New England Fishery Management Council
EAFM Stakeholder Workshop # 4
Portsmouth, NH

Date:	October 5, 2005
Location:	Courtyard by Marriot
Attendees:	(11) – John Shasta, York ME; Bonnie Spinazzola, Candia NH; Michael Goot, Portsmouth NH; Roberi Busch, Hampton NH; Bob Higgins, Boston MA; Troy Hartley, Exeter NH; Ellen Goethel, Hampton NH; Carl Bouchard, Exeter NH; Frank Gable, Natick MA; Marc Stettner, Portsmouth NH; Rollie Barnaby, Portsmouth NH
Facilitators:	Chad Demarest (NEFMC), Kathy Mills (Cornell University)
Start time:	5:30 scheduled, 5:45 actual
End time:	8:30 scheduled, 9:00 actual
Questionnaires:	6 completed on-site, 0 received in mail

I. Purpose and format

The purpose of this workshop was to engage participants in a discussion, and to solicit a wide range of opinions, on topics critical to integrating ecosystem approaches into the Council's stewardship of marine resources and our fisheries.

Due to the number of participants the workshop was run in one group. Kathy began by discussing Objectives, followed by Chad discussing Ecosystem Boundaries. Kathy then picked up the discussing with Indicators and Tools and Chad ended the workshop with Collaborative Management.

Note that, for the sake of consistency, the following summary will use the format of the summaries from the other workshops and not the order in which the discussions occurred.

II. Break-out Session: Objectives, Indicators and Tools

Implementing an ecosystem-based approach to fisheries management requires drawing upon stakeholder input to define objectives for both local fisheries and ecosystems. Identifying indicators to track the status of these fisheries and ecosystems, and determining methods or tools for reaching these objectives, follow closely after. Participants were asked to consider changes in fisheries management that may result if ecosystem approaches are utilized, and to identify objectives related to the fishery management process and its outcomes for both fisheries and the ecosystem. From this information, we hoped to gain a sense of the issues and priorities stakeholders want to see addressed through an ecosystem approach, and the results they hope such an approach will achieve. Participants were also asked to identify indicators (including biological, ecological, social, and economic features) that can be used to track how well fisheries and the ecosystem are doing based on metrics relevant to our stakeholders. Finally, participants shared their perceptions of

the usefulness and acceptability of common current management tools and offered suggestions for other tools that could be adapted under an ecosystem approach.

A. Objectives

Objectives developed by participants in this session fell into four major categories: 1) management structure and process, 2) fisheries and fishing communities, 3) ecological considerations, and 4) science. (Note: categories were developed based on responses, not as a basis for the discussion.) Emphasis in the discussion centered on expanding the scope of participants and sectors involved in management decisions that affect the ecosystem, preserving fisheries and fishing communities, and improving science to guide ecosystem-focused management.

Management structure and process

- We manage the fishermen (commercial and recreational), not the fish
    - Need to manage all user groups including shoreside impacts
- Equality in management process among all user groups
- Create public space for multi-stakeholder conversations
- Include land use, energy, etc. in management structure
    - Should have communication link
    - Broader stakeholder group
- Build trust
- Move NMFS from DOC to DOI for conservation purposes (*strong support among group for this suggestion*)

Fisheries and fishing communities

- Maximize amount of fish that can be sustained and caught while maintaining fishing communities
    - Not necessarily coastal/land communities, can be communities on the ocean (who fishermen consider their group)
    - Ability to participate
    - Preserve cultural heritage
    - Preserve waterfront access
    - Maintain peer groups (knowledge, efficiency, safety)
- Protect geographic communities
    - Diversity of landing ports
- Preserve recreational fishing opportunities and their economic contribution

Ecological considerations

- Bring back ecological balance
    - Base goals on historical conditions
    - Prioritize species
    - Recognize trade-offs and cycles of nature

Science

- Increase studies/understanding of multi-species interactions
    - Holistic models
    - Look at several different models and produce average

- Better science everywhere
    - More real-time science
    - Transparency in science
    - Better communication in scientific community
        - Use all science disciplines (oceanography, fisheries, economics, etc.)
    - Checks and balances (external peer reviews) in science
- Incorporate cooperative research findings more quickly
- Increase cooperative research

B. Indicators

Indicators put forward by participants in this session encompassed a wide range of ecological as well as socio-economic features. Participants recognized that a variety of factors could influence the behavior of any particular indicator. For this reason, they expressed strong opinions that indicators must be interpreted in a broad context that accounts for externalities and incentives that may affect the indicator's patterns of change.

