



Council

CNL(19)52

***Presentation of the ICES Advice on
North Atlantic Salmon Stocks to the Council***

An underwater photograph showing several salmon swimming in clear blue water. The fish are silhouetted against the light, and their fins are visible. The water is bright and clear, with some light rays visible.

sal.oth.nasco

North Atlantic Salmon Stocks

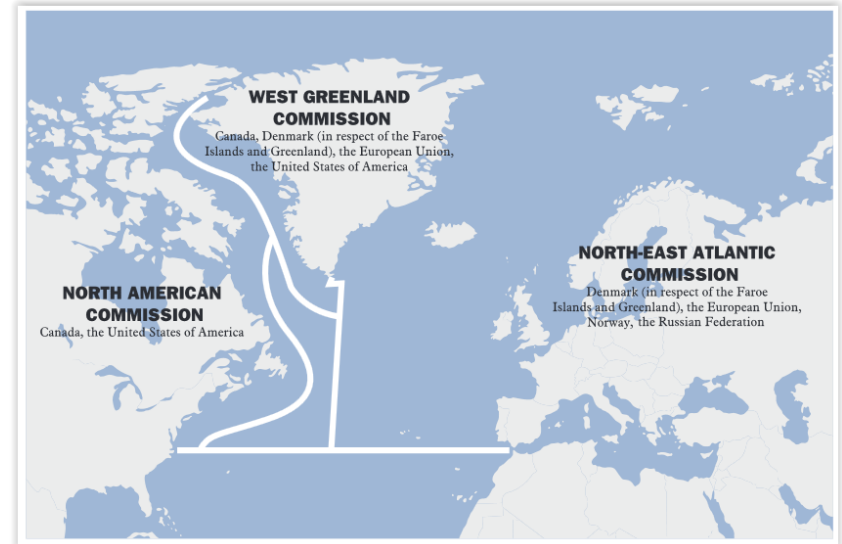
Photo by Nick Hawkins



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Background

- NASCO Commissions: North American (NAC), West Greenland (WGC) and North-East Atlantic (NEAC)
- Management framework for Atlantic salmon in the North Atlantic



ICES Working Group on North Atlantic Salmon (WGNAS)



- Bergen, Norway
- 26 March–04 April 2019
- 28 participants
- 13 countries
- 35 working documents

Terms of Reference



1. With respect to Atlantic salmon in the North Atlantic area:

- 1.1 provide an overview of salmon catches and landings by country, including unreported catches and catch and release, and production of farmed and ranched Atlantic salmon in 2018
- 1.2 report on significant new or emerging threats to, or opportunities for, salmon conservation and management
- 1.3 provide a compilation of tag releases by country in 2018
- 1.4 identify relevant data deficiencies, monitoring needs and research requirements

1.1 Nominal Catch

- 1090 t
 - whole weight of fish caught and retained (harvest)
 - released fish not included

Area	Catch (t)	
	2017	2018
NEAC	1022 (88%)	960 (88%)
NAC	113 (10%)	90 (8%)
WGC	28 (2%)	40 (4%)
Total	1163	1090

