

Fisheries management in the Northeast: applications to ecosystem research and policy

Workshop on Planning Coordinated
Research on Ecosystems, Climate and
Policy in the Northeast

Jan 11- 13, 2005

Chad Demarest
NEFMC Ecosystems Project Leader

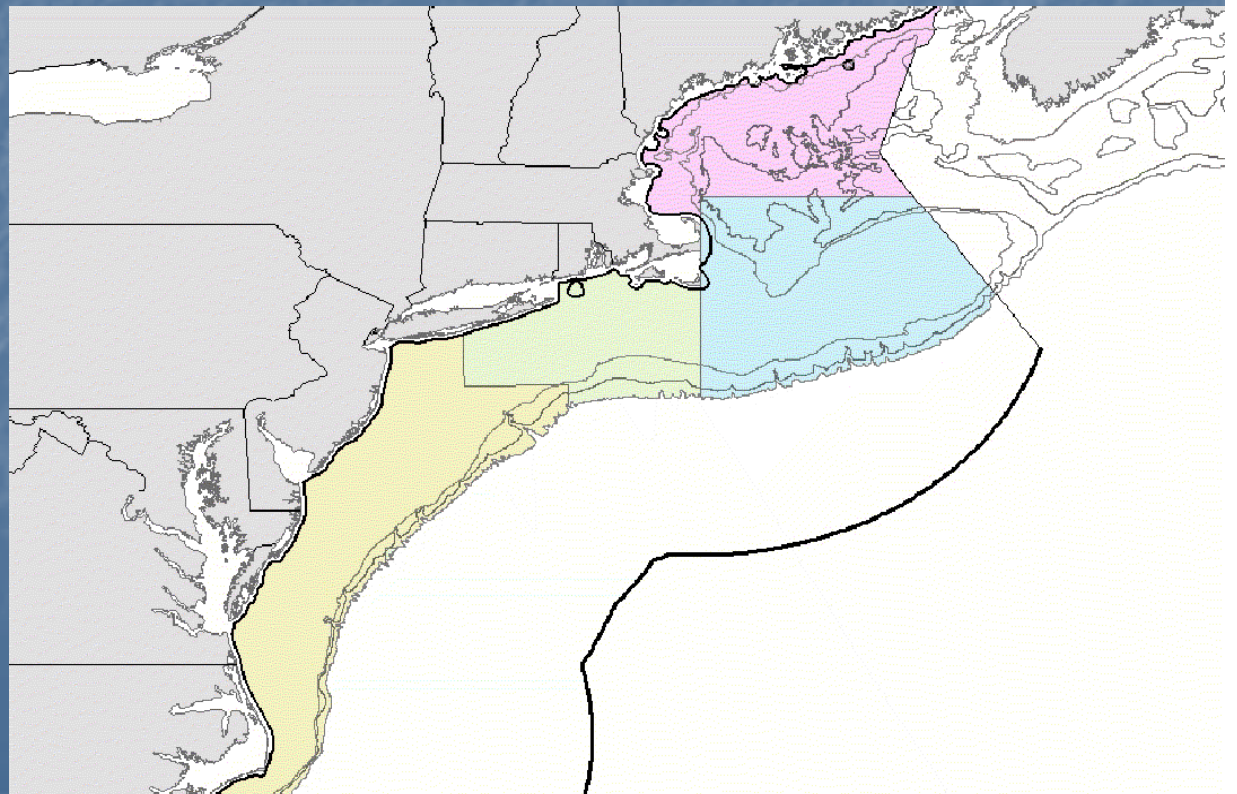
A photograph of a boat's metal railing and deck structure over a blue body of water. The railing is made of dark metal pipes and is positioned in the foreground, extending from the top left towards the center. The water is a deep blue color with some ripples. The overall scene is a close-up view of the boat's structure.

Preview

- **NEFMC**
 - The basics
 - The management process
 - Trends and predictions
- **Towards ecosystem-based approaches**
- **Research needs**

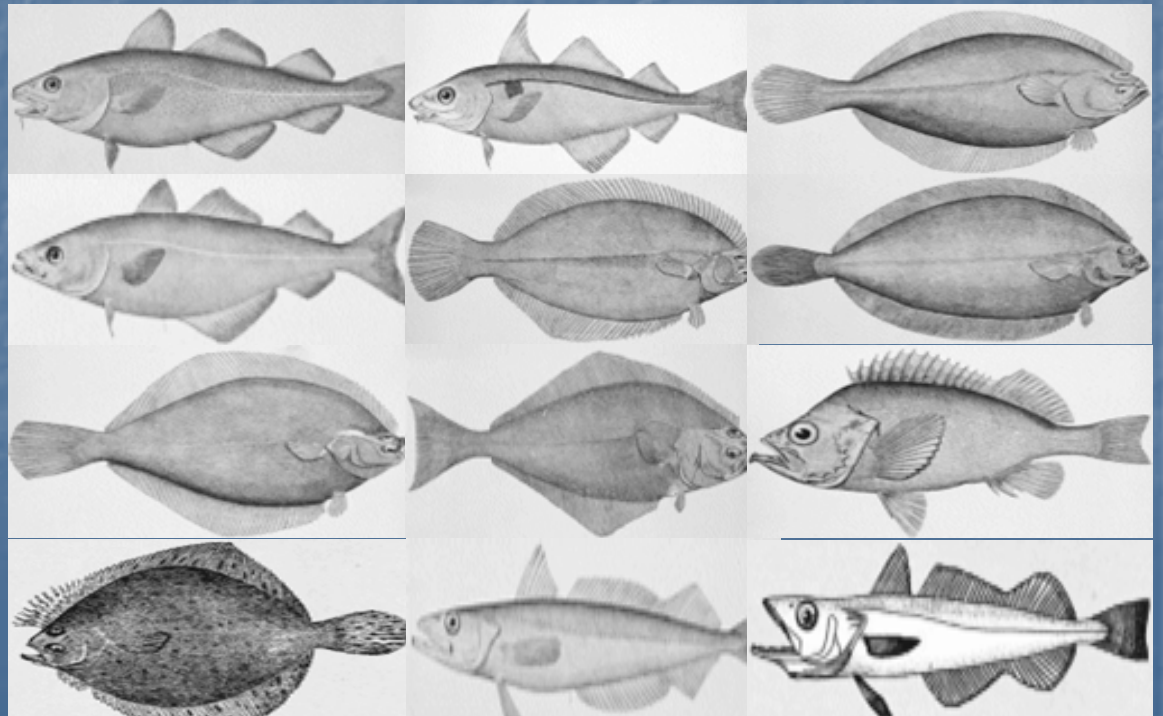
NEFMC: The basics

- One of eight US regional FMC's
- Federal waters (generally >3 nm's out to 200 nm's)
- Three management areas:
 - Gulf of Maine
 - George's Bank
 - Southern New England



Our fish and plans

- 20 Species
- 7 Fishery Management Plans
 - Northeastern Multi-species (groundfish)
 - Small mesh
 - Large mesh
 - Atlantic Sea Scallops
 - Monkfish
 - Red Crab
 - Atlantic Herring
 - Skates
 - Atlantic Salmon
 - EFH



Other fish and plans in our area

- MAFMC

- Bluefish (rec)
- Surf Clam/Ocean Quahog
- Squid/Mackerel/Butterfish
- Black Sea Bass/Scup/ Summer Flounder
- Dogfish*

