

Written Testimony of  
David M. Donaldson, Interim Executive Director  
Gulf States Marine Fisheries Commission

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## **INTRODUCTION**

Established by both state and federal statutes in July 1949, the Gulf States Marine Fisheries Commission (Commission) is an organization of the five states (Texas, Louisiana, Mississippi, Alabama, and Florida) whose coastal waters are the Gulf of Mexico. It has as its principal objective the conservation, development, and full utilization of the fishery resources of the Gulf of Mexico to provide food, employment, income, and recreation to the people of the United States.

The Commission has been collecting data cooperatively with the five Gulf States and NOAA Fisheries since the early 1980's. It believes that the cornerstone to sound management of natural resources begins with the collection of sufficient, long-term quality data. In addition, adequate resources need to be allocated towards these activities to ensure that necessary information is available to fisheries managers. Over the years, funding levels have stagnated for these fisheries programs which has led to a decrease in quality data and made it more difficult to manage these important resources. The Commission has four major areas of data collection that will be highlighted.

### **Gulf Fisheries Information Network**

The Fisheries Information Network (GulfFIN) is a state-federal cooperative program to collect, manage, and disseminate statistical data and information on the commercial and recreational fisheries of the Southeast Region. It is intended to coordinate marine commercial and recreational fisheries data collection and data management activities through cooperative planning, innovative uses of statistics and design, and consolidation of appropriate data into a useful database system.

#### *Recreational data*

This recreational component provides for the NOAA Fisheries Marine Recreational Information Program (MRIP) dockside surveys in Louisiana, Mississippi, Alabama, Florida and Puerto Rico for shore, for-hire, and private modes. MRIP was created through a review and some adjustments to the Marine Recreational Fisheries Statistics Survey, or MRFSS, which has been in place since the 1970s. MRIP is designed to meet two critical needs:

1. Provide detailed, timely, and scientifically sound estimates that fisheries managers, stock assessors and marine scientists need to ensure the sustainability of ocean resources.
2. Address stakeholder concerns about the reliability and credibility of recreational fishing catch and effort estimates.

The Commission has provided coordination of the dockside angler surveys for Louisiana, Mississippi, Alabama, and Florida since 1998 and is also responsible for converting data into an electronic format and providing quality control methods prior to delivering data to NOAA Fisheries. These dockside survey data are used to estimate angler catch rates using MRIP methodology. The states also conduct weekly telephone calls to charter boat captains in Louisiana, Mississippi, Alabama, and Florida to obtain estimates of charter boat fishing effort. NOAA Fisheries uses this survey data to produce expanded estimates of catch, landings, and effort.

The implementation of MRIP is still ongoing and is not fully developed at this time. In the past, there has been an emphasis on testing new methodologies and there is a need to implement these methods so real improvement of the data can be realized. Several major changes in program design have been implemented that are improving the accuracy of recreational fishery landings estimates. Landings from 2004-2012 have been re-estimated using new modeling techniques that will provide stock assessment scientists with better and more accurate numbers. MRIP is beginning to utilize data from state angler license databases to make effort surveys more efficient in contacting marine recreational anglers. Additional research is ongoing and will test new data collection tools (such as iSnapper) that could improve the timeliness and accuracy of data using online or electronic reporting instruments.

Innovative tools like iSnapper can potentially improve the timeliness of the data but also involve the fishing community which creates buy-in to the process. It is important to note that while these tools can be useful, the underlining collection methods need to be statistically-valid in order to make the data useable. These changes, and additional ongoing research, have laid the foundation for further recreational survey enhancements in the coming months and years.

Texas Parks and Wildlife Department (TPWD) also collects data from the recreational fishery in coastal inshore and Gulf waters. TPWD has been collecting data from shore anglers and private boat anglers since 1974 using a dockside angler interview survey. TPWD has been collecting data from the for-hire fleet since 1983. TPWD collects similar landings data for key management species, like MRIP, with the only major difference being TPWD does not collect data on discarded catch. Data from TPWD recreational surveys are provided annually to NOAA Fisheries and are used along with the MRIP data for fishery management decisions in Gulf waters.

