Marine Fisheries Initiative Program

(MARFIN)

2006 ANNUAL REPORT

January 1 to December 31, 2006

Prepared By:

Ellie F. Roche
and
Jeffrey E. Brown

State/Federal Liaison Branch
National Marine Fisheries Service
Southeast Regional Office
263 13th Avenue South
St. Petersburg, Florida 33701
(727) 824-5324

March 2007

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PREFACE

The Marine Fisheries Initiative (MARFIN) promotes and endorses programs which seek to optimize economic and social benefits from marine fishery resources through cooperative efforts that evoke the best research and management talents of the Southeast Region. Preference is given to cooperative planning efforts with up to 3-year time horizons. The intent is to focus projects funded by MARFIN into cooperative efforts that provide clear answers for fishery needs covered by the National Marine Fisheries Service (NMFS) 2001 Strategic Plan for Fisheries Research. Goals one, two, and four are particularly important. For example, a geographically restricted age and growth study of a local fishery resource is of limited value unless it is coordinated with, or verified by, similar studies which span the range of the resource. The value of such studies is also relatively limited unless the results can be combined with other studies to provide a regional assessment of the resource. MARFIN provides this necessary programmatic integration through cooperative planning, accomplishment of program activities, and an annual MARFIN Conference.

The MARFIN program was created to bring together scientific, technical, industry, resource conservation, and management talents to conduct cooperative programs to facilitate and enhance the management of the marine fishery resources of the Gulf of Mexico and South Atlantic. MARFIN requires the timely dissemination of the results of both successful and unsuccessful efforts; therefore, each recipient of funding under this program is obligated to attend a MARFIN conference to report project findings. The bycatch issue remains a focal point of research needs for the Southeast Region. Critical reef fish fisheries are also being addressed, from efforts to reduce catches associated with shrimp trawls, to life history studies, as well as fishery-dependent and independent characterization work. Delineation of fishery stocks (king mackerel, Gulf red snapper, South Atlantic red porgy, wahoo, and dolphinfish) continues to be an area of important research effort toward enhancement management of these commercially and recreationally vital fisheries. Research on economic and sociological impacts of fisheries regulations, including the establishment of marine fishery reserves, illustrates the recognition by the MARFIN program that all aspects of a fishery, including essential fish habitat, must be understood to provide adequate fisheries management.

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[1]NMFS Strategic Plan Goals:
- Provide scientifically sound information and data to support fishery conservation and management.
- Through conservation engineering research, contribute to efforts to reduce bycatch and adverse effects on EFH, promote efficient harvest of target species, and to improve the data from fishery surveys.
- Through economic and ecological research on marine communities and ecosystems, provide scientific data and information to increase long-term economic and social benefits to the Nation from living marine resources.
- Improve the fishery information system.
- Improve the effectiveness of external partnerships with fishers, managers, scientists, conservationists, and other interested groups.

HISTORY OF THE MARFIN PROGRAM

The MARFIN Program received its initial impetus from a 1983 discussion paper entitled: "Research Needs For Information Leading To Full and Wise Use of Fishery Resources In The Gulf of Mexico," by Dr. Thomas D. McIlwain of the Gulf Coast Research Laboratory while he was in the office of then Representative Trent Lott.[2] This paper, sometimes referred to as the Lott-McIlwain paper, proposed an additional investment in fisheries research and development in the Gulf of Mexico to increase the economic contribution of marine fisheries, develop more valuable products from existing fisheries, develop export markets, forecast variation in yields, and conserve and maintain presently exploited resources.

The next step in the evolution of MARFIN was the preparation and publication of the Marine Fisheries Initiative - Gulf of Mexico Phase.[3] This publication, developed by a joint industry, federal, state, and academic task force, detailed the research and development efforts necessary to enhance, restore, and maintain fisheries in the Gulf of Mexico. The program focused on funding projects which had the greatest probability of maintaining and improving existing fisheries, increasing revenues for the domestic industry, increasing yields from fisheries and generating increased recreational opportunity and harvest potential. Projects were to be selected for funding on their likelihood of achieving these benefits through both short-term and long-term research with consideration of the magnitude of the eventual benefit that might be realized. Both short-term projects yielding immediate benefits and long-term projects were to receive high-priority emphasis. Planning emphasis was placed upon attaining priority goals either through a single project or a series of projects necessary to attain that goal.

In 1992, the MARFIN program was expanded to include a South Atlantic component (North Carolina, South Carolina, Georgia, and the Atlantic coast of Florida). The goals and objectives of the South Atlantic Phase of MARFIN are described in Special Report No. 13 of the Atlantic States Marine Fisheries Commission, Marine Fisheries Initiative (MARFIN) South Atlantic Phase.[4]

The Lott-McIlwain paper and the Marine Fisheries Initiative publication were instrumental in gaining public support for the MARFIN program. On December 4, 1985, the conference report of the House and Senate that appropriated funds for the Departments of Commerce, Justice, State, the judiciary and related agencies for the fiscal year (FY) ending September 30, 1986, allocated $2,850,000 for the MARFIN Program.

The following list represents funding for each year from the start of the MARFIN program until the current year:

* Fiscal Year 1986 - $2,850,000

* Fiscal Year 1987 - $3,500,000

* Fiscal Year 1988 - $3,500,000

[2]Office of Representative Trent Lott, Washington, DC; Dr. Thomas D. McIlwain; May 1983
[3]Gulf States Marine Fisheries Commission, P.O. Box 426, Ocean Springs, MS 39564; J.Y. Christmas, D.J. Etzold, T.D. McIlwain, L.B.Simpson (eds.) January 1985
[4]Special Report No, 13 of the Atlantic States Marine Fisheries Commission; E.J. Joseph, V.G. Burrell, D.M. Cupka, P.J. Eldridge, August 1988

* Fiscal Year 1989 - $3,000,000

*Fiscal Year 1990 - $3,000,000

* Fiscal Year 1991 - $2,986,000

* Fiscal Year 1992 - $4,000,000 (This includes $500,000 of the South Atlantic MARFIN and $1,300,000 for shrimp trawl bycatch studies.)

* Fiscal Year 1993 - $3,540,000

* Fiscal Year 1994 - $3,542,000

* Fiscal Year 1995 - $3,540,000

* Fiscal Year 1996 - $2,760,000 (No new projects were accepted due to a congressional allocation reduction and active multi-year projects selected during previous funding cycles.)

* Fiscal Year 1997 - $3,000,000

* Fiscal Year 1998 - $3,000,000

* Fiscal Year 1999 - $3,000,000 (This includes $500,000 for the Northeast Region.)

* Fiscal Year 2000 - $2,750,000 (No new projects were accepted during FY 2000 due to a reduction in congressional allocation, and because of the large number of active multi-year projects selected during previous funding cycles.)

* Fiscal Year 2001 - $3,500,000 (This includes $250,000 for the Northeast Region and $750,000 for red snapper research.)

* Fiscal Year 2002 - $3,500,000 (This includes $250,000 for the Northeast Region and $750,000 for red snapper research.)

* Fiscal Year 2003 - $3,250,000 (This includes $250,000 for the Northeast Region and $500,000 for red snapper research. No new projects were accepted during FY 2003 because of the large number of active multi-year projects selected during previous funding cycles.)

* Fiscal Year 2004 - $2,500,000

* Fiscal Year 2005 - $3,400,000 (This includes $250,000 for the Northeast Region and $750,000 for red snapper research.)

* Fiscal Year 2006 - $2,400,000

MARFIN promotes and endorses programs that seek to optimize economic and social benefits from marine fishery resources through cooperative efforts that evoke the best research and

management talents of the Southeast Region. The intent of the MARFIN program is to focus projects on key fisheries' issues in the southeast United States.

MARFIN PROGRAM ORGANIZATION AND ADMINISTRATION

The NMFS Southeast Regional Administrator (RA) reformed the MARFIN Panel in FY 1992 when the program was expanded to cover the South Atlantic (Appendix 1). Each member of the MARFIN Panel provides individual recommendations to the RA on MARFIN priorities and financial assistance applications. The MARFIN Panel membership is as follows:

- One state marine conservation agency representative each from the Gulf of Mexico and the South Atlantic areas.
- One representative each from the Gulf of Mexico and the South Atlantic commercial fishing industries.
- The Executive Directors of the Gulf of Mexico and South Atlantic Fishery Management Councils.
- The Executive Directors of the Gulf and Atlantic States Marine Fisheries Commissions.
- One representative each from the Gulf of Mexico and the South Atlantic recreational fishing industries.
- One representative each from the Gulf of Mexico and the South Atlantic Sea Grant Universities.
- A NMFS Southeast Fisheries Science Center Technical representative.
- The NMFS Southeast Region Program Officer acts as an advisor to the RA and MARFIN Panel members concerning Federal, Department of Commerce, and NOAA financial assistance administration requirements.

Alternate representatives to the MARFIN Panel serve when necessary. Individual Panel members are appointed by the NMFS Southeast Regional Administrator for staggered terms.

The RA of the NMFS Southeast Regional Office relies on recommendations from individual members of the MARFIN Panel, the MARFIN Scientific Panel, and the Regional Program Office in selecting each year's projects.

Each year the MARFIN Panel and NMFS administrators and scientists identify areas of emphasis for the next year's competitive financial assistance program. These areas of emphasis are published in the Federal Register for public comment. After public review and comment, an announcement of funding availability through the competitive MARFIN financial assistance program is published as a solicitation in the Federal Register.

The NMFS Southeast Regional State/Federal Liaison Branch staff is responsible for the overall administration of all NMFS Southeast grants and cooperative agreement programs, including MARFIN (Appendix 2). Their responsibilities include planning, application and selection, negotiation, performance, monitoring and close-out of all assigned competitive and

noncompetitive financial assistance programs. A NMFS Southeast Regional scientific or technical expert is assigned as the Technical Monitor for each MARFIN project. The Technical Monitor is responsible to the State/Federal Liaison Branch Program Officer for all technical and cooperative aspects of assigned projects. The NOAA Grants Officer is responsible for the overall administration of each NMFS financial assistance award issued to recipients outside of the Federal government and cooperates with the NMFS Southeast Region State/Federal Liaison Branch in administering each financial assistance award.

FY 2005 AND FY 2006 PROGRAM HIGHLIGHTS

Due to the destructive storms that hit the Southeastern United States and the Gulf of Mexico, our 17th Annual Conference scheduled for December 2005 was canceled. Numerous projects were impacted directly and indirectly from the storms and we continue to accommodate the needs of researchers to minimize disruption to their work. The Annual Conference that was originally scheduled for December 2006 was cancelled due to budget constraints brought about by NOAA/NMFS operating under a Continuing Resolution. The following projects are expected to be presented at the December 2007 Annual Conference in Saint Petersburg, Florida.

Grant# NA04NMF4330072 PI: Dr. Behzad Mahmoudi, Jr.
Recipient: Florida Fish and Wildlife Conservation Commission
Title: Development of a Spatially-Explicit Age-Structured Model for Assessment and Management of Grouper Stocks in the U.S. Southeast Region

Grant# NA04NMF4330075 PI: Dr. William Lindberg
Recipient: University of Florida
Title: Habitat Selection and the Performance of Gag Grouper Across a Range of Hard Bottom Habitat in the Northeastern Gulf of Mexico

Grant# NA17FF2010 PI: Karen Burns
Recipient: Mote Marine Laboratory
Title: Evaluation of the Efficacy of Current Minimum Size Regulations for Selected Reef Fish Based on Release Mortality and Fish Physiology

Grant# NA04NMF4330073 PI: Dr. Patrick Harris
Recipient: South Carolina Department of Natural Resources
Title: Development of Conversion Factors for Different Trap Types used by MARMAP since 1978

Grant# NA04NMF4330077 PI: Dr. Joanne Halls
Recipient: University of North Carolina, Wilmington
Title: Fisheries and Habitat Assessment of the Oculina Banks Habitat Area of Particular Concern: A Multi-Media Approach Using GIS and World Wide Web

Grant# NA04NMF4330078 PI: Dr. Stephen Geiger
Recipient: Florida Fish and Wildlife Conservation Commission
Title: Is Habitat Availability Limiting Recruitment of Calico Scallops (*Argopecten gibbus*)?

Grant# NA17FF2876 PI: Dr. Felicia Coleman
Recipient: Florida State University
Title: Demographics, Density and Seasonal Movement Patterns of Reef Fish in the Northeastern Gulf of Mexico Associated with Marine Reserves
Grant# NA17FF2878 PI: Dr. Robert Chapman

Recipient: South Carolina Department of Natural Resources
Title: Can Marine Protected Areas Conserve Genetic Diversity in Tomtate (*Haemulon aurolineatum*) and French Grunt (*Haemulon flavolineatum*)?

Grant# NA04NMF433076 PI: Dr. Sandra Diamond
Recipient: Texas Tech University
Title: Decompression and Delayed Mortality: Effects of Barotrauma on Red Snapper (Lutjanus campechanus)

Grant# NA17FF2012 PI: Dr. Sandra Diamond
Recipient: Texas Tech University
Title: Estimating Discard Rate and Release Mortality of Red Snapper in Texas Fisheries

Grant# NA17FF2880 PI: Dr. John Gold
Recipient: Texas Agricultural Experiment Station
Title: Development of Assays for Major Histocompatibility (MHC) Class I and Class II loci in Gulf Red Snapper for Use in Stock Structure Analysis and Assessment of Genetic Health

Grant# NA17FF2881 PI: Karen Burns
Recipient: Mote Marine Laboratory
Title: Geographic Comparison of Age, Growth, Reproduction, Movement and Survival of Red Snapper off the State of Florida

Grant# NA04NMF4330367 PI: Dr. Will Patterson
Recipient: University of West Florida
Title: Estimation of the Source of Red Snapper Recruits to the West Florida Shelf with Otolith Chemistry

Grant# NA17FF2865 PI: Dr. Nelson Erhardt
Recipient: University of Miami
Title: Linking Spatial-temporal Population Size Structures and Fishing Effort Dynamics to Assess the Effectiveness of Minimum Size for Red Snapper Management

Grant# NA04NMF4330080 PI: Dr. Richard Woodward
Recipient: Texas Agricultural Experiment Station
Title: Cost and Effectiveness of Sequential License Buy-Back Programs in the Gulf of Mexico

Grant# NA04NMF4330316 PI: Dr. Benjamin Blount
Recipient: University of Texas at San Antonio
Title: Factors Affecting Participation in Marine Fisheries: Case Studies in Georgia and North Carolina

Grant# NA17FF2868 PI: Dr. Walter Keithly
Recipient: Louisiana State University
Title: An Intertemporal and Spatially Dynamic Supply Model of the Gulf of Mexico Shrimp Fleet for Use in Management and Bycatch Reduction

Grant# NA17FF2873 PI: Dr. Wade Griffin
Recipient: Texas Agricultural Experiment Station
Title: Bioeconomic Analysis of the Red Snapper Rebuilding Plan and Transferable Rights Policies in the Gulf of Mexico

Grant# NA04NMF4330079 PI: Thomas Murray
Recipient: Thomas J. Murray & Associates, Inc.
Title: Tortugas 2000 - A Post Mortem: Evaluation of Actual Versus Projected Socioeconomic Impacts of the Dry Tortugas Ecological Reserve

Grant# NA17FF2867 PI: Judy Jamison - Gary Graham will present
Recipient: Gulf and South Atlantic Fisheries Foundation
Title: Technology Transfer of New Turtle Excluder Device Modifications and Updated Bycatch Reduction Device Information to the Southeastern Shrimp Industry

Grant# NA17FF2885 PI: Dr. Charles Wenner
South Carolina Department of Natural Resources
Title: Atlantic Croaker (Micropogonias undulates) along the Middle Atlantic Coast and Southeast Coast of the United States

Grant# NA17FF2882 PI: Dr. Richard McBride
Recipient: Florida Fish and Wildlife Conservation Commission
Title: Fishery and Population Characteristics of Wahoo (Acanthocybium solandri) in Florida and Adjacent Waters of the Western North Atlantic Ocean

Grant# NA04NMF4330293 PI: Dr. Peter Rand
Recipient: The Wild Salmon Center
Title: Identifying Spawning Grounds and Classifying Habitat for Red Drum (*Sciaenops ocellatus*) in Pamlico Sound, NC

Grant# NA17FF2867
Recipient: Gulf & South Atlantic Fisheries Foundation
Title: Technology Transfer of New Turtle Excluder Device Modifications and Updated Bycatch Reduction Device Information to the Southeastern Shrimp Industry

Grant# NA17FF2870
Recipient: South Carolina Department of Natural Resources
Title: Validation of ages for species of the deepwater snapper/grouper complex off the coast of the southeastern United States

Grant# NA17FF2008
Recipient: South Carolina Department of Natural Resources
Title: Stock structure of red porgy, *Pagrus pagrus*, in the North Atlantic

Grant# NA17FF2875
Recipient: Louisiana State University
Title: Stable isotopes as tracers of patterns in habitat utilization by juvenile red snapper

Grant# NA17FF2878
Recipient: South Carolina Department of Natural Resources
Title: Can marine protected areas conserve genetic diversity in tomtate, *Haemulon aurolineatum*, and French grunt, *H. flavolineatum*?

