

REPORT OF ICES ADVISORY COMMITTEE
ON
NORTH ATLANTIC SALMON STOCKS
TO
NORTH ATLANTIC SALMON
CONSERVATION ORGANIZATION
NEAC Area
CNL(10)8

Advice generated by ICES in response to terms of reference from NASCO

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

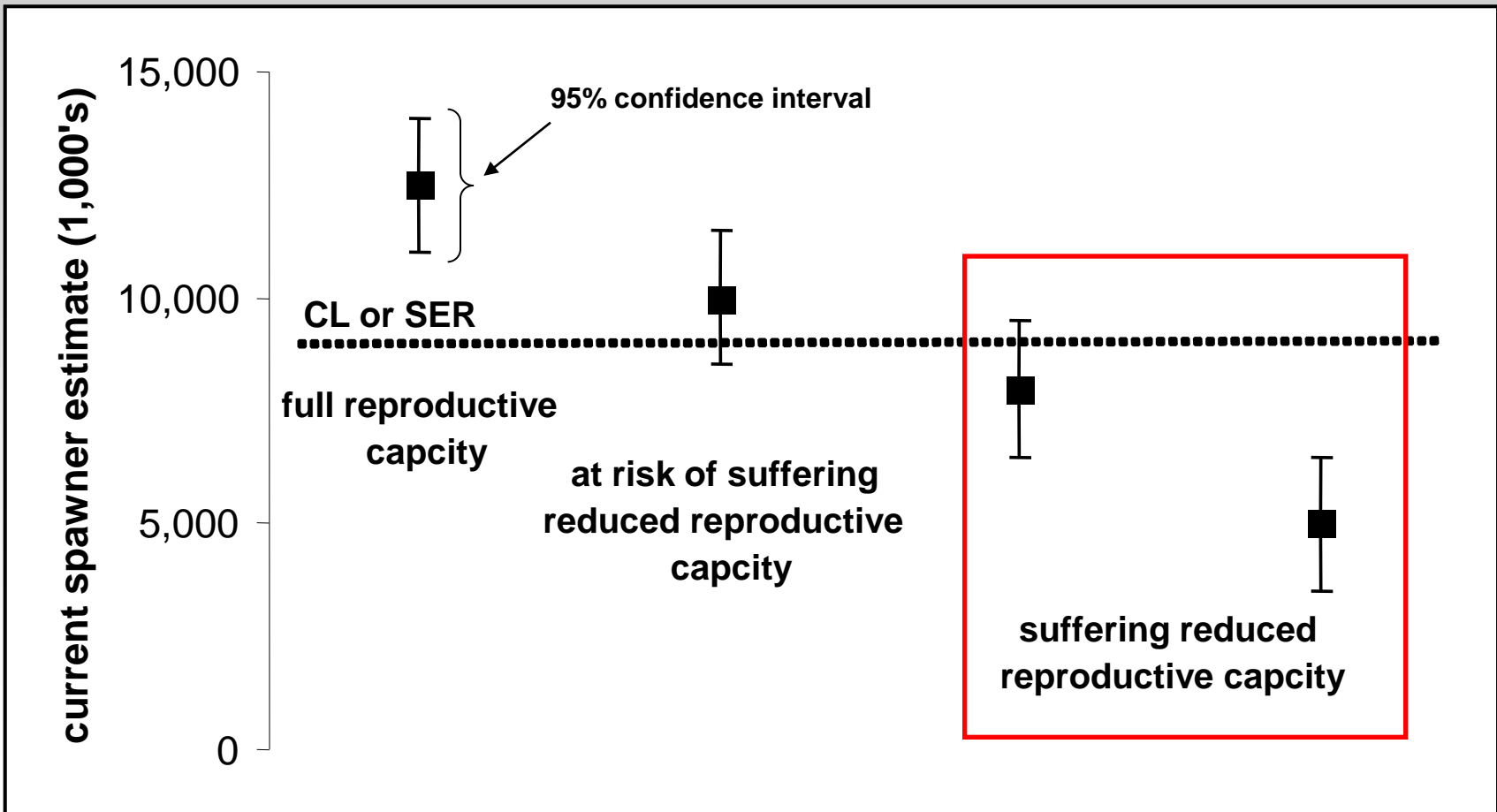
- 1. describe the key events of the 2009 fisheries**
- 2. review and report on the development of age-specific stock conservation limits**
- 3. describe the status of the stocks and provide annual catch options or alternative management advice for 2011–2013, with an assessment of risks relative to the objective of exceeding stock conservation limits and advise on the implications of these options for stock rebuilding**

