


ICES advice for 2007

Pelagic RAC

3 November 2006

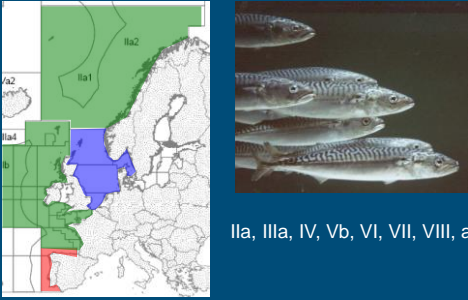
Martin Pastoors
(chair of the Advisory Committee on Fishery Management)




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North east Atlantic Mackerel




Ila, IIIa, IV, Vb, VI, VII, VIII, and IXa

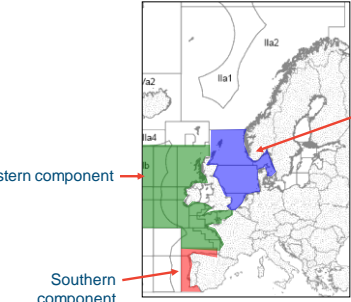


NEA mackerel: introduction

- [Assessment](#)
 - catch-at-age 1972–2005
 - egg surveys 1992, 1995, 1998, 2001 and 2004.
- [Issues](#)
 - Unreported landings; estimated between 60% or more based on a preliminary model analysis
 - Assessment and forecast scaled to reported landings + discards (5%)
 - 2007 new egg survey year




NEA mackerel: spawning components



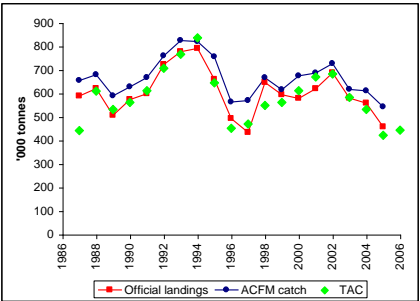
Western component

Southern component

North Sea component

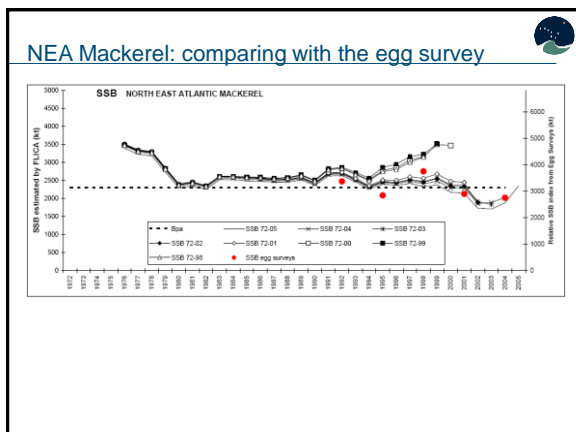
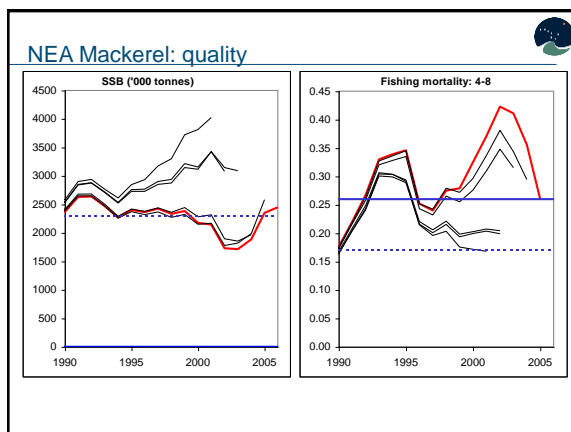
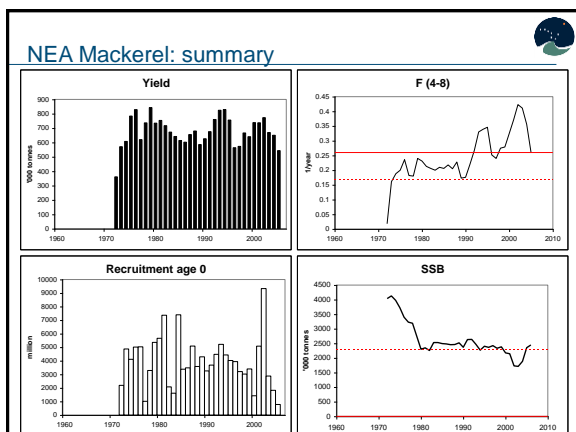


