Rebuilding the Stock of Norwegian Spring Spawning Herring

Lessons Learned

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Outline of Presentation

• Stock Distribution
  - Definition of the stock
• Stock Fluctuation (SSB)
  - Collapse
• Role of RFMO
• Three main questions related to regulation of the stock
• Regulatory measures, focus on periods
  - 1950 – 1970
  - 1970 – 1990
  - 1990 – 2008
• Conclusions - Lessons Learned
Three Fundamental Questions

1. What was done to prevent the decline of the stock towards the end of the 1960s?

2. What were the main regulatory measures implemented when the stock was down?

2. What has been done to avoid a new collapse of the stock?
The period 1950 - 1970

INSTITUTIONS: Open Access, No 200 mile Exclusive Economic Zone

MAJOR PLAYERS: Norway, USSR, Iceland and the Faroe Island

RFMO: Permanent Commission from 1953, NEAFC from 1963

DISCUSSIONS IN NEAFC:

- USSR representatives drew attention to serious decline of the stock in 1968
- A special ad hoc studygroup was in 1969 given the task to examine ICES advise
- Minimum fish size and total quotas were discussed but not implemented

- Highest catch ever recorded in 1966
- Total collapse of the stock in 1970
Catches during the period 1950 - 1970
The period 1970 - 1990

INSTITUTIONS

200 mile EEZ established from 1977
Stock continue to live close to the Norwegian shores

ACCKNONOWLEDGE THE COLLAPSE:

1. The fishery directed at small herring was detrimental to the development of the stock
   Growth potential not utilized, and contribution to spawning stock prevented
   GROWTH OVERFISHING

2. The total outtake was clearly unsustainable. RECRUITMENT OVERFISHING

REGULATORY MEASURES OR REMEDIES:

ESTABLISH MINIMUM FISH SIZE
RESTRICT OVERALL CATCHES
Turning point

- 1983 first strong year class in 20 years
- The stock remained within the Norwegian waters

National measures to rectify Growth Overfishing:
Minimum landing size of 25 cm implied a ban on the fishery of small herring, which during 1950 – 1970 period constituted 33% of the total Norwegian catch.

National measures to rectify Recruitment Overfishing:
Precautionary TAC was established
TAC based on fixed fishing mortality of 0.05
The period 1990 – 2008

- The SSB exceeded BLim level of 2.5 million tonnes
- New good yearclasses at the beginning of the period
- NSSH started to migrate outside the Norwegian EEZ

NEED TO ESTABLISH HARVEST CONTROL RULE
AGREE ON HOW TO DIVIDE THE HARVEST AMONG PARTICIPATING STATES
Harvest Control Rule for NSSH

Figure 3 Coastal states agreement on Harvest Control Rule for NSSH
Development of the stock

Figure 1  Spawning Stock Biomass of Norwegian Spring Spawning Herring during the period 1950-2008 (ICES, 2008). B_{lim} and B_{pa} reflects biological reference points utilised in the current Harvest Control Rule for the stock.
Stock development

The diagram shows the stock development over time, with the x-axis representing years from 1950 to 2000, and the y-axis representing the stock in million tonnes. The graph indicates fluctuations in stock levels, with peaks and troughs indicating changes over the decades.
Conclusions

- Pelagic stocks can sustain profitable fisheries at very low levels
- Both fishery (HCR) and environment conditions determine rebuilding path
- Improvement both in exploitation pattern and exploitation rate determine rebuilding
- Limited fishery during the rebuilding period gave high payoff to small number of participants
- Importance of rebuilding the stock exceeds the scope of the herring fishery