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Fish Pathogen and Pest Treatment Regulations

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Note

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Abstract

A rapidly growing Canadian aquaculture industry in the face of regulatory uncertainty, gives rise to several environmental concerns, including the appropriate management of pests such as sea lice. Currently there are no uniform regulations regarding effective management of pests and diseases, including the use of pathogens and pesticides in the marine environment. In reaction, the Department of Fisheries and Oceans has proposed the development of *Fish Pathogen and Pest Treatment Regulations*, under sections 36 & 32 of the *Fisheries Act*. The author argues that the current emphasis on therapeutant usage in the marine environment is an inadequate response to effective pest and disease management in aquaculture facilities. The paper provides a summary of the current aquaculture regulatory regime and addresses competing stakeholder interests as they relate to pest management in the aquaculture industry. This is followed by an analysis of applicable international and domestic legal principles to inform recommendations geared to ensure that the new regulations meet Canada's domestic and international legal obligations as well as appropriately balance competing stakeholder interests.

KEY WORDS:

Aquaculture, fin fish, sea lice, therapeutant use, pathogen, pest, precautionary principle, environmental impact assessment

Introduction

Aquaculture in Canada is a growing national industry, generating over a billion dollars in revenue annually as well as creating approximately 14,000 full-time jobs.¹ The economic benefits coupled with the fact that depleting wild fish stocks are increasingly unable to meet the global demand for seafood, make aquaculture an increasingly appealing industry for Canada.

Finfish production accounts for eighty percent of the total volume of aquaculture produced in Canada, the majority of which is salmon.² The economic benefits of large finfish operations do come with their share of environmental concerns including: the introduction of access feed, feces, pesticides and antibiotics into the marine environment; escapees' effect on marine life; and sustainability concerns surrounding the farming of carnivorous fish. The unnaturally high concentration of finfish in a typical net cage is also an attractive ground for pests and disease.³ If ineffectively treated, diseases and pests pose a significant threat to both wild and farmed fish.⁴ Certain treatments, including the use of pathogens and pesticides, also pose a threat to the receiving marine environment.

This paper provides an overview of the current aquaculture regulatory regime, analyzes the issue of sea lice in regards to finfish aquaculture and makes best practice recommendations regarding the proposed *Fish Pathogen and Pest Treatment Regulations*.⁵ Specifically it aims to highlight concerns with the content of the proposed regulations by examining the problem of sea lice, competing stakeholder interests, and finally existing obligations under international and domestic laws. In the face of international and domestic legal obligations, as well as competing social interests, the paper concludes that the current focus of the Pest Regulations on therapeutant use is an inappropriate response to pest and disease management in aquaculture operations.

Regulation of Aquaculture – The Current Regime

The constitutional authority to regulate aquaculture in Canada is currently in a state of uncertainty.⁶ Despite this uncertainty, regulation in most provinces is essentially shared between federal and provincial governments. This cooperative approach between various levels of government is achieved through non-binding written agreements, such as Memoranda of Understanding (MOUs) as well as other regional agreements (see for example the *Agreement on Interjurisdictional Cooperation with Respect to Fisheries and Aquaculture*).⁷ Essentially MOUs set out the areas where each level of government has exclusive and shared jurisdiction. For example, the NS-Canada MOU grants the province authority to issue aquaculture licenses and leases, while the federal government retains jurisdiction regarding fish health and pest control.⁸

1 Laura Consulting, "Public Confidence in Aquaculture – A Community Engagement Protocol for the Development of Aquaculture in Nova Scotia" (September 2010), online: <<http://www.gov.ns.ca/fish/aquaculture/aqua-final-rpt.pdf>>.

2 Canadian Council of Fisheries & Aquaculture Ministers, "National Aquaculture Strategic Action Plan Initiative (NASAPI) 2011-2011" (Ottawa: Fisheries and Oceans Canada, 2010), online: <<http://www.dfo-mpo.gc.ca/aquaculture/lib-bib/nasapi-inpasa/Report-eng.pdf>>.

3 On average the DFO reports that there are about 35,000-50,000 fish per net cage. DFO, online: <<http://www.dfo-mpo.gc.ca/aquaculture/faq-eng.htm>>.

