

Seaweed Harvesting on Vancouver Island: A New Industry That Requires Better Regulation

A Report for the Mid Vancouver Island Habitat Enhancement Society and
the Nile Creek Enhancement Society

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Seaweed Harvesting on Vancouver Island: A New Industry That Requires Better Regulation

The new commercial seaweed harvesting industry emerging on the east coast of Vancouver Island could significantly impact extraordinarily valuable coastal ecosystems. Yet senior governments are failing to provide adequate oversight of the new industry.

Contrary to its own stated policy, the provincial government is approving licences for the commercial harvest without adequate study of environmental impacts. And the federal government has failed to adequately investigate and address scientists' concerns that certain harvesting activities are likely non-compliant with *Fisheries Act* habitat protection provisions. Hampered by cutbacks in staff, DFO has failed to seriously consider the scientific issues that have been raised and to gather relevant evidence – and then rationalizes its inaction by citing a purported lack of “conclusive evidence” that the harvest harms fish habitat.¹ In regulating this novel industry, both governments seem to have abandoned the Precautionary Principle that Canada has long endorsed and supported.²

Background

Global demand for *Mazzaella Japonica* seaweed is expanding rapidly – it is a valuable source of carrageenans widely used to gel, thicken and stabilize processed foods, cosmetics and pharmaceuticals. Since 2007, the British Columbia Ministry of Agriculture has been issuing licences for the harvest of this seaweed from beaches. In 2011, investor interest increased, which led to an increase in licensed harvests. In 2012, the ministry issued licences to commercially harvest up to 5,000 tonnes of *Mazzaella Japonica* seaweed from Vancouver Island

¹ On December 5, 2012, forage fish biologist Ramona de Graaf, MSc, asked DFO to take action and investigate a potential HADD (harmful alteration or disruption, or destruction of fish habitat) contrary to s. 35 of the *Fisheries Act*. De Graaf reported that in the preceding three days a commercial harvester using a large machine/caterpillar on the beach was operating in a potentially critical fish spawning habitat area, and that sand lance embryos were likely destroyed. A formal incident report was recorded, and DeGraaf provided DFO with photographs of the harvest and evidence of damage to forage fish. On May 31, 2013 Ian Birtwell, Ph.D, a former DFO research scientist, sent a detailed report co-authored with other scientists raising this and other concerns (entitled *Seaweed Harvesting on the East Coast of Vancouver Island: A Biological Review*, by Ian Birtwell, Ramona de Graaf, Ross Peterson, and Doug Hay) to the Regional Director General of DFO Pacific Region. On July 27, 2013 Diane Sampson wrote the DFO Regional Director General with similar concerns about the impacts of the seaweed harvest. On October 8, 2013 scientist Ross Peterson raised such concerns with Tola Cooper of DFO. See Appendix F for a DFO letter that sets the bar low for DFO action, citing a lack of “conclusive evidence.”

² Canada endorsed the Precautionary Principle at Rio and other international conferences, and the Supreme Court of Canada has endorsed it as a canon of statutory interpretation. See *The Precautionary Principle in Canada* by the Environmental Law Centre, at <http://www.elc.uvic.ca/associates/documents/Jun14.10-Precautionary-Principle-Background.pdf>.

beaches in the area between Deep Bay and Parksville. An additional harvest of 600 tonnes near Bowser has been approved for 2013.³

Scientists are concerned that these pilot project harvests may soon expand to meet the global demand for seaweed, and that significant environmental harm may result. They are concerned that governments are not exercising prudence in dealing with a new industry which may create unexpected negative impacts.

A team of respected scientists has stated that this new commercial industry is being established without sufficient consideration of impacts. These experts have summarized the ecological importance of the area where the harvest is taking place:

This area supports valuable fish habitat, recreational and commercial fisheries, seabirds and eagles and other animals that rely on the shore line and adjacent marine waters. This coastal area provides food, spawning habitats, nursery and rearing habitats, and migration pathways for many species of fish, birds and mammals. The area is adjacent to, and the waters are contiguous with, Baynes Sound which is used for an expanding shellfish aquaculture industry that supplies approximately fifty percent of BC's total shellfish aquaculture production. Seaweeds provide food and cover for many organisms when growing. However, it has been well-documented that when detached and washed ashore they provide readily-available nourishment for organisms at the base of the food chain. In the location of Baynes Sound that food chain includes the organisms that are used for food by fish, birds and mammals aside from that needed to meet the requirements for aquaculture.⁴

The harvest of detached seaweed has a number of impacts on this important area.⁵ The seaweed is harvested on the beach using a tracked vehicle, which likely kills forage fish and damages known fish spawning grounds. In addition, the removal of the seaweed itself is likely to have damaging effects on commercial fisheries, since small forage fish feed and live in the seaweed before becoming food for “commercial” fish.

Important questions arise about the actions of both the federal and provincial governments regarding this new industry. On its face, some of the harvesting appears to be non-compliant with section 35 of the *Fisheries Act*, which prohibits activities that harm fish habitat. Yet, no

³ Note that a recent government media release claims only 300 tonnes were actually harvested in 2012. See September 11, 2013, Ministry of Agriculture Media Release, “Mazzaella Beach Cast Harvest Licenses Issued for 2013.”

⁴ *Seaweed Harvesting on the East Coast of Vancouver Island: A Biological Review*, Ramona de Graaf, Ross Peterson, Doug Hay and Ian Birtwell. Note that the Mid Vancouver Island Habitat Enhancement Society and the Nile Creek Enhancement Society (which Ian Birtwell is associated with) asked the ELC to prepare this report.

⁵ The Department of Fisheries and Oceans proposes that Baynes Sound should be considered an ecologically and biologically significant area (EBSA). One of a handful in the Strait of Georgia: DFO. 2013. Evaluation of proposed ecologically and biologically significant areas in marine waters of British Columbia. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2012/075. Pp 13-14. Available online at: http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2012/2012_075-eng.pdf.

enforcement actions by the federal government have occurred, despite the fact that damage reports have been filed. Officials report that they do not have the staff or resources to respond to all such damage reports.⁶

In addition, citing a lack of “conclusive evidence,” DFO has declined to take a preventative, proactive approach of issuing specific harvest authorization orders with stringent conditions to protect habitat from what a number of scientists have concluded is likely damage.⁷ Thus, the federal government has apparently abdicated its duty to vigilantly protect fish and fish habitat, as well as commercial fisheries.

As for the provincial government, by sanctioning the removal of forage fish habitat and the killing of forage fish on the beach during the harvest, the provincial licensing scheme is a project that engages section 35 of the federal *Fisheries Act*. Such activities that harm fish habitat normally require formal DFO/federal approval under the *Fisheries Act*. Yet it appears that the province is issuing licences to harvest despite apparent non-compliances with section 35 – and without requiring licensees to obtain the necessary DFO/federal authorization for such harmful activities.

Perhaps most important, the provincial government has sanctioned a new industry without adequately researching the environmental impact of the industry and continues to place vital habitat and species in danger of significant harm.

The Problem

It is likely that the seaweed harvest causes direct and indirect harm to fish, fish habitat, commercial fisheries and ecosystems.

Direct Impacts to Marine Life as a Result of the Harvest

The key fish species directly harmed and killed through the marine plant harvest are primarily Pacific sand lance and surf smelt. These fish spawn in the intertidal zones along sand and pebble beaches generally, and can be found in abundance on the beaches of Deep Bay and Baynes Sound, where *Mazzaella Japonica* is harvested.⁸ Surf smelt are a major source of food for salmon in Georgia Strait, and sand lance also provide food for several commercial fisheries.⁹

⁶ Personal communications with DFO staff.

⁷ For example, see Appendix F.

⁸ Birtwell, I.K., R.C. de Graaf, D.E. Hay, and G.R. Peterson. 2013. *Seaweed harvesting on the east coast of Vancouver Island, BC: a biological review*. Unpublished report. [Seaweed Harvesting] at 24.

⁹ Birtwell, I.K., R.C. de Graaf, D.E. Hay, and G.R. Peterson. 2013. *Seaweed harvesting on the east coast of Vancouver Island, BC: a biological review*. Unpublished report. at 10.

The sand lance are often referred to as the most important fish in the northeast Pacific due to its unique role as forage to marine fishes, seabirds and marine mammals.¹⁰

The locations of the spawning deposits for these forage fish “overlap with that of beach [seaweed] wrack.”¹¹ The seaweed sought for harvest is washed up by the same tides that bring the surf smelt and Pacific sand lance up the shore to their spawning areas. The highest density of embryos found in study undertaken to date are “in the upper beach slope between the high water seaweed wrack zone and the low high water seaweed wrack zone.”¹²

Surf smelt spawn throughout the year.¹³ Sand lance spawn primarily from November to January, although there have been “incubating embryos detected into February.”¹⁴ Due to the timing of spawning by surf smelt and sand lance and the presence of suitable habitat such as seaweed, there is a high likelihood of embryos being present on the relevant beaches throughout the year.

In past years, the seaweed harvest has taken place during the winter months, when such forage fish embryos are likely present. For example, a complaint was filed with the DFO in December 2012 noting that the harvest entailed three days when a mechanized caterpillar was used on the beach in potential fish habitat during mid-December.¹⁵

Experts have concluded that harvesters using tracked ATVs on the beaches to collect the harvested seaweed “most probably occur on forage fish spawning sites.”¹⁶ Such vehicles will likely crush fish spawn regardless of their load-distributing tracks. In addition to vehicular activity, the hand harvest methods, whether using rakes or pitchforks, “could result in embryo mortality.”¹⁷ The fact that DFO has neither authorized this activity, nor initiated any study or agreement with the province to date is of serious concern.

¹⁰ Robards *et al* 1999.

¹¹ Birtwell, I.K., R.C. de Graaf, D.E. Hay, and G.R. Peterson. 2013. *Seaweed harvesting on the east coast of Vancouver Island, BC: a biological review*. Unpublished report at 24.

¹² Birtwell, I.K., R.C. de Graaf, D.E. Hay, and G.R. Peterson. 2013. *Seaweed harvesting on the east coast of Vancouver Island, BC: a biological review*. Unpublished report at 25.

¹³ Birtwell, I.K., R.C. de Graaf, D.E. Hay, and G.R. Peterson. 2013. *Seaweed harvesting on the east coast of Vancouver Island, BC: a biological review*. Unpublished report at 25.