### *Biological data*

Since 2002, GulfFIN has also coordinated a biological data collection program that focuses on collecting ageing structures from priority species in the recreational and commercial fisheries to address data needs identified by stock assessment scientists. Sampling is designed to statistically collect random length-frequency measurements, age, sex, and reproductive information to aid in

stock assessments. All states in the Gulf of Mexico participate in this activity and data for key species such as red snapper, king mackerel, greater amberjack, and gray triggerfish have been provided for past and ongoing stock assessments. Due to a lack of funding, the GulfFIN biological sampling program is likely going to end in 2014. That would break a 10 year time series of ageing data that has been repeatedly utilized by stock assessment scientists for key management species in the Gulf of Mexico.

#### *Commercial data*

The commercial component of GulfFIN is a trip-ticket data reporting system that is utilized by Texas, Louisiana, Mississippi, Alabama, and Florida. This system collects commercial landings reports submitted by commercial finfish dealers when commercial fishermen complete their trips. GSMFC provides coordination of data reporting and warehouses copies of the clean state data at GSMFC. These electronic landings data are accessed by NOAA Fisheries and are utilized in analyses by stock assessment scientists at the state and federal level. In recent years, an electronic trip ticket reporting system has been offered as a reporting tool for commercial dealers. The electronic system provides data in a timelier manner and allows for additional data quality control when dealers are filling out landings reports.

#### *Data Management System*

All of the commercial and recreational data collected by GulfFIN are housed by GSMFC using the GulfFIN Data Management System (DMS). The GSMFC uses the DMS to maintain marine commercial and recreational fisheries data to accommodate fishery management/research and other needs in the Gulf of Mexico, Southeast and Caribbean. The DMS is designed using standard protocols and documentation for data formats, input, editing, quality control, storage, access, transfer, dissemination, and application. The GSMFC maintains historical and current year's data in the system and provides support to outside users of the system. In addition to the commercial data, regular loads of recreational and biological data into the DMS are accomplished.

#### *Funding Issues*

Originally the GulfFIN program was proposed as a \$7 million dollar project to accomplish all of the intended goals. Despite receiving only half of the proposed funding, GulfFIN has accomplished many significant goals like coordination of the MRFSS/MRIP, commercial trip ticket programs in all Gulf States, and a successful biological sampling program. For the past several years, GulfFIN has received level funding even though the cost of sampling and collecting data has increased significantly. Appropriating additional funds for the GulfFIN program will become essential for continuing these essential base recreational and commercial data collection programs.

### **Southeast Area Monitoring and Assessment Program**

The Southeast Area Monitoring and Assessment Program (SEAMAP) is a State/Federal/University program for collection, management, and dissemination of fishery-

independent data and information in the southeastern United States. SEAMAP is a cooperative program whereby Texas, Louisiana, Mississippi, Alabama, Florida, South Carolina, North Carolina, Georgia, Puerto Rico, the U.S. Virgin Islands, the United States Fish and Wildlife Service, and the National Marine Fisheries Service (NMFS) jointly plan and conduct surveys of economically significant fish and shellfish and the critical habitats that support them. The main goal of SEAMAP is to collect long-term, standardized, fishery-independent data on the condition of regional living marine resources and their environment.

SEAMAP has sponsored long-term (1982 to present) and standardized research vessel surveys that have become the backbone of fisheries and habitat management in the region. The long-term dataset obtained through SEAMAP surveys provides the only region-wide mechanism for monitoring the status of fish populations and habitats. Through its cooperative nature, SEAMAP has the ability to sample the entire coastline from North Carolina through Texas during the same time period and describe the distribution and abundance of fish populations throughout their range in order to better evaluate the status of recreational and commercially utilized fish stocks.

Current SEAMAP surveys in the Gulf of Mexico include an annual spring and fall plankton survey, a biannual winter plankton survey, a reef fish trap/video survey, a reef fish hook and line survey, a summer and fall shrimp and finfish trawl survey, and an inshore bottom longline survey.

One of the primary roles of SEAMAP is the collection of data for stock assessments of marine resources. All of the surveys described above are designed to address this objective. The problem with current data collection is that we have limited resources (funding, personnel, vessel availability, infrastructure, etc.), and there is little potential to collect additional data without additional resources. Over the next decade, SEAMAP will continue to add to the existing data time series, collecting as much new information as possible to improve stock assessments, and will expand efforts to collect the types and volume of data required for adequate assessment of environmental perturbations or damages.

