RETROSPECTIVE NEA SAITHE ANALYSIS

By

Sigbjørn Mehl and Åge Fotland
Institute of Marine Research
Bergen, Norway

In most NEA saithe assessments in the last 10 years, there has been a tendency to overestimate fishing mortality and underestimate stock size in the assessment year. All tuning series have been revised in later years, but the same retrospective trend is seen both in plots of retrospective assessment performance and in updated retrospective XSA-analysis. ACFM therefore made the following request in the Technical Minutes from the May 2002 meeting:

The AFWG is asked to investigate the reason for the retrospective problems in the assessment, particularly to see whether this is a consequence of any single tuning series.

ACFM further suggested:

It is proposed to exclude age group 2 from the acoustic survey due to the high value of the S.E. (log q).

In this WD, first results of retrospective XSA-analysis with all tuning fleets included and then with one and one tuning fleet are presented. Input data were taken from the 2002 assessment (ICES CM 2002/ACFM: 18). Figures 1-4 presents the retrospective plots of F_{3-6} and SSB.

All runs show similar retrospective trends, i.e. a tendency to overestimate fishing mortality and underestimate stock size in the assessment year. All fleets show a decreasing trend in fishing mortality over the presented time period (1990-2001), the acoustic survey also for later years, while purse seine and trawl indicate an increase in the last part of the period. The over all result indicates a quite stable fishing mortality in later years.

The reason for the retrospective trend are therefore not found in any single tuning series, and may be caused both by the tuning data as well as the catch at age data.

In addition two retrospective runs without age group 2 in the acoustic survey fleet were done, one with all fleets included and one with only the survey fleet. Figures 5-6 show that the results are quite similar to the previous ones.

The diagnostics show that the estimates of survivors from age 2 and 3 in the terminal year are reduced when age group 2 is excluded from the acoustic survey fleet. The numbers at age 2 and 3 in the last assessment year are, however, normally estimated by the RCT3 routine. The numbers at age 2 and older in the more converged part of the XSA are not influenced to any extent by the 2-group in the acoustic survey fleet.

IMR is now planning a new coastal survey where younger age groups of saithe should be better covered. Until we have at least five measurements from this survey it is probably best to exclude age group two from the tuning. It should also be investigated if age three is a more appropriate age of recruitment in the XSA.
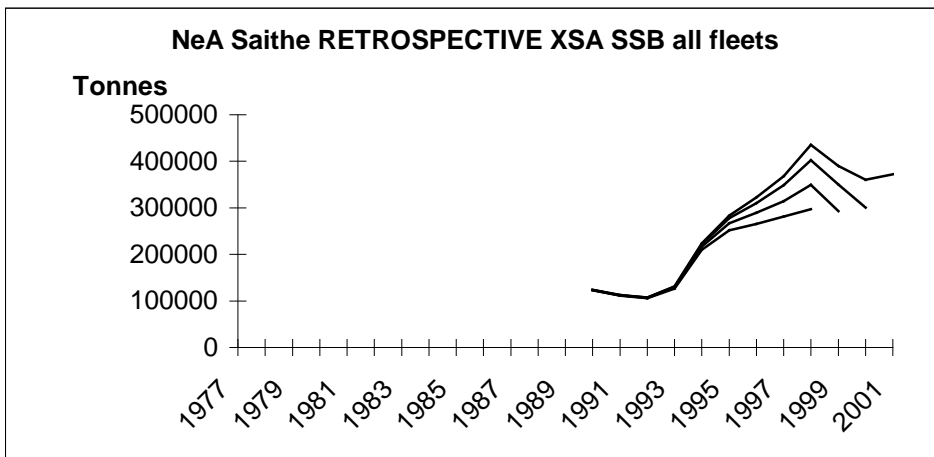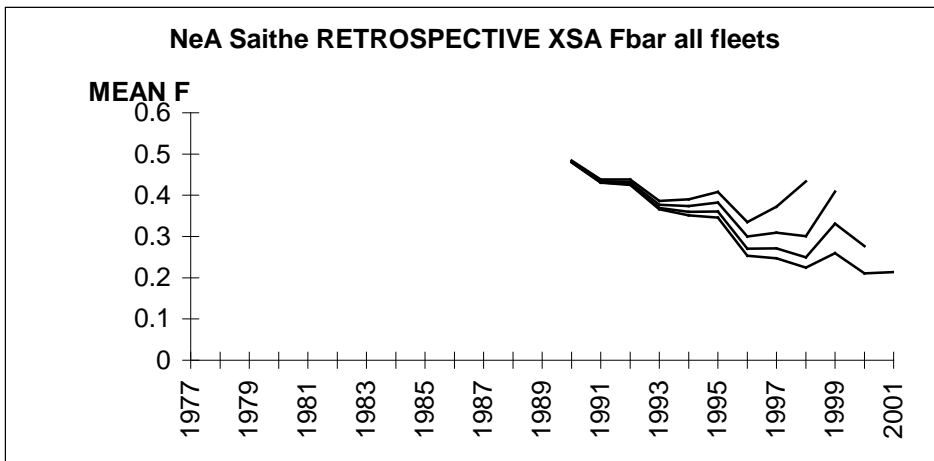
NeA Saithe RETROSPECTIVE XSA Fbar all fleets

