

## Overview of the Report of the Working Group on North Atlantic Salmon

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In establishing annual regulatory measures for the international mixed stock fisheries at Greenland and Faroes, the North Atlantic Salmon Conservation Organization (NASCO) requests scientific information from the International Council for the Exploration of the Sea (ICES). ICES convenes a Working Group on North Atlantic Salmon annually to:

- review information on all homewater and distant water fisheries exploiting Atlantic salmon;
- provide an overview of the status of stocks contributing to these fisheries;
- report on the expected abundance for subsequent seasons;
- evaluate the attainment of conservation limits or other biological reference points for these stocks.

Specific information is provided for the regional Commissions of NASCO:

- the North-East Atlantic Commission (NEAC) relating to the Faroes mixed stock fishery (and the stocks contributing to the fishery) and the fisheries and stocks of Russia, Scandinavia, Iceland, Ireland, United Kingdom, France and Spain;
- the North American Commission (NAC) relating to the fisheries and stocks of the USA and Canada;
- the West Greenland Commission (WGC) relating to the fishery and the stocks contributing to this fishery.

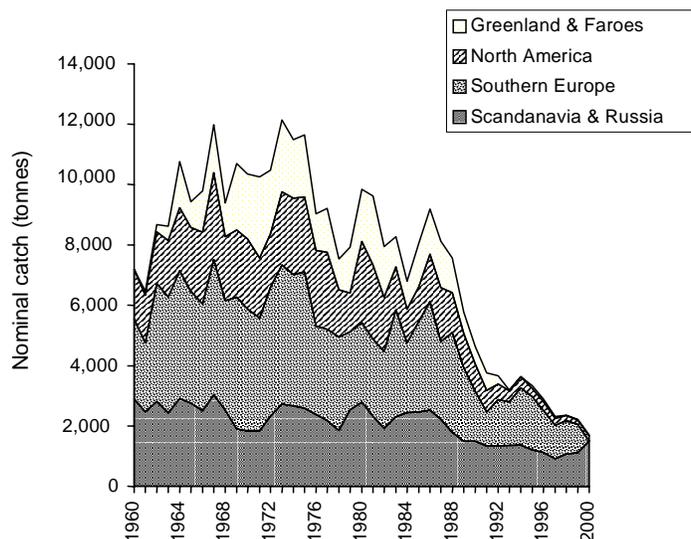
The report of the Working Group is evaluated by the ICES Advisory Committee on Fisheries Management which provides catch advice relative to the attainment of conservation limits for the internationally regulated fisheries at Greenland and Faroes.

Catches of North Atlantic salmon were highest (10,000 to 12,000 tonnes) between 1964 and 1977 (Fig. 1). Catches declined dramatically since this period due primarily to stock declines and resulting management measures which restricted the catches further. The total catch is now less than 3,000 tonnes and is taken mainly in the NEAC area. An additional 30% approximately of the declared catch has been estimated as unreported catch resulting from under-reporting of the nominal catch and estimated illegal landings where information is available.

It is important to note that apart from the US, the vast majority of North Atlantic salmon derive from wild spawned eggs with only a small proportion of sea run salmon eggs (maximum 1.4%) being diverted to hatchery programmes.

Run-reconstruction estimates of pre-fishery abundance (PFA) of maturing 1SW salmon (i.e. grilse) from the northern stocks of the North-East Atlantic declined significantly from 1985 to 1995 (Fig. 2a). An improvement in the PFA has occurred since 1995 with the result that the stocks appear to be attaining their conservation limits. The PFA of non-maturing 1SW salmon (i.e. those fish destined to return as multi-sea-winter salmon, MSW) from the same area showed a similar decline but they have not recovered as well, although they also appear to be at or above the conservation limit (Fig. 2b). However, the status of these stocks is still a cause for concern.

Fig. 1. Nominal catches of salmon in four North Atlantic regions 1960–2000.



