

Habitat Science at the Northeast Fisheries Science Center

Habitat Committee
New England Fishery Management Council
Boston
January 6, 2011

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Overview

Habitat Assessment Improvement Plan

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Key Recommendations

NEFSC Habitat Research Activities

Climate Change

Coastal and Marine Spatial Planning

Habitat-dependent processes and fish life histories





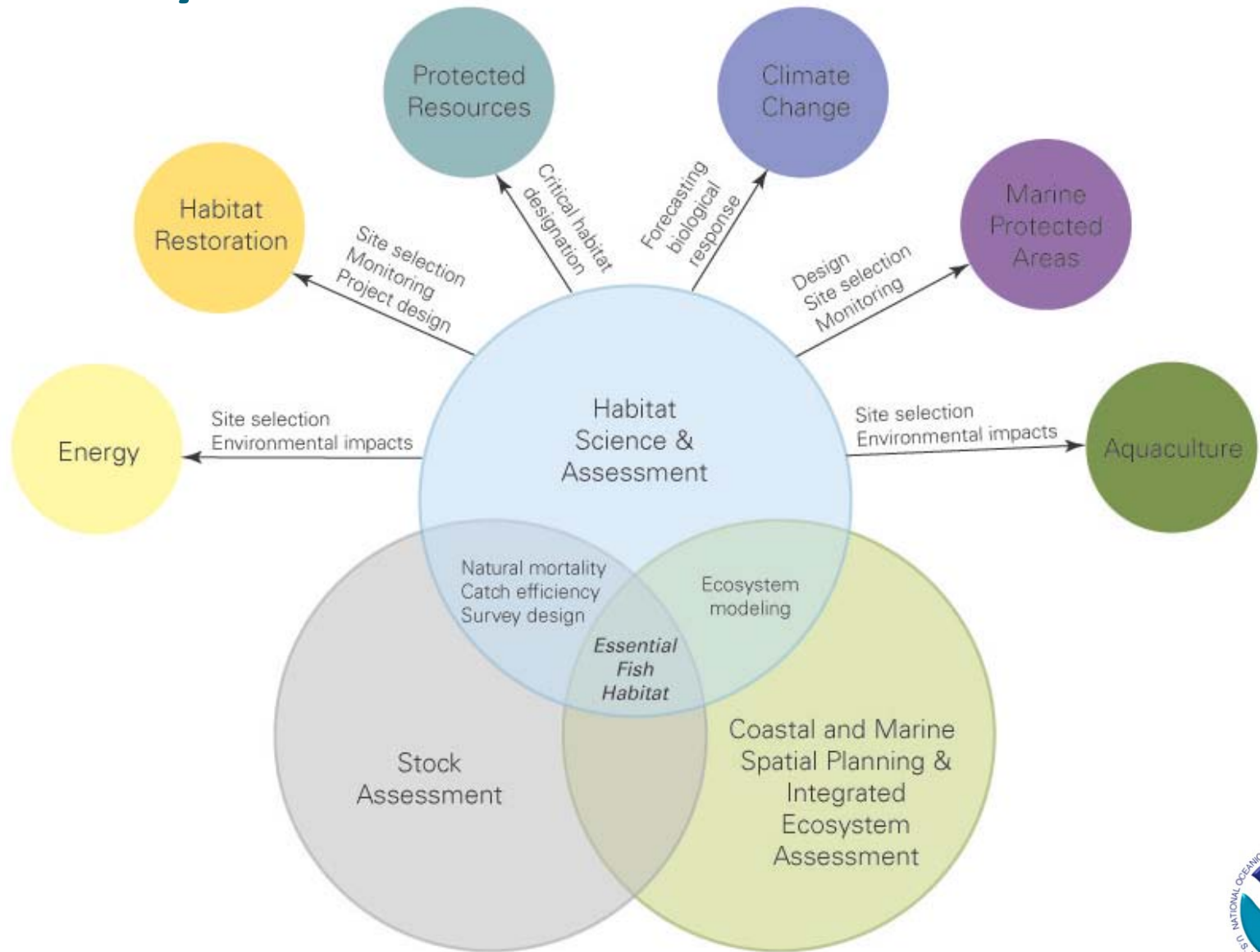
NOAA Fisheries

Habitat Assessment

Improvement plan

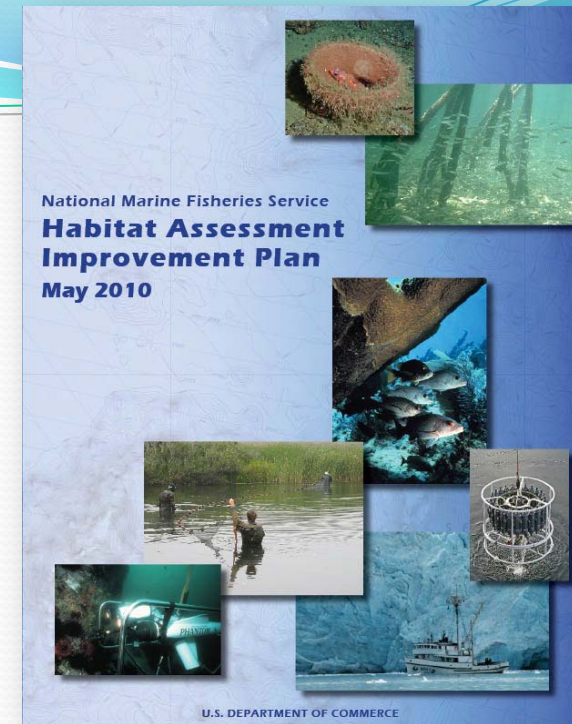


Why Habitat?

