Saltonstall Kennedy Grant Program
Summaries of Recommended FY2016 SK projects
Greater Atlantic Region, National Marine Fisheries Service

Overview: The Greater Atlantic Region Fisheries Office (GARFO) received **131** proposals for funding under the FY2016 Saltonstall-Kennedy (SK) grant program. This represents **40%** of the **325** proposals received from all over the United States. Of the **50** projects selected nationally, **22** projects were from the Greater Atlantic Region, requesting approximately **$4.6** million in federal funding. These **22** projects represent **44%** of the projects selected nationally and **40%** of the **$11.3** million in funds available nationwide.

With regard to the priority areas listed in the request for proposals published in the Federal Funding Opportunity announcement, the breakdown of new GARFO projects by priority follows:

Aquaculture: **4**
Fishery Data Collection: **6**
Techniques for Reducing Bycatch and other Adverse Impacts: **3**
Adapting to Climate Change and other Long Term Ecosystem Change: **5**
Promotion, Development, and Marketing: **2**
Socio-Economic Research: **2**
Territorial Science: **N/A**

An abbreviated summary for each of these Regional projects follows:

Aquaculture

16GAR009, Ward Aquafarms, LLC, "**Evaluation of bay scallop nursery optimization and effective growout strategies**," The Principal Investigator is Daniel Ward.

Through this project, the best methods for growing bay scallops from seed to growout size will be determined, in four different environments on four different commercial farms, ranging from intertidal to subtidal and estuarine to open ocean.

16GAR077, Virginia Institute of Marine Science, "**Aquaculture methods to advance fishery restoration and commercial production of bay scallop (*Argopecten irradians*) on the Eastern Shore of Virginia.**" The Principal Investigator is Dr. Richard Synder.

This project will determine the feasibility of using bay scallops as a commercial aquaculture species in the Chesapeake Bay. A partnership between the Virginia Institute of Marine Science -Eastern Shore Laboratory and Cherrystone Aquafarms, Inc., will be established by combining expertise to advance aquaculture of bay scallop *Argopecten irriadians*, on the Eastern Shore of Virginia.

16GAR104, Rutgers, The State University of New Jersey, "**Evaluating a new oyster cage culture system to solve unique aquaculture issues hampering development of oyster aquaculture in Delaware Bay.**" Co- Principal Investigators are Dr. David Bushek, Dr. Eleanor Bochenek, and Lisa Calvo.

The goal is to demonstrate and evaluate the commercial feasibility of subtidal oyster cage

aquaculture in Delaware Bay, New Jersey. Researchers will compare existing intertidal rack and bag cultivation systems with small and large capacity subtidal cultivation systems that overcome the unique problems persistent in Delaware Bay resulting from high currents and open waters without protected coves and embayments that are typically used for oyster aquaculture.

==16GAR133==, Aquaculture Research Corporation, "**Piloting surf clam aquaculture techniques to create commercial opportunities.**" Co- Principal Investigators are Rob Doane, Richard Kraus, and Susan Machie.

The purpose is to demonstrate commercial viability of a new aquaculture product: the undersized (1.5-2") surf clam, marketed as "butter clam". Investigators will determine the best location and conditions to commercially grow out surf clam seed, in order to provide wholesale and retail markets with "butter clams". These activities include evaluating the best strategies with respect to temperature, sediment type, tidal height, containment equipment and predator control.

Fishery Data Collection

==16GAR023==, University of New Hampshire, "**Reducing uncertainty in the data- poor assessment of Atlantic wolffish (*Anarhichas lupus*).** " Co- Principal Investigators are Dr. Elizabeth Fairchild and Dr. Paul Bentzen

Atlantic wolffish is classified as a data-poor species. This project will provide critical data for updating the Atlantic wolffish stock assessment by obtaining new, fishery dependent data from southwestern Gulf of Maine, using the input and platform of industry partners, in areas and times otherwise inaccessible to federal scientists.

==16GAR056==, University of Massachusetts Dartmouth, "**A multi-faceted investigation of the movement patterns, spatial and temporal habitat use, and stock structure of the common thresher shark (*Alopias vulpinus*) in the western North Atlantic.**" The Principal Investigator is Dr. Diego Bernal.

Investigators will utilize two types of pop-up satellite archival transmitting (PSAT) tags to investigate the horizontal and vertical movement patterns, spatial and temporal habitat use, and stock structure of Common Thresher Sharks in the western North Atlantic (WNA). Working in collaboration with commercial and recreational fishermen, 40 Common Thresher Sharks will be tagged with PSAT tags in the WNA, primarily off the east coast of the U.S., and tracked for periods of up to one year. Information obtained from these tag deployments will be synthesized with a rigorous analysis of existing fishery-dependent (e.g., vessel trip reports, fisheries observer, conventional tagging, sportfishing tournament records) and fishery-independent (e.g., research survey) data.

