

For Immediate Release

**From Sea to Poisoned Sea, Harper Government proposes new regulation  
that would facilitate toxic pesticide use on salmon farms**

February 16, 2011, Fredericton, Halifax, Vancouver:

Despite mounting public concern over the impact of aquaculture pesticides on the marine environment, Fisheries and Oceans Canada (DFO) is in the process of developing regulations that will facilitate and enable the ongoing use of eco-toxic pesticides in the open water by the salmon aquaculture industry. DFO's proposed "Pathogen and Pest Treatment" regulation would undermine the *Fisheries Act*, which prohibits the dumping of toxic substance into fish bearing waters, effectively exempting salmon farmers from legislation designed to protect the marine environment and Canada's fisheries. Indeed, DFO is tasked to oversee the very *Act* it threatens to weaken with these new regulations.

Today 20 groups, representing tens of thousands of Canadians, have sent a joint letter to Prime Minister Stephen Harper urging him to protect the marine environment and coastal communities by halting progress in the development of these regulations.

"Sea lice infestations plaguing the aquaculture industry highlight the inherent unsustainability of open net pen salmon aquaculture as it is now practiced in Canada," said Matthew Abbott, Coordinator for Fundy Baykeeper, in St Andrews, New Brunswick. "On top of that, instead of ensuring the aquaculture industry does not harm the marine environment, DFO is planning to facilitate the use of toxic pesticides in the aquaculture industry."

Pesticides being used by the aquaculture industry in New Brunswick are toxic not only to sea lice, but also to other crustaceans including lobster and the many small crustaceans (like krill) that form the base of the food chain. Repeated pesticide use in open waters threatens to disrupt both marine ecosystems and the economies of coastal communities that rely on traditional fisheries, such as the lobster fishery.

"Wherever open net-cages are used to rear hundreds of thousands of densely packed farmed salmon the industry faces problems controlling parasites and disease," said John Werring of the David Suzuki Foundation and the Coastal Alliance for Aquaculture Reform in British Columbia. "Rather than undermining the *Fisheries Act* and aiding the salmon farming industry in supplementing their arsenal of toxic weapons, DFO should be investing in the development of alternative technologies that do not require pesticide use, such as closed containment."

Signatories to the letter include: Fundy Baykeeper, Living Oceans Society, David Suzuki Foundation, Ecology Action Centre, Grand Manan Fishermen's Association, Fundy Weir Fishermen's Association, Fundy North Fishermen's Association, Watershed Watch Salmon Society, Georgia Strait Alliance, T. Buck Suzuki Environmental Foundation, Fraser Riverkeeper, St. Mary's Bay Coastal Alliance, Atlantic Salmon Federation, NS Salmon Association, PEI Council of the Atlantic Salmon Federation, NB Salmon Council, Friends of Shelburne Harbour, Maliseet Nation Conservation Council, Friar's Bay Development Association, and Partnership for the Sustainable Development of Digby Neck & The Islands.

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Letter and backgrounder attached

February 16, 2011

The Right Honourable Stephen Harper  
Prime Minister of Canada  
Office of the Prime Minister  
80 Wellington Street  
Ottawa, ON K1A 0A2

Dear Prime Minister:

We, the undersigned groups and individuals, are writing with great concern about proposed regulatory changes being spearheaded by Fisheries and Oceans Canada (DFO) regarding the use of eco-toxic pesticides in the aquaculture industry. DFO has outlined these proposed changes in its *Fish Pathogen and Pest Treatment Regulations Discussion Document* released in August 2010.

If this planned legislation is to proceed as proposed your government would, in essence, be enabling and facilitating ongoing pesticide use in open net-pen aquaculture.

The use of eco-toxic pesticides by the open net-pen aquaculture industry is clearly in contravention of section 36 of the *Fisheries Act* which regulates the deposition of “deleterious substances” into the marine environment. 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 approved by Health Canada’s Pest Management Regulatory Agency, and undermine the sections of the *Fisheries Act* best equipped to protect the marine environment.

We do understand and acknowledge that sea louse, a crustacean that is a natural parasite on salmon, is a great nuisance to the salmon aquaculture industry. However, these parasites actually proliferate on open net-pen aquaculture sites due, in part, to unnaturally high concentrations of salmon held in one location for extended periods. To deal with these predictable parasite outbreaks, the aquaculture industry has resorted to pesticide use, both in-feed (i.e. where the pesticide is incorporated in the feed) and bath (i.e. applied directly to the sea water with the salmon either in the hold of a “well-boat” or, more frequently, in a sea cage enclosed with tarps). After the pesticide has been applied as a bath, the pesticide-laden water is released into the ocean.