Grant# NA17FF2881
Recipient: Mote Marine Laboratory
Title: Geographic comparison of age, growth, reproduction, movement, and survival of red snapper off the state of Florida

Grant# NA17FF2865
Recipient: University of Miami
Title: Linking spatial-temporal population size structures and fishing effort dynamics to assess the effectiveness of minimum size for red snapper management

Grant# NA17FF2882
Recipient: Florida Fish and Wildlife Conservation Commission
Title: Fishery and population characteristics of wahoo, *Acanthocybium solandri*, in Florida and adjacent waters of the western North Atlantic Ocean

Grant# NA17FF2885
Recipient: South Carolina Department of Natural Resources
Title: Atlantic croaker, *Micropogonias undulatus*, along the middle Atlantic coast and southeast coast of the United States

Grant# NA17FF2874
Recipient: South Carolina Department of Natural Resources
Title: GIS analysis of fishery-dependent data in relation to definition of essential fish habitat, habitat areas of particular concern, and marine protected areas in the South Atlantic Bight

Grant# NA04NMF4330316
Recipient: University of Texas, San Antonio
Title: Factors affecting participation in marine fisheries: case studies in Georgia and North Carolina

OVERVIEW OF ONGOING RESEARCH PROJECTS

The following project descriptions provide the title and objectives/goals of ongoing research funded through the MARFIN Program in the Southeast Region:

A. Bycatch

1. Shrimp trawl fisheries

a. "A continuation of technology transfer of new turtle excluder device modifications and updated bycatch reduction device information to the southeastern shrimp industry" - a one year, $178,614, project that will provide the shrimping industry with the latest information on TED and BRD regulations and modifications. Meetings and workshops will be conducted from North Carolina through Texas, using Foundation specialists, to provide the latest information to shrimp fishermen, net shop owners and other interested parties. The recipient has requested an extension to 3/31/08. **MARFIN Award NA05NMF4331074**

2. Reef fish fisheries

a. "Evaluation of the efficacy of current minimum size regulations for selected reef fish based on release mortality and fish physiology"- the second year of a two year, $359,804, project that will determine if red grouper are more susceptible to depth-induced mortality than red snapper, test whether smaller red grouper survive rapid decompression better than larger red grouper, and to obtain catch and release mortality rates for red grouper, red snapper, vermilion snapper, and mangrove snapper. The first two areas of investigation will center around the swim bladder's size and structures such as the bundles of rete mirabile and the amount of gas gland cells. **MARFIN Award NA17FF2010**

b. "Estimating discard rate and release mortality of red snapper in Texas fisheries"- the third year of a three-year, $354,244, project to estimate delayed release mortality of red snapper under controlled conditions and find physiological indicators of delayed release mortality using blood samples from caught fish. Using this information the project will also estimate the discard rate and delayed release mortality in commercial and recreational fisheries. In addition, released red snapper will also be tagged to estimate recapture rate by the fisheries. **MARFIN Award NA17FF2012**

c. "By-catch studies of reef fish in support of Caribbean Fishery Management Council preferred options for fishery management in St. Thomas, U.S. Virgin Islands"- the first year of a two-year, $93,465, project to a develop trip ticket applicable to the St. Thomas area fisheries in order to access bycatch in the reef fish fisheries. **MARFIN Award NA06NMF4330052**

B. Reef Fish

1. Basic biological data

a. "Age, growth and sexual maturity of greater amberjack in the Gulf of Mexico" - a two-year, $198,831, project to determine age and growth, and age and size of sexual maturity of greater amberjack (*Seriola dumerili*) in the Gulf of Mexico. **MARFIN Award NA05NMF4331071**

b. "Evaluating species interactions in reef fish communities: the potential impact of red snapper (*Lutjanus campechanus*) on recruitment of vermillion snapper (*Rhomboplites auroubens)*" – the first year of a two-year, $192,338, project to access the impact of red snapper on recruitment and mortality of vermillion snapper to offshore reefs and to evaluate how removal of red snapper, as well as other large piscivorous fish, modifies the reef fish community. This project will also examine how the architecture of artificial reefs influences recruitment of vermillion snapper. **MARFIN Award NA06NMF4330050**

c. "Age sampling of the commercial snapper/grouper fishery and age stock structure of black sea bass in North Carolina" – the first year of a three-year, $231,450, project to obtain otoliths and fin spines from fish caught in the commercial snapper/grouper fisheries of North Carolina and to determine age structure from these hard parts. **MARFIN Award NA06NMF4330057**

2. Population assessment of reef fish and other fishery resources associated with reef environments

a. "Using microsatellite DNA analysis to identify sources of recruitment for Florida's spiny lobster, *Panulirus argus*, stock" - the second year of a two year, $119,848, project to determine stock structure and sources of recruitment for the Florida spiny lobster fishery using microsatellite DNA analysis. **MARFIN Award NA05NMF4331076**

b. "Meta-population stock assessment methods incorporating climatic and ecosystem effects for the Florida spiny lobster fishery" - a one year, $74,521, project that will develop a stock assessment algorithm to include environmental variables in stock recruitment forecasts for spiny lobster and red snapper in the Gulf of Mexico. The algorithm will use environmental variables and population abundance estimates for lobsters in Brazil, Nicaragua-Honduras and the Bahamas. **MARFIN Award NA05NMF4331081**

c. "Development of DNA microsatellites for genetic applications in greater amberjack (*Seriola dumerili*) and other amberjacks of genus *Seriola*" - a nineteen month, $125,478, project to develop 25-30 polymorphic microsatellite DNA markers that are specific for greater amberjack (*Seriola dumerili*) and other amberjacks of genus *Seriola* and that can be utilized in stock-structure analysis, estimates of locality-specific effective population size and of genetic migration among localities and species identification. **MARFIN Award NA05NMF4331075**

d. "Incorporating protogyny into stock assessment models" – the first year of a two–year, $135,353, project to compile data on two protogynous species (red porgy and black sea bass) and construct population models for these species that incorporates protogyny. Projection models would also be constructed to project populations forward in time to evaluate potential management options. **MARFIN Award NA06NMF4330056**

C. Red Snapper Research

1. Red snapper bycatch

a. "The effect of light and hydraulic regime on the behavior and swimming ability of dark adapted red snapper, *Lutjanus campechanus*: Its application to bycatch reduction" - the second year of a three year $297,011, project to examine various aspects of red snapper behavior that will be used to construct an effective bycatch reduction device. **MARFIN Award NA05NMF4331070**

2. Red snapper population assessment

a. "Estimation of the source of red snapper recruits to west Florida and south Texas with otolith chemistry: implications for stock structure and management" - the second year of a three year $361,825, project to develop natural tags of red snapper nursery regions in U.S. and Mexican waters based on otolith microchemistry that will be employed (1) to estimate the source of recruits to the west Florida shelf and southeast Texas; (2) to estimate connectivity between U.S. and Mexican red snapper populations; (3) to estimate cohort-and time-specific post-settlement movement among regions; and (4) to draw inference about population structure from estimated movement and mixing dynamics. **MARFIN Award NA05NMF4331072**

b. "Determination of the limiting effect of currents on distribution of red snapper populations in the Gulf of Mexico" - the second year of a two year, $225,994, project to examine circulation-induced recruitment variability in red snapper populations and to evaluate the potential for reestablishment of red snapper populations in depleted areas by naturally occurring larval transport processes. **MARFIN Award NA05NMF4331082**

c. "The use of ultrasonic telemetry to estimate natural and fishing mortality of red snapper *Lutjanus campechanus"*– the first year of a three-year, $301,136, study to examine mortality of red snapper and determine movement and residency characteristics. Over the course of the three-year study 120 red snapper in the study area south of Mobile Bay will be fitted with ultrasonic tags and their movements monitored by remote scan receivers. **MARFIN Award NA06NMF4330054**

D. Coastal Migratory Pelagic Fisheries

No ongoing project at this time.

E. Groundfish and Estuarine Fishes

a. "Size and age structure and catch and release mortality estimates of sub-adult and adult red drum in the Tampa Bay estuary and nearshore Gulf of Mexico waters" - the second year of a three year, $399,303, project to describe the size and age structure of sub-adult and adult red drum populations in the Tampa Bay estuary and surrounding nearshore Gulf of Mexico waters. Mark and recapture methods will be employed in efforts to track recruitment of early life-stages of red drum into the sub-adult and adult populations. **MARFIN Award NA05NMF4331078**

b. "Assessing population trends of demersal fishes and invertebrates from long-term inshore and offshore fishery-independent surveys" – the first year of a two-year, $274,728, project to investigate trends of economically/ecologically important species of finfish and crustaceans in estuarine and offshore waters of the northern Gulf of Mexico using long-term fishery–independent survey data from state and federal waters. Innovative analytical approaches consisting of univariate and multivariate techniques will be used to examine the dynamics of population fluctuations and to assess the resilience of communities to environmental perturbations. **MARFIN Award NA06NMF4330051**

F. Essential Fish Habitat

1. Develop geographic information systems (GIS) mapping protocols to allow the presentation of essential fish habitat (EFH) and habitat areas of particular concern (HAPC), fishery distribution information, and other relevant data for the southeastern United States, including Puerto Rico and the U.S. Virgin Islands.

a. "Studies on dolphin (*Coryphaena hippurus*) and greater amberjack (*Seriola dumerili*) in the northcentral Gulf of Mexico: Early life history and recruitment of larvae and young juveniles to pelagic *Sargassum* habitat" - the second year of a two year, $284,087, project that will: 1) develop taxonomic characters to distinguish the larvae of greater amberjack from three other species of *Seriola* in the northern Gulf; 2) develop an understanding of recruitment of larval and juvenile dolphin and greater amberjack to *Sargassum* habitat; 3) determine relative abundance and age of larval and juvenile dolphin and greater amberjack collected from isolated clumps and large accumulations of pelagic *Sargassum* habitat; and 4) compare the age and growth of larval and juvenile dolphin and greater amberjack collected from isolated clumps and large accumulations of pelagic *Sargassum* habitat. **MARFIN Award NA05NMF4331080**

b. "The effects of lobster traps on coral communities in the Florida Keys" - this is a one year, $57,935, project to address the ecological sustainability of coral communities with current trap fishing practices in the spiny lobster fishery. **MARFIN Award NA0N5MF4331077**

c. "Distribution of Bottom Habitat Information in the Gulf of Mexico" - the second year of a three-year, $210,621, project to create and distribute a digital spatial database of bottom habitats on the continental shelf and slope from the Texas/Mexico border to the southern tip of Florida. The project will compile existing data for the region and will be organized spatially in ArcGIS format, and will be available via printed document, CD-ROM, and on the web. **MARFIN Award NA05NMF4331073**

G. Economic and Sociocultural Studies

1. Development and application of models to evaluate the economic impact of red snapper bycatch reduction

a. "An intertemporal and spatially dynamic supply model of the Gulf of Mexico shrimp fleet for use in management and bycatch reduction"- the third year of a three-year, $287,233, project to develop defensible parameter estimates that can assist in explaining changes in the behavior of shrimp fishermen in relation to economic stimuli and/or potential management measures. The changes in the behavior of shrimp fishermen in response to economic stimuli and management measures will first be derived using microeconomic and economic considerations. These parameter estimates will then be used to develop a joint production function that will allow the examination of expected changes in bycatch in relation to changes in behavior of shrimp fishermen due to changes in economic stimuli or management measures. **MARFIN Award NA17FF2868**

b. "Economic analysis of red snapper bycatch reduction management alternatives for directed and non-directed fisheries" – the first year of a two-year, $107,972, project to develop a model to identify the preferred combination of management alternatives to achieve a reduction in red snapper bycatch that produces the greatest economic surplus and is most effective in leading to the recovery of red snapper stocks. **MARFIN Award NA06NMF4330053**

2. Estimation of demand models for recreational fishing trips when the target species include a single species, an aggregate of related species, or all species combined.

a. "Angler heterogeneity and the species-specific demand for recreational fishing in the southeast United States" – the first year of a two-year, $76,371, project to use Marine Recreational Fishing Statistics Survey data to combine the fishing quality data with angler choice data to estimate conditional logit, nested logit, random parameter logit, and latent class logit models of fishing site choice. Models will examine how different characterizations of targeting behavior impact the economic value of fishing quality. **MARFIN Award NA06NMF4330055**

3. Development of Methodologies to Accurately Assess the Cumulative Economic and Social Impacts of Fishery Management Regulations on Fishermen and Fishing Communities, and to Separate such from the Impacts of Non-Fishery Management Factors

a. a. "Examination of non-fishery factors on the welfare of fishing communities in the Florida Keys: A focus on the cumulative effects of trade, economic, energy, and aid policies, macroeconomic (county and regional) conditions, and coastal development on the Monroe County commercial fishing industry" - the second year of a two year, $89,252, project to determine the cumulative impacts of non-fishery factors on the welfare of fishing communities in the southeastern U.S., as exemplified in a case study of commercial fishers in Monroe Count. **MARFIN Award NA05NMF4331079**

Appendix 1: MARFIN PANEL MEMBERS

Ms. Kay Williams
Gulf of Mexico Commercial Representative
9905 Wire Road
Vancleave, MS 39581
(228) 826-2160
FAX (228) 769-6153
hkaywilliams@hotmail.com

Dr. Robert L. Shipp
Gulf of Mexico Recreational Representative
Chair and Professor
Department of Marine Sciences
University of South Alabama
LSCB Room 25
Mobile, AL 36688
(251) 460-7357
FAX (251) 460-7357
rshipp@jaguar1.usouthal.edu

Mr. Vernon Minton
Gulf States Representative
Director, Marine Resources Division
AL Dept. of Conservation & Natural Resources
P. O. Drawer 458
Gulf Shores, AL 36547
(251) 968-7576
FAX (251) 968-7307
rvminton.amrdgs@gulftel.com

Mr. Larry B. Simpson
Gulf States Marine Fisheries Commission Representative
Executive Director, Gulf States Marine Fisheries Commission
2404 Government Street
Ocean Springs, MS 39564
(228) 875-5912
FAX (228) 875-6604
1simpson@gsmfc.org

Appendix 1 (CON'T): MARFIN PANEL MEMBERS

Dr. LaDon Swann
Gulf of Mexico Sea Grant Representative
Director, Mississippi-Alabama Sea Grant Consortium
703 East Beach Drive
Ocean Springs, MS 39564
(251) 861-3018 Dauphin Island, AL
(228) 818-8843 Ocean Springs, MS
FAX (228) 818-8841
swanndl@auburn.edu

Mr. Wayne Swingle
Gulf of Mexico Fishery Management Council Representative
Executive Director, Gulf of Mexico Fishery Management Council
3018 U.S. Hwy. 301 N., Suite 1000
Tampa, FL 33619
(813) 228-2815
FAX (813) 225-7015
wayne.swingle@gulfcouncil.org

