

**Presentation of the ICES Advice on North Atlantic Stocks to the Council
CNL(21)58**

sal.oth.nasco

North Atlantic Salmon Stocks

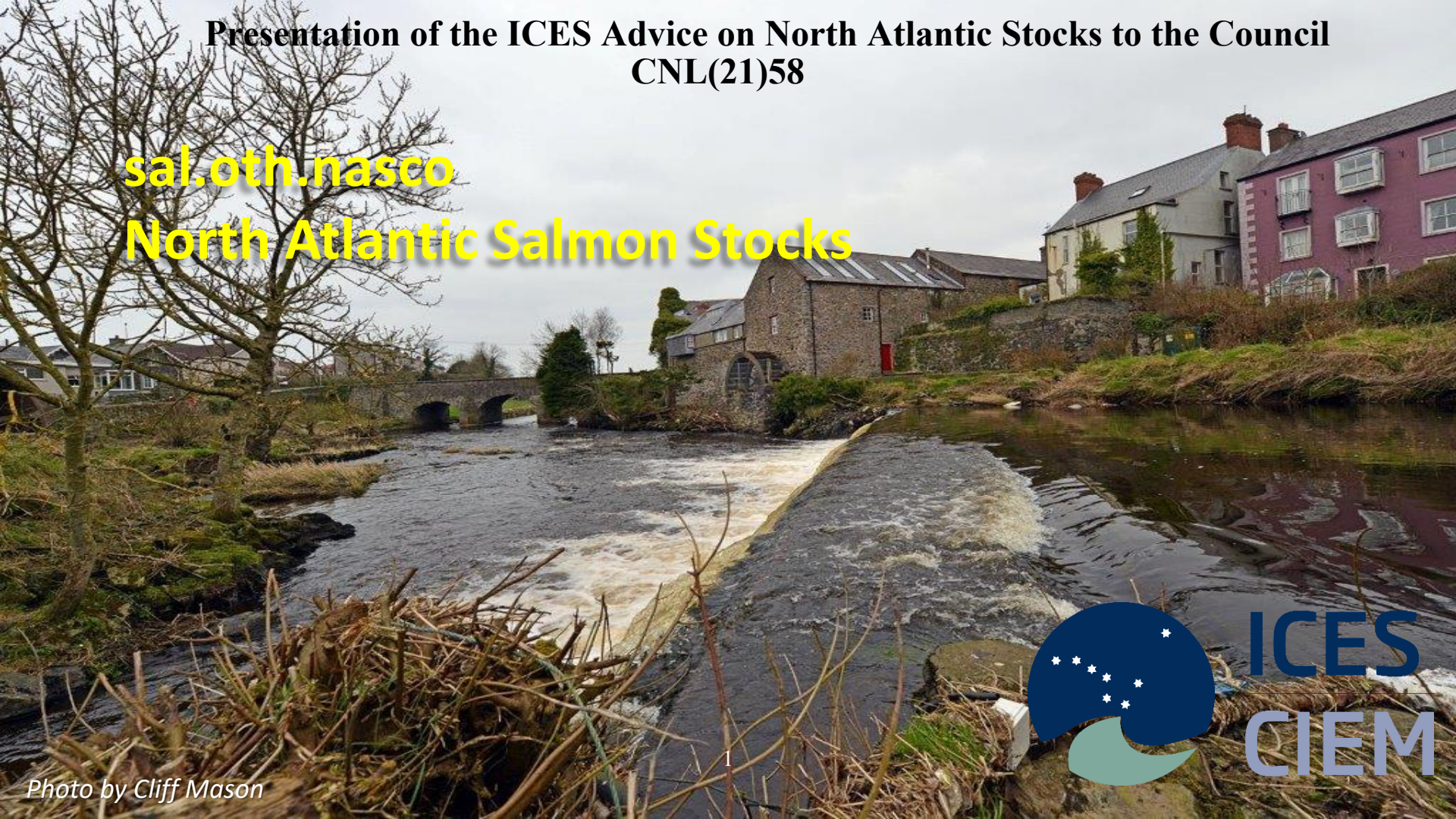


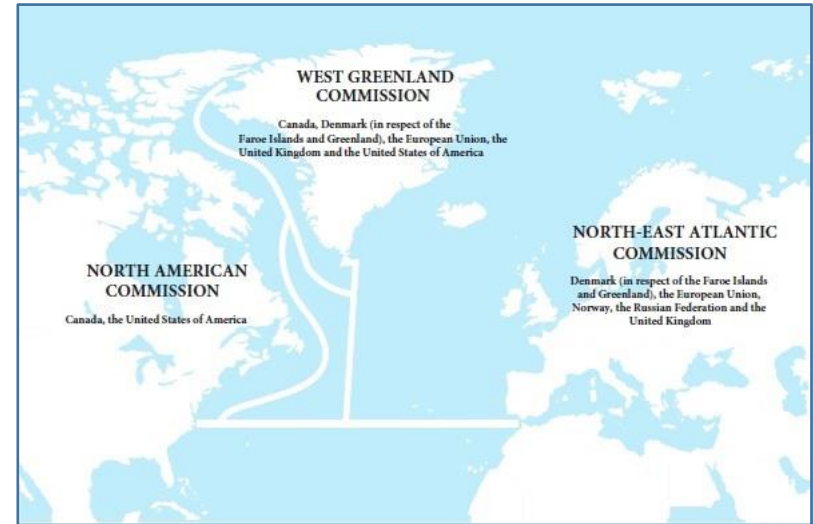
Photo by Cliff Mason



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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



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 2020;
- 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 2020;
- 1.4 identify relevant data deficiencies, monitoring needs and research requirements;
- 1.5 review and update the General Considerations section (Annex 2) of the ICES Commissions' advice documents to include 'Environmental and other influences on the stock'.