¹⁴ Birtwell, I.K., R.C. de Graaf, D.E. Hay, and G.R. Peterson. 2013. *Seaweed harvesting on the east coast of Vancouver Island, BC: a biological review*. Unpublished report at 25.

¹⁵ See footnote #1 above.

¹⁶ Birtwell, I.K., R.C. de Graaf, D.E. Hay, and G.R. Peterson. 2013. *Seaweed harvesting on the east coast of Vancouver Island, BC: a biological review*. Unpublished report at 26.

¹⁷ Birtwell, I.K., R.C. de Graaf, D.E. Hay, and G.R. Peterson. 2013. *Seaweed harvesting on the east coast of Vancouver Island, BC: a biological review*. Unpublished report at 27.

Indirect Impacts to Marine Life as a Result of the Harvest

The indirect damage that seaweed removal may cause to fish and other marine life is also a serious concern. Seaweed supports forage fish that are essential food for salmon and other fish. In addition, living, dead and decomposing seaweed produces food for many components of food webs. Aside from the physical aspects of algae and the role they play in the structural complexity of waters which constitute fish habitat, this “primary production” has a direct influence on organisms higher in the food chain. Algae at the base of the food chain provide nourishment while alive, but also when dead and decaying and producing detritus. They become fertilizer for the near shore plants and animal communities when dead and decaying.¹⁸

The seaweed harvest licensing program could create serious indirect consequences for commercial fisheries. The most obvious of these consequences is the reduction of food stocks of forage fish. As biologist Ramona de Graaf notes, “Beach spawning forage fish are a critical prey source for hundreds of marine predators in the Strait of Georgia.”¹⁹ As the team of scientists has noted:

*Several species of forage fish are of vital importance to key commercial fish species, especially salmonids, rockfish, halibut and seabirds.*²⁰

As the team noted, seaweed harvesting areas between Deep Bay and Bowser are some of the most important herring spawning locations in BC, and there is concern that the harvest may affect the food chain that the herring depend upon.²¹

In addition, the seaweed being removed may provide critical nourishment for the shellfish that are farmed in Baynes Sound – source of about 50% of BC’s shellfish production. Once harvested, this vital food source is removed from the local ecology, and may impact the shellfish industry.²² Without knowing the impacts, provincial decision makers may be placing significant populations of shellfish – directly up-current from the harvest – at risk.²³

¹⁸ Birtwell, I.K., R.C. de Graaf, D.E. Hay, and G.R. Peterson. 2013. *Seaweed harvesting on the east coast of Vancouver Island, BC: a biological review*. Unpublished report.

¹⁹ Ramona C. de Graaf November 2012 Draft Discussion Document p 1.

²⁰ Birtwell, I.K., R.C. de Graaf, D.E. Hay, and G.R. Peterson. 2013. *Seaweed harvesting on the east coast of Vancouver Island, BC: a biological review*. Unpublished report, p 10.

²¹ Birtwell, I.K., R.C. de Graaf, D.E. Hay, and G.R. Peterson. 2013. *Seaweed harvesting on the east coast of Vancouver Island, BC: a biological review*. Unpublished report, pp. 10-11.

²² Birtwell, I.K., R.C. de Graaf, D.E. Hay, and G.R. Peterson. 2013. *Seaweed harvesting on the east coast of Vancouver Island, BC: a biological review*. Unpublished report, p 9.

²³ Much is made of *Mazzaella Japonica*’s status as an “invasive” species in hopes of justifying the further harvest. However, most informed biologists appear to agree that it was likely brought over in shellfish from Japan, suggesting that whether or not *Mazzaella Japonica* is invasive, it may be importantly linked with the shellfish industry. Without properly understanding the nature of this relationship – and the other factors referred to above -- a harvest cannot responsibly continue.

Yet no studies have been done on the potential impact of removing this crucial biomass, which is at the base of the food chain, from the BC near-shore coastal ecosystem. The Ministry of Agriculture can only point to a University of Victoria study to be completed by 2015 that will examine species of non-native seaweed, but that study will not be an adequate environmental impact study. That study is not designed to examine the direct impacts on forage fish from harvesting and the indirect impact on salmon and other commercial fisheries that results from the destruction of forage fish in addition to negative impacts on their habitat and to many others that rely on seaweed.²⁴

In short, governments are failing to give due weight to the fact that seaweeds are essential valued ecosystem components that sustain other aquatic organisms, including those that support valuable commercial, recreational, and Aboriginal finfish and shellfish fisheries.

The Potential for a Crash of Harvestable Seaweed

In addition to the impacts on other species, the harvest of the seaweed itself may not be sustainable. There is a very real potential that over-harvesting could lead to long-term shortages of the seaweed. For example, Canadian Maritimes seaweed harvests resulted in disastrous consequences when they were improperly regulated. Last year the CBC reported that the harvest of Irish moss – another red seaweed species popularly harvested for its valuable carrageenans – had crashed in PEI.²⁵ And although traditionally Nova Scotia and Prince Edward Island saw large harvests, the current Nova Scotia harvest is down to a modest 1,500 tonnes and the PEI harvest has “all but collapsed.”²⁶

This shows how easily species can be wiped out by uneducated decisions.

²⁴ Personal communication from Ian Birtwell Ph.D and former DFO research scientist. In the work being done by UVic PhD candidate Kylee Pawluk, she is not doing a comprehensive environmental impact assessment. For example, she is not directly addressing the impact of the machinery on the beach (which one of the concerned scientists above, Ramona de Graaf, is trying to work on). Pawluk’s current experiments consist of: attempting to estimate the biomass of the seaweed that washes up on beaches as well as percentage of different species in the wrack complement; determining (with Ramona de Graaf) the impact of the seaweed on development of forage fish eggs; attempting, with some difficulty, to determine what impact the harvesting is having on invertebrate communities; looking at decomposition and decay of the various species of seaweed which commonly wash up on the beaches to get an idea of how they are being individually used while on the beaches; carrying out a colonization experiment to determine the quantity and diversity of terrestrial invertebrates utilizing the three most common species which wash up in the wrack, and a pilot study about which species of seaweed terrestrial invertebrates prefer; and experiments to examine the role of *Mazzaella japonica* in the ecosystem to better understand how it is impacting the native species. In future she hopes to attempt to determine the size of beds growing in the water to attempt to get a better estimate of how much *Mazzaella japonica* is actually in the ecosystem -- to give a better idea of whether or not the harvest will have a large impact on ecosystem processes.

²⁵ CBC News, “Irish Moss Harvest Crashing” June 29 2012, online at:

<http://www.cbc.ca/news/technology/story/2012/06/29/pei-irish-moss-harvest-584.html?cmp=rss>.

²⁶ DFO, Bedford Institute of Oceanography. “Commercial Seaweeds” online at:

<http://www.bio.gc.ca/science/research-recherche/fisheries-pecheries/managed-gere/seaweed-algues-eng.php>.

Clearly, senior governments need to apply the Precautionary Principle and act vigilantly to address the risks discussed above before the commercial seaweed harvest is allowed to continue. This raises the question of what those governments are empowered and obligated to do in this situation.

Jurisdiction over Marine Plant Fisheries in BC²⁷

Ownership of Land and Water

Canada's Constitution assigns legislative power over the management of land and associated resources within provincial territory to the provinces.²⁸ In coastal regions, provincial territory generally extends to the low water mark – corresponding to the limit of sovereign territory under common law.²⁹ Thus provincial land includes the foreshore (or intertidal zone), while the seabed up to the outer limit of the territorial sea is normally owned by Canada.³⁰

There are two important exceptions to this rule: First, generally, waters located “between the jaws of the land,” meaning roughly waters that lie between two headlands, where an observer could see from one to the other, are within provincial territory.³¹ Second, in the *Georgia Strait Reference*,³² the Supreme Court of Canada held that the submerged lands between Vancouver Island and the mainland are owned by British Columbia. Thus it can be argued that section 44 of the federal *Fisheries Act*, which prohibits the harvesting of marine plants “in the coastal waters of Canada” in contravention of certain federal regulations, does not apply to this case – since “coastal waters of Canada” are defined as “all Canadian fisheries waters not within the geographical limits of any province.”³³

Legal Jurisdiction over Harvesting

As discussed below, the BC government currently issues licences for the harvest of seaweed under the BC *Fisheries Act*. In a 2008 Letter to a member of the public, then Fisheries Minister Loyola Hearn stated:

²⁷ Portions of this section draw heavily on Ilke Bauer's past ELC work: “Legal Tools for Protecting Shoal Harbour” February 2013, at p 23.

²⁸ *Constitution Act, 1867* (UK), 30 & 31 Vict, c 3, reprinted in RSC 1985, App II, No 5, s 92(5), 92 (13).

²⁹ See discussion of *R v Keyn*, (1876), 2 Ex. D. 63 by Wilson J (in dissent) in *Reference re: Ownership of the bed of the Strait of Georgia and related areas*, [1984] 1 SCR 388 [*Georgia Strait Reference*].

³⁰ See *Oceans Act*, SC 1996 c 31, s 4. The outer extent of the territorial sea is 12 nautical miles from established baselines. These baselines can (but do not always) correspond to the low water mark (see s 5).

³¹ See *Reference re: Ownership of the bed of the Strait of Georgia and related areas*, [1984] 1 SCR 388.

³² *Reference re: Ownership of the bed of the Strait of Georgia and related areas*, [1984] 1 SCR 388.

³³ *Fisheries Act*, RSC 1985, c F-14, s 47.

*The British Columbia Ministry of Agriculture has the responsibility for licensing seaweed harvesters, currently on an experimental basis. Fisheries and Oceans Canada (DFO) has met with the Ministry of Agriculture to provide recommendations for mitigation measures to address potential impacts to fish habitat along the foreshore.*³⁴

The federal government's position at that time – well after the first experimental license was issued in 2007 – was thus clearly that the province had jurisdiction over licensing.

Although the courts have since stripped the province of jurisdiction over much of finfish aquaculture in *Morton v. British Columbia (Agriculture and Lands)*, 2009 BCSC 136, they did not remove jurisdiction over harvest of marine plants. The province can likely claim jurisdiction to license seaweed harvest, relying upon its powers to legislate granted in the following sections of the *Constitution Act, 1867*: s. 92(5) (management of lands), s. 92(13) (property and civil rights), 92(16) (matters of a local or private nature in the province), and s. 95 (agriculture).