Mr. Mark Marhefka
South Atlantic Commercial Representative
1676 Culpepper Circle
Charleston, SC 29407
(843) 571-0228
mmko@knology.net

Mr. Robert Mahood
South Atlantic Fisheries Management Council Representative
Executive Director, South Atlantic Fishery Management Council
1 Southpark Circle, Suite 306
Charleston, SC 29407-4699
(843) 571-4366
FAX (843) 769-4520
robert.mahood@safmc.net

Dr. Louis Daniel
South Atlantic States Representative
South Atlantic Fisheries Liaison
3441 Arendell Street
Morehead City, NC 28557
(252) 726-7021
FAX (252) 726-0254
Louis.Daniel@ncmail.net

Mr. John Vincent O'Shea
Atlantic States Marine Fisheries Commission Representative
Executive Director, ASMFC
1444 Eye Street, N.W., Sixth Floor
Washington, D. C. 20005
(202) 289-6400
FAX (202) 289-6051
voshea@asmfc.org

Dr. Ronald Hodson
South Atlantic Sea Grant Representative
Director, NC Sea Grant College Program
101E 1911 Building
Raleigh, NC 27695-8605
(919) 515-2455
FAX (919) 515-7095
ronald_hodson@ncsu.edu

Mr. Damon Tatem
South Atlantic Recreational Representative
505 Copley Drive
Kil Devil Hills, NC 27948
(252) 441-6672
FAX (252) 441-5654
damont1@mindspring.com

Dr. Nancy Thompson
Director Southeast Fisheries Science Center
75 Virginia Beach Drive
Miami, FL 33149
(305) 361-4284
FAX (305) 361-4515
Nancy.Thompson@noaa.gov

Appendix 2: NMFS SOUTHEAST REGIONAL MARFIN ADMINISTRATIVE STAFF

National Marine Fisheries Service
Southeast Regional Office
State/Federal Liaison Branch
263 13th Avenue South
St. Petersburg, Florida 33701
(727) 824- 5324
FAX (727) 824-5364

Ellie Francisco Roche
Chief, State/Federal Liaison Branch
Ellie.Roche@noaa.gov

Jeffrey E. Brown
Fisheries Grants Specialist
& Fishery Biologist
Jeff.Brown@noaa.gov

Cynthia T. Binkley
Fisheries Grants Specialist
Cynthia.Binkley@noaa.gov

Robert A. Sadler
Fisheries Grants Specialist
Robert.Sadler@noaa.gov

Terri E. Almquist
Office Manager
terri.almquist@noaa.gov

Appendix 3

MARFIN Project Summaries

NA05NMF4331074

MARFIN PROJECT SUMMARY

Project Title: A Continuation of Technology Transfer of New Turtle Excluder Device Modifications and Updated Bycatch Reduction Device Information to the Southeastern Shrimp Industry

Project Status/Duration: New __X____ Con't _____ Project Period: 12 Months

Name, Address, and Telephone Number of Applicant:

Gulf & South Atlantic Fisheries Foundation, Inc.
5401 W. Kennedy Boulevard, Suite 740
Tampa, FL 33609
Phone: 813-286-8390

Principal Investigator(s) and Brief Statement of Qualifications:
Ms. Judy L. Jamison, Executive Director; 23 years grants administration experience
Mr. David Medici, Program Director; 2 years in marine research/education

Project Objective: (a) Provide the shrimping industry with clear description of new TED regulations; (b) Provide information and assistance with newly mandated TED modifications; (c) Provide information of new BRD designs and prototype gears; and (d) Share experiences of fishermen with BRDs and TEDs.

Specific Priority(ies) in Solicitation to which Project Responds: This project responds to Priority A (Bycatch) 1 Shrimp Trawl Fisheries (d) Improved methods for communicating with and improving technology and information transfer to the shrimping industry.

Summary of Work: (For continuing projects, include progress to date) This proposal involves the networking of gear specialists throughout the Southeast. Gear experts from the NMFS Harvesting Branch will collaborate with the Foundation/Sea Grant specialists to disseminate information on mandated TED changes and new BRD information. Meetings and workshops will be conducted from North Carolina to Texas. Comprehensive educational thrusts will be directed toward TED/BRD technology transfer through formal and informal workshops as well as individual, one-on-one assistance.

	Year 1 Total	Total
Project Funding:		
Federal	$178,614	$178,614
Non-Federal	$ 0	$ 0
Total	$178,614	$178,614

NA17FF2010

MARFIN PROJECT SUMMARY

Project Title: Evaluation of the Efficacy of Current Minimum Size Regulations for Selected Reef Fish Based on Release Mortality and Fish Physiology

Project Status/Duration: New _____ Con't __X__ Project Period: 24 Months

Name, Address, and Telephone Number of Applicant:

Karen M. Burns
Program Manager, Fisheries Biology Program
Mote Marine Laboratory
1600 Ken Thompson Parkway
Sarasota, FL 34236
Phone: 941-388-4441 Fax: 941-388-4441

Principal Investigator(s) and Brief Statement of Qualifications:
Karen M. Burns is the Principal Investigator of 8 (eight) successfully completed and 1 (one) recently awarded MARFIN project: as well as the Principal Investigator of MML's Reef Fish and Coastal Pelagic Tagging Program. She supervised a Master's thesis on red snapper survival in 1997.
Robin Overstreet has worked before with Karen Burns, on a MARFIN Cobia Stock Assessment Study in the Gulf of Mexico and in the South Atlantic, Award No. NA57FF0294. He directs the "Parasitology Department" at USM's College of Marine Sciences, which includes three graduate students, several technicians, and others. His program deals with red snapper and is part of a cooperative program with MML (NA006FL0501), as well as a USDA funded U.S. Marine Shrimp Farming Program (98-38808-6019).

Project Objectives: 1) To test the hypothesis that red grouper are more susceptible to death-induced mortality than red snapper based not only on swim bladder size and thickness, but also on the amount of bundles of rete mirabile and gas gland cells in the swimbladder; 2) To test the hypothesis that smaller red grouper (<12 in. [30.5 cm]) survive rapid decompression better than larger (>15 in. [38 cm]) red grouper because of changes in swimbladder structures with size (between 12 - 15 in. [30.5 - 38 cm]); 3) To obtain catch and release mortality rates relative to depth and gear for red grouper, gag, red snapper, vermilion snapper and mangrove snapper; 4) To obtain movement and migration patterns for red grouper, gag, red snapper, and mangrove snapper in the Gulf of Mexico and South Atlantic.

Specific Priority(ies) in Solicitation to Which Project Responds: The project responds to Priority A (Bycatch) 3 Reef fish fisheries; B (Reef Fish) l Collection of basic biological data and 2 Population assessment of reef fish; and C (Red Snapper Research) 1 Red snapper bycatch and 2 Red snapper population assessment.

NA17FF2010

MARFIN PROJECT SUMMARY (CON'T)

Summary of Work: (For continuing projects, include progress to date)

1. Collect red snapper and red grouper swimbladders over available size range especially 12 in. (30.5cm) - 15 in. (38cm) for histological analyses of the development of secretory structure.
2. Tag red grouper and red snapper especially 12 in. (30.5cm) - 15 in. (38cm) to evaluate survival from depth with development of swimbladder secretory structures.
3. Tag red grouper, red snapper, gag, mangrove, and vermilion snapper to obtain release mortality by depth and to obtain growth, movement, and migration data.
4. Double tag target species for tag shedding rates.
5. Evaluate circle hook captured red snapper survival by depth.

	Year 1	Year 2	Total
Project Funding:			
Federal	$167,481	$192,323	$359,804
Non-Federal	$ 66,211	$ 67,641	$133,852
Total	$233,692	$259,964	$493,656

NA17FF2012

MARFIN PROJECT SUMMARY

Project Title: Estimating Discard Rate and Release Mortality of Red Snapper in Texas Fisheries

Project Status/Duration: New _____ Con't __X__ Project Period: 36 Months

Name, Address, and Telephone Number of Applicant:

Dr. Sandra Diamond
Department of Biology
Texas Tech University
Lubbock, TX 79409
Phone: 806-742-1999

Principal Investigator(s) and Brief Statement of Qualifications:
Dr. Sandra Diamond has conducted research on bycatch issues, primarily in shrimp trawl and gill net fisheries, for over 15 years. In the mid-1980s, she ran the onboard observer program and participated as an observer in the pelagic drift net fishery in California. She is currently a member of the RFSAP and the SSC for the Gulf Council.
Dr. Quenton Dokken, co-PI, has over 20 years experience in the study and research of marine fish ecology and fisheries in Texas. Currently his work is focused on the ecosystem dynamics of natural and artificial reefs in the northwestern Gulf of Mexico and the socioeconomics of Texas fisheries. He has been the lead in working with offshore oil/gas producers to allow scientists to conduct marine research on platforms.

Project Objective: 1) To estimate delayed release mortality of red snapper under controlled conditions. 2) To find physiological indicators, of delayed release mortality using blood samples from caught fish. 3) To estimate discard rate and delayed release mortality in commercial and recreational fisheries using the indicators from the controlled study. 4) To tag released fish to estimate recapture rate by the fisheries. 5) To relate discard rate to year class strength using SEAMAP data.

Specific Priority(ies) in Solicitation to Which Project Responds: The project responds to Priority C (Red Snapper Research) 1 Red snapper bycatch, 2 Red snapper population assessment, and 3 Management of red snapper.

Summary of Work: (For continuing projects, include progress to date)
Red snapper, the most economically important reef fish in the Gulf of Mexico, has been classified as over fished since 1984. Since then managers have regulated the directed fisheries using size and bag limits, closed seasons, and trip and seasonal quotas. The use of these measures assumes that either fishermen can avoid catching illegal fish or that catch-and-release does not contribute significantly to fishing mortality, but these assumptions may not be valid. We propose to conduct a study of release mortality under controlled field conditions to estimate the delayed release mortality with different capture depths and water temperatures using red snapper caught with hook and line and suspended from oil platforms, and to investigate the use of physiological indicators of stress (plasma cortisol, lactate, and osmolality) to estimate delayed release mortality. We will also spend two years riding aboard commercial and recreational fishing boats to obtain

better estimates of discard rates, to use the physiological indicators to estimate delayed release mortality in the field, and to conduct a tagging study to look at recapture rates over the season and between years. We will also look for a predictor of discard rate by relating discard rate in the fisheries to year class strength. If we can relate physiological measurements taken soon after capture to immediate and delayed release mortality, then we will be able to obtain much better estimates of release mortality to use in the stock assessment. Even if physiological indicators cannot be correlated with delayed release mortality, this study will provide data on discard rates and release mortality from the fisheries that can be used by the Gulf Council and NMFS to improve the red snapper stock assessment and help design management strategies to more effectively rebuild the overfished red snapper stock. If successful, these indicators may also be useful for other reef fish, such as red grouper.

	Year 1	Year 2	Year 3	Total
Project Funding:				
Federal	$151,412	$ 99,027	$103,805	$354,244
Non-Federal	$ 0	$ 0	$ 0	$ 0
Total	$151,412	$ 99,027	$103,805	$354,244

NA06NMF4330052

MARFIN PROJECT SUMMARY

Project Title: By-Catch Studies of Reef Fish in Support of Caribbean Fishery Management Council Preferred Options for Fishery Management in St. Thomas, U. S. Virgin Islands

Project Status/Duration: New __X__ Con't ___ Project Period: 24 months

Name, Address, and Telephone Number of Applicant:

St. Thomas Fishermen's Association (STFA)
4003 Raphune Hill
Suite 501, 3221
St. Thomas, USVI 00802
Phone: 340-665-7674

Principal Investigator(s) and Brief Statement of Qualifications:
Dr. David A. Olsen is a former Director of the Virgin Islands Division of Fish and wildlife and a fishery biologist specializing in population dynamics and statistics. He has 34 years of experience in the field and has 26 publications.

Project Objective: The objective of the current project is to develop a system for collecting bycatch information from St. Thomas' commercial fishermen by working through the STFA membership in design and testing of approach.

Specific Priority(ies) in Solicitation to Which Project Responds: The project responds to Priority A Bycatch and Priority B Reef Fish Fisheries.

Summary of Work:
The current STFA study proposes to concentrate on actual acquisition of bycatch data while working within the STFA membership to involve its membership in development of a "fishermen-friendly" trip ticket system to record the data as set out in the Caribbean Fishery Management Council requirement. By employing this approach, bycatch data can be collected while fishermen can participate in design of the program for its collection. The resulting "outreach" will enhance cooperation between St. Thomas fishermen and Federal fishery managers. Initial design will be developed from an on-going CRP-funded study of bycatch that is being implemented for MRAG Americas by the STFA. In this study observers are being placed on fishing boats and selected fishermen are placing their bycatch in coolers for return to shore. The MRAG sampling protocol and experience gained through its implementation will provide a useful starting point in developing the "trip ticket" system for the current study. Sampling technicians will be selected from SFTA families and University of Virgin Island students. Training will be in identification of local species and methods for interacting with local fishermen during the marketing period when most of these data will be collected. Digital cameras will be supplied to each sampling team so that the Project Manager and Field Supervisor can verify questionable identifications.

NA06NMF4330052

MARFIN PROJECT SUMMARY (CON'T)

	Year 1	Year 2	Total
Project Funding:			
Federal	$56,079	$37,386	$93,465
Non-Federal	$ 3,000	$ 2,000	$ 5,000
Total	$59,079	$39,386	$98,465

NA05NMF4331071

MARFIN PROJECT SUMMARY

Project Title: Age, Growth and Sexual Maturity of Greater Amberjack in the Gulf of Mexico

Project Status/Duration: New __X__ Con't _____ Project Period: 24 Months

Name, Address and Telephone Number of Applicant;

Debra J. Murie
University of Florida
Division of Sponsored Programs
219 Grinter Hall
P. O. Box 115500
Gainesville, FL 32611-5500
Phone: 352-392-9617 ext 245

Principal Investigator(s) and Brief Statement of Qualifications:
Dr. Debra J. Murie has over 20 years experience, specializing in population dynamics focused on age and growth.
Dr. Daryl C. Parkyn has 18 years experience specializing in movement patterns and age and growth.

Project Objective: The primary objective of the project is to determine the age and growth, and age and size of sexual maturity of greater amberjack (*Seriola dumerili*) in the Gulf of Mexico.

Specific Priority(ies) in Solicitation to which Project Responds: This project responds to Priority B (Reef Fish) 1 (a) Age and growth of reef fish and (b) Reproduction studies of reef fish.

Summary of Work: (For continuing projects, include progress to date) The project will resolve difficulties in aging greater amberjack in the Gulf of Mexico by establishing aging criteria based on sectioned otoliths. It will provide age estimates for all otoliths that have been collected by several agencies since 1998. It will compare aging criteria for greater amberjack using fin rays and sectioned otoliths to test for differences in precision between the two methods and assess the different aging methods as to their feasibility in production style aging for future stock assessments. The project will determine age and size at sexual maturity of greater amberjack in the Gulf of Mexico through targeted collections during the spawning season. Also, it will provide age-length keys, age and growth models, and sexual maturity models to the NMFS in a format compatible for use in stock assessments of greater amberjack in the Gulf of Mexico.

	Year 1	Year 2	Total
Project Funding:			
Federal	$ 67,737	$ 67,048	$134,785
Non-Federal	$ 31,550	$ 32,496	$ 64,046
Total	$ 99,287	$ 99,544	$198,831

NA06NMF4330050

MARFIN PROJECT SUMMARY

Project Title: Evaluating Species Interactions in Reef Fish Communities: the Potential Impact of Red Snapper (*Lutjanus campechanus*) on Recruitment of Vermillion Snapper (*Rhomboplites aurorubens*).