### *Plankton Sampling*

Plankton and environmental sampling are carried out during dedicated plankton surveys and on other resource surveys (trawl) at predetermined stations arranged in a fixed, systematic grid pattern across the entire Gulf of Mexico. Most but not all stations are located at ~56 km or ½ degree intervals along this grid. Sampling is conducted primarily within 0.5 to 1m of the ocean surface and down to a maximum depth 200 m (or to within 2 to 5 m of the bottom) with standard SEAMAP neuston and bongo nets, respectively. Physical oceanographic data (temperature, salinity, fluorescence, oxygen) are collected at each station and chlorophyll measurements are taken at three depths.

The original plan for SEAMAP plankton surveys called for seasonal (quarterly) Gulf-wide surveys over both continental shelf (10-200 m depth) and open ocean waters (>200 m to the EEZ). This goal has never been achieved and, as a result, SEAMAP plankton surveys have yet to encompass the spawning seasons and spawning habitats/areas of all Gulf of Mexico species. The most significant sampling and data deficiencies are open ocean waters in summer, fall and

winter months; shelf waters during spring; and the west Florida shelf in summer and fall months. The importance of these data deficiencies were obvious when researchers tried to respond to the Deepwater Horizon oil spill.

Data from expanded Gulf-wide monitoring and early life history studies would fill major gaps in our knowledge of fish and invertebrate spawning seasonality and early life histories. The expansion of sample and specimen analyses would fill major data gaps and, in many cases, first ever data on developmental stages, species-specific vital rates (age, growth and mortality) and trophic dynamics. These data, in conjunction with other data collected during current and expanded surveys, would provide a more complete and detailed picture of the Gulf of Mexico ecosystem. Information would be used to develop ecosystem models for the Gulf of Mexico, as well as providing a baseline for any future ecosystem impact assessments.

### *Reef Fish Sampling*

The SEAMAP Reef Fish Survey provides indices of the relative abundance of fish species associated with topographic features located on the continental shelf of the Gulf of Mexico from Brownsville, TX to the Dry Tortugas, FL at depths between 9 m to 150 m. The survey is conducted annually between the months of April to August, during the snapper spawning season. The number of camera sites sampled annually has ranged from 125 to 490. Video cameras are used as the main sampling gear because trawls and bottom longlines snag on the sea bed, other gear types are highly selective, and the area sampled is too deep for SCUBA divers. Stationary video cameras are non-destructive to sensitive reef habitat, and are relatively non-selective of reef fish species. Fish traps are used to capture fish for aging and reproductive studies. The SEAMAP Vertical Line Survey uses bandit reels to sample reef fish over natural hardbottom, artificial reefs, and around oil and gas platforms. Bandit gear is highly selective in that it does not catch all species of fish that may be present at a location.

Enhancement of current reef fish sampling activities would include: 1) increasing the sampling effort (both spatial and temporal coverage) for the SEAMAP Reef Fish Survey, and 2) increasing biological sampling in all survey activities to improve age and growth information. In addition, the SEAMAP Vertical Line Survey of oil/gas platforms and natural reef habitats using bandit reel sampling gear and side scan sonar would be expanded to improve data on red snapper and other reef fish species. These enhancements would help reduce the variance of species-specific data and also provide age and growth information on age 2-5 red snapper which are under sampled in all other SEAMAP surveys.

### *Trawl Sampling*

The current SEAMAP groundfish trawl survey is conducted semi-annually in the summer (June-July) and fall (October-November). A 42-ft shrimp trawl is used to collect specimens from Brownsville, TX to Key West, FL in 5 to 60 fm of water. Due to funding limitations, areas off southwest Florida are not sampled in the fall. The trawl is towed for 30 minutes, and catch is either worked up in its entirety or is subsampled if the catch is over 22 kg. During the trawl surveys, plankton samples are also collected using a 61 cm bongo frame and 0.335 mm mesh net and/or a 1x2 m Neuston frame with a 0.947 mm mesh net.