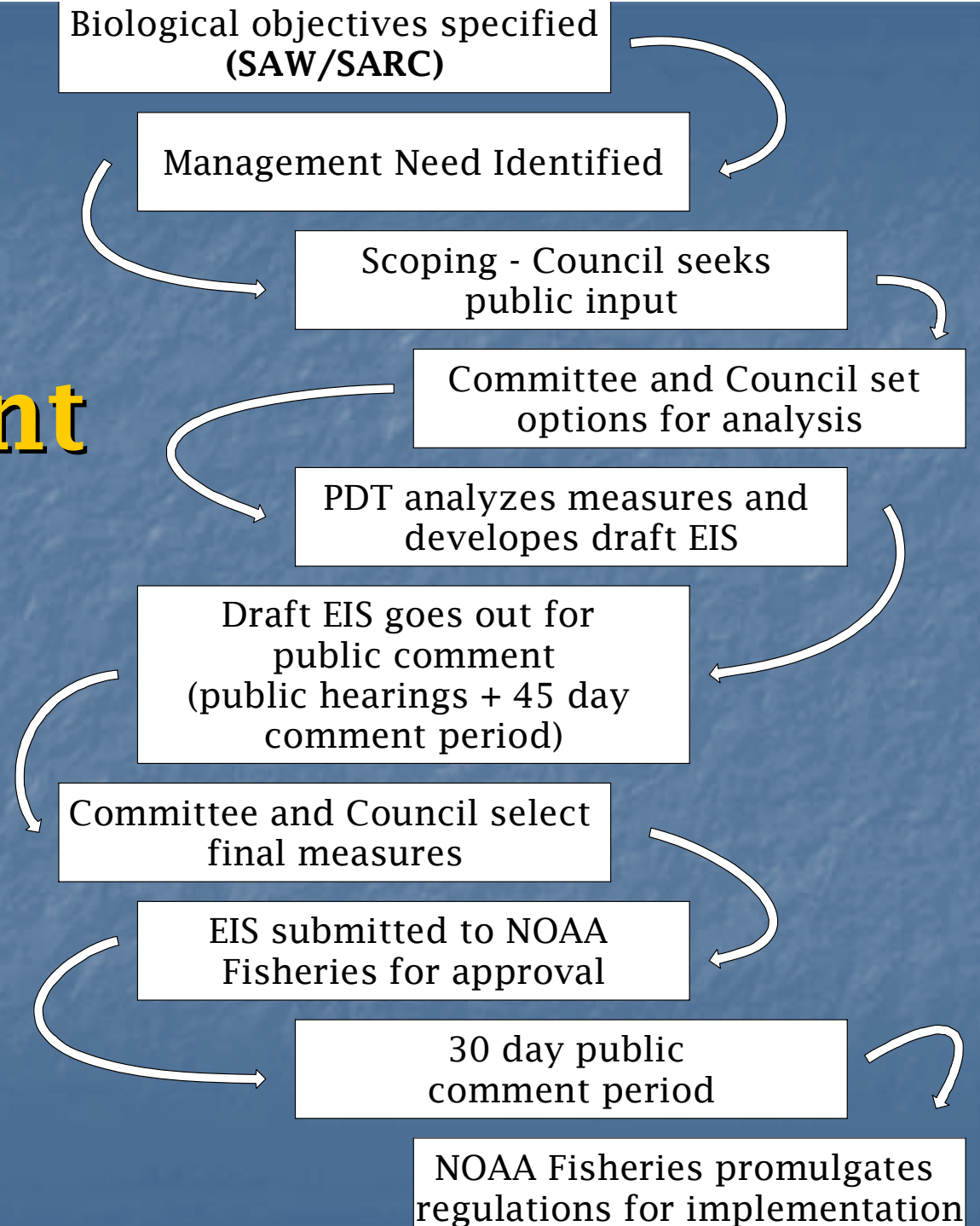
- ASMFC

- Northern Shrimp
- Lobster
- Striped Bass (rec)

