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The Regulation of Seaweed Harvesting in Multiple Jurisdictions

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Summary

The purpose of this memorandum is to highlight the various legal regimes surrounding the regulation of seaweed harvesting.

Seaweed refers to several species of marine algae that are used in many maritime countries as a source of food, to produce cosmetics, for various industrial applications, and as a fertiliser. There are hundreds of different varieties of seaweed. The largest seaweed-cultivating countries are in Asia, such as Japan, South Korea, China, and Indonesia. However, the industry has been growing steadily across North America and Europe. This has led to the creation of various statutes and regulations regarding seaweed harvesting. Canada works together with its provincial counterparts to implement a legal regime of limited scope. The maritime province of Nova Scotia has its own provincial legislation and regulations, while Newfoundland and Labrador relies solely on the federal government. The seaweed harvesting legal regime in Canada contrasts significantly with those in other jurisdictions. The state of Maine uses a system of regulatory measures based on licencing, permits, and quotas. In Europe, two of the largest seaweed harvesting countries, Ireland and Norway, have well-established legal regimes that have been applied for many years.

Seaweed Harvesting Legal Regime in Canada

Canada has limited regulations surrounding the harvesting of various types of seaweed. Under the *Fisheries Act*, RSC, 1985, c F-14, the federal Department of Fisheries and Oceans Canada (“DFO”) is ultimately responsible for the regulation of seaweed harvesting. The DFO has jurisdiction below the low water mark and where regulations exist concerning the harvesting of seaweed populations in the intertidal zone. These existing regulations are listed under the *Fisheries Act* and referenced as the Atlantic Fishery Regulations, SOR/86-21, s 94-96. Under Schedule I of these regulations, four types of seaweed (dulse, Irish moss, horsetail or wire weed, and rockweed) are defined as marine plants. Section 94 provides definitions for five terms used in the corresponding sections (sections 95-96) that outline the “harvesting methods and gear” for marine plants. For example, section 95(4) prohibits the use of a basket drag rake to harvest marine plants. In addition, seaweed harvesting is restricted or prohibited in specific areas with precise latitude longitude coordinates referred to as “Districts.” Although the federal government has the jurisdiction to regulate the harvesting of seaweed along the country’s coastlines, the current regulations are limited in scope and use.

Nova Scotia

There is provincial legislation that provides protection for certain species of seaweed. The Nova Scotia *Beaches Act*, RS, c 32, s 1 prohibits the removal of seaweeds from public beaches, and other sections subsume seaweeds under statutory definitions of “fish.” There is a specific section (Part VI, entitled Sea Plant Harvesting, sections 65-71) in the province’s *Fisheries and Coastal Resources Act*, SNS 1996, c 25, which outlines the leasing system for the seaweed species of rockweed and kelp, but not Irish moss, dulse, or any other type of seaweed. In addition, rockweed is specifically protected and regulated in Nova Scotia. The Rock Weed Harvesting Regulations, NS Reg 239/2016, made under section 71 of the *Fisheries and Coastal Resources Act*, detail the conditions under which private individuals and commercial bodies are authorized to harvest rockweed. The regulations address required leases and permits, permitted areas,

quotas, and harvesting methods. Other maritime provinces do not have parallel legislation regarding seaweed harvesting.

As is the case in the rest of Canada, the seaweed harvesting industry in Nova Scotia is small in scale compared to other regions of the world. However, there has been a particular interest in regulating this industry because the province is home to one of the world's leading seaweed harvesting companies, Acadian Seaplants Limited. It is a multinational company that employs over 350 people in 12 countries.¹ Based in Dartmouth, Nova Scotia, Acadian Seaplants has been granted long-term government leases for seaweed harvesting along the coasts of New Brunswick and Nova Scotia.² It operates six large seaweed processing facilities, including four in the Maritimes (located in Yarmouth, Cornwallis, and Charlesville, Nova Scotia, and Pennfield, New Brunswick).³ It also has substantial seaweed harvesting operations in Ireland, Scotland, and Maine.

