



# FEDERAL ASSISTANCE FOR INTERJURISDICTIONAL FISHERIES

**NATIONAL  
MARINE  
FISHERIES  
SERVICE**

**PROGRAM REPORT 2009–2010**

**U.S. DEPARTMENT OF COMMERCE**



**U.S. DEPARTMENT OF COMMERCE**

John E. Bryson, Secretary

**National Oceanic and Atmospheric Administration**

Jane Lubchenco, PhD

Under Secretary of Commerce for Oceans and Atmosphere

**National Marine Fisheries Service**

Samuel D. Rauch

Acting Assistant Administrator for Fisheries

**FEDERAL ASSISTANCE FOR INTERJURISDICTIONAL  
FISHERIES PROGRAM REPORT 2009–2010**

March 2012

*This report was prepared by*

*Derek Orner and Steve Meyers  
Office of Sustainable Fisheries  
National Marine Fisheries Service*

**AUTHORIZATION**

This report is submitted in compliance with the Interjurisdictional Fisheries Act of 1986, as amended (16 U.S.C. 4106 et seq.).

**TABLE OF CONTENTS**

INTRODUCTION ..... 1

Interjurisdictional Fisheries Act of 1986..... 1

    Table 1. Interjurisdictional Fisheries Act Section 308(a) Funding  
    to States and Others for Fiscal Years 2009 and 2010. .... 3

    Table 2. Interjurisdictional Fisheries Act Section 308(c) Funding  
    to Interstate Marine Fisheries Commissions for Fiscal  
    Years 2009 and 2010. .... 4

NORTHEAST REGION

List of States and Discussion of Activities and Projects ..... 5

SOUTHEAST REGION

List of States and Discussion of Activities and Projects .....21

NORTHWEST REGION

List of States and Discussion of Activities and Projects. .... 32

SOUTHWEST REGION

List of States and Discussion of Activities and Projects. .... 37

PACIFIC ISLANDS REGION

List of States and Discussion of Activities and Projects. .... 39

ALASKA REGION

List of States and Discussion of Activities and Projects .....43



# FEDERAL ASSISTANCE FOR INTERJURISDICTIONAL FISHERIES ACT PROGRAM REPORT 2009–2010

## INTRODUCTION

The information contained herein is a summary of projects that were ongoing or completed during fiscal years (FY) 2009 and 2010. The National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) Federal Assistance Program is authorized under the Interjurisdictional Fisheries Act of 1986, 16 U.S.C. 4101 et seq., as amended.

A large portion of the funds under the Interjurisdictional Fisheries Act are spent to obtain catch and effort statistics and other fisheries information. This information is used to support management decisions at the State level and under the Magnuson-Stevens Fishery Conservation and Management Act, the Atlantic Coastal Fisheries Cooperative Management Act, and the Atlantic Striped Bass Conservation Act.

The program analysis portion is divided into six sections, one for each of the six NMFS regions. Each section contains an alphabetical list of states within that region. Preceding the project descriptions is an overview highlighting the region's grants activity during the reporting period, and general information on the grants and projects under way.

## The Interjurisdictional Fisheries Act of 1986

The Interjurisdictional Fisheries Act of 1986 (IFA) is a formula-based financial assistance program with three overall purposes: (1) to promote and encourage State activities in support of the management of interjurisdictional resources, (2) to promote the management of interjurisdictional fisheries resources throughout their range, and (3) to promote and encourage research in preparation for the implementation of the use of ecosystems and interspecies approaches to the conservation and management of interjurisdictional fishery resources throughout their range. Any State, either directly or through an interstate commission, may submit a research proposal that supports management of fishery resources that (1) occur in waters under the jurisdiction of one or more states and in the Exclusive Economic Zone (EEZ), (2) are managed under an interstate fishery management plan, or (3) migrate between the waters under the jurisdiction of two or more states bordering on the Great Lakes.



Federal share of project costs may amount to 75 percent, or 90 percent of total costs when States have adopted fishery regulations consistent with an interstate or Federal fishery management plan for the species to which the study applies. Enforcement agreements with State management agencies of up to \$25,000 may be financed 100-percent with Federal funds. Projects to restore resources damaged by natural resource disasters had been financed by up to 100 percent Federal funds, but 1992 statutory amendments required a 75–25 Federal–State split for such disaster restoration projects. Also, Section 308(d) was amended in 1996 by Public Law 104-134 to provide the Secretary of Commerce with more discretion to provide funding to persons engaged in commercial fishing who are harmed by resource disasters.

**Funding under Section 308(a).** Funds are made available to the States under Section 308(a) based on a complex apportionment formula using the volume and value of fish landed in each State by domestic commercial fishermen. Further information on this apportionment and distribution process, and the values and volume involved, is available from any of the six NMFS Regional Offices listed in the “Administrative Organizations” section of this report. Table 1 lists IFA funding to States and others for FY 2009 and 2010.

**Funding under Section 308(b).** No funds were made available in FY 2009 and 2010.

**Funding under Section 308(c).** Funding in FY 2009 and 2010 – \$779,347 and \$802,422, respectively – was provided to support the development of fishery management plans by interstate marine fishery commissions. Table 2 lists IFA funding to interstate marine fisheries commissions for FY 2009 and 2010.

**Funding under Section 308(d).** There was no funding for disaster assistance in FY 2009 and FY 2010.

The IFA consistently funds projects in 35 States and U.S. Trust Territories. The IFA funds a multitude of diverse projects, including biological studies of lobster and blue crab, training programs for interjurisdictional fisheries managers, invasive species research and outreach, monitoring and enforcement of jointly managed fisheries resources, general outreach and education, and database development projects. Table 1 lists IFA funding to States and others for FY 2009 and 2010.

**TABLE 1. Interjurisdictional Fisheries Act Section 308(a) funding to states and others in FY2009 and 2010.**

STATE	REGION	2009	2010
AK	AKRO	\$146,749	\$147,314
AL	SERO	\$24,458	\$24,552
AS	PIRO	\$98,360	\$96,651
CA	SWRO	\$146,749	\$147,313
CT	NERO	\$24,458	\$24,552
FL	SERO	\$146,749	\$147,314
GA	SERO	\$12,229	\$12,276
GU	PIRO	\$12,229	\$12,276
HI	PIRO	\$80,352	\$71,590
ID	NWRO	\$12,229	\$12,276
IL	NERO	\$12,229	
LA	SERO	\$146,749	\$147,314
MA	NERO	\$146,749	\$147,314
MD	NERO	\$24,458	\$73,119
ME	NERO	\$146,749	\$147,314
MI	NERO	\$12,229	\$12,276
MN	NERO	\$12,229	\$12,276
MP	PIRO	\$12,229	
MS	SERO	\$112,517	\$109,478
NC	SERO	\$96,758	\$89,436
NH	NERO	\$12,229	\$12,276
NJ	NERO	\$146,749	\$147,314
NY	NERO	\$24,458	\$24,552
OH	NERO	\$12,229	\$12,276
OR	NWRO	\$146,749	\$147,314
PA	NERO	\$12,229	\$12,276
PR	SERO	\$12,229	\$12,276
RI	NERO	\$119,314	\$99,878
SC	SERO	\$12,229	\$12,276
TX	SERO	\$146,749	\$147,314
VA	NERO	\$146,749	\$147,313
VI	SERO	\$12,229	\$12,276
VT	NERO	\$12,229	\$12,276
WA	NWRO	\$146,749	\$147,314
WI	NERO	\$12,229	\$12,276
Total		\$2,402,807	\$2,393,848

AKRO = Alaska Regional Office; NERO = Northeast Regional Office; NWRO = Northwest Regional Office; SERO = Southeast Regional Office; SWRO = Southwest Regional Office

**TABLE 2. Interjurisdictional Fisheries Act Section 30(c) funding to Interstates Marine Fisheries Commissions for FY2009 and 2010.**

COMMISSION	REGION	2009	2010
Atlantic States Marine Fisheries Commission	NERO	\$247,192	\$247,474
	NERO	\$12,229	\$24,552
Gulf States Marine Fisheries Commission	SERO	\$234,963	\$235,198
Pacific States Marine Fisheries Commission	NWRO	\$284,963	\$295,198
Total		\$779,347	\$802,422

NERO = Northeast Regional Office; NWRO = Northwest Regional Office; SERO = Southeast Regional Office;

### REGIONAL DISBURSEMENT SUMMARY

The average IFA disbursement was largest for the Southwest Region and Alaska Region (~\$145,000 per year) followed by the Northwest Region (~\$100,000 per year). The Southeast Region which includes the South Atlantic, Gulf States, and Caribbean averaged approximately \$75,000 per year. The Northeast Region which includes the Mid-Atlantic, New England, and Great Lakes States averaged about \$62,000 per year. The Pacific Islands Region, while encompassing the most territory, averaged the lowest regional figure at approximately \$47,000. It is important to note that a State from each region, except the Pacific Islands, was represented in the largest award category, thus likely skewing the average downward for that region.







## NORTHEAST REGION

The NMFS Northeast Region covers 19 states—Connecticut, Delaware, Illinois, Indiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont, Virginia, West Virginia, and Wisconsin—and the Great Lakes Fisheries Commission (GLFC) and the Atlantic States Marine Fisheries Commission (ASMFC).

## CONNECTICUT

**Recipient:** Connecticut Department of Environmental Protection  
**Title:** Connecticut Lobster (*Homarus americanus*) Population Studies  
**Grant No:** NA05NMF4071033 and NA10NMF4070404

Over a multi-year period, the Connecticut Department of Environmental Protection (CTDEP) fishery dependent and independent lobster monitoring programs have provided fundamental information needed for managers to make informed and sound decisions when assessing stocks, identifying and characterizing changes in the fishery, and implementing fishery regulations. Monitoring the fishery's catch and effort through commercial sea-sampling and the CTDEP Marine Fisheries Information System (MFIS), is equally important since it provides data directly from the harvesters. Sea-sampling information provides essential data describing the size and composition of marketable lobsters for expansion of landings (lbs) into numbers of lobsters harvested at size. All of this information is important for determining changes in the population and the fishery, and will be integrated into state and federal databases for modeling purposes.

Time-series information gathered from the Long Island Sound Trawl Survey provided relative abundance, mortality rates, length composition, percentage of female egg-bearers, sex ratio, and other data that are critical for determining the status of the stock independent of changes in the fishery. Specifically, a time series of relative annual abundance for juvenile lobsters provided a forecast of legal-size stock abundance. It is believed that approximately 5-6 years are required for lobsters in Long Island Sound to grow to the legal carapace length of 82.6mm (Blake 1993). A time series of relative abundance for Stage IV larval lobsters, generated annually since 1983, continued to provide an index of production. Because a die-off in 1999 included egg-bearing females, such a time-series may be a vital key to understanding the relationship between adult natural mortality and production strength.

Finally, participation in the ASMFC Lobster Technical Committee and Stock Assessment Subcommittee provided an opportunity to include data describing the LIS lobster stock in assessments of the entire stock area, as well as application of these methods to the entire coast. Understanding the complexities of assessing this species and identifying the level of fishing mortality at which recruitment failure might become imminent is of utmost importance. In addition, mathematical models that accurately describe the LIS population provided insights into the effects of revised management strategies specifically for this stock.

## ILLINOIS

**Recipient:** Illinois Department of Natural Resources  
**Title:** Research for Management of Interjurisdictional Fisheries Resources  
**Grant No:** NA07NMF4070283

The Illinois Department of Natural Resources staff worked with statistical and modeling experts at the Great Lakes Center for Quantitative Fisheries Science and Management at Michigan State University to 1) develop innovative research projects on creative approaches for quantitative science in support of inter-jurisdictional fisheries management of Great Lakes fisheries, 2) receive outreach support for ongoing applications of decision tools developed through partnerships between the Center and management agencies, and 3) provide training in advanced quantitative fishery techniques for mid-career professionals in fisheries management.

On Lake Michigan, priority tasks included: 1) further refinement of a decision analysis tool for Chinook salmon stocking, 2) initiating development of a similar decision analysis tool for yellow perch harvest, 3) providing training on decision analysis tools and model development to agency personnel, and 4) reviewing catch-at-age model outputs from interagency yellow perch and lake trout task groups and offering technical guidance where necessary. Center personnel also provided assistance (data analysis, sampling design, etc.) on other interagency projects, such as lake trout recruitment assessment and hydro-acoustic surveys.

