



Friends of the Earth
Les Ami(e)s de la Terre



Conservation Council of New Brunswick
Conseil de conservation *du* Nouveau-Brunswick

October 21, 2014

Mr. Ed Porter
Manager, Aquaculture Policy and Regulatory Initiatives,
Department of Fisheries and Oceans,
Room 8N187
200 Kent Street
Ottawa, Ontario K1A 0E6

by email: fpptr-rtppp@dfo-mpo.gc.ca

Dear Mr. Porter,

Friends of the Earth Canada (FOE), based in Ottawa, and Conservation Council of New Brunswick (CCNB), based in Fredericton, are responding to the invitation by Fisheries and Oceans Canada to comment on the proposed Aquaculture Activities Regulations (AAR), published in Part 1, vol. 148, no. 3 of the *Canada Gazette*. We welcome this opportunity to bring the views of our organizations to your attention. We ask for clarification whether, with the adoption of the AAR, will the Pacific Aquaculture Regulations be repealed?

The following comments relate to various sections of the regulations. Suggested corrections or additions to the sections are underlined. FOE and CCNB start their comments with the “chapeau” of the regulations and then continues to comment on sections of the regulations in accordance with their numerical order.

FOE and CCNB have noted deficiencies in certain definitions proposed by Fisheries and Oceans Canada in s.1 of the AAR, as well as omissions in that section, where we believe terms should be defined and have not been. We have added definitions to s.1. Further, you will find that the definitions of “aquaculture” and “aquaculture facility” as we propose them apply to aquaculture and aquaculture facilities located in Canadian fisheries waters – that is, in both fresh and marine waters. However, s.8 of the proposed AAR sets out monitoring requirements for “tidal waters” only; there is no mention in s.8 of aquaculture carried out in freshwater, including in the Great Lakes. FOE and CCNB believe that this is a serious omission and that Fisheries and Oceans Canada needs to expand the existing requirements in s.8 to include freshwater aquaculture or, should freshwater parameters be different than those that would apply in marine waters, Fisheries and Oceans Canada needs to set out, in the AAR, specific monitoring requirements for freshwater aquaculture.

FOE and CCNB are not including, in this letter, our comments on the Aquaculture Monitoring Standard which is being incorporated as the monitoring tool for the AAR. We regard the standard as important, but will be sending our comments on it in a separate letter.

“Chapeau” of the Aquaculture Activities Regulations

Notice is given that the Minister of Fisheries and Oceans, pursuant to subsections 35(3) and 36(5.2) of the *Fisheries Act* proposes to make the annexed Aquaculture Activities Regulations and proposes to recommend to the Governor in Council the making of these same regulations also under s.37(3) and s.43(1)(b) and (o)(i) and (iii).

Comment

FOE and CCNB recommend that the Aquaculture Activities Regulations (AAR) be made under a broader regulatory authority than ss.35(3) and 36(5.2), because regulating aquaculture activities

- is not merely a matter of prescribing works, undertakings and/or activities that do not contravene s.35(1) of the *Fisheries Act* which 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”; and
- is not merely a matter of providing relief to owners and operators of aquaculture facilities from s.36(3) of the *Fisheries Act* (also known as the “general prohibition” of the deposit of substances deleterious into water frequented by fish.

(i) Paragraph 43(1)(b) and (o)(i) and (iii)

The AAR presents a welcome opportunity to protect fish, fish habitat and Canadian fisheries waters outside the site of an aquaculture facility from any negative impact of aquaculture. For this reason, FOE and CCNB believe that the regulations should also be made under relevant paragraphs of s.43 – namely s.43(1)(b) and (o)(i) and (iii).

s.43. (1) The Governor in Council may make regulations for carrying out the purposes and provisions of this Act and in particular, but without restricting the generality of the foregoing, may make regulations

(b) respecting the conservation and protection of fish;

(o) respecting the control of aquatic invasive species, including regulations

(i) respecting the prevention of the spread of such species,

(iii) respecting the release of members of such species into Canadian fisheries waters.

Subparagraphs 43(1)(o)(i) and (iii) are relevant for the situation of aquatic invasive species for which FOE and CCNB have added a definition to s.1. Please see our changes to s.1.

By making the regulations under s.37(3) as well, the Minister of Fisheries and Oceans can expeditiously make use of his or her order power under s.37(2). Please see below:

(ii) *Subsection 37(3)*

s.37(3) The Governor in Council may make regulations

(a) prescribing the manner and circumstances in which any information or material shall be provided to the Minister without request under subsection (1) or (1.1);

(b) prescribing the manner and circumstances in which the Minister or a person designated by the Minister may make orders under subsection (2) and the terms of the orders;

The reason is that information is required to be submitted to the Minister of Fisheries and Oceans under these regulations. Information required to be submitted as part of regular reporting under s.9(e) and s.12 may give evidence of harm to fish or an alleged violation. If the Aquaculture Activities Regulations are made under s.37(3) as well, the Minister is able to use the information submitted as the basis for an order to the owner or operator of the aquaculture facility under s.37(2). Please see below:

s.37.(1) If a person carries on or proposes to carry on any work, undertaking or activity that results in the deposit of a deleterious substance in water frequented by fish or in any place under any conditions where that deleterious substance or any other deleterious substance that results from the deposit of that deleterious substance may enter any such waters, the person shall, on the request of the Minister — or *without request in the manner and circumstances prescribed by regulations made under paragraph (3)(a)* — provide the Minister with any ... studies, analyses, samples... and other information relating to the work, undertaking or activity, or to the water, place or fish habitat that is or is likely to be affected by the work, undertaking or activity, that will enable the Minister to determine

(a) whether the work, undertaking or activity results or is likely to result in any serious harm to fish that are part of a commercial, recreational or Aboriginal fishery, or to fish that support such a fishery, that constitutes or would constitute

an offence under subsection 40(1) and what measures, if any, would prevent that result or mitigate its effects; or

(b) whether there is or is likely to be a deposit of a deleterious substance by reason of the work, undertaking or activity that constitutes or would constitute an offence under subsection 40(2) and what measures, if any, would prevent that deposit or mitigate its effects.

s.37(2) If, after reviewing any material or information provided under subsection (1) or (1.1) and affording the persons who provided it a reasonable opportunity to make representations, the Minister is of the opinion that an offence under subsection 40(1) or (2) is being or is likely to be committed, or that the work, undertaking or activity results or is likely to result in harm to fish in an ecologically significant area, the Minister may, by order, subject to regulations made under paragraph (3)(b),

(a) require any modifications or additions to the aquaculture facility or any activity that is undertaken or carried out at the facility, or any modifications to any schedules relating to an activity that the Minister considers necessary in the circumstances, or

(b) restrict the carrying on of the work, undertaking or activity.

