

**North American Commission**

**NAC(10)3**

*Review of the NAC Database on Introductions and Transfers and the  
Scientific Working Group*

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#### **Background**

The North American Commission (NAC) of the North Atlantic Salmon Conservation Organization (NASCO) recognized that the introduction and transfer of non-indigenous species, stocks and strains of salmonids have the potential for serious adverse fish health, genetic, and ecological effects on Atlantic salmon stocks. Thus, in 1987, the NAC established a Scientific Working Group to advise on the potential for adverse effects from salmonid introductions and transfers and, in 1992, adopted protocols for the introduction and transfer of salmonids for use in the NAC Area (NAC(92)24). Amendments were approved by the NAC in 1994 (NAC(94)14). Because of the manner in which the documents were published by NASCO, both the NAC (92)24 and NAC (94)14 documents must be read together in order to understand the protocols fully.

Further amendments were drafted in 1998, incorporating new information, addressing new issues, and recognizing progress made since 1992 by government agencies and private industry in protecting wild stocks from potential impacts of introductions and transfers of salmonids. Consideration was given to expert advice provided by the Fish Health and Genetic sub-groups of the NAC Scientific Working Group. Consideration was also given to the scientific information presented at the ICES/NASCO Symposium on Interactions between Salmon Culture and Wild Stocks of Atlantic Salmon, held in Bath, England, in 1997. The Protocols were intended to present a minimal level of protection.

#### **The Objectives of the Protocols**

The fundamental objectives of the protocols, including the 1998 revisions, are to minimize the risks associated with:

- 1) introduction and spread of infectious disease agents (disease);
- 2) reduction in genetic diversity and prevention of the introduction of non-adaptive genes to wild Atlantic salmon populations (genetics); and
- 3) intra- and inter-specific ecological interactions of introductions and transfers of Atlantic salmon stocks (ecology).

#### **The Scientific Working Group and Inventory Database**

The Scientific Working Group (SWG) for the NAC is charged with maintaining an inventory of all introductions and transfers and to review these introductions and transfers for consistency with the NAC Protocols. The SWG created multiple databases which included an annual inventory of salmonid introductions and transfers and occurrences of diseases of concern. The group reviewed this inventory and reported on inconsistencies to the NAC annually until approximately 2004. Information was submitted from each country to be entered into the databases in subsequent years, but submissions have not been as comprehensive as in previous years and more recently the SWG has not met to review the inventory.

Information on the inventory of introductions and transfers into the Commission area began in 1986. Currently, there are three databases developed to track the following:

- 1) intentional introductions of live salmonids and gametes;
- 2) fish disease occurrences within the NAC area; and
- 3) known occurrences of Atlantic salmon aquaculture escapees in salmon rivers within the NAC area.

These three databases reside at the Department of Fisheries and Oceans office in Dartmouth, Nova Scotia.

### **The Need to Re-Evaluate**

As stated above, the NAC databases have not been fully populated for the years 2004 to the present time and the SWG has not met to review inventories and transfers for consistency with the NAC Protocols. During the past few years, the U.S. and Canada have been undergoing significant domestic changes in the management of introduction and transfers. In light of these changes, in 2008 it was determined that it would be timely and appropriate to revisit the status of the NAC protocols, the SWG, and the inventory databases.

### Management of Introductions and Transfers within Canada

Canada adopted a National Code on Introductions and Transfers of Aquatic Organisms (Code) in January 2002. The Code applies to all aquatic organisms in freshwater and marine habitats. The purpose of the Code is to establish an objective decision-making framework regarding intentional introductions and transfers that is designed to protect aquatic ecosystem while encouraging responsible use of the aquatic resources for the benefit of Canadians. The Code was developed to minimize the negative impacts of introductions and transfers and, at the same time, permit environmentally sound fisheries resource enhancement and development of aquaculture. The Code ensures that a consistent single standard set of risk assessment and approval procedures is applied across the country. The risk analysis process results in an evaluation of the level of risk of adverse ecological, genetic and fish health effects from a proposed introduction and transfer. The Precautionary Approach has been adopted in the Code. The Code states that consultations should take place between neighboring jurisdictions if a proposed introduction, transfer or range extension might impact stocks within a watershed but outside the receiving province.

