



# ICES Advice – General Framework

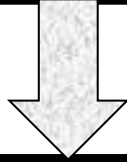
*Carmen Fernández, ICES ACOM vice-chair*

**For NWWAC (Edinburgh, July 2, 2014)**

## Steps in Advisory Process

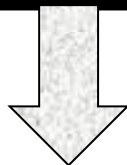
### Expert Groups

Conduct assessments &  
first draft of advice



### Advice Drafting Groups

Finalise advice documents



### ACOM

Approves and releases advice

### Benchmark Workshops

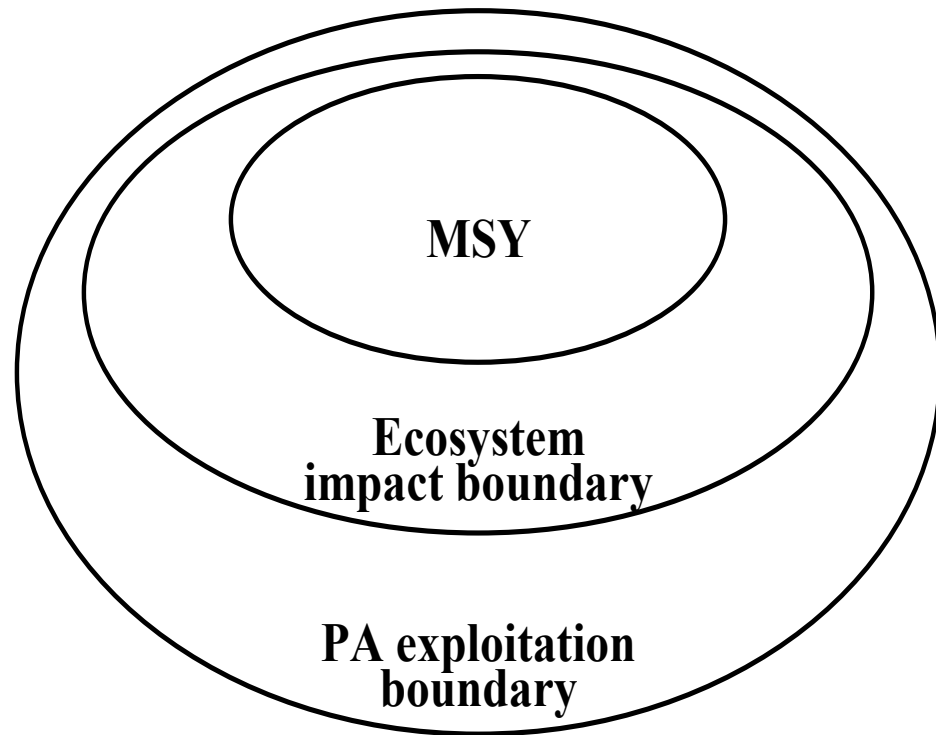
In-depth revision of  
assessment methods:  
data, models...