Project Status/Duration: New_X_ Con't ___ Project Period: 24 months

Name, Address, and Telephone Number of Applicant:

Dr. Kenneth L. Heck. Jr.
Dauphin Island Sea Lab
101 Bienville Boulevard
Dauphin Island, AL 36528
Phone: 251-861-7534 Fax: 251-861-7540

Principal Investigator(s) and Brief Statement of Qualifications:

Dr. Kenneth L. Heck Jr., Senior Marine Scientist, Dauphin Island Sea Lab, Dauphin Island, AL.
Matthew W. Johnson, Dauphin Island Sea Lab, Dauphin Island, AL

Project Objective: Our objectives are to (1) assess the impact of red snapper on recruitment and mortality of vermillion snapper to offshore reefs, two species of commercial and recreational significance whose habitat use overlaps; (2) evaluate how removal of red snapper, as well as other large piscivorous fish, modifies the reef fish community; and (3) examine how architecture of artificial reefs essential fish influences recruitment of vermillion snapper..

Specific Priority(ies) in Solicitation to Which Project Responds: We will address MARFIN objectives B. 1. c. 2, annual estimation of the absolute or relative recruitment of juvenile vermillion snapper, B. 2. a., determine mortality rates for vermillion snapper, and B. 1. a. 3, age sampling from commercial head boat, and Marine Recreational Fisheries Statistics Survey (MRFSS) that is representative of the fisheries for vermilion snapper.

Summary of Work: The current mandate of incorporating more ecosystem approaches to marine fisheries requires improved understanding of species interactions and how these relationships interact with essential fish habitats. Here, we present a study designed to examine interactions between vermillion snapper recruitment and mortality and predation of red snapper and other large piscivores in reef fish assemblages in the Northern Gulf of Mexico. In addition, we will assess how fishing and provision of structural refuge influences these interactions. Finally, we will determine the age structure of the vermillion snapper stock harvested by local fishermen in coastal Alabama.

	Year 1	Total
Project Funding:		
Federal	$192,338	$192,338
Non-Federal	$ 0	$ 0
Total	$192,338	$192,338

NA06NMF4330057

MARFIN PROJECT SUMMARY

Project Title: Age Sampling of the Commercial Snapper/Grouper Fishery and Age Structure of Black Sea Bass in North Carolina.

Project Status/Duration: New __X__ Con't ___ Project Period: 36 months

Name, Address, and Telephone Number of Applicant:

Fred C. Rohde
North Carolina Division of Marine Fisheries
127 Cardinal Drive Ext, Wilmington, NC 28405
Phone: 910-796-7339

Principal Investigator(s) and Brief Statement of Qualifications:
Fred C. (Fritz) Rohde. M.A.; Biologist Supervisor, NCDMF, 22 years of experience with commercial snapper/grouper fishery and project management.

Project Objective: Collect otoliths and spines from snapper/grouper complex caught by commercial fishermen of North Carolina. Determine age structure for black sea bass from the commercial pot and hook and line fisheries.

Specific Priority(ies) in Solicitation to Which Project Responds: B. Reef fish. 1. Collection of basic biological data for species in commercial fisheries. (a) age and growth of fish. (1) Description of growth patterns. (2) Collect otoliths on grouper, snappers, and other reef fish; (3) Age sampling from commercial fisheries for vermilion snapper, white grunt, yellowedge grouper, tilefish, gray triggerfish, and greater amberjack.

Summary of Work: Commercial vessels will be sampled randomly year-round at the docks as they unload their catches at Holden Beach, Southport, Carolina Beach, Wrightsville Beach, Sneads Ferry, Beaufort, and Morehead City. Length measurements will be taken randomly on all species in the catch (up to 30 per market category) prior to the fish being weighed and boxed. As they are being packed, the number and species identification of all individuals will be recorded. The total catch weight (Trip Ticket) will be obtained from the fish dealer. Trip information, such as gear type and location, will be obtained from the vessel's captain. Otoliths (fin spines for gray triggerfish) will be taken either during the sorting process or after the fish have been boxed. For common species, up to 10 hard parts per market category per trip will be taken. The hard parts will be delivered monthly to the Ageing Lab, NMFS, Beaufort. Length measurements will be provided to TIP on annual basis. Processing and interpretation of black sea bass otoliths will take place monthly. Otoliths will be read whole by DMF staff under transmitted light by two readers and the ages will be provided to NMFS.

	Year 1	Year 2	Year 3	Total
Project Funding:				
Federal	$74,223	$76,886	$80,341	$231,450
Non-Federal	$12,335	$12,335	$12,335	$ 37,005
Total	$86,558	$89,221	$92,676	$268,455

NA05NMF4331076

MARFIN PROJECT SUMMARY

Project Title: Using Microsatellite DNA Analysis to Identify Sources of Recruitment for Florida's Spiny Lobster (*Panulirus argus*) Stock

Project Status/Duration: New ___X___ Con't _____ Project Period: 24 Months

Name, Address and Telephone Number of Applicant:

John H. Hunt
Florida Fish & Wildlife Conservation Commission
2796 Overseas Hwy., Suite 119
Marathon, FL 33050
Phone: 727-896-8626

Principal Investigator(s) and Brief Statement of Qualifications:
John H. Hunt has 23 years of experience conducting research on spiny lobster.
William Sharp has 13 years of experience conducting research on spiny lobster.
Dr. Michael Tringali has 15 years of research experience in molecular and marine population genetics.
Dr. Rodney D. Bertelsen has more than 13 years experience conducting research on spiny lobster.

Project Objective: The goal of the project is to acquire information on the stock structure and sources of recruitment to the Florida fishery for spiny lobster.

Specific Priority(ies) to which Project Responds: The project responds to Priority B (Reef Fish and other Fishery Resources Associated with Reef Environments) 1 (d) 4 Stock structure of spiny lobster populations using various methods, including tagging and genetic studies.

Summary of Work: (For continuing projects, including progress to date) The project will collect tissue samples from adult and postlarval *Panulirus argus* from throughout Florida and the Caribbean. The samples will be used to identify the sources of recruitment to the Florida spiny lobster fishery. Also the project will compare the genetic structure of recently recruited postlarval lobster in the Florida Keys with the local adult population to examine whether or not there are genetically-based differences in post-settlement survival.

	Year 1	Year 2	Total
Project Funding:			
Federal	$74,889	$44,959	$119,848
Non-Federal	$ 0	$ 0	$ 0
Total	$74,889	$44,959	$119,848

NA05NMF4331081

MARFIN PROJECT SUMMARY

Project Title: Meta-Population Stock Assessment Methods Incorporating Climatic and Ecosystem Effects for the Florida Spiny Lobster Fishery

Project Status/Duration: New __X__ Con't _____ Project Period: 12 Months

Name, Address and Telephone Number of Applicant:

Nelson Ehrhardt
Rosenstiel School of Marine & Atmospheric Science
University of Miami
4600 Rickenbacker Causeway
Miami, 33149
Phone: 305-361-4741

Principal Investigator(s) and Brief Statement of Qualifications:
Dr. Nelson Ehrhardt has extensive experience in population dynamics, stock assessment modeling and fishery management science.
Dr. Robert Muller has conducted numerous assessments for species managed by Florida.

Project Objective: The primary objective is to develop a stock assessment algorithm to include environmental variables in stock recruitment prediction. The project will work on the spiny lobster and red snapper fisheries in the Gulf of Mexico.

Specific Priority(ies) in Solicitation to which Project Responds: This project responds to Priority B (Reef Fish and Other Fishery Resources Associated with Reef Environments) 2 and Priority C (Red Snapper Research) 2 Red snapper population assessment.

Summary of Work: (For continuing projects, include progress to date) The project will develop a state-of-art meta-population stock assessment to use in assessments of the Florida spiny lobster fishery. The algorithm will include a recruitment-parent stock dynamic function that iteratively consider regional (Caribbean-wide) climate and ecosystem variables that are responsible for up to 80% of the landing variance in the Florida fisheries.

	Year 1	Total
Project Funding		
Federal	$74,521	$74,521
Non-Federal	$ 5, 421	$ 5,421
Total	$79,942	$79,942

NA05NMF4331075

MARFIN PROJECT SUMMARY

Project Title: Development of DNA Microsatellites for Genetic Applications in Greater Amberjack (*Seriola dumerili*) and other Amberjacks of Genus *Seriola*

Project Status/Duration: New __X__ Con't _____ Project Period: 19 Months

Name, Address and Telephone Number of Applicant:

John R. Gold
Texas A&M Research Foundation
3578 TAMU
College Station, TX 77843-3578
Phone: 979-847-8778

Principal Investigator(s) and Brief Statement of Qualifications:
Dr. John R. Gold has over 30 years experience in fish genetics including development of genetic markers.

Project Objectives: The primary objective is to develop 25-30 polymorphic microsatellite DNA markers that are specific for greater amberjack (*Seriola dumerili*) and other amberjacks of genus *Seriola* and that can be utilized in stock-structure analysis, estimates of locality-specific effective population size and of genetic migration among localities and species identification.

Specific Priority(ies) in Solicitation to which Project Responds: The project responds to priority B (Reef Fish) 1 (c) [source and estimation of recruitment for greater amberjack]; 1 (d) [stock structure, including migration patterns of greater amberjack]; 2 (d) [development of valid (fishery-independent) indices of greater amberjack abundance], and 3 (a) [research in direct support of management of reef fish, specifically amberjacks of genus *Seriola*].

Summary of Work: (For continuing projects, include progress to date) The project will: 1) construct a genomic library of greater amberjack nuclear DNA; 2) screen the genomic library with oligonucleotide probes and sequence 300-500 candidate microsatellites (clones); 3) evaluate suitability of flanking regions of candidate microsatellites as primers for PCR amplification, optimize PCR procedures for candidate microsatellites, and assess experimental tractability and suitability of individual candidates for genetic applications; and 4) test suitability of PCR primers to amplify microsatellites in other amberjacks of genus *Seriola*, including lesser amberjack, almaco jack and banded rudderfish.

	Year 1	Year 2	Total
Project Funding:			
Federal	$64,729	$36,985	$101,714
Non-Federal	$15,085	$ 8,679	$ 23,764
Total	$79,814	$45,664	$125,478

NA06NMF4330056

MARFIN PROJECT SUMMARY

Project Title: Incorporating Protogyny into Stock Assessment Models.

Project Status/Duration: New __X__ Con't ___ Project Period: 24 months

Name, Address, and Telephone Number of Applicant:

Dr. Brian R. Murphy
Department of Fisheries and Wildlife Sciences
Virginia Tech
Blacksburg, VA 24061-0321
Phone: 540-231-6959

Principal Investigator(s) and Brief Statement of Qualifications:
Dr. Brian R. Murphy is the Director of the Virginia Tech Conservation Management Institute and Professor of Fisheries in the Department of Fisheries and Wildlife Science at Virginia Tech. He has published 66 manuscripts in 25 different peer-reviewed journals.

Michelle L. Davis is a research associate at Virginia Tech and has participated in the SEDAR-1 and SEDAR-2 workshops.

Dr. Yan Jiao is an associate professor in the Department of Fisheries and Wildlife Sciences at Virginia Tech and has published 14 manuscripts in peer-reviewed fishery journals.

Project Objective: 1. Develop population models for red porgy and black sea bass that incorporate protogynous hermaphroditism, and investigate a number of potential sex change mechanisms, including length, age, mean age of population, sex ratio, and abundance of males. 2. Determine whether protogyny affects the susceptibility to overharvest or likelihood of population recovery for these two species. 3. Construct population projections for red porgy and black sea bass for a range of management options to determine what general approaches to management (i.e., minimum size limits, quotas, etc.) are more appropriate for protogynous species. 4. Develop guidelines and recommendations for incorporating protogyny into future stock assessments and management decisions for protogynous species.

Specific Priority(ies) in Solicitation to Which Project Responds: B. Reef fish and other fishery resources associated with reef environments 2. Population assessment of reef fish and other fishery resources associated with reef environments (e) Stock assessments to establish the status of major recreational and commercial species or species complexes.

Summary of Work: Although a number of commercially and recreationally important reef fish species are protogynous hermaphrodites, current assessment techniques and management practices essentially ignore the implications of this life history approach. In this study, we propose to incorporate the effects of protogyny into population models for red porgy and black sea bass. First, we will compile available data for these species from SEDAR assessments, a literature review, and meetings with biologists and managers. We will develop relationships between sex change and internal factors (age and length) and external factors (mean age of population,

population sex ratio, abundance of males, etc.). We will use this information and available data to construct population models for these two species that include protogyny. These models will enable us to investigate the potential mechanisms of sex change (internal or external factors). We will determine whether protogyny causes these species to be more susceptible to overharvest. We will also develop projection models to project the populations forward in time to evaluate potential management options. We will investigate general management approaches, such as minimum size limits and quotas, to determine whether these approaches are appropriate for protogynous species. We will use the projection models to determine how protogyny affects susceptibility to overharvest and time to population recovery. We will compare age- and sex-structure of populations under the range of mechanisms of sex change (internal vs. external) and under various management options.

We will apply results from the red porgy and black sea bass population models to other protogynous fishes in the South Atlantic. We will conduct a literature review on these species and meet with biologists who are studying them to gather information on life history, population structure, and fishing pressure. We will then develop general guidelines and recommendations for incorporating protogyny into assessments and management for these other species. We will present results from this study in a manuscript in a peer-reviewed journal, a final report for MARFIN, and presentations at scientific meetings and the MARFIN conference.

This project involves extensive interaction with a number of agencies, including NMFS centers and labs, the NMFS-VT Research, Teaching, and Recruiting (RTR) Unit at Virginia Tech, state agencies, universities, and management councils. These sources will be vital in the development of the population models (i.e., providing data and insight on life history and biology of the species being studied) and the determination of possible management options to be evaluated. We plan to work closely with members of the NMFS-VT RTR Unit at Virginia Tech to draw on their stock assessment and modeling expertise.

	Year 1	Year 2	Total
Project Funding:			
Federal	$64,817	$70,536	$135,353
Non-Federal	$ 0	$ 0	$ 0
Total	$64,817	$70,536	$135,353

NA05NMF4331070

MARFIN PROJECT SUMMARY

Project Title: The Effect of Light and Hydraulic Regime on the Behavior and Swimming Ability of Dark Adapted Red Snapper, *Lutjanus campechanus*: Its Application to Bycatch Reduction

Project Status/Duration: New __X__ Con't ____ Project Period: 36 Months

Name, Address and Telephone Number of Applicant:

Glenn R. Parsons
Biology Department
The University of Mississippi
Shoemaker Hall Room 113
University, MS 38677
Phone: 662-915-7479

Principal Investigator(s) and Brief Statement of Qualifications:
Dr. Glenn R. Parsons: Has 25 years experience in fisheries research and has published 40 scientific publications.

Project Objective: The project objective is to examine various aspects of red snapper behavior that will be used to construct an effective bycatch reduction device.

Specific Priority(ies) in Solicitation to which Project Responds: The project responds to Priority A (Bycatch) 1 Shrimp trawl studies (c) Identification, development, and evaluation of gear, non-gear, and tactical fishing options to reduce bycatch.

Summary of Work: (For continuing projects, include progress to date) Red snapper are negatively phototactic. This project will explore the effects of illumination on snapper behavior. In addition, the project will examine how snapper respond to flow quality as well as investigate the optomotor response. The work will be closely coordinated with NMFS personnel.

	Year 1	Year 2	Year 3	Total
Project Funding:				
Federal	$97,774	$90,274	$108,964	$297,011
Non-Federal	$ 0	$ 0	$ 0	$ 0
Total	$97,774	$90,274	$108,964	$297,011

NA05NMF4331072

MARFIN PROJECT SUMMARY

Project Title: Estimation of the Source of Red Snapper Recruits to West Florida and South Texas with Otolith Chemistry: Implications for Stock Structure and Management

Project Status/Duration: New __X__ Con't ____ Project Period: 36 Months

Name, Address and Telephone Number of Applicant

William Patterson
The University of West Florida
11000 University Parkway
Pensacola, Florida 32514-5750
Phone: 850-857-6123

Principal Investigator(s) and Brief Statement of Qualifications:
Dr. William F. Patterson: Has five years of experience conducting research on red snapper settlement.
Dr. James H. Cowan, Jr.: Has over 15 years of experience conducting research on fish life history, trophic dynamics and bioenergetics.

