Overview of Northeast Atlantic Stocks

Seminar "State of Fish Stocks in European Waters"
(Brussels, September 17, 2013)

Carmen Fernández, ICES ACOM vice-chair

ICES International Council for the Exploration of the Sea
CIEM Conseil International pour l'Exploration de la Mer

- **Summarize biological status of main stocks of interest for EU fisheries**

  presentation focuses on stocks for which ICES has provided advice so far this year

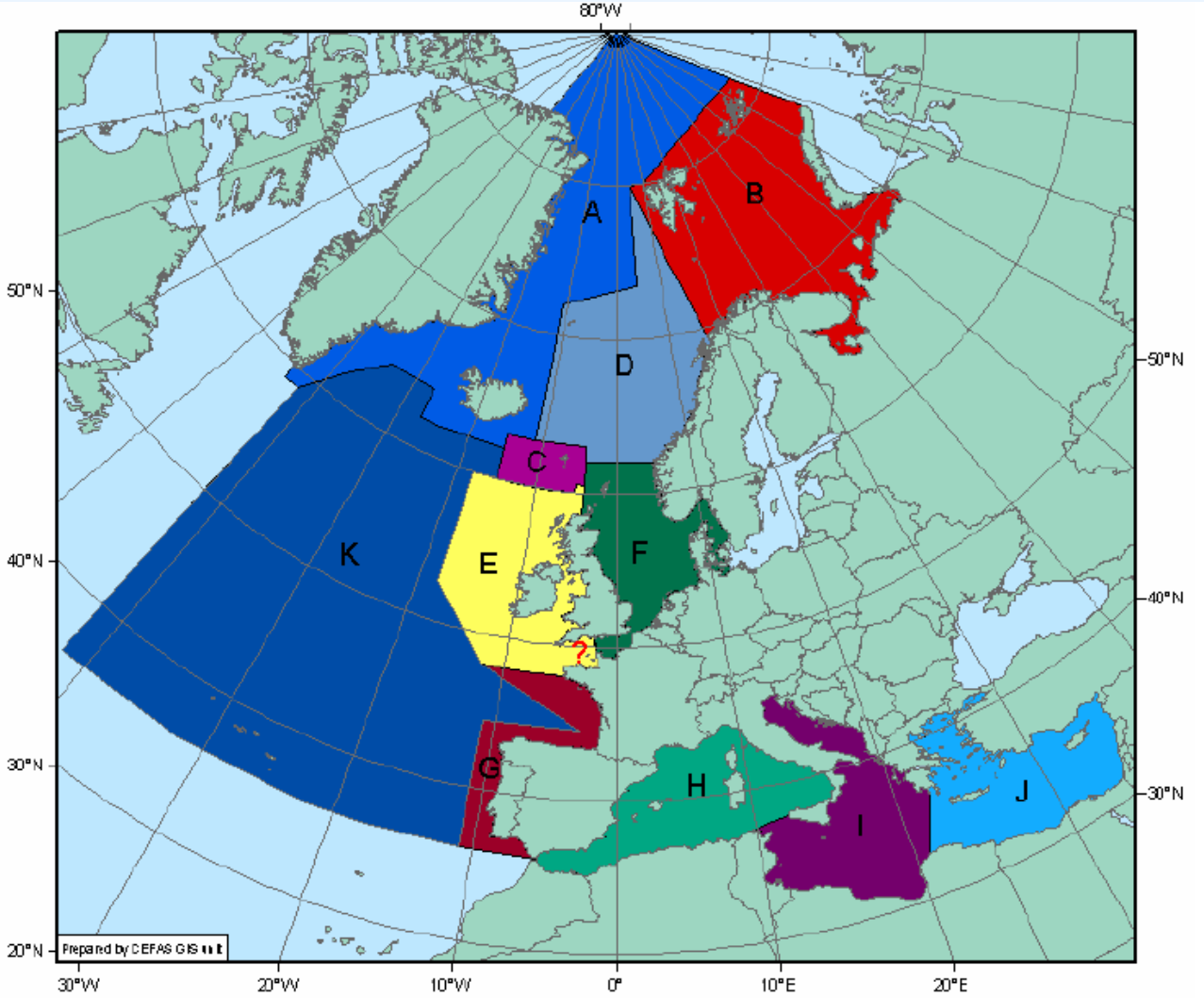
  not all stocks are here...!

- **Related work:**

  mixed fisheries, multispecies

ECOREGIONS

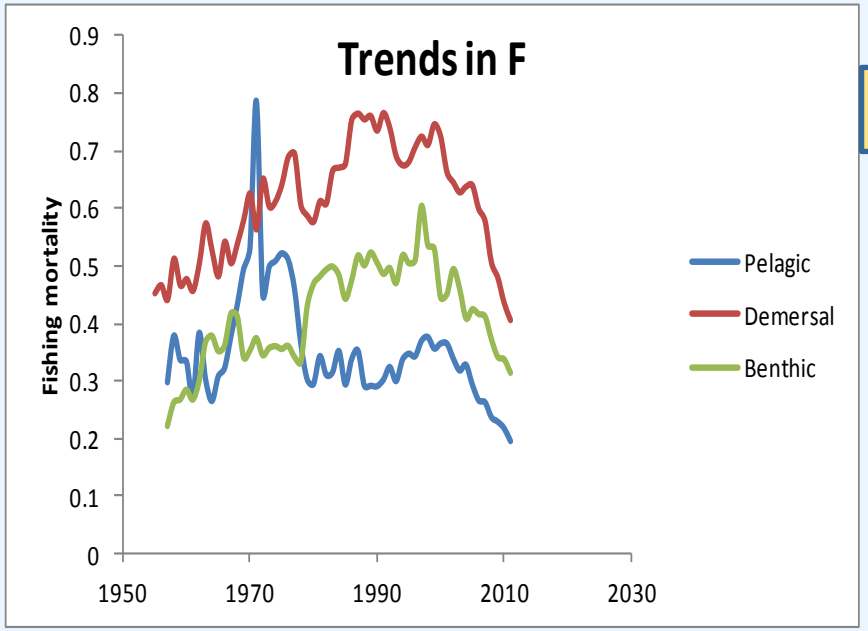
- Iceland and East Greenland Seas
- Barents Sea
- Faroe Plateau Ecosystem
- Norwegian Sea
- Celtic Sea and West of Scotland
- North Sea
- Bay of Biscay and Iberian Waters
- Baltic Sea
- Oceanic northeast Atlantic



ICES CIEM

General trends in the Northeast Atlantic
all ecoregions

2012 analysis,
based on 46 of the assessed stocks:



F has strongly decreased

Proportion of stocks with F at or below F_{MSY} has increased over time

ICES (2012). Report of the ICES Advisory Committee. Book 1, 140 pp.

ICES CIEM

ICES Advice

- ***ICES assesses status of stocks annually, as:***
  - **Spawning stock biomass (SSB)**
  - **Fishing mortality (F)**

- ***ICES advises annually on catch options for next year based on:***
  - **Agreed Management Plans (if precautionary)**
  - **ICES MSY Approach**
    (or Transition to MSY approach in 2015)
  - **ICES Precautionary Approach**

For stocks without "full assessment" and forecast, quantitative advice provided since 2012 based on:

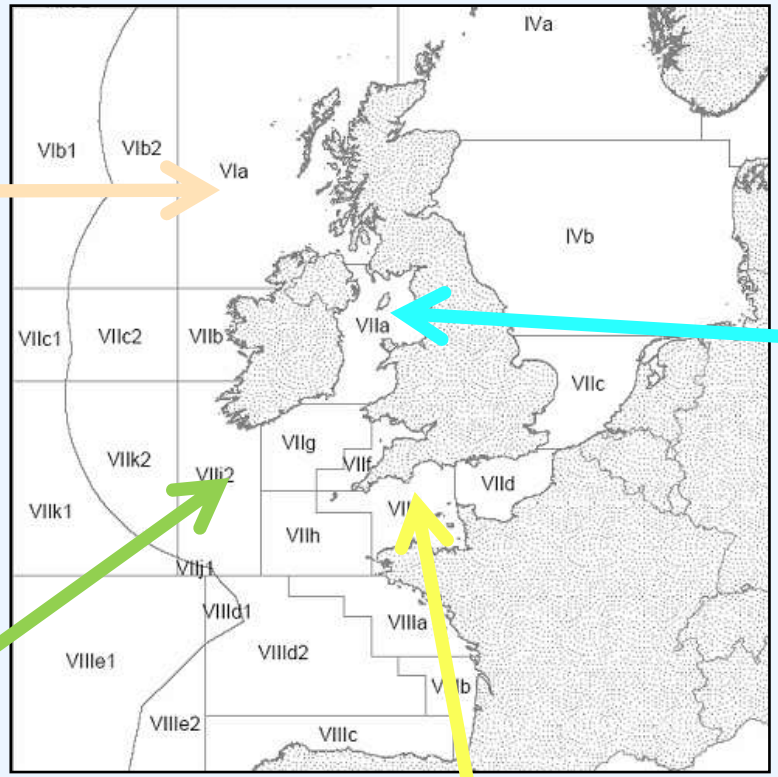
- **Data Limited Stocks methods**

ICES
CIEM

Celtic Seas ecoregion

West of Scotland & Rockall

- **Cod** (**VIa**; VIb)
- Haddock (VIa; VIb)
- **Whiting** (**VIa**; VIb)
- Anglerfish (IIIa,IV,VI)
- Megrim (IVa-VIa; VIb)
- *Nephrops* (FUs11-12-13)



Irish Sea

- **Cod**
- Haddock
- **Whiting**
- Plaice
- **Sole**
- *Nephrops* (FUs 14-15-19)

Celtic Sea & West, Southwest Ireland

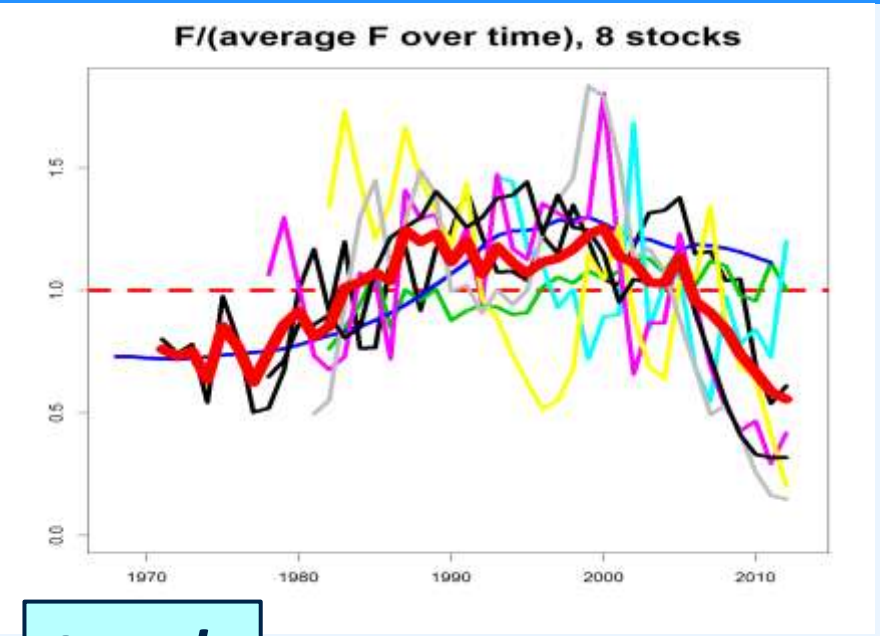
- Cod (VIIe-k)
- Haddock (VIIb-k)
- Whiting (VIIe-k)
- Plaice (CS; VIIh-k; VIIbc)
- Sole (CS; VIIh-k; VIIbc)
- Northern hake
- Anglerfish (VIIb-k, VIIIabd)
- Megrim (VIIb-k, VIIIabd)
- *Nephrops* (FUs 16-17-20-22)

