signs of distress or ill health shall be documented. Details			
12.7: The AWS shall explain, set and keep under review stocking density limits appropriate to the species and size of animals being reared. Documents shall be available to verify these limits are observed. Details			
12.8: The facility shall develop procedures that minimize unnecessary stress or injury to animals during crowding, capture and handling of animals prior to and during transfer within the facility or transport to another. Records using survival rates as an indicator of the adequacy of such procedures shall be available. Details			
12.9: The facility shall develop and follow procedures to estimate the numbers of animals in each shipment and provide documentation to show the estimated margin of error of the procedure used. Details			
Food Safety			
13. Chemical and Drug Management (All Production Systems)	Yes	No	N/A
13.1: If used, drug treatments shall be based on recommendations and authorizations overseen by a qualified veterinarian or qualified aquatic animal health professional (AAHP) and used only to treat diagnosed diseases in accordance with instructions on product labels and national regulations. Extra label use of drugs shall be with the approval of a qualified veterinarian only. Details			
13.2: Records shall be maintained for every application of drugs and other chemicals for therapeutic treatment that include the date, compound used, approving veterinarian or health professional (if applicable), dose and date on which the animals were transferred to another facility and the name of the facility. If the animals were harvested for human consumption records of compliance with required withdrawal times shall also be maintained. See the Traceability requirement in Section 15. A list of therapeutics used by the facility shall be available for inspection. Details			
13.3: Where vaccines or anesthetics are used, records shall be available to show that they were used in accordance with manufacturers' instructions and with the approval of a qualified veterinarian or AAHP or, if used outside manufacturer's instructions, then with the express direction of a qualified veterinarian. Details			
13.4: Antibiotics or chemicals that are proactively prohibited in the producing or importing country shall not be used in feeds, pond additives or any other treatment. The facility's Health Management Plan (Section 14) shall include a list of these prohibited substances. Details			
13.5: For feed suppliers that are not BAP-certified, statements are required attesting to the application of production procedures that exclude proactively prohibited drugs, by-products from same species as reared in the applicant's facility, unsafe levels of heavy metals and physical or other contaminants. Details			
13.6: Where toxicant-based antifouling agents are used on cage or net pen nets, documents shall be available to show that all necessary authorizations for their use were obtained. Net-cleaning procedures shall be used that allow for the collection, treatment and disposal of wash water in compliance with national regulations. Details			
13.7: Antibiotics, antimicrobials or hormones shall not be used as growth promoters. The use of hormones for sex reversal is not considered growth promotion. Details			
13.8: If hormones are used for sex reversal of animals, documents shall show that such use is approved in the country of production. Workers shall be trained in the handling of hormones and wear protective clothing and masks with air filters. Details			
13.9: The facility shall have a written procedure and facilities for treating water used in the sex reversal of aquatic animals using hormones. If governmental standards exist for the discharge of hormone-treated water, the facility shall conform with such standards. Details			
13.10: Chemicals used for the induction of triploidy in mollusks shall be approved and used only according to manufacturers' instructions and/or local regulations. Details			
Biosecurity			
14. Disease Control (All Production Systems)	Yes	No	N/A
14.1: The facility shall have a written Health Management Plan (HMP), and a qualified aquatic animal health professional (AAHP) shall oversee its implementation. Details			
14.2: The AAHP's qualification documents shall be available for inspection by the auditor. The AAHP shall be available in person or by phone at audit to present the HMP and answer questions. If the auditor considers the AAHP's qualifications inadequate, the provisions of standard 14.19 shall apply.			

Details				
14.3: The applicant shall demonstrate familiarity with the OIE Animal Health Code and FAO Technical Guidelines for Responsible Fisheries 5, Supplement 2: Health Management for the Responsible Movement of Live Aquatic Animals and be able to explain how the HMP incorporates these provisions.				
Details				
14.4: The facility shall have a training program for designated facility staff who implement the HMP and documents to confirm that such training has been given. Their understanding of the HMP will be verified by interview during the facility audit.				
Details				
14.5: Potential pathogens of the species reared at the facility shall be listed in the HMP and shall include diseases listed by OIE (Part 1, Chapter 1.3), other diseases of national or regional concern (Part 2) and pathogens of concern to the facility and for which monitoring is undertaken. The HMP shall include specific measures to address each disease.				
Details				
14.6: The HMP shall contain a site-specific risk analysis that identifies ways in which pathogens might be brought into the hatchery or be transmitted to other facilities by live aquatic products. The applicant shall demonstrate how the facility protects against such risks, including but not limited to diseases introduced through live aquatic products, water supply, feeds, hatchery personnel, equipment, visitors and local wildlife.				
Details				
14.7: Health status documents for all live aquatic products brought into the facility since the last audit shall be available and shall demonstrate the products were free of diseases (to the extent detection is possible) listed in 14.5 or entered quarantine and were released into the rest of the hatchery only once disease-free status was established. This excludes locally endemic diseases.				
Details				
14.8: The applicant shall have an isolation facility if new broodstock or other stocks of animals of uncertain health status are brought into the hatchery and the HMP shall explain how it is used to protect against the risk of bringing infectious disease agents into the hatchery and/or spreading them within it.				
Details				
14.9: Disinfection procedures for all incoming and outgoing personnel, visitors, equipment and other materials brought into the facility shall be described in the HMP. The applicant shall be able to demonstrate the procedures are followed.				
Details				
14.10: The HMP shall describe the procedures and indicators used by staff to monitor and document the health of facility stocks. These can include daily or more frequent observations of physical appearance, feeding response and mortality, or of larval development and/or growth rate at biologically relevant intervals.				
Details				
14.11: The HMP shall describe procedures for tracking the indicators listed in 14.10, comparing them with earlier batches, and recording actions taken when trends are negative.				
Details				
14.12: The HMP shall describe procedures for identifying diseases in hatchery stocks, diagnosis of pathogens and, where necessary, determination of susceptibility to therapeutics and treatment with them. Surveillance records shall be available for inspection.				
Details				
14.13: The HMP shall explain how fallowing or dryout periods in different parts of the facility are planned and used to break infection cycles. Records shall be available to show this is done.				
Details				
14.14: The HMP shall stipulate procedures for the routine collection, examination and sanitary disposal of dead animals, and for quarantining and/or depopulation of facility stocks, when required.				
Details				
14.15: The health status of all animals or gametes shipped from the facility shall be recorded. Documents for all animals shipped since the last audit shall be available and shall show that products with diagnosed or suspected disease were not shipped, unless to a region of equal or lower health status, and that the transfer was approved by the customer and local regulator.				
Details				
14.16: Where effective vaccines are available for the culture species, animals shipped from the facility shall be vaccinated according to the requirements of the importing region or country, or customer specification. Records that show this shall be available for inspection.				
Details				
14.17: Transport containers for shipping live animals shall be clean and if reused shall be sterilized between uses.				
Details				
14.18: An annual or more frequent facility health status report that includes records of batch or lot health indicators, treatments for disease and customer complaints shall be available for inspection. Actions taken to correct deterioration in any performance category shall be described. Uncorrected and/or sustained deterioration are grounds for seeking independent health status examination (Standard 14.19) or denial of certification.				
Details				
14.19: When the auditor has concerns about the health status of the applicant's live aquatic products and/or is not satisfied with the information provided on health status, monitoring programs or the qualifications of the AHP, the applicant shall agree that during inspection the auditor may take samples from stocks held at the facility and submit them to an independent, third-party laboratory for verification of health status regarding the diseases for which health claims are made. The cost of such testing shall be borne by the applicant.				
Details				
14.20: The applicant shall demonstrate that it works with neighboring BAP-certified hatcheries and farms, and seeks to work with neighboring facilities that are not BAP-certified to standardize biosecurity procedures and share disease control and diagnostic information.				

Details			
Traceability	Yes	No	N/A
15. Record-Keeping Requirement (All Production Systems)			
15.1: The facility shall operate an effective record-keeping system that provides timely, organized, accurate entries, performed and overseen by a designated trained person or team responsible for collecting the data, ensuring it is complete and accurate, and that traceability requirements are met.			
Details			
15.2: The facility shall keep complete and accurate records for each culture unit and production cycle, including the culture unit identification number, unit area and volume, seedlings and, if applicable, species specification such as hybrid or GMO.			
Details			
15.3: The facility shall keep complete and accurate records concerning any antibiotic or other drug use at the facility.			
Details			
15.4: Complete and accurate records on the use of herbicides, pesticides and other pesticides shall be maintained.			
Details			
15.5: Complete and accurate records regarding manufacturer and lot numbers for each feed used, and/or the sources of live feeds shall be maintained.			
Details			
15.6: The facility shall maintain complete and accurate records of the sources and numbers of broodstock, eggs, postlarvae or fingerlings stocked, stocking dates and all feeds used for each culture unit.			
Details			
15.7: Complete and accurate records regarding the harvest date, harvest quantity, movement document number (if applicable) and receiving farm(s) or purchaser(s) shall be maintained. If product lots are destined to more than one farm or purchaser, each lot shall be separately identified.			
Details			
15.8: In order to use the RAP logo, facilities shall have such use approved and registered in advance with RAP Management.			
Details			
15.9: The facility shall keep records of any customer complaints related to its products' compliance with the RAP standards.			
Details			
15.10: The facility shall keep records of investigations of such complaints and actions taken to address/correct them.			
Details			

Attachment 3



JANET T. MILLS
GOVERNOR

STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY
ANIMAL WELFARE PROGRAM
28 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0028

AMANDA E. BEAL
COMMISSIONER

September 18th, 2019

To: Greg Lambert
Fresh Water Production Manager
Cooke Aquaculture USA

From: Liam Hughes
Director of Animal Welfare
Maine Department of Agriculture, Conservation & Forestry.

Site Visit from September 17th, 2019

Mr. Lambert,

Thank you for taking the time to meet with me and address the issues that were brought to the attention of the Animal Welfare Program. As we discussed, a video was sent to Animal Welfare showing Cooke employees improperly euthanizing fish by:

- stomping on the head of the fish,
- striking the head of the fish on random solid objects
- Placing fish in empty barrels with no water containing a solution to euthanize the fish

The videos also contained proof that the staff were throwing the fish by their tails a great distance from one tank to another, in some cases over 20 to 30 feet.

It is my recommendation that update your facilities Health Management Plan to include detailed instructions on:

- The proper way to cull and euthanize fish.
- Proper use of equipment for euthanasia of fish.
- Safe handling protocols for the fish to prevent damage while moving the fish.
- Disease protocols and identifying illness that would result in the culling of fish.

Once these updates are implemented in your Health Management Plan, Schedule a time to train your staff on these and any of the other protocols. In approximately 30 days I will return to follow up with you on the changes and trainings and evaluate your progress. Please contact my office if you have any questions.

Liam Hughes
Director of Animal Welfare

LIAM HUGHES, DIRECTOR
ANIMAL WELFARE PROGRAM
90 BLOSSOM LANE, DEERING BUILDING



PHONE: (207) 287-3846
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Statement from Glenn Cooke regarding fish handling at a Cooke Aquaculture hatchery in Maine

Maine – October 7, 2019 – Glenn Cooke, CEO of the Cooke family of companies, provided the following statement after the company was contacted by the Maine Department of Agriculture regarding an animal welfare complaint submitted by an activist veganism organization for a Cooke Aquaculture USA freshwater fish hatchery in Bingham, Maine.

"I am disappointed and deeply saddened by what I saw today. As a family company, we place animal welfare high in our operating standards and endeavor to raise our animals with optimal care and consideration of best practice. What we saw today is most certainly not reflective of these standards.

Company officials were contacted by the Maine Department of Agriculture on September 16th, 2019 and met with the department at the hatchery on September 17th to discuss a complaint, which included hidden camera video footage of fish handling in our Bingham hatchery. Until today, we had not been provided the opportunity to review the footage, nor do we know how it was obtained.

Based on information received from the department, and after reviewing the footage issued today by the activist veganism organization, it appears that unacceptable fish handling incidents have occurred at the Bingham hatchery. These are not our standards and will not continue. The Cooke family has been raising fish for over 35 years and we are not happy about this. We have already begun putting the necessary checks and balances in place to ensure this will not happen again.

I am very sorry that this has happened. We are thoroughly reviewing the footage and we are working closely with the Maine Department of Agriculture to review and ensure all our practices are within compliance. We are speaking with all our employees, and we will institute a rigorous re-training program at our Maine facility. This is one that we apply across all our global operations to enforce the importance of animal welfare.

We understand that animal health and welfare are an important piece of raising animals and are in position to manage those pieces effectively. As a company, we place animal welfare high in our operating standards and endeavor to raise our animals with optimal care and consideration of best practices. We regularly validate our internal best practices through regulatory compliance and voluntary third-party audits of our operations. In addition to a rigorous global employee training and operational standards training program, we encourage employees to speak up when they have any questions or concerns, or if they feel that practices are not being adhered to.

Our family, company and our employees take animal welfare seriously. We have policies and protocols in place and work very hard to ensure our team is well trained and we are compliant with the rigorous standards that are set. We are immediately updating our facilities Health Management Plan and enhancing procedures and training for handling protocols. Our commitment to the health and care of our animals is nearly unequalled, matched only by our commitment to the highest quality, safest and most affordable farm-raised seafood products available anywhere in the world. Like most, we respect anyone's dietary choices, whether that diet includes seafood, meat, milk and eggs or not."

CONTACT:

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Attachment 4

FHMP FW SOP		05		Anaesthetic Use	
Created or Revised by:		Version:		Replaces Version:	
R - Leighanne Hawkins		14-Oct-19		Revision 1.1, Feb 2015	
				Reason for Revision:	
				Combine anaesthesia and euthanasia protocol SOPs.	

SCOPE

This procedure details the protocols to be followed for anaesthetic use to maintain fish welfare. These protocols apply to all facility staff that have responsibility for the use of anaesthetics at freshwater facilities located in New Brunswick, Nova Scotia, Newfoundland and Maine.

OBJECTIVE

To ensure freshwater facilities have a system in place for the proper use of anaesthetics; to ensure the humane treatment of fish during handling procedures and to ensure proper euthanasia and lastly to document these procedures as needed.

EQUIPMENT

The anaesthetic tricaine methanesulfonate (also commonly referred to as TMS or MS-222)

- Aqualife TMS (Canada)
- Tricaine-S (USA)
- Sodium bicarbonate (to buffer the anaesthetic bath)
- Vessel/container of appropriate size/volume
- Dissolved Oxygen monitor

RESPONSIBILITIES

- FACILITY CREW – carry out the procedures in accordance with these protocols described below and to ensure that those personnel conducting procedures where anaesthetic use is required are doing so.
- FACILITY MANAGER/HEAD TECHNICIAN – ensure that these protocols are carried out properly in all instances when anaesthetic use is required.

PROCEDURE

Anesthetics can be used to both anesthetize and/or euthanize fish (via an overdose). Personnel mixing anaesthetic shall follow mixing recommendations as described on the product label, this SOP as well as the prescription (prescription in Canada only). Refer to the following supportive documents for working with anaesthetics:

- Tricaine-S Directions for Use
- Anaesthetics for Fish - Frequently Asked Questions
- Tricaine-S Dosage Chart (Syndel)

Anesthetics are drugs and as such have a label or prescribed withdrawal period and its use must be recorded.

Anaesthetic drugs for fish are dispensed under veterinary prescription in Canada. In the USA Tricaine-S is available over the counter and a prescription is not needed.

ANAESTHESIA PRINCIPALS

Fish must be handled with care and exposed to as little stress as possible – standards of welfare are to be met in all instances.

- An anaesthetic bath is made that is of adequate volume for the numbers of animals being anaesthetized. Animals must not be excessively crowded in the anaesthetic bath nor in the dip net and the fish must be able to swim freely in the bath.
- An anaesthetic bath contained in a vessel of suitable size, shape and volume is made with system water.
- The volume of water in the vessel is calculated and the appropriate amount of anaesthetic is added to the water and stirred to ensure the anaesthetic powder is fully dissolved.
- The use of TMS/Tricaine-S in freshwater requires the addition of sodium bicarbonate to buffer acidity on a 1:1 ratio. (e.g. 20 grams of TMS would require 20 grams of sodium bicarbonate).
- Fish are moved from their original tank or temporary holding tank into the anaesthetic bath.
- Dissolved oxygen levels of the anaesthetic bath must be regularly monitored and maintained to be greater than 7 mg/L. The physical quality of the bath must be monitored and changed as necessary if excessive organic material accumulates.
- Once placed in the anaesthetic bath the fish will swim normally and may show some mild excitation but should quickly calm.
 - If fish are showing signs of stress or severe excitement the anaesthetic may be too strong or the solution may not be buffered properly.
 - If this occurs remove the fish from the anaesthetic and place them back in their original housing - double check your calculation on water volume and dosage.
- The time taken to adequately anaesthetize fish should be approximately one (1) minute. Fish will lose equilibrium and will roll over showing their white underside and respiration rate will slow (see Table 1). Fish can be maintained in this state for several minutes depending on the size of the fish, the water temperature and the dose of anaesthetic. Refer to package insert.
- When removed from the anaesthetic bath and placed in freshwater the time taken for fish to regain consciousness should also be approximately one (1) minute but this time will depend on how long the animal was in the anaesthetic bath (duration of anaesthesia) as well as the depth of the anaesthesia (see Table 2) achieved which is a function of both dose and duration of anaesthesia. The recovery tank should be monitored continuously to ensure animals are recovering to full consciousness.
 - If animals are not recovering appropriately stop all anaesthesia and review protocol.
- In general, for vaccination and other handling a dose of 100 mg/L is used to provide rapid anaesthesia and rapid recovery.

Table 1: Recommended strengths of the anaesthetic tricaine methanesulfonate.

Concentration (Dosage)	Sedation Observations
15-50 mg/L	Light Sedation
50-200 mg/L	Induction of Anaesthesia
50-100 mg/L	Maintenance of Anaesthesia
1000 mg/L or 1 g/L	Spray – Large Fish on Gills Directly
300-500 mg/L for 10 Minutes	Euthanasia

Note: Anaesthesia induction and recovery times are influenced by temperature as well as fish size. Small size and higher temperatures tend to reduce the time taken for the onset and recovery from anaesthesia. In addition to this, because TMS is fat soluble, fattier fish will normally take longer to both succumb to and recover from the anaesthetic.

EUTHANASIA PROTOCOLS

- Euthanasia may be necessary when poor performers or other individuals (such as moribund fish) in the population need to be culled.
- Anaesthetic overdose is the preferred method of euthanasia to be employed. In some situations, anaesthesia in an overdose bath of anaesthetic followed by percussive stunning is permitted.
 - Percussive stunning post deep anaesthetic plane of anaesthesia is only permitted if the equipment for stunning has been previously approved for such activity (ex: pneumatic stunners that deliver a precise, unrecoverable blow to the brain).
 - In the event of an emergency a fish may be percussively stunned with an appropriate piece of equipment (handheld percussive stunner).
- To perform the euthanasia a high dose anaesthetic bath is made (300 mg/L), the fish removed from its tank with a net or pump and placed in the anaesthetic bath. The container holding the bath and fish must be of sufficient size that the fish can move around in the container.
- Once the fish is calm additional anaesthetic can be dissolved in water and added to the bath to obtain the desired effect of full euthanasia (in general this is an addition of another 100 mg/L of anaesthetic powder).
- The fish should remain in the anaesthetic overdose bath until respiration ceases (see Table 2).

Table 2: Stages and planes of anaesthesia; physiological and behavioural indicators.

Description	Physiological and Behavioural Indicators
Light Sedation	Responsive to stimuli but motion reduced, respiration decreased
Deep Sedation	As above but only receptive to gross stimulation – some analgesia
Light Anaesthesia	Partial loss of equilibrium – good analgesia
Deeper Anaesthesia	Total loss of muscle tone and equilibrium, respiration rate very slow
Deep Surgical Plane	As above with no reaction to major stimuli
Medullary Collapse	Ventilation ceases, cardiac arrest, eventual death – overdose

DISPOSAL OF ANAESTHETIC

- Removal of leftover or expired anesthetic will be done under the or direction of the Fish Health Manager.
- Removal will consider the requirements of the SDS and Safe Pharmaceutical handling.
- In Canada, the anesthetic cannot be transferred to another site without the approval of the prescribing veterinarian

SAFETY

Care should be taken when handling anesthetic as it is a chemical. Personnel mixing anesthetic solutions or handling fish placed in anesthetic baths should wear rubber or latex gloves.



RECORDS

- Site Diary
- Fishtalk®

ASSOCIATED MATERIALS

- SDS for Anaesthetic
- Prescription (Canada)
- Tricaine-S Directions for Use
- Anaesthetics for Fish - Frequently Asked Questions
- Tricaine-S Dosage Chart (Syndel)

4. ANIMAL WELFARE PLAN

When farmed animals are exposed to stressors, feed consumption and growth rates can be affected. Stressed animals are also less resistant to diseases, may suffer from increased mortality and produce lower-quality product (harvest fish) and offspring (broodstock). Undue stress can be minimized through good husbandry techniques that focus on the rearing habitat and handling.

Often animal welfare is depicted as important only for agricultural animals, however, similar principles must be applied to aquaculture facilities as well to ensure that farmed aquatic animals, be it fish, crustaceans or mollusks, are produced using humane techniques.

4.1 Water Quality

Animal Welfare, particularly for aquatic species is highly dependent upon water quality. Recommended water quality parameters can vary greatly from species to species. Below are defined water quality parameters that shall be monitored, at what minimum frequency and for which type of hatchery – recirculation or flow through/reuse. Normal ranges for optimal operation have been identified and staff shall alert management if any parameter is outside of the range so that immediate corrective action can be taken. The parameters below are for normal operation and are separate from any water quality monitoring necessary to be in compliance with Government Regulations or third-party certifications. Recirculation facilities are differentiated from Re-use facilities by the presence/lack of biofiltration.

4.1.1 Recirculation

Parameter	Minimum Frequency	Recommended Range for Normal Operation
Water Temperature	Daily	6-20°C
Dissolved Oxygen	Daily	>6 ppm at tank outlet
pH	Daily	6.0-8.5
Hardness	Weekly	>100 mg/L
Nitrate	Daily	<150 mg/L
Nitrite	Daily	<1 mg/L
Toxic Ammonia (Unionized)	Daily	<0.0125 mg/L
Carbon Dioxide	Weekly	<20 mg/L

4.1.2 Flow Through/Reuse

Parameter	Minimum Frequency	Recommended Range for Normal Operation
Water Temperature	Daily	0.5-25°C
Dissolved Oxygen	Daily	>6 ppm at tank outlet
Carbon Dioxide	Weekly	<20 mg/L

4.1.3 Lake Site

Even though a lake site is located in freshwater, it is more closely related operationally to a sea site and as such shall adhere to the FHMP for Saltwater (FHMP SW). As per section 2.4 of the FHMP SW, water quality monitoring conducted at the Lake Site(s) shall follow a combination of the requirements set forth in FHMP SW SOP 02: Water Quality Monitoring as well as the requirements of BAP.

4.2 Daily Observations

The appearance and behaviour of all stocks shall be observed at least daily (weather permitting). Staff shall document any abnormal fish behaviour within the site diary or daily activity log and alert management immediately when signs of distress or ill health are observed so that action may be taken to correct the problem. Signs that fish may be in distress or ill health include;

- External physical changes – scale loss, skin lesions, dark appearance, pale gills
- Behavioural changes – excessive finning at the surface of the water, excessive jumping, abnormal swimming and schooling behaviour
- Appetite changes – poor feeding response
- Sudden increase in mortalities

Daily observations are also discussed in the FHMP FW – Introduction, under **Common Fish Handling and Health Management Procedures; Monitoring Fish Health and Behaviour and Disease Recognition**. For the Lake Site(s), daily observations are discussed in the FHMP SW Section 2.7 – **Monitoring Fish Health and Common Practices**.

4.3 Stocking Density

There are many factors within a single facility that help provide guidance for optimal fish stocking density. A variety of parameters including water quality, species, and life stage can affect stocking density capacity. The key factors impacting density are oxygen systems, water temperature, water treatment and water turnover period. The following outlines density ranges for the various life stages and rearing systems for Atlantic salmon. However, these values represent a goal value and it is important to recognize that the true measure of adequate stocking density is reflected in the health of the fish.

The hatchery stocking density shall not normally exceed the maximum densities as described below but may be allowed to be above these limits for 25% of the life stage if the fish show other indicators of good health such as low mortality, good fin quality and optimal growth and feed conversion. It is important to keep in mind that facilities and equipment will be used to the maximum capabilities of their systems while ensuring animal welfare is maintained.

4.3.1 Eggs

	Heath Trays	EWOS Trays	Comb-Hatch	Egg Tubes	Combi-Trays
# of Eggs	20,000	15,000	350,000	100,000 – 300,000	125,000

4.3.2 Post Hatch

	Up to 1 Year	1 to 2 Years	2-4 Years
Maximum Density	60 kg/m ³	80 kg/m ³	120 kg/m ³

4.3.3 Smolt – Lake Site

Average nursery density shall not normally exceed 25 kg / m³ however; cage sites are permitted to operate at a higher density for no greater than 5% of the time fish are stocked at the nursery site.

4.4 Handling and Transferring Fish

4.4.1 Grow Out

Throughout the freshwater production cycle, fish will be handled with care to prevent stress and injury. Materials used for any handling procedures shall be clean and in good repair to prevent damage to the fish. At vaccination, fish will be properly anesthetized and handled with care. Any downgrades or poor performers culled during these operations shall be handled with animal welfare in mind. Any fish culled at time of vaccination or any other time will be euthanized with a strong anaesthetic. Lake Site(s) should refer to the FHMP SW Section 2.3 – Fish Handling Techniques and FHMP SW SOP 08: Anaesthetic Use.

(SOP 05) Anaesthetic Use

(SOP 10) Grading and Splitting Fish

(SOP 13) Weight Sampling Fish

(SOP 16) Water Quality Monitoring

(SOP 22) Vaccine Handling and Storage for Immersion and Intraperitoneal Vaccination

(SOP 23) Vaccinating Fish – Injection Vaccination

4.4.1.1 Moribund Fish or Mass Mortality

Moribund fish collected as routine mortalities. Once retrieved, fish are put in an anaesthetic bath, percussively stunned and treated accordingly dependent upon intended purpose (e.g. Diagnostic testing, disposal, etc.).

In the unfortunate event of mass mortality or the need to euthanize large populations, methods will be employed that consider animal welfare, the health of the remaining populations and Government regulations. Lake Sites(s) should refer to the FHMP SW SOP 08 – Anaesthetic Use and FHMP SW SOP 11: Mass Mortality Collection and Disposal.

(SOP 05) Anaesthetic Use

(SOP 19) Routine Mort Collection and Disposal

(SOP 25) Fish Disease Outbreak – Emergency Procedures

4.4.2 Transfers

Each facility has developed techniques and procedures that minimize unnecessary stress or injury to animals during crowding, capture and handling of animals prior to and during transfer within the facility or transport to another. Survival rates shall be used as an indicator of success of the methods used. Poor results shall result in a review of the system and an investigation into new or different techniques performed.

Densities during transfers are maintained below 80 kg/m³. Factors such as length of time in transit, water temperature and size of fish will affect this limit. Lake Site(s) should refer to the FHMP SW Section 2.5.5 – Moving Fish Between Sites.

(SOP 07) Freshwater Fish Pumping Techniques

(SOP 08) Freshwater Fish Netting/Bucketing

(SOP 09) Moving Fish via Hard Pipe

(SOP 15) Fry and Smolt Transport Protocols

4.5 Handling of Broodstock

Broodstock are those fish that have been selected, based on genetic profiles, to produce the progeny for future production cycles. These fish housed within our facilities the longest and require special handling consideration because of their age, size and reproductive status.

4.5.1 Grow Out

During grow out (time from smolt to spawn) the fish shall be treated as any other production fish. Adequately fed a nutritious diet, supplied clean, well oxygenated water and observed daily for signs of stress or ill health.

4.5.2 During Spawning

Once a fish has been identified as a current year broodstock, they are separated and held for spawning. Females shall be euthanized in a strong anaesthetic bath solution and percussively stunned prior to egg takes. Males shall be anesthetised as well to calm them for handling. If males are not to be reused, they also will be euthanized in a strong anaesthetic bath solution.

4.5.3 Post Spawn

Fish spawned will be subject to routine fish health sampling then treated as regular mortality.

4.5.4 Disposal of Surplus

Fish that have been within the system for more than 5 years will be removed from the broodstock program, unless a particular male or female has demonstrated above average breeding value in which case it may be held an additional year. Those fish that have not matured will be disposed of, either through harvesting and sent to the processing plants for processing or euthanized and treated as mortalities. Fish within the 2-3-year range showing undesirable traits or to simply reduce the size of the broodstock population will also be treated as surplus.

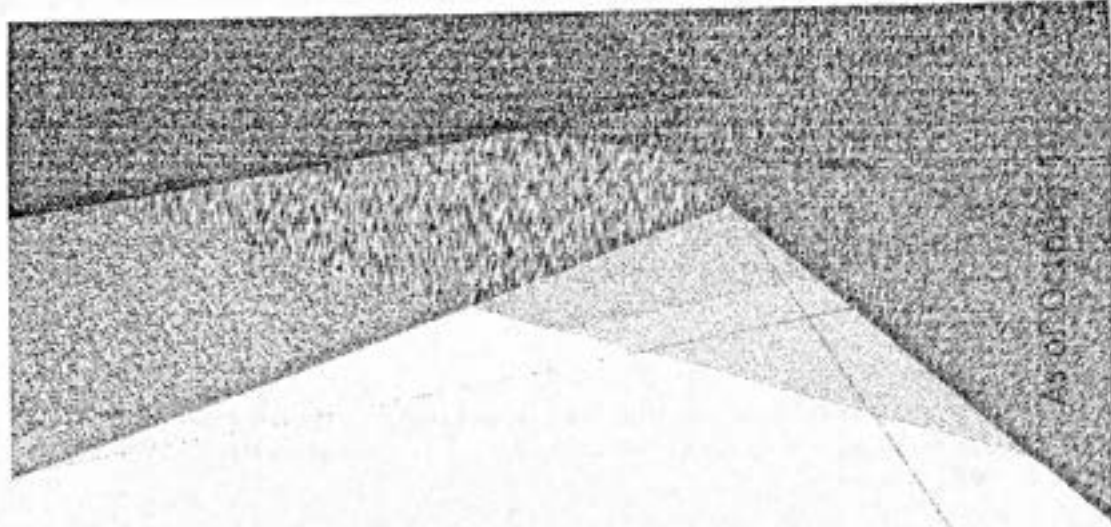
4.5.5 Egg Estimation

Egg numbers are estimated based on volume once fertilized. To obtain an estimation of the number of fertilized eggs, two different methods are used within the hatcheries. The simplest method is simply to estimate that 10,000 eggs per female were obtained. The second, and most used method, is to measure how many eggs in 25cm, followed by a chart converting egg count to egg/liter and then you have to measure the litres eggs. These counts are performed approximately 1 hour after fertilization. These estimations are the standing inventory until a real count is taken when sorting is done, approximately 300-degree days after spawning.