Project Objective: The primary objective is to estimate the sources of recruits to recovering red snapper populations on the west coast of Florida and southeast Texas continental shelves with natural tags derived from otolith elemental and stable isotope signatures. The project will also estimate the sources of recruits to shelf areas in the northwestern Gulf off Louisiana and the north central Gulf off Alabama/Mississippi.

Specific Priority(ies) in Solicitation to which Project Responds: The project responds to priorities B (Reef Fish) l (b) Reproduction studies of reef fish and Priority C (Red Snapper Research) 2 Red snapper population assessment and 3 Management of red snapper.

Summary of Work: (For continuing projects, include progress to date) The project will 1) determine natural tags of age-0 red snapper nursery regions (n = 4 in U.S. Gulf and 2 in Mexican waters) for the 2004, 2005, and 2006 year classes based on otolith elemental and stable isotope chemistry; 2) estimate time-specific and cohort-specific post-settlement movement of sub-adult and adult red snapper based on chemical analysis of otolith cores of sub-adult and adult fish collected from four regions in the U.S. Gulf in summer 2005, 2006 and 2007; and 3) draw inferences about population structure from estimated post-settlement movement and mixing dynamics.

	Year 1	Year 2	Year 3	Total
Project Funding:				
Federal	$108,216	$114,110	$139,499	$361,825
Non-Federal	$ 0	$ 0	$ 0	$ 0
Total	$108,216	$114,110	$139,499	$361,825

NA05NMF4331082

MARFIN PROJECT SUMMARY

Project Title: Determination of the Limiting Effect of Currents on Distribution of Red Snapper Populations in the Gulf of Mexico

Project Status/Duration: New __X__ Con't _____ Project Period: 24 Months

Name, Address and Telephone Number of Applicant:

Harriet Perry
The University of Southern Mississippi
118 College Drive # 5157
Hattiesburg, MS 39406
Phone: 228-872-4218

Principal Investigator(s) and Brief Statement of Qualifications:
Harriet Perry has 36 years experience in fisheries science including the study of larval fishes. Dr. Donald Johnson has extensive experience in the collection, analysis and modeling of ocean currents, and in the application of advective processes to fisheries problems.

Project Objective: The primary objective of the project is to examine circulation-induced recruitment variability in red snapper populations and to evaluate the potential for reestablishment of red snapper populations in depleted areas by naturally occurring larval transport processes.

Specific Priority(ies) in Solicitation to which Project Responds: This project responds to Priority C (Red Snapper Research) 2 Red snapper population assessment. The project addresses the habitat and limiting factors for important red snapper populations in the Gulf of Mexico.

Summary of Work: (For continuing projects, include progress to date) Patterns of red snapper larval dispersal in the Gulf of Mexico will be determined using archived SEAMAP ichthyoplankton data and NMFS spawning location data together with fields of observed and modeled (data assimilated) currents. Initial research efforts will focus on assembling and preparing archived current data, validating current fields, and examining the dispersion of Alarvae@ from selected locations to determine geographic dispersion scales and retention potential and flux of larvae to adjacent areas. Subsequent modeling of the advective processes will provide the means to assess the influence of oceanographic events on larval distribution and recruitment.

	Year 1	Year 2	Total
Project Funding:			
Federal	$ 97,864	$ 95,624	$193,488
Non-Federal	$ 16,441	$ 16,065	$ 32,506
Total	$114,305	$111,689	$225,994

NA06NMF4330054

MARFIN PROJECT SUMMARY

Project Title: The Use of Ultrasonic Telemetry to Estimate Natural and Fishing Mortality of Red Snapper *Lutjanus campechanus*

Project Status/Duration: New __X__ Con't ___ Project Period: 36 months

Name, Address, and Telephone Number of Applicant:

Marine Fish Laboratory
Department of Fisheries and Allied Aquacultures
Auburn University
8300 State Highway 104
Fairhope, AL 36532

Principal Investigator(s) and Brief Statement of Qualifications: Dr. Stephen T. Szedlmayer has twenty-seven years of experience in the life history study of marine fish

Project Objective: We will 1) estimate mortality. From transmitter tag returns and telemetry movement information, we will be able to separate movement from fishing mortality and estimate natural mortality, 2) determine both short-term and long-term residency, 3) determine movements of larger snapper compared to previous studies, 4) compare red snapper residence and movement patterns between natural and artificial reefs, and 5) determine how red snapper movement patterns relate to environmental parameters.

Specific Priority(ies) in Solicitation to Which Project Responds: C. Red snapper research, 2. red snapper population assessment, (c) estimates red snapper mortality rates through methods such as tagging.

Summary of Work: We will estimate natural and fishing mortality of red snapper using ultrasonic telemetry. Fishing mortality will be estimated from the recovery of tagged fish. Natural mortality will be estimated from expelled tags. Loss of tagged fish due to movement will be subtracted because we will document any movement out of the area with the remote receivers. We will also compare the habitat value of natural and artificial reefs in the northeast Gulf of Mexico by estimating the home range, diel patterns, and residency of red snapper from the telemetry data.

	Year 1	Year 2	Year 3	Total
Project Funding:				
Federal	$103,613	$110,272	$ 87,251	$301,136
Non-Federal	$ 19,661	$ 20,645	$ 21,679	$ 61,985
Total	$123,274	$130,917	$108,930	$363,121

NA05NMF4331078

MARFIN PROJECT SUMMARY

Project Title: Size and Age Structure and Catch and Release Mortality of Sub-adult and Adult Red Drum in the Tampa Bay Estuary and Nearshore Gulf of Mexico Waters

Project Status/Duration: New X Con't ____ Project Period: 36 Months

Name, Address and Telephone Number of Applicant:

Florida Fish and Wildlife Conservation Commission
100 Eighth Avenue SE
St. Petersburg, FL 33701-5020
Phone: 727-896-8626 ext 2052

Principal Investigator(s) and Brief Statement of Qualifications:
Dr. Theodore S. Switzer has experience in oceanography and experimental statistics.
Mr. Michael Murphy has 22 years experience on life history and population dynamics research on Florida fishes.

Project Objective: The primary objective of the project is to describe the size and age structure of sub-adult and adult red drum populations in the Tampa Bay estuary and surrounding nearshore Gulf of Mexico waters. The project will track recruitment of early life stages of red drum into the sub-adult and adult populations.

Specific Priority(ies) in Solicitation to which Project Responds: This project responds to Priority E (Groundfish and Estuarine Fishes) 1 Red drum and Priority F (Essential Fish Habitat) 6 Develop information on recruitment of estuarine-dependent early life stages into coastal and nearshore adult populations.

Statement of Work: (For continuing projects, include progress to date) The project will sample sub-adult and adult red drum in the Tampa Bay estuary. A spotter plane will be used to locate red drum in nearshore waters. Approximately 1,000 fish will be sampled each year for length, weight, age and sex. Otoliths will be used to age fish. Red drum will be tagged and held in floating pens for 48 hours to determine initial tagging and discard mortality. Mark and recapture experiments will be used to track recruitment of early life stages into sub-adult and adult populations.

	Year 1	Year 2	Year 3	Total
Project Funding:				
Federal	$132,050	$133,309	$133,934	$399,302
Non-Federal	$ 0	$ 0	$ 0	$ 0
Total	$132,050	$133,309	$133,934	$399,302

NA06NMF4330051

MARFIN PROJECT SUMMARY

Project Title: Assessing Population Trends of Demersal Fishes and Invertebrates from Long-term Inshore and Offshore Fishery-independent Surveys

Project Status/Duration: New __X__ Con't ___ Project Period: 24 months

Name, Address, and Telephone Number of Applicant:

Harriet M. Perry and Ralf Riedel
Center for Fisheries Research and Development
Gulf Coast Research Laboratory
University of Southern Mississippi
P.O. Box 7000, Ocean Springs, MS 39566-7000
228-872-4218; 228-818-8803;
Harry Blanchet
Louisiana Department of Wildlife and Fisheries
P.O. Box 98000, Baton Rouge, LA 70898-9000
Phone: 225-765-2889

Principal Investigator(s) and Brief Statement of Qualifications:
Ralf Riedel – experience in collection, analysis and modeling of long-term data
Harriet M. Perry – 36 years experience in fisheries science and administration of federally funded projects
Harry Blanchet – 25 years experience in fisheries science; collection and analysis of data from multiple sources

Project Objective: To investigate trends in abundance of economically/ecologically important species of finfish and crustaceans in estuarine and offshore waters of the northern GOM using long-term fishery-independent survey data from state (Mississippi and Louisiana) and federal waters (NMFS SEAMAP fall surveys). Innovative analytical approaches consisting of univariate and multivariate techniques will be used to examine the dynamics of population fluctuations and to assess the resilience of communities to environmental perturbation.

Specific Priority(ies) in Solicitation to Which Project Responds: addresses priorities concerned with "Groundfish and Estuarine Fishes"

Summary of Work: We propose to use univariate and multivariate analytical techniques and newly developed software applications to examine trends in abundance, community structure, and recruitment of important inshore and offshore fishes and crustaceans. We will determine potential sentinel species or a complex of species for the early detection of changes in fisheries resources and the value of fish/crustacean population sampling as an indicator of ecosystem change. We will work closely with state and federal agencies charged with resource management, so that potential mitigating actions, management options, and research priorities for the long-term sustainability of fisheries resources can be formulated. We will disseminate data through appropriate channels.

NA06NMF4330051

MARFIN PROJECT SUMMARY (CON'T)

	Year 1	Year 2	Total
Project Funding:			
Federal	$140,489	$134,239	$274,728
Non-Federal	$ 21,082	$ 15,832	$ 36,914
Total	$161,571	$150,071	$311,642

NA05NMF4331080

MARFIN PROJECT SUMMARY

Project Title: Studies on Dolphin (*Coryphaena hippurus*) and greater amberjack (*Seriola dumerili*) in the northcentral Gulf of Mexico: Early life history and recruitment of larvae and young juveniles to pelagic *Sargassum* Habitat.

Project Status/Duration: New __X__ Con't _____ Project Period: 24 months

Name, Address and Telephone Number of Applicant:

Bruce H. Comyns
Department of Coastal Sciences
The University of Southern Mississippi
118 College Drive #5157
Hattiesburg, MS 39406-0001
Phone: 228-872-4267

Principal Investigator(s) and Brief Statement of Qualifications:
Dr. Bruce H. Comyns has 22 years of experience working with larval and young juvenile marine fishes and has published numerous articles on age, growth, and taxonomy of young fishes.
Dr. Eric Hoffmayer has extensive experience with the diversity and abundance of pelagic species associated with *Sargassum* habitat.
James S. Franks has over 30 years of experience working with marine species and has numerous publications.

Project Objective: The project objectives include: 1) develop taxonomic characters to distinguish the larvae of greater amberjack from three other species of *Seriola* in the northern Gulf; 2) develop an understanding of recruitment of larval and juvenile dolphin and greater amberjack to *Sargassum* habitat; 3) determine relative abundance and age of larval and juvenile dolphin and greater amberjack collected from isolated clumps and large accumulations of pelagic *Sargassum* habitat; and 4) compare the age and growth of larval and juvenile dolphin and greater amberjack collected from isolated clumps and large accumulations of pelagic *Sargassum* habitat.

Specific Priority(ies) in Solicitation to which Project Responds: This work responds to priority F (Essential Fish Habitat) 2 Develop scientific data to allow the identification and refinement, as appropriate, of EFH designation for the various life stages of Federally managed species.

Summary of Work: (For continuing projects, include progress to date) The project will develop taxonomic characters to identify larval greater amberjack. It will also provide information on the life history of dolphin and greater amberjack and develop an understanding of recruitment processes of these two species to pelagic Sargassum habitat in the north central Gulf.

NA05NMF4331080

MARFIN PROJECT SUMMARY (CON'T)

	Year 1	Year 2	Total
Project Funding:			
Federal	$109,715	$112,330	$222,045
Non-Federal	$ 30,529	$ 31,513	$ 62,042
Total	$140,244	$143,843	$284,087

NA05NMF4331077

MARFIN PROJECT SUMMARY

Project Title: The Effects of Lobster Traps on Coral Communities in the Florida Keys

Project Status/Duration: New __X__ Con't ____ Project Period: 12 Months

Name, Address and Telephone Number of Applicant:

Thomas R. Mathews
Florida Fish & Wildlife Conservation Commission
2796 Overseas Hwy., Suite 119
Marathon, FL 33050
Phone: 305-289-2330

Principal Investigator(s) and Brief Statement of Qualifications:
Thomas R. Mathews has 15 years experience conducting research and providing management advice concerning the Caribbean spiny lobster fishery.

Project Objective: The goal of the project is to address the ecological sustainability of coral communities with current trap fishing practices in the spiny lobster fishery. The short-term objectives include: 1) determine the impact of lobster traps on coral communities, and 2) determine if the cumulative effects of trap fishing have altered the distribution and composition of corals in areas with different trap densities.

Specific Priority(ies) in Solicitation to which Project Responds: This project responds to priority F (Essential Fish Habitat) 1 Determine the effects of fishing gears (e.g., trawls and traps) and practices (e.g., gear retrieval and anchoring) on EFH, and 4 Develop GIS mapping protocols and tools to allow the presentation of EFH, HAPC, fishery distribution information, and other relevant data for the southeastern United States, including Puerto Rico and the U.S. Virgin Islands.

Statement of Work: (For continuing projects, include progress to date) The project will conduct a study of trap movement during storm events and examine the diversity and colony size of corals in relation to the number of traps that were fished in different areas over the last ten years. The study will develop GIS mapping protocols to plot the distribution of traps from fishing effort data and examine the relationship to coral diversity and colony size. Additional GIS mapping protocols will be developed to plot the distribution of commercial diving for lobster.

	Year 1	Total
Project Funding:		
Federal	$57,935	$57,935
Non-Federal	$ 0	$ 0
Total	$57,935	$57,935

NA05NMF4331073

MARFIN PROJECT SUMMARY

Project Title: Distribution of Bottom Habitat Information in the Gulf of Mexico

Project Status/Duration: New X Con't ____ Project Period: 36 Months

Name, Address and Telephone Number of Applicant:

Gulf States Marine Fisheries Commission
P. O. Box 726
Ocean Springs, MS 39556-0726
Phone: 228-875-5912

Principal Investigator(s) and Brief Statement of Qualifications:
Mr. Jeffrey K. Rester is the SEAMAP Program Coordinator and has seven years experience in habitat and SEAMAP activities.

Project Objective: The objective of the project is to create and distribute a digital spatial database of bottom habitats on the continental shelf and slope from the Texas/Mexico border to the southern tip of Florida. The database will be created from the recovery, interpretation, and integrations of existing data for the region. The data will be organized spatially in ArcGIS format and will be available via printed document, CD-ROM, and on the web.

Specific Priority(ies) in Solicitation to which Project Responds: This project responds to priority F (Essential Fish Habitat) 4 Develop geographic information system (GIS) mapping protocols and tools to allow the presentation of EFH, HAPC, fishery distribution information, and other relevant data for the southeastern United States, including Puerto Rico and the U.S. Virgin Islands.

Summary of Work: (For continuing projects, include progress to date) The project will develop guidelines and protocols for including data. A contractor will build and maintain a searchable database containing all pertinent data sets. A GIS contractor will be hired to standardize, convert, and grid all collected data. The GIS contractor will also begin to develop Federal Geographic Data Committee (FGDC) compliant metadata for all data used in the project. GIS layers will be produced and contain bottom-type information along with other data such as gear-type, depth, and relief. Related information such as study name, principal investigator, contact information, etc., will be stored in linked data tables. FGDC compliant metadata will be delivered in HTML and SGML format. A summary report, in printed and CD-ROM formats will be produced.

