



North-East Atlantic Commission

NEA(18)10

***Presentation of the ICES Advice for the
North-East Atlantic stocks to the Commission***

sal.27.neac

Atlantic salmon from Northeast Atlantic



Science for sustainable seas

Terms of Reference

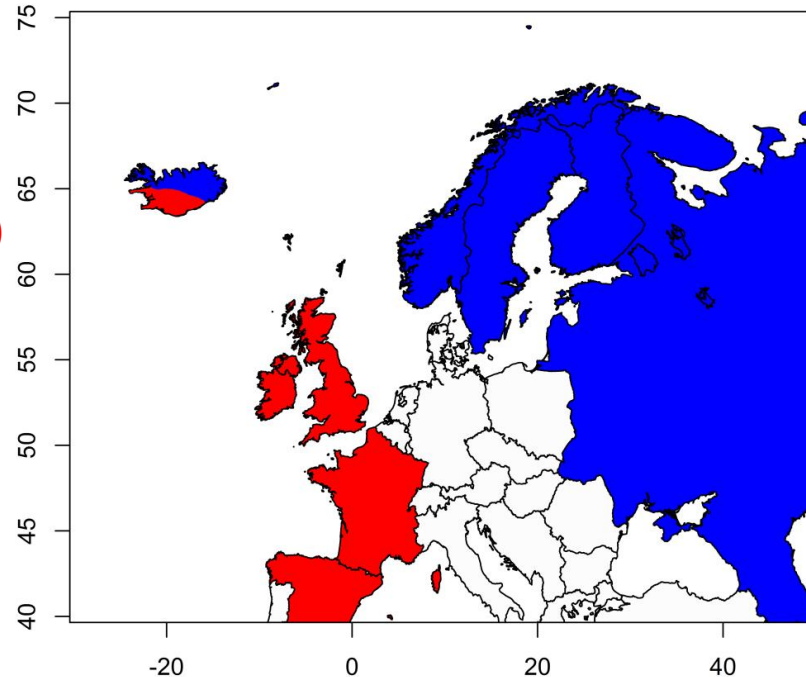


2. With respect to Atlantic salmon in the North-East Atlantic Commission area:

- 2.1 describe the key events of the 2017 fisheries;
- 2.2 review and report on the development of age-specific stock conservation limits, including updating the time-series of the number of river stocks with established CLs by jurisdiction;
- 2.3 describe the status of the stocks, including updating the time-series of trends in the number of river stocks meeting CLs by jurisdiction;
- 2.4 provide catch options or alternative management advice for the 2018/19-2020/21 fishing seasons, with an assessment of risks 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; and
- 2.5 update the Framework of Indicators used to identify any significant change in the previously provided multi-annual management advice.

Background

- Northeast Atlantic Commission (NEAC) stocks are combined into two groups for the provision of management advice for fisheries at West Greenland and Faroes



Northern group (Northern NEAC) :

- Russia
- Finland
- Norway
- Sweden
- Iceland (north/east regions)

Southern group (Southern NEAC)

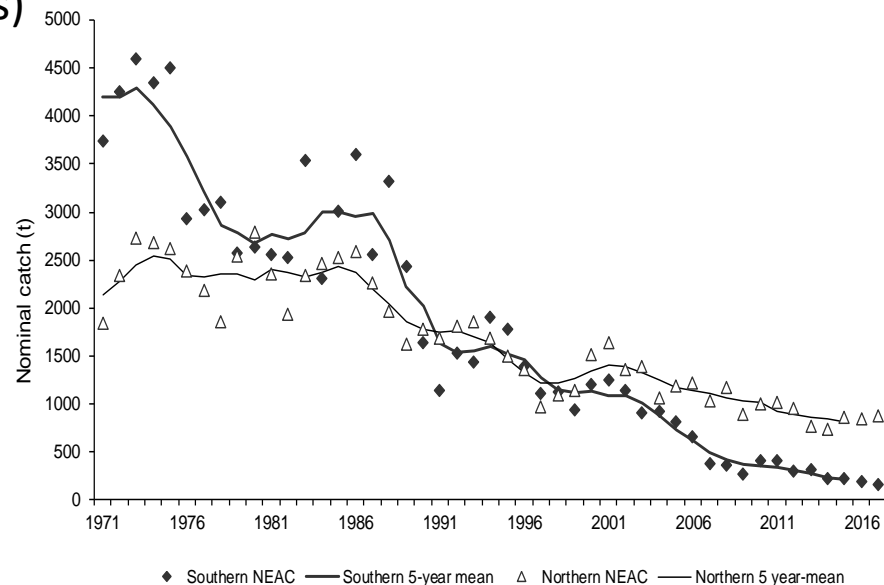
- :
- UK (Scotland)
 - UK (England and Wales)
 - UK (N. Ireland)
 - Ireland
 - France
 - Iceland (south/west regions)