Ecological

- Predator-prey interactions/balance
- Food availability for fish—abundance of sand eel, krill, herring, bunker, squid, etc.
    - Account for all trophic levels of production
- Health of fish
    - Size
    - Weight
    - Muscle/fat content
- By-catch
- Mortality of by-catch
- Water quality
- Health and amount of salt marsh
    - Nursery area
    - Nutrients

Socio-economic

- Fishermen left
- Safety index
    - Time of year fishing (weather)
    - Age of vessel
    - Insurance rates
    - Distance offshore
- Age of vessel / age and availability of equipment
- Age of fishermen
- Availability of crew
- Adaptability of infrastructure/support services
- Local community businesses going in/out of business

- Markets
  - Flexibility and availability
  - Competition in market
  - Efficiency
  - Market structure
  - Imports
  - Market disruptions
- Engagement indicator (% of people engaged in research or management)
- Price reflective of supply and demand
- Species targeted
  - Trophic level of biomass and catch
  - Replacement of target species due to availability
- Flexibility of fishing fleet
  - Ability to change gear and fishing spots
- Diversity of fishing fleets

C. Tools

Participants in this session recognized potential benefits of many current management tools, including quotas and protected areas, but the usefulness and acceptability of these tools depends on whether they are applied appropriately. Tools that appear similar may have very different outcomes depending on how they are implemented and the situations to which they are applied. In addition to using tools appropriately, the participants wanted to see clear statements of what should be accomplished by a management tool and monitoring of progress towards those goals, as well as a willingness to try new tools and approaches if those put in place do not work to achieve the original goals.

Management tools	**Useful?**	**Acceptable?**
Effort controls	DAS and trap limits control mortality	DAS can create equitability (all affected equally once they are used to institute % cuts across the board) DAS leasing and trap transferability are severe problems—increase mortality because unused days would not be fished but if leased they are fished 100%) Trip limits lead to discards Trip limits ruin fishery because infrastructure collapses
Output controls	Quotas useful for single spp/lobsters/small industry to control effort and mortality Size limits can allow reproduction to increase	Need better science to implement quotas Quotas are the worst management tool possible for groundfish—race to fish, closes out people, decreases fleet diversity, maximizes mortality, increases industrialization, unequal

		allocations to different sectors, discrimination against small vessels, monitoring/enforcement problems
Technical tools	Gear regulations reduce by-catch, increase selectivity on certain species Protect habitat Allow smaller fish to survive longer Changes in size composition can be controlled	Gear regulations very acceptable and can be very successful if tested Horsepower should be eliminated as tool (safety concerns)—*opposition to this idea, some say horsepower is good tool for changing ability to induce mortality and control effort*—HP should not be used as tool in fisheries where reducing it doesn't matter to fish stock
Protected areas	Small, extremely well defined MPAs could be useful if they are diverse --must be well monitored --should not be permanent (possibility of reopening) --closed uniformly to all Look at diversity/quality of marine community, must be a good reason to keep people out Closures don't account for or help fish moving in and out, fishing on edges Emergency, temporary closures could be useful (e.g., protect spawning)	Protected areas are bad if they are allocative in nature (close to one, give to another) Takes away public resource if all excluded

Other suggestions related to management tools included:

- Standardized regulations may not be useful to all fisheries
- Coordination and communication between all political entities important
- Look at success stories and learn from them
    - Striped bass (water quality improvements contributed lots to recovery)
    - Bluefish
    - Summer flounder
    - *Each of these cases is very unique.
- Need clear links/feedbacks between tools and objectives
- Observers good for fish data, monitoring, by-catch, compliance
- Enforcement needed
- Change who money from fines goes to (general treasury vs. NMFS)
- Change regulations so that people can keep what they catch
- Tagging has been useful
- Standardized regulation system across political boundaries (*vocal opposition to this suggestion*)

III. Break-out Session: Ecosystem Boundaries and Collaborative Management

One of the foundational concepts underlying Ecosystem Approaches to Management is that different geographically-defined areas have different biological production capacities, and that it may be advantageous to scale science and management to these areas. The first step, obviously, is to define the areas. The group was asked the question "what makes a particular area unique." The answers in many cases may be predictable, such as "temperature," "salinity," "sediment," etc., but the question was designed to get the participants thinking in terms of spatially-differentiated geographical areas. It was especially interesting to note when novel indicators were explored, and to what degree participants felt that actions of humans (fishing and non-fishing) should be factored into the equation.