(SOP 20) Egg Management Procedures

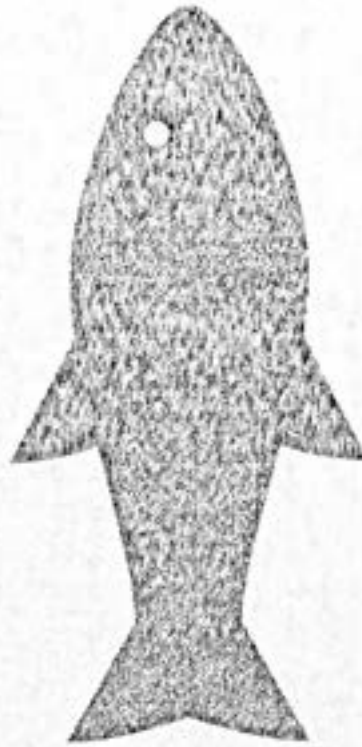


Animal Welfare & Handling



Introduction

- ▶ The purpose of this training is to educate all our employees on the best welfare practices for handling of our fish from egg to plate
- ▶ This includes any fish handling events that occur at:
 - ▶ Hatcheries
 - ▶ Marine Farm Sites
 - ▶ Processing Facilities



Purpose

The purpose of this training is to ensure that all personnel are aware of their responsibilities to maintain optimum welfare conditions and practices during any fish handling procedures.

Our goal is to be diligent and consistent with our handling procedures throughout all operations, in all locations, from egg to plate.

Sustainability Policy

Version 19.04-06

- ▶ We are committed to minimizing the impacts of our business on the environment and to respecting the needs of all users of our shared resources while producing safe, wholesome, quality and nutritious seafood products which consistently meet the expectations of our customers.
- ▶ As farmers, we shall raise our fish with optimal care and consideration of animal welfare practices, and we shall continue to participate in the ongoing research to source new technologies that may support best practices.

Animal Welfare



Animal welfare is important, and principles must be applied to ensure that farmed animals are produced using humane techniques



Such techniques are already described in the Fish Health Management Plans for both Freshwater and Saltwater operations



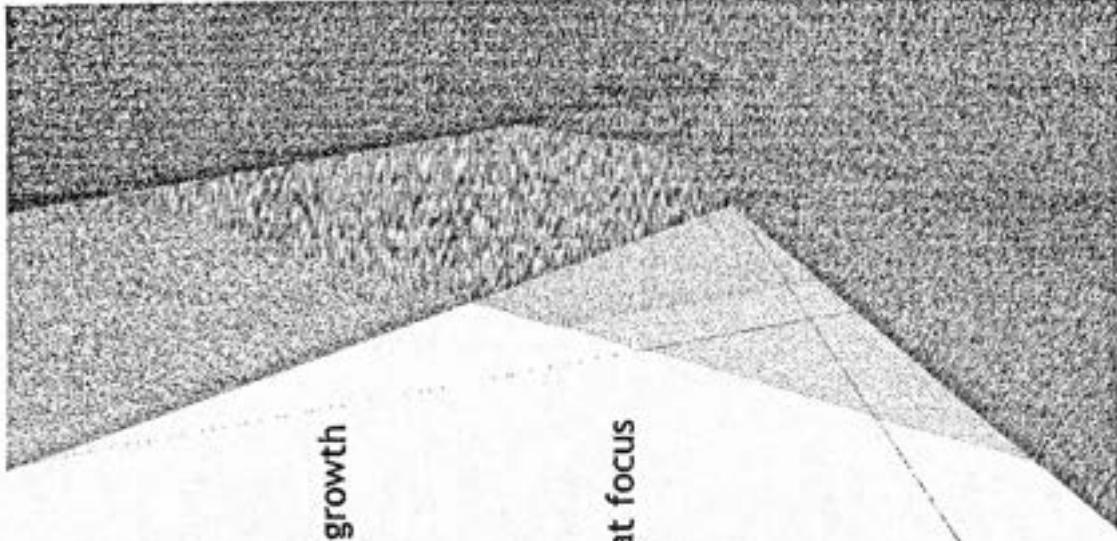
As a supplement to the Freshwater Fish Health Management Plan (FW FHMP) the Animal Welfare Plan (AWP) provides a summary of the animal welfare practices



All personnel shall receive training in these plans

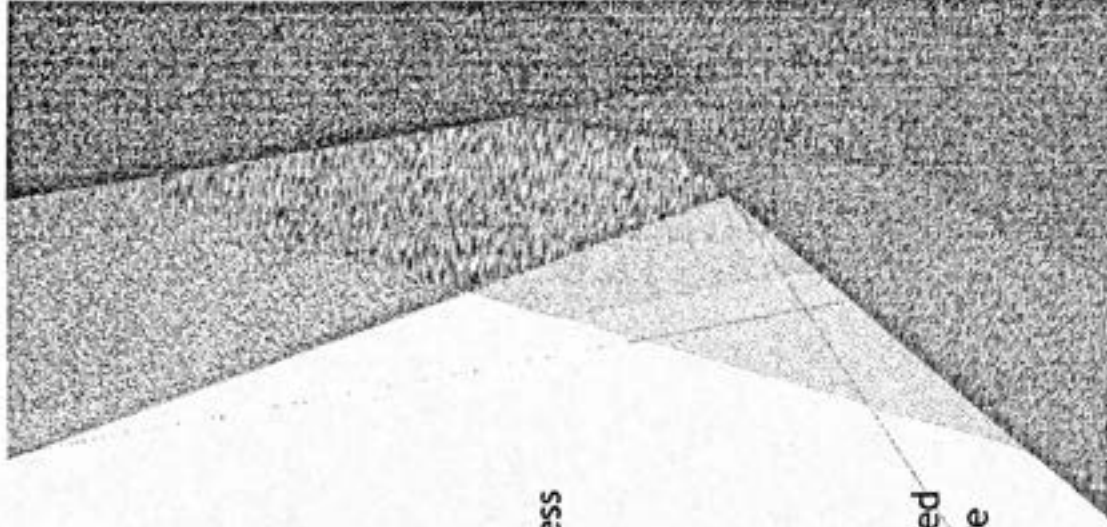
Stress and Welfare

- ▶ When farmed animals are exposed to stressors, feed consumption and growth rates can be affected
 - ▶ Stressed animals are also less resistant to diseases
 - ▶ May suffer from increased mortality
 - ▶ May produce a lower quality end product and offspring
- ▶ Undue stress can be minimized through good husbandry techniques that focus on rearing habitat and handling



Animal Welfare Throughout All Life Stages...

- ▶ All life stages must be handled with the highest animal welfare considerations
- ▶ Handling - gentle, well oxygenated, low stress, low crowding
- ▶ Growing - monitoring water quality parameters and contingency plans
- ▶ Transfer - equipment in good condition, designed to minimize stress and prevent physical damage
- ▶ Egg Takes - handling of broodstock, disposal of surplus (euthanasia techniques)
- ▶ Vaccinations/Grading - fish will be properly anesthetized. Any downgrades or poor performers culled shall be handled with animal welfare in mind.



Daily Observations

- ▶ The appearance and behavior of all stocks shall be observed at least daily for signs of distress or ill health
- ▶ Staff shall document abnormal fish behavior within the site diary or daily activity log and shall alert management immediately when signs of distress or ill health are observed so that action may be taken to correct the problem
 - ▶ This is to reduce strain on the fish and population as a whole
- ▶ Signs that fish may be in distress or ill health include:
 - ▶ External physical changes - scale loss, skin lesions, dark appearance, pale gills
 - ▶ Behavioral changes - excessive finning at the surface of the water, excessive jumping, abnormal swimming and schooling behavior
 - ▶ Appetite changes - poor feeding response
 - ▶ Sudden increase in mortalities

Freshwater

Throughout the freshwater production cycle, fish shall be handled with care to prevent stress, injury and promote animal welfare.

Each facility has developed techniques and procedures that minimize unnecessary stress or injury to animals during crowding, capture and handling of animals prior to and during transfer within the facility or transport to another.

Materials used during handling shall be clean and in good repair to prevent potential disease transfer and damage to the fish.

During periods of vaccination and grading, fish will be properly anesthetized as necessary with adequate water supply of good quality.

Small percentages of the population may be culled due to poor performance or low quality or fish or surplus.

Any downgrades or poor performers culled during these operations shall be handled with animal welfare in mind. OVERDOSE and/or STUN.

Poor results shall result in a review of the system and an investigation into new or different techniques performed.

Euthanasia Protocols - FHMPFW 1.06

Quila Aquaculture Inc. FET Operations
Fish Health Management Plan 2019

FOP FHMPFW 1.06: EUTHANASIA PROTOCOLS

OBJECTIVE

- To ensure Quila Aquaculture Inc. facilities have a system in place to carry out proper euthanasia when required.
- To ensure proper record keeping

SCOPE

This procedure applies to all staff that have responsibility for the application of euthanasia in Quila Aquaculture Inc. facilities. The Site Manager or Head Technician is responsible for writing and the staff is responsible for carrying out the procedure in accordance with these protocols.

PROCEDURE

Euthanasia of fish on site will occur only during times of harvest or sampling and under the immediate supervision of the Company Veterinarian, ensuring Facility Veterinarian or Fish Health Management.

- The only approved methods of water euthanasia are:
 - o anesthetic overdose
 - o Percussion stunning
- In all cases, fish are to be handled with care and exposed to a gradual increase of stress.
- Animal Welfare Standards are to be met in all instances.

RECORDS

Records of fish euthanasia must be entered into the site diary and fish tickets.

- ▶ The site manager or head technician is responsible for making sure that the task is carried out properly
- ▶ Site staff is responsible for carrying out the procedures in accordance with these protocols
- ▶ The only approved methods of onsite euthanasia are:
 - ▶ 1. anesthetic overdose
 - ▶ 2. percussion stunning

Moribund Fish, Mass Mortality, Culls

- ▲ Moribund fish:
 - ▲ DEFINE: fish near death, past point of recovery
 - ▲ are collected during routine mortality collection and may be used for fish sampling to identify potential pathogens - if possible, remove moribund fish from population as seen
- ▲ Mass Mortality:
 - ▲ DEFINE: large quantities of deceased fish, removal process may be different than routine mortality collection
- ▲ Cull Events:
 - ▲ DEFINE: not individual fish culls, removal of population (excess, disease, Gov't order)
 - ▲ methods will be employed that consider animal welfare, the health of the remaining population and adherence to Government regulations and direction

Animal Care Agreement

- ▶ We believe that you, as a valued employee, recognize that growing fish requires constant vigilance to protect and nurture healthy animals
- ▶ All employees must become familiar with and follow your divisional, regional and facility specific operational procedures
- ▶ Aquaculture fish are animals and must be treated with care and respect
- ▶ Deliberate animal cruelty is NOT and will NOT be practiced or condoned
- ▶ If equipment, production practices or the actions of other employees may or may not have in unintended or unnecessary animal harm, it is your responsibility to report this immediately to your supervisor
 - ▶ Escalate the issue if it is not addressed and continues to occur
- ▶ ALWAYS, handle fish in ways designed to minimize stress to the greatest practical extent

APPENDIX 8

AnimalOutlook.org

Changing the World for Animals

info@animaloutlook.org | 301-891-2458
PO Box 9773 | Washington DC 20016

March 6, 2021

Submitted via email

Shannon Ayotte
Freedom of Access Act Contact
Maine Department of Agriculture, Conservation, and Forestry
22 State House Station, 18 Elkins Lane
Augusta, Maine 04333
shannon.ayotte@maine.gov

Dear Ms. Ayotte:

Pursuant to the Maine Freedom of Access Act § 400 et seq., on behalf of Animal Outlook, I request any and all documents and records dated or transmitted between January 1, 2018 and the date of fulfillment of this request pertaining to **any inspection, audit, enforcement, or similar action taken by the Department of Agriculture, Conservation, and Forestry on any aquaculture facility or business.**

Should there be any cost associated with producing these records, I hereby request a "public interest" fee waiver under 1 M.R.S. § 408-A(11) as disclosure of these records is "likely to contribute significantly to public understanding of the operations or activities of government and is not primarily in the commercial interest of the requester."

Animal Outlook is a nonprofit 501(c)(3) organization with hundreds of thousands of supporters nationwide. Due to its size and proven ability to disseminate information to a large segment of the public, Animal Outlook undeniably has the ability to contribute to the public's understanding of animal welfare issues, including state oversight of animal processing facilities and related environmental concerns. In addition, Animal Outlook routinely distributes information, press releases, reports, and copies of original documents to members of the media to generate articles. Animal Outlook also routinely distributes, at no charge, its own information and information obtained from other sources on these issues. This includes the public, media, students, and scientists.

Animal Outlook has also developed its own home page which can be accessed by the public through the World Wide Web (<http://www.animaloutlook.org>). In sum, Animal Outlook is well-positioned to contribute significantly to the public understanding of food safety, environmental, and animal issues, once it receives and digests the requested information.

If the request for a fee waiver is denied, I request you provide the specific reasons for denial. Moreover, if there are any fees for searching or copying these records, please inform me if the cost will exceed \$30 as required by 1 M.R.S. § 408-A(9) prior to producing these records.

Finally, please acknowledge receipt of this request within 5 working days, as mandated by 1 M.R.S. § 408-A(3). If you intend to deny this request, please provide the specific reasons for denial pursuant to 1 M.R.S. § 408-A(4).

If you have any questions regarding this request, please contact me at (804) 307-4102 or wlowrey@animaloutlook.org. I look forward to receiving your response. Thank you for your consideration of this request.

Sincerely,

A handwritten signature in black ink, appearing to read "Will Lowrey", is written over a light gray rectangular background.

Will Lowrey
Counsel
Animal Outlook

APPENDIX 9

AnimalOutlook

Will Lowrey <wlowrey@animaloutlook.org>

RE: Maine Freedom of Access Act Request - DACF Aquaculture Final Response

Ayotte, Shannon <Shannon.Ayotte@maine.gov>
To: Will Lowrey <wlowrey@animaloutlook.org>

Mon, Mar 8, 2021 at 9:41 AM

Mr. Lowrey,

Please find attached, the Cooke report. This is the only record our Department possesses in response to your request. You may want to reach out to Maine Dept. of Marine Resources if you have not.

Best,

Shannon

Shannon Ayotte

Secretary Specialist

Office of the Commissioner

Dept. of Agriculture, Conservation and Forestry

State House Station #22

Augusta, ME 04333-0022

(207) 287-5976

From: Will Lowrey <wlowrey@animaloutlook.org>
Sent: Friday, March 5, 2021 4:31 PM
To: Ayotte, Shannon <Shannon.Ayotte@maine.gov>
Subject: Maine Freedom of Access Act Request - DACF

Good afternoon. Attached, please find a request under the Freedom of Access Act.

Thank you.

Will Lowrey

Counsel, Animal Outlook

804-307-4102 (c)

AnimalOutlook.org

Exposing Truth. Inspiring Change.

This email and its attachments (if any) are for the intended recipient only. They may include confidential, attorney-client, or otherwise privileged information. If you are not the intended recipient, please notify the sender and delete this message immediately. Please do not forward or distribute in any way without the express permission of the sender.



Cooke Aquaculture.pdf

6749K

APPENDIX 10

AQUACULTURE BEST MANAGEMENT PRACTICES MANUAL

November 2016



Florida Department of Agriculture and Consumer Services
Division of Aquaculture
Holland Building, Suite 217
600 South Calhoun Street
Tallahassee, Florida 32399
www.FreshFromFlorida.com

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INTRODUCTION

Florida aquaculture has a vested interest in protecting and managing environmental resources. As conscientious environmental stewards, this responsibility lies with each aquatic farmer. The Florida Legislature and the aquaculture farming community worked to amend the Florida Aquaculture Policy Act, Chapter 597, Florida Statutes (F.S.), to create the Aquaculture Certificate of Registration and Aquaculture Best Management Practices (BMPs).

The BMPs in this manual are intended to preserve environmental integrity while eliminating cumbersome, duplicative and confusing environmental permitting and licensing requirements. Aquaculturists following these practices meet the minimum standards necessary for protecting and maintaining off site water quality and wildlife habitat. These practices represent a mutually beneficial relationship between commercial aquaculture production and natural resource protection. These BMPs were developed specifically for Florida aquaculture to protect Florida's natural resources and as required by Florida law are to be implemented at all certified aquaculture operations. As part of the annual aquaculture certification process, you, the Florida aquaculturist, have pledged your intention to implement these practices as part of the ongoing daily management practices at your facility.

Unless authorized in statute the BMPs enumerated in this manual do not supersede other applicable federal or local authorities nor natural resource collection authorizations. Therefore, aquaculture facility operators need to be aware of the pertinent environmental regulations that affect surface water quality, navigability, wetland dredge and fill, and/or endangered species issues. The Fish and Wildlife Conservation Commission (FWC) must approve collection of broodstock, from natural populations, for aquacultural purposes. **Furthermore, operators need to recognize that there are other federal, state, and local regulations not specifically listed in this manual which relate to solid and hazardous waste disposal, worker safety and building and zoning considerations.**

Aquatic species not specifically mentioned in the BMP manual are covered under chapters applicable to all aquaculture facilities. All certified aquaculturists are required to follow the BMPs in Chapters II through VI and XIII through XVIII, including obtaining necessary federal permits. Those few species specifically identified in this manual have unique circumstances requiring more specific management practices to mitigate the potential for environmental impacts. For a complete list of BMPs required for your aquatic species, see the Appendix.

For additional information about these aquaculture BMPs, general aquaculture information or assistance in clarifying requirements specific to your aquaculture operation, please contact the Florida Department of Agriculture and Consumer Services (FDACS), Division of Aquaculture at Holland Building, Suite 217, 600 South Calhoun Street, Tallahassee, Florida 32399, phone (850) 617-7600.

II. COMPLIANCE MONITORING

The Best Management Practices (BMPs) in this manual are required for implementation by all holders of an Aquaculture Certificate of Registration. Anyone conducting aquacultural activities not in compliance with this manual and/or not certified by FDACS is in violation of Florida Law, and is subject to the penalties described below and required to obtain any and all permits required by the appropriate state and county or local regulatory agencies (i.e., Florida Department of Environmental Protection (FDEP), Water Management District (WMD), FWC).

Pursuant to Sections 597.004(2)(c) & (d), Florida Statutes (F.S.), notwithstanding any provision of law, FDEP is not authorized to institute proceedings against any person certified under this section to recover any costs or damages associated with contamination of groundwater or surface water, or the evaluation, assessment, or remediation of contamination of groundwater or surface water, including sampling, analysis, and restoration of potable water supplies, where the contamination of groundwater or surface water is determined to be the result of aquaculture practices.

There is a presumption of compliance with state groundwater and surface water standards if the holder of an Aquaculture Certificate of Registration implements best management practices that have been verified by FDEP to be effective at representative sites and complies with the following:

1. Provides the department with a notice of intent to implement applicable best management practices adopted by the department;
2. Implements applicable best management practices as soon as practicable according to rules adopted by the department; and
3. Implements practicable interim measures identified and adopted by the department which can be implemented immediately, or according to rules adopted by the department.

Pursuant to the Florida Aquaculture Policy Act, Chapter 597, F.S., certified aquaculturists must fully implement all applicable BMPs described in this manual. The BMPs must be implemented upon initiation of operation and maintained for the duration of that phase of operation by the holder of an Aquaculture Certificate of Registration and followed for the term of the certificate. As such, FDACS authorized representatives will periodically visit the site to inspect the facility and records as required herein.

In order to remain in good standing with the Department's Aquaculture Certificate of Registration Program, the following compliance requirements are the expectations that must be fully understood and adhered to:

A. COMPLIANCE REQUIREMENTS

1. All applicable BMPs must be implemented immediately and followed for the full term of the certificate.
2. Upon signature and submission of an application for Aquaculture Certificate of Registration, the applicant has filed a notice of intent that he or she will comply with the BMPs described in this manual.
3. Representatives of FDACS, will periodically conduct an unannounced physical inspection of the farm and a review of records (where required), to ascertain BMP compliance.
4. Operators of aquaculture facilities that are unable or unwilling to comply with the BMPs or whose proposed activities are not covered by the BMPs will be directed to the appropriate regulatory agencies to obtain applicable permits. When an operator chooses the permit option, failure to comply with the permit conditions will subject the operator with the enforcement action of the permitting agency and enforcement by FDACS pursuant to Rule 5L-3.007, Florida Administrative Code (F.A.C.).

B. INSPECTION PROTOCOL

FDACS staff will conduct unannounced on site inspections at least once during each year and re-inspections as needed.

The certified facility must maintain and provide access to copies of pertinent records as required by subsequent chapters in this manual.

C. PENALTIES

Any person who violates any provision of the Florida Aquaculture Policy Act, Chapter 597, F.S., or the Aquaculture Best Management Practices, Chapter 5L-3, F.A.C., commits a misdemeanor of the first degree, and is subject to a suspension or revocation of his or her Aquaculture Certificate of Registration. The department may, in lieu of, or in addition to the suspension or revocation, impose on the violator an administrative fine in an amount not to exceed \$1,000 per violation per day, pursuant to section 597.0041, F.S. Please see Rule 5L-3.007, F.A.C., for specific administrative fine criteria.

III. FEDERAL PERMITTING

WETLANDS OR SOVEREIGNTY SUBMERGED LANDS

The United States Army Corps of Engineers (ACOE) regulatory program is one of the oldest in the Federal Government and includes the Rivers and Harbors Act of 1899 which establishes permit requirements to prevent unauthorized obstruction or alteration of any navigable water of the United States. This navigable water's jurisdiction includes all navigable fresh waters and ocean waters out to a distance of 200 nautical miles. Section 10 of this Act covers construction, excavation, or deposition of materials in, over, or under such waters which could affect the course, location, condition, or capacity of those waters. Section 9 of this Act typically applies to dams and dikes.

The Federal Water Pollution Control Act, as amended in 1977, and commonly referred to as the Clean Water Act, includes Section 404 authorizing the Secretary of the Army, acting through the Chief of Engineers, to issue permits for dredging or filling waters of the United States. While the ACOE acts as the lead permitting agency, the Environmental Protection Agency has veto powers and may invoke this authority at any time.

The basic form of authorization used by the ACOE is the Individual Permit. Another form of authorization is the General Permit that typically covers activities the ACOE has identified as substantially similar in nature and causing only minimal environmental impacts. Nationwide General Permits, Programmatic General Permits, or General Permits may be applicable to aquaculturists contemplating activities in waters of the United States.

The Coastal Zone Management Act of 1972 (Section 307) requires applicants to certify that projects are in compliance with an approved State Coastal Zone Management Program and that the State concurs with the applicant's certification prior to issuance of an ACOE permit. Pursuant to Section 380.205, F.S., Coastal Zone means "an area of land and water from the territorial limits to the most inland extent of marine influences." Florida Coastal Zone provisions generally apply only in the geographical area encompassed by 35 Florida coastal counties listed in the Final Environmental Impact Statement for the Florida Coastal Management Program. Moreover, an aquaculturist proposing works on any state sovereignty submerged lands would also be required to contact FDACS to obtain a state sovereignty submerged land's authorization.

The federal definition for agriculture does not include aquaculture. Therefore, regarding wetlands protection, the ACOE is the lead federal agency. As such, many of the conventions developed by the National Resource Conservation Service (NRCS) pursuant to the Food Security Act (Swamp buster provisions) do not apply; thus, wetland determinations (i.e., prior converted) should not be taken for granted and you must receive all required Corps approvals/permits before construction activities commence.

Before considering or starting any activities that may impact wetlands or occur on sovereignty submerged lands, contact FDACS, WMDs, FDEP or the ACOE for assistance. State or federal wetland jurisdiction, delineation methodology, and regulations are not the same. Furthermore, existing Programmatic General Permits may already authorize certain activities for farmers that possess an Aquaculture Certificate of Registration and sovereignty submerged land lease agreement.

SURFACE WATER DISCHARGE

Responsibility for implementing and enforcing provisions of the Clean Water Act pertaining to surface water quality has been delegated by the U.S. Environmental Protection Agency to the Florida Department of Environmental Protection. The applicable Federal rules and regulations are contained in Title 40, Chapter I, Part 122.24 and Part 122.25 of the Code of Federal Regulations. The corresponding Florida rules and regulations can be found in Rules Chapters 62-620, 62-621, and 62-660, F.A.C.

Aquaculture is considered a point source, subject to industrial waste water rules under the Clean Water Act and includes established thresholds when a National Pollution Discharge Elimination System (NPDES) permit is required. Should an aquaculture facility exceed the NPDES size thresholds of more than 100,000 pounds of live weight production per year and discharges 30 days or more from the farm excluding rainfall events, the aquaculture effluent BMP will not apply and a NPDES permit from FDEP must be obtained. Chapter IV, subsection E, of this document provides further detail. An aquaculture facility that must acquire a NPDES permit must continue to maintain an Aquaculture Certificate of Registration and implement all other applicable Aquaculture Best Management Practices.

IV. WATER RESOURCES

A. WATER SUPPLY CONSIDERATIONS

Florida's five Water Management Districts issue a Water or Consumptive Use Permit that allows the withdrawal of a specified amount of water from either a groundwater well or from an allowable surface water source. These permits are categorized as either Individual Permits (requiring Governing Board approval) or General Permits (staff level approval). They typically require an application fee and are issued for 10 to 20 years. Some Water Management Districts have declared certain groundwater basins as severely stressed and have designated as Water Use Caution Areas which may have more stringent permit issuance criteria and require well metering to track the amounts withdrawn. Within the Water Use Caution Areas there are also Most Impacted Areas where new consumptive use permits are no longer available. To determine whether your facility is within one of these areas, contact your local Water Management District. Water Management Districts (in some cases the delegated local county government) also issue Well Construction Permits which are generally required if the aquaculturalist either plans to have a new well constructed, or needs to repair or plug an existing well. *Please note that the aquaculture BMP manual is not designed to replace the need for water use or well drilling permits; therefore, it is imperative for all water use situations that operators contact their local water management district Water Use Permitting Department to determine permitting requirements.*

Best Management Practices:

- Contact the Water Management District and/or FDACS before constructing a well or withdrawing water from an unpermitted well.

B. WATER CONSERVATION AND REUSE

The thoughtful use and management of water resources may improve productivity and profitability, and provide measurable conservation returns to Florida's environment.

Best Management Practices:

- Use water conservation practices where appropriate and feasible to minimize water use. Water conservation and reuse practices may include:
 - Recirculation systems
 - Maintaining proper freeboard levels
 - Maintaining perimeter ditches
 - Retaining production water on site
 - Water reuse practices
 - Reclaimed water
 - Alternate water sources

C. SALTWATER SOURCES

There may be circumstances where aquaculture operations will need saline water to culture certain marine or estuarine plants or animals (i.e., shrimp or clam hatcheries). There are two environmental issues which may arise: (1) potential permitting issues associated with withdrawal of saline water and (2) potential impacts to freshwater systems from saline water discharge.

Best Management Practices:

- Contact a Water Management District for permitting requirements to withdraw saline or mineralized (nonpotable) water.
- Saline water shall not be discharged to freshwater environments.
- When utilizing a near shore saline water source, the intake and discharge pipes should be located so as not to interfere with navigation.
- Facilities should be designed and installed to avoid or minimize impacts to resources, including scouring caused by discharge pipes.

D. RECIRCULATING AQUACULTURE SYSTEMS

Production-systems that treat and reuse all, or a major portion of their production water are termed recirculating aquaculture systems (RAS). While the volume of effluent from a recirculating/intensive system does not typically approach the quantity associated with the more traditional forms of aquaculture, the concentration of nutrients associated with the effluent is usually greater.

Best Management Practices:

- Design the system for no direct off site discharge of production water. Effluents must be treated and retained on site, or discharged to a permitted sanitary sewer system. Treatment techniques include, but are not limited to percolation ponds, irrigation systems or filter strips. These techniques may be utilized individually or in combination with other approved treatment methods. Please note that discharging production water to a sanitary sewer system will require authorization/permitting from the local municipal wastewater treatment plant authority.
- Design a waste treatment system to accommodate the semi solid waste stream and non-recycled production effluent from filters and solids separators. Dispose of waste solids in a legal manner that will not cause environmental degradation. Potential options for solids treatment and disposal include; composting followed by appropriate land application as a soil amendment or disposal at a sanitary landfill.

E. EFFLUENT TREATMENT

Effluent treatment BMPs are required of all certified aquaculturists except for those certified facilities, as specified in Rule 5L-3.006, F.A.C., that are determined to have a minimal impact on the surrounding environment or are required to obtain an NPDES permit (see appendix, Code of Federal Regulations). These facilities are, however, required to follow all other applicable BMPs.

Minimal Impact Aquaculture Facilities include:

- (1) Recirculation systems that do not discharge to waters of the state.
- (2) Culture of filter feeders which does not include feed or fertilizer inputs.
- (3) Raceway or upweller/downweller systems for native filter feeders that utilize less than 800 square feet of raceways or upwellers/downwellers, and do not add supplemental algae as a food source.
- (4) Fee fishing operations with a standing crop of less than 1,000 pounds of fish per acre.
- (5) Individual production units producing less than 10,000 pounds of product per year that minimize the release of sediments off site by using an onsite ditch system with a minimum 100 linear feet of ditch between the production water entry point and the discharge point and one foot of freeboard at the discharge point control structure.
- (6) Aquaculture systems that do not discharge production unit water to surface waters of the state.

Effluent or production water discharge from culture systems typically contain suspended and settleable solids, both organic and inorganic, as well as other dissolved compounds as a result of feeding and other farm activities. It is necessary for aquaculturists to manage effluent or production water discharge to prevent or minimize environmental impact to receiving waters. Because of the variation in production systems (e.g., ponds, cages or net pens, tanks and raceways), stocking rates, feed types, feed volumes, and feeding frequencies, in combination with variable site characteristics; several options for management of effluents are recommended as best management practices. Contact FDACS for assistance in determining which option is most appropriate for your aquaculture operation.

Best Management Practices:

- **DETENTION FACILITY OPTION:** Treatment of effluent prior to discharge to waters of the state by detention or temporary storage in a pond or ditch system. Maximum feeding rates for production units utilizing a detention pond system are: 1) 180 pounds/acre/day for a one-day detention period; and 2) 360 pounds/acre/day for a five-day detention period. Aquaculturists interested in this treatment option should contact FDACS.
- **FILTER STRIP OPTION:** Treatment of effluent by passing it through a constructed or natural filter strip, of appropriate dimensions, prior to discharge to waters of the state is an effective means of reducing effluent pollutants. A filter strip of vegetated land is utilized and designed such that water will flow in a thin sheet slowly across it. This strip allows for capture of sediment, organic matter and other pollutants by deposition, infiltration, absorption, decomposition and volatilization. Aquaculturists interested in

this treatment option should contact FDACS for assistance.