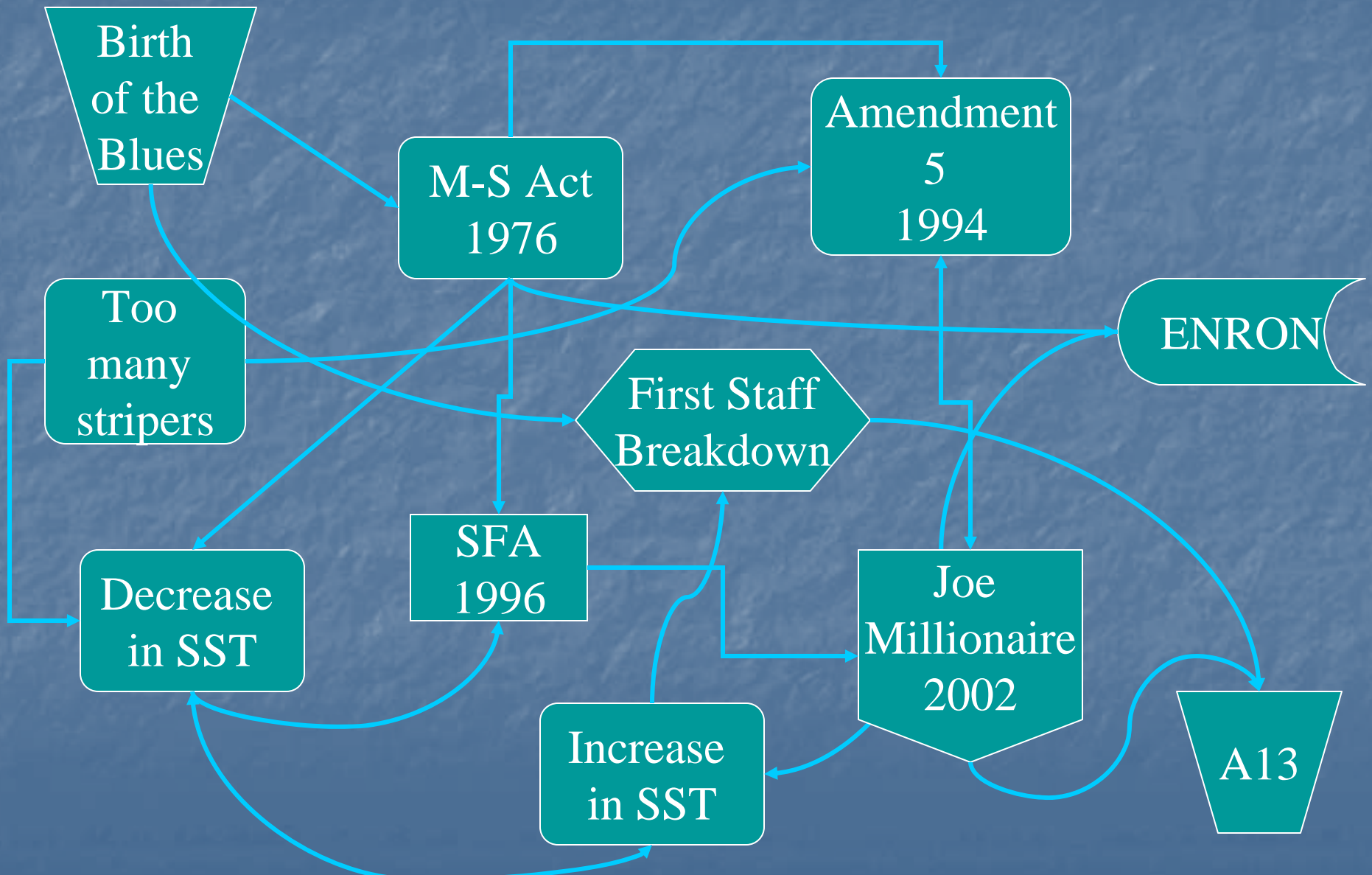
- Other

- Hagfish
- Pelagics

The management process



The management process: Amendment 13



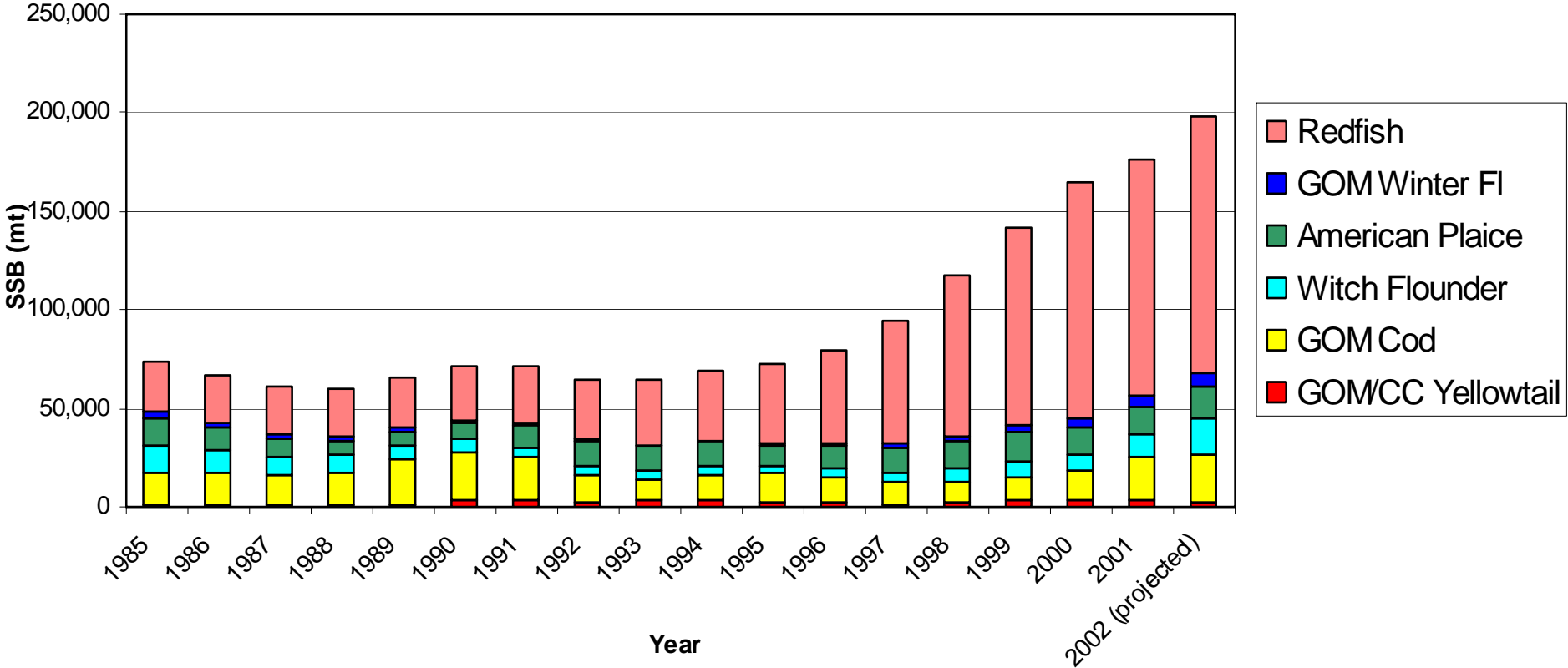




Trends



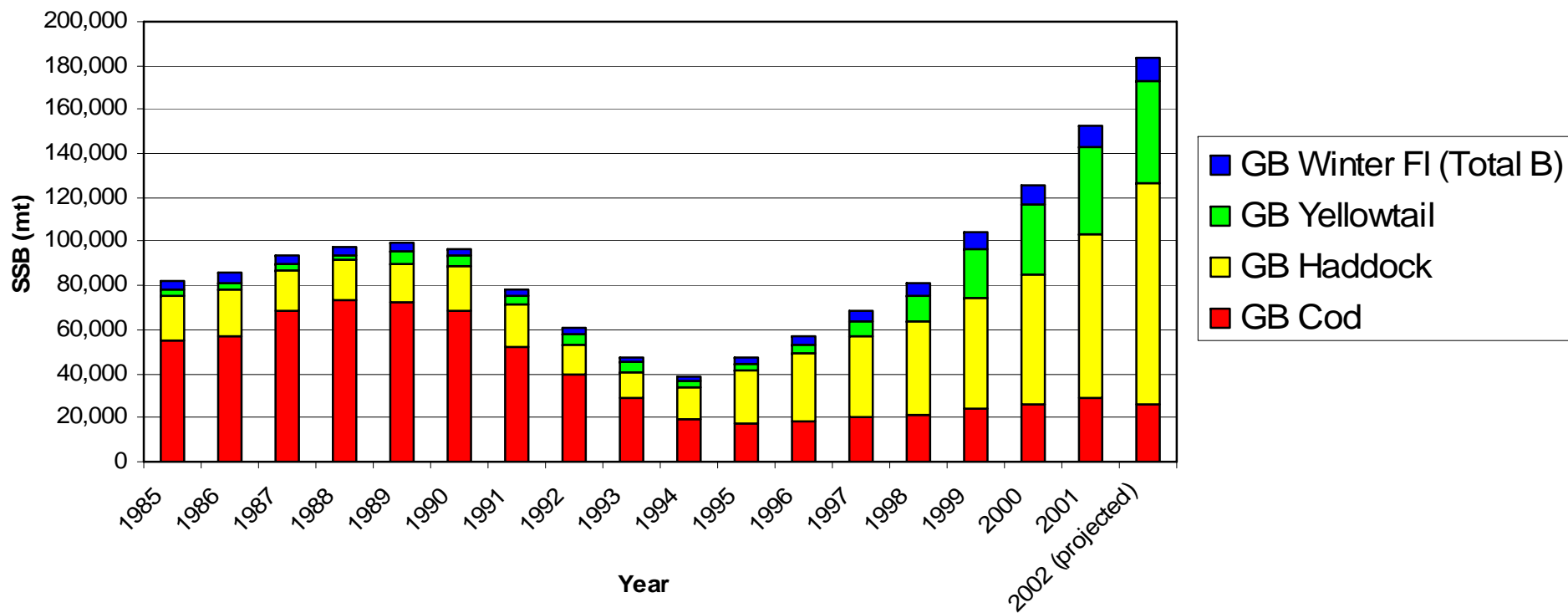
SSB for 6 GOM Groundfish Stocks, 1985-2002



*2002 projections are from Groundfish PDT work for Amendment 13.

GB groundfish stocks SSB

SSB for 4 GB Groundfish Stocks, 1985-2002



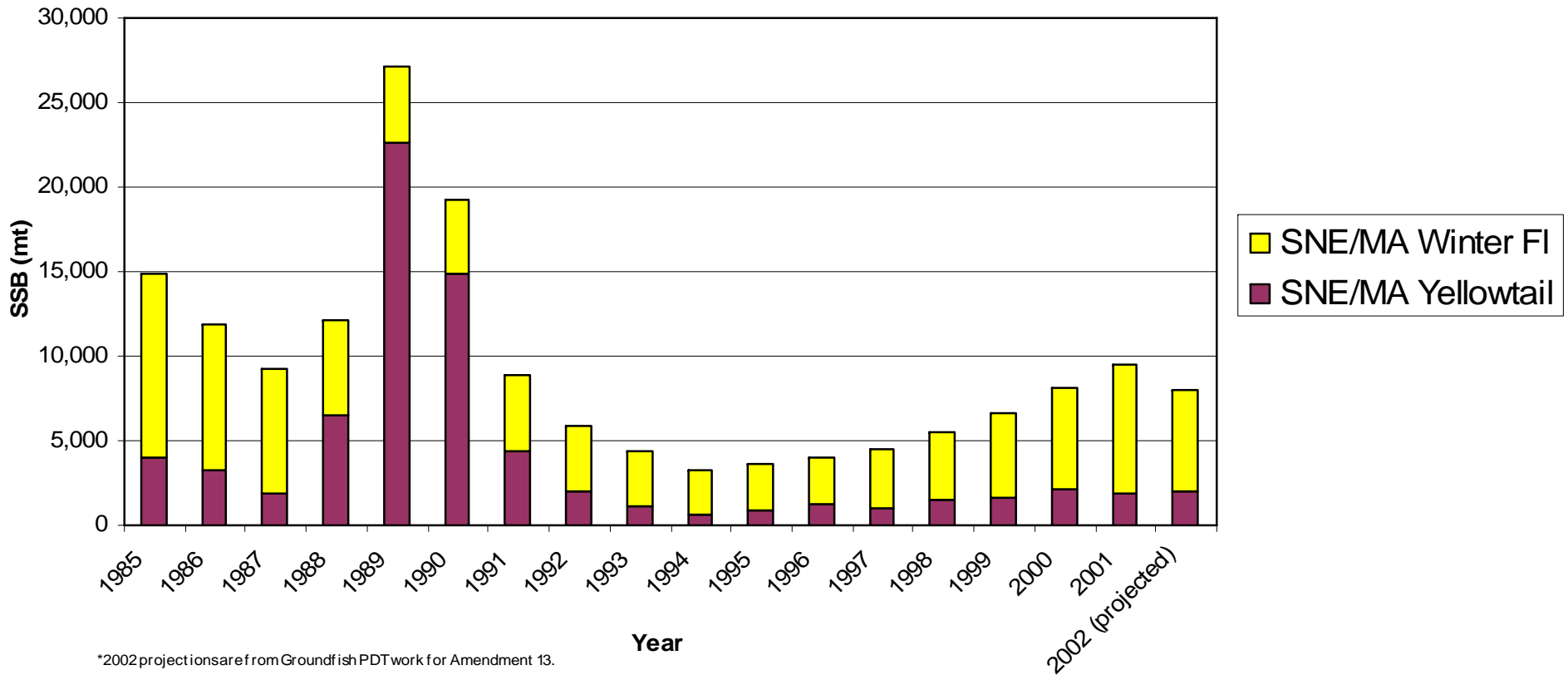
*2002 projections are from Groundfish PDT work for Amendment 13.

*2002 total B estimate for GB winter flounder from short-term projections in NMFS GARM Report (2002).



