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Factory Aquaculture vs. The Right to Food: The First Conflict on American Shores

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I INTRODUCTION

While the human right to food, or the ability to access adequate amounts of appropriate and available food, is included in international treaties and has been adopted by numerous countries

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across the globe, until recently the right was not legally possessed by any American. That changed in November 2021 when the people of Maine approved a state constitutional right to food amendment. Now that Mainers have this right, questions of how it will be implemented, who will be impacted, and what laws and regulations it will change have been widely debated. This Article examines the possible impact Maine's constitutional right to food can have on large-scale aquaculture. For the past several years, Maine has been the focus for multiple companies seeking to build and operate supersized salmon fish farms in the United States. With the adoption of Maine's constitutional right to food, a new element has been introduced into the debate about large-scale aquaculture—one that can impact the legal rights of the fishermen and advocates seeking modifications or a halt to these plans. After defining the right to food, this Article explains the similarities between large-scale aquaculture projects and large-scale factory farms. Following an examination of the conflict between land-based factory farms and the right to food, this Article offers ideas of how Maine's right to food amendment can impact the current aquaculture debate in the state.

A. The Right to Food

At its core, the right to food (“RtF”) is a basic human right.¹ Consequently, a lack of sufficient food, whether causing hunger or a form of malnutrition, is a human rights violation.² The RtF does not require the government to provide sufficient food directly to every

¹ Human rights not only provide a benefit to all people by virtue of being human but also demand action by the relevant government to ensure realization of the right. This is generally achieved by progressive implementation, which consists of *respecting* the human right at issue, *protecting* the human right at issue, and ultimately *fulfilling* the human right at issue. *The Foundation of International Human Rights Law*, UNITED NATIONS, <https://www.un.org/en/about-us/udhr/foundation-of-international-human-rights-law> [<https://perma.cc/2FMK-TXW2>] (last visited Apr. 7, 2023).

² Malnutrition is a broad term that encompasses various ways in which a human being is not ingesting or benefitting from a fully adequate diet. See United Nations System Standing Committee on Nutrition, *By 2030, End All Forms of Malnutrition and Leave No One Behind* 4 (Apr. 2017), <https://www.unscn.org/uploads/web/news/NutritionPaper-EN-14apr.pdf> [<https://perma.cc/73EY-LR5N>] (noting that malnutrition includes undernutrition, micronutrient deficiencies, and weight issues); Ana Ayala & Benjamin Mason Meier, *A Human Rights Approach to the Health Implications of Food and Nutrition Insecurity*, PUB. HEALTH REV. 38, 10 (2017) (distinguishing between undernourishment and undernutrition).

person,³ but is an individual's right to feed oneself, with dignity, through their own efforts.⁴ The government's obligation is to ensure that the conditions within which its people live allow this to happen. While the RtF is internationally recognized, there is no consensus on the specific wording for the right. I employ what I have named the "4As" to define the most comprehensive wording of the RtF.⁵ The 4As are (1) Availability, (2) Accessibility, (3) Adequacy, and (4) Appropriateness.

The first A, Availability, means that all individuals are able to produce, procure, and/or purchase the amounts and types of foods they need and desire. Accessibility, the second A, means that there is sufficient physical and economic infrastructure to permit everyone the necessary proximity to the food they need and desire and the resources to purchase that food without sacrificing other basic needs. The third A, Adequacy, means that individuals are getting, and will continue to get, enough calories, nutrients, and micronutrients to lead healthy and safe lives. Finally, Appropriateness means that individuals can access the food they prefer in a dignified manner and that food systems remain environmentally sustainable over time. These 4As emphasize that the RtF is one part of the human rights

³ Specific situations do confer an obligation to provide food. For example, as the state is the only source of food for people who are incarcerated, prisoners have a right to safely receive nutritionally adequate food that must comport with the First and Eighth Amendments to the U.S. Constitution. Lawsuits over prison food have focused on religion, safety, and discipline, most notoriously "nutraloaf," a composite food fed to inmates as punishment. *Estate of Thomas v. Clarke*, No. 2:17-cv-01128 (E.D. Wis. filed Aug. 14, 2017), https://graphics.jsonline.com/jsi_news/documents/jaildeath_thomaslawsuit.pdf [<https://perma.cc/9PSW-8K7V>] (alleging that the nutraloaf served at the Milwaukee County Jail was so dry that the dust from the loaf set off the fire alarm); *Prude v. Clarke*, 675 F.3d 732 (7th Cir. 2012).

⁴ Note that "food sovereignty" and "food security" are distinguishable from the RtF, although they overlap. Priscilla Claeys et al., *Food Sovereignty, Food Security and the Right to Food*, in HANDBOOK OF CRITICAL AGRARIAN STUDIES 1 (2021); Joe Wills, *Food Security vs. Food Sovereignty: The Right to Food and Global Hunger*, CONTESTING WORLD ORDER: SOCIOECONOMIC RIGHTS AND GLOBAL JUSTICE MOVEMENTS 94–150 (2017).

⁵ The most comprehensive RtF language in an international document is found in the International Covenant on Economic, Social and Cultural Rights (ICESCR). Other relevant documents include the Universal Declaration on Human Rights, the International Covenant on Civil and Political Rights, the Convention on the Elimination of All Forms of Discrimination Against Women, the Convention on the Rights of the Child, the 1996 World Food Summit, and the Convention on the Rights of Persons with Disabilities. Maine's RtF law, like most RtF laws, does not perfectly encapsulate the 4As, but it does provide the state's citizens with the RtF basic rights. See *infra* note 26.

framework—an interdependent element whose achievement rests on the realization of other rights.⁶

In societies with RtF laws, governments in question must not act in a way that interferes with the ability of its people to feed themselves. Instead, within an RtF framework, a government must work to ensure that its people are able to feed themselves and that neither the government nor other people are interfering with that right. For example, a government with an RtF obligation must ensure that fishermen's rights to both the natural resources and to the means of production that they require are safeguarded and that no other entities compromise their access, shared natural resources, or livelihoods.

B. The Right to Food in the United States

The United States is not directly obligated to provide an RtF by its federal Constitution or by any international agreements.⁷

While the idea of an RtF in the United States had been bubbling about for years, the COVID-19 pandemic raised awareness of the issues underlying hunger and reignited attempts to advance and strengthen the RtF, both in the United States and across the world.⁸

⁶ There are many examples worldwide demonstrating how the suppression of one human right impacts the realization of other human rights. See, e.g., Priscila Neves-Silva et al., *Human Rights' Interdependence and Indivisibility: A Glance Over the Human Rights to Water and Sanitation*, BMC INT'L HEALTH AND HUM. RTS. (2019), <https://bmcinthealthhumrights.biomedcentral.com/articles/10.1186/s12914-019-0197-3> [<https://perma.cc/SPDH-7FJ8>] (finding that other human rights, such as education and health, are impacted when the human rights to water and sanitation are violated); see also World Conference on Human Rights, *Vienna Declaration and Program of Action*, ¶ 5 U.N. Doc. A/CONF. 157/23 (June 25, 1993) (holding that human rights “are universal, indivisible and interdependent and interrelated.”).

⁷ Until the COVID-19 pandemic, U.S. concerns over food regulations, availability, and equity focused primarily on two areas: the food regulatory system and programs to feed the hungry. “Cottage food” and “food freedom” laws are the results of attempts to challenge the food regulatory system. Both provide small-scale producers with the ability to sell or donate certain products. Charitable food banks and government-sponsored nutrition programs are attempts to directly address issues of immediate need. See COTTAGE FOODS AND HOME COOKING, FIFTY-STATE SURVEY OF LAWS, HARV. L. SCH. FOOD L. AND POL'Y CLINIC, <https://chlp.org/wp-content/uploads/2022/04/Cottage-Foods-Final-4.4.pdf> [<https://perma.cc/FLL8-6FD3>] (last updated Dec. 2021) (noting whether a state has cottage food, food freedom, or other laws); *SNAP and Your Local Food Bank: How Both Help Those in Need*, PROJECT BREAD (Apr. 8, 2022), <https://gettingsnap.org/snap-updates/snap-and-your-local-food-bank-how-both-help-those-in-need> [<https://perma.cc/7NWH-6V27>].

⁸ See, e.g., JEAN DRÈZE & ANMOL SOMANCHI, THE COVID-19 CRISIS AND PEOPLE'S RIGHT TO FOOD (2021), <https://osf.io/preprints/socarxiv/ybrmg/> [<https://perma.cc/E4TF-Y6EY>] (looking at the pandemic and the RtF in India); Linley Chiwona-Karlton et al.,

RtF advocates in Maine, building on their earlier work and on the renewed interest in addressing hunger, were finally able to pass a proposal in 2021. Maine's constitutional amendment states that

all individuals have a natural, inherent and unalienable right to food, including the right to save and exchange seeds and the right to grow, raise, harvest, produce and consume the food of their own choosing for their own nourishment, sustenance, bodily health, and well-being, as long as an individual does not commit trespass, theft, poaching or other abuses of private property rights, public lands or natural resources in the harvesting, production or acquisition of food.⁹

The ways in which Maine's historic RtF amendment will impact the state is yet to be determined.¹⁰ But because the RtF goes to the heart of what it means to produce and procure food, it was clear from the outset that Maine's RtF amendment has the potential to severely impact industries, like fishing, that are directly involved in food production.

C. A History of Fishing in Maine

Maine's long history with fishing, which began with a focus on cod, was documented as starting in the early seventeenth century and going until the early nineteenth century, when fishing for a veritable plethora of other types of seafood became popular.¹¹ In fact, the first permanent European settlements in Maine were fishing stations, and there are records of lobster catches dating back to 1605.¹² This early connection between the state and the water makes sense—Maine has over 3,500 miles of coastline on cold and nutrient-rich waters, as

COVID-19: From Health Crises to Food Security Anxiety and Policy Implications, AMBIO 794 (2021) (looking at the pandemic and the RtF in Africa); Ying Chen, *Protecting the Right to Food in the Era of COVID-19 and Beyond*, 49:1 GA. J. OF INT'L AND COMPAR. L. 1 (2021) (looking at the impact of COVID-19 on the RtF).

⁹ ME. CONST. art. I, § 25.

¹⁰ Numerous commentators posited various ways in which the RtF can impact the state. In fact, the first lawsuit based on the RtF alleging that Maine's Sunday ban on hunting violates the amendment was filed in April 2022. *Parker v. Camuso*, No. CV-2022-87.

¹¹ ALBERT JENSEN, U.S. DEP'T INTERIOR, FISH AND WILDLIFE SERV., A BRIEF HISTORY OF THE NEW ENGLAND OFFSHORE FISHERIES (1967), <https://spo.nmfs.noaa.gov/sites/default/files/legacy-pdfs/leaflet594.pdf> [<https://perma.cc/5ALK-E6QQ>].

¹² Christina Lemieux, *The History of Lobster Fishing in Maine*, MAINE-LY LOBSTER (Oct. 3, 2015), <http://www.maine-lylobster.com/2015/10/the-history-of-lobster-fishing-in-maine.html> [<https://perma.cc/YGQ4-K3AK>].

well as 6,000 lakes and ponds and over 5,000 rivers and streams. Fishermen have access to a wide variety of species along Maine's coast, including salmon, cod, seaweed, haddock, scallops, crab, halibut, mussels, and lobster.¹³ While fishing for both shellfish and finfish has consistently been a mainstay of Maine's life and economy, the industry has experienced considerable ups and downs over the years, caused by things like the Industrial Revolution, overfishing, commercial fishing practices, pollution, and economic downturns.¹⁴ Amid these ever-present worries, fishers in Maine,¹⁵ like those worldwide, have long advocated for their economic and environmental rights.¹⁶

One of the first acts of The American Fish Cultural Association (now the American Fisheries Society) after its founding in 1870 was to fight against blockages in the St. Lawrence River that obstructed the migration of salmon.¹⁷ Fishermen have also advocated for their

¹³ The state of Maine maintains lists of all fish and shellfish, for both commercial and recreational uses, available in the state and where they are found. *Species Information*, ME. DEP'T MARINE RES., <https://www.maine.gov/dmr/fisheries/commercial/fisheries-by-species> [https://perma.cc/JC6G-WKRF] (last visited Apr. 7, 2023).

¹⁴ The depleted stocks that these conditions caused have set off a wide variety of resulting negative behaviors, including fishing further down the food chain and the emergence of "roving bandits" that enter others' territories to find fish after their own are depleted. Fikret Berkes et al., *Globalization, Roving Bandits, and Marine Resources*, 311 SCI. 1557 (1998) (explaining that a "tragedy of the commons," a sequential exploitation of marine resources, can arise from overfishing and the global market's undermining of attachment to place); see also Steven Murawski, *A Brief History of the Groundfishing Industry of New England*, NOAA FISHERIES (Aug. 26, 2022), <https://www.fisheries.noaa.gov/new-england-mid-atlantic/commercial-fishing/brief-history-groundfishing-industry-new-england> [https://perma.cc/35HT-RMGX].

¹⁵ The words "fishermen" or "fishers" are used interchangeably throughout this Article to refer to all those engaged in the job of fishing regardless of gender. *Why Do We Still Use the Word "Fisherman?"*, MONTEREY BAY FISHERIES TR., <https://montereybayfisheritrust.org/stories/2019/5/6/why-fisherman> [https://perma.cc/F2ZA-3MLN] (last visited Apr. 7, 2023); Ilima Loomis, *"Fishers" or "Fishermen"—Which Is Right?*, HAKAI MAG. (Oct. 13, 2015), <https://hakaimagazine.com/news/fishers-or-fishermen-which-right/> [https://perma.cc/8XPY-DBYY].