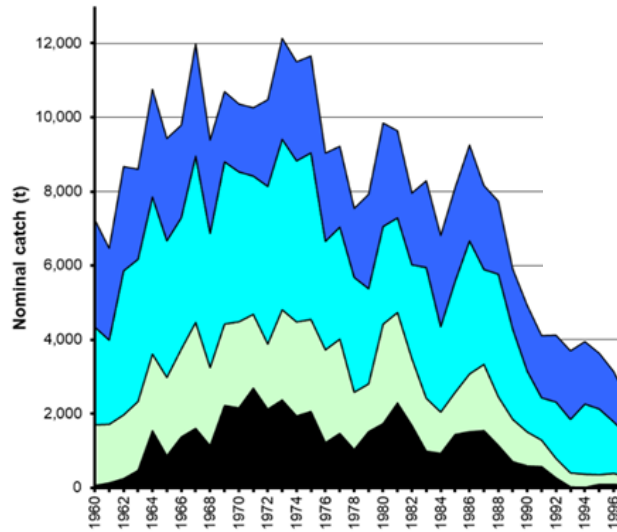
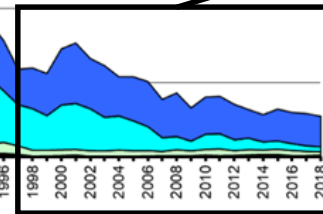
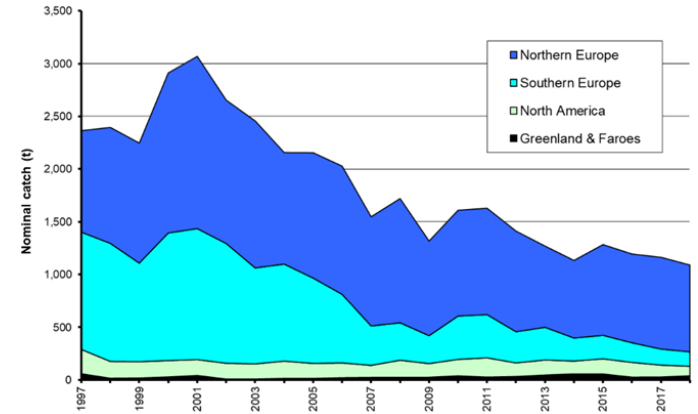
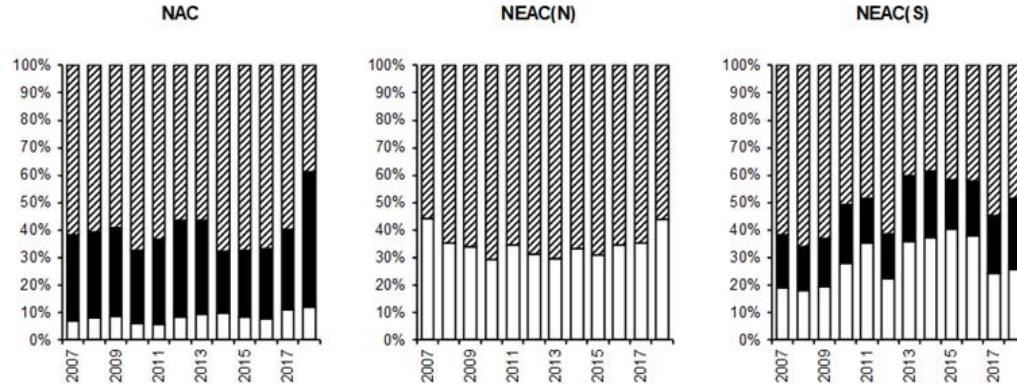
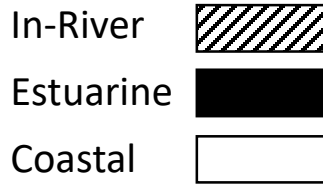


Figure 1: sal.oth.nasco



1.1 Location of Catches

Figure 2: sal.oth.nasco



- Coastal Catches
 - N-NEAC: 30% - 40% since 2007
 - S-NEAC: 25% (similar to 2017 and lower than previous years)
 - NAC: 8% (< 10% since 2007)
- location of catches by country (Figure 3: sal.oth.nasco)

1.1 Unreported Catches

- 314 t
 - Legal under-reporting, non-reporting and illegal catch
 - 29% of total nominal catch
 - no estimate for Russia, France, Spain, and St. Pierre and Miquelon

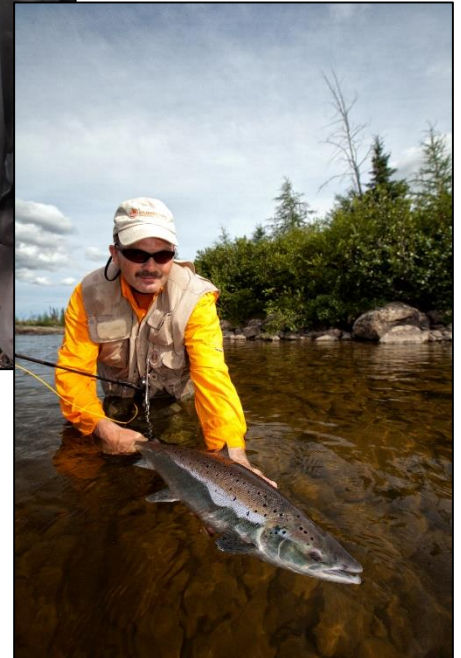
Table 3: sal.oth.nasco

Year	2014	2015	2016	2017	2018
NEAC	256	298	298	318	279 t
NAC	21	17	27	25	24 t
WGC	10	10	10	10	10 t
Total	287	325	335	353	314 t