The Minister or the designated person may also direct the closing of the work or undertaking or the ending of the activity for any period that the Minister or the designated person considers necessary in the circumstances.

Section

For s.1, FOE and CCNB are proposing some additional definitions that we believe are necessary for the proper working of these regulations. The additional definitions are shown here and would need to be inserted in accordance with alphabetical order into s.1.

“aquaculture” means the cultivation, in or at an aquaculture facility located in Canadian fisheries waters, of finfish, shellfish, or crustaceans and the eggs, sperm, spawn, larvae, spat and juvenile stages of finfish, shellfish or crustaceans;

“aquaculture facility” means a site, including any cages, enclosures, structures and equipment, within Canadian fisheries waters, where aquaculture takes place under the authorization of an aquaculture licence;

“aquatic invasive species” means finfish, shellfish, or crustaceans and the eggs, sperm, spawn, larvae, spat and juvenile stages of finfish, shellfish or crustaceans that enter, or are released, from an aquaculture facility, into Canadian fisheries waters that are outside that facility;

“µM” means micro Molar

“nutrient” means food or feed

(a) that is deposited by an owner or operator of an aquaculture facility, in or at that facility, for consumption by the finfish or crustaceans and by the spawn, larvae, spat and juvenile stages of finfish or crustaceans that are subject to aquaculture at the facility,

(b) that enters the water that is part of the aquaculture facility or the marine or fresh waters surrounding the outside of that facility, and

(c) that is not consumed by the organisms referred to in subparagraph (a);

“oxic state” means containing or involving measurable oxygen;

Comment

With respect to the definition of “aquaculture”, the previous wording which stated that “ aquaculture means the cultivation of fish” would mean that the elements of the definition of “fish” in s.2(1) of the *Fisheries Act* would fall under these regulations. Please see, below, the definition as per s.2(1) of the Act:

“fish” includes

(a) parts of fish,

(b) shellfish, crustaceans, marine animals and any parts of shellfish, crustaceans or marine animals, and

(c) the eggs, sperm, spawn, larvae, spat and juvenile stages of fish, shellfish, crustaceans and marine animals;

Use of the word “fish” in the definition of “aquaculture” of Aquaculture Activities Regulations would mean that “parts of fish” and “any parts of shellfish, crustaceans and marine animals” are covered. This could translate into cloning of these parts using aquatic species as the host or substrate. Also, “marine animals” could be cultivated using aquaculture. The aquaculture industry currently involves the cultivation of finfish, shellfish and crustaceans. FOE and CCNB are not aware that the industry is interested in moving into cloning operations or the cultivation of marine animals.

Also, the definition of “aquaculture” in the proposed regulations does not stipulate that the cultivation takes place in or at an aquaculture facility that the owner or operator operates in accordance with an aquaculture licence. Thus, under the previous wording, the “cultivation” could take place anywhere. FOE and CCNB recommend the precision of clarifying that the cultivation takes place in or at an aquaculture facility that operates under an aquaculture licence

as that term is defined in s.1 of the proposed regulations. FOE and CCNB recommend rewording the definition of “aquaculture” along the lines set out above.

FOE and CCNB are proposing a definition of “aquatic invasive species”, because, when finfish, shellfish and/or crustaceans escape or are released from an aquaculture facility, they become an “aquatic invasive species” as far as the wild fish etc in Canadian fisheries waters surrounding the aquaculture facility are concerned. The Royal Society of Canada and other scientists have documented the negative impacts that finfish raised in or at an aquaculture facility can cause with respect to the wild fish population. Making the Aquaculture Activities Regulations under s.43(1)(b) as well as other authorities allows the regulations to require conduct to “conserve and protect fish”. FOE and CCNB believes the opportunity to do so under the proposed regulations should not be lost. Please see references below regarding escapes or releases of farmed fish from aquaculture facilities into surrounding Canadian fisheries waters:

The Royal Society of Canada Expert Panel on Sustaining Canada’s Marine Biodiversity responded to the challenges posed by aquaculture with the following:

“The introduction or exacerbation of infectious diseases and parasites probably constitutes the greatest potential threat to biodiversity posed by salmon aquaculture.”

“There is reason to believe that the harm posed by pathogens might be greater than currently perceived. The lack of transparency in public reporting of diseases at aquaculture farms has hindered meaningful, constructive and respectful debate.”

“After a decade of study it is generally accepted that open-pen salmon farms can cause infections of the salmon louse and contribute to infection in native salmonids, and that these infections can increase juvenile salmonid mortality rates directly and probably indirectly through increased predation.

COSEWIC also found that, “In North America, farm-origin salmon have been reported in 87% of the rivers investigated within 300 km of aquaculture sites.”

According to the Atlantic Salmon Federation (ASF):

“The Magaguadavic River in southwest New Brunswick is one of very few locations in North America where scientists can detect farmed salmon escapees and monitor their impacts on wild Atlantic salmon..... ASF’s biologists report that farmed escapees entering the river have outnumbered annual wild Atlantic returns in all but four of the last twenty-one years. In the 1980s, the annual run averaged 800 wild salmon.

“Genetic characteristics of salmon from aquaculture cages have been altered in controlled programs to provide domesticated strains of fish. This results in adverse genetic consequences for wild Atlantic salmon that have been

documented in numerous scientific reports. Specific to the Magaguadavic River, scientific studies have documented successful spawning of farmed salmon, interbreeding with wild stocks and fitness reduction in wild salmon as a result of the interbreeding (Bourret, O'Reilly, Carr, Berg, and Bernatches). Numerous other scientific reports in Europe and North America have documented that interbreeding can have genetic effects that threaten the reproductive capability and recovery potential of wild populations because the offspring are less fit to survive in the wild.”

