

Information issues and constraints in the design and implementation of stock rebuilding programs

by

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Principles

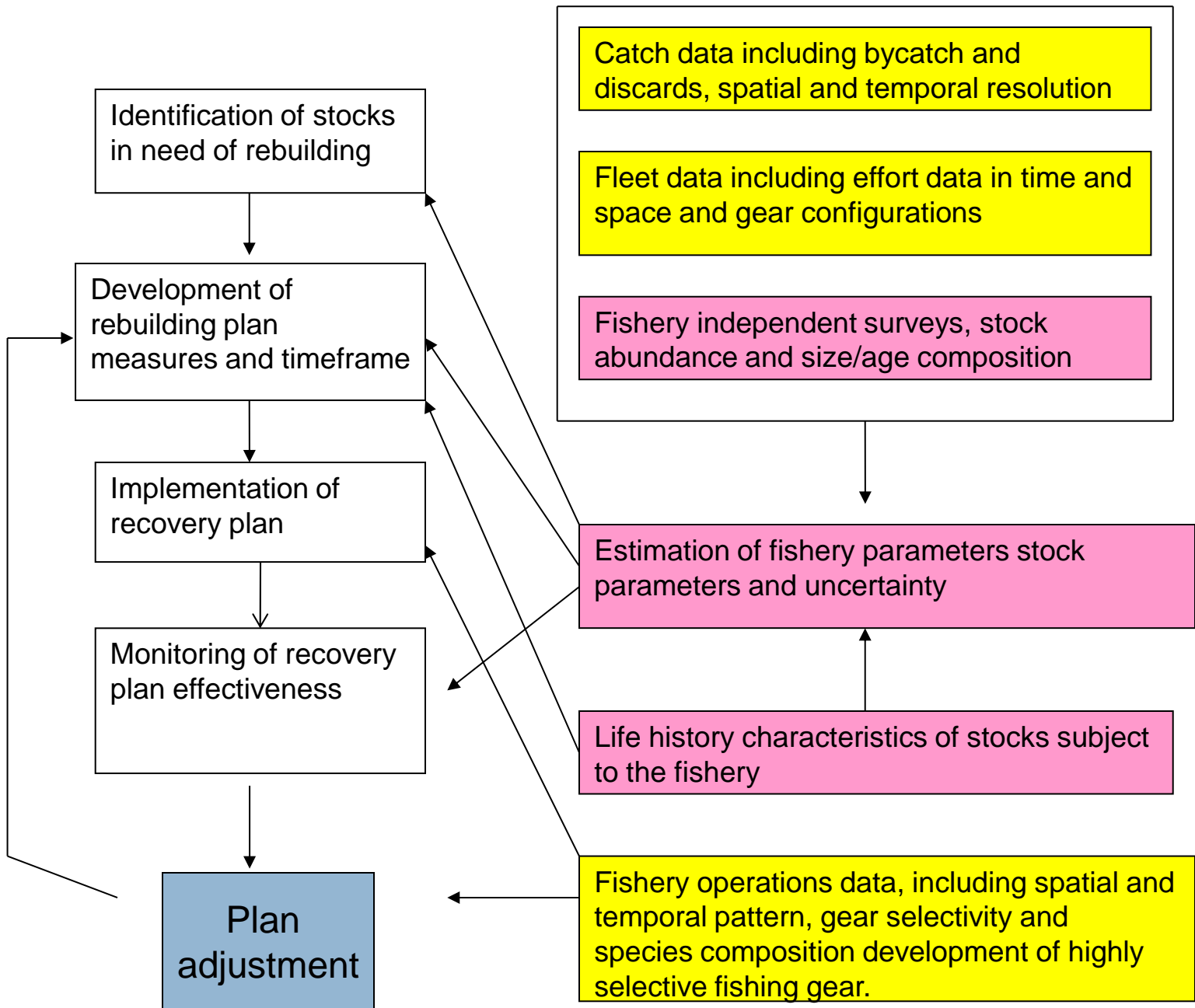
- Recovery of overexploited stocks even after decades of overfishing is possible if fishing pressure and habitat impacts can be reduced to low levels.
- The basic scientific advice has been borne out empirically. Reducing fishing mortality below reference points is essential even in the presence of scientific uncertainty.
- Recovery of communities of species will be uneven and depends on the efficacy of the measures for individual stocks. Reference points for exploited communities are likely to be lower than for individual stocks.

Needed Advice

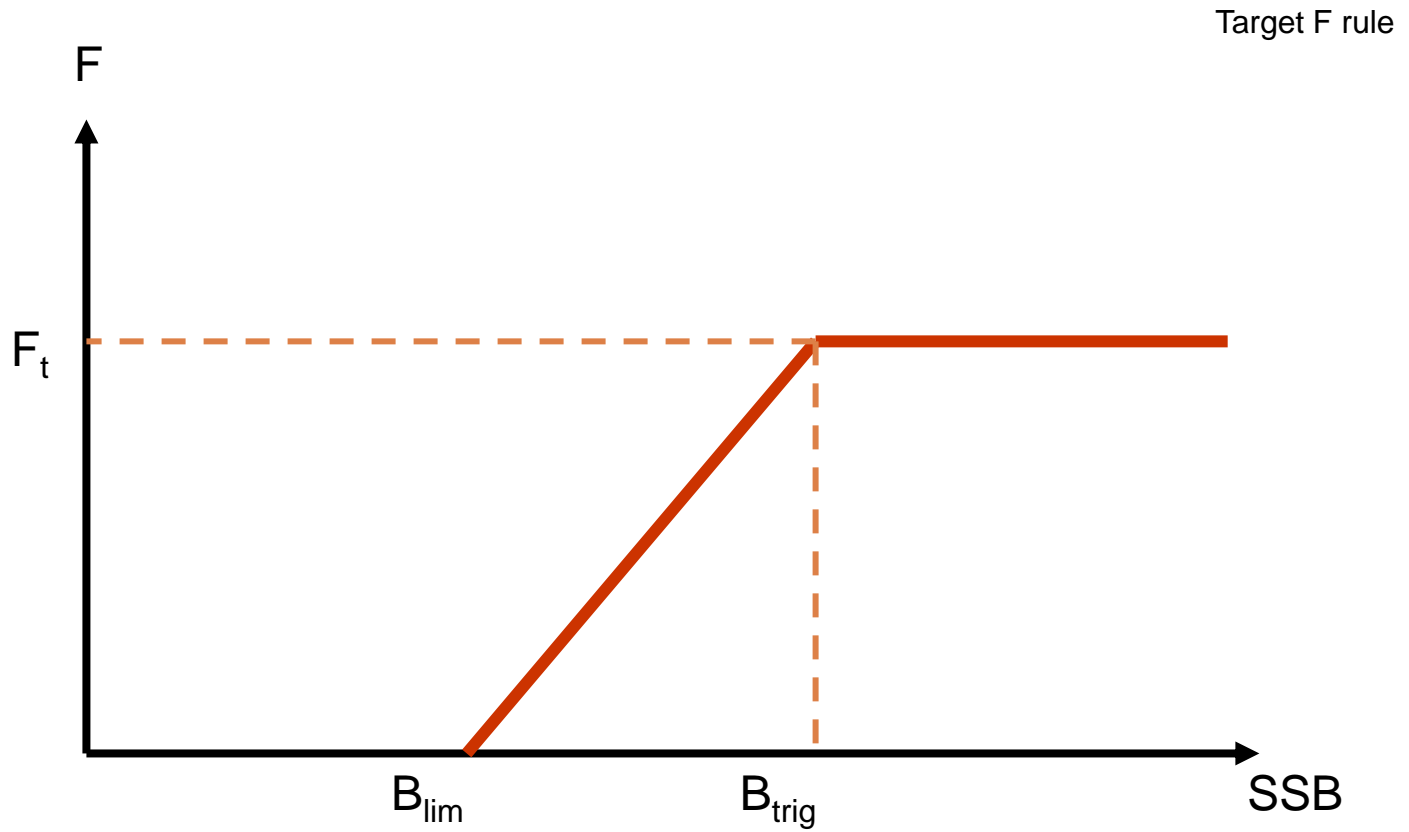
- Conservation Limits
- Relative vulnerability of stocks subject to fishing
- Differential impacts on user groups
- Efficacy of management approaches
- Risk of exceeding conservation limits
- Time course of change in stock and fishery status