## MAINE

**Recipient:** Maine Department of Marine Resources  
**Title:** Interjurisdictional Fisheries Resource Monitoring and Assessment  
**Grant No:** NA05NMF4071035 and NA10NMF4070015

The Maine Department of Marine Resources (MEDMR) has conducted fisheries research and resource monitoring and assessment work with Interjurisdictional Fisheries funding from NMFS since 1986. Funding through 2010 was provided to conduct a multi-species resource monitoring and assessment project that supplemented State of Maine general and dedicated revenues currently invested in resource monitoring and assessment activities for American lobster, Atlantic herring, northern, sea urchin, ocean quahogs, groundfish and fishery management and assessment resources in the Gulf of Maine.

## MARYLAND

**Recipient:** Maryland Department of Natural Resources  
**Title:** Maryland Interjurisdictional Fishery Statistics  
**Grant No:** NA05NMF4071066 and NA10NMF4070275

The Maryland Department of Natural Resources (MDNR), Fisheries Service, is responsible for the management of commercial and recreational fisheries in Maryland's Chesapeake Bay, coastal bays and near shore Atlantic waters. Interjurisdictional species such as striped bass, weakfish, American shad and flounder are difficult to manage because of the competing interests of management entities within the species range. Quality harvest data are necessary for good decisions made in the Management Councils and the Atlantic States Marine Fisheries Commission (ASMFC). The purpose of this project was to facilitate the interstate fisheries management process through the collection of commercial catch and effort statistics for inter-jurisdictional species harvested in Maryland.

Maryland has recently promulgated regulations designed to improve timely reporting. Prior to this, delinquent reports would prevent a fisherman from renewing their license in August. This often resulted in a number of back reports being turned in late in July. The new regulations provided for license suspension during the year for repeated instances of reports being late over 60 days. We anticipate improved and timelier reporting. Report forms are now printed with a bar code that incorporates name and license number and allows rapid reporting of receipt for purposes of posting notices of violations.

The primary objective of this project was to maintain Maryland's commercial catch and effort data collection programs for interjurisdictional species and distribute data to coastal managers and management agencies. Four on-going commercial fisheries catch/effort data collection systems are managed under the Maryland interjurisdictional fisheries statistics program. These include: Finfish Reporting System; Blue Crab Reporting System; Fishing Guide Reporting System; and, Seafood Dealer Reporting System.

The commercial finfish catch and effort reporting system was continued under this funding. Approximately 2,600 individuals were licensed to catch finfish in Maryland waters in 2009. These licensees are required to report their catch and effort for each trip by gear type and fishing area on a monthly basis via a mail-in form provided by DNR.

The commercial blue crab reporting system was also continued under this funding. In 2010, 5127 people are licensed to harvest blue crabs commercially. Each of these licensees was issued a set of report forms to record crabbing effort and catch on a daily basis during the reporting month and was required to mail these forms back to DNR.

The fishing guide reporting system, also known as the Charter Boat Logbook System, was also continued. To operate a charter/header boat for hire in Maryland state waters, one needs a Maryland fishing guide license along with a Coast Guard Master License. In 2009, 476 fishing guide licenses were issued. Each charter boat is required to record its passengers' total daily catch by species on the forms in the logbook. The forms are forwarded to DNR every week.

The seafood dealer reporting system was also continued. This system is based on a monthly census of licensed buyers of finfish and blue crabs. There are about 250 licensed seafood dealers in Maryland. Each dealer is asked to report his total monthly purchases and average price by species and market category. The main purpose of the system is to estimate average monthly dockside prices for these species.

## MASSACHUSETTS

**Recipient:** Massachusetts Division of Marine Fisheries  
**Title:** Management Information Systems & Fisheries Statistics  
**Grant No:** NA05NMF4071027

This project culminates five years of work, from January 1, 2005 – December 31, 2009, accomplished by the Management Information Systems and Fisheries Statistics Project (MISFSP) within the Massachusetts Division of Marine Fisheries (MA DMF). MISFSP is responsible for collecting commercial fisheries dependent data, namely catch and effort data from harvesters, and landings data from dealers, about marine species which are both interjurisdictional and non-interjurisdictional in nature, and are considered of significant economic importance to the Commonwealth of Massachusetts (MA). The Project was also responsible for managing the agency’s information infrastructure, including network, hardware and software technology, web site maintenance, geographic information systems (GIS) and the agency’s large relational database systems.



The core jobs of the MISFSP were to: (1) collect catch and effort data from commercial fishermen or harvesters; (2) collect landings data from dealers which purchase directly from harvesters; (3) support and participate in the Atlantic Coastal Cooperative Statistics Program (ACCSP), a “state-federal program to design, implement, and conduct marine fisheries statistics data collection programs and to integrate those data into a single data management system that will meet the needs of fishery managers, scientists and fishermen”; and (4) to manage and provide technical assistance to the entire agency as it relates to information infrastructure.

**Recipient:** Massachusetts Division of Marine Fisheries  
**Title:** Interstate Fisheries Management Support  
**Grant No:** NA10NMF4070356

The MA DMF supported the IFA by funding staff capabilities in the area of Conservation Engineering. MA DMF Conservation Engineering (CE) primarily investigates the performance of commercial fishing gear to improve the precision of catches, thereby reducing discards, bycatch, and



impact on non-target species. For example, MA DMF recently investigated the appropriate mesh size for monkfish gillnets to maximize market value of the target species, and investigated hook baits that decreased unwanted bycatch of Atlantic cod. MA DMF are currently studying the possibility of a live fish, low mortality fishery for cod using fish pots, and a trawl net modification to release spiny dogfish and retain silver hake. The results of these and prior CE investigations are designed to be used and implemented by State and Federal management organizations, such as the New England and Mid-Atlantic Fishery Management Councils, the ASMFC, and NMFS, to control or manage harvest of target species and bycatch of non-target species through their range. The findings from these studies also support the management decisions of the MA DMF.

It is likely that CE initiatives over the next few years will focus on reduction of bycatch of species with very low allowable catch levels, such as pollock, winter flounder, and yellowtail flounder. Further, development of increased fishing opportunities in sustainable stocks such as redfish, whiting, and Loligo squid is another area of investigation that will support fisheries management in the region. Investigation of alternative fishing gears and modifications will continue as they arise or are needed.

## MICHIGAN

**Recipient:** Great Lakes Fishery Commission  
**Title:** A Partnership Approach for Controlling Nonindigenous Aquatic Nuisance Species in the Great Lakes  
**Grant No:** NA06NMF4070259

The Great Lakes Panel on Aquatic Nuisance Species (ANS) is composed of an established network representing Great Lakes governmental agencies, environmental groups, academic institutions, tribal authorities, commercial and private sector researchers and managers working on issues related to the prevention and control of nonindigenous aquatic invasive species (AIS). The Great Lakes Fishery Commission (GLFC) continued its support for operation of the Great Lakes Panel through coordination of information/education, research coordination, monitoring, and prevention/control activities in efforts to minimize the ecological and economic impacts resulting from Great Lakes aquatic invasions. GLFC staff also tracked emerging AIS issues, including those related to global warming, developments in the hydrologic/ecologic separation of the Mississippi River basin and the Great Lakes basin, and vectors other than ballast water for AIS introduction and spread. Vectors ascertained to be high risk by the Council of Great Lakes Governors and utilized in the Great Lakes Regional Collaboration process include aquaculture; organisms in trade; canals and waterways; and recreational activities. In providing operational support to the Great Lakes Panel, the GLFC continued in its role to maintain and strengthen the institutional capacity established for multi-jurisdictional coordination on AIS prevention and control in the Great Lakes region. In representing the collective interests of the Great Lakes Panel, the GLFC provided advice and recommendations on AIS issues to the national ANS Task Force and its committees as established by the federal legislation.

To advance AIS prevention and control efforts on a regional basis, the Great Lakes Panel established the following three standing committees: Information/Education (I/E), Research Coordination and Policy Coordination.

This project specifically provided continued institutional support for the Great Lakes Panel and its committees with particular focus on the I/E Committee. Activities to fulfill baseline responsibilities of the federal act P.L. 101-646 as related to this project include: Committee support, preparation of the Commission's newsletter insert, ANS Update, and Enhancement of inter-regional communication and coordination activities.

**Recipient:** Great Lakes Commission  
**Title:** Quantitative support for Inter-Jurisdictional Fisheries Management of the Great Lakes  
**Grant No:** NA05NMF4071061 and NA10NMF4070318

The Michigan Department of Natural Resources and Environment facilitated a multi-jurisdictional effort among Great Lakes agencies to fund services provided by staff at the Quantitative Fisheries Center (QFC) at Michigan State University. Over the past five years, this collaboration has proven to be very productive.

Work with statistical and modeling experts at the QFC at Michigan State University continued to provide a research, outreach/service, and teaching program to 1) build greater capacity within fishery management agencies in quantitative methods, 2) improve quantitative methods for assessing fish stocks, 3) assist agencies in the use of model-based approaches in decision making, and 4) develop a better understanding of fish community and population dynamics.

Some priority tasks that the QFC is anticipated to participate in ensuing years include:

- 1) Further refinement of stock assessment models and harvest policy procedures for Lake Erie percids;
- 2) provide training opportunities in the form of short courses and online courses on decision analysis tools, stock assessment methods, and statistical modeling to agency personnel;
- 3) provide advice and consultation on development or refinement of lake trout statistical catch at age models throughout the Great Lakes;
- 4) Evaluate the effects of stock intermixing on harvest policy performance and stock assessment model predictions for admixed fisheries;
- 5) explore new methodologies for conducting Great Lakes fishery stock assessments;
- 6) Use fish community models to evaluate the relative influence of top-down and bottom-up processes on explaining reductions in Great Lakes prey fish communities;
- 7) Application and ongoing support of models to optimize sea lamprey control in support of lake trout and other interjurisdictional fishery management objectives;
- 8) Explore through simulation modeling the effects of global climate change and additional exotic species invasion on Great Lakes fish communities
- 9) Annual reports to and consultation with project steering committees

## MINNESOTA

**Recipient:** Minnesota Department of Natural Resources Division of Fish and Wildlife  
**Title:** Quantitative Support for Interjurisdictional Fisheries Management of the Great Lakes  
**Grant No:** NA05NMF4071063 and NA10NMF4070395

Fisheries agencies are faced with using increasingly sophisticated methods and tools to formally consider the influence of risk and uncertainty on inter-jurisdictional management decisions in the Great Lakes. These decisions affect economically important stocks of migratory lake trout, cisco, Lake whitefish, and walleye. Use of these methods and tools poses significant technical challenges, including the quantitative, statistical assessment of uncertainty in fish populations and associated fisheries, and the incorporation of uncertainty into forecasting models of management options. Management agencies seek to apply this technology and to develop internal capabilities to conduct state-of-the-art quantitative fisheries method but require external assistance and training.

Work with statistical and modeling experts at the QFC at Michigan State University to provide a research, outreach/service, and teaching program to 1) build greater capacity within fishery management agencies in quantitative methods, 2) improve quantitative methods for assessing fish stocks, 3) assist agencies in the use of model-based approaches in decision making, and 4) develop a better understanding of fish community and population dynamics.

## NEW HAMPSHIRE

**Recipient:** New Hampshire Fish and Game Department  
**Title:** Monitoring of the American Lobster (*Homarus americanus*) Resource and Fishery in New Hampshire.  
**Grant No:** NA05NMF4071056

The project objective for this project is to monitor the relative abundance, molt frequency, sex and size composition of SCUBA-caught lobsters in New Hampshire's territorial waters. This was carried out on an annual basis on smaller size classes not usually taken in conventional lobster traps. Thus, this project collected fisheries independent information concerning lobsters prior to their recruitment to the fishery. The project addresses a variety of research and monitoring needs identified in the ASMFC American Lobster Fishery Management Plan and its various amendments. It is the goal of this project to have an available time series that is useful in the continuing assessment of this vital resource. The possibility of a recruitment failure is a key factor motivating these actions.