Advice generated by ICES in response to terms of reference from NASCO

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

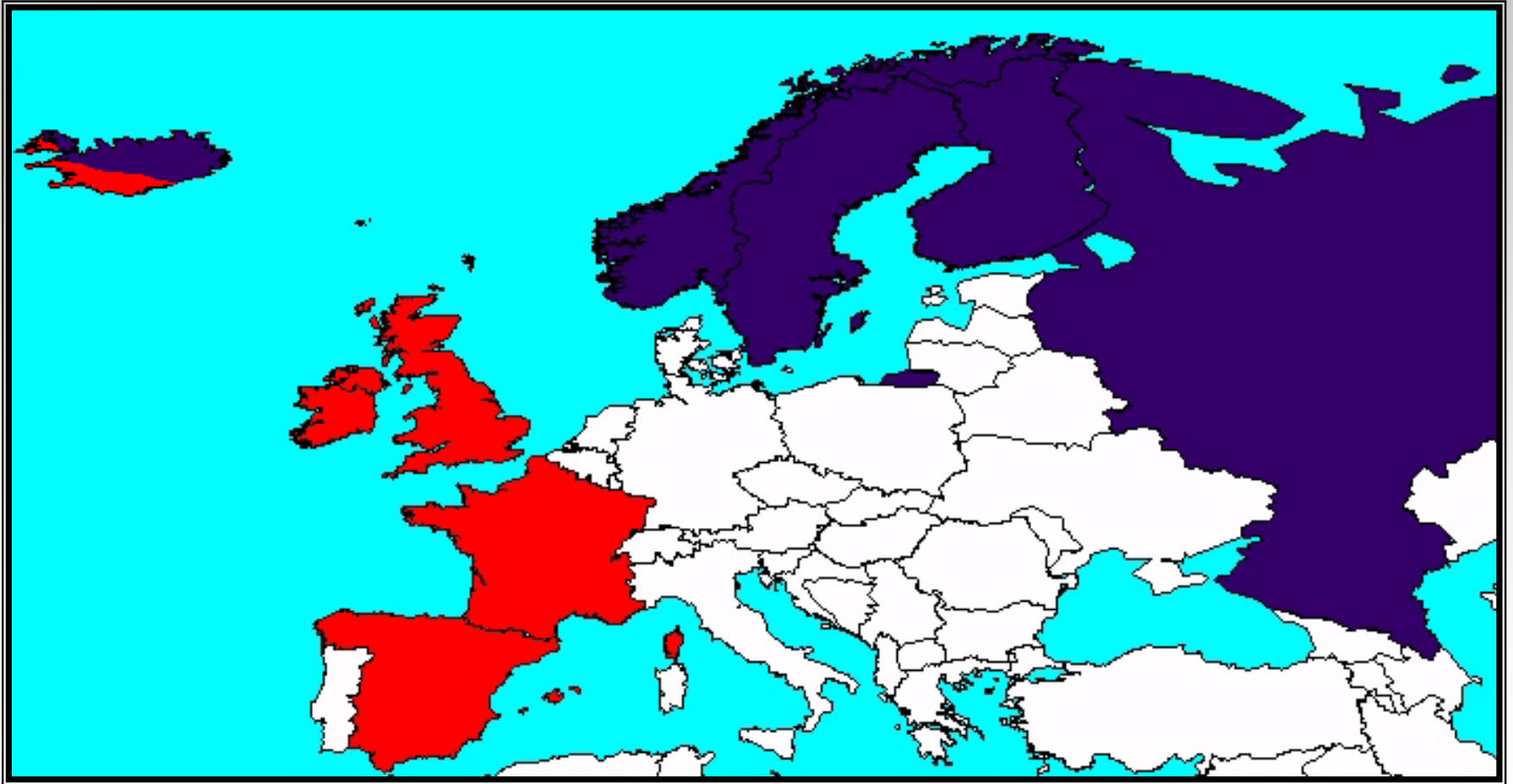
- 4. further investigate opportunities to develop a framework of indicators or alternative methods that could be used to identify any significant change in previously provided multi-annual management advice**
- ❖ supplementary request from NASCO for an assessment of the issues that would need to be addressed before quantitative catch advice could be provided for the Faroes fishery**

• Assessment of Stock Status, ICES definitions where there are no specific management objectives