Information needs

- Catch and discard information are critical for all stages of rebuilding planning and management. Constraints on collecting this basic information undermine rebuilding.
- Allocation between gears, sectors or countries will dominate debate but conservation limits must be set before allocation discussions can be resolved.
- Detailed data on catch size/age composition, spatial patterns and gear impacts play a crucial role in developing tactics for rebuilding



Harvest Control Rule for Fishery Management

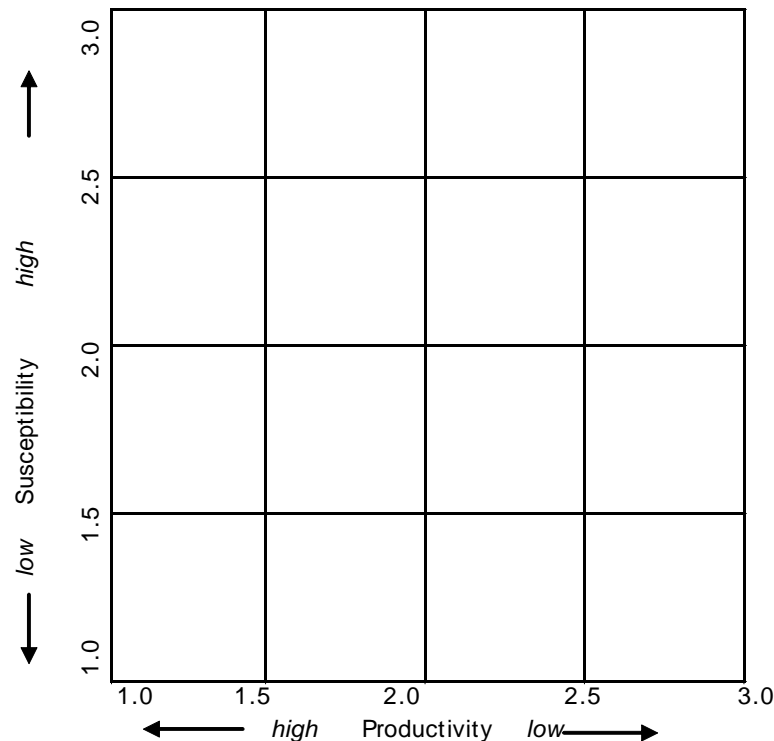


ACL Process

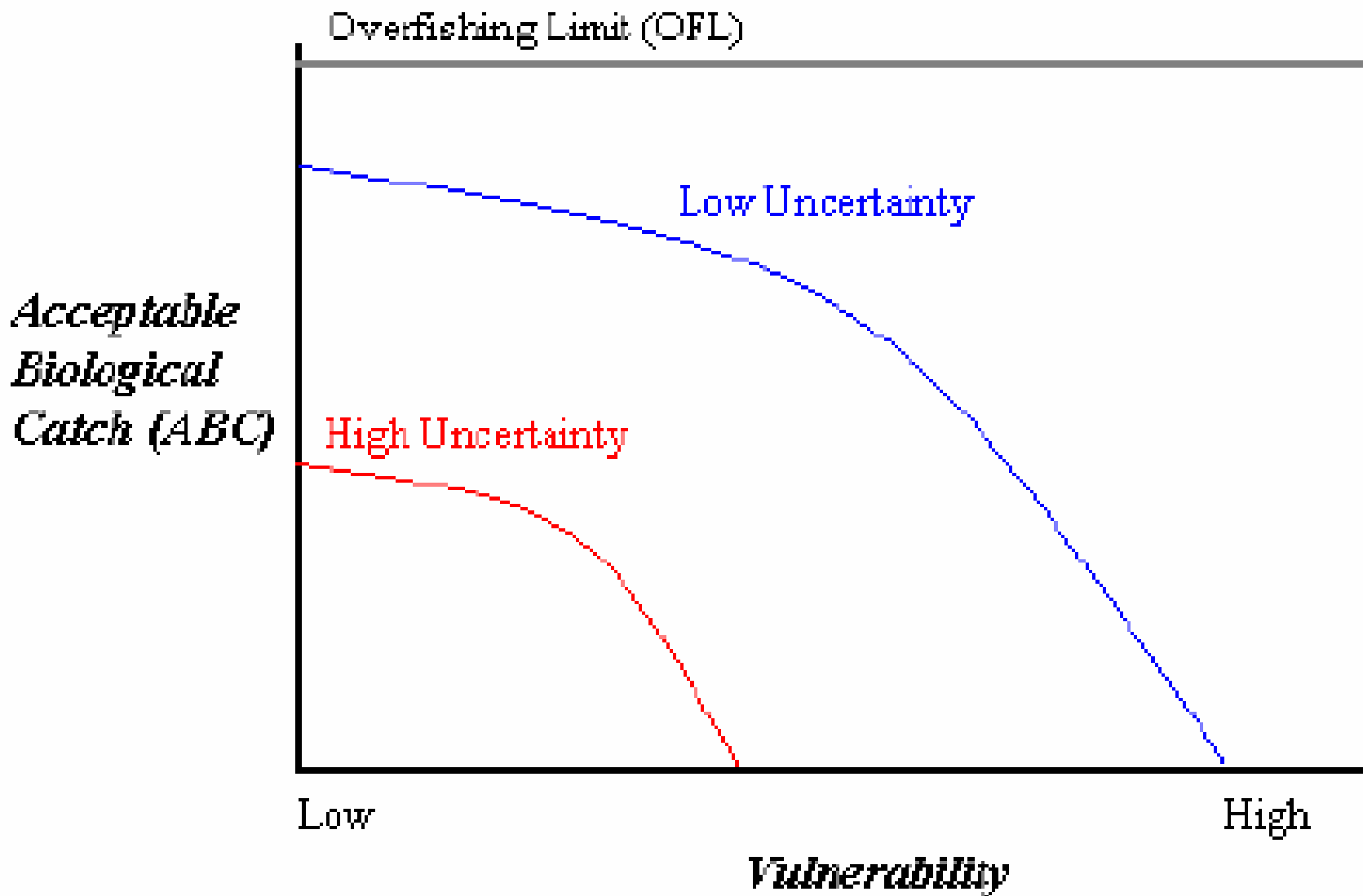
Step 1: Evaluate Vulnerability

Evaluate vulnerability for each resource stock based on an analysis of its productivity and susceptibility to the fishery. In cases where vulnerability is minimal and unlikely to develop in future, categorize them as *de minimus* and re-evaluate periodically. For all other stocks proceed to step 2.

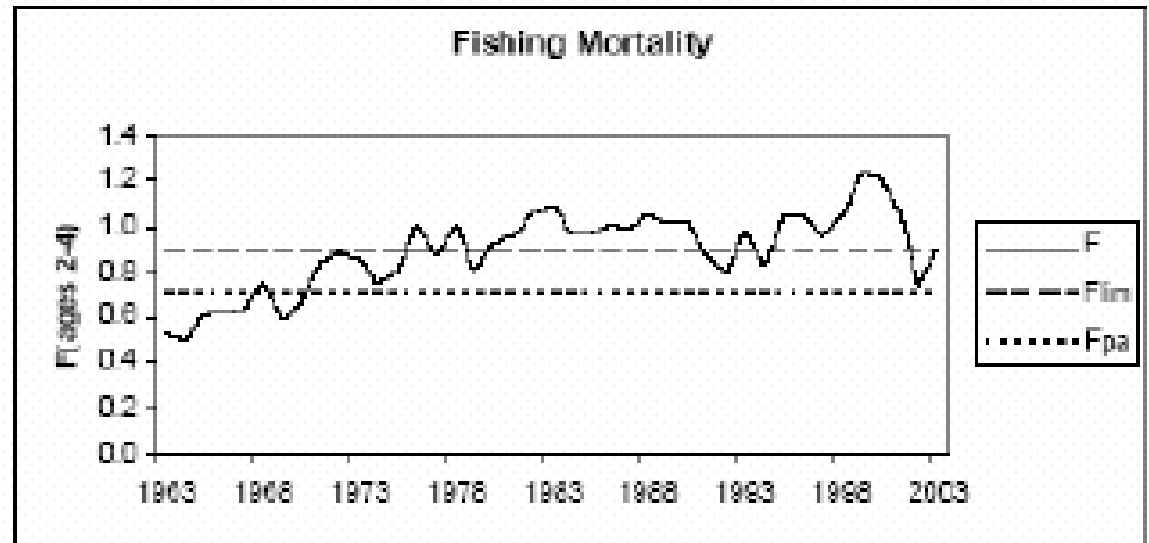
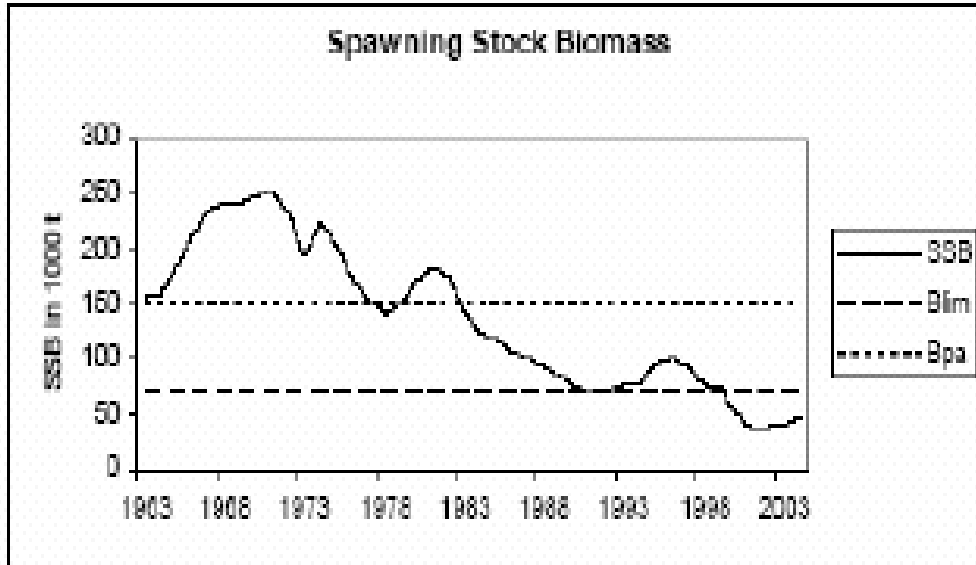
Productivity and
Susceptibility Analysis