NeA Saithe RETROSPECTIVE XSA SSB all fleets

Figure 1. Retrospective XSA analysis NEA saithe 1990-2001, all tuning fleets

NeA Saithe RETROSPECTIVE XSA Fbar survey
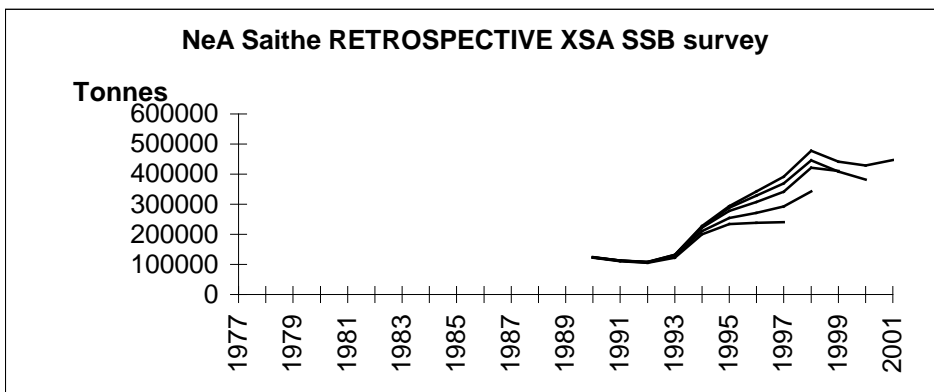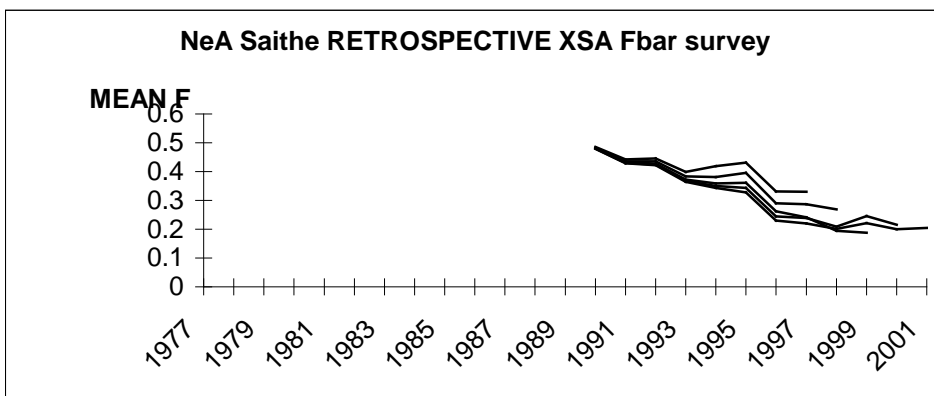
NeA Saithe RETROSPECTIVE XSA SSB survey