This provincial licencing of seaweed harvesting on the east coast of Vancouver Island does not appear to conflict with federal legislation. The federal *Pacific Fishery Regulation, 1993*³⁵ prohibits harvesting marine plants except under the authority of a license issued under the federal Fisheries Act.³⁶ However, that federal regulation only governs harvesting of marine plants “from Canadian fisheries waters in the Pacific Ocean that are not within the geographical limits of the Province”.³⁷

In this case the provincial government has ownership of the seaweed harvest area – the intertidal area, as well as adjacent submerged lands³⁸. Since the federal *Pacific Fishery Regulation* only regulates plant harvesting outside of provincial waters, the province can likely legitimately license marine plant harvesting in the current harvest area. At least, it is not precluded from doing so by federal legislation.

One clear area of federal jurisdiction however, is the responsibility to protect fisheries under s. 35 and similar sections of the federal *Fisheries Act*. This responsibility applies regardless of location (provincial or federally owned lands or waters), and is crucially at play where the harvests are harming fish habitat and threatening commercial fish stocks by reducing their food supply. Thus, regardless of the legality of the provincial government's licensing program, it is clear that federal government provisions apply to the harms taking place as a result of the seaweed harvest.

³⁴ Letter Dated March 6th 2008, FOI Emails p 96.

³⁵ *Pacific Fishery Regulations, 1993*, SOR/93-54, s 3(1)(c), under the *Fisheries Act*.

³⁶ *Pacific Fishery Regulations, 1993*, SOR/93-54 s 71(1).

³⁷ S. 3(1)(c) *Pacific Fishery Regulations*.

³⁸ Pursuant to *Reference re: Ownership of the bed of the Strait of Georgia and related areas*, [1984] 1 SCR 388

The Current Federal *Fisheries Act* - Apparent Non-Compliance with s. 35

With Bill C-38³⁹ the federal government significantly reduced the protection offered to fish under the federal *Fisheries Act* – a key component of Canada’s environmental protection regime. The changes to the *Fisheries Act* in Bill C-38 will seriously weaken the Act when they come into force in late November 2013.⁴⁰

Therefore, we will first examine the harvesting activities in light of the current federal *Fisheries Act* requirements. Then we will examine the situation under the incoming *Fisheries Act* provisions. Finally, we will come back to consider how the provincial licensing regime is operating.

Section 35 of the current federal *Fisheries Act*⁴¹ prohibits any work, undertaking or activity that results in the harmful alteration or disruption, or destruction of fish habitat (often referred to as the HADD provision). Fish habitat “means spawning grounds and nursery, rearing, food supply and migration areas on which fish depend directly or indirectly in order to carry out their life processes.”⁴²

The evidence referred to above indicates that some harvesting is likely harmfully altering, disrupting or destroying fish habitat.

However, under subsection 35(2) of the *Act*, there are five exceptions to the prohibition of works or undertakings causing HADDs. A person may carry out such a work, activity or undertaking where:

1. it is prescribed work, in fisheries waters, in accordance with prescribed conditions;⁴³
2. the work is authorized by the minister, and is done in accordance with the minister’s conditions;⁴⁴
3. the work is authorized by a prescribed person or entity, and the work is carried out in accordance with prescribed conditions;⁴⁵
4. the harmful alteration or destruction of habitat is produced as a result of doing anything that is authorized or otherwise permitted or required under the *Fisheries Act*;⁴⁶ or,
5. the work is carried out in accordance with regulations under the *Fisheries Act*.⁴⁷

³⁹ *Jobs Growth and Long-term Prosperity Act*, SC 2012 c 19, [Bill C-38]. Online at:

<http://parl.gc.ca/HousePublications/Publication.aspx?Language=E&Mode=1&DocId=5697420>.

⁴⁰ As of November 25, changes to the *Fisheries Act* will go into effect, including the changes to section 35 discussed in this paper. See more at DFO “Working Near Water website: <http://www.dfo-mpo.gc.ca/habitat/changes-changements/index-eng.htm>

⁴¹ *Fisheries Act*, RSC 1985, c F-14.

⁴² *Fisheries Act*, RSC 1985, c F-14 s 34.

⁴³ *Fisheries Act*, RSC 1985, c F-14 s 35(2)(a).

⁴⁴ *Fisheries Act*, RSC 1985, c F-14 s 35(2)(b).

⁴⁵ *Fisheries Act*, RSC 1985, c F-14 s 35(2)(c).

⁴⁶ *Fisheries Act*, RSC 1985, c F-14 s 35(2)(d).

⁴⁷ *Fisheries Act*, RSC 1985, c F-14 s 35(2)(e).

Thus, if a person has been authorized by the minister or a prescribed federal official, that person may be able to legally harm fish habitat, if complying with stated conditions. [See exceptions 2-4 above. Appendix A describes how a person may seek government authorization to commit harmful alteration, disruption or destruction of fish habitat in carrying out work.]

However, contravening section 35, in the absence of one of the exceptions (defences) listed above, is generally non-compliance with the *Act*.⁴⁸

We are not aware of any of the above exceptions being applicable to the seaweed harvests discussed.⁴⁹ Although the harvest has been licenced by the provincial government, such provincial sanction is not a defence under the federal *Fisheries Act*.

The Incoming *Fisheries Act* Provisions

The incoming section 35 passed in Bill C-38, and coming into effect on November 25, 2013, states:

*No person shall carry on any work, undertaking or activity that results in serious harm to fish that are part of a commercial, recreational or Aboriginal fishery, or to fish that support such a fishery.*⁵⁰

The new section 35 focuses on a standard of “serious harm” to fish, and places greater emphasis on commercial fisheries, as opposed to all fish. Nevertheless, there is ample evidence to suggest that the seaweed harvest would continue to violate even the new, weaker regime.

“Serious harm” is defined under the new provisions as “the death of fish or any permanent alteration to, or destruction of, fish habitat.”⁵¹ Fish habitat is redefined as “spawning grounds

⁴⁸ *Fisheries Act*, RSC 1985, c F-14 s 40(1).

⁴⁹ See Appendix F where DFO wrote a licensee specifically stating that it was not authorizing a harmful alteration, disruption or destruction of fish habitat contrary to s. 35(1) [see exception #2 above]. Note that it remains to be seen whether the provincial government and DFO develop regulations making the provincial seaweed harvest guidelines “prescribed conditions” for the purposes of paragraph 35(2)(c) of the *Fisheries Act*, thus exempting the activities under the licensing program from section 35 offences. Internal emails suggest a meeting between the governments has been considered,⁴⁹ however, as noted above, Ministry of Agriculture officials state there has been no agreement to date, and the department of Fisheries and Oceans refuses to disclose any information on whether they will be enacting any such regulations.⁴⁹ Therefore, as far as we are aware, there is no current provision making the provincial government a prescribed person or entity, or making the Ministry of Agriculture marine plant harvest law or policy prescribed conditions, for the purposes of paragraph 35(2)(c) of the federal *Fisheries Act*. Thus, there appears to be no current sanction of the seaweed harvest that would make section 35 prohibitions inapplicable to the harvest.

⁵⁰ *Jobs Growth and Long-term Prosperity Act*, SC 2012 c 19, [Bill C-38], s 142(2). As of November 25, changes to the *Fisheries Act* will go into effect, including the changes to section 35 discussed in this paper. See more at DFO “Working Near Water website: <http://www.dfo-mpo.gc.ca/habitat/changes-changements/index-eng.htm>

and any other areas, including nursery, rearing, food supply and migration areas, on which fish depend directly or indirectly in order to carry out their life processes.”⁵²

The minister’s discretion and defences under subsection 35(2) remain largely unchanged, with the exception that references to harmful alteration disruption or destruction of fish habitat are replaced by references to serious harm. Similarly, in those provisions of the current act where the minister is authorized to exercise discretion in approving projects and activities that may result in impacts, references to HADDs have been replaced with references to serious harm to commercial, recreational and Aboriginal fisheries.⁵³ The result of these changes is that the protection of fish habitat is moved to the definition of “serious harm,” and that the fish habitat must be permanently altered or destroyed in order to constitute serious harm to fish under section 35.

In this case, some of the seaweed harvest is killing fish spawn which are not themselves part of a fishery, but which provide food to fish that are part of commercial, recreational and aboriginal fisheries. This damage to the forage fish thus poses a risk to commercial fisheries since the destruction of spawn is the destruction of food for commercial fisheries.

The killing of forage fish, and their subsequent removal from the food chain, likely directly constitutes serious harm to “fish that support such a fishery” under section 35 because commercial fisheries depend on Pacific sand lance and surf smelt for nutrition. It is also possible to arrive at the same conclusion in another, more indirect way: the killing of forage fish destroys or at least permanently alters the commercial fisheries’ food supply, and “food supply” is included in the definition of “fish habitat” which is in turn included in the definition of “serious harm.” Both approaches suggest that the seaweed harvest would constitute a breach of the new section 35.

Our conclusion that some harvesting is likely non-compliant with section 35 is supported by the comment made by a DFO biologist about this harvest:

⁵¹ *Jobs Growth and Long-tem Prosperity Act*, SC 2012 c 19, [Bill C-38], s 133(4). For a useful side-by-side comparison of incoming and current federal *Fisheries Act* provisions, see “Bill C-38 Amendments to the *Fisheries Act*: A New Environmental Era in Canada?” online at:

http://www.millerthomson.com/assets/files/article_attachments2/DLK_2012-09_EMAappendix.pdf.

⁵² *Jobs Growth and Long-tem Prosperity Act*, SC 2012 c 19, [Bill C-38] s 133(3).

⁵³ *Jobs Growth and Long-tem Prosperity Act*, SC 2012 c 19, [Bill C-38] s 144(2). Under the new *Fisheries Act* provisions, the Minister, in exercising discretion to recommend regulations in respect of section 35 must consider the contribution of the relevant fish to the ongoing productivity of commercial, recreational or Aboriginal fisheries; any fisheries management objectives; whether there are any existing mitigation measures as part of an existing fishery; and finally, the public interest. The purpose of this new set of considerations is “to provide for the sustainability and ongoing productivity of commercial recreational and Aboriginal fisheries.” These terms are defined to involve licensed fisheries, or those fisheries used for subsistence or social and ceremonial purposes in the case of Aboriginal fisheries. *Jobs Growth and Long-tem Prosperity Act*, SC 2012 c 19, [Bill C-38] s 135.