¹⁶ In 2021, the estimated value of commercially harvested marine resources in Maine exceeded 800 million dollars. Maine Department of Marine Resources, *Most Recent Maine Commercial Landings*, <https://www.maine.gov/dmr/commercial-fishing/landings/index.html> [https://perma.cc/WS7K-395T] (last visited Apr. 7, 2023). While economic multipliers are imprecise and numbers vary, it is estimated that tens of thousands of Mainers are employed by the fishing industry.

¹⁷ Paul Brouha, *The Emerging Science-Based Advocacy Role of The American Fisheries Society*, J. N. AM. BENTHOLOGICAL SOC'Y. 12, 215–18 (1993). The need for management of fisheries and fishing became more widespread during this period, and the United States established the Commission on Fish and Fisheries the following year, in 1871.

own working conditions, as fishing has consistently ranked as one of the most dangerous professions.¹⁸ In fact, although the safety record for fishers is improving, the chances of a fisherman having a fatal accident on the job is at least twenty times greater than the chances in most other occupations.¹⁹ Beginning in the 1900s, advocacy efforts by producers to ensure economic fairness and environmental stability continued, alongside efforts to fulfill the needs of consumers and meet the pressures of commercial rivalry in changing political environments. As in many other spheres, the tensions between the demands of the market, the rights of the fishermen, and the sustainability of the industry were all at odds.²⁰ This tension led not only to increased competition between Maine fishers and fishers from other states and countries but on occasion to increased tensions between Mainers.²¹

D. Advocacy and Adoption of the RtF in Maine

Today, there are numerous advocacy organizations working to advance the rights of fishers, the sustainability of oceans and waterways, and the health and availability of seafood around the world.²² The work of Maine fishers is reflective of the broad-based work in food advocacy that takes place across the state. Maine's activism rests on a foundation of independent local government action that is particularly vigorous.²³ The state's modern-day food advocacy

¹⁸ *The National Institute for Occupational Safety and Health Regions: National Overview*, CDC, <https://www.cdc.gov/niosh/topics/fishing/nationaloverview.html> [<https://perma.cc/FA3T-G6YF>] (Feb. 16, 2022).

¹⁹ Most fisherman fatalities occur through vessel casualties, falls, or diving. Commercial shellfishing carries more risk than fin fishing or marine products fishing. Dino Drudi, *Fishing for a Living Is Dangerous Work*, COMP. & WORKING CONDITIONS (1998).

²⁰ See, e.g., Richard Judd, *Saving the Fisherman as Well as the Fish: Conservation and Commercial Rivalry in Maine's Lobster Industry, 1872-1933*, 62 THE BUS. HIST. REV. 596 (1988).

²¹ Tensions over higher costs and lower sales led to a Maine lobsterman shooting a fellow lobsterman. Abby Goodnough, *In Maine, Tensions over Ailing Lobster Industry*, N.Y. TIMES (Aug. 22, 2009), <https://www.nytimes.com/2009/08/23/us/23lobster.html> [<https://perma.cc/ATV9-5FQ9>].

²² See, e.g., Amy Martin, *24 Organizations Supporting Sustainable Fishing*, FOOD TANK, <https://foodtank.com/news/2020/11/organizations-supporting-sustainable-fishing/> [<https://perma.cc/X2X7-D3JY>] (last visited Apr. 7, 2023).

²³ Maine has a liberally constructed home rule, which provides local government actions with a presumption of authority. Shane Wright, *Smith v. Town of Pittston*:

dates to the 2011 passage of the Food Safety Modernization Act, which food advocates saw as problematic for small farmers.²⁴ Maine fishers are committed to advocating for their rights, the future of their industry, and the work of fishers and farmers in Maine to preserve their ability to feed themselves and their families, which all act as precursors to the Maine RtF movement.²⁵

The idea of codifying a RtF in Maine took hold when food producers and their allies sought to carve out areas of food independence. After extensive research, they legislatively proposed the first state constitutional RtF amendment in the nation in 2015.²⁶ Although neither this attempt nor the following attempts were successful, with each endeavor Maine RtF proponents engaged in conversations and compromises that increased the number of supporters and educated more of the public. In January 2021, another proposed RtF constitutional amendment was introduced.²⁷ After the

Municipal Home Rule's Narrow Escape from the Morass of Implicit Preemption, 57 ME. L. REV. 613, 614 (2005).

²⁴ NAT'L SUSTAINABLE AGRIC. COAL., TOP 10 PROBLEMS WITH THE FOOD AND DRUG ADMINISTRATION'S PROPOSED FOOD SAFETY REGULATIONS FOR FARMERS AND LOCAL FOOD BUSINESSES, <http://sustainableagriculture.net/wp-content/uploads/2013/10/2013-FSMA-Fact-Sheet-Top-10-issues-for-farmers.pdf> [https://perma.cc/Z2TY-PYZC] (last visited Apr. 7, 2023).

²⁵ *Id.*; the Food Safety Modernization Act was a precursor to Maine's Local Food and Community Self-Governance Ordinance, which sought to exempt small local producers selling products for home consumption from state regulations and led to a nationally recognized protracted court battle between a local farmer relying on the Ordinance to sell unregulated products and the state of Maine. Bluehill, Me., Local Food and Community Self-Governance Ordinance of 2011 (Apr. 1, 2011), <https://www.animallaw.info/sites/default/files/lousmebluehillfarmingandfoodproduction.pdf> [https://perma.cc/NXR8-LZPU]; *State v. Brown*, 95 A.3d 82 (Me. 2014) (this legal skirmish was the precursor for the Maine Food Sovereignty Act, which unsuccessfully sought to give localities in the state the right to pass ordinances exempting food products from regulations); S.P. 242, 128th Leg., 1st Reg. Sess. (Me. 2017); see also Wendy Heipt, *The Right to Food Comes to America*, 17 ARK. J. OF FOOD L. & POL'Y, 111 (2021) for a case study examining passage of the RtF constitutional amendment in Maine.

²⁶ This was introduced by Representative Craig Hickman, an organic farmer, in the 2015–16 legislative session. H.P. 532, 127th Leg., 1st Reg. Sess. (Me. 2015). The language for the proposed amendment was based on work done by food sovereignty advocates in the state, along with legislative allies, farmworkers, and members of the Maine Farm Bureau, who had surveyed RtF language used internationally and also assessed food sovereignty issues nationwide in order to construct a proposal reflecting both human rights concerns and practical applications.

²⁷ H.P. 61, 130th Leg., 1st Reg. Sess. (Me. 2021) (introduced by Representative Billy Bob Faulkingham, a former fisherman).

amendment passed in both houses of the state's legislature,²⁸ it was placed on the statewide ballot in November of 2021 and passed with over sixty percent of the popular vote.²⁹ With this vote, Maine officially became the only state in the country with a constitutional RtF.³⁰ From the time the RtF was first introduced in 2015, it was clear to advocates that while the RtF has the ability to impact every person in Maine, the right is particularly important for certain food producers like fishers.³¹

While movements and lawsuits across the globe have shown that the RtF can be an effective tool in the struggle for food independence and food sovereignty,³² the precise path the RtF takes in Maine depends entirely upon the individual and collective choices made by its citizens.³³ Fishers and their allies in Maine have a vibrant history of food independence activism, including work around aquaculture,

²⁸ Both the House and Senate had to approve the amendment by a two-thirds majority. In May 2021 the House of Representatives voted 104 to 41 in favor of passage, and in July 2021 the Senate voted 23 to 10 in favor of passage.

²⁹ Taylor Telford, *Maine Just Voted to Become the Nation's First 'Right to Food' State. What Does That Mean?*, WASH. POST (Nov. 3, 2021, 4:52 PM), <https://www.washingtonpost.com/business/2021/11/03/maine-right-to-food/> [<https://perma.cc/BP5S-A8HY>].

³⁰ ME. CONST. art. I, § XXV.

³¹ Other state constitutional rights arguably connected to the RtF, such as the rights to fish and hunt, have not followed a human rights framework in adoption or implementation. These rights are generally the result of special interest advocates, and litigation over these amendments provides little direct guidance. See Young-Eun Park, *Life, Liberty, and the Pursuit of Hunting & Fishing: The Implications of Kentucky's "Right to Hunt" Constitutional Amendment*, 7 KY. J. OF EQUINE, AGRIC. & NAT. RES. L. 351 (2015). Additionally, the rights of indigenous peoples to farm, fish, and hunt, while included in the RtF, are also based on long-standing agreements, treaties, or traditional rights.

³² *Guide on Legislating for the Right to Food*, FOOD & AGRIC. ORG. OF THE U.N. (2009), <https://www.fao.org/3/i0815e/i0815e.pdf> [<https://perma.cc/S5ZG-X85J>] (discussing RTF constitutional work, legislation, and lawsuits worldwide).

³³ This understanding of the RtF as composing collective as well as individual rights is best articulated in the context of Indigenous Rights. See, e.g., G.A. RES. 61/295, art. 1, 7 (Sept. 13, 2007) (collective rights); *The Right to Food and Indigenous Peoples*, FOOD & AGRIC. ORG. OF THE U.N. (2008), https://www.un.org/esa/socdev/unpfii/documents/Right_to_food.pdf [<https://perma.cc/KMS8-WU9B>]; *Declaration of Atitlán Guatemala, Indigenous Peoples' Consultation on the Right to Food: A Global Consultation*, INT'L INDIAN TREATY COUNCIL (Apr. 19, 2002), https://www.iitc.org/wp-content/uploads/2013/07/FINAL_Atitalan-Declaration-Food-Security_Apr25_ENGL.pdf [<https://perma.cc/TR9F-ANKC>]; see also Guy Kastler, *Seeds: The Collective Rights of Farmers, Gardeners and Communities Versus Intellectual Property Rights*, RITIMO (Oct. 1, 2020), <https://www.ritimo.org/Seeds-The-Collective-Rights-of-Farmers-Gardeners-and-Communities-versus> [<https://perma.cc/3H77-HVQG>].

that provides a strong foundation for future work.³⁴ Now that Maine fishers and activists have the benefit of the RtF, they can turn their attention to other issues that impact them, like large-scale aquaculture.

II AQUACULTURE IN MAINE

Extensive research has been conducted into the nexus between large-scale land animal factory farms, known as Concentrated Animal Feeding Operations (CAFOs), and the RtF. Because factory farms and large-scale aquacultures share many of the same problems, this Part first explains factory farming, the issues that activists have sought to challenge, and the way the RtF is implicated. Large-scale aquaculture projects, known as Concentrated Aquatic Animal Production Facilities (CAAPs), and the unprecedented scale of the ventures currently being proposed in Maine are discussed later in this Part. Viewing the impact that these ventures can have through the lens of the RtF's 4As (Availability, Accessibility, Adequacy, and Appropriateness), this Part finally suggests ways that CAAPs may violate the RtF and compel Maine's state government to protect and fulfill its RtF.

³⁴ Each of these pushes for food sovereignty and farmers' rights garnered significant support from legislators and allies across Maine. For example, the Maine legislature passed a joint resolution expressing their support for the Local Food and Community Self-Governance Ordinance. See J. RES. (Me. 2011), <http://www.mainelegislature.org/legis/bills/getPDF.asp?paper=HP1176&item=1&snum=125> [<https://perma.cc/XC5F-GGTW>]. Additionally, Maine is a strong farm state with one of the nation's most robust communities of producers and consumers of local food. The state ranked fifth in the most recent Locavore Index and second in direct sales per capita. *Agriculture Census Data Shakes Up the Locavore Index; Vermont Still on Top; California Jumps to Second Place*, STROLLING OF THE HEIFERS (May 31, 2019), <https://www.strollingoftheheifers.com/locavore> [<https://perma.cc/3WZL-PQH3>]. The number of farms, new farmers, farm production, farm size, and the percentage of principal farm operators in Maine have all been increasing, and Maine has the largest number of farms in New England. Gary Keough, *Maine Agriculture Is "Up" in More Ways than One*, USDA BLOG (July 10, 2014), <http://blogs.usda.gov/2014/07/10/maine-agriculture-is-up-in-more-ways-than-one/> [<https://perma.cc/V5VX-FH7X>]; Ellen Sabina, *Can Maine Lead New England to a Farming Renaissance?*, ME. FARMLAND TR. (Aug. 12, 2015), <https://www.maine farmland trust.org/can-maine-lead-new-england-to-a-farming-renaissance/> [<https://perma.cc/28ND-LRLL>].

A. CAFOs and the RtF

At their core, CAFOs are supersized Animal Feeding Operations (AFOs). AFOs are facilities where animals are kept in confined situations on small areas of land.³⁵ Because the animals are kept in continuous confinement and cannot forage for food or excrete waste distantly, AFO operators must bring feed to animals and dispose of their waste.³⁶ In contrast, CAFOs have more animals than AFOs, have no vegetative growth, and confine animals for more than forty-five days per year.³⁷ There are over 20,000 CAFOs in the United States today, six of which are in Maine, and they are now the primary source for consumer meat and dairy production.³⁸

Because CAFOs are potential large-scale polluters, several rules and regulations oversee their use, and these rules have been revised and challenged over time.³⁹ The Environmental Protection Agency (EPA) classifies CAFOs as point source polluters under the Clean

³⁵ While AFOs are smaller than CAFOs, any size AFO that discharges manure or wastewater into a waterway is also defined as a CAFO. CAFOs are also often owned by large corporations that dominate a particular market. As one example, there are four meatpacking companies that together control eighty-five percent of U.S. beef: Tyson, JBS, Cargill, and National Beef. Amelia Pollard, “*Big Four*” Meatpackers Are Crushing Small Ranchers, THE AM. PROSPECT (June 9, 2021), <https://prospect.org/power/big-four-meatpackers-crushing-small-ranchers> [<https://perma.cc/RC7M-QK4S>]; *National Pollutant Discharge Elimination System Animal Feeding Operations*, EPA, <https://www.epa.gov/npdes/animal-feeding-operations-afos> [<https://perma.cc/E7LK-TL4R>] (July 5, 2022).