Future temporal and spatial expansion of trawl surveys would improve the precision of estimates for all species, as well as provide coverage for Florida waters that are not sampled currently during the fall season. The expansion of biological sampling (i.e., stomach content, and age and growth analyses) would improve the stock assessments for those species sampled, as well as provide a basis for trophic and predator-prey analyses. This information is essential for the development of multispecies and integrated ecosystem assessments.

### *Bottom Longline Sampling*

SEAMAP currently employs an Inshore Bottom Longline Survey to monitor coastal shark and adult finfish populations in the near shore waters of the north central Gulf of Mexico. This nearshore survey complements the NMFS bottom longline survey using the same gear and methodology except that it takes place in the shallow waters of the north central Gulf of Mexico.

Several enhancements could be incorporated into current bottom longline surveys that would expand the scope of bottom longline sampling and provide important data needed for better understanding the dynamics of upper level predators and other key managed species (snappers and groupers). Expansion of the summer bottom longline survey activities would improve precision associated with indices of abundance used for stock assessment. The additional activities would also result in an increased ability to examine spatial patterns in intraspecific differences in the life history, diets, abundance and movements of predatory fishes in the Gulf of Mexico.

### *Baitfish Sampling*

SEAMAP currently does not sample specifically for baitfish. Baitfish form the basis of the marine food web in the Gulf of Mexico. A pelagic bait survey would collect information on Gulf menhaden (*Brevoortia patronus*) and similar pelagic baitfish species as a measure of estuarine productivity for ecosystem and stock assessment analysis. The approach would employ a number of separate state-based fishery-independent projects to address concerns. Increasing existing seine sampling by state partners spatially and temporally would decrease variability in the data. A push-net survey could be conducted to compare existing seine data for the application of the push-net data as an index of abundance in future stock assessments. Genetic samples could be analyzed from the seine and push-net studies to validate species identification and determine frequency of co-occurrence by location. Finally, fish scales for aging purposes could be collected from fishery-independent surveys to determine the age structure across the range of the species from the fishery-independent samples to begin comparison with the fishery-dependent age composition data which has been collected since the late-1970s.

### *Collection of Ecosystem Data*

Increased collection of environmental and ecosystem information through fishery-independent sampling in the Gulf of Mexico would provide a wealth of data that can be used to expand single species stock assessments. More importantly, these data would provide crucial inputs to the development of integrated ecosystem assessments for this region. Understanding spatio-

temporal patterns of species distribution is central to managing the Gulf of Mexico's marine populations, communities and ecosystems. Spatio-temporal patterns of species distribution can be directly related to differences in vital rates (e.g., growth, mortality and fecundity), as well as inter-specific interactions (e.g. competition and predation).

#### *Additional Fishery Independent Data Collection Activities*

In addition to SEAMAP activities, the Gulf States collect additional fishery independent data to improve the quality of data available for stock assessments. The amount of appropriation provided to the states to support their fishery monitoring programs are determined by a formula based on a state's total marine fisheries landings. Historically, the Gulf of Mexico has had three 'maximum' states by fisheries volume and value. This funding, prior to its elimination by NOAA in 2012, supported the five Gulf States' long-term, fishery-independent monitoring programs which are used to gauge the health of various commercially and recreationally important fish stocks. The value of this monitoring data is critical and the ability of the Gulf States' marine agencies to conduct stock assessments of near-shore and off-shore species hinges upon the quality and duration of these datasets and will be critical to future regional management success.

#### **Economic Data Program**

Most fisheries management decisions are made primarily utilizing biological data. While this data is useful in describing the state of the biomass, or stock of the fishery, they do not describe the economic elements such as employment, business performance, or contribution of a fishery to the economy. Existing economic data for commercial and recreational fisheries in the U.S. Gulf of Mexico (Gulf) for state and federal waters have often been, and in some cases still remain, piecemeal, outdated, and not fully relevant to fisheries managers and recreational and commercial stakeholders.