The pesticides that are being used are toxic not only to sea lice, but also to other crustacean marine life such as lobster, crab, shrimp, and other small crustaceans that are essential sources of food for many marine species including the endangered wild Atlantic salmon and the North Atlantic right whale, both protected under the Species At Risk Act (SARA).

The recent controversy concerning the use of Alphamax (active ingredient deltamethrin) in the Bay of Fundy highlights the problems with pesticide use in the aquaculture industry. As noted in a 2010 DFO technical report<sup>1</sup>, deltamethrin is considered to be one of the most toxic pesticides in existence. In fact, when it comes to crustaceans, deltamethrin is classified as ‘super toxic’ and can kill lobsters at extremely low concentrations (on the order of parts per billion or parts per trillion). Despite this, Health Canada’s Pest Management Regulatory Agency approved Alphamax for use by the aquaculture industry in a limited context and under tightly controlled conditions last fall. In an October 2010 field investigation, Environment Canada placed healthy adult lobsters inside and outside a tarped salmon cage being treated with Alphamax. Lobsters both inside and outside of the cage were killed following their exposure to the deltamethrin-laden water.

An average salmon aquaculture net-pen contains approximately 3,300 cubic meters of water; roughly equivalent to one hundred tanker trucks of liquid. This means that following a pesticide treatment, one large

net-pen can release as much as one hundred tanker truck's worth of toxic water into the marine environment. Given that most finfish farms consist of more than one net-pen, when there is a sea lice outbreak, several treatments are generally conducted in a given area at the same time, such that an affected bay can be exposed to these dangerous pesticides multiple times over a short period.

If DFO's proposed regulatory changes are implemented and the use of these pesticides becomes standard procedure, it will be even more clear that DFO, and by extension the Government of Canada, is favouring the aquaculture industry over coastal communities, traditional fisheries and businesses that depend on healthy and abundant marine life. Given evidence that the use of these pesticides poses a direct threat to the lobster fishery, which produces Canada's most valuable seafood product,<sup>2</sup> DFO's efforts to promulgate these regulations illustrate the inherent conflict of mandates within the department – a conflict that is becoming increasingly problematic. While DFO is constitutionally mandated to protect and conserve Canada's wild aquatic resources, the same department is also politically mandated to promote, advance and advocate for the aquaculture industry even when the latter threatens the former.

Given the importance of traditional fisheries to the local economy and the sensitivity of our marine environments we request that you ensure these resources are protected by:

- ensuring that DFO's plans to introduce the proposed regulations on fish pathogen and pest treatments are withdrawn; and
- applying the precautionary principle when it comes to managing and controlling parasites and diseases associated with the open net-pen aquaculture industry.

Thank you for your immediate attention to this serious issue. The undersigned groups and associations, representing thousands of concerned Canadians, look forward to your reply and would welcome a discussion about alternatives to open net-pen aquaculture.

Sincerely,

Matthew Abbott for Fundy Baykeeper, CCNB

Rob Johnson for Ecology Action Centre

Bonnie Morse for the Grand Manan Fishermen's Association

Reid Brown for the Fundy Weir Fishermen's Association

Sheena Young for the Fundy North Fishermen's Association

Catherine Stewart for the Living Oceans Society

Jay Ritchlin for the David Suzuki Foundation

Stan Proboszcz for Watershed Watch Salmon Society

Michelle Young for Georgia Strait Alliance

David Lane for T. Buck Suzuki Environmental Foundation

Lauren Brown Hornor for Fraser Riverkeeper

Karen Crocker for St. Mary's Bay Coastal Alliance

Bill Taylor for the Atlantic Salmon Federation

Carl Purcell for the NS Salmon Association

Mark Lanigan for the PEI Council of the Atlantic Salmon Federation

Mark Hambrook for the NB Salmon Council

Marian and Herschel Specter for Friends of Shelburne Harbour

Martin Paul for Maliseet Nation Conservation Council

Joyce Morrell for Friar's Bay Development Association

Carol Mahtab for the Partnership for the Sustainable Development of Digby Neck & The Islands