Newfoundland and Labrador

There are no provincial statutes or regulations regarding seaweed harvesting in the province. In recent correspondence with the author, Dr. Robert Hooper—an expert in seaweed ecology and an Associate Professor at the Department of Biology at Memorial University in St. John's, Newfoundland—expressed his concern at the lack of federal and provincial government expertise in the area.⁴ He mentioned that when there was commercial seaweed harvesting in the province many years ago, the DFO applied the same regulations (listed above) that it developed for the Maritimes for the harvest of rockweed, kelp, dulse, and Irish moss. Dr. Hooper expressed that seaweed resources are “relatively limited” due to the “very little tidal range and steep shore slope which provide very little habitat for *Ascophyllum* or dulse.” He added that “much of the province is impacted by heavy ice scour which scrapes off most seaweeds [and that it is] too cold for rapid growth of temperate seaweeds like Irish moss.”

Seaweed Harvesting Legal Regime in Other Jurisdictions

Maine

The state of Maine has a viable and growing seaweed harvesting industry. Rockweed comprises more than 95% of seaweed landings in Maine. The word “landings” refers to seaweed found in the intertidal zone.⁵ Other kinds of red, green, and brown algae, such as dulse, nori, Irish sea moss, sea lettuce, and kelp, comprise the remaining 5%. An estimated 19.6 million pounds (8890 tonnes) of rockweed was harvested in 2017, representing a market value of approximately

¹ Acadian Seaplants Limited, “About Acadian Seaplants” (2019), online: <www.acadianseaplants.com/marine-plant-seaweed-manufacturers>.

² *Ibid.*

³ *Ibid.*

⁴ Email correspondence with Dr. Robert Hooper on February 2, 2019.

⁵ Maine Department of Marine Resources & Rockweed Plan Development Team, “Fishery Management Plan for Rockweed (*Ascophyllum nodosum*)” (January 2014) at 1, online: <www.maine.gov/dmr/science-research/species/rockweed/documents/DMRRockweedFMPJan2014.pdf> [Fishery Management Plan].

\$630,000 USD. This is a substantial increase from the 4.76 million pounds (2159 tonnes), at a market value of \$84,000 USD, that was harvested in 2001.⁶

Rockweed harvesting is managed through a combination of state statutes and regulations. A detailed list of these can be found in Tables 6 and 7 of a comprehensive report on the status of rockweed by the Maine Department of Marine Resources.⁷ Some of the important provisions regarding harvester permits, buyer's licenses, and their associated fees are set forth at 12 MRSA Chapter 623 § 6803 Seaweed Permit, § 6803-A Seaweed buyer's licence, and § 6803-B Seaweed Buyer's Surcharge.⁸ In addition, under 12 MRSA § 6803-C, a specific area in Maine, Cobscook Bay, is divided into 14 management sectors, and harvesting is prohibited in certain areas.⁹ Harvesters must submit annual harvest plans that detail the management sectors proposed for harvest, the total rockweed biomass in the proposed sector, the amount of biomass proposed to be harvested, the harvest methods, and a description of how marine organisms harvested with the rockweed will be managed. Further, under the statute, the total biomass removed in a harvest management sector may not exceed 17% of the harvestable biomass that is eligible to be harvested annually. The intertidal zone in Cobscook Bay is the only area on the Maine coast where these additional requirements apply to rockweed harvesting.

Harvesting restrictions are set forth in Department of Marine Resources Regulations 13-188 CMR (Code of Maine Rules) Chapter 8 and 13-188 CMR Chapter 29, which apply statewide. In particular, Chapter 29, § 29.05(A)(1) requires that rockweed be harvested so that "the lowest branches shall remain undisturbed and attached to the main stalk," and § 29.05(A)(2) further requires that rockweed be harvested so that "a minimum of 16 inches of the rockweed remain above the holdfast."¹⁰ Under these regulations, where harvesting takes place is not specified and owners of the intertidal zone play little to no role in the process.

Ireland

There is a robust, growing seaweed harvesting industry in Ireland. The most economically important seaweeds are rockweed and two species of red calcified coralline algae, referred to as maerl. Only a small percentage of the estimated three million tonnes of natural seaweed resources are harvested every year.¹¹ The value of exploited Irish seaweed resources is predicted to reach around 30 million Euros per year by 2020.¹² The legislation for seaweed harvesting in Ireland is based on the *Foreshore Act, 1933*. The foreshore, which comprises the seabed and the shore below the line of high water at medium tide and extends outwards to the limit of twelve nautical miles, is owned by the state. Under section 3(1) of this Act, the Minister of the Department of Agriculture, Food and the Marine grants a licence for seaweed harvesting other

⁶ State of Maine Department of Marine Resources, "Historical Maine Rockweed Landings" (last updated February 2, 2018), online: <www.maine.gov/dmr/commercial_fishing/landings/documents/rockweed.table.pdf>.