2.1 Key Events 2017 Fisheries



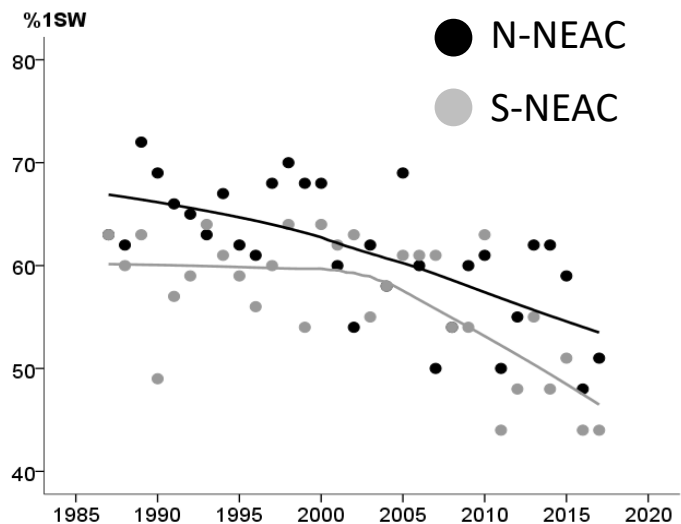
- No significant changes in the gear types used. No fishery Faroes since 2000
- NEAC Reported Nominal Catch (sal.27.neac: Table 1, Figure 1):
 - 1039 t
 - 162 t in Southern NEAC (lowest in time series)
 - 877 t in Northern NEAC
- Unreported catch: 317 t

	Southern NEAC	Northern NEAC	Faroes	Total NEAC
2017 nominal catch (t)	162	877	0	1039
Catch as % of NEAC total	16	84	0	
Unreported catch (t)	16	301	-	317
Location of catches				
% in-river	58	65	-	64
% in estuaries	20	0	-	3
% coastal	23	35	-	33

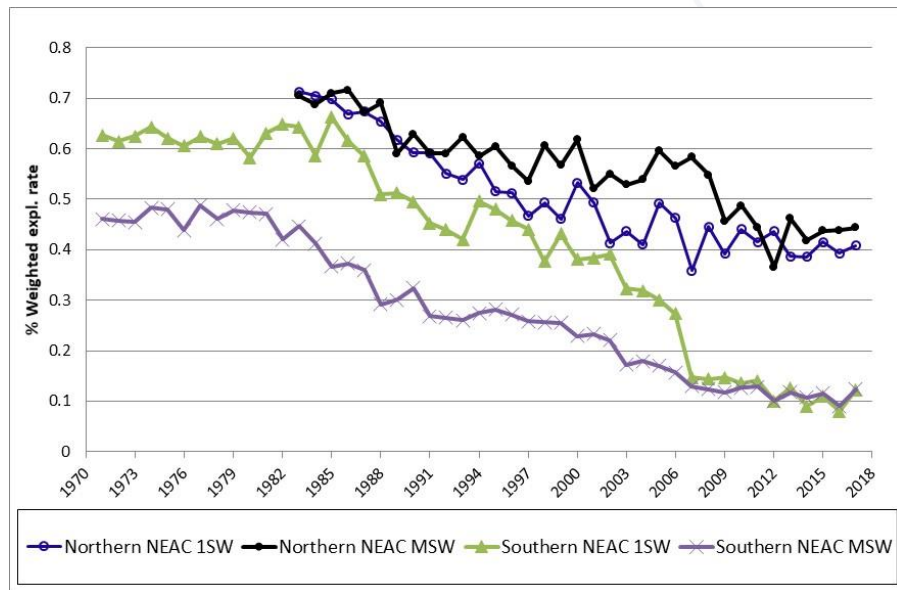


2.1 Key Events 2017 Fisheries

- Declining trend in catch of 1SW salmon over time series (1987-2017)
- Exploitation rates decreased since early 1980s, 1SW and MSW salmon have become similar



sal.27.neac: Figure 2



sal.27.neac: Figure 3

2.2 Stock Conservation Limits (CLs)

- River-specific CLs (egg or spawner requirements):
 - France, Ireland, UK (England & Wales), UK (Northern Ireland), Finland, Norway, and Sweden
 - CLs summed to country level
- Interim approach:
 - Russia, UK (Scotland), and Iceland
- Updates:
 - UK (Scotland) – currently developing modelling approach for river specific CLs
 - Russia – preliminary results from a few rivers

sal.27.neac: section from Table 4

Country or jurisdiction	Number of rivers with CLs	Number of rivers assessed for compliance
Northern NEAC		
Russia	85	8
Finland/Norway (Tana/Teno)	24	14
Norway	439	174
Sweden	24	22
Southern NEAC		
UK (Scotland)	171	171
UK (Northern Ireland)	16	11
UK (England & Wales)	64	64
Ireland	143	143
France	35	35

2.2 Stock Conservation Limits (CLs) and Spawner Escapement Reserves (SERs)

- National CLs summed to four NEAC stock complexes
- **SER** (Spawner Escapement Reserves)
 - Number of fish prior to fisheries to meet CLs when they return to homewaters
 - CLs increased to account for natural mortality ($M = 0.03$ per month) between 1 January of first winter and return to homewaters

sal.27.neac: Table 3

Complex	Sea age group	CL (number of fish)	SER (number of fish)
Northern NEAC	1SW	137 330	173 601
	MSW	120 953	206 201
Southern NEAC	1SW	654 921	830 559
	MSW	324 126	550 081

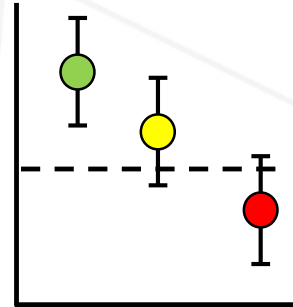
2.3 Stock Status



- Pre-Fishery Abundance (PFA) : abundance at 1 January of first winter at sea
 - by sea age group (maturing 1SW and non-maturing 1SW (MSW) salmon)
 - by stock complex (Northern NEAC and Southern NEAC) and individual country
- PFA relative to SER (Spawner Escapement Reserve: CLs adjusted for natural mortality)
- Spawners relative to CLs

