

The Ecosystem Pilot Project

An intro to the NEFMC's approach to the Ecosystem Pilot Project

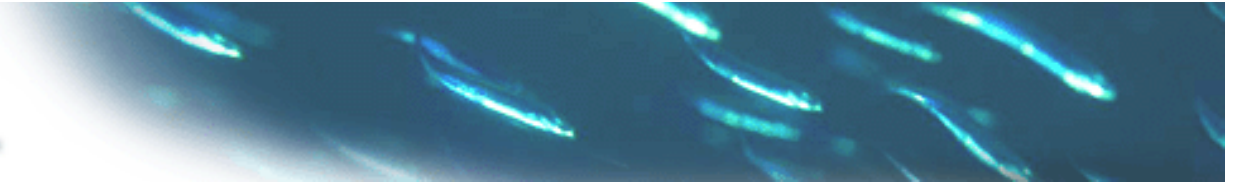
June 13, 2005
Exeter, NH - GOM Council Working Group

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NEFMC Ecosystems Project Leader



Why am I here?

- **Introduce the Pilot Projects**
- **Describe NEFMC's approach**
- **Encourage involvement**
- **Solicit ideas**



Presentation Overview

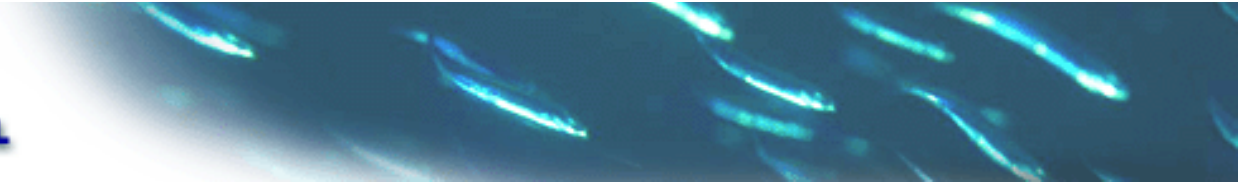
- **The Pilot Projects**
- **Ecosystem Approaches**
- **A fishery ecosystem plan**
- **The bigger picture**
- **Final thoughts**



Pilot Projects

What pilot project?

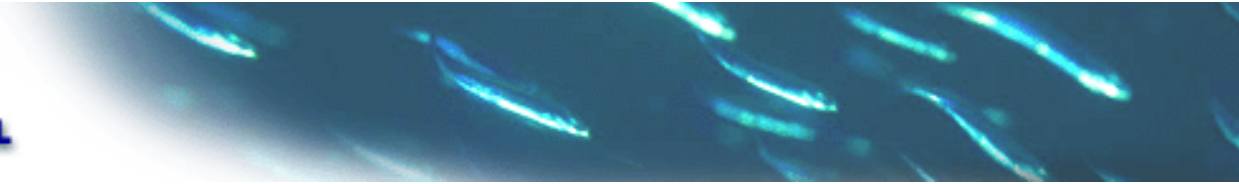
- **2 million grant in FY 2004 budget**
 - NOAA National Oceans Service
 - NOAA Fisheries Service
 - **Four Councils**
 - Gulf Coast FMC
 - South Atlantic FMC
 - Mid-Atlantic FMC
 - New England FMC
- **Initiate public participation in developing EAFM**



National Ocean Service

What pilot project?

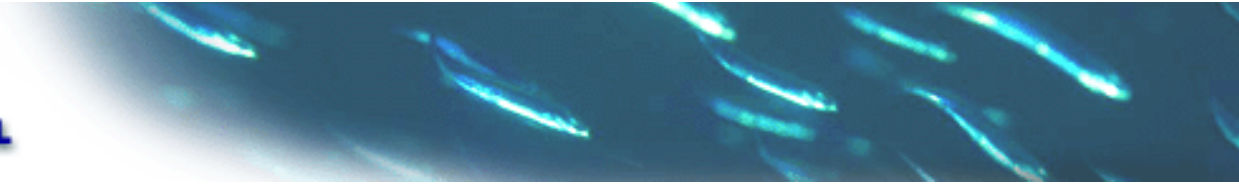
- Eco-GIS: Working with Councils and NOAA Fisheries to develop GIS tools
 - Aid scientists by increasing use of spatially explicit models
 - Aid managers by increasing integration/visualization
 - Management options
 - Potential outcomes



NOAA's three themes

What pilot project?

- Enhance Regional Ecosystem Governance Structures through Fishery Management Councils
 - Determine management objectives, threats, options, and alternatives; evaluate Council's ability to expand role
- Develop Quantitative Decision Support Tools
 - Develop tools to aid decision makers in evaluating management options (models and GIS)
- Conduct Technical Workshops
 - Establish dialog between science and management in applying ecosystem principles to fisheries; assess state-of-the-art techniques; determine technical needs



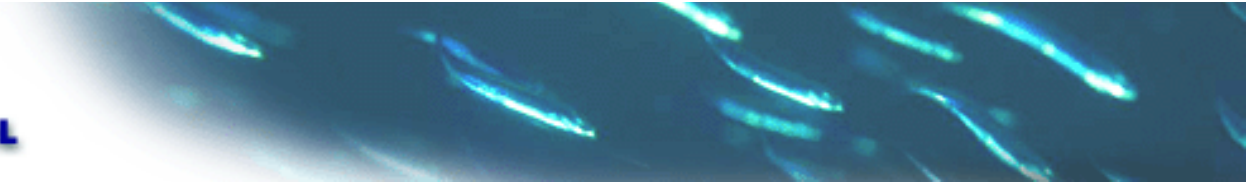
What pilot project?

NEFMC's four-prong approach

- Attitudes/values survey
- Regional stakeholder meetings

Both will solicit feedback from stakeholders on:

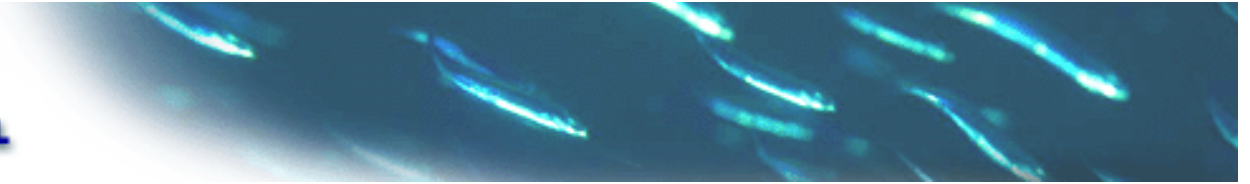
- Management objectives
 - Use of management “tools”
 - Balance and tradeoffs within NE fishery
-
- Technical needs and inventory of information
 - Synthesis report



When does
something happen?

Timeline

- Survey: awaiting OMB clearance
- Public meetings: Sept – Nov '05
- Survey results: November '05 (?)
- Synthesis report Jan '06



Ecosystem Approaches

Overview

- **What's the point?**
- **Why now?**
- **What are we talking about?**
- **Fundamental concepts**



Context: fisheries management

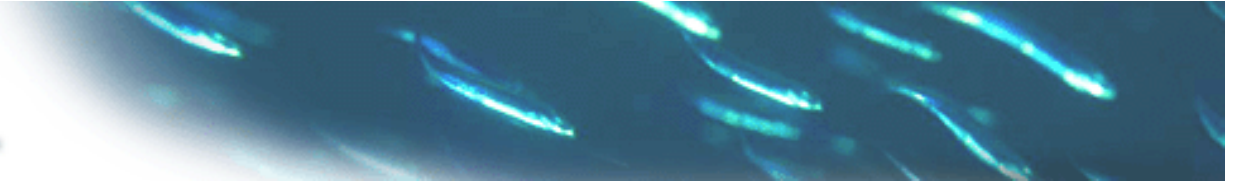


What's the
point?