NEA Mackerel: catches



Year	Official landings	ACFM catch	TAC
1986	500	650	450
1987	550	680	500
1988	500	650	550
1989	550	680	500
1990	500	650	550
1991	550	680	500
1992	600	700	550
1993	650	750	600
1994	700	800	650
1995	650	750	600
1996	500	600	450
1997	550	650	500
1998	600	700	550
1999	650	750	600
2000	600	700	550
2001	650	750	600
2002	700	800	650
2003	650	750	600
2004	550	650	500
2005	500	600	450
2006	450	550	400

ACFM catch: landings + discards + known misreporting





- ### NEA Mackerel: unreported landings
- Some discards information available
 - cannot be extrapolated to all fleets
 - Model based analysis
 - Bayesian analysis using ICA population model and estimating additional parameters:
 - natural mortality multiplier, (QM)
 - missing catch factor (QC)
 - Suggested level of underreporting: 60-140%.

- ### NEA Mackerel: advice
- Last year
 - Fish according to management plan
 - $F=0.15-0.20$, landings between 373-487 000 t.
 - New advice
 - Fish according to management plan
 - $F=0.15-0.20$, catches between 390-509 000 t.
 - including 5% discards

- ### NEA Mackerel: comparison
- Since 2004 the egg survey is used relative abundance index
 - The absolute stock level is scaled to the catches
 - Because of possible underreporting, the stock level may be underestimated
 - The advice only reflects the reported level of landings (and discards)


Special Request:

Blue whiting management plan


Request

- Coastal states (EC, Faroe Islands, Iceland, Norway)
- Evaluate multi-annual arrangement for blue whiting
 - agreed 15/16 December 2005
- The plan
 - maintain the SSB above 1.5 million tonnes (Blim) and $F \leq 0.32$.
 - For 2006, limit fisheries to 2 million tonnes.
 - Until F reached 0.32, reduce TAC by at least 100,000 tonnes annually.




ICES interpretation of management plan

- TAC reductions until $F=0.32$ (article 4)
 - ICES interpretation: TAC will be decreased by 100 000 t until the mean F is at or below F_{pa} for the first time.
- Target fishing mortality (article 5)
 - ICES interpretation: $F_{pa}=0.32$ is used as a target F
- Use of B_{pa} as a trigger point (article 6)
 - ICES interpretation:
 - SSB should reach B_{pa} after the TAC is taken.
 - "Rapid recovery": within one year
 - article 6 overrules the initial condition defined by paragraph 4 if SSB drops below B_{pa} in any year.

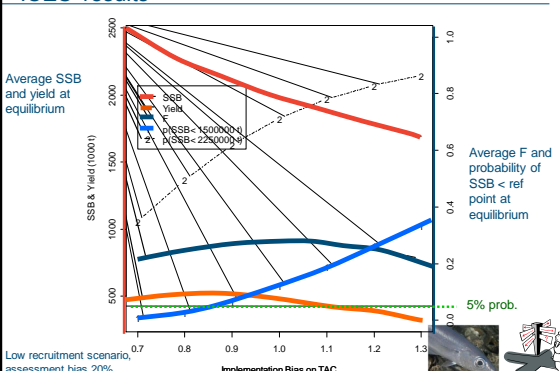


ICES' evaluation


- Methodology:
 - Stochastic Multi-Species model (SMS)
 - Two recruitment scenario's
 - low recruitment (prior to 1996)
 - recent recruitment (1996 onwards)
 - Different assumptions on implementation bias and assessment bias



ICES' results



Low recruitment scenario, assessment bias 20%




ICES' results


- High recruitment scenario (1996-2005)
 - management plan robust to uncertainties in assessment and implementation
- Low recruitment scenario (prior to 1996)
 - management plan NOT robust to uncertainties in assessment and implementation

ICES' conclusion

- Plan is not consistent with precautionary approach
 - higher than 5% probability SSB under Blim under low recruitment scenario and plausible biases in assessment and implementation.
 - use of B_{pa} as trigger point will lead to higher than 5% probability of being below B_{lim} (assessment bias!)
 - in periods of low recruitment: reduce F to below F_{pa} to keep stock around B_{pa}
- Improving the plan
 - specify actions when stock is below B_{pa} (art. 6)
 - change art 4 for substantial reductions in F
 - target F well below F_{pa} (e.g. 2/3 of F_{pa})
 - use biomass trigger point above B_{pa}