4 Martin Krkosek et al, "Effects of parasites from salmon farms on productivity of wild salmon" (2011) PNAS 1. This study found that farms with high levels of sea lice are negatively associated with productivity in certain wild pacific salmon in the Broughton Archipelago.

5 Notice of intent with respect to regulations for fish pathogen and pest treatment (2011) C Gaz I, (*Fisheries Act*) [hereinafter Pest Regulations].

6 See generally *Constitution Act*, 1867 (UK), 30 & 31 Vict, c 3, reprinted in RSC 1985, App II, No 5: Aquaculture falls under several various heads of power. Enumerated Federal heads of power which apply include: regulation of trade and commerce (2); navigation and shipping (10) sea coast and inland fisheries (12). The residual power remaining under 92(16) also gives federal authority to regulate matters that are not of local or private nature, including inter-provincial and international matters. Under section 92(13) property and civil rights in the province give provincial jurisdiction.

7 See e.g. Canada-Nova Scotia Memorandum of Understanding on Aquaculture Development, July 6, 1995.

8 *Ibid*, ss 5, 6, 8.

The recent British Columbia Supreme Court's decision in *Morton v. British Columbia (Agriculture and Lands)*, held that aquaculture is a fishery and therefore falls under exclusive federal jurisdiction. The B.C. provincial regulations in force at the time were held ultra vires the jurisdiction of the province.⁹ In response to the Courts decision, the federal government enacted the *Pacific Aquaculture Regulations* under the *Fisheries Act*.¹⁰ This new federal regulatory regime came into force on December 18, 2010.

The *Morton* decision is only binding in British Columbia. However it may only be a matter of time until similar constitutional challenges arise in other provinces. In Nova Scotia, for example, there is a similar case currently before the courts.¹¹ Analogous outcomes may change the regulatory state of affairs, in both Nova Scotia and other provinces across the country.

Fish Pathogen and Pest Treatment Regulations

The *Pacific Regulations* authorize the Minister to specify conditions of an aquaculture license regarding the control and monitoring of pathogens and pests in aquaculture facilities as well as the monitoring of pathogens and pests in wild fish that may be affected by the operations of the aquaculture facilities.¹² They also allow the Minister to specify conditions requiring notice to the Minister before substances are used to treat fish for pathogens or pests.¹³ To date the DFO has opted not to act under the *Pacific Regulations* and has held that consolidated national regulations in regards to pest and disease management would be more effective.

In August 2010, the Department of Fisheries and Oceans (DFO) drafted a Discussion Document for public comment, regarding pathogen and pest treatment. Essentially the *Pest Regulations* aim to “provide greater clarity and coherence with respect to federal environmental regulatory measures in the management of aquatic animal health and welfare.”¹⁴ The proposed *Pest Regulations* will be administered under sections 36 & 32 of the *Fisheries Act*. The Discussion Document frames the regulations in two parts: the first dealing with the deposit of therapeutants and pest control products (as deleterious substances); and the second with non-chemical methods of dealing with pests and disease, such as electric shock and percussion stunning. It is important to note that killing sea lice through non-chemical methods still constitutes a fish kill under the *Fisheries Act*, therefore triggering section 32 of the Act.

The principles of sustainable development and precaution are discussed as essential to the pest control regulatory framework, however specific details of how these principles will be implemented are not made available. The only indication of how the precautionary principle is to be used is in the following statement made by the DFO, which, as will be explored later, is directly borrowed from the Rio Declaration¹⁵:

*Where there are threats of serious or irreversible damage, although the lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent aquatic environmental degradation, risk management will be utilized to determine the usage of such measures.*¹⁶

The DFO's use of the precautionary principle seems to authorize quick action towards pests and diseases instead addressing

9 2009 BCSC 136 [*Morton*].

10 SOR/2010-770 [*Pacific Regulations*]; RSC 1985, c F-14.

11 See e.g. *Saint Mary's Bay Coastal Alliance Society et al. v Minister of Fisheries and Aquaculture and Kelly Cove Salmon Ltd.* (Hfx No. 352001).

12 *Pacific Regulations*, supra note 10, ss 4(f) & (g).