This void of economic data has been challenging in the Gulf given recent hurricanes, manmade disasters such as Deepwater Horizon, severe floods, unprecedented long-lasting drought and the increase in complex fishery management decisions that require economic analysis as mandated through various state and federal laws. For example, through the Magnuson-Stevens Fishery Conservation and Management Act (MSA), Executive Order 12866, and the National Environmental Policy Act, etc., federal agencies, such as NOAA Fisheries, are mandated to perform economic analysis when changes to fisheries management policies are proposed. Through these legislative actions, attempts are made to determine the effects that possible adjustments to management policies might have on fisheries stocks and local and regional economies. An assessment of possible fisheries actions, however, requires reliable and current economic data in order for economic models of specific fisheries and multistate economies to be built. The availability of economic data is, therefore, one of the most significant building blocks to conducting economic and policy analysis.

In an effort to improve data collection and fisheries management of the recreational and commercial fisheries in the Gulf, an Economic Data Program was formed in 2008. Funding for this effort currently ends in 2014. The Economic Data Program is a cooperative partnership

among Texas, Louisiana, Mississippi, Alabama, Florida, the Gulf States Marine Fisheries Commission (Commission), and NOAA Fisheries. The program monitors the economic performance and contribution of prioritized fisheries of the Gulf and contributes to the assessment of the economic effects of fishery management decisions on specific fisheries and regional economies. In conjunction with the Gulf Fisheries Information Network (GulfFIN), the Commission coordinates, plans, and conducts specific economic data collection projects throughout its five member states.

### *Current Economic Data Collection Activities*

Projects that are currently underway, or have been completed since the conception of the program, include an economic survey of the inshore shrimp fleet, a marine angler expenditure survey, an economic survey of fishing related businesses (processors and dealers), a marine recreational use economic survey, and a valuation of recreational species survey. Results from these surveys primarily aid in the development of economic business performance analysis, economic contribution analysis using regional input-output models, and evaluation of the potential economic effects from proposed fishery management alternatives. Additionally, the analysis can be used to understand the economic impacts from natural and manmade disasters. It is the intent that the collection of dependable economic data will further maximize the economic benefits of fisheries resources while reducing the negative costs to fishing communities in the Gulf.

### *Inshore Shrimp Fleet*

Cited as one of the most valuable fisheries within the United States, the Gulf commercial shrimp fishery constitutes fishing pressure from both an offshore fleet and an inshore shrimp fleet. Following recent data collection efforts conducted by NOAA Fisheries for federally permitted vessels that harvest shrimp in waters offshore, the Commission has been in the process of providing the first systematic economic analysis of an important economic segment—the inshore shrimp industry—which had not previously been examined with such depth and rigor. This has been accomplished through two annual multi-state economic mail surveys aimed at collecting information on revenue, operating costs, annual expenditures, employment data, and vessel characteristics of the inshore shrimp fleet. This information has been used to determine the economic performance and the economic contributions the inshore shrimp fleet has on regional sales, income, and employment in the Gulf. The information gathered has also contributed to more informed decision-making on a variety of commercial fishing policy decisions and issues such as the recent Seafood Compensation Program through the Deepwater Horizon Settlement Agreement.

### *Fishing-related Businesses*

As fisheries management policies change, the economic impacts of these actions extend past commercial fishing fleets to supporting fishing related businesses. Understanding the linkages between specific fisheries industries and the regional economy can be helpful in determining the potential impacts of management decisions. The Commission has, therefore, been in the process of collecting economic data to determine the economic performance and the economic

contributions that seafood dealers and processors, or shoreside firms, have on local and regional economies in the Gulf. This data collection effort is the first systematic, multi-state effort to understand the economics of these shore-side firms. The effort has been conducted through onsite interviews for commercial seafood processors and as a mail survey for dealers and retailers. Up-to-date economic data being collected includes revenue, operating costs, annual expenditures, employment data, and characteristics of the fishing-related businesses. Furthermore, this data collection effort documents the current economic conditions of commercial seafood fishing related businesses. The information collected can also be used to estimate the regional economic contribution of the industry, number of jobs, and amount of revenue that commercial seafood fishing related-businesses add to the Gulf economy.