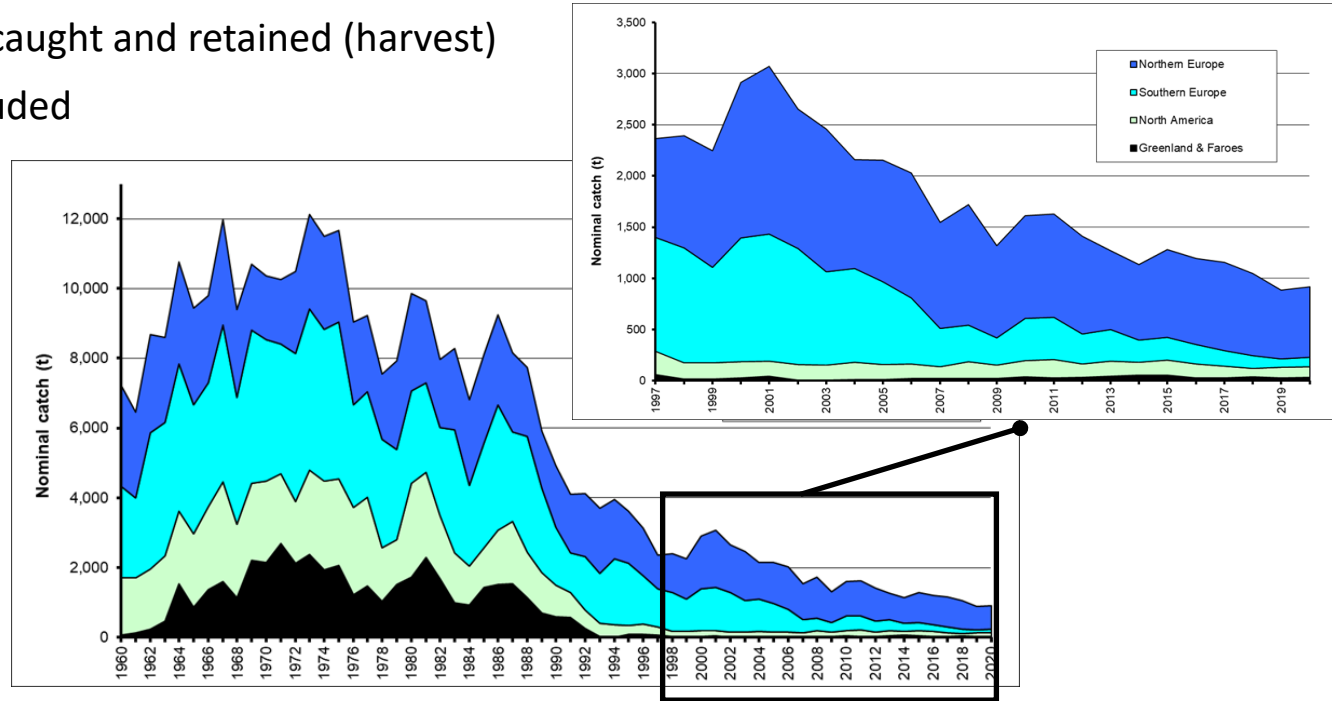
1.1 Reported (nominal) Catch



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

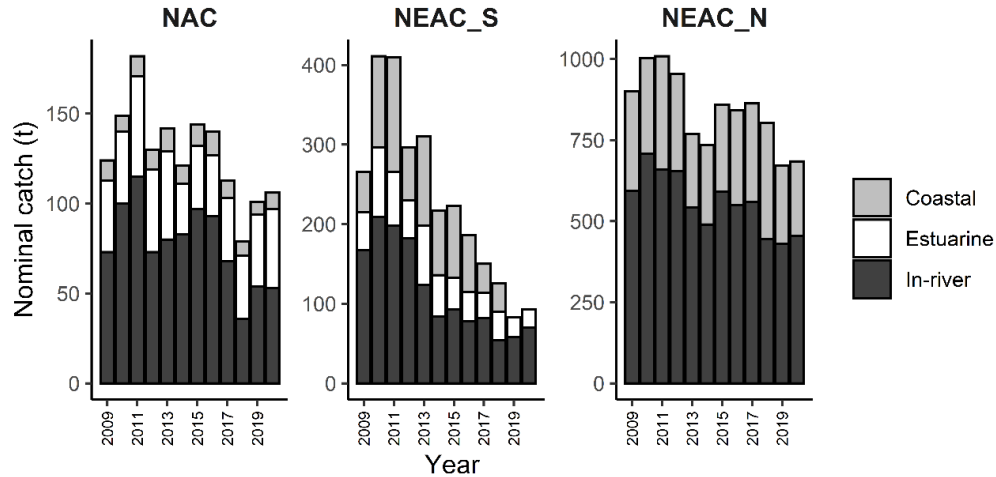
Area	Catch (t)	
	2019	2020
NEAC	755 (85%)	778 (85%)
NAC	101 (11%)	106 (12%)
WGC	29 (3%)	32 (3%)
Total	886	915

Figure 1: sal.oth.nasco



1.1 Location of Catches

Figure 2: sal.oth.nasco



- Coastal Catches

- N-NEAC: 30% - 40% since 2008
- S-NEAC: 0% (2019 change in management measures)
- NAC: 8% (< 10% since 2007)