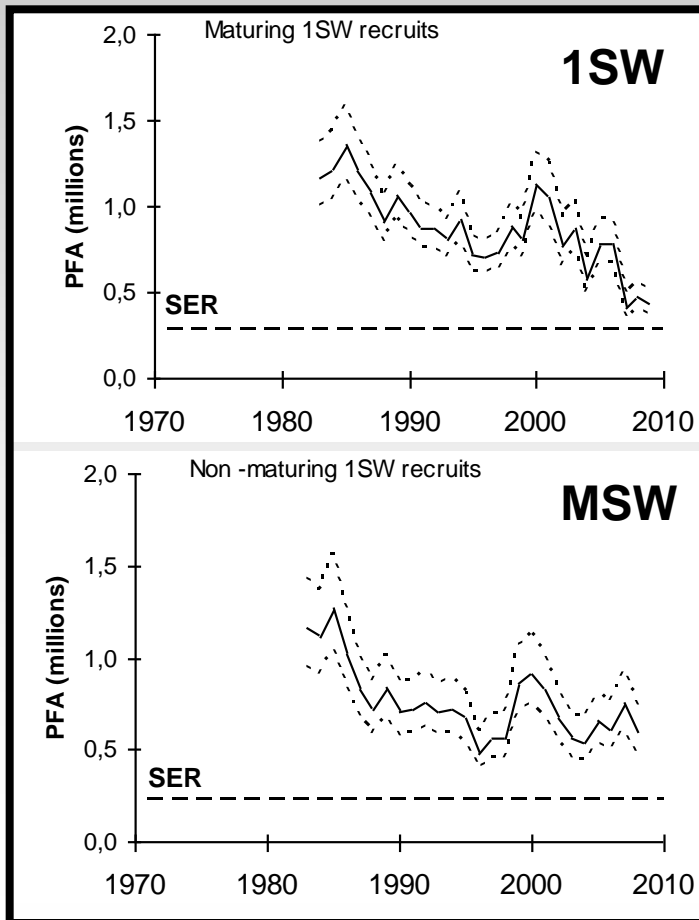
Composition of NEAC stock complexes

Northern NEAC vs Southern NEAC



Overview of Status of Stocks

Prior to commencement of distant water fisheries



Northern NEAC

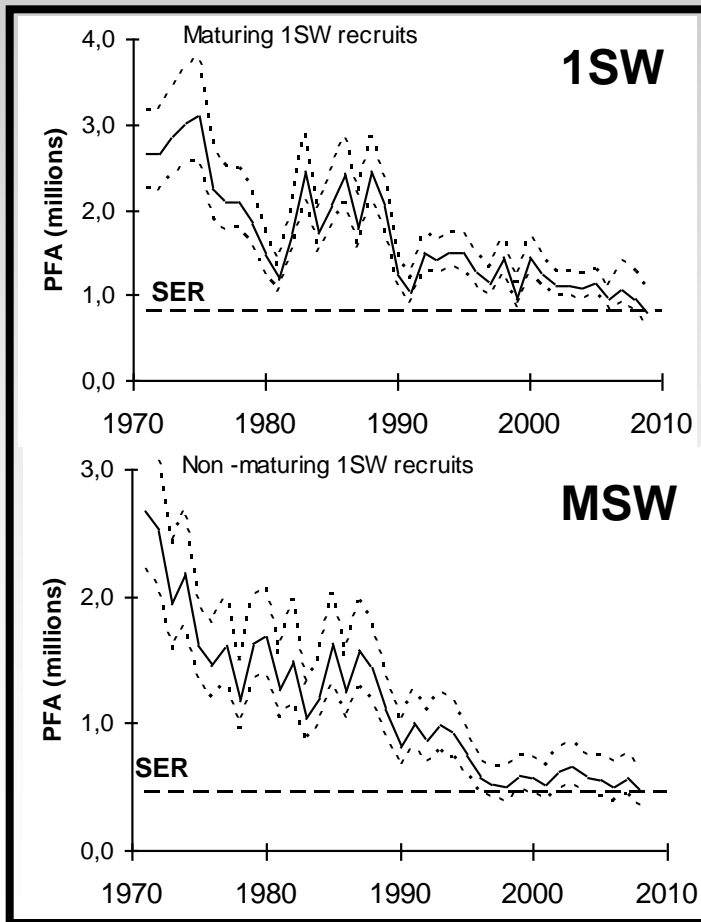
1SW and MSW

stock complexes are considered to be at full reproductive capacity

- **Current estimate for 1SW among the lowest of time series**

Overview of Status of Stocks

Prior to commencement of distant water fisheries



Southern NEAC

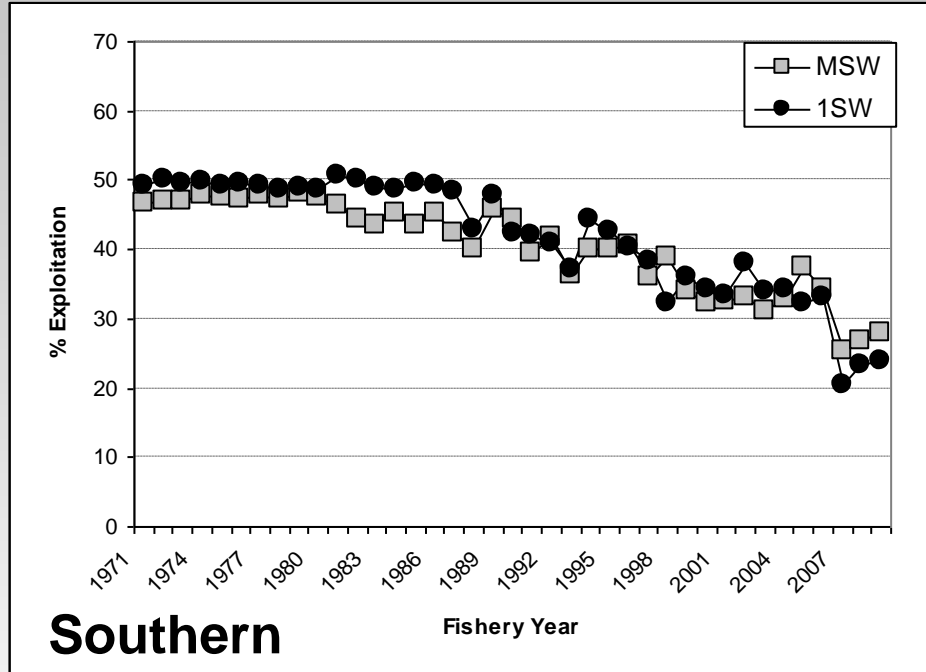
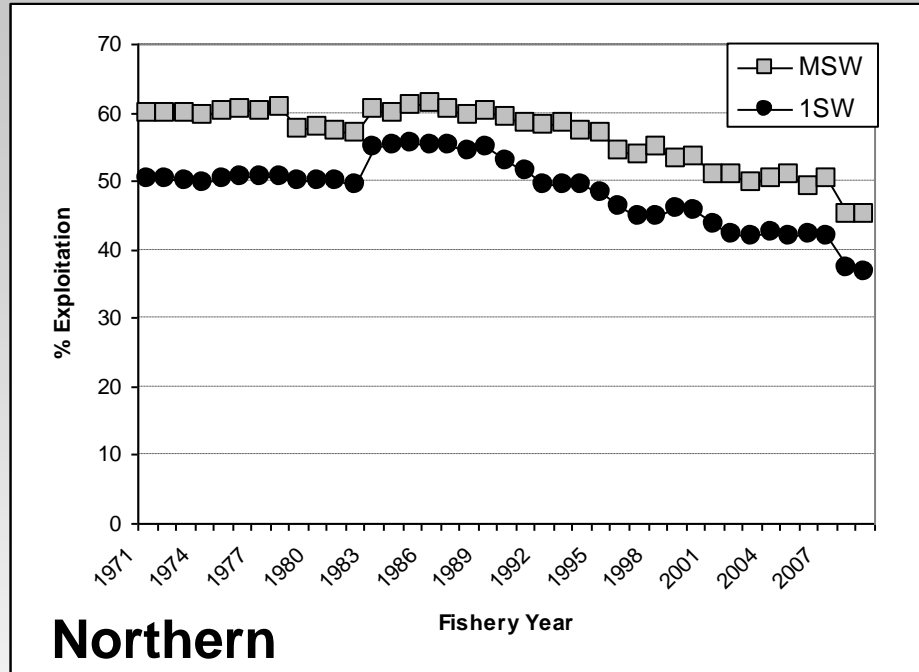
1SW stock is suffering reduced reproductive capacity

