West Greenland Commission

WGC(17)7

Presentation of the ICES Advice to the West Greenland Commission

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Atlantic salmon at West Greenland

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Terms of Reference

- NASCO informed ICES that the results of the Framework of Indicators for the West Greenland Commission run in January 2017 did not indicate the need for a revised analysis of catch options and therefore no new management advice for the 2017 fishery is provided.

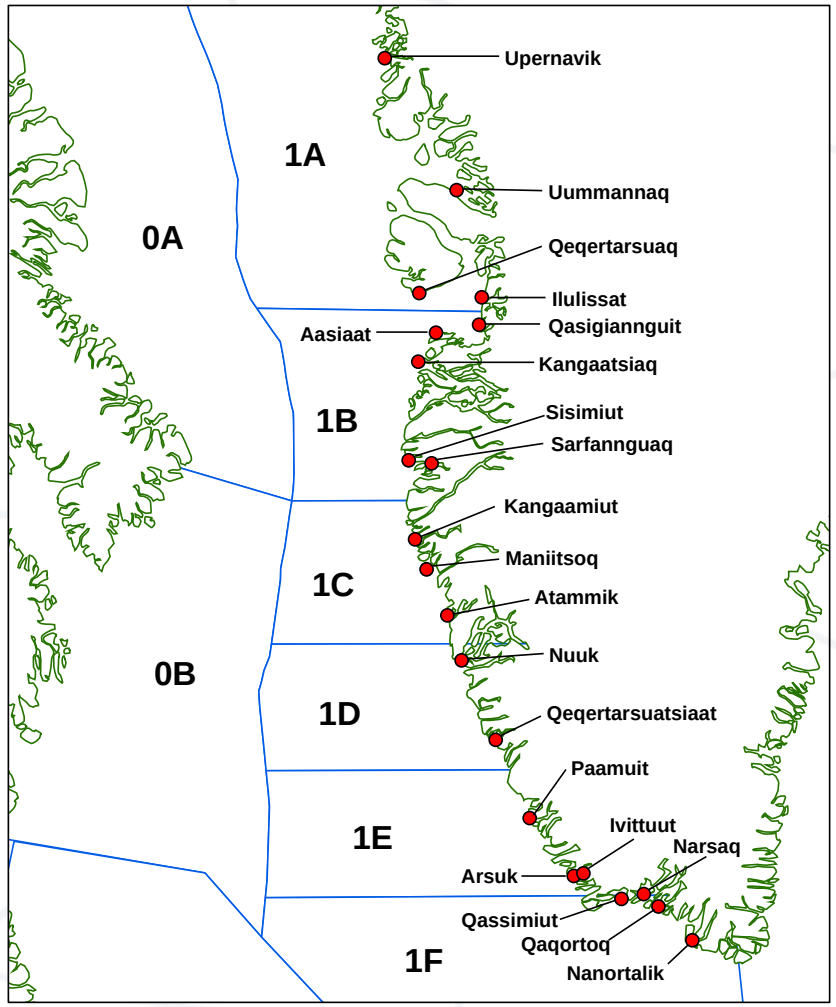
Revised terms of reference:

- describe the key events of the 2016 fisheries (*including review the results of the recent phone surveys and advise on the appropriateness for incorporating resulting estimates of unreported catch into the assessment process)*
- describe the status of the stocks

4.1 Key events of the 2016 fisheries

- Fishing for salmon allowed using hook, fixed gillnets, and driftnets along the entire coast of Greenland
- As a result of an overharvest in 2015 of the 45 t quota unilaterally set by the Government of Greenland, the 2016 quota was set by Greenland to 32 t.
- Commercial fishery for internal use only with sales by licensed fishers allowed to hotels, institutions, and local markets.
- No sales to factories were allowed in 2016.
- People fishing for private consumption only are not required to have a licence, but cannot sell salmon.
- The fishing season opened on 15 August and closed on 30 October