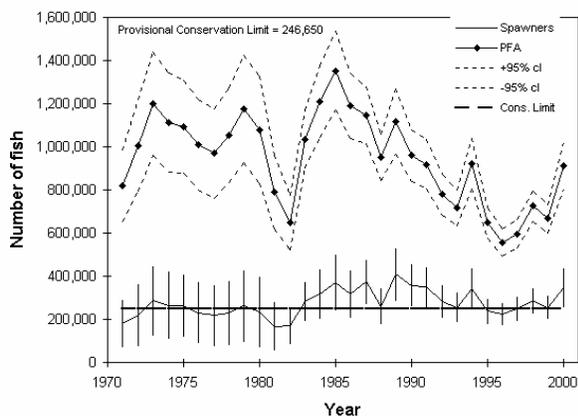
The estimated PFA for maturing 1SW salmon from the southern areas of the North-East Atlantic was volatile during the period 1971 to 1998. Three distinct periods are noted leading to an overall decline in the past 14 years (Fig. 3a). There is concern that the estimated PFA and the estimated number of fish spawning are below the conservation limit. A more serious situation exists for non-maturing salmon from the southern areas of the North-East Atlantic where there has been a sharp decline in PFA since 1971 resulting in fewer recruits being generated than required to meet the conservation limit (Fig. 3b).

For stocks originating in North America, the run-reconstruction estimates of pre-fishery abundance of non-maturing 1SW salmon have been the lowest on record in recent years (Fig. 4). In addition to the steady decline in non-maturing and maturing salmon over the last 10 years, maturing 1SW salmon (grilse) have become an increasingly large percentage of the North American stock complex. The estimated returns to, and spawners in, US rivers in 2000 were below the 1999 estimate and also below the 5-year and 10-year means, respectively. North American stocks remain low relative to the 1970s. The 1SW non-maturing component continues to be low with river returns and total production being the lowest recorded. In addition, returns in 2000 of maturing 1SW salmon (grilse) to North American rivers were also low. It is therefore unlikely that any improvement in 2SW salmon returns will occur in 2001.

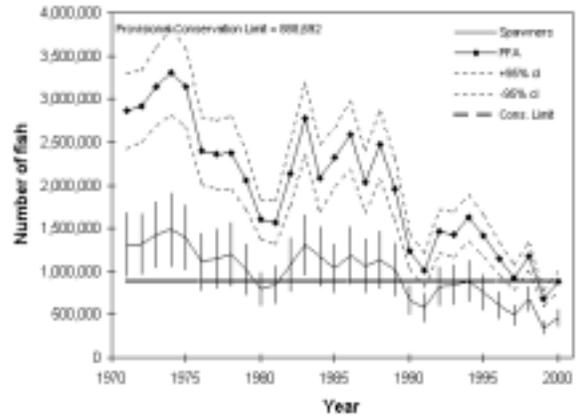
**Fig. 2.** Estimated recruitment (PFA), conservation limit and spawning escapement of maturing and non-maturing salmon in Northern Europe, 1971–2000.

**Fig. 3.** Estimated recruitment (PFA), conservation limit and spawning escapement of maturing and non-maturing salmon in Southern Europe, 1971–2000.

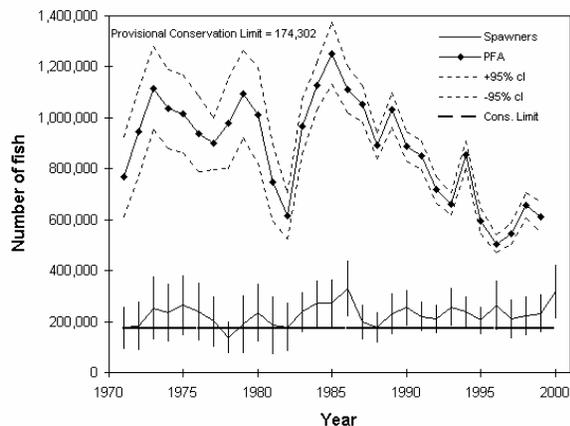
**a) Maturing 1SW recruits (potential 1SW returns) and 1SW spawners (and 95% confidence limits)**