FOE and CCNB also recommend adding a definition of “nutrient”, as nutrients that are deposited in or at an aquaculture facility and that then find their way outside of that facility into Canadian fisheries waters accumulate over time, drawing dissolved oxygen from the waters in order to break down. The deposited nutrients can harm fish, smother feeding and nesting grounds for wild fish, remove needed oxygen from those waters in order to decompose etc. These are activities that are harmful to wild fish. Later in this letter, FOE and CCNB refer to measures to reduce the harmful effects in question.

FOE and CCNB recommend that a definition of “oxic state” be added to the Aquaculture Activities Regulations. This definition is based on the definition of “oxic” found in the Oxford Dictionary (on-line edition) which is “(of a process or environment) in which oxygen is involved or present”. FOE and CCNB believe that it is important to add the qualification that the oxygen be “measurable”, since the Aquaculture Monitoring Standard requires such measurement.

Section

s.2. For the purpose of paragraph 36(4)(c) of the Act, the following classes of substances deposited in the operation of an aquaculture facility are specified to be deleterious substances:

- (a) drugs whose sale is permitted or otherwise authorized, or whose importation is not prohibited, under the *Food and Drugs Act*;
- (b) pest control products that are registered, or whose use is authorized, under the *Pest Control Products Act*; and
- (c) biochemical oxygen demanding matter.

Comment

FOE and CCNB are concerned that biochemical oxygen demanding matter (BOD matter) is not subject to a limit. If we understand correctly, owners and operators of aquaculture facilities will not be sampling the BOD matter as deposited. They will instead be sampling the substrate and testing for free sulfide as a surrogate for BOD matter, and, for free sulfide, there is a limit. BOD matter may mix with the substrate, may alter the substrate or may itself be altered by the substrate. How does exceeding the limit for free sulfide translate back to the owner or operator, so that they know to what extent to adjust the amount, concentration and/or timing of deposits, so that the amount of BOD matter is reduced? Section 8(c) of the regulations requires only that the owner or operator “not restock the facility if the concentrations of free sulfide as measured in accordance with paragraph (a) exceed the applicable concentration limit”. The regulations do

not require the owner or operator to correct the circumstances of excessive BOD matter being deposited.

Also, the sampling of substrate and the testing for free sulfide are to be carried out in accordance with the Aquaculture Monitoring Standard, currently found on the website of the Department of Fisheries and Oceans in draft form. However, in that standard, no parameters are given for accuracy, precision, confidence level, detection limits etc of the measurement results. FOE and CCNB recommend that the Aquaculture Activities Regulations contain those parameters or that the parameters be added to the standard itself. An example of such a requirement in a regulation can be found in the Chromium Electroplating, Chromium Anodizing and Reverse Etching Regulations, made under s.93 of the *Canadian Environmental Protection Act, 1999* (CEPA 1999). Please see below for that example:

s.5(4)(d) the analysis of the sample from each of the three sampling runs must be performed with an analytical method whose precision and accuracy are based on a minimum of seven replicate samples and that has

- (i) a method detection limit of at least 8 µg/L of chromium,
- (ii) a precision of 5% relative standard deviation at 10 times the method detection limit, and
- (iii) an accuracy of 100% ± 5% based on analyte recovery at least 10 times the method detection limit; and

(e) the average of three sampling runs must not exceed the chromium release limit prescribed in paragraph 4(1)(b).

FOE and CCNB have comments also on the Aquaculture Monitoring Standard, but will provide those separately from the comments on the proposed regulations.

Section

s.3. An owner or operator of an aquaculture facility may, subject to the conditions set out in sections 4 to 10, deposit a deleterious substance specified in section 2 in any water that is part of an aquaculture facility.

Comment

FOE and CCNB believe that the owner or operator should be entitled to deposit deleterious substances subject to conditions set out by the Minister in these regulations, but only in water that is part of the aquaculture facility. We see no reason why the owner or operator should be given authority to deposit those substances in waters or in a place that is identified in s.36(3) of the Act and that is outside the aquaculture facility. Hence, FOE and CCNB have removed the phrase “or place referred to in subsection 36(3) of the Act”.

Section

s.4. The deleterious substance must be deposited by the owner or operator of an aquaculture facility in the operation of that facility, and the facility must be operated by the owner or operator under an aquaculture licence.

Comment

While FOE and CCNB recognize the linking phrase “subject to the conditions set out in sections 4 to 10” that is found in s.3, we believe that clarity is important and that s.4 should specify that the deposit must be by the owner or operator of an aquaculture facility and that the owner or operator must operate it under an aquaculture licence.

Section

s.5. In the case of a deposit of a drug,

(a) if, by or under an Act of Parliament, the drug may only be sold under a prescription, it must be prescribed by a person who is authorized to practise veterinary medicine

- (i) under the laws of the province in which the aquaculture facility is located, or
- (ii) under the laws of any province, if the aquaculture facility is not located in a province;

(b) the owner or operator of the aquaculture facility must take all reasonable measures to minimize the risk of an accidental deposit of the drug; and

(c) if the drug is deposited to control a pest as defined in the *Pest Control Products Act*, the owner or operator must consider whether there are alternatives to such a deposit and make a record of that consideration. If an alternative presents an environmental risk, as that term is defined in s.2(1) of the *Pest Control Products Act*, and that risk is equal to or less than the drug referred to in paragraphs (a) through (c), or if it presents a health risk, as that term is defined in that same subsection of the *Pest Control Products Act*, and, if the alternative’s efficacy is equal to or better than the drug referred to in paragraphs (a) through (c), the owner or operator must use it instead of that drug, and make a record of that use, including the name of the alternative, the dosage used, the concentration used if use of the drug requires its dilution, the date of usage and the effect of that usage.