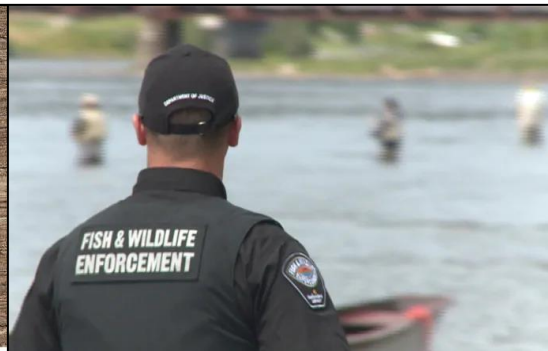
- location of catches by country: Figure 3: sal.oth.nasco

1.1 Unreported Catches

- 276 t
 - Legal under-reporting, non-reporting and illegal catch
 - 30% of total nominal catch
 - no estimate for Russia, France, Spain, and St. Pierre and Miquelon

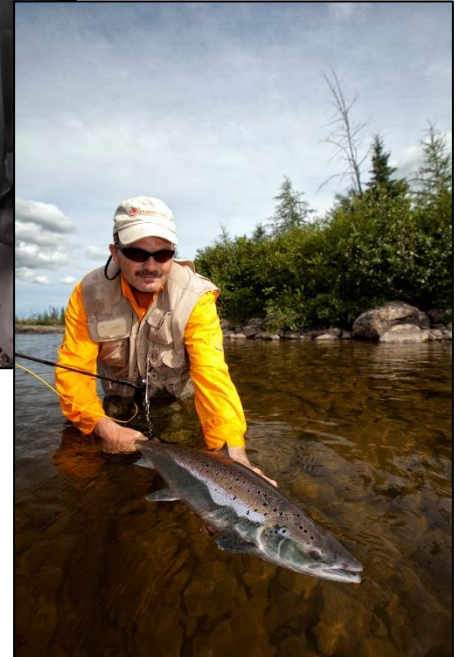
Table 3: sal.oth.nasco

Year	2016	2017	2018	2019	2020
NEAC	298	318	277	237	239
NAC	27	25	24	12	27
WGC	10	10	10	10	10
Total	335	353	311	259	276