³⁶ Jessica K. Leet & David C. Volz, *Improving Waste Management Strategies for Small Livestock Farms*, 47 ENV’T SCI. TECH. 11940 (2013).

³⁷ According to the USDA, CAFOs have more than 1000 “animal units,” which translates to approximately 1000 head of cattle, 700 dairy cows, or 125,000 broiler chickens. *Animal Feeding Operations (AFO)*, USDA, <https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/plantsanimals/livestock/afo/> [<https://perma.cc/E9EB-ZQ5X>] (last visited Apr. 7, 2023).

³⁸ *NPDES CAFO Permitting Status Report: National Summary, Endyear 2020*, EPA (May 11, 2021), https://www.epa.gov/sites/default/files/2021-05/documents/cafo_status_report_2020.pdf [<https://perma.cc/C852-XUDB>]; Lindsay Walton & Kristen King Jaiven, *Regulating CAFOs for the Well-Being of Farm Animals, Consumers and the Environment*, 50 ENV’T L. REP. 10485 (2020); John Flesher, *Factory Farms Provide Abundant Food, But Environment Suffers*, PBS NEWS HOUR (Feb. 6, 2020), <https://www.pbs.org/newshour/economy/factory-farms-provide-abundant-food-but-environment-suffers> [<https://perma.cc/8G57-ZBKV>]; Jacy Reese Anthis, *US Factory Farming Estimates*, SCI. INST. (Apr. 11, 2019), <https://www.sentienceinstitute.org/us-factory-farming-estimates> [<https://perma.cc/H7RT-C4J6>].

³⁹ See, e.g., Pam Lewison, *CAFO Rules Get Revised, Take Effect in January*, WASH. POL’Y CTR. (December 16, 2022), <https://www.washingtonpolicy.org/publications/detail/cafo-rules-get-revised-take-effect-in-january> [<https://perma.cc/3G7T-2PYM>]; 40 CFR §§ 9, 122, 412 (2008).

Water Act (CWA), which means that CAFOs should receive permits through the CWA's National Pollution Discharge Elimination System (NPDES) to control for manure, nutrient, and waste runoff into waters.⁴⁰ The term "point source polluter" means that the pollution at issue comes from an identifiable source.⁴¹ CAFOs are point source polluters, as the waste (manure, urine, extra feed, antibiotics, nutrients, etc.) from the animals they house can enter ground or surface water and radically raise pollution levels. Theoretically, NPDES permits allow for a specified number of pollutants to enter certain bodies of water at certain times.⁴² Despite these regulatory attempts, CAFOs continue to present pollution, health, environmental, and ethical problems.

CAFOs present numerous challenges to the health and well-being of people, animals, and the earth.⁴³ One well-known issue is the significant challenge CAFOs present to maintaining water quality.⁴⁴ Many CAFOs store animal manure in a liquid form in pits, sometimes referred to as manure lagoons.⁴⁵ Because these pits are often uncovered, they are prone to leakage, which allows manure to seep

⁴⁰ NPDES PERMIT WRITERS' MANUAL FOR CONCENTRATED ANIMAL FEEDING OPERATIONS, EPA (2012), https://www.epa.gov/sites/default/files/2015-10/documents/cafop_permitmanual_entire.pdf [<https://perma.cc/32PD-TCB5>].

⁴¹ *Point Source Pollution Tutorial*, NAT'L OCEANIC AND ATMOSPHERIC ADMIN., https://oceanservice.noaa.gov/education/tutorial_pollution/03pointsource.html [<https://perma.cc/93B3-RWJR>].

⁴² Kate Celender, *The Impact of Feedlot Waste on Water Pollution Under the National Pollutant Discharge Elimination System (NPDES)*, 33 WM. & MARY ENV'T L. POL'Y REV. 947 (2009).

⁴³ It is difficult to detail each of the areas in which CAFOs threaten the health of people, animals, air, and the environment, but multiple studies have demonstrated significant health risks. *See, e.g.*, Ji-Young Son et al., *Exposure to Concentrated Animal Feeding Operations (CAFOs) and Risk of Mortality in North Carolina, USA*, 799 SCI. OF THE TOTAL ENV'T (2021) (finding evidence of excess mortality in N.C. citizens living in proximity to CAFOs, including a significantly higher risk of cardiovascular mortality and a significantly higher risk of anemia and kidney disease); Amy Schultz et al., *Residential Proximity to Concentrated Animal Feeding Operations and Allergic and Respiratory Disease*, 130 ENV'T INT'L (2019) (finding higher rates of asthma and respiratory ailments in those living near CAFOs); Sigurdur Sigurdarson & Joel Kline, *School Proximity to Concentrated Animal Feeding Operations and Prevalence of Asthma in Students*, 129 CHEST 1486 (2006) (finding a higher rate of asthma in elementary school children living near a CAFO).

⁴⁴ JoAnn Burkholder et al., *Impacts of Waste from Concentrated Animal Feeding Operations on Water Quality*, 115 ENV'T HEALTH PERSPECTIVE 308 (2006).

⁴⁵ *Liquid Manure Treatment Lagoons*, LIVESTOCK AND POULTRY ENV'T LEARNING CMTY. (Mar. 5, 2019), <https://lpecl.org/liquid-manure-treatment-lagoons/> [<https://perma.cc/D7PT-G56P>].

out of storage and into surface water and groundwater.⁴⁶ CAFOs that do not use pits often pile manure outdoors in quantities so large that rain and wind can spread the manure to nearby surface water.⁴⁷ While at first glance this appears to be a problem small in scope, because these CAFOs are so large the amount of manure they are managing is tremendous.⁴⁸ Research estimates that the amount of yearly pig manure produced from a single CAFO in California was more than the amount of fecal matter produced by the entire human population of Los Angeles.⁴⁹

Unlike human waste, CAFO-produced manure has no treatment plants.⁵⁰ Even after being harvested from pits or piles, this manure continues to be a problem. For example, CAFOs sometimes spread the manure on fields, where it runs off into surface or groundwater.⁵¹

Once in the water, this manure can kill aquatic life in one of several ways, depending on the composition of the manure and the type of water it contaminates.⁵² In addition to chemicals, antibiotics, and hormones, manure can contain nutrients such as nitrogen and

⁴⁶ D.B. Parker et al., *Seepage from Earthen Animal Waste Ponds and Lagoons—An Overview of Research Results and State Regulations*, 42 THE AMERICAN SOC'Y OF AGRIC. AND BIOLOGICAL ENG'RS, 485 (1999).

⁴⁷ An increasing body of research is emerging linking the prevalence of CAFOs to both ground and surface water pollution. CARRIE HRIBAR, NAT'L ASS'N OF LOC. BDS. OF HEALTH, UNDERSTANDING CONCENTRATED ANIMAL FEEDING OPERATIONS AND THEIR IMPACT ON COMMUNITIES 4 (Mark Shultz ed., 2010) (noting that “[i]t has been found that states with high concentrations of CAFOs experience on average 20 to 30 serious water quality problems per year as a result of manure management problems”) (citation omitted).

⁴⁸ Concentrated Animal Feeding Operations, Most Pol’y Initiative, https://mostpolicyinitiative.org/wp-content/uploads/2021/01/ScienceNote_CAFOs.pdf [https://perma.cc/9MNR-QPFV] (last visited Apr. 7, 2023).

⁴⁹ Letter from Jacob Kopas, Earthjustice, and Karen Hudlet Vazquez, to Dr. Tania Panszi, Executive Secretary, Inter-Am. Comm’n on Hum. Rts., *Reference: Request for a Thematic Hearing on the Human Rights Situation of Individuals and Communities Affected by Concentrated Animal Feeding Operations (CAFOs) in the Hemisphere* (Oct. 11, 2021), https://www.biologicaldiversity.org/campaigns/industrial_animal_agriculture/pdfs/ENG_RegionalCAFOandHR.pdf.

⁵⁰ HRIBAR, *supra* note 47.

⁵¹ *Water Quality Issues Associated with Manure*, LIVESTOCK AND POULTRY ENV’T LEARNING CMTY. (Mar. 5, 2019), <https://lpecl.org/water-quality-issues-associated-with-manure/> [https://perma.cc/4SPV-FME8].

⁵² *Over Fifty Groups Petition EPA to Improve Oversight of Water Pollution from Concentrated Animal Feeding Operations*, EARTHJUSTICE (Oct. 26, 2022), <https://earthjustice.org/news/press/2022/over-fifty-groups-petition-epa-to-improve-oversight-of-water-pollution-from-concentrated-animal-feeding> [https://perma.cc/K2X5-6Q94].

phosphorus.⁵³ This contamination is deadly when the runoff is at exceptionally high toxicity or through the production of algae blooms, which can harm the environment as well as animals.⁵⁴ Additionally, CAFO runoff that finds its way to water can harm humans by polluting drinking water and causing nitrate poisoning.⁵⁵

In addition to threatening water quality, CAFOs also cause a wide range of social problems, particularly for communities of color.⁵⁶ For years, social justice, environmental, and food quality advocates have been trying to fight against CAFOs. Because CAFOs are effectively subsidized by the population at large, there have been efforts to end or curtail the direct and indirect subsidies they receive.⁵⁷ CAFO opponents have pointed out that not only do smaller-sized operations do less damage to people, animals, and the environment, but they are

⁵³ HRIBAR, *supra* note 47.

⁵⁴ JoAnn Burkholder et al., *Impacts to a Coastal River and Estuary from Rupture of a Large Swine Waste Holding Lagoon*, 26 J. ENV'T QUALITY 1451 (Nov.-Dec. 1997) (finding extensive fish death and conditions promoting algae blooms after a swine waste spill in North Carolina); *see also Harmful Algal Bloom (HAB) Associated Illnesses*, CTRS. FOR DISEASE CONTROL AND PREVENTION, <https://www.cdc.gov/habs/index.html> [<https://perma.cc/D7TS-8T2R>] (June 1, 2022).

⁵⁵ Water polluted with nitrates can result in miscarriages and methemoglobinemia (otherwise known as “blue baby syndrome”) where an infant’s skin takes on a bluish color from insufficient blood oxygenation and which can be fatal to infants. *See* Shawn D. Ren, *Protecting Our At-Risk Communities from the Ground (Water) Up: CAFOs, the Clean Water Act, and a Framework for Offering Clarity to an Imprecise Maui Test*, 71 EMORY L.J. 563, 565–6 (2022); Susan Cosier, *A Sickening Swill*, NRDC ONEARTH MIDWEST UPDATE (Dec. 5, 2014), <https://www.nrdc.org/onearth/sickening-swill> [<https://perma.cc/M9Z5-WBLV>].

⁵⁶ Jonathan Hall, et al., *Environmental Injustice and Industrial Chicken Farming in Maryland*, INT. J. ENV'T RSCH. PUB. HEALTH (Oct. 2021) (finding that communities of color and low socioeconomic status in Maryland disproportionately hosted CAFOs and processing plants); Julia Lenhardt & Yelena Ogneva-Himmelberger, *Environmental Injustice in the Spatial Distribution of Concentrated Animal Feeding Operations in Ohio*, ENV'T JUSTICE (Aug. 2013) (finding that communities of color and low socioeconomic status in Ohio disproportionately hosted CAFOs).

⁵⁷ *See Cover Crops and CAFOs: EQIP in FY 2019 and FY 2020*, NAT'L SUSTAINABLE AGRIC. COAL. (May 16, 2022), <https://sustainableagriculture.net/blog/cover-crops-and-cafos-eqip-in-fy-2019-and-fy-2020/> [<https://perma.cc/CX77-FKH7>] (discussing how CAFOs have qualified for the federal Environmental Quality Incentives Program (EQIP) since 2018. Managed by the USDA, the EQIP program grants assistance and money (up to ninety percent of some projects) to help certain producers implement conservation practices. Even though CAFOs are unsustainable resource drains and environmental hazards, EQIP awarded \$134 million dollars to CAFOs in 2020—dollars that could have been directed toward more sustainable and community-friendly agricultural enterprises. CAFOs also benefit indirectly from the subsidies that underwrite the cost of the feed they use for their confined animals).

often just as cost-effective, making the subsidies CAFOs receive illogical.⁵⁸

CAFOs have been taken to court numerous times, most notably in a series of cases alleging nuisance. One such example includes the 2014 North Carolina Murphy Brown cases.⁵⁹ Over five hundred people filed twenty-six lawsuits alleging that the manure, sewage, and smells from the pig CAFOs owned by *Murphy-Brown* (a subsidiary of Smithfield Foods, Inc.) interfered with their ability to use and enjoy their properties.⁶⁰ The lawsuits were consolidated in 2015 and the trial court ordered two test trials, followed by single monthly trials until the cases were resolved.⁶¹ The two test cases resulted in multimillion-dollar verdicts,⁶² and the third case resulted in a \$473.5 million dollar verdict against Murphy-Brown in 2018.⁶³ After a 2020 federal court of appeals panel upheld the rulings of the trial judge and the jury's verdict but remanded the punitive damage award for reconsideration due to inadmissible evidence, all twenty-six lawsuits were settled.⁶⁴

⁵⁸ See DOUG GURIAN-SHERMAN, CAFOS UNCOVERED: THE UNTOLD COSTS OF CONFINED ANIMAL FEEDING OPERATIONS 41 (2008), <https://www.ucsus.org/sites/default/files/2019-10/cafos-uncovered-full-report.pdf> [<https://perma.cc/X9UW-DJP2>].