13 *Ibid.*, s 4(m)(i).

14 DFO, “Developing New Federal Regulations to Guide Fish Pathogens and Pest Treatments in Canada – Discussion Document” (2010), online: <<http://www.dfo-mpo.gc.ca/aquaculture/fpptr-rtp/backgrounder-eng.htm>>.

15 Rio Declaration on Environment and Development, 13 June 1992, UN Doc A/CONF.151/5/Rev. 1 at Principle 15, online: <<http://www.unep.org/Documents.Multilingual/Default.asp?documentid=78&articleid=1163>>.

16 DFO, “Fish Pathogen and Pest Treatment Regulations – Discussion Document” (2010), online: <<http://web.archive.org/web/20100903192229/http://www.dfo-mpo.gc.ca/aquaculture/fpptr-rtp/index-eng.htm#Part1>>.

the effect that such treatments may have on the receiving marine environment.

What are Sea Lice?

Sea Lice is a broad term that refers to various species of copepods, or crustaceans that infect fish. Essentially these small crustaceans attach themselves to the outside of fish and live and feed on the fish's skin, mucus and blood.¹⁷ The occurrence of sea lice is not specific to farmed fish, however the unique environment in aquaculture pens such as density and water flow provide an attractive breeding ground for sea lice. Problems that stem from the presence of sea lice include fin erosion and loss, tissue loss as well as open wounds. As tissue damage worsens, chance of infection increases. Infections decrease the market value of the fish and may lead to death.¹⁸ If left untreated, sea lice may also transfer to the marine environment, negatively impacting wild fish stocks.¹⁹

In 2003, Health Canada produced a report on effective ways to manage sea lice in salmon aquaculture facilities. The document highlighted that effective management could be accomplished by using a variety of management tools, chemical treatments representing "one part of integrated management, rather than the sole method of control."²⁰ Recommendations for managing pests include: (1) Site placement -- ensuring an appropriate distance between sites, away from places where large groups of salmon concentrate, and where there is good natural water flow; (2) Year-class separation -- refrain from adding young fish with older fish, to prevent the transfer of sea lice to new stock; (3) Proper fish density; (4) Use of clean nets and equipment.²¹ Despite evidence that a multitude of tools should be used for proper pest treatment, current treatments rely almost most exclusively on the use of therapeutants.²²

Issues and Competing Stakeholder Interests

INDUSTRY

Public confidence and political support are essential to a successful aquaculture industry. Support is dependent on both actual and perceived interaction of the industry with the environment, the economy and local communities. In this respect, the industry works hard to ensure that misconceptions about environmental and social impacts are cleared up to ensure greater public support.

The industry is also very concerned with the health of the fish. In some instances the spread of pests and disease has led to the mandatory killing of entire stocks of finfish. The *Health of Animals Act* currently regulates the destruction of populations of fish to prevent fish with diseases from being imported into Canada.²² Streamlined regulations may provide industry participants with needed guidance in regards to pest and pathogen control; however the proposed regulatory scheme may facilitate increased usage of chemicals, arguably hurting public confidence in the health and sustainability of aquaculture practices.

17 DFO, "Information on Sea Lice" (2005), online: <<http://www.dfo-mpo.gc.ca/media/infocus-alaune/2005/20051011b/info-eng.htm#1>>.

18 Health Canada "Fact Sheet on Integrated Pest Management of Sea Lice in Salmon Aquaculture" (2003), at 3, online: < http://www.hc-sc.gc.ca/cps-spc/pubs/pest/_fact-fiche/lice-pou/index-eng.php>.