Define objective at the outset

MFCMA (purpose of Act):

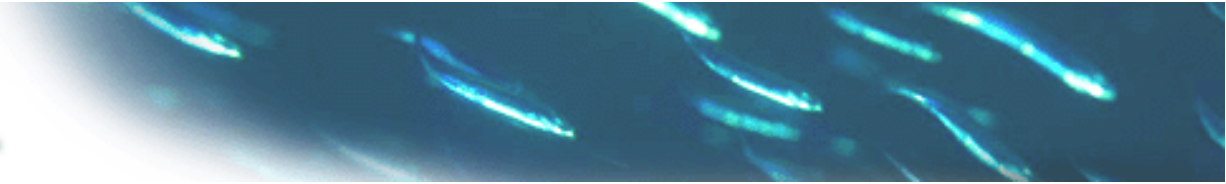
- (3) to promote domestic commercial and recreational fishing under sound conservation and management principles, including the promotion of catch and release programs in recreational fishing;
- (4) to provide for the preparation and implementation, in accordance with national standards, of fishery management plans which will achieve and maintain, on a continuing basis, the optimum yield from each fishery;



Drivers

Why now?

- U.S. Commission on Ocean Policy
 - New, coordinated National Ocean Policy framework to improve decision making
 - Cutting edge ocean data and science translated into high quality info for managers
 - Education to foster marine stewardship
- Pew Oceans Commission
- Action Plan
- MSFCMA, MMPA, ESA



NOAA's Strategic Goals

Ecosystems

Protect, restore, and manage the use of coastal and ocean resources through ecosystems-based management

Climate

Understand climate variability and change to enhance society's ability to plan and respond

Weather and Water

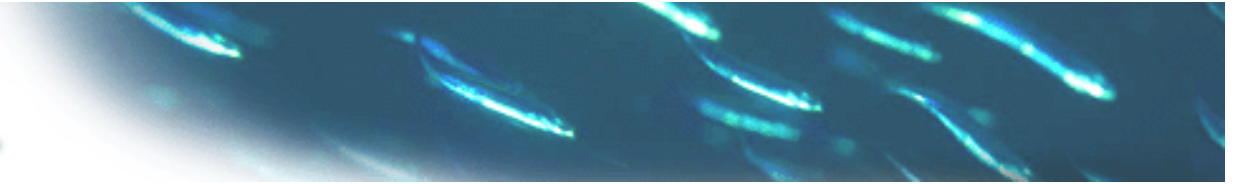
Serve society's needs for weather and water information

Commerce and Transportation

Support the Nation's commerce with info for safe, efficient, and environmentally sound transportation

Organizational Excellence and Mission Support

Provide organizational excellence, infrastructure, and mission support

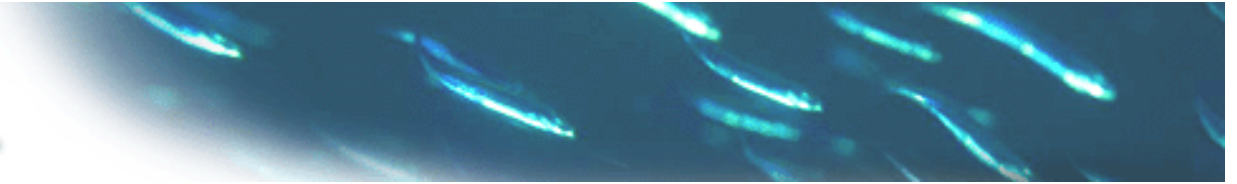


NOAA Fisheries Strategic Goals

Why now?

Derive the optimal sustainable value to society and future generations from the regional marine ecosystems under our stewardship

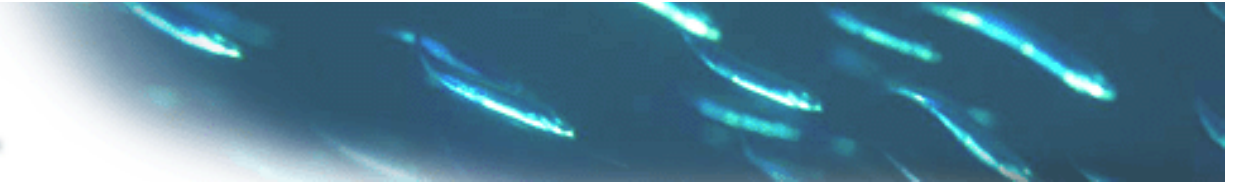
- Ensure sustainability of resources
- Conserve biodiversity
- Maintain economic, social, and cultural access to resources



NEFSC Vision Statement

Why now?

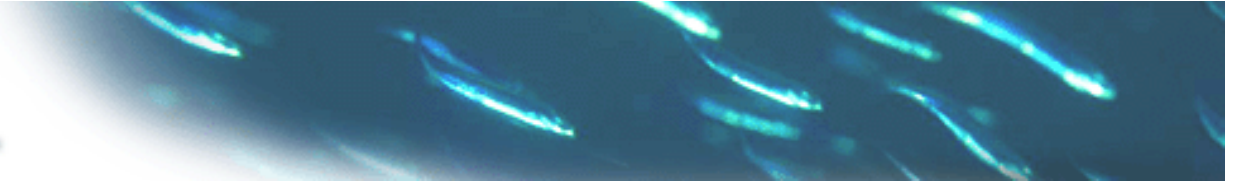
“Conduct **ecosystem-based** research and assessments of living marine resources, with a focus on the Northeast Shelf, to promote the recovery and long-term sustainability of these resources, and to generate social and economic opportunities and benefits from their use.”



NEFSC Mission Objectives

Why now?

- **Research and Monitoring**
- **Scientific Advice**
 - Develop and provide the scientific foundation for management programs that has an **ecosystem-based** framework
 - Enhance society's capability to respond to changing ecosystem conditions and to manage risk by developing science-based decision tools.
- **Education and Outreach**



Why now?

Timing

- Fisheries management in NE is evolving:
 - From...species-specific rebuilding
 - To...integrated multi-fishery management
- As stocks grow, interactions will increase
 - Scallops
 - GB Haddock
 - Dogfish

This is a unique opportunity...



Definitions: NOAA

An ecosystem approach to management is a geographically specified and adaptive process which (a) takes account of ecosystem knowledge and uncertainties, (b) considers multiple external influences, and (c) strives to balance diverse societal objectives

Ecosystems Principals Advisory Panel (1999)

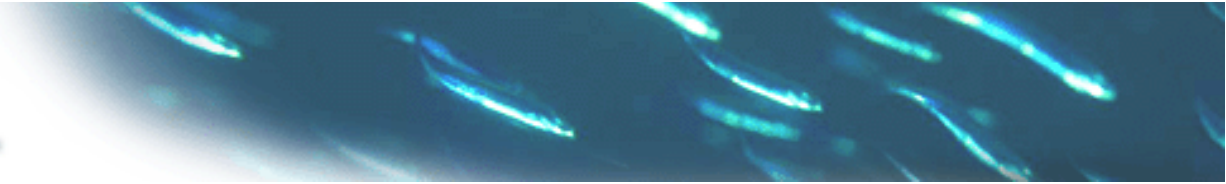
What are we
talking about?