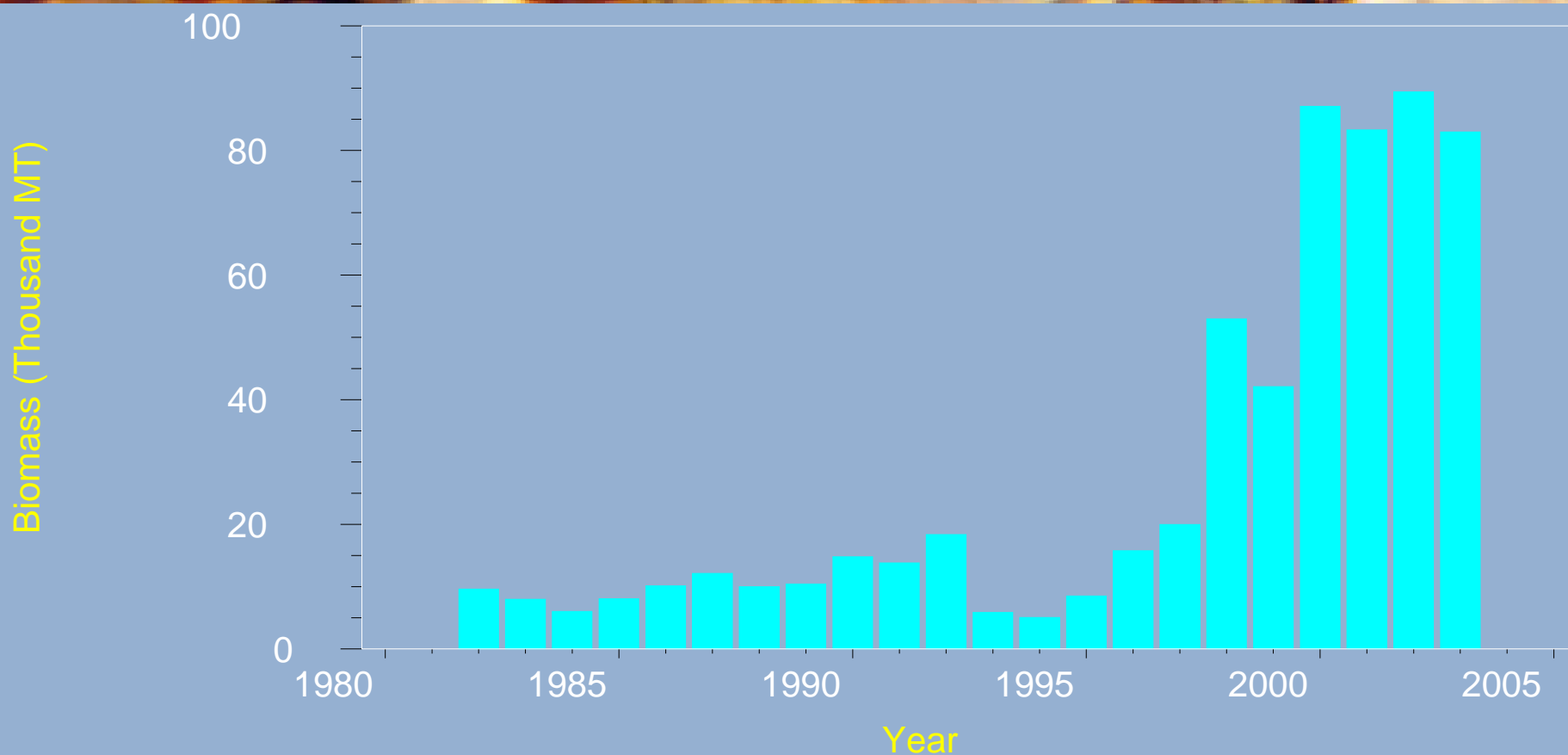
SNE groundfish stocks SSB

SSB of 2 Southern NE Groundfish Stocks, 1985-2002



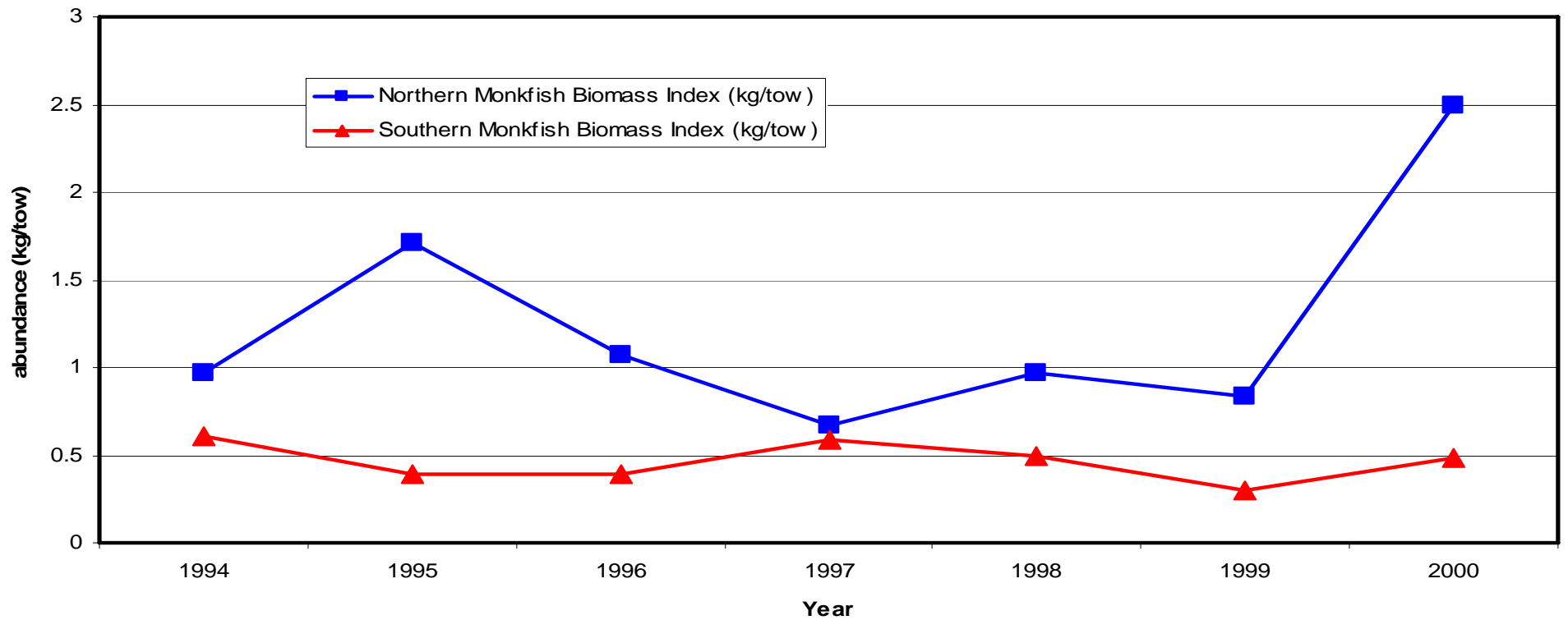
*2002 projections are from Groundfish PDT work for Amendment 13.