19 DFO, "Sea Lice" online: <<http://www.dfo-mpo.gc.ca/fm-gp/sustainable-durable/aquaculture/pro-sl-eng.htm>>.

20 Supra note 18 at 1.

21 Ibid.

22 Ibid at 3.

ENVIRONMENTAL NON-GOVERNMENTAL ORGANIZATIONS (ENGO)

Under the *Fisheries Act*, the DFO is empowered to protect and conserve fish and their habitats.²⁴ A main concern of various ENGOs is that the Pest Regulations undermine the purpose of the Fisheries Act by creating exceptions to prohibitions instead of focusing on broader questions of sustainability of the industry. In a letter written to Prime Minister Stephen Harper on behalf of twenty different NGOs, the authors expressed their concern about the proposed regulations, stating:

*It appears that rather than requiring this industry to develop management and/or operational practices that would minimize their impact on marine resources (such as closed containment), your department's proposed response is to continue to allow practices that contravene legislation (i.e. sections 36 and 32 of the Fisheries Act) and cause harm to the environment. These proposed regulations would explicitly allow the use of pesticides...and undermine the sections of the Fisheries Act best equipped to protect the marine environment.*²⁵

The current approval process for the administration of drugs and chemicals to combat sea lice raises legitimate concerns about environmental protection. Emamectin benzoate (EB), for example, is a popular drug in Atlantic Canada, administered orally to fish. EB was first made available under Emergency Drug Release, a process where Health Canada, under the authority of the Food and Drugs Act approves the use of a drug in an emergency situation. Health Canada has since approved the sale of EB in Canada. The chemical AlphaMax (active ingredient deltamethrin), has also recently been used in New Brunswick, with the anticipation that sea lice are growing resilient to EB. Despite its use in other jurisdictions, there are many concerns about the effect of AlphaMax on the marine ecosystem.²⁶

In 2009 a one-year emergency authorization, for the application of AlphaMax, was issued by Pesticide Management Regulatory Agency (PMRA), a branch of Health Canada, under the *Pest Control Products Act*.²⁷ Environment Canada initially opposed the authorization, on the grounds that the application of AlphaMax would constitute a violation of section 36 of the *Fisheries Act*. This opposition was withdrawn after discussions with DFO and PMRA.²⁸ In 2010, the DFO reported that AlphaMax is extremely toxic to lobsters, even in very low concentrations.²⁹ Despite known concerns, Health Canada authorized a second emergency application of AlphaMax in the fall of 2010.³⁰ The authorization was coupled with application restrictions, which Health Canada believed would sufficiently mitigate any negative effects. Growing concerns about the environmental effects on non-target species and the health of the receiving environment at large, led to further assessments by DFO, PMRA and Environment Canada, after the first emergency authorization.

24 See generally *Fisheries Act*.

25 Letter to the Prime Minister, February 16, 2011, online: <<http://www.dfo-mpo.gc.ca/Library/339939.pdf>>.

26 Department of Fisheries and Oceans, "Treatment of Sea Lice" (2009), online: <<http://www.dfo-mpo.gc.ca/aquaculture/lice-pou/lice-pou03-eng.htm>>.

27 Department of Fisheries and Oceans, Memorandum for the Minister "Use of AlphaMax® for Sea Lice Control" (9 September 2010) (EKME #2215181) at 2, online: <http://beta.images.theglobeandmail.com/archive/01319/Sea_lice_documents_1319882a.pdf> [Use of AlphaMax Memorandum]; *Pest Control Products Act*, SC 2002, c 28.

28 Use of AlphaMax Memorandum, *ibid*.

29 Fairchild et al, "Acute and chronic toxicity of two formulations of the pyrethroid pesticide deltamethrin to an amphipod, sand shrimp and lobster larvae" (Moncton: Fisheries and Oceans Canada, 2010), online: <<http://www.dfo-mpo.gc.ca/Library/339939.pdf>>.

30 Health Canada, Minister of Health, "Response of the Federal Departments and Agencies to Environmental Petition 318 Filed by Grand Manan Fishermen's Association, Inc. under the *Auditor General Act*— Concerns regarding the use of toxic chemicals to treat for sea lice on salmon aquaculture farms in south western New Brunswick" (27 October 2011), online: <http://www.oag-bvg.gc.ca/internet/English/pet_318_e_35729.html>.

COMMUNITY MEMBERS

Typically aquaculture sites are located on navigable waters. Competing interests in the marine environment often lead to diverging views on matters such as therapeutant and pesticide use. At common law, it is recognized that:

*the right of navigation, as well as that of fishing, is paramount to the rights of a mere owner of the soil.... The public right of navigation and fishing is not, and cannot be, affected or nor diminished by any transfer of the soil of an arm of the sea, or its shores to an individual.*³²

The common law also recognizes free swimming fish as a public resource. This means that even if the water course is owned or leased by a private individual, they do not have ownership or property rights over the free swimming fish. Tension may arise when regulations favour the facilitation of aquaculture at the expense of other interests such as those of traditional lobster and Aboriginal fisheries.