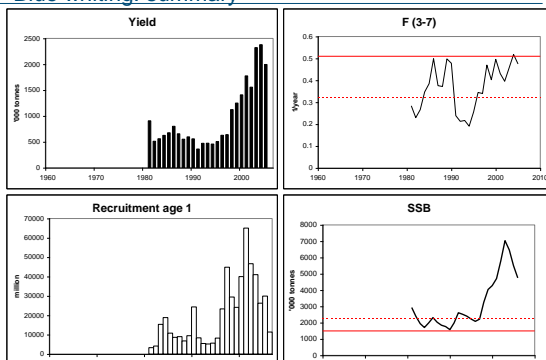
Blue whiting Sub-areas I-IX, XII & XIV



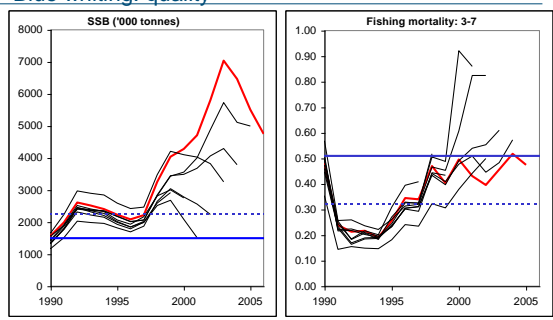
Blue whiting: introduction

- Assessment
 - Catch-at-age data, calibration with 2 acoustic surveys
 - New assessment approach (SMS)
 - but 5 methods explored
- Issues
 - Rapidly developing fishery since 1997
 - from 500 thousand to well over 2 million ton
 - High recruitment in several years, High stock in spite of high F
 - indices from surveys indicate that the 2005 year class is at the pre-1996 level
 - Retrospective underestimation in SSB
 - not with new methodology (?)