In 2005, the Canadian Food Inspection Agency (CFIA) was identified as the lead federal agency for implementing the National Aquatic Animal Health Program (NAAHP), and is currently working on amendments to regulations under the Health of Animals Act and ministerial regulations to manage aquatic animal health in Canada. When CFIA begins implementing these amended regulations, they will be responsible for assessing proposed introductions and transfers of aquatic animals for impacts of diseases of concern. The proposed amendments will align Canada's national aquatic animal health management more closely with international standards for animal health.

### Management of Introductions and Transfers within the United States

In 1989, the U.S. Fish and Wildlife (USFWS) established regulations to minimize the introductions of fish disease associated with salmonid fish transfers. Accordingly, transfers of live salmonids, gametes and fish products into and out of the United States are controlled by USFWS Title 50 authority. Movements within the United States are controlled by permits issued at the state level. While other New England states have active restoration programs, Maine is the only state with active commercial aquaculture of Atlantic salmon. Transfers of fish from freshwater hatcheries to marine cages in Maine are regulated through transfer permits issued by the Maine Department of Marine Resources (MDMR). Each permit identifies the genetic strain, fish health status, numbers and age. MDMR maintains an inventory of salmonid transfers.

### MOU between Canada and the US (NAC (05)7)

In 2005, an MOU between Canada and the US on Introductions and Transfers was signed (NAC (05)7). In this MOU, the Parties agree to report to the NAC annually on any decision that has an impact on the other jurisdiction, in particular any decisions made that are not consistent with the NAC Protocols are to be identified. The Parties also agree to consult with each other if a proposal is received for an introduction or transfer that may have an impact on the other, including any proposal that would be inconsistent with the NAC Protocols. The Parties agree to convene the NAC Scientific Working Group, from time to time, to review the provisions of the Williamsburg Resolution with respect to developments that may have an affect on introductions and transfers in the NAC area and provide recommendations to the Parties for their consideration and action, if required.

### ICES Working Group on Introductions and Transfers of Marine Organisms

Canada and the US are both members of the ICES Working Transfers of Marine Organisms. This group meets annually and focuses on tracking aquatic invasive and submits an annual report to ICES which describes:

1. Any new laws, policies or regulations in that country which relate to introductions and transfers
2. Deliberate releases or planned introductions
3. Live Imports
4. Unintentional releases
5. Meetings, conferences, symposia or workshop on Introductions and Transfers
6. Bibliography

Of particular relevance is section 3 which will capture all cross border movements of salmonids between Canada and the US.

### **2008-2009 Review**

In light of the significant advancements that have been made both within Canada and within the United States on the management of introductions and transfers, in 2008 the NAC determined it would be appropriate to re-examine the Databases on Introductions and Transfers and the Scientific Working Group.

Prior to the informal meeting of the NAC in Boston in April 2009, representatives from Canada and the U.S. addressed the issue of the Database on Introductions and Transfers. The participants at this meeting agreed, consistent with the NAC protocols, that it is important to share information; however, the level of detail included in the current NAC databases is unnecessary.

When the NAC database was developed, neither the U.S. nor Canada had internal databases to track introductions and transfers. The shared NAC database was the only database available to track movements of fish. The level of detail contained in the NAC Database on Introductions and Transfers is, therefore, very high and, contrary to recent years, the database was more fully populated in the early years given that it served as the only way to track movements and was used for domestic and international purposes.

In the subsequent years, as detailed above, both the U.S. and Canada developed and implemented systems to permit and monitor movements of salmonids. These systems provide domestic means for both countries to review proposals for introductions and transfers for consistency with the NAC Protocols.