On October 31, 2011 Glenn Cooke, CEO of Cooke Aquaculture, along with two other executives, were charged for violation of section 36.3 of the *Fisheries Act*.³³ Environment Canada reported that the charges were based on the release of a cypermethrin based pesticide into the marine environment. The charges were laid after sudden massive lobster kills were discovered around various Cooke Aquaculture sites. Cypermethrin is known to be toxic to fish, bees, and crustaceans and is currently not permitted to be applied in open waters.³⁴

In *Kwicksutaineuk/Ah-Kwa-Mish First Nation v. British Columbia (Minister of Agriculture and Lands)* a class action application was granted, certifying a class to bring action against the province of British Columbia. The plaintiffs in this action allege that a number of aquaculture farms in their traditional fishing region have contributed to the infestation of sea lice in wild salmon stocks. They contend that this infestation has infringed the plaintiff's Aboriginal fishing rights.³⁵

International Guidance

When developing aquaculture regulations, international law provides some guidance regarding the sustainable management of aquaculture. Due to the diverse circumstances of various aquaculture regimes, as well as differences in competing interests, international law does not provide specific industry standards or practices for states to follow.³⁶ Instead there is a variety of soft law instruments which promote the development of the aquaculture industry in accordance with the general principles of sustainable development. For example, the adoption of national management systems which assist the development of sustainable aquaculture is broadly encouraged. The precautionary principle and environmental impact assessments are two widely accepted international principles that should be taken into consideration when developing regulations regarding disease and pest treatments.

32 *Donnelly v Vroom* (1907) 40 NSR 585 (SC).

33 LaForest, *Water Law in Canada: The Atlantic Provinces* (Ottawa: Information Canada, 1973). This principle has also been codified in the *Fisheries and Coastal Resources Act* 1996 c 25, s 1 at s 60.

34 "Cooke Aquaculture charged by Environment Canada in illegal pesticide use" (2011), online: < <http://responsibleaquaculture.wordpress.com/2011/11/02/cooke-aquaculture-charged-by-environment-canada-in-illegal-pesticide-use/> >. Health Canada, "Evaluation of Pesticide Incident Report 2010-0841" online: < http://www.hc-sc.gc.ca/cps-spc/pubs/pest/_decisions/epir-edirp2010-0841/index-eng.php >.

35 2010 BCSC 1699, [2010] 1 CNLR 92.

36 David VanderZwaag, Gloria Chao & Mark Covan, "Canadian Aquaculture and the Principles of Sustainable Development: Gauging the Law and Policy Tides and Charting a Course" (2002) 28 *Queen's LJ* 279 at paras 4-5.

PRECAUTIONARY PRINCIPLE

The precautionary approach is an international environmental law principle, most notably framed in the *Rio Declaration*, stating “where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.”³⁷ This principle is often criticized for relying on subjective criteria to determine when the principle should take effect, as well as offering no clear burdens and standards of proof.³⁸ The problems which are evident when looking at the precautionary principle in the abstract may be clarified upon applying this principle to a specific situation, such as pesticide use in the marine environment.³⁹ It is clear that a balance must be struck between rights of industry and competing values, such as the community and environment. Where this line is drawn is a question of policy.