==16GAR057==, The Nature Conservancy, "**Investigating the stock structure and life history of Atlantic halibut, a Species of Concern off New England.**" The Principal Investigator is Christopher McGuire.

The goal is to investigate the stock structure and life history of Atlantic halibut by tagging and collecting biological samples from halibut caught off Cape Cod. Stock structure will be investigated by observing movement traced via innovative geolocation of halibut tagged with pop-up satellite archival tags (PSATs). PSAT data will be used to reveal halibut seasonal habitat occupancy and behavior. Halibut life history information (e.g., age, length, reproductive status)

will be collected from biological samples from halibut caught by commercial fishermen off Cape Cod. This biological sampling will also provide insights into halibut spawning dynamics and reproductive capacity, while archiving otolith and genetic samples for future research. Comparing life history parameters for halibut off Cape Cod with results from studies conducted in other regions will provide insights into stock structure. This research will improve our understanding of halibut population dynamics and the status of the resource.

16GAR081, Commonwealth of Massachusetts, "**A cooperative Jonah crab tagging effort to determine migration, growth, and stock structure.**" The Principal Investigator is Derek Perry.

This project represents a science/industry cooperative tagging effort to secure integral information on growth, migration, and stock structure for direct application to the first Jonah crab stock assessment. Activities include a comprehensive tagging program throughout regions of the fishery, both inshore and offshore, from the Gulf of Maine to the Mid-Atlantic. Approximately 20,000 crabs will be tagged by trained industry members, Massachusetts Division of Marine Fisheries scientists, and collaborating partners.

16GAR088, Commonwealth of Massachusetts, "**Feasibility of a hook and line survey to assess tautog *(Tautoga onitis*) in southern Massachusetts.**" Co- Principal Investigators are Dr. Michael Bednarski and Robert Glenn.

The application describes conduct of a hook and line survey as an innovative method of surveying tautog on habitats otherwise inaccessible to traditional sampling techniques.

16GAR095, Virginia Institute of Marine Science, "**Age structure and recruitment in the ocean quahog *Arctica islandica*.**" Principal Investigator is Dr. Roger Mann.

This study will examine age structure and growth rate in recent and future collections of both pre recruit to fishery sizes and older, and recruited ocean quahogs in support of both the 2016 ocean quahog benchmark and future assessments. Research will 1) provide a recruitment index in the form of an area specific age frequency and intensity demographic based on survey selectivity dredge collections; (2) examine spatially discrete inter-annual growth variability in both pre-recruit to fishery and recruited clams across the fishery range to inform estimates of von Bertalanffy k; and (3) examine age and size at first maturity estimate the spawning-stock-biomass-to-recruitment ratio.

Techniques for Reducing Bycatch and other Adverse Impacts

16GAR031, Gulf of Maine Research Institute, "**Improving the selectivity of lobster traps to reduce the incidental capture of groundfish.**" Principal Investigator is Steve Eayrs.

In New England, fishermen target American lobster using baited traps that sometimes retain overfished Atlantic cod and cusk, as well as other groundfish. Researchers will develop and test a simple trap modification that allows the escape of groundfish from the trap without any loss of lobster. This modification entails removing a section of mesh in the top of the trap measuring 7.5" x 15" through which groundfish can swim and escape prior to hauling. Lobsters, which are less mobile and remain close to the seabed unless startled, are expected to remain inside the trap despite the presence of the escape opening.

16GAR065, Cornell University Cooperative Extension of Suffolk County, "**Evaluation of conservation gear technology to reduce black sea bass bycatch in the small mesh longfin squid fishery.**" Principal Investigator is Emerson Hasbrouck.

The purpose of the proposed study is to evaluate a modified small mesh trawl net design against a standard small mesh trawl net used in the longfin squid fishery, working cooperatively with active fishermen from Point Judith, Rhode Island.

16GAR107, Commonwealth of Massachusetts, "**Complementary testing of off-bottom trawls to target Georges Bank haddock.**" Co- Principal Investigators are Michael Pol, David Chosid, and Mark Szymanski.

The purpose is to test the utility of off-bottom trawls (OBTs) to harvest underutilized, abundant Georges Bank haddock, while simultaneously avoiding overexploited fish stocks such as Atlantic cod, yellowtail flounder, and windowpane flounder, and greatly reducing impacts to essential fish habitats. Regional experts will explore solutions using science and industry-based approaches to accessing healthy stocks with OBT gear in a cost-effective and time-efficient manner. Gear selectivity, fuel efficiency and environmental impacts will be measured.

Adapting to Climate Change and other Long Term Ecosystem Change

16GAR001, University of Maine, "**Development of an ecologically and economically viable northern shrimp (*Pandalus borealis*) fishery in a changing Gulf of Maine.**" Principal Investigator is Dr. Yong Chen.