Atlantic Sea Scallop biomass



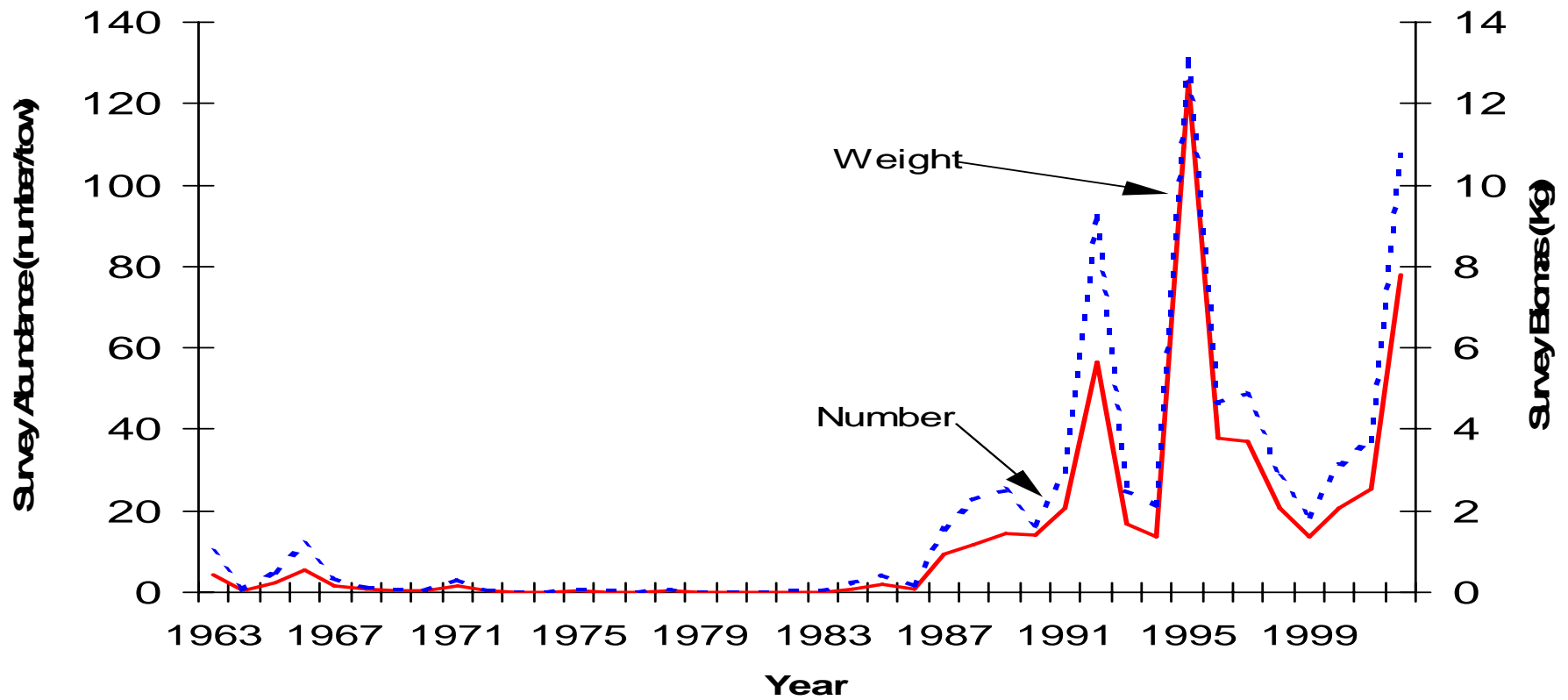


Trends in Monkfish Biomass from the Autumn Trawl Survey





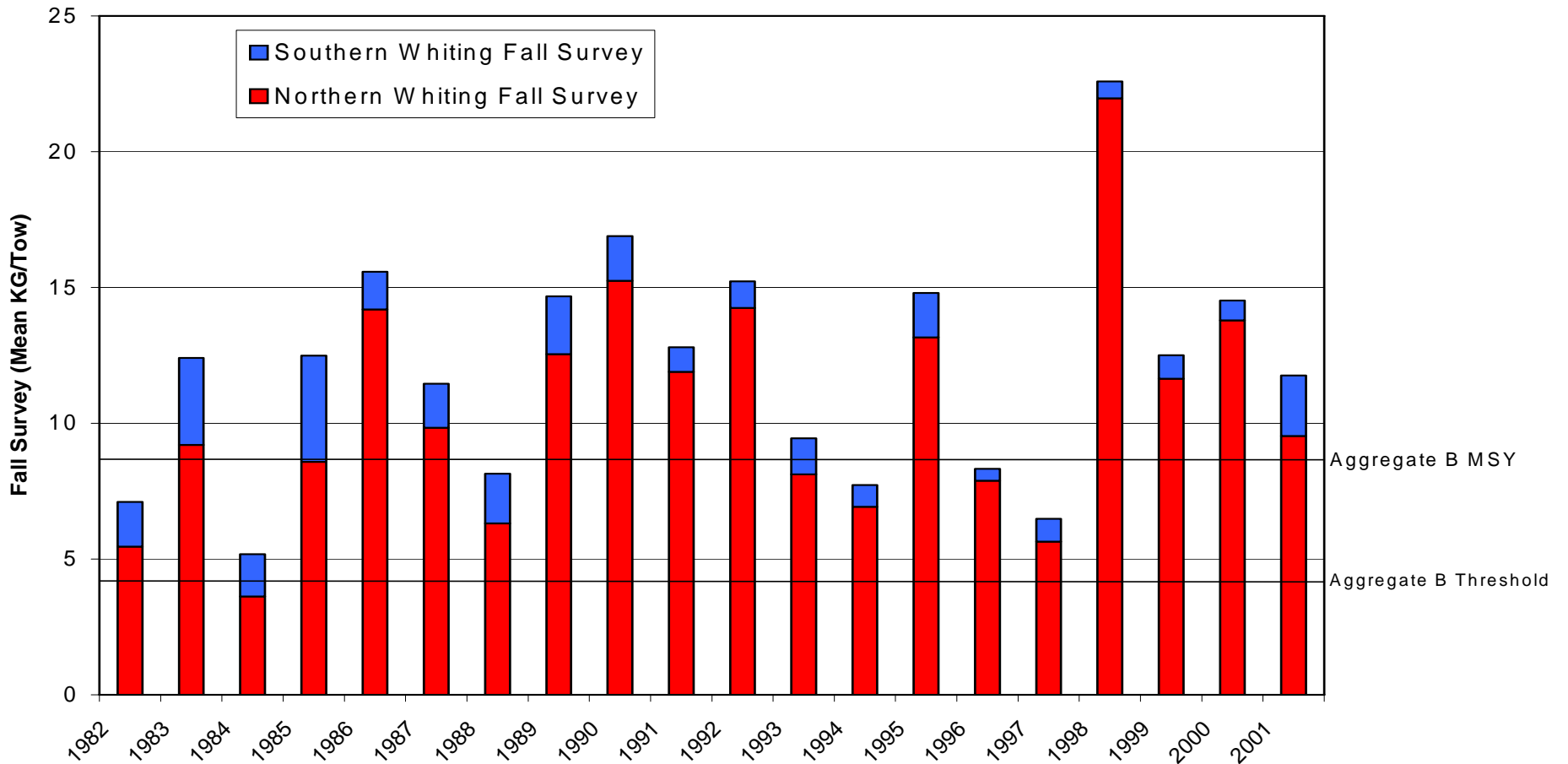
Autumn Survey





Whiting abundance

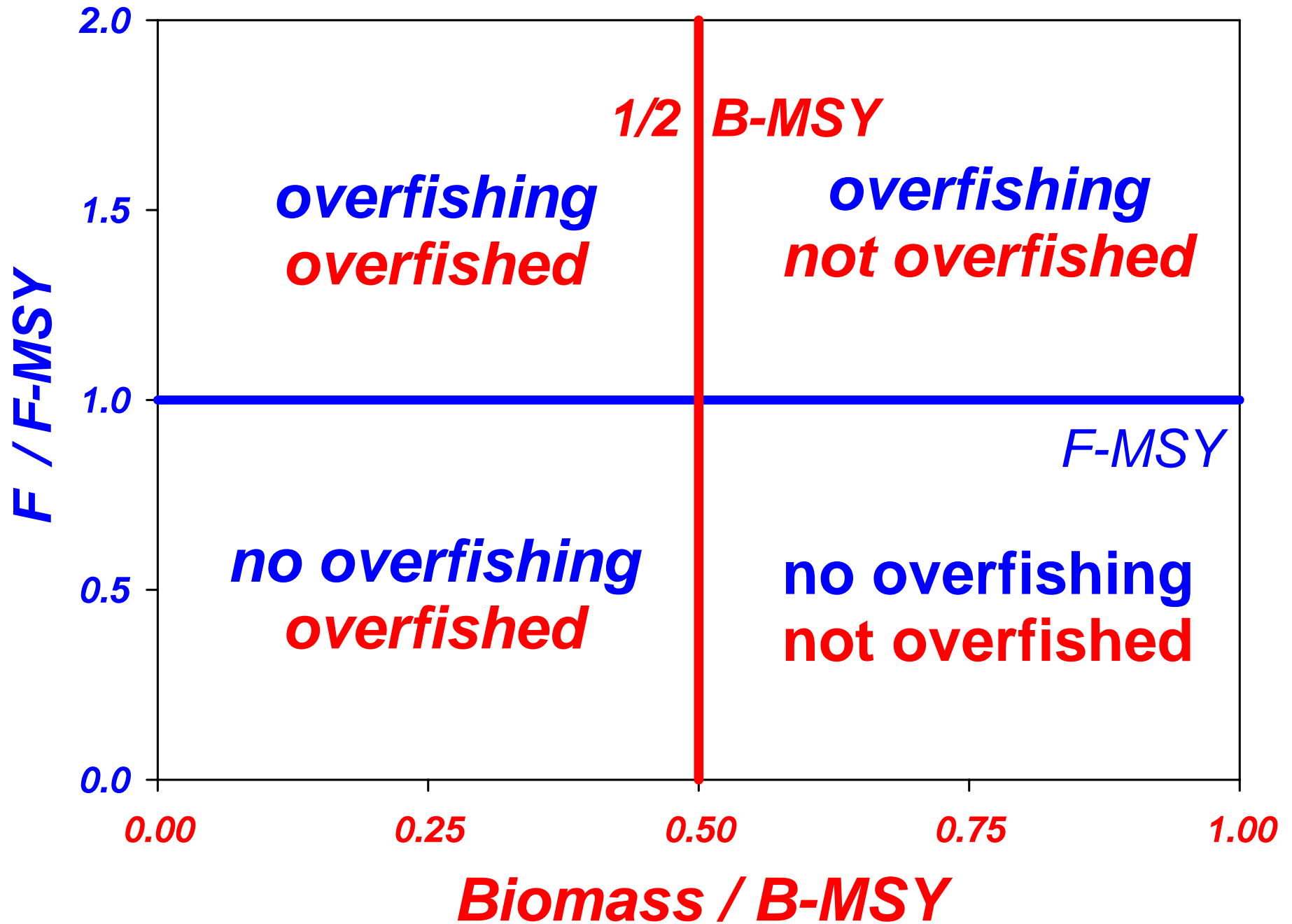