### *Marine Angler Recreational Fishery*

Recreational fishing provides not only relaxation for stakeholders, but also economic contributions to the surrounding economy. In the Gulf, for example, residents participate in marine fisheries recreation, which contributes to the economy. A continued understanding of how marine angler expenditures influence local and regional economies in the Gulf through sales, income, and employment, provides key economic information, which can be used in fisheries management decisions. As part of a national initiative, the Commission and NOAA Fisheries have solicited saltwater anglers' expenditures on fishing trips throughout the Gulf in order to assess the size and economic contribution of the marine recreational fishing industry to the regional economy. Where possible, the survey used the MRIP intercept for trip expenditures and a mail follow-up survey for equipment and durable expenditures. The survey results provide estimates of marine recreational angler expenditures and the economic contribution of the marine angler recreational fishery to the Gulf.

### *Marine Recreational Use*

Economic contributions from recreation to local and regional economies extend from other types of marine recreation besides consumptive ocean uses like recreational fishing. Such non-consumptive activities might include scenic landscape viewing, wildlife watching, kayaking, scuba diving, and boating. Determining and accounting for the economic contributions that these activities have on the economy is important when making marine resource and fishery management decisions, policies, and priorities. As a result of a national effort, the Commission, in partnership with NOAA Fisheries, has collected participation, effort, and expenditures related to ocean recreation activities, with the primary focus on non-consumptive uses. The effort sampled the general public using a survey panel where individuals were notified in advance so that they were able to keep track of their activities and expenditures. Similar to the marine angler economic survey, these survey results also provide estimates of expenditures and the economic contribution of marine recreational use to the Gulf in terms of jobs, income, and sales.

### *Valuation of Recreational Species*

It is important that the fisheries management process consider the potential changes in economic value when promulgating new fishing regulations. For sportfishing policy changes, this requires estimates of anglers' valuation of regulations or anglers' valuation of the resulting harvest levels.

There is considerable research on preferences for harvest levels and the values of anglers fishing from private boats or from the shore. Less research has been conducted to measure such values on for-hire fishing trips. To improve this, the Commission and NOAA Fisheries have partnered on a mail survey to generate new estimates of anglers' valuation of changes in regulations for key federal and state managed recreational species on for-hire and private boat trips in the Gulf. The survey includes questions about recent recreational fishing activities, preferences for different types of fishing trips, and angler household characteristics. The fishing trip preference portion of the survey includes a stated preference choice experiment with questions that ask anglers to choose between hypothetical fishing trips. There are versions of the survey for choices between charter fishing trips and choices between private boat trips.

#### *Future Economic Data Collection Activities*

Given the experiences garnered through the recent aforementioned economic data collection activities, the Commission is well poised to move from one time data collection efforts to longitudinal economic data collection efforts. Proposed longitudinal economic data collection activities include the following: Economic Surveys of the Inshore Shrimp Harvesting Industry, Economic Surveys of the Blue Crab Harvesting Industry, Economic Surveys of the Oyster Harvesting Industry, Economic Surveys of the Finfish Harvesting Industry, Fishing Related Businesses Economic Surveys, Marine Recreational Angler Economic Surveys, and Marine Recreational Use Economic Surveys. Economic data collection will use online, mail, and in-person surveys that follow accepted survey methods.

In addition to aiding in the promulgation of fisheries management policies under the current MSA and its future reauthorization, results from the Commission's Economic Data Program can also assist other programs and efforts aimed at economic enhancement and management of the recreational and commercial fishing activities in the Gulf. For example, the Economic Data Program has recently contributed to the development of state level Fisheries Management Plans under the Commission's Interjurisdictional Fisheries Program. Given that the Economic Data Program can gauge the economic performance of key Gulf seafood and recreational fishing industries; this may in turn also allow for a more targeted approach for the newly developed marketing, sustainability, and traceability activities in the region. There may be opportunities where technological applications such as electronic seafood traceability efforts may also be able to collect key economic indicators that can be integrated with the aforementioned surveys and analysis. The Economic Data Program can also be used to assess the effect of the substantial restoration efforts expected around the Gulf as a result of RESTORE Act and National Resource Damage Assessment (NRDA) generated funds. It will be important to know if these activities are having a positive effect not only on ecosystem health but economic well-being of the commercial and recreational fishing industries as measured by economic data. These aforementioned activities will only be accomplished if additional funding is provided. Funding for the Economic Data Program is only guaranteed through June 2014.