- **WETLAND TREATMENT OPTION:** Discharge of effluent from a detention facility, filter strip or minimal impact facility, implementing the BMPs in this section, into or through constructed wetlands prior to discharge to waters of the state provides an effective and environmentally sound means of providing additional treatment. Existing facilities previously authorized to discharge into a natural wetland may also utilize this option.
- **INTEGRATED PRODUCTION OPTION:** Effluent from aquaculture production units can be reused for the purposes of producing a secondary aquaculture crop, agronomic crops or aquatic plants or combinations thereof. This option allows for numerous design opportunities including water recirculation. This type of practice may provide adequate treatment itself or provide improvements in water quality allowing for a reduction in the scale of effluent treatment infrastructure. Utilization of this option may require additional treatment prior to discharge to waters of the state. Aquaculturists interested in this treatment option should contact FDACS.
- **INJECTION WELL:** There are five classes of wells defined in state and federal law that regulate fluid injection below ground surface. Class V wells include an "aquaculture" activity within its defined uses and for any salinity. Water from an aquaculture facility can be returned as long as it does not contain hazardous substances, the withdrawal well and return well are cased to prevent mixing with overlying strata(s) of water, and a confining strata separates the receiving strata from potable water. A monitoring well in the overlying strata, above the confining layer, may be required as well as other Class I injection well standards that are decided on a case-by-case basis. Aquaculturists interested in this treatment option should contact FDACS.
- **RETENTION OPTION OR ZERO SURFACE WATER DISCHARGE:** Retention of all production unit effluent on site may be a viable option for certain facilities and can be accomplished by a variety of methods:
 1. **RETENTION, EVAPORATION OR PERCOLATION PONDS** - In certain locations, where the soil is highly porous allowing for water infiltration, a treatment pond may be constructed to hold all discharge and allow for percolation. The volume of the pond is determined by the expected quantity of discharge and the evaporation and percolation rate of the soil, as determined by the USDA Natural Resources Conservation Service soil survey or independent testing. Under no circumstances are direct discharges, by pipes or other structures, to ground water authorized. Construction in wellfield protection areas is strongly discouraged, but is not a requirement. Aquaculturists interested in this treatment option should contact FDACS.

2. FIELD APPLICATION - Effluent must be applied at less than or equal to agronomic rates to a field where there is sustained vegetative cover. Saline water shall not be discharged to freshwater environments.

3. SEPTIC SYSTEM - In those situations where the effluent volume and the rate of discharge is determined appropriate by the Division of Aquaculture, a septic system is a suitable option for handling effluent. Aquaculturists interested in this treatment option should contact FDACS, and comply with applicable requirements of the Department of Health and local governments regarding septic systems.

F. WATER QUALITY ENHANCEMENT PRACTICES

Several management practices when incorporated into the design and facility management can be utilized in conjunction with the treatment options to improve the water quality of effluents. These methods include: 1) aeration within a detention facility to increase dissolved oxygen, volatilization of gases and enhance bacterial oxidation of organic matter; 2) use of biological filtration to enhance the conversion of ammonia to nitrite and nitrite to nitrate (this practice is useful for small volumes of water such as tank production systems); 3) chemical treatments to reduce concentrations of certain parameters of concern, such as the use of alum to reduce turbidity or the addition of beneficial bacteria to enhance oxidation of organic matter (this method may only be effective with extended water residence times); 4) or previously authorized discharges to a natural wetland.

Best Management Practices:

- If an excavated pond discharges off site, limit the crop biomass to 1,500 pounds per surface acre or follow the effluent treatment guidelines found in this chapter.
- If an excavated pond discharges off site, limit feeding to five percent (5%) of biomass per day or follow the effluent treatment guidelines found in this chapter.
- For all pit pond use relating to aquaculture, submit a facility plan to FDACS, for approval prior to beginning any construction. If an excavated pond does not meet the NRCS pond bank slope requirements it shall be considered a "pit pond". USDA NRCS, Ponds-Planning, Design, Construction, Agricultural Handbook, Number 590 (November, 1997) is incorporated by reference into Rule 5L-3.004, F.A.C.
- Pit ponds which penetrate or are directly connected to a Class I drinking water aquifer, as determined by depth of digging relative to the underlying aquifer, are limited to a crop biomass of less than 1,500 pounds per surface acre and a limited daily feeding rate not to exceed 5% of biomass.
- Pit ponds with a crop biomass of less than 1,500 pounds per surface acre should limit

feeding to five percent (5%) of biomass per day.

- Pit ponds with a crop biomass greater than 1,500 pounds per surface acre or ponds with feeding rates that exceed a five percent (5%) of biomass per day, should:
 - Utilize aerators, pumps, or other effective destratification methods, including limits on pond depth, to eliminate pond stratification.
 - Establish a feeding protocol which eliminates overfeeding.
 - Utilize cage systems which are designed to minimize feed loss and that allow for the collection and removal of waste. Treatment of removed waste can be accomplished either by in-pond treatment, swale treatment, ditch system treatment, filter strip treatment, wet detention, and/or constructed wetlands, singly or in combination.
- Single inlet detention facilities must have a length to a width ratio of at least 1:1. Multi-inlet detention facilities must maintain at least 100 linear feet between the outlet and inlets.
- Water quality treatment is to be accomplished via a combination of in-pond treatment, such as described in University of Florida IFAS, Stormwater Detention and Discharge from Aquaculture Ponds in Florida, Publication No. 334, (January, 2015) which is incorporated by reference into Rule 5L-3.004, F.A.C., or utilization of a vegetated filter strip with a minimum 15-minute travel times, or by using wet detention facilities with one or five day residence times based on feeding rates. For maintenance or harvesting purposes, scheduled pond drawdown(s) shall be accomplished in the following manner:
 - Ponds should be drained for harvesting and maintenance only as necessary.
 - Ponds should be drained during the dry season when possible.
 - For maintenance or harvesting purposes, scheduled pond drawdown(s) should be routed to existing on site surface water management facilities, dry pond cells, filter strips via a pulsed dry season discharge, to adjacent crops at the proper agronomic rate, or distributed to adjacent ponds.
 - Routinely maintain pond/dike facilities to minimize seepage and to maintain the integrity of the structure.
 - Control the rate and timing of discharge to assure the flow into surface waters and wetlands will mimic predevelopment flow patterns.
- Plant nurseries must follow all applicable BMPs including fertilizer recommendations

referred to in the Aquatic Plants Chapter.

- Debris removed from retention structures shall be disposed of pursuant to local rules and/or ordinances.
- Plastic from greenhouses and/or freeze protection materials shall be disposed of pursuant to Section 823.145, F.S., or local regulations.

In lieu of the preceding effluent treatment BMPs, an aquaculture facility, at their option, may choose to be permitted pursuant to Part IV of Chapter 373 and/or NPDES permitting.

G. DUAL USE OF PERMITTED STORMWATER TREATMENT PONDS

Although not encouraged, agricultural operators may look to diversify their business by the use of previously permitted stormwater treatment ponds. These “ponds” may have been permitted by a regional Water Management District or FDEP. These permitted-ponds may have been approved as part of a Management and Storage of Surface Waters (MSSW) Permit or an Environmental Resource Permit (ERP). **FDACS does not recommend the use of stormwater treatment ponds for commercial food fish production.**

Best Management Practices:

- Modify existing MSSW/62-25 or ERP permits prior to utilizing stormwater treatment ponds for aquaculture production.
- Review the permitting history of the existing pond(s) and ascertain any special permitting conditions which may preclude the use of the pond for aquaculture.
- Limit crop biomass to a maximum of 1,500 pounds per surface acre and feeding to a maximum of five percent of biomass per day.
- Where stormwater ponds have been constructed for water quality treatment and nutrient uptake, aquaculturists should avoid adding feed to these ponds.
- No feed may be added to stormwater ponds that discharge off the farm.

Contact FDACS before implementing the use of such ponds.

V. CONSTRUCTION

Agricultural Lands and Practices, Chapter 163.3162, F.S., addresses duplicative regulations between state and local government and provides precedence for agricultural operations regulated through Best Management Practices adopted by FDACS. However, predominately urbanized counties with a population greater than 1,500,000 and more than 25 municipalities may have a delegated pollution control program that prevails.

A. NEW CONSTRUCTION

Individuals and/or companies constructing facilities on new farms or expanding current facilities must follow this section as well as all other applicable BMPs. This section provides a certificate holder with a mechanism that identifies a new aquaculture operation as an agriculture enterprise in the development phase with the final objective being commercial aquaculture production. Construction timelines should not exceed 12 months. Failure to meet the development expectations of the given requirements will result in non-issuance or cancellation of the aquaculture certification and subsequent referral to all other appropriate regulatory agencies.

Best Management Practices:

- A new farm or facility application for an Aquaculture Certificate of Registration must contain the following:
 - (a) Applicant's name/title.
 - (b) Company name.
 - (c) Complete mailing address.
 - (d) Legal property description for aquaculture facility.
 - (e) Actual physical street address for aquaculture facility.
 - (f) Detailed description of production facilities, including a construction plan, sketch and associated timeline.
 - (g) Detailed species production plan and associated timeline (i.e. stocking/harvest dates, projected production, etc.).
 - (h) Description detailing implementation of appropriate BMPs. (See XIX Appendix for a species and system cross reference guide.)
 - (i) One Hundred dollar (\$100) annual registration fee.
 - (j) A copy of a current shellfish harvester education training certificate (required for all Aquaculture Certificates of Registration listing clams, mussels, scallops, or oysters as products).
- Construction must adhere to the requirements of Chapter V of the Aquaculture Best Management Practices Manual.
- As provided in Chapter V, Section C, Aquaculture Best Management Practices, wetlands shall not be impacted.

- Supporting documentation to substantiate the above requirements must be maintained by the applicant and available for review upon request by FDACS.
- During the construction phase a certificate holder will be subject to unannounced inspections, one of which will be prior to the issuance of an Aquaculture Certificate of Registration, to confirm compliance with all applicable BMPs and completion of construction/production timelines.
- FDACS may grant a time extension to complete construction provided the applicant requests, in writing, an extension with sufficient and plausible detail explaining circumstances necessitating an extension.
- Aquaculturists proposing new construction of nonresidential farm buildings, as defined in Section 604.50(2)(d), F.S., on property located within the boundaries detailed in a military installation compatibility plan must comply with the military installation compatibility requirements of Section 163.3175, F.S.

B. AQUACULTURE POND RECLAMATION

Existing certified aquaculture facilities may reclaim constructed ponds to allow for alternative non aquaculture land use activities.

Best Management Practices:

- Reclamation processes must follow all aquaculture erosion control best management practices.
- Existing berms and/or dikes may be used to fill ponds so long as there is no change to existing off site water flow patterns.
- Fill materials from off site may be utilized so long as the fill material is clean and free of debris and waste.
- The reclamation process is intended to return the site as near as feasible to its original topography.
- Once the reclamation process is completed any non aquaculture activity or construction must be permitted/authorized by the appropriate state and/or local regulatory agency(s).

C. WETLANDS PROTECTION AND CONSERVATION

Wetlands are important components of Florida's water resources. They provide spawning areas and nurseries for many species of fish and wildlife, flood water storage, uptake of nutrients

in runoff water, habitat for plant and animal biodiversity, and recreational opportunities for the public. Wetlands are complex transitional ecosystems between aquatic and terrestrial environments. Prior to development, Florida's wetlands (including open waters and seasonally flooded areas) covered about half of the state's area. That area has been greatly reduced primarily due to early water management efforts focused on draining wetlands to facilitate development interests and augmentation of agricultural lands. Today, landowners may qualify for various USDA NRCS incentive programs designed to encourage wetland restoration. Contact FDACS or USDA for additional information.

Wetlands may exist as isolated features in the landscape or may be connected to surface water bodies such as rivers, streams, lakes and often have no discernable shoreline. A goal of the Aquaculture Best Management Practices Manual is to protect wetlands from adverse impacts associated with dredging, filling, hydro-period alteration, expansion or reduction of watersheds, or water quality degradation. **DO NOT CONDUCT DREDGE OR FILL ACTIVITIES IN WETLANDS OR WETLAND BUFFERS.** If plans include the construction of sea walls, bulkheads, beach armoring or similar structures, the following wetland BMPs do not apply. Please contact the Florida Department of Environmental Protection for authorization to construct these structures. It is the intent of this manual to employ BMPs which do not adversely affect on site (project area) or off site wetlands. As such, all proposed aquacultural operation designs must first consider elimination and/or reduction of wetland impacts through practicable design alternatives or modifications. Aquacultural operations unable or unwilling to follow this wetland BMP must obtain applicable permits under Part IV of Chapter 373, F.S.

Note: Wetlands constructed (man-made) for water treatment purposes are not subject to this wetland BMP.

Best Management Practices:

- Contact FDACS to confirm the presence or absence of on site and adjacent wetlands prior to initiating any aquaculture construction activities.
- All new pond construction must maintain a minimum 50-foot upland buffer from the boundary of all wetlands and or natural water bodies.
- If production exceeds 10,000 pounds/year, do not discharge untreated effluents into wetlands.

Prior to construction of any land-based effluent treatment system (i.e., filter strip) ultimately discharging to surface waters, the determination of the landward extent of any receiving water must be made or verified by FDACS. This determination is necessary to prevent the location or inclusion of water treatment facilities in wetlands or other surface waters pursuant to Rule Chapter 62-340, F.A.C., or waters of the United States.

D. FLOODPLAIN ISSUES

Floodplains are typically dry or semi-dry areas around rivers, lakes and near the coast, where water can overflow or pond for extended periods as a result of seasonal rainfalls. Flooding is a natural phenomenon and occurs when the amount of water flowing into an area exceeds the land's ability to store and convey the water. Aquaculture facilities must be designed to reasonably prevent an increase in flooding of adjacent properties both up gradient and down gradient of the proposed aquacultural activity. Flood information can be obtained from the local county planning and zoning office or by contacting FDACS.

Best Management Practices:

- Prior to any new construction within the 100-year flood zone, submit a facility plan to FDACS.

E. EROSION CONTROL GUIDELINES

During the construction phase of your project, care must be taken to prevent or control erosion, sediment deposition, turbidity and other potential adverse effects to water quality due to increased runoff rates downstream from your facility. Sediment loads to aquatic environments can block waterways, kill aquatic plants and reduce oxygen levels. Sediments from stormwater runoff may also be associated with the transport of unwanted chemicals and nutrients to aquatic environments. **Be sure to obtain all applicable construction, zoning and consumptive water use permits before site clearing and construction commence.**

Best Management Practices:

- Select a site where the natural drainage patterns can be incorporated into the facility design to move water more effectively while avoiding "in stream" construction.
- Where it is necessary to modify the natural on site drainage patterns use *swales* and/or *berms* to direct surface water flow through, or around your property in order to maintain natural off site drainage patterns. Criteria for these and other surface water control techniques can be obtained from the local Natural Resources Conservation Service (NRCS) office.
- Stabilize exposed soils to prevent erosion and use silt barriers around wetlands and other surface waters to prevent inadvertent filling by sedimentation.
- Terrain alterations are permitted so long as the alterations do not cause an increase in off site silting or flooding. Acceptable alterations include, but are not limited to, removal of trees, vines, bushes, and other vegetative ground cover. Any standard agricultural practice may be utilized such as, but not limited to, mowing, disking, plowing, and dragging, in addition to tree cutting and stump removal.

- Use recommended methods (USDA NRCS Conservation Practice Standard, Conservation Cover, Code 327, (October, 2011), which is incorporated by reference into Rule 5L-3.004, F.A.C.) to reduce surface water velocity in order to prevent erosion, and to promote the removal of suspended solids.

F. WATER ATTENUATION CRITERIA

As authorized by Florida Law, aquaculture BMPs replace the existing pertinent industrial wastewater requirements under Chapter 403, F.S., and the existing pertinent Environmental Resource Permits requirements under Chapter 373, Part IV, F.S.

G. STORMWATER MANAGEMENT

Florida receives an average 50" of rainfall from about 120 storms a year. Given the intensity and frequency of these storms, the resulting stormwater runoff can present a risk to sensitive downstream receiving water bodies both in terms of its potential to transport pollutants (natural or synthetic) from the land and in the volume/rate of discharge. Of primary importance is the so-called "first flush." This term describes the washing action that stormwater has on accumulated pollutants in a watershed. Studies in Florida have determined that the first one-inch of runoff generally carries 90% of pollutants released by virtue of the storm induced discharge.

Before you settle on a final design for your facility, consider the following issues and the impact each may have on your design and the impact your design may have on your site and on surrounding properties.

- Where and how much water flows onto your property?
- Where and how much water flows off your property?
- What are the predominant soil types on your property?
- Are your soils susceptible to excessive runoff?
- How much new impervious surface are you adding to your operation/property?
- Will the proposed activity significantly increase or decrease the flow and timing off your property?

Best Management Practices:

- Where appropriate, incorporate into the final design any design modifications, features necessary to minimize the potential impacts of commingling surface water and production water.
- Know your operation - knowledge of the composition of your production water effluent, utilization of other water quality BMPs described and enumerated in this manual, and knowledge of local rainfall patterns will benefit your operation in terms of design efficiency.

H. INDUSTRY SPECIFIC CRITERIA

All new construction activities which will create more than two acres of impervious surface must provide stormwater treatment holding capacity for the 25 year, 24-hour rainfall event. For assistance in determining the required holding capacity, contact FDACS or consult a stormwater engineer.

In addition to complying with the water quality and attenuation criteria outlined below, aquacultural operators must also comply with all BMPs pertaining to their species which appear in the tabbed section at the back of this manual. For purposes of this BMP manual, the water quality and attenuation (flood protection) criteria have been grouped together. Rather than deal with each segment of the aquaculture industry differently, the criterion is segmented and arranged on the basis of *earthen aquacultural systems and recirculating intensive aquacultural systems*.

Best Management Practices:

- Construction that cumulatively results in more than two acres of impervious surface must provide 24-hour storage for the 25-year, 24-hour rainfall event. (Production pond water surface area is not considered impervious.)
- Construction that cumulatively results in 5% or more impervious surface, which is greater than two acres, must hire a State of Florida licensed Professional Engineer to demonstrate that there will be no adverse downstream impacts. (Production pond water surface area is not considered impervious.)

I. EXCAVATED PONDS

Best Management Practices:

- Ponds must be constructed in accordance with the USDA-NRCS Field Office or IFAS guidelines (USDA NRCS, Ponds – Planning, Design, Construction Agriculture Handbook, Number 590 (November, 1997) or USDA NRCS, Conservation Practice Standard, Aquaculture Ponds, Code 397 (June, 2004) which is incorporated by reference into Rule 5L-3.004, F.A.C.) or a department approved design and shall maintain a minimum one-foot of freeboard.
- Fill may not be removed from the property unless permitted pursuant to local regulations.
- Ponds should typically be constructed with no discharge; ponds which are designed to discharge or could be expected to discharge should demonstrate the ability to follow the Effluent Treatment BMPs.
- Remove trees, stumps, and brush which may undermine the integrity of berms and dams.

- Where necessary, design and install upland excavated sediment sumps landward of wetland buffers to minimize scouring and sediment transport.
- Use spreader swales and other functionally equivalent devices to create sheetflow when discharging into wetlands.
- Maintain existing watersheds and point(s) of discharge during pre and post development conditions.

J. WATERSHED PONDS

In hilly terrain, aquaculturists may take advantage of runoff from rainfall within the watershed. Watershed to pond surface acreage ratios vary from site to site, with soil types being the determining factor. When ponds are built in series, less water is required for maintenance, and the last pond in the series may be used for one (1) day production water treatment. Supply water for aquaculture watershed fish production ponds typically comes from watershed runoff and springs, but ground water wells can serve as supplementary water supplies, provided that applicable consumptive use permits are obtained. Because each site will have specific requirements, the aquaculturist must submit a facility plan to FDACS for approval prior to beginning any construction. Some options to consider in the planning process are:

Create harvest and access areas during pond construction.

Utilize cage culture where ponds are deep and/or irregular shaped.

Determine the potential for impact upon surrounding property and historical water flow rates and design the facility to eliminate adverse impacts.

Determine if impounded water poses a safety hazard to downgrade residents and/or property and design the facility to eliminate any safety hazards.

Best Management Practices:

- Submit a facility plan to FDACS for approval prior to beginning any construction.
- Follow recommended USDA NRCS, Ponds – Planning, Design and Construction, Agriculture Handbook, Number 590 (November, 1997) and Southern Regional Aquaculture Center, Watershed Fish Production Ponds: Guide to Site Selection and Construction, SRAC Publication No. 102 (September, 2002) which is incorporated by reference into Rule 5L-3.004, F.A.C.
- Provide erosion controls.
- Stabilize pond banks during construction.

- Remove all undesirable trees, stumps, and brush which may hinder harvest activities or undermine the integrity of berms and dams, or create safety hazards.
- When utilizing drain-harvesting, construct catch basins and holding structures at the drain intake or outfall.
- Avoid digging a pond that penetrates a Class I drinking water aquifer.
- If a pond penetrates a Class I drinking water aquifer, the applicant will be limited to less than 1,500 pounds per surface acre stocking density and daily feeding rates not to exceed 5% of biomass. The pounds per surface acre are determined by multiplying the known fish population by the average fish weight and dividing that number by the total surface acres.
- For embankment and/or excavated ponds, initial stocking density shall be a minimum of 1,000 fish or 1,000 pounds of fish per surface acre.

K. PIT PONDS

Rock, sand and phosphate mining operations throughout Florida have resulted in the construction of thousands of "pit" ponds in Florida. These pits are very common in southern Florida where large quantities of fill material have been excavated for use in road construction. These systems may appear to be an inexpensive source of vast quantities of water; however, they also involve significant challenges in terms of animal containment, animal harvest, water quality, and animal health. Inexperienced culturists often greatly overestimate the production capacity of these systems and fail to recognize the significant disadvantages. Limitations on biomass are included to minimize eutrophication and associated fluctuations in water quality. It is important to avoid overfeeding which is costly and can lead to water quality issues. Adhering to the BMPs outlined in the previous "Water Resources" section will assist in maintaining water quality and decrease the chance of a catastrophic crop loss due to oxygen depletion.

- Ponds which do not meet the NRCS pond bank slope requirements shall be considered "pit ponds".

Best Management Practices:

- Pit ponds with a crop biomass of less than 1,500 pounds per surface acre should limit feeding to five percent (5%) of biomass per day.
- Pit ponds with a crop biomass greater than 1,500 pounds per surface acre or ponds with feeding rates that exceed a five percent (5%) of biomass per day, should:
 1. Utilize aerators, pumps, or other effective, destratification methods to prevent pond stratification.

2. Establish a feeding protocol which prevents overfeeding.
 3. Utilize cage systems which minimize feed loss and provide for the collection and removal of waste. Floating cage technology is encouraged.
 4. Water quality treatment can be accomplished either by in-pond treatment, swale treatment, ditch system treatment, filter strip treatment, wet detention, and/or constructed wetlands, singly or in combination.
- Pit ponds which penetrate or are directly connected to a Class I drinking water aquifer, must limit crop biomass to less than 1,500 pounds per surface acre and a limited daily feeding rate not to exceed 5% of biomass.
 - For embankment, excavated, and pit ponds initial stocking density shall be a minimum of 1,000 fish or 1,000 pounds of fish per surface acre.

L. PIPE PLACEMENT

If pipes are used to discharge water from an aquaculture operation they should use the following:

Best Management Practices:

- Pipes must be placed in a location and in a manner which minimizes environmental and aesthetic impacts.
- Discharge pipes must be situated to prevent erosion or excessive scouring of the bottom in the receiving waters.

M. AQUACULTURE DOCKS

This BMP is intended for the construction of aquaculture docks originating on upland property and extending on or over wetlands and other surface waters, including either privately-held or State-owned (sovereignty) submerged lands. Aquaculture-dependent docks are docks used exclusively for aquaculture purposes or private single-family residential docks with dual aquaculture and recreational use by the adjacent upland resident. To qualify under these provisions, docks must be less than or equal to 2,000 square feet total surface area moor 4 or fewer aquaculture vessels, must be associated with a certified aquaculture facility or activity, and must comply with all applicable BMPs.

Docks larger than 2,000 square feet, moor more than 4 aquaculture vessels, or which cannot meet or follow all of the BMPs listed below must obtain an Environmental Resource Permit from the Florida Department of Environmental Protection or may require an aquaculture submerged lands lease.

For purposes of constructing an aquaculture dock, the term "natural resources" shall include corals; emergent and submerged aquatic vegetation; mangrove species; coastal and freshwater wetlands; oyster reefs; endangered or threatened species and their designated critical habitat; and, shore or seabird nesting sites.

Aquaculture Letter of Consent Best Management Practices:

- Requests for an Aquaculture Letter of Consent must comply with Rule 18-21.021(3), F.A.C.
- Prior to notifying FDACS of the intent to construct an aquaculture dock on or over sovereignty submerged lands, aquaculturists shall obtain the required proprietary authorization from the Board of Trustees of the Internal Improvement Trust Fund, pursuant to Chapter 253, F.S., and Rule Chapter 18-21, F.A.C.
- Prior to construction, certified aquaculturists must request approval from FDACS to construct an aquaculture dependent dock, in accordance with all Aquaculture Best Management Practices requirements. The request for approval must include a construction plan and proof of riparian ownership or equivalent rights to use privately or publicly held lands.
- Authorized aquaculture docks are for aquaculture purposes by the adjacent upland resident. In the event that aquaculture activities cease on an authorized aquaculture dock all associated aquaculture structures erected on the dock shall be dismantled and removed immediately. Additionally, the dock must comply with the requirements of 403.813(1)(b), F.S., or authorization shall be obtained from DEP and/or WMD for an over-sized dock. This condition must be disclosed to any potential purchaser, as a requirement of ownership. The applicant must provide to FDACS written acknowledgement of this requirement to obtain an approved Letter of Consent.
- Dock construction shall:
 1. Be less than or equal to 2,000 square feet total surface area and moor four or fewer vessels.
 2. Use only FDACS approved wooden marine construction materials, or approved alternative marine grade material for dock construction.
 3. Meet all applicable local zoning and building requirements as evidenced by copies of building permits, and /or other local authorizing documents.
 4. Comply with the permitting requirements of the U.S. Army Corps of Engineers; contact FDACS for a U.S. Army Corps of Engineers application for Works in the Waters of Florida.

5. When constructing in waters frequented by manatees, all in-water construction shall follow Standard Manatee Conditions For In-Water Work, U.S. Army Corps of Engineers, (2011), which is incorporated by reference into Rule 5L-3.004, F.A.C.
6. Be constructed or held in place by pilings so as not to involve filling or dredging other than that necessary to install the pilings.
7. Ensure that portions of the structure used for docking vessels are constructed in waters that are sufficiently deep to avoid bottom scouring by vessel operation or by prop dredging by ensuring that a minimum of one-foot clearance is provided between the deepest draft of a vessel and the top of any submerged resources at mean or ordinary low water.
8. Comply with the following requirements when natural resources are present:
 - a. Avoid or minimize impacts, including shading, during dock construction and maintenance or vessel docking.
 - b. Construct the main access dock not to exceed six feet in width and the terminal platform not to exceed eight feet in width.
 - c. Walls constructed shall be made of lattice, chain-link fence, or equivalent type of marine building material only, which will minimize potential for shading impacts.
 - d. Finger piers must not exceed three feet in width and 25 feet in length; finger piers dimensions are included in the overall total allowable maximum 2,000 square feet.
 - e. Align the structure so as to minimize the size of the footprint of the dock and associated mooring areas over natural resources.
 - f. Construct walkway surfaces utilizing deck planking no more than eight inches wide and spaced no less than one-half inch apart after shrinkage; alternative materials, such as grating, may be utilized provided they allow light penetration that meets or exceeds that of plank construction.
 - g. Construct the main access dock and terminal platform a minimum of five feet above mean or ordinary high water.
 - h. A step-down platform may be constructed, comprising up to 25 percent of the surface area of the terminal platform, at a lower elevation to facilitate access to a vessel; no structure of any type is to be erected on the terminal step down platform.

- i. Total foot print of the access walkway, finger piers, terminal platform and step down platform shall not exceed 2,000 square feet.
 - j. All solid wall panels are prohibited.
- 9. Not impact more than 500 square feet in Outstanding Florida Waters, or 1,000 square feet outside of Outstanding Florida Waters, of emergent or submerged aquatic vegetation, naturally occurring oyster and clam beds or hard bottom communities by dock construction or boat mooring areas.
- 10. Be located to ensure that boat access routes avoid injury to natural resources or archaeological and historical sites in the surrounding areas.
- 11. Not substantially impede the flow of water or create a navigational hazard and meet all applicable federal navigation right-of-way and setback requirements.
- 12. Not include any aquaculture processing facilities, boat repair facilities or fueling facilities.
- 13. Mooring of non-aquaculture vessels to an aquaculture dock is prohibited.
- 14. Not infringe on the riparian rights and setback provisions of adjacent property owners pursuant to Rule Chapter 18-21, F.A.C., or extend across property lines on privately owned lands, except where applicant has received and provides to FDACS a copy of written permission from the adjacent property owner agreeing to the infringement.
- 15. Not extend waterward of the mean or ordinary high water line more than 500 feet or 20 percent of the width of the water body at that particular location, whichever is less.
- 16. Limit trimming of vegetation, such as mangroves, to the minimum necessary for construction of the access walkway, pursuant to 403.9326, F.S.
- 17. For all private residential single-family docks located in aquatic preserves; all docks located in Lake Jackson, Boca Ciega Bay or Pinellas County Aquatic Preserves; and all docks located in Biscayne Bay Aquatic Preserve shall comply with the applicable provisions of Rule Chapter 18-20, F.A.C., or Rule Chapter 18-18, F.A.C. The applicable rule provisions, whether more or less stringent, shall supersede the BMPs listed above.

18. If archaeological or historic artifacts are discovered within a construction site when constructing a dock over sovereign submerged lands, all activities involving subsurface disturbance in the vicinity of the discovery shall cease and the aquaculturist shall contact the Florida Department of State, Division of Historical Resources, Compliance Review Section at (850/245-6333) pursuant to Chapter 267.061(2), F.S.

VI. CONTAINMENT

A native species is a species within its natural range or natural zone of dispersal, within the range it could or would occupy without direct or indirect introduction by humans. Nonnative species are those species not indigenous or native to a particular area.

Restricted nonnative species include all species that are listed as conditional species in Rule 68-5.002, F.A.C. Changes in taxonomic nomenclature do not alter the regulatory status of a species, please contact FDACS if you plan to add new species to your facility to verify the restricted or prohibited status. See the appendix for the complete list.

A. NATIVE SPECIES

Best Management Practices:

- All holding, transport, and culture systems at land based facilities must be designed, operated and maintained to prevent the escape of cultured aquatic species into waters of the state. Any method of containment that will effectively prevent release or escape may be utilized.

B. NONNATIVE SPECIES CONTAINMENT

Aquaculturists who possess nonnative species are responsible for preventing their release to the environment.

Best Management Practices:

- All holding, transport, and culture systems must be designed, operated and maintained to prevent the escape of all life stages of nonnative aquatic species into waters of the state. Any method of containment that will effectively prevent nonnative species from being released may be utilized.
- Written authorization may be required from FWC and/or the U.S. Fish and Wildlife Service prior to importing nonnative aquatic species from outside of Florida or the United States.

Lionfish Best Management Practices:

Although lionfish have never been aquacultured, the following BMPs are designed to limit the number of lionfish in Florida but still allow restricted grow out and sale of individuals legally harvested from Florida waters.

- The breeding or reproduction of lionfish (*Pterois spp.*) is prohibited regardless of the origin of the broodstock.