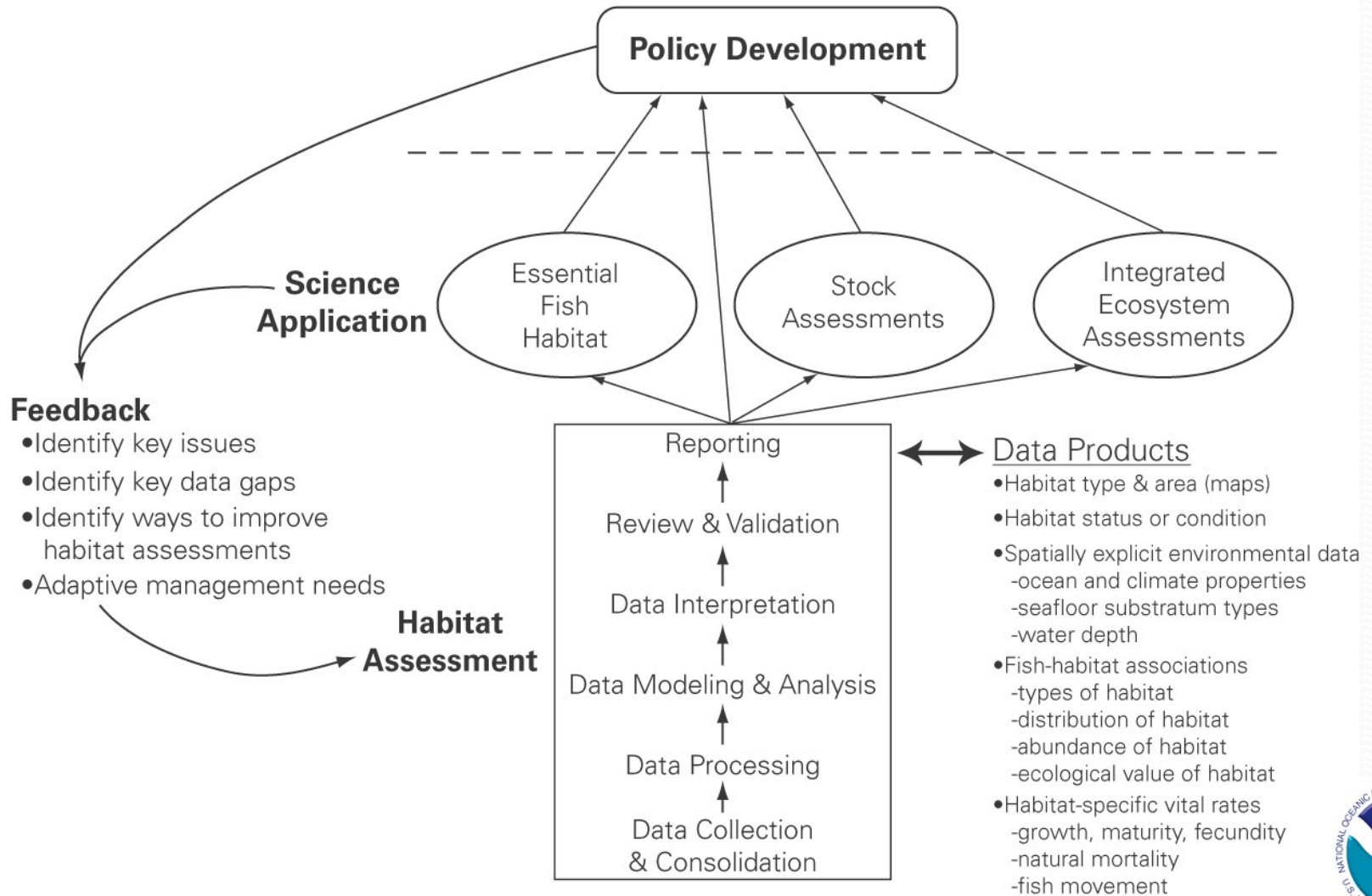


Goals of the HAIP

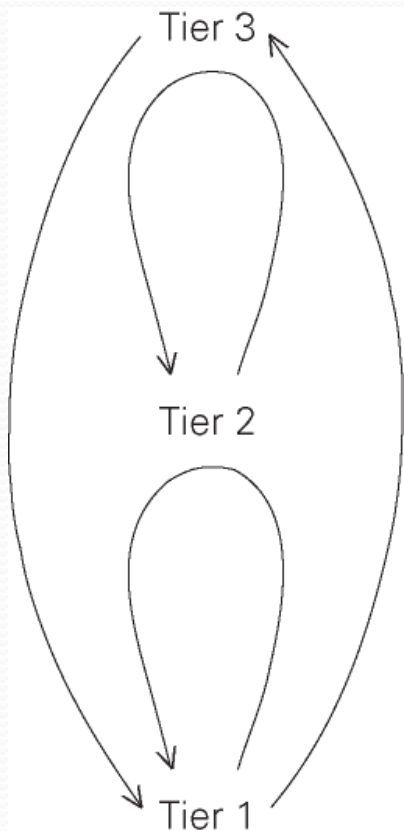
- Magnuson-Stevens Act mandates
- Improve identification and impact assessments of EFH
- Reduce habitat-related uncertainty in stock assessments
- Contribute to assessments of ecosystem services
- Climate change
- Ecosystem-based management, integrated ecosystem assessments, and coastal and marine spatial planning



What is a Habitat Assessment?



Three Tiers of Habitat Assessments



- Tier 1: Comprehensive evaluation and synthesis of existing habitat information by life stage
- Tier 2: New or expanded data collection and research initiatives result in a higher level of habitat assessments
- Tier 3: Provide quantitative estimates of fish productivity by habitat and ecosystem considerations for incorporation into stock assessments

Current State of Habitat Assessments

- Data collection and data management programs are inadequate
- Current levels of available infrastructure and advanced technologies need to be increased
- Disconnect between habitat scientists and resource managers on priorities and needs



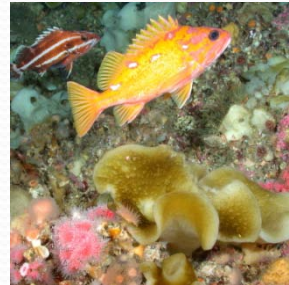
Staffing Issues

- Only ~5% of NOAA Fisheries staff are currently working on habitat science activities
- Many habitat-related staff are contractors or students supported with transient, non-NOAA funds
- Habitat staff time is fully committed (in many cases overcommitted)
- Additional staff will be necessary to achieve improvements to habitat assessments



Key Recommendations of the HAIP

- 🌐 Develop criteria to prioritize stocks and geographic locations that would benefit from habitat assessments
- 🌐 Identify and prioritize data inadequacies for stocks and their respective habitats
- 🌐 Habitat and stock assessment scientists should work together to initiate demonstration projects that incorporate habitat data into stock assessment models
- 🌐 Convene regional and national workshops to develop strategies to integrate habitat science and assessments, stock assessments, and integrated ecosystem assessments



Outcomes to Date

- Development/publication of HAIP has increased awareness of habitat science within NOAA Fisheries
- Basis for new budget initiatives and the new Habitat Monitoring and Assessment capability
- Three joint habitat/stock assessment pilot projects have been funded and are underway
- New call for proposals on the streets now
- 1st National Habitat Assessment Workshop held in May 2010