MSW stock is at risk of suffering reduced reproductive capacity

- **Current estimates among the lowest of time series**

Overview of Status of Stocks

Trends in exploitation rates



- Exploitation rates are decreasing for both age groups and in both stock complexes
- Exploitation rates are generally higher in Northern NEAC
- Exploitation on MSW stocks is higher than on 1SW stocks in Northern NEAC

Overview of Status of Stocks

- **Despite management measures aimed at reducing exploitation in recent years there has been little improvement in the status of stocks**
- **This is mainly as a consequence of continuing poor survival in the marine environment**

Conservation Limits

- No changes to national conservation limits model
- River-specific CLs implemented in France, UK(E&W), Ireland
- Progress with setting river-specific CLs
 - UK (Scotland) : continued work for setting catchment-specific CLs
 - Norway :
 - CLs established for 439 rivers
 - Attainment of CLs evaluated for 180 rivers and catch advice provided for 153 rivers.

Management Advice

- ICES asked to provide catch advice based on a forecast of PFA, with an assessment of risks relative to the objective of exceeding stock CLs in the NEAC area
- In the absence of specific management objectives in the stock and age complexes, ICES advises :
 - The precautionary approach is to fish only on salmon from rivers where stocks have been shown to be at full reproductive capacity.
 - Furthermore, due to the different status of individual stocks within the stock complex, mixed stock fisheries present particular threats to stock status.
 - Conservation would be best achieved if fisheries target stocks that are at full reproductive capacity. Fisheries in estuaries and especially rivers are more likely to meet this requirement.

Management Advice

Given the current and forecasted (Bayesian model) abundances:

| <p>Prior to commencement of distant water fisheries</p> | <p>1SW maturing (1SW)</p> | <p>1SW non-maturing (MSW)</p> |
|---|--|--|
| <p>Northern NEAC</p> | <p>- lower bounds of forecast PFA for 2010 to 2013 are below SER</p> | <p>- lower bounds of forecast PFA for 2009 to 2013 are below SER</p> |
| <p>Southern NEAC</p> | <p>- stock <u>at risk</u> of suffering reduced reproductive capacity</p> | <p>- stock <u>at risk</u> of suffering reduced reproductive capacity</p> |

Management Advice

Risk of attaining stock and age complex specific SER

| PROBABILITY THAT PFAs WILL BE GREATER THAN OR EQUAL TO THE COMPLEX AND AGE SPECIFIC SERs | | |
|--|----------|--------------|
| SOUTHERN COMPLEX | MATURING | NON-MATURING |
| SER | 795 360 | 454 753 |
| Year | <i>P</i> | <i>p</i> |
| 2009 | 0.735 | 0.780 |
| 2010 | 0.641 | 0.689 |
| 2011 | 0.699 | 0.741 |
| 2012 | 0.668 | 0.710 |
| 2013 | 0.602 | 0.648 |
| NORTHERN COMPLEX | MATURING | NON-MATURING |
| SER | 276 140 | 221 590 |
| Year | <i>p</i> | <i>p</i> |
| 2009 | 0.964 | 0.975 |
| 2010 | 0.856 | 0.900 |
| 2011 | 0.842 | 0.886 |
| 2012 | 0.821 | 0.868 |
| 2013 | 0.840 | 0.881 |