Divers hand collect juvenile lobsters, thereby minimizing impact to lobster and its habitat. Previous tagging studies and staff observation indicate good survival of the released individuals while providing important information for successful management. In addition, New Hampshire Fish and Game worked with investigators via a contract to investigate the cause of lobster shell disease, during four of the five years. New Hampshire is trying to be proactive toward the issue of shell disease (multiple carapace lesions) that has been moving up the East Coast and is a threat to the economics of the New Hampshire lobster industry.

**Recipient:** New Hampshire Fish and Game Department  
**Title:** Commercial Fisheries Data Collection  
**Grant No:** NA10NMF4070323

New Hampshire's commercial fisheries are an economically important industry valued at over 20 million dollars with landings over 11 million pounds in 2008. The lobster fishery is the most important and valuable fishery in New Hampshire. Roughly 360 individuals were licensed to harvest lobsters in the state. In 2008, lobster landings in New Hampshire were estimated at 2.6 million pounds with ex-vessel values higher than 12 million dollars. A port-sampling program was initiated to enhance the monitoring in the sea sampling program in 2005. In order to develop an effective management plan for American lobster, it is important to identify and monitor the key characteristics of New Hampshire's lobster population. Monitoring of population trends is an important component in making sound management decisions concerning New Hampshire's lobster resource and is important in lobster stock assessment and the development of an effective management plan.

The objective of this multi-year project was to enhance the fisheries dependent data collected for New Hampshire's commercial fisheries through portside sampling of species collected from state and federal waters.

## **NEW JERSEY**

**Recipient:** New Jersey Department of Environmental Protection  
**Title:** Surfclam Inventory  
**Grant No:** NA05NMF4071146 and NA10NMF4070321

A commercial surf clam vessel was chartered for the determination of standing stock and size distribution. The vessel was one that is rigged with standard commercial gear (hydraulic clam dredge) similar to that used in the fishery and previous surf clam surveys, was currently operating successfully in the fishery, and was operated by a reputable captain with experience in survey work.

The use of standard commercial gear and a captain with a proven proficiency helps to ensure that catch yields can be compared within the fishery, sampling variability is minimized, and that accurate comparisons of stock estimates can be made from year to year. The hydraulic clam dredge was lined with rebar to retain pre-recruit size clams. Approximately 10-12 days of charter time was necessary to adequately sample between Shark River and Cape May.

Station locations were assigned using a stratified random sampling design based on optimum allocation. Stations were located using LORAN and recorded by DGPS. A five-minute tow was taken at each station. Live surf clams and shell trash was sorted and their volumes recorded. Standing stock estimates were determined using an area swept technique. Separate stock estimates were prepared for condemned areas and areas open to harvest. Size distributions were determined by measuring lengths of clams in a one-bushel subsample of the catch at each station. When less than one bushel of clams were caught, all live clams were measured. Data analysis included construction of length frequency graphs from clams sampled at each station. The composite data was also used to compare size and growth of the population along the coast.



Petersen grab samples were taken at each station to determine the general distribution and abundance of recently set surf clams. Water quality samples were collected during each sampling cruise. Temperature and salinity readings and dissolved oxygen samples were taken from the surface and bottom of the water column at the beginning and end of the day.

The overall objectives of this project include:

- To determine the standing stock of surf clams in New Jersey coastal waters from Cape May to Shark River.
- To determine the size distribution of surf clams within the standing stock.
- To determine the general patterns the setting of surf clams from the plankton within the three-mile limit.

## NEW YORK

**Recipient:** New York State Department of Environmental Conservation  
**Title:** Fishery Dependent Monitoring of the American Lobster (*Homarus americanus*), Horseshoe Crab (*Limulus polyphemus*), and Blue Crab (*Callinectes sapidus*) in the Marine District of LI, NY  
**Grant No:** NA05NMF4071038 and NA10NMF4070276

This project is divided into three major sections: American lobster, horseshoe crab, and blue crab.

### American Lobster:

The American lobster has been one of New York's most important marine fisheries in terms of dockside value of the total annual harvest. Even with declines in landings in Long Island Sound, American lobster still ranks in the top five in value for New York, at \$4.1 million. The harvest data collected as part of this project was historically the only landings statistics available for this species in New York State. Currently the Department is working to switch to reporting through vessel trip reports. This part of the project is aimed at the collection of landings and biological characterization of the catch. The project developed and implemented a compliance strategy, and through the efforts of compliance monitoring, phase out the reliance on annual recall surveys and collect landings data solely through vessel trip reports. Implementation of mandatory vessel trip reporting for lobstermen should increase the quality of the lobster landings data. The vessel trip reports should allow us to more accurately determine where landings are harvested spatially, and should be more accurate than annual recall. This project, when complete, will determine if a conversion factor is necessary to keep the time series of landings data intact.

### Horseshoe Crab:

This part of the project is aimed at the collection of landings and biological characterization of the catch. Timely acquisition of landings data is crucial for the quota management of the horseshoe crab fishery. Commercial sampling of the horseshoe crab fishery will be a compliance measure of the ASMFC Horseshoe Crab Fishery Management Plan once the technique of determining maturity has been developed. This project initiated a sampling program for biological data from the fishery. The

program focused the sampling effort to times and places that they will be most effective in characterizing the annual landings.

#### Blue Crab:

New York has had both a commercial and recreational fishery for blue crabs since the late 1800's. The public has concern about potential effects of pesticide spraying for mosquitoes to prevent West Nile disease on the blue crab population in the south shore bays. This part of the project continued the Departments data collection program, compiled historic data into a useable format, and also developed a strategy to phase out New York's annual recall survey and switch to reporting through vessel trip reports. This would streamline landings reporting for both the Department and the fishermen.

## OHIO

**Recipient:** Ohio Department of Natural Resources/Division of Wildlife  
**Title:** Quantitative Support for Inter-Jurisdictional Fisheries Management on the Great Lakes.  
**Grant No:** NA05NMF4071064 and NA10NMF4070320

Fisheries agencies are faced with using increasingly sophisticated methods and tools to formally consider the influence of risk and uncertainty on inter-jurisdictional management decisions in the Great Lakes. These decisions affect economically important stocks of migratory walleye, yellow perch, lake trout, cisco, and Lake whitefish. Use of these methods and tools poses significant technical challenges, including the quantitative, statistical assessment of uncertainty in fish populations and associated fisheries, and the incorporation of uncertainty into forecasting models of management options. Management agencies seek to apply this technology and to develop internal capabilities to conduct state-of-the-art quantitative fisheries method but require external assistance and training. Work with statistical and modeling experts at the QFC at Michigan State University to provide a research, outreach/service, and teaching program to 1) build greater capacity within fishery management agencies in quantitative methods, 2) improve quantitative methods for assessing fish stocks, 3) assist agencies in the use of model-based approaches in decision making, and 4) develop a better understanding of fish community and population dynamics.



## PENNSYLVANIA

**Recipient:** Pennsylvania Fish & Boat Commission  
**Title:** Documentation and Quantification of Alosids Utilizing Fish Passage Facilities and Collection of Biological Data on Adult American Shad  
**Grant No:** NA05NMF4071206 and NA10NMF4070354

This project encompassed monitoring of the American shad run in the Lehigh River and the collection of biological data from shad in Delaware River run. Monitoring efforts for shad of the Lehigh River run were adjusted based on the conclusions of the funded feasibility study. PFBC continued *status quo* monitoring as in past years of the Lehigh River run (i.e., fishway passage monitoring at both Easton and Chain Dams from 1 April through 30 June). PFBC anticipates continued collection, as in past years, for biological data from the Delaware River run taken at Smithfield Beach, for the entire project period.

Objectives of this project included: 1) Documentation and quantification of alosids utilizing fish passage facilities at the Easton Dam, Lehigh River, pending conclusions from the feasibility study; 2) Documentation and quantification of alosids utilizing fish passage facilities at the Chain Dam, Lehigh River only for 2011 spawning run; 3) collection of biological data and determination of origin (hatchery or wild) from adult American shad Delaware River run taken during spawning-taking operations at Smithfield Beach, Delaware River.

## RHODE ISLAND

**Recipient:** Rhode Island Department of Environmental Management  
**Title:** Rhode Island Lobster Research and Management Project  
**Grant No:** NA05NMF4071030 and NA10NMF4070407

The Rhode Island lobster fishery is one of the state's most valuable. Ex-vessel value of the commercial landings peaked in 1999 at \$30 million. A continuous decline in lobster abundance and landings reduced the value to \$15.5 million by 2008. The decline in abundance was associated with fishing pressure and a variety of environmental factors, including the outbreak of shell disease. In addition, the stock continues to show poor recruitment. In order to maximize the chances of rebuilding this valuable fishery, management decisions must be based on sound data and analyses. This project insured continuation of fishery dependent sampling used in the assessment and management.

The project provides Rhode Island with the ability to effectively participate in the management of the lobster fishery in accordance with the Atlantic Coastal Fisheries Cooperative Management Act and enables the state to implement the lobster Fishery Management Plans enacted by the ASMFC. This was accomplished by the acquisition of and analysis of biological data on the inshore and offshore lobster resource.

## VERMONT

**Recipient:** Vermont Department of Fish and Wildlife  
**Title:** Modeling the effects of climate change on anadromous fish populations in the Connecticut River  
**Grant No:** NA09NMF4071264

Recently, much of the popular science literature has focused on the concept of climate change. Thus far, there have been some very simple predictions on how climate change will affect temperature, especially in more northern latitudes. As ectotherms, fish are affected directly by any changes in temperature, which can range from altering foraging, reproduction, metabolism, migration timing, etc. In the Connecticut River, anadromous fish (e.g., Atlantic salmon (*Salmo salar*), American shad (*Alosa sapidissima*), sea lamprey (*Petromyzon marinus*)) are predicted to change migration patterns in relation to climate change. Particularly, Atlantic salmon are at the southern edge of their distribution and are more vulnerable to declining abundance than those nearer the middle or the northern edge. The life cycle complexity of migratory species introduces several unknowns regarding the transitions from freshwater to marine and back, and from tributary to mainstem in some species.



This backdrop provides an opportunity to expand on previous modeling of Atlantic salmon migration in the Connecticut River. Previous modeling explored how temperature, discharge, and the indirect effects of dams (by creating delays in migration) were related to survival of Atlantic salmon smolts. Thus, modeling will continue on Atlantic salmon or other species to forecast survival of migratory fish in relation to increased temperature and fluctuating discharges.

Results will be useful in predicting the effect of future thermal regimes and river flow conditions during migration of various fish species in the mainstem Connecticut River. From this research, managers will be better able to predict the range of conditions in the future that will allow for successful migration through the river.



## VIRGINIA

**Recipient:** Virginia Marine Fisheries Commission  
**Title:** Commercial Fisheries Statistics Information Systems  
**Grant No:** NA05NMF4071117 and NA10NMF4070348

The purpose of this project was to enable the Commonwealth to continue and expand its effort in the collection, processing and dissemination of commercial catch and effort data for Inter-jurisdictional fishery species.

This fisheries statistics program supported and enhanced state cooperation in collection, management and analysis of fisheries data (statistics), and provided the Virginia Marine Resources Commission with the information needed to make timely management decisions and the ability to determine the effects of those decisions. This enhanced quota monitoring initiatives; provided economic data on the commercial fisheries to state and federal agencies, research institutions and state municipalities; provided other state and federal agencies data upon which to measure the effects of environmental alterations; and provided a portion of the technical information necessary to develop ASMFC management plans. As this database continues to increase in an organized manner, it helps identify long-term trends in the commercial fisheries.

Without comprehensive programs such as this, the Virginia Marine Resources Commission and other state and federal agencies will be unable to meet their present and future responsibilities to manage the marine resources. With this program, these agencies have been better able to develop fisheries management and environmental plans designed to achieve optimum benefits for those using and dependent upon the marine resources. These benefits have ultimately been extended to research institutions, citizens groups and others.