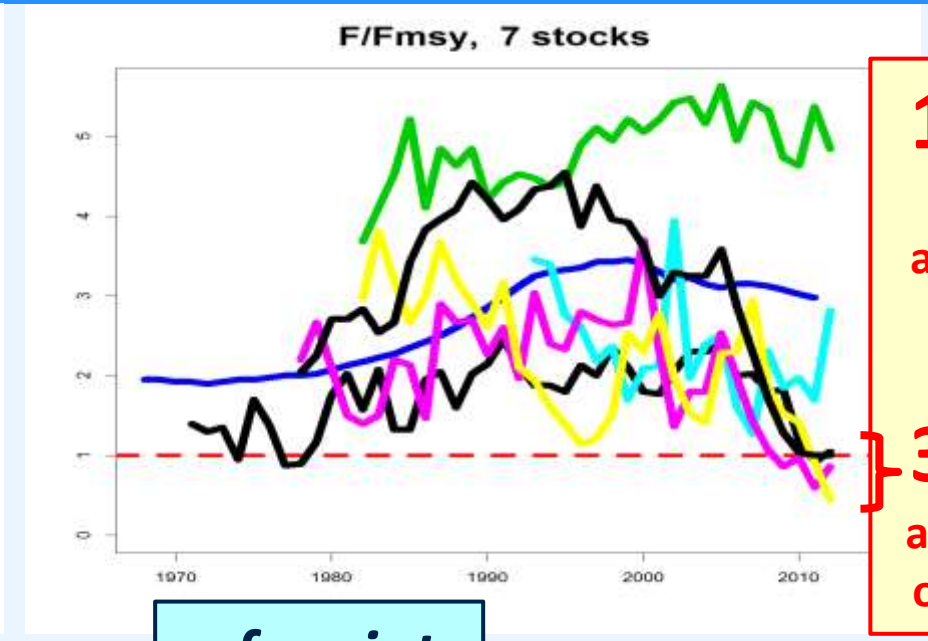
Western Channel

- Plaice (VIIe)
- Sole (VIIe)

