Future Research

Preparations are underway for the next critical step in learning more about the plight of salmon. The Ocean Tracking Network (OTN) Program is an international joint venture which will provide a number of key receiver lines for detecting salmon at sea. This will include one array across the southern exit of the Gulf of St. Lawrence (Cabot Strait) in 2009, an array extending from Halifax 50 km across the continental shelf planned for 2008 and a third array in Disco Bay (aka Qasigiannguit) in Greenland. ASF's Strait of Belle Isle line is a key contribution to the planned deployments and our work has enormous potential to uncover keys to smolt mortality at sea.

How you can Help

Please sponsor smolt on the Restigouche, Miramichi, St. Jean (Côte Nord) or Grand Cascapedia river by purchasing one or more pingers. Pingers cost $500 each and in return ASF will provide you with three chapters as our SMOLT STORY CONTINUES and as the research season unfolds.

Chapter One – A sonic tracking unit will be surgically implanted into your wild Atlantic salmon smolt. You can even indicate your river of preference.

Because each smolt has a unique pinger number, we will be able to inform you of the date, time and specific location in which your smolt was tagged.

Chapter Two – Your smolt will be followed. At mid season, ASF's researchers will download and forward critical information about your smolt to you.

Chapter Three –The end of the field season will bring more information on your smolt's travel patterns and a summary of our field research.

Our Smolt Story continues.

For more information, contact
The Atlantic Salmon Federation

1-800-565-5666
Fax: (506) 529-1070
Email: asfmem@nbnet.nb.ca
Box 5200 St. Andrews NB E5B 3S8 (Canada)
Box 807 Calais ME 04619-0807 (US)

www.asf.ca

The Atlantic Salmon Federation

Our Smolt Story continues.

Why this Story Matters

One of the most significant problems facing wild Atlantic salmon today is excessive mortality as salmon shift from their native rivers and dwell in the sea. Fewer and fewer smolt are returning to their native rivers from the ocean feeding grounds.

The Atlantic Salmon Federation (ASF) has developed and refined sophisticated ocean tracking equipment to determine what is happening on this journey. Acoustic tags, known as pingers, and automated underwater receivers are used to map migration routes and patterns over time.

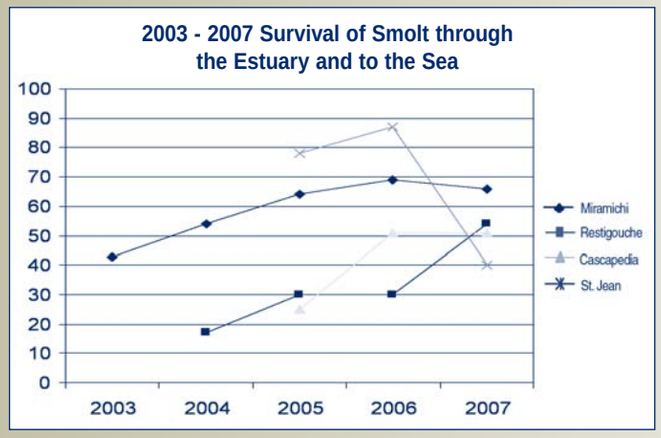
GOALS OF ASF SMOLT TRACKING RESEARCH:

- Determine migration patterns of smolt and adult salmon
- Determine the impacts of birds, seals and other predators
- Estimate losses of smolt in fresh water and estuaries
- Discover critical habitats and feeding areas
- Correlate movements of fish with environmental variables, notably currents and water temperatures
- Determine when and where mortality occurs

The Story so far

To date, ASF has compiled key data from multiple years for four rivers. In each year tracking units (or "pingers") were implanted in 200 smolt originating in the Miramichi, Restigouche, Cascapedia and St Jean river systems. Using cutting edge technology – these fish were tracked by reciever arrays installed throughout the rivers and for the first time, as far as the Strait of Belle Isle (SoBI) off the coast of Labrador.

Comparative data (below) shows consistent survival patterns within rivers among years. As well, consistent survival differences between rivers is shown.

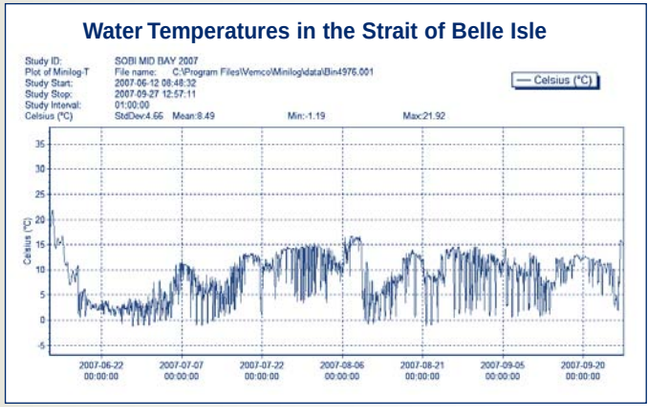


Water Temperature found to be a Key Factor

Initial data collected by ASF in June 2007 gave researchers a clear message that water temperature needed to be explored in more depth.

Since salmon are cold blooded and smolt, to a large degree, are at the mercy of a powerful environment – water temperature can have a critical impact. Unusually cold water could affect food production and slow their basic metabolism; their muscles would lose power and swimming ability could be reduced, putting them at risk against warm blooded predators like seals and some sharks. Salmon blood freezes at about -0.83 C and therefore water temperatures falling close to, or below, this temperature would be considered lethal.

The graph below shows that temperatures dropped well within the danger range on many occasions from late June through September. Significantly, temperatures dropped dangerously low during peak smolt migration times which were between July 2 and July 20, 2007. This is definitely cause for some concern and further research.



Recent Findings

- Consistent survival patterns of smolt within rivers among years and consistent survival differences between rivers
- There is significant smolt traffic through the SoBI showing this is a major migration route
- Water temperature along the migration route may be lethally cold
- No evidence was found of a correlation between smolt size and migration rate or mortality
- Preliminary information indicates that grilse and salmon behavior are quite different and will be explored in more detail in 2008
- Synchronous arrivals from different rivers into the SoBI indicates a strong pressure on fish from different rivers to get together during migration