Table 2



Key events of the 2016 fisheries

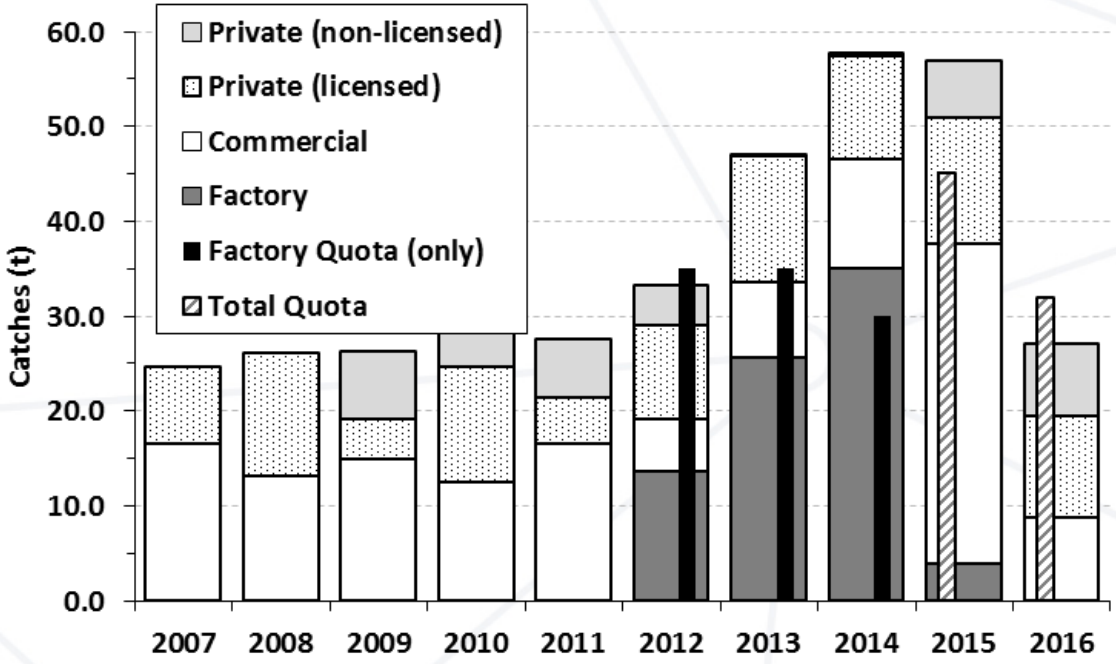
- Total catch of 27.1 t of salmon reported for the 2016 fishery
- 72% of the landings came from licensed fishers
- Of catches reported for private use, 41% (7.6 t) came from unlicensed fishers and 59% (10.8 t) were from licensed fishers

Table 1

Licence type	Reported consumption type	Reported 2016 catch (tons)
Licensed	Commercial	8.6
	Private	10.8
Unlicensed	Commercial	0.1
	Private	7.6
All	Commercial	8.7
	Private	18.4
All	All	27.1

Key events of the 2016 fisheries

- Landings reported across all NAFO divisions, harvest of 1.5 t was reported from ICES Division 14 (East Greenland) (Tables 3 and 4)
- 2016 commercial landings (8.7 t) decreased below the 2015 value (33.8 t) while the private landings in 2016 (18.4 t) remained approximately equal to the 2015 value (19.2 t)
- Fishery for internal use has been increasing into 2015



Review the results of the recent phone surveys and advise on the appropriateness for incorporating resulting estimates of unreported catch into the assessment process

- There is currently no quantitative approach for estimating the unreported catch for the private fishery.
- The 10 t estimate as reported by the Greenlandic authorities was historically meant to account for private non-licensed fishers in smaller communities fishing for personal consumption, and not meant to represent underreporting by commercial fishers.
- Telephone surveys were conducted after the 2014, 2015, and 2016 fishing seasons (in early winter following the fishing season) to gain further information on catch and effort in the licenced fishery.
- The number of fishers contacted, the questions asked, and the method to estimate unreported catch differed among years.

Results of the recent phone surveys

- In 2015, attempts were made to contact all licensed fishers, including those who reported and those who did not report catches in 2014.
- In 2016, a subset of licensed fishers who did not report catches in 2015 were contacted.
- In 2017, a random sample of 49 licensed fishers were interviewed, 30 who had not reported catches and 19 who had reported catches in 2016.
- In all years, one of the questions was aimed at obtaining an estimate of the landings by licensed fishers that were not reported to the Greenland authorities.

Results of the recent phone surveys

- The 2015 survey results suggested there was no systematic bias between catches reported and values indicated during the telephone survey.
- Total of 12.2 t of non-reported harvest during the 2015 survey was not raised to total fishery and a total estimate of non-reported harvest was not derived.
- In 2016 and 2017, division-specific weightings were developed and applied (Table 5); total unreported catches by licensed fishers estimated at 5 t in 2015, and 4.2 t in 2016.

