



West Greenland Commission

WGC(18)05

*Presentation of the ICES Advice for the
West Greenland stocks to the Commission*

sal.2127.wgc

Atlantic salmon at West Greenland



Science for sustainable seas



Terms of Reference

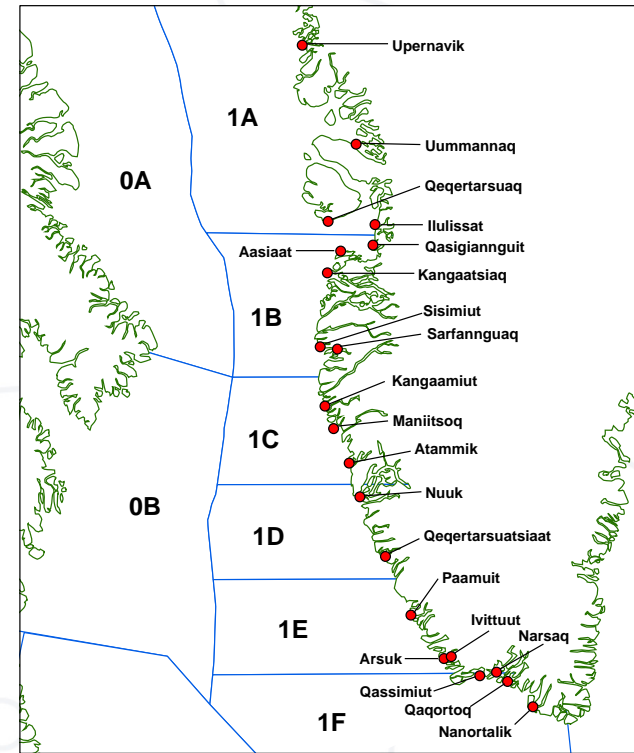


4. With respect to Atlantic salmon in the West Greenland Commission area:
 - 4.1 describe the key events of the 2017 fisheries;
 - 4.2 describe the status of the stocks;
 - 4.3 provide catch options or alternative management advice for 2018-2020 with an assessment of risk relative to the objective of exceeding stock conservation limits, or pre-defined NASCO Management Objectives, and advise on the implications of these options for stock rebuilding;
 - 4.4 update the Framework of Indicators used to identify any significant change in the previously provided multi-annual management advice.

4.1 Key Events 2017 Fishery

- Fishing for salmon allowed using hook, fixed gillnets, and driftnets along the entire coast of Greenland
- The quota for 2017 remained at 45 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 2017
- 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 1 November (one day late due to poor weather)

sal.2127.wgc: Figure 1



4.1 Key Events 2017 Fishery: Total Catch



- Total catch reported catch in 2017 was 28 t (similar to 27 t in 2016) (sal.2128.wgc: Table 1)
 - 55% Commercial (15.3 t, increased from 2016 catch of 8.7 t)
 - 45% Private Use (12.8 t, less than 18.4 t in 2016)
 - Private Use
 - 76% (9.7 t) licensed fishers
 - 24% (3.1 t) unlicensed fishers
- Unreported Catch
 - no quantitative approach
 - 10 t, previously reported by the Greenlandic authorities to account for private non-licensed fishers in smaller communities

