

**North American Commission**

**NAC(08)5 (rev)**

*A Description of the  
Management of the Commercial Atlantic Salmon Aquaculture Industry  
in the United States and Canada*



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### *A Description of the Management of the Commercial Atlantic Salmon Aquaculture Industry in the United States and Canada*

At the 2007 Annual Meeting of NASCO, the U.S. and Canada agreed to meet inter-sessionally to discuss, among other things, establishing a protocol regarding escapes of farmed salmon, share information on regulations related to aquaculture practices, and share information on statutory and policy guidelines used for aquaculture. Consistent with this agreement, on April 23 – 24, 2008, the United States and Canada met to exchange information on the management of the aquaculture industry on the east coast and measures taken to minimize the potential impacts to wild Atlantic salmon. In both the U.S. and Canada, the commercial Atlantic salmon aquaculture industry is located in close proximity to rivers with wild Atlantic salmon. Many of these stocks are in poor condition, further heightening the importance of actions taken to avoid or minimize adverse impacts. The need for careful management, and the potential severity of adverse impacts if they occur, was further emphasized by the ICES/NASCO Symposium held in Bergen in 2006.

At the April, 2008 meeting, the U.S. and Canada exchanged detailed information on various aspects of the management of the aquaculture industry, discussed challenges, identified benefits of collaboration, and agreed to the further refinement of notification procedures. A summary of management measures in the U.S. and Canada is provided below.

#### **Sharing Information on the Management of Commercial Atlantic Salmon Aquaculture on the East Coast**

##### **United States**

Within the U.S., changes in permits in the past few years have aligned state and federal conditions to ensure that measures to protect wild Atlantic salmon are legally binding on the lease holder. The approach to management of commercial Atlantic salmon aquaculture in Maine has a number of components, including:

- (1) Requirement to use only North American strain Atlantic salmon. This permit condition is implemented by requiring genetic screening of broodstock, providing results to the federal fishery agencies and periodic blind testing at hatcheries and marine cages.
- (2) Inventory tracking and control. The industry maintains a detailed inventory system that tracks fish within the hatchery and from the hatchery to the marine cages and ultimately to harvest. Detailed tracking is maintained on site and available for inspection upon request. Computer software designed for inventory tracking is used to detect any significant change in things such as feed volume that could indicate that an escape event has occurred. Reporting inventories at key points (stocking, harvest) and any anomalies such as feed reduction greater than 25% over 48 hrs is required as part of the Containment Management System (defined below) and is required by the regulatory agencies.
- (3) Disease Testing and Management: Mandatory reporting of diseases of regulatory concern is part of Maine DMR's Chapter 24 regulations, and is the source of

- compliance action authority. All lots of fish to be stocked are sampled and tested for diseases of concern prior to receiving a transfer permit from the State of Maine. The US Department of Agriculture operates an Infectious Salmon Anemia surveillance program, and conducts site and vessel biosecurity audits. USDA uses Maine's regulatory authority for enforcement and State of Maine permits are required to move vessels or equipment across the US – Canada border and between Cobscook Bay and areas to the west that have not had a history of ISA. Disinfection and testing protocols are detailed in the USDA program standards document. A bay management plan was agreed jointly with New Brunswick and is in place for Cobscook Bay as part of the ISA management plan for that area. The plan coordinates stocking and harvest to achieve a two month common fallow of all sites in the agreed area including Cobscook and Passamaquoddy bays. The two month fallow is part of an integrated strategy to control parasites and pathogens. Single year class stocking is required at all sites in Maine, regardless of location.
- (4) Containment Management System: As part of their license application, a grower must submit a containment management system plan. The plan describes the site conditions, equipment to be deployed, identifies critical control points (stocking, grading, harvesting), and steps taken at each point to minimize the potential for conditions that could result in the loss of fish. Commercial hatcheries supporting the salmon farming industry are required to have a containment plan which describes appropriate barriers in place to prevent escapes. Third party audits of the containment management system are conducted annually to ensure compliance with the conditions of the system and to examine inventory and tracking records. In addition, a third party audit is required within 30 days of a reportable escape (defined below).
  - (5) Escape Reporting: Permit conditions require mandatory reporting of any known or suspected escape of 25% or more of a cage population and/or more than 50 fish with an average weight of two kg each or more within 24 hours of detection of the escape. Escapes that do not reach this threshold must be reported on monthly inventory reports.
  - (6) Marking: All Atlantic salmon placed in net pens must be identifiable through external means as commercially-reared and identifiable as to the hatchery sub-lot and/or individual facility into which they were placed. This level of specificity is required as of August 31, 2008. As of July 31, 2009 all fish stocked must be identifiable as to the marine cage site where they were placed. The industry is currently using genetic marking to meet these permit conditions.