Risk Assessment Framework

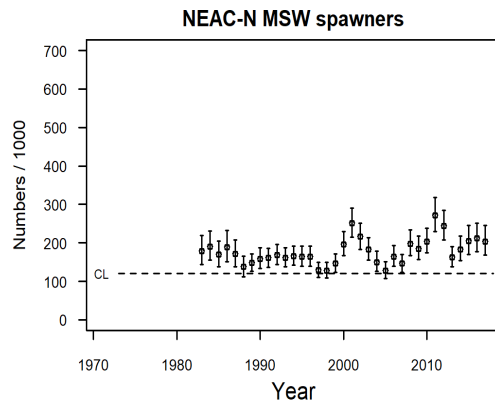
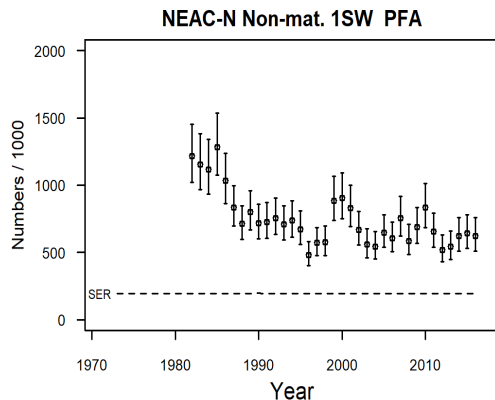
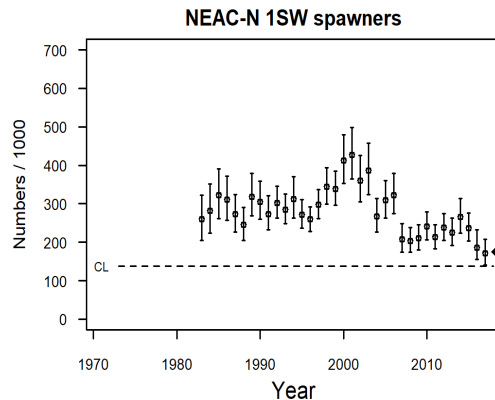
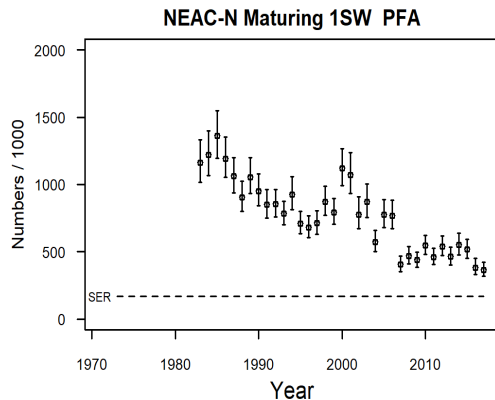
- Full Reproductive Capacity :
 - lower bound of the 90% confidence interval of the estimate above reference point
 - equivalent to a probability of at least 95% of meeting reference point
- At Risk of Suffering Reduced Reproductive Capacity:
 - lower bound of the confidence interval is below reference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



2.3 Stock Status: Northern NEAC (N-NEAC)

N-NEAC:
2017 PFA

- Declining trend
- PFA > SER
- Both complexes at full reproductive capacity



N-NEAC:
2017 Spawners

- Spawners > CLs
- Both complexes at full reproductive capacity
- 1SW spawners lowest in time series