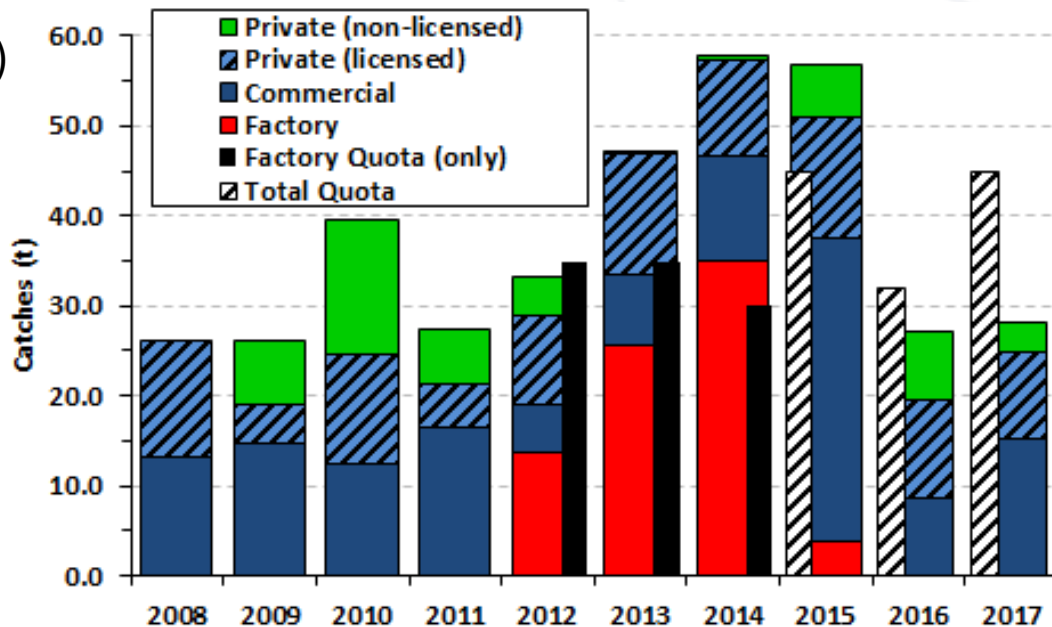
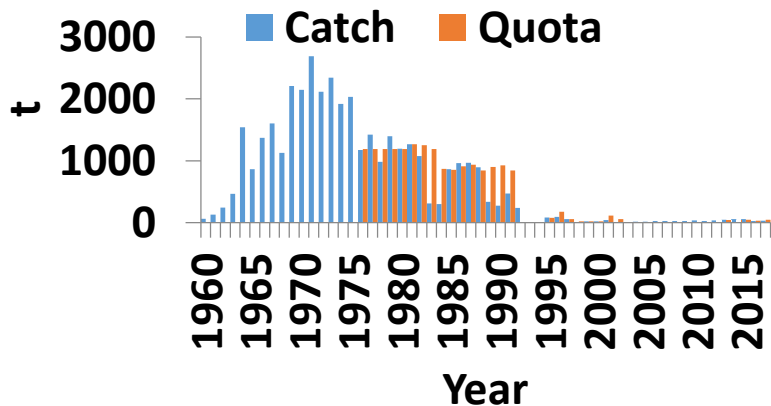
Licence type	Reported consumption type	Reported 2017 catch (t)	Reported 2016 catch (t)
Licensed	Commercial	15.3	8.6
	Private	9.7	10.8
Unlicensed	Commercial	0.0	0.1
	Private	3.1	7.6
All	Commercial	15.3	8.7
	Private	12.8	18.4
All	All	28.0	27.1

4.1 Key Events 2017 Fishery: Total Catch



- Landings reported across all NAFO divisions (sal.2127.wgc: Tables 3 and 4, Figure 4)

- 0.3 t ICES Division 14 (East Greenland)



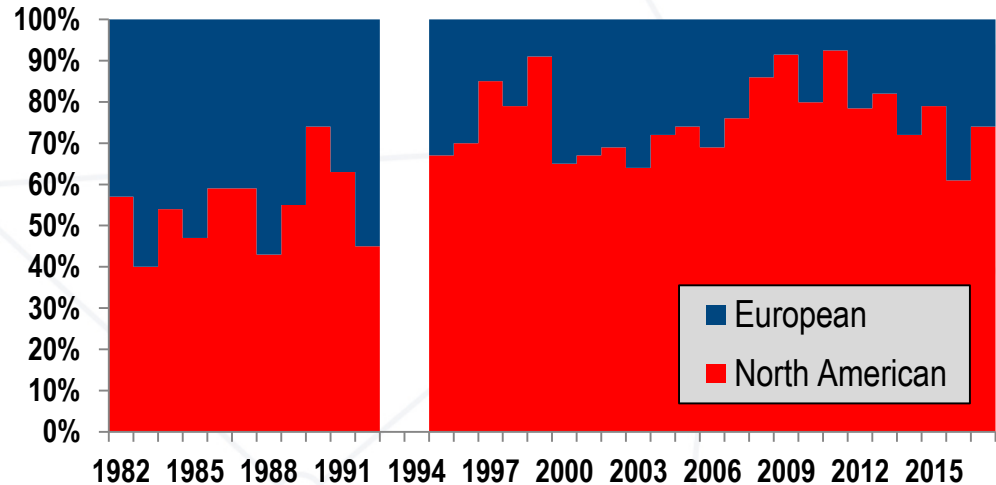
4.1 Key Events 2017 Fishery: Phone Survey

