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NOAA Fisheries Service's Northeast Cooperative Research Program Announces 2012 Atlantic Sea Scallop Research Set-Aside Projects

Research Set-Aside programs are unique to federal fisheries in the northeast. Although the Northeast Cooperative Research Program manages them, no federal funds are provided to support the research. Instead, funding is provided annually by the sale of set-aside allocations for quota managed or days-at-sea managed fisheries.

University of Massachusetts – Dartmouth {$926,964}

High-resolution Video Survey of the Sea Scallop Resource in the Nantucket Lightship and Closed Area I Access Areas

Using the SMAST-Industry cooperative video survey on high resolution grids, this project will intensively survey two access areas at Georges Bank (Nantucket Lightship and Closed Area I) that are important to management and understanding scallop biology. This project will produce total and exploitable sea scallop biomass estimates for each area, which can be used to inform management decsions. Further it will examine habitat characteristics and the abundance, spatial distribution, size composition and recruitment pattens of sea scallops in these areas. This research would represent the tenth year in a time series of Georges Bank and Mid-Atlantic scallop population dynamics. This project was awarded 98,404 lb of scallops.

Coonamessett Farm Foundation {$798,240}

Understanding Impacts of the Sea Scallop Fishery on Loggerhead Sea Turtles Through Satellite Tagging

To build on the success of prior turtle behavioral research funded under the scallop RSA program since 2004, the project will tag an additional 15 juvenile loggerhead turtles with water-activated satellite tags. This work will entail fifteen sea days, utilizing 2 scallop vessels. The vessels will also conduct turtle sighting surveys for the duration of field operations. In addition, one vessel will be equipped with a Benthos Teledyne High Output MiniRover ROV system (Teledyne-Benthos Inc., North Falmouth, MA). The ROV will track, observe, and film loggerhead turtles to examine their in situ behaviors (e.g. feeding, diving, and breathing). The ROV is used for validating the location and quantity of sea turtle prey species in the water column and on the sea floor as well as interpreting tag data. The observed turtle behavior from both the tags and the ROV will be analyzed in context with oceanographic and weather data. This project was awarded 84,379 lb of scallops.

Coonamessett Farm Foundation {$711,720}

Real-Time Electronic Bycatch Reporting Pilot Project

In order to better manage the yellowtail flounder allowable catch limit allocated to the limited access fleet, CFFI has designed a real time electronic bycatch reporting system. The objective of the system is to have the US scallop fleet regularly report their yellowtail flounder and scallop meat weights electronically to a database accessible by the Fisheries Survival Fund in real-time. Those data will then be made available to the entire fleet in order to alert the fishermen to hot-spot areas of high yellowtail flounder to scallop meat catch ratios. The fishermen can then make informed decisions regarding where to fish in order to avoid the yellowtail flounder bycatch that may trigger accountability measures. Success with yellowtail flounder reporting may be the first step in using this real-time two-way communication and data system for dynamic area action programs

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for species such as loggerhead turtles, windowpane, and winter flounder. This project builds upon work conducted under 2010 scallop RSA project "Real-Time Electronic Bycatch Reporting Pilot Project" (10-SCA-01) and will continue the refinement of the software and introduce broadband technology to allow cheaper and faster data transfer between vessels and shore. This project was awarded 75,554 lb of scallops.

Coonamessett Farm Foundation {$888,132}

Testing of Scallop Dredge Bag Design Changes For Flatfish Bycatch Reduction

A new low profile concept for a scallop dredge frame has been designed and constructed based on experiences with the Coonamessett Farm Turtle Deflector Dredge. Both of these dredge designs use a forward cutting bar which has been shown to reduce flatfish bycatch. A number of different bag designs have been trialed with these dredge frames and seem to have the potential to further reduce finfish bycatch. The purpose of this project is to rigorously test the most promising of these bag design changes. The testing will take place on Georges Bank, in areas of high yellowtail and winter flounder bycatch. Four commercial vessels will each make one trip of seven days at sea, possibly in pairs. On two trips, CFFI will compare two standardized Cfarm turtle deflector dredges: one with the standardized bag (8-ring apron and 60 mesh wide twine top) and one with an experimental bag (Treatment one: 5-ring apron and 40 mesh wide twine top; Treatment two: 8-ring apron & windows). On the remaining two trips, the low profile dredge will be substituted for one of the turtle deflector dredges and the above treatments applied to the low profile dredge. Catch will be scientifically sampled and returned to the water. This project was awarded 94,282 lb of scallops.