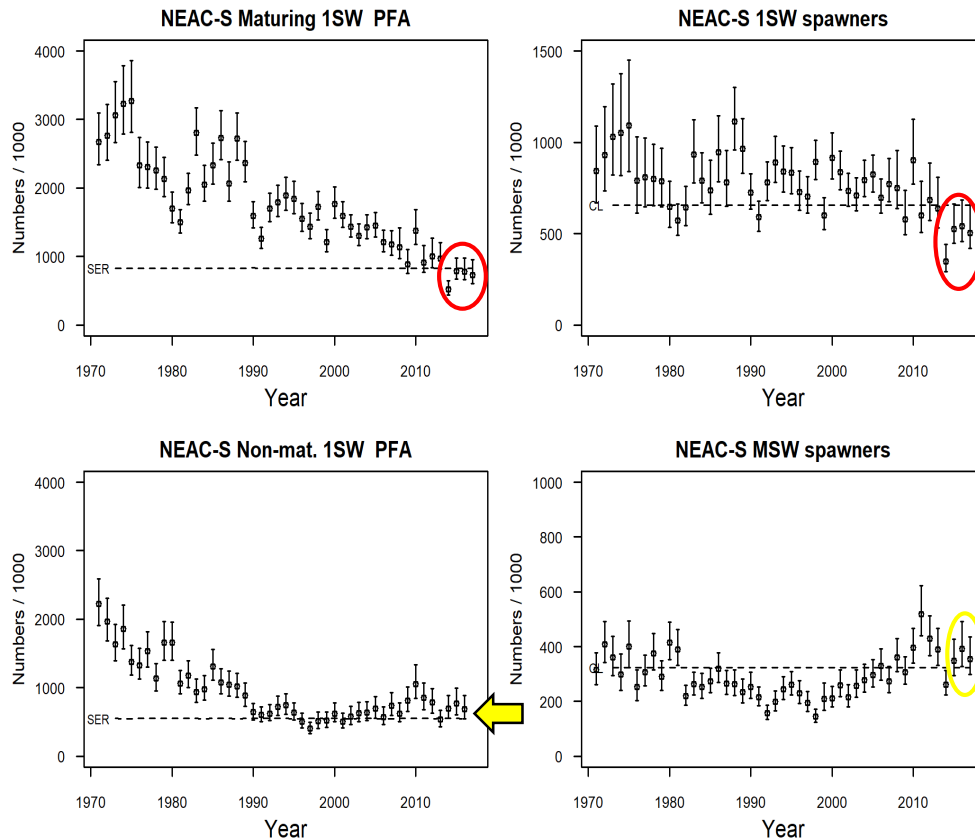
sal.27.neac: Figure 5

2.3 Stock Status: Southern NEAC (S-NEAC)



S-NEAC: 2017 PFA

- Declining trend
- Mat 1SW: suffering reduced reproductive capacity
- Non-mat 1SW: at risk of suffering reduced reproductive capacity



S-NEAC: 2017 Spawners

- 1SW spawners: suffering reduced reproductive capacity
- MSW spawners: at risk of suffering reduced reproductive capacity

sal.27.neac: Figure 5

2.3 Stock Status: PFA by Country

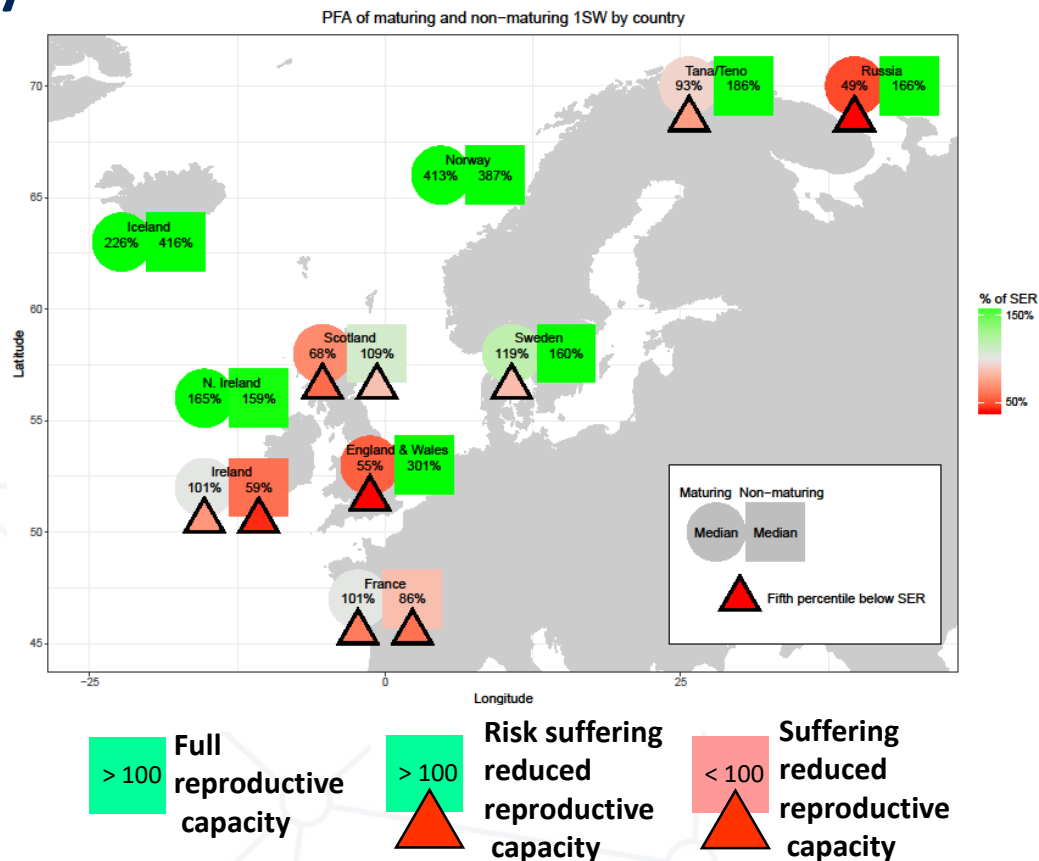
Northern NEAC 2017:

- Non-mat. 1SW: full reproductive capacity
- Mat. 1SW: full reproductive capacity in Iceland and Norway, others at risk or suffering reduced reproductive capacity

Southern NEAC 2017:

- Non-mat. 1SW: full reproductive capacity in UK (England and Wales and N. Ireland), others at risk or suffering reduced reproductive capacity
- Mat. 1SW: full reproductive capacity in UK (N. Ireland), others at risk or suffering reduced reproductive capacity