Survey Abundance of Whiting, 1982-2001



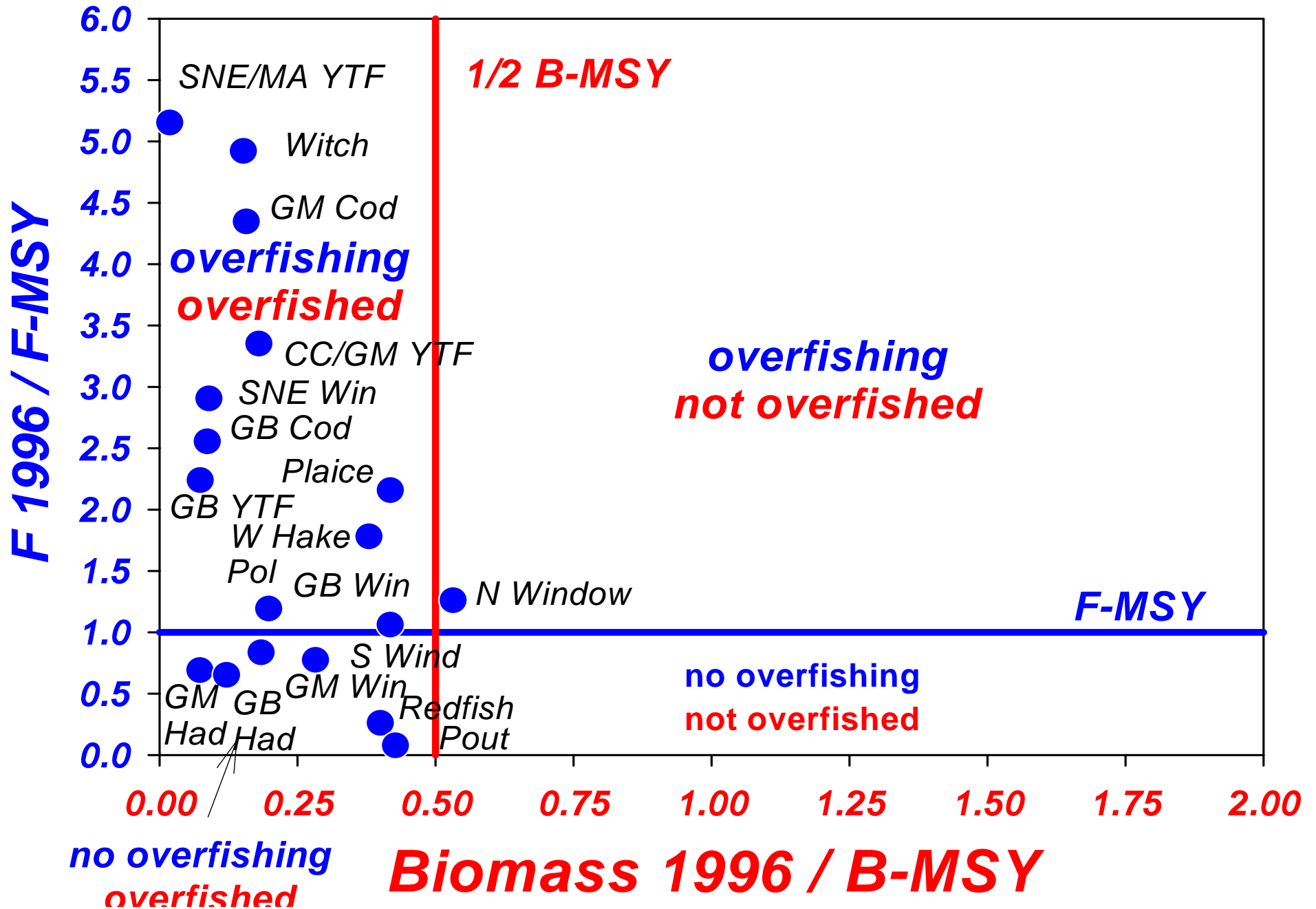
What does all this mean?

A bit of progress...

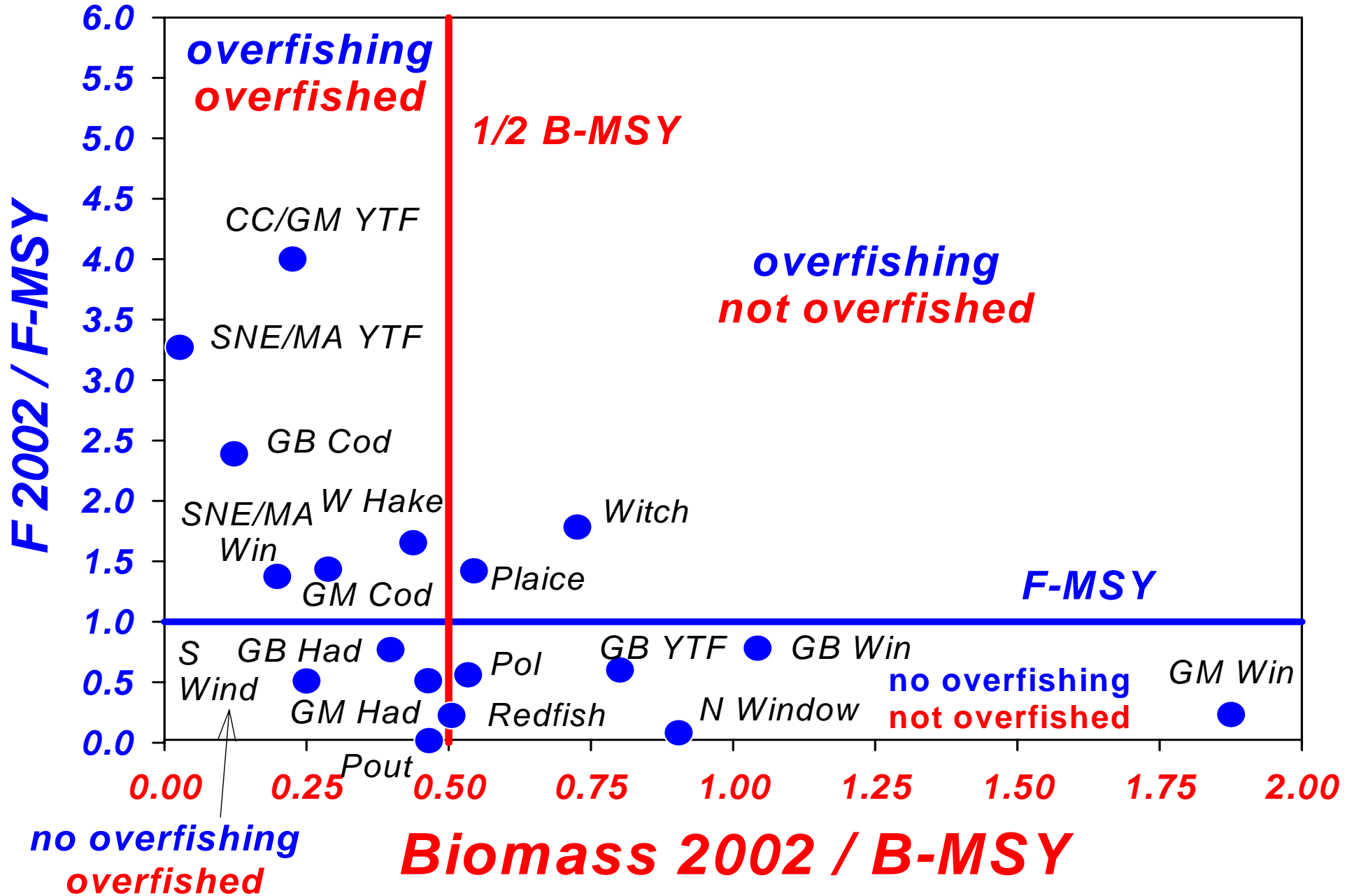
Current Year Stock Status - Status Determination