Input was then solicited on the appropriate geographic scale for fisheries management, the link between 'scientifically-defined ecosystems' and potential 'management areas,' and any governance issues that may arise as a result of spatially-defined ecosystems.

Terrestrial and, to some extent, international literature on ecosystems approaches to management frequently target community-based (or co-management, collaborative management) principals as a primary driver for ecosystems approaches to management. The group was asked to comment on the perceived advantages of collaborative management, such as an increased sense of stewardship and the potential to see gains from personal conservation-based behaviors, and how these benefits may dovetail with what might be considered a highly geographically mobile fishing fleet in New England. Does the capacity for local management exist? Is there a way to maintain geographic flexibility while achieving the perceived benefits of community-based management? Are communities necessarily geographic, or can they take on other units?

A. Ecosystem Boundaries

Participants heavily favored physical properties for delineating ecosystem boundaries, with a secondary choice of biological characteristics. Fishing practices and the roles of communities entered into the discussions much later. The novel idea that was discussed on this evening was the potential for focusing on what a few participants called "hot zones," or areas where a number of biological features (flora and fauna) interacted. Also, the idea of buffer/transition zones was new.

Several participants spoke in favor of periodic re-evaluations for boundaries and areas. The idea of managing on the scale of these local ecosystems was viewed favorably by most. The participants at this workshop seemed to understand, and favor, the notion that production potential is limited by physical, ecological and biological factors and that current management processes may not adequately address this fact.

When discussing issues of scale, participants tended to rely on single-species approaches. The idea that one may need to apply different management scales to different species and/or fisheries emerged.

Delineation

- Physical properties
  - Currents
  - Gyres
  - Flows
  - Depth
  - Salinity
- Migration patterns
- Species presence/absence
- Temperature
- Spawning conditions (time and space)
- Feeding areas
- Multi-species intersections and 'hot zones'
- Fishing practices
- Communities (land-based)
- Bottom type (topography)
- Concept of buffer zones/transition zones
- Traditional fishing grounds may reflect ecology/physical features
- Inshore/offshore
  - Basins
  - Shelf
- Near-coastal areas are a different ecosystem
- Focus on existing marine community structure

Governance

- Fluidity of boundaries and the concept of impermanence
- Optimum sustainable yield vs. maximum sustainable yield and the concepts of ecosystem potential are crucial
- Look at ecosystems that evolve from single indicators…compile multiple, and analyze based on what's been learned

Scale

- Key the management scale to the range of individual species
- Define local ecosystems on varying scales and account for cross-area impacts

B. Collaborative Management

Participants spoke in favor of local, "bottom-up" approaches to both management and science. The importance of collaborative research to filling in perceived gaps in ecosystem-level science efforts was expressed by several participants. Fishery (recreational and commercial), gear type and geographic communities were all discussed. Geographic communities may have been viewed as having the weakest

connection to management. The needs of local communities, however, were viewed as important by several participants, and no one had objections to locally-derived management objectives.

- Communities will have different compositions (spatial or otherwise) under different circumstances
- Community management will not work if fishing capacity exceeds resource capacity (too many boats)
- Must begin with local concerns
- Must strive to integrate nested systems
- May look at gear-type communities as having stronger ties than geographic communities
- There are too many competing groups and too many boats for effective community-based or co-management
- Geography, user group, gear type are all potential 'communities'
- Need better science for all sectors and gear types to make good allocation decisions
- Any/all allocation decisions should be stakeholder-driven
- Need science before we can do ecosystem-based management

IV. Summary statements

Both groups were reassembled in plenary and given an opportunity to provide any comments or feedback on any issues pertinent to ecosystem approaches to fisheries management. Here is what they felt was most important:

- Adaptive strategies need monitoring => cooperative research
- Stakeholders have vital roles in defining:
  - Communities
  - Ecosystems
  - Ecosystems approaches to management / Ecosystem-based management
- We should look to incorporate terrestrial impacts
  - Coastal development
  - Wetlands restoration
  - Point and non-point source pollution
- We must re-establish ecological balance
- Careful consideration for human and marine communities
- Regional ecosystems should be linked to communities
- Let fish make babies
- Protect spawning