sal.27.neac: Figure 6



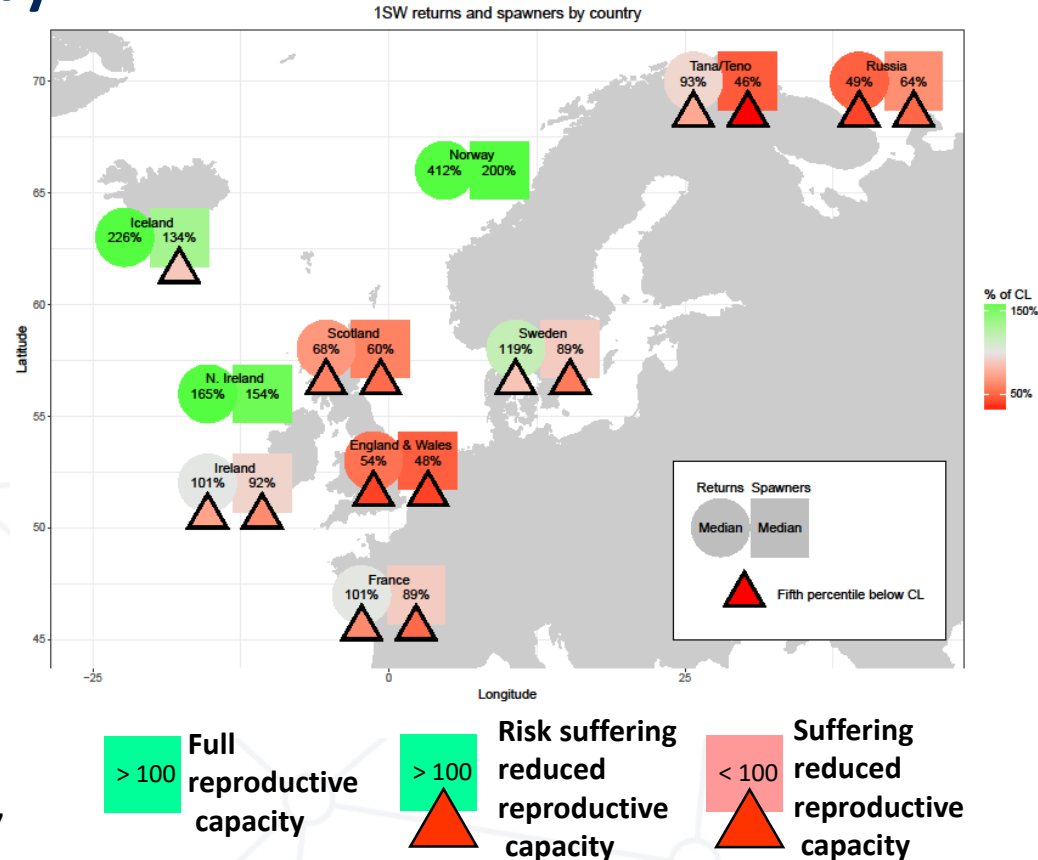
2.3 Stock Status: 1SW by Country

Northern NEAC 2017:

- 1SW spawners at risk of (Iceland) or suffering (Russia, Sweden, Teno/Finland) reduced reproductive capacity

Southern NEAC 2017:

- With exception of UK (N. Ireland), 1SW spawners suffering reduced reproductive capacity



sal.27.neac: Figure 7

2.3 Stock Status: MSW by Country

Northern NEAC 2017:

MSW spawners:

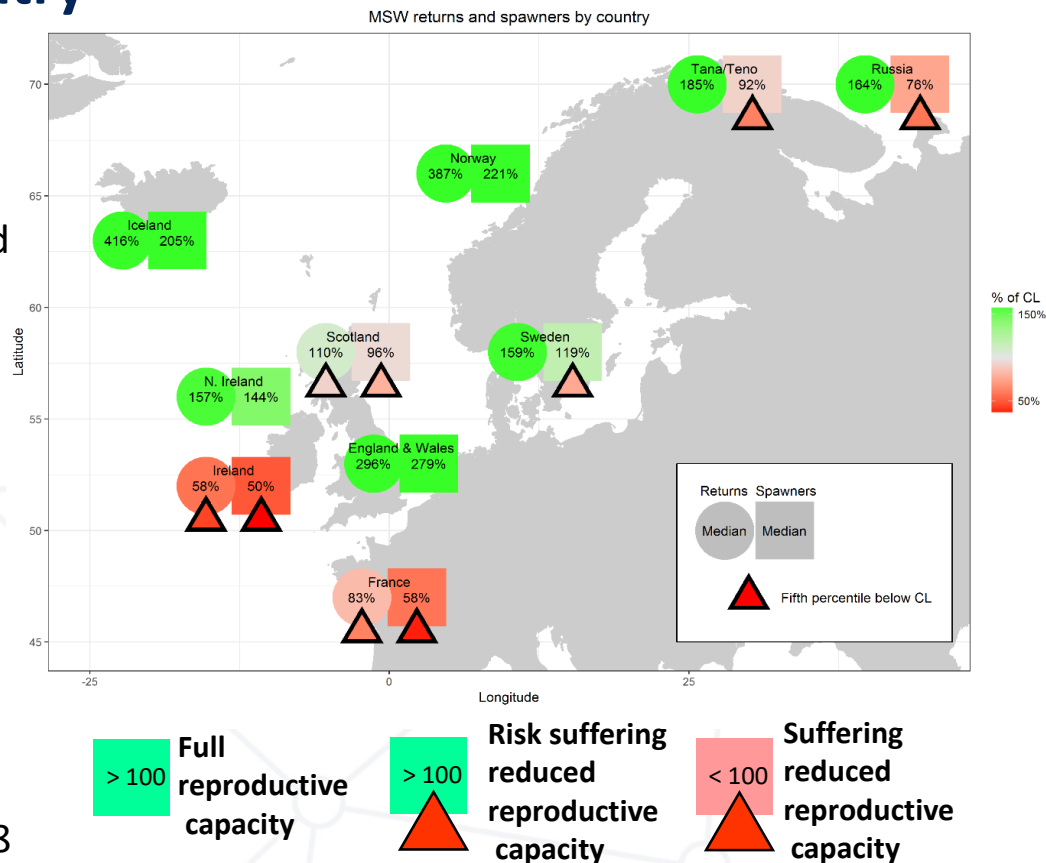
- full reproductive capacity: Norway and Iceland
- at risk: Sweden
- suffering: Finland and Russia