- Lionfish lawfully harvested in Florida waters or from adjacent federal waters pursuant to Rule 68B-5.006, F.A.C., may be possessed and grown out for sale at aquaculture facilities that meet the following containment requirements:
 - a. Lionfish cultured outdoors may only be held in culture systems that have the lowest point of the top edge of its levee, dike, bank, or tank at an elevation of at least one foot above the 100-year flood elevation determined by reference to elevation maps issued by the National Flood Insurance Program, U.S. Department of Homeland Security. Such culture systems shall have no water discharge or shall be constructed with a barrier system designed to prevent escape of adults, juveniles, and eggs in effluent water or into effluent treatment areas in the 100-year flood zone.
 - b. Lionfish cultured indoors may only be held in culture systems having no water discharge, having a water discharge through a closed drain system, or other system designed to prevent discharge of water containing adults, juveniles and eggs.
- Any escape or accidental release of lionfish, regardless of life stage, including eggs shall be immediately reported to FDACS.

C. RESTRICTED NONNATIVE SPECIES CONTAINMENT

Facilities culturing restricted nonnative species must adhere to the following BMPs, as well as the BMPs listed for nonnative species.

Best Management Practices:

- Restricted nonnative species cultured outdoors may only be held in a water body which has the lowest point of its levee, dike, bank, or tank at an elevation at least one foot above the 100-year flood elevation as determined by elevation maps issued by the National Flood Insurance Program of the Federal Emergency Management Agency (FEMA).
- All holding, transport, and culture systems must consist of a solid construction, and be designed to prevent the escape of all life stages of aquatic species.
- The facility must have effective measures in place to prevent theft of restricted nonnative species.
- Live sale or transfer of restricted nonnative aquatic species or their hybrids is limited to those individuals specifically authorized by FDACS or FWC.
- Facilities must maintain records of all live purchases and/or all live sales of restricted species as listed in Rule 68-5.002, F.A.C. These records must include the date of

shipment, name, address, and Aquaculture Certification of Registration number(s) of the supplier and the recipient if purchased or sold in Florida and a copy of the Restricted Species Authorization or Conditional Species Authorization for the buyer. Records must be retained by the hatchery or farm and available for inspection for at least two years.

- Written authorization must be obtained annually from FDACS to possess restricted nonnative species. Restricted species authorizations issued by FDACS expire on June 30 of each year and must be renewed annually. Any facility failing to maintain an active Aquaculture Certificate of Registration and restricted species authorization must legally and humanely dispose of any restricted species within their possession. Failure to do will result in referral to FWC.
- Written authorization may be required by FWC to import restricted nonnative aquatic species.
- Restricted species may be taken on a fee or for-hire basis using hook and line or rod and reel so long as anglers are accompanied by an AQ facility representative and no live restricted animals leave the facility unless that angler possesses a Restricted Species Authorization or Conditional Species Authorization for the restricted species.
- Restricted species may be taken on a fee or for-hire basis using hook and line or rod and reel as long as anglers are accompanied by the facility operator or employee and no live animals leave the facility with persons that do not possess a Restricted Species Authorization or Conditional Species Authorization for the particular species.
- For owners of aquaculture facilities that are operating under permit or a certificate of registration, but which are not cultivating Nile perches (Genus *Lates*, all species including barramundi) as of April 11, 2007, and for owners of aquaculture facilities which are issued original permits or certificates of registration after April 11, 2007, Nile perches shall be held only in indoor facilities and shall not be taken on a fee or for-hire basis using hook and line or rod and reel. Facilities must be constructed to prevent the release of animals during a disaster. Culture systems shall have no outdoor water discharge.
- Northern largemouth bass (*Micropterus salmoides salmoides*) must meet restricted species containment requirements throughout Florida.
- Intergrade largemouth bass (northern largemouth bass x Florida largemouth bass *Micropterus salmoides floridanus*) must meet restricted species containment requirements at facilities south and east of the Suwannee River.
- The culture of restricted species of crawfish including: Australian red claw (*Cherax quadricarinatus*), red swamp crayfish (*Procambarus clarkii*) and white river crayfish (*Procambarus zonangulus*) is limited to tank culture in an enclosed structure. All systems

will be designed to meet the minimum requirements set forth above, as well as preventive measures to assure that the species is unable to escape indoor systems or crawl out of the tank system.

- The culture of restricted aquatic turtle species in outdoor facilities is limited to systems integrating a permanent containment barrier secured at least six inches below ground level to prevent escape by digging or erosion. Containment barriers shall be constructed of solid material, or it's equivalent, and shall be secured in place. Mesh material can not be used for the containment barrier.

D. ALTERNATIVE CONTAINMENT PRACTICES

(Any system may be utilized as long as it meets the containment requirements above)

- No discharge or zero discharge production systems are designed to ensure that water from the production unit is not discharged from the facility. This includes design parameters and management practices to ensure that stormwater does not cause the system to discharge.
- Screened discharge systems utilizing screen or filter devices at the point of production unit discharge or at the point of discharge from the operation or effluent treatment facility (such as a detention or retention pond). A screen or filter device must be sized so as to retain the smallest size fish or egg. Examples of screened/filter systems include a series (multiples are used to ensure at least one screen is in place while others are cleaned) of mesh screens capable of screening all water, a dry bed filter constructed with gravel and sand to trap eggs and fish, a commercially available micro screen solids filter, or a pond trap with screened discharge.
- Disinfection or sterilization techniques such as ultraviolet light (UV), ozone or chlorine may be utilized in conjunction with the above mentioned methods to ensure that live organisms do not escape the facility.
- Use of biological controls (e.g., stocking detention ponds with native predatory fish such as largemouth bass).

E. PROHIBITED SPECIES

Best Management Practice:

- Anytime a prohibited species is discovered at a certified facility, it is to be immediately killed and properly disposed of.

Prohibited aquatic species are not eligible for possession or culture in Florida. Prohibited species are identified by Prohibited Non-Native Species, Rule 68-5.003, F.A.C., and Aquatic

F. TRANSGENIC SPECIES

Transgenic aquatic organisms are defined as organisms whose genomes have been modified by the introduction or deletion of specific genetic material. Organisms created by hybridization or polyploidy techniques do not fall under this definition.

Best Management Practices:

- Certified aquaculturists must supply information to FDACS describing:
 - 1) facility design
 - 2) production system design
 - 3) containment measures
 - 4) Federal Agency review
 - 5) biological information
 - 6) genetic construct and development process
 - 7) genetic construct introduction and organism information
 - 8) gene construct expression information
 - 9) related human health information
 - 10) survival and persistence studies
- Certified aquaculturists must apply to and receive from FDACS, written authorization prior to culturing transgenic aquatic species. Authorization will only be considered:
 - 1) after all requested information is provided;
 - 2) after the Department has reviewed all other information that has been submitted by the public; and
 - 3) if upon review of all the foregoing it can be determined that authorization will not pose a threat to the public health, safety, and welfare.
- Certified aquaculturists must adhere to all stipulations required in the FDACS written letter of authorization.

VII. MARINE NET PENS AND CAGES

Net pens and cages are submerged, suspended, floating or other holding systems that utilize a netting (fiber or metal) to contain and culture marine fish or crustaceans. This chapter pertains only to the operation of net pens or cages (hereinafter referred to as "net pens") that are located in the marine waters of the State of Florida.

Net pen operations must acquire: 1) an annual Aquaculture Certificate of Registration; 2) a sovereignty submerged land and water column lease; and 3) if the aquaculture facility produces more than 100,000 pounds of live weight product annually, a National Pollution Discharge Elimination System (NPDES) permit. Bivalve molluscs (clams, mussels, scallops or oysters) being produced for sale as food for human consumption can only be cultured within the boundaries of state managed Shellfish Harvesting Areas. Contact FDACS [for](#) Aquaculture Certificate of Registration, sovereignty submerged land and water column lease, and shellfish harvest area, harvesting, and processing information. Contact the Florida Department of Environmental Protection, Industrial Wastewater Program, for NPDES permit information.

Net pen operators who do not operate their aquaculture facilities in compliance with the sovereignty submerged land and water column lease conditions and this *Aquaculture Best Management Practices Manual* risk the revocation of the lease instrument and/or Aquaculture Certificate of Registration and enforcement action including administrative fines.

A. SITE SELECTION

Appropriate site selection for net pens is critical for the minimization of potential environmental impacts, and optimal fish health and performance. Wise site selection has significant potential to reduce the risk of net pen environmental impacts. With the exception of site selection, net pen farm operators have little ability to control the environmental conditions their fish may experience. Sites with frequent, extreme weather or sea-state conditions that would limit the grower's access to the farm site and cultured animals should be reconsidered. Harmful algal blooms (i.e., red tide) are common in Florida waters. Net pen operators should investigate red tide history for the location that they are considering.

In addition to BMP compliance, the Division of Aquaculture will review Aquaculture Certificate of Registration applications based upon their relative distance to other net pens that may be in the area to assess potential cumulative environmental impacts. The number of net pens or their configuration in certain marine environments may require additional environmental, farm design or production information from the applicant to determine potential cumulative environmental impacts.

Best Management Practices:

- Evaluate each potential farm site to ensure that environmental conditions on the farm site are appropriate for the species being considered for culture and the equipment proposed for use.

- A Farm Site Plan that maps the location of the net pens, anchoring, and feeding systems must be submitted with an Aquaculture Certificate of Registration application to FDACS. Net pens and anchors must be mapped using Global Positioning System (GPS) or latitude/longitude coordinates. The Farm Site Plan must be maintained, updated and made available for review by FDACS personnel during compliance inspections.
- Select sites with good water exchange, sufficient depth, and adequate current velocity.
- Sites must have a sand or mud bottom.
- Sites for polyculture of finfish and filter-feeding shellfish (mussels, clams, oysters or scallops) can only occur in Shellfish Harvesting Areas classified and managed by FDACS. This is not a requirement where shellfish are being used solely for the ecological benefits they provide and will not be sold as a food product.
- Contact FDACS for information about shellfish harvest areas, harvesting, and processing.

B. FEED MANAGEMENT

Waste feed and fish feces constitute most of the wastes generated by a net pen farm. An effective way to reduce the potential environmental impact of net pens is to aggressively and proactively manage feed selection, distribution and utilization.

Effective feed management is based on two components: waste reduction and optimal feed conversion ratio. Waste reduction focuses on ensuring that feed used by the farm is not lost or discharged prior to intake by the fish. Optimal conversion focuses on ensuring that all feed offered to the fish is actually consumed, digested, and utilized. Monitoring long- and short-term changes in feed conversion ratios allows farmers to quickly identify significant changes in feed consumption and waste production rates in individual net pens.

Best Management Practices:

- Operate feed storage, handling, and delivery methods to minimize waste and the creation of fine particles of feed.
- Maintain feed conversion ratio records by using feed and fish biomass inventory tracking systems.
- Minimize nutrient and solids discharges through optimization of efficient feed formulations. Use formulations designed to enhance nitrogen and phosphorus retention efficiency, and reduce metabolic waste output.
- Feed manufacturer labels, or copies thereof, must be retained for the prior two years of operation. Labels must be made available for review by FDACS personnel during

compliance inspections.

- Use efficient feeding practices, monitor active feed consumption, and reduce feed loss. The appropriate quantity and type of feed for a given species is influenced by fish size, water temperature, dissolved oxygen levels, health status, reproductive status, and management goals. Feed particle size should be appropriate for the size of fish being fed. Feeding behavior must be observed to monitor feed utilization and evaluate health status.
- Maintain and properly operate feeding equipment.
- Feeding at slack tide is prohibited.
- Conduct employee training in fish husbandry and feeding methods to ensure that workers have adequate training to optimize feed conversion ratios.
- Wherever practical, interactive feedback feeding systems such as video, "lift-ups," Doppler, sonar, infrared, or equivalent methods should be used to monitor feed consumption, and reduce feed waste.
- Color video or still photographic surveys will be conducted twice per year (January 1 and June 30) of the sea floor under and adjacent to each net pen on a 100 meter transect up the prevailing current from the edge of the net and 100 meters down the prevailing current from the edge of the net pen to determine solids loadings and whether eutrophication of the local environment is occurring as a result of food loss and fish excretion. Monitoring will include recording the date(s) on which monitoring was conducted, a site schematic of the video track(s) or still photos in relation to the net pen, and Global Positioning System (GPS) locations of the beginning and end points for the transects. The video survey shall be continuous. Still photographs shall be taken at least every 5 meters. The video or photographic survey will document sediment type and color as well as features such as erosional and depositional areas, flora and fauna and their relative abundance, feed pellets, and any other manmade debris. Images shall be of sufficient detail and clarity to allow for the accurate assessment of benthic conditions. The camera must be positioned at a height above the substrate that will provide approximately one square meter of bottom coverage and illuminated with sufficient artificial light to enable the accurate identification of epibenthic organisms and sediment conditions. A brief written narrative with the tape or photographs describing current speed and direction and reference points shall be included. The tape or photographs with narrative will be submitted to FDACS within 60 days of the survey completion.
- The feeding of wet feeds (ground or whole fish or shellfish and other raw meat or plant materials) is prohibited.
- Physical disturbance of the bottom such as harrowing, dragging or other mechanical means shall not be used to mitigate the benthic impacts of feed or fish excretion.

C. SOLID WASTE MANAGEMENT AND DISPOSAL

Sources of solid waste include biofouling organisms that colonize nets, mortalities, feedbags, packaging materials, scrap rope and netting, worn or broken net pen structural components, and other miscellaneous items. Net pen operators must make every effort to collect and properly dispose of solid waste.

Proper fish health management is the best means for reducing costly mortalities in net pens. Optimizing fish health will reduce the need to deal with dead fish. Even under optimal conditions some mortality will occur. Net pens, by their very design, contain and collect mortalities and this result facilitates mortality monitoring and their timely removal.

Best Management Practices:

- Develop a Solid Waste Management plan. This plan must identify all wastes generated on a site or from an aquaculture facility. The Solid Waste Management Plan must be submitted with an Aquaculture Certificate of Registration application and maintained, implemented, and made available, upon request, to FDACS personnel. At a minimum, waste management plans must address:
 - Human waste
 - Feedbags
 - Scrap rope
 - Scrap netting
 - Buoys and weights
 - Fish mortalities
 - Spoiled feed
 - Packaging materials
 - Fouling organisms
 - Any other solid waste
- Mortalities will attract predators and contribute to fish health problems. Mortalities must be collected regularly and as frequently as possible (weather permitting) to avoid accumulation at the net pen bottom.
- Farmers must use collection and removal methods that do not stress remaining animals or compromise net integrity. Mortalities must be stored and transported in closed containers with tight fitting lids. Mortalities must be returned to shore, disposed of and notification given in accordance with Disposal of Dead Animals BMPs.
- Farmers must avoid the discharge of substances associated with in-place net cleaning. Implement gear and management strategies to reduce biofouling that will minimize or eliminate the need for on site net cleaning. Strategies may include, but not be limited to: stocking mullet (*Mugil spp.*), sheepshead (*Archosargus probatocephalus*), or similar

native species in the net pen to biologically control fouling, use of fouling resistant materials (e.g., copper alloy netting), net changing, rotating cage designs, or the application of antifoulant coatings.

- On site mechanical cleaning must include methods to prevent the accumulation of solids on the sea floor or the release of solids that cause or contribute to water quality impairment.
- The use of biocidal chemicals for cleaning nets on site is prohibited.
- Copies of antifoulant coating product labels must be provided to FDACS prior to use. Antifoulant coating use and restrictions as described in Chapter 376, Pollutant Discharge Prevention and Removal, F.S.; Chapter 487, Pesticide Regulation and Safety, F.S.; Federal Insecticide, Fungicide and Rodenticide Act, Title 7, Chapter 6, Code of Federal Regulations; and Organotin Antifouling Paint Control Act, Title 33, Chapter 37, Code of Federal Regulations must be followed. The use of organotin or petroleum based antifoulant products such as creosote, oils, bitumen, coal tar, or greases are prohibited.
- All feed bags, spoiled feed, packaging materials, waste rope and netting, or worn structural components must be collected, returned to shore and disposed of properly. Recycling is strongly encouraged.

D. ESCAPE MANAGEMENT

The escape of cultured species may pose a variety of potential risks to marine species and ecosystems or unrelated economic activities. Three effective ways to reduce potential environmental impacts by escapees are prevention, genetic compatibility or genetic isolation.

Prevention involves proactively reducing the potential causes of escape. Escape risks associated with net pen aquaculture in areas inhabited by large number of sharks is high and the success of the operation will depend on the implementation of efficient yet passive and environmentally-sound methods of predator deterrence. In tropical and subtropical waters all over the world, sharks attack dead fish that sink to the bottom of net pens. Shark attacks can tear holes into the netting that are large enough to allow fish to escape. Sharks are common in Florida waters. For these reasons, efficient methods of predator control such as anti-predator netting are required. Escape response actions such as mortality removal, net repair and animal recovery plans, will help mitigate the impact of escapes. All net pen farm operators must continuously strive to reduce escape risk through net pen maintenance and frequent net pen structural monitoring.

Genetic compatibility can be achieved through implementation of the following BMPs and consultation with FDACS. Genetic isolation is accomplished by using sterile stock or strains that are unable to interbreed with wild fish or unlikely to survive in the wild.

Best Management Practices:

- Net pen culture of species not native to Florida waters or transgenic species is prohibited.
- Net pen facilities must maintain documentation identifying the source of all eggs, fry, fingerlings or adult fish for at least two years. These records must be available for inspection by FDACS staff upon request.
- If genetic studies are not available that indicate broodstock are genetically similar to and originate from the same genetic stock as conspecific wild animals in the net pen locality, the following requirements for broodstock animals apply: 1) broodstock must originate from waters of the Gulf of Mexico east of the Mississippi River outflow to produce juveniles for stocking net pens in state waters of the Gulf or broodstock must originate from waters of the Atlantic Ocean to produce juveniles for stocking net pens located in state waters of the Atlantic and, 2) broodstock for pelagic species may only be collected within a 300 kilometer (186 mile) radius distance from the net pen site or broodstock for estuarine species may only be collected within a 100 kilometer (62 mile) radius distance from the net pen site.
- Obtain a Special Activity License from the Florida Fish and Wildlife Conservation Commission for the collection of wild broodstock pursuant to Rule Chapter 68B-8, F.A.C., Aquaculture Broodstock Collection Special Activity License.
- The intentional release of fish or shellfish to state waters beyond the confines of the net pens is prohibited unless a Special Activity License from the Florida Fish and Wildlife Conservation Commission has been obtained pursuant to Rule Chapter 68B-8, F.A.C., Stock Collection and Release Special Activity License.
- Loss-Control and Escape Recovery Plan must be submitted with an Aquaculture Certificate of Registration application and maintained, implemented and made available to FDACS personnel during compliance inspections. Plans must include a site-specific analysis of the potential risks of escapes, their causes, and the specific procedures employed by the farm to reduce risk. Loss-control plans must be designed to address the principle causes of escape (equipment failure, operational errors, and predator attacks) and must include: 1) minimum equipment and operating standards; 2) emergency repair procedures; 3) escape recovery procedures; 4) practices and equipment that reduce the need for predator reduction/destruction (i.e., anti-predator nets or equivalent equipment); and (5) preparations for severe weather (i.e., hurricanes). The Loss Control and Escape Recovery Plan must include a notification procedure to inform FDACS when fish are not recovered following an escape.
- The facility manager or designated representative will report, within 24 hours, any escape to FDACS. The report must include species identification, approximate size and number of fish, and location.

- Fish transfers such as stocking, grading, transfer, or harvest must be conducted in appropriate weather conditions and under constant visual supervision. Equipment appropriate to the weather and net pen or cage designs must be used. Where necessary or appropriate, shields or additional netting must be used to prevent stray fish from escaping during transfer.
- All holding, transportation, and culture systems must be designed, operated and maintained to prevent escape. Implement Chapter XVI Shipment, Transportation and Sale.
- All nets in use must be made from ultraviolet light stabilized compounds.
- Net pen design, specification, and installation must be commensurate with the prevailing conditions and capable of withstanding the maximum weather and sea conditions prevailing at the site. A written statement from the net pen manufacturer certifying that net pen(s) have been assembled and moored to their specifications must be available to FDACS personnel during compliance inspections.
- To prevent fish from jumping out of the primary containment nets, surface net pens must have jump nets installed that are an appropriate height for the species being cultured.
- Nets must be secured to the cage collar such that the collar bears the strain and not the handrail of the net pen.
- Net weights, when used, must be installed to prevent chafing. A second layer of net must be added one foot above and below wear points. The use of weight rings is recommended at appropriate sites.
- A Net Pen Structure and Mooring System Preventative Maintenance Program must be submitted with an Aquaculture Certificate of Registration application and maintained, updated, implemented and made available to FDACS personnel during compliance inspections. The program must have the ability to: 1) identify individual nets, net pen structures, mooring systems and 2) schedule and document regular maintenance and testing. Nets or net pen structural components that fail testing standards must be retired and disposed of properly. The program must document regular maintenance and repair: the nature of the maintenance or repair, date conducted, any supporting documentation for new materials used, and the identity of the individuals or firms that conducted the maintenance.
- Mooring system designs must be compatible with the cage systems they secure. Mooring systems must be installed in consultation with the net pen manufacturer or supplier. Mooring system design, specification and installation must be commensurate with the prevailing conditions and capable of withstanding the maximum weather and sea

conditions prevailing at the site. A mooring system schematic must be included and updated as a component of the Farm Site Plan. Design maximums must be recorded in the Net Pen Structure and Mooring System Preventative Maintenance Program.

- Facility operators must inspect and adjust mooring systems on a biannual basis and prior to and immediately following a tropical storm or hurricane. New components must undergo their first inspection no later than six months after deployment. A diver or remote camera must regularly and visually inspect subsurface mooring components. Special attention must be given to connectors and rope/chain interfaces. Chafe points must be identified, inspected, and biofouling removed. With the exception of anchors, mooring systems must be hauled out of the water for a visual inspection of all components at least every five years. When considering what inspection method to employ, net pen operators must consider the relative risks and benefits associated with the inspection method.
- Shackles used in mooring systems must be either safety shackled, wire-tied, or welded to prevent pin drop-out.
- Where appropriate, bird nets must be used to cover net pens in order to reduce the risk of escape due to bird predation. Bird nets must be constructed using appropriate materials and mesh sizes designed to reduce the risk of bird entanglement. Implement Chapter XV Preventing Wildlife Depredation.
- Develop a service vessel Standard Operating Procedure (SOP). Vessel operations around a net pen site can cause escapes. All vessel operators must receive appropriate training in the operation of the vessel. The service vessel SOP must be made available to FDACS prior to compliance visits.

E. AQUACULTURE FACILITY OPERATIONS AND MAINTENANCE

Net pen farms are expensive to install and operate. Operators are subject to elevated public scrutiny because they are located in and actively utilize public waters. Net pen farms operate in these public waters under the provisions of sovereignty submerged land and water column lease instruments and an Aquaculture Certificate of Registration that can be revoked by the State of Florida. Net pen operators who do not operate their facilities in compliance with lease conditions and the *Aquaculture Best Management Practices Manual* directly jeopardize their investment and risk the revocation of the lease instrument and/or Aquaculture Certificate of Registration and enforcement action including administrative fines.

Best Management Practices:

- Farmers must conduct annual, systematic reviews of their operations and provide those reviews to FDACS personnel during compliance inspections.
- When considering modifications to existing farming practices, procedures or structures,

growers must conduct a review of the type and extent of probable environmental impacts that may occur as a result of the new methods and amend their existing operational practices to mitigate potential impacts.

- When conducting activities such as stocking/seeding, harvesting, feeding, grading, thinning, transfer, cleaning, gear maintenance or fallowing, all standard operating procedures must include diligent efforts to minimize probable environmental impacts.
- Comprehensive stocking and production strategies that optimize production while minimizing environmental impacts must be used. Production planning must include a systematic review of any probable and cumulative environmental impacts that would be associated with a particular production plan or method.
- Nets and moorings must be maintained in a whole and intact condition. No gear may be abandoned. Storage of nets or gear on the bottom is prohibited. Any net or gear accidentally dropped or lost during storm events that is not recovered immediately shall be tagged with a float, positioned using differential Global Positioning System, and reported to FDACS within 24 hours. The lost net or gear shall be recovered within 30 days of the date lost. FDACS shall be notified on the date the net or gear is recovered.
- Nets, mooring and rigging lines, and anti-predator equipment must be stretched tight and held taut and maintained in a manner to diminish the likelihood of entangling finfish, decapod crustaceans, sea birds, marine mammals, and sea turtles.
- Maintain and make available to FDACS, upon request, a Marine Entanglement Log for finfish, decapod crustaceans, sea birds, marine mammals, and sea turtles. The Log should identify the species, size, number, date of entanglement, and disposition of the species.
- Consider potential impacts on water circulation patterns when installing net pens and their associated mooring systems. Gear deployment must optimize circulation patterns and maximize water exchange through the pens, thereby improving fish health and reducing benthic impacts.
- Design and operate harvest procedures and equipment in a fashion that reduces any associated discharges. Harvest and post-harvest vessel and equipment clean-up procedures must minimize wastes discharged overboard.
- Farm support vessels must be fueled at licensed fueling stations.
- All fuel or oil spills must be reported as required by law to the appropriate state and federal authorities. Appropriate clean-up and repair actions must be initiated as soon as possible.
- Farm support vessels of the appropriate size must have approved Marine Sanitation

Devices (MSD) on board. All human wastes must be disposed of according to applicable state and federal regulations.

F. HEALTH MANAGEMENT

Aquatic animal health management involves proactively managing culture species, pathogens and the environment to optimize conditions for growth and health. Strategies to prevent and/or mitigate risk factors which adversely impact animal health are critical for effective health management. Open water systems, such as net pens or lease sites present a concern for the exposure of pathogens, both to and from wild animals.

Best Management Practices:

- Identify pathogens and non-infectious issues of concern for species being cultured and develop strategies to mitigate the risk.
- Net pen facilities must maintain documentation identifying the source of all eggs, fry, fingerlings or adults.
- All stocking of live aquatic organisms, regardless of life stage, must be accompanied by an Official Certificate of Veterinary Inspection signed by a licensed and accredited veterinarian attesting to the health of the organisms to be stocked.
- Minimize cross-contamination between groups/lots of organisms through cleaning and disinfection of equipment and biosecurity practices.
- Implement quarantine/isolation or disinfection procedures to reduce the risk of pathogen translocation.
- Facilities must notify their aquatic animal health professional and the Florida Department of Agriculture and Consumer Services (FDACS), Division of Animal Industry, State Veterinarian's Office in the event of a suspected or diagnosed outbreak of a State or Federal notifiable disease or pathogen at (850)-410-0900, or after hours at 1-800-342-5869, or by email at RAD@FreshFromFlorida.com.
- Health management records must be a component of the farm records and include behavioral changes, other clinical signs of disease, treatment procedures, and unusual morbidity and mortality events. These records must be retained for at least two years and will be made available for inspection by FDACS upon request.
- Implement the requirements of Chapter X Shellfish Culture, Chapter XIII Health Management, Chapter XVII Aquaculture Chemical and Drug Handling, and Chapter XVIII Aquatic Animal Welfare.

G. RECORD KEEPING

Farm Records identified in this chapter must be updated, maintained and made available to FDACS personnel during compliance inspections or upon request by FDACS. Farmers may keep and analyze additional records related to feeding, chemical use, water quality, serious weather conditions, fish culture operations, and inventory to facilitate improvements in the efficiency of farm input use. Such records must be reviewed by the farmer periodically to determine if they are useful and to provide insight into opportunities to improve farm operations.

Best Management Practices:

- Maintain the records required by the Aquaculture Best Management Practices *Manual* for a minimum of two years in a form readily and immediately available to FDACS personnel during compliance visits or to FDACS upon request.
- The processes and procedures utilized to collect and analyze environmental data (physical, chemical or biological) must be documented in a Quality Assurance Project Plan. Farm operators must submit such plans to FDACS during the aquaculture certification process.

VIII. PENAEID SHRIMP CULTURE

Penaeid shrimp aquaculture technology is in a process of continual evolution, evaluation and improvement. These BMPs are intended to help penaeid shrimp producers set high standards and maintain environmental compatibility.

A. CONTAINMENT

Systems must be designed to accommodate rainfall events and to prevent stormwater from causing the escape of cultured shrimp and discharge of production waters into waters of the State. Similarly, aquaculture production units and aquaculture systems must be designed to prevent native species and other unwanted species from entering the system and interacting with domesticated animals.

Best Management Practices:

- Selling or using live, nonnative penaeid shrimp as bait is prohibited.
- Sales of live nonnative penaeid shrimp must be accompanied with a written statement informing the purchaser that selling or using live, nonnative penaeid shrimp as bait is prohibited and the release of nonnative species is prohibited by Rule 68-5.001, F.A.C.
- All holding, transport, and culture systems must be designed, operated and maintained to prevent the escape of all life stages of nonnative aquatic species into waters of the State.
- Any escape of cultured penaeid shrimp from a certified facility into waters of the State must be reported within 24 hours, with the details of the release to FDACS.

B. EFFLUENT TREATMENT

Off site discharges to surface waters of the state must follow these treatment practices.

Best Management Practices:

- Discharge of effluents from marine shrimp production facilities must comply with the BMPs stated in Section IV, subsection E, Water Resources, Effluent Treatment.
- Penaeid shrimp production facilities must place screens with mesh sizes sufficient to prevent escape of all life stages of cultured shrimp at all discharge control points.
- All production water must be contained, chlorinated and otherwise sanitized prior to discharge in the event of an outbreak of any notifiable or reportable pathogen as - determined by the World Organisation for Animal Health (OIE), United States Department of Agriculture, Animal and Plant Health Inspection Service Veterinary Services (USDA APHIS VS), or the State Veterinarian.

- Use redundant barrier, containment or disinfecting procedures.

C. PENAEID SHRIMP HEALTH

Best Management Practices:

- All live penaeid shrimp, regardless of life stage, sold to an aquaculture certified Florida facility/operator must be accompanied by diagnostic results from an accredited laboratory and a signed Official Certificate of Veterinary Inspection (OCVI) from a licensed and accredited veterinarian. Diagnostic results are valid for 30 days following testing. An OCVI is a legible certificate made on an official form from the animal's state of origin, issued and signed by veterinarians licensed and accredited in the animal's state of origin for the purpose of certifying the test requirements and health status of specific animals for movement. Documentation must identify the type of test performed, test results, and the dates of such testing for any notifiable or reportable pathogen for penaeid shrimp as determined by the World Organisation for Animal Health (OIE), USDA APHIS VS, or the State Veterinarian. An OCVI is valid for 30 days following issuance by the veterinarian. OCVIs and documentation must be provided to FDACS, Division of Aquaculture via email at aquaculture_web@FreshFromFlorida.com for approval prior to shipment.
- Intrastate shipments must be accompanied by an OCVI using form FDACS-09000, which is incorporated by reference into Rule 5L-3.004, F.A.C. The form can be ordered from the FDACS, Division of Animal Industry, State Veterinarian's Office by contacting the Bronson Animal Disease Diagnostic Laboratory at (321) 697-1400 or via email at DiagLab@FreshFromFlorida.com.
- Broodstock brought into a facility must be isolated from the remaining stocks in the hatchery until their health status is verified.
- All health management documentation and records must be retained for at least two years by certified aquaculturists. These records will be made available for inspection by FDACS request.
- Certified aquaculturists and/or their aquatic animal health professional will notify the FDACS Division of Animal Industry, State Veterinarian's Office, at (850)-410-0900, or after hours at 1-800-342-5869, or by email at RAD@FreshFromFlorida.com in the event of a suspected or confirmed finding of any notifiable or reportable pathogen as determined by the World Organisation for Animal Health (OIE), USDA APHIS VS, or the State Veterinarian. Reporting must be done within 24 hours of the suspicion of disease.