- Phone survey conducted after the fishing season from 2014 to 2016
 - Unreported catches identified and added to adjusted landings:
 - 2014: 12.2 t
 - 2015: 5.0 t
 - 2016: 4.2 t
- 2017 phone survey conducted with 9 fishers
 - Results not considered adequate to adjust the reported landings

4.1 Key Events 2017 Fishery: Biological Characteristics



- International sampling programme continued in 2017
 - 1371 samples from four communities representing four of the six NAFO divisions
 - Continent of Origin (DNA analyses, sal.2127.wgc: Figure 3)
 - North American: 74.4%
 - European: 25.6%
- North America – 12 Regions of Origin (sal.2127.wgc: Table 7)
 - Three regions dominated samples:
 - Gulf of St Lawrence: 31%
 - Gaspé Peninsula (Québec): 31%
 - Labrador: 14%
 - Similar results for 2015 and 2016 samples



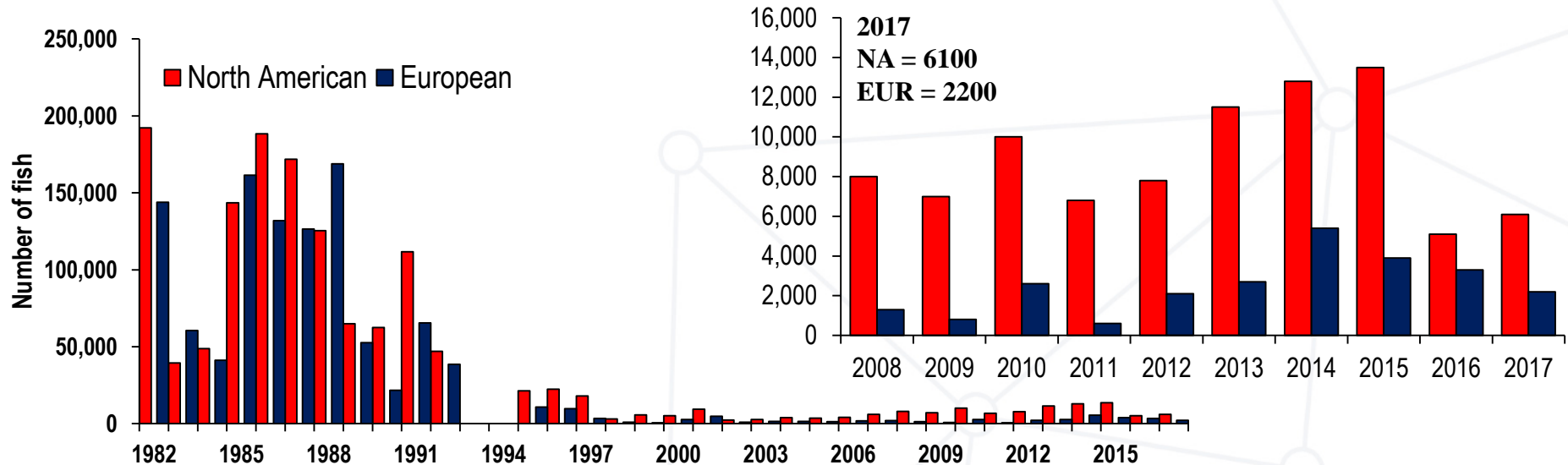
4.1 Key Events 2017 Fishery: Biological Characteristics



- Estimated number of salmon harvested (sal.2127wgc: Figure 4)

Number of Salmon = Total Catch kg ÷ Average Weight of Individual Salmon Harvested kg

- North American: 6100 (20.9 t)
- European: 2200 (7.2 t)



4.2 Status of Stocks: Multi-Year Catch Agreement 2015-2018

- NASCO 2015 multi-year regulatory agreement for the West Greenland salmon fishery (http://www.nasco.int/pdf/2015%20papers/WGC_15_21.pdf)
 - 2018 marks the third and final year of this agreement
 - A full assessment of stock status and catch advice was conducted to inform a potential new multi-year agreement

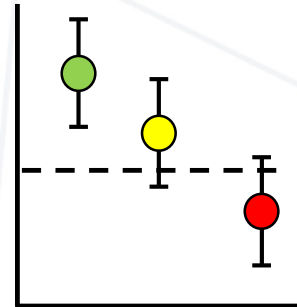
4.2 Status of Stocks: Management Advice



- Management advice for West Greenland fishery based on non-maturing 1SW salmon from North America (NAC) and Southern-Northeast Atlantic (S-NEAC)
 - Pre-Fishery Abundance (PFA) relative to Spawner Escapement Reserve (SER)
 - SERs - CLs adjusted for natural mortality (3% per month at sea)
 - Spawners (2 SW NAC and MSW S-NEAC) relative to Conservation Limits (CLs)