Given that both countries now have internal procedures and requirements to review proposals for introductions and transfers and to maintain records of these proposals and determinations, there is no longer a need for a detailed international database. As previously noted, the MOU between U.S. and Canada requires that each country notify the other if an introduction or transfer is inconsistent with the NAC Protocols.

The U.S.-Canada working group that met in Boston in April 2009 confirmed these internal tracking systems and reaffirmed the commitment to notify the other if any introduction or transfer is inconsistent with the NAC Protocols. While recognizing that there is no longer a need to populate and maintain an international database on introductions and transfers, the working group identified a need to exchange information annually and more immediately on fish health and breaches of containment. Regarding introductions and transfers, it was determined that information should be provided on any transfers made into the Commission area (including from the west to the east coast and from Europe to North America) on an annual basis. These needs are in addition to the commitment already contained in the MOU between the U.S. and Canada.

### **Recommendations**

It was decided that issues with immediate implications, such as breaches of containment and disease outbreaks should be reported immediately and an annual summary report should be provided to the NAC which contained a more appropriate level of detail. Based on its review of the current situation within the U.S. and Canada on introductions and transfers, the working group developed the following recommendations for international collaboration.

**Recommendation 1. Fish Health:** The U.S. and Canada should identify appropriate fish health experts and charge them with: (1) developing a list of salmonid diseases of

concern, reporting thresholds, and information to be reported; (2) identifying what fish health information should trigger immediate notification to other country upon discovery; and (3) preparing reporting formats for immediate notification and annual reports. Canada is in the process of developing a list of health experts.

**Recommendation 2. Introductions and Transfer:** The U.S. and Canada should provide to the NAC an annual report identifying any introductions of salmonids from outside the commission area (including the west coast). The report should contain the following information:

- Species (Strain, if applicable)
- Number of fish
- Life Stage
- Origin
- Destination (Province, state)
- Purpose (aquaculture, research, enhancement, etc)

**Recommendation 3. Breaches of Containment:** Immediate notification should be provided to the other country upon confirmation of a breach of containment and the U.S. and Canada should provide to the NAC an annual summary report containing the following information:

- Species (strain, if applicable)
- Number
- Size/age
- Location (Bay level)
- Result (Recapture efforts as per code, number of fish recaptured, etc)
- Cause, if known

**Recommendation 4. Transgenics:** The U.S. and Canada should annually exchange information on transgenics activities.

A recommended format for the annual report for Recommendations 2, 3, and 4 is attached as well as a format for the immediate notification in Recommendation 3. Recommendation #1 will require further consultation with fish health experts in both countries before a reporting template can be created. As there are already provincial/state level exchanges occurring on fish health, it is envisioned that the reporting protocol will take this into account.

### **NAC Protocols**

The Working Group noted the dynamic nature of the NAC Protocols and, as noted, reviewed the Protocols to ensure they were relevant and appropriate in light of current scientific knowledge and policies and procedures within the U.S. and Canada. The working group concluded that substantive changes to the Protocols were not necessary. The working group recommended, however, two technical wording changes to the Protocols to ensure they reflect as accurately as possible what the NAC Database on Introductions and Transfers is intended to cover, the role of the Scientific Working

Group, and the additional data to be shared within the NAC consistent with the above recommendations. It is, therefore, recommended that the NAC Protocols be revised as follows:

**Recommendation 5: Reword Section 4.2.5**

Current wording: *Section 4.2(5): “Annually, submit to the NAC Scientific Working Group the results of the permit submission/review process, and a list of introductions and/or international transfers proposed for their jurisdiction;”*

Proposed rewording: “Annually, submit to the NAC a summary report detailing disease incidences, information on transgenics, breaches of containment, and introductions from outside the Commission area;”