There is concern that this practise will be unsustainable and that it will have a negative effect on nearshore marine productivity. DFO has not received materials that would suggest otherwise at this time. The seemingly large amount of algae permitted to be removed by the license suggest that there may be an effect on the productivity of fish and fish habitat through the loss of detritus.⁵⁴

Yet, a DFO official this summer advised a sea weed harvest licensee for the 2013 season that:

DFO is not aware of any conclusive evidence showing fish and fish habitat impact from the removal of beachcast seaweed. Provided that the mitigation measures described above are incorporated into your plan, DFO has concluded that your project is not likely to result in a contravention of the habitat protection provisions of the Fisheries Act. Therefore, you will not need to obtain a formal approval from DFO in order to proceed.⁵⁵

In dealing with a pilot project of a new industry with unknown ecological impacts, DFO should not be waiting for “conclusive evidence” before taking proactive action. DFO should provide sufficient staff to:

- fully investigate potential non-compliances with section 35 (1); and
- after carefully studying the impacts identified by the team of scientists, issue any proactive, protective authorization orders necessary, pursuant to section 35(2) of the *Fisheries Act*.

A Lackadaisical Provincial Licensing Regime

There remains the fact that the province has sanctioned this activity that likely harms fish habitat. This licensing of the new industry may be contrary to explicit provincial policies that:

- marine plant harvests should not compromise habitat; and
- harvesters of seaweed should undertake scientific environmental impact studies of the harvest, so that the province can determine whether the activity is a sustainable use of Crown land resources.

Background

The existing license program permitting harvesting of seaweed is managed by the provincial Ministry of Agriculture. The governing legislation is the *BC Fisheries Act*⁵⁶, which allows the

⁵⁴ See Appendix D.

⁵⁵ See Appendix F.

⁵⁶ *Fisheries Act*, RSBC 1996, c 149, [BC Act].

ministry to issue licenses to harvest aquatic plants, including detached algae. Section 24 regulates the harvesting of aquatic plants.⁵⁷

Although the minister is empowered to make regulations with respect to approved methods for harvesting and processing of marine plants, the *Fisheries Regulation* is silent as to the harvest of *Mazzaella Japonica*. It does specify harvest methods for some other marine plants.⁵⁸

Significantly, the minister may suspend, revoke or refuse to issue a license:

- if the licensee fails to conform to the license conditions,⁵⁹ or
- *if the harvest would impair or destroy the bed of other plants, or impair or destroy the supply of any food for fish, or be detrimental to fish life.*⁶⁰

Thus, there is clear statutory intent to allow ministerial revocation of licenses where harvesting causes harm to fish or fish food supplies. This is consistent with the ministry's stated policy (posted on its website) that harvesting should not compromise habitat.⁶¹

In addition, the ministry has a policy that environmental impact studies be carried out on these harvests. The Ministry of Agriculture specifically articulated this policy in a "Technical Requirements" document circulated to potential harvest companies:

Commercial-scale harvesting of detached algae from beaches in British Columbia has not been [sic] seriously considered until recently. Before sanctioning this activity, the Province needs to be assured that it can be conducted in a manner that does not impair the marine environment or impact other users of public lands. Therefore, in considering granting licences for this activity, a cautious approach is being taken. This requires that in addition to applicants demonstrating the technical and economic feasibilities of their proposals, they must also undertake environmental studies that measure the environmental effects of commercial-scale harvesting from the foreshore.

⁵⁷ A harvest license application -- presumably in the form prescribed by the Minister under s 14 of the BC *Fisheries Act* -- requires basic personal and business information from the applicant, including contact information, the species, location and requested harvest quota. (as required by s. 24(7) of the BC *Fisheries Act*. The License Application can be downloaded from the Ministry of Agriculture website at:

http://www.al.gov.bc.ca/fisheries/commercial/commercial_mp.htm.) A set of "General Terms Concerning the Harvest of Marine Plants in British Columbia" is appended to the license application. (The terms reproduce s 24 of the BC Act, and s 6 of the *Fisheries Act Regulations*, BC Reg 140/76, [BC Reg] (see: http://www.al.gov.bc.ca/fisheries/Manuals/Licensing/gt_MarinePlantHarvesting.pdf).

⁵⁸ *Fisheries Act Regulations*, BC Reg 140/76, [BC Reg], schedule III.

⁵⁹ *Fisheries Act*, RSBC 1996, c 149, [BC Act], s 24(10)(a).

⁶⁰ *Fisheries Act*, RSBC 1996, c 149, [BC Act], s 24(10)(b).

⁶¹ See the Ministry of Agriculture's website, "Commercial Fisheries", "Harvest of Marine Plants in British Columbia", which states, "The Ministry of Agriculture and Lands is responsible for the management of the commercial harvest of marine plants in British Columbia. We ensure that the harvest of marine plants is done in an approved manner, and that the harvest will not compromise habitat or traditional First Nations use of the resource."

*The results of these studies will be used to help determine whether this type of activity is a sustainable use of Crown land resources.*⁶²

SEE "DETACHED ALGAE REQUIREMENTS, COMMERCIAL HARVESTING OF
DETACHED ALGAE FROM VACANT CROWN LAND" (APPENDIX E)

The proviso that applicants provide an environmental impact assessment study plan to scientifically evaluate the effects of harvesting on habitat and species is highly significant. Yet, the province does not appear to be seriously pursuing this policy requirement. For example, the province apparently does not have a study of the impacts of the 2012 harvest activities – let alone a scientific calculation of the harvestable surplus of seaweed. Apparently, no one has evaluated exactly what the ecosystem can afford to lose.⁶³ This lack of studies is consistent with a September 16, 2011 DFO email which quoted a provincial document that states that environmental studies of such harvests must be carried out– and asked where such studies were, and if DFO had any input into the terms of reference.⁶⁴

As previously noted, the only known scientific study on the seaweed being harvested has not been completed -- it is being carried out through the University of Victoria and is to be completed by 2015. Unfortunately, although that study will examine *Mazzaella Japonica* seaweed, it will not be an adequate environmental impact study on the harvest. That study is not designed to examine the direct impacts on forage fish from harvesting and the indirect impact on salmon and other commercial fisheries that results from the destruction of forage fish and negative impacts on their habitat and to many others that rely on seaweed.⁶⁵

The fact that no other studies are underway suggests that the province is failing to follow the policy of requiring adequate environmental impact studies. The province's apparent failure to uphold its own policy may allow activities that risk forage fish and others, due to lack of evidence and documentation.

Another example of the province's lax approach to this experimental industry is the province's failure to develop comprehensive harvest guidelines. The Ministry of Agriculture points to a set of guidelines developed within the Department of Fisheries and Oceans in 2007 as the provincial standard for regulating harvests.⁶⁶ It is instructive to note that the author of the document held up to be a set of guidelines has himself disclaimed them as early guidelines, stating that he "would not hold them up as a guideline of Best Management Practice for a larger scale operation."⁶⁷ [See Appendix C for this set of purported guidelines.] In light of this, and the

⁶² See "Detached Algae Requirements, Commercial Harvesting of Detached Algae from Vacant Crown Land" in Appendix E.

⁶³ Notes of meeting with Ministry of Agriculture staff, Ian Birtwell, etc., October 3, 2013.

⁶⁴ September 16, 2011 email from Scott Northrup, Appendix D

⁶⁵ Personal communication with Ian Birtwell Ph.D and former DFO research scientist. Also, see the description of that study in the footnote above.

⁶⁶ Jim Russell, BC Ministry of Agriculture, personal correspondence with Calvin Sandborn, June 27th 2013.

⁶⁷ Email from Scott Northrup, Sept 16th 2011, FOI Emails p 102.

potential for federal *Fisheries Act* infringements due to harvesting activities, the province would be well advised, at a minimum, to develop a proper set of guidelines that:

- Actually constitutes best management practices according to experts in the area;
- Addresses the damages that can be caused through the use of tracked vehicles in known fish spawning beach areas;
- Prohibits the minister from issuing licenses until the requirements have been met; and
- Requires proponents to submit an application to DFO, and receive DFO approval before permitting harvesting to commence.

Non-Compliance with Federal and Provincial Law and Policy

Based on the activities taking place under the province's licensing program, it appears that both the federal law and provincial policy is being disregarded. The federal *Fisheries Act* section 35 – both new and old – prohibits the kinds of harm taking place as a result of some *Mazzaella Japonica* harvesting. The current federal *Act* prohibits any harmful alteration, disruption, or destruction of fish habitat. Since fish includes spawn, the habitat of the forage fish species surf smelt and Pacific sand lance are likely being destroyed or disrupted when tracked vehicles drive over these areas – as they have been doing. Biological evidence that raking and harvesting also causes destruction of forage fish eggs increases the likelihood of noncompliance with section 35 of the existing *Fisheries Act*.

The same activities would likely be noncompliant with the incoming section 35 as well. The new provision continues to protect the forage fish at issue here, since section 35 prohibits “serious harm” to fish that support commercial, recreational and Aboriginal fisheries. The Coho and other salmon that feed on forage fish as a predominant part of their diet constitute fisheries.⁶⁸ And the crushing of forage fish eggs clearly constitutes serious harm to the forage fish that support such fisheries. Thus even the apparently weakened section 35 would likely apply to some of the *Mazzaella Japonica* harvest. Yet DFO has disregarded previous requests for investigation of whether non-compliance with section 35 has occurred.

DFO appears to be unable or unwilling to address apparent non compliance with the *Fisheries Act*. Although DFO officials will not discuss any particulars relating to the harvest, internal emails suggest that DFO staff are overworked and subject to disruptive internal reorganization, leaving little time for addressing offences under their legislation. A recent discussion with a fisheries enforcement officer suggests that any HADD complaints filed with DFO may be directed to “a single assessment biologist, now located in Prince George.”⁶⁹

⁶⁸ See discussion above and Birtwell, I.K., R.C. de Graaf, D.E. Hay, and G.R. Peterson. 2013. *Seaweed harvesting on the east coast of Vancouver Island, BC: a biological review*. Unpublished report,

⁶⁹ Personal Correspondence with Federal Fisheries Enforcement Officer, June 26th 2013.