Risk Assessment Framework

- Full Reproductive Capacity :
 - lower bound of the 90% confidence interval of the estimate above reference point
 - equivalent to a probability of at least 95% of meeting reference point
- At Risk of Suffering Reduced Reproductive Capacity:
 - lower bound of the confidence interval is below reference point, but the midpoint is above
- Suffering Reduced Reproductive Capacity:
 - midpoint is below reference point

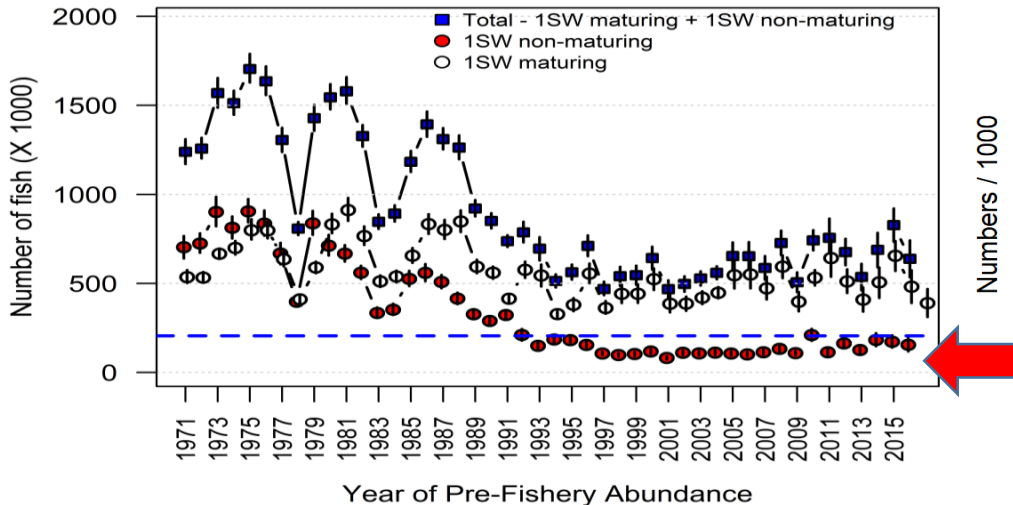


4.2 Status of Stocks: Pre-Fishery Abundance (PFA)

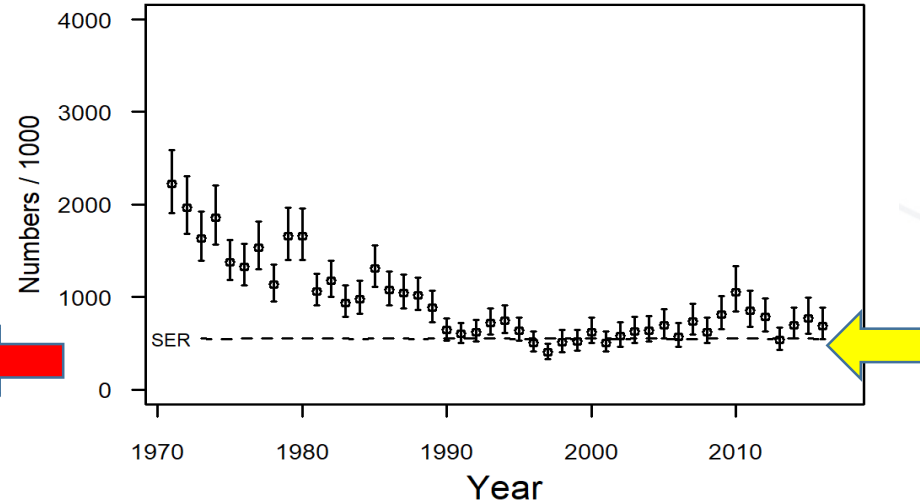


- PFA estimates of non-maturing 1SW salmon suggest continued low abundance (sal.2127.wgc: Figure 6 and 7):
 - North American – suffering reduced reproductive capacity
 - Southern-NEAC – at risk of suffering reduced reproductive capacity