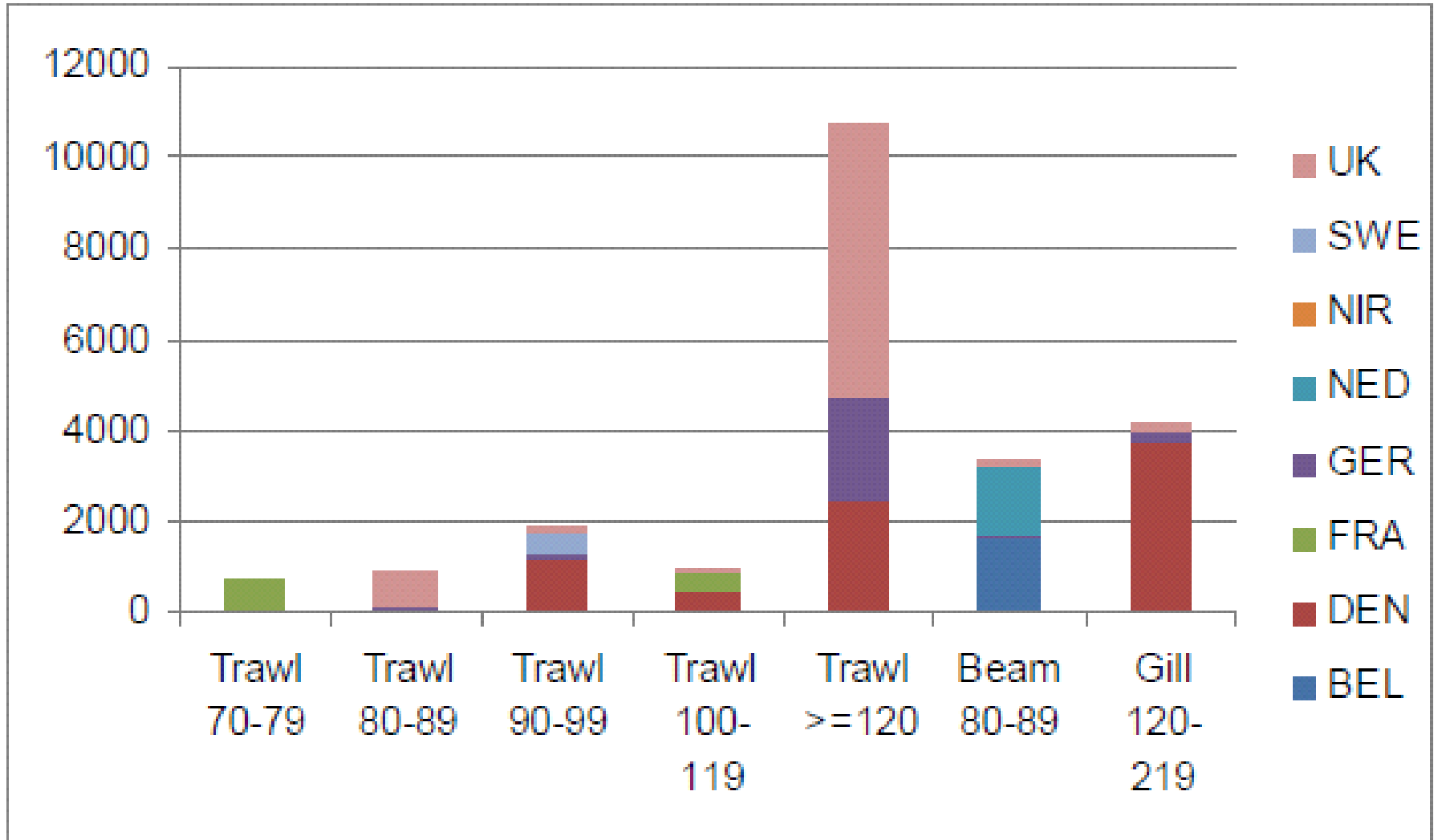
Setting Catch Limits Under Uncertainty



North Sea and Eastern Channel Cod



Landings of North Sea, Skagerak and Eastern Channel cod by gear and member states of EU (tonnes)



Commission of the European Community

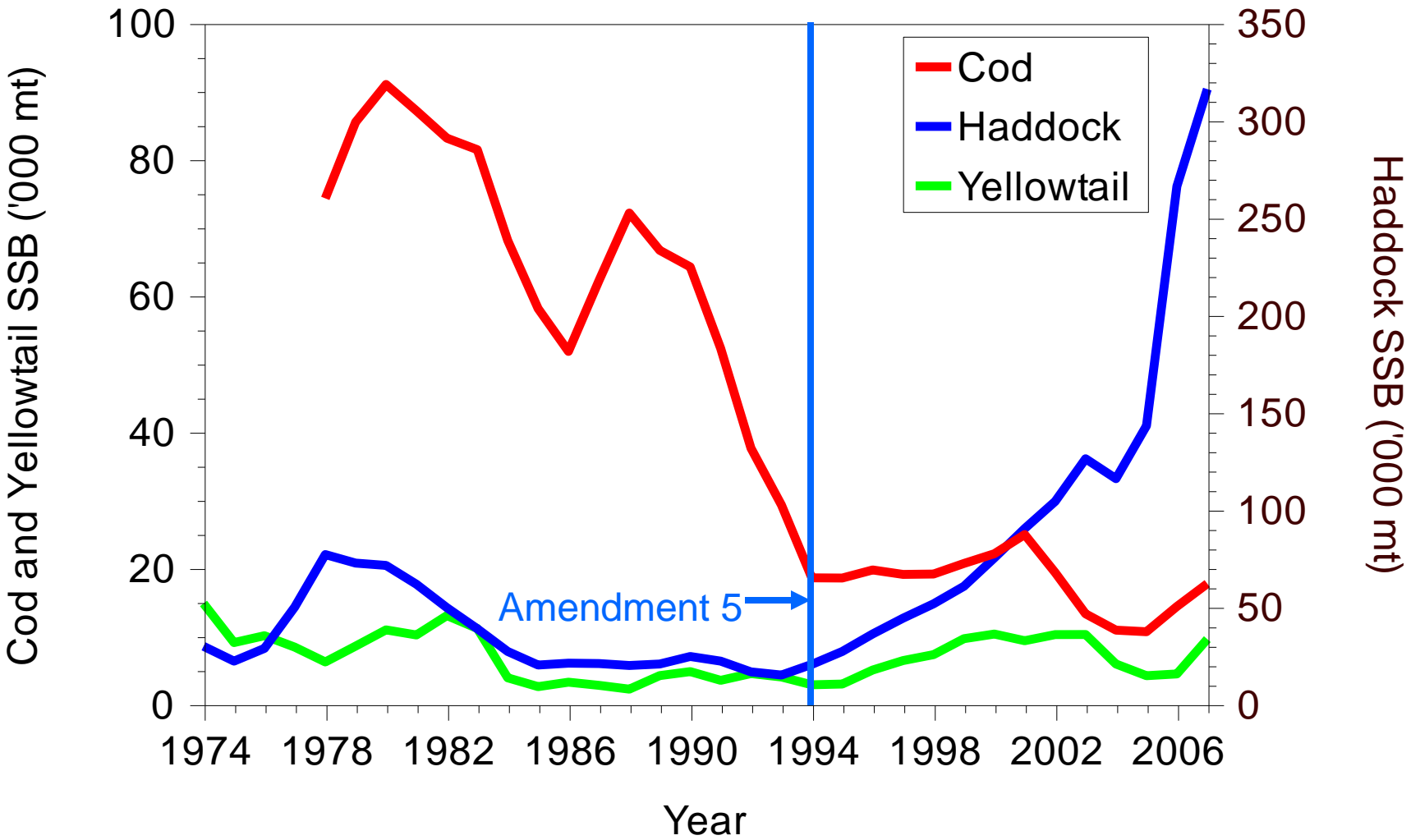
Com (2009) 224

- “Largely because of inaccurate catch reports the state of 59% of stocks is unknown.”
- “Of those stocks for which the state is known, 69% are at high risk of depletion and only some 31% of stocks are known to be fished sustainably.”
- “This number is way above the situation outside the EU where the global average is 28% of stocks being overfished.”
- 12% of EU stocks are within safe biological limits.