External Reviewers

Technical audits always  
& extra reviewing  
when needed

# General principles of ICES advice

**MSY approach  
within  
Precautionary  
and  
Ecosystem  
boundaries**



***Aim: to move towards  
more integrated assessment  
and advice***

## Basis for ICES Advice

**Management Plan**  
Consistent with PA & recognised  
as potential basis for advice by competent authorities

No

**ICES MSY approach**

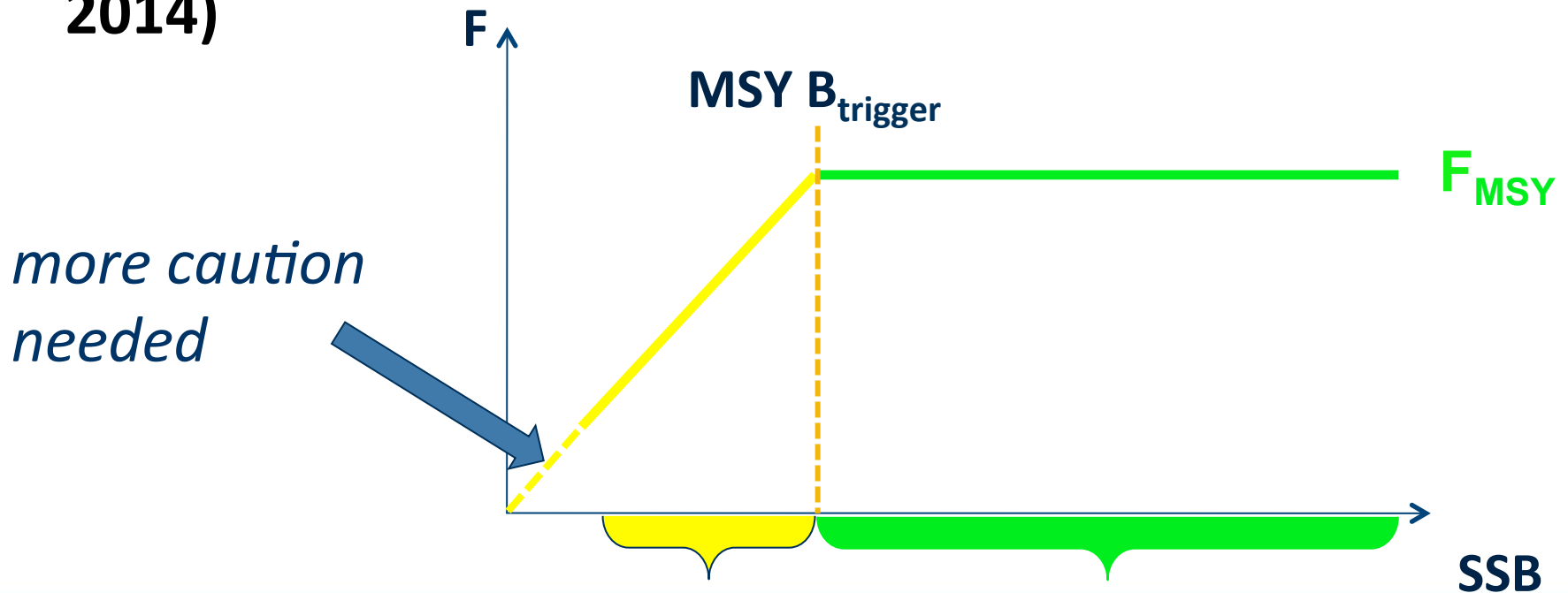
No

**ICES PA approach**

All options in Outlook Table

# ICES MSY approach

- ✓ Maximize long term average yield
- ✓ Safeguard against low SSB
- ✓ Stay within precautionary boundaries (WKMSYREF2, 2014)