	2014	2015	2016
Licensed fishers	321	310	263
Total not reporting catches	207	196	188
Number interviewed reporting catches	88*	0	19
Number interviewed not reporting catches	119*	105	30
Weighting	None	NAFO division-specific	
Estimated unreported catch (t)	12.2	5.0	4.2

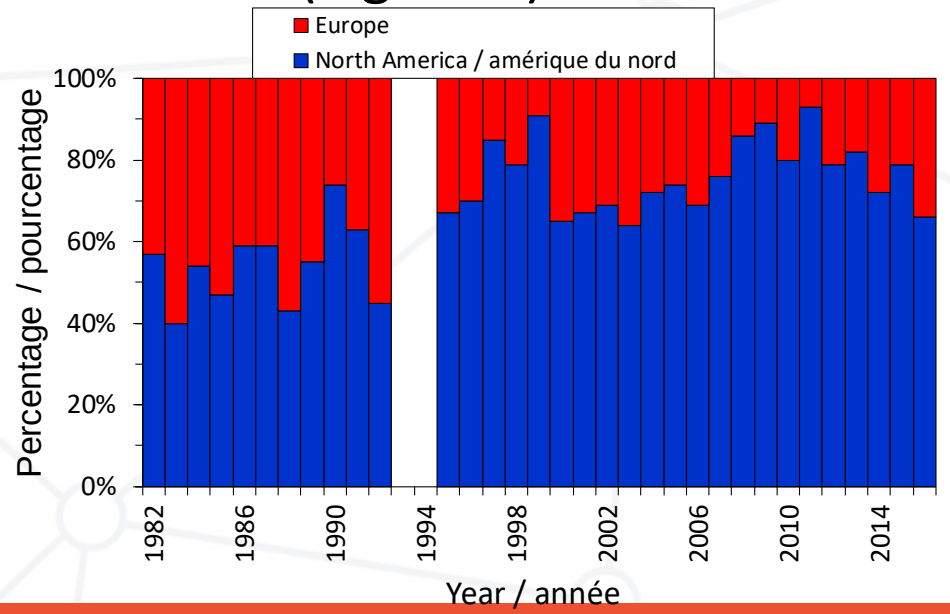
* Includes 11 unlicensed fishers

Advise on the appropriateness for incorporating resulting estimates of unreported catch into the assessment process

- Post-season telephone survey provides a method to derive unreported catches by licensed fishers who do not report during the year.
- It does not provide an estimate of unreported catches from unlicensed fishers and there is currently no information with which to conduct such a survey. Consequently the unreported catch from unlicensed fishers remains unknown.
- For 2015 and 2016, harvests declared by the interviewed licensed fishers who had not reported were raised to total number of licensed fishers who had not reported during the year, providing an estimate of the unreported catch by licensed fishers.
- These data, in combination with the adjusted landings values from sampling, are used by ICES for the assessment (Table 6).
- For the assessment, the unreported catch of 10 t provided by the Government of Greenland is also included.

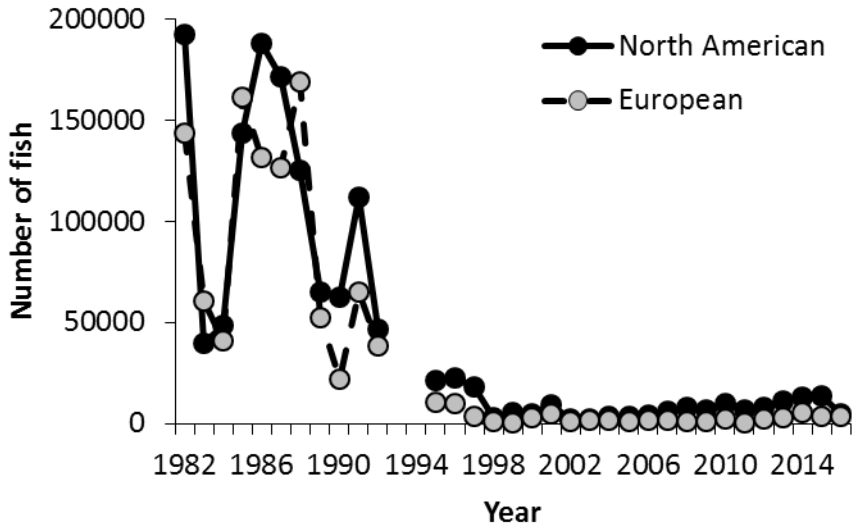
Biological characteristics of 2016 catches