1.1 Catch-and-Release (C&R)

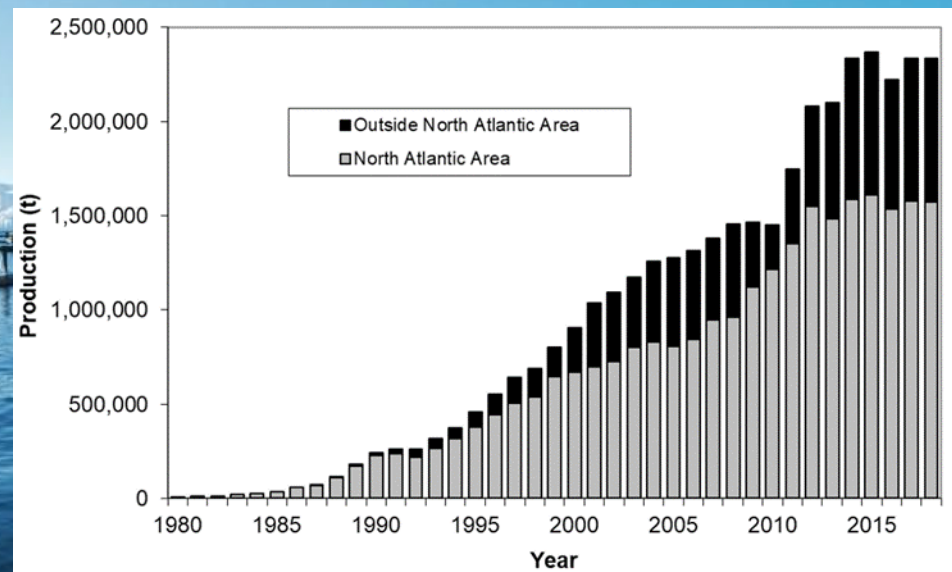
- 166 000 salmon released (Table 8: sal.oth.nasco)
- Percentage released ranges from:
 - 19% in Sweden
 - 93% in UK (Scotland)
- Reflects varying management practices and angler attitudes
- Practice of C&R generally increasing



1.1 Production Farmed Salmon

- 1577 kt
 - Norway (81%)
 - UK (Scotland) (10%)

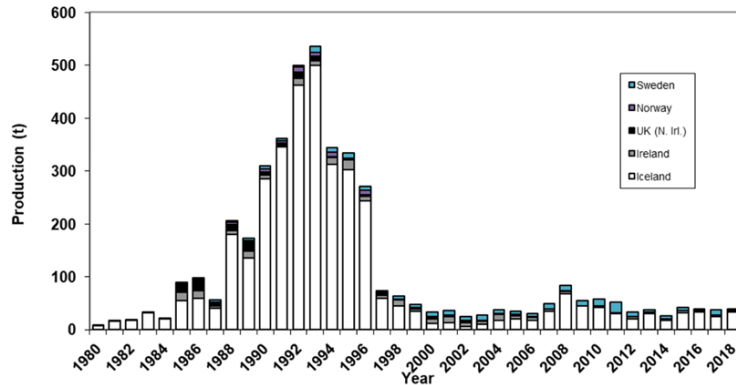
Figure 4: sal.oth.nasco



1.1 Production Ranched Salmon

- 40 t
 - Iceland 83%, Sweden 10%, Ireland 8%
 - No estimate for Norway (< 1 t)
 - UK (N. Ireland) not assessed since 2008

Figure 5: sal.oth.nasco



1.2 Emerging Threats or Opportunities

Diseases and Parasites - Updates

- Red vent syndrome (RVS, *Anisakiasis*) monitoring UK (England and Wales)
- Reports of RVS in Sweden
- Update on undiagnosed diseased salmon in Sweden
- Update on *Gyrodactylus salaris* eradication program in Norway
- Sea lice investigations and management programmes in Norway
- Infectious agents in Labrador Sea and pathogen testing at Greenland



1.2 Emerging Threats or Opportunities

2018.....Hot and Dry!