Download a copy of the HAIP:

<http://www.st.nmfs.noaa.gov/st4/HabitatScience.html>



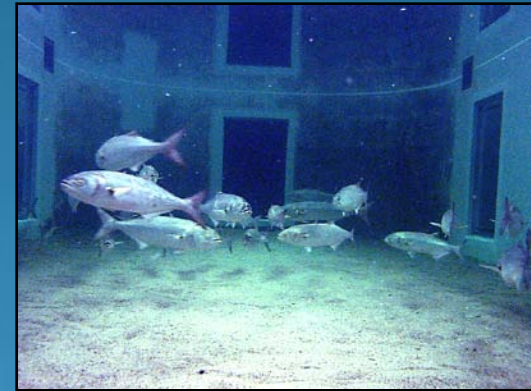
Contact your HAIP representative:

- Mary Yoklavich, SWFSC (Chair)
- Michael Parke, PIFSC
- Frank Parrish, PIFSC
- Correigh Greene, NWFSC
- Waldo Wakefield, NWFSC
- Bob McConnaughey, AFSC
- Tom Minello, SEFSC
- **Tom Noji, NEFSC**
- Kristan Blackhart, OST
- Steve Brown, OST
- Susan-Marie Stedman, OHC

Ecosystems Processes Division Priorities

Mission: *Understand the effects of environmental variability and human disturbances on fish and shellfish productivity relative to habitat*

- Effects of climate change, ocean acidification and human activities (e.g. renewable energy production) on coastal habitats and fisheries
- Coastal and marine spatial planning including mapping and assessment of fish habitat condition

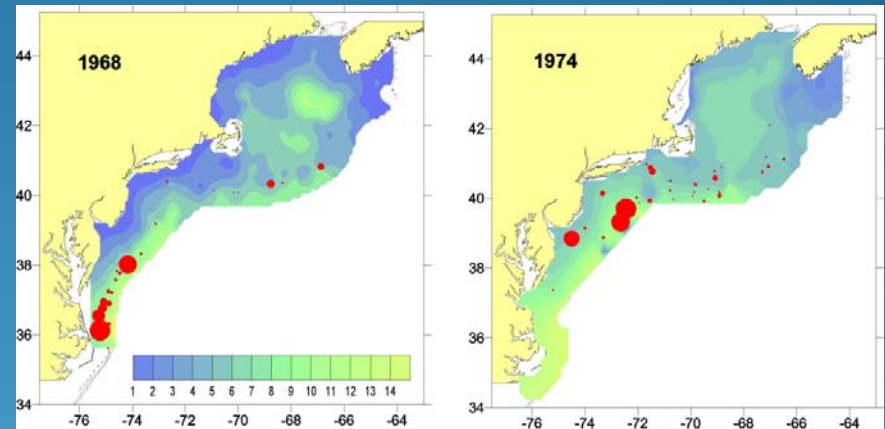


- Habitat-dependent processes and fish life histories in support of resource management modeling

Climate Research

Climatic Effects on Biological Productivity and Sustainable Fisheries in the Northeast U.S. Continental Shelf Large Marine Ecosystem

- Overall productivity
- Individual fish and shellfish stocks
- Predicted on timescales meaningful to fisheries managers
- Most important factors required for modeling
- The environment and biota to be monitored
- Are we prepared to respond?










Ocean acidification- species response - finfish

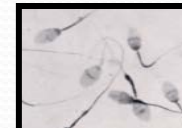
Protocols and Design

Species – diverse ecologies

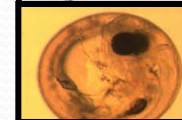
Response variables



SPECIES	SPAWNING SEASON	EGG / LARVAL HABITAT	PRIMARY VALUE
 black sea bass	summer	shelf / water column	economic
 shortnose sturgeon	spring-summer	estuaries to fresh / benthic	endangered
 Atlantic sturgeon	summer	estuaries to fresh / benthic	species of concern
 summer flounder	autumn-winter	shelf / water column	economic
 winter flounder	winter-spring	estuaries / benthic / water column	economic
 Atlantic tomcod	winter	estuaries to fresh / benthic / water column	trophic
 Atlantic killifish	summer	estuaries / benthic	trophic