Groundfish Stock Status - 1996

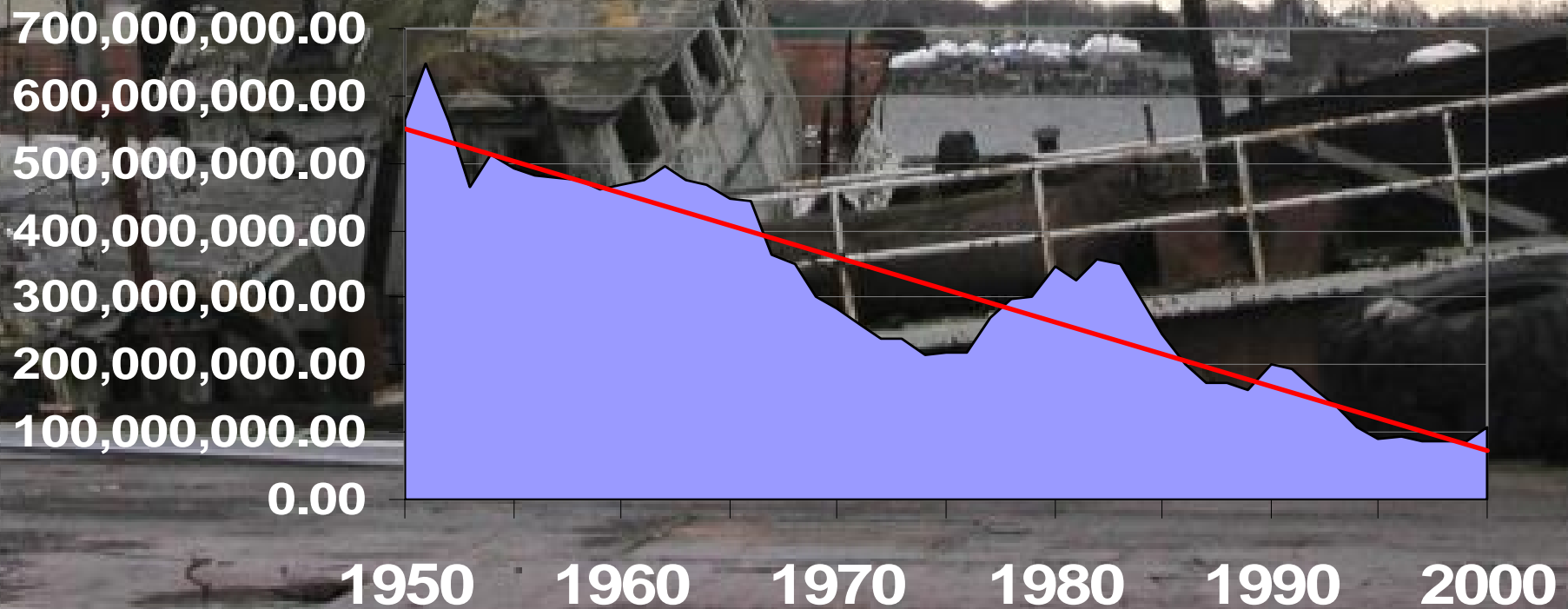


Groundfish Stock Status - 2002

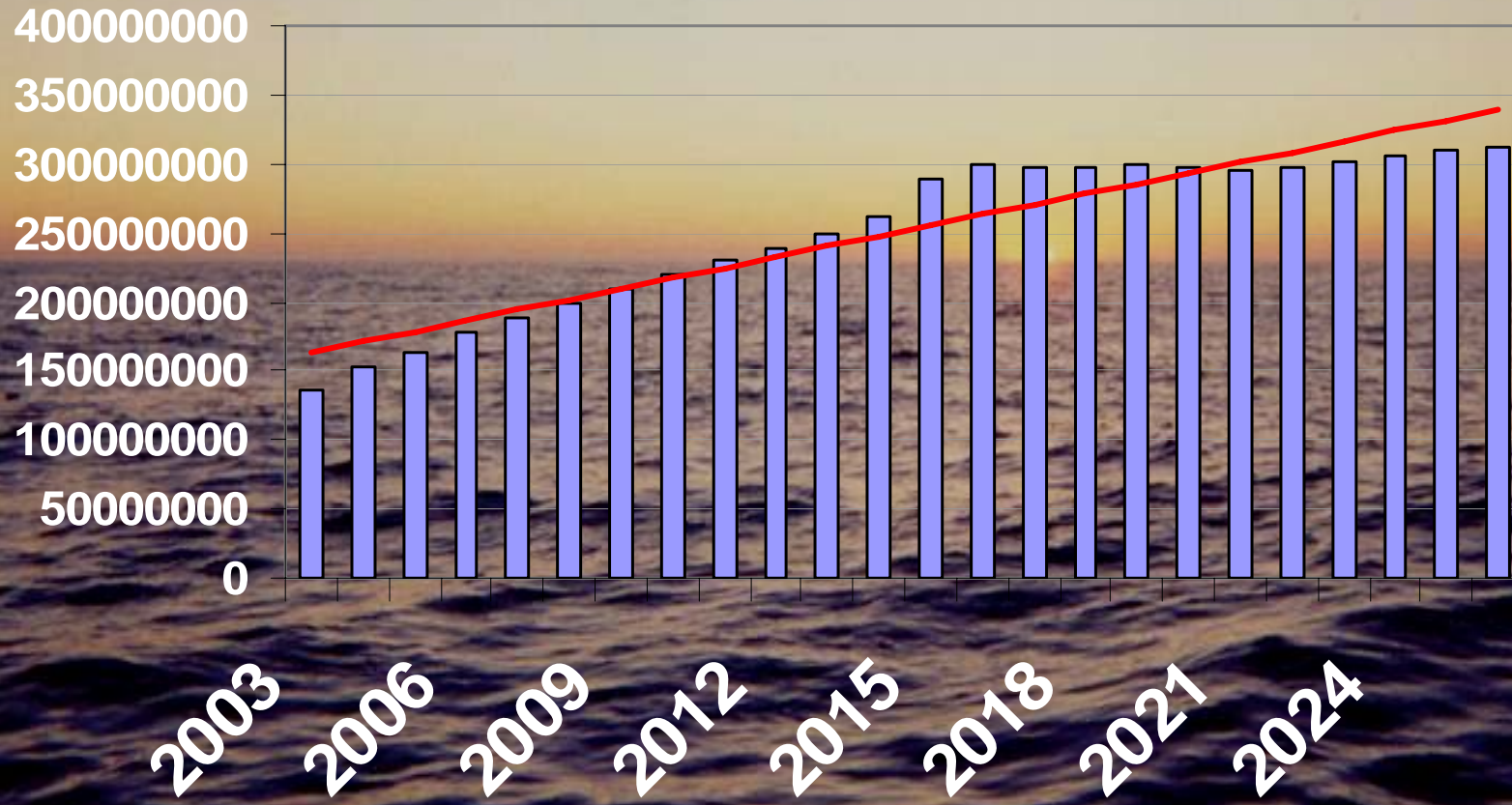


The groundfish example

Groundfish landings, 1950 - 2000

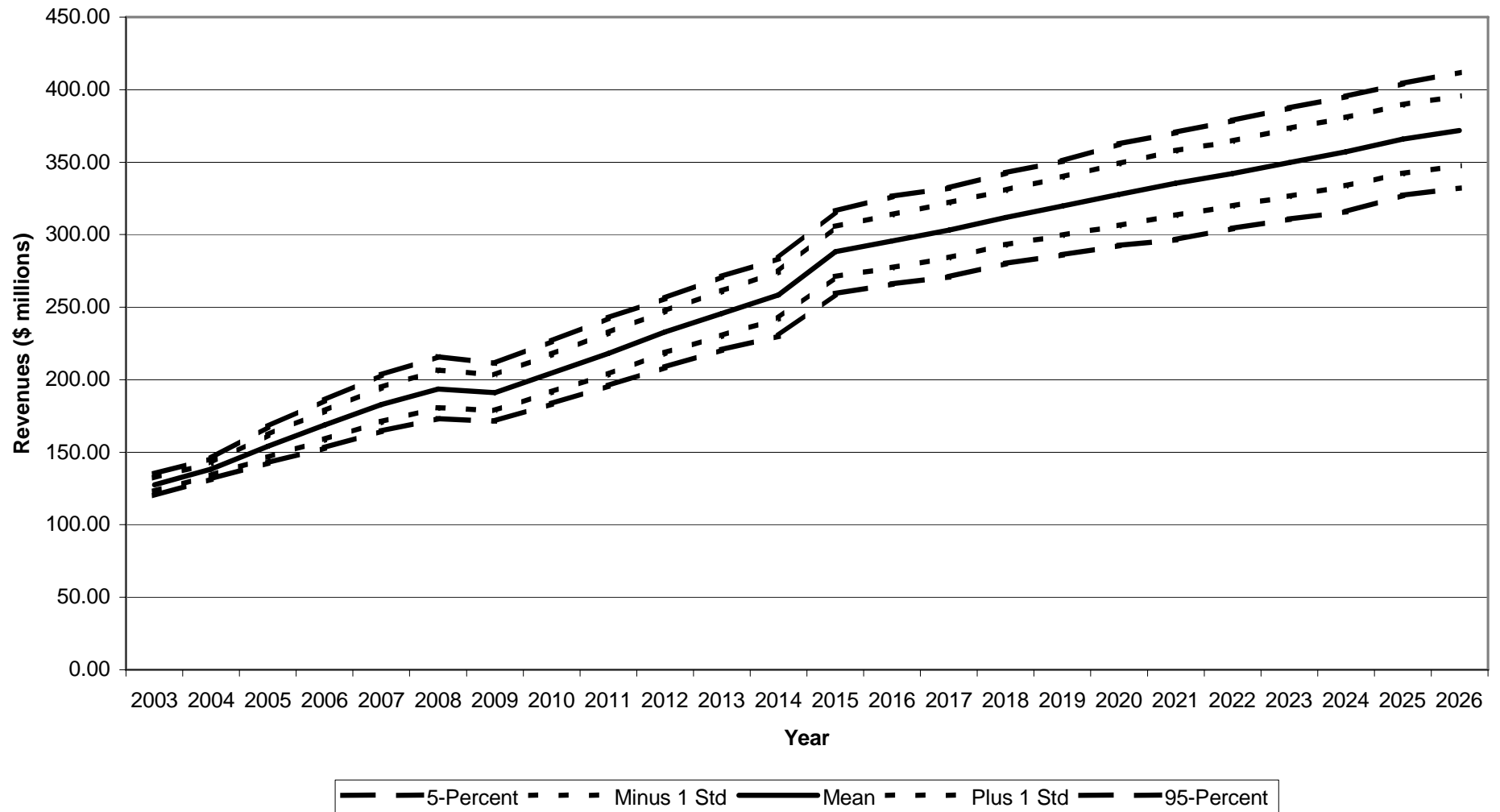


Predicted groundfish landings, 2003 - 2026



Predicted groundfish revenues, 2003 - 2026

Projected Nominal U.S. Commercial Revenue from 10 Large Mesh Speceis (Proposed Action)





Towards ecosystem-based approaches

- Who's definition do we use?
- Where in the Council process do EAM apply?
- Why is EAFM important now?
- Where is the New England Council going with EAFM?

Who's definition?

- 21 different definitions (and counting)
- All are ecologically based
- Nearly all have “social and economic” caveat
- Most include explicit recognition of people within the ecosystem

My favorite, from the European Fisheries Ecosystem Plan Project...

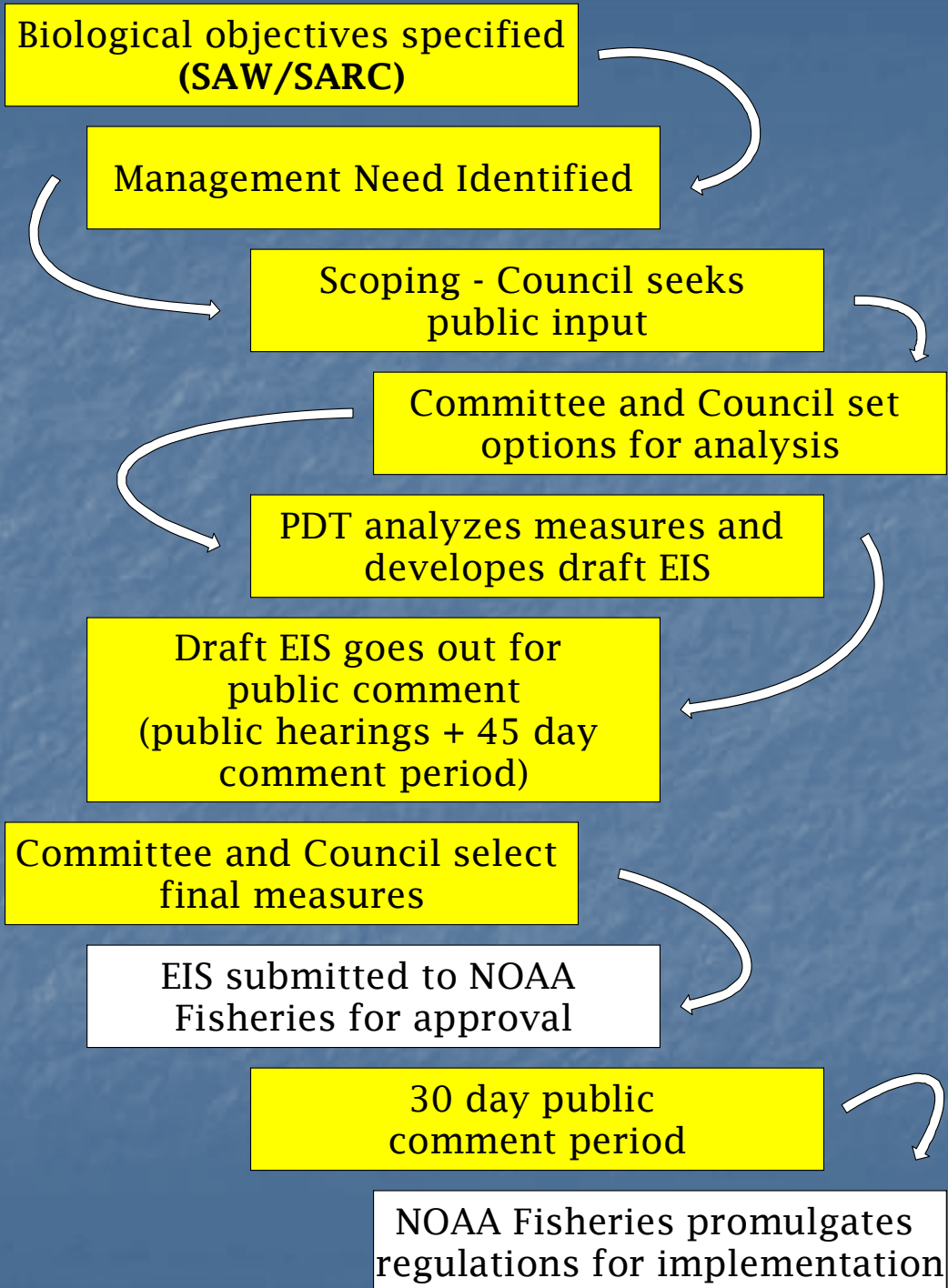


“Ecosystem-based management considers all the components of the ecosystem (biological, chemical and physical) and their interactions. This includes an appreciation of natural ecosystem dynamics AND it explicitly recognizes that man is part of the system and seeks to include stakeholders in setting management goals.”

Ecosystem approaches to fisheries management

- Must recognize that some disruption of *in situ* ecosystem processes:
 - Will occur
 - Are desirable
- Must focus on enhancing our understanding of undesirable process disruptions:
 - Those that adversely affect long-term resource productivity
 - Those that fundamentally and/or irrevocably alter a vital ecosystem process

**Where in the Council process
can EAM apply?**



- **Biological objectives:**
 - Improved stock, species or complex-level assessments
 - More holistic targets
 - More accurate targets

- **Management objectives**
 - Adaptive response to management needs
 - Improved use of management “tools” to achieve biological objectives