Key Events of Fisheries in 2009

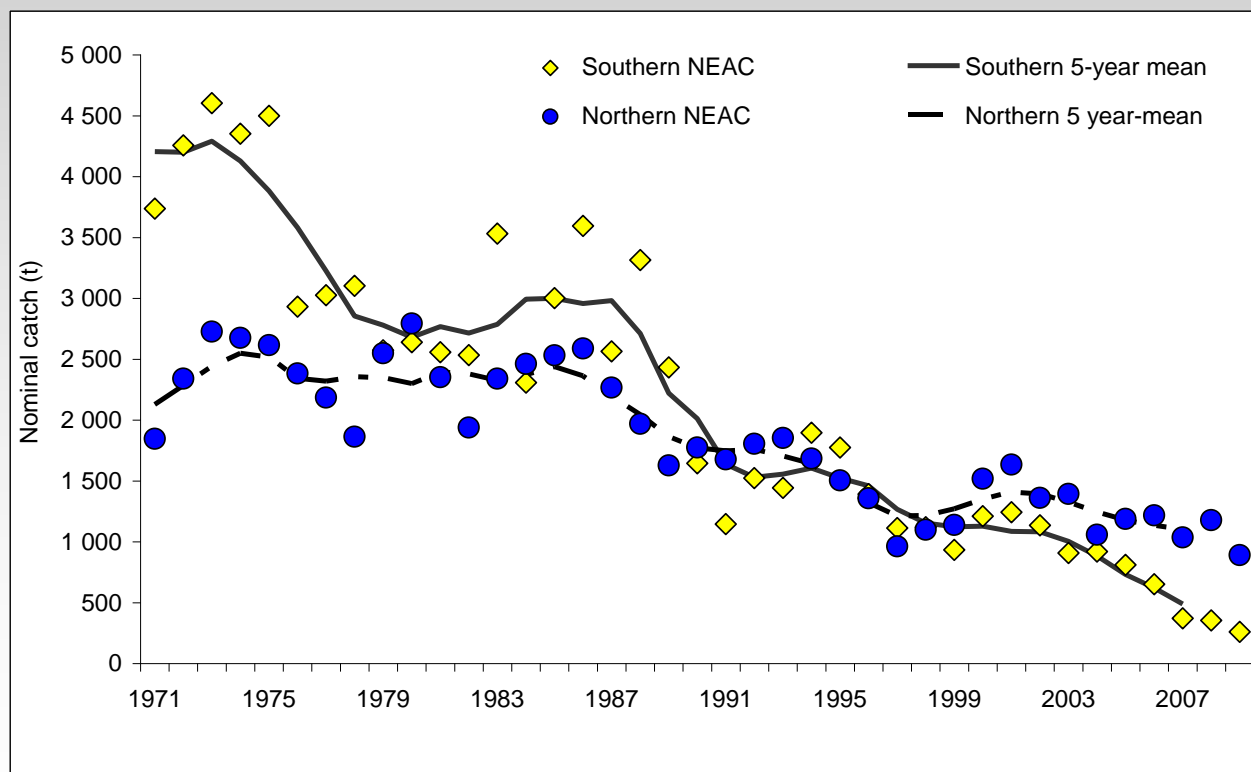
No fishing at Faroes since 2000

Significant events in NEAC homewater fisheries

- **Some measures aimed at reducing exploitation were implemented or extended in 2009**
 - UK (England & Wales) - reduction of net fisheries and introduction of a carcass tagging scheme for net caught fish
 - Norway - reduction in the extent of mixed-stock fisheries
 - Russia - introduction of regulations to control exploitation
- **No significant changes in the types of gear used**
 - number of licensed gear units generally continued to fall

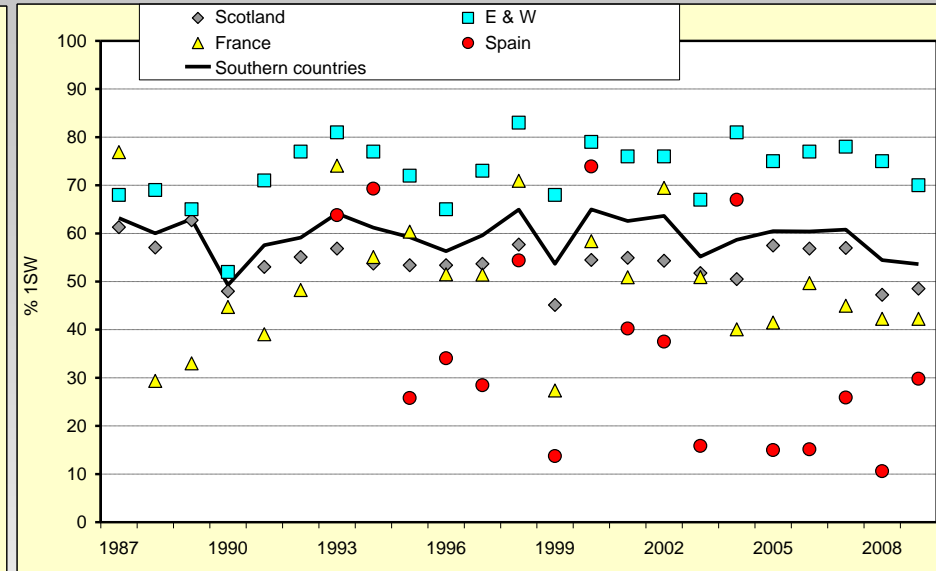
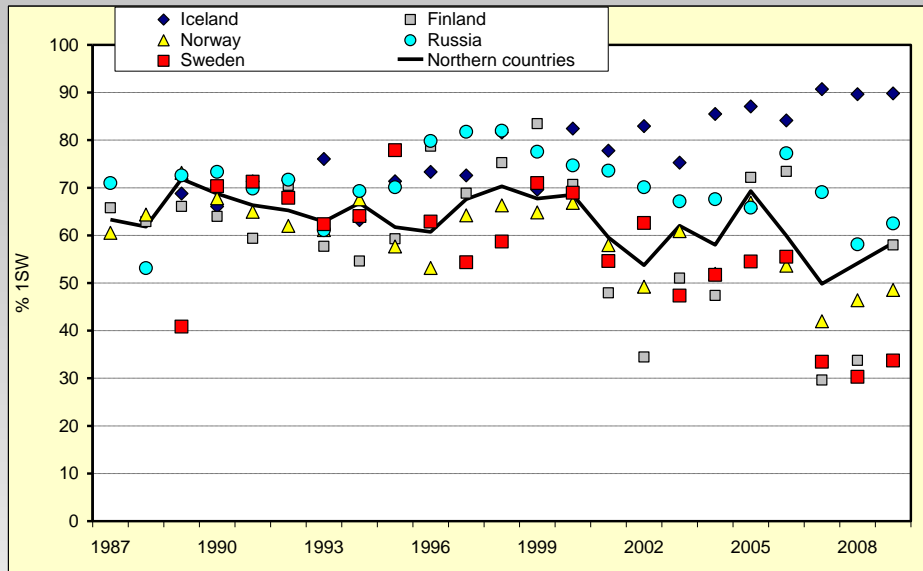
Catches and Catch Composition

| | | | |
|---------------------------------|-----------------------|------------|------------|
| Nominal Catch (t) in 2009 | NEAC | North NEAC | South NEAC |
| | 1151 | 891 | 261 |
| | Lowest of time series | | |