## WISCONSIN

**Recipient:** Wisconsin Department of Natural Resources  
**Title:** Great Lakes Commercial Fisheries Licensing and harvest Statistics Information System  
**Grant No:** NA05NMF4071065 and NA10NMF4070317

What is already an efficient program for licensing the commercial fishery and tracking the quota harvest has become even better with the full implementation of the proposed Electronic Fish Harvest Reporting System (EFHRS). This system significantly decreased the time that it takes to fulfill the informational needs of Department staff and user groups. Under the EFHRS, conservation wardens receive the information they need in a matter of hours rather than weeks, which has resulted in substantially quicker enforcement of and better compliance with regulations. Fisheries biologists receive the harvest and effort data in a more timely fashion that is required to manage targeted commercial fish stocks and protect incidentally impacted species from problem gear. The Department has been able to implement changes in licensing and quota allocations more quickly and efficiently to the benefit of both the management agency and the commercial fishers.

# ATLANTIC STATES MARINE FISHERIES COMMISSION

**Recipient:** Atlantic States Marine Fisheries Commission  
**Title:** Interjurisdictional Fisheries Management Planning  
**Grant No:** NA05NMF4071024 and NA10NMF4070107

The goal of interjurisdictional fisheries management planning program is to manage, enhance, restore and maintain the shared fisheries of the Atlantic coast, with principal emphasis on the conservation and restoration of migratory marine and diadromous fishery resources and their habitat, as well as the maintenance, enhancement, and improvement of public uses and benefits from these resources, including seafood production, recreation, and commerce.

The following objectives have been established to reach the above goal:

- 1) Determine, in consultation with applicable state and federal agencies, the priority issues in interstate fisheries management, including:
  - a. Development of fishery management plans, amendments, or addenda;
  - b. Interspecies interactions with or between the managed species;
  - c. Habitat inventories, descriptions and conservation and/or restoration opportunities;
- 2) Develop, review, and monitor the implementation and enforcement of interstate fisheries management plans;
- 3) Recommend to the states and where appropriate, to Regional Fishery Management Councils and U.S. government agencies, strategies and activities to benefit and complement interstate fisheries management efforts;
- 4) Identify and recommend research and monitoring essential to preparation, implementation, and revision of interstate fishery management plans;
- 5) Conduct and support outreach to promote the understanding of fisheries management issues in order to promote public participation;
- 6) Coordinate and promote state habitat, law enforcement and research & statistics activities relating to marine and estuarine fishery resources; and
- 7) Provide administrative support, including clerical, bookkeeping, and technical oversight to accomplish the above objectives.

Interjurisdictional Fisheries Management Planning will provide the framework for a coordinated, long-term, cooperative management program, using the best available science, for the interjurisdictional territorial seas fisheries of the Atlantic coast, resulting in the better conservation and use of the fisheries resources to the benefit of the states, the Nation, and the public.



## **GREAT LAKES FISHERY COMMISSION**

**Recipient:** Great Lakes Fishery Commission  
**Title:** A Partnership Approach for Controlling Nonindigenous Aquatic Nuisance Species in the Great Lakes  
**Grant No:** NA06NMF4070259

The Great Lakes Panel provides a framework for multi-jurisdictional coordination and a balance in activity areas involving, information/education, research coordination, monitoring and prevention/control efforts, particularly in the area of policy development. The Panel provides a forum to anticipate and address any prospective impacts of nonindigenous species already present and any potential future introductions; develop regional policy; and share information among affected parties. It is also an opportunity to promote a proactive-based response model to effectively address new AIS introduction and limiting the spread of existing populations. Specifically, the responsibilities of the Panel under the Act, as supported by the GLFC, are six-fold:

- 1) To identify priorities for the Great Lakes with respect to aquatic nuisance species;
- 2) To make recommendations to the national ANS Task Force regarding programs to carry out the Aquatic Nuisance Species Program being developed as part of the Act;
- 3) To assist the national ANS Task Force in coordinating the federal aquatic nuisance species program activities in the Great Lakes that are not conducted pursuant to the Act;
- 4) To coordinate, where possible, aquatic nuisance species program activities in the Great Lakes that are not conducted pursuant to the Act;
- 5) To provide advice to public and private individuals concerning methods of controlling aquatic nuisance species; and
- 6) To submit annually a report to the national ANS Task Force describing activities within the Great Lakes related to aquatic nuisance species prevention, research, and control.

The Great Lakes Panel on Aquatic Nuisance Species is composed of an established network representing Great Lakes governmental agencies, environmental groups, academic institutions, tribal authorities, commercial and private sector researchers and managers working on issues related to the prevention and control of nonindigenous aquatic invasive species. The mission of the Great Lakes Panel is to advance regional efforts to achieve the goals of the Nonindigenous Aquatic Nuisance Prevention and Control Act (NANPCA) (P.L. 101-646) as reauthorized in the National Aquatic Invasive Species Act (NISA) of 1996. The GLFC continued its support for operation of the Great Lakes Panel through coordination of information/education, research coordination, monitoring, and prevention/control activities in efforts to minimize the ecological and economic impacts resulting from Great Lakes aquatic invasions. GLFC staff tracked emerging AIS issues, including those related to global warming, developments in the hydrologic/ecologic separation of the Mississippi River basin and the Great Lakes basin, and vectors other than ballast water for AIS introduction and spread. Vectors ascertained to be high risk by the Council of Great Lakes Governors and utilized in the Great Lakes Regional Collaboration process include aquaculture; organisms in trade; canals and waterways; and recreational activities. In providing operational support to the Great Lakes Panel,

the GLFC continued in its role to maintain and strengthen the institutional capacity established for multi-jurisdictional coordination on AIS prevention and control in the Great Lakes region. In representing the collective interests of the Great Lakes Panel, the GLFC provided advice and recommendations on AIS issues to the national ANS Task Force and its committees as established by the federal legislation.

Section 1203 of NANPCA, the GLFC is called upon to convene the membership of the Great Lakes Panel to identify Great Lakes priorities; assist/make recommendations to a national ANS Task Force; coordinate federal aquatic nuisance species program activities; advise public and private interests on control efforts; and submit annually a report to the national ANS Task Force describing prevention, research and control activities in the Great Lakes Basin. To advance AIS prevention and control efforts on a regional basis, the Great Lakes Panel has established the following three standing committees: Information/Education (I/E), Research Coordination and Policy Coordination.

This project provided continued institutional support for the Great Lakes Panel and its committees with particular focus on the I/E Committee. In supporting the I/E Committee, priority activities included ongoing strategic work on regional outreach programs, such as implementation of the *AIS Information/Education Priorities for the Great Lakes* and updates to the *Information and Education Strategy for ANS Prevention and Control*. Work also continued on effective dissemination of information on AIS prevention and control, to deliver messages that are accurate and consistent.



## SOUTHEAST REGION

There is a great diversity of fishery resources within the Southeast Region, which includes 17 states—Alabama, Arkansas, Florida, Georgia, Iowa, Kansas, Louisiana, Mississippi, Missouri, North Carolina, New Mexico, Nebraska, Oklahoma, Kentucky, South Carolina, Tennessee, and Texas—and the U.S. Virgin Islands, the Commonwealth of Puerto Rico, and the Gulf States Marine Fisheries Commission (GSMFC).

### ALABAMA

**Recipient:** Alabama Department of Conservation and Natural Resources-State Lands  
**Title:** Enforcement and coordination of interjurisdictional fisheries protection measures  
**Grant No:** NA10NMF4070022

The objectives of this activity included providing for a coordinated enforcement program with NMFS as well as providing training. Enforcement personnel conducted routine patrols in the water of the Gulf of Mexico within Alabama's territorial jurisdiction and adjacent federal waters. The patrols were conducted to detect violations of the various state marine fisheries laws, Magnuson Act, Endangered Species Act, and Marine Mammal Protection Act. Investigations were also conducted based upon reports and complaints received from recreational and commercial fishermen or other sources about alleged violations of state and/or federal fisheries laws. Patrols and dockside checks were in conjunction with special cooperative enforcement operations with other state (Alabama Marine Police, Florida Marine Patrol, Mississippi Department of Parks, Fish, and Wildlife) or federal (NMFS, US Coast Guard, U.S. Fish and Wildlife) marine enforcement agencies. These operations targeted areas where reports of alleged state and federal fisheries law violations were occurring and/or areas where heavy recreational and/or commercial fishing was occurring. Patrols and dockside checks were coordinated with the various agencies by telephone and direct contact.



Enforcement officers also attended local training sessions on fish identification, federal fisheries regulations established in Fishery Management Plans (FMP) by the Gulf of Mexico Fishery Management Council (GMFMC) and GSMFC, etc., conducted by NMFS and USCG. Officers attended marine fisheries enforcement training sessions held at federal law enforcement training center in Glynco, Georgia when slots are available. Finally, officers attended joint state/federal meetings to plan interjurisdictional marine enforcement activities.



## FLORIDA

**Recipient:** Florida Fish and Wildlife Conservation Commission, Fish and Wildlife Research Institute  
**Title:** Florida's Interjurisdictional Marine Fisheries Research Program  
**Grant No:** NA08NMF4070376

Harvests of marine arthropods comprise some of the most highly valued fisheries in Florida. For Florida's important blue crab fishery and for the easily overexploitable horseshoe crab fishery, we have identified important areas where data are needed to manage these fisheries in a sustainable manner and have designed research to obtain these data. Our approach to obtaining these data involved working with other Florida Fish and Wildlife Research Institute (FWRI) teams, local and state agencies, private groups and organizations, industry personnel, and the general public. Through this comprehensive effort, critical data gaps are being filled and management of these species will be enhanced. The specific projects are described below.

In 2007, the Florida Fish and Wildlife Conservation Commission (FWC) initiated a Blue Crab Effort Management Program that limited the number of commercial harvesters and the number of traps each harvester can use, and requires separate endorsements to participate in the hard-shell and soft-shell blue crab fisheries. We assessed the effects of the new regulations on fishery participation, fishery effort, and landings by collecting and analyzing data from trip tickets and endorsement applications over the period 1986 through 2012. Stock assessments, which are used to manage fisheries, require accurate data for estimating model parameters such as mortality. Age data for blue crabs is difficult to determine because crabs have disjunct growth (molting) and highly variable sizes at any given age. We developed better age estimates for Florida blue crabs by measuring the levels of lipofuscin in crabs, which is a metabolic compound that accumulates over time.

Another commercial species, the horseshoe crab, is fished intensely in some areas, which prompted the AAMFC to develop regulations for the fishery. One regulation requires that each Atlantic coastal state identify horseshoe crab spawning beaches. We identified and mapped horseshoe crab spawning beaches through public participation in our Horseshoe Crab Spawning Beach Survey. We also determined the timing of horseshoe crab spawning in Florida by collecting sex and abundance data from spawning horseshoe crabs, as well as data on environmental factors that influence spawning.

In cooperation with industry personnel, appropriate public and private local and state agencies and groups, and other FWRI research groups, the project provided fisheries-related information on aspects of the life history and fisheries utilization of selected commercially valuable marine arthropods (blue crabs, horseshoe crabs) for fishery management.

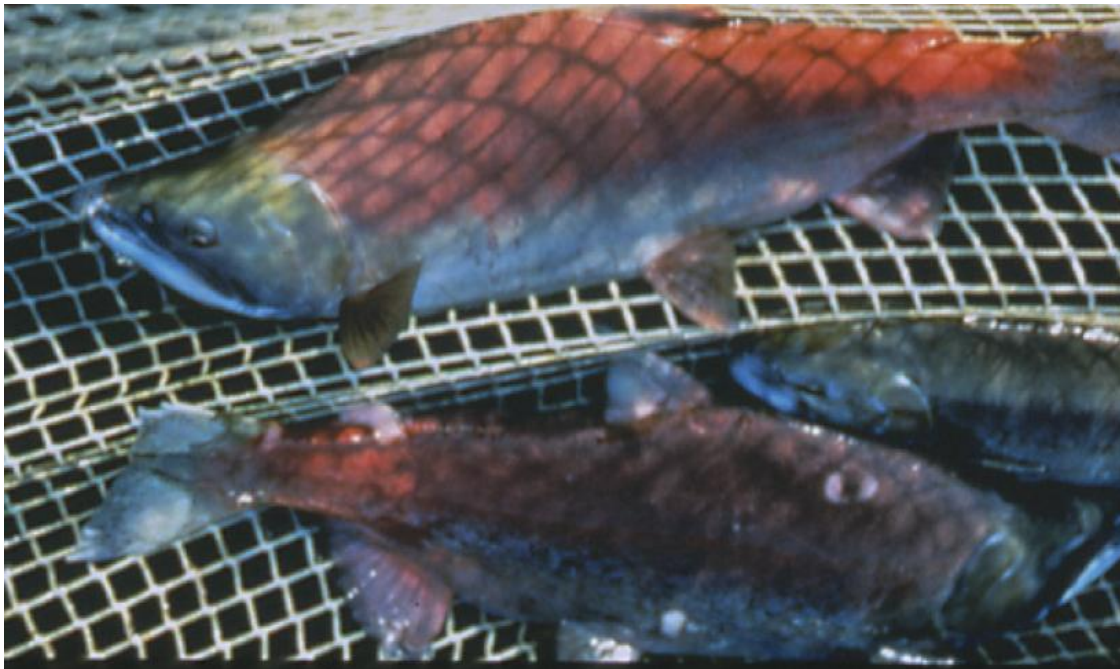
## GEORGIA

**Recipient:** Georgia Department of Natural Resources  
**Title:** Georgia Interjurisdictional Fisheries Act 2008-2011  
**Grant No:** NA08NMF4070377

This project determined the relative abundance, size composition, and reproductive status of Georgia's penaeid shrimp and blue crab stocks. Monthly fisheries independent assessment sampling data was used to evaluate stock status and to develop recommendations for optimum management of these important marine resources.