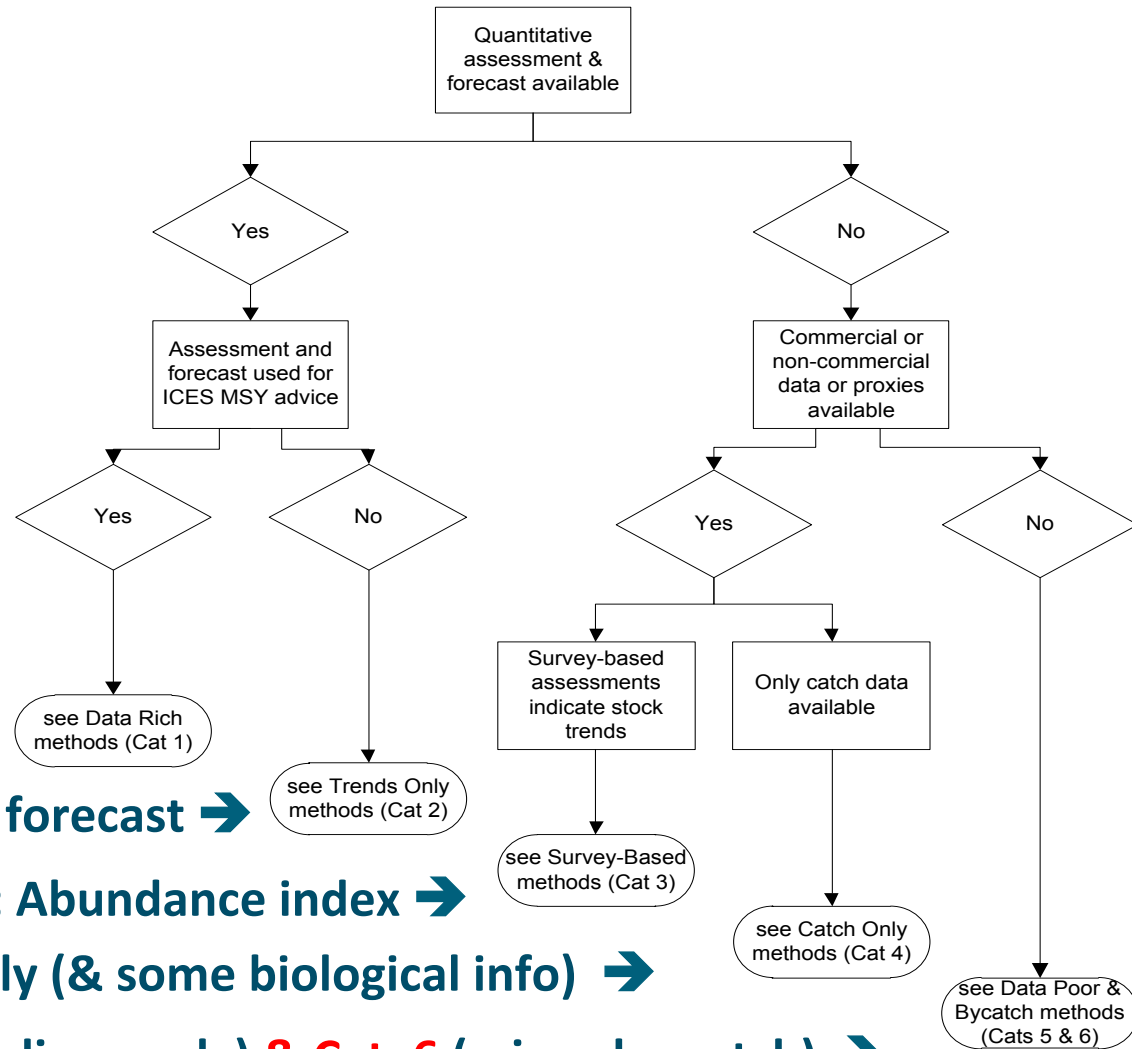
## Data-limited stocks

All stocks for which a “full assessment” and outlook table with catch options can not be provided (more than 100)

*In 2012, ICES provided quantitative advice for the first time*

- Categorisation of all stocks (6 categories)  
from data rich towards situations of decreasing information

# Categories:



**Cat. 1: Data-rich (assessment & forecast) →**

**Cat. 2: Qualitative assessment & forecast →**

**Cat. 3: Abundance index →**

**Cat. 4: Catch-only (& some biological info) →**

**Data poor: Cat. 5 (landings-only) & Cat. 6 (minor by-catch) →**



## Data-limited stocks -- Principles

- Available information should be used
- Advice for DLS should, to extent possible, follow same principles as for data-rich stocks
- Precautionary approach: advice more cautious when knowledge about stock status decreases

[www.ices.dk](http://www.ices.dk) → Follow our Advisory process → Latest advice

“General context of ICES advice”

and

“ICES implementation of advice for Data-limited stocks in 2012”



## Data-limited stocks

Advice mostly based on recent catch or landings, modified according to available information.

### **Category 3 (stock abundance index)**

**advice:** recent catch multiplied by last 5-year index trend  
(recent catch) \* (average last 2 years)/(average previous 3 years)

Followed by:

1. **Uncertainty cap** (20% change limit, to dampen noise)
2. **Precautionary buffer** (20% reduction if status in relation to reference points unknown --- exceptions if significant increases in stock size or reductions in exploitation)

- Less frequent updating of DLS advice

## Data-limited stocks

*Methodological issues still remain... work continues...!*

### **WKLIFE 3 (October 2013):**

**Category 3** methods need a target to shift stock to more appropriate abundance level and to reduce biological risk  
(current approach OK in short term but progress on this needed)

### **WKLIFE 4 (October 2014):**

- review simulation work to date and identify additional simulations needed, including in relation to precautionary buffer
- Size-based assessments for DLS: targets and F-based proxies
- Life-history informed assessments (short-lived species)
- Category 3: further development and identification of targets (MSY-based exploitation proxies)
- FAO 2014 report on data-poor methods testing (Categories 5 & 6)

## EU Landing obligation – from 2015

- 2015: small pelagics, industrial, Baltic
- 2016: most demersal stocks in North Sea, NWW, SWW
- In 2013 ICES started providing catch advice
- **ICES advice:**
  - A. **discards can be quantified** → catch advice  
keeping same target F  
implied landings assuming recent discard rates
  - B. **discards unknown** (possibly qualitative information)  
→ landings advice

All advice available online at:

<http://www.ices.dk>

*Click on*

Follow Advisory process → Latest advice

In addition to advice items, [principles and advice basis](#) in document “General context to ICES advice, 2014”

*For advice release dates, follow link:*

Follow Advisory process → Advice requests and advice release dates

***Advice online***

# Template (as in previous years)

Two-pager  
simple  
information for managers

Supporting information  
Background to two-pager

**ECOREGION** North Sea  
**STOCK** Sole in Subarea IV (North Sea)

Advice Summary for 2011

SSB has fluctuated around the precautionary reference points for the last decade. Fishing mortality has shown a declining trend since 1995 and is estimated to be below  $F_{pa}$  in 2008 and 2009.





