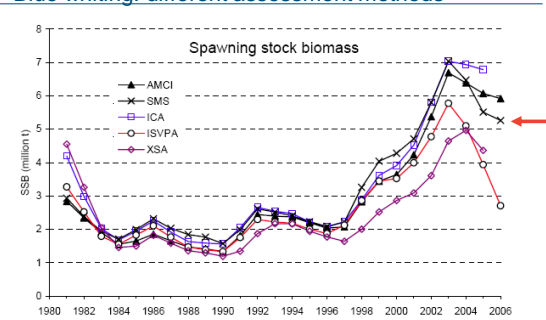
Blue whiting: summary

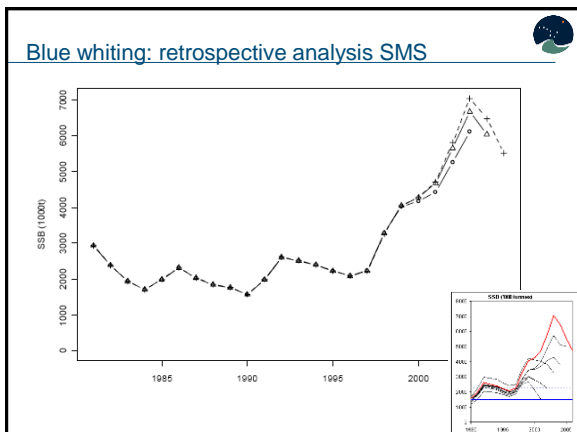


Blue whiting: quality

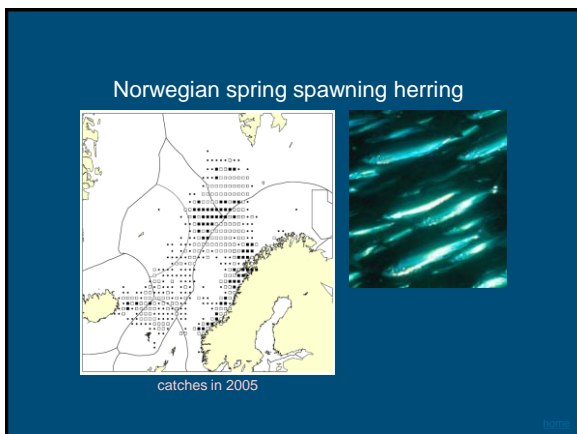


Blue whiting: different assessment methods

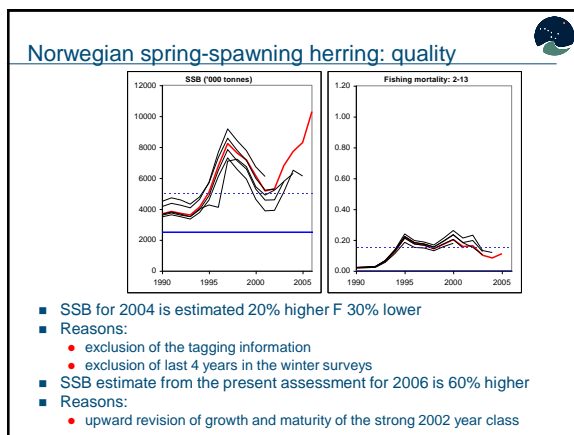
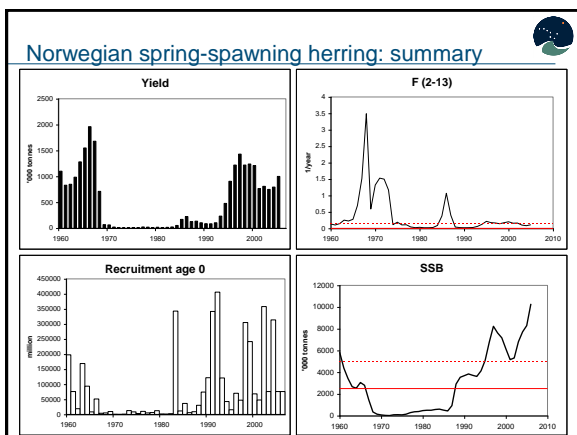




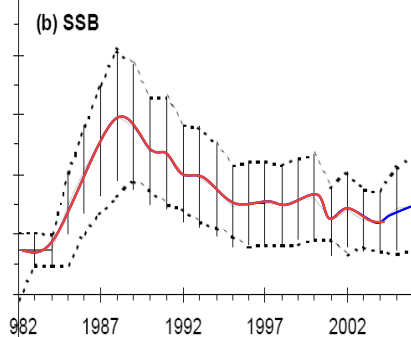
- ### Blue whiting: advice
- Last year
 - Fishing within the limits of the management plan ($F=0.32$) ~ catches of less than 1.5 million t
 - New advice
 - Fishing at F_{pa} : catches ≤ 980 thousand t
 - The proposed management plan not in accordance with PA
 - The maximum catch in line with management plan: 1.9 million tonnes. SSB 2008 at 2.9 million t (above B_{pa}), but will lead to an F above F_{lim} in 2007)
 - Comparison:
 - Same basis - achieve a fishing mortality of less than $F_{pa} = 0.32$.



- ### Norwegian spring spawning herring: introduction
- Assessment
 - assessment using catch data and eight surveys (acoustic surveys of adults and juveniles, and larval surveys) – SeaStar model
 - large change in wintering patterns; results of the winter surveys from 2002–2006 not used in the assessment
 - Issues
 - Recruitment driven
 - full reproduction capacity and harvested sustainably



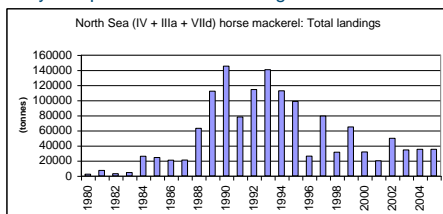
Western horse mackerel: comparison

North Sea horse mackerel
in areas IVbc and IIIa

North Sea horse mackerel

■ Issues:

- no consistent signals in the catch-at-age data,
- sampling is insufficient, and
- fishery-independent data is lacking



North Sea horse mackerel: advice

■ Last year

- No increase in catch from 1982–1997 ~ <18 000 t

■ New advice

- No increase in catch from 1982–1997 ~ <18 000 t

■ Comparison:

- no assessment.
- Same basis: average catches (1982-1997)

Southern horse mackerel
in area IXa

Southern horse mackerel

■ Issues

- lack of consistent signals in the catch-at-age and survey data
 - stock identity ?
- catches relatively stable since the early 1990s
- no clear indication of recent strong year classes

Southern horse mackerel: advice



- Last year
 - Should not exceed the recent average (2000–2004, excluding 2003) ~ 25 000 t
- New advice
 - Should not exceed the recent average (2000–2004, excluding 2003) ~ 25 000 t
- Comparison: Same basis