This study provided state and federal resource managers with the timely and relevant information needed to effectively manage penaeid shrimp and blue crab stocks in Georgia's estuarine waters and the EEZ. Assessment data was utilized to develop management recommendations, including the opening and closing of seasons and areas, and to provide for the most efficient use of these resources. State and regional managers utilized this information to verify the negative impacts of severe winters and to prepare support rationale for future EEZ closure requests under the South Atlantic Fishery Management Council (SAFMC) Shrimp Management Plan.

In addition to day-to-day management of annual shrimp and crab stocks, these assessment data are valuable in evaluating long-term trends in abundance and the health of our marine ecosystem. Increasing development in Georgia's coastal zone places larger demands upon the estuaries that provide habitat for fish and crustaceans. Long-term abundance information for shrimp and crab stocks is necessary for determining the health of the estuarine ecosystem as well as providing for the wise and efficient management of these coastal resources.



## LOUISIANA

**Recipient:** Louisiana Department of Wildlife and Fisheries  
**Title:** Interjurisdictional Assessment and Management of Louisiana's Coastal Fisheries  
**Grant No:** NA07NMF4070050

The mission of the Department of Wildlife and Fisheries is to manage and conserve Louisiana's renewable fish and wildlife resources and their supporting habitats through replenishment, protection, enhancement, research, development, education and wise utilization.

In addition, state and federal resource management agencies have long recognized the importance of cooperation in managing fishery resources and of obtaining reliable data upon which to develop and evaluate management decisions. These two concepts were initially formalized with the passage of PL 81-66 (May 19, 1941) in which Congress granted consent and approval to an interstate compact relating to the management and utilization of fisheries resources of the territorial sea of the Atlantic and Gulf coasts. The resulting Marine Fisheries Commissions have coordinated the development and implementation of fishery management plans for species found primarily in the state's territorial waters (menhaden, striped bass, shrimp, etc.). Currently, the South Atlantic and Gulf States manage interjurisdictional species along the coasts through cooperative agreements (Interstate Fisheries Management Program).

With the passage of PL 94-265, these concepts were expanded to the conservation and management of the marine fishery resources within the EEZ of the United States. This law has resulted in the formulation of eight regional fishery management councils. The GMFMC has jurisdiction in the EEZ contiguous to the territorial waters of Louisiana. Council fishery management plans including shrimp and stone crab have been developed for a number of species.

Information from this project was used to manage shrimp and crab resources in waters of Louisiana and the EEZ. The information was provided to state and federal agencies responsible for coastal zone management such as the U.S. Army Corps of Engineers, NOAA Office of Coastal Zone Management and the Louisiana Department of Wildlife and Fisheries. To accomplish these functions, an ongoing monitoring program of marine fisheries resources is necessary. This includes standing crop estimates, population dynamics and ecological and hydrological parameters which influence those resources. In addition, the Department used data gathered in its monitoring program to recommend changes in, and additions to existing statutory law or commission regulations and provided for rational management of Louisiana's shrimp, groundfish and crab resources.

## MISSISSIPPI

**Recipient:** Mississippi Department of Marine Resources  
**Title:** Monitoring and Assessment of Mississippi's Interjurisdictional Marine Resources  
**Grant No:** NA07NMF4070032

The overall project objective was to provide a portion of biological and hydrological data needed to manage marine fisheries for ensured biological sustainability and the greatest benefit to the resource users.

Marine fishery resources play a vital role in the economy of Mississippi. Various user groups share the states marine resources therefore; it is necessary to manage these resources as a unit. Striving to insure sustainability of the stocks; utilizing the best available biological, habitat, social and economic data available. To maximize the resources for the greatest benefit to all user groups, timely information on recruitment, abundance, distribution, seasonal availability, mortality and fishing pressure are needed to effectively manage these public resources.

The Department of Marine Resources along with the Gulf Coast Research Laboratory has prioritized both the current and long-term data needs that are required to effectively manage Mississippi's marine resources. These data needs include:

Long-term assessment and monitoring of commercially important fish and shellfish species as they occur in Mississippi's coastal waters is a high priority need. This effort continued the monitoring effort developed previously for our estuarine and nearshore species and aided in evaluating the overall health of the local ecosystem. It is anticipated that the long-term database will be used to profile inshore species abundance through time in an attempt to detect long-term changes in abundance.

Finfish monitoring data was used to observe trends in population condition including abundance, size, sex and age by species. This data is needed in order to make sound management recommendations for a particular species.

A wide fluctuation of oyster production in Mississippi makes the management of this fishery critical to the industry that is dependent on this resource. Quarterly monitoring of Mississippi oyster reefs was needed for their proper management. Information collected was utilized to determine location, timing and volume of cultch or relaying operations needed for reef enhancement and/or restoration. The information was also utilized to forecast area harvest potentials and to aid in the formulation of management recommendations such as sack limits, area openings and gear restrictions. Monitoring the resource regularly also helped to identify any areas requiring immediate management action.

Brown shrimp spawn in Gulf waters off Mississippi during late winter and early spring each year. Larvae are transported toward the mainland and arrive in Mississippi's estuarine areas as post-larvae. Early detection of the abundance and survival of post-larval immigration is used to indicate the magnitude of the subsequent harvest in Mississippi. In addition, early detection of the magnitude of the survival of post-larval shrimp can be monitored during environmental extremes (low salinities, cold temperatures), which gives insight into causes of poor seasons.

Each of the above data needs addresses the current mandate for management of marine fishery resources based on the best available scientific evidence throughout the range of the management unit. The existing database for management under these criteria, although extensive must be continued to address current conditions is still inadequate in many instances. There exists an immediate need for data on specific management units as describe above. This project was designed to provide that needed data.

## **NORTH CAROLINA**

**Recipient:** North Carolina Department of Environment and Natural Resources  
**Title:** North Carolina IJA - Commercial Finfish Assessment  
**Grant No:** NA07NMF4070047

The project objective was to collect, analyze, and report information on North Carolina finfish operations for use in management of the fisheries and stocks; and preparation and implementation of state and interjurisdictional management plans for the fisheries of species involved.

The North Carolina Division of Marine Fisheries (NC DMF) is charged by law (GS 113-131; GS 143B-286) with management of North Carolina's estuarine and marine fishery resources. The Division is empowered to collect such scientific and statistical information as may be needed to determine conservation policy. The legal structure of North Carolina's management system makes it especially open to utilization of scientific information for formulation of rules by the North Carolina Marine Fisheries Commission (MFC), as well as issuance of "proclamations" (administrative orders) for those fisheries over which the Division Director has direct authority.

The biological basis for management actions proposed in fishery management plans is the stock assessment which indicates whether or not a stock is overfished. Several types of data are essential to stock assessments, and include age-length keys, von-Bertalanffy growth equations, catch-at-age matrices, and indices of abundance. This study, along with past data on these fisheries, continued the development of long-term databases necessary for monitoring the status of fish stocks in North Carolina as well as along the Atlantic coast of the United States. Long-term size, age and abundance databases for various species allowed NC DMF to monitor changes in mortality rates and age composition of the stocks, and helped determine whether or not overfishing is occurring. Regulatory measures can then be implemented or modified to address the problems. Continued strong databases are essential for evaluating and determining appropriate management strategies and they must be updated annually. Possible management actions included bag limits, harvest quotas, size limits, fishing seasons and gear/effort restrictions.

Many North Carolina fish stocks such as, summer flounder, weakfish, bluefish, Atlantic croaker and red drum are managed either by fishery management plans under the guidance of the ASMFC, Fisheries Management Councils, or individual state plans. Stock assessments are conducted by the technical and scientific committees of these organizations to determine the status of the stocks and to recommend necessary harvest control strategies. The data collected in this study are primary input parameters to any recognized mathematical analysis of fish stock dynamics. The funding of this research permitted North Carolina to provide timely and accurate assessment information to Council/Commission staff in order to conduct annual assessments. Past data from North Carolina



has been critical for coastwide assessments of summer flounder, weakfish, Atlantic croaker and bluefish. Further, this data allowed North Carolina to conduct its own evaluation of the effectiveness of current management measures and modify those regulations if necessary. Data on relative abundance, species compositions, size and age distribution aided in development of management plans and promulgation of fisheries regulations by the NC MFC. Data was utilized for interjurisdictional plans for species such as bluefish, summer flounder, weakfish, Atlantic croaker, spot and red drum.

## **PUERTO RICO**

**Recipient:** Puerto Rico Department of Natural and Environmental Resources  
**Title:** Puerto Rico/NOAA Interjurisdictional Fisheries Program 2007-12  
**Grant No:** NA07NMF4070049

The Puerto Rico's marine commercial fishery is artisanal, multispecies and multigear. The mentioned activity is reported around 42 coastal municipalities around the Island. Also, this activity is occurring in the Commonwealth of Puerto Rico's territorial waters and in the USA Exclusive Economic Zone waters. The Puerto Rico's Department of Natural and Environmental Resources (DNER) Commercial Fisheries Statistics Program (CFSP) has collected the commercial fishery landings data since 1971. This program is responsible for estimates of fish and shellfish landings (in pounds) by species, by date, fishing center, municipality, coast and gear. This information is an important tool that helped to understand the status of the fisheries populations. Also biostatistics data (length and weight) and catch per unit effort (CPUE) has been collected. Thru the last 35 years this Program collected the mentioned data. Multiyear data analysis has shown a decrease in landings (pounds), high percentage of juvenile catches and decrease in the number of active commercial fishers. Due to these facts, it is considered that Puerto Rico's fishery resources are overfished.

The NOAA Fisheries Cooperative Statistics Program, Interjurisdictional Fisheries Program and the Puerto Rico's Department of Natural and Environmental Resources provided the necessary funds to collect the following data: summary of monthly landings (by weight and value) by fishing center, by municipality and by coast, the collection of biostatistics data and CPUE data. All these data helped the Commonwealth and Federal government's managers to do the wisely administration of the Puerto Rico's fisheries resources.

A comprehensive database is essential to develop and to monitor State and/or Federal fishery plans for the conservation and management of the shallow water fish and shellfish resources of the Territorial Sea and Federal Fisheries Conservation Zone waters contiguous the Commonwealth of Puerto Rico. The collection of this information must be done in a way that protects the confidentiality of individual business or personal statistics provided to the program. The CFSP at Fisheries Research Laboratory has consistently been the only facility to collect this information on the commercial fisheries on a regular basis for the last 35 years. Without this information, management and rational resource use is not possible, and the increasing needs to address problems concerning the use of commercially exploited marine resources cannot be met. The data collected helped to develop the Puerto Rico's Regulations 6768, known as Fishing Regulations. The mentioned document includes closed seasons, minimum legal sizes, forbidden dangerous fishing gears and other important actions to conserve the fisheries resources. Also the Caribbean Fishery

Management Council has extensively used the information collected by this program in developing and monitoring management plans to the region.