Coonamessett Farm Foundation {$2,538,554}

Seasonal Bycatch Survey of the George's Bank Scallop Fishery

CFFI, in collaboration with VIMS, will continue the examination of temporal and spatial influences on bycatch of groundfish species, specifically yellowtail flounder, in the Atlantic sea scallop fishery on Georges Bank. This research will build upon the 2011 scallop RSA project "Optimizing the George's Bank Scallop Fishery by Maximizing Meat Yield and Minimizing Bycatch" (11-SCA-02). The primary objective is to quantify yellowtail flounder bycatch rates in comparison to scallop meat yield, with the goal of optimizing the harvest of scallops while minimizing impacts to the yellowtail flounder stock. This task will be accomplished through a year-long, site-specific survey. This project was awarded 269,486 lb of scallops.

University of Massachusetts – Dartmouth {$426,729}

Expansion of the Yellowtail Bycatch System

SMAST proposes to conduct research and outreach in support of the SMAST yellowtail flounder bycatch avoidance system for the 2012 scallop fishing year. SMAST will work with both the Limited Access and Limited Access General Category (LAGC) scallop fleets to develop the bycatch avoidance system for the access area fisheries in 2012. SMAST will use input from industry stakeholders to expand the bycatch avoidance system to include open area fishing grounds. The SMAST yellowtail flounder bycatch avoidance system was initiated in 2010 for the Nantucket Lightship Access Area fishery, and was continued in 2011 for the Closed Area I and II Access Area fisheries, 2012 will be first year the system is being funded under the scallop RSA program. The bycatch avoidance system has been successful in helping scallopers reduce bycatch of yellowtail flounder while maximizing scallop yield from the access areas.The proposed work will support the preparation needed to continue the bycatch avoidance program and includes examination of existing data sources and investigation of the seasonal distribution and abundance of scallops and yellowtail flounder on the fishing grounds. The research will be used to establish bycatch threshold rates and create a spatially specific reporting system for the rotational access areas and open area fishing grounds. Results will be reported back to fishing partners and the fishery science and management communities. This project was awarded 45,300 lb of scallops.

University of Massachusetts – Dartmouth {$379,843}

What Causes Gray Meat in the Atlantic Sea Scallop Placopecten Magellanicus in Georges Bank Closed Areas?

SMAST proposes to document the spatial and temporal occurrence of these “gray” scallops and investigate possible causes for the decline in meat quality. Analysis of digital still images from the SMAST–Industry cooperative video survey combined with whole scallop samples collected commercially will be used to develop a temporal and spatial map representing observed populations of gray meat scallops in the Georges Bank closed and rotational areas. Whole scallops from the rotational areas will be externally examined and documented for epifaunal activity. Shell height/meat weight, gonadal somatic index (GSI) values, and the color and texture of the meat and will be recorded. A subsample of scallops will be aged and seasonal growth rates determined. Their meat will be analyzed for proximate composition and myodegeneration. The top and ventral shells will also be examined by radiography for epifaunal boring activity. Shell height and thickness, shell height /meat weight and GSI values, meat composition, and shell boring activity will be correlated with meat quality to identify factors associated with gray meat scallops. Age and seasonal growth rates of gray scallops will be compared with values from a previous SMAST seasonal growth project on scallops from this area. This project was awarded 40,323 lb of scallops.

Fisheries Specialists {$584,375}

Bycatch Characterization in the Southern New England Sea Scallop Fishery

VIMS proposes to collect data to characterize the bycatch in the Southern New England LAGC sea scallop fishery. This region of the fishery is underrepresented in the existing sampling. Bycatch data will be collected onboard four sea scallop LAGC fishing vessels in the dredge fleet out of Point Judith, Rhode Island. The vessels will fish under normal conditions and data will be recorded on scallops as well as all bycatch species captured. Distribution maps will be plotted and percentages and ratios will be calculated so that the bycatch in the sea scallop fishery in the Southern New England can be determined both spatially and temporally. The goal of the project is to provide managers and the fishing industry information to aid in the management of scallops in the SNE/MA management area with less uncertainty and with greater confidence. This project was awarded 62,036 lb of scallops.

Virginia Institute of Marine Science {$678,016}

An Assessment of Sea Scallop Abundance and Distribution in Selected Areas: the Hudson Canyon and DelMarVa Closed Areas and Inshore Areas of the New York Bight

Pre-determined sampling stations within the Hudson Canyon (HCCA), DelMarVa (DMV) Closed Areas and open areas directly inshore of the HCCA will be surveyed by simultaneously towing a standard NMFS sea scallop survey dredge and a Coonamessett Farm Turtle Deflector Dredge (CFTDD). The primary objective of this study will be to estimate exploitable biomass for the HCCA and to supplement survey information from the aforementioned open area gathered during a 2011 VIMS/Industry cooperative survey. This open area, has recently supported significant amounts of effort, yet is currently lightly surveyed by the NMFS annual sea scallop survey. A second year of information for that area will add to the understanding of the dynamics of that important area. This project was awarded 71,976 lb of scallops.