See Appendix for complete list of all required BMPs for shrimp

IX. STURGEON CULTURE

Sturgeon aquaculture is a capital intensive, high-risk effort requiring the holding of sturgeon for five to eight years in culture before product is available for market. Very thorough investigation and planning is encouraged before investing in land and production systems.

A. SPECIES

Best Management Practices:

- Live Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) can not be sold or transferred to the aquarium/ornamental fish trade.
- Certified aquaculture facilities culturing sturgeon must retain for at least two years U.S. Fish and Wildlife and/or Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) sturgeon permits or importation documents for inspection by FDACS representatives.

B. CONTAINMENT

Best Management Practices:

- Facilities must be designed, operated and maintained with geographical and/or physical barriers in place to prevent the escape of cultured sturgeon.
- In the event of an escape of sturgeon into surface waters of the State, the facility manager or designated representative must report the escape within 24 hours to FDACS. The report must identify the species, approximate size and number of fish, exact location of the escape, the name of the receiving body of water, and, if production water was lost as well, the approximate volume of water.
- Outside facility construction within the 100-year flood zone as delineated by FEMA - Flood Insurance Rate Maps is discouraged. However, if any portion of the outside facility is to be constructed within the 100-year flood zone, the facility must be designed so that the minimum control elevation is at least one foot above the 100-year flood elevation.
- Physical barriers or management practices must be designed/implemented to prevent the escape of all life stages of sturgeon to surface waters of the State.
- Containment features include:
 - Containment berms.
 - Covered tanks/ponds containing fish weighing less than four pounds.
 - Native predator stocked retention/detention ponds.

- Screened discharge pipes with proportionately sized screen mesh to contain all life stages in the pond.
- Redundant barriers, containment or disinfecting procedures.

C. STURGEON HEALTH

Best Management Practices:

All imports of live sturgeon must be accompanied by an Official Certificate of Veterinary Inspection (OCVI). An OCVI is a legible certificate made on an official form from the animal's state of origin, issued and signed by veterinarians licensed and accredited in the animal's state of origin for the purpose of certifying the test requirements and health status of specific animals for movement. An OCVI is valid for 30 days following issuance by the veterinarian. OCVIs must be provided to FDACS, Division of Aquaculture via email at aquaculture_web@freshfromflorida.com for approval prior to shipment.

- The facility must maintain for inspection, documentation identifying the source of all adult fish, fingerlings, fry, and eggs of sturgeon imported into the state for at least two years.
- Facilities should notify the FDACS, Division of Animal Industry, State Veterinarian's Office in the event of disease or other suspected pathogens observed in cultured stocks at (850)-410-0900, or after hours at 1-800-342-5869, or by email at RAD@FreshFromFlorida.com.
- Aquaculturists should also contact the Division of Aquaculture before disposing of sturgeon manifesting signs of disease.
- Health management records must be a component of the farm records and include behavioral changes, other clinical signs of disease, treatment procedures, or unusual morbidity and mortality events. These records must be retained for at least two years and made available for inspection by FDACS upon request.

See Appendix for complete list of all required BMPs for sturgeon.

X. SHELLFISH CULTURE

For the purpose of this manual, shellfish refers to clams, mussels, scallops, and oysters. Shellfish culture occurs primarily on sovereignty submerged lands leased from the State of Florida. In addition to inspecting farms for compliance with the aquaculture BMPs, FDACS accepts applications to lease sovereignty submerged state lands and regulates and inspects shellfish processing plants for compliance with shellfish handling, labeling and food safety requirements.

A U.S. Army Corps of Engineers Programmatic General Permit (SAJ-99), Live Rock and Marine Bivalve Aquaculture – State of Florida, authorizes farmers that hold an Aquaculture Certificate of Registration and comply with the Aquaculture Best Management Practices, Sovereignty Submerged Lands Lease Agreement, and Special Conditions described in the Programmatic General Permit to deposit materials and other works in the waters of the State of Florida. Aquaculturists that cannot comply with the Programmatic General Permit must acquire an Individual Permit and should contact FDACS for information or assistance.

A. RESOURCE PROTECTION

Perform all aquaculture activities in such a manner so that there will not be adverse impacts on resources such as corals; emergent and submerged aquatic vegetation; mangrove species; coastal and freshwater wetlands; oyster bars or clam beds; archaeological and historical sites; endangered or threatened species and their designated critical habitat; and shore or seabird nesting sites.

B. GENETIC PROTECTION

Best Management Practices:

- Only indigenous or hybrids of indigenous shellfish may be cultivated on submerged lands. Each Aquaculture Certificate of Registration holder shall notify the Division of the species of shellfish being cultured in Florida waters.
- All shellfish must be transported or shipped in distinct containers identified by the producer's Aquaculture Certificate of Registration Number and be kept separate from any harvested wild shellfish.
- Aquaculturists who intend to sell or use clam seed stocks for further grow-out in the State of Florida must use broodstock which originated from Florida waters in their genetic selection program. Documentation of broodstock origin must be obtained and retained for two years by the hatcheries.

- Hatchery operators shall maintain records of all broodstock purchases and seed sales for at least two years. These records will be made available for inspection by FDACS upon request.
- Aquaculturists culturing diploid shellfish, other than hard clams, located on Atlantic coast waters, who intend to sell or use seed stocks for further grow out in the State of Florida must use broodstock which originated from Florida Atlantic coast waters in their genetic selection program. Aquaculturists located on Gulf Coast waters, who intend to sell or use seed stocks for further grow-out in the State of Florida must use broodstock which originated from Florida waters of the Gulf of Mexico in their genetic selection program. Documentation of broodstock origin must be obtained from the hatchery and retained for two years.
- Clam seed stocks provided by an out-of-state source must utilize Florida broodstock in their genetic selection program. Documentation of broodstock origin must be obtained from the hatchery and retained for two years.
- Triploid seed or gamete suppliers must provide written documentation:
 1. Describing the methods utilized to create the triploid (tetraploid X diploid or chemical induction of triploidy).
 2. Addressing whether any shellfish stocked for grow out are expected to attain reproductive maturity.
 3. Describing how ploidy of the seed shellfish will be tested.
 4. Providing ploidy testing results from a representative sample of seed purchased.
 5. Addressing whether the triploid seed is guaranteed to be sterile triploids.
- Out of State Source -Triploid seed derived from a tetraploid crossed with a diploid oyster require the use of broodstock from the Gulf of Mexico.
- Out of State Source (Grow-out in Gulf Coast waters) -Triploid seed derived from the manipulation of a cross of two diploid oysters require that the broodstock come from Florida Gulf Coast waters.
- Out of State Source (Grow-out in Atlantic Coast waters) -Triploid seed derived from a manipulation of the cross of two diploid oysters require that the broodstock come for Florida Atlantic Coast waters.

C. HEALTH MANAGEMENT

The following best management practices are to protect endemic shellfish populations from the potential introduction and transfer of diseases. They should be employed during all production

and transport phases to provide responsible resource management, and reduce or eliminate the risk of disease introduction or transfer.

Best Management Practices:

- Shellfish or shellfish gametes imported from out-of-state sources for aquaculture purposes must be accompanied by diagnostic results from an accredited laboratory and an Official Certificate of Veterinary Inspection (OCVI). An OCVI is a legible certificate made on an official form from the animal's state of origin, issued and signed by veterinarians licensed and accredited in the animal's state of origin for the purpose of certifying the test requirements and health status of specific animals for movement. The OCVI and diagnostic results must document that the stock shows no evidence of the following pathogens: Quahog Parasite Unknown (QPX) in clams; *Haplosporidium nelsoni* (MSX), *Perkinsus marinus* (Dermo) and *Bonamia exitiosa* in oysters. Additional pathogens as identified by the State Veterinarian, USDA APHIS VS or OIE list may require additional testing. An OCVI is valid for 30 days following issuance by the veterinarian. OCVIs and documentation must be provided to FDACS, Division of Aquaculture via email at aquaculture_web@freshfromflorida.com for approval prior to shipment.
- Because of the known threat of introduction of MSX from oyster stocks grown in the waters of the Atlantic Ocean or drainages into the Atlantic Ocean; the culture of oyster stocks from Atlantic Coast waters is prohibited in Florida Gulf Coast waters.
- Florida Atlantic Coast hatcheries and nurseries can only provide oyster seed for grow-out in Florida Atlantic Coast waters. A statement to this effect must be included on all sales documentation provided to Florida aquaculturists.
- The producer's Aquaculture Certificate of Registration Number must accompany shellfish being transported from a hatchery or nursery and to or from grow out areas.
- All shellfish facility operators will notify the FDACS, Division of Animal Industry, State Veterinarian's Office, at (850)-410-0900, or after hours at 1-800-342-5869, or by email at RAD@FreshFromFlorida.com within 24 hours of confirmed disease outbreaks considered listed or reportable by the State Veterinarian, USDA APHIS VS or OIE.

D. UPLAND FACILITY OPERATIONS

Best Management Practices:

- Sovereignty submerged lands authorizations must be obtained for structures located on or over state-owned submerged lands. Contact FDACS for information.
- Land-based facilities must be designed and operated in a manner which minimizes adverse impacts to the receiving waters, adjacent wetlands, and uplands.
- Pumping, intake and discharge systems must be designed in a manner which does not create currents which increase sedimentation, scouring, turbidity, or in any way damage the surrounding habitat.
- Sediment removal and disposal must be conducted in a manner that eliminates or minimizes adverse impacts to the receiving waters.
- Shell stock shall not be used to fill wetlands or be placed on submerged lands. Shell stock may be disposed of in appropriate upland areas, landfills, or designated shell recycling areas.
- Hatchery operators must maintain records of all brood stock purchases and seed sales for a period at least two years. These records must be available for inspection by FDACS upon request.
- A Florida based hatchery selling seed must be certified as a hatchery facility. Seed sold/transferred from these certified facilities must include a valid Aquaculture Certificate of Registration number on all product containers and associated sales documentation. Sales documentation must contain a statement attesting to broodstock origin.

E. SUBMERGED LANDS GROW-OUT

Best Management Practices:

- Aquaculturists culturing shellfish on Sovereignty Submerged Lands (state-owned) shall obtain an aquaculture lease or other Sovereignty Submerged Land authorization and remain current with annual fees and the conditions of that authorization agreement.

- Follow all the terms and conditions of the Sovereignty Submerged Land Aquaculture Lease, and be fully compliant with provisions of Chapters 253, 258, Part II, 597, F. S., and Rule Chapters 5L-1, 5L-3, and 18-21, F.A.C.
- Comply with the Special Conditions described within the U.S. Army Corps of Engineers Programmatic General Permit (SAJ-99), Live Rock and Marine Bivalve Aquaculture – State of Florida or comply with the conditions of an ACOE individual permit.
- Aquaculturists culturing shellfish on privately held submerged lands and selling products must have an Aquaculture Certificate of Registration from FDACS or a Saltwater Products license from FWC and must follow all shellfish sanitary handling requirements found in Rule Chapter 5L-1, F.A.C.
- Activity on aquaculture leases is allowed from sunrise to sunset.
- Prior to commencement of the aquaculture activities on the approved grow-out site, post the grow-out boundaries to delineate the corners and perimeters, per the lease agreement. Markers should be sufficient to warn mariners passing in the vicinity of the lease of the potential hazards to navigation.
- Water column leases must be marked pursuant to an approved United States Coast Guard, Private Aids to Navigation permit prior to deploying any off-bottom or floating culture gear.
- Authorized activities on the grow-out site are those activities allowed in the lease agreement or development plan for culture operations. For example: planting shellfish cultivated from eggs, transplanting live stocks, placement of cultch material, harvesting shellfish, the installation and removal of nets, bags, or other culture gear, and the placement of markers that designate the corners and perimeters of the culture area.
- No vessel of any description shall be moored on or adjacent to the grow-out premises for a period exceeding 24 hours, regardless of whether the vessel is periodically moved.
- Culture materials (cultch) placed on the grow-out area must be a suitable substrate for attachment of oyster larvae: such as natural molluscan shells; fossilized shell; coral, and other aquatic organisms; lithic materials such as crushed and graded limestone, granite, and gravel which contain calcium carbonate and/or fossilized organisms; or recycled materials which contain lithic fractions and calcium carbonate, including crushed and graded concrete. Exceptions to this list of generally accepted cultch materials must be specifically approved and identified within the aquaculture lease agreement.

- Non-natural materials placed in the water or on submerged lands shall be anchored to the bottom. This includes any protective netting used to cover the bags.
- Bags, cover nets, and/or trays used in the culture operation shall be removed from the water during all mechanical cleaning, maintenance and repair operations. During harvest, culture bags and cover nets shall be rinsed/cleaned over the grow-out area to allow sediments to remain in the lease area. Mechanical or hydraulic devices shall not be used below the water for the cleaning of the submerged structures. Use hand tools for cleaning shellfish, bags, and other structures under water.
- All culture materials, cover nets, bags or other designated markers placed on or in the water shall be clean and free of pollutants including petroleum based products such as creosote, oils and greases, or other pollutants. Compounds used as preservatives must be used in accordance with the product label.
- The aquaculturist is responsible for collection and proper disposal of all bags, cover netting or other materials used in the culture of shellfish on submerged lands or when such materials are removed during maintenance or harvesting or become dislodged during storm events.
- The leaseholder's identification information shall be attached to all floating or off-bottom culturing structures. In the event that floating or off-bottom culturing structures become dislodged from the lease site, it is the leaseholder's responsibility to retrieve the structures from the shoreline, seagrass beds, or submerged bottom with minimal damage to the resources affected. The structures shall be removed and properly disposed of or returned to the lease site.
- Producers must maintain records of all seed purchases and seed sales for a period of two years. These records must be provided to FDACS pursuant to the annual lease audit requirement of the Sovereignty Submerged Land Aquaculture Lease.
- Remove all works, equipment, structures and improvements from sovereign submerged lands within 60 days following the date of expiration or termination of the lease.

F. MECHANICAL HARVESTING

The use of a mechanical harvesting device to harvest shellfish from a sovereign submerged land aquaculture lease may be authorized as a special lease condition pursuant to Chapter 253, F.S., following approval by the Board of Trustees of the Internal Improvement Trust Fund. A mechanical harvesting device is defined as a dredge, scrape, rake, drag, or other device that is self-propelled or towed by a vessel and is used to harvest shellfish. The term does

not include handheld or hand drawn hydraulically or mechanically operated devices used to harvest cultured clams from leased sovereign submerged lands, and this subsection does not apply to such handheld or hand drawn devices.

Best Management Practices:

- The use of mechanical harvesting devices is prohibited on natural reefs or public shellfish beds.
- Mechanical harvesting devices shall only be used for the harvesting of live shellfish. The harvesting of dead shell is prohibited.
- Mechanical harvesting is prohibited on aquaculture leases unless authorized in the lease agreement.
- An annual cultch material planting plan shall be submitted to the division. The plan shall include the quantity and type of material to be planted and a proposed timeline for planting activities.
- Only one mechanical harvesting device per lease may be possessed or operated at any time at a lease site.
- A mechanical harvesting device shall not be possessed on the waters of the state from 30 minutes prior to sunset through sunrise. Harvested shellfish must meet the time and temperature delivery requirements found in Rule 5L- 1.008, F.A.C.
- A mechanical harvesting device shall not exceed 48 inches in width at the device's widest dimension or at the tooth bar.
- Mechanical harvesting device teeth shall not exceed 6 inches in length. Teeth shall be spaced approximately 2 inches on center.
- Mechanical harvesting devices shall not exceed 175 pounds in total weight.
- Mechanical harvesting devices must be clearly marked with the Aquaculture Certificate of Registration number.
- The use of mechanical harvesting devices is restricted to the approved aquaculture lease and can not be used outside of the lease boundaries or in easements. Mechanical harvesting devices must be removed from the water upon the boat exiting the lease boundary.

- Prior to the use of a mechanical harvesting device, the aquaculture lease parcel must be marked as specified in the submerged land lease agreement.
- A harvest plan along with dimensions and specifications of mechanical harvesting devices shall be submitted prior to deployment on an aquaculture lease.
- Mechanical harvesting devices should not be used within 100 feet of corals, emergent and submerged aquatic vegetation, seagrasses, oyster bars, clam beds, or endangered species designated critical habitat (unless approved by the National Marine Fisheries Service).
- Culling or sorting of shellfish shall be performed by aquaculturists within the boundaries of their lease.
- Any endangered species or marine turtles incidentally taken during mechanical harvesting activities must be reported to FWC's Wildlife Alert Number at 1-888-404-FWC within 24 hours.
- Failure to comply with Subsection 597.010(17) or mechanical harvesting BMPs will result in the revocation of all submerged lands leases issued pursuant to Chapter 253, F.S., held by the violator and denial of any future use of sovereign submerged land.

G. PUBLIC HEALTH PROTECTION

Best Management Practices:

- Shellfish grown by the aquaculturist shall comply with provisions of the Comprehensive Shellfish Control Code (incorporated by reference into Rule 5L-3.004, F.A.C.), Rule Chapter 5L-1, and Aquaculture Best Management Practices, Rule Chapter 5L-3, F.A.C., and the Florida Aquaculture Policy Act, Chapter 597, F.S.
- Shellfish harvested by the aquaculturist to be sold in any market, other than seedstock shall comply with provisions of Rule Chapter 5L-1, F.A.C.
- Annually complete the National Shellfish Sanitation Program required harvester/processor training as a prerequisite to obtaining the annual Aquaculture Certificate of Registration. The certified aquaculturist is responsible for retaining the record of completing this training and must provide a copy when applying for new certification or renewal certification.
- Follow all requirements of the National Shellfish Sanitation Program and the Comprehensive Shellfish Control Code. (Model Ordinance 2015 of the National Shellfish

Sanitation Program Guide for the Control of Molluscan Shellfish, incorporated by reference into Rule 5L-3.004, F.A.C).

- Direct sales of aquaculture shellfish products from the farmer to the retailer or consumer are prohibited. Shellfish farmers are permitted to sell only to a certified shellfish processing facility or must become a certified shellfish processing facility to sell shellfish for human consumption to a retailer or the consumer.
- Seed clams must be relocated from harvest waters classified as restricted or prohibited to an approved classified water location for grow-out prior to reaching 16mm in shell length.
- Seed oysters must be relocated from harvest waters classified as restricted or prohibited to an approved classified water location for grow-out prior to reaching 25mm in shell length.
- Relaying must comply with the provisions of Shellfish Relaying, Rule Chapter 5L-1.009, F.A.C.
- Transport, harvest or sale of shellfish, other than seedstock as defined in this section, from a grow-out facility (lease) which is closed for public health purposes to another grow-out facility is prohibited without a valid special activity license for relaying.
- Pursuant to Rule Chapter 5L-1, F.A.C., sorting or washing of shellfish may be performed by the aquaculturist over his lease (approved waters) or at a certified shellfish processing facility.
- Aquacultured shellfish that are replanted or resubmerged must be segregated from other shellfish on the lease and must be clearly identified.
- Aquaculturists must maintain a replant log of all replant/resubmergence activities including:
 - 1) Date of initial removal from water at lease site
 - 2) Lease number
 - 3) Date of replant
 - 4) Replant lease number
 - 5) Replant location on lease
 - 6) Replant species and quantity
- Aquaculture oysters larger than 20 millimeters (approximately 3/4 inch) that are removed from the water during the course of routine oyster husbandry practices for more than 4

hours during April through October must be returned to the lease and submerged on an aquaculture lease for a minimum of 14 days before they can be harvested and sold to a certified shellfish processing facility. Routine oyster husbandry practices include the use of suspended grow out containers that may be unsubmerged during natural tidal cycles,

See Appendix for complete list of all required BMPs for shellfish.

XI. LIVE ROCK AND MARINE LIFE CULTURE

Live rock consists of geologically distinct substrate placed on the ocean bottom to attract colonizing plant and invertebrate species. The rock is collected after several years of culture and sold into the marine aquaria trade. Aquaculture live rock substrate often recruits sea fans, hard or stony corals, fire coral and other attached marine life restricted species. These attached marine life species may be possessed, cultured, harvested and sold by certified aquaculturists so long as the live rock and/or marine life product is identified as an aquaculture product pursuant to Chapter 597, F.S. The use of sovereignty submerged lands for aquaculture requires that the operator obtain a sovereignty submerged land aquaculture lease. Persons interested in conducting aquaculture activities on or above state lands should contact FDACS for assistance.

Elkhorn and staghorn corals are species listed under the Endangered Species Act and may not be possessed, harvested, cultured or sold. Federal agencies and FWC may list endangered or threatened species at any time. Live rock or marine life farmers should contact FDACS for current species regulations.

A U.S. Army Corps of Engineers Programmatic General Permit (SAJ-99), Live Rock and Marine Bivalve Aquaculture – State of Florida, authorizes farmers that hold an Aquaculture Certificate of Registration and comply with the Aquaculture Best Management Practices, Sovereignty Submerged Lands Lease Agreement, and Special Conditions described in the Programmatic General Permit to deposit materials and other works in the waters of the State of Florida. Live rock farmers that cannot comply with the Programmatic General Permit must acquire an Individual Permit and should contact FDACS for information or assistance.

Best Management Practices:

- Comply with the Special Conditions described within the U.S. Army Corps of Engineers Programmatic General Permit (SAJ-99), Live Rock and Marine Bivalve Aquaculture – State of Florida or comply with the conditions of an ACOE Individual Permit.
- All rock, natural or fabricated used for a substrate on sovereignty submerged land lease sites or at upland facilities must be geologically distinguishable from naturally occurring Florida live rock.
- Substrate materials, natural or artificial rock must be approved by FDACS prior to deposition on submerged lands or in an upland facility.
- A geologist's lithographic description of the substrate material must be retained until the time of sale and must be made available for inspection by FDACS upon request.

- Substrate material should be sufficiently free of sediment and fines so that the deployment does not result in turbidity violations inside or outside of the lease boundary.
- Substrate deployment should be conducted in a manner that minimizes turbidity and does not result in adverse impacts to natural fishery habitats or other benthic resources. Use of native live rock is prohibited.
- Substrate materials should be handled and stored in a manner that minimizes on site and off site impacts.
- Substrate containing marine life species not native to Florida waters can only be cultured in upland facilities which sterilize any discharge water or are managed as closed systems having no off site discharge.
- Live rock and marine life sales records must contain at least the following information:
 - Date of Sale
 - Name and address of Seller
 - Seller's Aquaculture Certificate of Registration number and lease number if from a submerged lands lease
 - Name and address of the Purchaser
 - Purchaser's Aquaculture Certificate of Registration number (if a Florida Certified Aquaculture Facility)
 - Quantity and species identification of aquaculture product sold
- Comply with Prohibition on the Taking, Destruction, or Sale of Marine Corals and Sea Fans, Rule 68B-42.009, F.A.C., and retain source documentation (receipts, bills of sale, bills of lading, or customs receipts) for live rock and marine live species legally harvested from sources outside Florida waters. This documentation shall be made available for inspection upon request.
- Use of Florida wild live rock in the culture of aquaculture live rock is prohibited.
- An FWC license is required to harvest, possess, sell, or transport wild marine life.

See Appendix for complete list of all required BMPs for live rock and marine life.

XII. AQUATIC PLANTS

The aquatic plant industry in Florida produces high quality plants for a wide variety of markets and uses: aquariums, water gardening, wetland mitigation and restoration, biofuels and pharmaceutical applications.

A. FERTILIZER APPLICATION

Best Management Practices:

- Apply fertilizer to substrate during preparation of the grow-out tank while it is dry. Use a slow release fertilizer and evenly incorporate it into the soil.
- If it is necessary to apply fertilizer into a grow-out tank or pond which is inundated, use fertilizer spikes which can be pushed into the substrate near the target plant. Once the “food spike” is below the surface, it should be covered with soil; to prevent the loss of nutrients to the water column.
- Minimize the need for additional fertilizer by maintaining a static water level in the production tanks or ponds.

B. REGULATORY REQUIREMENTS

Aquatic plant nurseries are regulated by two divisions within FDACS: the Division of Aquaculture and the Division of Plant Industry (DPI). The Division of Aquaculture ensures compliance with all aspects of this BMP manual. DPI ensures compliance with import/export, species, pest, disease, wild-collection, and environmental restoration regulations.

A primary role of DPI, with respect to the aquatic plant industry, is to oversee the possession of nonnative species. The purpose of this oversight is to prevent the introduction and spread of nuisance plants or disease which may displace native species and negatively impact Florida’s ecosystems. There are two classes of prohibited aquatic plants:

- | | |
|------------|--|
| Class I – | These plants may not be possessed, collected, transported, cultivated or imported. |
| Class II – | These plants may be cultured in an aquatic plant nursery for sale out of state, and only with approval of DPI. |

A listing of all Class I and Class II prohibited aquatic plants is found in Prohibited Aquatic Plants, Rule 5B-64.011, F.A.C., and is referenced in the appendix.

Best Management Practices:

- It is prohibited to possess and culture Class I aquatic plants. If you discover a Class I species in a shipment you receive, or on your facility, contact FDACS, Division of Plant Industry at once.
- Do not import, cultivate or export Class II Prohibited Species without prior authorization from FDACS, Division of Plant Industry. If you intend to handle Class II Prohibited Species, you must provide the necessary measures to ensure that these plants do not escape your facility. These methods are outlined in the Containment chapter of this manual. While the aforementioned chapter primarily addresses biosecurity for nonnative animals, the containment strategies are also applicable to the containment of nonnative aquatic plants and algae.
- Certified aquaculturists must apply to and receive from FDACS written authorization prior to culturing transgenic aquatic species. Certified aquaculturists must supply information to FDACS describing:
 - 1) facility design
 - 2) production system design
 - 3) containment measures
 - 4) Federal Agency review
 - 5) biological information
 - 6) genetic construct and development process
 - 7) genetic construct introduction and organism information
 - 8) gene construct expression information
 - 9) related human health information
 - 10) survival and persistence studies
- Authorization to culture transgenic aquatic species will only be considered:
 - 1) after all requested information is provided;
 - 2) after the Department has reviewed all other information that has been submitted by the public; and
 - 3) if upon review of all the foregoing it can be determined that authorization will not pose a threat to the environment, public health, safety, and welfare.
- Certified aquaculturists must adhere to all stipulations required in the FDACS written letter of authorization.

See Appendix for complete list of all required BMPs for aquatic plants.

XIII. AQUATIC ORGANISM HEALTH MANAGEMENT

Good aquatic organism health practices are necessary for the success of any aquaculture production facility. Disease prevention is based on good animal husbandry practices, including the reduction of animal stress, minimization of pathogens in the culture environment, and quarantine of unhealthy animals. FDACS strongly encourages aquaculturists to develop a written aquatic animal health management plan for their facility. Resources for training, education, and disease diagnostic assistance are available from several sources within the State. See the Appendix for contact information. The following BMPs, when used in consultation with an aquatic animal health professional or the State Veterinarian Office, are intended to provide the basic components of an aquatic animal health management plan.

Best Management Practices:

- Written authorization, import permit, or a certificate of health may be required from the State Veterinarian prior to interstate importation of aquatic species from outside Florida. For international importation into the U.S. please contact USDA, USFWS, and FWC for more information regarding any health requirements they may impose.
- All health records for aquatic organisms imported from outside of Florida must be retained for at least two years by certified aquaculturists. These records shall include:
 - Aquaculture Certificate of Registration Number
 - Name and Address of consignor
 - Name and Address of consignee
 - Date of Shipment
 - Date of entry/receipt
 - Species
 - Total number of aquatic animals by species
 - Any pertinent recent diagnostic test results performed to the group of aquatic organisms
- Contact your aquatic animal health professional or the State Veterinarian's Office in the event of any unusual or abnormal occurrences of disease or pests affecting your aquatic species.
- The confirmed diagnosis of a World Organization for Animal Health (OIE) reportable disease, a US notifiable disease, or a disease identified as a concern in Florida, must be reported to the State Veterinarian immediately at (850) 410-0900, or after hours at 1-800-342-5869, or by email at RAD@FreshFromFlorida.com. See <https://www.aphis.usda.gov/aphis/ourfocus/animalhealth> for more information.

- Educate yourself as much as possible regarding aquatic animal health management and the husbandry requirements of the species that you are raising. Sources of information include health management classes and a Fish Health Video series produced by the University of Florida, Tropical Aquaculture Laboratory and distributed by the Florida Tropical Fish Farms Association, among others.
- Follow accepted husbandry practices to maintain a favorable growing environment, such as the following:
 - Avoid over crowding
 - Maintain optimal nutritional programs
 - Promptly remove uneaten or undigested food
 - Promptly remove dead animals
 - Maintain appropriate water quality parameters
 - Minimize stress such as inappropriate, unnecessary handling, and temperature extremes
- Establish a health surveillance and disease diagnosis control program.
- Institute effective biosecurity measures consistent with BMPs.
- Educate personnel on the normal behavioral patterns of aquatic species, to easily distinguish abnormal behavior patterns as a means for early recognition of stress or disease.
- Aquatic organisms affected by an abnormal occurrence of disease or an undetermined pathogen should be sent to a diagnostic laboratory for diagnostics and treatment recommendations.
- Use medications and remedial agents consistent with the label instructions or as directed by a licensed veterinarian.
- When necessary, establish adequate quarantine and/or isolation practices and procedures.
- Institute a daily program of observing aquatic organism behavior and feeding activity to detect disease problems.
- Periodically test water quality for dissolved oxygen, pH, temperature, ammonia and nitrite, total alkalinity and total hardness. Know the physiological limits of your species. Establish control and response actions when deviating from normal values. Document all corrective actions.

- Feed a high quality diet proper for the species you are raising. Store feeds and medications under cool, dry conditions to prevent degradation.
- Sanitize nets and aquatic organism handling equipment to prevent the spread of disease.
- Promptly remove pathogen harboring organic debris from tanks or ponds.
- Sanitize tanks or ponds following disease outbreaks or before stocking with new populations.

SEE INDIVIDUAL SPECIES SECTIONS FOR SPECIFIC HEALTH BMPS
OR CONTACT FDACS

XIV. DISPOSAL OF DEAD ANIMALS

Dead animals and those culled from production must be disposed of following state and federal guidelines.

Best Management Practices:

- Sanitize or disinfect and then dispose of organisms in a sanitary and humane fashion in accordance with applicable local and state regulations.
- Contact FDACS for additional information.