The goal of this project was to maintain reporting services on the commercial finfish and shellfish resources of Puerto Rico, as well as to manage and disseminate these fishery statistics through coordination of activities between the NMFS and the CFSP at the DNER's Fisheries Research Laboratory. The objectives to reach this goal included the data collection of landings data to be processed and summarized by monthly landings (by weight and value) gear, municipality, etc., also the collection of biostatistics and CPUE, which is needed to manage marine resources. Close cooperation in these activities avoided duplication of effort and promoted efficiency of operations.

## **SOUTH CAROLINA**

**Recipient:** South Carolina Department of Natural Resources, Marine Center  
**Title:** Fishery Independent Assessment of Adult Red Drum and Coastal Sharks in South Carolina  
**Grant No:** NA06NMF4070049

The goal of the proposed research is continued fishery independent assessment of the population status of adult red drum and coastal shark species in the near-shore ocean and estuarine waters of South Carolina. The following objectives have been developed to meet the research goal:

1. To conduct fishery independent longline sampling on adult red drum to develop catch per unit effort (CPUE) based indices of abundance, and data on size, age and sex composition.
2. To tag adult red drum for the collection of migratory and stock identification data.
3. To determine the age composition and reproductive status of a sub-sample of red drum <90 cm total length (TL).
4. To extend the time series of our fishery-independent, CPUE-based coastal shark data set for use in future stock assessments of small coastal (SCS) and large coastal sharks (LCS).
5. To tag and measure small coastal and large coastal sharks for inclusion in the COASTSPAN (Cooperative Atlantic States Shark Popping and Nursery Survey) database.
6. To disseminate accomplishments and results to the NMFS and ASMFC for inclusion in red drum and shark stock assessments.

This project provided continuing data, broadened the geographic scope of the work and established an adequate sample size and time series for characterizing offshore population of red drum and trends in estuarine escapement in the waters of South Carolina. It also was integral to the development of a regional program of adult red drum sampling that will improve the accuracy of future stock assessments and the management of this important species. Additionally, this research extended the time-line and geographic scope for the fishery independent shark longline survey, thereby increasing its utility for future stock assessments. The tagging of additional sharks also provided information on growth, migrations and essential fish habitat (EFH) for small and large coastal shark species. The data collected by this program was incorporated into the COASTSPAN database for development of a regional understanding of shark population dynamics and habitat requirements.

## TEXAS

**Recipient:** Texas Parks and Wildlife Department  
**Title:** Monitoring of Shellfish Resources for Shellfish Management in Texas Coastal Waters  
**Grant No:** NA09NMF4070195

The overall objective of this project was to determine the status of shellfish populations for formulating shellfish management and harvest regulations in coastal waters under the management jurisdiction of the Texas Parks and Wildlife Commission.

Continuation of shellfish long-term data collection programs within coastal Texas bays is vital to ensure sound management of marine shellfish resources along the Texas coast. In 2007, shrimp remained as one of the most valuable seafood products landed in the United States based on total ex-vessel value. Reported 2007 shrimp landings were 232 million pounds with an ex-vessel value of \$370 million. Shrimp constitutes Texas' most valuable commercial fishery with 2007 landings of 44 million pounds and a dockside value of \$81 million. Principal species are brown shrimp (*Farfantepenaeus aztecus*), white shrimp (*Litopenaeus setiferus*) and pink shrimp (*F. duorarum*). The Texas Parks and Wildlife Commission (TPWC) regulates the shrimp fishery in Texas. Texas Parks and Wildlife Department (TPWD) is required by the Texas Legislature to continually investigate the supply, economic value and other aspects of the fishery to provide information on which to base sound management. For Example, the TPWC has the responsibility for adjusting the Gulf shrimping season dates for the annual "Texas Closure" for brown shrimp. The purpose of the annual closure is to protect small shrimp from fishing pressure until they reach a larger, more valuable size and to minimize waste caused by discarding smaller shrimp during gulf harvest (the closure is based almost solely on coastal bay data). Based on TPWD data the NMFS also closes U.S. waters to shrimping according to the GMFMC's fisheries management plan for shrimp. In addition, data from this long-term collection program was used to assess Texas' limited entry program for the commercial bay shrimp industry, and the commercial bay shrimp license buy-back program associated with the limited entry program.



Reported hardshell blue crab (*Callinectes sapidus*) landings in the United States were 137 million pounds valued at \$123 million to the commercial fishermen in 2007. Reported landings in Texas for the same year were 3.4 million pounds valued at \$2.8 million. The TPWC has regulatory Authority for the harvest of blue crabs in all Texas waters. In 1992, the Texas Blue Crab Fishery Management Plan was adopted by the Commission to guide management and regulations of blue crabs in Texas. This project will provide information on which to base sound management of the blue crab fishery.

In addition, data from this long-term collection program is used to assess Texas' limited entry program for the commercial blue crab industry, and the commercial crab license buy-back program associated with the limited entry program.

Knowledge of the status of commercial shellfish populations will provide the TPWD with information to assist the TPWC in formulating regulations for sound shellfish management. These data were also used for interjurisdictional management of shellfish resources, and to assess Texas' limited entry and license buy-back programs for the bay shrimp industry, and the crab industry. Proper management will assure a continued supply of these renewable but limited resources with a minimum economic impact to the Texas shellfish industry, valued at more than \$200 million annually.

## **VIRGIN ISLANDS**

**Recipient:** Executive Office of the Government of the Virgin Islands - DFW  
**Title:** Interjurisdictional Fisheries Program  
**Grant No:** NA09NMF4070280

Primary objectives for this activity included collecting biostatistical data from commercial fishing trips; updating and maintaining a database of bio-statistical data from commercial fishing trips; and, managing and disseminating these fisheries statistics through coordination of activities between the NMFS and the Department of Planning and Natural Resources, Division of Fish and Wildlife (DFW).

A comprehensive data base is essential to develop and to monitor inter-jurisdictional fisheries management plans for the conservation and management of shallow water reef fish and shellfish resources of the Territorial Sea and the Exclusive Economic Zone contiguous to the Territory of the United States Virgin Islands (USVI). The collection of this information must be done in such a way as to protect the confidentiality of individual business or personal statistics provided to the program. Over the last 20 years in the USVI, DFW has been the only agency to collect this information on a regular basis. Without this information, proper management of these marine resources is not possible.

Biostatistical information is needed for analysis of the condition of fish stocks at the species level. Currently, commercial fishermen turn in monthly catch report forms that document landings by key species groups (families of fish). However, there is no reporting at the species level. As such, without bio-statistical sampling, no information would be available at the species level. Information collected is the basis for species-level estimates of commercial landings. In addition, information collected is used for determining stock conditions of key species of commercially important fishes. The information collected here complemented similar information collected over the last 20 years. It is essential for time-series analyses and comparisons.

This information has immediate application in the monitoring and the development of fisheries management plans by the Caribbean Fisheries Management Council, NMFS and DFW. Cooperation between these agencies based on this and similar efforts results in cost effective collection and utilization of such fishery data.

## **GULF STATES MARINE FISHERIES COMMISSION**

**Recipient:** Gulf States Marine Fisheries Commission  
**Title:** A Project to Develop Interjurisdictional Fisheries Management Plans and Revisions  
**Grant No:** NA05NMF4070005 and NA10NMF4070006

The objectives of this program was: to identify, prioritize, and schedule individual fisheries for regional plan development or revision in order to effectuate the best fishery management, research, and other programs conducted by the Gulf States in consort with GSMFC; To develop interstate fishery management plans (FMPs) as specified under P.L. 99-659, Title III, Section 308(c); and, to encourage all Gulf of Mexico states to participate in interjurisdictional planning efforts for management of fishery resources throughout their range and to implement agreed upon management recommendations.

Interjurisdictional FMPs currently do not exist for a number of important fisheries in the Gulf States, and other fisheries under existing FMPs have changed radically enough to merit revisions. Because most of these fisheries transcend state boundaries, successful management mandates cooperative management strategies, data gathering, and research programs. The capabilities of the states to develop and implement management measures and to conduct fishery research in support of regional management are enhanced by the development of interstate or interjurisdictional management plans as specified in P.L. 99-659.



## NORTHWEST REGION

The Northwest Region encompasses two coastal states—Oregon and Washington—and seven inland states— Colorado, Idaho, Montana, North Dakota, South Dakota, Utah, and Wyoming.

The Northwest Region provided IFA funds to Washington, Oregon, and Idaho and to the Pacific States Marine Fisheries Commission. Both Washington and Oregon used the majority of their IFA funds for groundfish data collection and analysis activities that support the Pacific Coast Groundfish Fishery Management Plan. In addition, a portion of Oregon’s IFA funds were used to support management of pink shrimp. Idaho’s IFA funding supported the development of estimates of run size and harvest levels of certain wild steelhead stocks in the Snake River Basin.

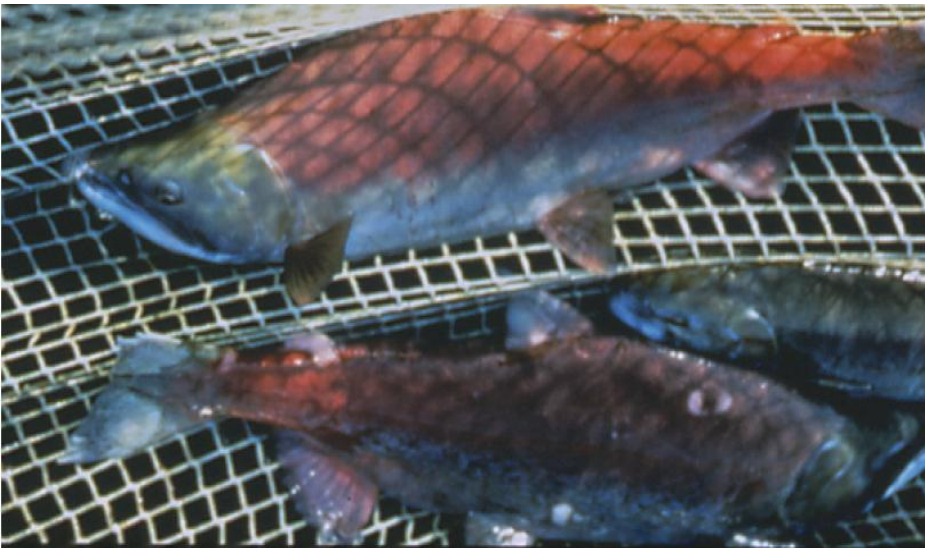
PSMFC’s IFA funds provided support for: the development of interstate plans for fishery resources of mutual concern in the region; coordination of State and Federal data collection programs for interjurisdictional species; and further development of GIS tools and products for regional landings, economic, habitat and community data. The remainder of the inland states did not qualify for funding under the IFA.

## IDAHO

**Recipient:** Idaho Department of Fish and Game  
**Title:** Abundance and Migratory Patterns of Steelhead Returning to the Snake River Basin  
**Grant No:** NA07NMF4070365 and NA10NMF4070420

This project provided salary and travel cost support for Idaho Department of Fish and Game (IDFG) staff to participate in the U.S. vs. Oregon Technical Advisory Committee activities to determine the abundance and migratory patterns of steelhead returning to the Snake River Basin. These data are required to implement the Columbia River Fisheries Management Plan under the U.S. vs. Oregon settlement agreement in accordance with the NMFS ESA take guidelines for the

Snake River Steelhead Distinct Population Segment.



Snake River Steelhead (*Oncorhynchus mykiss*) was listed as threatened under the Endangered Species Act (ESA) on August 18, 1997. In the Snake River Basin, two life history variations, commonly referred to as A-run and B-run are used

for management purposes. These two life history variations are characterized by differences in location of spawning, adult size at age, ocean age composition, and time of adult return to freshwater. B-run fish are believed to spawn primarily in the Clearwater River drainage upstream of the North Fork Clearwater River, South Fork (SF) Salmon River and Middle Fork (MF) Salmon River, while A-run fish are believed to spawn primarily in the Clearwater River downstream of the North Fork Clearwater River, the Salmon River drainage with the exception of the SF and MF Salmon rivers, Grande Ronde River, Imnaha River, and tributaries of the Snake River downstream of Hells Canyon Dam. While A-run steelhead are also found throughout the inland Columbia River basin, B-run steelhead are found only in the Snake River drainage. A-run adult steelhead enter freshwater about a month earlier than B-run adult steelhead. B-run adult steelhead are typically larger at the same age as A-run adults (likely because of the additional time they spend feeding in the ocean before migrating into freshwater) and have a larger proportion of returning adults that spent two years in the ocean, and hence are “bigger”.

