West Greenland Atlantic Salmon Sampling

Introduction to Greenland

West Greenland Atlantic Salmon Fishery – History & Management

International Salmon Sampling Programme

Key insights gained from 50 years of tagging and fishery data

Future Research & Management
Kalaallit Nunaat - Greenland

World’s largest island

~80% ice covered

~85% Greenlandic Inuits, 15% Danes and others

Part of Denmark, progressively gaining independence. Population: 56,000

Transitioning economy: Fishing accounts for 90% of exports. Minerals and hydrocarbons
Atlantic Salmon  *Salmo salar*

**Life Cycle**

Large multi sea-winter salmon

**Origin:** Canada, U.S.A, UK, Ireland, Faroes, France, Spain, Southern Norway, Greenland

**Variable diet:** Capelin, squid, amphipods, sand lance
Began in the 1960’s and peaked in 1971 at 2700t (~1 million salmon)

1976: International vessels banned

1983: North Atlantic Salmon Conservation Organisation (NASCO) formed

1980’s: Catch reduced to <800t

1985: Minimum gillnet mesh size of 140mm introduced
West Greenland Salmon Fishery - Management

1998: With the exception of 2001, the export of salmon from Greenland was banned

2002-2017: Fishery restricted to an internal-use only fishery of <50t annually

2018-2020: Quota reduced to 30t (approx. 9000 individual fish) for internal use only
Private subsistence consumption or sale at local markets only
Salmon not to be sold directly to fish processing factories or hotels and businesses
Only hooks, fixed gillnets and driftnets are allowed to target salmon.

Fishing season generally August 15th to October 31st.

Fisherman are required to submit catches daily to the Government of Greenland.

Role of International Council for the Exploration of the Seas (ICES)

Role of NASCO
International Sampling Programme

Sampling since 1960. Co-ordinated approach since 2002 (Tim Sheehan, NOAA/ICES)

Samplers from Greenland, UK, Ireland, Canada and U.S.A

Min 14 days opportunistic sampling. (In 2017 20% of total reported catch sampled)

Biological characteristics, genetic, scale and sea lice samples

Fisherman name and fishing location
Sampling Experience

150 salmon fully sampled
Over 200 recorded landings
Maniitsoq market staff support
Importance of Kapisillit to the Greenlandic people
3 or 4 years in freshwater
2 winters at sea
In 2017 European fish river age 2 (73%) and 3 (15%)
93% 1 sea winter at point of sampling (ICES, 2018)
Photo by Jason Henry

4 or 5 years in freshwater?

1 winter at sea?
First ever Scottish (Conon) tag recovery at West Greenland was on 15th October 1956

Scottish recoveries include: Isle of Mull, Aberdeenshire Dee tributaries, North Esk, Tay

Since 1968 a total of 403 Scottish fish recovered

North American fish are more likely to be found in northern locations

No evidence that North American fish arrive before European fish

Inter-continental migrations

Sources: Menzies & Shearer (1957), Ó Maoiléidigh et al. (2018), Reddin et al. (2012), Reddin et al. (1984)
Origin & Composition of the Fishery

Tagging, morphometrics, scale and otolith analysis used to assign continent of origin

More recently genetic analysis can assign fish to 20 NA and 8 European groupings

~20% of catch is European salmon

Exploitation rate thought to have peaked at ~1 in 3 European fish in 1975

Exploitation rate now around 0.8% for the European stock component

Sources: ICES (2018), Jeffery et al. (2018)
Future Research

Improved understanding of ocean migrations and pressures
(Photo by Tim Sheehan/ Atlantic Salmon Federation)

Better data on catch and effort in space and time

Application of new genetic analysis capability to historical scale samples
Future Management

Mixed stock fishery generally against ICES management principals

Newfoundland, Quebec, Gulf of St Lawrence, Scotia-Fundy & U.S.A below CL

Labrador and Southern North East Atlantic (including Scotland) above CL

Ensure an internal-use only fishery

Need to address a range of pressures under our control in the freshwater environment
Find Out More

http://fms.scot/seans-greenland-blog/
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