Why is EAFM important now?

- On the cusp of a regime shift:
 - From: managing for rebuilding
 - To: managing for maximizing returns
- As stocks grow, interactions will increase
 - GOM cod
 - GB Haddock
 - Dogfish
- Unique opportunity: Science and management must both be equipped to respond

Where is the New England Council going?

- One-year pilot project
- Increase understanding of management requirements (wrt: adaptive, tools)
 - Survey
 - Regional stakeholder meetings
 - Summary report
- Fishery ecosystem plan?



Research/data needs

- Species & stock distribution
 - Geographic
 - Age structure
- Larval, juvenile & adult life stages
- Spatial presence within water column
- Benthic habit information
 - Sediment type
 - Depth contours
- Oceanographic information
 - Current dynamics
 - Salinity
 - Temperature
 - Larval transport

Research/data needs (con't)

- Food web
 - Geographic / seasonal information on predator-prey interactions
 - Location of phyto- and zooplankton blooms (primary production)
- Improved catch information
- Improved effort information
- Cumulative effects

Research/data needs (con't)

- Non-fishing activities
 - All fluid discharge sites
 - All watersheds
 - Non-fluid disposal sites
 - Water transportation facilities and patterns
 - Concentrations of non-point source discharge
 - Locations of other activities that affect the marine environment
- Economic /social
 - Location of fishing communities
 - Geographic characterization of economic dependence on fishing activities (including non-consumptive uses)
 - Location of major support infrastructure
 - Market distribution system
 - Areas where stakeholders reside
 - Population areas

Conclusions

- Potential for new approaches in fisheries management
 - From rebuilding depleted stocks
 - To maximizing returns to society
- Emphasis on tradeoffs as fishery interactions increase
- Need for multi-agency, multi jurisdictional approaches
- EAFM apply throughout management process