1.1 Catch-and-Release (C&R)

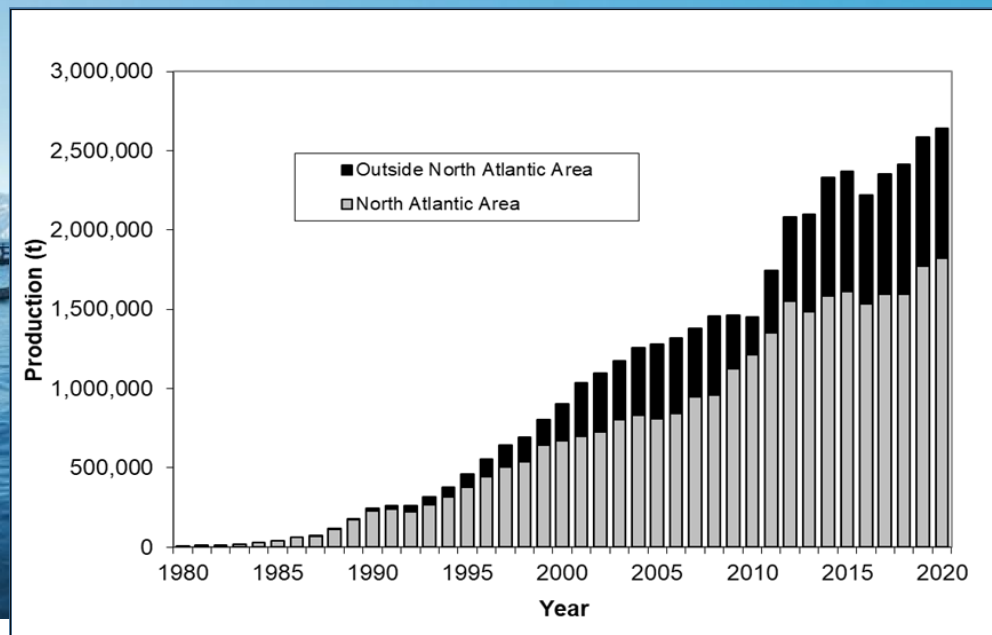
- 196 677 salmon released (Table 8: sal.oth.nasco)
- Percentage released ranges from:
 - 16% in Sweden
 - 93% in UK (Scotland)
- Reflects varying management practices and angler attitudes
- Practice of C&R generally increasing



1.1 Production Farmed Salmon

- 1821 kt
 - Norway (77%)
 - UK (Scotland) (11%)

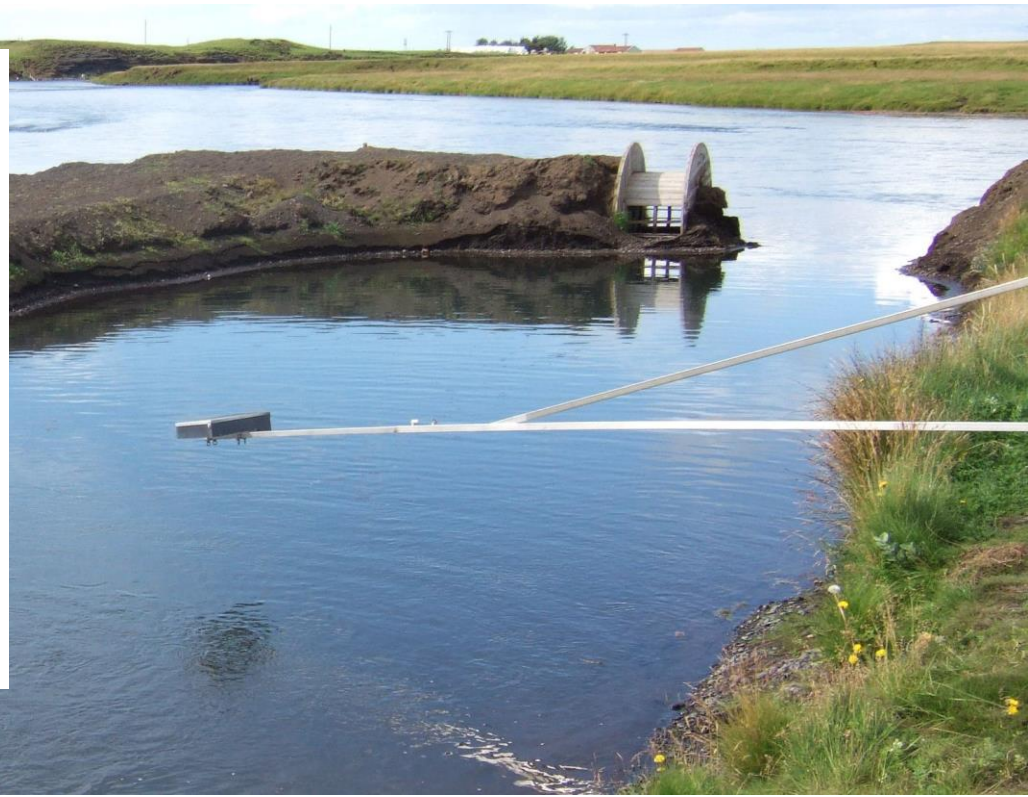
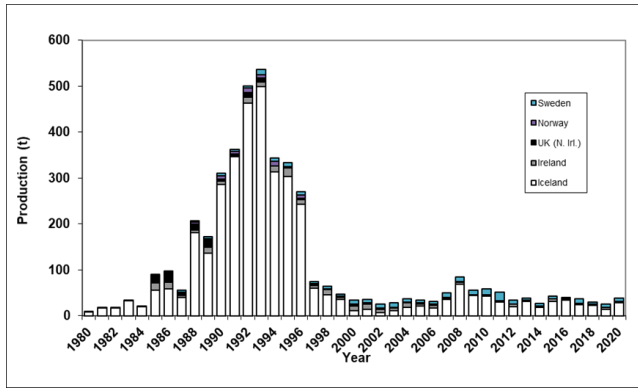
Figure 4: sal.oth.nasco