Definitions: European Fisheries

What are we
talking about?

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.



Definitions: Compass

What are we
talking about?

- Ecosystem-based management is an integrated approach to management that considers the entire ecosystem, including humans.
- The goal of ecosystem-based management is to maintain an ecosystem in a healthy, productive and resilient condition so that it can provide the services humans want and need.
- Ecosystem-based management differs from current approaches that usually focus on a single species, sector, activity or concern; it considers the cumulative impacts of different sectors.



Compass (con't)

What are we
talking about?

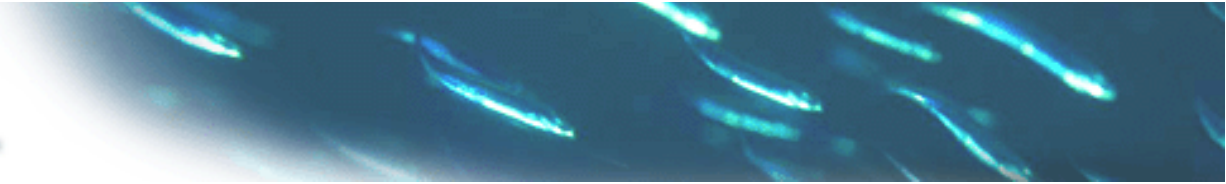
- Specifically, ecosystem-based management:
 - emphasizes the protection of ecosystem structure, functioning, and key processes;
 - is place-based in focusing on a specific ecosystem and the range of activities affecting it;
 - explicitly accounts for the interconnectedness within systems, recognizing the importance of interactions between many target species or key services and other non-target species;
 - acknowledges interconnectedness among systems, such as between air, land and sea; and
 - integrates ecological, social, economic, and institutional perspectives, recognizing their strong interdependences.



Principles of EAM

Fundamental concepts

- Objectives are a matter of societal choice
- Management should be decentralized to lowest possible level –*subsidiarity*–
- Consider effects on adjacent ecosystems
- Need to manage in an economic context, focusing on:
 - Reducing market distortions that adversely affect ecosystem structure, function and biodiversity
 - Align incentives to promote conservation and sustainable use
 - Internalize costs and benefits within a given ecosystem

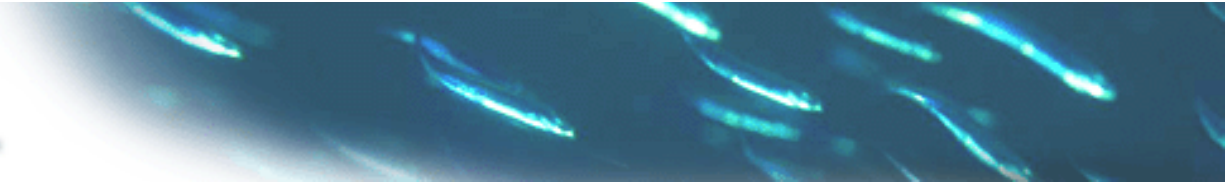


Principles of EAM (con't)

Fundamental concepts

- Maintaining ecosystem services (structure and function) should be a primary objective
- Focus on appropriate spatial and temporal scales
- Set long-term objectives for management
- Recognize that change is inevitable (the steady-state myth)
- Consider all forms of relevant information, including indigenous and local knowledge
- Seek to involve all relevant sectors of society and scientific disciplines

*International Union for the Conservation of
Natural Resources, 2004*



Fundamental
concepts

More Principles of EAM

- Long-term sustainability as a fundamental value
- Clear operational goals
- Sound ecological models and understanding
- Understanding complexity and interconnectedness
- Recognition of dynamic character of ecosystems
- Attention to context and scale
- Acknowledgment of humans as ecosystem components
- Commitment to adaptability and accountability

Ecological Society of America, 1995



Fishery ecosystem plan

**How do you
manage an
ecosystem?**





Theoretical
framework

The basics

- Ecosystem approaches to management have two components
 1. Ecosystem science
 2. Ecosystem management (governance)
- High degree of overlap

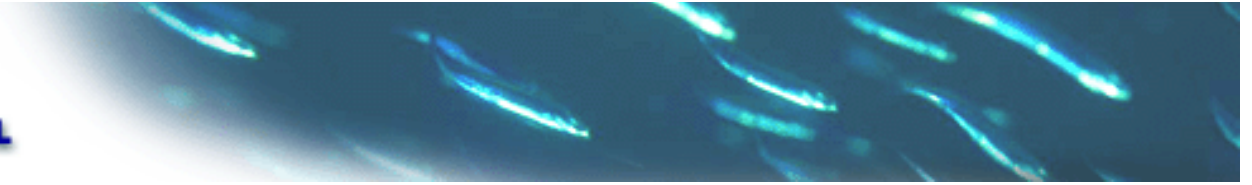


Governance Issues



Theoretical framework

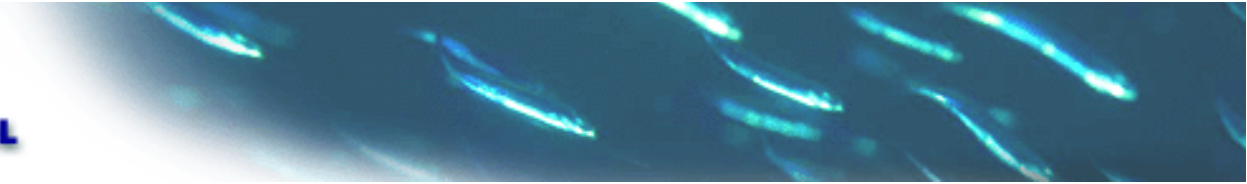
- Expand mandates to include:
 - Biodiversity
 - Ecosystem structure and function
 - Other objectives (?)
- Expand sphere of influence to include all uses of marine environment
- May need to remove focus on individual stock biomass
- Develop capacity for local governance



Theoretical framework

Science Issues

- New, higher-level assessments incorporating
 - Trophic interactions
 - Multivariate analysis
- Increased emphasis on ecosystem component monitoring
- Establish links btwn carrying capacity, primary production and exploitable fishery stocks
- Development of MSE's