Figure 6.4.10.1 Sole in Subarea IV (North Sea) Summary of stock assessment (weights in 1000 tonnes). Top right: SSB and F over the years.

SSB has fluctuated around the precautionary reference points for the last decade. Fishing mortality has shown a declining trend since 1995 and is estimated to be below  $F_{pa}$  in 2008 and 2009.

**Management plan**  
A management plan for North Sea plaice and sole was agreed by the EC in 2007 (Council Regulation (EC) No. 876/2007) which results in a TAC of 13 800 and effort reduction of 10%. ICES has evaluated the long-term management plan and concluded that a mean on average to a low rate of  $B_{pa}$  over the next 10 years. ICES concludes that for sole the management plan can be provisionally accepted as precautionary.

# State of stock table (as previous years)

| F (Fishing Mortality)                        |   |   |   |                       |
|--|---|---|---|-----------------------|
|  | 2008  | 2009  | 2010  |                       |
| MSY ( $F_{MSY}$ )                            |    |    |    | Appropriate           |
| Precautionary approach ( $F_{pa}, F_{lim}$ ) |    |    |    | Harvested sustainably |
| Management plan ( $F_{MGT}$ )                |    |    |    | Below target          |
| SSB (Spawning Stock Biomass)                 |   |   |   |                       |
|  | 2009  | 2010  | 2011  |                       |
| MSY ( $B_{trigger}$ )                        |    |    |    | Below trigger         |
| Precautionary approach ( $B_{pa}, B_{lim}$ ) |   |   |   | Increased risk        |
| Management plan ( $SSB_{MGT}$ )              |  |  |  | Above target          |

## Benchmarks

- **New ICES strategic plans: 2014-2018**
- improved link between Science and Advisory Committees
- *focus: integrating ecosystem aspects into assessment and advice*
  - environmental signals
  - mixed fisheries / multispecies
  - ecological constraints
  - impact of fisheries on non-target species, on sea-floor...  
linkages to MSFD

# Benchmarks

- benchmarks to include ecosystem and ecosystem sub-component assessments
  - ➔ *towards regional ecosystem benchmarks*
- gradual process
- fish stocks benchmarks will also continue



## Benchmarks in 2015

*note: changes may still occur!*

- ✓ Plaice in Eastern Channel
- ✓ *Nephrops* FU 17 (Aran) – *possible*
- ✓ Data Compilation Workshop for *all* Anglerfish Stocks (Autumn 2014)
- ✓ Interbenchmark cod and whiting in West of Scotland (?)
- ✓ Interbenchmark sole and plaice in Western Channel (?)

# Mixed fisheries

- North Sea analysis updated in 2014
- Includes cod, haddock, whiting, saithe, *Nephrops*, plaice (IV and VIId), sole (IV and VIId), turbot

## *Analysis assumes:*

- fleets' quota shares in line with single-species advice for 2015
- same fleet behaviour (fishing pattern, species catchability) in 2014 and 2015 as in 2013