Rationale: The purpose of the NAC Protocols was to establish consistent minimum standards to ensure any introductions and transfers in Canada and the U.S. would not pose risks to wild stocks in the NAC area. Both countries now have internal domestic procedures to review proposals for introductions and transfers and an obligation, supported by the U.S. Canada MOU, to identify and report on any that would be inconsistent with the NAC Protocols. Essential information to be shared internationally relates to introductions from outside the NAC area as well as additional information on transgenic activity, summaries of disease incidences, and breaches of containment. For these reasons, there is no longer a need for an international database of *all* introductions and transfers. The agreed approach accomplishes the intent of the annual inventory more efficiently and effectively as it is integrated into ongoing permitting processes, and the recommended technical adjustment to text of Section 4.2.5 of the NAC Protocols more clearly reflects the agreed approach.

**Recommendation 6: Replace Section 4.3 with text from the MOU.**

Current wording: “(1) *Maintain an inventory of all introductions of salmonids, transfers of salmonids from IHN-infected areas, and importation of salmonids across national boundaries into the Commission Area.*

(2) *Review and evaluate all introductions and transfers referred in section 4.3(1) above in relation to the NAC protocols and report the results to the North American Commission.*”

Proposed rewording: Insert section D from the MOU: “*The parties agree to convene the NAC scientific working group, from time to time, to review the provisions of the Williamsburg Resolution with respect to developments that may have an application on introductions and transfers in the NAC area and provide recommendations to the Parties for their consideration and action, if required.*”

Rationale: The summary report identified in the recommended new language for Section 4.2.5 requires submission of an annual fish health and containment report as well as more immediate notification for disease outbreaks and containment breaches. In addition, it requires annual notification of any introductions into the Commission area. Broadening of fish health concerns beyond IHN to a list developed by fish health experts in the U.S. and Canada will offer increased protection to wild salmonids

in the NAC area. For instance, concerns over ISA have increased since the Protocols were developed and notification of any ISA outbreaks is important for wild fish protection. Secondly, there is no need for a Scientific Working Group to annually review all introductions and transfers in the U.S. and Canada. If both countries have a means to identify such movements of fish and has committed to notify each other of any proposals inconsistent with the NAC Protocols, then the intent of this section has been met. It is more efficient and effective to integrate the review for consistency with NAC Protocols into the existing process for reviewing proposals for introductions and transfers than to create a separate and redundant system through the creation of a NAC Database and requirement for the SWG to review that inventory annually.



## NAC Annual Report

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**Country, Year**

**Submitted by:**

**Date:**

### 1. Summary of Salmonid disease incidences

Information TBD

### 2. Summary of breaches of containment of salmonids from net cages

Species (Strain, if applicable)	Number <sup>1</sup>	Average size of fish <sup>2</sup>	Location <sup>3</sup>	Result <sup>4</sup>	Cause of the breach

Notes:

1. This should be the best estimate possible, though it is recognized that exact numbers may be difficult to obtain.
2. Based on the codes of containment, it was agreed that average size is a more accurate measurement than lifestage.
3. The more specific the information the better, however Bay level is considered sufficient.
4. This refers to using recapture methods as detailed in the relevant code of containment and summarizing the results of the recapture attempt.

### 3. Summary of Salmonid introductions from outside the Commission Area

Species (strain, if applicable)	Number	Life Stage	Origin <sup>1</sup>	Destination <sup>2</sup>	Purpose <sup>3</sup>

Notes:

1. This would be the province or state for introductions from the west coast; or country for international introductions. It was decided that introductions between Canada and the US that are within the Commission Area (between Maine and NB, for example) would not be included here as those introductions would be captured in other avenues (ICES WGITMO, for example) and because these are not as relevant.

2. The more specific the information the better, however Bay level is considered sufficient.
3. This refers to the intention for the introduction – aquaculture, research, stock enhancement, etc.

#### **4. Summary of Transgenic activities within the Country**