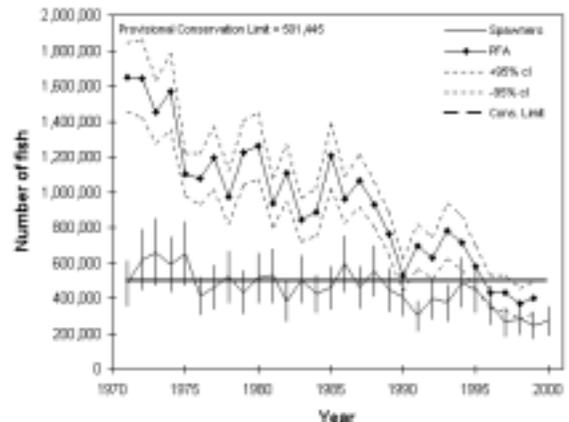
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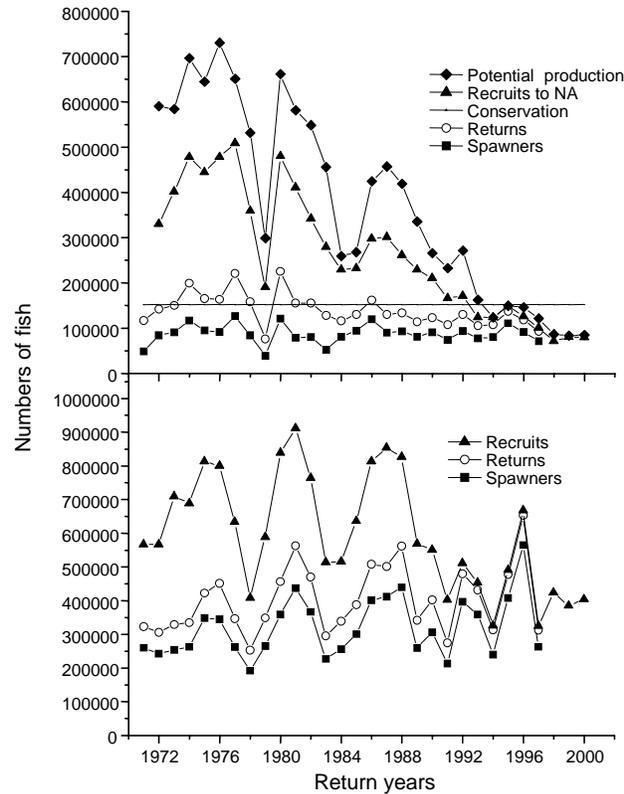
**b) Non-maturing 1SW recruits (potential MSW returns) and MSW spawners (and 95% confidence limits)**



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**Fig. 4.** Top panel: comparison of estimated potential 2SW production prior to all fisheries, 2SW recruits available to North America 1971–2000, and 2SW returns and spawners for 1971–97 (as 1998–2000 data for Labrador are unavailable). The horizontal line indicates the 2SW spawner requirements. Bottom panel: comparison of potential maturing 1SW recruits 1971–2000, and returns and 1SW spawners for 1971–97 return years as Labrador data for 1998–2000 are unavailable.



The stock status and the catch advice for each of the NASCO Commission areas can be summarized as follows:

**North East Atlantic Commission area:** The Northern stocks are at or above the conservation limits but no extra exploitation is advised particularly on non-maturing salmon stocks destined to return as multi-sea-winter salmon.

Stocks in the southern part of the North-East Atlantic are in a tenuous state with recruitment prior to any fishery taking place being below the requirements for conservation. Severe reductions in exploitation are, therefore, required and mixed-stock fisheries pose particular threats to these stocks.

**North American Commission area:** Many areas are below the conservation limit requirements and exploitation should be directed specifically at stocks which are shown to be above CL.

**West Greenland Commission area:** Many of the stocks being fished at West Greenland are severely below the required conservation limits and there should be no exploitation on stocks in the West Greenland area.

**REFERENCES**

Anon. 2001. Report of the Working Group on North Atlantic Salmon. ICES CM 2001/ACFM: 15, Aberdeen.