XV. PREVENTING WILDLIFE DEPREDAATION

Wild animals contribute to our enjoyment of nature and outdoor recreation, but they can also damage property, agriculture, natural resources and threaten human health and safety. Numerous species of wildlife prey on aquaculture species or serve as vectors for disease, both of which may cause substantial losses. Protecting aquaculture species may require using several different methods of deterrence or control. Operators must be aware of and abide by all State and Federal laws regarding appropriate control methods for predatory species. The BMPs listed below should be followed to deter or control animal pests successfully and legally. For a specific animal predation control permit, contact USDA Wildlife Services, 2820 E. University Ave, Gainesville, Florida at 352/377-5556 or 1408 24th Street S.E., Ruskin, Florida at (813) 671-5230, Ext. 105. Questions may be directed to the Division of Aquaculture, Holland Building, Suite 217, 600 South Calhoun Street, Tallahassee, Florida at (850) 617-7600.

Best Management Practices:

- Follow all state and federal laws and regulations that apply to the nuisance species as most birds, mammals, and reptiles are protected by law and require a State or Federal permit to trap or shoot.
- Adhere to the following publications which are incorporated by reference into Rule 5L-3.004, F.A.C.
 - USDA APHIS Wildlife Services, Prevention and Control of Wildlife Damage, Bird Dispersal Techniques (1994).
 - and
 - USDA APHIS Wildlife Services, Prevention and Control of Wildlife Damage, Bird Damage at Aquaculture Facilities (1994).
- Follow all provisions of federal or state depredation permits.
- Use of noise producing devices, including propane cannons and pyrotechnics are suitable best management practices for the control of birds but should be limited to the minimal amount needed for adequate control and shall only be used from sunrise to sunset.
- Adhere to the provisions of Agricultural and Fish Hatchery Use of Firecrackers, Rule Chapter 5A-3, F.A.C., to obtain proper authorization prior to use of pyrotechnic devices as prescribed in Sale of Fireworks, Chapter 791, F.S.
- Propane cannons and pyrotechnic devices should be strategically located and operated to minimize off site impact. Use of simple blast shields to reduce the noise projected behind the cannon when located near residential developments.

XVI. SHIPMENT, TRANSPORTATION AND SALE

During shipment and transportation, care must be taken so that potential for escape of aquacultural products is minimized, and state laws are met in the identification of products. The following BMPs apply to all certified aquaculturists.

Best Management Practices:

- Aquaculture products must be identified with an Aquaculture Certificate of Registration number, while possessed, transported or sold from harvest to point of sale. The receipt, bills of sale, bills of lading, or other such manifest must show the certificate number and where the product originated. If the product is sold to a Florida grow-out facility, the Aquaculture Certificate of Registration number of the buyer must also be included. Sale records must contain at least the following information:
 - Date of Sale
 - Name and address of Seller
 - Seller's Aquaculture Certificate of Registration number
 - Name and address of the Purchaser
 - Purchaser's Aquaculture Certificate of Registration number (if a Florida Certified Aquaculture Facility)
 - Quantity and species identification of aquaculture product sold
- Aquaculture products must be transported in containers that separate aquaculture products pursuant to Identification of Aquaculture Products, Section 597.004(4), F.S., from wild stocks, and such containers must be identified by tags or labels which are securely attached and clearly displayed. Tags/labels must contain information describing the source location, species identification, quantity and date of harvest.
- Facilities must maintain records of all live purchases and/or all live sales of sturgeon, marine shrimp, marine bivalves and live rock/marine life. These records must include the date of shipment, name, address, and Aquaculture Certification of Registration number(s) of the supplier and the recipient if purchased or sold in Florida. Records must be retained by the hatchery or farm and available for inspection for at least two years. Invoices or bills of lading containing the above information is sufficient to meet this BMP requirement.
- Facilities must maintain records of all live purchases and/or all live sales of restricted species as listed in Rule 68-5.002, F.A.C. These records must include the date of shipment, name, address, and Aquaculture Certificate of Registration number(s) of the supplier and the recipient if purchased or sold in Florida and a copy of the Restricted Species Authorization or Conditional Species Authorization for the buyer. Records must

be retained by the hatchery or farm and available for inspection for at least two years.

- Fish of the genus *Centropomus* (snook) or the genus *Micropterus* (black bass) may be cultured for stocking purposes only. Buying, selling, bartering, trading or exchanging of these species for human consumption is prohibited.
- Pursuant to Rule 68A-25.002(6)(c), F.A.C., the sale of turtles or turtle eggs taken from the wild is prohibited.
- The importation and interstate movement of live aquatic snails is regulated by United States Department of Agriculture, Animal and Plant Health Inspection Service Plant Protection Quarantine (USDA APHIS PPQ). APHIS PPQ Form 526 (Plant Pest Permit) is required for the importation or interstate movement of any terrestrial or aquatic snails listed as plant pests. Marine snails and terrestrial or aquatic snails that are not plant pests are not regulated by USDA APHIS PPQ and do not require a permit. Contact USDA APHIS PPQ for more information on snails recognized as plant pests and permitting requirements. Refer to the Appendix for contact information. The U.S. Fish and Wildlife Service may require an import permit for invertebrate species.
- The processing or preparation of aquaculture products for human consumption requires a hazard analysis and critical control point (HACCP) plan and may require a license from FDACS-Division of Food Safety. See the Appendix for contact information.

XVII. AQUACULTURE CHEMICAL AND DRUG HANDLING

Florida's water resources are particularly susceptible to contamination because of the State's unique geology and hydrology. Groundwater supply often lies at or near the surface, and users of agrichemicals and drugs need to consider the soil's susceptibility to leaching, distance to the water table, slope of the land, and distance to surface water which could provide a direct pathway to ground water. Clay or muck soils are capable of binding certain pesticides with repeated applications. Proper handling, application and disposal practice through the use of BMPs can prevent the contamination of soil, surface waters, and ground water.

All persons who apply restricted use pesticides to any outdoor area in Florida not associated with buildings or public health pest control must have a pesticide applicator license issued by the FDACS, Division of Agricultural Environmental Services, Bureau of Licensing and Enforcement. For pesticide applicator certification and licensing call (850) 617-7997.

A. CHEMICAL USAGE AND HANDLING

Best Management Practices:

- Follow all product label directions for use, storage and disposal.
- Use in accordance with all applicable Federal and State guidelines and laws.
- Maintain a log of chemical usage at the facility. Logs and records must be available for inspection by FDACS.

B. SPILL MANAGEMENT

Best Management Practices:

- Immediately contain and dispose of spilled or leaking materials by utilizing barriers and/or absorbent material such as activated charcoal, cat litter, dry sand, or soil in accordance with manufacturers' recommendations and/or State and Federal laws.
- No spills or leaks shall be left unattended.

For additional information about chemical usage, copies of additional chemical data please contact FDACS, at (850) 617-7600.

C. DRUG USAGE AND HANDLING

There is a limited number of Food and Drug Administration (FDA) approved drugs and therapeutants available to treat aquatic animals. For current information, contact a licensed veterinarian or visit the Aquatic Animal Drug Approval Partnership website at: <http://www.fws.gov/fisheries/aadap/home.htm>.

Best Management Practices:

- All drugs, therapeutic substances, and antibiotics must be used, applied, stored, or disposed only as directed by an FDA approved product label or as prescribed by a Florida licensed veterinarian.
- Drugs may not be used or prescribed for extra-label use when the drug label prohibits extra-label use.
- Maintain a log of drug usage at the facility.

XVIII. AQUATIC ANIMAL WELFARE

Successful aquatic animal husbandry demands that animals be held in optimal environments and fed a high quality diet. Aquatic animals intended for human consumption shall be quickly prepared for rapid processing. Euthanasia, slaughter, or depopulation shall be performed quickly and in a manner to limit the stress to the animal. Aquatic animals reared for stocking in public waters shall be transported under optimal environmental conditions.

Best Management Practices:

- Pursuant to Humane Euthanasia of Livestock, Rule Chapter 5C-25, F.A.C., only humane methods may be used for the euthanasia of aquaculture species.
- Comply with the provisions of Cruelty to Animals, Section 828.12, F.S.
- Comply with Aquaculture Best Management Practices, Chapter XV. Preventing Wildlife Depredation.
- Comply with Aquaculture Best Management Practices, Chapter XVI. Shipment, Transportation, and Sale.
- Comply with Aquaculture Best Management Practices, Chapter XVII. Aquaculture Chemical and Drug Handling.
- For more information, see <https://www.avma.org/kb/policies/documents/euthanasia.pdf>

XIX. APPENDIX

Aquaculture Authority

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THIS SECTION CAN BE USED AS A CROSS REFERENCE GUIDE FOR THE SPECIFIC
BMPS REQUIRED BY A PARTICULAR SPECIES OR SYSTEM.

BMP REQUIREMENTS

Alligators/

Aquatic Turtles:

Chapter II- Compliance Monitoring
Chapter III- Federal Permitting
Chapter IV- Water Resources
Chapter V- Construction
Chapter VI- Containment
Chapter XIII- Health Management
Chapter XIV- Disposal of Dead Animals
Chapter XV- Preventing Wildlife Depredation
Chapter XVI- Shipment, Transportation and Sale
Chapter XVII- Aquaculture Chemical and Drug Handling
Chapter XVIII- Aquatic Animal Welfare

Aquatic plants:

Chapter II- Compliance Monitoring
Chapter III- Federal Permitting
Chapter IV- Water Resources
Chapter V- Construction
Chapter XII- Aquatic plants
Chapter XIII- Health Management
Chapter XVI- Shipment, Transportation and Sale
Chapter XVII- Aquaculture Chemical and Drug Handling

Aquatic Snails:

Chapter II- Compliance Monitoring
Chapter III- Federal Permitting
Chapter IV- Water Resources
Chapter V- Construction
Chapter VI- Containment
Chapter XIII- Health Management
Chapter XIV- Disposal of Dead Animals
Chapter XV- Preventing Wildlife Depredation
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Clams/Shellfish:	Chapter II- Compliance Monitoring Chapter III- Federal Permitting Chapter IV- Water Resources Chapter V- Construction Chapter X- Shellfish Culture Chapter XIII- Health Management Chapter XIV- Disposal of Dead Animals Chapter XVI- Shipment, Transportation and Sale Chapter XVII- Aquaculture Chemical and Drug Handling Chapter XVIII- Aquatic Animal Welfare
Hybrid Striped Bass:	Chapter II- Compliance Monitoring Chapter III- Federal Permitting Chapter IV- Water Resources Chapter V- Construction Chapter XIII- Health Management Chapter XIV- Disposal of Dead Animals Chapter XV- Preventing Wildlife Depredation Chapter XVI- Shipment, Transportation and Sale Chapter XVII- Aquaculture Chemical and Drug Handling Chapter XVIII- Aquatic Animal Welfare
Live Rock:	Chapter II- Compliance Monitoring Chapter III- Federal Permitting Chapter IV- Water Resources Chapter V- Construction Chapter XI- Live Rock and Marine Life Culture Chapter XVI- Shipment, Transportation and Sale

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Ponds:	Chapter V- Construction Follow IFAS Guidelines Follow NRCS Guidelines
Raceways:	Chapter IV- Water Resources
Recirculating Water Systems:	Chapter IV- Water Resources
Saltwater/ Marine Systems:	Chapter II- Compliance Monitoring Chapter III- Federal Permitting Chapter IV- Water Resources Chapter V- Construction Chapter VI- Containment Chapter VIII- Penaeid Shrimp Culture Chapter X- Shellfish Culture Chapter XI- Live Rock and Marine Life Culture

Chapter XIII- Health Management
Chapter XVI- Shipment, Transportation and Sale
Chapter XVII- Aquaculture Chemical and Drug Handling
Chapter XVIII- Aquatic Animal Welfare

Shrimp:

Chapter II - Compliance Monitoring
Chapter III - Federal Permitting
Chapter IV- Water Resources
Chapter V- Construction
Chapter VI- Containment
Chapter VIII- Penaeid Shrimp Culture
Chapter XIII- Health Management
Chapter XIV- Disposal of Dead Animals
Chapter XV- Preventing Wildlife Depredation
Chapter XVI- Shipment, Transportation and Sale
Chapter XVII- Aquaculture Chemical and Drug Handling
Chapter XVIII- Aquatic Animal Welfare

Sturgeon:

Chapter II- Compliance Monitoring
Chapter III- Federal Permitting
Chapter IV- Water Resources
Chapter V- Construction
Chapter IX- Sturgeon Culture
Chapter XIII- Health Management
Chapter XIV- Disposal of Dead Animals
Chapter XV- Preventing Wildlife Depredation
Chapter XVI- Shipment, Transportation and Sale
Chapter XVII- Aquaculture Chemical and Drug Handling
Chapter XVIII- Aquatic Animal Welfare

Tilapia:

Chapter II- Compliance Monitoring
Chapter III- Federal Permitting
Chapter IV- Water Resources
Chapter V- Construction
Chapter VI- Containment
Chapter XIII- Health Management
Chapter XIV- Disposal of Dead Animals
Chapter XV- Preventing Wildlife Depredation
Chapter XVI- Shipment, Transportation and Sale
Chapter XVII- Aquaculture Chemical and Drug Handling
Chapter XVIII- Aquatic Animal Welfare

RESOURCES FOR AQUACULTURE INFORMATION

Florida Department of Agriculture and Consumer Services-
Division of Aquaculture
Florida Department of Agriculture and Consumer Services
Holland Building, Suite 217
600 South Calhoun Street
Tallahassee, Florida 32399
(850) 617-7600
www.FreshFromFlorida.com

Division of Agricultural Environmental Services
Florida Department of Agriculture and Consumer Services
3125 Conner Blvd., Suite E
Tallahassee, Florida 32399-1650
(850) 617-7900
www.FreshFromFlorida.com

Division of Food Safety-Bureau of Food and Meat Inspection
Florida Department of Agriculture and Consumer Services
3125 Conner Blvd., Suite H
Tallahassee, Florida 32399-1650
(850) 245-5520
www.FreshFromFlorida.com

Division of Plant Industry
1911 SW 34th Street
Gainesville, Florida 32608-1201
(352) 395-4700
www.FreshFromFlorida.com

Florida State Veterinarian's Office
Florida Department of Agriculture and Consumer Services
Division of Animal Industry
407 South Calhoun Street, Mayo Building,
Room 330, Tallahassee, Florida 32399
(850) 410-0900

Natural Resources Conservation Service (NRCS) Area Offices-
State Office
P.O. Box 141510
Gainesville, Florida 32614-1510

(352) 338-9500

Area 1 Administrative Office
4155 Hollis Drive
Marianna, Florida 32448-2708
(850) 482-2002

Area 2 Administrative Office
2080 S.W. Main Blvd.
Lake City, Florida 32025-4212
(386) 755-5100

Area 3 Administrative Office
324 8th Avenue, West, Suite 104
Palmetto, FL 34221
(941) 729-6804 5700

Area 4 Administrative Office
420 South State Road 7, Suite 160
Royal Palm Beach, FL 33414-4306
(561) 792-2727 ext 3

University of Florida (IFAS)-
Tropical Aquaculture Laboratory
(ornamental fish, general aquaculture, nonnative species, aquatic animal health)
1408 24th Street, Southeast
Ruskin, Florida 33570
(813) 671-5230
(813) 671-5234 FAX

Cedar Key Field Station (shellfish)
P.O. Box 89
Cedar Key, Florida 32625
(352) 543-5057
(352) 543-6958

Fisheries and Aquatic Sciences Program
(shellfish, general aquaculture, aquatic animal health)
7922 Northwest 71st Street
Gainesville, Florida 32606
(352) 273-3672
Fax:(352)-392-3672

United States Department of Agriculture, Animal and Plant Health Inspection
Service, Veterinary Services (USDA APHIS VS)
Animal Health
8100 NW 15th Place
Gainesville, FL 32606
Phone: (352) 415-4050
Fax: (352) 313-3063

United States Department of Agriculture, Animal and Plant Health Inspection
Service, Wildlife Services (USDA APHIS WS)
Florida Wildlife Services State Director
2820 East University Avenue
Gainesville, FL 32641
Phone: (352) 377-5556
Toll Free: 1-866-4USDAWS
FAX: (352) 377-5559

United States Department of Agriculture, Animal and Plant Health Inspection
Service, Plant Protection Quarantine (USDA APHIS PPQ)
State Plant Health Director
8100 NW 15th Place
Gainesville, FL 32606
Phone: (352) 313-3040
Fax: (352) 313-3041

Florida Fish and Wildlife Commission Regional Offices-

Northwest Region
3911 Highway 2321
Panama City, Florida 32409-1658
(850) 265-3676
24-Hour Law Enforcement: (850) 245-7710

North Central Region
3377 E. US Highway 90
Lake City, Florida 32055
(386) 758-0525
24-Hour Law Enforcement: (850) 758-0529

Northeast Region
1239 S.W. 10th Street
Ocala, Florida 34474-2797

(352) 732-1225
24-Hour Law Enforcement: (352) 732-1228

Southwest Region
3900 Drane Field Road
Lakeland, Florida 33811-1299
(863) 648-3203
24-Hour Law Enforcement (863) 648-3200

South Region
8535 Northlake Boulevard
West Palm Beach, Florida 33412
(561) 625-5122
24-Hour Law Enforcement: (561) 625-5122

Monroe and Collier County 24-Hour Law Enforcement
(305) 289-2320

U.S. Fish and Wildlife Service District Offices-
6620 Southpoint Drive S, Suite 310
Jacksonville, Florida 32216
(904) 232-2580

1601 Balboa Avenue
Panama City, Florida 32405
(850) 769-0552

1339 20th Street
Vero Beach, Florida 32960
(772) 562-3909

Water Management District Offices-
Northwest District
Rt. 1 Box 3100
Havana, Florida 32333-9700
(850) 539-5999

St. Johns River District
P.O. Box 1429
Palatka, Florida 32178-1429
1 (800) 725-5922

Suwannee River District
9225 County Road 49
Live Oak, Florida 32060
1 (800) 226-1066

South Florida District
3301 Gun Club Road
West Palm Beach, Florida 33416-4680
1 (800) 432-2045

Southwest Florida District
U.S. Highway 41 South
Brooksville, Florida 34609-6899
1 (800) 423-1476

Department of Environmental Protection- District Offices

Northwest District
160 Governmental Center
Pensacola, Florida 32501-5794
(850) 444-8300

Northeast District
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256-7590
(904) 448-4300

Central District
33319 Maguire Boulevard, Suite 232
Orlando, Florida 32803-3767
(407) 894-7555

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619-8318
(813) 744-6100

South District
2295 Victoria Avenue, Suite 364
Fort Myers, Florida 33901
(941) 332-6975

Southeast District

400 North Congress Avenue
West Palm Beach, Florida 33401
(561) 681-6600

U.S. Army Corps of Engineers, District Offices-
Jacksonville District Regulatory Office – SAMOP-S
P.O. Box 4970
Jacksonville, Florida 32232-0019
(904) 232-1666

Chapter 5A-3, Florida Administrative Code

Agricultural and Fish Hatchery Use of Firecrackers (text is as of date of publication, see <https://www.flrules.org/> for latest version)

5A-3.001 Application to Sheriff for Use of Firecrackers.

5A-3.002 Acquisition of Firecrackers.

5A-3.001 Application to Sheriff for Use of Firecrackers.

Any person who is engaged in agricultural works or who operates a fish hatchery may use firecrackers solely and exclusively for the purpose of frightening birds from doing harm to any such person's agricultural works for fish hatchery operation; provided that any such person shall first file with the sheriff of the county in which he is engaged in agricultural works or the operation of a fish hatchery a statement in writing that he is engaged in agricultural works, describing the nature of such, or that he operates a fish hatchery, describing the nature of such, and desires to use firecrackers to frighten birds from harming his agricultural works or his fish hatchery operation and that firecrackers will be used solely and exclusively for that purpose.

Specific Authority 791.07 FS. Law Implemented 791.07 FS. History - Repromulgated 12-31-74, Amended 12-21-75, Formerly 5A-3.01.

5A-3.002 Acquisition of Firecrackers.

Any person may acquire from any authorized person firecrackers for purposes state in Section 5A-3.001, F.A.C., upon presenting a copy of his statement filed with the sheriff.

Specific Authority 791.07 FS. Law Implemented 791.07 FS. History - Repromulgated 12-31-74, Amended 12-21-75, Formerly 5A-3.02.

AQUACULTURE AUTHORITY
Rule 5B-64.011, Florida Administrative Code
Prohibited Aquatic Plants

(text is as of date of publication, see <https://www.flrules.org> for latest version)

- (1) Class I Prohibited Aquatic Plants -- Under no circumstances will these species be permitted for possession, collection, transportation, cultivation, and importation except as provided in Rule 5B-64.004, F.A.C.:

SCIENTIFIC NAMES

Alternanthera philoxeroides
Casuarina spp.
Crassula helmsii
Eichhornia spp.
Hydrilla verticillata

Ipomoea aquatica
Ipomoea fistulosa
Lagarosiphon spp.
Limnocharis flava
Lythrum salicaria
Melaleuca quinquenervia
Mimosa pigra
Monochoria hastata
Monochoria vaginalis
Myriophyllum spicatum
Nechamandra alternifolia
Oryza rufipogon
Pontederia rotundifolia
Salvinia spp., (excluding *S. minima*)
Schinus terebinthifolius
Sparganium erectum
Stratiotes aloides
Trapa spp.
Vossia cuspidata

COMMON NAMES

Alligatorweed, green lead plant
Australian Pine
Swamp stone crop
Waterhyacinth
Hydrilla, Florida elodea, stargrass, oxygen grass
Water spinach

African elodea
Sawah flowing rush
Purple loosestrife
Melaleuca
Giant sensitive plant, cat's claw

Eurasian watermilfoil

Wild Red rice
Tropical pickerelweed

Brazilian-pepper
Exotic bur-reed
Water-aloe, soldier plant
Water chestnut
Hippo grass

- (2) Class II Prohibited Aquatic Plants -- These species are considered to be highly invasive and noxious in localized areas of the State of Florida. These plants may be cultured in a nursery regulated by the Department of Agriculture and Consumer Services pursuant to s. 581.031, 581.131, and 581.145, F.S., and shall only be sold out of state upon approval by the Department of Agriculture and Consumer Services. These species shall not be

imported or collected from the wild. They must be contained in such a manner so as to prevent the dissemination from the nursery premises.

SCIENTIFIC NAMES

Hygrophila polysperma
Limnophila sessiliflora
Pistia stratiotes

COMMON NAME

Hygro
Ambulia
Waterlettuce

- (3) The department is authorized to designate additional plants to be prohibited by emergency order as provided in Rule 5B-64.012, F.A.C.
- (4) The prohibited aquatic plant list comprises the most recent and accepted scientific and common names of the prohibited aquatic plant species. However, the prohibited status also applies to any synonyms.
- (5) The department is authorized to consider a plant for inclusion on the prohibited plant list when it displays, or when there is scientific evidence to believe it could display in the Florida environment, one or more of the following characteristics:
 - (a) The tendency to spread or become invasive in an ecosystem, sometimes in a rapid manner, so as to impair the ecosystems ability to function by altering its productivity, decomposition, water fluxes, nutrient cycling and loss, soil fertility, erosion, dissolved oxygen concentrations, or its ability to maintain its existing species diversity.
 - (b) The propensity to invade and disrupt aquatic and wetland ecosystems in other areas or in other countries with climates similar to that of Florida.
 - (c) The ability to create dense, monospecific stands or monotypic stands which displace or destroy native plant habitat, destroy fish and wildlife habitats, inhibit water circulation, hinder navigation and irrigation, or severely restrict the recreational use of waterways.
 - (d) The ability to resist effective management by present technology or available management agents so that only extraordinary efforts, such as repeated chemical treatments at high dosage rates, can bring about effective management.

Specific Authority 369.25, 369.251 FS.

Law Implemented 369.25, 369.251 FS.

History - New 8-11-86, Amended 6-13-93, Formerly 16C-52.011, 62C-52.011.

Rule 68-5.001, Florida Administrative Code
Introduction of Non-Native Aquatic Species in the Waters of the State
(text is as of date of publication, see <https://www.flrules.org/> for latest version)

- (1) No person shall transport into the state, introduce, or possess for any purpose that might be reasonably expected to result in liberation into the waters of the state, any freshwater fish, aquatic invertebrate, marine plant, marine animal, or wild animal life not native to the state, without having secured a permit from the Commission, except:
- (a) Fathead or tuffey minnow (*Pimephales promelas*).
- (b) Variable platy (*Xiphophorus variatus*).

Introduction of Non-Native Aquatic Species in the Waters of the State. Rulemaking Authority Art. IV, Sec. 9, Fla. Const. Law Implemented Art. IV, Sec. 9, Fla. Const. History—New 6-7-07, Amended 8-23-10.

Rule 68-5.002, Florida Administrative Code
Conditional Non-native Species.

Live specimens of the following species, including their taxonomic successors, subspecies, or hybrids or eggs thereof may be possessed only pursuant to permit issued by the Executive Director except as provided in subsection 68-5.001(3), F.A.C.

- (1) Non-native freshwater fish and aquatic invertebrate species.
- (a) Bighead carp (*Aristichthys nobilis*).
- (b) Bony-tongue fishes (Family Arapaimidae).
1. Arapaima (*Arapaima gigas*).
2. Heterotis (*Heterotis niloticus*).
- (c) Dorados (Genus *Salminus*, all species).
- (d) Freshwater stingrays (Family Potamotrygonidae, all species).
- (e) Grass carp (*Ctenopharyngodon idella*), with restrictions as provided in Rule 68A-23.088, F.A.C.
- (f) Silver carp (*Hypophthalmichthys molitrix*).
- (g) Snail or black carp (*Mylopharyngodon piceus*).
- (h) Nile perches (Genus *Lates*, all species). For owners of aquaculture facilities that are operating under permit or a certificate of registration, but which are not cultivating Nile perches as of April 11, 2007, and for owners of aquaculture facilities which are issued original permits or certificates of registration after April 11, 2007, Nile perches:
1. Shall be held only in indoor facilities.
2. Shall not be taken on a fee or for-hire basis using hook and line or rod and reel.
- (i) Blue tilapia (*Oreochromis aureus*), except that *Oreochromis aureus* may be possessed, cultured, and transported without permit in Citrus County in the North Central Region; and all counties of the Northeast, South and Southwest Regions.
- (j) Wami tilapia (*Oreochromis urolepis*).
- (k) Mozambique tilapia (*Oreochromis mossambicus*)
- (l) Nile tilapia (*Oreochromis niloticus*)
- (m) Walking catfish (*Clarias batrachus*)

- (n) Blue catfish (*Ictalurus furcatus*), except that blue catfish may be possessed in the Suwannee River and its tributaries and north and west of the Suwannee River.
- (o) Australian red claw crayfish (*Cherax quadricarinatus*) only in closed tank culture systems.
- (p) Red swamp crayfish (*Procambarus clarkii*) and white river crayfish (*Procambarus zonangulus*)
 - 1. Pond aquaculture of either species is prohibited.
 - 2. Red swamp crayfish and white river crayfish may be possessed west of the Apalachicola River and its tributaries or imported for direct sale to food wholesalers and food retailers for resale to consumers without permit.
- (q) Arowanas (Family Osteoglossidae, all species except silver arowana, *Osteoglossum bicirrhosum*).
- (r) Northern largemouth bass (*Micropterus salmoides salmoides*), except that intergrade largemouth bass (northern largemouth bass x Florida largemouth bass *Micropterus salmoides floridanus*) may be possessed in the Suwannee River and its tributaries and north and west of the Suwannee River.
- (2) Non-native mammals – Nutria (*Myocaster coypus*).
- (3) Non-native turtles. Red-eared slider (*Trachemys scripta elegans*): red-eared sliders may be possessed only by permitted individuals or commercial import or export businesses according to the provisions of paragraph 68-5.001(3)(d), F.A.C., except as provided below:
 - (a) Red-eared sliders in personal possession prior to July 1, 2007 may continue in the possession of the owner without a permit, except that red-eared sliders less than four inches carapace length may not be possessed after July 1, 2008 without a permit.
 - (b) Red-eared sliders with distinctive aberrant color patterns, including albino or amelanistic specimens, may be possessed without a permit otherwise required by this rule.

Rulemaking Authority Art. IV, Sec. 9, Fla. Const., Law Implemented Art. IV, Sec. 9, Fla. Const., History-New 6-7-07, Amended 7-1-10, 8-23-10.

68-5.003, Florida Administrative Code Prohibited Non-native Species.

Live specimens of the following species, including their taxonomic successors, subspecies, or hybrids or eggs thereof may be possessed only pursuant to permit issued by the Executive Director except as provided in subsection 68-5.001(4), F.A.C.

- (1) Non-native freshwater aquatic species:
 - (a) African electric catfishes (Family Malapteruridae, all species).
 - (b) African tigerfishes (Genus *Hydrocynus*, all species).
 - (c) Airbreathing catfishes (Family Clariidae, all species except *Clarias batrachus*).
 - (d) Candiru catfishes (Family Trichomycteridae, all species).
 - (e) Freshwater electric eels (*Electrophorus electricus*).
 - (f) Lampreys (Family Petromyzontidae, all species).
 - (g) All species of piranha and pirambeba (subfamily Serrasalminae).
 - (h) Snakeheads (Family Channidae, all species).
 - (i) Tilapias (Genera *Tilapia*, *Sarotherodon*, *Alcolapia* and *Oreochromis*, all species except *Oreochromis aureus*, *Oreochromis urolepis*, *Oreochromis mossambicus*, and *Oreochromis niloticus*).
 - (j) Trahiras or Tigerfishes (Family Erythrinidae, all species).

- (k) Airsac catfishes (Family Heteropneustidae, all species).
- (l) Green sunfish (*Lepomis cyanellus*).
- (m) Australian crayfish (Genus *Cherax*, all species except *Cherax quadricarinatus* cultured in a closed tank system.
- (n) Zebra mussel (*Dreissena polymorpha*).
- (o) Quagga mussel (*Dreissena bugensis*).
- (2) Non-native mammals – African giant pouched rats (Genus *Cricetomys*, all species).
- (3) Non-native marine species:
 - (a) Mitten crab (Genus *Eriocheir*, all species).
 - (b) Sea snakes (Family Hydrophiidae, all species), except that sea snakes may be possessed as described in subsection 68-5.001(4)(a)6., F.A.C.
 - (c) Weeverfishes (Family Trachinidae, all species).
 - (d) Stone fishes (Genus *Synanceia*, all species).
 - (e) Genus *Synanceia*, all species.
 - (f) Pitted stonefish (*Erosa erosa*).
 - (g) Red rock cod (*Scorpaena papillosa*).
 - (h) Stonefish (*Leptosynanceia asteroblepa*).
 - (i) Stargazing stonefish (*Trachicephalus uranoscopus*).

Rulemaking Authority Art. IV, Sec. 9, Fla. Const. Law Implemented Art. IV, Sec. 9, Fla. Const. History—New 6-7-07, Amended 7-1-10, 8-26-10.

Section 379.26, Florida Statutes
Illegal importation or possession of nonindigenous marine plants and animals;
rules and regulations.