The Ministry of Agriculture states that they have requested DFO involvement in the seaweed harvest program, but have been disappointed to date that DFO has declined to become involved. Specifically, DFO has not given the provincial officials any input into potential HADD issues resulting from the harvest.⁷⁰

Others have noted DFO's deficient enforcement and monitoring capacity. In a recent legal background report on the changes to the *Fisheries Act*, Ecojustice noted that the Minister of Fisheries and Oceans' annual reports to Parliament "show decreasing enforcement activity under these provisions."⁷¹ The result is that breaches of the federal *Fisheries Act* are left unaddressed, to the severe detriment of fish populations, and many other species that depend on them.

Instead of vigilantly enforcing the *Fisheries Act*, DFO seems content to simply distribute a set of "Guidelines" to the licensees (Appendix C) These Guidelines have been dismissed by their author as NOT being a set of Best Management Practices, despite being described as such by DFO. The author of the Guidelines has stated:

I note that a set of early draft guidelines for drift algae harvest has been forwarded to DFO. Stephen Colwell and I attended a meeting in Comox a few years ago to discuss an experimental harvest of drift plants. The "guidelines" were a response to this very small scale, experimental project. I certainly would not hold them up as a guideline or Best Management Practise for a larger scale operation. Nor would I vouch for their efficacy or effectiveness. The intent was to implement these draft guidelines for a small scale project, to monitor the project and to utilize the results to improve and adapt the methods chosen. Unfortunately DFO Habitat has had NO contact with the industry players or their regulators since that time. The list of guidelines were only meant to address a specific activity and would be part of a larger package that would also deal with larger questions related to effects of the project on the marine environment. The guideline was not meant to address the impact assessment aspect, which has never been part of the discussions to date.

SCOTT NORTHRUP SEPTEMBER 16, 2011 EMAIL [SEE APPENDIX D]

In addition, according to internal Ministry of Agriculture emails, DFO failed to even respond to provincial requests that DFO comment on applications for the 2012 seaweed harvest licences. (See Appendix D)

For its part, the province has also failed to act to protect the fishery values at stake. As noted, the province has failed to require adequate scientific assessment of the effects of the harvest – despite its own policy requiring environmental impact assessment studies to scientifically evaluate the effects of the seaweed harvesting on habitat and associated species.⁷² The ministry points to the University of Victoria research now underway, but that does not qualify as an environmental impact assessment of the harvest -- and even that was only begun in earnest in

⁷⁰ Jim Russell of MoA in conversation with Calvin Sandborn, June 27th 2013.

⁷¹ Ecojustice *Legal Backgrounder: Fisheries Act*. Updated Feb 2013. Online at: www.ecojustice.ca/files/fisheries-act.

⁷² See the government's policy, as reflected in its document, "Detached Algae Requirements, Commercial Harvesting of Detached Algae from Vacant Crown Land" in Appendix E.

fall 2012, with completion in 2015.⁷³ And no other environmental impact assessment study has been done.

Given that the program issued its first license in 2007, five years of intermittent harvesting has taken place without obvious or credible scientific study or monitoring. Yet, again in 2013 the province continues to license the destruction of fish and fish habitat without adequate measures in place to address or mitigate these effects. It is disturbing to note that the harvest continues, in spite of the fact that the Ministry of Agriculture has no document identifying the ecological impacts of the 2012 harvesting activities.⁷⁴

In addition, the province has failed to follow its stated policy of protecting habitat from compromise by the industry's activities. Under section 24(10)(b) of the *BC Fisheries Act*, the minister has the authority to revoke licenses where the harvest would "impair or destroy the supply of any food for fish." The forage fish impacted are a significant supply of food for salmon, and the minister has failed to act to protect this food supply for fish.

Adequate management of this trial industry seems to be falling through the jurisdictional cracks between governments. For example, the province does not appear to have complied with DFO requests for information regarding the licensing program. In fall 2011 correspondence to the Ministry of Agriculture, a DFO scientist expressed explicit concern around the *Mazzaella Japonica* harvest.⁷⁵ After requesting information about the environmental impact studies undertaken as preconditions for licenses, a DFO habitat biologist wrote:

*There is concern that this practise will be unsustainable and that it will have a negative effect on nearshore marine productivity. DFO has not received materials that would suggest otherwise at this time. The seemingly large amount of algae permitted to be removed by the license suggest that there may be an effect on the productivity of fish and fish habitat through the loss of detritus. DFO has made a request for additional information related to these effects and will need to see materials that address the effects of removal of this material on fish habitat productivity in order to complete its review.*⁷⁶

In attempting to justify their effective management of the seaweed harvest to DFO, Ministry of Agriculture officials cited internal, un-adopted guidelines and a "power point presentation outlining how the province manages the marine plant fishery."⁷⁷ However, as noted above, the guidelines mentioned have been disavowed as not being "Best Management Practices" by the

⁷³ See footnote 24, above. Personal Correspondence with Kylee Pawluk, July 3rd 2013 confirmed the start and completion dates of this study, although correspondence between researchers and Ministry of Agriculture began much earlier, at least in September 2011, FOI Emails p 90.

⁷⁴ Minutes of seaweed harvesting meeting with Ministry of Agriculture staff, Ian Birtwell and others, Oct. 3, 2013.

⁷⁵ See Appendix D.

⁷⁶ See Appendix D. Note that DFO declined to respond to requests for information regarding the review of the project. It is thus unclear whether DFO undertook a review at all. The Ministry of Agriculture states that there has been no meeting between DFO and the Ministry regarding the harvest.

⁷⁷ Gary Caine of MoA writing to Michelle Bigg and DFO, FOI Emails p 104.

same biologist who created them. And a review of the study alluded to in the PowerPoint reveals that it deals exclusively with the harvest of attached submerged species – not the detached seaweed that is being harvested.

There is little here to support a suggestion that the province has undertaken serious study of the impacts the *Mazzaella Japonica* harvest has on forage fish or other species. The potential *Fisheries Act* offences at issue appear not to have been considered by the province at all.

Summary

The ongoing provincial licensing program appears to encourage non-compliance with the federal *Fisheries Act*, by allowing harvesters to damage fish habitat which provides vital sources of food for larger fisheries. Contrary to its own policies, the Ministry of Agriculture has been licensing and encouraging a new commercial seaweed industry without adequate study of habitat impacts from the harvest.⁷⁸ DFO has been unresponsive to requests that it investigate potential non-compliance with section 35 of the federal *Fisheries Act* and has failed to take proactive steps to set proactive and protective conditions on the harvest.

The two levels of government involved are abdicating responsible oversight over a new industry with potentially serious environmental impacts. They appear to be unable or unwilling to coordinate proper oversight. In light of this, the provincial minister should exercise discretion to revoke the licenses, until:

- further studies are completed; and
- DFO is able to adequately address any non-compliances occurring under its jurisdiction – either through enforcement of section 35(1) or by issuing proactive section 35(2) authorization orders with stringent protective conditions.

Furthermore, it is recommended that:

- The seaweed fishery, as a potentially new activity should be subject to the Fisheries and Oceans regulations for “new fisheries.” The criteria for such are to be found at the web site defining emerging fishery policy:
<http://www.dfo-mpo.gc.ca/fm-gp/policies-politiques/efp-pnp-eng.htm#sec6a>;

⁷⁸ Note that local governments have raised concerns about the Province’s stewardship. In April 2013 and again on August 23, 2013, the Islands Trust Executive Committee expressed concern about the seaweed harvest and asked the Ministry of Agriculture to refer harvest proposals to the Trust before approving them. On July 3, 2013, in response to the local scientists’ report, the Board of the Regional District of Nanaimo directed staff to write a letter to the Minister of Agriculture outlining the Board’s concern about the licencing of seaweed harvesting, and in September 2013 Regional Director Bill Veenhof met with the Minister of Agriculture to raise such concerns.

- A scientific and ecological review of the *Mazzaella japonica* fishery is required; equivalent to the reviews usually conducted through a Fisheries and Oceans Canadian Science Advisory Secretariat evaluation and reporting process;
- A thorough evaluation of the effects of seaweed harvesting should be undertaken in relation to the requirements of the impacted areas affected to support continued aquaculture activities and their future growth, and maintain the supporting habitat for other highly valuable components of the local ecosystem. This is a prerequisite so that appropriate, sensible and sound decisions may be made based on pertinent factual information;
- The recommendations of Jamieson et al. (2001) regarding Baynes Sound are endorsed and should be reviewed and reconsidered in light of this new proposed industry, as follows:
 1. Establish a multi-agency initiative to identify existing and potential future impacts;
 2. Develop a network of protected areas in Baynes Sound that includes sensitive habitats, key bird habitats and which exclude shellfish culture;
 3. Identify potential adverse impacts from inter-tidal shellfish aquaculture and implement mitigation where appropriate. Consider inter-tidal aquaculture both as an economic asset and as an ecological disturbance;
 4. Investigate the overall carrying capacity of the Baynes Sound ecosystem with respect to phytoplankton production and its removal by filter feeders;
- Restrictions should be specified to protect certain ecologically valuable areas from any future harvesting (e.g. inter-tidal pool and lagoon areas within 3 km of Deep Bay, unconsolidated-sediment areas comprising spawning beaches for forage fish, and marine riparian habitats); and
- A moratorium on seaweed harvesting and licensing should be imposed until the ecological impacts of the *Mazzaella* harvest have been identified and assessed.

Appendix A

HADD Project Applications and Notifications

Persons carrying out, or proposing to carry out work that is likely to result in a HADD must provide the Minister with sufficient information to enable determination of whether the work is likely to result in, or does result in a HADD, and what measures if any would prevent or mitigate that result.⁷⁹ Although there is a model application in the *Fisheries (General) Regulation*,⁸⁰ DFO now uses a consolidated Project Notification and Review Application Form (PNRAF) to assess proposed activities or works.⁸¹

After reviewing a PNRAF, the Minister may order the modification, restriction, or closing of the work or activity⁸² – but only where he or she believes a HADD is likely to occur or is occurring, and where an opportunity has been given to the proponent to make representations regarding the project.⁸³ Where the Minister or authority elects to make such an order, they must offer to consult with the interested provincial government unless immediate action is necessary.⁸⁴

The *Fisheries Act* requires every person who “causes or contributes to the occurrence or the danger of the occurrence” of a HADD to notify the appropriate authority without delay.⁸⁵ Such a person must take measures consistent with the protection of fish and fish habitat to prevent the HADD in question, or to counteract, mitigate or remedy any adverse effects that result from the occurrence or might reasonably be expected to result from it.⁸⁶ The person is required to file a report on the matter with a fisheries officer or other prescribed authority.⁸⁷

If a fisheries officer is satisfied on reasonable grounds that immediate action is necessary to remedy a HADD caused by a person, the officer may take any necessary measures at the expense of the person who caused the HADD.⁸⁸ The officer may take the measures regardless of whether they have received a notice or report.⁸⁹

⁷⁹ *Fisheries Act*, RSC 1985, c F-14, s 37(1)(a).