North Sea Cod Recovery Plan

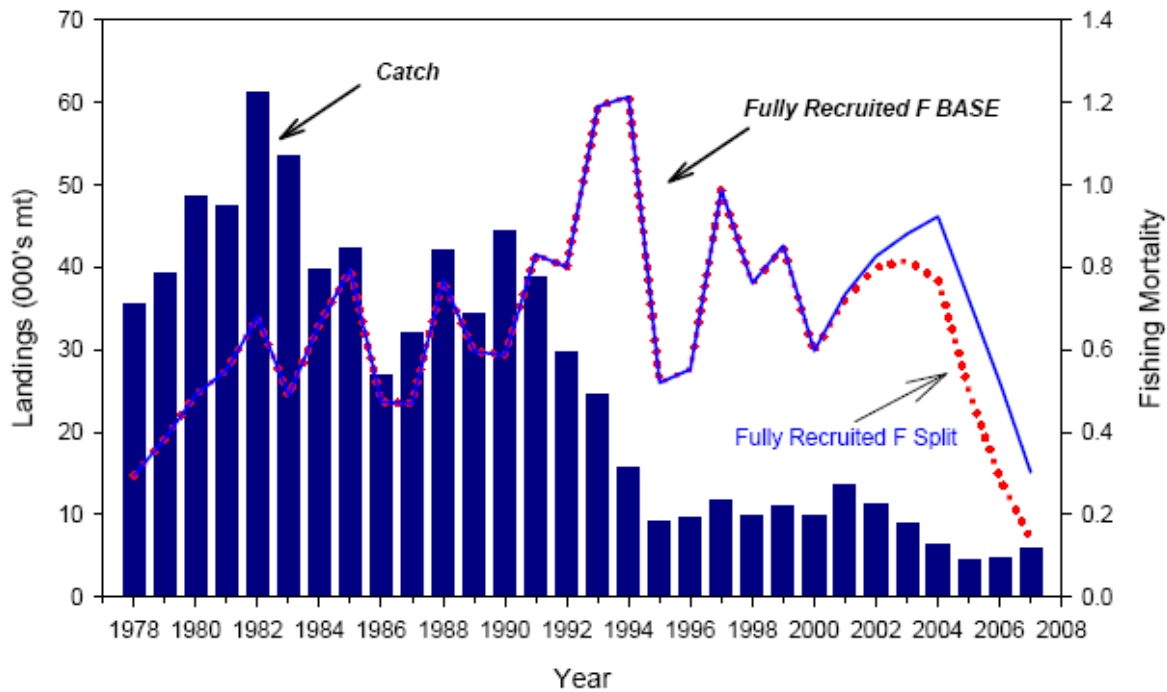
- Annual TAC's set for each of the cod stocks based on the catch that would achieve the target fishing mortality rate
 - ▣ Minus expected discards
 - ▣ Minus amount estimated by the Commission to account for other sources of mortality
- Setting of total allowable effort based on catch and effort data submitted by member states

