2013 Scallop RSA Awards (14)

NA13NMF4540009 Coonamessett Farm Foundation (CFF)
"Habitat Characterization and Sea Scallop Resource Enhancement Study in a Proposed Habitat Research Area"
$806,436 Awarded: 4/8/13

Principal Investigators: Ronald Smolowitz, Kathryn Goetting, Daniel Ward - CFF
Kevin Stokesbury, Susan Inglis, Changsheng Chen – SMAST

It is proposed to transplant scallop seed to an area in CAI identified as a potential Dedicated Habitat Research Area. Prior to transplanting, oceanographic, geological and biological conditions will be analyzed at the transplant site. Information regarding the lack of viable seed production in certain areas appearing to be biologically sound will serve as a baseline for future studies, and provide seasonal scallop growth data about predator density and oceanographic conditions. Knowledge gained will be applicable to future studies investigating stock dynamics for the future. The project will use comprehensive analysis from oceanographic models and biological sampling (video) to determine which locations will provide the best growth and survival for the transplanted seed scallops. This project will demonstrate techniques and viability, which could be exported to other areas in the Northeast which are not currently as strong (e.g. GOM, SNE).

NA13NMF4540010 Coonamessett Farm Foundation
" Understanding Impacts of the Sea Scallop Fishery on Loggerhead Sea Turtles through Satellite Tagging"
$404,592 Awarded: 4/26/13

Principal Investigator: Ronald Smolowitz

It is proposed to tag 20 juvenile loggerhead turtles with water-activated satellite tags. The work will entail 15 sea days, utilize two scallop vessels, and conduct turtle sighting surveys for the duration of field operations. One vessel will be equipped with a Benthos Teledyne High Output MiniRover ROV system that will track, observe, and film loggerhead turtles to elucidate their in situ behaviors (e.g. feeding, diving, and breathing). The ROV has proven itself as an excellent tool 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 conjunction with oceanographic and weather data.

The purpose of this project is to increase understanding of turtle behavior and distributions, temporally, horizontally, and vertically in the water column, and to assess linkages to oceanographic property distributions and fronts using both in situ and remote measurements. The project will place satellite telemetry tags on twenty juvenile loggerhead turtles in the offshore Mid-Atlantic scallop fishing grounds during known periods of turtle interactions. The tagging study will be conducted in conjunction with, and integrated into, the ongoing CFF turtle ecology research program that utilizes a ROV to directly observe loggerhead behavior. The proposed work builds upon a series of studies using video to investigate and document aspects of turtle and scallop dredge behavior and interactions. The proposed work represents a continuation and evolution of projects conducted since 2004 under RSA funding and NMFS contracts.

NA13NMF4540011 Coonamessett Farm Foundation
"Seasonal Bycatch Survey of the Georges Bank Scallop Fishery"
$2,522,307 Awarded: 4/8/13

Principal Investigators: Ronald Smolowitz, Kathryn Goetting, Carl Huntsberger-CFF
William DuPaul, Dave Rudders -Marine Advisory Service, VIMS
Kevin Stokesbury, Adam Barkley, Steve Cadrin, Susan Inglis, Katherine Thompson-SMAST
Roxanna Smolowitz -Roger Williams University

It is proposed to study temporal and spatial influences on bycatch of groundfish species, specifically yellowtail flounder (YT) on Georges Bank (GB). There are unknowns regarding the GB YT assessment, and data from this project will be useful on many levels. The research will consist of continuing a survey of bycatch rates and scallop meat yields in the closed and open areas of Georges Bank and Southern New England utilizing a modified New Bedford-style scallop dredge and CFarm turtle deflector dredge. Nine trips are proposed, about two per quarter, with a tenth trip occurring simultaneously with one of the nine trips. Sampling will occur at approximately 80 selected locations in the access portions of CAI and CAII), and in the open areas of the Southeast Parts and southern Great South Channel, on trips lasting 7 days. Catch data will quantify groundfish bycatch rates and scallop shell height/meat weight relationships. The selected areas have yellowtail bycatch rates that are potentially significant. Data will also be collected on other important bycatch species (e.g. winter and summer flounder), which are also found in these areas. The information should be useful for managers in setting and adhering to scallop and groundfish Annual Catch Limits (ACLs), as well as maintaining the success of rotational area-based scallop management.