ICES CIEM

Celtic Seas: Cod, Haddock, Whiting, Hake

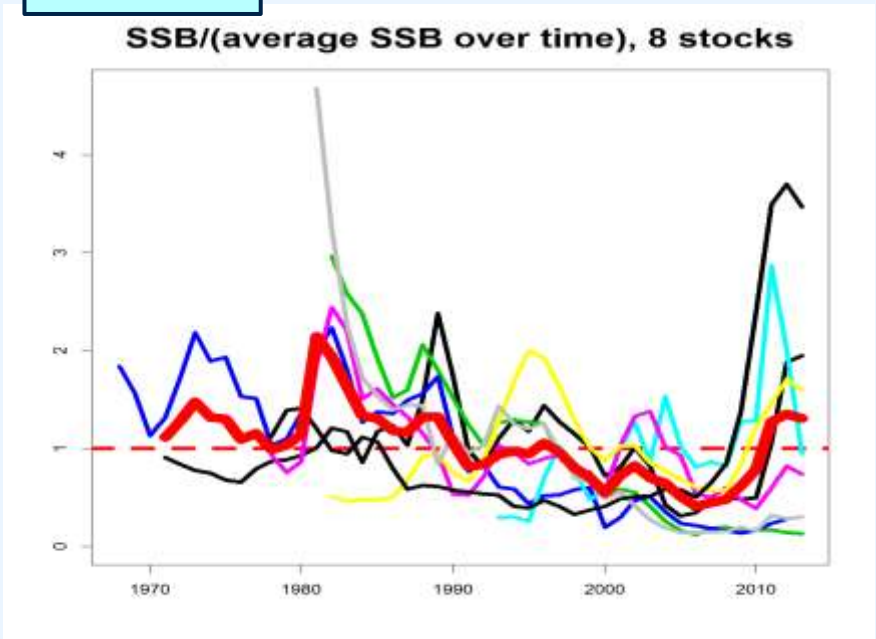


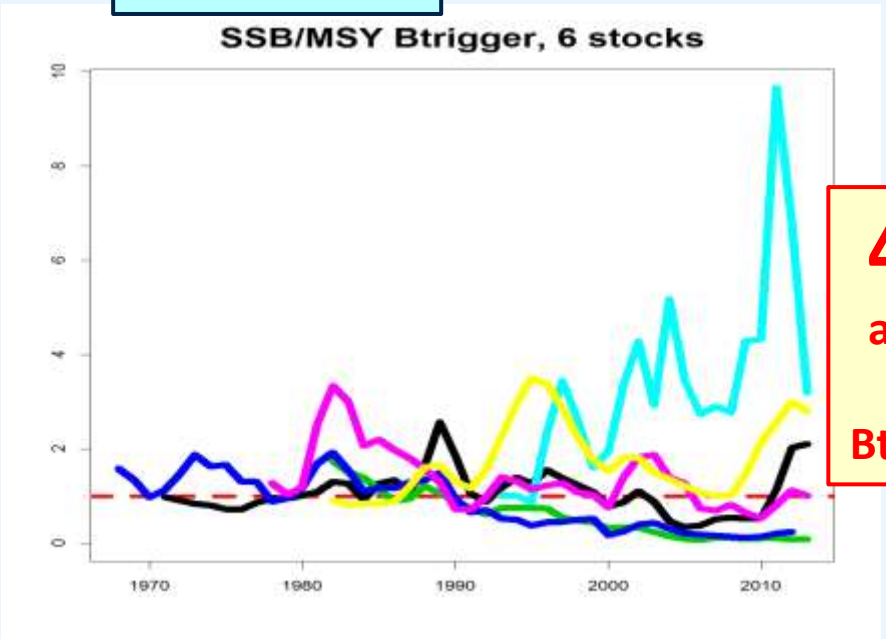


1/7 just above F_{MSY} + **3/7** at F_{MSY} or less

trends

ref. points

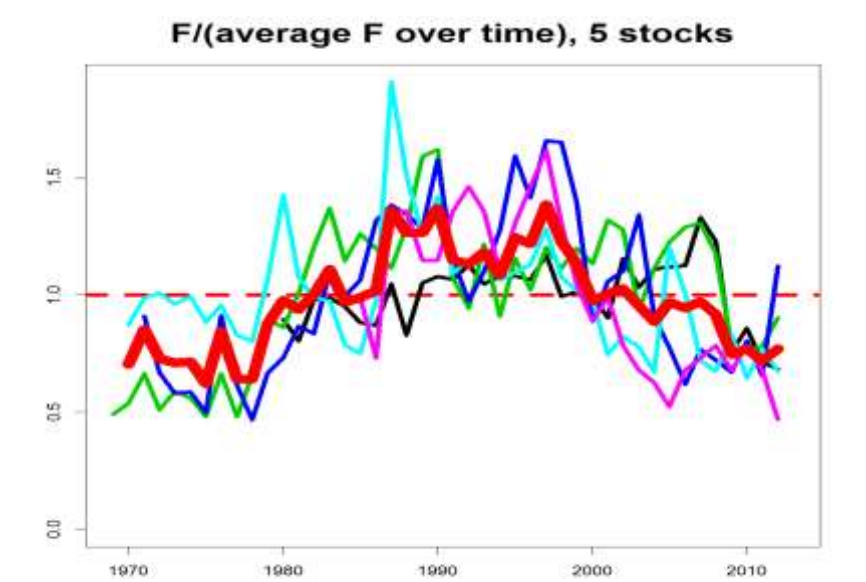


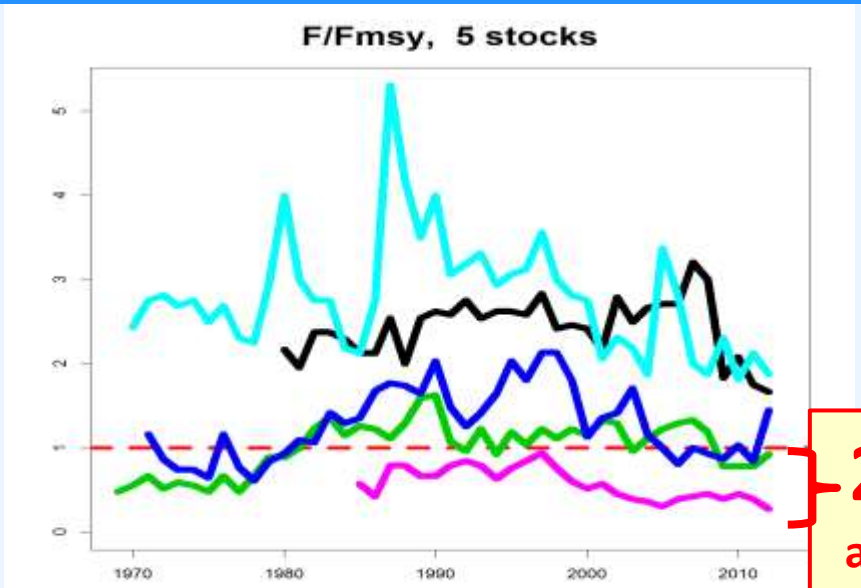


4/6 above MSY Btrigger

ICES
CIEM

Celtic Seas: Plaice, Sole, Megrim

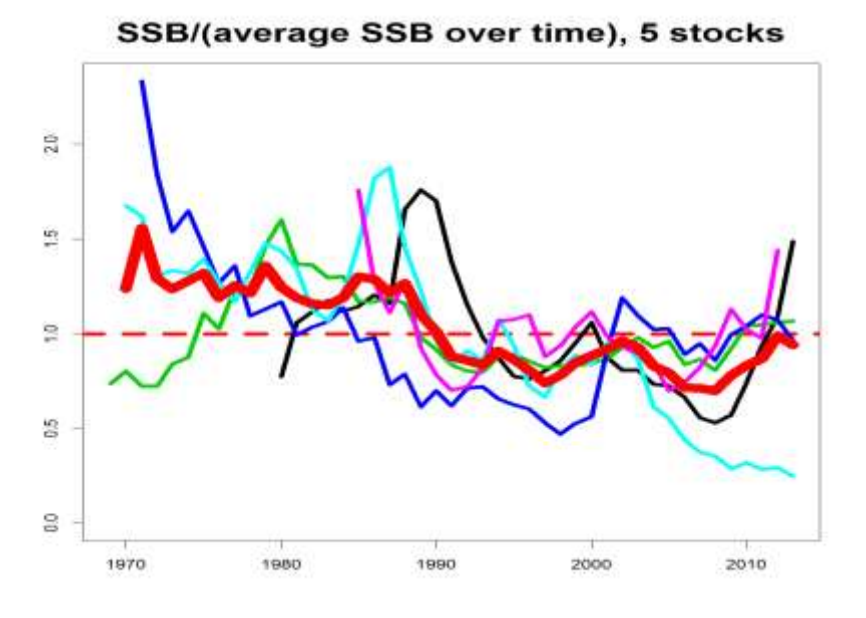


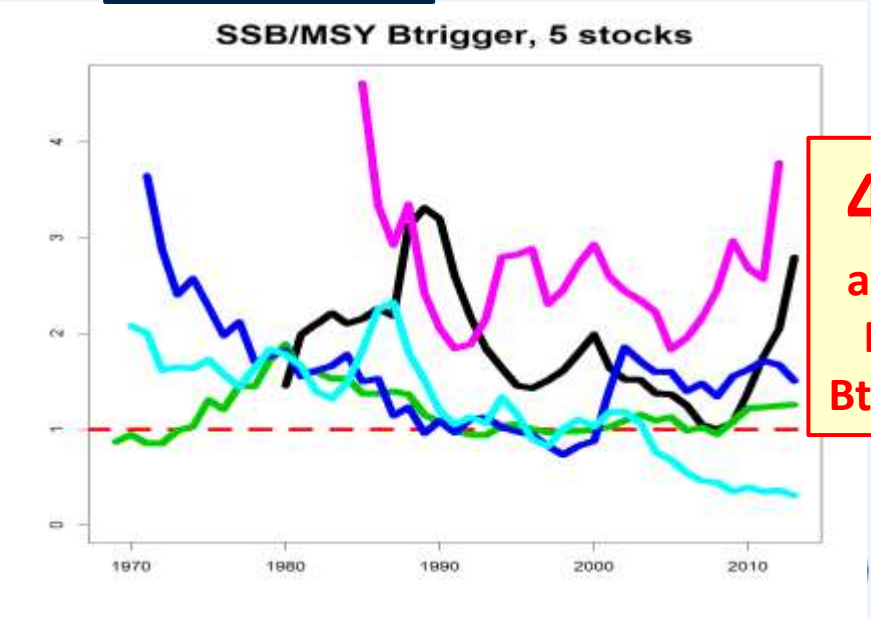


2/5
at F_{MSY} or less

trends

ref. points

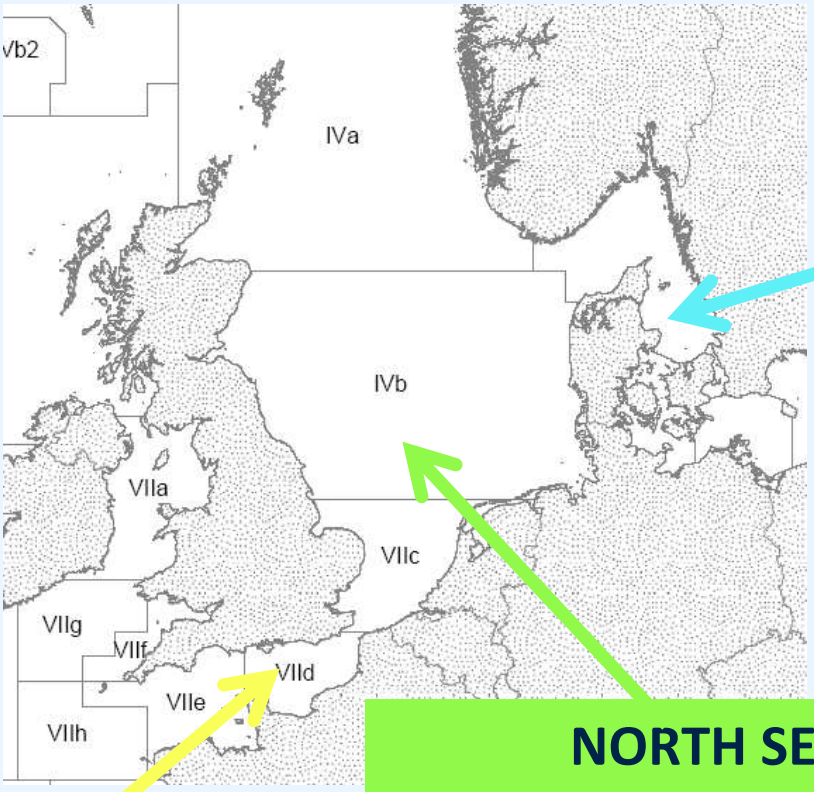




4/5
above MSY Btrigger

ICES
CIEM

North Sea ecoregion



- Cod in Kattegat
- Whiting in Skagerrak & Kattegat
- Plaice in Skagerrak
- Plaice in SD 21-23
- Sole in Skagerrak, Kattegat & SD 22-24

EASTERN CHANNEL

- Plaice (VIId)
- Sole (VIId)

NORTH SEA:

- Cod (IV, Skagerrak, VIId)
- Haddock (IV, Skagerrak)
- Whiting (IV, VIId)
- Saithe (IV, IIIa, VI)
- Plaice (IV)
- Sole (IV)

New quantitative advice this year (DLS):

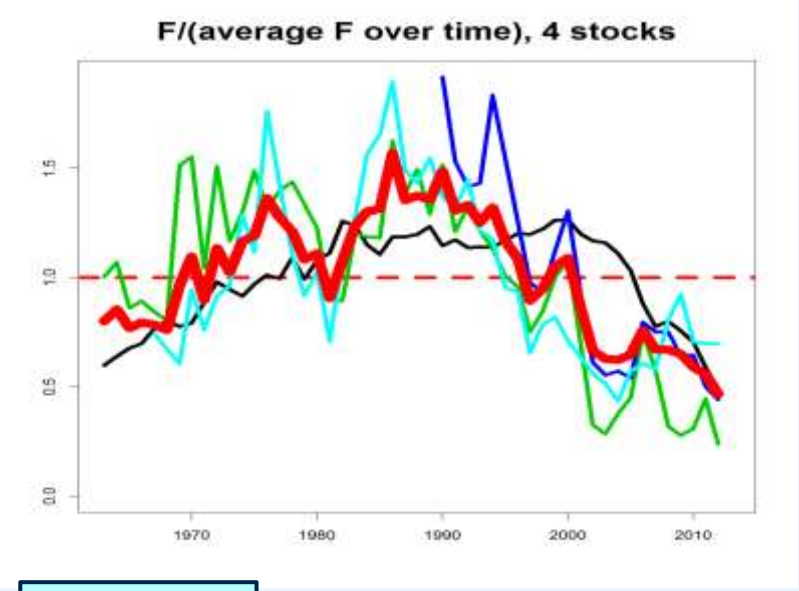
Brill, Dab, Flounder, Lemon sole, Turbot (IV; IIIa), Witch

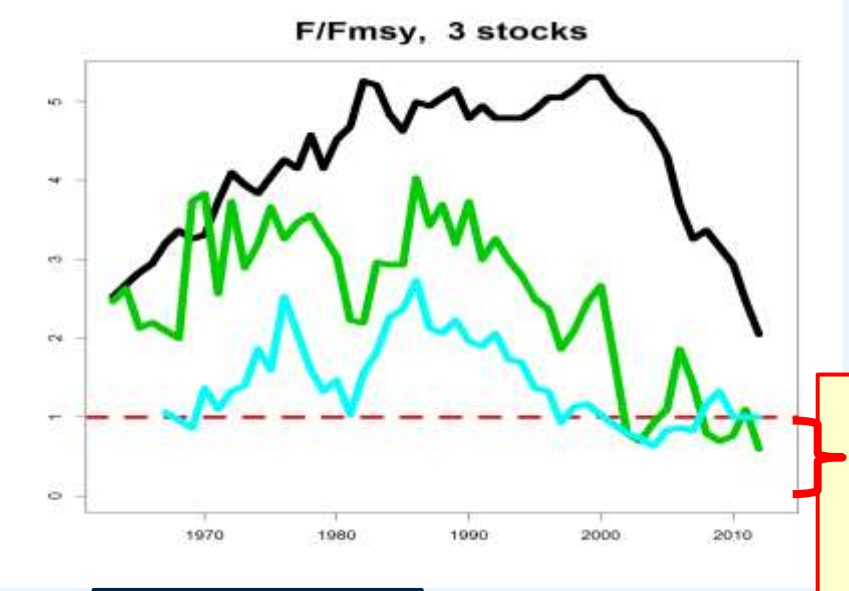
Nephrops

Short lived:

Sandeel, Norway pout, Sprat (IV, IIIa)