- Decline in catches has been more important in Southern NEAC

Composition of Catches

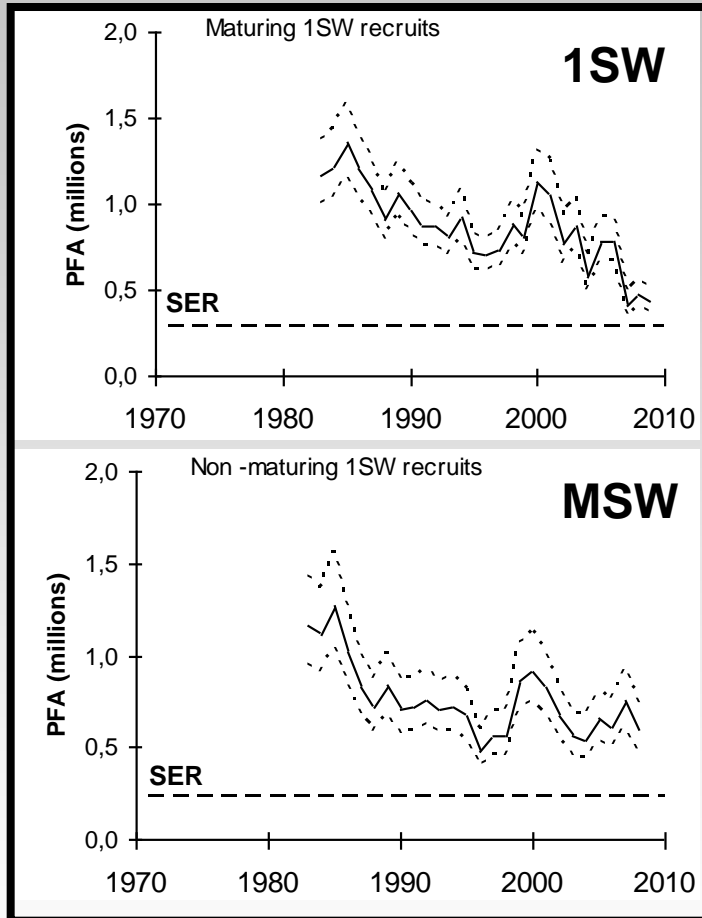


- Similar overall percentages of 1SW salmon in the catches in NEAC north and NEAC south
- Declines in the percent 1SW in catches from Sweden, Norway and Finland but increased 1SW proportions in Iceland

Norway: farmed salmon are important composition of catches - from 8% in rod fisheries to 36% in fjordic fisheries

Trends in PFA and Spawners

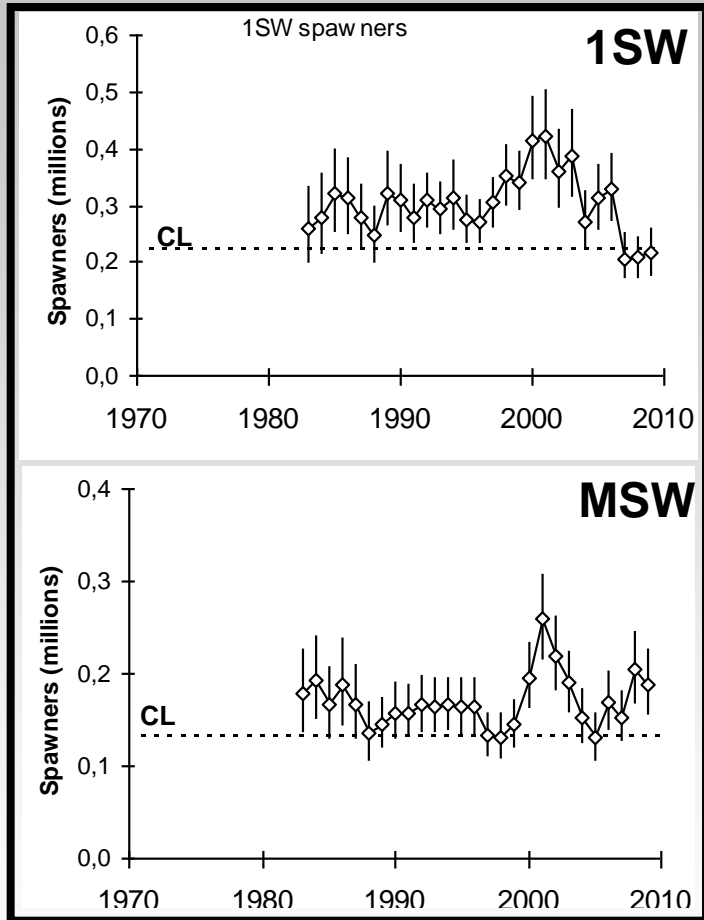
Northern NEAC



- Broadly similar patterns by age group
- General decline interrupted by brief period of increase during 1998 to 2003
- Patterns broadly consistent with general decline in marine survival in most monitored stocks
- Both age groups have been at full reproductive capacity prior to commencement of distant water fisheries