Southern NEAC 2017:

MSW spawners:

- full reproductive capacity:
UK (England and Wales, N. Ireland)
- suffering reduced reproductive capacity:
France, Ireland, and UK (Scotland)

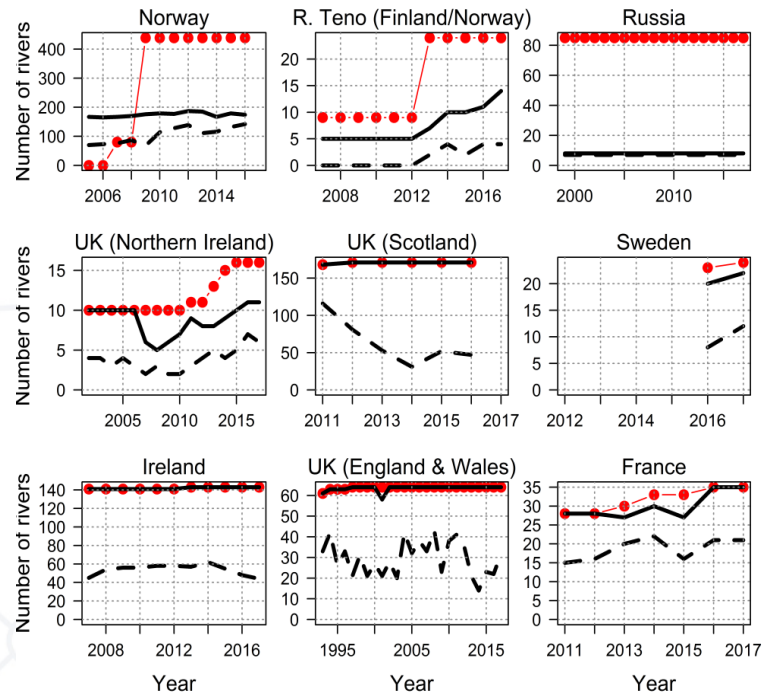
sal.27.neac: Figure 8



2.3 Stock Status: Trends in Rivers Meeting CLs

- nine jurisdictions with river-specific CLs (sal.27.neac: Table 4, Figure 4)
- Spawners assessed against CLs

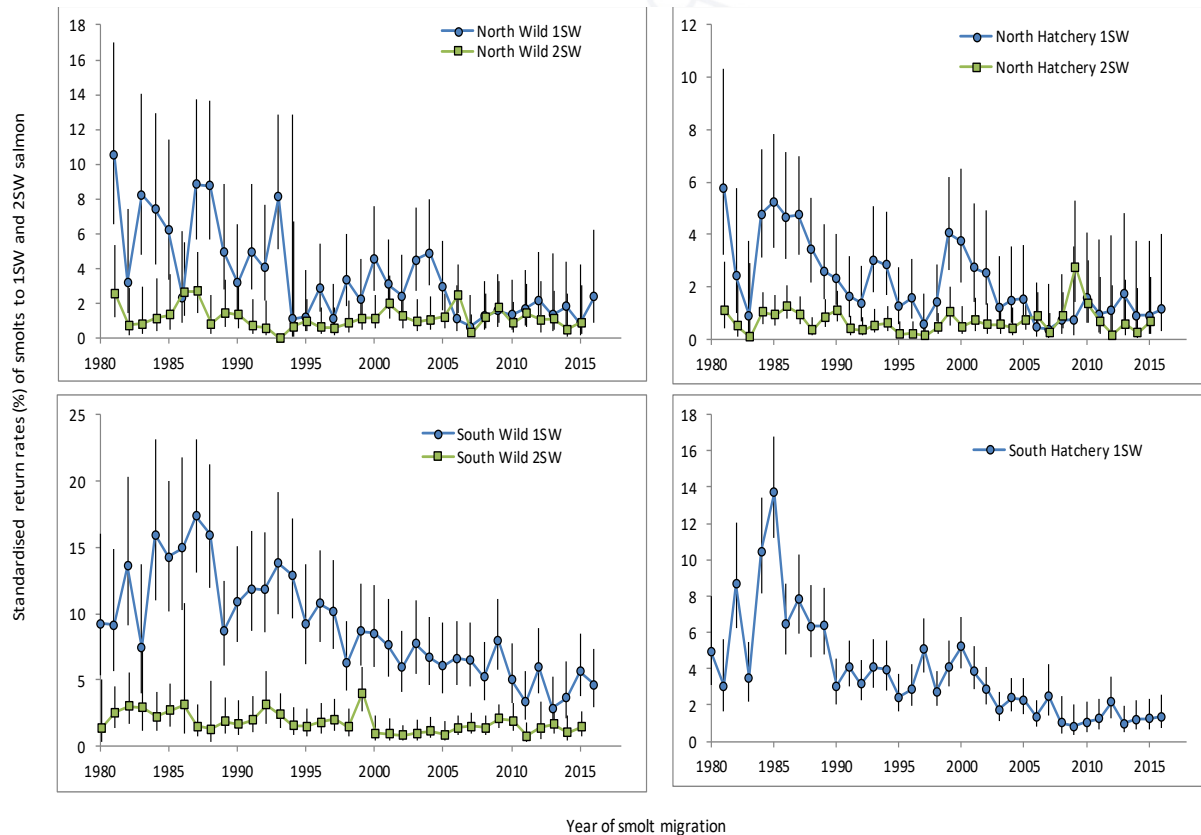
Country or jurisdiction	Number rivers assessed	Number attaining CL	% attaining CL	Trend statement
Northern NEAC				
Russia	8	7	88	stable
Finland/Norway (Tana/Teno)	14	4	29	0% attainment to 2013, variable since 2014 (20% to 40%)
Norway	174	142	82	increasing
Sweden	22	12	55	increasing (data for 2016 and 2017 only)
Southern NEAC				
UK (Scotland)	171	47	27	Decreasing
UK (Northern Ireland)	11	6	55	Increasing
UK (England & Wales)	64	50	32	increasing since 2014
Ireland	143	44	31	decreasing since 2014
France	35	21	60	Increasing