Comment

FOE and CCNB have a question respecting s.5(a)(ii) – where would an aquaculture facility be located if not in a province? Since the federal *Interpretation Act* provides that the word “province” includes Nunavut, Yukon and the Northwest Territories, the Minister is not likely referring to one of the territories under s.5(a)(ii). Is this a reference to Canada’s seas extending beyond the three-mile limit to the limit of Canada’s exclusive economic zone? FOE and CCNB ask for your clarification on this point.

In s.5(b), the word “measures” was used. FOE and CCNB note that elsewhere in the proposed regulations, such as in ss.7 and 11, the term “reasonable measures” is used. FOE and CCNB

object to the lack of internal coherence and consistency within the proposed regulations. In addition, s.78.6 of the *Fisheries Act* provides a defence of having exercised “all due diligence” to offences under the Act. Hence, FOE and CCNB believe that it is logical to require that owners and operators of aquaculture facilities take not just “measures” but *all reasonable measures* to minimize the risk of an accidental deposit of the drug.

In s.5(c), if there is an alternative to a drug, the only obligation imposed on the owner or operator was to “consider” that alternative and to record that they considered the alternative. FOE and CCNB believe that it is consistent with the protection and conservation of fish to require use of the alternative – “If an alternative presents an environmental risk, as that term is defined in s.2(1) of the *Pest Control Products Act*, and that risk is equal to or less than the drug referred to in paragraphs (a) through (c), or if it presents a health risk, as that term is defined in that same subsection of the *Pest Control Products Act*, and, if the alternative’s efficacy is equal to or better than the drug referred to in paragraphs (a) through (c), the owner or operator must use it instead of that drug, and make a record of that use, including the name of the alternative, the dosage used, the date of usage and the effect of that usage.

Section

s.6. In the case of a deposit of a pest control product,

(a) if the pest control product is registered, the owner or operator of the aquaculture facility must use it

(i) in compliance with any regulations made under s.67(1)(o) of the *Pest Control Products Act* or any conditions of registration specified under that Act, , including any conditions relating to the place where the pest control product may be used and the quantity and concentration of it that may be used; or

(ii) in compliance with regulations referred to in sub-paragraph (i) and with any conditions of registration that apply to the product, if both apply to the product;

(b) if the pest control product is not registered, it must be authorized to be used by the owner or operator of the aquaculture facility under subsection 21(5) or 41(1) of the *Pest Control Products Act* or have been exempted from registration by a regulation made under paragraph 67(1)(z.4) of that Act; and

(c) if the pest control product is deposited to control a pest as defined in the *Pest Control Products Act*, the owner or operator must consider whether there are alternatives to such a deposit and make a record of that consideration. If an alternative presents an environmental risk, as that term is defined in s.2(1) of the *Pest Control Products Act*, and that risk is equal to or less than the pest control product referred to in paragraphs (a) through (c), or if it presents a health risk, as that term is defined in that same subsection of the *Pest Control Products Act*, and, if the alternative’s efficacy is equal to or better than the pest control product referred to in paragraphs (a) through (c), the owner or operator must use it instead of that pest control product, and make a record of that use, including the name of the alternative, the quantity used, the concentration used if use of the pest control product requires its dilution, the date of the usage and the effect of that usage.

Comment

FOE and CCNB believe that, if a pest control product is subject to not only conditions of registration under the *Pest Control Products Act* (PCPA), but also regulations made under s.67 of that Act, the owner or operator of an aquaculture facility should be required to act in accordance with both in their use of that product. Hence, FOE and CCNB have added that stipulation to s.6(a), by creating subparagraph 6(a)(i) to cover the situation where there are regulations under s.67(1)(o) of the PCPA instead of conditions of registration, and has created subparagraph 6(a)(ii) to cover the situation where there are both conditions of registration and PCPA regulations that apply to the pest control product.

The text added with respect to alternatives parallels that added to s.5 respecting alternatives to drugs, and FOE and CCNB have added it for the same reasons referred to in our comment on s.5.

Section

Measures to reduce harm

s.7. (1) The owner or operator of the aquaculture facility must, in depositing the deleterious substance, take all reasonable measures to minimize harm to fish — other than fish that pose a risk of harm to fish cultivated in the facility or to equipment used in the operation of the facility — and fish habitat, having regard to

- (a) the cost and effectiveness of the available measures;
- (b) the degree and nature of the harm that may result from the deposit; and
- (c) the physical characteristics of the facility and the type of aquaculture that is engaged in by the owner or operator of the facility.

(1.1) In the reasonable measures referred to in subsection (1), the owner or operator must

(a) include measures that take into account site-specific characteristics of both the site of the aquaculture facility and of the waters and fish habitat within a 100 metre radius of the facility, in order to

- (i) protect fish, fish habitat and Canadian fisheries waters within that radius;
- (ii) minimize the negative impact of site-specific characteristics of the aquaculture facility on fish, fish habitat and Canadian fisheries waters within the 100 metre radius; or
- (iii) both (i) and (ii), where both results are possible.

(b) include the removal, within 15 days of the last day of every calendar quarter, of nutrients that have accumulated below the cages, enclosures or structures of the aquaculture facility and of any feces or other excreted matter that are released by the finfish or crustaceans and by the spawn, larvae, spat and juvenile stages of finfish or crustaceans referred to in subparagraph (a)(i); and

(c) include measures such as netting or other means of capture of aquatic invasive species;

Comment

FOE and CCNB have added “all” to the phrase “reasonable measures” in s.7(1) for the same reasons as stated in relation to s.5(b).

FOE and CCNB do not support the use of both “harm” and “detriment” in the Aquaculture Activities Regulations. The Oxford Dictionary (on-line edition) defines “detriment” as “the state of being harmed or damaged”. That same dictionary defines “harm” as “physical injury, especially that which is deliberately inflicted”, and “material damage” with “material” being defined as “significant; considerable”. Subsection 7(1) is further muddled by following the word “detriment” by the phrase “risk of harm”. Canadian courts have traditionally not viewed the use of synonyms with favour. They conclude that, where there is a different word used, the use is intentional and a different meaning is intended. We have replaced the word “detriment” with “harm”, so that there is internal consistency and coherence within the regulations and so that there is no doubt as to meaning. We realize that the phrase “serious harm” is defined in s.2(2). However, “harm” without the modifier “serious” would have its regular dictionary meaning.

