NORTH ATLANTIC SALMON CONSERVATION ORGANIZATION

ORGANISATION POUR LA CONSERVATION DU SAUMON DE L'ATLANTIQUE NORD

Agenda item 5.5
For information

Council

CNL(01)45

Notification of Proposed Research Cruise

(Tabled by the United States)

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(Tabled by the United States)

Following the provisions outlined in CNL(96)60, *Resolution by the Parties to the Convention for the Conservation of Salmon in the North Atlantic Ocean concerning Scientific Research Fishing*, the United States wishes to provide notice to the Parties regarding an offshore research cruise to sample Atlantic salmon post-smolts proposed during 2002.

1. Proposal Details requested under the Annex to CNL(96)60

A. Purpose of Research Fishing:

A newly initiated post-smolt trawling program is part of an integrated research program to identify the relative contribution of hatchery enhancement and naturally reared smolts contributing to adult returns in the Penobscot River system. The Penobscot River currently accounts for between 60 and 75% of adult Atlantic salmon returns to U.S. rivers. A key component of the integrated research program is a visual implant elastomer marking program which involves the annual marking of 160,000 to 170,000 hatchery enhancement smolts with site and release date specific marks. These fish are stocked at various release points along the Penobscot River and their passage at the head of tide is monitored through a coordinated smolt monitoring program. Migrating smolts captured in rotary screw traps are sampled to determine the composition of hatchery and naturally reared fish, as well as to recover visual implant elastomer marks from hatchery smolts. Capture rates of migrating smolts provide real time monitoring of Atlantic salmon smolt movements into the Penobscot Bay estuary.

Continued monitoring of smolt cohorts as they migrate through estuarine waters of Penobscot Bay and into open ocean waters of the Gulf of Maine will provide additional information of causes of mortality during transition from freshwater to marine environments. Specific objectives to be addressed by marine sampling include:

1. Sampling captured post-smolts to characterize size composition, recover elastomer marks, profile genetic characteristics, evaluate external parasite load, and characterize physiological condition.

2. Identification of migration corridors of post-smolts in the Penobscot Bay estuary and the Gulf of Maine.

3. Extension of the range of surface trawl sampling programs seaward in future years to characterize physiological condition of Atlantic salmon with greater exposure to marine conditions.

4. Relation of patterns in marine distribution to prevailing oceanographic conditions.

B. Dates during which Research Fishing will take place:

The proposed research cruise will occur between 10 May and 15 June, 2002 over a period of up to four weeks. Exact timing of research cruises will be adaptively keyed to peak smolt outmigration periods identified through a smolt monitoring program on the Penobscot River, USA.

C. Area in which the Research Fishing will occur:

The proposed research cruise will occur within U.S. waters of NAFO Division 5Y. Sampling will occur both within 12 miles of the U.S. coast, and between 12 and 100 nm from the U.S. coast within U.S. territorial waters. Sampling will target both hatchery enhancement and naturally reared Atlantic salmon smolts emigrating from the Penobscot River. Sampling is designed to minimize interactions with other U.S. stocks and is expected to have little or no interaction with Canadian Atlantic salmon stocks.

D: Name, Registration, Call Sign, and Description of Participating Vessels:

The proposed research cruise will be completed aboard leased U.S. commercial fishing vessels. Because vessels are selected through a solicited bid process, firm identification of vessels that will be selected to perform the survey cannot be provided at this time.

In May 2001, an inshore survey was conducted using two commercial fishing vessels, the F/V Nobska and F/V Morue (Figure 1). These vessels are approximately 90-m stern trawlers with shaft horsepower of approximately 1000 hp.

E: Type and Amount of Gear to be Used:

Atlantic salmon post-smolts will be sampled by surface pair trawling a Norwegian-designed pelagic trawl (Holm et al. 2000). Two leased commercial mid-water trawlers will make 30 minute sets at a trawling speed between 3.5 and 4.0 knots. An aluminum live box will be deployed in the codend of the trawl to allow captured fish to swim in a non-turbulent pool of water until trawl retrieval. Initial testing of the equipment during an inshore survey conducted in May 2001 demonstrated a survival rate of 92% among approximately 1,400 sampled Atlantic salmon smolts and post smolts.

F: Estimated Total Weight and Numbers of Salmon to be Retained:

Given the precarious status of U.S. Atlantic salmon stocks, our goal is to sample and live release captured fish. A specially designed aluminum live box in the codend of the trawl allows for live capture of fish (Holst and McDonald 2000). The primary risk associated with gear-induced mortality is from exceeding the carrying capacity of the codend live box with large catches of non-target species (e.g. Atlantic herring). We plan to minimize this risk through site selection, timing of tows, and avoidance of areas with high densities of non-target species.

Despite specially designed equipment and operational precautions, there will always be some mortality associated with active capture of fish in open waters. During a 2001 survey conducted in inshore waters, direct mortality associated with handling and sampling of approximately 1,400 Atlantic salmon smolts was approximately 8%. Gear

adjustments and revisions of operational procedures is expected to reduce this mortality rate during the 2002 survey.

Catch rates of Atlantic salmon smolts is expected to decline in waters beyond 12 miles from the U.S. coast. Although catches cannot be accurately forecasted, we expect to sample approximately 500 Atlantic salmon post-smolts in waters beyond 12 miles from the U.S. coast. At least 90% of these sampled post-smolts will be released alive to continue their marine migration. Given these estimates, approximate 50 Atlantic salmon post-smolts (approximately 4 kg) can be projected to be lethally sampled during this cruise in waters beyond 12 miles from the U.S. coastline.

2. Provision of Results of Scientific Research Fishing:

Scientific findings from the U.S. Research Cruise conducted within 12 miles of the U.S. Coast in 2001 will be reported at the 2002 ICES North Atlantic Salmon Working Group Meeting and will be reflected in the ICES report to NASCO available prior to the 2002 NASCO meeting. Scientific findings from the U.S. Research Cruise proposed for May/June 2002 beyond 12 miles from the U.S. Coast will be reported at the 2003 ICES North Atlantic Salmon Working Group Meeting and will be reflected in the ICES report to NASCO prior to the 2003 NASCO meeting.

3. Retention of Atlantic Salmon in Accordance with the NASCO Resolution on Research Fishing:

Only Atlantic salmon determined to dead or moribund will be retained during the survey. A preliminary survey conducted in inshore waters during May 2001 estimated direct mortality of 1,400 sampled smolts to be approximately 8%. Smolts that are lethally sampled will be fully utilized for scientific purposes, including diet samples, otolith samples, and other tissue samples normally collected through lethal sampling.

Figure 1. Leased commercial trawl vessels (F/V Nobska and F/V Morue) utilized to conduct the 2001 nearshore post-smolt sampling program near Penobscot Bay, USA.