Sperm motility



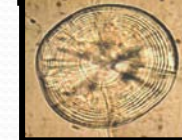
Embryo development



Larval growth and condition



Metamorphosis and settlement



Otolith growth and symmetry

Coastal and Marine Spatial Planning



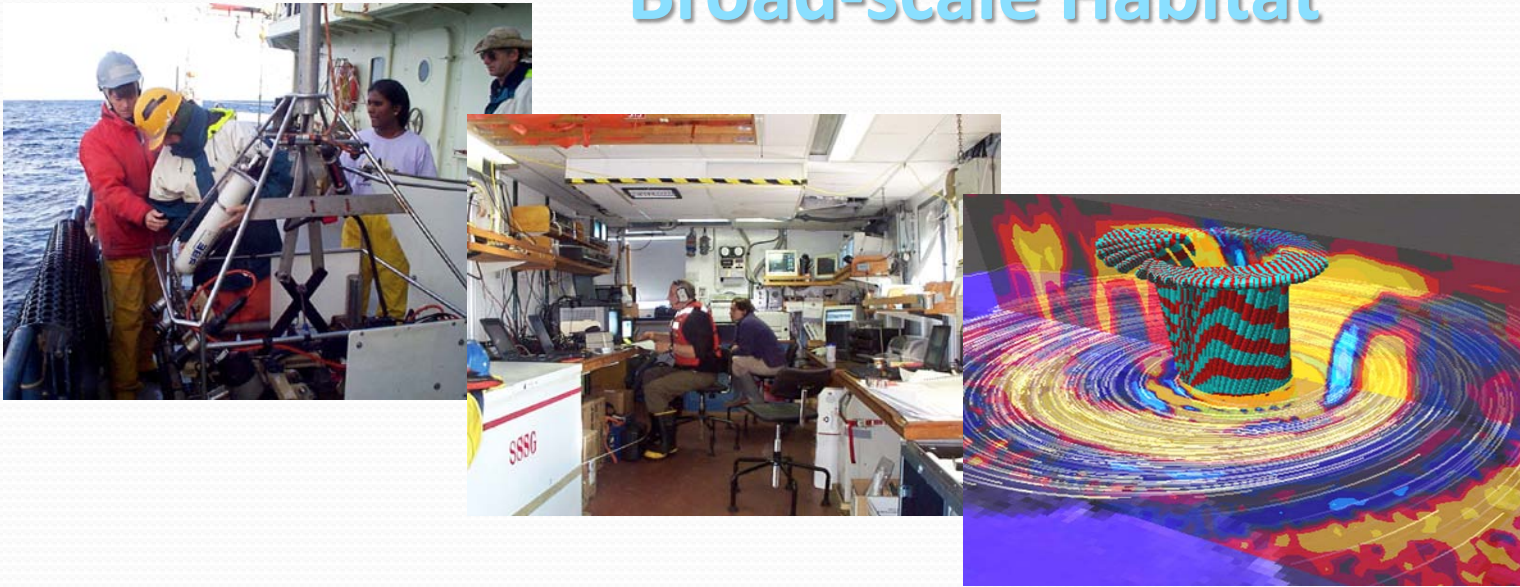
GIS Mapping Group

Habitat Atlas

Area viewed, 20 x 30 in (51 x 76 cm)



