Appendix Q

1 Research Needs

Vermilion snapper, gag, snowy grouper, golden tilefish, black sea bass, and red snapper have been assessed through the SEDAR process. After completion of these assessments, research needs have been identified by the SEDAR workgroup and made available. These needs have been identified and prioritized in the MARFIN request for proposals. Furthermore, a summary of current research will be provided in the snapper grouper SAFE Report (NMFS 2005), which is considered to be a "living" document that will be updated as new data become available.

Biological research needs that have been identified through the SEDAR process are as follows:

1.2 Red snapper

- Use new technology such as recent advances in genetics techniques to reinvestigate the stock structure and estimate the effective population size of red snapper in the Gulf of Mexico and along the Atlantic coast.
- Obtain better estimates of red snapper natural mortality and release mortality in commercial and recreational fisheries.
- Investigate life history of larval/juvenile (age 0 and 1) red snapper.
- Include assessment of otolith edge type in all future assessments. Classification schemes for edge type and quality of the otolith/section have been developed by the MARMAP program and are currently used by MARMAP and NMFS Beaufort.
- Continue to conduct inter-lab comparison of age readings from test sets of otoliths in preparation for any future stock assessments.
- Obtain adequate data for gutted to whole weight conversions a priori (before stock assessment data workshop).
- Ensure small specimens from fishery-independent data collections are available to produce good estimates of von Bertalanffy parameters.

1.2 Socio-cultural Research Needs

Socio-cultural research needs that have been identified by the Council's Scientific and Statistical Committee are as follows:

- Identification, definition and standardization of existing datasets to meet short-term social analysis needs (e.g. behavioral networks based on annual rounds). Centrally locate these datasets so they are accessible to researchers and managers (realizing the constraints imposed by confidentiality);
- Development of new variables to meet long-term social analytical needs (e.g., community health, individual health, decision-making patterns, cumulative impacts of endogenous, exogenous, and regulatory factors);
- Longitudinal Data – monitoring needs, including historical, ethnographic, and quantitative data over time;

- Traditional ecological knowledge/local fisheries knowledge (TEK/LFK) constructions along with scientific ecological knowledge (SEK);
- State data (license/permit data; social survey type data) and coordination between agencies/levels;
- Better integration of social, biological and economic variables in modeling efforts; and
- Better efforts to include humans and human behavior in the ecosystem-based framework (e.g., representation of humans as keystone predators in the system);
- Economic research needs that have been identified by the Council's Scientific and Statistical Committee are as follows:

The following issues were identified as being impediments to conducting economic research:

- Confidentiality of state data and data collected through federal research projects.
- Data collected through certain agency grants cannot be distributed without dealing with confidentiality issues.
- The inability to display confidential data.

Commercial

- Explore the feasibility of developing computable general equilibrium models, which can incorporate the entire economy and important ecosystem components (medium priority, high cost).
- Develop an input output model for the South Atlantic commercial fisheries. This model should be similar to the NOAA Fisheries Service model for other regions on shore-based communities (medium priority, high cost).
- Consider alternative ways to collect data on both a social and economic basis e.g. partnerships to develop projects (high priority, medium cost).
- Ensure availability, improve upon and collect basic data: catch, employment, effort, price, cost/earnings (very high priority, high cost).
- Opportunity costs - rely on the studies completed in the past on the next best jobs. Include collection of data to estimate worker satisfaction bonus.
- Integrated biological, social and economic models including dynamic optimization models.
- Demand analysis – include the effects of imports. Studies of value added product e.g. branding and marketing strategies.
- Include data collection and analysis on the processing sector, retail sector.
- Research on the economic and social effects of capacity reduction.
- Employment in the primary and secondary sectors of the fishing industry that also includes research on household budgets.
- Cumulative impacts – economic and social.
- Models to predict fishing behavior in the face of fishing regulations. This would include description of fishing rounds on a seasonal basis and fishing behavioral networks.
- Non-consumptive and non-use benefits of marine protected species and essential fish habitat/habitat areas of particular concern. Also, measure the socio-cultural benefits of these species.

- Research on live product/whole weight conversion factors on a seasonal basis possibly through the TIP program or through other biological sampling programs.

Recreational

- Assess the feasibility of developing benefits transfer models from existing data and the MRFSS. Complete recreational demand models that are more relevant for fisheries management. These models should focus on policy relevant variables (bag, size limits, individual species and species groups). (high priority, low/medium cost)
- Develop random utility models for predicting participation changes, economic value and behavior of recreational fishermen. (high priority, high cost for data collection).
- Develop targeted input-output model to estimate the effects of policy changes on the economic impacts of recreational fishing. Will provide information on jobs, wages, income on affected sectors such as lodging, restaurants, bait and tackle shops, marinas, boats (medium priority, high cost).
- Include categories/motivations of recreational anglers in models outlined in items 1 and 2 (medium priority, high cost).
- Collect data on motivations/behavioral patterns of recreational fishermen. (medium priority, high cost).
- Characterize participants in subsistence fisheries. (low priority, high cost).
- Develop Valuation models and I/O models for tournament fishing. (medium priority, high cost).
- Develop cost-earnings model for the for-hire sector (charter and headboat). (high priority, high cost). NOAA Fisheries Service is currently conducting a study.

1.3 Ecosystem based management

- Conduct analyses to facilitate the economic valuation of ecosystem services (very high priority, high cost).
- Explore the use of ecopath and ecosim (very high priority, high cost).