

ICES MSY Framework

NEAFC Sept 2010

Background – Based on UNCLOS

1995 UN Fish stock Agreement

1998 ICES PA approach

2002 WSSD rebuild fisheries to MSY by 2015

2006 EC MSY Policy

2009 – ICES MSY framework

Evolution continues

Background

1998 – ICES PA approach

Avoid recruitment impairment

2009 – ICES MSY framework

Getting most out of the stocks

MSY sufficient for PA

PA necessary but not sufficient for MSY

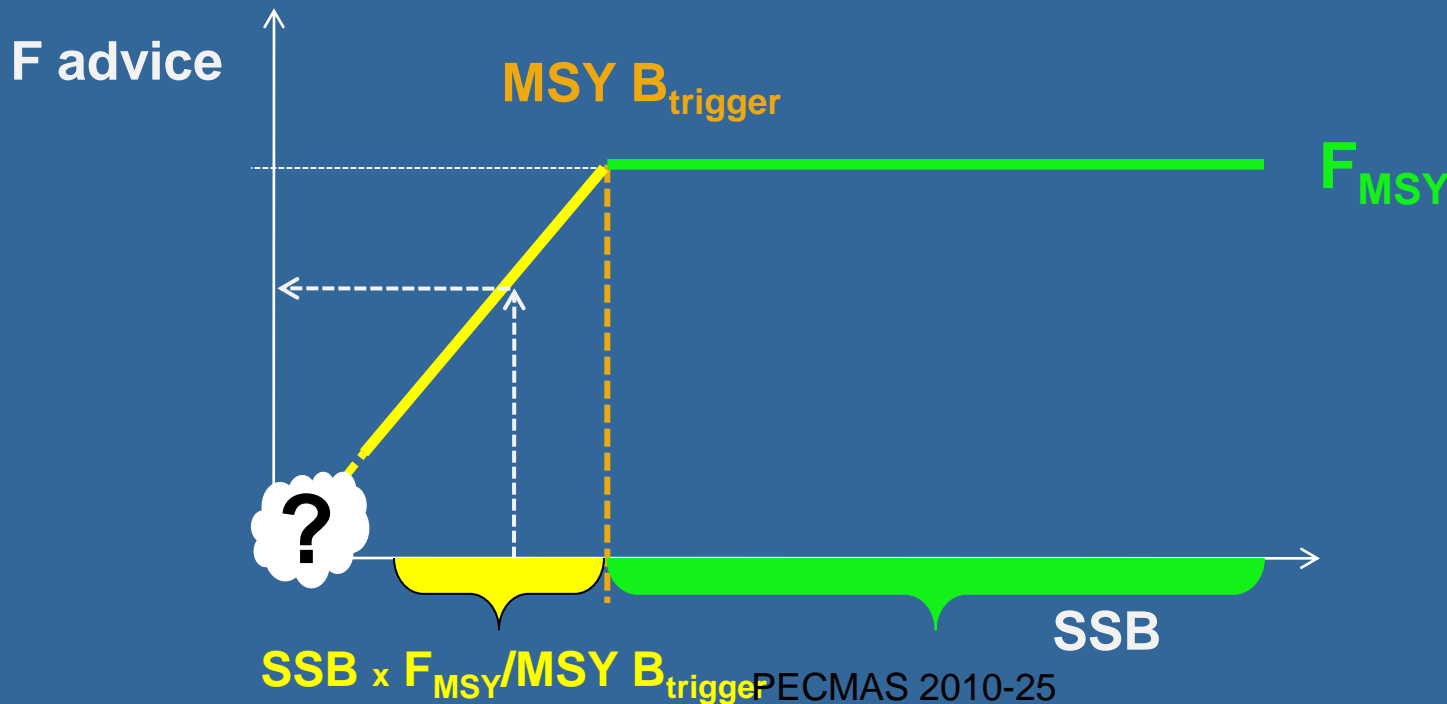
ICES MSY Framework

- Conceptual – not linked to a particular model
- Production function with an optimum
- We model this production function using several different approaches
- We advise based on stock specific knowledge and broad experience
- MSY estimates are never global but are conditional (on selectivity, growth, ...)

ICES MSY Harvest Control Rule (HCR)

Set F_{MSY} and MSY $B_{trigger}$ Ref. Points

Assess current SSB in relation to MSY $B_{trigger}$



MSY Framework Ref. Points

Based on an F_{MSY} and a biomass safeguard against low spawning stock biomass

F_{MSY} is the fishing mortality that in the long-term will maximize yield

MSY $B_{trigger}$ is a biomass reference point that triggers a cautious response: “A cautious biomass triggering action to maintain a stock within a desirable stock size range”

B_{MSY} is not explicitly a reference point

Reference points: more precise

F_{MSY} proxies

Y/R (F_{max} , $F_{35\%}$, $F_{0.1}$, M,)

Modified by

- 1) Intra-species interaction (Cannibalism, growth)
- 2) Environmental drivers (Recruitment)
- 3) Species interaction (Growth – Mortality)

$$Y = R(Env, SSB) * (Y / R)(species\ interaction)$$

Reference points: more precise

MSY B_{trigger}

Low percentile on expected observed SSB range when fishing at F_{MSY}

Accounting for

- 1) Natural variability: Recruitment – Growth – Mortality
- 2) Observation / **implementation** error

For **2011**: use B_{pa} (if available)

What to do for:

Data Rich situations

Long lived species (F and SSB estimates and projections)

MSY Framework

1) MSY ICES HCR

2) MSY Transition scheme

MSY Transition

Moving from Current F to **MSY** in 2015

In 5 steps

$$2011: (F(2010)*0.8 + F_{MSY} *0.2)$$

$$2012: (F(2011)*0.6 + F_{MSY} *0.4)$$

$$2013: (F(2012)*0.4 + F_{MSY} *0.6)$$

$$2014: (F(2013)*0.2 + F_{MSY} *0.8)$$

$$2015: (F(2014)*0.0 + F_{MSY} *1.0) \rightarrow F_{MSY}$$

What to do for:

Data Rich situations

Short lived species

Escapement strategy (assure minimum SSB)

$$\text{Escapement SSB} = B_{MSY}$$

1. Preliminary TAC (well below expected fishing possibilities)
2. In-year assessment: typically through a survey (acoustic)
3. Adjust TAC based on in-year information assuring that SSB (surviving stock) is above a pre-defined level

What to do for:

Stocks without projection

No projection of the stock status and fisheries performance

Stable stock: not an indication of fishing at MSY

Look for

1. stock trend indicators: cpue (Commercial), cpue (R/V)
2. Exploitation pressure (e.g. catch curve, effort trend)
3. MSY references (e.g. based on longevity)

Catch options

Stocks without projection

- Stock stable – no overfishing: Recent catch
- Stock stable – overfishing: Reduce recent catch
- Stock declining – no overfishing:
Reduce from recent catch at rate of decline
- Stock declining –overfishing:
Reduce from recent catch at rate higher than rate of decline
- EC policy paper: identify catch according to category

What to do for:

Stocks with no stock indicator

Usually only catch statistics

If Effort statistics available see previous slide

Acknowledge that no information is available and provide 'No advice'.

EC policy paper:

identify catch according to category 11

Thank you!