⁵⁹ The state's "right to farm" law was deemed inapplicable in these cases. Every U.S. state has a version of this law, which was originally enacted to protect certain farmers from nuisance lawsuits brought by new residents who did not want to be subjected to the sights and sounds of traditional farm life. These protective laws have come under criticism for being expanded to protect CAFOs. See also Madeleine Skaller, *Protecting the Right to Harm: Why State Right to Farm Laws Should Not Shield Factory Farms from Nuisance Liability*, 27 SAN JOAQUIN AGRIC. L. REV. 209 (2018). After the Murphy Brown lawsuits were filed, two North Carolina laws to eliminate just these types of nuisance claims were passed and survived a constitutional challenge. Had North Carolina had a constitutional RtF amendment, no similar repercussion would have been possible. See Rural Empowerment Ass'n for Cmty. Help v. State, 868 S.E.2d 645 (N.C. Ct. App. 2021).

⁶⁰ See Complaint McKiver et al. v. Murphy-Brown, LLC, No. 7:14-cv-00180-BR (E.D.N.C. 2014), <https://www.perkinscoie.com/images/content/1/9/v2/197673/McKiver-v.-Murphy-Brown-Complaint.pdf> [<https://perma.cc/KS5U-N5CM>].

⁶¹ *Large Jury Verdicts in Hog Nuisance Cases Signal CAFO Litigation Is Rising*, PERKINS COIE (Aug. 10, 2018), <https://www.perkinscoie.com/en/news-insights/large-jury-verdicts-in-hog-nuisance-cases-signal-cafo-litigation.html> [<https://perma.cc/YD2A-27VJ>].

⁶² See *id.* (resulting in a later-reduced fifty-one-million-dollar verdict); McGowan, et al. v. Murphy-Brown, LLC, No. 7:14-cv-00182 (E.D.N.C. 2018) (resulting in a twenty-five-million-dollar verdict).

⁶³ *Jacobs. v. Murphy-Brown, LLC*, No. 7:14-cv-00237 (E.D.N.C. 2018).

⁶⁴ Emily Ashcraft, *Settlement Reached in Smithfield Hog Farm Nuisance Suits from Neighbors*, L. ST. (Nov. 20, 2020), <https://lawstreetmedia.com/news/agriculture/settlement-reached-in-smithfield-hog-farm-nuisance-suits-from-neighbors/> [<https://perma.cc/P25V-H684>].

There is a developing consensus worldwide that CAFOs violate human rights principles.⁶⁵ Human rights are violated when food production consumes a disproportionate amount of resources, generally at the expense of local producers and individuals, or when CAFOs deplete shared resources and make it impossible for small- to medium- sized producers to continue to feed themselves and their communities.⁶⁶ In other words, when CAFOs restrict sustainable food production, narrow the market, and restrict consumer choice, the RtF is implicated.⁶⁷ As this field develops, international activists and attorneys, in the United States and abroad, need to specifically reference the RtF when voicing their opposition to CAFOs.⁶⁸

B. CAAPs and the RtF

While the nexus between CAFOs and the RtF is becoming clearer, CAFOs are facilities specific to land animals.⁶⁹ CAAPs involve the

⁶⁵ See *Mexican Court Urged to Rule for Indigenous Mayan Youth in Constitutional Challenge to Massive Industrial Hog Operation on Yucatán Peninsula*, EARTHJUSTICE (Feb. 25, 2020), <https://earthjustice.org/news/press/2022/mexican-court-urged-to-rule-for-indigenous-mayan-youth-in-constitutional-challenge-to-massive-industrial-hog> [https://perma.cc/F283-AJJK] (discussing how a 2018 lawsuit in Mexico challenged the government's decision to allow a pig CAFO in an ecologically sensitive area, despite the risks it would bring to environmental and human health and to the autonomy of the Mayan people. In 2021, the First Chamber of the Supreme Court of Justice of Mexico upheld a suspension of the CAFO, and the case remains ongoing).

⁶⁶ Angela Huffman et al., *Consolidation, Globalization, and the American Family Farm*, COMPETITIVE MARKETS POL'Y (Aug. 2017), <https://competitivemarkets.com/wp-content/uploads/2017/08/Consolidation-Globalization-and-the-American-Family-Farm.pdf> [https://perma.cc/9YLQ-ZZSJ].

⁶⁷ CAFOs also crowd, medicate, and confine the animals in their care, causing physical and psychological distress. See *CAFOs & Animal Welfare*, IOWA ALL. FOR RESPONSIBLE AGRIC., <https://cleaniowanow.org/learn-about-the-problem/cafo-animal-welfare/> [https://perma.cc/3HQF-UWMF] (last visited Apr. 7, 2023). Additionally, CAFOs have attempted to shield themselves from public scrutiny and threatened environmentalists and researchers. See also Letter from Jacob Kopas, Earthjustice, and Karen Hudlet Vazquez, to Dr. Tania Panszi, *supra* note 49. CAFOs also depend on a supply of cereals, antibiotics, nutrients, and hormones that negatively impact the resources relied upon by others.

⁶⁸ See Charlotte Blattner & Odile Ammann, *Agricultural Exceptionalism and Industrial Animal Food Production: Exploring the Human Rights Nexus*, 15(2) ARK. J. OF FOOD L. & POL'Y 93, 128 (2020) (examining how CAFOs can be in violation of human rights principles such as the RtF); see also Iselin Gambert, *I Want You to Panic: Leveraging the Rhetoric of Fear and Rage for the Future of Food*, 17(2) ARK. J. OF FOOD L. & POL'Y (2022); Ben Chugg et al., *Enhancing Environmental Enforcement with Near Real-Time Monitoring: Likelihood-Based Detection of Structural Expansion of Intensive Livestock Farms*, 103 INT. J. OF APPLIED EARTH OBSERVATIONS AND GEOINFORMATION (2021).

⁶⁹ 40 C.F.R. § 122.23 (2008).

rearing and raising of fish and other marine organisms in different types of water environments using a variety of systems.⁷⁰ CAAPs (which I believe can fairly be referred to as “underwater CAFOs” or “water farms”), like CAFOs, house large amounts of animal life in confinement. CAAPs often produce at least one hundred thousand pounds of warm-water aquatic animals or twenty thousand pounds of cold-water animals per year.⁷¹ Like CAFOs, they are also point sources and subject to regulations under the Clean Water Act (CWA) because of their potential for harmful pollutant discharge.⁷² Like with CAFOs, the regulatory scheme for CAAPs also contains loopholes, and their oversight also leaves much to be desired.⁷³ But the similarities go further, as they share many of the same traits and challenge many of the same human rights principles.

Both CAAPs and CAFOs are, on the surface, a way to meet increasing consumption requirements. However, neither CAAPs nor CAFOs truly fulfill the mission of the RtF. The RtF, as understood through the 4As, means more than just the immediate availability of food—it also encompasses the means of production and the long-term societal and environmental effects of that production.⁷⁴ Both CAAPs and CAFOs trade early successes in increased food production for long-term legacies of environmental degradation and RtF violations, generally at the expense of marginalized communities.⁷⁵ The RtF and

⁷⁰ 16 U.S.C. §§ 2801–2810 (showing that while aquaculture has been around for centuries, the United States declared a national aquaculture policy in 1980 with the passage of the National Aquaculture Act); *Aquaculture NPDES Permitting*, EPA, <https://www.epa.gov/npdes/aquaculture-npdes-permitting> [https://perma.cc/ZP67-Z6MA] (Apr. 5, 2022).

⁷¹ *Id.*

⁷² *Concentrated Aquatic Animal Production Effluent Guidelines*, EPA, <https://www.epa.gov/eg/concentrated-aquatic-animal-production-effluent-guidelines> [https://perma.cc/ERB9-F6NL] (last visited Nov. 15, 2022) (examining when an aquaculture facility is not deemed to be a CAAP, as many are not, they are not deemed a point source for pollution and not regulated as such); EMMETT ENV’T L. AND POL’Y CLINIC AT HARVARD L. SCH., THE ENV’T L. INST., & THE OCEAN FOUND., OFFSHORE AQUACULTURE REGULATION UNDER THE CLEAN WATER ACT (Dec. 2012), <https://oceanfdn.org/sites/default/files/cwa-aquaculture.pdf> [https://perma.cc/TR8W-63K9].

⁷³ Laura E. Jarvis, *Lessons from Land to Sea: An Informed Approach to Offshore Aquaculture Regulation*, 102 B.U. L. Rev. 1083 (2022).

⁷⁴ Olivier de Schutter, *Final Report: The Transformative Potential of the Right to Food*, UN Doc. A/HRC/25/57 (noting that under the RtF, food must be sustainably produced).

⁷⁵ Ji-Young Son et al., *Distribution of Environmental Justice Metrics for Exposure to CAFOs in North Carolina, USA*, 195 ENV’T RSCH. 110862 (2021); *The FoodPrint*

the right to a healthy and sustainable environment are inextricably intertwined.⁷⁶

**C. CAAPs in Maine:
Challenges Before and After Enactment of the RtF**

As noted earlier, there are many species of finfish and shellfish that compose the Maine commercial fishing industry, with one such critical species being the Atlantic salmon.⁷⁷ This fish is not only important for cultural and food-related reasons, but it is also significant for biodiversity and conservation.⁷⁸ Atlantic salmon have a complex life pattern. They are born in fresh water and, after several years (the number of which varies), they migrate to the salt water of the ocean, where they reach maturity. The adults eventually return to

of *Farmed Seafood*, FOODPRINT, <https://foodprint.org/reports/the-foodprint-of-farmed-seafood/> [<https://perma.cc/B8EC-5UUA>] (Oct. 10, 2020); Morgan Snow, Bridging Intersectional Ecofeminism and Environmental Justice Frameworks to Examine the Impacts of the Meat Industry (June 2021) (B.A. thesis, University of Oregon) (https://scholarsbank.uoregon.edu/xmlui/bitstream/handle/1794/26561/Final_Thesis-SnowM.pdf?sequence=1&isAllowed=y [<https://perma.cc/3U2H-PFWU>]); Ryan Gunderson, *Meat and Inequality: Environmental Health Consequences of Livestock Agribusiness*, 5 ENV'T JUST. 1 (Feb. 17, 2012).

⁷⁶ Anastasia Telesetsky, *Fulfilling the Human Right to Food and a Healthy Environment: Is It Time for an Agroecological and Aquaecological Revolution?*, 40 VT. L. REV. 792, 802 (2016) (asserting that the right to food must include a healthy environment and that “states must factor essential agriculture and fisheries use into their conservation planning”).

⁷⁷ See NASCO, <https://nasco.int> [<https://perma.cc/GWP9-JBR7>] (last visited May 17, 2022) (assessing that the importance of the Atlantic salmon is well recognized). In 1982, the United States ratified the Convention for the Conservation of Salmon of the North Atlantic Ocean, which set up the North Atlantic Salmon Conservation Organization (NASCO). NASCO’s goal is to protect and preserve the wild Atlantic salmon still left; see also INT’L YEAR OF THE SALMON, <https://yearofthesalmon.org> [<https://perma.cc/78TV-9SPJ>] (last visited May 17, 2022) (noting that, together with the North Pacific Anadromous Fish Commission, NASCO declared 2019 to be the International Year of the Salmon. Activities continued past 2019; for example, in 2022, sixty scientists participated in a research project to study salmon in the North Pacific Ocean).

⁷⁸ Consuming salmon and observing salmon jumping is a tourist attraction in many locales, including Seattle, Washington. See Courtney Carothers et al., *Indigenous Peoples and Salmon Stewardship: A Critical Relationship*, 26 ECOLOGY & SOC’Y, no.1, 2021, art. 16; see also Tim Cox, *Efforts Underway to Support ‘Heritage’ Smelt Fishery Down East*, BANGOR DAILY NEWS, May 21, 2014, <https://www.bangordailynews.com/2014/05/21/news/efforts-underway-to-support-heritage-smelt-fishery-down-east> [<https://perma.cc/S2GC-3XNY>]; Hiram M. Chittenden Ballard Locks, <http://www.ballardlocks.org/> [<https://perma.cc/6F5L-SF4U>] (last visited Mar. 26, 2023).

their river or stream of birth and breed.⁷⁹ As successive generations of wild salmon complete this cycle, they adapt to these rivers both socially and genetically.⁸⁰

Salmon once returned to Maine by the hundreds of thousands. But after a dramatic decline in population due to pollution, overfishing, and man-made water barriers, commercial salmon fishing ended in 1947.⁸¹ In 1999, after a particularly precipitous decline in numbers, the Atlantic salmon was placed on the U.S. endangered species list.⁸² Even after receiving this protection, numbers of wild Atlantic salmon have continued to decline as the remaining population faces pressure from issues such as climate change and aquaculture.⁸³ For example, it now takes approximately two thousand eggs to produce one salmon able to return to its birth waters.⁸⁴

Maine's rivers hold the only currently remaining wild populations of Atlantic salmon in the United States.⁸⁵ In addition to the value of salmon both nutritionally and commercially, the fish also has significant cultural, historical, and social value.⁸⁶ Indigenous peoples have a long history with salmon that includes not only fishing but also spiritual and storytelling elements.⁸⁷ Communities worldwide have tried to preserve heritage fisheries to keep alive traditional methods of

⁷⁹ See *Atlantic Salmon Life Cycle*, ATL. SALMON TR., https://atlanticsalmontrust.org/wp-content/uploads/2016/12/atlantic_salmon_life_cycle.pdf [https://perma.cc/ACQ7-5EVM] (last visited Apr. 7, 2023).