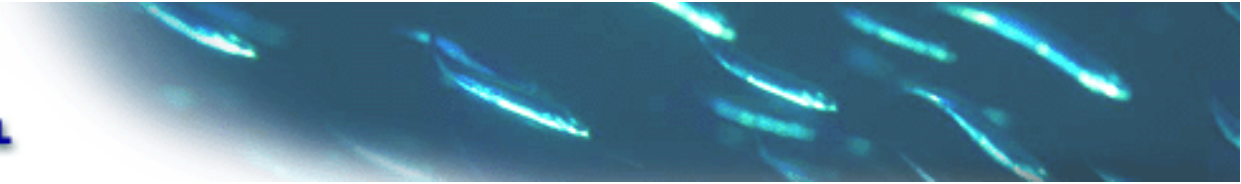


Fishery Ecosystem Plans

Theoretical
framework

FEP's = *strategic*

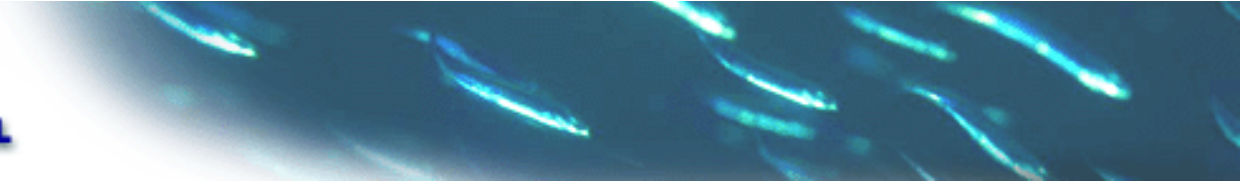
FMP's = *tactical*



Theoretical
framework

Place-based, stakeholder driven

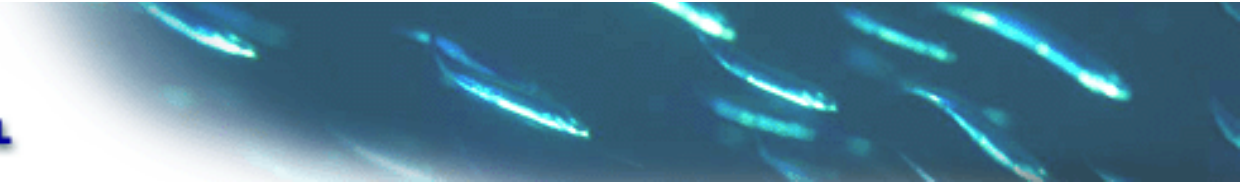
- FEP's and FMP's are specific to local ecosystems
- Stakeholders central to:
 - Setting objectives
 - Choosing “tools”
 - Monitoring and assessment



Theoretical framework

How does an FEP differ from current FMP?

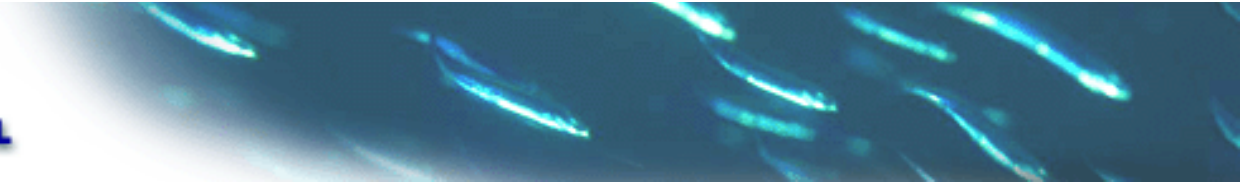
- Regional governance structure
 - Objectives specific to each region
- Requires stakeholder involvement
- May use broader objectives
 - biodiversity, eco. structure/function
- Confronts tradeoffs head-on
 - Inter- and intra- fisheries



Theoretical
framework

What are the benefits?

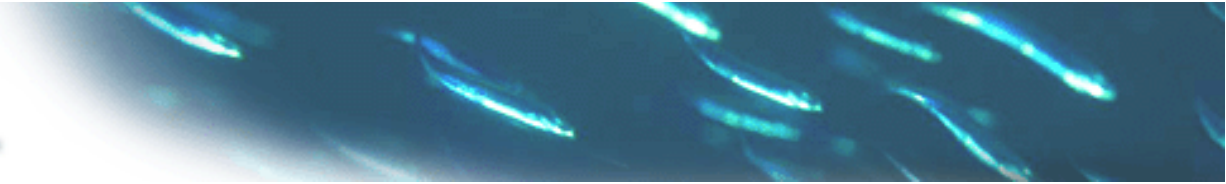
- Place-based emphasis
 - People closest to resource setting objectives
 - Encourages stewardship/participation
 - Different strokes for different folks
- Broader objectives will benefit all
 - Resource more stable
 - Able to accommodate stresses



Theoretical
framework

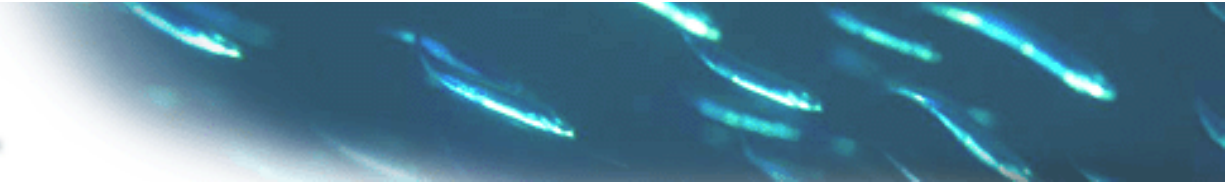
What are the benefits?

- Reality check
 - May not be possible to have all species at MSY simultaneously
 - Explicit recognition of carrying capacity
 - Potential ability to adjust “targets” with long-term trends in productivity
- Confronting tradeoffs
 - Integrating other marine uses into decision making
 - Explicit decisions relative to extraction of exploitable species (and mortality of non-exploitable ones)



The bigger picture





Defining our terms

The bigger picture

EAM

vs.

EAFM:





EAM vs. EAFM

Changes / Updates

- EAM includes all potential uses of ecosystem services, e.g.:
 - Commercial shipping
 - Military transportation
 - Waste disposal
 - Energy generation
 - Energy and data transmission
 - Commercial fishing, whaling, sealing
 - Recreational fishing
 - Recreational diving
 - Marine-based tourism (coastal and off-shore)



EAM vs. EAFM

The bigger picture

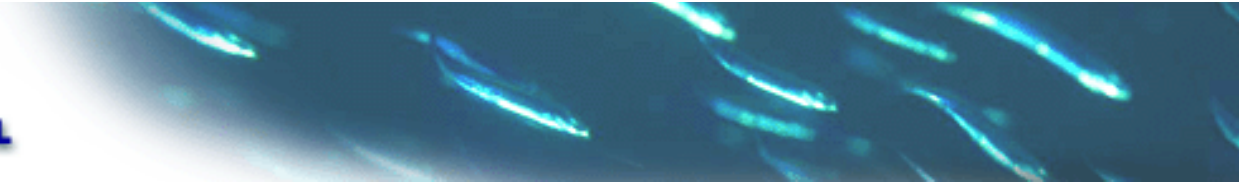
- EAFM applies a similar holistic approach, but limits the universe to fishery management, e.g.:
 - Bycatch and fishery interactions
 - Mortality of non-target and non-market species
 - Technical interactions between fisheries that share the same spatial/temporal sphere's
 - Indirect effects of harvesting
 - Habitat modifications
 - Trophic interactions
 - Interactions between biological and physical ecosystem components
 - Low-frequency variability (NAO, temp, salinity, etc)
 - Ecosystem re-structuring and regime shift



EAM vs. EAFM

The bigger picture

- EAFM:
 - Great in principal
 - Can wrap your brain around it
 - Possibly too myopic: cannot ignore impacts of competing uses for ecosystem services
- EAM:
 - Great in principal
 - Statutorily challenged
 - Possibly too comprehensive: cannot realistically factor in all ecosystem service users when designing management measures



What's the problem?