The precautionary principle is also highlighted in international guidance specific to the Aquaculture industry. The Food and Agriculture Organization’s (FAO) Code of Conduct for Responsible Fisheries, provides:

*States and subregional and regional fisheries management organizations should apply a precautionary approach widely to conservation, management and exploitation of living aquatic resources in order to protect them and preserve the aquatic environment, taking into account the best scientific evidence available. The absence of scientific information should not be used as a reason for postponing or failing to take measures to conserve target species, associated or dependent species and non-target species and their environment.*⁴⁰

In addition to this Code, the FAO has also administered Technical Guidelines which aim to “assist countries in applying precaution to uncertainties faced in fisheries and aquaculture.”⁴¹ It is important to proceed with precaution, especially because “knowledge of most marine species – and the threats which face them - is still very fragmentary.”⁴²

Although domestic legislation is presumed to respect and reflect the values of international law,⁴³ unless the principle in question is recognized as customary international law, most soft law principles are only binding if they are incorporated into domestic legislation. In regards to the precautionary principle, Canada has confirmed its validity in a number of circumstances. First the Canadian Council of Ministers of the Environment adopted the *Harmonization Accord*, expressly implementing the precautionary principle in Principle 2 of the Accord. This principle states: “where there are threats of serious or irreversible environmental damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation”⁴⁴

37 *Supra* note 15. For further reading see Arie Trouwborst, *The Precautionary Principle in General International Law: Combating the Babylonian Confusion* (2007) 16 *RECIEL* 185.

38 Simon Marr, *The Precautionary Principle in the Law of the Sea* (Hague: Kluwer Law International, 2003) at 21.

39 Jaye Ellis & Alison FitzGerald, “The Precautionary Principle in International Law: Lessons from Fuller’s Internal Morality” (2004) 49 *McGill LJ* 779.

40 FAO, Code of Conduct for Responsible Fisheries, at principle 6.5, online: < <http://www.fao.org/docrep/005/v9878e/v9878e00.HTM>>.

41 *Supra* note 36.

42 Cyrille de Klemm, “Fisheries Conservation and Management and the Conservation of Marine Biological Diversity” in Ellen Hey ed. *Developments in International Fisheries Law* (Hague: Kluwer Law International, 1999) at 426.

43 *114957 Canada Ltée (Spraytech, Société d’arrosage) v Hudson (Town)*, 2001 SCC 40, [2001] 2 SCR 241 at para 30 [Spraytech].

44 Canadian Council of Ministers of the Environment, *A Canada-wide Accord on Environmental Harmonization* (Winnipeg: CCME Publications, 1998) at principle 2, online: < http://ccme.ca/assets/pdf/accord_harmonization_e.pdf>. David L. Vanderzwaag, Susanna D. Fuller & Ransom A. Myers, “Canada and the Precautionary Principle/Approach in Ocean and Coastal Management: Wading and Wandering in Tricky Currents” (2002) 34 *Ottawa LR* 117.

Legislation that has expressly adopted the precautionary principle include: the *Oceans Act*, *Nova Scotia's Environment Act*, *New Brunswick's Clean Air Act*, *Canadian Environmental Protection Act*, and *Nova Scotia's Endangered Species Act*.⁴⁵

Further adoption of the precautionary principle can also be seen by looking at case law. In *Spraytech L'Heureux-Dubé J.* held that an interpretation of a by-law allowing the municipality of Hudson to ban the use of non-essential pesticides, was in accordance with international law, more specifically, the precautionary principle.⁴⁶ In *Brighton v. Nova Scotia (Minister of Agriculture and Fisheries)*, community members argued that the granting of an aquaculture license by the Minister was based on irrelevant considerations and should not have been granted. The community members argued that the Minister's decision was made with "too many unanswered questions" and that "he should have erred on the side of caution" citing the preamble of the *Oceans Act*. Although the Court found the Minister's granting of the license was reasonable, the court agreed that "whether legislatively directed or not, the Minister is under a duty to proceed cautiously in circumstances such as these."⁴⁷

The above examples of domestic implementation of the precautionary principle equate to strong evidence that this principle is legally binding in Canada. The Pest Regulations should therefore ensure that this principle is adhered to whenever a new substance is contemplated for application into open net pens, despite inconclusive evidence of the potential harmful effects on the receiving environment.

ENVIRONMENTAL IMPACT ASSESSMENT

The international principle of environmental impact assessment is another useful principle when looking for guidance regarding the sustainable management of aquaculture. Specifically FAO Article 9.1.5 states:

States should establish effective procedures specific to aquaculture to undertake appropriate environmental assessment and monitoring with the aim of minimizing adverse ecological changes and related economic and social consequences resulting from water extraction, land use, discharge of effluents, use of drugs and chemicals, and other aquaculture activities.