- very low river discharge and high river temperatures
- delayed upriver migrations of salmon
- Increased recreational fishery closures or restrictions
- low catch rates

Plummeting river levels due to hot weather sparks fish rescue

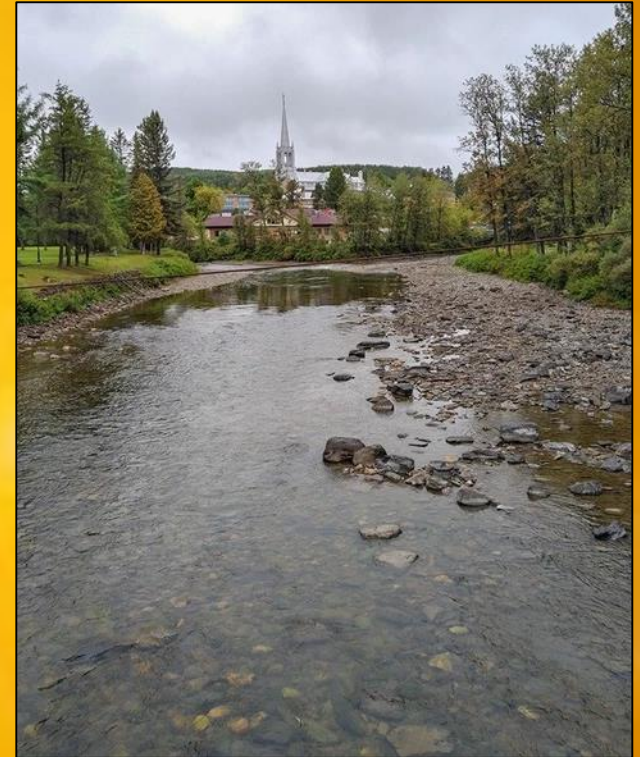
Heat is 'disastrous' for salmon industry

Inland Fisheries appeals to anglers to halt fishing during heatwave

Norway is known for its cold weather – but it's been in the grip of a severe heatwave

Low water levels stop salmon fishing in Gaula

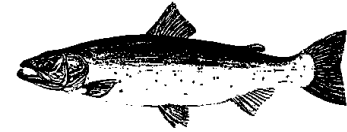
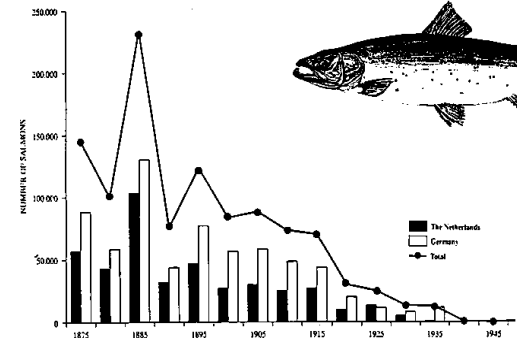
Irish freshwater temperatures 'lethal'



1.2 Emerging Threats or Opportunities

Atlantic salmon in Germany

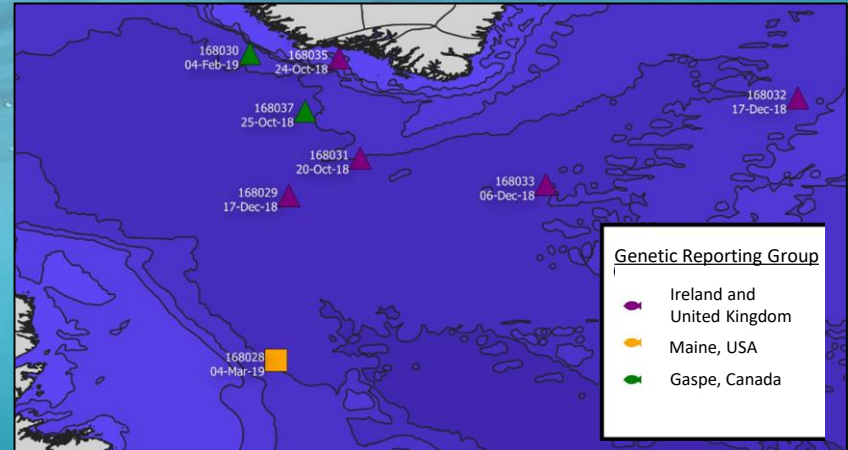
- Atlantic salmon populations lost by 1950s
- Re-introduction started in 1970s but more coordinated programmes developed in past 20 years
- Reestablish self-sustaining stocks in four river systems (River Ems, Rhine, Weser and Elbe)
 - improve river connectivity
 - Improve spawning and nursery habitats
 - scientifically based salmon brood stock management
- Populations heavily dependent on stocking
 - high predation rates (cormorant, piscivorous fish)
 - poaching
 - Barriers to migration
- EU Water Framework Directive: tool for restoring habitat