North America

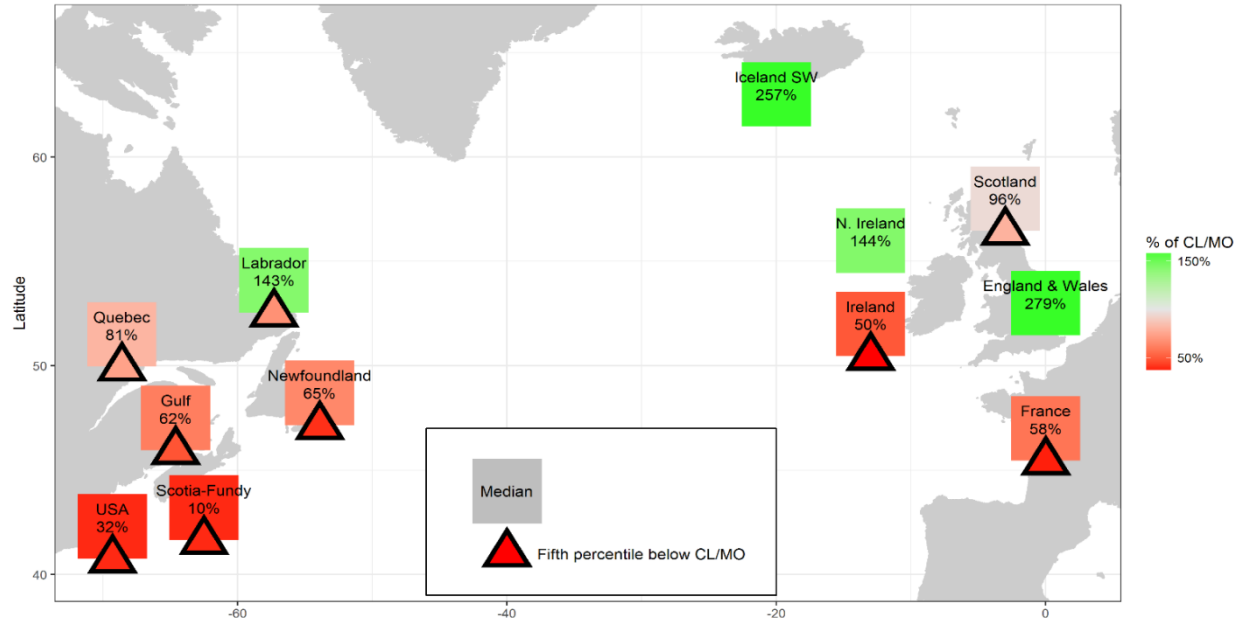


NEAC-S Non-mat. 1SW PFA



4.2 Status of Stocks: Spawners

- 2017 Spawners (sal.2127.wgc: Figure 8)
- Median estimate < CLs
 - 5 of 6 North American 2SW stocks
 - 3 of 6 Southern-NEAC MSW stocks



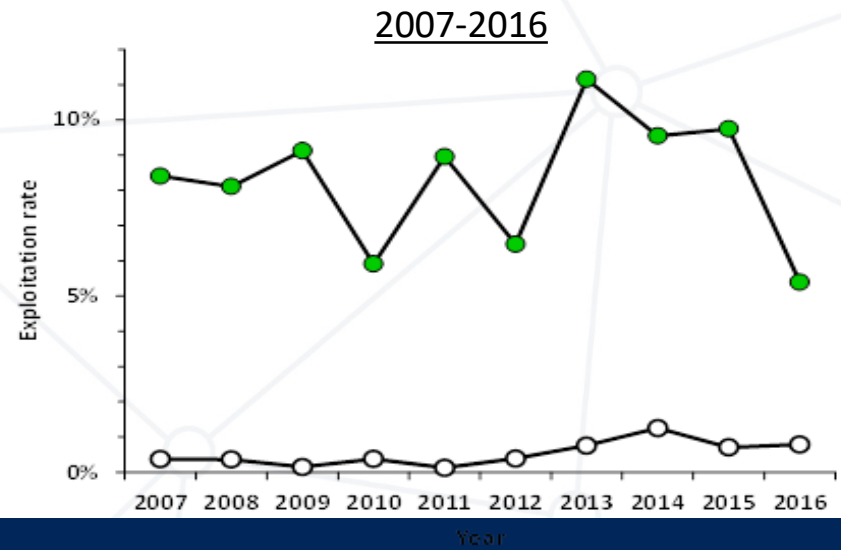
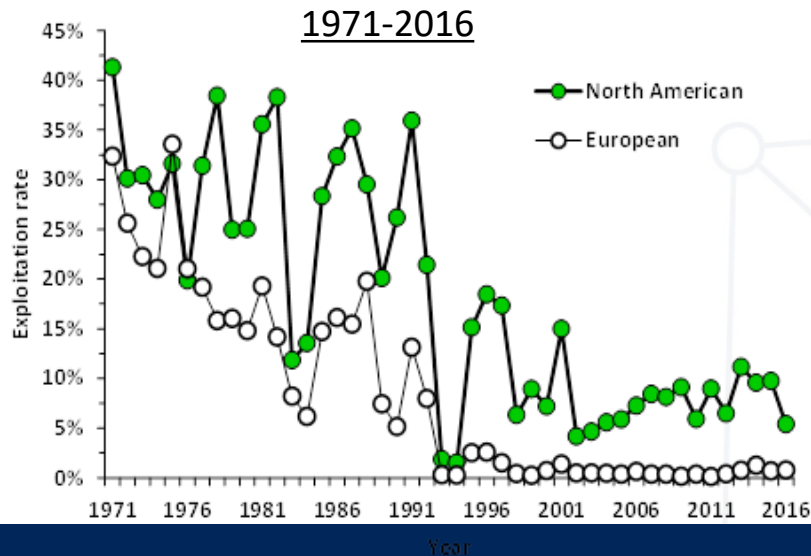
> 100 Full reproductive capacity