Beginning with the 2008 smolt migration, IDFG increased its PIT-tagging of all hatchery steelhead stocks except Niagara Springs (Niagara Springs tagging was initiated for MY2009). Sample sizes are now large enough that abundance and survival estimates can be made for each hatchery stock (and in many cases each release site) using adult detections at Columbia and Snake river dams. In the fall of 2009, one-ocean returns have allowed IDFG to predict the number of hatchery steelhead returning to specific locations in Idaho. Since most B-run stocks return as 2-ocean fish, abundance and survival estimates for the Dworshak hatchery stock were not available for the fall of 2010. This additional PIT-tagging allowed us to estimate conversion rates from Bonneville Dam to upriver sites.

This project continued efforts to monitor the survival rates of steelhead between Bonneville and Lower Granite dams and incorporated estimates into models of the fall Chinook fishery in Zone 6. These efforts assisted TAC and the managers of the U.S. v Oregon agreement to explore management options.

### **Project Goals and Objectives:**

The goal of this project was to provide accurate estimates of the survival and migration timing of Snake River steelhead to the TAC. To accomplish this goal, the following were conducted:

- Queried the Pacific States Marine Fisheries Commission’s PITAGIS database for detections of PIT steelhead that migrate over dams in the Columbia and Snake rivers of Snake River origin;
- Classified tagged fish as either A-run or B-run;
- Computed abundance estimates for A-run, B-run, hatchery and wild fish at Bonneville and Lower Granite dams;
- Computed survival estimates for A-run, B-run, hatchery and wild fish from Bonneville Dam to Lower Granite Dam;
- Computed time-of-entry curves;
- Compared survival estimates based on PIT Tags with, estimates based on scale analysis and size;
- Provided these data to TAC in a timely manner.

## OREGON

**Recipient:** Oregon Department of Fish & Wildlife  
**Title:** IJFA Shrimp and Groundfish Resource Management and Assessment  
**Grant No:** NA09NMF4070362

This grant was requested to aid in fulfilling responsibilities under the Magnuson - Stevens Sustainable Fisheries Act. The Pacific Fishery Management Council's (PFMC) Fishery Management Plan for the West Coast Groundfish Fishery (FMP) is monitored by its Groundfish Management Team (GMT). Oregon Department of Fish and Wildlife (ODFW) participated in these interstate-interagency reviews and projects. This grant helped support basic data collection and analysis, and management strategy development and analysis. It provided scientifically based management and assessment information to the Oregon Fish and Wildlife Commission and PFMC for use in management of the Oregon and West Coast groundfish fisheries, and conservation of resources.

The fishery for ocean shrimp (*Pandalus jordani*) is an interjurisdictional fishery. The ocean shrimp resource is found in commercial quantities at depths of 60-150 fathoms across a wide swath of ocean, from California northwards to Queen Charlotte Sound. Large, highly mobile trawl vessels harvest this resource using high-rise box trawls, sometimes transporting loads of shrimp tens to hundreds of miles before landing the shrimp for processing. Effective resource management of ocean shrimp requires monitoring and sampling of fishery catches and logbooks in the states of Washington, Oregon and California as well as coordination of management and population research between these three states. This project provided support to the state of Oregon for the monitoring, sampling and management coordination of the regional ocean shrimp fishery.



## WASHINGTON

**Recipient:** Washington Department of Fish and Wildlife  
**Title:** Coastal Marine Resources Management and Stock Assessment  
**Grant No:** NA07NMF4070370

This project was designed to fulfill responsibilities created by the Magnuson Fishery Conservation and Management Act by providing data summaries and comprehensive analyses of survey, catch and biological data required for management of groundfish stocks and fisheries. These analyses were integrated with data collection and analysis from other coastal states and incorporated into stock assessments for management of numerous groundfish species. Further, this project supported development of sub-sea video survey technology to advance the science of non-consumptive/invasive

survey methods for Council managed groundfish species; and expanded survey technologies into areas not readily accessible to traditional survey gear. Thus, reports and publications provided by this project benefited interjurisdictional management of coastal groundfish stocks. This project also directly supported the North Pacific Fishery Management Council and PFMCC through membership on their respective Scientific and Statistical Committees. Project personnel either participated in Council fishery management plan teams and/or provided analyses and stock assessments for Council review.

Data summaries included extraction and compilation of information from various Washington Department of Fish and Wildlife databases including: fish receiving tickets, trawl logbook data; rockfish species composition estimation data, survey and biological data. In addition, data summaries may require age determination services.

Comprehensive analysis of catch and biological data involved the determination of the status of stocks through either new or updated analyses. Such analyses included: 1) summarization of recent fishery statistics, biological data and research information; 2) estimation of historical and current stock biomass; 3) determination of maximum sustained yield and acceptable biological catch; and, 4) recommendations for management and further research. In addition, project personnel were required to evaluate the consequences of alternative management strategies suggested for regulation of the groundfish fishery;



such as, evaluation of trip limits, time-area closures, mesh regulations, limited entry, individual transferable quotas and the like. Moreover, stock assessment periodically requires research to provide improved understanding of groundfish physiology, biology or ecology including but not necessarily limited to: parameter estimates for essential elements of stock assessments; resolution of species stock structure; age determination and validation; and habitat utilization.

Research and design was continued on video survey systems to provide real-world (lat-long) stamped video frame grabs of known spatial area, for accurate unbiased quantification of benthic biota and habitat density. In 2006/2007, a new improved and refined Laser Scaling System (LSC) was built and will test the integration of software and hardware components in future projects. This system is small and lightweight making it adaptable to small Remotely Operated Vehicles (ROV's) that are much cheaper to operate and operate in shallow waters less than 30 meters. Analysis of data from past submersible studies has resulted in acceptably precise measurements of area

swept estimates as calculated by the software (using data provided by the hardware components) when compared to an area of known size. During future contract periods we will enhance our software and hardware to provide automated area swept measurements from digital video collected from a small ROV and compare line versus area swept groundfish density estimates. We will also test the measurement accuracy of several underwater systems including our QMS, DIDOSN sonar and stereo videography by comparing measurements against know sized artificial fish.



## **PACIFIC STATES MARINE FISHERIES COMMISSION**

**Recipient:** Pacific States Marine Fisheries Commission  
**Title:** Pacific Ocean Interjurisdictional Fisheries Management Plan Coordination and Development  
**Grant No:** NA06NMF4070275 and NA10NMF4070441

Work accomplished through this program included the promotion and support of policies, programs and actions directed at the conservation, development, and management of fishery resources of mutual concern to the region, and investigate jurisdictional conflicts and authorities between states, and between the states and the EEZ.

The Pacific States Marine Fisheries Commission (PSMFC) provided the organization, coordination and logistical support for the Energy Use in Fisheries: Improving Efficiency and Technological Innovations from a Global Perspective Symposium in 2010 in Seattle, Washington as part of this task. We worked with NMFS, National Sea Grant Program, National Fisherman and other agencies to bring together individuals and groups for education, discussion, collaboration and planning for this symposium on Energy in Fisheries.

Specific tasks included:

- Coordinate, develop and implement state and federal data collection programs that support interjurisdictional FMPs. This task provided coordination of activities related to data collection programs. These activities are in support of the various data collection programs but are currently unfunded extensions of these programs.
- Coordinate the development and support ongoing coast-wide research plans and data collection including marine mammal research and other areas of study not currently funded by other grants.
- Continue the expansion of GIS tools and products for West Coast landings, economics and community data. This may include related tasks involved upgrading and improving habitat data to improve our habitat website to reflect current issues and decisions, add information, check hyperlinks, and develop new and useful links and text.

This task primarily involved the work of a PSMFC GIS specialist and Habitat Education Specialist who will guide and assist West Coast analysts with a variety of GIS based on new and existing data.

- Coordinate the identification and priorities for development of interstate fishery management plans including, but not limited to, such activities as support of the annual meeting of the Technical Subcommittee of the Canada-U.S. Groundfish Committee (TSC) as well as sponsoring and chairing the Tri-State Crab Committee meetings in 2006-2007.



## SOUTHWEST REGION

The NMFS Southwest Region includes three states—Arizona, California, and Nevada. Most of the funds for interjurisdictional fisheries have been applied to the task of monitoring fishery resources, which includes collecting commercial and recreational landings at various ports, taking biological samples from landed fish, and marking salmon during their upstream migration. The information obtained from these projects is used to make resource assessments, many of which support fishery management plans developed by the PFMC in accordance with the Magnuson-Stevens Fishery Conservation and Management Act. Projects include fisheries monitoring in California to support the recently implemented Coastal Pelagic Species Fishery Management Plan developed by the PFMC, and port sampling of recreational and commercial salmon in California in support of the Council's Pacific Salmon Fishery Management Plan.

## CALIFORNIA

**Recipient:** California Department of Fish and Game  
**Title:** Monitoring and Management of California Coastal Pelagic Species  
**Grant No:** NA08NMF4070470

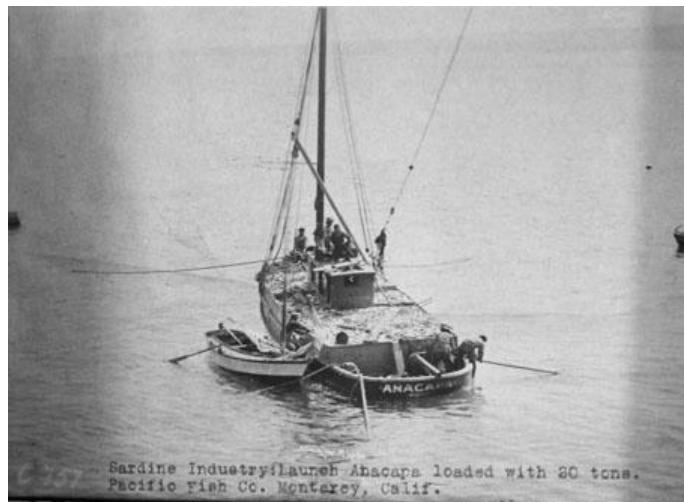
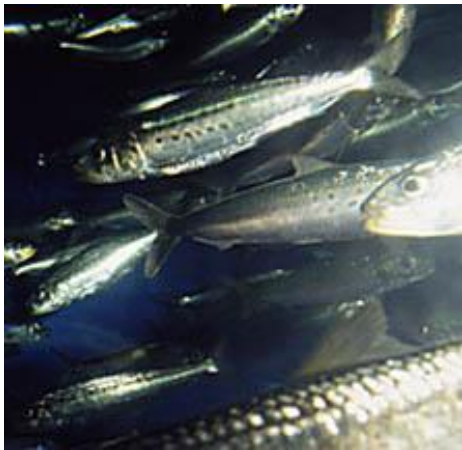
The objective of this project was to collect, compile and maintain resource and fishery information necessary for the protection, development and maintenance of California commercial coastal pelagic fish resources and their associated fisheries.

The Pacific sardine fishery, one of the largest coastal pelagic fisheries, occurs primarily in southern California, although has been expanding along the entire Pacific coast. The importance of annual assessments and biomass estimates are evident when the history of the fishery is examined. Sardine resources were reduced to very low levels by the late 1960's, due in part, to excessive fishing pressure. Sardine landings were halted by a moratorium in 1974, and by the mid-1980's a rebuilding of the population was evident. The fishery was reopened in 1986 under a quota system. The quota was increased from 10,000 metric tons (tons) in 1994 to a PFMC adopted harvest guideline of 152,654 tons (highest) in 2007. The harvest guideline for 2008 has been set at 89,093 tons, a 42% decrease from 2007. By using fishery dependent and independent data, quotas and harvest guidelines based primarily on the previous year's biomass have been set over the past 19 years.

Similarly, the Pacific mackerel resource has undergone periods of low abundance, a harvest moratorium, and establishment of a limited quota harvest system as the stock recovered. The Pacific mackerel biomass was estimated to be 359,290 tons at the beginning of the 2007-2008 season (July 1, 2007). The acceptable biological catch and harvest guideline were increased to 71,629 tons and 40,000 tons respectively for the season, more than double that of the 2006-2007 season. Should the directed fishery attain the harvest guideline of 40,000 tons the directed fishery would be closed.