North Sea: Cod, Haddock, Whiting, Saithe

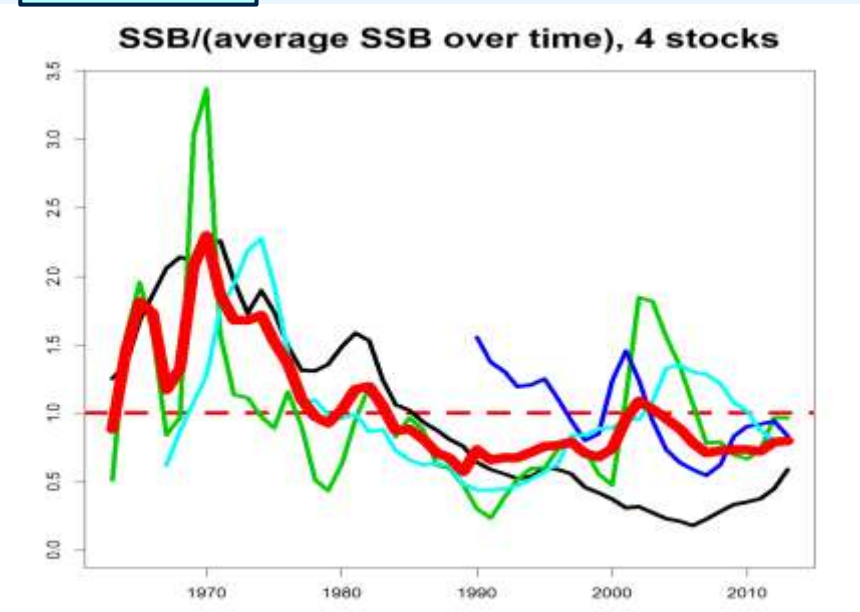


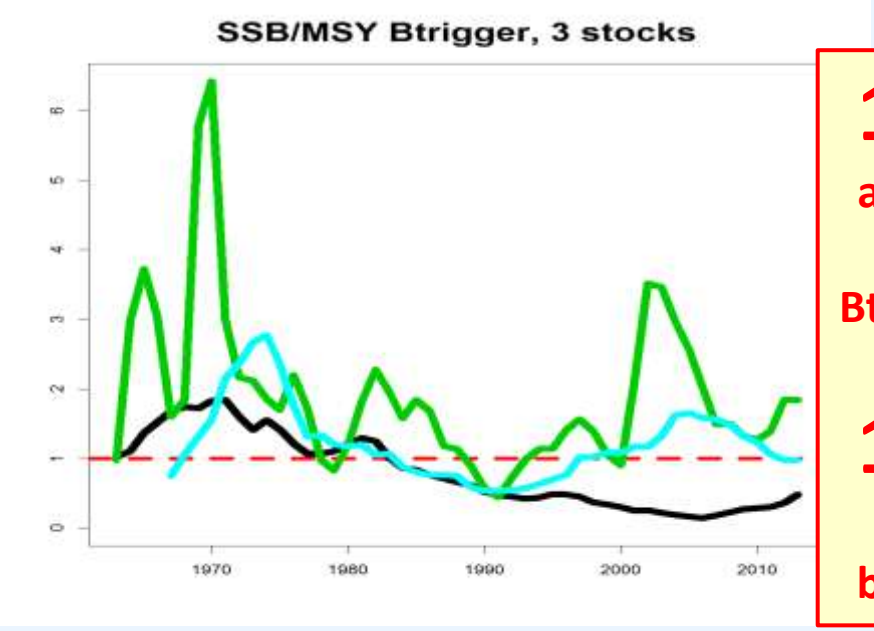


2/3 at F_{MSY} or less

trends

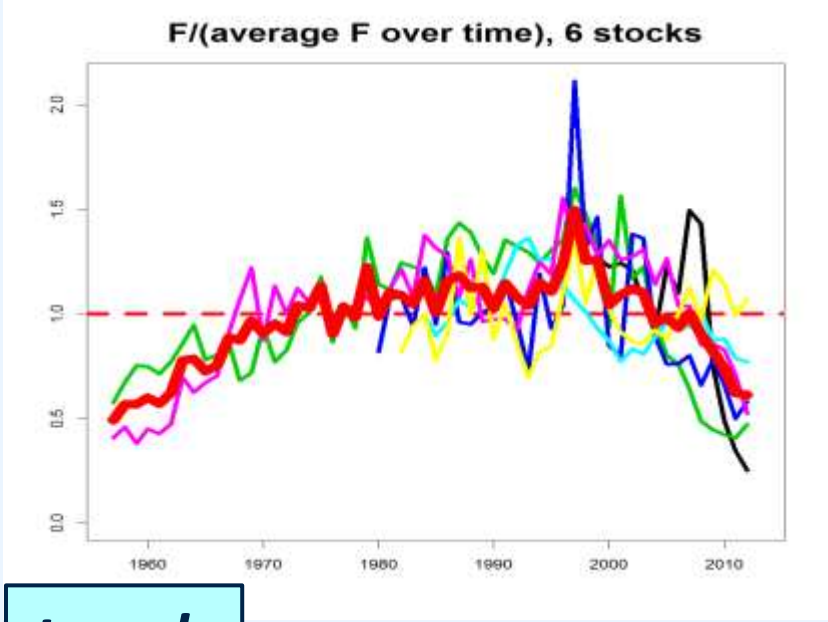
ref. points

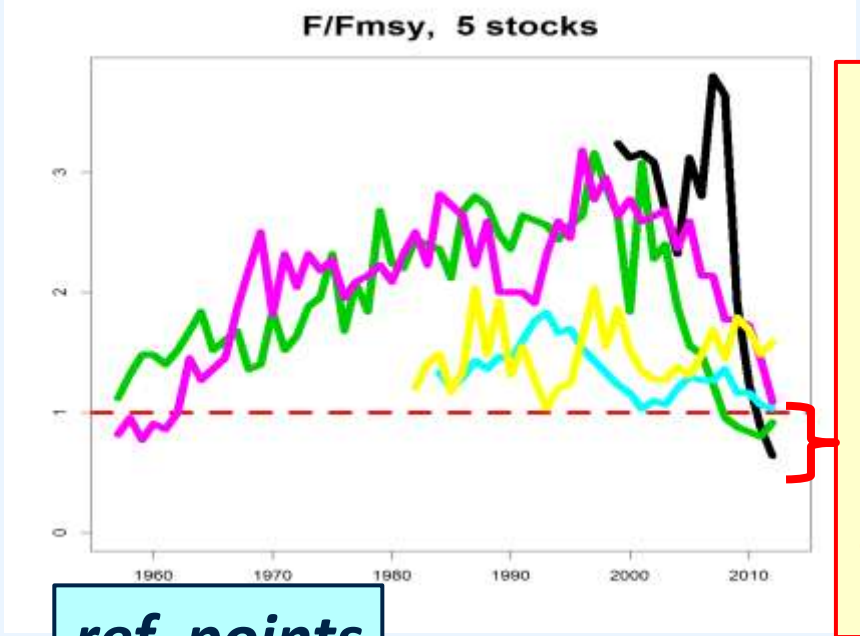




1/3 above MSY Btrigger + 1/3 just below

North Sea: Plaice, Sole

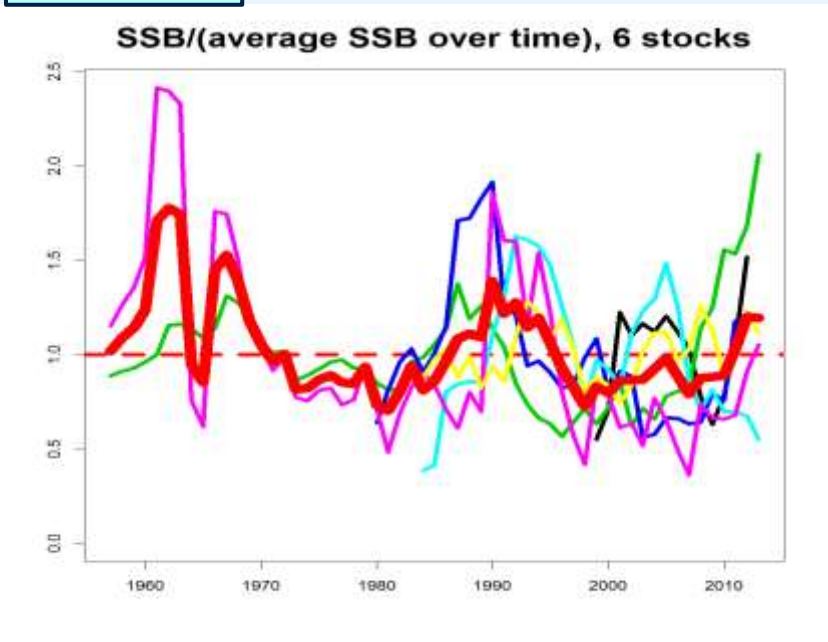


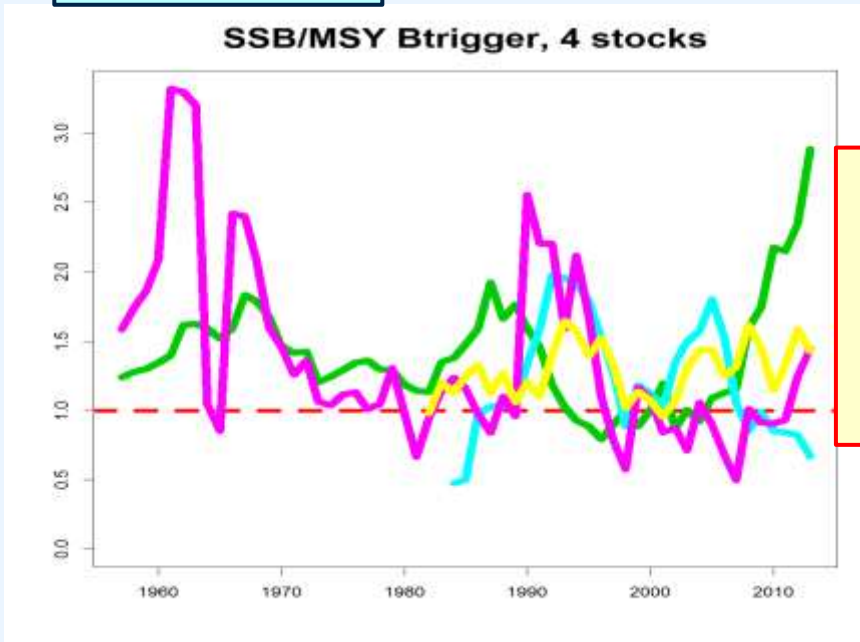


2/5 just above F_{MSY} + **2/5** at F_{MSY} or less

trends

ref. points

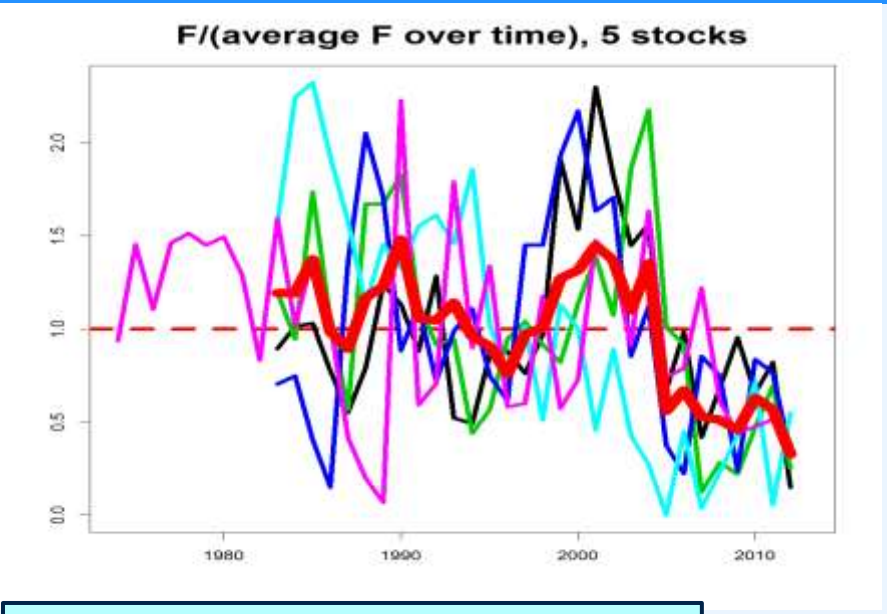


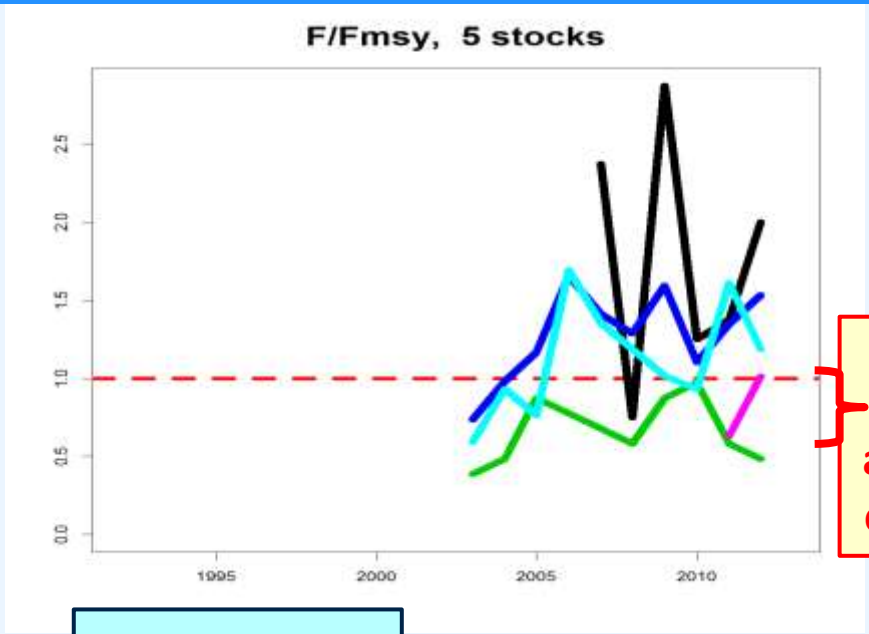


3/4 above MSY Btrigger

ICES
CIEM

North Sea:

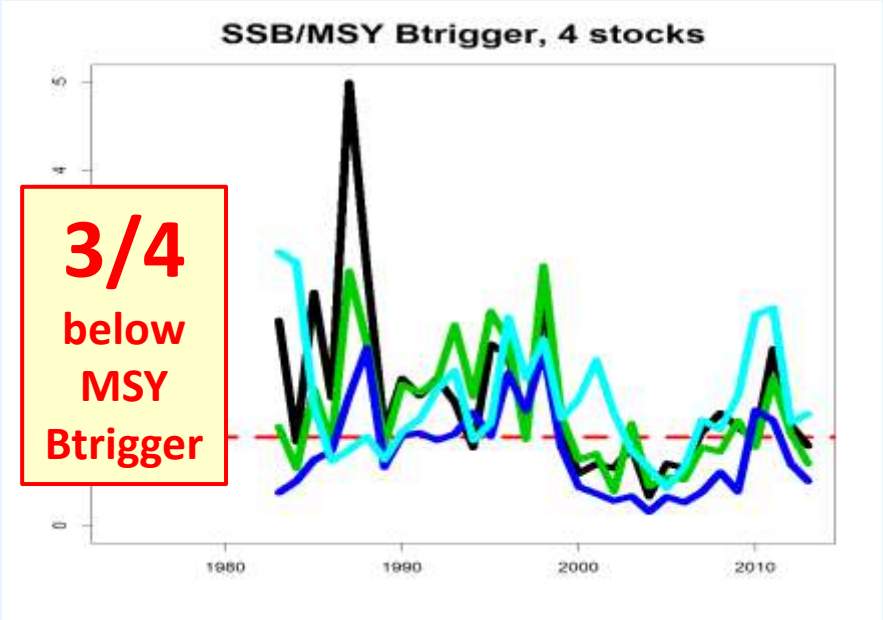




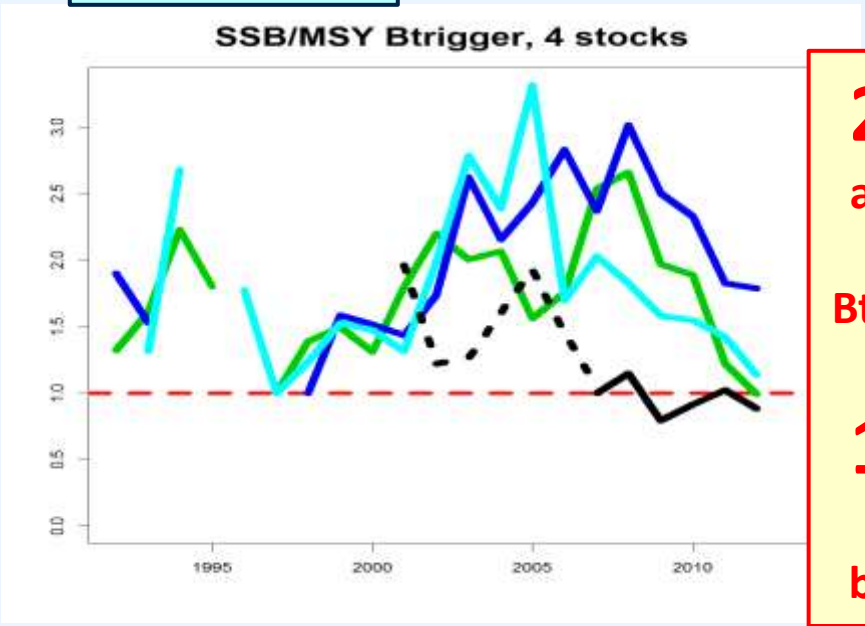
2/5 at F_{MSY} or less

Sandeel, N pout, sprat

Nephrops

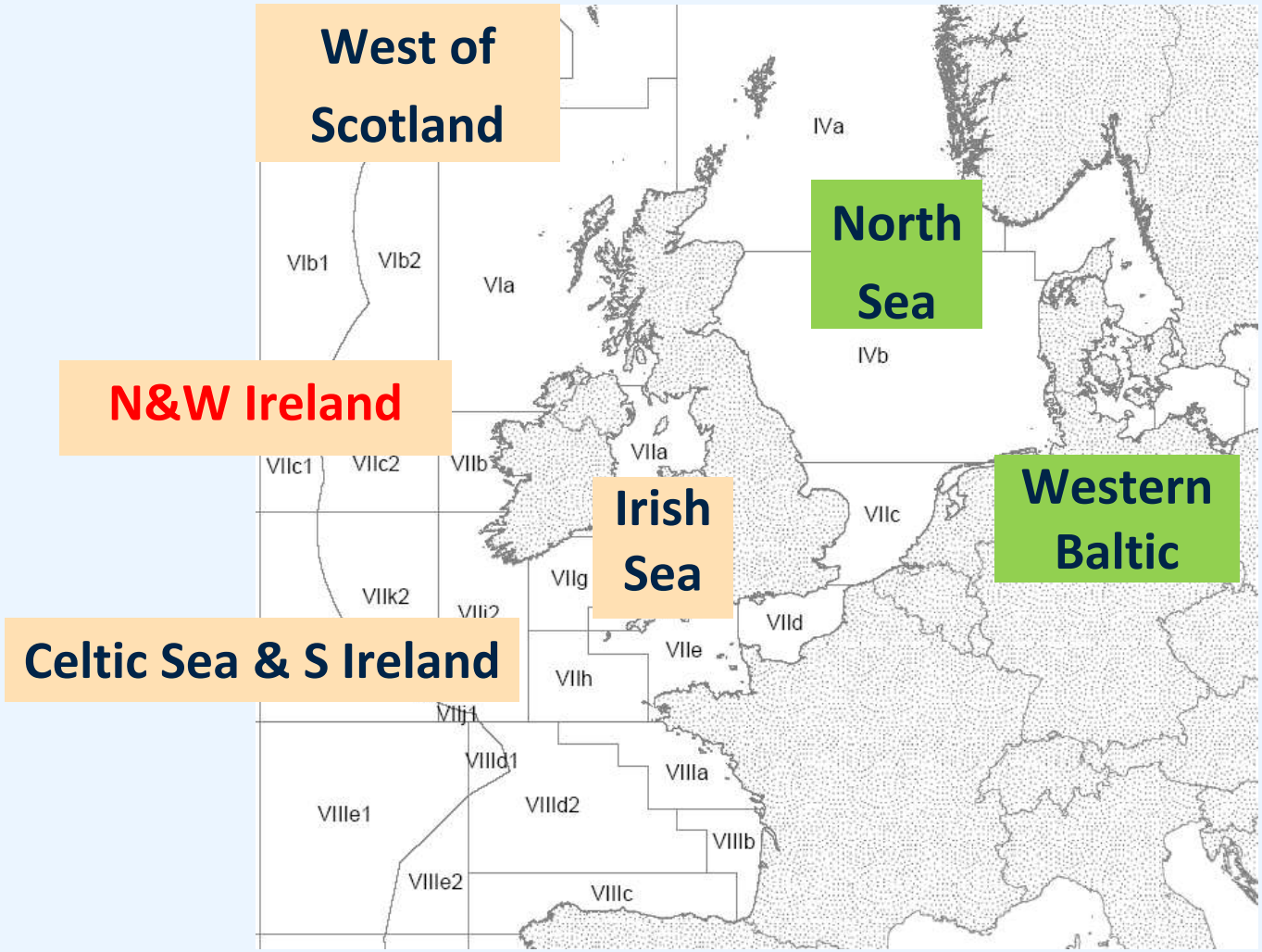


3/4 below MSY Btrigger



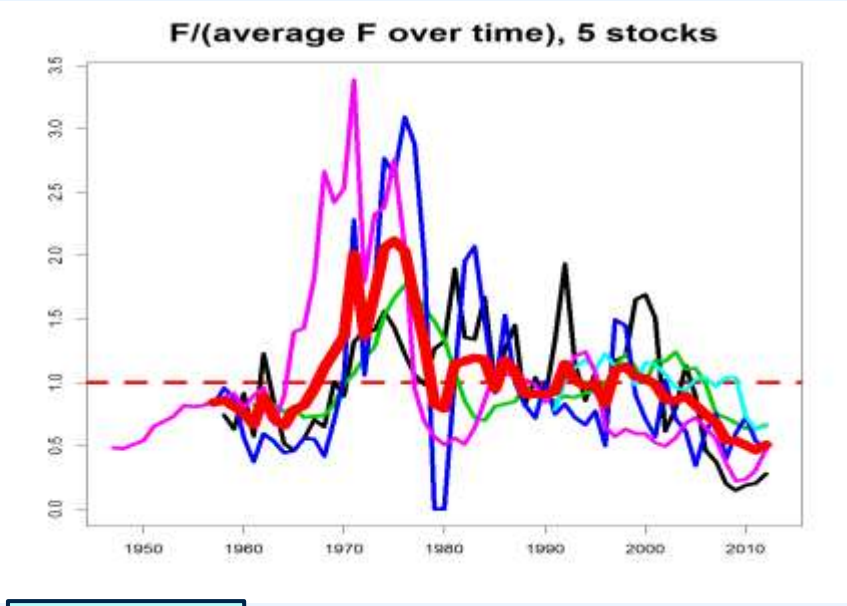
2/4 above MSY Btrigger + 1/4 just below

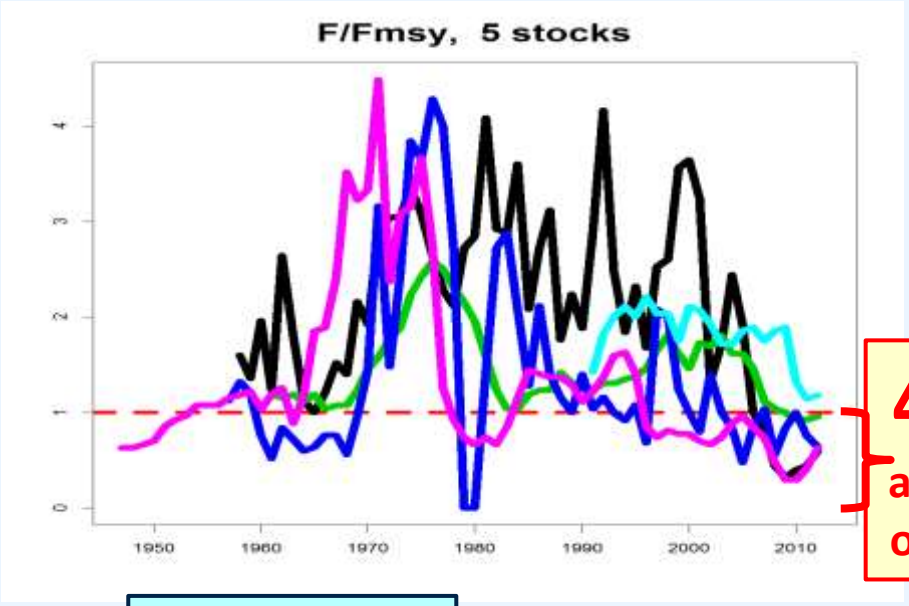
Celtic Seas, N Sea: Herring



ICES CIEM

Celtic Seas, N Sea: Herring

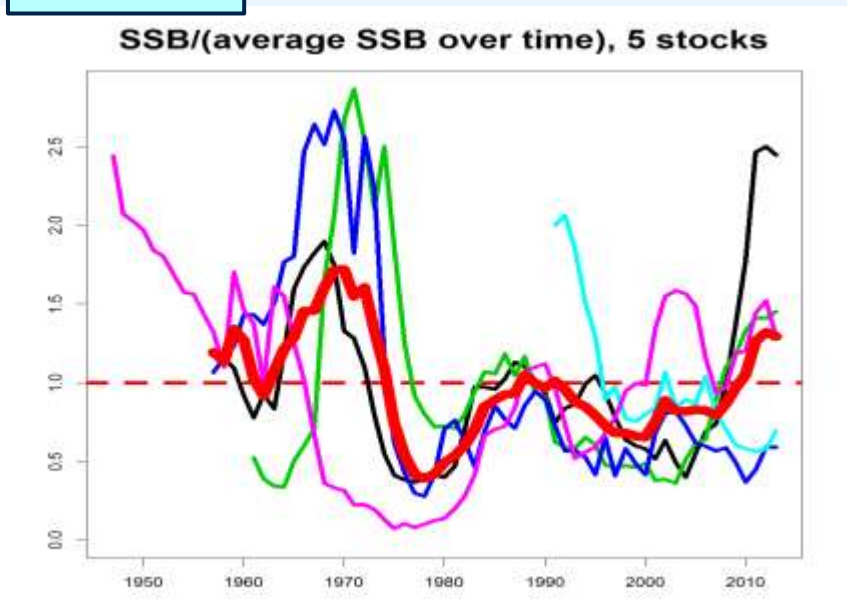


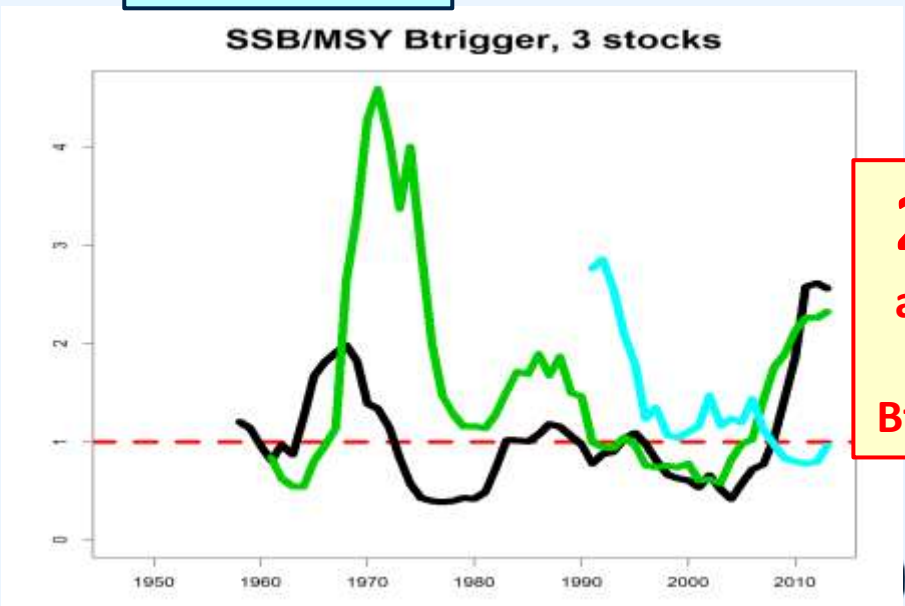


4/5
at F_{MSY} or less