	Year 1	Year 2	Year 3	Total
Project Funding:				
Federal	$96,660	$86,360	$27,601	$210,621
Non-Federal	$ 0	$ 0	$ 0	$ 0
Total	$96,660	$86,360	$27,601	$210,621

NA17FF2868

MARFIN PROJECT SUMMARY

Project Title: An Intertemporal and Spatially Dynamic Supply Model of the Gulf of Mexico Shrimp Fleet for Use in Management and Bycatch Reduction

Project Status/Duration: New _____ Con't ___X_ Project Period: 36 Months

Name, Address, and Telephone Number of Applicant:

Board of Supervisors
Louisiana State University & Agricultural and Mechanical College
Office of Sponsored Programs
330 Thomas Boyd Hall
Baton Rouge, LA 70803-2701
Phone: 225-578-3386

Principal Investigator(s) and Brief Statement of Qualifications:

Dr. Walter R. Keithly, Jr., Associate Professor, School of the Coast & Environment.
Dr. Richard Kazmierczak, Jr., Associate Professor, Department of Agricultural Economics.

Project Objective: The overall purpose of this study is threefold: (1) to develop defensible parameter estimates that can assist in explaining changes in the behavior of shrimp fishermen in relation to economic stimuli and/or potential management measure; (2) to develop more defensible measures of effort and bycatch; and (3) to use these parameter estimates to forecast levels of bycatch at a temporal and spatial scale.

Specific Priority(ies) in Solicitation to which Project Responds: This project responds to Priority G (Economic and Sociocultural Studies) 2 Development of economic incentives and other innovative alternatives, including bycatch quotas, to gear and season/area restrictions as ways to reduce bycatch.

Summary of Work: (For continuing projects, include progress to date) Secondary data, including the NMFS Vessel Operating Unit File and the NMFS Shrimp Landings File, will be used to accomplish the objectives set forth in this three-year research proposal. Specifically, the changes in the behavior of Gulf of Mexico shrimp fishermen in response to economic stimuli and management measures will first be derived using microeconomic and econometric considerations. These parameter estimates derived from this analysis will then be used to develop a joint production function that will allow one to examine expected changes in bycatch in relation to the changes in behavior of shrimp fishermen due to changes in economic stimuli or management measures.

	Year 1	Year 2	Year 3	Total
Project Funding:				
Federal	$ 94,970	$106,274	$ 85,989	$287,233
Non-Federal	$ 42,745	$ 43,558	$ 42,098	$128,401
Total	$137,715	$149,832	$128,087	$415,634

NA06NMF4330053

MARFIN PROJECT SUMMARY

Project Title: Economic Analysis of Red Snapper Bycatch Reduction Management Alternatives for Directed and Non-directed Fisheries

Project Status/Duration: New X Con't ___ Project Period: 24 months

Name, Address, and Telephone Number of Applicant:

Texas Agricultural Experiment Station
College Station, Texas 77843-2142
Phone: 979-845-4761

Principal Investigator(s) and Brief Statement of Qualifications:
Dr. Wade L. Griffin possesses a wealth of experience related to this project. Dr. Griffin has completed twenty-five projects related to the Gulf of Mexico, including real effort measurement, Texas closure, TEDs, and finfish bycatch.
Dr. Richard Woodward is an expert in the area of fisheries management, dynamic optimization, and transferable rights. He has conducted analysis on resource management issues including fisheries, forestry, and water pollution.

Project Objective: (1) To develop a model to include shrimp, red snapper, vermilion snapper, red grouper and gag grouper as individual species; (2) To develop a model to include shrimp trawls, handlines (including bandit) and longlines gear; (3) To estimate economic impact and stock effect of red snapper bycatch reduction achieved by management alternatives that affect the recreational and commercial red snapper fisheries; (4) To estimate the reduction in the red snapper bycatch by examining management alternatives that affect the non-directed fisheries such as shrimp and other finfish; (5) To identify the preferred combination of management alternatives to achieve a reduction in red snapper bycatch that produces the greatest economic surplus and is most effective in leading to the recovery of red snapper stocks.

Specific Priority(ies) in Solicitation to Which Project Responds: This proposal responds to priorities G.1. that are associated with economic and socio-cultural studies and C.3.(a & b) that relate to management of red snapper. The proposal considers both the issues of economic and socio-cultural studies of bycatch, G.1., and directed red snapper fisheries policies, C.3.(a & b).

Summary of Work: Year 1: (Task 1) A simulation model will be developed which includes shrimp, red snapper, vermilion snapper, red grouper, gag grouper, and all other reef fish. The model will include ten vessels classes which include three type of shrimp vessels, four types of reef fish vessels and three type of recreational vessels (Task2) A literature review of the **S**outh**E**ast **D**ata **A**ssessment and **R**eview (SEDAR) process and revenant amendments and proposed amendments for reef fish and shrimp will be conducted to determine relevant ranges of various policies for both the directed and non-directed fisheries to include in the analysis. Year 2: (Task 3) One-year simulation runs will be conducted. The results will be assimilated in various tables and graphs for a comparative analysis of directed and non-directed policies. (Task 4) Based on the one- year simulation results, selected management alternatives will be used in a twenty-

year simulation analyses that will produce the discounted consumer and producer surplus and the amount the red snapper stock at the end of the 20 years. (Task 5) Based on these 20-year simulation runs, quantitative comparisons of the different management alternatives will be developed indicating the economic consequences of the alternative policies and their relative impacts upon the red snapper bycatch and stocks.

	Year 1	Year 2	Total
Project Funding:			
Federal	$54,108	$53,864	$107,972
Non-Federal	$40,656	$41,630	$ 82,186
Total	$94,764	$95,494	$190,158

NA06NMF4330055

MARFIN PROJECT SUMMARY

Project Title: Angler Heterogeneity and the Species-Specific Demand for Recreational Fishing in the Southeast United States

Project Status/Duration: New __X__ Con't ___ Project Period: 24 months

Name, Address, and Telephone Number of Applicant:

John Whitehead
Department of Economics
Appalachian State University, Boone, NC 28608
Phone: 828-268-8991

Principal Investigator(s) and Brief Statement of Qualifications:
John Whitehead, PhD University of Kentucky, Associate Professor, Appalachian State University
Tim Haab, PhD University of Maryland, Associate Professor, Ohio State University
Rob Hicks, PhD University of Maryland, Assistant Professor, College of William and Mary
Kurt Schnier, PhD University of Arizona, Assistant Professor, University of Rhode Island

Project Objective: This research will help identify the extent of targeting heterogeneity its impacts on the economic value of fishing (i.e., welfare impacts). The research will have significant benefits for fisheries management since it will allow policy makers to gauge the impacts of common management tools for different species across different types of anglers (e.g., catch and release vs. catch and keep).

Specific Priority(ies) in Solicitation to Which Project Responds: G. Economic and Sociocultural Studies, Item 3. Estimation of demand models for recreational fishing trips when the target species include a single species, an aggregate of related species, or all species combined.

Summary of Work: This work will use the Marine Recreational Fishing Statistics Survey (MRFSS) conducted by the National Marine Fisheries Service in the Southeast United States. We will focus on years in which the MRFSS economic add-on has been conducted (years 1997 and 2000). The MRFSS intercept data will be combined with the economic add-on data to characterize anglers and their spatial fishing choices. Fishing quality for individual species and aggregate species groups will be calculated using the biological intercept data. We will combine the fishing quality data with the angler choice data to estimate conditional logit, nested logit, random parameter logit, and latent class logit models of fishing site choice. When estimating these models we will examine how different characterizations of targeting behavior impact the economic value of fishing quality. With enough spatial and temporal variation in bag and size limits, and seasonal closures, we will also show how targeting behavior and the economic value of fishing quality are affected by recreational fisheries management.

NA06NMF4330055

MARFIN PROJECT SUMMARY (CON'T)

	Year 1	Year 2	Total
Project Funding:			
Federal	$49,419	$26,952	$76,371
Non-Federal	$ 0	$ 0	$ 0
Total	$49,419	$26,952	$76,371

NA05NMF4331079

MARFIN PROJECT SUMMARY

Project Title: Examination of Non-Fishery Factors in the Welfare of Fishing Communities in the Florida Keys: A Focus on the Cumulative Effects of Trade, Economic, Energy, and Aid Policies, Macroeconomic (County and Regional) Conditions, and Coastal Development on the Monroe County Commercial Fishing Industry

Project Status/Duration: New ____ Con't __X__ Project Period: 24 Months

Name, Address and Telephone Number of Applicant:

Manoj P. Shiviani
Rosenstiel School of Marine & Atmospheric Science
University of Miami
4600 Rickenbacker Causeway
Miami, FL 33149
Phone: 305-361-4608

Principal Investigator(s) and Brief Statement of Qualifications:
Mr. Manoj Shivlani has experience in fishery management, policy analysis, and marine protected areas. He also has experience with non-fishery impacts on fishery management.

Project Objective:
The primary goal of the project is to determine the cumulative impacts of non-fishery factors on the welfare of fishing communities in the Southeastern U.S., as exemplified in a case study of commercial fisheries in Monroe County. A secondary goal is to evaluate the impacts of non-fishing factors as they relate to opposing or complementary conditions, such as scalar (or size) comparisons between the fishing community and the larger community in which the former is nested. A final tertiary goal is to verify whether different fisheries (and hence different fishing communities) respond equally to non-fishing factors.

Specific Priority(ies) in Solicitation to which Project Responds: This work responds to Priority G (Economic and Sociocultural Studies) 15. Development of methodologies to accurately assess the cumulative economic and social impacts of fishery management regulations on fishermen and fishing communities, and to separate such from the impacts of non-fishery management factors.

Summary of Work: (For continuing projects, include progress to date) The project will develop a matrix model comprised of three interacting components: site characteristics, fisheries and fishing communities, and non-fishery factors. With the data gathered and results obtained for each component, it shall be possible to determine how changes (of scale or impact, among other modifications) in one component may affect the other components. In effect, the matrix shall incorporate a dynamic model that can be used to determine shifts occurring at the fishery and fishing community level that are precipitated as a consequence of non-fishery fluctuations and/or changes in site characteristics. The predictive power of such a matrix model extends beyond the Florida Keys case study, as it may, with area-specific modifications to matrix components, be used to evaluate similar impacts in other regions in the southeastern U.S. and elsewhere.

NA05NMF4331079

MARFIN PROJECT SUMMARY (CON'T)

	Year 1	Year 2	Total
Project Funding:			
Federal	$34,855	$36,546	$71,401
Non-Federal	$ 8,714	$ 9,137	$17,851
Total	$43,569	$45,683	$89,252

Appendix 4

MARFIN PUBLICATIONS AND REPORTS

MARFIN PUBLICATIONS

Ball, A.O., M.G. Beal, R.W. Chapman, G.R. Sedberry, (2006) Population structure of red porgy, *Pagrus pagrus*, in the Atlantic Ocean. Accepted with revisions by Marine Biology.

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Fitzhugh, G.R., F.C. Coleman, C.C. Koenig, C.B. Grimes and W.A. Sturges

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McBride, R.S. and M. Johnson

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McGovern, J. C., G. R. Sedberry, H. S. Meister, T. M. Westendorff, D. M. Wyanski and P. J. Harris

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Saillant, E. and J. R. Gold

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In Press. Pockmarks on the outer shelf in the northern Gulf of Mexico: Gas-release features or habitat modifications by fish. Proc. Benthic Habitat Meetings, Tampa, Florida. AFS, ESA, NMFS.

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Woods, M. K., A. J. Fischer, J. H. Cowan, Jr. and D. L. Nieland

In Press. Size and age at maturity of female red snapper *Lutjanus campechanus* in the northern Gulf of Mexico. Proc. Of the Gulf and Caribbean Fisheries Institute 54.

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Appendix 5

Federal Funding Opportunity (FFO)

MARINE FISHERIES INITIATIVE PROGRAM (MARFIN) FY 2006
FEDERAL FUNDING OPPORTUNITY

EXECUTIVE SUMMARY

Federal Agency: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

Funding Opportunity: Subject to the availability of funds, NMFS (hereafter referred to as "we" or "us") announces the availability of Federal assistance to award cooperative agreements under the Marine Fisheries Initiative (MARFIN), for research and development projects in the Gulf of Mexico and off the U.S. South Atlantic Coastal States. This announcement provides guideline, evaluation criteria, and selection procedures for the program.

Announcement Type: Initial Announcement

Catalog of Federal Domestic Assistance Number: 11.433 Marine Fisheries Initiative.

Dates: We must receive your application by 5 p.m. Eastern Daylight Time on August 15, 2005. Applications received after that time will not be considered for funding.

Contact Information: Scot Plank, State/Federal Liaison Branch
263 13th Ave South
St. Petersburg, FL 33701
Scot.Plank@noaa.gov or (727) 824-5324

Funding Opportunity Description: The MARFIN program provides financial assistance for research and development projects that optimize the use of fisheries in the Gulf of Mexico and off the South Atlantic states of North Carolina, South Carolina, Georgia, and Florida involving the U.S. fishing industry (recreational and commercial), including fishery biology, resource assessment, socioeconomic assessment, management and conservation, selected harvesting methods, and fish handling and processing.

I. Funding Opportunity Description

MARFIN is a competitive Federal assistance program that funds projects seeking to optimize research and development benefits from U.S. marine fishery resources through cooperative efforts involving the best research and management talents to accomplish priority activities. Projects funded under MARFIN provide answers for fishery needs covered by the NMFS Strategic Plan, available from the Southeast Regional Office (see Contact), particularly those goals relating to: rebuilding over-fished marine fisheries, maintaining currently productive fisheries, and integrating conservation of protected species and fisheries management. Funding priorities for MARFIN are formulated from recommendations received from non-Federal scientific and technical experts and from NMFS research and operations officials.

With the long term planning capabilities available through the Southeast Data Assessment and Review (SEDAR) process, the priorities are selected to coordinate assessment needs with this solicitation. Priority is given to funding projects in the subject areas listed in this section, but proposals in other areas are considered on a funds-available basis. There is no preference between short-term and long-term projects.

You are encouraged to address one of the priority areas listed below as they pertain to Federally managed species or species relevant to Federal fisheries management. If you select more than one priority, you should list first on your application the priority that most closely reflects the objectives of your proposal. Projects should focus on the greatest probability of recovering, maintaining, improving, or developing fisheries; improving the understanding of factors affecting recruitment success; and/or generating increased values and recreational opportunities for fisheries.

A. Bycatch

The bycatch of biological organisms (including interactions with sea turtles and marine mammals) by various fishing gears can have wide-reaching impacts from a fishery's management and an ecological standpoint, with the following major concerns:

1. Shrimp trawl fisheries. Studies are needed to contribute to the regional shrimp trawl bycatch program being conducted by NMFS in cooperation with state fisheries management agencies, commercial and recreational fishing organizations and interests, environmental organizations, universities, Councils, and Commissions. Specific guidance and research requirements are contained in the Cooperative Bycatch Plan for the Southeast, available from NMFS (see Contact). In particular, the studies should address:

(a) Data collection and analyses to expand and update current bycatch estimates, temporally and spatially emphasizing areas of greatest impact by shrimping. Sampling effort should include estimates of numbers, weight, and random samples of size (age) structure of associated bycatch complex. The statistical design and extent of the shrimp-trawl observation program should ensure that the bycatch data collected are appropriate and sufficient for stock assessment of the bycatch species, specifically red snapper.

(b) Identification, development, and evaluation of gear, non-gear, and tactical fishing options to reduce bycatch.

(c) Obtaining better estimates of fishing effort in the shrimp fishery, which might be done through vessel monitoring systems, electronic logbooks, or otherwise.

2. Reef fish fisheries. The reef fish complex is exploited by a variety of fishing gear and tactics. The following research on bycatch of reef fish species is needed: Characterization and assessment of the impact of bycatch of undersized target species, including release mortality, during recreational fishing and during commercial longline, bandit gear and trap fishing; characterize the species composition, age, size, and sex composition, and disposition (e.g. discard mortality rates) of all fishes caught by commercial fishermen, with respect to depth and latitude as well as estimate effort with respect to depth and latitude. Species of special interest include red snapper, vermilion snapper, white grunt, red grouper, yellowedge grouper, tilefish, greater amberjack, and gray triggerfish.