The goal of this research is to develop a northern shrimp fishery that is ecologically and economically viable in the changing marine environment that is the Gulf of Maine (GOM). Investigators will develop the capacity to project spatio-temporal changes in the distribution of suitable habitat and abundance of northern shrimp in the GOM given a rapidly changing ocean environment; evaluate biological and economic impacts of the trap and trawl fisheries; and identify management strategies that will adapt to environmental and economic changes in the GOM.

16GAR017, Commonwealth of Massachusetts, "**Can climate change induce reproductive failure in American lobster? -Case study of a collapsed stock.**" Principal Investigator is Dr. Tracy Pugh.

Changes in the thermal environment of inshore Southern New England (SNE) have been implicated in the decline and recruitment failure of the SNE lobster stock. Researchers will use the presence of shell disease as an indicator of a stressed individual and will examine lobster reproductive capabilities with regards to presence or absence of this stress.

16GAR044, Marine Applied Research Center, LLC.,"**Adapting to long-term ecosystem change in the Gulf of Maine - surveillance tools and climate model projections for epizootic shell disease in lobsters.**" Principal Investigator is Dr. Jeffrey Maynard.

This project seeks to answer this question: how will climate change affect the prevalence of epizootic shell disease in nearshore environs of the Gulf of Maine? The lobster population off Southern New England (SNE) is under severe stress from a combination of increasing ocean temperatures and commercial exploitation. Thermal stress in SNE has been linked to an unusual

syndrome in lobsters known as epizootic shell disease (ESD), characterized by the rapid degradation of the 'shell' or cuticle. Researchers will build interactive tools enabling managers, fishers and industry stakeholders to monitor and assess temperature conditions associated with ESD in near real-time. The interactive tool to be used to monitor conditions conducive to lobster shell disease will include maps and data covering the entire Gulf of Maine, including coastal waters of Maine, New Hampshire, and Massachusetts.

16GAR099, Gulf of Maine Research Institute, "**Supporting decision-making under climate variability and change: multi-scale forecasts and resources for the Maine lobster fishery.**" Principal Investigator is Dr. Katherine Mills.

This proposal focuses on partnerships with stakeholders in Maine's lobster fishery to develop a range of forecasts products to help the industry prepare for future changes in the lobster fishery.

16GAR113, Woods Hole Oceanographic Institution, "**Modeling the impact of climate change on larval connectivity and recruitment of the American lobster off of southern New England.**" Principal Investigator is James Churchill.

This project will model how warming water temperatures influence the lobster stock in Lobster Management Area-2 (LMA-2), which has been significantly impacted by warming waters south of New England.

Promotion, Development, and Marketing

16GAR045, Cape Cod Fishermen's Alliance, "**Establishing local markets & sustainable supply distribution chains to increase domestic consumption of skate & spiny dogfish.**" Principal Investigator is Nancy Civetta.

The work proposed will develop collaborative local seafood marketing solutions to increase market value to the fishermen for low value and underutilized species, increase domestic market demand, stabilize the supply through proper processing and freezing, and test the adaptation of electronic traceability technology.

16GAR080, University of Rhode Island, "**The Other EBFM: Designing Ecosystem-Based Fisheries Marketing Strategies to Complement Ecosystem-Based Fisheries Management**." Principal Investigator is Dr. Jeremy Collie.

This project will combine bio-economic analysis, social science inquiry, and a citizen science research project to measure and understand disparities between the relative production of marketable species on the Northeast U.S. continental shelf and the relative landings of these species in New England fisheries.

Socio-Economic Research

16GAR008, Johns Hopkins University, "**Supply chains for aquacultured oysters: Enhancing opportunities for businesses and shellfish growers, and examining traceability and food safety.**" Principal Investigator is Dr. David Love.

The goal of this study is to enhance opportunities for businesses and shellfish growers by clarifying

how aquacultured oysters move through supply chains from producers to consumers. It will also emphasize improving product traceability and food safety.   Key areas where information is lacking are: 1) descriptions of product and information flows through aquacultured oyster supply chains; and 2) data on product temperature in supply chains and Best Practices to control temperature during the distribution process. Good temperature control of molluscan shellfish from harvest throughout distribution is essential to maintain product quality and reduce food safety risks

16GAR130, Northeastern University, "**Engaging fishers to improve management of striped bass.**" Co-Principal Investigators are Dr. Jonathan Grabowski and Dr. Steven Scyphers.

This team will explore the socio-economic and behavioral impacts of fisheries policy changes to enable adaptive co-management by engaging multiple stakeholder groups and fishery managers in participatory modeling. Goals are to promote transparency, cultural consensus, and trust, and to facilitate learning and communication between stakeholder groups.

Territorial Science

N/A