## *Five example mixed fisheries scenarios:*

*min*: fleets stop fishing when their first quota exhausted

*max*: fleets stop fishing when their last quota exhausted

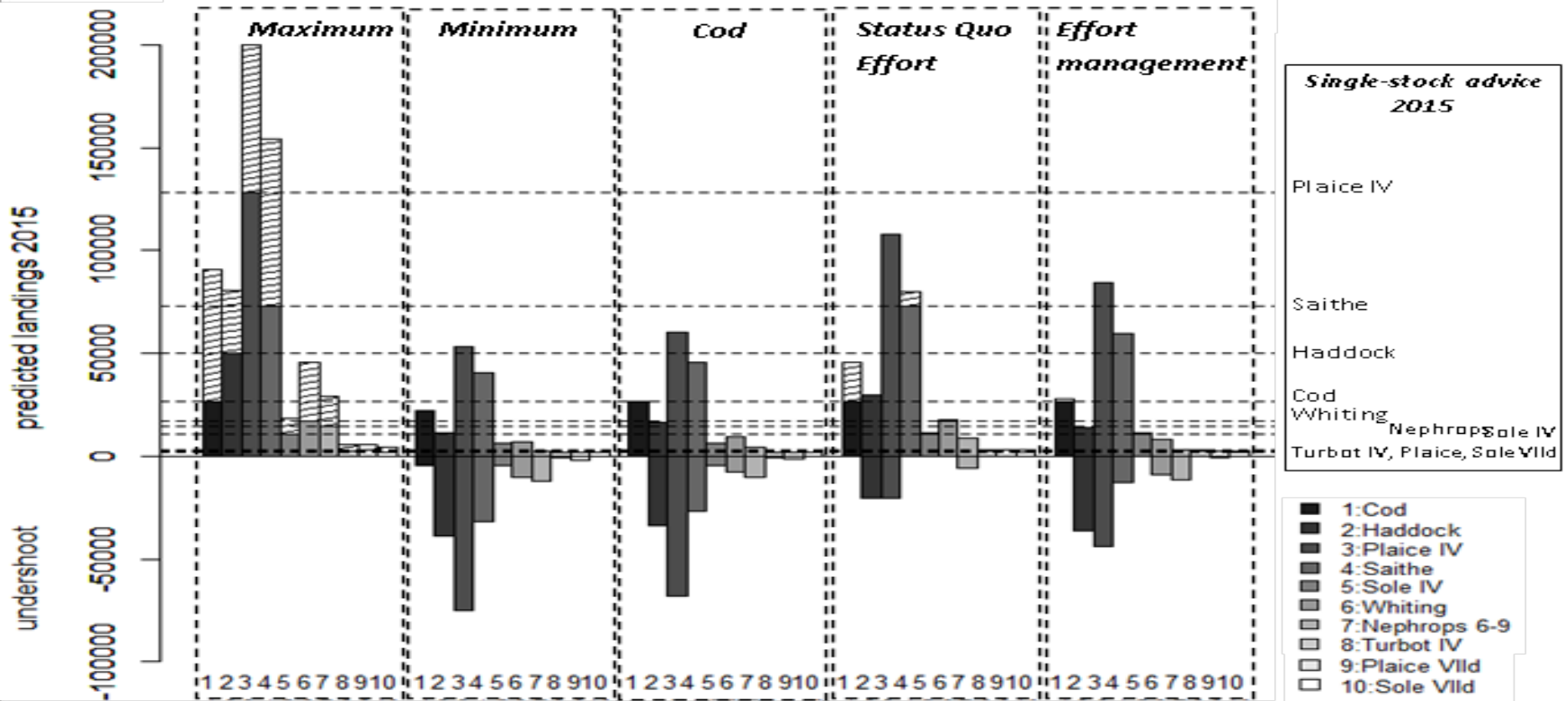
*cod*: fleets stop fishing when their cod quota exhausted

*Status quo effort*: effort equal to most recent year

*Effort management*: effort reduced according to regulations

## Predicted landings for 2015, per stock and per scenario

overshoot (hatched) and undershoot (below zero)



- \* Individual stock objectives can not all be achieved simultaneously (with current fishing patterns)
- \* In 2015, the single-species advice for cod and *Nep* FU6 are the most limiting
- \* In “Max” scenario:  $F(2015) > F_{pa}$  for cod, saithe and sole in VIIId (not precautionary)

