



A Backgrounder from

Atlantic Salmon Federation

P. O. Box 5200, St. Andrews, NB E5B 3S8

P. O. Box 807, Calais, ME USA 04619-0807

Tel: (506) 529-4581

www.asf.ca

Eleven charges laid against an aquaculture company and three executives regarding Cypermethrin

On Nov. 1 2011 charges were brought against Kelly Cove Salmon, a division of Cooke Aquaculture, and against three executives under Section 36 (3) of the Fisheries Act, more particularly regarding Cypermethrin, a chemical highly toxic to many marine organisms and fish. The analysis of several kills of dead lobster in southwest New Brunswick had shown the presence of the highly toxic substance.

CYPERMETHRIN

- Cypermethrin is used as an insecticide. It is a fast-acting neurotoxin in insects, and is highly toxic to fish and aquatic insects.
- Cypermethrin is banned in Canada's marine environment due to its toxicity to lobsters and other crustaceans. It is also highly toxic to the dense array of many species of crustaceans that are part of the plankton, drifting in the water column in the Bay of Fundy.
- Commercially, lobsters are easily killed by even minute traces of cypermethrin.
- Research in Scotland has shown that after treatment of farmed salmon with the chemical, water laced with cypermethrin will create toxic plumes lasting for extended periods of time, and stretching through the water for several kilometres.
- In the food web in the Bay of Fundy and Gulf of Maine waters, there is concern for many vital groups of species including copepods, krill and juvenile forms of other crustaceans floating in the water - all vital to the well-being of larger creatures, including fish such as Atlantic salmon and marine mammals, including the endangered Northern Right Whale.

SEA LICE – THE DEADLY PARASITE

- The parasite occurs naturally, but before aquaculture, sea lice were found only in modest numbers.
- The adult portion of the sea lice life cycle is attached to the skin of Atlantic salmon, and the juvenile forms float in the plankton, where they drift and can infect hosts many kilometres away.
- With aquaculture has come a concentration of Atlantic salmon causing epidemic outbreaks with high numbers in salmon grow out pens, and large scale transfer to ocean waters flowing through the cages
- As few as eight sea lice can kill a smolt as it is leaving its home river for the open ocean. The parasites attach themselves to the skin and the resulting lesions weaken and can kill the smolt.

AQUACULTURE'S PROBLEMS WITH SEA LICE BECOMING FOOD WEB'S PROBLEM

- SLICE - used by aquaculturists in feed, is the chemical of choice, as little of it gets into the environment. However sea lice have become resistant to the chemical since it was used repeatedly for many years.
- The resistance of sea lice to SLICE, and resulting parasite population explosion was taking place by 2008. Increased numbers of sea lice were found on the farmed salmon, and were impacting the profits of aquaculture companies.
- High densities of sea lice in the water were reported in 2008 and 2009 anecdotally.
- Salmon farmers continuously press government for permission to use harsher, more toxic chemicals such as cypermethrin, claiming that otherwise there will be job losses, tax revenue losses, and business difficulties for aquaculture businesses.
- The aquaculture industry downplays the destructive aspects of the harsh chemicals to the overall food

web, and destruction it can cause in other parts of the ocean economy.

- The aquaculture industry fails to note that the chemical can be concentrated via the food chain in species ranging from Atlantic salmon and other fish, and even in marine mammals.
- Atlantic salmon populations are endangered throughout the Bay of Fundy, and impacts from aquaculture chemicals have an added impact on their ability to be restored to health.

REGULATORY ENVIRONMENT

- In New Brunswick, the "Integrated Pest Management Plan for Sea Lice", released in April 2011, is the present basis for approved treatment.
- Treatments are in general approved by Health Canada but the actual approvals are in general authorized on a blanket basis by a veterinarian prescription. There is not an arms-length relationship between the overall authority and the industry.
- The treatments allowed are in-feed chemicals, such as SLICE, and approved bath treatment in a well-boat, for example using hydrogen peroxide.
- There is an emphasis on providing a science-based approach to sea lice management.
- The regulatory mechanism is weak in providing public information on actual use of chemicals. In addition, information on densities of sea lice in the water is not made available to the public.

THE CYPERMETHRIN MYSTERY OF 2009

- Nov. 2009 - Unexplained kills of lobsters on Grand Manan, Deer Island and Pocologan. Analysis of the lobsters found traces of the highly toxic cypermethrin.
- May and June 2010 - Investigations were launched by Environment Canada, and traces of the illegal cypermethrin were found at several aquaculture sites, according to reports by CBC.
- Sept. 2010 - CBC noted that four sites were found with traces of cypermethrin.
- Nov. 19, 2010 - The Telegraph-Journal noted Environment Canada exercised search warrants on eight Cooke Aquaculture offices, including the head office in Saint John.
- Nov. 2011 - Eleven charges were laid against Kelly Cove Salmon, a division of Cooke Aquaculture, and the same number against each of three executives under Section 36 (3) of the Fisheries Act. Initial court date set for Dec. 13 2011.

LONG TERM SOLUTIONS

- For marine salmon aquaculture, no easy solution exists for the sea lice resistance to SLICE, and lack of long-term alternative chemicals that do not harm the environment.
- Land-based aquaculture, separating the fish from the marine environment is the only sensible solution to reduce the pressure to use illegal, highly toxic chemicals damaging to the food web.
Read more about land-based aquaculture: <http://asf.ca/news.php?id=699>
- In the short term, the present regulatory regime needs to increase the scrutiny of aquaculture operations, to reduce the impacts of ultra-toxic chemicals on the marine food web, and an improved public disclosure related to sea lice, both densities and treatments being used.

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