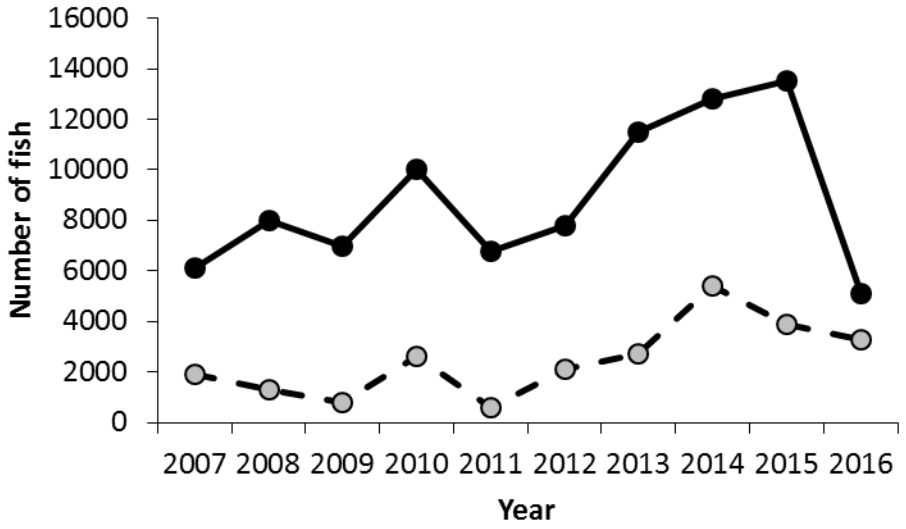
- International sampling programme continued in 2016
  - 1302 samples from four communities representing four NAFO divisions (Sisimiut in 1B (n = 318), Maniitsoq in 1C (n = 542), Paamiut in 1E (n = 125), and Qaqortoq in 1F (n = 317))
  - Microsatellite analyses used to assign the continent of origin for the 2016 samples, and the North American region-specific origin of salmon in the 2015 fishery.
- 66.4% of the salmon sampled were North American origin and 33.6% of European origin, the lowest proportion of North American origin fish since 2003 (Figure 3).
- Three regions of eastern North America contributed to the majority of the fishery samples in 2015: Québec, Gulf of St Lawrence, and Labrador. Smaller contributions were made by other regions (Newfoundland, Scotia–Fundy, and USA)