⁸⁰ C. Garcia de Leaniz et al., *A Critical Review of Adaptive Genetic Variation in Atlantic Salmon: Implications for Conservation*, 82(2) *BIOLOGICAL REV.* 173, 187 (2007), <https://onlinelibrary.wiley.com/doi/epdf/10.1111/j.1469-185X.2006.00004.x> [https://perma.cc/68Y2-9WYX].

⁸¹ Catherine Schmitt, *Maine Is Bringing Salmon Back*, HAKAI MAG. (Mar. 2021), <https://hakaimagazine.com/news/maine-is-bringing-salmon-back/> [https://perma.cc/2LUW-PZWT].

⁸² *Id.*

⁸³ Eva B. Thorstad et al., *Atlantic Salmon in a Rapidly Changing Environment—Facing the Challenges of Reduced Marine Survival and Climate Change*, 31 *AQUATIC CONSERVATION* 2305 (2021).

⁸⁴ NASCO, *THE STATE OF NORTH ATLANTIC SALMON REPORT* (Rich Rowe & NASCO eds., 2019), <https://nasco.int/wp-content/uploads/2020/05/SoS-final-online.pdf> [https://perma.cc/MG9Z-6LHN].

⁸⁵ *Atlantic Salmon (Protected)*, NOAA FISHERIES, <https://www.fisheries.noaa.gov/species/atlantic-salmon-protected> [https://perma.cc/2RVG-Q8GN] (last visited May 9, 2022) (demonstrating that this salmon population is protected under the U.S. Endangered Species Act).

⁸⁶ Carothers et al., *supra* note 78.

⁸⁷ *Id.*

fishing.⁸⁸ Because of the importance of the wild salmon population in the state, there have been specific efforts to ensure that this salmon population not only survives but increases in number.⁸⁹ While this continuing effort has achieved some goals, its work remains ongoing.⁹⁰

Today, worldwide, farm-raised Atlantic salmon far outnumber wild salmon.⁹¹ In Maine, a company called Cooke Aquaculture (Cooke) dominates the salmon farming industry.⁹² Cooke leases approximately two dozen ocean-pen sites, which allow for easy transfer between the environment of the farmed fish and open water as well as inland hatcheries.⁹³ As opposed to closed or recirculating aquaculture systems (RAS), open systems for salmon significantly alter the ecosystems and habitats in their surrounding waters.⁹⁴ While open-pen technology has vastly improved over the years,⁹⁵ it still poses

⁸⁸ *Id.*

⁸⁹ *Wild Atlantic Salmon Restoration Project Reaches a Milestone*, MAINE DEP'T OF MARINE RES. (Nov. 8, 2022), <https://www.maine.gov/dmr/news/tue-11082022-1200-wild-atlantic-salmon-restoration-project-reaches-milestone> [<https://perma.cc/9LRW-45EG>].

⁹⁰ See U.S. FISH & WILDLIFE SERV., RECOVERY PLAN FOR THE GULF OF MAINE DISTINCT POPULATION SEGMENT OF ATLANTIC SALMON (*SALMO SALAR*) (2019), https://media.fisheries.noaa.gov/dam-migration/final_recovery_plan2.pdf [<https://perma.cc/Z67E-HBXS>] (illustrating that in 2005, the U.S. Fish and Wildlife Service and the National Marine Fisheries Service cosponsored a recovery plan for the Gulf of Maine (GOM) Distinct Population Segment (DPS) of Atlantic salmon. This plan was revised in 2009. The plan's goal is the removal of the GOM DPS of Atlantic salmon from the list of endangered and threatened wildlife).

⁹¹ As the availability of wild salmon declined, hatcheries rose to fill the gap. Candace Kanes, *Raising Fish*, ME. HIST. SOC'Y, <https://www.mainememory.net/sitebuilder/site/1428/page/2092/display> [<https://perma.cc/M83V-33AQ>] (last visited Apr. 7, 2023).

⁹² *Atlantic Salmon*, ME. AQUACULTURE INNOVATION CTR., <https://www.maineaquaculture.org/atlantic-salmon/> [<https://perma.cc/Y3LX-UG6Q>] (last visited Apr. 7, 2023); Hannah LaCaire, *Opportunity, Controversy, Grow for Maine's Aquaculture Industry*, ME. PRESS HERALD (Nov. 7, 2021), <https://www.pressherald.com/2021/11/07/opportunity-controversy-grow-for-maines-aquaculture-industry/> [<https://perma.cc/7YCS-TE3W>].

⁹³ *The Truth About Industrial Open-Water Net Pens*, OUR SOUND, OUR SALMON, <https://www.oursound-oursalmon.org/truth> [<https://perma.cc/E4SQ-47DD>] (last visited Apr. 7, 2023).

⁹⁴ For assessments of RAS, see, for example, *Closed Containment Aquaculture*, N. ATL. SALMON FUND, <https://nasf.is/en/open-and-closed-containments/> [<https://perma.cc/X2Q7-PSWG>] (last visited May 9, 2022); Everis Ingenieria, *Why Invest in Recirculation Aquaculture Systems (RAS)?*, NTT DATA, https://greendeal.nttdata.com/wp-content/uploads/2019/10/Documentación-RAS_EN.pdf [<https://perma.cc/C9YA-AUZ3>] (last visited Apr. 7, 2023).

⁹⁵ These improvements include postharvest net-pen following, bans on genetically engineered salmon introduction, and controls on pesticide and medication usage. Maine also offers small-scale aquafarmers Limited Purpose Aquaculture (LPA) licenses to encourage another source of sustainable income. See Stephen Rappaport, *DMR Offers*

problems, which is why it is considered high-risk and has been banned in several states and countries. These problems include exchange of waste products, changes in the genetic makeup of wild salmon from escaped and released farm fish, competition that harms wild salmon, chemical releases, feed and fecal runoff, proliferation of parasites and disease, and predator attraction.⁹⁶

Recently, several international companies have proposed building large-scale salmon farms in Maine.⁹⁷ In 2018, Nordic Aquafarms, an international aquaculture company based in Norway, announced plans to construct one of the world's largest land-based salmon farms in Belfast, Maine.⁹⁸ A second company, Whole Oceans, announced its intent to build another supersized land-based salmon farm on a 90-acre property in Bucksport.⁹⁹ Additionally, Norway-based American

Training for Small Aquaculture Ventures, THE ELLSWORTH AM. (May 7, 2022), https://www.ellsworthamerican.com/news/dmr-offers-training-for-small-aquaculture-ventures/article_fae7d09e-83a2-5533-8f0b-68873c6ce00e.html [https://perma.cc/P9S9-KC9N]; *Impacts of Open Pen Freshwater Aquaculture Production on Wild Fisheries*, SCOTTISH GOV'T (Oct. 24, 2012), <https://www.gov.scot/publications/impacts-open-pen-freshwater-aquaculture-production-wild-fisheries/> [https://perma.cc/8LHT-VV3G].

⁹⁶ See generally *New and Updated Ratings*, MONTEREY BAY AQUARIUM SEAFOOD WATCH, <https://www.seafoodwatch.org/globalassets/sfw/pdf/whats-new/2021/seafood-watch-whats-new-december-2021.pdf> [https://perma.cc/44N3-5F6Y] (last visited Apr. 7, 2023) (Monterey Bay Aquarium's Seafood Watch recently downgraded its rating for Maine net pen salmon from "Good Alternative," to "Avoid," based on chemical use, pesticides, and the risk of disease transfer from escaped farmed salmon to wild salmon).

⁹⁷ There are several reasons why Maine is attracting multiple large projects. The state has the fourth largest coastline in the country and a mix of freshwater and saltwater. Maine also has an experienced employee base, fewer restrictions than Washington state, and very low aquaculture lease fees. See generally *Aquaculture LPA and Lease Requirements*, Me. Dep't of Marine Res., <https://www.maine.gov/dmr/aquaculture/lease-lpa-requirements.html> [https://perma.cc/8VWN-TRHM] (last visited Apr. 7, 2023). Each of these aquaculture proposals are proposing "partially open" or open systems. Unlike true RAS systems, which also have some disposal, partially open and open systems all have significant effluent disposal. Note that there was also a fourth proposed CAAP project during the same time period in Jonesport, Maine. Here the Netherlands-based Kingfish Maine company proposed plans to build a \$110 million RAS that could ultimately raise more than 18 million pounds of yellowtail annually in a facility on the shores of Chandler Bay. This proposal has subsequently received state and local approval, although some local residents have since filed suit to overturn the town's permit approval.

⁹⁸ Ethan Andrews, *Norwegian Company to Build Large, Land-Based Salmon Farm in Belfast*, PORTLAND PRESS HERALD (Jan. 30, 2018), <https://www.pressherald.com/2018/01/30/norwegian-company-to-build-large-land-based-salmon-farm-in-belfast> [https://perma.cc/HE2J-UE83].

⁹⁹ This salmon farm would be less than twenty miles away from Nordic Aquafarms' proposed site and would discharge into the same river. See Nick Sambides Jr., *Lease Agreement for Submerged Land Brings Bucksport Salmon Farm Closer to Construction*,

Aquafarms planned to farm salmon at pens in Frenchman Bay, near Acadia National Park.¹⁰⁰ Salmon in these ventures, like animals in CAFOs, are confined in small spaces and cannot forage for their own food or disperse waste. They are fed food of undisclosed composition and may be fed drugs to encourage growth and fight infection and disease (both of which are more likely to occur in confined quarters). Chemicals may be added to the environment to disinfect and de-foul the water.¹⁰¹ The salmon might be bathed in light twenty-four hours a day, again to encourage growth.¹⁰² All these inputs are energy- and water-intensive, and all the outputs, including fish excrement, must have somewhere to go.

While there has been support from some sectors for all these projects, there has also been vociferous opposition to both land- and water-based CAAP plans. Each of the companies who proposed opening salmon farms held numerous public informational sessions, and citizens and organizations raised concerns about issues like zoning, traffic, water usage, and noise.¹⁰³ Individuals questioned

ME. PUB. (Oct. 21, 2019, 1:44 PM), <https://www.mainepublic.org/business-and-economy/2019-10-21/lease-agreement-for-submerged-land-brings-bucksport-salmon-farm-closer-to-construction> [<https://perma.cc/5UYA-TW8J>].

¹⁰⁰ The American Aquafarms plan proposed thirty 150-foot-wide sea pens, occupying over 100 acres in the bay. All current water-based aquaculture plants are situated near shore, as no U.S. offshore aquaculture facilities (yet) exist. Should offshore aquaculture facilities be proposed in the future, the waters off Maine are a likely candidate for placement, making it even more critical that Maine fishermen ensure their rights are protected. See HAROLD F. UPTON, CONG. RES. SERV., R45952, U.S. OFFSHORE AQUACULTURE REGULATION AND DEVELOPMENT (2019); see also Laura E. Jarvis, *Notes: Lessons from Land to Sea: An Informed Approach to Offshore Aquaculture Regulation*, 102 BOS. UNIV. L. REV. 1083 (2022) (offering strategies as to how U.S. aquaculture can move from nearshore to offshore locations).

¹⁰¹ Gwen Curry, *Murky Waters: A History of Toxic Chemicals in the Fish-Farming Industry*, TIMES COLONIST (Nov. 29, 2020), <https://www.timescolonist.com/islander/murky-waters-a-history-of-toxic-chemicals-in-the-fish-farming-industry-4685867> [<https://perma.cc/F6L9-6KV6>]; Les Burrige et al., *Chemical Use in Salmon Aquaculture: A Review of Current Practices and Possible Environmental Effects*, 306 AQUACULTURE 7 (2010).

¹⁰² Ellen Ruppel Shell, *Innovative Fish Farms Aim to Feed the Planet, Save Jobs and Clean Up an Industry's Dirty Reputation*, SCIENTIFIC AMERICAN (May 1, 2022), <https://www.scientificamerican.com/article/innovative-fish-farms-aim-to-feed-the-planet-save-jobs-and-clean-up-an-industrys-dirty-reputation/> [<https://perma.cc/6GUU-5TUW>]; Frode Oppedal et al., *Water Temperature, Light Affect Swimming Depth, Schooling of Caged Salmon*, GLOBAL SEAFOOD ALLIANCE (Mar. 1, 2007), <https://www.globalseafood.org/advocate/water-temperature-light-affect-swimming-depth-schooling-of-caged-salmon/> [<https://perma.cc/3SUM-X2TB>].

¹⁰³ Like CAFOs, CAAPs require excessive amounts of water to operate. See Dara Meredith Fedrow, *Water Use in Confined Animal Feeding Operations (CAFOs) in Minnesota: Who's Keeping Track?*, GRADUATE STUDENT THESES, DISSERTATIONS, &

whether farmed salmon is less healthy than wild salmon,¹⁰⁴ the amount of power these facilities would consume,¹⁰⁵ and the potential reach of problems that can be caused by such massive farms, especially considering the history of problems caused by smaller-scale aquaculture ventures such as those run by Cooke.¹⁰⁶ Various parties expressed concern about the speed at which these projects moved through approval processes and the lack of verified data they provided.¹⁰⁷ Opponents of Nordic Aquafarms raised issues about its discharge system and how it planned to dispose of fecal matter, nitrogen, phosphorus, and food particles.¹⁰⁸ Opponents of American

PRO. PAPERS 11365 (2019), <https://scholarworks.umt.edu/cgi/viewcontent.cgi?article=12430&context=etd> [<https://perma.cc/922M-M3WS>] (finding that CAFO water use in Minnesota, although underregulated and underreported, was enormous); Mary Pols, *Why Some Maine Coastal Communities Are Up In Arms About Aquaculture*, ME. PRESS HERALD (Dec. 9, 2018), <https://www.pressherald.com/2018/12/09/why-coastal-communities-are-up-in-arms-about-aquaculture/> [<https://perma.cc/P4KE-JF2J>].