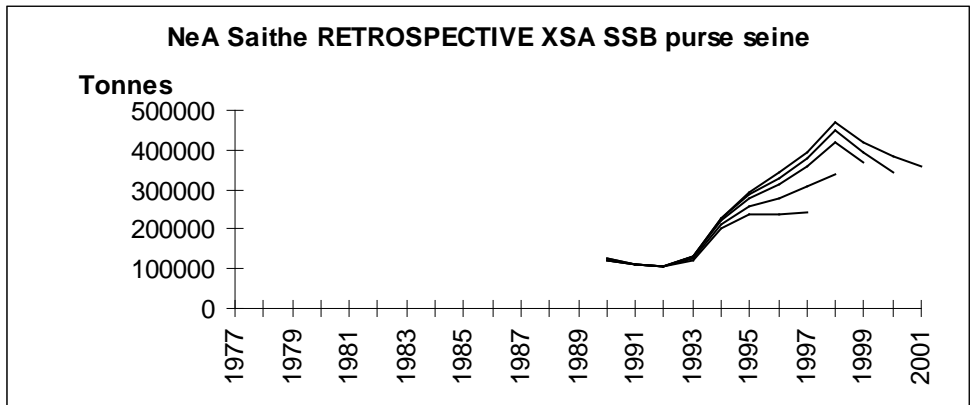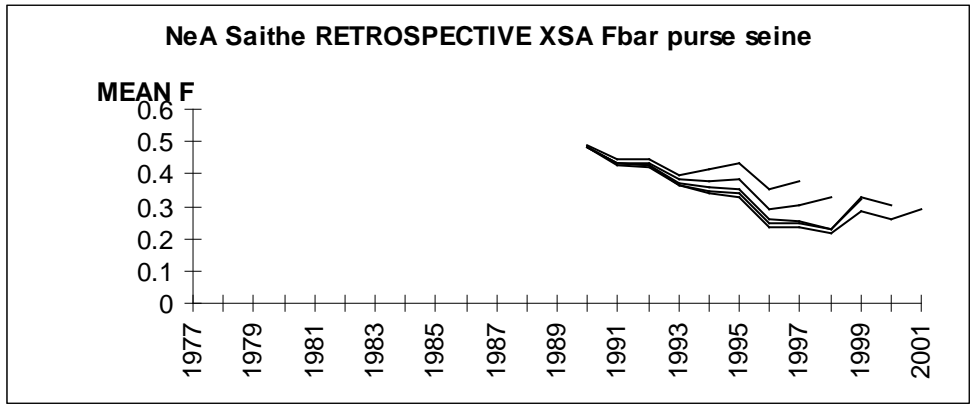Figure 2. Retrospective XSA analysis NEA saithe 1990-2001, acoustic survey fleet only

