

8.0 Data and Research Needs

The M-S Act (section 303(a)) requires that FMPs identify data and research needs. The Council's Research Steering Committee reviews these needs on a periodic basis and updates them as needed. The most recent review occurred in November, 2008. The following needs related to the groundfish fishery were identified. This list may be revised or updated by the Council at any time. Only needs related to the multispecies fishery are shown here.

I. Fisheries

A. Stock Assessments

1. Spatial-temporal distributions

Further investigations into stock definition, stock movements, mixing, and migration through tagging studies, DNA markers, morphological characteristics and other means for **groundfish, monkfish, skates, herring, and silver hake**.

2. Biology

No needs specific to groundfish.

3. Other

Investigate/determine the cause for retrospective patterns in New England **multispecies groundfish** assessments, and identify appropriate adjustments (e.g., data or model revisions) to resolve those patterns.

B. Surveys

Conduct intensive industry-based surveys of each of the five **sea scallop** access areas (Closed Area I, Closed Area II, Nantucket Lightship, Elephant Trunk and Delmarva areas) and beyond (Northern Gulf of Maine management area and Southern New England). Research new advanced scallop and multipurpose survey technologies (video, sonar, towed, AUV, etc.) and protocols that should be compatible with and complement the existing scallop resource surveys. Conduct peer-review and inter-survey calibrations of new and existing scallop surveys. Conduct deepwater (> 200 m) surveys and efficiency estimation of NMFS survey gear for **monkfish**. Surveys of spawning aggregations of **silver hake** on the southern flank of Georges Bank are also needed. Continue development of hydroacoustic surveys of **pelagic species** to provide an independent means of estimating stock sizes and/or defining localized depletion (long-term research).

C. Fishery Performance and Monitoring

1. Improve sampling of commercial catch at age data, such as through cooperative NMFS/industry programs to supplement port agent activities for **groundfish** and similarly for **Atlantic herring**, with an emphasis on bycatch.
2. Develop appropriate programs to collect information required for social and economic impact analyses for **groundfish**.
3. Conduct research on the extent and composition of discards and bycatch in the **monkfish, groundfish** (including small-mesh) and **skate** fisheries.

4. Investigate discard mortality rates by gear for **monkfish** and **groundfish**, and by gear type, area, season, depth and bottom type for **all seven skate species** with an emphasis on overfished species (thorny, winter and little skates).

D. Fisheries Management

Groundfish

1. Synthesize the available information/research results to improve utility to managers (in particular related to the following items):
 - Investigate relationships between stocks, including predator/prey relationships and evaluate whether stock status of some species is slowing the rebuilding of groundfish stocks.
 - Undertake comparative studies on the impacts (positive and negative) of gear on habitat, such as the different impacts between chain nets, roller gear and rockhopper gear, etc. Conduct studies on whether limiting roller or rockhopper gear, or specifying other aspects of trawl gear, results in areas of complex habitat that are not used by trawl fishermen.
 - Conduct research on the extent and composition of discards and bycatch in the groundfish fishery, including research to estimate discard mortality rates by gear for groundfish.
2. Develop a management strategy evaluation program (a specific approach to address scientific and management uncertainty).
3. Develop industry-based information collection systems to improve information used for groundfish management.
4. Quantify the impacts of closed areas, and evaluate the effectiveness of timing closures to coincide with spawning activity (e.g. Gulf of Maine rolling closures).
5. Investigate the effect of various management instruments (specifically user rights and ocean zoning) on management performance (biological, social and habitat) and enforcement.
6. Investigate the feasibility of public leasing of vessels to reduce fishing mortality for fisheries that have long-term potential to sustain the existing fleet.
7. Consider management options for minimizing impacts on vulnerable marine ecosystems.
8. Evaluate effects and effectiveness of permanent closed areas.

II. Fisheries Interactions

Bycatch

1. Research fishing practices or gear modifications that may change the ratio of component catch species or improve size and species selectivity of gear in **groundfish, scallop, monkfish, herring and skates**.
2. Synthesize predation information on **herring and other forage fishes** and conduct investigations to address information gaps; investigate the role of **herring and other forage fishes** in the Northwest Atlantic ecosystem and the importance of **herring**

and other species as a forage for other commercial fish stocks; assess the importance of herring as forage relative to other forage species in the region.

Expanded Ecosystem Studies

1. Explore ocean zoning and the use (siting) of marine resource services for long-term multi-jurisdictional planning.
2. Investigate relationships between stocks, including predator/prey relationships and evaluate whether stock status of some species is slowing the rebuilding of **groundfish** stocks.
3. Monitor trends in non-target, ecosystem components (e.g., **wolffish**).

Protected Species

1. Develop gear modifications or fishing techniques that may be used to reduce or eliminate the threat of sea turtle interactions without unacceptable reductions in target retention in **all fisheries**.

III. Habitat

1. Investigate growth rates for **deep sea coral species**.
2. Undertake detailed habitat mapping throughout the Council's area of operations, including along the continental slope for **red crab** and other deepwater species.
3. Further study the contribution of benthic habitat to prey survivability.
4. Quantify adverse impacts of fishing gears and gains to habitat possible through increases in catch per unit of fishing effort.
5. Conduct before-after control impact studies (BACI) in New England waters to test for fishing gear impacts in different substrates, depths and energy environments.
6. Link habitat types and their specific functions with fishery resource productivity.
7. (Evaluate/quantify the effects) of land-based activities on critical ocean habitats, including the potential for designating EFH using expanded metrics such as fish condition indices and habitat quality.

FMP-Specific Habitat Research

Groundfish

Undertake comparative studies on the impacts (positive and negative) of gear on habitat, such as the different impacts between chain nets, roller gear, and rockhopper gear, etc. Studies on whether limiting roller or rockhopper gear, or specifying other aspects of trawl gear, results in areas of complex habitat that are not used by trawl fishermen.

IV. Other Areas of Research

Groundfish

Develop appropriate programs to collect information required for social and economic impact analyses.

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