## Mixed fisheries – West of Scotland

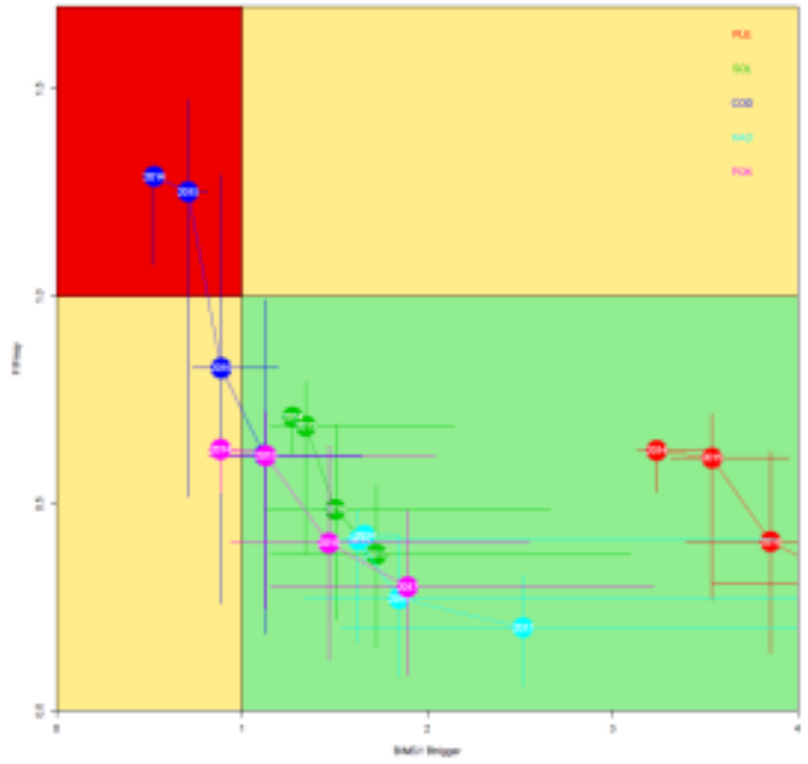
- **Analysis developed by WGMIXFISH-METH (August 2013)**
- Combined West of Scotland & North Sea
- Good progress in 2013
  - but lacking human power for W. Scotland, so further progress in “stand-by” at the moment

### *How ACs could contribute to improving mixed fisheries advice:*

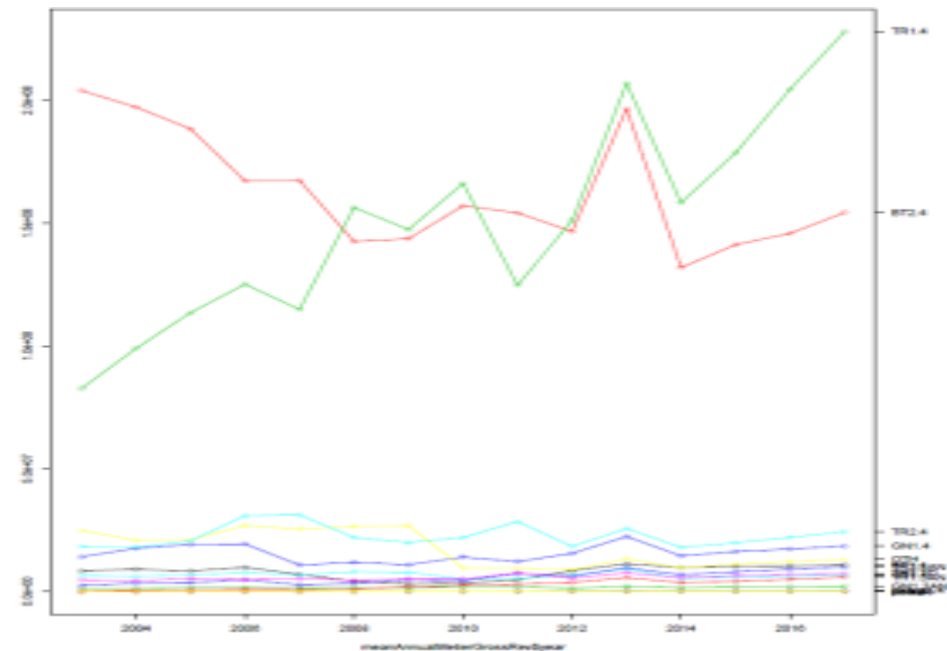
- improvement of underlying fishery data
- improved information on economic variables at fleet level
- definition of fleets and fisheries
- mixed fisheries scenarios (fleet adaptation / behaviour, target species in fisheries...)
- outputs and performance metrics

# Performance measures under mixed fisheries scenarios

## SSB and F by stock



## Gross revenue by fleet



## Mixed fisheries – work in 2014

**WGMIXFISH met in May:** mixed fisheries analysis for North Sea

**WGMIXFISH-METH in October,** will work on methodological aspects for further incorporation of mixed fisheries into advice:

- methods to incorporate data-poor stocks
- medium term MSE, to evaluate the performance of mixed-fishery models within a management strategy evaluation framework (e.g. for mixed fisheries management plans)
- indicators and metrics for key mixed fisheries outputs
- more realistic fleet dynamics scenarios
- application of methodology to other ICES regions, fisheries and stocks

\* Joint session with Multispecies WG



***Thank you!***

***Questions?***