Thus, past history of these fisheries verify the need for continuing, consistent and systematic data collection for use in stock assessments and setting harvest levels, as well as a management framework that encourages flexibility. Harvest levels must be compatible with the present status and sizes of the resources.

This program emphasized the collection and compilation of resource and fishery information concerning commercial coastal pelagic species landed in California. For these species, data on composition of the catch by size, age, sex and maturity was required as part of annual stock assessment efforts to determine allowable harvest levels.



Sardine Industry: launch Anacapa loaded with 20 tons.  
Pacific Fish Co. Monterey, Calif.



Sardine Industry: wharf and launches unloading

## PACIFIC ISLANDS REGION

The Pacific Islands Region includes the U.S. jurisdictional areas of American Samoa, Hawaii, Guam, and the Commonwealth of the Northern Mariana Islands, as well as international areas of interest such as the Republic of the Marshall Islands, Federated States of Micronesia, and the Republic of Palau.

### AMERICAN SAMOA

**Recipient:** American Samoa Government  
**Title:** American Samoa Resources Assessment and Monitoring Program for Interjurisdictional Fisheries  
**Grant No:** NA07NMF4070015 and NA10NMF4070150

This project provided both technical and financial support to the Department of Marine & Wildlife Resources of the American Samoa Government to assess and monitor the status of interjurisdictional fish species caught within American Samoa's EEZ. The data obtained through this project was one of the main sources of information that is utilized to address local and federal requirements for FMPs under jurisdiction of the Department of Marine & Wildlife and NOAA Fisheries through the Western Pacific Regional Fisheries Management Council (WPFMC). Through the cooperative efforts between federal and local agencies, the overall goal of the Interjurisdictional Fisheries Program is to provide fisheries information in a timely fashion to develop, implement, and evaluate FMPs for the territory of American Samoa and the WPFMC

### HAWAII

**Recipient:** Hawaii Department of Land and Natural Resources  
**Title:** Development and Implementation of a Web-based Internet Commercial Fisheries Reporting System for the State of Hawaii  
**Grant No:** NA07NMF4070008 and NA10NMF4070180

The State of Hawaii's commercial fisheries reporting system has been a work in progress for many years. Since 1948, licensed commercial fishers have been required to submit monthly fishing reports to Department of Land and Natural Resources – Division of Aquatic Resources (DLNR-DAR). These fishing reports are the most important collection of a long time series of fishery dependent data. Both federal and state fisheries agencies use this "best available" data to assess the status of marine resources and to establish fishery regulations in State and EEZ waters. It is essential that fisheries management collect timely and accurate fisheries data.

The project has several goals. One primary goal was to collect complete and accurate commercial fisheries in state and EEZ waters in order to satisfy federal Magnuson Fishery Conservation and Management Act fishing regulation. The infrastructure of the online reporting system was built when it was implemented to process the standard Fishing Report form. The objective of this project was to continue developing and maintaining the online system by adding the Aquarium Catch Report, Deep-Sea Handline Trip Report, Tuna Handline Trip Report, Net-Trap & Dive

Activity Report for online reporting. By offering the complete set of fishing report type for online reporting, ultimately, fishers and DLNR-DAR will realize the following benefits:

- Reduced paperwork
- Publication savings (fewer fishing report booklets)
- Reduced data entry
- Reduced storage capacity
- Increased report requirement compliance rate

Another goal was to implement the primary commercial marine dealer license to improve dealer reporting requirements. The collection of commercial marine dealer transactions provides DLNR-DAR with the ability to evaluate the total ex-vessel value of the commercial fishing industry and to verify and validate catches reported by commercial fishers. Once the commercial marine dealer license is established, it can be issued online. The collection of the commercial marine dealer purchase reports will continue to be processed through Fish Dealer Reporting System.

The other project goal was to improve the integrity of the fishing regulations so that the public clearly understands the rationale for establishing restrictions for closed seasons, minimum sizes, bag limits, fishing quotas, area closures, licensing or permits, reporting requirements, etc. Additional outreach effort was needed to communicate in terms of scientific, socio-economic, or other appropriate information to the public as to why regulations are necessary to manage the fisheries.

**Recipient:** Hawaii Department of Land and Natural Resources  
**Title:** Development, Implementation and Maintenance of a Web-based Internet Commercial Marine Licensing and Fisheries Reporting System for the State of Hawaii  
**Grant No:** NA09NMF4070248

DLNR-DAR is using the current federal award for a Web portal project to develop, implement and maintain a fishing report on-line system for commercial fishers. The software developer, Hawaii Information Consortium (HIC), was contracted to develop an on-line reporting system as an amendment to DLNR-DAR's Commercial Marine Licensing System (CMLS) on-line application, which was successfully implemented by HIC through eHawaii.Gov in 2004. DLNR-DAR and HIC are on schedule to complete development and implementation of the fishing report on-line application. Post implementation work on all Web portal projects for the CMLS and fishing report on-line systems require technical support services from HIC to maintain the application. This involved running daily file back-ups on secured file servers, providing adequate fire walls to secure the Website and data transmissions and on-line transactions, trouble shooting Web portal problems, revising licensing and reporting record transactions, and modifying minor on-line application deficiencies. Besides handling Web portal CMLS and fishing report applications, DLNR-DAR staff was responsible for processing fisheries reports received via non on-line submissions.

An extensive explanation on commercial fishing license and reporting requirements and reasons to facilitate processing these records on-line was covered in the original Project Summary for the current federal award when it was submitted as a proposal to NOAA Grants Office in April 2007.

The goal of this project was to continue to provide commercial fishers with on-line services that will allow them to submit accurate monthly fishing reports before the submission deadline (10<sup>th</sup> day of the following month), thereby facilitate report writing and reduce paperwork for both fishers and DLNR-DAR, and reduce mailing expenses. DLNR-DAR staff must also strive to achieve compliance of the reporting requirement from fishers who do not use the on-line service; continue to process fisheries reports on a timely basis and in order to furnish state and federal fishery agencies with information to manage the fisheries.

## COMMONWEALTH OF THE NORTHERN MARIANA ISLANDS (CNMI)

**Recipient:** Division of Fish and Wildlife DFW  
**Title:** Data Collection and Data Entry in the Management of CNMI's Interjurisdictional Fishery Resources  
**Grant No:** NA07NMF4070009

This project provides financial support to the CNMI Division of Fish and Wildlife (DFW) to collect, process, and share important fisheries monitoring data used in federal and local fisheries management programs for the CNMI. The data obtained through this project was the principle source of information and analysis of fisheries activities and management options used to address federal requirements for FMPs under the jurisdiction of NMFS through the Western Pacific Regional Fisheries Management Council (WPFMC). By participating in NMFS' WPacFIN program through support provided by this project, DFW was able to provide data and information required by the Magnuson-Stevens Fishery Conservation and Management Act for federally managed fisheries in the EEZ.



The overall goal of this project was to provide fisheries data and information when, where, and in the quality needed by NMFS, the WPFMC, and the Council's advisory bodies to develop, implement, evaluate, and amend FMPs for the Western Pacific Region. Three general objectives have been identified to help meet this goal: to implement and manage computer-based data processing systems that provide State and Federal fisheries data as needed by fisheries managers and associated agencies; to provide a means to establish priorities and coordinate plans to improve the efficiency, effectiveness, and timeliness of data acquisition and delivery

with a minimum of duplication; and to promote developing and implementing system-wide data standards to facilitate collecting, processing, analyzing, and reporting data. This project provided



some of the financial support for DFW to have a program, which helps meet these system-wide goals and objectives.

This project's specific goals and objectives were to collect and computerize fisheries-dependent data from the domestic fisheries on Saipan and to provide these data to the NMFS' Pacific Islands Fisheries Science Center in Honolulu Hawaii, in standard database formats on an established quarterly basis.

## **GUAM**

**Recipient:** Government of Guam, Department of Administration  
**Title:** Data Collection and Entry in the Management of Guam's Interjurisdictional Fishery Resources  
**Grant No:** NA07NMF4070002 and NA10NMF4070153

Guam presently serves as a major transshipment and port-of-call for large scale fishing fleets operating in the Western Pacific. The purpose of the Interjurisdictional Fisheries Act (IFA) program is to address the information requirements for developing a sound management and conservation plan for interjurisdictional fisheries in the waters surrounding Guam. As a result of research done in conjunction with the IFA program, the Fishery Management Plan for billfish and other pelagic species in the Western Pacific has been developed by the WPFMC.

The IFA program has helped to establish data collection requirements on the fish stocks around Guam and on the interaction of local and international fisheries in the region. The project supplemented large scale fisheries data collection and data entry activities of tuna off-loaded by foreign longliners at Guam's commercial port conducted under the Western Pacific Fishery Information Network (WPacFIN).

The project continued to support the coordination of data collection and entry activities under the Pacific Fisheries Data Program with reference to transshipped species offloaded by foreign longliners at Guam's commercial port. The project was designed to help address the information requirements needed by both state and federal governments to develop and implement policies conducive to the maintenance and expansion of Guam's fishing industry, and develop sound management and conservation plans for Guam's interjurisdictional fishery within its Territorial waters and Exclusive Economic Zone (EEZ). Data collection of the interjurisdictional fisheries provided federal and local officials with vital information to effectively manage, invest, and sustain our fishery resource. Building upon and strengthening on-going data collection efforts is fundamental to the monitoring and management of fisheries resources and in measuring sustainability of fish stocks to support development and expansion efforts.

## ALASKA REGION

The Alaska Region encompasses an area with over half the U.S. maritime coastline. Harvest levels of over 5 billion pounds in 2009 and comparable total projections for 2010 continue to place Alaska among the top 10 world seafood producers. Alaskan waters support the largest U.S. fishery resource, with a combined seafood harvest of almost half the total U.S. production. Within the State, the seafood industry is the largest private sector employer, creating one-fifth of all Alaska jobs.

In addition to commercial harvest, the charter and recreational fishery in Alaska continues to expand and gain prominence as a significant contributor to the State's economy. In coastal Alaska and interior river communities, residents depend heavily on the subsistence salmon fishery. Economic activities related to Alaska's marine resources have a substantial impact on the State's dispersed population. The dominance of fishery-related employment in the State and the importance of fishing to the subsistence economies of rural Alaska create considerable demands on the resource management process.

## ALASKA

**Recipient:** Alaska Department of Fish & Game  
**Title:** Southeast Alaska Interjurisdictional Fisheries Act  
**Grant No:** NA08NMF4070534

The purpose of this project was to provide management and research supervision of State-managed fisheries, primarily for sablefish, lingcod, black rockfish and Pacific cod, as well as for demersal shelf rockfish, which is jointly managed with the National Marine Fisheries Service (NMFS). Activities included: collection of fishery catch statistics, collection of biological and stock status information, stock assessment surveys, and management actions to open and close fisheries.

The overall goal of this project was to provide management and research supervision to allow sustainable groundfish harvest opportunities with significant economic benefit to the State and the nation. Project objectives included:

- 1) Determined domestic groundfish landings (biomass) in the State-managed fisheries in the Eastern Gulf of Alaska by species, management area, month, and gear type.
- 2) Implemented closures for fisheries in State waters and for State-managed fisheries in Federal waters as needed for resource conservation or when annual harvest objectives have been reached.
- 3) Collected biological data on key species including length, weight, sex, and maturity, and collect body parts or tissues as needed for age determination and genetics work. Data was collected from the commercial fisheries and from resource assessment surveys.
- 4) Continued longline, dinglebar troll, and trawl logbook programs and updated and improved methods of data entry and analysis.
- 5) Conducted resource assessment surveys for sablefish, rockfish, and lingcod in the Southeastern and East Yakutat areas as funding levels allow.



Acting Assistant Administrator for Fisheries  
Samuel D. Rauch

[www.nmfs.noaa.gov](http://www.nmfs.noaa.gov)

National Marine Fisheries Service  
Office of Sustainable Fisheries  
1315 East-West Highway  
Silver Spring, Maryland 20910

U. S. Government – 2012