CC: Honourable Gail Shea, Honourable Peter Kent, Honourable Leona Aglukkaq, Honourable John Duncan, Honourable Stockwell Day, Honourable Greg Thompson, Rodney Weston, Rodger Cuzner, Joyce Murray, Fin Donnelly, Raynald Blais, Trevor Swerdfager, Peter Delorme

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<sup>1</sup> Wayne Fairchild, Ken Doe, Paula Jackman, Jacqueline Arsenault, Jamie Aubé, Mélanie Losier and Art Cook. 2010. Acute and chronic toxicity of two formulations of the pyrethroid pesticide deltamethrin to an amphipod, sand shrimp and lobster larvae. Can. Tech. Rep. Fish. Aquat. Sci. 2876: vi + 34 p. <http://www.dfo-mpo.gc.ca/Library/339939.pdf>

<sup>2</sup> Sources for landings and values: Lobster landings have reached historical highs with a total of 56,554 mt landed in 2009 being worth an estimated \$495 million

-2009 Atlantic coast commercial landings, by region (metric tonnes, live weight). <http://www.dfo-mpo.gc.ca/stats/commercial/land-debarq/sea-maritimes/s2009aq-eng.htm>

-2009 Value of Atlantic coast commercial landings, by region (thousand dollars). <http://www.dfo-mpo.gc.ca/stats/commercial/land-debarq/sea-maritimes/s2009av-eng.htm>

In 2009 Canada exported 44,678,505 kg of lobster world-wide with a value of CA\$805,264,991.

-Fisheries and Oceans Canada domestic exports of selected commodities by species group and species, quantity in kgs, product weight/value in Canadian dollars, December 2009. <http://www.dfo-mpo.gc.ca/stats/trade-commerce/can/export/xsps09-eng.htm>

## Sea lice and pesticide use in net pen salmon farming around the world

Stocking hundreds of thousands of fish in small areas (net pens) makes fish farms ideal and unnatural breeding grounds for lice - a small crustacean and a natural parasite on wild salmon. This significantly increases the number of lice in surrounding waters and the threat to out-migrating wild juvenile salmon. Pesticides used to control sea lice infestations, however, are also toxic to crustaceans including lobster, prawn, crab, shrimp, and krill.

### Norway

Norway is the largest producer of net pen farmed salmon in the world and farmers are experiencing massive sea lice infestation levels on their fish as well as resistance to drug treatments. The Norwegian Directorate for Nature Management has estimated that in some fjords, 15 to 20 per cent of juvenile salmon succumb to lice infection and in October 2010 proposed that salmon stock in highly infested farms be slaughtered to prevent the further spread of sea lice.

### Scotland

In Scotland, the quantity of chemicals used by fish farmers to treat sea lice infestations has risen dramatically since 2005 in accordance with rising infestation levels and resistance. According to a recent BBC Scotland investigation, Scottish government figures show that over the past five years, the industry used a broader range of chemicals and more of them.<sup>1</sup> A Member of Scottish Parliament commenting on the issue said, "The quantity of treatments or medicines that have been used by the aquaculture industry on the west coast has not doubled – which would be a matter of concern – or trebled. Since 2005, they have gone up by a factor of 10."<sup>2</sup>

### Canada

In both British Columbia and New Brunswick where the majority of Canadian intensive open net pen salmon farming takes place, sea lice infestations are an ongoing problem but industry and government have yet to admit that sea lice from salmon farms contribute to the decline of wild stocks.

Meanwhile, the scientific evidence continues to mount. The most recent paper on the issue, *Sea Louse Infection of Juvenile Sockeye Salmon in Relation to Marine Salmon Farms on Canada's West Coast*<sup>3</sup>, provides the first link between salmon farms and elevated levels of sea lice on juvenile Fraser River sockeye salmon. Two papers published in October 2010, *Predation intensifies parasite exposure in a salmonid food chain*<sup>4</sup> and *Coho salmon productivity in relation to salmon lice from infected prey and*

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<sup>1</sup> <http://www.bbc.co.uk/news/uk-scotland-12297269>

<sup>2</sup> <http://www.pressandjournal.co.uk/Article.aspx/2128431?UserKey=#ixzz1DUzq7BS7>

<sup>3</sup> [http://www.watershed-watch.org/publications/files/Price\\_et\\_al-2011.pdf](http://www.watershed-watch.org/publications/files/Price_et_al-2011.pdf)

<sup>4</sup> <http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2664.2010.01887.x/abstract>

*salmon farms*<sup>5</sup> suggest that sea lice from salmon farms may be dramatically affecting the health of coho salmon populations in the Broughton Archipelago.