Biological characteristics of 2016 catches

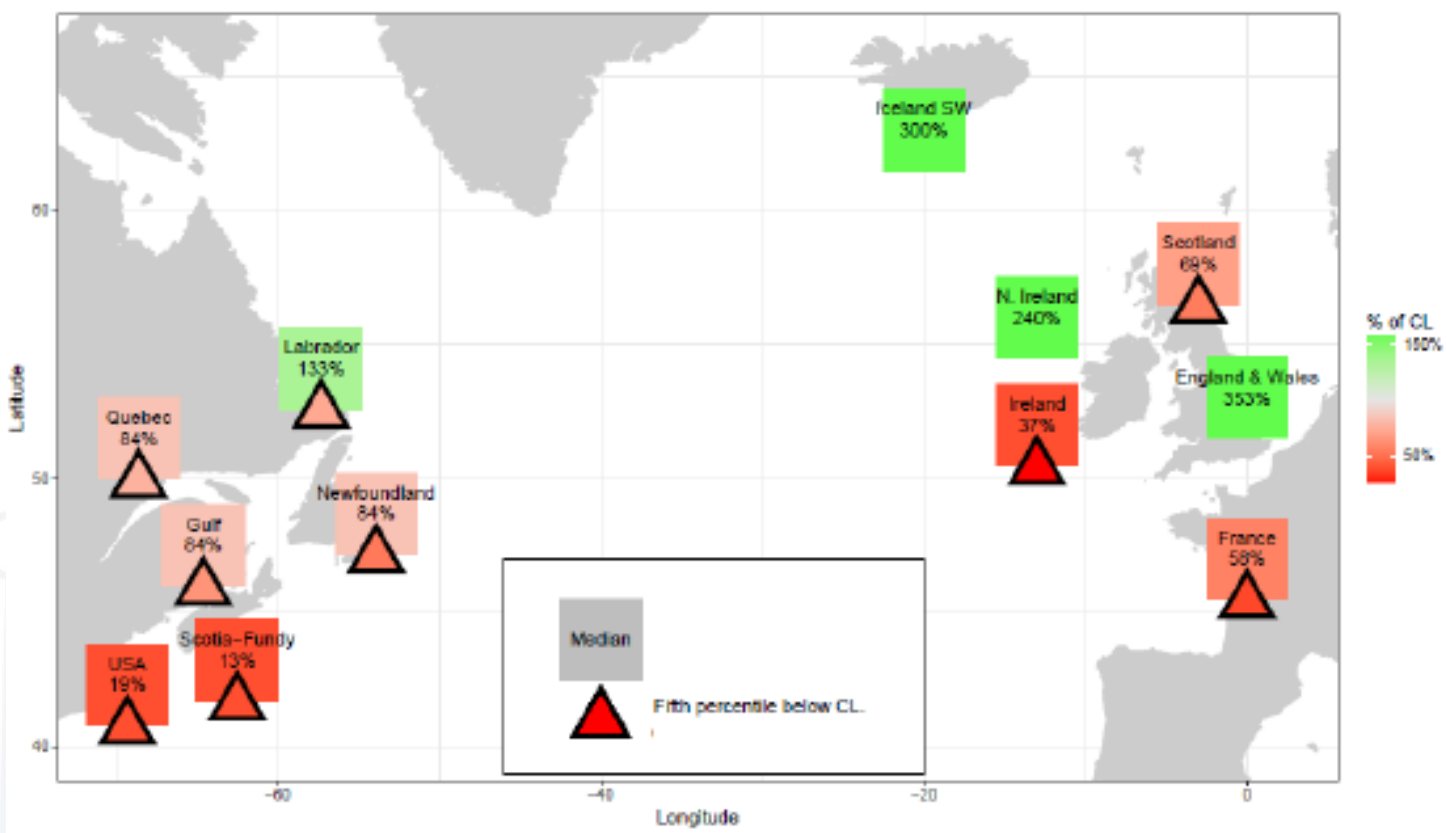
- Approximately 5100 (about 17.2 t) North American origin fish and approximately 3300 (about 8.7 t) European origin fish were estimated harvested in 2016; lowest since 2011, and well below the 2015 estimate.
- Harvest in 2016 was 2.5% of the maximum estimated (336 000 fish) harvest from 1982 (Figure 4).





4.2 Status of Stocks

- Stock status inferred from the status of North American 2SW and southern NEAC MSW stocks
- Recruitment (pre-fishery abundance) estimates of non-maturing 1SW salmon suggest continued low abundance of North American and southern NEAC salmon.
- In 2016, spawners in 5 of 6 North American 2SW stocks and 3 of 6 southern NEAC MSW stocks were suffering reduced reproductive capacity (Figure 5)



Status of Stocks

- The exploitation rate (catch at Greenland/PFA) on NAC fish in 2015 was 9.7%, and remains among the lowest in the time-series (Figure 6).
- The 2015 Southern NEAC exploitation rate at 1.0% remains among the lowest in the time-series.
- The abundance of salmon within the West Greenland area is thought to be low compared to historical levels.
- Despite major changes in fisheries management in the past few decades and increasingly more restrictive fisheries measures since, returns in many of these regions have remained near historical lows.
- Continued low abundance of salmon stocks across North America and in the Northeast Atlantic, despite significant fishery reductions, further strengthens the conclusions that factors other than fisheries are constraining production.

4.3 Relevant data deficiencies, monitoring needs, and research requirements

- Continue efforts to improve the reporting system for catches in the Greenland fishery, and to provide detailed statistics related to spatially and temporally explicit catch and effort data for analyses.
- Continuation of the phone survey programme in Greenland according to a standardized and consistent annual approach, with consideration given to surveying a higher proportion of licensed fishers and the inclusion of the non-licensed fishers.
- Continuation and potential expansion of the broad geographic sampling programme, including the re-introduction of sampling in Nuuk (in multiple NAFO divisions, and including factory landings when permitted) to more accurately estimate continent and region of origin and biological characteristics of the mixed-stock fishery
- Progress to be made in assigning the European origin salmon from the West Greenland fishery to a sub-complex region of origin.

Annexes

- Annex 1: glossary of terms
- Annex 2 (sic Annex 3): general considerations, as per standard ICES advice

Acknowledgements

- Members of the ICES Working Group on North Atlantic salmon from 17 countries in the North Atlantic, and supporting scientific staff