Although the *Pest Regulations* make mention of various risk assessments that must be conducted to ensure that therapeutant and pesticide use does not adversely affect non-target fish and fish habitat, the detail of the risk assessment is still left up to the "satisfaction of the responsible Minister."⁴⁹ Under the proposed Regulations, risk assessments are to be performed prior to any deposit of substances into water frequented by fish. Furthermore, the assessments are to "determine safe conditions for use to ensure no adverse impacts ensue" [emphasis added].⁵⁰ The language used seems to adhere to the recommended FAO principles regarding environmental impact assessments. However, when read together with the discretion held by the Minister as well as the provisions on emergency response releases, the ability to ensure no adverse impacts is questionable.

45 SC 1996 c 31 at preamble; SNS 1994-95 c1 at s. 2(b)(ii); SNB 1997 c C-5.2 at s. 2(h); SC 1999 c 33 at s. 2(1)(a) [CEPA]; SNS 1998 c 11 at s. 2(1)(h).

46 *Supra* note 43 at paras 30-31.

47 *Brighton v NS*, 2002 NSSC 160, [2002] NSJ No 298 at para 44.

48 *Supra* note 40.

49 *Supra* note 14 at Part IV.

50 *Ibid* at Part II.

Domestic Statutory Obligations

In addition to international legal principles, Canadian legislation may also offer guidance to inform the content of the *Pest Regulations*. The following looks at specific provisions of two national pieces of legislation, namely the *Oceans Act* and the *Fisheries Act*.

The *Oceans Act* “requires that the Minister of Fisheries and Oceans facilitate the development and implementation of plans for the integrated management of all activities affecting Canadian estuaries, coastal waters, and marine waters.”⁵¹ Considering the effect that therapeutic use has on coastal and marine waters, these provisions of the *Oceans Act* support the DFOs efforts to streamline regulatory use of such substances. The narrow regulatory focus on the use of pesticide and chemicals however is arguably at odds with the integrated management approach called for by this Act.

Section 35 of the *Fisheries Act* creates an offence to perform “any work or undertaking that results in the harmful alteration, disruptions or destruction of fish habitat.” Section 36 creates an offence for any person to discharge a “deleterious substance” into waters frequented by fish. Although both these provisions are subject to Ministerial exemptions, they do help to illustrate the legislature’s intent on protecting fish and their habitat. These provisions should be used to ensure that use of therapeutants is a measure of last resort because they are deleterious substances that may harm fish and their habitat.

Recommendations and Conclusions

When making any policy decision, all competing interests must be considered and balanced. In deciding the most effective way to deal with pests and disease in finfish aquaculture, the DFO must ensure that industry problems are dealt with in a way that also addresses concerns of other affected groups, including the interests of the environment. Effective pest management necessitates a comprehensive pest management scheme. The report produced by Health Canada, discussed above, illustrates that such an effective approach must necessarily extend beyond the use of therapeutants. If the new regulations are going to adequately address the problem of pests and diseases, meet current international and domestic legal obligations, as well as find an appropriate balance in various stakeholder interests, they must not simply provide a mechanism that fosters continual harm to be done to open marine environments.

The following are a synthesis of the major recommendations that should be considered by the DFO to ensure they are meeting their obligations under domestic and international law as well as giving effect to competing stakeholder interests:

- Adequate checks on ministerial discretion to approve toxic substances being released into the marine environment.
- Comprehensive environmental impact assessment plans that are not widely subject to ministerial discretion.
- Implementation of the precautionary principle when there is uncertainty about the short and long-term effects of therapeutic use on fish welfare, human health as well as the receiving environment. The new regulations should not allow emergency approvals of untested substances until they have undergone extensive peer-reviewed research.
- Ensure that any mandatory deposits of deleterious substances in waters frequented by fish are combined with other non-therapeutic management tools such as reduction of fish density, site placement and year-class separation. A focus on integrated management will ensure that the DFO is meeting their obligations under the *Oceans Act* as well as giving effect to legislative intent under sections 35 and 36 of the *Fisheries Act*.
- Make information on the environmental impacts of therapeutic usage publicly available.