

## **WHY WE ARE SURVEYING FOR ATLANTIC SALMON IN WASHINGTON WATERS**

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Atlantic salmon are an anadromous species of trout native to the northern Atlantic Ocean. They are cultured commercially in marine and fresh water net pens in British Columbia and Washington State. The Atlantic salmon used to stock marine and fresh water net pens are raised in privately owned hatcheries. Since the early 1980's, marine net pens have become a mainstay in commercial marine aquaculture. Because of its appeal to consumers, over 10 million pounds of Atlantic salmon are produced annually in Washington State. The total value to the state's economy for activities related to the production of Atlantic salmon, which is a fast growing species, is over \$40 million per year.

During the 1990 s a significant number of Atlantic salmon escaped from privately operated marine net pens in Washington. Because only a small percentage were recovered, fishery managers remain concerned that escaped Atlantic salmon may impact native fish stocks. Potential impacts include competition, predation, hybridization, and colonization with native stocks. Escaped Atlantic salmon adults have been observed in approximately 12 streams and rivers in Washington State. In British Columbia, where the marine net fishery is about ten times larger than Washington, Atlantic salmon have been observed in 77 waterways.

In 2001, the Washington State Legislature authorized the Washington Department of Fish and Wildlife (WDFW) to work with marine net operators to determine ways to

prevent Atlantic salmon escapes from net pens. New regulations (WAC 220-76) that became effective July 1, 2003, along with facility improvements made by industry, are expected to reduce the risk of future releases of Atlantic salmon in marine waters.

Since 1986, WDFW staff have captured Atlantic salmon smolts in a seasonal trap in the Chehalis River, and at the downstream migrant trap at the Mayfield Dam.

### **SURVEY OBJECTIVES**

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WDFW is conducting surveys in fresh water areas to assess these potential impacts of Atlantic salmon from all sources of escape. The Pacific States Marine Fisheries Commission has also provided a grant to WDFW to survey selected freshwater streams throughout Washington. The goal of the survey is to assess the presence and distribution of Atlantic salmon in selected watersheds. In streams where Atlantic salmon are found, established procedures will be followed to estimate abundance. Reported sightings of Atlantic salmon in watersheds will be followed up by WDFW staff to confirm their presence and document spawning, rearing, or other elements of colonization.

### **SURVEY METHOD**

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The preferred survey technique for Atlantic salmon is a snorkel survey. Teams of two or more persons swim downstream in rivers or streams identifying and counting fish. Snorkel surveys are accurate, cost-effective, and do not have a negative impact on native salmonids or the environment. The teams also use netting, traps, and foot surveys to assess the presence of Atlantic salmon.

Counts will be recorded each time the habitat type changes (usually every 10m to 100m). Counts will be referenced according to the survey section and habitat type.

Team members all have previous experience with snorkel surveys. They have been trained by WDFW biologists using protocols outlined in "Underwater Methods for Study of Salmonids in the Intermountain West" by Russell F. Thurow. (Intermountain Research Station – General Technical Report INT-GTR-307). They have also undergone the Snorkel Survey Methods and Atlantic Salmon Identification course at Malaspina University in Nanaimo, B.C.

Healthy fish stocks can be infected with pathogens if equipment exposed to diseased stocks of fish is not disinfected properly between uses. All equipment used by the snorkel teams, including but not limited to nets, buckets, waders, boots, gloves, and dry-suits are hosed clean, disinfected and dried before use. Disinfecting is accomplished by immersing equipment in an iodophor solution, at a minimum concentration of 100ppm, for a minimum of ten minutes and then drying the gear thoroughly. Snorkel teams always disinfect and dry gear before moving from one stream system into another.

## Regulatory Authority Information

### Washington Department of Fish and Wildlife (WDFW)

- Management and regulatory authority over all free ranging fish and wildlife in the state.
- Authority to regulate commercial aquaculture for disease control.

### Department of Agriculture

- Jointly develops regulations for commercial aquaculture with WDFW
- Responsible for marketing and commodity boards for aquaculture.

### Department of Ecology

- Regulates the discharge from net pens, to include Atlantic salmon which are classified as pollutants by the Pollution Control Hearings Board.
- Issues National Pollution Discharge Elimination System (NPDES) permits to net pens. The permits list some operational measures to be followed by net pen operators. Department of Ecology consults with WDFW.

### Department of Natural Resources

- Leases aquatic lands to net pen operators.

### Counties of Washington State

- Issue Shoreline Permits to net pens.

### Treaty tribes of Washington State

- Tribes co-manage natural resources in Washington and have input into aquaculture disease control regulations developed by WDFW.

## National Marine Fisheries Service

- NMFS administers ESA for anadromous salmonids. May require commercial net pen operators to obtain "take" permits for their operations due to impact on listed salmon species.

## Army Corp of Engineers

The Corp requires net pens to have "Section 404" navigation permits.

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### ATLANTIC SALMON SURVEY CONTACTS

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## SURVEYING FOR ATLANTIC SALMON

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Fish & Wildlife

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