Trends in PFA and Spawners

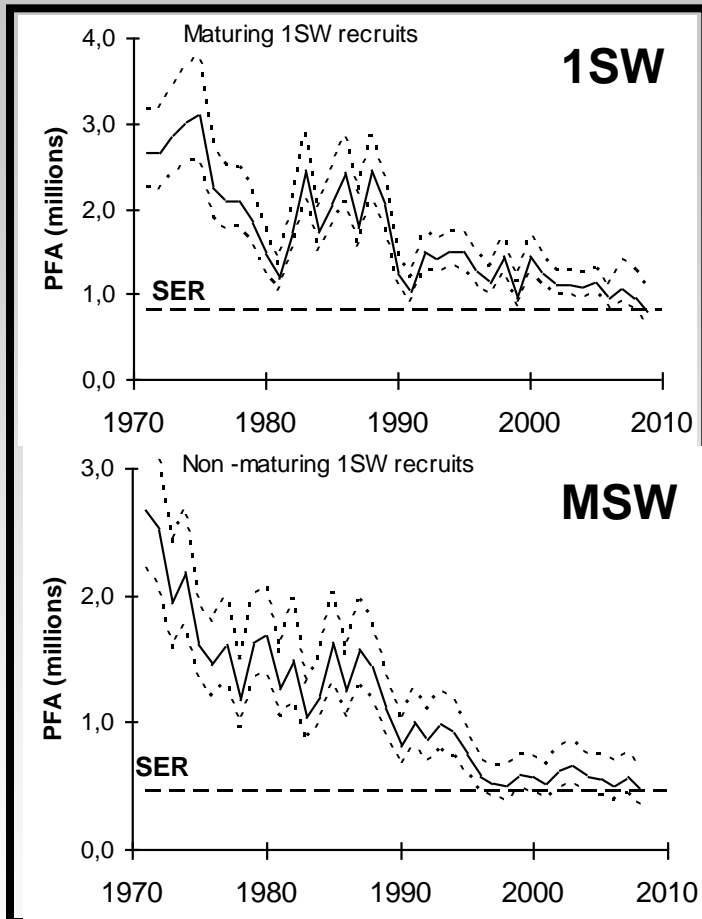
Northern NEAC



- Broadly similar patterns by age group
- In most years, 1SW and MSW spawners have been at full reproductive capacity or at risk of reduced reproductive capacity
- During 2007 to 2009, 1SW spawner complex was suffering reduced reproductive capacity.

Trends in PFA and Spawners

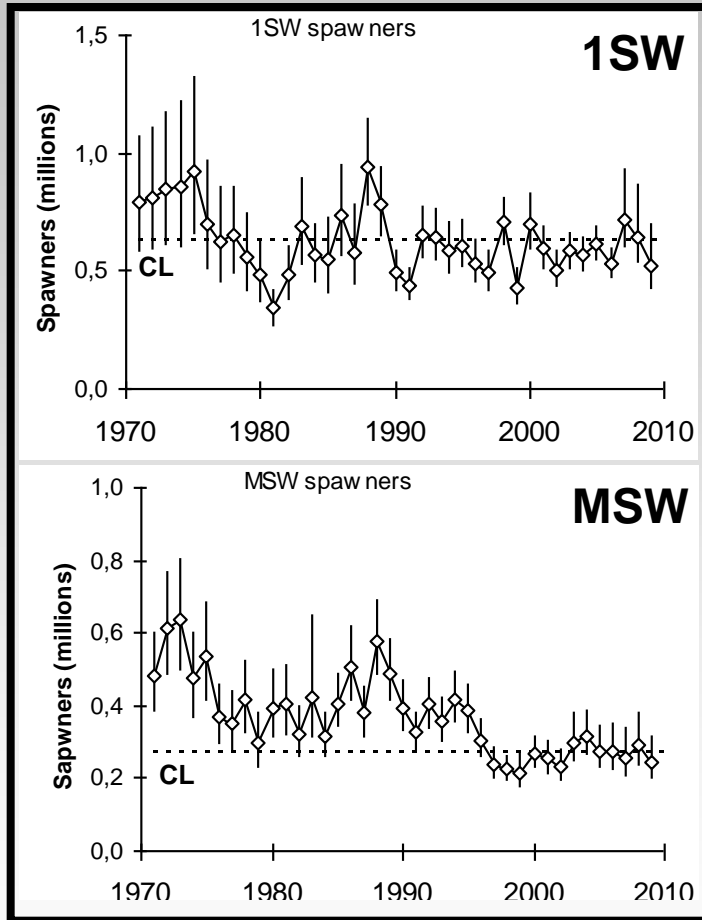
Southern NEAC



- Broadly similar declining trends for both age groups and lowest of time series
- Patterns broadly consistent with general decline in marine survival in most monitored stocks
- 1SW stock complex was at full reproductive capacity prior to 2007 and in 2009 was suffering reduced reproductive capacity prior to any fisheries
- MSW stock complex was at full reproductive capacity prior to 1995 but between 1996 and 2009 has mostly been at risk of suffering reduced reproductive capacity, prior to any fisheries