Spawning Stock Biomass (SSB) Trends for Some Georges Bank Groundfish

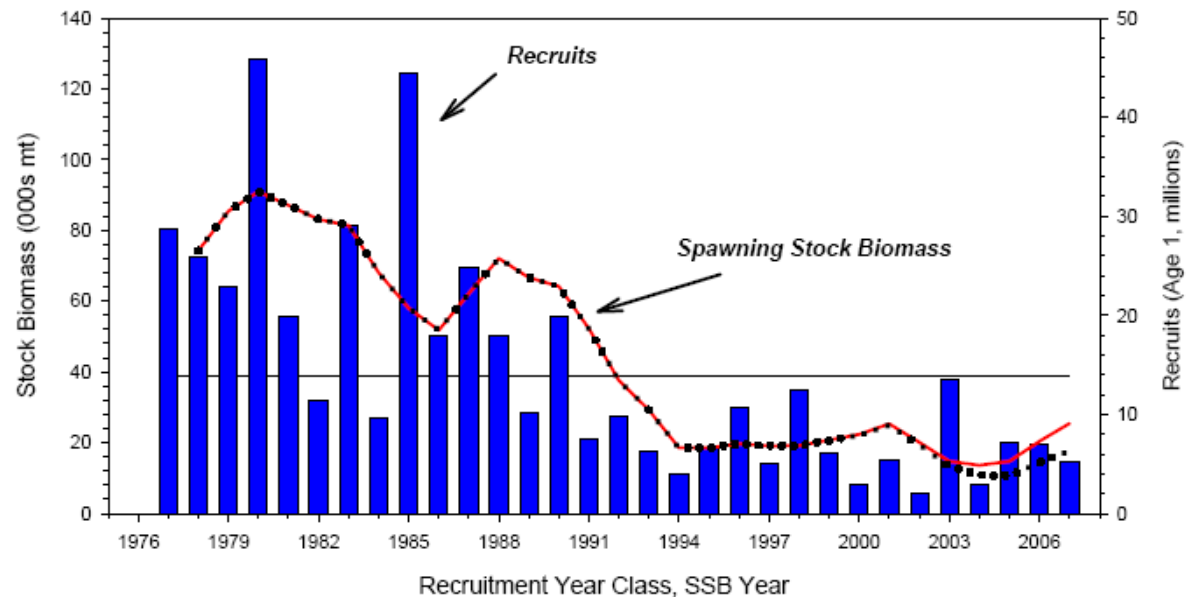


From: Brodziak et al. 2008. Fisheries Research

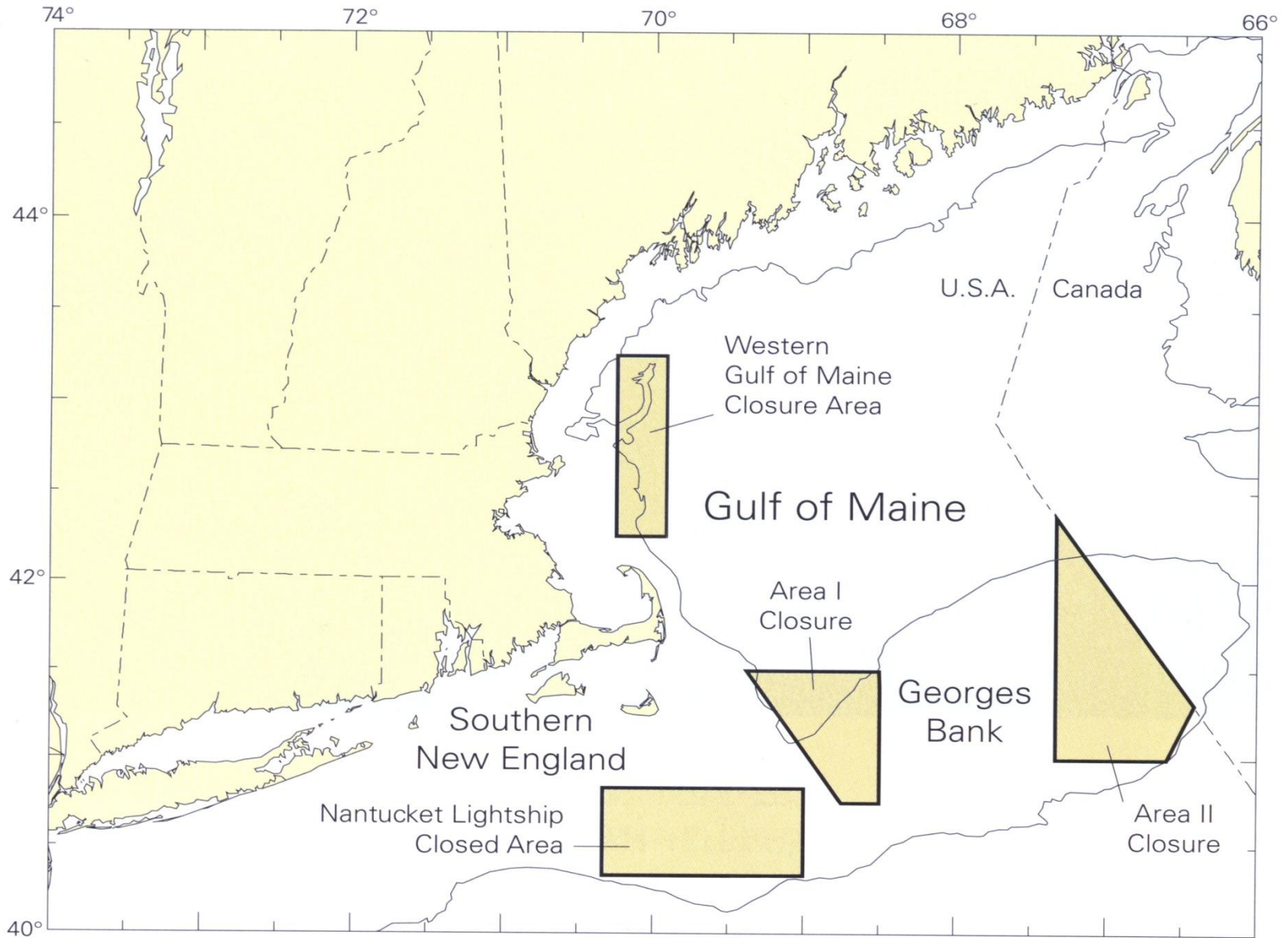
“In particular, the 1995–2004 decade is