⁸⁰ *Fishery (General) Regulations*, SOR/93-53 s 58(1), schedule VI.

⁸¹ The new single “Project Notification and review Application Form” Version 1.2 is available from DFO online at: <http://www.pac.dfo-mpo.gc.ca/habitat/index-eng.htm>.

⁸² *Fisheries Act*, RSC 1985, c F-14 s 37(2); DFO Policy for the management of Fish Habitat, online at:

<http://www.dfo-mpo.gc.ca/habitat/role/141/1415/14155/fhm-policy/page07-eng.asp>.

⁸³ *Fisheries Act*, RSC 1985, c F-14 s 37(2).

⁸⁴ *Fisheries Act*, RSC 1985, c F-14 ss 37(4), (5).

⁸⁵ *Fisheries Act*, RSC 1985, c F-14 s 38(4)(b).

⁸⁶ *Fisheries Act*, RSC 1985, c F-14 s 38(6).

⁸⁷ *Fisheries Act*, RSC 1985, c F-14 s 38(7).

⁸⁸ *Fisheries Act*, RSC 1985, c F-14 s 38(7.1).

⁸⁹ *Fisheries Act*, RSC 1985, c F-14..

Despite the relatively robust legislative language just reviewed, at present, requesting information from DFO regarding potential HADD issues results in being directed to their “Working Near Water” website.⁹⁰ The website guides project proponents through a self-actuated process of assessing their projects in relation to a potential HADD. Where a person carries on or proposes any activity that results in, or is likely to result in a HADD, that person must begin by consulting the Operational Statements outlined online. The current Operational Statements offer little guidance for anyone undertaking marine plant harvesting activities. The documents are generally geared towards construction and infrastructure projects. A cursory review suggests that a proponent of harvesting in BC would find little of use contained in the Operational Statements.

⁹⁰ <http://www.pac.dfo-mpo.gc.ca/habitat/index-eng.htm>.

Appendix B

Aboriginal Interests

The aboriginal interests in the current harvest area are myriad. The extensive Bowser tidal pools and lagoons – themselves a legacy of First Nations fishers in the area – testify to the heritage of aboriginal fishing and activity. The lagoons themselves contribute to the accumulation and production of marine life at Bowser: the tidal action coupled with the effect of the lagoons on tidal flows, brings and traps significant amounts of nourishing seaweed closer to the beach. The lagoons provide significant spawning, nursery and rearing areas for juvenile and adult forage fish and are highly utilized food supply areas for countless fish, birds and mammals.⁹¹

The legal aspects of this aboriginal heritage must also be taken into account when considering the implications of licensing a new harvesting activity in the area. There is a general duty on the Crown to consult aboriginal groups where the Crown knows that aboriginal claims may be at stake.⁹² Certainly the nearby shellfish claims are well known to the Crown since the *K'Omoks* case, which involved federal shellfish licences in violation of Aboriginal claims to harvest the same species. These known aboriginal claims may exist alongside other unknown claims. No information has been made available from the Province as to consultation or cooperation with Aboriginal groups.

⁹¹ Personal observation, and discussion with Ian Birtwell, at Bowser (June 2013).

⁹² *K'Omoks First Nation v Canada (Attorney General)* 2012 FC 1160 para 11.

Appendix C

DFO guidelines → Scott Northrup

Only detached algae is to be collected under these guidelines.

Detached algae located in the estuary of any stream or river is not addressed by these guidelines. Should it be deemed necessary to collect algae from estuaries, a formal application with site specific mitigation measures should be submitted to DFO.

No riparian vegetation shall be removed or altered to provide beach access. Established waterfront and shoreline access points are to be used.

Disturbance to the foreshore and substrate below the high water mark for equipment access shall be minimized at all times. Machines are to work at or above the deposited algae and in general in portions of the Intertidal zone that do not support encrusting or attached life.

Access and work is to take place on un-encrusted bedrock shores or sand/gravel/cobble shores without encrusting life or infauna (clams etc.). Soft, muddy substrates are not to be used for site access or during retrieval.

Beach access points should be stabilized upon completion of work (replacement of boulders or drift logs) and restored to a pre-disturbed state or better.

No equipment will be permitted in the water or to retrieve drift algae from the water. Works are to be conducted when the site is not wetted by the tide.

Filling, dredging or blasting below the HWM is not authorized by these guidelines.

Works are to be conducted in a manner that does not result in the deposit of toxic or deleterious substances (e.g. sediment, uncured concrete, fuel, lubricants, etc.) into waters frequented by fish.

Vehicle and equipment re-fuelling and maintenance shall be conducted at least 15m inland from the high water mark. Each piece of equipment is to be supplied with an appropriate spill kit.

Riparian vegetation, intertidal saltmarsh, oyster beds, clam beds and other sensitive fish habitat must not be harmfully affected by access or retrieval of the product. You are advised to seek the advice of a professional biologist if vegetation will be affected in any way by your proposed works.

Stockpiles, should they be necessary, are to be placed in the upper intertidal zone immediately below the log line or HWM. Guidelines to avoid sensitive fish habitat (riparian, sedges, pickleweed and saltmarsh) are to be followed for stockpile placement.

A notification is to be forwarded to DFO prior to the commencement of works. For works south of the Oyster River, Nanaimo (250-756-7162). For works north of the Oyster River, Campbell River (250-286-5852).

2.2 BC MINISTRY OF ENVIRONMENT (c. 2007)

- No harvesting is to occur in provincially protected areas, including parks, conservancies, recreation areas, ecological reserves, marine protected areas and wildlife management areas, or any other lands administered by the Ministry of Environment for conservation purposes;
- Harvest areas should be limited to a few small sites for experimental harvest for scientific purposes until science data is collected and a management strategy prepared;
- Quotas should be set by area, based on biomass estimates, and once the annual quota has been met the area is closed;
- Species and the consequences of harvesting (bycatch) species other than those specified on the licence must be clearly defined;
- Hand harvesting of drift seaweed, of the target species only, should be permitted and there should be no cutting of attached seaweed;
- Mechanized access to the harvest area should be limited to one well-maintained ATV or boat;
- Hail-in information must include the number of harvesters. The licensee should submit a list of harvesters who will assist in the harvest;
- Include a requirement for monthly harvest logs, with harvest location, date and time of harvest, tide, biomass collected (wet), size of patch, percent cover of target species, average length of target species, reproductive state of target species, harvesters, and photographs of the area before and after harvest;
- Harvest routes must utilize hard substrate areas and be limited to one access path. Travel down or across streams is prohibited;
- Harvesting should be excluded during the peak herring spawning period (February to April);
- If there are eagle or heron nests within 100 metres of the foreshore, harvesting should be excluded during the nesting periods (January to September, and February to August); and,
- Licensees should provide a proposal that includes a harvest plan, including measures to minimize damage and disturbance to wildlife and the marine environment.

Appendix D

Armstrong, Susanne AGRI:EX

From: XPAC Referrals Nanaimo [ReferralsNanaimo@dfo-mpo.gc.ca]
Sent: Monday, November 26, 2012 8:30 AM
To: Caine, Gary AGRI:EX; XPAC Referrals Nanaimo; Collins, Clint AGRI:EX; Armstrong, Susanne AGRI:EX
Cc: XPAC Referrals Nanaimo
Subject: RE: 11-HPAC-PA3-00037 RE: Marine plant harvest - comox bc 105302

Good morning Gary,

Thank you for the project status – I will update our file accordingly.

Unfortunately, due to the amount of change within the Habitat group towards the new Fisheries Protection Program and the new Fisheries Act, I do not know where you should send future referrals. I suggest checking our Working Near Waters in BC and Yukon website in the new year.

In the interim, please continue to send any questions or referrals to ReferralsNanaimo@dfo-mpo.gc.ca.

Thank you for your assistance.

Regards,

Amy Ganton
Referral Management Coordinator
South Coast Area, Department of Fisheries and Oceans
3225 Stephenson Point Rd.
Nanaimo, B.C. V9T 1K3
Tel: (250) 756-7232
Fax: (250) 756-7162
ReferralsNanaimo@dfo-mpo.gc.ca

Please note, when submitting a Notification to DFO, a Request for Project Review or a Request for a Fisheries Act Authorization, you must fill out a Project Notification and Review Application Form.
<http://www.pac.dfo-mpo.gc.ca/habitat/steps/praf/form-formulaire-eng.pdf>

Go to our Working Near Water in B.C. and Yukon website for information.
<http://www.pac.dfo-mpo.gc.ca/habitat/index-eng.htm>

From: Caine, Gary AGRI:EX [mailto:Gary.Caine@gov.bc.ca]
Sent: November 23, 2012 4:00 PM
To: XPAC Referrals Nanaimo; 'Collins, Clint AGRI:EX'; Armstrong, Susanne AGRI:EX
Subject: RE: 11-HPAC-PA3-00037 RE: Marine plant harvest - comox bc 105302

Hello Amy

We did not receive a response from DFO in with respect to the harvest licence application mentioned below. It was issued and a small harvest (100 kg) occurred in December 2011.

We also did not receive a response in mid to late 2011 from DFO to licence applications for the 2012 season. Five licences were issued effective January 15, 2012 to December 31, 2012. Harvesting on three of these licences is underway.

There appeared to be some confusion around the federal Project Review form and Project Notification form which, as was explained to Michelle Bigg are not applicable to commercial marine plant harvesting which is a fishery prosecuted under the provincial *Fisheries Act*.

Can you confirm that XPAC Referrals Nanaimo is where we should send our referrals in future.

Many thanks.