The bigger picture

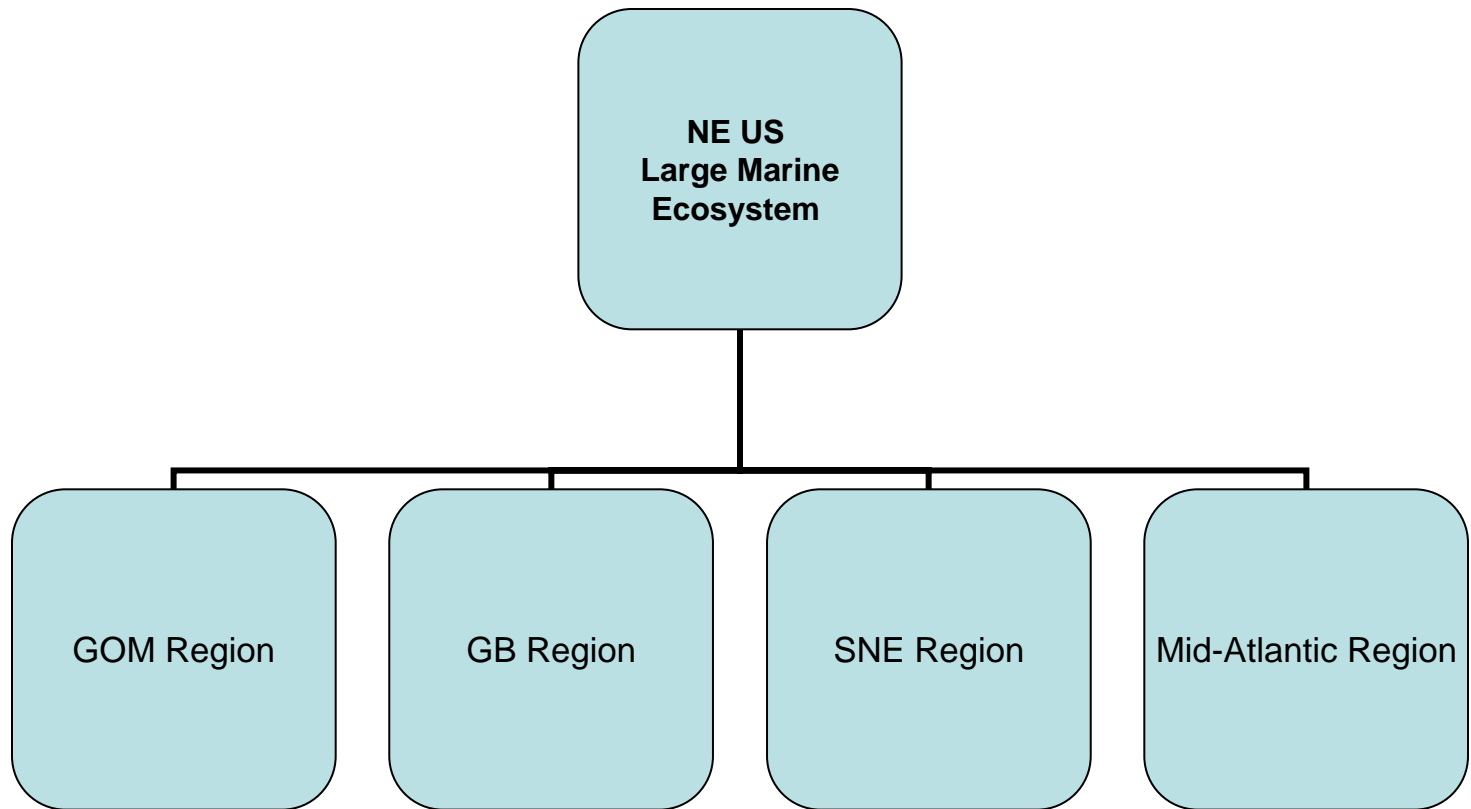
- Need for incorporation of all other marine use sectors (EAM vs. EAFM)
 - Ecosystem structure
 - Indicators
 - Objectives
 - Impacts
- Regional Ecosystem governance?
 - Ocean Task Force, GOM Council...