⁷ Fishery Management Plan, *supra* note 5 at 29-30.

⁸ State of Maine Department of Marine Resources, "Maine Rockweed" (2019), online: <www.maine.gov/dmr/science-research/species/rockweed/index.html>.

⁹ *Ibid.*

¹⁰ Department of Marine Resources, "Chapter 29-Seaweed" (2019), online: <www.maine.gov/dmr/laws-regulations/regulations/documents/29.pdf>.

¹¹ Astrid Werner & Stefan Kraan, "Review of the Potential Mechanisation of Kelp Harvesting in Ireland" (October 2004), *Marine Institute – Foras na Mara*, at 31, online: <oar.marine.ie/handle/10793/261> [Werner].

¹² Irish Wildlife Trust, "The Irish Wildlife Trust Seaweed Harvesting Policy" (September 2017) at i, online: <iwt.ie/wp-content/uploads/2017/09/IWT-Seaweed-Harvesting-Policy.pdf>.

than small amounts for personal use.¹³ There are no restrictions on the quantities and harvesting times of seaweed, except for maerl, for which the maximum harvest is 10,000 tonnes per year.¹⁴ The only other seaweed harvested in large quantities is rockweed, at approximately 20,000 tonnes per annum.¹⁵ Annual quantities for other seaweeds, such as dulse, carrageen moss, and wracks, are estimated to be between 50 and 250 tonnes.¹⁶

Norway

Seaweed harvesting is a highly regulated industry in Norway. The most common type of harvested seaweed is called *Laminaria hyperborea*, at an annual rate of between 140,000 and 180,000 tonnes.¹⁷ Specific management schemes using special harvesting machinery have been developed to collect this seaweed. Norway's Department for Fisheries and Aquaculture limits seaweed harvesting to selected areas in four counties along the south and southwestern coast by only one company, FMC BioPolymer AS.¹⁸ A Seaweed Management Plan was completed in 2000 by the Department for Fisheries and Aquaculture, with input from various agencies including the Directorate of Fisheries ("DOF"), and confirmed regulations were developed in 1995. Some of these regulations include:

- The DOF has the authority to regulate harvesting areas. In consultation with the Directorate for Nature Management it can permit harvesting in specific areas. The regulations comprise fallow periods and the order in which fields are harvested.
- A harvesting licence is issued for up to 5 years but only if the licensed area and neighbouring areas can withstand the harvesting impact without negative effects on the ecosystem.
- An area can be closed before the 5-year licence expires if unexpected consequences caused by harvesting arise. A licence can also be revoked with a permanent ban.
- The DOF can permit harvesting in non-designated, new areas if the applicant proves that the area is suitable for harvesting.
- The DOF can issue regulations with respect to harvesting equipment. The harvesting boats have to be registered by the DFA.
- At least one month before harvesting starts the owner or user of the harvesting boat has to inform the local fishery administration in which area will be harvested.
- The harvesters are obliged to write a harvesting diary stating dates, sites and quantities harvested. The harvested quantity per year has to be reported to the DOF.¹⁹

There are also additional Norwegian regulations related to habitat protection that influence seaweed harvesting. For example, harvesting activity is not permitted during the breeding season in a number of protected seabird reserves.²⁰

¹³ Werner, *supra* note 11 at 35.

¹⁴ *Ibid.*

¹⁵ *Ibid.*

¹⁶ *Ibid.*

¹⁷ *Ibid* at 22.

¹⁸ *Ibid.*

¹⁹ *Ibid* at 23.

²⁰ *Ibid.*

Conclusion

There are varying degrees of legal regimes surrounding seaweed harvesting. Canada relies on the limited scope of the *Atlantic Fishery Regulations* under the *Fisheries Act*. Some provinces, such as Nova Scotia, have additional provincial legislation to regulate particular species of seaweed. However, this pales in comparison to the highly regulated seaweed industries of Maine, Ireland, and Norway.