Gary Caine

Food Protection Branch
Ministry of Agriculture
2500 Cliffe Avenue
Courtenay, BC Canada V9N 5M6
Ph: (250) 897-7545
Fax: (250) 334-1410
gary.caine@gov.bc.ca

From: XPAC Referrals Nanaimo [<mailto:ReferralsNanaimo@dfo-mpo.gc.ca>]
Sent: Friday, November 23, 2012 2:28 PM
To: Caine, Gary AGRI:EX; Collins, Clint AGRI:EX; Armstrong, Susanne AGRI:EX
Cc: XPAC Referrals Nanaimo
Subject: 11-HPAC-PA3-00037 RE: Marine plant harvest - comox bc 105302

Good afternoon,

I am following up on this file in our system. I notice a request for a Project Notification and Review Application Form but do not have any records of receiving one.

Do you know if the marine plant harvest went ahead? I would like to close this file.

Your assistance is much appreciated.

Regards,

Amy Ganton
Referral Management Coordinator
South Coast Area, Department of Fisheries and Oceans
3225 Stephenson Point Rd.
Nanaimo, B.C. V9T 1K3
Tel: (250) 756-7232
Fax: (250) 756-7162
ReferralsNanaimo@dfo-mpo.gc.ca

Please note, when submitting a Notification to DFO, a Request for Project Review or a Request for a Fisheries Act Authorization, you must fill out a Project Notification and Review Application Form.
<http://www.pac.dfo-mpo.gc.ca/habitat/steps/praf/form-formulaire-eng.pdf>

Go to our Working Near Water in B.C. and Yukon website for information.
<http://www.pac.dfo-mpo.gc.ca/habitat/index-eng.htm>

From: Caine, Gary AGRI:EX [<mailto:Gary.Caine@gov.bc.ca>]
Sent: September 15, 2011 11:58 AM

Toll Free 1-800-663-7867
Fax 250-334-1410
Clint.Collins@gov.bc.ca

From: Leone, Nick [mailto:Nick.Leone@dfo-mpo.gc.ca]
Sent: Friday, September 16, 2011 12:11 PM
To: Northrup, Scott; Caine, Gary AGRI:EX; Bigg, Michelle; Collins, Clint AGRI:EX; Armstrong, Susanne AGRI:EX
Cc: Nessman, Chantal
Subject: RE: Marine plant harvest - comox bc 105302

Further to this recent exchange between our respective agencies concerning marine plant harvest, and in respect of agency jurisdictions on these matters - I would agree with Gary's request for a meeting to clarify the scope of the issue, related concerns & current regulatory/permitting processes.

As both Michelle and Scott have highlighted, and notwithstanding earlier Departmental engagement; DFO does have outstanding concerns regards potential impacts related to commercial drift plant harvest; both from a localized and cumulative effects perspective.

In respect of mutual interests of such proposals, as well as interagency cooperation & regulatory streamlining; I believe a meeting would be both warranted & beneficial. In this regard, perhaps I can touch base with either Clint or Gary (early next week-?) and from which we can look to schedule such a meeting. In this regard - I would ask for assistance from both Scott and Michelle in preparation for our meeting.

Client/Gary - your thoughts on this?

Regards, Nick

Nick Leone
Area Manager
Habitat Management Unit
South Coast Area
Nanaimo, BC.
Tel: 250.756.7284
Fax: 250.756.6162
Email: Nick.Leone@dfo-mpo.gc.ca

SCA Habitat Information Line: 250.740-0544

NOTE: DFO's new Pacific Region webpages "Working Near Water in BC and Yukon" <http://www.pac.dfo-mpo.gc.ca/habitat/index-eng.htm>

NOTE: DFO's new Pacific Region Project Review Application Form <http://www.pac.dfo-mpo.gc.ca/habitat/steps/praf/index-eng.htm>

From: Northrup, Scott
Sent: September 16, 2011 10:24 AM
To: 'Caine, Gary AGRI:EX'; Bigg, Michelle; Collins, Clint AGRI:EX; Armstrong, Susanne AGRI:EX
Cc: Leone, Nick
Subject: RE: Marine plant harvest - comox bc 105302

A couple of interesting points.

I note the following from the attached presentation:

- Referrals are then sent to Fisheries and Oceans Canada for review of potential habitat concerns.

I am not sure if this was the case for the current file (correct me if I am wrong here). My impression is that DFO was sent a copy of a license that had already been issued. That does not sound like a referral at all.

I note that a set of early draft guidelines for drift algae harvest has been forwarded to DFO. Stephen Colwell and I attended a meeting in Comox a few years ago to discuss an experimental harvest of drift plants. The "guidelines" were a response to this very small scale, experimental project. I certainly would not hold them up as a guideline or Best Management Practise for a larger scale operation. Nor would I vouch for their efficacy or effectiveness. The intent was to implement these draft guidelines for a small scale project, to monitor the project and to utilize the results to improve and adapt the methods chosen. Unfortunately DFO Habitat has had NO contact with the industry players or their regulators since that time. The list of guidelines were only meant to address a specific activity and would be part of a larger package that would also deal with larger questions related to effects of the project on the marine environment. The guideline was not meant to address the impact assessment aspect, which has never been part of the discussions to date.

Another attached document in the email outlines the following:

Commercial Harvesting of Detached Algae from vacant Crown Land

To date no studies have been done in British Columbia to understand the impacts of harvesting beach cast material from the marine foreshore. There have been studies on the East coast of Canada and in Northern Ireland where there is large scale commercial seaweed harvesting on those coasts. Significant knowledge gaps have been identified, especially on the effects of this material on local biodiversity; incorporation into nesting material by birds, and the importance of the recycling process in coastal ecosystems. Additionally, there is no information in the literature on the impact of the harvest on the habitat and associated species.

Commercial-scale harvesting of detached algae from beaches in British Columbia has not been seriously considered until recently. Before sanctioning this activity, the Province needs to be assured that it can be conducted in a manner that does not impair the marine environment or impact other users of public lands. Therefore, in considering granting licences for this activity, a cautious approach is being taken. This requires that in addition to applicants demonstrating the technical and economic feasibilities of their proposals, they must also undertake environmental studies that measure the environmental effects of commercial-scale harvesting from the foreshore. The results of these studies will be used to help determine whether this type of activity is a sustainable use of Crown land resources.

Based on the above as a guide, has the outlined "environmental studies" been completed by the current license holder? If so, has DFO had input into the terms of reference for such a study, or been advised that it is ongoing? Can DFO Habitat obtain copies of these studies? The above suggests significant knowledge gaps. It also identifies the two concerns that DFO Habitat would need clarity and certainty in order to proceed with a review, namely 1) the effects on local biodiversity and 2) the importance of the recycling process in coastal ecosystems.

There is concern that this practise will be unsustainable and that it will have a negative effect on nearshore marine productivity. DFO has not received materials that would suggest otherwise at this time. The seemingly large amounts of algae permitted to be removed by the license suggest that there may be an effect on the productivity of fish and fish habitat through the loss of detritus. DFO has made a request for additional information related to these effects and will need to see materials that address the effects of removal of this material on fish habitat productivity in order to complete its review.

Regards,

Scott Northrup

Habitat Biologist (Biologiste de l'Habitat)
South Coast Area (Cote Sud)
3225 Stephenson Point Road

Nanaimo, BC, V9T 1K3
ph. 250-756-7275/fax 250-756-7162
c. 250-741-7640

<http://www.pac.dfo-mpo.gc.ca/habitat/index-eng.htm>

From: Caine, Gary AGRI:EX [mailto:Gary.Caine@gov.bc.ca]
Sent: September 15, 2011 11:58 AM
To: Bigg, Michelle; Collins, Clint AGRI:EX; Armstrong, Susanne AGRI:EX
Cc: Northrup, Scott; Leone, Nick; XPAC Referrals Nanaimo
Subject: RE: Marine plant harvest - comox bc 105302

Hi Michelle,

Clint Collins has asked me to respond to your information request.

I have attached relevant documents including a copy of the proponent's licence, conditions of licence and a map of the harvest area. The licensee is permitted to enter upon vacant provincial Crown land for the purposes of exercising the licence. As a matter of public courtesy, we asked the licensee to notify upland owners in the vicinity in advance of his harvest activities. We have also asked the licensee to advise the Area DFO prior to harvesting. My understanding is that the licensee has not yet undertaken a harvest.

I have also attached background material including general licence conditions and a Powerpoint presentation outlining how the Province manages the marine plant fishery. Harvest conditions and methods were developed after considerable research on marine plant biology and ecology that was conducted by the then Marine Resources Branch of the Ministry of Environment, in conjunction with UBC, UVic and the Bamfield Marine Sciences Station between c. 1971 to c. 1995. Most of the research was published or archived since then, and we recently transferred a large amount of data and reports to the Centre for Shellfish Research in order to provide broader access to agencies, educational institutions and the public.

The research was used to establish conditions for harvesting a variety of marine plants so as not to impair recovery of the beds and the habitat upon which fish and other organisms depend. These conditions were written into regulation and form the specific licence conditions that we use today.

You can view the provincial *Fisheries Act* and the regulations at the following links:

http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/00_96149_01

http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/11_140_76

The public is permitted to harvest detached algae from vacant provincial Crown foreshore for their personal use. Harvesting detached algae for commercial purposes requires a licence issued by us. As there are limited data available at present, we have taken a cautious approach in order to ensure that sufficient data and information will be collected to allow us to determine both the environmental and economic feasibility of this fishery. We have limited licensing of the fishery for a period sufficient to monitor the environmental effects of harvesting detached algae, as well as to determine its commercial viability. After we review the results of this pilot we will be better informed as to whether or not to continue this fishery and offer wider access to more participants. We also need to consider the social aspects of conducting this fishery on the foreshore and, in particular are obliged to consult with First Nations in whose asserted territory these fisheries may occur. I have attached a document that provides more details on the information we require and the steps that must be followed.

Historically, we had previously referred these and other applications for marine plant harvesting to Rob Russell of your Department. More recently we discussed this particular fishery with Scott Northrup in 2008-2009, and he provided guidelines and advice. His guidelines are attached.

We would be pleased to discuss this fishery with you in more detail. In the meantime, if you have any scientific data or reports on the ecological effects of harvesting detached algae from the foreshore and how this activity might affect fish and fish habitat in relation to the federal mandate under the federal *Fisheries Act* we would like to know as soon as possible.

Please call or write if you need further information. I suggest we arrange to meet with appropriate staff in the very near future to discuss this more fully.