FOE and CCNB have added “by the owner or operator of the facility” to tidily link up s.7(1)(c) as an obligation imposed on the owner or operator of the aquaculture facility. We are concerned that the owners and operators of aquaculture facilities are not required to take into account site-specific characteristics of the location of their facility that may influence their cultivation of fish and the exposure of wild fish outside of the facility to the operations of the aquaculture facility, including the dispensing of food, use of pest control products and drugs, if any, etc. Hence, we have added subsection 7(1.1) to cover this point.

FOE and CCNB also have concerns that “effectiveness” in s.7(1)(a) is subjective. However, we have not yet found an alternative wording. Hence, we merely are registering our concern that there is no objective standard for the measurement of “effectiveness” in this case, and only a subjective judgment by the owner or operator is possible.

Because of the cumulative negative effect that nutrients as FOE and CCNB have defined that term in its amendments to s.1 of the proposed AAR, FOE and CCNB propose that owners and operators of aquaculture facilities be required to clean up that accumulation plus the accumulation of feces and other excreted matter from the species being cultivated at the aquaculture facility. Clean-up within 15 days of the end of each calendar quarter is reasonable. The 15-day period is proposed so that owners and operators can pick a time where inclement weather such as fog, rain, snow, high winds etc and the presence of high waves are not a factor or a safety concern.

To explain s.7(1.1)(c), FOE and CCNB note that the finfish, shellfish, crustaceans and their eggs, sperm, spawn, larvae, spat and juvenile stages of finfish, shellfish or crustaceans that enter, or are released, from an aquaculture facility, into Canadian fisheries waters that are outside that facility need to be viewed as “aquatic invasive species”. Please see our suggested definition of “aquatic invasive species” added to s.1. In order to deal with those “invaders”, FOE and CCNB believes the measures required under s.7 need to be amplified. Please see our addition of s.7(1.1) above.

Section

Biomass production greater than 2.5 t

s.7(2). In the case of an aquaculture facility that is operated by an owner or operator under an aquaculture licence that permits a biomass production of more than 2.5 t, the owner or operator must take reasonable measures to minimize the deposit of fish feces, unconsumed feed, or organic matter resulting from biofouling control, having regard to the factors set out in paragraphs (1)(a) to (c).

(2.1) In the reasonable measures referred to in subsection (2), the owner or operator must include measures that take into account site-specific characteristics of both the site of the aquaculture facility and of the waters and fish habitat within a 100 metre radius of the facility, in order to

- (a) protect the fish habitat and Canadian fisheries waters within that radius;
- (b) minimize the negative impact of the site-specific characteristics of the aquaculture facility on the Canadian fisheries waters and fish habitat within the 100 metre radius; or
- (c) both (a) and (b), where both results are possible.

Comment

FOE and CCNB added “by an owner or operator” to ensure that the responsibility for s.7(2) falls on the owner or operator of the aquaculture facility. Subsection 7(2.1) has been added by FOE and CCNB to parallel the same situation as under s.7(1) in relation to site-specific characteristics of the facility and the need to protect the surrounding fish habitat and Canadian fisheries waters.

Section

s.8. In the case of an aquaculture facility in or at which the owner or operator cultivates finfish and that is located over a soft bottom in tidal waters in or adjacent to Quebec, Nova Scotia, New Brunswick, British Columbia, Prince Edward Island or Newfoundland and Labrador, the owner or operator of the facility

- (a) must take samples of the substrate in the manner and at the times and locations specified in the Monitoring Standard and determine the oxic state of the samples in accordance with that Standard by measuring the concentration of free sulfide;

(b) must take additional samples of the substrate, in the manner and at the times and locations specified in the Monitoring Standard, within 90 days after the day on which the samples referred to in paragraph (a) are taken if

(i) in the case of a facility located in tidal waters in or adjacent to Quebec, Nova Scotia, New Brunswick, Prince Edward Island or Newfoundland and Labrador, the mean concentration of free sulfide as calculated at the four locations specified in the Monitoring Standard exceeds 1,500 µM, and

(ii) in the case of a facility located in tidal waters in or adjacent to British Columbia, the mean concentration of free sulfide as calculated at 30 m and 125 m from the part of the facility that contains the cultivated fish exceeds 1300 µM and 700 µM, respectively; and

(c) must not restock the facility if the concentrations of free sulfide as sampled and determined in accordance with paragraph (a) exceed the applicable concentration limit set out in paragraph (b).

s.8.1 In order to restock the aquaculture facility the owner or operator must submit, to the Minister, results of the determination of the oxic state of the sediments referred to in s.8(a) that are in compliance with s.8.(b) Once the Minister reviews those results and is satisfied that the oxic state complies with s.8(b), the Minister must notify the owner or operator that they may restock the aquaculture facility.

Comment

FOE and CCNB have already expressed our concern about the lack of precision, accuracy and other parameters for the measurement of free sulfide. Please see our comment in relation to s.2 of the regulations.

We find the limit 3,000 µM too high for the triggering of testing.

FOE and CCNB have added s.8.1, because, if the oxic state is not in compliance with s.8(b) and hence the owner or operator must not restock their facility, the regulations need to set out a means to allow owners and operators to return to compliance, to restock their facility and to resume cultivation of finfish, shellfish, crustaceans etc. That means should surely be submission to the Minister of results of sediment analysis that do comply with s.8(b) and the Minister's notification to the owner or operator that they may resume restocking. Note that our proposed s.8.1 *requires* the Minister to allow restocking once compliance is achieved.

Section

s.8.2 As a condition of deposit of the deleterious substances identified in s.2, the owner or operator of an aquaculture facility must carry out environmental effects monitoring, using the method stipulated by the Minister and in accordance with the frequency stated in that method.

(b) As a further condition of deposit, the owner or operator of an aquaculture facility must sample sediment below the cages, enclosures and structures of an aquaculture facility and within 100 metres of that facility and analyze the free sulphides in that sediment. The result of that analysis must show an oxic state of 1500 µM or less.