In response to predictable sea lice outbreaks, the salmon farming industry resorts to the use of eco-toxic pesticides to kill the sea lice. Slice (active ingredient emamectin benzoate), which is administered in-feed, has been the drug of choice on Canadian salmon farms. (Please see below for an overview of each of the pesticides recently in use in Canada).

Due to the heavy reliance on Slice, sea lice on New Brunswick farms have developed resistance to the chemical. As a result, New Brunswick salmon farmers have received permission to use a number of other pesticides administered through a bath treatment. Bath treatments involve adding pesticides directly to the water (either in a net-pen enclosed with tarps or in a well boat). After treatment is finished, the pesticide-laden water is released into the marine environment. Pesticides used as bath treatments so far include Alphamax (active ingredient deltamethrin), Salmosan (active ingredient azamethiphos) and Interlox Paramove (hydrogen peroxide). Slice, Salmosan, and especially Alphamax are toxic not only to sea lice, but also to other crustaceans, including Lobsters. While Slice is currently approved for use and Salmosan has been in the past, there has been a history of reoccurring “emergency” approvals of aquaculture pesticides (emergency approvals do not require as extensive environmental testing as a full approval). Indeed, as noted below in relation to Slice, even when there is a full approval, the details of the approvals is not always made publicly available.

While sea lice in BC have not yet shown sign of resistance to Slice, such a resistance could develop at any time.

### **Pesticides used in the Canadian salmon aquaculture industry<sup>6</sup>**

Slice (active ingredient emamectin benzoate): Slice is applied in-feed. When salmon ingest the treated feed, the drug is absorbed into the sea lice that are attached to the fish. Although Slice is used to treat sea lice, its effects are not specific to just sea lice. It is also toxic to other crustaceans-including lobster, prawn, crab, and shrimp. It affects their skeletal build-up. Also, because of its ability to accumulate in sediments, Slice could become toxic to other marine life. Slice is currently approved for use in the Canadian aquaculture industry. However, Health Canada has refused to release the approval criteria for Slice as much of the research was carried out by the manufacturer, is considered proprietary, and is not available to the public. Research on the environmental effects of Slice are still pending.

Salmosan (active ingredient azamethiphos): Salmosan is applied as a bath treatment. It is toxic to sea lice and other crustaceans, including lobster, prawn, crab, and shrimp. Further, lab studies have demonstrated that repeated short term exposure to Salmosan can harm lobsters. Salmosan has been in use in New Brunswick for a number of years. Its effectiveness has been variable. It had been approved for use in Canada prior to 2002, but has been used under emergency approvals since then.

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<sup>5</sup> <http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2664.2010.01889.x/abstract>

<sup>6</sup> For more information on the potential impacts of each pesticide see: Burrige, Les, Judith Weis, Felipe Cabello, Jaime Pizarro and Katherine Bostick. 2010. Chemical use in salmon aquaculture: A review of current practices and possible environmental effects. *Aquaculture*. 306 (1-4): 7-23.

Alphamax (active ingredient deltamethrin)<sup>7</sup>: Alphamax is applied as a bath treatment. Deltamethrin, classified as 'super toxic', is a very potent pesticide and can kill sea lice in extremely low concentrations. Alphamax is highly toxic to other crustaceans as well and can kill lobster at concentrations as low as parts per billion or parts per trillion. Alphamax has received emergency approvals for use in Canada in 2009 and 2010.

Interox Paramove (hydrogen peroxide): Interox Paramove is applied as a bath treatment. It operates by forcing sea lice to detach from salmon, but is not effective against all stages of sea lice. It has recently been used in New Brunswick, especially in well-boats (though other bath treatments are used in well-boats as well).

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<sup>7</sup> For more information specific to Alphamax see: Fairchild, Wayne, Ken Doe, Paula Jackman, Jacqueline Arsenault, Jamie Aubé, Mélanie Losier and Art Cook. 2010. Acute and chronic toxicity of two formulations of the pyrethroid pesticide deltamethrin to an amphipod, sand shrimp and lobster larvae. Can. Tech. Rep. Fish. Aquat. Sci. 2876: vi + 34 p. <http://www.dfo-mpo.gc.ca/Library/339939.pdf>