1.2 Emerging Threats or Opportunities

Pop-off Satellite Tagging Atlantic Salmon at Greenland

- 12 salmon tagged in 2018
- Mean: 65.8 cm FL and 3.7 kg WW
- Most tags set to release 1 May 2019
- 8 transmitted to date (March 2019)
- Project plan: 50 tags in fall of 2019



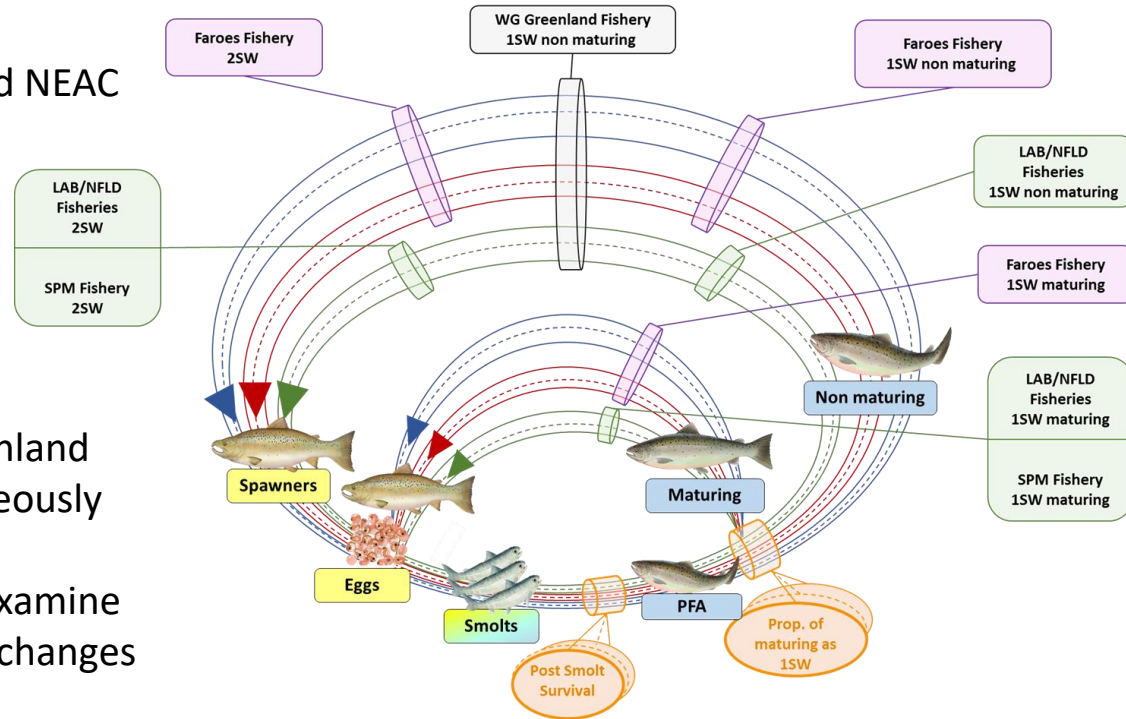
	COO	ROO	Data
<u>North American</u>	6		
Maine, United States		1	1
Gaspé Peninnsula		4	2
Ungava Bay		1	0
<u>European</u>	6		
United Kingdom/Ireland		6	5
TOTALS	12	12	8