B. Reef Fish and other Fishery Resources Associated with Reef Environments

Some species within the reef fish complex are exhibiting signs of being overfished, either because of directed efforts or because of being the bycatch of other fisheries. Reef fish are vulnerable to overfishing, because they tend to concentrate over specific types of habitat. This behavior pattern can make traditional fishery statistics misleading. Priority research areas include:

1. Collection of basic biological data for species in commercially and recreationally important fisheries. Life history studies that cover the complete geographic range of the species for red grouper, yellowfin grouper, goliath grouper (especially early life history, bioenergetics, and trophic relationships), white grunt, mutton snapper, gray triggerfish, and greater amberjack.

(a) Age and growth of reef fish:

(1) Description of age and growth patterns, especially for vermilion, gray, and cubera snappers; gray triggerfish; black grouper; hogfish; red porgy; and other less dominant stocks in the management units for which data are lacking for the Caribbean. Red hind, coney, graysby, warsaw, speckled hind and other less dominant species in the management units in the South Atlantic, Gulf, and Caribbean require more age information. Determine better methods for aging goliath grouper, and standardize techniques for aging yellowedge grouper and tilefish.

(2) Collect otoliths on groupers, snappers and other reef fish according to Gulf States Marine Fisheries Commission (GSMFC) otolith manual. If proposal is selected for funding, coordinate studies and design of sampling systems to provide production-style aging programs for the reef fish fishery with Steve VanderKooy at GSMFC, (228) 875-5912. Analyze age information (by gear and sector) considering temporal and geographic effects for red grouper.

(3) Age sampling from commercial, head boat, and Marine Recreational Fisheries Statistics Survey (MRFSS) that is representative of the fisheries for vermilion snapper, white grunt, yellowedge grouper, tilefish, gray triggerfish and greater amberjack.

(b) Reproduction studies of reef fish:

(1) Maturity schedules, fecundity, and sex ratios of commercially and recreationally important reef fish, such as red hind, coney, graysby, warsaw, and speckled hind in the Gulf of Mexico and South Atlantic. Fecundity estimates by length and age for gray triggerfish, greater amberjack, tilefish, yellowedge grouper, white grunt, vermilion snapper, and red grouper.

(2) Develop further understanding of the reproductive biology of goliath grouper. Identify spawning locations, duration, periodicity, and determine if there is spawning migration.

(3) Obtain information on changes in mangrove abundance and distribution that serve as a nursery area for goliath grouper.

(c) Recruitment of reef fish and other fishery resources associated with reef environments.

(1) Source of recruitment in Gulf and South Atlantic waters, especially for snappers, groupers, amberjacks, other reef fish and spiny lobster.

(2) Annual estimation of the absolute or relative recruitment of juvenile snapper, or grouper to estuarine and nearshore habitats. Development of recruitment indices for vermilion snapper, white grunt, goliath grouper, gray triggerfish, and greater amberjack.

(3) The contribution of live-bottom habitat and habitat areas of particular concern (Oculina Banks) off Fort Pierce, Florida and off west central Florida to reef fish recruitment.

(d) Stock structure of reef fish and other fishery resources associated with reef environments.

(1) Movement and migration patterns of commercially and recreationally valuable reef fish species, especially gag in the Gulf and South Atlantic and greater amberjack between the South Atlantic and Gulf.

(2) Genetic research on stock structure of red grouper in the Gulf of Mexico.

(3) Obtain stock structure of goliath grouper.

2. Population assessment of reef fish and other fishery resources associated with reef environments.

(a) Determine age specific mortality and mortality rates especially for white grunt, vermilion snapper, red grouper, yellow edge and yellowfin grouper, mutton snapper, goliath grouper, gray triggerfish, and greater amberjack.

(b) Estimate population size, obtain information on the historical abundance of goliath grouper, and estimate unrecorded mortality from accidental and intentional sources.

(c) Description of habitat and fish populations in the deep reef community and the prey distributions supporting the community.

(d) Development of better indices of abundance that cover a broader spatial/seasonal scale for vermilion snapper, gray triggerfish, and greater amberjack for important reef fish species in the South Atlantic and Gulf, especially red grouper, Goliath grouper, speckled hind, red porgy, Warsaw grouper, Nassau grouper, tilefish, snowy grouper, vermilion snapper and red snapper.

(e) Stock assessments to establish the status of major recreational and commercial species or species complexes. Innovative methods are needed for stock assessments of aggregate stocks, including the effect of fishing on genetic structure and the incorporation of sex change for protogynous hermaphrodites into stock assessment models.

3. Management of reef fish:

(a) Research in direct support of management, including catch-and-release mortalities, by gear and depth. Species of specific interest are gray triggerfish, greater amberjack, yellowedge, yellowfin, and red grouper, tilefish, mutton snapper, and vermilion snapper.

(b) Research on management measures that will reduce release mortality.

(c) Collect data on the magnitude and size/age composition of vermilion snapper, yellowfin grouper, and mutton snapper that are discarded, by fishery and gear.

(d) Identify ways to design, manage, and implement a U.S. Caribbean fishing permit specific to gear or fishery.

(e) Collect, assemble, and computerize information on the commercial and recreational catches of yellowfin grouper and mutton snapper. Topics should include a description of the fisheries including gear used, length and frequency of trips, area and habitat sampled, number of fishers, and depth fished.

(f) Obtain data from Mexican Gulf catches of red grouper to improve the accuracy of assessments.

(g) Develop pilot programs supporting management of reef fish including,

(1) develop a pilot program for fisheries independent sampling of reef fish species, particularly grouper, tilefish, and red snapper,

(2) develop a pilot observer program to quantify, by reef fish fishery, bycatch, catch composition, size frequency, etc.,

(3) develop appropriate statistical approaches for collecting recreational data usable for regional monitoring of recreational quotas.

C. Red Snapper Research

1. Red snapper bycatch: The bycatch of red snapper can have significant impacts from a fisheries management and ecological standpoint. Research on bycatch of red snapper should focus on the following:

(a) Directed red snapper fisheries: The reef fish fishery is exploited by a variety of fishing gear and tactics. The following research on regulatory discards is needed to better evaluate the effectiveness of management measures such as minimum size limits and closed seasons:

(1) Development and evaluation of gear, fishing tactics, and management measures to minimize the bycatch of or increase the survival of discarded red snapper and other reef fish species.

(2) Characterization and assessment of the impact of bycatch of undersized reef fish species, including release mortality, during recreational and commercial fishing. Research on the catch-and-release mortality of red snapper and other reef fish species, by gear (e.g., capture by commercial bandit rigs that are electrically or hydraulically powered), fishery (e.g., headboat, private boat, charter boat, commercial), and depth. Studies are needed to specifically relate “sink or swim” data, which can be obtained through observer programs, with long-term survival rates.

(3) Research to document predation rates on discarded red snapper and other reef fish species.

2. Red snapper population assessment:

(a) Life history studies that cover the complete range of the species, including fecundity estimates by length and age. Fecundity samples are particularly needed from older red snapper.

(b) Estimates of red snapper abundance indices covering a broad seasonal/spatial scale, age structure, age specific mortality rates, and recruitment indices.

(c) Estimates of red snapper mortality rates, through methods such as tagging.

(d) Research (e.g. otolith analysis, tagging, etc.) to better describe stock structure and mixing rates. Research should include a review of oceanographic data to determine whether transport from the Campeche Banks could be supplying important numbers of larvae to the western stock.

(e) Review the value of the larval index given that many factors can mask the relationship of larvae to spawners.

(f) Examine the age structure of red snapper taken from longlines (survey and fishery) and other gear, to clarify geographic distribution of fish as they age.

(g) Conduct representative sampling of age- and length-composition consistently across area, time, and gear.

(h) Research to clarify the magnitude and timing of density dependent compensation in juveniles by estimating survival at different densities of juvenile abundance.

3. Management of red snapper.

(a) Research to evaluate the use of minimum size limits as a management tool in the red snapper fishery.

(b) Research to estimate, independently of any stock assessment, changes in catchability by gear over time.

(c) Utilize simulation studies to identify and evaluate appropriate management strategies (including use of various reference points) and corresponding assessment modeling approaches for the fishery complex (shrimp, red snapper, vermilion snapper, etc.). Research could also test the hypothesis that red snapper production is enhanced in some way by increased shrimp trawling.

D. Coastal Migratory Pelagic Fisheries

The commercial and recreational demand for migratory coastal pelagics has led to overfishing for certain species. Additionally, some are transboundary with Mexico and other countries and may ultimately demand international management attention. Current high priorities include:

1. Recruitment indices for king and Spanish mackerel, cobia, dolphin, wahoo, and bluefish, primarily from fishery-independent data sources.

2. Fishery-independent methods of assessing stock abundance of king and Spanish mackerel, dolphin, and wahoo.

3. Release mortality data for all coastal pelagic species. Age composition of commercial and recreational discards of king mackerel.

4. Improved catch statistics for all species in Mexican waters, with special emphasis on king mackerel, dolphin, and wahoo. This includes length-frequency and life history information.

5. Information on populations of coastal pelagics overwintering off the Gulf of Mexico and the South Atlantic states of North Carolina, South Carolina, Georgia, and Florida, especially concerning population size, age, and movement patterns; and for dolphin and wahoo during the entire year throughout their migratory patterns. Calculate the mixing rates for Atlantic/Gulf king mackerel on an annual basis and increase sampling intensity within the mixing zones with sample allocation that is representative of the fine scale distribution of the catch within the mixing zones.

6. Development of a practical method for aging dolphin.

7. Basic biostatistics for cobia, dolphin, and wahoo to develop age-length keys and maturation schedules for stock assessments and to evaluate stock structures.

8. Impact of bag limits on total catch and landings of king and Spanish mackerel, dolphin, wahoo, and cobia.

9. Increase sampling of size and age composition of the bluefish fisheries by gear type and statistical area.

10. Target commercial and recreational landings of bluefish for biological data collection.

11. Improved estimates of batch fecundity, spawning frequency, and age specific fecundity, including age and size at maturity, for king mackerel.

12. Evaluate spatial variability in size at maturity and fecundity at age among regions and migratory groups for king mackerel.

13. Determine age estimates for Western Gulf king mackerel.

14. Evaluate available sex ratio at size data to determine how sex ratios vary with size.

15. Obtain data from Mexican Gulf king mackerel catches.

16. Determine if king mackerel in the Eastern and western Gulf of Mexico are separate stocks.

E. Groundfish and Estuarine Fishes

Substantial stocks of groundfish and estuarine species occur in the Gulf of Mexico and South Atlantic. Most of the database for assessments comes from studies conducted by NMFS and state fishery management agencies. Because of the historical and current size of these fish stocks, of their importance as predator and prey species, and of their current or potential use as commercial and recreational fisheries, more information on their biology and life history is needed. Specific research needs are for red drum:

(a) Catch-and-release mortality rates from inshore and nearshore waters.

(b) Estimates of absolute abundance of red drum in the Gulf of Mexico and the Atlantic.

F. Essential Fish Habitat

Over the years, human activities have affected the quality and quantity of available habitat that is necessary to populations of recreationally and commercially important fish stocks. Data and information are needed to improve the identification and description of essential fish habitat (EFH). Current priorities for research in this are included:

1. Determine the effects of fishing gears (e.g., trawls and traps) and practices (e.g., gear retrieval and anchoring) on EFH, with emphasis on benthic habitats within the exclusive economic zone (EEZ) of the Caribbean, southern U.S. Atlantic, and Gulf of Mexico regions.

2. Develop scientific data to allow geographical EFH designations for the various life stages of Federally managed species.

3. Develop scientific data to allow the identification or refinement, as appropriate, of Habitat Areas of Particular Concern (HAPC) designation for the various life stages of Federally managed species.

4. Develop geographic information system (GIS) mapping protocols and tools to allow the presentation of EFH, HAPC, fishery distribution information, and other relevant data for the southeastern United States, including Puerto Rico and the U.S. Virgin Islands.

5. Characterize, using GIS, the spatial and temporal abundance and distribution of egg, larval, and juvenile life stages of managed species from the SEAMAP data files.

G. Economic and Sociocultural Studies

Social and economic assessments are required components of all fishery management plans and actions. These assessments support the accomplishment of management objectives while minimizing adverse social and economic impacts. Current priority research needs are:

1. Development and application of a model to evaluate the economic impacts of red snapper bycatch reduction. The model should explicitly examine the bycatch in the directed fishery (recreational and commercial red snapper fisheries) and non-directed fishery (commercial shrimp fishery and directed fisheries for other finfish). The model should explicitly consider the impacts on the red snapper fishery and the fisheries in which red snapper bycatch occurs. The model should describe criteria for determining the economically and socially efficient level of bycatch reduction.

2. Development of economic incentives and other innovative alternatives, including bycatch quotas, to gear and season/area restrictions as ways to reduce bycatch. The project should contrast the relative costs, potential gains, and level of bycatch reduction associated with traditional methods and any innovative alternatives addressed by the project.

3. Estimation of demand models for recreational fishing trips when the target species include a single species, an aggregate of related species, or all species combined. Studies using data from the Southeast economics add-ons to Marine Recreational Fisheries Statistics Survey are highly encouraged. Key species are red drum, king mackerel, Spanish mackerel, red grouper, gag, black grouper, dolphin, wahoo, vermilion snapper, yellowtail snapper, and Atlantic black sea bass. Fishing quality (stock size, catch per unit effort, average fish size) as a determinant of fishing demand should be emphasized. The models should be applicable to the evaluation of the economic impacts of common management tools, including, but not limited to, minimum and maximum size limits, bag limits, and seasonal closures.

4. Estimation of demand and supply models of for-hire trips. Studies using data from the Southeast economics add-ons to Marine Recreational Fisheries Statistics Survey charter captains telephone survey are highly encouraged. Evaluation of the headboat sector will require the collection of primary data from both anglers and vessel operators. Key species are red drum, king mackerel, Spanish mackerel, red grouper, gag, black grouper, dolphin, wahoo, vermilion snapper, yellowtail snapper, and Atlantic black sea bass. Fishing quality (stock size, catch per unit effort, average fish size) as a determinant of fishing demand should be emphasized. The models should be applicable to the evaluation of the economic impacts of common management tools, including, but not limited to, minimum and maximum size limits, bag limits, and seasonal closures. Motivational factors behind the selection of specific charter types, such as cost, trip duration (half day versus full day), time of day, size of the charter (number of passengers), services offered, etc., should be included as explanatory variables.

5. Design and evaluation of limited access options for all sectors of a specific fishery, including both the commercial and recreational sectors. Emphasis should be included, where appropriate, on different gears, modes of fishing, enforcement, and jurisdictional issues. Key species of emphasis are red snapper and grouper.

6. Estimation of fishing behavioral models, and effort supply and production functions for the commercial and for-hire sectors. Specific attention should be given to species target behavior, time and space decisions, and whether profit maximization is an appropriate motivational assumption for the supply of fishing effort. The intent of this research is to determine the basis upon which fishermen make their fishing related decisions (e.g., when to fish, where to fish, how much to fish, what species to target, what gear to use, etc.).

7. In-depth ethnographic profiles of communities in Louisiana. These include communities already identified as fishing communities and communities for which insufficient information exists to make status determination. Applicants should contact NOAA's National Marine Fisheries Service for appropriate prospective communities, based on the results of on-going investigations. Profiles should include descriptions of the community, commercial and recreational fishing-related activities and businesses, historical information on fishing related activities, community structure and social ties based on fishing, and changes in the community due to federal regulations on the fisheries.

8. Estimation of the non-market value of marine turtles, bottlenose dolphins, and right whales.

9. Examination of the costs and benefits of vessel and/or license buy-back programs. The analysis must include costs of the program and examination of alternative funding mechanisms. Key fisheries are red snapper, vermilion snapper, king mackerel, red grouper, gag, and South Atlantic shrimp.

10. Evaluation of alternative effort control management measures in federally managed commercial fisheries. The evaluation should apply to a specific fishery.
Key candidate species/fisheries are shrimp and reef fish. Analyses should include a comparison of potential economic, social, cultural, and ecological impacts at the vessel, individual, and community level, and examine the desirability of single species versus multiple species approaches.