the longest continuous period of time that the Georges Bank haddock stock has **not** been experiencing overfishing since the early 1900s.”



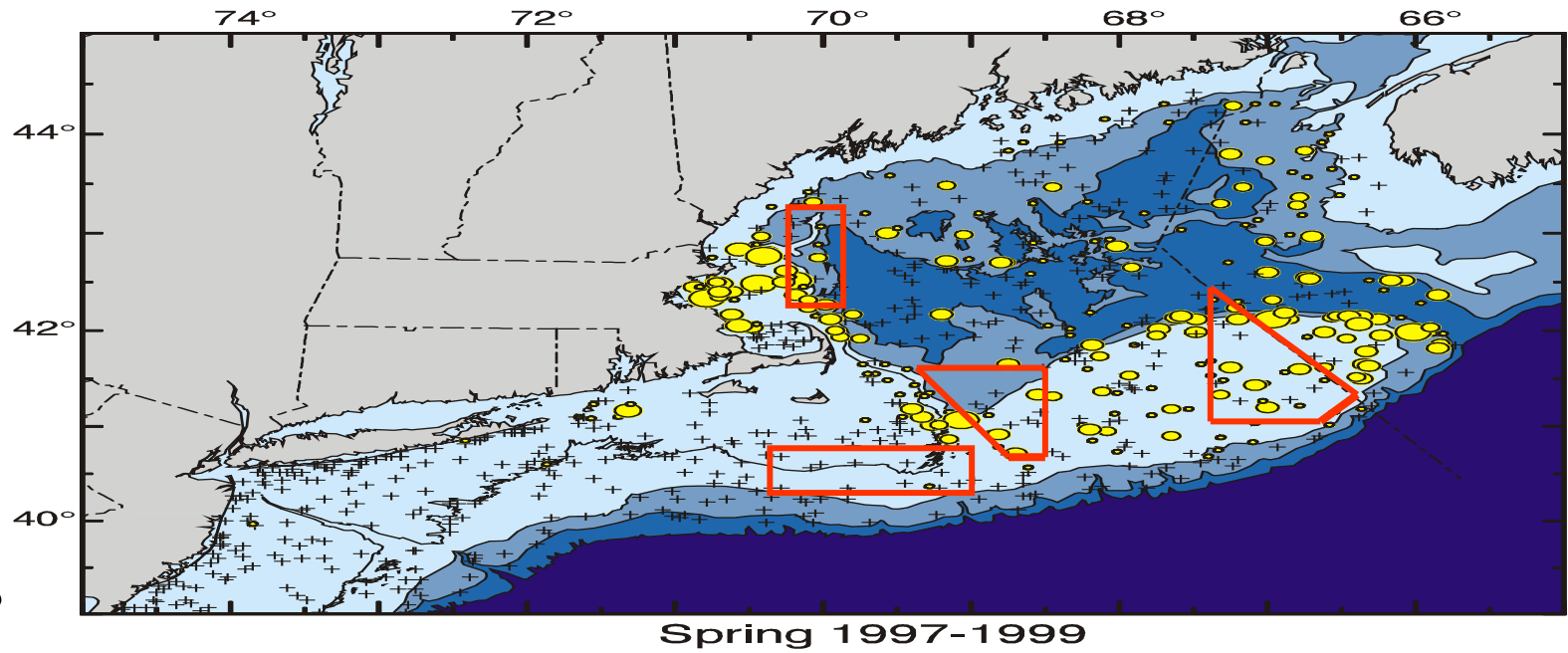
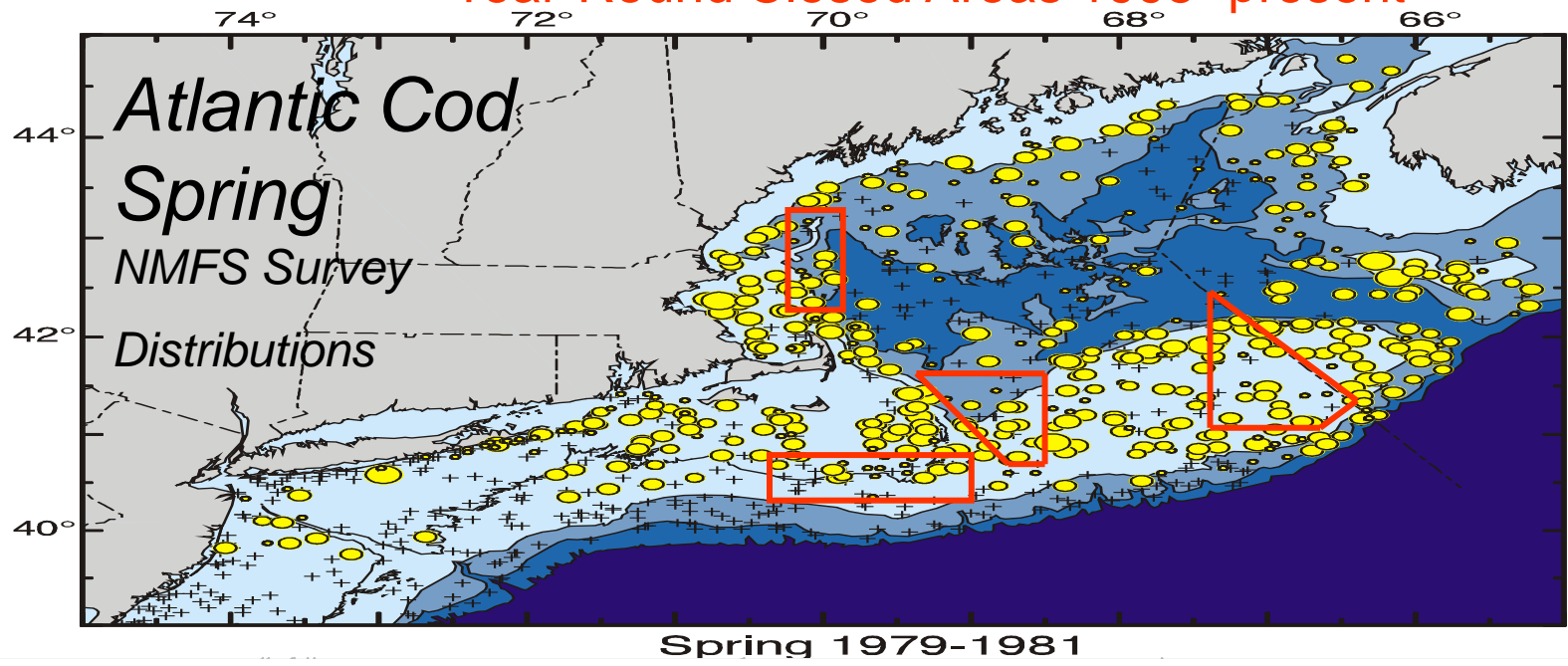
George's Bank Cod