Comment

It is useful, and in fact essential, for a Minister to know how effective regulations are. One way to do so under the *Fisheries Act* is to require environmental effects monitoring as a condition of the deposit of deleterious substances. The Minister of Fisheries and Oceans already does this under the Pulp and Paper Effluent Regulations and the Metal Mining Effluent Regulations. FOE and CCNB recommend that this be done for the Aquaculture Activities regulations as well. Please see, below, the example of the relevant provisions of the Metal Mining Effluent Regulations:

s.7. (1) The owner or operator of a mine shall conduct environmental effects monitoring studies of the potential effects of effluent on the fish population, on fish tissue and on the benthic invertebrate community in accordance with the requirements and within the periods set out in Schedule 5.

(2) The owner or operator shall record the results of the studies and submit the reports and required information to the authorization officer as set out in Schedule 5.

(3) The studies shall be performed using documented and validated methods, and their results interpreted and reported on in accordance with generally accepted standards of good scientific practice at the time that the studies are performed.

Section

Unusual fish morbidity or mortality

s.9. If unusual fish morbidity or mortality outside the aquaculture facility is observed by the owner or operator of an aquaculture facility from any part of the facility within 96 hours after the deposit of any drug or pest control product referred to in paragraph 2(a) or (b), the owner or operator of the facility must

(a) notify a fishery officer within 24 hours of the observation;

(b) record the following information:

- (i) the geographic coordinates of the fish observed,
- (ii) the estimated number and, if known, species of the fish observed, and
- (iii) the product name of the drug or pest control product deposited and the date of the deposit;

(c) provide to the fishery officer the information, within the time period set out in paragraph (a), the information recorded in accordance with paragraph (b);

(d) obtain, in the manner and at the times and locations specified in the Monitoring Standard,

- (i) tissue samples of the affected fish,
- (ii) water samples, and
- (iii) substrate sediment samples;

(e) send the samples referred to in paragraph (c) for an analysis of the presence of chemotherapeutants to a laboratory

(i) that is accredited by a Canadian accrediting body under the International Organization for Standardization standard ISO/IEC 17025: 2005 entitled *General requirements for the competence of testing and calibration laboratories*, as amended from time to time, and the scope of whose accreditation includes the analytical method used to test for chemotherapeutants and to make the determination of their quantity or concentration; or

(ii) by a laboratory that is accredited under the *Environment Quality Act*, R.S.Q., c. Q-2, as amended from time to time, and the scope of whose accreditation includes the analytical method used to test for chemotherapeutants and to make the determination of their quantity or concentration;

(f) provide the results of the analysis of the tissue samples to the Minister and cease depositing the drug or pest control product until receipt of notice from the Minister under s.9.1(a), of an order under by the Minister s.9.1(b), or until completion of action by a fishery officer to whom the Minister refers the matter in accordance with s.9(1)(c) .

Comment

FOE and CCNB are concerned about the subjective nature of the word “unusual”. How is the owner or operator of an aquaculture facility to determine what is “usual”, so that they can know what is “unusual”? The Aquaculture Monitoring Standard does require gathering of information that would establish the “usual”. Baseline data are required, because an owner or operator can know that there is a deviation and something “unusual” in terms of fish morbidity and/or fish mortality is happening.

We have added “who” is doing the observing. Without this clarification, the observer is unknown and unknowable – it could, for example, be a member of the public who has no obligation to act. It is prudent to have observation be the responsibility of the owner or operator has they are regulatees under this regulation and can direct action to be taken. With the use of the passive voice “observed” and with no doer of the action identified, no one is responsible for “observing”.

We have added a new paragraph (c), because merely notifying a fishery officer of “unusual” fish illness or “unusual” death rates of fish is not enough for a fishery officer to decide whether or not to come to the site of the facility and inspect for compliance of the facility or investigate an alleged offence. The fishery officer needs sufficient information to decide whether an inspection is warranted or an investigation is required. FOE and CCNB expect that, should the information give reason for the officer to judge that an offence has occurred, Fisheries and Oceans Canada would want compliance restored as quickly as possible and by the most effective/efficient means possible.

We are also concerned about the wording respecting referral to an accredited laboratory. Quebec does not use accreditation by the Standards Council of Canada for its laboratories. The province has its own procedures. Please see the subparagraph referring to the Quebec procedure of accreditation above. In addition, the wording proposed by the Minister of Fisheries and Oceans for s.9(d) makes no mention of the accreditation standard against which the laboratories must be measured. There is an international standard issued by ISO, and that is the standard that FOE and CCNB refers to in its re-wording of s.9(d). Further, it is not enough for a laboratory to be “accredited”; laboratories can be accredited for testing of, for example, hexavalent chromium, or polychlorinated biphenyls, or dioxins, but not chemotherapeutants. Hence, FOE and CCNB have added the requirement that the accreditation include chemotherapeutants. For an example of such wording, Fisheries and Oceans Canada may wish to refer to s.7 of the 2-Butoxyethanol Regulations made under CEPA 1999:

s.7. Any determination of the concentration of 2-butoxyethanol under these Regulations shall be conducted

(a) by a laboratory that is accredited by a Canadian accrediting body under the International Organization for Standardization standard ISO/IEC 17025:2005, entitled *General requirements for the competence of testing and calibration laboratories*, as amended from time to time, and the scope of whose accreditation includes the analytical method used to make the determination; or

(b) by a laboratory that is accredited under the *Environment Quality Act*, R.S.Q., c. Q-2, as amended from time to time, and the scope of whose accreditation includes the analytical method used to make the determination.

We also propose different wording for what follows the Minister’s receipt of the results of the analysis of the tissue samples (previously, “(e) cease depositing the drug or pest control product until the results of the tissue sample analysis of the affected fish have been provided to the Minister”). With the previous wording, the owner or operator of an aquaculture facility could continue depositing chemotherapeutants even if there were harm to the cultivated fish or to wild fish within a 100 metre radius of the aquaculture facility. It does not seem within the spirit or the letter of s.36(3) of the *Fisheries Act*, if the owner or operator is depositing a deleterious substance. While chemotherapeutants are not named in s.2 of the regulations as deleterious substances, FOE and CCNB are given to understand that a regulatee may not deposit, with impunity, substances that are not identified in a *Fisheries Act* as deleterious but that are, all the same, deleterious.