¹⁰⁴ Caleb N. Raspler, *The Rise of Aquaculture: Is Farmed Salmon a Healthier Alternative than Wild Salmon?*, 26 OCEAN & COASTAL L.J. 1 (2021), <https://digitalcommons.maine.edu/cgi/viewcontent.cgi?article=1395&context=oclj> [<https://perma.cc/Z72M-LJKF>].

¹⁰⁵ *Should CMP Customers Pay for Nordic's Electricity Needs?*, UPSTREAM WATCH (Upstream Watch, Belfast, ME), Mar. 2022, https://www.upstreamwatch.org/_files/ugd/d7341b_e38f17cefba48f5a62f6d5984666706.pdf [<https://perma.cc/LYG4-VT4N>].

¹⁰⁶ Cooke has had numerous problems, and lawsuits, with its Washington State and Canadian operations, and its Maine salmon farms suffered a large die-off in August 2021 (for which the Maine DEP found no permit violations). Sam Rogers, *Salmon 'Die-Off' Incident Raises Concerns About the State's Future in Large-Scale Aquaculture*, NEWS CTR. ME. (Sept. 27, 2021, 6:39 AM), <https://www.newscentermaine.com/article/tech/science/environment/salmon-die-off-incident-raises-concerns-about-the-states-future-in-large-scale-aquaculture/97-6fd16147-eac3-4e34-9b06-d242b7588d79> [<https://perma.cc/AXC4-P6RM>]; see also Evan Bush, *Cooke Aquaculture Agrees to Pay \$2.75M to Settle Lawsuit over Salmon Net-Pen Collapse*, THE SEATTLE TIMES (Nov. 30, 2019, 12:53 PM), <https://www.seattletimes.com/seattle-news/environment/cooke-aquaculture-settles-lawsuit-with-wild-fish-advocates-over-net-pen-collapse/> [<https://perma.cc/96YT-GTUD>]; John Holyoke, *1,000 Farm-Raised Salmon Escape from Canadian Pen, Some Captured at New Brunswick Dam*, BANGOR DAILY NEWS (Sept. 12, 2019, 4:04 PM), <https://www.bangordailynews.com/2019/09/12/outdoors/1000-farm-raised-salmon-escape-from-canadian-pen-some-captured-at-new-brunswick-dam/> [<https://perma.cc/WTK3-V5WB>].

¹⁰⁷ See Testimony of Neal R. Pettigrew, Oceanography Professor, Univ. of Me., before Me. Bd. of Env't Prot. (Dec. 11, 2019), https://8774567e-61ab-4355-a629-8a49a81506a2.filesusr.com/ugd/207e52_646c0a57836240afbb8b1c2bcb3bfc3c.pdf?index=true [<https://perma.cc/P3NY-DHDV>] (testifying to the need for significant additional data collection).

¹⁰⁸ The plan is for the company to discharge over seven million gallons daily, increasing outflow by ninety percent. Story Hinckley, *Aquaculture Wars: The Perils and Promise of Big Fish*, CHRISTIAN SCI. MONITOR (Mar. 13, 2019), <https://www.csmonitor.com/Environment/2019/0313/Aquaculture-wars-The-perils-and-promise-of-Big-Fish> [<https://perma.cc/3BF4-K79X>].

Aquafarms raised issues related to recreational boating and the potential damage to nearby Acadia National Park.¹⁰⁹ Mainers brought court challenges,¹¹⁰ drafted op-eds,¹¹¹ rallied to change Department of Marine Resources rules, and raised concerns with various arms of Maine's state government.¹¹² While these plans and challenges were taking place, Maine passed its RtF constitutional amendment.¹¹³

D. The Future of the RtF and Aquaculture

The question now is how this new constitutional right will impact the ongoing aquaculture debate. While the RtF is not an anti-development tool, it is an instrument to ensure that development does not harm individuals' right to feed themselves adequately and appropriately. The RtF does not sacrifice long-term food availability for short-term goals and corporate profits—principles that are long

¹⁰⁹ *Why We Need to Stop the Industrial Fish Farm Proposed for Frenchman Bay*, FRENCHMAN BAY UNITED, https://44091146-201a-4fb7-83d1-6c55cd66b050.filesusr.com/ugd/cff342_c71241adc16d4287905697665b98b2db.pdf [<https://perma.cc/SC2Z-T2G6>] (last visited May 6, 2022).

¹¹⁰ The Nordic Aquafarms plan was quickly challenged in court by two Maine residents under a theory of zoning irregularities and claimed that they were the true owners of the land under which the company wanted to run underground pipes. Chris Chase, *Nordic Aquafarms Wins One Legal Victory, Moving Planned Farm in Maine a Step Forward*, SEAFOOD SOURCE (Nov. 1, 2021), <https://www.seafoodsource.com/news/aquaculture/nordic-aquafarms-wins-significant-court-victory-begins-final-maine-project-planning> [<https://perma.cc/MDD8-FEDK>].

¹¹¹ *Letters to the Editor and Op-Eds (FinFish Farm)*, FRIENDS OF FRENCHMAN BAY, <https://friendsoffrenchmanbay.org/letter-to-the-editor-fin-fish-farm/> [<https://perma.cc/XM5S-MPGR>] (last visited Apr. 7, 2023).

¹¹² *See, e.g.*, Letter from Lynne A. Williams, Rep., Me. H.R., to Janet Mills, Governor, Me. (Feb. 8, 2022), <https://static1.squarespace.com/static/5d43607f05a6e70001894e29/t/620a8761a5b73c07641b2e04/1644857186066/Williams+Governor+Letter.pdf> [<https://perma.cc/FE5S-HQP9>] (expressing concern with what she termed the state's attitude of supporting aquaculture regardless of the hazards).

¹¹³ In 2021, Maine Representative Robert Alley (a lifelong fisherman) introduced a bill that sought to examine the standards for aquaculture leases and the Department of Marine Resources for aquaculture lease oversight, as well as restrict lease sizes, add input to the process, and amend the leasing structure. The bill was popularly supported but died in May of 2021. *See* H.R. 1146, 130th Leg., First Reg. Sess. (Me. 2021), <http://www.mainelegislature.org/legis/bills/getPDF.asp?paper=HP0824&item=1&snum=130> [<https://perma.cc/25V5-TVYT>]; Email from Matt Cannon, Campaign & Pol'y Assoc. Dir., Sierra Club, to Comm. on Marine Res. (Apr. 8, 2021), <https://www.sierraclub.org/sites/default/files/sce/maine-chapter/Testimony/LD%201146%20Testimony%202021.pdf> [<https://perma.cc/7VXR-RC39>]; Virginia Olsen, Written testimony from Me. Lobstering Union Local 207 to Comm. on Marine Res., <https://static1.squarespace.com/static/5d43607f05a6e70001894e29/t/60742b4623d79b56f8571d52/1618225990415/LD%2B1146%2BPMFH.pdf> [<https://perma.cc/SZ9W-8NZ6>] (last visited Nov. 15, 2022) (supporting LD 1146).

honored by food activists. The pre-RtF opposition to these outsized aquaculture ventures serves as evidence of the RtF's importance. And when turning our attention to potential challenges that can be asserted under the RtF, they are particularly important because of the size of the ventures involved. As with CAFOs, supersized operations pose supersized threats.¹¹⁴ These large-scale aquaculture operations unquestionably consume disproportionate amounts of resources, use concerning amounts of energy, have large amounts of unused inputs and chemical-infused outputs, and likely have other far-reaching negative environmental consequences.¹¹⁵ This is evidenced by a company called Atlantic Sapphire, a Florida-based CAAP that is currently the largest salmon aquaculture plant in the world.¹¹⁶ In 2021 alone, Atlantic Sapphire experienced two mass salmon "mortality events" that resulted in the death of over five hundred tons of salmon, a number of "operational disturbances," the hospitalization of several workers after they were overcome with fumes, and charges of animal cruelty.¹¹⁷ Negatives like these, while impacting the population as a whole, resonate particularly strongly for those seeking

¹¹⁴ See Office of the United Nations High Comm'r for Refugees, *Mapping Human Rights Obligations Relating to the Enjoyment of a Safe, Clean, Healthy and Sustainable Environment*, Rep. No. 7 at 25–27 (Dec. 2013) (noting the connection between the means of large-scale agricultural production and violations of the RtF).

¹¹⁵ The Nordic Aquaculture project alone would "release as much as 759,000 metric tons of carbon dioxide equivalents into the atmosphere every year, roughly equal to the annual CO₂ contributions of 47,000 Americans." Ellen Ruppell Shell, *Innovative Fish Farms Aim to Feed the Planet, Save Jobs and Clean Up an Industry's Dirty Reputation*, SCI. AM. (May 1, 2022), <https://www.scientificamerican.com/article/innovative-fish-farms-aim-to-feed-the-planet-save-jobs-and-clean-up-an-industrys-dirty-reputation/> [https://perma.cc/QVD9-WHG6].

¹¹⁶ *Dreaming of Ocean-Safe Seafood*, ATLANTIC SAPPHERE, <https://atlanticsapphire.com/about/> [https://perma.cc/UW9Y-5PHC] (last visited Apr. 7, 2023).

¹¹⁷ The company also suffered financial setbacks, had additional operational problems in its overseas fish facilities, and considered leaving at least some of its salmon production in favor of trout. See Rob Fletcher, *Atlantic Sapphire Turns to Trout as Losses Deepen*, THE FISH SITE (Aug. 27, 2021), <https://thefishsite.com/articles/atlantic-sapphire-turns-to-trout-as-losses-deepen> [https://perma.cc/K5PJ-LWA7]; Joshua Ceballos, *Aqua-Torture: Fish Farm Accused of Animal Cruelty After 800,000 Salmon Die*, MEAT REALITY PROJECT (May 17, 2021), <http://meatrealty.org/?p=758355> [https://perma.cc/X4XP-EWRG]; Cliff White, *Atlantic Sapphire Stock Price Plunges After Release of Financial Report*, SEAFOODSOURCE (Apr. 15, 2021), <https://www.seafoodsource.com/news/business-finance/atlantic-sapphire-stock-price-plunges-after-release-of-financial-report> [https://perma.cc/2LUK-V55C]; Nestor Arellano, *Atlantic Sapphire Reports Fish Mortality in Florida RAS Facility*, SEAFOODSOURCE (Mar. 23, 2021), <https://www.seafoodsource.com/news/aquaculture/atlantic-sapphire-suffers-mass-salmon-mortality-at-its-florida-ras-farm> [https://perma.cc/4HTW-78UB].

to feed themselves, their families, and their communities through fishing. Maine fishers, particularly lobster fishermen, have already raised several concerns about projects that, viewed through the 4As, would violate their RtF.¹¹⁸

An RtF violation can be incorporated into ongoing challenges or the basis for a new challenge going forward. In either case, it is important that the challenges to these super-sized underwater CAFOs specifically reference the state constitutional RtF available in the state, in order to fully avail themselves of the rights protected therein.¹¹⁹ As one example, an RtF violation can be brought by fishermen concerned about CAAPs polluting the waters they use. Polluting the resources necessary for fishers implicates much of the 4As. Polluted waters that kill or damage fish, or other marine life, mean that fish are no longer available and render consumers unable to procure the amount or type of the food they want. Fishers and consumers whose local waters are contaminated no longer have proximity to the food they need and desire. Additionally, the loss of clean waters undermines the ability of individuals to access the fish they want in a dignified manner. Polluted waters also challenge the requirement that food systems be environmentally sustainable over time.

The Maine government is obligated to protect the interests of fishers against the degradation of their RtF and is obligated to protect their RtF from incursions by third parties. Currently, if one of Maine's commercial aquaculture superfarms pollutes a waterway and

¹¹⁸ Maine lobster fishermen have been particularly vocal as they seek to protect an industry that contributes over a billion dollars to the state's economy and employs thousands of people. See Penelope Overton, *Though Maine's Lobster Harvest was Smallest in 9 Years, Value Remained Steady*, PORTLAND PRESS HERALD (Mar. 6, 2020), <https://www.pressherald.com/2020/03/06/lobster-harvest-smallest-in-9-years-but-value-increased/> [https://perma.cc/S6QS-2U4A]. There are 4,500 Maine state licensed lobster fishermen, and approximately another 10,000 Mainers working within the fishing industry.

¹¹⁹ In August 2022, an animal advocacy rights organization, Animal Outlook, filed a rulemaking petition with the Maine government signed by 152 Maine citizens, asking the Maine Department of Agriculture, Conservation, and Forestry for a policy statement that would ensure the proper treatment for fish in large aquaculture facilities such as the ones being proposed by Nordic Aquafarms, Whole Oceans, and American Aquafarms. That petition was denied in September 2022; Animal Outlook appealed that denial and, in February 2023, filed a lawsuit seeking reversal of the denial and seeking initiation of the rulemaking process. *Maine Aquaculture Petition*, ANIMAL OUTLOOK, <https://animaloutlook.org/legal-advocacy/> [https://perma.cc/6NBK-PXWP] (last visited Mar. 26, 2023). This is an ongoing lawsuit that can incorporate the RtF in the future.

damages the ecosystem and the availability and quality of fish, the RtF of fishers trying to use those waters to feed themselves or their families is violated. While water-based CAAPs clearly have more interaction with bodies of water than land-based CAAPs, the size of these proposed plants means that pollutants and discharges caused by these facilities will still be significant.