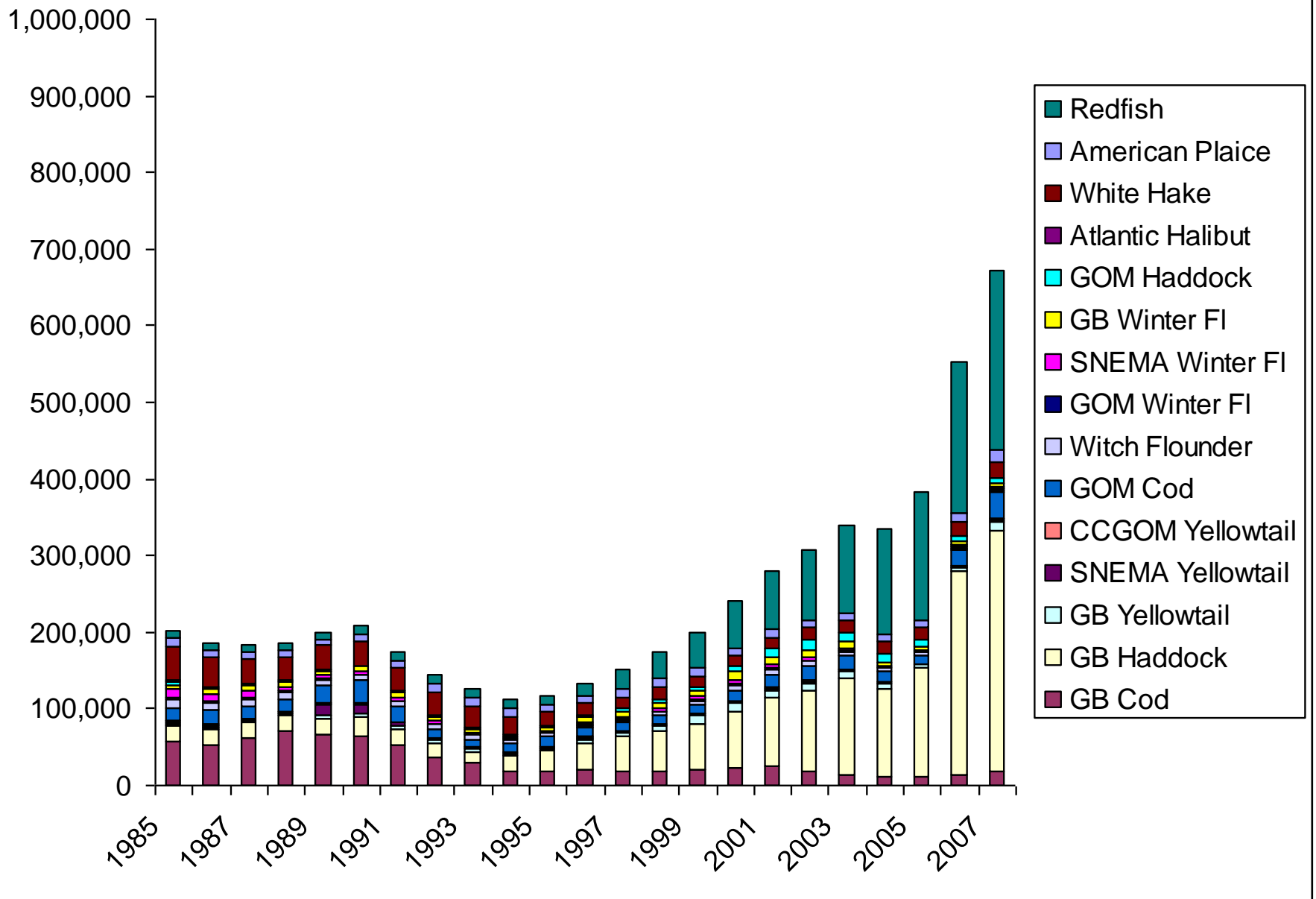
New England Closed Areas



Year-Round Closed Areas 1995- present



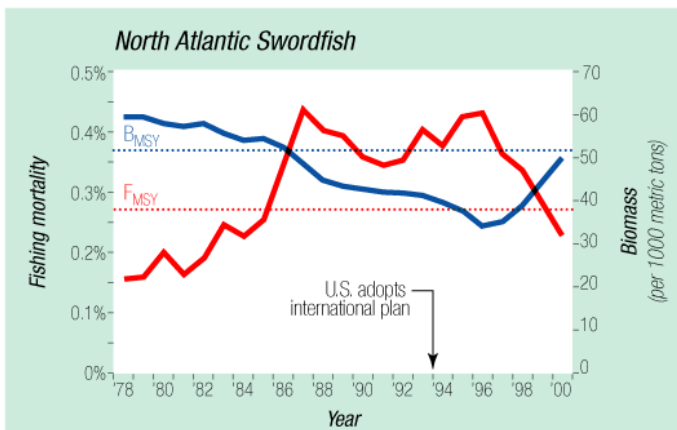
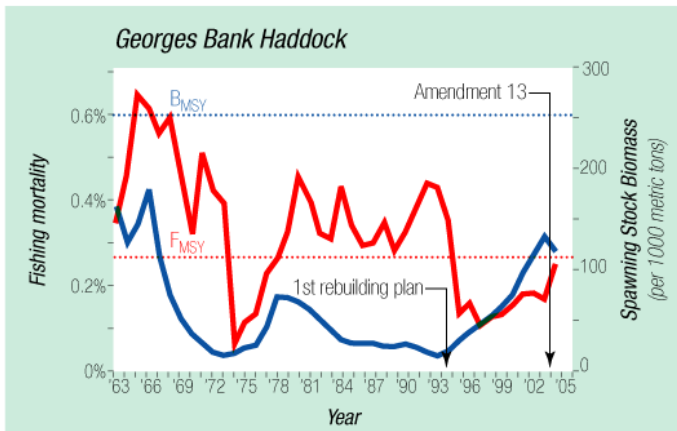
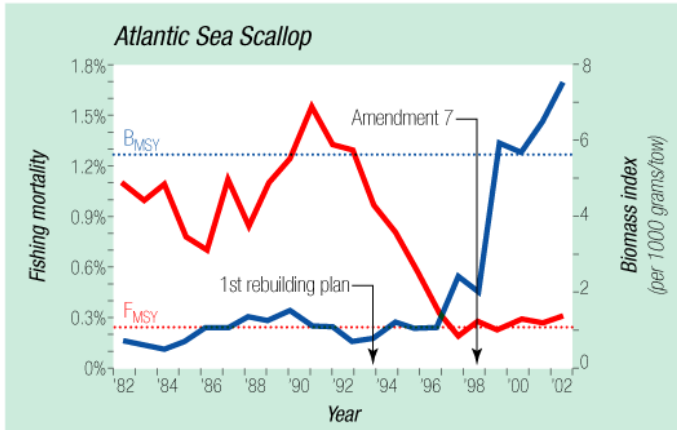




Courtesy of: NOAA Fisheries, Northeast Fisheries Science Center, Woods Hole, MA



Figure 5: Examples Of Stocks Showing Rebuilding Progress



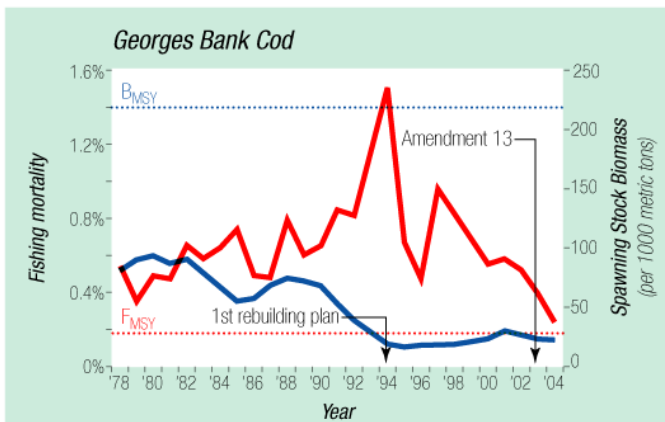
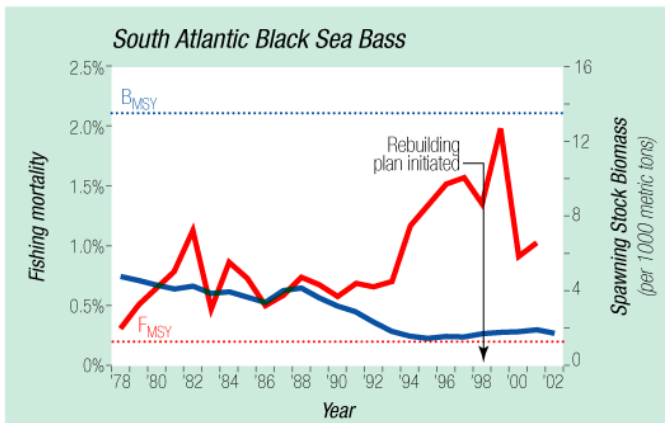
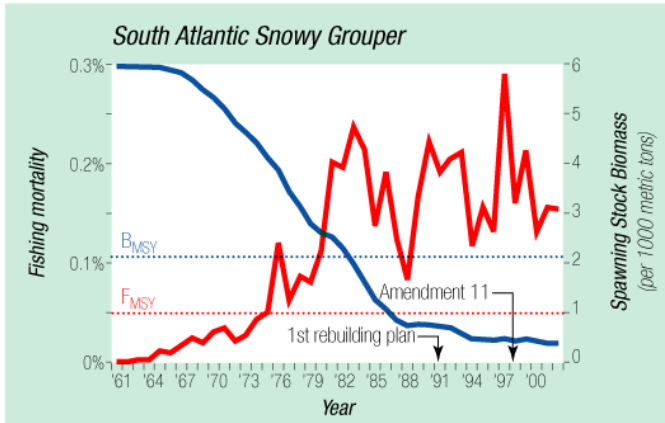
When fishing pressure is reduced, stocks can recover



Figure 4:
Examples Of Stocks Showing Little Or No Rebuilding Progress



LENFEST
OCEAN
PROGRAM



When fishing pressure remains high, stocks show little recovery



Concluding Remarks

- Two fundamental categories of information needed for rebuilding plans
 - ▣ Biological information on the impact of fishing on the stocks
 - ▣ Fishery information pertaining to allocation of privileges between user groups
- Full monitoring of catches and effort an absolute necessity
- Spatial, temporal and gear patterns also essential for rebuilding and allocation
- Critical need for restructuring rebuilding fisheries