2.3 Stock Status: Return Rates (Marine Survival)

- 1SW declining trend since 1980
- 2SW no trend
- Little improvement of stock status over time
- Mainly a consequence of continuing poor survival in the marine environment

sal.27.neac: Figure 9



2.4 Catch Options: Multi-Year Catch Agreement 2015-2018

- NASCO 2015 multi-year regulatory agreement for the Faroese salmon fishery (http://www.nasco.int/pdf/2015%20papers/NEA_15_10.pdf)
- 2018 is 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.

2.4 Catch Options: PFA Forecasts 2017-2021

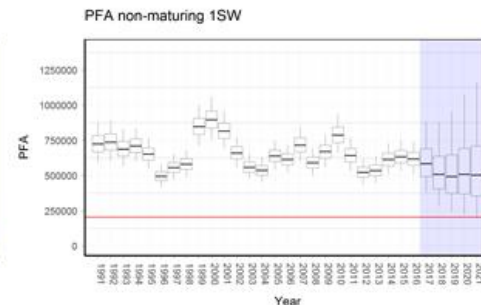
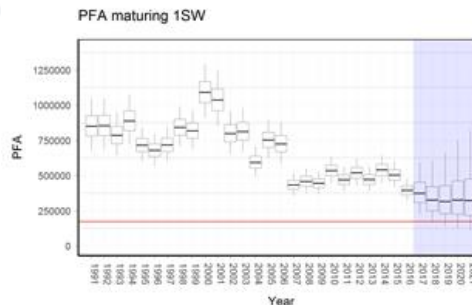
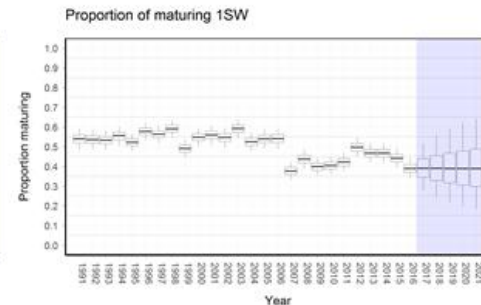
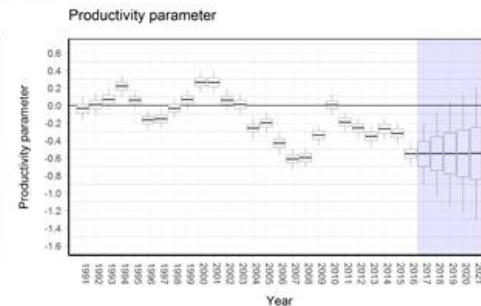
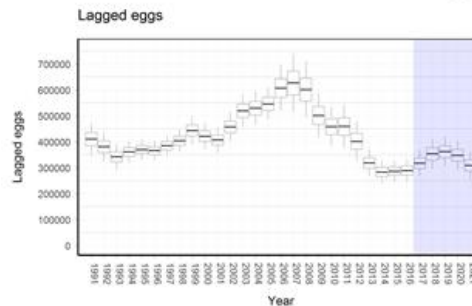
Northern NEAC

(sal.27.neac: Table 6, Figure 10)

Without any fisheries 2018-2021,

- Potential 1SW spawners: < 95% probability of meeting CLs (84% - 89%)
- Potential MSW spawners: > 95% probability of meeting CLs (96% - 99%)