Hierarchical structure of a Regional Ecosystem Plan



The bigger picture

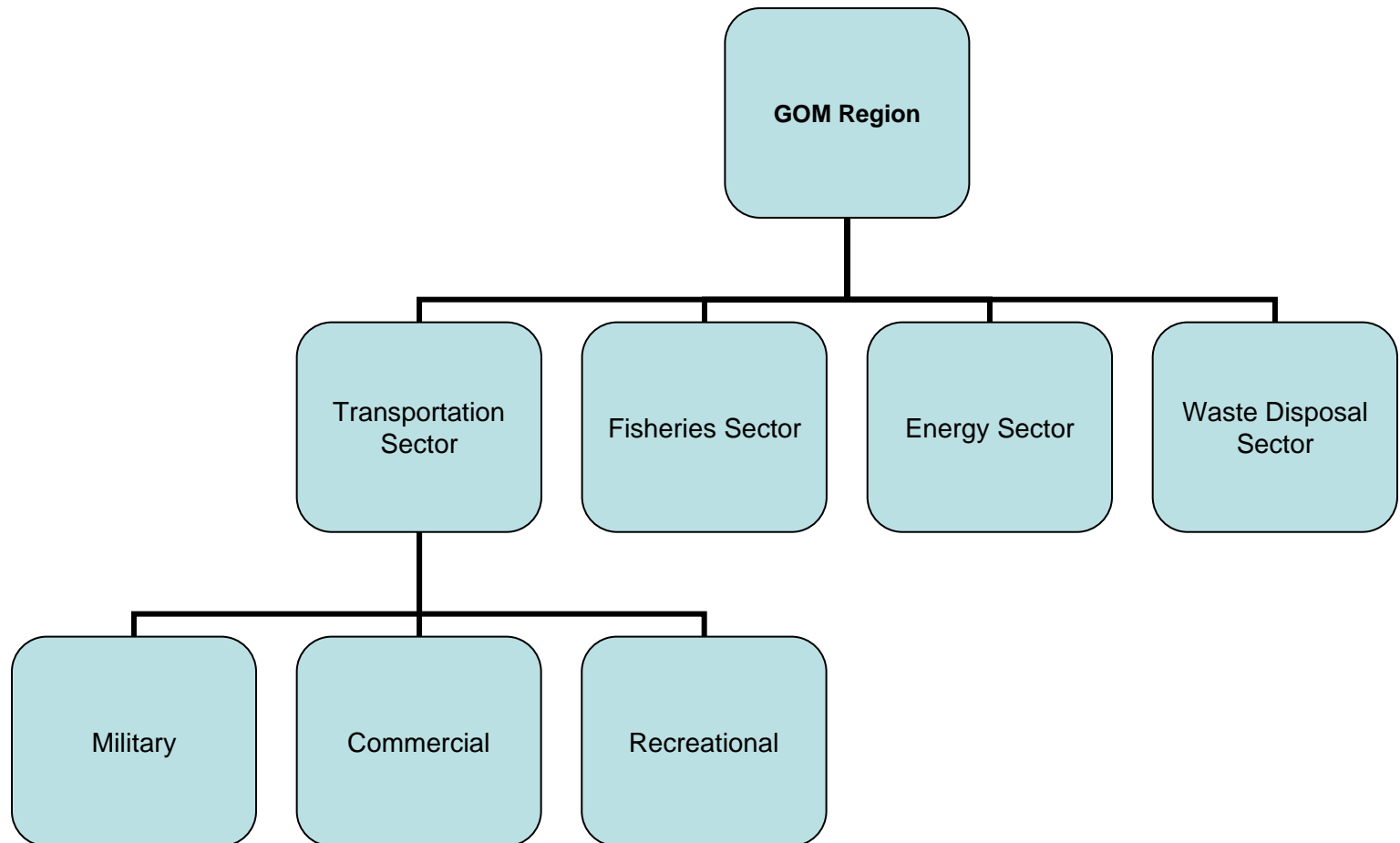




Hierarchical structure of Regional plans



The bigger picture

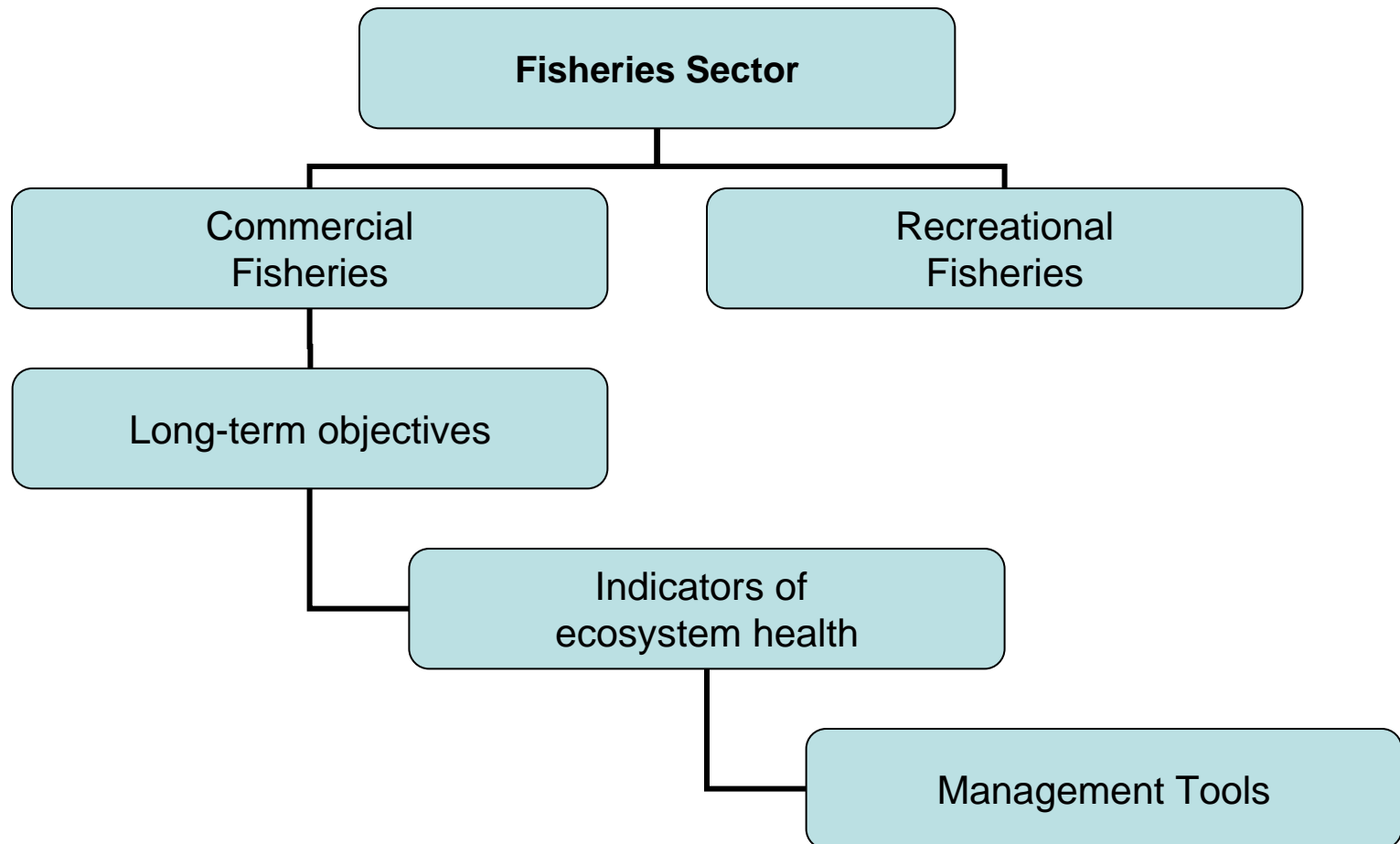




Hierarchical structure of Sector plans



The bigger picture



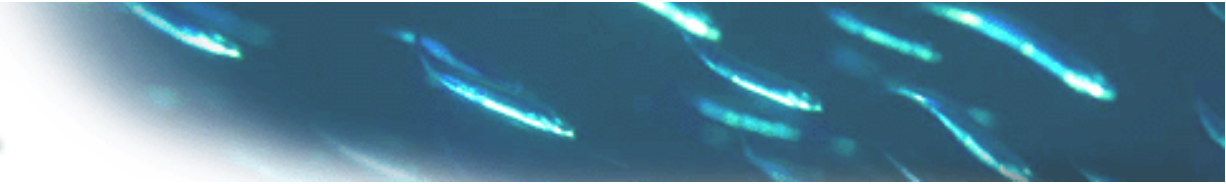