Virginia Institute of Marine Science {$364,498}

An Inventory of the Sea Scallop Resource in the Georges Bank Closed Area II and Surrounds

VIMS proposes to conduct a fine scale survey of the sea scallop resource in the northern part of Georges Bank Closed Area II (north of 41.5 deg). Inclusive to the area surveyed is the current Habitat Closed Area as well as the areas under consideration in the Draft Omnibus Essential Fish Habitat. This would include all or parts of the proposed Northern Edge Habitat Area and the Georges Shoal Habitat Area. These areas would be surveyed using a fixed grid survey design simultaneously towing a standard NMFS 8-foot survey dredge (2 inch rings, 4 inch mesh twine top, 1.5 inch liner) and a 15 ft. Coonamessett Farm Turtle Deflector Dredge configured to meet current regulations (4 inch rings, 10 inch mesh twine-top). The use of two different dredge configurations will allow for a complete description of the size distribution, abundance, and exploitable biomass of the scallop population in the area to be surveyed. In the spirit of cooperative research the survey will be conducted aboard a commercial sea scallop vessel with a full time limited access permit. A secondary aspect of this proposal, will be to provide parameters of scallop meat quality and integrity such as color, texture, meat-tear frequency, shell height/meat weight relationships, shell integrity and fouling, and the reproductive state of the scallops in the surveyed areas. This project was awarded 38,694 lb of scallops.

Virginia Institute of Marine Science {$1,092,642}

Evaluating the Condition and Discard Mortality of Skates Following Capture and Handling in the Sea Scallop Dredge Fishery

VIMS proposes to quantify the species-specific (immediate) at-vessel and short-term delayed (discard) mortality rates from scallop dredge capture for winter (Leucoraja ocellata), barndoor (Dipturus laevis), and little skates (Leucoraja erinacea). In addition, mortality rates for the less encountered thorny skate (Amblyraja radiata) will also be opportunistically accounted for. Analyses will consider not only the impacts of fishing conditions (e.g. season, depth, seawater and air temperature), but also fishing practices (e.g. tow times, sorting durations/deck-times, and handling protocols). This investigation will be conducted over a continuous 24-month study period between April 2012 and May 2014. VIMS will utilize the fishing vessels, gear, and expertise of local fishermen to collect the different skate species. The areas chosen for the study will primarily be in the access areas of Georges Bank Closed Areas I and II. Fishing will be conducted as 5-7 day trips. VIMS plan to include fishing vessels from New Bedford that have been participating in scallop research. This project was awarded 115,992 lb of scallops.

Arnie's Fisheries Inc. {$1,297,656}

Optical Survey of Closed Area II Scallop Access Area and the Nothern Edge Habitat Area of Particular Concern and Contiguous Areas

Arnie's Fisheries proposes to conduct two cruises in July 2012 to collect optical imagery using the HabCam towed instrument system in Georges Bank Closed Area II. The first effort will be performed in the scallop Access Area to the south. The second effort will be conducted in the northern portion of Closed Area II and contiguous area to the east and west, and includes the Habitat Area of Particular Concern (HAPC), the 10 minute square to the south east of the HAPC encompassing much of the Winter Fishing Ground and the ridge commonly referred to as "the Leg," and finally, a third subarea of long term importance to the scallop industry, the area to the west of the HAPC. This last area has been recently under discussion within the Habitat Plan Development Team (PDT) for possible future management action. Data will be used to derive estimates of population abundance and distribution for scallop. Though focused on productive scallop areas, the proposed surveys will also document species considered bycatch

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to the scallop fishery, i.e. flounders, skates, and monkfish. Photographic imagery and plots of scallop biomass and distribution, bycatch, substrate distribution, and statistical measures of scallop patchiness, derived from the optical imagery, will be produced for these scallop resource areas. All data, imagery and derived products will be made available on the HabCam website: http://habcam.whoi.edu. This project was awarded 137,755 lb of scallops.

University of Massachusetts – Dartmouth {$836,954}

Design and Test of a Hydrodynamic Scallop Dredge to Reduce Bycatch, Minimize Bottom Impact and Improve Fuel Efficiency

SMAST proposes to design and test a hydrodynamic dredge that reduces yellowtail bycatch, sea turtle mortality, seabed impact, and fuel consumption during scallop dredging. Reducing fuel consumption will reduce operating cost, improve fleet wide economic conditions as well as lower the carbon footprint. Additionally, a dredge designed such that the cutting bar does not contact the sea floor would reduce and potentially lower bycatch of finfish and sea turtles. This project was awarded 88,838 lb of scallops.