trends

ref. points





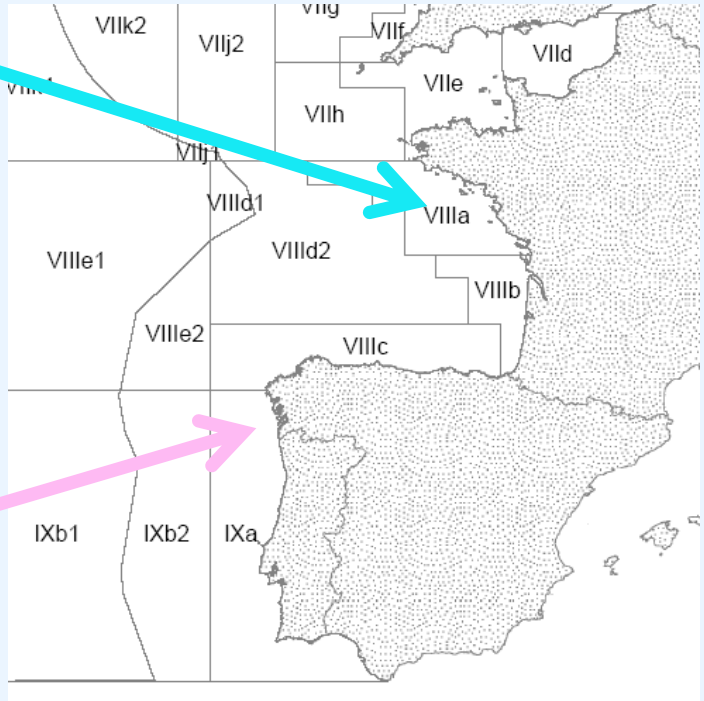
2/3
above MSY Btrigger

ICES
CIEM

Bay of Biscay & Iberia ecoregion

BAY OF BISCAY:

- **Sole**
- **Anchovy**



IBERIA (VIIIc, IXa):

- **Hake**
- **Anglerfish (*pisc.*)**
- **Anglerfish (*budeg.*)**
- **Megrim (*whiff.*)**
- **Megrim (*bosc.*)**
- **Sardine**
- **H. mackerel (IXa)**

Nephrops

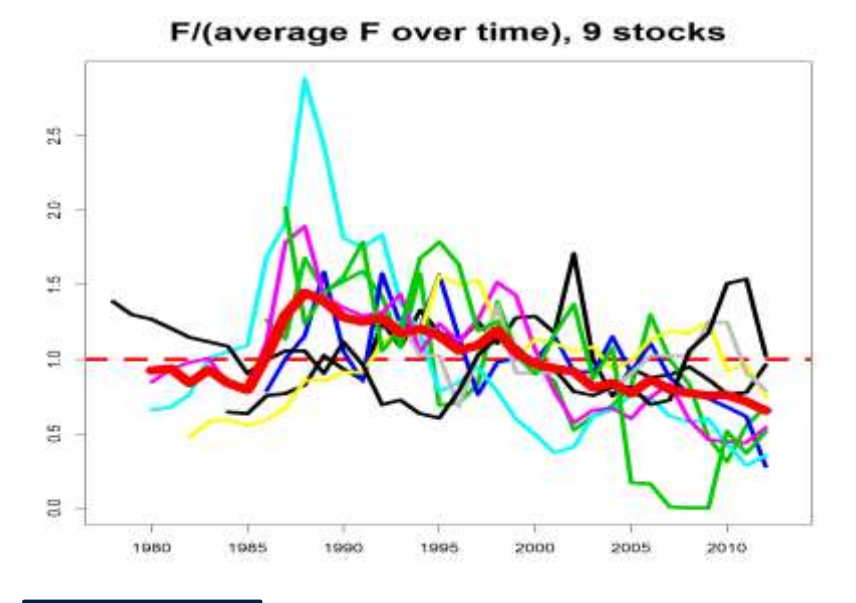
- **VIIIc, IXaN**
- **IXaS**
- **VIIIab**

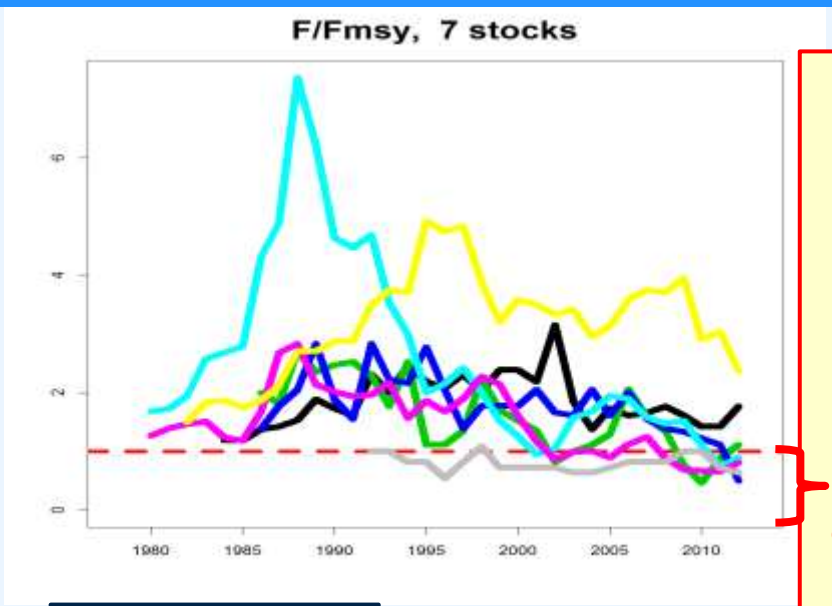
"New" stocks (DLS):