N NEAC



2.4 Catch Options: PFA Forecasts 2017-2021

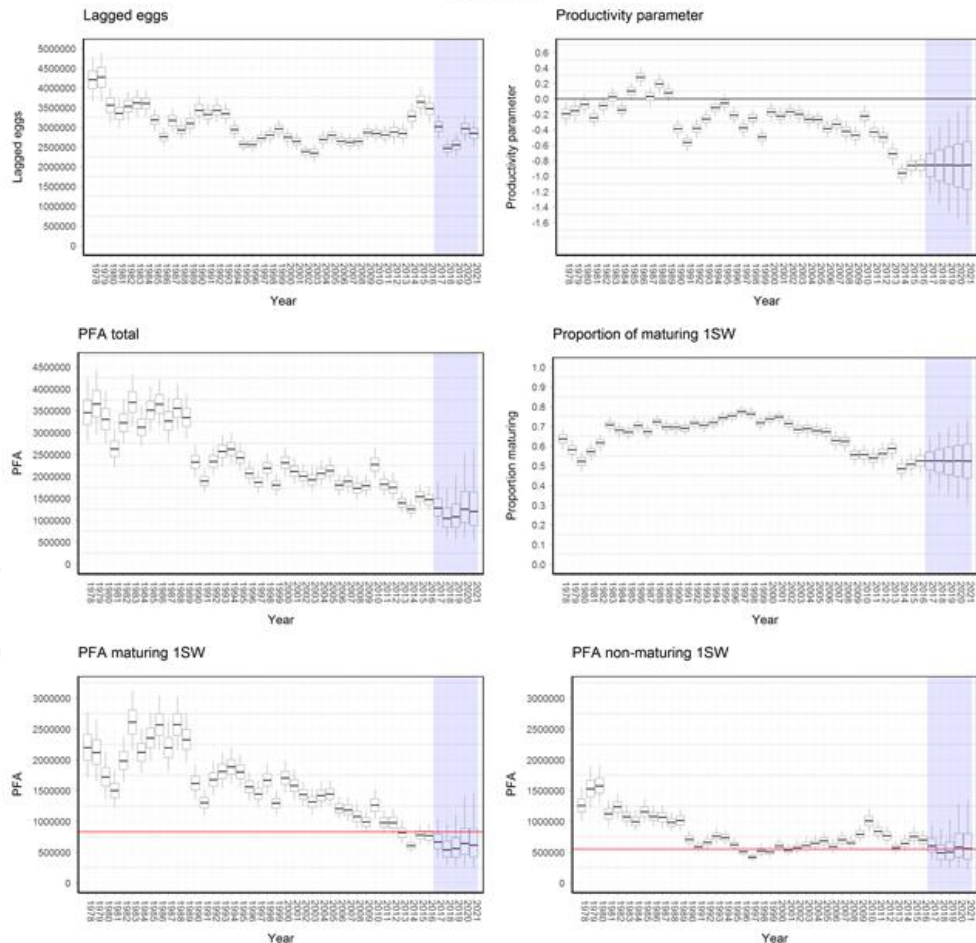
Southern NEAC

(sal.27.neac: Table 6, Figure 11)

Without any fisheries 2018-2021,

- Potential 1SW and MSW spawners:
< 95% probability of meeting CLs
 - 1SW: 17% - 30%
 - MSW: 37% - 55%

S NEAC



2.4 Catch Options:

N-NEAC MSW:

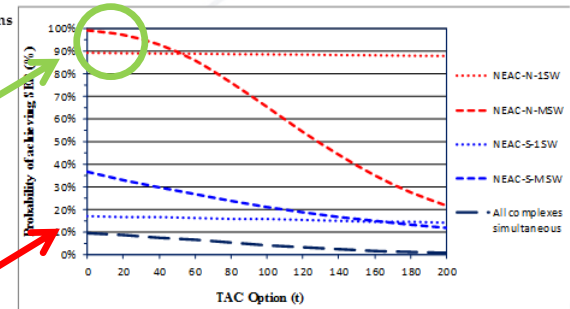
≥ 95% probability of achieving SERs at Faroes
Catch option of ≤ 20t

No catch option ensures a >95% probability of
all complexes achieving SERs simultaneously
(10% at 0 t)

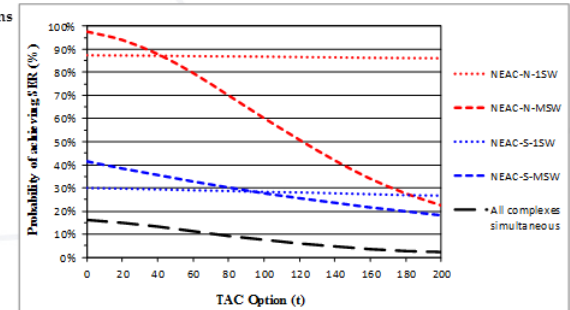
By Country (sal.27.neac: Tables 7 and 8):

- 1SW – all less than 95% probability of meeting CLs at 0 t
- MSW – most less than 95% probability of meeting CLs at 0 t (exceptions Norway and Iceland)

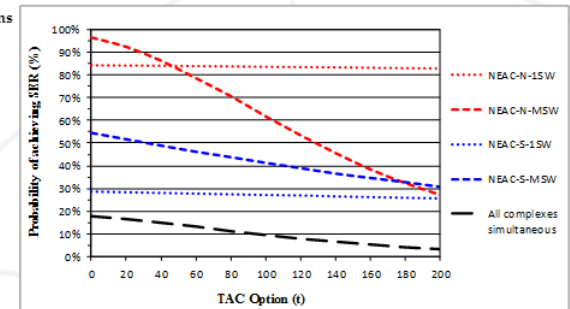
Catch options
for 2018/19
season:



Catch options
for 2019/20
season:



Catch options
for 2020/21
season:



ICES CM 2018/ACOM:21 WGNAS Figure 3.5.1.1

2.4 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 on the NEAC complexes/countries at the Faroes in 2018/2019 to 2020/2021
- Even in the absence of a fishery at Faroes, the abundance of many stocks remains low and particular care should be taken to ensure that homewater fisheries are managed to protect stocks that are below their CLs

2.5 Framework of Indicators

- 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
 - FWI could be applied for the next two years, in January 2019 and 2020, based on new assessment data in 2018 and 2019 (e.g. returns, counts, catch)
 - only N-NEAC 1SW salmon and S-NEAC 1SW and MSW are included in the assessments (forecasts below CLs resulting in no catch option for Faroes)
 - full reassessment required if any of these NEAC stock complexes suggest an increase in PFA abundance that is above the 75th percentile of the forecasted PFA