(text is as of date of publication, see <http://www.leg.state.fl.us> for latest version)

- (1) It is unlawful to import or possess any marine plant or marine animal, not indigenous to the state, which, due to the stimulating effect of the waters of the state on procreation, may endanger or infect the marine resources of the state or pose a human health hazard, except as provided in this section.
- (2) Marine animals not to be imported shall include, but are not limited to, all species of the following:
 - (a) Sea snakes (Family Hydrophiidae), except as provided in subsection (4);
 - (b) Weeverfishes (Family Trachinidae); and
 - (c) Stonefishes (Genus *Synanceja*).
- (3) The Fish and Wildlife Conservation Commission is authorized to adopt, pursuant to chapter 120, rules and regulations to include any additional marine plant or marine animal which may endanger or infect the marine resources of the state or pose a human health hazard.
- (4) A zoological park and aquarium may import sea snakes of the family Hydrophiidae for exhibition purposes only under the following conditions:
 - (a) Only male sea snakes may be possessed.
 - (b) A zoological park and aquarium possessing sea snakes shall not be located in a coastal county and shall have no contiguous connection with any waters of the state.
 - (c) Each zoological park and aquarium possessing sea snakes shall provide quarterly reports to the department regarding the number of each species of sea snakes on the premises and any changes in inventory resulting from death or additions by importation.
 - (d) Sea snakes shall not be released into the waters of the state.
 - (e) Each zoological park and aquarium possessing sea snakes shall post with the commission a \$1 million letter of credit. The letter of credit shall be in favor of the State of Florida, Fish and Wildlife Conservation Commission, for use by the

commission to remove any sea snake accidentally or intentionally introduced into waters of the state. The letter of credit shall be written in the form determined by the commission. The letter of credit shall provide that the zoological park and aquarium is responsible for the sea snakes within that facility and shall be in effect at all times that the zoological park and aquarium possesses sea snakes.

- (f) A zoological park and aquarium shall not barter, sell, or trade sea snakes within this state.
 - (g) A zoological park and aquarium that imports sea snakes may bring the sea snakes into this state only by airplane that may only land at an airport located in a noncoastal county within this state.
 - (h) A zoological park and aquarium possessing sea snakes shall abide by all statutory and regulatory requirements of the Fish and Wildlife Conservation Commission with respect to venomous reptiles.
- (5) It is unlawful to release into the waters of the state any nonindigenous saltwater species whether or not included in subsection (2) or prohibited by rules and regulations adopted pursuant to subsection (3) or authorized by subsection (4).
 - (6) Any person who violates this section commits a Level Three violation under s. 379.401.

History.—s. 1, ch. 71-68; s. 1, ch. 77-65; s. 1, ch. 92-60; s. 220, ch. 94-356; s. 11, ch. 98-333; s. 102, ch. 99-245; s. 7, ch. 2006-304; s. 90, ch. 2008-247; s. 10, ch. 2010-185.

Note.—Former s. 370.081.

CHAPTER 597 AQUACULTURE

(text is as of date of publication, see <http://www.leg.state.fl.us> for latest version)

- 597.001 Florida Aquaculture Policy Act; short title.
- 597.0015 Definitions.
- 597.002 Legislative declaration of public policy respecting aquaculture.
- 597.0021 Legislative intent.
- 597.003 Powers and duties of Department of Agriculture and Consumer Services.
- 597.004 Aquaculture certificate of registration.
- 597.0041 Prohibited acts; penalties.
- 597.0045 Cultured shellfish theft reward program.
- 597.005 Aquaculture Review Council.
- 597.010 Shellfish regulation; leases.
- 597.020 Shellfish processors; regulation.
- 597.001 Florida Aquaculture Policy Act; short title.**--This chapter may be cited as the "Florida Aquaculture Policy Act."

History.--s. 1, ch. 84-90; s. 1, ch. 93-152.

597.0015 Definitions.--For purposes of this chapter, the following terms shall have the following meanings:

- (1) "Aquaculture" means the cultivation of aquatic organisms.
- (2) "Aquaculture producers" means those persons engaging in the production of aquaculture products and certified under s. 597.004.
- (3) "Aquaculture products" means aquatic organisms and any product derived from aquatic organisms that are owned and propagated, grown, or produced under controlled conditions. Such products do not include organisms harvested from the wild for depuration, wet storage, or relay for purification.

- (4) "Commissioner" means the Commissioner of Agriculture.
- (5) "Department" means the Department of Agriculture and Consumer Services.

History.--s. 7, ch. 91-187; s. 23, ch. 96-247; s. 10, ch. 99-390.

597.002 Legislative declaration of public policy respecting aquaculture.--The Legislature declares that aquaculture is agriculture and, as such, the Department of Agriculture and Consumer Services shall be the primary agency responsible for regulating aquaculture, any other law to the contrary notwithstanding. The only exceptions are those areas required by federal law, rule, or cooperative agreement to be regulated by another agency. The Legislature declares that, in order to effectively support the growth of aquaculture in this state, there is a need for a state aquaculture plan that will provide for the coordination and prioritization of state aquaculture efforts and the conservation and enhancement of aquatic resources and will provide mechanisms for increasing aquaculture production which may lead to the creation of new industries, job opportunities, income for aquaculturists, and other benefits to the state. The state aquaculture plan shall guide the research and development of the aquaculture industry. Funds designated by the Legislature for aquaculture research and development or for contracting for aquaculture research and development shall be used to address the projects and activities designated in the state aquaculture plan. Any entity receiving legislative funding for aquaculture research and development programs shall report annually to the department all activities related to aquaculture to facilitate coordination and compliance with the state aquaculture plan.

History.--s. 2, ch. 84-90; s. 3, ch. 90-92; s. 8, ch. 91-187; s. 24, ch. 96-247; s. 24, ch. 98-333.

597.0021 Legislative intent.--

- (1) It is the intent of the Legislature to enhance the growth of aquaculture in this state, while protecting Florida's environment.
- (2) It is also the intent of the Legislature to give the department the duty to coordinate and assist the development of aquaculture.
- (3) It is the intent of the Legislature that the Aquaculture Review Council is established to provide a means of communication between the aquaculture industry and the regulatory agencies.

History.--s. 1, ch. 87-367; s. 4, ch. 90-92; s. 9, ch. 91-187; s. 29, ch. 91-201; ss. 2, 6, ch. 93-152; s. 25, ch. 96-247, ch. 2012-190.

597.003 Powers and duties of Department of Agriculture and Consumer Services.--

- (1) The department is hereby designated as the lead agency in encouraging the development of aquaculture in the state and shall have and exercise the following functions, powers, and duties with regard to aquaculture:
- (a) Issue or deny aquaculture certificates that identify aquaculture producers and aquaculture products, and collect all related fees.
 - (b) Coordinate the development, annual revision, and implementation of a state aquaculture plan. The plan shall include prioritized recommendations for research and development as suggested by the Aquaculture Review Council and public and private institutional research, extension, and service programs.
 - (c) Develop memoranda of agreement, as needed, with the Department of Environmental Protection, the Fish and Wildlife Conservation Commission, the Florida Sea Grant Program, and other groups as provided in the state aquaculture plan.
 - (d) Provide staff for the Aquaculture Review Council.
 - (e) Forward the annually revised state aquaculture plan to the commissioner and to the chairs of the House Committee on Agriculture and Consumer Services and the Senate Committee on Agriculture 1 month prior to submission of the department's legislative budget request to the Governor.
 - (f) Submit the list of research and development projects proposed to be funded through the department as identified in the state aquaculture plan, along with the department's legislative budget request to the Governor, the President of the Senate, and the Speaker of the House of Representatives. If funded, these projects shall be contracted for by the Division of Aquaculture and shall require public-private partnerships, when appropriate. The contracts shall require a percentage of the profit generated by the project to be deposited into the General Inspection Trust Fund solely for funding aquaculture projects recommended by the Aquaculture Review Council.
 - (g) Provide developmental assistance to the various sectors of the aquaculture industry as determined in the state aquaculture plan.
 - (h) Assist persons seeking to engage in aquaculture when applying for the necessary permits and serve as ombudsman to resolve complaints or otherwise resolve problems arising between aquaculture producers and regulatory agencies.

- (i) Develop and propose to the Legislature legislation necessary to implement the state aquaculture plan or to otherwise encourage the development of aquaculture in the state.
 - (j) Issue or deny any license or permit authorized or delegated to the department by the Legislature or through memorandum of understanding with other state or federal agencies that furthers the intent of the Legislature to place the regulation of aquaculture in the department.
 - (k) Make available state lands and the water column for the purpose of producing aquaculture products when the aquaculture activity is compatible with state resource management goals, environmental protection, and proprietary interest and when such state lands and waters are determined to be suitable for aquaculture development by the Board of Trustees of the Internal Improvement Trust Fund pursuant to s. 253.68; provide training as necessary to lessees; and be responsible for all saltwater aquaculture activities located on sovereignty submerged land or in the water column above such land and adjacent facilities directly related to the aquaculture activity.
1. The department shall act in cooperation with other state and local agencies and programs to identify and designate sovereignty lands and waters that would be suitable for aquaculture development.
 2. The department shall identify and evaluate specific tracts of sovereignty submerged lands and water columns in various areas of the state to determine where such lands and waters are suitable for leasing for aquaculture purposes. Nothing in this subparagraph or subparagraph 1. shall preclude the applicant from applying for sites identified by the applicant.
 3. The department shall provide assistance in developing technologies applicable to aquaculture activities, evaluate practicable production alternatives, and provide agreements to develop innovative culture practices.
 - (1) Act as a clearinghouse for aquaculture applications, and act as a liaison between the Fish and Wildlife Conservation Commission, the Division of State Lands, the Department of Environmental Protection district offices, other divisions within the Department of Environmental Protection, and the water management districts. The Department of Agriculture and Consumer Services shall be responsible for regulating marine aquaculture producers, except as specifically provided herein.
 - (2) The department may employ such persons as are necessary to perform its duties under this chapter.

History.--s. 3, ch. 84-90; s. 1, ch. 86-111; s. 5, ch. 87-367; s. 2, ch. 88-377; s. 10, ch. 91-187; s. 3, ch. 93-152; s. 467, ch. 94-356; s. 26, ch. 96-247; s. 25, ch. 98-333; s. 225, ch. 99-245; s. 25, ch. 2000-364; s. 38, ch. 2001-63; s. 47, ch. 2012-190; s. 153, ch. 2014-150.

597.004 Aquaculture certificate of registration.--

- (1) **CERTIFICATION.**--Any person engaging in aquaculture must be certified by the department. The applicant for a certificate of registration shall submit the following to the department:
- (a) Applicant's name/title.
 - (b) Company name.
 - (c) Complete mailing address.
 - (d) Legal property description of all aquaculture facilities.
 - (e) Actual physical street address for each aquaculture facility.
 - (f) Description of production facilities.
 - (g) Aquaculture products to be produced.
 - (h) An annual registration fee of \$100. The annual registration fee is waived for each elementary, middle, or high school and each vocational school that participates in the aquaculture certification program.
 - (i) Documentation that the rules adopted herein have been complied with in accordance with paragraph (2)(a).
 - (j) A certificate of training, if required under the best management practices adopted pursuant to this section.

(2) RULES.--

- (a) The department, in consultation with the Department of Environmental Protection, the water management districts, environmental groups, and representatives from the affected farming groups, shall adopt rules to:
 - 1. Specify the requirement of best-management practices to be implemented by holders of aquaculture certificates of registration.

2. Establish procedures for holders of aquaculture certificates of registration to submit the notice of intent to comply with best-management practices.
 3. Establish schedules for implementation of best-management practices, and of interim measures that can be taken prior to adoption of best-management practices. Interim measures may include the continuation of regulatory requirements in effect on June 30, 1998.
 4. Establish a system to assure the implementation of best-management practices, including recordkeeping requirements.
- (b) Rules adopted pursuant to this subsection shall become effective pursuant to the applicable provisions of chapter 120, but must be submitted to the President of the Senate and the Speaker of the House of Representatives for review by the Legislature. The rules shall be referred to the appropriate committees of substance and scheduled for review during the first available regular session following adoption. Except as otherwise provided by operation of law, such rules shall remain in effect until rejected or modified by act of the Legislature.
- (c) Notwithstanding any provision of law, the Department of Environmental Protection is not authorized to institute proceedings against any person certified under this section to recover any costs or damages associated with contamination of groundwater or surface water, or the evaluation, assessment, or remediation of contamination of groundwater or surface water, including sampling, analysis, and restoration of potable water supplies, where the contamination of groundwater or surface water is determined to be the result of aquaculture practices, provided the holder of an aquaculture certificate of registration:
1. Provides the department with a notice of intent to implement applicable best-management practices adopted by the department;
 2. Implements applicable best management practices as soon as practicable according to rules adopted by the department; and
 3. Implements practicable interim measures identified and adopted by the department which can be implemented immediately, or according to rules adopted by the department.
- (d) There is a presumption of compliance with state groundwater and surface water standards if the holder of an aquaculture certificate of registration implements best management practices that have been verified by the Department of Environmental Protection to be effective at representative sites and complies with the following:

1. Provides the department with a notice of intent to implement applicable best management practices adopted by the department;
 2. Implements applicable best management practices as soon as practicable according to rules adopted by the department; and
 3. Implements practicable interim measures identified and adopted by the department which can be implemented immediately, or according to rules adopted by the department.
- (e) This section does not limit federally delegated regulatory authority.
- (f) Any aquatic plant producer permitted by the department pursuant to s. 369.25 shall also be subject to the requirements of this section.
- (g) Any alligator producer with an alligator farming license and permit to establish and operate an alligator farm shall be issued an aquaculture certificate of registration pursuant to this section. This chapter does not supersede the authority under chapter 379 to regulate alligator farms and alligator farmers.
- (3) FEES.--Effective July 1, 1997, all fees collected pursuant to this section shall be deposited into the General Inspection Trust Fund in the Department of Agriculture and Consumer Services.
- (4) IDENTIFICATION OF AQUACULTURE PRODUCTS.--Aquaculture products shall be identified while possessed, processed, transported, or sold as provided in this subsection.
- (a) Aquaculture products shall be identified by an aquaculture certificate of registration number from harvest to point of sale. Any person who possesses aquaculture products must show, by appropriate receipt, bill of sale, bill of lading, or other such manifest where the product originated.
 - (b) Marine aquaculture products shall be transported in containers that separate such product from wild stocks, and shall be identified by tags or labels that are securely attached and clearly displayed.
 - (c) Each aquaculture registrant who sells food products labeled as "aquaculture or farm raised" must have such products containerized and clearly labeled in accordance with s. 500.11. Label information must include the name, address, and aquaculture certification number. This requirement is designed to segregate the identity of wild and aquaculture products.
- (5) SALE OF AQUACULTURE PRODUCTS.--

- (a) Aquaculture products, except shellfish, snook, and any fish of the genus *Micropterus*, and prohibited and restricted freshwater and marine species identified by rules of the Fish and Wildlife Conservation Commission, may be sold by an aquaculture producer certified pursuant to this section without restriction so long as product origin can be identified.
- (b) Aquaculture shellfish must be sold and handled in accordance with s. 597.020.

(6) **REGISTRATION AND RENEWALS.--**

- (a) Each aquaculture producer must apply for an aquaculture certificate of registration with the department and submit the appropriate fee. Upon department approval, the department shall issue the applicant an aquaculture certificate of registration for a period not to exceed 1 year. Beginning July 1, 1997, and each year thereafter, each aquaculture certificate of registration must be renewed with fee, pursuant to this chapter, on July 1.
- (b) The department shall send notices of registration to all aquaculture producers of record requiring them to register for an aquaculture certificate. Renewal notices shall be sent to the registrant 60 days preceding the termination date of the certificate of registration. Prior to the termination date, the registrant must return a completed renewal form with fee, pursuant to this chapter, to the department.
- (c) Any person whose certificate of registration has been revoked or suspended must reapply to the department for certification.

History.--s. 27, ch. 96-247; s. 54, ch. 97-98; s. 26, ch. 98-333; s. 11, ch. 99-390; s. 78, ch. 2000-158; s. 27, ch. 2000-364; s. 9, ch. 2008-107; s. 76, ch. 2009-21; s. 48, ch. 2012-190; s. 154, ch. 2014-150.

597.0041 Prohibited acts; penalties.--

- (1) It is unlawful for an aquaculture registrant to:
 - (a) Commingle in the same container any shellfish aquaculture product with any wild product;
 - (b) Transport by vessel over water both wild and aquaculture products of the same species at the same time; or
 - (c) Violate any provision of this chapter or chapter 500.

- (2) (a) A person who violates this chapter or any rule adopted under this chapter is subject to a suspension or revocation of his or her certificate of registration or license under this chapter. The department may, in lieu of or in addition to the suspension or revocation, impose on the violator an administrative fine in the Class I category pursuant to s. 570.971 for each violation, for each day the violation exists.
- (b) Except as provided in subsection (4), a person who violates this chapter or any rule adopted under this chapter commits a misdemeanor of the first degree, punishable as provided in s. 775.082 or s. 775.083.
- (3) Any person certified under this chapter who has been convicted of taking aquaculture species raised at a certified facility shall have his or her certificate revoked for 5 years by the Department of Agriculture and Consumer Services pursuant to the provisions and procedures of s. 120.60.
- (4) Any person who violates any provision of s. 597.010 or s. 597.020, or any rule adopted under those sections, commits a misdemeanor of the second degree, punishable as provided in s. 775.082 or s. 775.083 for the first offense; and for the second or any subsequent offense within a 12-month period, commits a misdemeanor of the first degree, punishable as provided in s. 775.082 or s. 775.083.

History.—s. 28, ch. 96-247; s. 12, ch. 99-390; s. 28, ch. 2000-364; s. 39, ch. 2001-63; s. 155, ch. 2014-150.

597.0045 Cultured shellfish theft reward program.—There is created a cultured shellfish theft reward program, to be administered by the department, for the purpose of granting rewards to persons who provide information leading to the arrest and conviction of individuals illegally possessing, harvesting, or attempting to harvest cultured shellfish.

- (1) Each person who provides information leading to the arrest and conviction of an individual or individuals for illegally possessing, harvesting, or attempting to harvest cultured shellfish and for whom the respective state attorney notifies the department of such assistance, in writing, shall be eligible for a reward of up to \$2,500; except that law enforcement officers and department personnel, and members of their immediate families, shall not be eligible for rewards under the program. The department shall, by rule, establish a graduated reward payout schedule.
- (2) The General Inspection Trust Fund of the department may be used for the cultured shellfish theft reward program, for deposit of general revenue funds and donations received from interested individuals, and for granting rewards to persons who provide information leading to the arrest and conviction of persons illegally possessing, harvesting, or attempting to harvest cultured shellfish. The granting of rewards shall be subject to legislative appropriations to fund the program.

- (3) The department may promote the cultured shellfish theft reward program to provide for public recognition of the rewards and to improve compliance with laws prohibiting illegal possession and harvesting of cultured shellfish.

History.--s. 13, ch. 99-390.

597.005 Aquaculture Review Council.--

- (1) **COMPOSITION.**--There is created within the department the Aquaculture Review Council to consist of eight members as follows: the chair of the State Agricultural Advisory Council or designee and seven additional members to be appointed by the commissioner, including an alligator farmer, a food fish farmer, a shellfish farmer, a tropical fish farmer, an aquatic plant farmer, a representative of the commercial fishing industry, and a representative of the aquaculture industry at large. Members shall be appointed for 4-year terms. Each member shall be selected from no fewer than two or more than three nominees submitted by recognized statewide organizations representing each industry segment or the aquaculture industry at large. In the absence of nominees, the commissioner shall appoint persons who otherwise meet the qualifications for appointment to the council. Members shall serve until their successors are duly qualified and appointed. An appointment to fill a vacancy shall be for the unexpired portion of the term.
- (2) **MEETINGS; PROCEDURES; RECORDS.**--
 - (a) The members of the council shall meet at least quarterly; shall elect a chair, a vice chair, and a secretary; and shall use accepted rules of procedure. The terms of such officers shall be for 1 year.
 - (b) The council shall meet at the call of its chair, at the request of a majority of its membership, at the request of the department, or at such times as may be prescribed by its rules of procedure.
 - (c) A majority of the members of the council constitutes a quorum for all purposes, and an act by a majority of such quorum at any meeting constitutes an official act of the council.
 - (d) The council secretary shall keep a complete record of the proceedings of each meeting, which record shall include the names of the members present and the actions taken. Such records shall be kept on file with the department, and these records and other documents about matters within the jurisdiction of the council shall be subject to inspection by the members of the council.

- (3) **RESPONSIBILITIES.**--The primary responsibilities of the Aquaculture Review Council are to:
- (a) Formulate and recommend to the commissioner rules and policies governing the business of aquaculture by studying and evaluating aquacultural issues.
 - (b) Provide aquaculture industry recommendations for research and development to be included in the annual revision of the state aquaculture plan.
 - (c) Submit to the commissioner on an annual basis:
 - 1. A prioritized list of research projects to be included in the department's legislative budget request. Each year, the council shall review the aquaculture legislative budget requests submitted to the department and rank them according to the state aquaculture plan.
 - 2. Recommendations to be forwarded to the Speaker of the House of Representatives and the President of the Senate on legislation needed to help the aquaculture industry.
 - 3. Recommendations on aquaculture projects, activities, research, and regulation and other needs to further the development of the aquaculture industry.
 - (d) On a quarterly basis, review and discuss problems that serve as barriers to the growth and development of aquaculture.
 - (e) Assist the department in carrying out duties identified in s. 597.003 by studying aquaculture issues and making recommendations for regulating and permitting aquaculture and in the development, revision, and implementation of the state aquaculture plan.
 - (f) Provide input to the department to perform studies, identify needs, research issues, write reports, record actions and meetings of the council and, in general, conduct the business of the council.
 - (g) Receive input from state agencies and public and private institutions on aquaculture research, service, development, and regulatory needs.
 - (h) For any problem that cannot be solved through simple cooperation or negotiation, provide an issue analysis to the chairs of the legislative agriculture committees. The analysis shall include, but not be limited to, specific facts and industry

hardships, regulatory provisions, questions relative to the issue, and suggestions for solving the problem.

- (i) Provide the Governor, the President of the Senate, the Speaker of the House of Representatives, and the chairs of legislative committees having primary jurisdiction over either the subject of aquaculture or the budget of the Department of Agriculture and Consumer Services, by August 1 of each year, a list of prioritized research needs critical to development of the aquaculture industry.

History.--ss. 5, 8, ch. 84-90; s. 7, ch. 87-367; ss. 3, 5, 6, ch. 88-377; s. 5, ch. 90-92; s. 11, ch. 91-187; ss. 4, 6, ch. 93-152; s. 29, ch. 96-247; s. 27, ch. 98-333; s. 29, ch. 2000-364; s. 58, ch. 2011-206; s. 49, ch. 2012-190.

597.010 Shellfish regulation; leases.--

- (1) **LEASE, APPLICATION FORM.**--When any qualified person desires to lease a part of the bottom, water column, or bed of any of the water of this state for the purpose of growing oysters or clams, as provided for in this section, he or she shall present to the department a written application pursuant to s. 253.69.
- (2) **LANDS TO BE LEASED.**--The lands leased shall be as compact as possible, taking into consideration the shape of the body of water and the condition of the bottom as to hardness, or soft mud or sand, or other conditions that would render the bottoms desirable or undesirable for the purpose of oyster or clam cultivation.
- (3) **SURVEYS, PLATS, AND MAPS OF REEFS.**--The department shall accept, adopt, and use official reports, surveys, and maps of oyster, clam, or other shellfish grounds made under the direction of any authority of the United States as prima facie evidence of the natural oyster and clam reefs and beds, for the purpose and intent of this chapter. The department may also make surveys of any natural oyster or clam reefs or beds when it deems such surveys necessary and where such surveys are made pursuant to an application for a lease, the cost thereof may be charged to the applicant as a part of the cost of his or her application.
- (4) **EXECUTION OF LEASES; LESSEE TO STAKE OFF BOUNDARIES; PENALTY FOR FAILURE TO COMPLY WITH REGULATIONS.**--When a survey of the lands to be leased has been completed pursuant to s. 253.69 and filed with the department, and the cost thereof paid by the applicant, the department may execute in duplicate a lease of the water bottoms to the applicant. One duplicate, with a plat or map of the water bottoms so leased, shall be delivered to the applicant, and the other, with a plat or map of the bottom so leased, shall be retained by the department and registered in a lease book which shall be kept exclusively for that purpose by the department; thereafter the lessees shall enjoy the exclusive use of the lands and all oysters and clams, shell, and cultch grown or placed

thereon shall be the exclusive property of such lessee as long as he or she shall comply with the provisions of this chapter and chapter 253. The department shall require the lessee to stake off and mark the water bottoms leased, by such ranges, monuments, stakes, buoys, etc., so placed and made as not to interfere with the navigation, as it may deem necessary to locate the same to the end that the location and limits of the lands embraced in such lease be easily and accurately found and fixed, and such lessee shall keep the same in good condition during the open and closed oyster or clam season. All leases shall be marked according to the standards set forth in s. 253.72. The department may stipulate in each individual lease contract the types, shape, depth, size, and height of marker or corner posts. Failure on the part of the lessee to comply with the orders of the department to this effect within the time fixed by it, and to keep the markers, etc., in good condition during the open and closed oyster or clam season, shall subject such lessee to a fine not exceeding \$100 for each and every such offense.

(5) **LEASES IN PERPETUITY; RENT.--**

(a) All leases issued previously under the provisions of s. 379.2525 shall be enforced under the authority of this chapter, notwithstanding any other law to the contrary, and shall continue in perpetuity under such restrictions as stated in the lease agreement. The annual rental fee charged for all leases shall consist of the minimum rate of \$15 per acre, or any fraction of an acre, per year and shall be adjusted on January 1, 1995, and every 5 years thereafter, based on the 5-year average change in the Consumer Price Index. Rent shall be paid in advance of January 1 of each year or in the case of a new lease at the time of signing, regardless of who holds the lease.

(b) All fees collected under this subsection and subsection (6) shall be deposited in the General Inspection Trust Fund and shall be used for shellfish aquaculture activities.

(6) **FORFEITURE FOR NONPAYMENT.--**All leases shall stipulate that failure to timely pay the rent on or before January 1 of each year shall cause the department, at its discretion, to terminate and cancel the lease after the department has given the lessee 30 days' written notice of the nonpayment. If after receiving the notice the lessee chooses to keep the lease, the lessee shall pay the rental fee plus a \$50 late fee within the 30-day period. After the 30-day notice has expired, the department may take possession of the lease and all improvements, assets, clams, and oysters thereon.

(7) **SURCHARGE FOR IMPROVEMENT OR REHABILITATION.--**A surcharge of \$10 per acre, or any fraction of an acre, per annum shall be levied upon each lease, other than a perpetual lease granted pursuant to chapter 370 prior to 1985, and deposited into the General Inspection Trust Fund. The purpose of the surcharge is to provide a mechanism to have financial resources immediately available for improvement of lease areas and for

cleanup and rehabilitation of abandoned or vacated lease sites. The department is authorized to adopt rules necessary to carry out the provisions of this subsection.

- (a) Moneys in the fund that are not needed currently for cleanup and rehabilitation of abandoned or vacated lease sites shall be deposited with the Chief Financial Officer to the credit of the fund and may be invested in such manner as is provided for by statute. Interest received on such investment shall be credited to the fund.
- (b) Funds within the General Inspection Trust Fund from receipts from the surcharge established in this section shall be disbursed for the following purposes and no others:
 - 1. Administrative expenses, personnel expenses, and equipment costs of the department related to the improvement of lease areas, the cleanup and rehabilitation of abandoned or vacated aquaculture lease sites, and the enforcement of provisions of this section.
 - 2. All costs involved in the improvement of lease areas and the cleanup and rehabilitation of abandoned or vacated lease sites.
 - 3. All costs and damages which are the proximate results of lease abandonment or vacation.
 - 4. Reward payments made pursuant to s. 597.0045.

The department shall recover to the use of the fund from the person or persons abandoning or vacating the lease, jointly and severally, all sums owed or expended from the fund.

(8) CULTIVATION REQUIREMENTS.--

- (a) Effective cultivation shall consist of the growing of the oysters or clams in a density suitable for commercial harvesting over the amount of bottom prescribed by law. This commercial density shall be accomplished by the planting of seed oysters, shell, and cultch of various descriptions. The department may stipulate in each individual lease contract the types, shape, depth, size, and height of cultch materials on lease bottoms according to the individual shape, depth, location, and type of bottom of the proposed lease. Each lessee leasing lands under the provisions of this section or s. 253.71 shall begin, within 1 year after the date of such lease, bona fide cultivation of the same, and shall, by the end of the second year after the commencement of such lease, have placed under cultivation at least one-half of the leased area and shall each year thereafter place in cultivation at

least one-fourth of the leased area until the whole, suitable for bedding of oysters or clams, shall have been put in cultivation. The cultivation requirements for perpetuity leases granted pursuant to chapter 370 prior to 1985 under previously existing law shall comply with the conditions stated in the lease agreement, and the lessee or grantee is authorized to plant the leased or granted submerged land in both oysters and clams.

- (b) These stipulations apply to all leases granted after the effective date of this section. All leases existing prior to the effective date of this section will operate under the law that was in effect when the leases were granted.
 - (c) When evidence is gathered by the department and such evidence conclusively shows a lack of effective cultivation, the department may revoke leases and return the bottoms in question to the public domain.
 - (d) The department has the authority to adopt rules pertaining to the water column over shellfish leases. All cultch materials in place 6 months after the formal adoption and publication of rules establishing standards for cultch materials on shellfish leases that do not comply with such rules may be declared a nuisance by the department. The department has the authority to direct the lessee to remove such cultch in violation of this section. The department may cancel a lease upon the refusal by the lessee violating such rules to remove unlawful cultch materials, and all improvements, cultch, marketable oysters, and shell shall become the property of the state. The department has the authority to retain, dispose of, or remove such materials in the best interest of the state.
- (9) **LEASES TRANSFERABLE, ETC.**--The leases in chapters 253 and former chapter 370 shall be inheritable and transferable, in whole or in part, and shall also be subject to mortgage, pledge, or hypothecation and shall be subject to seizure and sale for debts as any other property, rights, and credits in this state, and this provision shall also apply to all buildings, betterments, and improvements thereon. Leases granted under this section cannot be transferred, by sale or barter, in whole or in part, without the written, express approval of the department, and such a transferee shall pay a \$50 transfer fee before department approval may be given. Leases inherited or transferred will be valid only upon receipt of the transfer fee and approval by the department. The department shall keep proper indexes so that all original leases and all subsequent changes and transfers can be easily and accurately ascertained.
- (10) **CANCELLATION OF LEASES TO NATURAL REEFS OR BEDS.**--Any person, within 6 months after the execution of any lease, may file a petition with the department for the purpose of determining whether a natural oyster or clam reef or bed having an area of not less than 100 square yards existed within the leased area on the date of the lease, with sufficient natural or maternal oysters or clams thereon (not including coon

oysters) to have constituted a stratum sufficient to have been resorted to by the public generally for the purpose of gathering the same to sell for a livelihood. The petition shall be in writing addressed to the department, verified under oath, stating the location and approximate area of the natural reef or bed and the claim or interest of the petitioner therein and requesting the cancellation of the lease to the natural reef or bed. A petition may not be considered unless it is accompanied by a deposit of \$500 to defray the expense of the department's investigation of the matter. Upon receipt of such petition, the department shall cause an investigation to be made into the truth of the allegations of the petition, and, if found untrue, the \$500 deposit shall be retained by the department to defray the expense of the investigation, but should the allegations of the petition be found true and the leased premises to contain a natural oyster or clam reef or bed, as described in this subsection, the \$500 deposit shall be returned to the petitioner and the costs and expenses of the investigation taxed against the lessee and the lease canceled to the extent of the natural reef or bed and the same shall be marked with buoys and stakes and notices placed thereon showing the same to be a public reef or bed, the cost of the markers and notices to be taxed against the lessee.