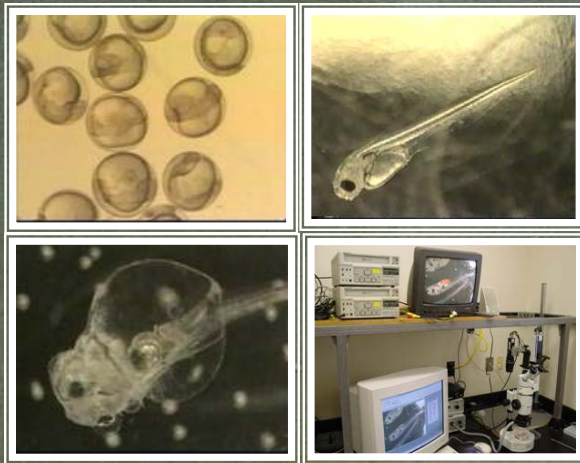
Broad-scale Habitat



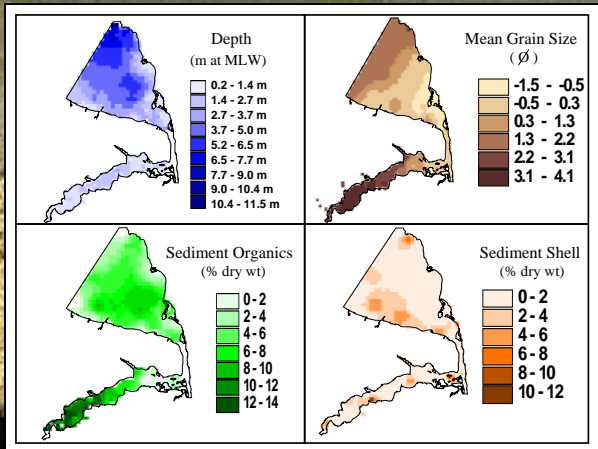
NEFSC – CCOM Partnership for collection and processing of acoustic oceanographic data

- To improve our ability to handle the flow of acoustic data
- To develop a program to routinely process these acoustic data collected by the NEFSC;
- To develop solutions to particular (non-routine) data-interpretation challenges.

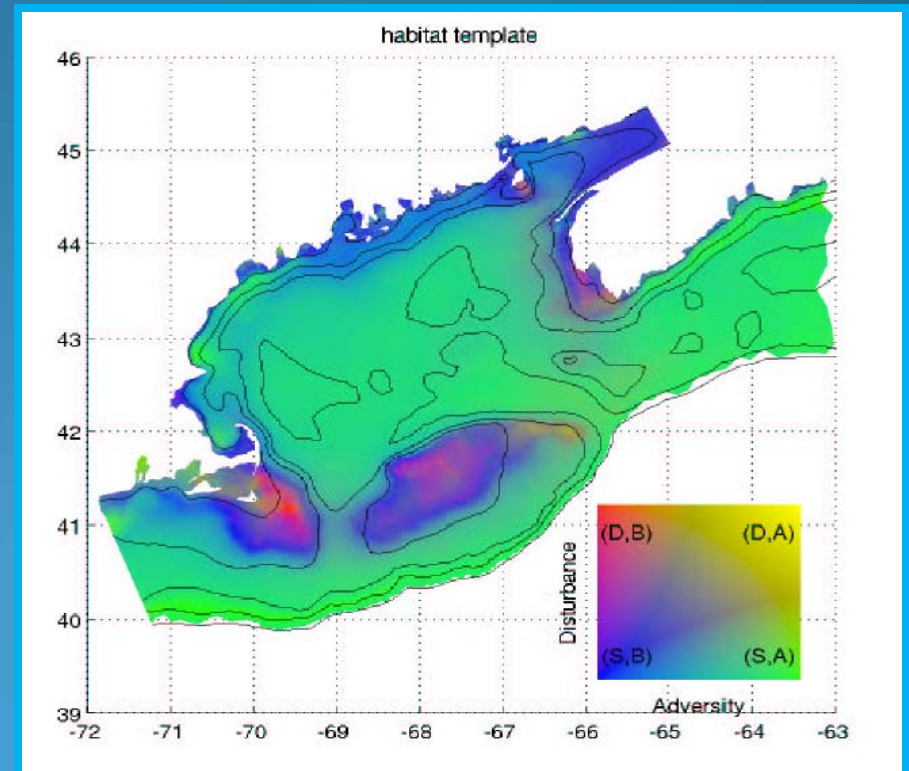
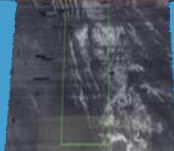
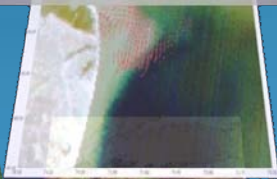
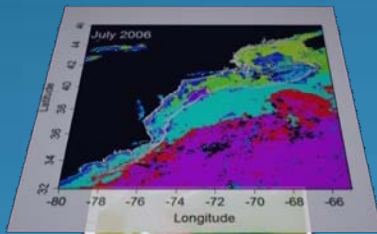
Habitat-dependent processes and fish life histories



- Winter flounder habitat
- National Fish Habitat Action Plan (NFHAP)
- Deep Water Coral Workshop
- Habitat modeling
 - Pelagic
 - Benthic



Habitat Sensitivity and EFH Modeling



Next Steps

Habitat Support to the Council

How?

EFH revisions

Omnibus EFH Plan

Coordinate regionally

Habitat workshops