1.1 Production Ranched Salmon

- 39 t
 - Iceland 28.2 t, Sweden 7.0 t, Ireland 3.3 t
No estimate for Norway (< 1 t)
 - UK (N. Ireland) not assessed since 2008

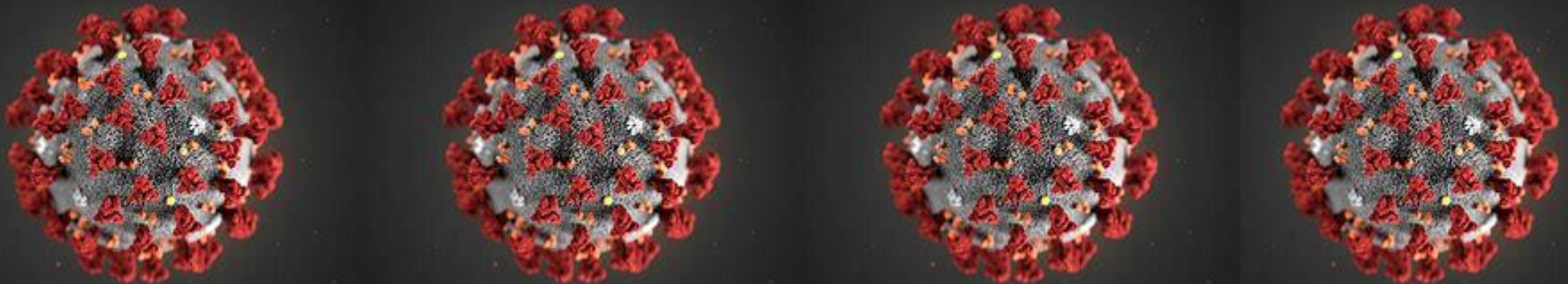
Figure 5: sal.oth.nasco



1.2 New or emerging threats to, or opportunities for, salmon conservation and management

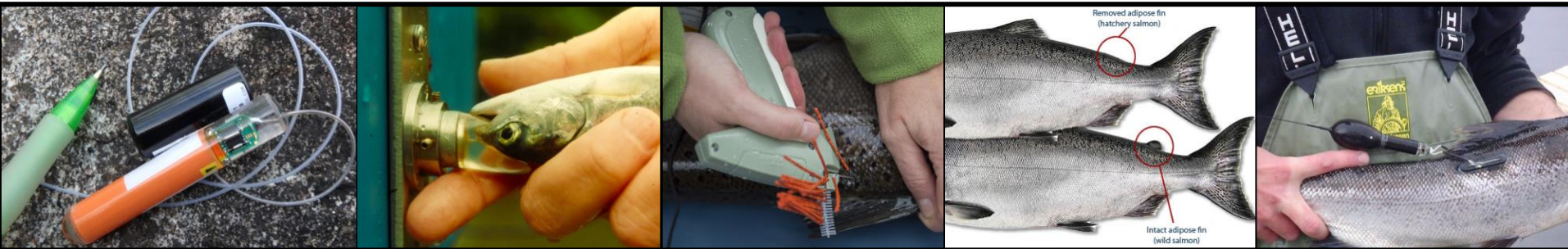
COVID-19 pandemic

- little or no impact reported for UK (Northern Ireland), Ireland, Iceland, Norway, Sweden and Denmark
- In other jurisdictions stay-at-home orders and travel restrictions affected fishing effort (France, UK England & Wales), population monitoring activities (Canada, USA), and delayed the collection and official release of fisheries statistics (UK Scotland)
- No international sampling at West-Greenland