While these CAAPs have the potential to violate the RtF of fishers via pollution in many ways, there are a few main problems that are likely to occur. One such problem is the amount of nitrogen that will be deposited into Maine waters. Nitrogen is a nutrient given to salmon in feed, and while efforts have been made to reduce the amounts of nitrogen used, facilities of the size contemplated in Maine will use copious amounts of nitrogen.¹²⁰ The companies proposing the supersized aquaculture plants have not shared the specific contents of the food they will feed their salmon, so the nutrient composition of the excess feed that will need to be disposed of is unknown.¹²¹ These companies have also not opted to share specifics about their discharge plans to ensure that nitrogen will remain at healthy levels, making this issue one of particular concern.¹²²

Excess nitrogen harms the health of human beings when excess amounts get into drinking water or air and makes it harder for aquatic life to survive.¹²³ Specifically, excess nitrogen causes algae and other aquatic plants to grow faster than ecosystems can handle.¹²⁴ Surplus amounts of algae (also known as “algae blooms”) cause harm to aquatic habitats, block light, and decrease the oxygen that fish need to survive, leading to eutrophication (over-enrichment of water) and

¹²⁰ Lincoln Millistein, *5 Fish Farms Would Dump 13,000 Gallons of Nitrogen into Downeast Waters Every Day*, THE QUIETSIDESIDE J. (Jan. 29, 2022), <https://theqjournal.substack.com/p/5-fish-farms-would-dump-13000-gallons> [<https://perma.cc/RM4W-TVBE>].

¹²¹ Farmed salmon are often fed a diet including fish from the Global South, while the resulting salmon is sold in the Global North. Damien Gayle, *Wild Fish Stocks Squandered to Feed Farmed Salmon, Study Finds*, THE GUARDIAN (Mar. 2, 2022), <https://www.theguardian.com/environment/2022/mar/02/wild-fish-stocks-squandered-to-feed-farmed-salmon-study-finds> [<https://perma.cc/F7KJ-DZCX>].

¹²² Nick McCrea, *Giant Maine Indoor Salmon Farm Approaches First Obstacle*, BANGOR DAILY NEWS (Apr. 14, 2018), <https://www.bangordailynews.com/2018/04/14/business/giant-maine-indoor-salmon-farm-approaches-first-obstacle/> [<https://perma.cc/4MJJ-2AU9>].

¹²³ *Nutrient Pollution: The Issue*, EPA, <https://www.epa.gov/nutrientpollution/issue> [<https://perma.cc/R7RN-VFN9>] (Aug. 11, 2022).

¹²⁴ *Id.*

hypoxia (the absence of dissolved oxygen in water).¹²⁵ Large growths of algae and decreases in oxygen supply lead to illnesses and death in aquatic life, causing fish such as salmon to suffocate.¹²⁶ Nitrogen and phosphorous discharge are recognized problems within the aquaculture industry regardless of the system used.¹²⁷ While all aquaculture facilities produce excess nitrogen, a CAAPs project will produce more and therefore poses an outside risk.¹²⁸

Nordic Aquaculture has faced scrutiny over the levels of nitrogen its facility would discharge—levels that would allegedly surpass state allowable limits—and for failing to provide daily limits for nitrogen discharge.¹²⁹ Testimony submitted asserted that Nordic Aquaculture's data was insufficient and that the company did not even provide an analysis of the risks posed by its discharge.¹³⁰ As excess nitrogen can severely damage the ecosystem, one marine scientist stated that the

¹²⁵ *Nutrient Pollution: Harmful Algal Blooms*, EPA, <https://www.epa.gov/nutrient-pollution/harmful-algal-blooms> [<https://perma.cc/YRV7-EZ8S>] (Aug. 25, 2022).

¹²⁶ Water Science School, *Nitrogen and Water*, USGS (May 21, 2018), <https://www.usgs.gov/special-topics/water-science-school/science/nitrogen-and-water> [<https://perma.cc/GV7P-PGEC>].

¹²⁷ See Akeem Babatunde Dauda et al., *Waste Production in Aquaculture: Sources, Components and Managements in Different Culture Systems*, 4 *AQUACULTURE & FISHERIES* 81 (May 2019), <https://www.sciencedirect.com/science/article/pii/S2468550X18300352> [<https://perma.cc/68L4-PTH3>].

¹²⁸ FRIENDS OF THE EARTH, *THE DANGERS OF INDUSTRIAL OCEAN FISH FARMING* 10 (2018), https://foe.org/wp-content/uploads/2018/05/AquacultureReport_051718.pdf [<https://perma.cc/BAB4-ZBQM>].

¹²⁹ In a memo submitted to the planning board, Upstream Watch, a nonprofit organization, asserted the following:

Using Nordic's own dilution numbers provided under oath . . . , DEP staff calculated that the maximum allowable concentration of Nitrogen in the effluent would be 12 mg/l, not the 23 mg/l that NAF has in its application. It was not until DEP staff . . . announced that the permit application's nitrogen levels are almost 2 times the size allowable under existing standards that Nordic wished to take back its modeled dilution projections. Instead, Nordic wished to insert new dilution numbers at significantly higher values. Nordic's own models show that values were not the steady state values. Nordic hand-picked dilution values from a logarithmic graph that represented higher dilutions reached before the effluent had a chance to equilibrate, and coincidentally came very close to their 23 mg/l application. Understanding this dilution factor is critical to this conversation.

Memorandum from Upstream Watch Consultants to Belfast Planning Bd., at 1–3, 7 (Oct. 15, 2020), https://8774567e-61ab-4355-a629-8a49a81506a2.filesusr.com/ugd/207e52_54e257b464c54d55af8231b22a324840.pdf [<https://perma.cc/662T-RH3B>].

¹³⁰ *Testimony to Department of Marine Resources on Nordic Aquafarms*, SIERRA CLUB (Mar. 11, 2020), <https://www.sierraclub.org/maine/blog/2020/03/testimony-department-marine-resources-nordic-aquafarms> [<https://perma.cc/G3NY-7UUX>].

lack of reliable data was unacceptable.¹³¹ Because the effects of excess nitrogen are well documented, the size of the proposed plan is so large, and there is inadequate scientific data on the issue of nitrogen discharge from the CAAP companies, this issue is a RtF violation waiting to happen. In this case, affected parties can assert their RtF challenge now, ahead of any irreparable damage.

Similarly, the RtF could be violated if a commercial aquaculture superfarm introduces sea lice, a type of crustacean that feeds on the skin and blood of salmon,¹³² or disease¹³³ that negatively impacts marine life. Such a situation would affect the availability of food, as no one wants diseased fish. It would prevent individuals from getting enough calories to lead healthy and safe lives and undermine the environmental sustainability of the waterway. Additionally, fishers would be unable to make an adequate living and would lack the ability to lead dignified lives. As with nitrogen pollution, such a situation not only mandates an obligation on the part of the government to step in and rectify the violation but also requires the prevention of RtF violations from happening before foreseeable irreparable harm is done. Testimony before Maine's Board of Environmental Protection noted the prevalence and seriousness of fish diseases in aquaculture facilities and the difficulty that a facility the size of Nordic Aquaculture would have in mitigating those

¹³¹ Testimony from Dr. Kyle Aveni-Deforge, Env't Scientist and Consultant, before Me. Bd. of Env't Prot. (Dec. 13, 2019), https://8774567e-61ab-4355-a629-8a49a81506a2.filesusr.com/ugd/207e52_65828980593047429a1228bda813e569.pdf?index=true [<https://perma.cc/E2NJ-8VMJ>] (asserting that available data was insufficient to reassure stakeholders of an acceptable environmental impact).

¹³² Sea lice can infect wild salmon, but it is much easier for them to find and breed on penned salmon. Infected salmon can die from sea lice and even those that live are commercially unviable. Treating sea lice effectively can involve the use of harsh chemicals. See, e.g., Scottish Government Marine and Fisheries Publications, *Impacts of Lice from Fish Farms on Wild Scottish Sea Trout and Salmon: Summary of Science* (Mar. 12, 2021) (finding an indication that sea lice from aquaculture facilities negatively affect Scottish populations of salmon and sea trout); Dounia Hamoutene et al., *Drug and Pesticide Usage for Sea Lice Treatment in Salmon Aquaculture Sites in a Canadian Province from 2016 to 2019*, NATURE 12 (Mar. 16, 2022), https://www.researchgate.net/publication/359270208_Drug_and_pesticide_usage_for_sea_lice_treatment_in_salmon_aquaculture_sites_in_a_Canadian_province_from_2016_to_2019 [<https://perma.cc/J7JT-RUBJ>].

¹³³ Paul Molyneaux, *Land Based Salmon Plant in Belfast*, 23 FISHERMAN'S VOICE (Mar. 2018), <https://www.fishermensvoice.com/archives/201803LandBasedSalmonPlanInBelfast.html> [<https://perma.cc/U7BX-X92Y>].

diseases.¹³⁴ Nordic Aquafarms has faced criticism for inadequately explaining how they would monitor diseases, viruses, and bacterial contamination in their facility.¹³⁵ In short, CAAPs of this size, especially ones without properly vetted plans and direct access to bodies of water, will assuredly be the source of a disease or sea lice infestation that will negatively impact marine life outside their walls.

Fish escapes provide another example of a potential RtF violation by these proposed CAAPs. Salmon regularly “leak” out of water-based pens and escape during equipment failures, predator attacks, and weather events such as storms.¹³⁶ Fish escapes are an industry-wide problem for aquaculture sites, particularly with salmon populations, as their population in the wild is nearly depleted and needs particular attention. This is a critical issue in Maine, as the state’s rivers have the only remaining wild population of U.S. Atlantic salmon.¹³⁷ Salmon escapes occur in a number of ways, both chronically and acutely.¹³⁸ An estimated two million farmed salmon escape every year into the North Atlantic Ocean, and over three hundred thousand farmed salmon adults are assumed to have escaped between 2000 and 2005 in Maine and New Brunswick, Canada.¹³⁹

¹³⁴ Testimony from Dr. Brian Dixon, Professor of Biology and researcher on fish immunology, Univ. of Waterloo, before Me. Bd. of Env’t Prot. (Dec. 13, 2019), https://8774567e-61ab-4355-a629-8a49a81506a2.filesusr.com/ugd/207e52_365835f5ab1b4902be263e4832c3b6e2.pdf?index=true [<https://perma.cc/3SJY-3XNE>] (listing a number of potentially problematic viruses and bacteria, including infectious salmon anaemia virus, the bacterium *Aeromonas salmonicida* and infectious pancreatic necrosis (IPN or IPNV)).

¹³⁵ Memorandum from Upstream Watch Consultants to Belfast Planning Bd., *supra* note 128, at 7 (“Methods, diseases, detection limits are not provided in sufficient detail.”).

¹³⁶ *Washington Bans Fish-Farming Net Pens, Citing Salmon Threat*, MYNORTHWEST (Nov. 18, 2022), <https://mynorthwest.com/3722046/washington-bans-fish-farming-net-pens-citing-salmon-threat/> [<https://perma.cc/3PQF-XWLM>].

¹³⁷ *Salmon Habitat Monitoring Program*, ME. DEP’T OF ENV’T PROT., https://www.maine.gov/dep/water/monitoring/rivers_and_streams/salmon/index.html [<https://perma.cc/QB7W-6279>] (last visited Apr. 7, 2023).

¹³⁸ Chronic salmon escapes are the regular, often low-level, loss of stock fish from their pens to the outside environment. Acute salmon escapes are less regular losses from particular events that often result in mass loss of stocked fish to the outside environment. C.J. BRIDGER ET AL., CANADIAN SCI. ADVISORY SECRETARIAT, RSCH. DOC. 2015/072, PHYSICAL CONTAINMENT APPROACHES TO MITIGATE POTENTIAL ESCAPE OF EUROPEAN-ORIGIN ATLANTIC SALMON IN SOUTH COAST NEWFOUNDLAND AQUACULTURE OPERATIONS 2, 19 (Dec. 2015), <https://waves-vagues.dfo-mpo.gc.ca/library-bibliotheque/362182.pdf> [<https://perma.cc/6CRF-BECJ>].

¹³⁹ Matthew R.J. Morris et al., *Prevalence and Recurrence of Escaped Farmed Atlantic Salmon (Salmo salar) in Eastern North American Rivers*, 65 CANADIAN J. FISHERIES & AQUATIC SCI. 2807, 2808 (2008) (noting the dangers of escaped farm salmon and attempting to pinpoint the numbers of North Atlantic escapees).

Escapes are so common that they are now recognized as an “inevitable” aspect of aquaculture, regardless of the system employed.¹⁴⁰

Studies have found that not only are escaped salmon unable to live for long in the wild, but they also commonly interbreed with wild salmon before they die, and their progeny fare poorly.¹⁴¹ Unlike wild salmon, farmed salmon are selectively bred to encourage traits that are desirable in captive salmon, making the genetic mating of farmed and wild salmon detrimental to the life span and survival capabilities of the resulting fish.¹⁴² One study found that the offspring of farmed and wild salmon lived considerably shorter lives than their wild counterparts, and defects suffered by the first generation of these fish continued in successive generations.¹⁴³ Additionally, wild salmon adapt over time to the particular regions in which they spawn and breed, and interbreeding negatively impacts the ability of wild salmon to adapt to the types of environmental variations occasioned by climate change.¹⁴⁴ This is especially damaging in areas such as Maine, where the wild populations are small and the chances of outbreeding depression (where farmed salmon overtake wild salmon and depress the fitness capabilities of wild salmon) are high.¹⁴⁵

The issue of farmed salmon escapes directly implicates numerous principles of the RtF and is a foreseeable violation that must be addressed. Escaped farm salmon put the health of wild salmon at risk and make it more difficult to restore wild salmon populations to full health. Escaped farm salmon undermine the biodiversity of

¹⁴⁰ This is true worldwide, despite the regulations on escapes in place in Maine and other locales. Javier Atalah & Pablo Sanchez-Jerez, *Global Assessment of Ecological Risks Associated with Farmed Fish Escapes*, GLOBAL ECOLOGY & CONSERVATION, Mar. 2020, at 2.