1.2 Emerging Threats or Opportunities

Update: Life Cycle Model

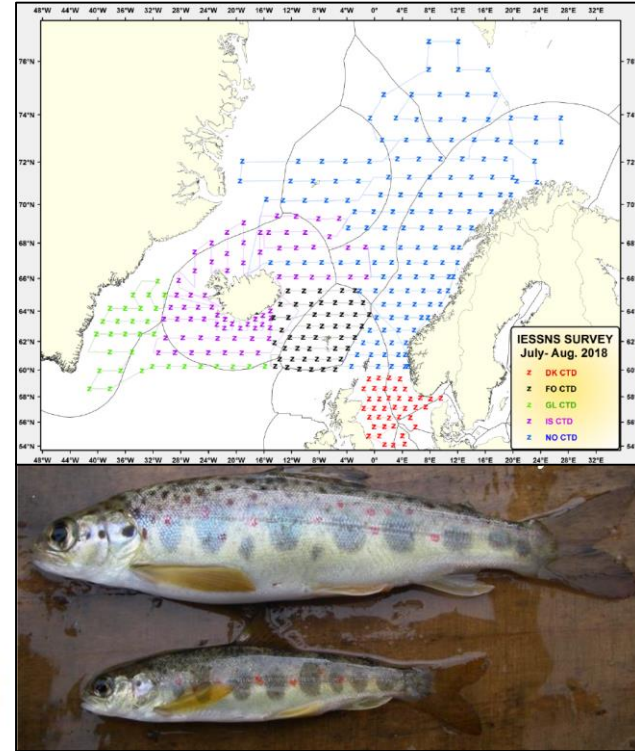
- One model of all stock units of NAC and NEAC
 - Outputs estimates of:
 - pre-fishery abundance (PFA)
 - fisheries mortality
 - life history parameters
 - post-smolt survival to 1 January
 - proportion maturing at 1SW
- Provides catch options for West Greenland and Faroes salmon fisheries simultaneously
- Allows for the addition of factors to examine drivers and mechanisms of observed changes in population dynamics



1.2 Emerging Threats or Opportunities

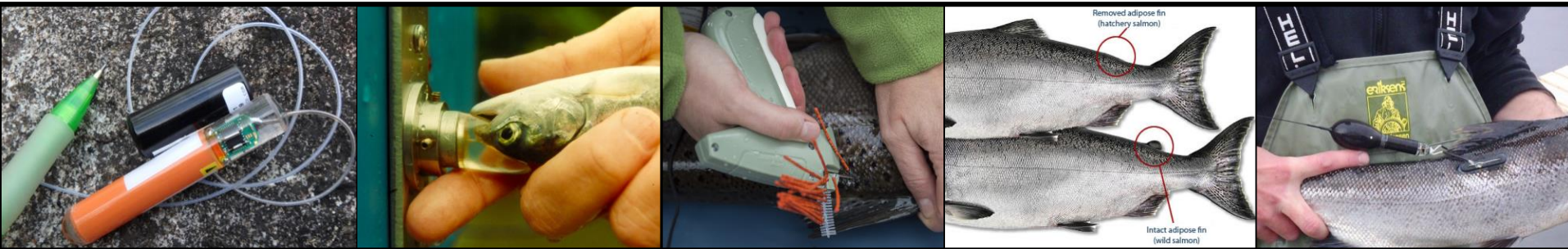
Investigating marine survival and salmon at sea

- International Ecosystem Summer Survey of the Nordic Seas (IESSNS)
 - 80 post-smolt and adult salmon caught in 2018
- Norway SeaSalar Project initiated in 2018 (<https://www.seasalar.no>)
- PIT tag screening programs: detect bycatch in pelagic fisheries
- Tracking and acoustic tagging studies in Canada
- Study on the positive influence of fork length on smolt survival
- Investigations on the drivers of Atlantic salmon population declines across the Atlantic basin using the life cycle model
- Update on SALmonids Management ARound the CHannel (SAMARCH) programme (<https://samarch.org>)



1.3 Tag Releases

- Data on tagged or marked salmon are compiled as a separate report (ICES, 2019b)
- Summary in Table 4: sal.oth.nasco
 - 2.7 million salmon were marked in 2018 (2.8 million in 2017)
 - Hatchery: 2.64 million juveniles and 1315 adults Wild: 62 296 juveniles and 7903 adults
 - adipose clip (2.26 million) and coded wire microtags (CWT) (0.241 million)
 - 189 022 external tags
 - 135 157 internal electronic tags (PIT, DSTs, radio, acoustic), increased use in recent years



1.4 Data deficiencies, monitoring needs and research requirements

- PIT tag database needed to facilitate identification of tagged fish captured in fisheries or surveys
- Complete and timely reporting of catch statistics from all fisheries of eastern Canada
- Improved catch statistics and sampling of the Labrador and Saint Pierre and Miquelon fisheries to ensure that samples are representative of the entire catch
- Additional monitoring be considered in Labrador to estimate stock status for that region
- Continue efforts to improve the reporting system of catch in the Greenland fishery
- The broad geographic sampling programme in Greenland should include Nuuk and be expanded across the fishing season to ensure that samples are representative of the entire catch



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Photo by Nick Hawkins