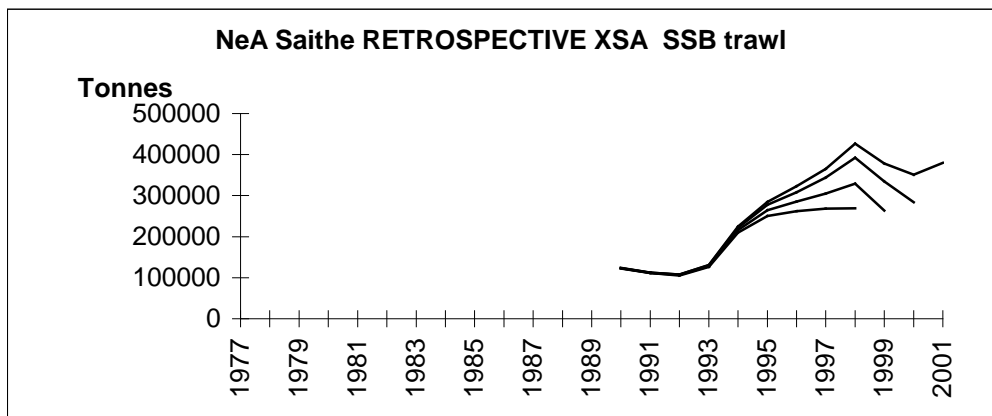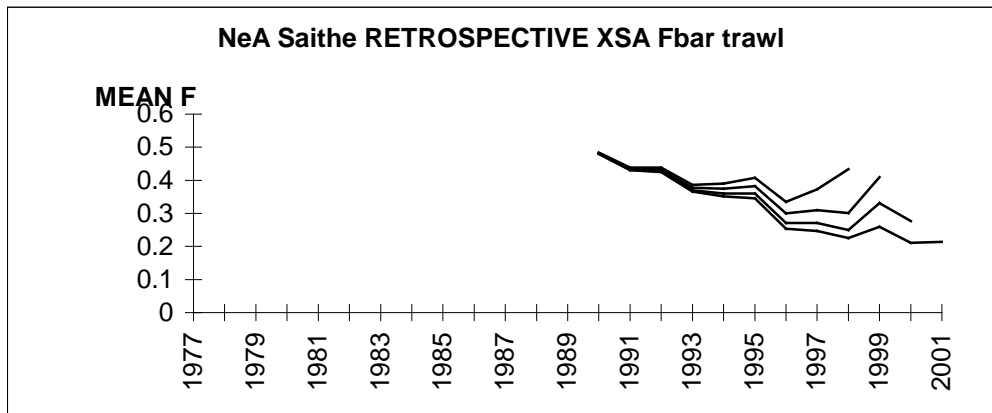Figure 3. Retrospective XSA analysis NEA saithe 1990-2001, purse seine fleet only

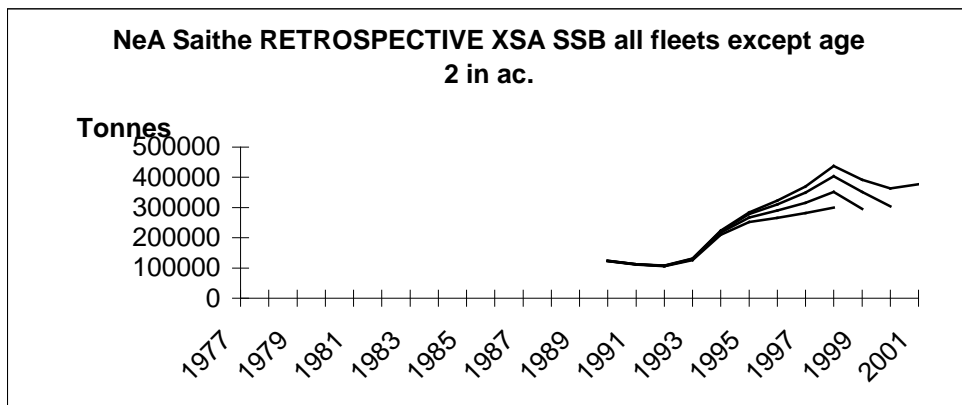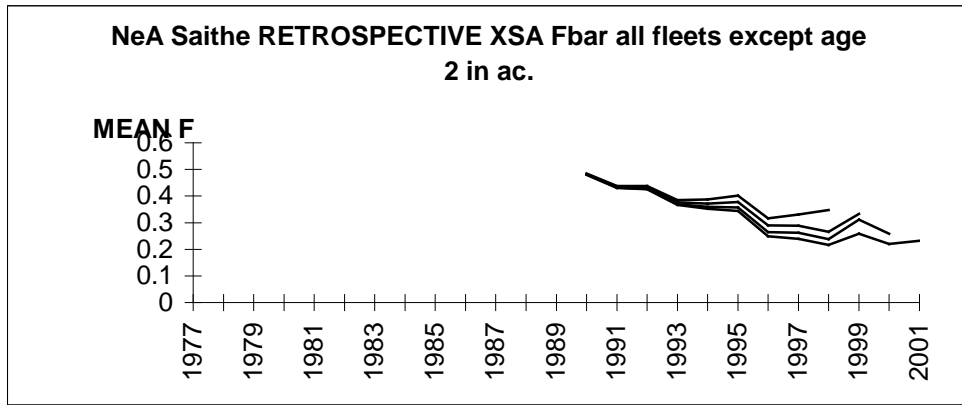Figure 4. Retrospective XSA analysis NEA saithe 1990-2001, trawl fleet only