¹⁴¹ Even escaped salmon that cannot or do not breed have significant effects on wild populations through competing with them for food and space and transmitting diseases and parasites. See Rosamond Naylor et al., *Fugitive Salmon: Assessing the Risks of Escaped Fish from Net-Pen Aquaculture*, 55 BIOSCIENCE 427 (2005).

¹⁴² ATLANTIC SALMON RECOVERY PLAN COMPANION DOCUMENT, at 24 (May 23, 2018), https://atlanticsalmonrestoration.org/resources/documents/atlantic-salmon-recovery-plan-2015/atlantic-salmon-recovery-plan-companion-document/index_html [<https://perma.cc/LD4U-3YHF>].

¹⁴³ Quirin Schiermeier, *Fish Farms' Threat to Salmon Stocks Exposed*, 425 NATURE 753 (2003).

¹⁴⁴ Eva B. Thorstad et al., *Atlantic Salmon in a Rapidly Changing Environment—Facing the Challenges of Reduced Marine Survival and Climate Change*, 31 AQUATIC CONSERVATION: MARINE & FRESHWATER ECOSYSTEMS 2654 (2021).

¹⁴⁵ See ATLANTIC SALMON RECOVERY PLAN COMPANION DOCUMENT, *supra* note 142.

waterways, make it less likely that better-adapted wild salmon will survive, and prevent consumers from getting the type of fish they desire. In addition to the genetic travails they bring, escaped farm salmon are more likely to bring sea lice and disease into the waterways they use than their wild brethren. Finally, because of the distances they travel, this issue is one that can negatively impact fishers and consumers inside and outside the state of Maine.

In addition to pollution, excess nitrogen, disease, sea lice, and the long-lasting negative consequences of fish escapes, all of which would individually violate the RtF of Maine fishermen and which collectively assuredly violate the RtF of most Mainers, mega aquaculture factories threaten the RtF of all types of fishermen in other ways. While these other violations are too numerous to list, a Canadian study found a link between a decline in caught lobsters and the operation of nearby fish farms.¹⁴⁶ Lobster fishermen from towns surrounding Frenchman's Bay and the small-scale farmers who grow scallops, mussels, oysters, and seaweed there have protested the competition that a large-sized aquaculture plant would bring.¹⁴⁷ In addition to the environmental factors that could negatively impact lobster fishermen, the physical imposition of intake and discharge structures could also interfere with lobster, scallop, and crab fishing.¹⁴⁸

¹⁴⁶ Public Comment from Jim Merkel to Me. Dep't of Env't Prot. (Feb. 17, 2020), <https://www.maine.gov/dep/ftp/projects/nordic/public-comments/Merkel,%20Jim%203.pdf> [<https://perma.cc/C7W4-AT8R>] (relying on I. Milewski et al., *Sea-Cage Aquaculture Impacts Market and Berried Lobster (Homarus americanus) Catches*, 598 MARINE ECOLOGY PROGRESS SERIES 85 (2018)).

¹⁴⁷ Letitia Baldwin, *Proposed Salmon Farm Sparks Opposition*, MT. DESERT ISLANDER (Feb. 9, 2021), https://www.mdislander.com/news/proposed-salmon-farm-sparks-opposition/article_92c362de-5988-5b07-b79b-8bb1d217af8a.html [<https://perma.cc/FAX5-YZBW>]; Testimony of Ecologist Richard Podolsky, CEO, EcologyAndTechnology, before Me. Bd. of Env't Prot. (Jan. 17, 2020), https://8774567e-61ab-4355-a629-8a49a81506a2.filesusr.com/ugd/207e52_77ec1a3ba56d4c4e9ed2fc543eb1c1af.pdf [<https://perma.cc/HJ4D-2XAL>] (discussing, *inter alia*, the lack of appropriate assessment done by Nordic Aquaculture on natural resources, amphibian and bird impacts, the permanent thermal anomaly the warm discharge water will create, and the impact this may have on lobster populations and other populations).

¹⁴⁸ Upstream Watch, *Comments on Olver Association Submission to the Belfast Planning Board* (Oct. 20, 2020), https://8774567e-61ab-4355-a629-8a49a81506a2.filesusr.com/ugd/d7341b_c47f99aa826c48969e323216bd92563c.pdf [<https://perma.cc/2JE7-PNAG>].

III

THE RTF IN THE UNITED STATES AND ACROSS THE GLOBE

A. The RtF in the United States

In the United States, acceptance of the RtF at the federal level, either through the ICESCR or through a federal constitutional amendment, is unlikely, which is why states and other subnational entities have been pursuing the RtF on their own.¹⁴⁹ While individual state adoption of the RtF will not provide the benefit of federal commonality, states do provide a flexible forum for evolving standards that go beyond federal constitutional mandates.¹⁵⁰ Additionally, individual states are more accustomed to experimentation and can try different avenues of achieving a particular human right, with consideration of their unique standings in areas such as agricultural land and type, rates of food insecurity, and rural and urban demographics.¹⁵¹ This flexibility is particularly valuable for issues such as the RtF, which embraces both positive and negative rights.¹⁵² State constitutions are historically disposed to recognize positive social and economic rights, and the federal Constitution is widely viewed as an exceptional document hostile to positive rights.¹⁵³ While not completely accurate, it is true that as compared to other countries, the U.S. Constitution is more a document of negative than positive rights.¹⁵⁴

B. The RtF Internationally

Although the United States has never before had a RtF or a practice of assessing human rights violations in state courts, other countries have.¹⁵⁵ Both courts and independent bodies in other countries have considered aquaculture problems through the RtF and have

¹⁴⁹ EMILY ZACKIN, *LOOKING FOR RIGHTS IN ALL THE WRONG PLACES: WHY STATE CONSTITUTIONS CONTAIN AMERICA'S POSITIVE RIGHTS* (2013).

¹⁵⁰ *Id.*

¹⁵¹ *Id.*

¹⁵² *Id.*

¹⁵³ *Id.*

¹⁵⁴ *Id.*

¹⁵⁵ State courts in the United States rarely entertain arguments based on international human rights, and when they do, it is often in dicta or dissents. *See* THE OPPORTUNITY AGENDA, *LEGAL AND POLICY ANALYSIS: HUMAN RIGHTS IN STATE COURTS 2011 EXECUTIVE SUMMARY* (2011).

validated the theory that aquaculture ventures can violate the RtF.¹⁵⁶ For example, in 2020 a Canadian appeals court looked at the assessments required for a salmon aquaculture company that utilized both land- and water-based facilities. The appeals court held, *inter alia*, that despite an earlier administrative ruling to the contrary, an environmental review was required. The court specifically noted that environmental protection was a core value of Canada that supports forward-looking protection over backward-looking remediation.¹⁵⁷ Similarly, a 2021 assessment of salmon farming in Chile looked at the connection between certain human rights violations and the salmon industry and specifically noted that salmon escapes, seabed pollution, the overuse of antibiotics, and the reduction of available fish resources to artisanal fishers, indigenous peoples, and the community could be violations of the RtF.¹⁵⁸ In one case in India, a country that has been at the forefront of RtF litigation, petitioners challenged the large-scale conversion of agricultural lands to commercial aquaculture shrimp farms. The court held that development and long-term environmental protection had to proceed in concert with one another. As a result, the court ordered a halt to development in certain protected areas and ordered a compensation assessment.¹⁵⁹

While fishers and their allies consider additional RtF challenges in Maine,¹⁶⁰ CAAP permits in the state continue to be filed¹⁶¹ and there have been additional setbacks to the plans already in motion. Recently, Maine's Department of Marine Resources denied American Aquaculture's application because its imported eggs would not meet genetic and disease standards, a decision that terminated the

¹⁵⁶ Lydia Teh et al., *The Role of Human Rights in Implementing Socially Responsible Seafood*, 14 PLOS ONE 8 (2019); Olivier De Schutter (Special Rapporteur on the Right to Food), *The Transformative Potential of the Right to Food* at 6–15, U.N. Doc. A/HRC/25/57 (Jan. 24, 2014).

¹⁵⁷ *Salmonid Ass'n of E. Newfoundland v. Her Majesty the Queen in Right of Newfoundland and Labrador*, 2020 NLSC 34 ¶ 73.

¹⁵⁸ ANDREA RIEDEMANN FUENTES ET AL., *THE SALMON INDUSTRY AND HUMAN RIGHTS IN CHILE*, 165, 186, 200 (2021).

¹⁵⁹ *S. Jagannath v. Union of India* (1997) 2 SCC 87 (India).

¹⁶⁰ As of this writing at least eight towns in Maine have adopted their own "holds" on large aquaculture projects within their borders. Stephen Rappaport, *Towns Fear, Fight Aquaculture Expansion*, ISLAND INSTITUTE (Feb. 1, 2023), <https://www.islandinstitute.org/working-waterfront/towns-fear-fight-aquaculture-expansion/> [<https://perma.cc/4ZQF-S77Z>].

¹⁶¹ In February 2023 a new company, Xcelerate Aqua, founded by two former Nordic Aquafarms executives, leased 45 acres in Millinocket, Maine, with the stated intention of installing a RAS salmon super-sized farm there.

company's water farm application.¹⁶² Although the company filed a lawsuit after this termination in May 2022, they dropped that suit in July 2022 and are reevaluating their options in the state.¹⁶³ In an effort to halt any resubmissions, in February 2023 a Maine advocacy group opposed to the project has asked the state for a moratorium on approvals and renewals of net-pen fish farms such as the one American Aquafarms was promoting, to give the state time to bolster their protections for citizens.¹⁶⁴ The Nordic Aquafarms project has also faced barriers that have halted its progress. In February 2023, the Maine Supreme Court issued a ruling in one of the two challenges to Nordic Aquafarms's planned salmon water farm. In this case the court held that the intertidal zone where the company's intake and outtake pipes would pass through on their way to Penobscot Bay actually belong to the neighbors of that property, citizens who are opposed to the project. That ruling, a significant blow to the project, sends the case back to the trial court.¹⁶⁵ In the aftermath of this ruling, the plaintiffs and other advocates are asking the court to rule on whether Nordic Aquafarms has any title, right, or interest in the land they would need for their inflow and outflow pipes.¹⁶⁶ While the Whole Oceans project is still on track, construction has yet to begin, and it is unlikely the site will open for years, giving opponents time to challenge the project.¹⁶⁷

¹⁶² See Letter from Patrick C. Keliher, Commissioner, Me. Dept. of Marine Resources, to Elizabeth M. Ransom, P.G. (April 19, 2022), https://drive.google.com/file/d/1qnXqvRRL7DFM8N0yLdT7d5ifyCY_ayn_/view [<https://perma.cc/2EAN-QX88>].

¹⁶³ Tom Cheney & John Burrows, Maine Regulators Terminate Proposal for Massive Aquaculture Project, *Atl. Salmon Fed'n* (Apr. 22, 2022), <https://www.asf.ca/news-and-magazine/in-the-field/maine-regulators-terminate-proposal-for-massive-aquaculture-project> [<https://perma.cc/592H-69P7>].

¹⁶⁴ See *Protecting Maine's Coastal Water*, FRENCHMAN BAY UNITED (Feb. 9, 2023), <https://www.frenchmanbayunited.org/post/protecting-maine-s-coastal-waters> [<https://perma.cc/DQN5-EKRM>].

¹⁶⁵ See *Jeffrey R. Mabee v. Nordic Aquafarms Inc.*, No. Wal-22-19, 2023 WL 2027657 (Me. 2023).

¹⁶⁶ See *Selection of Legal Briefs: March 2023 Actions*, UPSTREAM WATCH <https://www.upstreamwatch.org/litigation> [<https://perma.cc/A54K-6QB6>] (last visited Mar. 26, 2023).

¹⁶⁷ Press Release, Whole Oceans, Whole Oceans to Begin Site Work in Bucksport (Mar. 31, 2022), <https://wholeoceans.com/whole-oceans-to-begin-site-work-in-bucksport/> [<https://perma.cc/H5GX-YWND>]; Chris Chase, *Nordic Aquafarms Wins Legal Victory, Moving Planned Firm in Maine a Step Forward*, SEAFOOD SOURCE (Nov. 1, 2021), <https://www.seafoodsource.com/news/aquaculture/nordic-aquafarms-wins-significant-court-victory-begins-final-maine-project-planning> [<https://perma.cc/C5UZ-5GMQ>].

CONCLUSION

The RtF is a basic human right that ensures that all people can access sufficient food and that the systems that provide food are sustainable over time. As the only place in the United States that currently provides this right, and as the focus of an unprecedented number of significantly sized proposed salmon aquaculture farms, Maine is in a unique position. The RtF provides Mainers with a new tool that allows the state and its citizens to protect their fishers, citizens, and environment in a way no one in this country has had before—the opportunity to challenge an oversized animal farming operation within the United States borders through a human rights framework. Mainers can use this opportunity to show the country what the RtF is and is not. The RtF is not a right to raise salmon in overcrowded conditions that crowd out small- to medium-sized fishermen and harm animals, humans, and the environment. The RtF is a human right that is inextricably tied to the right to a sustainable environment, the right of smaller producers to make a living, and the right of consumers to have healthy and sustainable choices. This is an opportunity to showcase the potential reach of the RtF to a nation struggling with issues of hunger, food accessibility, and food equity, and there is no doubt the country will be watching.