11. Evaluation of the transference of fishing opportunity between commercial, recreational, and conservation sectors under a transferable rights program. Key fisheries are the red snapper, grouper (collectively), and reef fish (collectively).

12. Evaluation of the allocation of harvests (TAC/quotas) among competing user groups. Key fisheries include individual species (red snapper, vermilion snapper, king mackerel, red grouper, and gag) and species groups (grouper). The analysis should quantify the economic value to each sector and identify the allocation that maximizes the economic benefit to the nation, subject to the biological constraints specified by the respective rebuilding plans, where appropriate. Evaluation of the commercial sector should include analysis by gear type and fishing location (western and northern Gulf, eastern Gulf, Keys), while that of the recreational sector should distinguish between charter, party boat, and private angler by fishing location.

13. Develop an input-output model of the commercial fishing industry along the east coast of Florida (based on recommendations by NMFS economics staff). The project should include the development of seafood harvesting sectors in IMPLAN by area and gear type, and collection of basic data with which to implement the model.

14. Development of methodologies to accurately assess the cumulative economic and social impacts of fishery management regulations on fishermen and fishing communities.

II. Award Information

This document describes how you can apply for an award under the MARFIN Grant Program, and how we will determine which applications we will fund. We are soliciting applications for Federal assistance pursuant to 15 U.S.C. 713c-3(d). Proposals selected for funding through this solicitation will be implemented through a cooperative agreement.

NMFS will be substantially involved in planning, scheduling, conducting and analyzing proposed project activities through semi-annual reports and frequent contact with the grantee to help solve technical problems/situations as they arise during performance of the award.

Funding Availability: Approximately $2.5 million may be available in fiscal year (FY) 2006 for projects. This amount includes possible in-house projects. The NMFS Southeast Regional Office anticipates that typical project awards will range from $35,000 to $300,000. The average award is $108,000. Publication of this notice does not obligate NMFS to award any specific grant or cooperative agreement or any of the available funds. Project proposals accepted for funding with a project period over one year do not have to compete for the additional years of funding. However, funding for the additional years is contingent upon the availability of funds and satisfactory performance and is at the sole discretion of the agency.

III. Eligibility Information

Eligible applicants include: Institutions of higher education, other nonprofits, commercial organizations, state, local, and Indian tribal governments. Federal agencies or institutions are not eligible. Foreign governments, organizations under the jurisdiction of foreign governments, and international organizations are excluded for purposes of this solicitation since the objective of the MARFIN program is to optimize research and development benefits from U.S. marine fishery resources.

Cost Sharing: Cost-sharing is not required for the MARFIN program.

IV. Application and Submission Information

Address to Request Application Package: Application packages are available through grants.gov Apply. You can download the instructions and the application. NOAA forms 88-204 Project Summary and 88-205 Project Budget are accessible on the MARFIN homepage at http://sero.nmfs.noaa.gov/grants/marfin.htm and are to be attached as optional documents with the grants.gov submission.

For applicants without internet access, hard copies of applications may be requested from and completed application sent to: National Marine Fisheries Service, State/Federal Liaison Branch, 263 13th Avenue South, St. Petersburg, FL 33701. You may also obtain the application package from the MARFIN homepage at: http://sero.nmfs.noaa.gov/grants/marfin.htm

Content and Form of Application Submission: Project applications must identify the principal participants, and include copies of any agreements describing the specific tasks to be performed by participants. Project applications should give a clear presentation of the proposed work, the methods for carrying out the project, its relevance to managing and enhancing the use of Gulf of Mexico and/or South Atlantic fishery resources, and cost estimates as they relate to specific aspects of the project. All applications must include funding for the principal investigator to participate in an annual MARFIN Conference in the southeast regional area at the completion of the project. Budgets must include a detailed breakdown, by category of expenditures, with appropriate justification for both the Federal and non-Federal shares.

Applications should exhibit familiarity with related work that is completed or ongoing. Proposals should state whether the research applies to the Gulf of Mexico, South Atlantic or North Atlantic for highly migratory species or multiple areas. Successful applicants are required to collect and manage data in accordance with standardized procedures and format approved or specified by NMFS and to participate with NMFS in specific cooperative activities that are determined by consultations between NMFS and successful applicants before project grants are awarded. All data collected as part of an awarded grant must be provided to the National Marine Fisheries Service.

> Submission Dates and Times: Applications must be received on or before 5 PM EDT on August 15, 2005. Applications submitted through www.grants.gov will be accompanied by a date and time receipt indication on them. If an applicant does not have Internet access, hard copy proposals will be accepted and date recorded when they are received in the program office. Electronic or hard copies received after the deadline will not be considered and hard copy applications will be returned to the sender.

Intergovernmental Review: Applications under this program are subject to the provisions of Executive Order 12372, “Intergovernmental Review of Federal Programs.”

Funding Restrictions: If you have a negotiated indirect cost rate with a Federal agency, the total dollar amount of the indirect costs awarded under this program will not exceed the indirect cost rate negotiated and approved by a cognizant Federal agency prior to the proposed effective date of the award or 25 percent of the Federal share of the total proposed direct costs dollar amount in the application, whichever is less. A copy of the agreement with a Federal agency for the current negotiated indirect cost rate must be included with the application. If the applicant does not have a negotiated indirect cost rate agreement, then they may direct cost all charges, or submit a request to establish a rate.

Construction is not an allowable activity under this program. Therefore, applications will not be accepted for construction projects.

Other Submission Requirements: Applications should be submitted through www.grants.gov. If an applicant does not have internet access, hard copies should be sent to:

National Marine Fisheries Service
State/Federal Liaison Branch
263 13th Avenue South
St. Petersburg, FL 33701

V. Application Review Information

When we receive applications we will screen them to ensure that they were received by the deadline date (see Dates); include SF 424 authenticated by an authorized representative; were submitted by an eligible applicant; address one of the funding priorities for federally managed species; and include a budget, statement of work, and milestones, and identify the principal investigator. We do not have to screen applications before the submission deadline in order to identify deficiencies that would cause your application to be rejected so that you would have an opportunity to correct them. However, should we do so and provide you information about deficiencies, or should you independently decide it is desirable to do so, you may correct any deficiencies in your application before the deadline. After the deadline, the application must remain as submitted; no changes can be made to it.

If your application does not conform to these requirements and the deadline for submission has passed, the application will be returned without further consideration.

Evaluation Criteria: Applications responsive to this solicitation will be evaluated by three or more appropriate private and/or public sector experts to determine their technical merit. These reviewers will provide individual evaluations of the proposals. No consensus advice will be given. These reviewers provide comments and assign scores to the applications based on the following criteria, with the weights shown in parentheses:

1. Importance/relevance and applicability of proposed projects to the program goals (35%): This criterion ascertains whether there is intrinsic value in the proposed work and/or relevance to NOAA, Federal, regional, state, or local activities. For this competition, this includes: Does the proposal have a clearly stated goal(s) with associated objectives that meet the needs outlined in the project narrative? How effective are the proposed methods in enabling the principal investigators to maintain stewardship of the project performance, finances, cooperative relationships, and reporting requirements?

2. Technical/scientific merit (40%): This criterion assesses whether the approach is technically sound and/or innovative, if the methods are appropriate, and whether there are clear project goals and objectives. For this competition, this includes: Does the proposal clearly identify and describe, in the project outline and statement of work, scientific methodologies and analytical procedures that will adequately address project goals and objectives? Do the principal investigators provide a realistic timetable to enable full accomplishment of all aspects of the research?

3. Overall qualifications of applicants (15%): This criterion ascertains whether the applicant possesses the necessary education, experience, training, facilities, and administrative resources to accomplish the project. For this competition, this includes: Does the applicant possess the necessary education and identify the appropriate resources to complete the project?

4. Project costs (10%): This criterion evaluates the budget to determine if it is realistic and commensurate with the project needs and time-frame. For this competition, this includes: Does the budget appropriately allocate and justify costs?

5. Outreach and education (0%): This criterion assesses whether the project provides a focused and effective education and outreach strategy regarding NOAA's mission to protect the Nation's natural resources. This criterion is not used by the MARFIN competition.

Review and Selection Process: Following the technical review, we will determine the weighted score for each individual review and average the individual technical review scores to determine the final technical score for each application. Then, we will rank applications in descending order by their technical scores and determine a cutoff score that is based on the amount of funds available for awards. We will eliminate from further consideration those applications that score below the cutoff.

MARFIN Panel: Those applications at or above the cutoff technical evaluation score will be presented to a panel of non-NOAA fishery experts known as the MARFIN panel. Each member of the MARFIN Panel individually considers: if needs of the Agency are addressed in each proposal; if the project assists industry; and if the project addresses issues that are important to regional fisheries management. The individuals on the Panel provide comments and rate each of these proposals as either "Recommended for Funding" or "Not Recommended for Funding". No consensus advice will be given by the Panel. The Program Manager ranks the proposals in the order of preferred funding based on the number of Panel members recommending the proposal for funding. If there are ties in the rankings, those ties will be distinguished by the peer review score.

Selection Factors: The merit review ratings shall provide a rank order to the Selecting Official for final funding recommendations. The Selecting Official shall award in the rank order unless the proposal is justified to be selected out of rank order based on the following factors.

1. Availability of funding

2. Balance/distribution of funds

   (a) Geographically

   (b) By type of institutions

   (c) By type of partner

   (d) By research areas

(e) By project types

3. Duplication of other projects funded or considered for funding by NOAA/federal agencies.

4. Program priorities and policy factors

5. Applicant's prior award performance

6. Partnerships with/Participation of targeted groups

7. Adequacy of information necessary for NOAA staff to make a NEPA determination and draft necessary documentation before recommendations for funding are made to the Grants Officer.

The Selecting Official may negotiate the funding level of the proposal. The Selecting Official makes final recommendations for award to the Grants Officer who is authorized to obligate funds.

VI. Award Administration Information

Award Notices: Successful applications generally are recommended within 150 days from the date of publication of this notice. The earliest start date of awards average 90 days after each project is selected and after all NMFS/applicant negotiations of cooperative activities have been completed. The earliest start date of awards is about 180 days after the date of publication of this notice. Applicants should consider this selection and processing time in developing requested start dates for their applications. Unsuccessful applications will be returned to the applicant.

The exact amount of funds awarded, the final scope of activities, the project duration, and specific NMFS cooperative involvement with the activities of each project are determined in pre-award negotiations between the applicant, the NOAA Grants Office and the NMFS Program Office. Projects must not be initiated by recipients until a signed award is received from the NOAA Grants Office.

Administrative and National Policy Requirements: This notice contains collection-of-information requirements subject to the Paperwork Reduction Act. The use of Standard Forms is identified in the Department of Commerce Pre-Award Notification Requirements. This program uses NOAA forms 88-204 and 88-205, OMB approval No. 0648-0135. The public reporting burden for the collection of information is estimated to average one hour for an application, one hour for a semi-annual report, and one hour for a final report. These estimates include the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding these burden estimates or any other aspect of this collection of information, including suggestions for reducing this burden to Scot Plank (see Contact).

Notwithstanding any other provisions of law, no person is required to respond to, nor shall any person be subject to a penalty for failure to comply with a collection of information requirements subject to the Paperwork Reduction Act, unless that collection displays a currently valid OMB control number.

The Department of Commerce Pre-Award Notification Requirements for Grants and Cooperative Agreements: The Department of Commerce Pre-Award Notification Requirements for Grants and Cooperative Agreements contained in the Federal Register notice of December 30, 2004 (69 FR 78389) is applicable to this solicitation.

Limitation of Liability: In no event will NOAA or the Department of Commerce be responsible for proposal preparation costs if these programs fail to receive funding or are cancelled because of other agency priorities. Publication of this announcement does not oblige NOAA to award any specific project or to obligate any available funds.

National Environmental Policy Act (NEPA): NOAA must analyze the potential environmental impacts, as required by the National Environmental Policy Act, for applicant projects or proposals which are seeking NOAA federal funding opportunities. Detailed information on NOAA compliance with NEPA can be found at the following NOAA NEPA website: (http://www.nepa.noaa.gov/), including our NOAA Administrative Order 216-6 for NEPA, (http://www.nepa.noaa.gov/NAO216_6_TOC.pdf), and the Council on Environmental Quality implementation regulations, (http://ceq.eh.doe.gov/nepa/regs/ceq/toc_ceq.htm).

Consequently, as part of an applicant's package, and under the description of their program activities, applicants are required to provide detailed information on the activities to be conducted, locations, sites, species and habitat to be affected, possible construction activities, and any environmental concerns that may exist (e.g., the use and disposal of hazardous or toxic chemicals, introduction of non-indigenous species, impacts to endangered and threatened species, aquaculture projects, and impacts to coral reef systems).

In addition to providing specific information that will serve as the basis for any required impact analyses, applicants may also be requested to assist NOAA in drafting of an environmental assessment, if NOAA determines an assessment is required. Applicants will also be required to cooperate with NOAA in identifying and implementing feasible measures to reduce or avoid any identified adverse environmental impacts of their proposal. The failure to do so shall be grounds for the denial of an application. In some cases if additional information is required after an application is selected, funds can be withheld by the Grants Officer under a special award condition requiring the recipient to submit additional environmental compliance information sufficient to enable NOAA to make an assessment on any impacts that a project may have on the environment.

Reporting: If you are selected to receive a grant award for a project you must:

- Submit semiannual project status reports on the use of funds and progress of the project to us within 30 days after the end of each six-month period. You will submit these reports to the individual identified as the NMFS Program Officer in the funding agreement.

- Submit a final report within 90 days after completion of each project to the NMFS Program Officer. The final report must describe the project and include an evaluation of the work you performed and the results and benefits in sufficient detail to enable us to assess the success of the completed project.

- Submit all data collected as part of the project to the NMFS partner. Project data must be edited and verified as accurate by the applicant prior to being submitted to the NMFS.

- In addition to the final report, we request that you submit any publications printed with grant funds (such as manuals, surveys, etc.) to the NMFS Program Office for dissemination to the public.

- We are committed to using available technology to achieve the timely and wide distribution of final reports to those who would benefit from this information. Therefore, you are encouraged to submit final reports in electronic format, in accordance with the award terms and conditions for publication on the MARFIN Home Page. You may charge the costs associated with preparing and transmitting your final reports in electronic format to the grant award. Reports may also be submitted in hard copy.

VII. Agency Contact

For questions regarding the application process, you may contact: Scot Plank, State/Federal Liaison Branch, (727) 824-5324, or Scot.Plank@noaa.gov.

VIII. Other Information

We will award grants or cooperative agreements for a maximum period of up to three years, consisting of one, two, or three budget periods. The award period depends upon the duration of funding requested in the application, the decision of the NMFS selecting official on the amount of funding, the results of post-selection negotiations between the applicant and NOAA officials, and pre-award review of the application by NOAA and DOC officials. Normally, each project budget period is 12 months in duration. The earliest start date of awards (1st of a month) is about 180 days after the date of publication of this notice.

You must also be available to respond to questions during the review and evaluation of the proposal(s).

We are strongly committed to broadening the participation of Historically Black Colleges and Universities, Hispanic Serving Institutions, and Tribal Colleges and Universities in its educational and research programs. Department of Commerce (DOC)/NOAA's goals are to achieve full participation by Minority Serving Institutions (MSI) in order to advance the development of human potential, to strengthen the nation's capacity to provide high-quality education, and to increase opportunities for MSIs to participate in and benefit from Federal financial assistance programs. DOC/NOAA encourages all applicants to include meaningful participation of MSIs.

If you are selected to receive a grant award for a project, you must:

- Manage the day-to-day operations of the project, be responsible for the performance of all activities for which funds are granted, and be responsible for the satisfaction of all administrative and managerial conditions imposed by the award.
- Keep records sufficient to document any costs incurred under the award, and allow access to these records for audit and examination by the Secretary of Commerce, the Comptroller General of the United States, or their authorized representatives; and submit financial status reports (SF 269) to NOAA Grants in accordance with the award conditions.