whiting
plaice
sole
pollack
grey gurnard
sardine 7+8abd
sea bass

ICES CIEM

Biscay & Iberia: all stocks

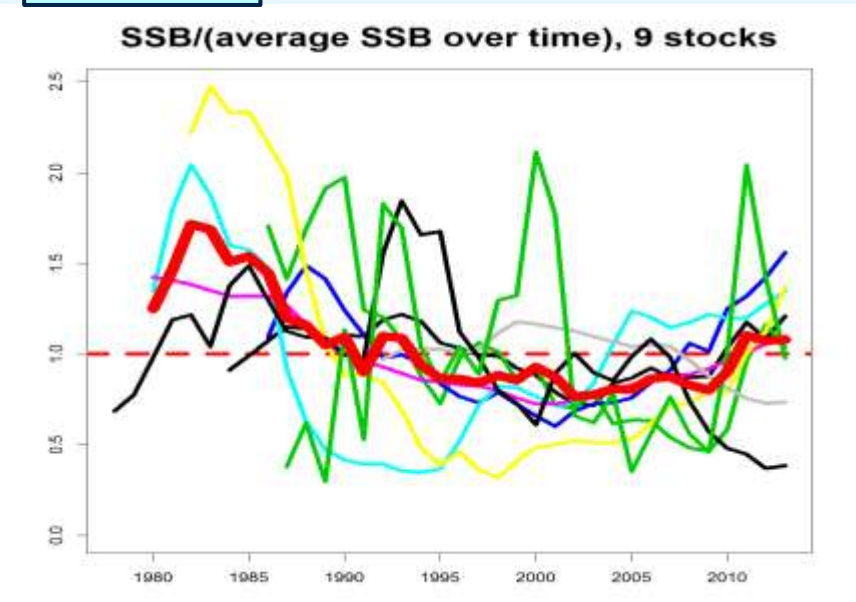


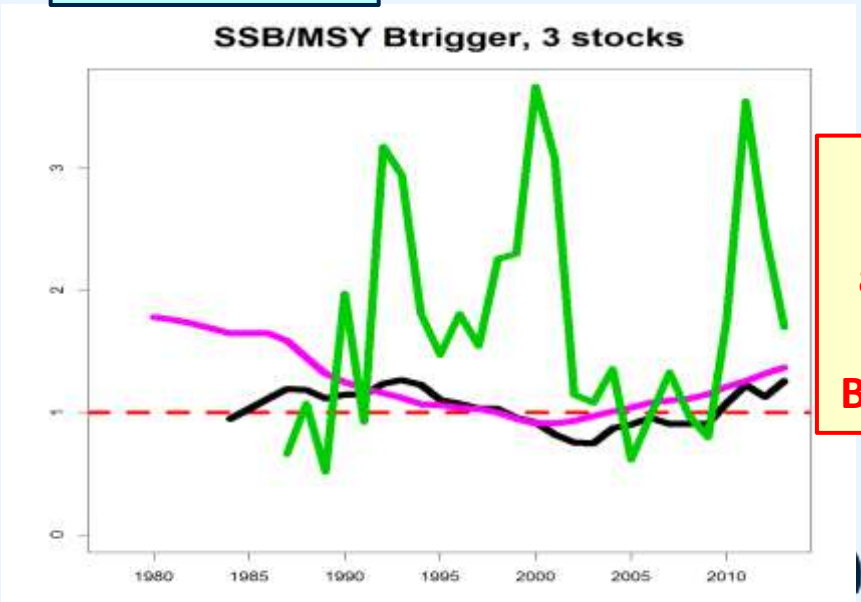


1/7 just above F_{MSY} + **4/7** at F_{MSY} or less

trends

ref. points

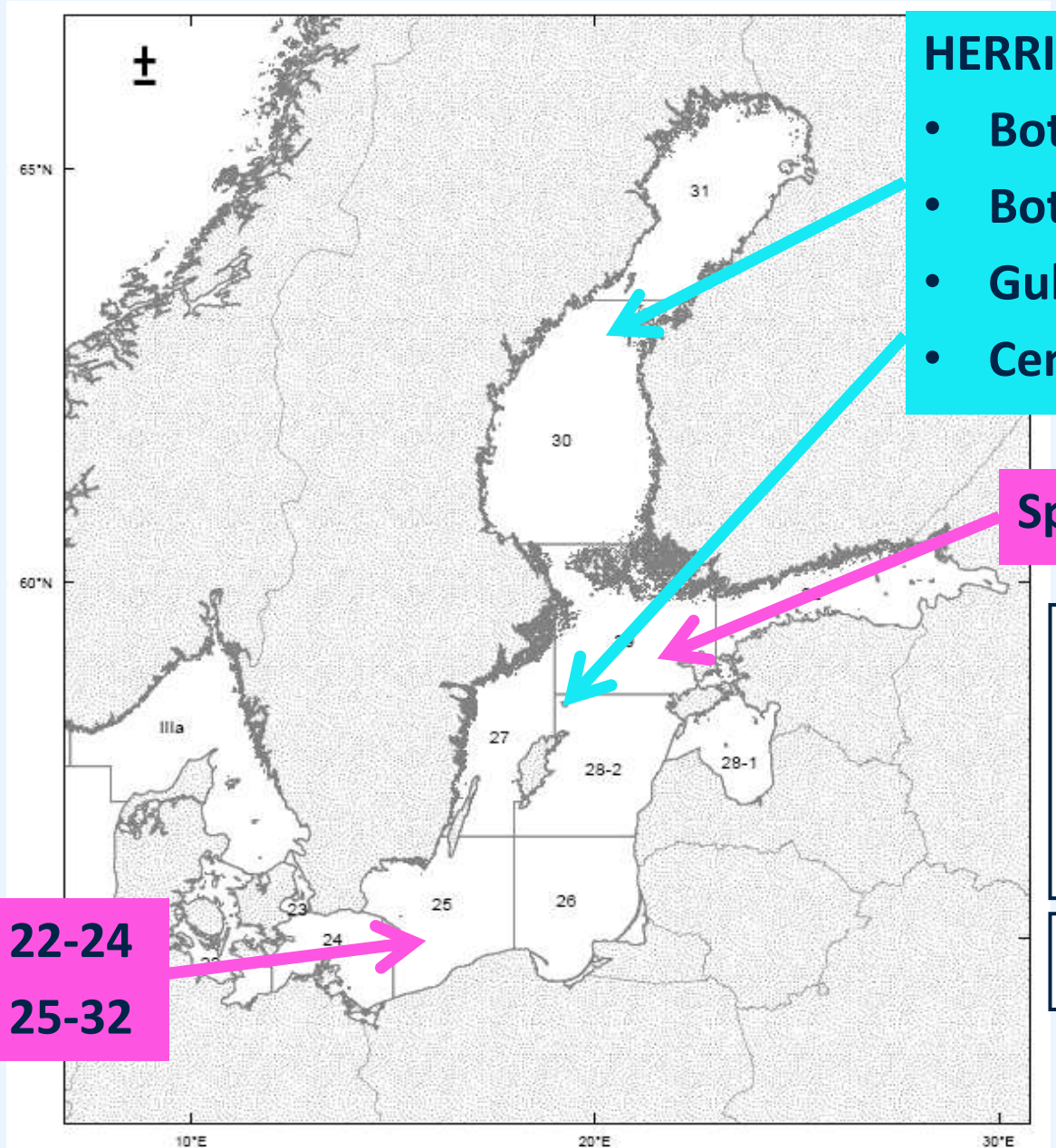




3/3 above MSY Btrigger

ICES
CIEM

Baltic ecoregion



HERRING:

- **Bothnian Bay**
- **Bothnian Sea**
- **Gulf Riga**
- **Central Baltic**

Sprat SD 22-32

Flatfishes (DLS):

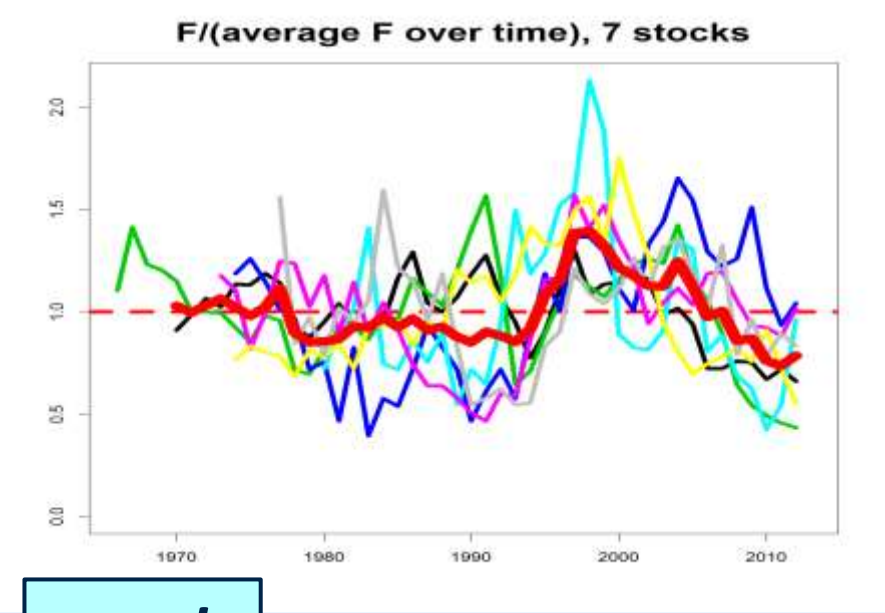
Plaice, Brill, Dab, Flounder, Turbot

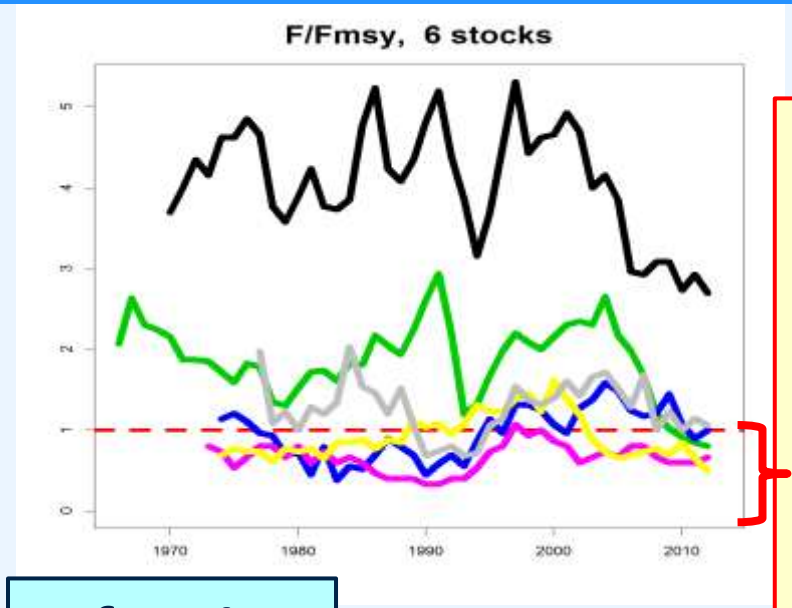
Salmon & Trout

- **Cod SD 22-24**
- **Cod SD 25-32**

ICES CIEM

Baltic: Cod, Sprat, Herring

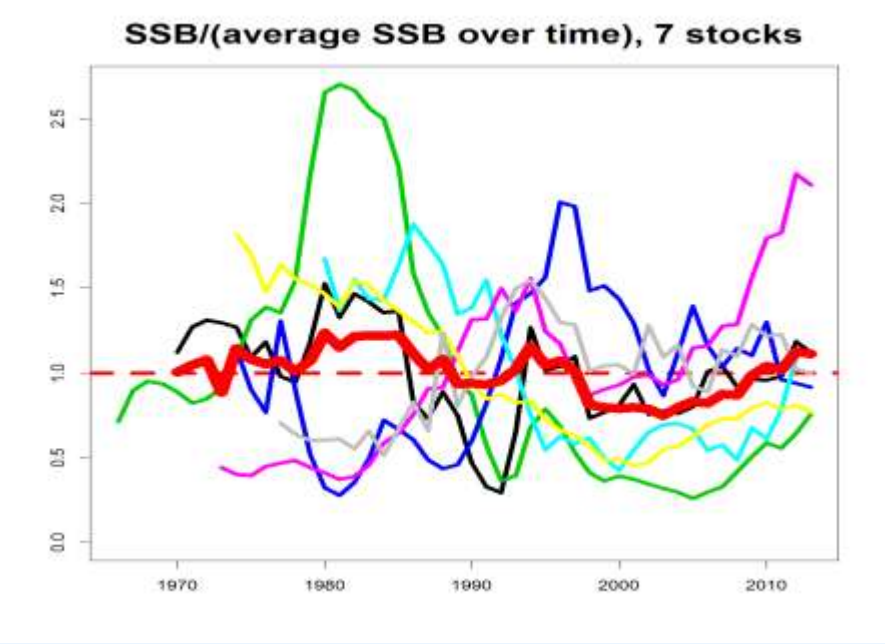


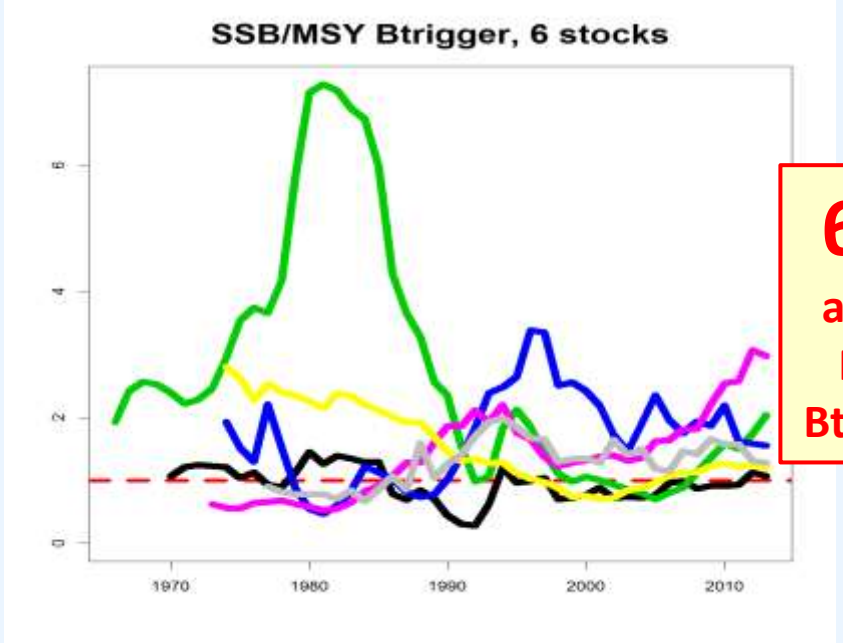


1/6 just above F_{MSY} + **4/6** at F_{MSY} or less

trends

ref. points





6/6 above MSY Btrigger

ICES
CIEM

Overall conclusions:
Improving situation over the years

- **F has come down strongly (many stocks now at F_{MSY})**
- **SSB increasing**
- **some stocks still having problems**

Mixed fisheries (technical interactions)

Fisheries catch several species at the same time

If ignored in management, this can lead to:

- *under- or over-utilization of fishing opportunities*
- *discarding*
- *jeopardize recovery of weak stocks*