1.3 Tag Releases

- Data on tagged or marked salmon are compiled as a separate report (ICES, 2021b)
- Summary in Table 4: sal.oth.nasco
 - 1.96 million salmon were marked in 2020 (2.2 million in 2019)
 - **Hatchery:** 1.73 million juveniles and 160 355 adults **Wild:** 40 678 juveniles and 31 032 adults
 - adipose clip (1.65 million) and coded wire microtags (CWT) (0.836 million)
 - 91 390 internal electronic tags (PIT, DSTs, radio, acoustic), decreased use relative to 2019 (Covid-19 effect?)



1.4 Identify relevant data deficiencies, monitoring needs and research requirements

NAC:

- A database is needed that lists individual PIT tag numbers or codes identifying the origin, source, or programme of the tags on a North Atlantic basin-wide scale.
- Complete and timely reporting of catch statistics from all fisheries for all areas of eastern Canada is recommended.
- Improved catch statistics and sampling of the Labrador and Saint Pierre and Miquelon fisheries is recommended.
- A sampling rate of at least 10% of catches in Labrador is recommended to achieve a relatively unbiased estimate of region of origin.

NEAC:

- Tag users should be encouraged to include these tags or tagging programmes in the WGNAS tagging report as this greatly facilitates identification of the origin of tags recovered in fisheries or tag scanning programmes in other jurisdictions

1.5 review and update the General Considerations section ICES Commissions' advice documents

Annex 2 General considerations

Management plans

The North Atlantic Salmon Conservation Organization (NASCO) has adopted an Action Plan for Application of the Precautionary Approach, which stipulates that management measures should be aimed at maintaining all stocks above their conservation limits (CLs) by the use of management targets. CLs for North Atlantic salmon stock complexes have been defined by ICES as the level of a stock (number of spawners) that will achieve long-term average MSY. NASCO has adopted the region-specific CLs as limit reference points (S_{lim}); having populations fall below these limits should be avoided with high probability. Advice for the Faroes fishery (which historically harvested both 1SW and MSW salmon) is currently based upon all NEAC area stocks. The advice for the West Greenland fishery (ICES, 2021e) is based upon the Southern NEAC non-maturing 1SW stock and the non-maturing 1SW salmon from North America. A 75% risk level (probability) of achieving the management objectives (CLs) simultaneously in four regions (Labrador, Newfoundland, Quebec, and Gulf), as well as being above the management objectives for Scotia-Fundy and USA, has been agreed by NASCO for the provision of catch advice at West Greenland. No specific risk level has so far been agreed by NASCO for the provision of catch advice for the Faroes fishery; in the absence of this, ICES uses a 95% probability of meeting individual CLs, applied at the level of the European stock complexes (two areas and two age classes) and for the ten NEAC countries and two age classes. A Framework of Indicators (FWI) has been developed in support of the multiannual catch options.

Biology

Atlantic salmon (*Salmo salar*) is an anadromous species found in rivers of countries bordering the North Atlantic. In the Northeast Atlantic area, its current distribution extends from the Lima River (41°69') in northern Portugal to the Pechora River (68°20') in Northwest Russia and west to Iceland (66°44'). Juveniles migrate to the ocean at the ages of one to eight years (dependent on latitude) and generally return after one or two years at sea. Long-distance migrations to ocean feeding grounds take place, with adult salmon from the Northeast Atlantic stocks being exploited in waters near both Greenland and the Faroes.

Environmental and other influences on the stock*

Environmental conditions in both freshwater and marine environments have a marked effect on the status of salmon stocks. Across the North Atlantic, a range of problems in the freshwater environment play a significant role in explaining the poor status of stocks. In many cases, river damming and habitat deterioration have had a devastating effect on

Acknowledgements



- All scientist and technicians who gathered data for WGNAS reporting
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Photo by Nick Hawkins