> 100 Risk suffering reduced reproductive capacity

< 100 Suffering reduced reproductive capacity

4.2 Status of Stocks: Exploitation Rate

- Exploitation rate (sal.2127.wgc: Figure 9)
 - = Greenland Catch \div Pre-Fishery Abundance (PFA)
- North America: 5.4% Northeast Atlantic: 0.8%
 - among lowest in time series



4.2 Status of Stocks: Summary

- Abundance of salmon within the West Greenland area is considered to be low compared to historical levels
- Broadly consistent with general pattern of decline in marine survival in most monitored stocks
- Despite major management changes and increasingly more restrictive fisheries, returns in many regions have remained near historical lows
- Factors other than fisheries constraining production

4.3 Catch Options



- ICES advises that, in line with the management objectives agreed by NASCO and consistent with the Maximum Sustainable Yield Approach (MSY), there are no mixed-stock fishery options at West Greenland for the fishing years 2018 to 2020
- In the absence of any fishing in the period 2018 to 2020, there is less than 75% probability (0 %) that the objectives could be met simultaneously (sal.2127.wgc: Table 8):
 - the probabilities of achieving the conservation limits for the four northern regions of North America are 9%-39% for three regions individually (Newfoundland, Québec and Gulf) (87%-89% for Labrador)
 - very low probabilities that the 2SW returns in the southern regions of North America (Scotia-Fundy and USA) will be sufficient to meet the stock rebuilding/management objectives (< 1%)
 - the probabilities of achieving the CLs for the Southern-NEAC MSW complex are < 55%

4.4 Framework of Indications (FWI)



- In the intermediate years of a multiyear catch agreement, an interim assessment is conducted to determine whether a full reassessment of stock status and new catch advice might be required
 - This assessment relies on a framework of indicators (FWI) that was updated in 2018 (sal.2127.wgc: Figure 9) (for details sal.27.neac_SA)
 - Update contains 22 indicator variables (e.g. marine survival rates and returns), represented by 14 rivers
 - No indicator variables were retained for the Labrador or Newfoundland areas
 - 15 indicator variables were explored for S-NEAC and only one met the qualifying criteria
- FWI can be applied for the next two years, in January 2019 and 2020, based on new assessment data in 2018 and 2019 (e.g. survival rate and returns) to evaluate the appropriateness of the advice

Relevant data deficiencies, monitoring needs, and research requirements

- Continue efforts to improve the Greenland catch reporting system
 - detailed catch and effort data from licensed and non-licensed fishers should be made available for analyses
- Continuation of the phone survey
 - develop standardized approach and include non-licensed fishers
- Continuation of the sampling programme
 - expanding the programme across the fishing season to ensure biological characteristics represent the entire catch
- In preparation for the next FWI update, a full suite of all potential input datasets for Southern-NEAC be evaluated against country-specific management objectives

(Full list for North Atlantic salmon is presented in Section 1.5 of the North Atlantic advice sal.oth.nasco)