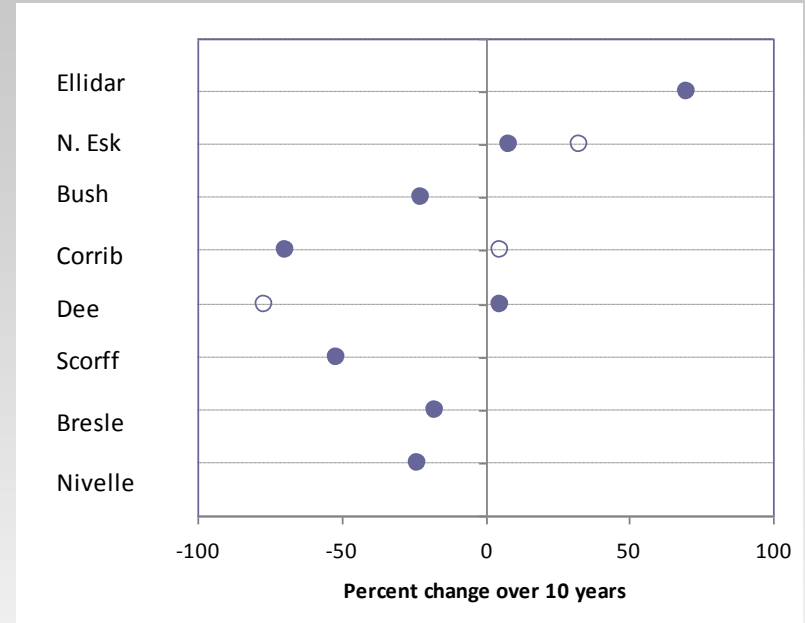
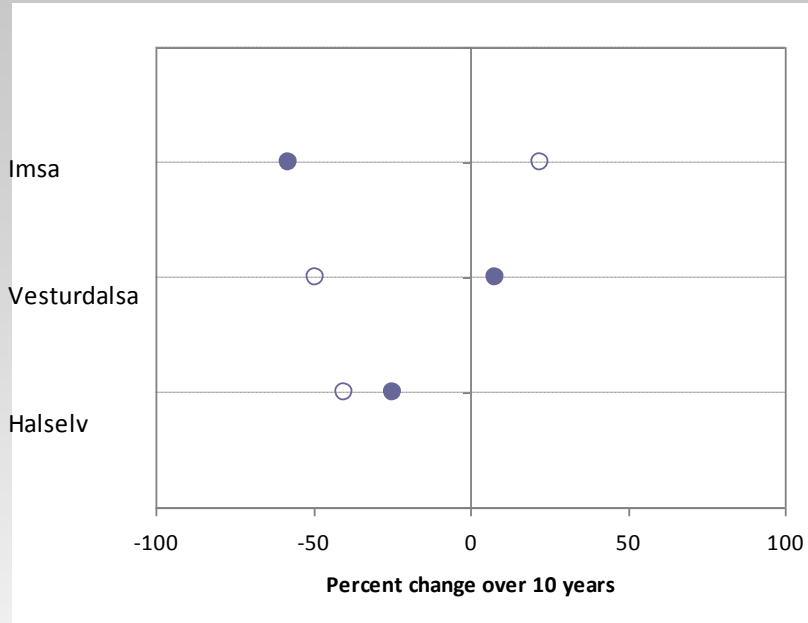
Trends in PFA and Spawners

Southern NEAC



- Broadly similar declining trends for both age groups
- In most years, 1SW spawners have been at risk of or suffering reduced reproductive capacity
- MSW spawners were at full reproductive capacity prior to 1995 but since 1996 has been at risk of or suffering reduced reproductive capacity

Overall declining trend in Northern and Southern NEAC



- Most survival indices for wild and reared smolts were below the previous 5- and 10-year averages
- Returns are strongly influenced by factors in the marine environment

further investigate opportunities to develop a framework of indicators or alternative methods that could be used to identify any significant change in previously provided multi-annual management advice

- NEAC stocks remained close to their respective SERs
- None of the available indicator data sets would meet the criteria for inclusion in the FWI as presently developed
- No alternative approaches were proposed
- Only indication of a change in the status of stocks would be provided by a full assessment of the NEAC stock complexes

Supplementary request from NASCO for an assessment of the issues that would need to be addressed before quantitative catch advice could be provided for the Faroes fishery

- NASCO has requested quantitative catch advice for the Faroes fishery
- A risk framework for providing this advice is lacking
- ICES previously developed and now applies a risk framework for the provision of catch advice for the West Greenland fishery
- The procedure for West Greenland has been accepted by NASCO for a number of years
- A similar risk framework for the Faroes fishery could be developed

Risk Framework for the Faroes Fishery

Description of the West Greenland risk framework is provided

The primary objective of the risk framework is to meet predetermined management objectives

Establishing the risk framework for the Faroes fishery requires agreement in NASCO on:

1. The management units to be employed
2. The management objectives for each of those units
3. Sharing arrangement for the fisheries

Risk Framework for the Faroes Fishery

1. Management units

- ICES currently provides advice for four NEAC stock complexes:
 - 1SW and MSW within NEAC north and NEAC south
- ICES currently undertakes assessment of NEAC stocks at country/region level (18 units by sea age group)
- Proposed: use the assessment units scale for management units in Faroes risk framework

2. Management objectives

- Suggest similar approach used for WG and in line with general principles agreed by NASCO.
- Achieve the CLs simultaneously in each management unit at a probability level greater than 75%

3. Sharing arrangement among fisheries

- Determination of the sharing arrangement is a management decision which will require input from NASCO
- For WG, harvest share of North American origin salmon is 40% to WG, 60% to NAC
- Sharing allocation needs to be determined for the Faroes fishery
 - on basis of historic catches in a baseline period
 - data are provided to inform that discussion

Recommendations

See general recommendations

Also

- river specific, regional and international management requires extensive monitoring
- ICES recommends expanded monitoring programmes across all stock complexes

Acknowledgements

Members (23) of participating countries (13) to Working Group on North Atlantic Salmon, March 22-31, 2010