- **Since 2012, ICES North Sea advice presents an analysis of mixed fishery implications under current TAC and effort regimes:**

  highlights main points of friction between single-species objectives

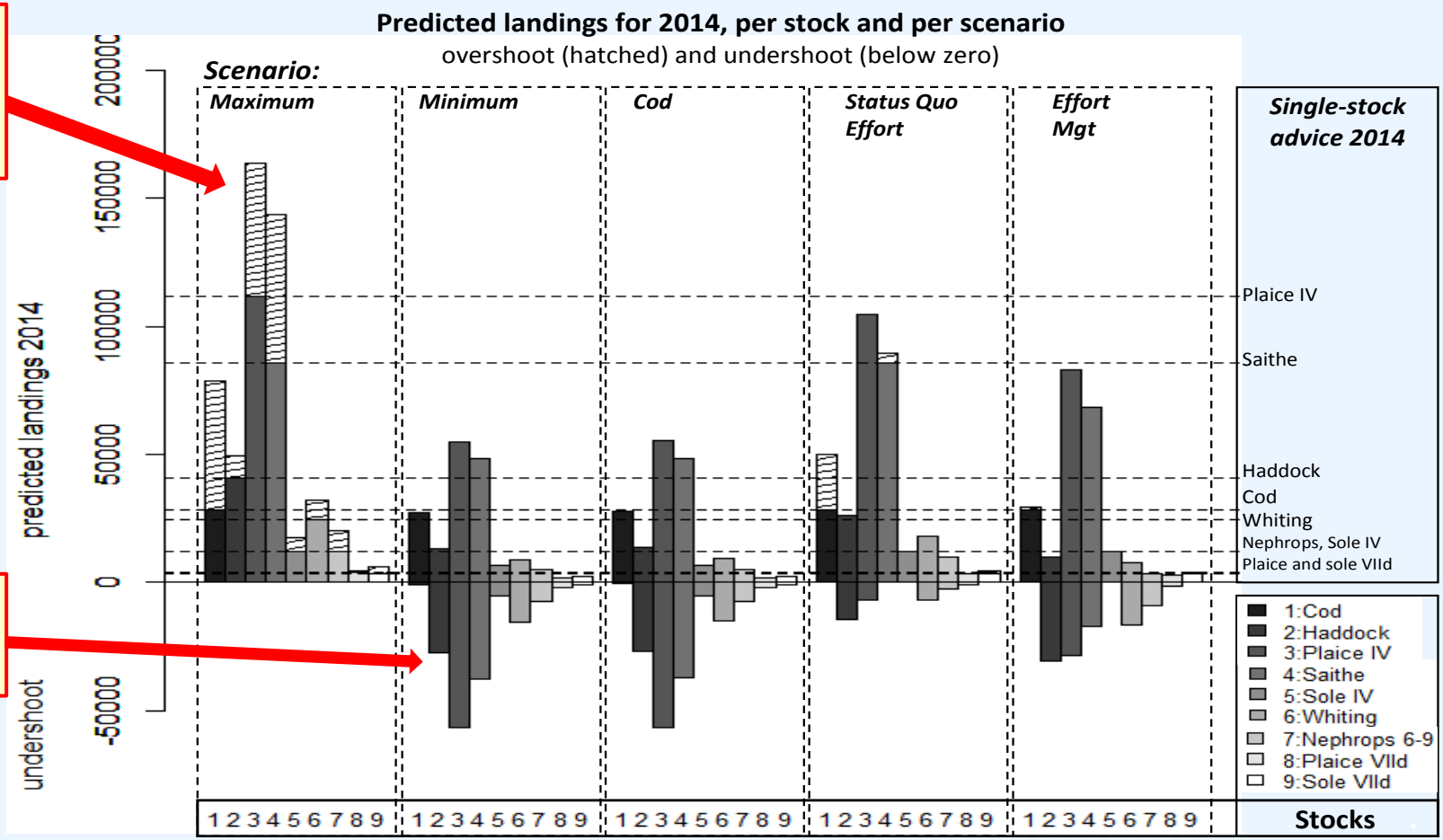
- **Similar analyses developing for West of Scotland & Iberian Waters**
- **Other approaches (taking into account spatial and technical effects across a species assemblage) also considered**
- **Requires interaction with managers and stakeholders**

ICES CIEM

Mixed fisheries analysis for North Sea: 5 example scenarios

Landings bigger than TAC

Landings below TAC



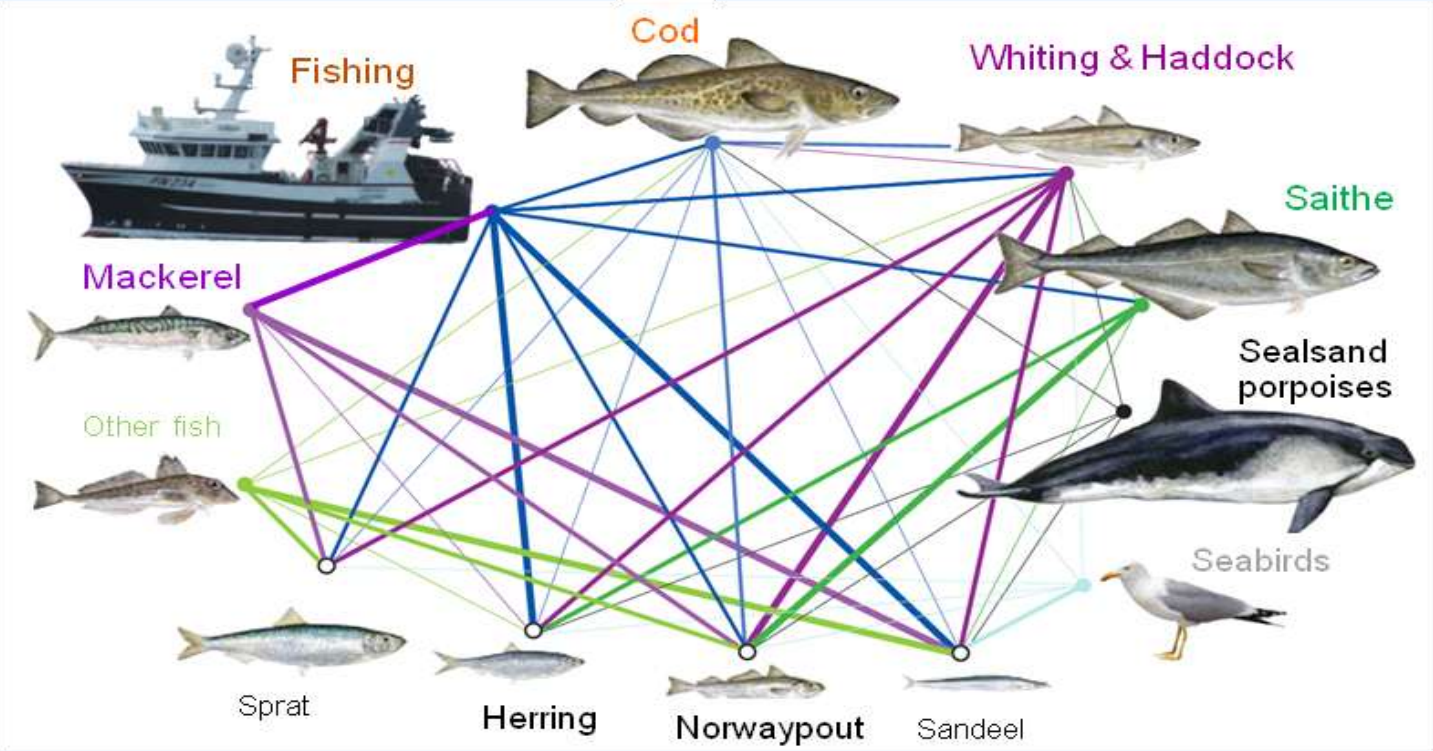
* Individual stock objectives can not all be achieved simultaneously

* In 2014, the TAC (single-stock advice) for cod is the most limiting

* "Max" scenario leads to F(2014) > F_{pa} for cod, saithe and sole in VIId (not precautionary)

Multispecies (biological interactions):

Responses of stocks to changes in fishing pressure affected by biological interactions (predation, competition...)



➔ expected increases in stock abundance based on an individual-stock MSY approach unlikely to occur simultaneously

ICES CIEM

Multispecies (biological interactions):

- Some multispecies aspects incorporated in ICES single-stock advice (e.g. natural mortality dependent on predator populations)

More comprehensive incorporation under development (but complex and requires dialogue to foster further development):

Advice should present precautionary boundaries & highlight main trade-offs

- Started with Baltic Sea & North Sea

- In Baltic: trade-offs between cod and (herring & sprat)

- In North Sea:
  - all species strongly affected by F of cod and saithe
  - indirect predation effects also important (e.g. cod, haddock, sandeel)

- Data needs (stomach data) of vital importance for advice development

ICES CIEM

http://www.ices.dk

Direct link: "Latest advice"

.4.12 **Advice June 2013**

ECOREGION **Celtic Seas**
STOCK **Herring in Division VIa (North)**

Advice summary for 2014

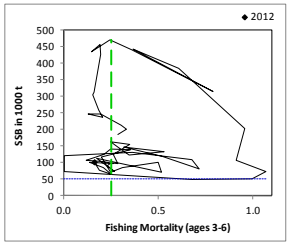
ICES advises on the basis of the agreed West of Scotland herring management plan that landings should be no more than 28 067 t in 2014. Discards are considered to be low and all catches are therefore assumed to be landed.

ICES advises that activities that have a negative impact on the spawning habitat of herring, such as extraction of marine aggregates and marine construction on the spawning grounds, should not occur.

Stock status

F (Fishing Mortality)	2010	2011	2012	
MSY (F_{MSY})	✓	✓	✓	Appropriate
Precautionary approach (F_{pa},F_{lim})	?	?	?	Undefined
Management plan (F_{MGT})	✓	✓	✓	Below target

SSB (Spawning-Stock Biomass)	2011	2012	2013	
MSY ($B_{trigger}$)	?	?	?	Undefined
Precautionary approach (B_{pa},B_{lim})	?	?	?	Undefined



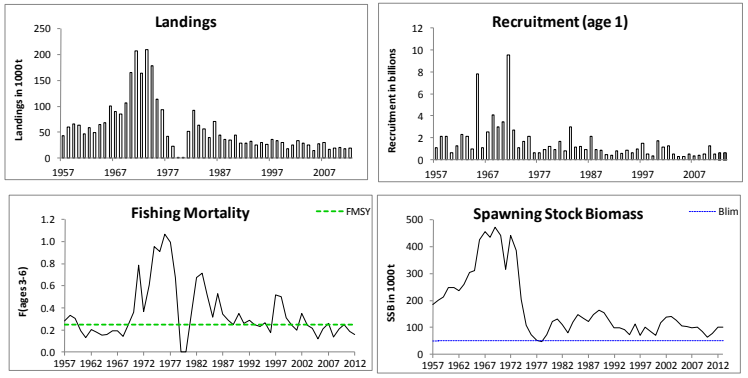


Figure 5.4.12.1 Herring in Division VIa (North). Summary of stock assessment (weights in thousand tonnes). Estimates are shaded. Top right: SSB and F over the time-series used in the assessment.

Since 1977, the stock has been fluctuating at a considerable lower biomass than in the previous 20 years. Fishing mortality has fluctuated around F_{MSY} in recent years, and recruitment is lower than in the historical period.

Management plans

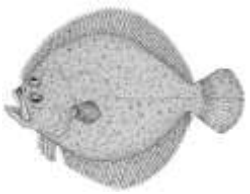
A management plan has been adopted by the EU in 2008 (Council Regulation (EC) 1300/2008, Annex 5.4.12). The main aim of the plan is to manage the fisheries on the basis of maximum sustainable yield. ICES has evaluated the plan and concludes that it is in accordance with the precautionary approach.

Digest documents:

"Publications" ➔ "Library" ➔ "Popular Advice"

ECOREGION	North Sea
STOCK	**Turbot in the North Sea**
SCIENTIFIC NAME	*Scophthalmus maximus*

BIOLOGY – SPECIES A shallow water, fast-growing, coastal flatfish, turbot lives in various habitats at depths from 20 to 70 metres. Spawning occurs from April to August. Turbot is a predator, feeding on other bottom-dwelling fish, free-swimming fish (sprat and herring), and to a lesser extent, crabs and mussels.



THE FISHERY A valuable bycatch in mixed flatfish fisheries. There are also some directed fisheries using gillnets. Discarding is thought to be low. This stock is managed together with brill in a shared TAC.

MAIN FISHING NATIONS The Netherlands, Denmark, and United Kingdom

ADULT STOCK SIZE Unknown

CATCH 2 914 tonnes

STOCK STATUS The adult stock is probably increasing from a low level and fishing pressure is probably declining.

The advice applies to the blue area. Stock distribution and management areas may be different.

Advice for 2014 Based on ICES precautionary approach for data-limited stocks, ICES advises that catches in 2014 should be no more than 2 978 tonnes (similar to recent catches).

FURTHER INFORMATION The full technical advice of ICES for this stock can be found here.
The present sheet is an attempt to make the technical document understandable to a wider public, but it does not override or supersede the original advice.
This stock is part of the North Sea ecosystem. Ecosystem overviews can be found here.

Thank you for your attention!

Comments and questions?