Some sector impacts on fisheries



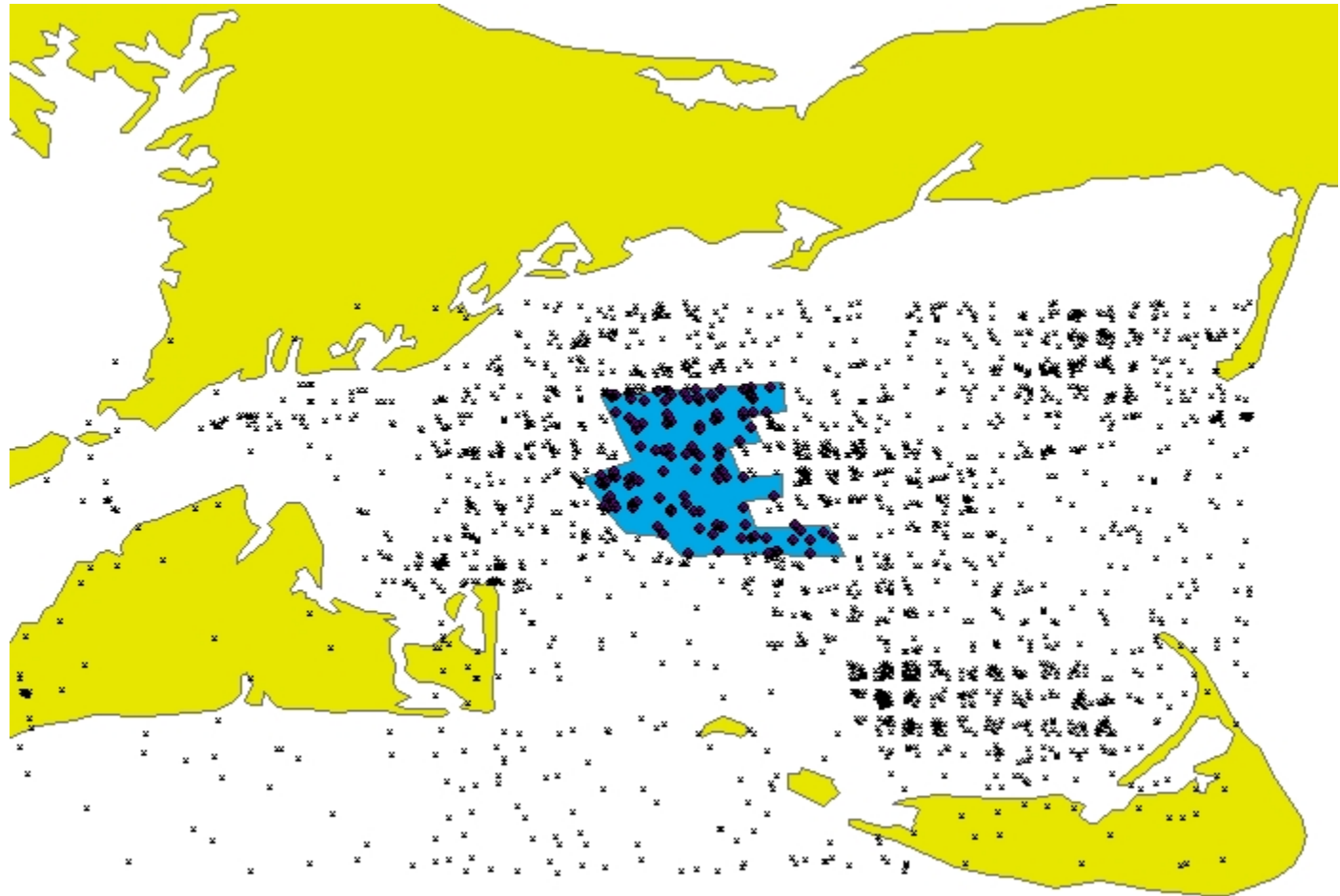
The bigger picture





The bigger picture

Energy Sector



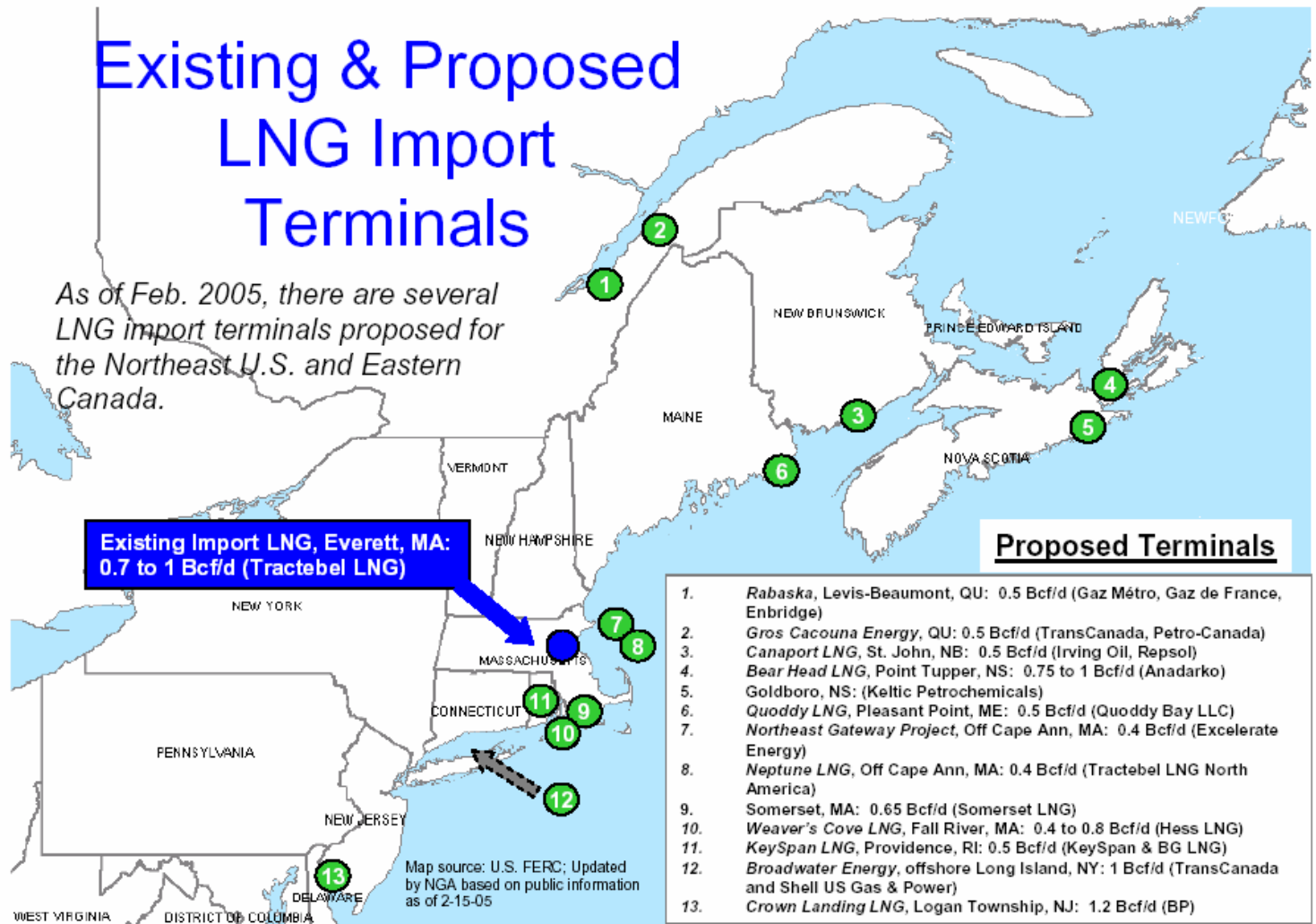


Energy Sector

The bigger picture

Existing & Proposed LNG Import Terminals

As of Feb. 2005, there are several LNG import terminals proposed for the Northeast U.S. and Eastern Canada.