Also, should the result of the analysis show harmful chemotherapeutants, there needs to be the possibility of action by the Minister of Fisheries and Oceans to deal with that harm. We have added that the Aquaculture Activities Regulations be made under s. 35(3), 36(5.2) and s.37(3) of the *Fisheries Act*. Having the regulations made under s.37(3) saves a step for the Minister of Fisheries and Oceans: the Minister will not have to use the authority under s.37(1) to compel the submission of information by regulatees. The text of the regulations will already require them to submit specific information. With the text of the regulations as suggested by FOE and CCNB, the Minister can take action under s.9.1(a), (b), (c) or (d). Please see below

Section

s.9.1 Once the Minister reviews the results of the tissue sample analysis, either paragraph (a), (b), (c) or (d) applies:

(a) If the Minister is satisfied that there is no detriment or harm to the fish being cultivated at or in the aquaculture facility or to fish in Canadian fisheries waters within a radius of 100 metres of the facility, the Minister must advise the owner or operator of the aquaculture facility that they can resume depositing the drug or pest control product.

(b) If, in the Minister's opinion, the results of the tissue sample analysis show there is detriment or harm to the fish being cultivated at or in the aquaculture facility or to fish in Canadian fisheries waters within a radius of 100 metres of the facility, the Minister may, by order,

(i) require, within the period set out by the Minister in the order, modifications or additions to the activities at the aquaculture facility that result in the deposit of deleterious substances, such that the deposit is in compliance with the requirements of these regulations and there is no consequent harm to the fish being cultivated at or in the aquaculture facility or to fish in Canadian fisheries waters within a radius of 100 metres of the facility;

(ii) restrict the operation of the aquaculture facility to a specified number of days per week or hours per day, until the deposit of deleterious substances by the owner or operator of the facility is in compliance with the requirements of these regulations, and there is no consequent harm to the fish being cultivated at or in the aquaculture facility or to fish in Canadian fisheries waters within a radius of 100 metres of the facility; or

(iii) close the facility until the deposit of deleterious substances by the owner or operator of the facility is in compliance with the requirements of these regulations, and there is no consequent harm to the fish being cultivated at or in the aquaculture facility or to fish in Canadian fisheries waters within a radius of 100 metres of the facility;

(c) If, in the Minister's opinion, the results of the tissue sample analysis are as set out in paragraph (b), the Minister may, refer the matter to a fishery officer for enforcement purposes; or

(d) If, in the Minister's opinion, the results of the tissue sample analysis are as set out in paragraph (b), the Minister may do take action under paragraph (b) and (c).

Comment

We have added s.9.1, because FOE and CCNB believe that the Minister's receiving the results of the analysis of the tissue samples is not the end of the road. The results could show that all is benign. Or, there could be harm to fish, fish habitat, Canadian fisheries waters. Section 9.1 is designed for action by the Minister. Note that, under s.9.1(a), if there is no issue of harm, the Minister **must** inform the regulatee, so that they can resume their practices. If there is harm, the Minister has paragraphs (b), (c) and (d) under which he or she may act.

Section

Quarterly report

s.10. The owner or operator of the aquaculture facility must submit a quarterly report to the Minister in accordance with section 12.

Comment

FOE and CCNB believe that a report submitted only annually is too infrequent in terms of reporting to the Minister. The Pulp and Paper Effluent Regulations require monthly report on effluent monitoring and the Metal Mining Effluent Regulations require effluent reports every quarter. Like the Aquaculture Activities Regulations, these two regulations identify deleterious substances that are deposited via effluent. The fact of preparing reports for the Minister that are submitted at shorter intervals means that the regulatee has greater incentive to correct any non-compliance that the reports to the Minister show. If owners and operators of aquaculture facilities report merely once per year, any non-compliance can continue throughout the year and until April 1 of the next calendar year – namely, until the report's due date. By the due date of the proposed annual report, any resulting harm to the cultivated finfish, shellfish crustaceans etc and/or wild fish on the waters within a 100 metre radius of the aquaculture facility will have been done. Non-compliance needs to be corrected as quickly as possible by effective means. Having to report on the results of every quarter, including compliance and non-compliance during that quarter, will provide the incentive needed for regulatees to exercise all due diligence and for fishery officers to take the action that they deem necessary.

To avoid unnecessary duplication in reporting, the owner or operator of the aquaculture facility does not have to include, in the quarterly report, the incidents of "unusual" fish morbidity and "unusual" fish mortality reported to fishery officers within 24 hours of the observation of these phenomena. Nor does the quarterly report have to include the results of the analysis of tissue samples from affected fish, water samples, and sediment substrate samples related to those incidents that are submitted by owners or operators to the Minister. FOE and CCNB propose that the quarterly report not contain this information, but contain merely *confirmation* that the

information was reported as required to a fishery officer and/or to the Minister as previously stated in this document.

Section

SECTION 35 OF THE ACT

Prescribed works, undertakings, activities and conditions

s.11. For the purposes of paragraph 35(2)(a) of the Act,

(a) the following works, undertakings or activities are prescribed:

- (i) the installation, operation, maintenance or removal of an aquaculture facility, and
- (ii) measures to control biofouling or the presence of fish pathogens or pests in or at the aquaculture facility; and

(b) the following conditions are prescribed for the carrying on of those works, undertakings or activities:

- (i) the aquaculture facility is operated by its owner or operator under an aquaculture licence,
- (ii) the owner or operator of the facility takes all reasonable measures to minimize harm to fish — other than fish that pose a risk of harm to fish cultivated in or at the facility — and fish habitat, having regard to the factors set out in paragraphs 7(1)(a) to (c), and
- (iii) the owner or operator submits a quarterly report to the Minister in accordance with section 12.

Comment

Please earlier comments regarding:

- the use of the passive voice with no doer of the action stated;
- the desirability of the phrase “all reasonable measures”; and
- the mention of a quarterly report instead of an annual one at s.10.