## Canada

The management of commercial Atlantic salmon aquaculture off the east coast of Canada is at various stages of development.

- (1) Salmon Strains: Local strains of salmon are routine in Canada, with St. John River strain most common and some use of Gaspé strain. All salmon strain choices are subject to the risk assessment incorporated into Canada's Code for the Introduction and Transfer of Aquatic Organisms. Control is attained through the requirement for stringent containment measures and permits to transfer fish.

- (2) Inventory tracking and control- This management element is in its infancy and is currently being developed on an individual company basis.
- (3) Disease Testing and Management: In addition to disease testing, and requirements for fish health certificates, various management practices such as disinfection protocols, single year class stocking, and mandatory fallowing for a minimum of four months at each site (and two months for each Bay Management Area) are required to minimize disease. In addition, designation of wharfs and vessel traffic routes for aquaculture vessels has been imposed for ISA management. These requirements do not apply to non-aquaculture related vessels.
- (4) Containment Management System: The industries in Newfoundland and New Brunswick both have Codes of Containment in place. Efforts are underway to develop a Code for Nova Scotia. The Codes are complimented by governance policies that further define and explain the regulatory requirements related to the codes of containment.
- (5) Escape Reporting: In New Brunswick, a breach of containment resulting in the loss of 100 or more fish triggers a requirement to notify both Federal and Provincial authorities within 24 hours.
- (6) Recapture: There is a focus on recapture, past attempts have not been successful but that is believed to be due in part to the delays in authorization, now authorization can be obtained in advance by applying by January 1<sup>st</sup> of each year and then it is activated by a phone call in the event of an escape. There is a requirement to submit a recapture management plan with the application. During recapture activities, reports detailing catches must be submitted on a daily basis so as to analyze any bycatch.

As is illustrated by the above brief summary, there are a great deal of similarities between Atlantic salmon commercial aquaculture management on the east coast of the U.S. and Canada. There was a general feeling that it would be advantageous to continue to exchange information on these issues in the future to learn from each other and strive for a consistent approach. The mechanism for such coordination will be discussed further by a Working Group being convened to examine the NAC Protocol Database and Scientific Working Group.

### **Benefits of Coordination**

Collaboration and cooperation between the U.S. and Canada at the federal and Provincial/State level has resulted in tremendous success in the management of Infectious Salmon Anemia (ISA). The staff at the USDA program, Maine DMR, and New Brunswick DAA all work together to communicate regularly about the current status of the testing and evaluate any industry proposals that may have cross-jurisdictional effects, and we inform our other partner agencies as appropriate. The frequency of disease occurrence has dropped dramatically due to these coordination efforts and the management steps that have been implemented. This experience has reinforced the importance of collaborative efforts.

### **Notification**

As has been noted, reporting of escapees or breaches of containment are required within the U.S. and in parts of Canada. Where reporting is required, within each country notification trees have been set up to ensure that those with responsibility for managing the industry and those with responsibility for conservation and recovery of wild Atlantic salmon are notified in a timely

manner. The next step is then to formalize the communication across the border to ensure timely notification.