Figure 5. Retrospective XSA analysis NEA saithe 1990-2001, all tuning fleets, age group 2 excluded in the acoustic survey fleet
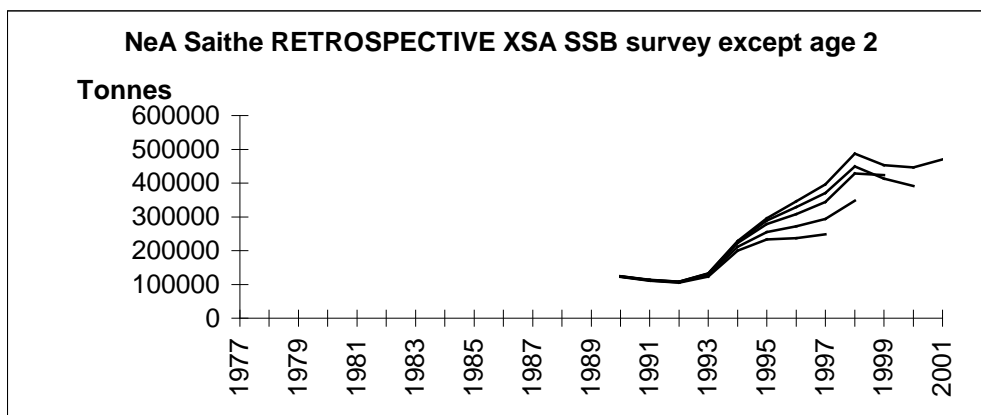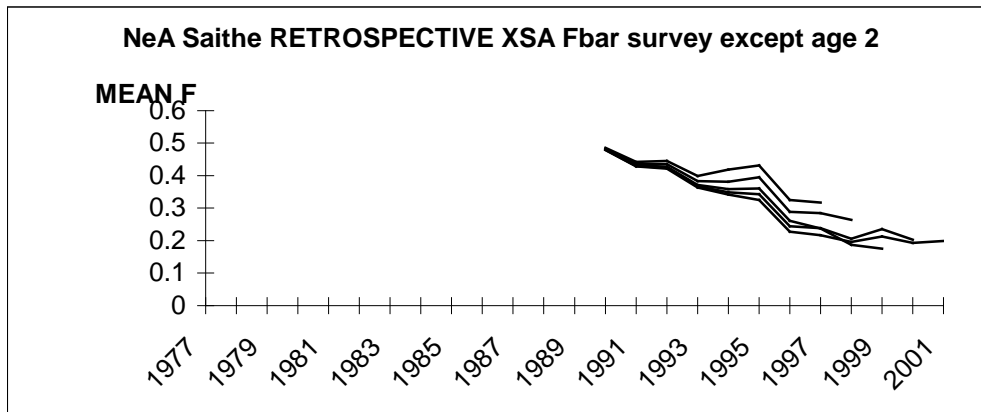

Figure 6. Retrospective XSA analysis NEA saithe 1990-2001, acoustic survey fleet only, age group 2 excluded.