Section

REPORT

Quarterly report

12. (1) A quarterly report must be submitted within 45 days of the last day of each calendar quarter by the owner or operator of the aquaculture facility, in a form acceptable to the Minister and must be publishable, as submitted to the Minister, on the website of the Department of Fisheries and Oceans.

(1.1) The first calendar quarter starts on January 1 and ends on March 31 of the year, and the second, third and fourth calendar quarters are each three calendar months and follow in succession until ending, for that year, on December 31.

(1.2) The report must contain the following information in respect of the operations of the facility during the calendar quarter that is the subject of the report:

- (a) for each deposit of a drug or pest control product during the calendar quarter,
 - (i) the product name of the drug or pest control product or the common chemical names of its active ingredients,
 - (ii) the purpose of the deposit,
 - (iii) the date, quantity, or concentration, as the case may be, and geographic coordinates of the deposit, and
 - (iv) the record of consideration of alternatives referred to in paragraph 5(c) or 6(c), or both paragraphs if such is the case, and which alternative the owner or operator of the aquaculture facility chose if an alternative qualifies under s.5(c) or 6(c);
- (b) a description of any measures taken under paragraph 5(b) or section 7;
- (c) in the case of a facility referred to in section 8, the concentrations of free sulfide referred to in that section;
- (d) confirmation that recorded information on unusual fish morbidity or unusual fish mortality was provided by the owner or operator to a fishery officer in accordance with paragraph 9(c);
- (e) confirmation that the results of the tissue, water and substrate sediment analysis referred to in paragraph 9(d) were submitted to the Minister in accordance with s.9(f);
- (f) in the case of a marine aquaculture facility in or at which the owner or operator cultivates finfish and either commences operations on or after the date on which these regulations come into force, or where the owner or operator has been entitled, during the five years before the day on which the report is submitted to the Minister, to increase the maximum quantity of fish cultivated at or in the aquaculture facility by more than 10%,
 - (i) the area over which biochemical oxygen demanding matter is deposited by the owner or operator of the facility – that area to be identified by the owner or operator, by means of sampling and analysis of that matter, mapping of the area or another means that is as accurate as sampling, analysis or mapping;
 - (ii) underwater surveys, carried out by the owner or operator, of the waters surrounding the facility that identify macrofauna and macrophytes,
 - (iii) the bathymetry of the seabed surrounding the facility within a radius of 100 metres, and
 - (iv) in the case of a facility located over a soft bottom, the information that is specified in the Monitoring Standard concerning the composition of the seabed.

(1.3) The quarterly report may exclude

- (a) any incidents of unusual fish morbidity or unusual fish mortality, or both, that occurred during the quarter being reported on and that were notified to a fishery officer under s.9(a), and for which information related to those incidents recorded under s.9(b) was provided to that officer within 24 hours of the observation of these incidents, under s.9(c); and

(b) the results of the analysis of tissue samples from affected fish, water samples, and sediment substrate samples related to those incidents that are submitted by owners or operators to the Minister under s.9(f).

Information prior to coming into force

(3) For greater certainty, an owner or operator of an aquaculture facility is not required to include information in a quarterly report in respect of any period before the day on which these Regulations come into force.

Comment

As stated earlier, FOE and CCNB believe that an annual report is too infrequent: reporting needs to be at least quarterly. For reasons of transparency and as is the case for reports required under the Pulp and Paper Effluent regulations and Metal Mining Effluent Regulations, we believe that these reports must be published – preferably on DFO’s website. Hence, we have added the statement that the reports be publishable, as submitted, by the Minister.

We are sensitive to the avoidance of double reporting. That is why we have added s.12(1.3), Subsection 12(1.3) uses the permissive “may”, because, while FOE and CCNB do not believe in requiring double reporting, should regulatees wish to include, in their quarterly the information identified in s.12(1.3)(a) and (b), they should not be prevented from doing so.

We have re-worded s.12(1.2)(f)(i) in simpler language. It also seems bizarre to “predict” the area over which biochemical oxygen demanding matter is deposited from the aquaculture facility, since there are more accurate ways of determining the dimensions of the area of deposit.

Section

CANADIAN FOOD INSPECTION AGENCY

Paragraph 35(2)(a) of Act

13. (1) For the purposes of paragraph 35(2)(a) of the Act, the killing, by the President of the Canadian Food Inspection Agency, of fish cultivated at or in an aquaculture facility, for the purposes of control of fish pathogens or pests and the *Health of Animals Act* is prescribed.

Deposit of deleterious substance

(2) The President of the Canadian Food Inspection Agency may, for the purposes of control of fish pathogens or pests and the *Health of Animals Act*, deposit a deleterious substance referred to in paragraph 2(a) or (b) in any water that is part of an aquaculture facility.

Comment

FOE and CCNB are aware that s.36(5)(f) allows, by regulation, that a person, such as the President of the Canadian Food Inspection Agency (CFIA) may authorize the deposit of any deleterious substances or classes of such substances, and that a regulation under s.36(5)(f) may set the conditions or circumstances under which and requirements subject to which those persons may grant the authorization. However, as DFO maintains, as a priority, the conservation and protection of the wild fishery, FOE and CCNB believe that giving authority to

the President of CFIA to kill fish under s.13(1) and/or deposit a deleterious substance under s.13(2) should be limited to fish cultivated in or at an aquaculture facility in respect of s.13(1) and to water that is part of an aquaculture facility under s.13(2). Decisions to kill wild fish and deposit deleterious substances in water frequented by fish that is outside the aquaculture facility need to be left to the Minister of Fisheries and Oceans. Part of the role of the Minister of DFO is to provide for the sustainability and on-going productivity of commercial, recreational and aboriginal fisheries and to protect fish, fish habitat and Canadian fisheries waters from deposit of deleterious substances that threatens that sustainability and productivity.

COMING INTO FORCE

Registration

14. These Regulations come into force on the day on which they are registered.

Conclusion

FOE and CCNB respectfully submit our comments, recommendations and concerns with respect to the Aquaculture Activities Regulations. Should you wish to discuss any of our submission, please contact the undersigned.

Yours truly,



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cc. The Minister of Fisheries and Oceans