(11) WHEN NATURAL REEFS OR BEDS MAY BE INCLUDED IN LEASE.--

- (a) When an application for a submerged land lease for cultivating shellfish is filed, and when a resource survey of such lands identifies natural oyster or clam reefs or beds, the department shall determine if such reefs and beds are to be included in the leased area. The department, if it deems it to be in the best interest of the state, may include such natural reefs or beds in a lease. In those cases where a natural area is included in a lease, the department shall fix a reasonable value on the same, to be paid by the applicant for lease of such submerged land. No natural reefs shall be included in any shellfish or aquaculture lease granted in Franklin County.
- (b) The department shall determine and settle all disputes as to boundaries between lessees. The department shall, in all cases, determine whether a particular submerged land area contains a natural reef or bed or whether it is suitable for raising oysters or clams.

(12) FRANKLIN COUNTY LEASES.--On and after the effective date of this section, the only leases available in Franklin County shall be those issued pursuant to ss. 253.67-253.75; former chapter 370 leases shall no longer be available. The department shall require in the lease agreement such restrictions as it deems necessary to protect the environment, the existing leaseholders, and public fishery.

(13) TRESPASS ON LEASED BEDS; PROTECTION OF LEASE AREAS.--

- (a) Any person who willfully takes oysters, shells, cultch, or clams bedded or planted by a licensee under this chapter, or grantee under the provisions of heretofore existing laws, or riparian owner who may have heretofore planted the same on his or her riparian bottoms, or any oysters or clams deposited by anyone making up a cargo for market, or who willfully carries or attempts to carry away the same without permission of the owner thereof, or who willfully or knowingly removes, breaks off, destroys, or otherwise injures or alters any stakes, bounds, monuments, buoys, notices, or other designations of any natural oyster or clam reefs or beds or private bedding or propagating grounds, or who willfully injures, destroys, or removes any other protection around any oyster or clam reefs or beds, or who willfully moves any bedding ground stakes, buoys, marks, or designations placed by the department, commits a violation of this section.
 - (b) Harvesting shellfish is prohibited within a distance of 25 feet outside lawfully marked lease boundaries or within setback and access corridors within specifically designated high-density aquaculture lease areas and aquaculture use zones.
- (14) **SHELLFISH DEVELOPMENT.**-- The department, in cooperation with the Fish and Wildlife Conservation Commission and the Department of Environmental Protection, shall protect all clam beds, oyster beds, shellfish grounds, and oyster reefs from damage or destruction resulting from improper cultivation, propagation, planting, or harvesting. To this end, the Department of Health is authorized and directed to cooperate with the department and to make available its laboratory testing facilities and apparatus.
- (15) **SPECIAL ACTIVITY LICENSES.**--The department is authorized to issue special activity licenses, in accordance with s. 597.020, to permit the harvest or cultivation of oysters, clams, mussels, and crabs.
- (16) **STAKING OFF WATER BOTTOMS OR BEDDING OYSTERS WITHOUT OBTAINING LEASE.**--Any person staking off the water bottoms of this state, or bedding oysters on the bottoms of the waters of this state, without previously leasing same as required by law commits a violation of this section, and shall acquire no rights by reason of such staking off. This provision does not apply to grants heretofore made under the provisions of any heretofore existing laws or to artificial beds made heretofore by a riparian owner or his or her grantees on the owner's riparian bottoms.
- (17) **SHELLFISH HARVESTING FROM SOVEREIGN SUBMERGED LAND LEASES; USE OF DREDGE OR MECHANICAL HARVESTING DEVICE.**--
- (a) As used in this subsection, the term:

1. "Dredge or mechanical harvesting device" means a dredge, scrape, rake, drag, or other device that is towed by a vessel or self-propelled and that is used to harvest shellfish. The term does not include handheld or handdrawn hydraulically or mechanically operated devices used to harvest cultured clams from leased sovereign submerged lands, and this subsection does not apply to such handheld or handdrawn devices.

2. "Shellfish" means oysters, clams, mussels, and scallops.

(b) The harvesting of shellfish from a sovereign submerged land lease may be authorized pursuant to chapter 253.

(c) The Board of Trustees of the Internal Improvement Trust Fund may authorize the use of a dredge or a mechanical harvesting device as a special lease condition of a sovereign submerged land lease issued under chapter 253 if:

1. The use of the dredge or mechanical harvesting device does not adversely impact the public health, safety, or welfare of adjacent natural resources; and

2. Aquaculture best management practices have been adopted pursuant to chapter 120 which:

a. Describe the approved size and specifications of the dredge or mechanical harvesting device to be used.

b. Provide conditions for deploying and using an approved dredge or mechanical harvesting device.

c. Specify requirements for monitoring potential impacts at, and adjacent to, the sovereign submerged land lease site by the leaseholder.

(d) The use of a dredge or mechanical harvesting device for the harvesting of shellfish from a sovereign submerged land lease is authorized if such use was previously authorized as an existing condition of a perpetual shellfish lease issued pursuant to former chapter 370.

(e) Only one dredge or mechanical harvesting device per lease may be possessed or operated at any time at a lease site.

(f) A dredge or mechanical harvesting device authorized by this subsection may not be used for taking shellfish for any purpose from public shellfish beds in waters of the state, and such dredge or mechanical harvesting device may not be possessed on the waters of the state from 5 p.m. until sunrise.

(g) This subsection does not authorize the harvesting of shellfish from natural reefs.

A violation of this subsection is a violation of the lease agreement and will result in the revocation of all leases held by the violator and denial of any future use of sovereign submerged land.

(18) FISHING FOR RELAYING OR TRANSPLANTING PURPOSES.--

- (a) The department may designate areas for the taking of oysters and clams to be planted on public areas. Oysters, clams, and mussels may be taken for relaying or transplanting at any time during the year so long as, in the opinion of the department, the public health will not be endangered. The amount of oysters, clams, and mussels to be obtained for relaying or transplanting shall be established by the Fish and Wildlife Conservation Commission. The area relayed or transplanted to, and relaying or transplanting time periods shall be established in each case by the department.
- (b) Application for a special activity license issued pursuant to subsection (15) for obtaining oysters, clams, or mussels for relaying from closed public shellfish harvesting areas to open areas or certified controlled purification plants or for transplanting sublegal-sized oysters, clams, or mussels must be made to the department. In return, the department may assign an area and a period of time for the oysters, clams, or mussels to be relayed or transplanted to be taken. All relaying and transplanting operations shall take place under the direction of the department.
- (c) Relayed oysters, clams, or mussels shall not be subsequently harvested for any reason without written permission or public notice from the department.

(19) OYSTER AND CLAM REHABILITATION.--The board of county commissioners may appropriate and expend such sums as it may deem proper for the purpose of planting or transplanting oysters, clams, oyster shell, clam shell, or cultch or to perform such other acts for the enhancement of the oyster and clam industries of the state, out of any sum in the county treasury not otherwise appropriated.

(20) COOPERATION WITH UNITED STATES FISH AND WILDLIFE SERVICE.--The department shall cooperate with the United States Fish and Wildlife Service, under existing federal laws, rules, and regulations, and is authorized to accept donations, grants, and matching funds from the Federal Government in order to carry out its oyster resource and development responsibilities. The department is further authorized to accept any and all donations including funds, oysters, or oyster shells.

(21) OYSTER AND CLAM SHELLS PROPERTY OF DEPARTMENT.--

- (a) Except for oysters used directly in the half-shell trade, 50 percent of all shells from oysters and clams shucked commercially in the state shall be and remain the property of the department when such shells are needed and required for rehabilitation projects and planting operations, in cooperation with the Fish and Wildlife Conservation Commission, when sufficient resources and facilities exist for handling and planting such shells, and when the collection and handling of such shells is practicable and useful, except that bona fide holders of leases and grants may retain 75 percent of such shells as they produce for aquacultural purposes. Storage, transportation, and planting of shells so retained by lessees and grantees shall be carried out under the conditions of the lease agreement or with the written approval of the department and shall be subject to such reasonable time limits as the department may fix. In the event of an accumulation of an excess of shells, the department is authorized to sell shells only to private growers for use in oyster or clam cultivation on bona fide leases and grants. No profit shall accrue to the department in these transactions, and shells are to be sold for the estimated moneys spent by the department to gather and stockpile the shells. Planting of shells obtained from the department by purchase shall be subject to the conditions set forth in the lease agreement or in the written approval as issued by the department. Any shells not claimed and used by private oyster cultivators 10 years after shells are gathered and stockpiled may be sold at auction to the highest bidder for any private use.
- (b) If the department determines that it is unfeasible to collect oyster or clam shells, the shells become the property of the producer.
- (c) If oyster or clam shells are owned by the department and it is not useful or feasible to use them in the rehabilitation projects, and if a leaseholder has not exercised his or her option to acquire them, the department may sell such shells for the highest price obtainable. Such shells may be used in any manner and for any purpose at the discretion of the purchaser.
- (d) Moneys derived from the sale of shell shall be deposited in the General Inspection Trust Fund for shellfish programs.
- (e) The department may publish notice, in a newspaper serving the county, of its intention to collect the oyster and clam shells and shall notify, by certified mail, each shucking establishment from which shells are to be collected. The notice shall contain the period of time the department intends to collect the shells in that county and the collection purpose.

(22) REQUIREMENTS FOR OYSTER OR CLAM VESSELS.--

- (a) All vessels used for the harvesting, gathering, or transporting of oysters or clams for commercial purposes shall be constructed and maintained to prevent contamination or deterioration of shellfish. To this end, all such vessels have bottoms and bulkheads fore and aft to prevent onboard shellfish from coming in contact with any bilge water. Dogs or other animals are not allowed at any time on vessels used to harvest or transport shellfish. A violation of this subsection will, at a minimum result in the revocation of the violator's license.
- (b) For the purpose of this subsection, "harvesting, gathering, or transporting of oysters or clams for commercial purposes" means to harvest, gather, or transport oysters or clams with the intent to sell and shall apply to a quantity of two or more bags of oysters per vessel or more than one 5-gallon bucket of unshucked hard clams per person or more than two 5-gallon buckets of unshucked hard clams per vessel. 31, ch. 2000-364; s. 741, ch. 2003-261; s. 203, ch. 2008-247; s. 77, ch. 2009-21; s. 1, ch. 2016-200.

History.--s.

597.020 Shellfish processors; regulation.--

- (1) The department may:
 - (a) Adopt by rule regulations, specifications, training requirements, and codes relating to sanitary practices for catching, cultivating, handling, processing, packaging, preserving, canning, smoking, and storing oysters, clams, mussels, scallops, and crabs.
 - (b) License shellfish processors who handle oysters, clams, mussels, callops, and crabs when such actiities relate to quality control, sanitary, and public health practices pursuant to this section and chapter 500.
 - (c) License or certify, for a fee determined by rule, facilities used for processing oysters, clams, mussels, scallops, and crabs, and my levy an administrative fine in the Class 1 category pursuant to s. 570.971 for each violation, for each day the violation exists, ¹or suspend or revoke such licenses or certificates upon satisfactory evidence of a violation of rules adopted pursuant to this section, ²and seize and destroy any adulterated or misbranded shellfish products as defined by rule.
- (2) A shellfish processing plant certification license is required to operate any facility in which oysters, clams, mussels, scallops, or crabs are processed, including but not limited to: an oyster, clam, mussel, or scallop cannery; a shell stock dealership; an oyster, clam, mussel, or scallop shucking plant; an oyster, clam, mussel, or scallop repacking plant; an oyster, clam, mussel, or scallop controlled purification plant; or a crab or soft-shell crab processing or shedding plant.

- (3) The department may suspend or revoke any shellfish processing plant certification license upon satisfactory evidence that the licensee has violated any regulation, specification, or code adopted under this section and may seize and destroy any shellfish product which is defined by rule to be an adulterated or misbranded shellfish product.
- (4) Any license or certification authorized and issued under this chapter shall automatically expire on June 30 of each year.

History.--s. 1, ch. 65-110; ss. 25, 35, ch. 69-106; s. 6, ch. 83-134; s. 2, ch. 84-121; ss. 4, 5, ch. 86-219; ss. 5, 19, ch. 86-240; s. 218, ch. 94-356; s. 13, ch. 96-247; s. 44, ch. 99-245; s. 32, ch. 2000-364; s. 42, ch. 2002-295; s. 156, ch. 2014-150; s. 72, ch. 2015-2.

¹**Note.**--The word "to" following the word "or" was deleted by the editors for clarity.

²**Note.**--The word "to" following the word "and" was deleted by the editors for clarity.

Note.--Former s. 370.071.

CHAPTER 791

SALE OF FIREWORKS

(text is as of date of publication, see <http://www.leg.state.fl.us> for latest version)

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- 791.055 Restrictions upon storage of sparklers.
- 791.06 Penalties.
- 791.07 Agricultural and fish hatchery use.

791.001 Application and enforcement.--This chapter shall be applied uniformly throughout the state. Enforcement of this chapter shall remain with local law enforcement departments and officials charged with the enforcement of the laws of the state.

History.--s. 6, ch. 87-118.

791.01 Definitions.--As used in this chapter, the term:

- (1) "Distributor" means any person engaged in the business of selling sparklers to a wholesaler.
- (2) "Division" means the Division of the State Fire Marshal of the Department of Financial Services.

- (3) "Explosive compound" means any chemical compound, mixture, or device the primary or common purpose of which is to function by the substantially instantaneous release of gas and heat.
- (4) (a) "Fireworks" means and includes any combustible or explosive composition or substance or combination of substances or, except as hereinafter provided, any article prepared for the purpose of producing a visible or audible effect by combustion, explosion, deflagration, or detonation. The term includes blank cartridges and toy cannons in which explosives are used, the type of balloons which require fire underneath to propel them, firecrackers, torpedoes, skyrockets, roman candles, dago bombs, and any fireworks containing any explosives or flammable compound or any tablets or other device containing any explosive substance.
- (b) "Fireworks" does not include sparklers approved by the division pursuant to s. 791.013; toy pistols, toy canes, toy guns, or other devices in which paper caps containing twenty-five hundredths grains or less of explosive compound are used, providing they are so constructed that the hand cannot come in contact with the cap when in place for the explosion; and toy pistol paper caps which contain less than twenty hundredths grains of explosive mixture, the sale and use of which shall be permitted at all times.
- (c) "Fireworks" also does not include the following novelties and trick noisemakers:
1. A snake or glow worm, which is a pressed pellet of not more than 10 grams of pyrotechnic composition that produces a large, snakelike ash which expands in length as the pellet burns and that does not contain mercuric thiocyanate.
 2. A smoke device, which is a tube or sphere containing not more than 10 grams of pyrotechnic composition that, upon burning, produces white or colored smoke as the primary effect.
 3. A trick noisemaker, which is a device that produces a small report intended to surprise the user and which includes:
 - a. A party popper, which is a small plastic or paper device containing not more than 16 milligrams of explosive composition that is friction sensitive, which is ignited by pulling a string protruding from the device, and which expels a paper streamer and produces a small report.

- b. A booby trap, which is a small tube with a string protruding from both ends containing not more than 16 milligrams of explosive compound, which is ignited by pulling the ends of the string, and which produces a small report.
- c. A snapper, which is a small, paper-wrapped device containing not more than four milligrams of explosive composition coated on small bits of sand, and which, when dropped, explodes, producing a small report. A snapper may not contain more than 250 milligrams of total sand and explosive composition.
- d. A trick match, which is a kitchen or book match which is coated with not more than 16 milligrams of explosive or pyrotechnic composition and which, upon ignition, produces a small report or shower of sparks.
- e. A cigarette load, which is a small wooden peg that has been coated with not more than 16 milligrams of explosive composition and which produces, upon ignition of a cigarette containing one of the pegs, a small report.
- f. An auto burglar alarm, which is a tube which contains not more than 10 grams of pyrotechnic composition that produces a loud whistle or smoke when ignited and which is ignited by use of a squib. A small quantity of explosive, not exceeding 50 milligrams, may also be used to produce a small report.

The sale and use of items listed in this paragraph are permitted at all times.

- (5) "Manufacturer" means any person engaged in the manufacture or construction of sparklers in this state.
- (6) "Retailer" means any person who, at a fixed place of business, is engaged in selling sparklers to consumers at retail.
- (7) "Seasonal retailer" means any person engaged in the business of selling sparklers at retail in this state from June 20 through July 5 and from December 10 through January 2 of each year.
- (8) "Sparkler" means a device which emits showers of sparks upon burning, does not contain any explosive compounds, does not detonate or explode, is hand held or ground based, cannot propel itself through the air, and contains not more than 100 grams of the

chemical compound which produces sparks upon burning. Any sparkler that is not approved by the division is classified as fireworks.

- (9) "Wholesaler" means any person engaged in the business of selling sparklers to a retailer.

History.--s. 1, ch. 20445, 1941; s. 1, ch. 57-338; s. 1, ch. 84-201; s. 1, ch. 87-118; s. 36, ch. 89-233; s. 1906, ch. 2003-261.

791.012 Minimum fireworks safety standards.--The outdoor display of fireworks in this state shall be governed by the National Fire Protection Association (NFPA) 1123, Code for Fireworks Display, 1995 Edition, approved by the American National Standards Institute. Any state, county, or municipal law, rule, or ordinance may provide for more stringent regulations for the outdoor display of fireworks, but in no event may any such law, rule, or ordinance provide for less stringent regulations for the outdoor display of fireworks. The division shall promulgate rules to carry out the provisions of this section. The Code for Fireworks Display shall not govern the display of any fireworks on private, residential property and shall not govern the display of those items included under s. 791.01(4)(b) and (c) and authorized for sale thereunder.

History.--s. 1, ch. 96-285.

791.013 Testing and approval of sparklers; penalties.--

- (1) A person who wishes to sell sparklers must submit samples of his or her product to the division for testing to determine whether it is a sparkler as defined in s. 791.01. Such samples must be received by the division by September 1 to be considered for approval the following year. On February 1 of each year the division shall approve those products which it has tested and found to meet the requirements for sparklers. All approved sparkler products are legal for sale until January 31 of the following year. The list of approved sparkler products shall be published in the Florida Administrative Register and shall prominently state the dates between which the products may be sold. The division shall make copies of this list available to the public. A product must be tested and approved for sale in accordance with the rules adopted to implement this section. Beginning February 1, 1988, only those products approved by the Division of Investigative and Forensic Services may be sold in the state. The State Fire Marshal shall adopt rules describing the testing, approval, and listing procedures.
- (2) Any person who alters an approved sparkler product, so that it is no longer a sparkler as defined in s. 791.01, and subsequently sells the product as if it were approved is guilty of a misdemeanor of the first degree, punishable as provided in s. 775.082 or s. 775.083. Any person who fraudulently represents a device as approved for sale as a sparkler product when it is not so approved is guilty of a misdemeanor of the first degree, punishable as provided in s. 775.082 or s. 775.083.

- (3) For purposes of the testing requirement by this section, the division shall perform such tests as are necessary to determine compliance with the performance standards in the definition of sparklers, pursuant to s. 791.01. The State Fire Marshal shall adopt, by rule, procedures for testing products to determine compliance with this chapter. The Division of Investigative and Forensic Services shall dispose of any samples which remain after testing.

History.--s. 2, ch. 87-118; s. 21, ch. 93-276; s. 1222, ch. 97-102; s. 58, ch. 2013-14; s. 38, ch. 2016-165.

791.015 Registration of manufacturers, distributors, wholesalers, and retailers of sparklers.--

- (1) **REGISTRATION REQUIREMENTS.**--Any manufacturer, distributor, wholesaler, retailer, or seasonal retailer of sparklers who wishes to do business in this state or to otherwise sell, ship, or assign for sale its products in this state must register annually with the division on forms prescribed by the division. Any retailer who sells sparklers at more than one retail location may submit one registration form for all such locations but must provide the address of each location with the registration form; however, any retailer may submit multiple registration forms.
- (2) **REGISTRATION FORM.**--The registration form filed with the division must be notarized and must include the following information: business name; address; telephone number; officers, if the business is a corporation; and an individual designated as a contact person.
- (3) **FEES.**--
 - (a) Each manufacturer, distributor, or wholesaler must pay an annual registration fee to be set by the division not to exceed \$1,000. Each seasonal retailer must pay an annual registration fee to be set by the division not to exceed \$200. Each retailer shall pay an annual registration fee to be set by the division not to exceed \$15 for each retail location registered. Each certificate holder wishing to have a duplicate certificate issued for one which is lost or to reflect a change of address shall request such duplicate in writing and shall pay a fee of \$5.
 - (b) Revenue from registration fee payments shall be deposited in the Insurance Regulatory Trust Fund for the purposes of implementing the registration and testing provisions of this chapter.
- (4) **RULES.**--The State Fire Marshal may adopt rules prescribing registration forms required by this section.

History.--s. 3, ch. 87-118; s. 37, ch. 89-233; s. 21, ch. 2000-370; s. 1907, ch. 2003-261.

791.02 Sale of fireworks regulated; rules and regulations.--

- (1) Except as hereinafter provided it is unlawful for any person, firm, copartnership, or corporation to offer for sale, expose for sale, sell at retail, or use or explode any fireworks; provided that the board of county commissioners shall have power to adopt reasonable rules and regulations for the granting of permits for supervised public display of fireworks by fair associations, amusement parks, and other organizations or groups of individuals when such public display is to take place outside of any municipality; provided, further, that the governing body of any municipality shall have power to adopt reasonable rules and regulations for the granting of permits for supervised public display of fireworks within the boundaries of any municipality. Every such display shall be handled by a competent operator to be approved by the chiefs of the police and fire departments of the municipality in which the display is to be held, and shall be of such a character, and so located, discharged, or fired as in the opinion of the chief of the fire department, after proper inspection, shall not be hazardous to property or endanger any person. Application for permits shall be made in writing at least 15 days in advance of the date of the display. After such privilege shall have been granted, sales, possession, use, and distribution of fireworks for such display shall be lawful for that purpose only. No permit granted hereunder shall be transferable.
- (2) A sparkler or other product authorized for sale under this chapter may not be sold by a retailer or seasonal retailer unless the product was obtained from a manufacturer, distributor, or wholesaler registered with the division pursuant to s. 791.015. Each retailer and seasonal retailer shall keep, at every location where sparklers are sold, a copy of an invoice or other evidence of purchase from the manufacturer, distributor, or wholesaler, which states the registration certificate number for the particular manufacturer, distributor, or wholesaler and the specific items covered by the invoice. Each seasonal retailer shall, in addition, exhibit a copy of his or her registration certificate at each seasonal retail location.

History.--s. 2, ch. 20445, 1941; s. 1, ch. 61-312; s. 4, ch. 87-118; s. 1223, ch. 97-102.

791.03 Bond of licensees.--The board of county commissioners shall require a bond deemed adequate by the board of county commissioners from the licensee in a sum not less than \$500 conditioned for the payment of all damages which may be caused either to a person or to property by reason of the licensee's display, and arising from any acts of the licensee, his or her agents, employees or subcontractors.

History.--s. 3, ch. 20445, 1941; s. 1, ch. 61-312; s. 1224, ch. 97-102.

791.04 Sale at wholesale, etc., exempted.--Nothing in this chapter shall be construed to prohibit any manufacturer, distributor, or wholesaler who has registered with the division pursuant to s. 791.015 to sell at wholesale such fireworks as are not herein prohibited; to prohibit the sale of any kind of fireworks at wholesale between manufacturers, distributors, and wholesalers who have registered with the division pursuant to s. 791.015; to prohibit the sale of any kind of fireworks provided the same are to be shipped directly out of state by such manufacturer, distributor, or wholesaler; to prohibit the sale of fireworks to be used by a person holding a permit from any board of county commissioners at the display covered by such permit; or to prohibit the use of fireworks by railroads or other transportation agencies for signal purposes or illumination or when used in quarrying or for blasting or other industrial use, or the sale or use of blank cartridges for a show or theater, or for signal or ceremonial purposes in athletics or sports, or for use by military organizations, or organizations composed of the Armed Forces of the United States; provided, nothing in this chapter shall be construed as barring the operations of manufacturers, duly licensed, from manufacturing, experimenting, exploding, and storing such fireworks in their compounds or proving grounds.

History.--s. 4, ch. 20445, 1941; s. 1, ch. 61-312; s. 5, ch. 87-118.

791.05 Seizure of illegal fireworks.--Each sheriff, or his or her appointee, or any other police officer, shall seize, take, remove or cause to be removed at the expense of the owner, all stocks of fireworks or combustibles offered or exposed for sale, stored, or held in violation of this chapter.

History.--s. 5, ch. 20445, 1941; s. 1225, ch. 97-102.

791.055 Restrictions upon storage of sparklers.--

- (1) Sparklers shall not be stored or kept for sale in any store:
 - (a) In which paints, oils, or varnishes are manufactured or kept for use or sale unless the paints, oils, or varnishes are in unbroken containers.
 - (b) In which resin, turpentine, gasoline, or flammable substances or substances which may generate vapors are used, stored, or offered for sale unless the resin, turpentine, gasoline, or substances are in unbroken containers.
 - (c) In which there is not at least one approved chemical fire extinguisher ready, available, and equipped for use in extinguishing fires.
- (2) When sparklers are in storage to be offered for sale at retail, a sign shall be conspicuously displayed over the entrance to the room in which the sparklers are stored, which sign reads: "CAUTION SPARKLERS-NO SMOKING." No person shall be in such room while in possession of a lighted cigar, cigarette, or pipe.

History.--s. 2, ch. 84-201.

791.06 Penalties.--Any firm, copartnership, or corporation violating the provisions of this chapter shall be guilty of a misdemeanor of the first degree, punishable as provided in s. 775.083 or, in the case of individuals, the members of a partnership and the responsible officers and agents of an association or corporation, punishable as provided in s. 775.082 or s. 775.083.

History.--s. 6, ch. 20445, 1941; s. 756, ch. 71-136.

791.07 Agricultural and fish hatchery use.--Nothing in this chapter shall prohibit the importation, purchase, sale, or use of fireworks used or to be used solely and exclusively in frightening birds from agricultural works and fish hatcheries; and such use shall be governed entirely by the rules prescribed by the Department of Agriculture and Consumer Services.

History.--s. 1, ch. 29780, 1955; s. 1, ch. 57-336; ss. 14, 35, ch. 69-106; s. 1, ch. 82-109.

Note.--Section 10(5), ch. 2007-67, provides that "[p]ending completion of the Legislature's review of the task force's report and to ensure that fire prevention and safety standards are uniform, a new permanent retail sales facility engaged in sales otherwise permitted under s. 791.07, Florida Statutes, may not be opened in this state after March 8, 2007, unless the permanent retail sales facility has received site-plan approval and construction has begun on or before March 8, 2007; the number of permits for temporary retail sales facilities, such as tents, engaged in sales otherwise permitted by s. 791.07, Florida Statutes, which are issued after March 8, 2007, by a county, municipality, or other unit of local government may not exceed the number of permits that such governmental entity issued for such facilities during the previous calendar year; and a municipality, county, or other unit of local government may not adopt an ordinance, rule, regulation, or other law after March 8, 2007, which directly prohibits or directly interferes with the safety standards established by state law or the right to purchase, sell, use, or possess consumer fireworks in this state. However, if the Legislature enacts legislation to provide for the comprehensive regulation of fire prevention and safety standards for the use of consumer fireworks to replace this subsection on or before July 1, 2008, this subsection does not prohibit opening any such facility, permitting any such temporary facility, or adopting any such ordinance or other law after such legislation is enacted."

SELECTED CITATIONS OF CODE OF FEDERAL REGULATIONS

Code of Federal Regulations, Title 40, Chapter 1, Part 122

Section 122.24 Concentrated aquatic animal production facilities (applicable to State NPDES programs, see Section 123.25)

- (a) *Permit requirement.* Concentrated aquatic animal production facilities, as defined in this section, are point sources subject to the NPDES permit program.
- (b) *Definition.* Concentrated aquatic animal production facility means a hatchery, fish farm, or other facility which meets the criteria in appendix C of this part, or which the Director designates under paragraph (c) of this section.
- (c) *Case-by-case designation of concentrated aquatic animal production facilities.*
 - (1) The Director may designate any warm or cold water aquatic animal production facility as a concentrated aquatic animal production facility upon determining that it is a significant contributor of pollution to waters of the United States. In making this designation the Director shall consider the following factors:
 - (i) The location and quality of the receiving waters of the United States;
 - (ii) The holding, feeding, and production capacities of the facility;
 - (iii) The quantity and nature of the pollutants reaching waters of the United States; and
 - (iv) Other relevant factors.
 - (2) A permit application shall not be required from a concentrated aquatic animal production facility designated under this paragraph until the Director has conducted on-site inspection of the facility and has determined that the facility should and could be regulated under the permit program.

[48 FR 14153, Apr. 1, 1983, as amended at 65 FR 30907, May 15, 2000]

Section 122.25 Aquaculture projects (applicable to State NPDES programs, see Section 123.25)

- (a) *Permit requirement.* Discharges into aquaculture projects, as defined in this section, are subject to the NPDES permit program through section 318 of CWA, and in accordance with 40 CFR part 125, subpart B.

- b) *Definitions.* (1) *Aquaculture project* means a defined managed water area which uses discharges of pollutants into that designated area for the maintenance or production of harvestable freshwater, estuarine, or marine plants or animals.
- (2) *Designated project area* means the portions of the waters of the United States within which the permittee or permit applicant plans to confine the cultivated species, using a method or plan or operation (including, but not limited to, physical confinement) which, on the basis of reliable scientific evidence, is expected to ensure that specific individual organisms comprising an aquaculture crop will enjoy increased growth attributable to the discharge of pollutants, and be harvested within a defined geographic area.

Appendix C to Part 122 – Criteria for Determining a Concentrated Aquatic Animal Production Facility (Section 122.24)

A hatchery, fish farm, or other facility is a concentrated aquatic animal production facility for purposes of § 122.24 if it contains, grows, or holds aquatic animals in either of the following categories:

- (a) Cold water fish species or other cold water aquatic animals in ponds, raceways, or other similar structures which discharge at least 30 days per year but does not include:
 - (1) Facilities which produce less than 9,090 harvest weight kilograms (approximately 20,000 pounds) of aquatic animals per year; and
 - (2) Facilities which feed less than 2,272 kilograms (approximately 5,000 pounds) of food during the calendar month of maximum feeding.
- (b) Warm water fish species or other warm water aquatic animals in ponds, raceways, or other similar structures which discharge at least 30 days per year, but does not include:
 - (1) Closed ponds which discharge only during periods of excess runoff; or
 - (2) Facilities which produce less than 45,454 harvest weight kilograms (approximately 100,000 pounds) of aquatic animals per year.

"Cold water aquatic animals" include, but are not limited to, the *Salmonidae* family of fish; e.g., trout and salmon.

"Warm water aquatic animals" include, but are not limited to, the *Ameiuride*, *Centrarchidae* and *Cyprinidae* families of fish; e.g., respectively catfish, sunfish and minnows.