Regards,

Gary Caine

Food Protection Branch
Ministry of Agriculture
2500 Cliffe Avenue
Courtenay, BC Canada V9N 5M6
Ph: (250) 897-7545
Fax: (250) 334-1410
gary.caine@gov.bc.ca

From: Bigg, Michelle [<mailto:Michelle.Bigg@dfp-mpo.gc.ca>]
Sent: Thursday, August 25, 2011 3:51 PM
To: Collins, Clint AGRI:EX; Armstrong, Susanne AGRI:EX; Caine, Gary AGRI:EX
Cc: Northrup, Scott; Leone, Nick; XPAC Referrals Nanaimo
Subject: Marine plant harvest - comox bc

Clint and Susanne,

As per our conversation today, I am including (below) the correspondence sent from our office requesting information about this licence. Clint, you gave some background and indicated that s.22 and that our request may not have been received.

As I mentioned today, we have had an inquiry from a waterfront landowner in the Qualicum area that has indicated they were asked permission to land a barge on the foreshore for marine plant harvest.

Could you please provide an update on our request for information about this licence/project?

Also, could you please provide any information pertaining to marine plant harvest with regard to the conditions proponents must follow when licenced and any science or publications that guide licencing decision making and that may pertain to the protection of fish and fish habitat.

Clint, you mentioned that you had some dialogue with Rob Russell in the past with regard to marine plant harvest. Do you have any formal correspondence on file pertaining to licences issues in the past?

Thank you.

Regards,

Michelle Bigg B.Sc.
Habitat Referral Coordinator

Appendix E

Detached Algae Requirements.pdf
Ref pg 120

Commercial Harvesting of Detached Algae from vacant Crown Land

To date no studies have been done in British Columbia to understand the impacts of harvesting beach cast material from the marine foreshore. There have been studies on the East coast of Canada and in Northern Ireland where there is large scale commercial seaweed harvesting on those coasts. Significant knowledge gaps have been identified, especially on the effects of this material on local biodiversity; incorporation into nesting material by birds, and the importance of the recycling process in coastal ecosystems. Additionally, there is no information in the literature on the impact of the harvest on the habitat and associated species.

Commercial-scale harvesting of detached algae from beaches in British Columbia has not been seriously considered until recently. Before sanctioning this activity, the Province needs to be assured that it can be conducted in a manner that does not impair the marine environment or impact other users of public lands. Therefore, in considering granting licences for this activity, a cautious approach is being taken. This requires that in addition to applicants demonstrating the technical and economic feasibilities of their proposals, they must also undertake environmental studies that measure the environmental effects of commercial-scale harvesting from the foreshore. The results of these studies will be used to help determine whether this type of activity is a sustainable use of Crown land resources.

Technical Requirements:

Applicants are required to provide a detailed description of their proposals, which must include:

- An environmental impact assessment study plan that can scientifically evaluate the effects of harvesting on the habitat and associated species. This is to be designed by a qualified third-party acceptable to the Ministry. **All costs associated with design and implementation will be borne by the applicant.**
- The business principles that will be used to promote the development of a viable commercial industry.
- How the applicant will ensure harvesting and processing are undertaken in an environmentally acceptable manner.
- How the applicant will ensure that the activity is acceptable to First Nations and broader public interests in the marine resource.
- A harvest management plan outlining a three year schedule of annual raw material requirements, a plan detailing the projected levels of exploitation by beach in the proposed harvest area (map provided), the frequency of re-harvest, mechanisms to assess the impact of harvesting on the resource, and a description of the type of controls to ensure effective management.

Proposal Criteria

1. A proposal describing how the technical requirements described above would be carried out. A project schedule should detail all activities and include an estimated start time and completion date for the work.

1 of 2

2. A description of your qualifications (or the qualifications of your company), experience, your capability and/or capacity to successfully carry out the technical requirements described above in a timely manner.
3. Resumes of the project team including all key personnel.
4. Full contact information including:

Name
Address
Telephone Number
Fax Number
E-mail Address

Evaluation Criteria

Understanding of Scope of Work	25 Points
Technical Requirements	100 Points
Project Management Requirements	50 Points
Presentation and Demonstration	<u>25 Points</u>
Total:	200 Points

Proposal Submission

Proposals can be submitted to our Branch in print, electronically or by fax. Please ensure that your proposal clearly identifies how you (or your company) meet the stated criteria. If you submit your application electronically, please do so in *MS Word* or PDF format only. Proposals can be emailed to Gary.Caine@gov.bc.ca

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Appendix F



Fisheries and Oceans Canada Pêches et Océans Canada

200 – 401 Burrard Street
Vancouver, BC V6C 3S4

July 31 2013

Your file Votre référence

Our file Notre référence
13-HPAC-PA3-00356

Jason Rose

Stormy Shores Sea Product
66 Fletcher Road
Lasqueti Island BC
V0R 2J0
250-954-4070
info@stormyshore.ca

Dear Mr. Rose:

Subject: Sea Weed Harvest, Stormy Shores Sea Products, Bowser/Deep Bay BC

Fisheries and Oceans Canada – Fisheries Protection Program (DFO) received your project proposal on June 20 2013. Please refer to the file number and title below:

DFO File No.: 13-HPAC-PA3-00356
Title: Sea Weed Harvest, Stormy Shores Sea Products,
Bowser/Deep Bay BC

You may be aware of recent changes to the *Fisheries Act*. However, these have not affected the review of your project at this time. For more information on current changes to the *Fisheries Act*, please refer to the DFO website <http://www.dfo-mpo.gc.ca/habitat/habitat-eng.htm>

Our review has focused on the potential impacts to fish and fish habitat that are prohibited by the habitat protection provisions of the *Fisheries Act*.*

The information we reviewed consisted of:

1. Project Notification and Review Application Form
2. Additional attachments – photos and figures.

We understand that you plan to conduct windblown sea weed harvesting along approximately 5km of beach near Bowser and Deep Bay, BC. The harvesting operation

*Those sections most relevant to the review of development proposals include 20, 22, 32 and 35 of the *Fisheries Act*. For more information please visit www.dfo-mpo.gc.ca

Canada

.../2

will be done by hand using hand tools and loaded into containers. These containers are then lifted off the beach using a tracked vehicle.

To reduce potential impacts to fish and fish habitat, we are further recommending that the best practices attached to this letter be included into your project plan – 2012 DFO Detached Sea Weed Collection Guideline.

DFO is not aware of any conclusive evidence showing fish and fish habitat impact from the removal of beachcast seaweed. Provided that the mitigation measures described above are incorporated into your plan, DFO has concluded that your project is not likely to result in a contravention of the habitat protection provisions of the *Fisheries Act*. Therefore, you will not need to obtain a formal approval from DFO in order to proceed. It remains your responsibility, however, to meet the requirements of any other federal, provincial and municipal agencies. If you plan to conduct future harvesting activities, please consult DFO's "Working Near Water in BC and Yukon" website (<http://www.pac.dfo-mpo.gc.ca/habitat/index-eng.htm>) as our understanding of the effects from these activities may change as new information becomes available.

This letter does not authorize the harmful alteration or disruption, or the destruction, of fish habitat (HADD) as prohibited by Section 35(1) of the *Fisheries Act*. It is your responsibility to ensure that all related works, undertakings, or activities do not result in the HADD of fish habitat. This letter also does not constitute approval for the deposit of any deleterious substance (e.g. Sediment-laden water, or turbid water) into waters frequented by fish.

Please be advised that any unauthorized impacts to fish and fish habitat that result from a failure to implement this proposal as described could lead to corrective action such as enforcement. In addition, under the new *Fisheries Act*, there is a requirement to notify DFO of any harmful alteration or disruption, or destruction of fish habitat that has not been authorized. Please notify DFO by calling the Observe, Record, Report line at 1-800-465-4336.

If your plans have changed or if the description of your proposal is incomplete you should consult our website to determine if a DFO review is required, and if so contact this office to determine if the advice in this letter still applies.

If you have any questions, please contact the undersigned at 604-666-0017, or by email at ReferralsPacific@dfo-mpo.gc.ca.

Yours sincerely,



.../3

Eric Chiang
Fisheries Protection Biologist

Fisheries Protection Program
Fisheries and Oceans Canada, Pacific Region

Attachement: 2012 DFO Detached Sea Weed Collection Guideline (PDF file)

DFO guidelines → Scott Northrup -

Only detached algae is to be collected under these guidelines.

Detached algae located in the estuary of any stream or river is not addressed by these guidelines. Should it be deemed necessary to collect algae from estuaries, a formal application with site specific mitigation measures should be submitted to DFO.

No riparian vegetation shall be removed or altered to provide beach access. Established waterfront and shoreline access points are to be used.

Disturbance to the foreshore and substrate below the high water mark for equipment access shall be minimized at all times. Machines are to work at or above the deposited algae and in general in portions of the intertidal zone that do not support encrusting or attached life.

Access and work is to take place on un-encrusted bedrock shores or sand/gravel/cobble shores without encrusting life or infauna (clams etc.). Soft, muddy substrates are not to be used for site access or during retrieval.

Beach access points should be stabilized upon completion of work (replacement of boulders or drift logs) and restored to a pre-disturbed state or better.

No equipment will be permitted in the water or to retrieve drift algae from the water. Works are to be conducted when the site is not wetted by the tide.

Filling, dredging or blasting below the HWM is not authorized by these guidelines.

Works are to be conducted in a manner that does not result in the deposit of toxic or deleterious substances (e.g. sediment, uncured concrete, fuel, lubricants, etc.) into waters frequented by fish.

Vehicle and equipment re-fuelling and maintenance shall be conducted at least 15m inland from the high water mark. Each piece of equipment is to be supplied with an appropriate spill kit.

Riparian vegetation, intertidal saltmarsh, oyster beds, clam beds and other sensitive fish habitat must not be harmfully affected by access or retrieval of the product. You are advised to seek the advice of a professional biologist if vegetation will be affected in any way by your proposed works.

Stockpiles, should they be necessary, are to be placed in the upper intertidal zone immediately below the log line or HWM. Guidelines to avoid sensitive fish habitat (riparian, sedges, pickleweed and saltmarsh) are to be followed for stockpile placement.

A notification is to be forwarded to DFO prior to the commencement of works. For works south of the Oyster River, Nanaimo (250-756-7162). For works north of the Oyster River, Campbell River (250-286-5852).