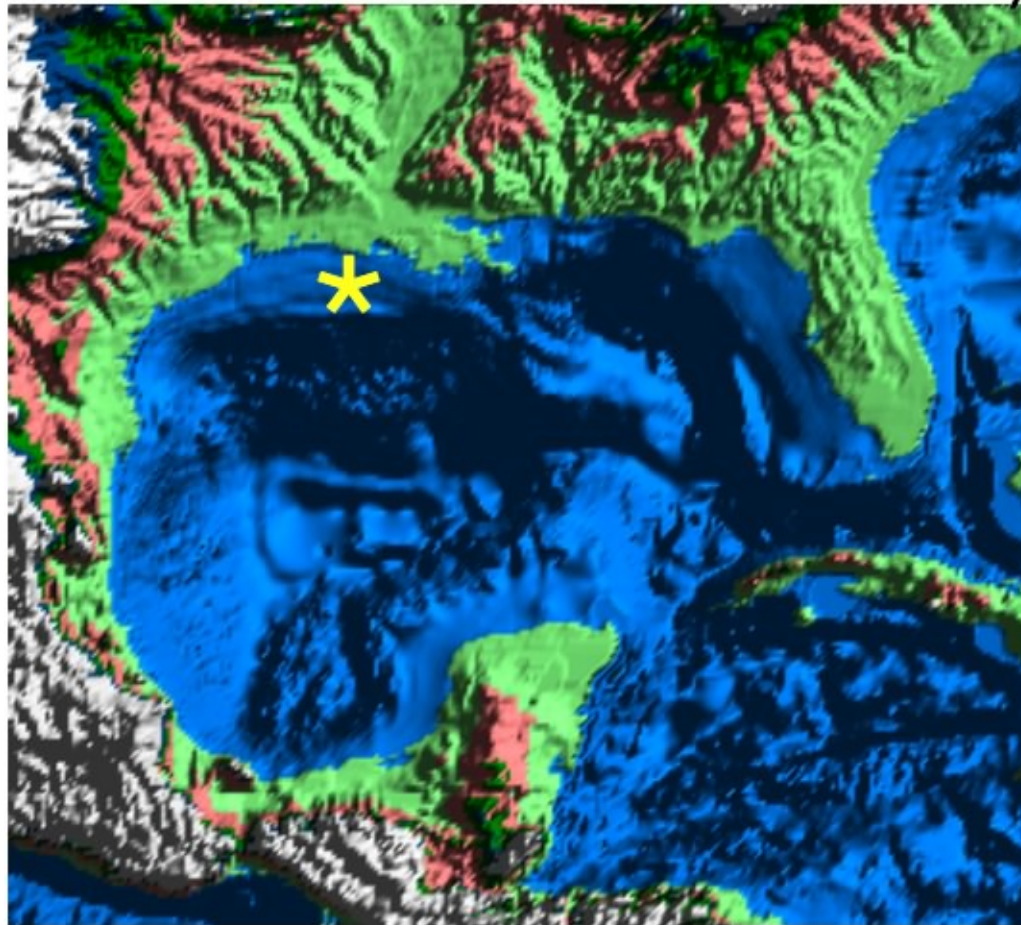




The bigger picture

Energy Sector

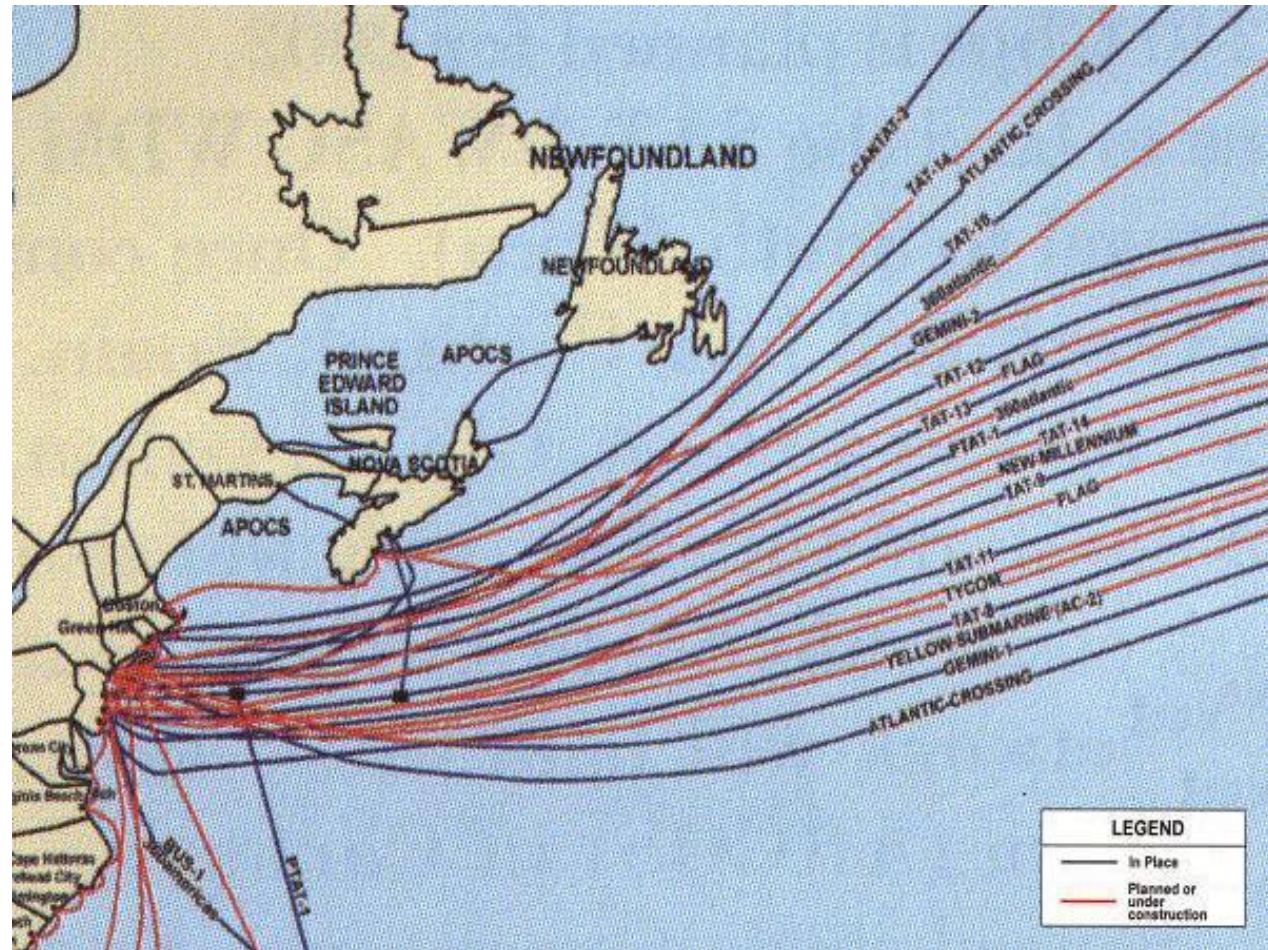
Port Pelican Offshore LNG Facility

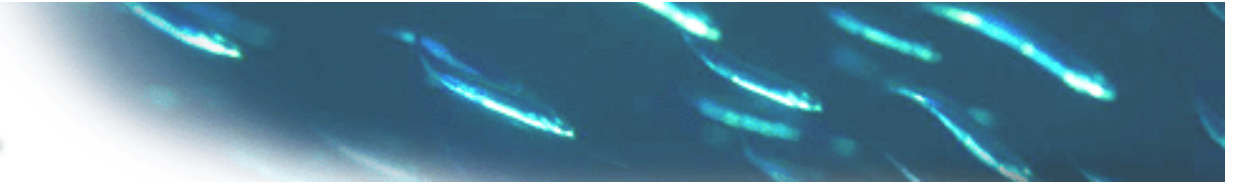




Data transmission sector

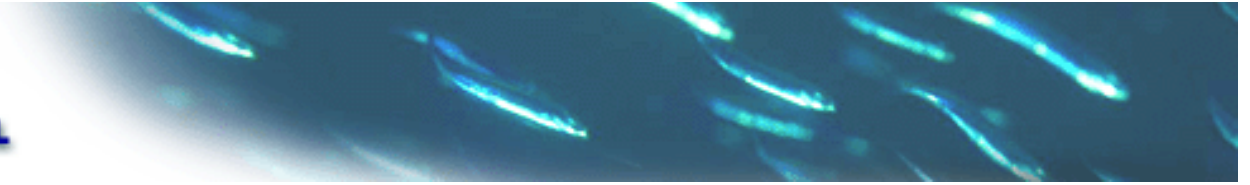
The bigger picture





Final thoughts





EAM and EAFM

- EAM and EAFM are different
- EAFM has coalesced around three topical areas:
 - Bycatch/technical interaction
 - Indirect effects
 - Biological/Physical interaction
- EAM incorporates all uses of ecosystem services