#### **SPORT FISH RESTORATION PROGRAM**

The Federal Aid in Sport Fish Restoration Act was enacted in 1950, having been modeled after the Federal Aid in Wildlife Restoration Act, passed in 1937. The Sport Fish Restoration Program

proved to be an extremely valuable source of funding for fisheries work important to the states. The Sport Fish Restoration Administrative Program (SFRAP) was established by the GSMFC in 1987, and its primary goal is to provide coordination of the recreational fisheries programs in the five Gulf States. Historically, there were three major categories of this program, including anadromous fish restoration, artificial reefs, and fisheries data, all of which supported interstate fisheries management.

### *Monitoring Artificial Reefs*

One of the primary focuses of the SFRAP is artificial reefs. This component has established regional policies and planning documents, as well as discussed critical issues regarding reef deployment and monitoring. The recent hurricanes in the Gulf and the 2010 Deepwater Horizon oil spill disaster have underlined the fact that there is a need to establish baseline data on the vast artificial reef areas in the Gulf of Mexico. This data will allow states to determine how new artificial reefs are functioning in comparison to established ones, how they compare to the function of natural reefs, and allow them to assess impacts to artificial reefs from future natural and man-made disasters. There is concern within the fisheries community about the removal of these structures and the impacts it may have on the resources that rely on them for food, protection, habitat, etc.

In an attempt to meet this need, the SFRAP is developing a Gulf-wide standardized artificial reef monitoring program. The goal of this new program would be to establish baseline data on artificial reefs across the Gulf of Mexico. The standardized monitoring protocols and gear types utilized in this program would match, as close as possible, to those used in ongoing long-term monitoring of natural reef areas in the Gulf of Mexico by NOAA Fisheries and SEAMAP. By doing so, this program would provide standardized data, on currently unmonitored habitats, for commercially and recreationally-important species for use in more accurate stock assessments. It would also go a long way in alleviating the concerns of the fishing public about the lack of data from artificial reef habitats being used in the assessment of heavily-managed species like red snapper. If a secure source of funding can be established to support this new component, it would allow the program to compile a sufficient set of baseline data that could be used in making scientifically-based decisions about the management of artificial reefs and the fish populations they support.

### *Invasive Species Monitoring Efforts*

One of the ongoing efforts under the SFRAP is a pilot study looking at the extent of the lionfish (*Pterois volitans* and *Pterois miles*) invasion in northern Gulf waters and conducting diver assessments of the native fish community for future evaluation of impact. Lionfish have proven to be extremely adaptable to their invaded range which now incorporates a large portion of the Eastern Atlantic, throughout the Caribbean and in recent years the Gulf of Mexico. They are the first marine finfish to become established, and the full impact they will have on the natural environment and native species is still widely unknown. However, recent studies suggest that these impacts could be severe.

The area covered by this pilot study is on the leading edge of the invasion, making it a great location to investigate the impacts of this invasive species. This pilot project is a cooperative effort between the Gulf States Marine Fisheries Commission, Mississippi Department of Marine Resources, Alabama Department of Natural Resources, the National Park Service and the U.S. Fish and Wildlife Service. The objectives of this new project are to:

1. Establish a lionfish monitoring program at established sites in the near coastal waters between Pensacola, FL and the Mississippi River Delta to monitor and track the invasion.
2. Perform diver surveys of density and richness of associated species at all sites to aid in future assessment of impacts as a result of the invasion.
3. Removal of lionfish encountered during normal monitoring operations.
4. Coordinate reporting activities with the established U.S. Fish and Wildlife Service hotline and the U.S. Geological Survey online reporting system.
5. Establishment of a “Strike Team” to harvest lionfish at locations beyond regular sampling sites.
6. Engage in outreach activities in the region to help inform the public about the seriousness of the lionfish invasion.

This pilot project will give us a clear picture of where we stand in regards to the invasive lionfish population in northern Gulf waters, and will provide much-needed information for future management decisions. It is the intention of the group to try and secure funding that would allow for annual surveys to be conducted which would provide much-needed data on the full impacts of lionfish on the native fish communities in northern Gulf waters.