NA13NMF4540012 Coonamessett Farm Foundation
"Testing of Scallop Dredge Bag Design Changes For Flatfish Bycatch Reduction"
$995,712 Awarded: 4/8/13

Principal Investigator: Ronald Smolowitz

It is proposed to test new dredge bag designs for a new low profile scallop dredge frame that has been designed and constructed based on experiences with the Cfarm turtle deflector dredge. Both dredge designs use a forward cutting bar which has been shown to reduce flatfish bycatch. Different bag designs have been trialed with these dredge frames and have the potential to further reduce finfish bycatch. The purpose of this project is to continue tests of the new bag design, making comparisons with a traditional New Bedford dredge. Testing will take place on Georges Bank and southern New England, in areas of high yellowtail and winter flounder bycatch. Four Limited Access (LA) vessels will each make one trip of seven days at sea (DAS), and 3 Limited Access General Category (LAGC) vessels will each make 8 one-day trips. Catch will be measured and not retained for sale for LA vessels; LAGC vessels will retain their scallops for sale. There will be three types of trips during this project: four directed research cruises on LA vessels with no catch retained for sale, 24 day trips on three LAGC vessels (8 trips per vessel) for limited compensation with catch retained for sale, and compensation trips. Current trips being conducted under the 2012 RSA gear testing project will be replicated, unless the new results lead us in a different direction. So far, the most promising options seem to be short aprons, low twine top hanging ratio, and the use of strategically placed windows.

NA13NMF4540013 National Fisheries Institute
"Preventing Bycatch of Yellowtail Flounder in the Scallop Fishery"
$338,931 Awarded: 4/30/13

Principal Investigators: Thomas M. Grothues, Eleanor A. Bochenek, & Kenneth Roma

It is proposed to study a simple practice meant to reduce yellowtail flounder bycatch by pausing the dredge to allow escapement before or during haulback. This is a method that has been voluntarily practiced by some scallopers, but is not widely adopted due to fear of scallop loss and lack of any knowledge as to its efficacy. This project will video record scallop dredge operations *in situ* and measure yellowtail flounder proportional escapement as a function of 1) proportion of net fullness (scallops), 2) timing of pause, 3) duration of pause, while also 4) estimating scallop loss as a function of pause. Underwater video assessment has become easier in recent years because of the commercial development of small, easily programmable, high -definition cameras and accessories such as special underwater lenses and housings, extended battery packs, underwater lighting systems, and free video processing software.

Yellowtail flounder bycatch reduction from the sea scallop dredge fishery will be determined using visual scoring of videographed dredge hauls made after May 2013. The experimental technique is most cost-effectively evaluated off New England in an area where yellowtail flounder consistently and abundantly co-occur with scallops, but in practice would be relevant to the Mid-Atlantic Region as well. Differences in water temperature, depth, and other environmental factors will be minimized by pursuing this work within a short time frame (two days) and within small areas.

NA13NMF4540014 Northeastern University
"Identifying Source Sink Dynamics in Sea Scallop Populations of the Northwest Atlantic"
$1,107,448 Awarded: 4/8/13

Principal Investigators: Jonathan H. Grabowski, Ph.D., Bradley P. Harris, Ph.D., &
Steve V. Vollmer, Ph.D.

It is proposed to study persistent aggregations of scallops on Georges Bank have been identified and collectively are hypothesized to be major source populations of scallops not only for the Bank, but potentially for those fished in the Gulf of Maine, Southern New England, and the Mid-Atlantic. Similar consistent aggregations likely exist in these other regions, and could contribute as sources for local and regional populations. Project will examine whether scallops from consistent aggregations in each region are potential source populations within and among regions. The proposed genomic approaches will allow us to examine the degree of connectivity among regions and identify potential source populations of scallops.

The proposed study will also help federal regulators protect the population(s) and region(s) that contribute disproportionately to the future productivity of the fishery. We will also examine the ancestral heritage of scallop populations throughout much of their range to examine how scallop population sizes have fluctuated over the past millennia.

NA13NMF4540015 University of Massachusetts, Dartmouth - SMAST
"Scallop Fishery Bycatch Avoidance System"
$637,417 Awarded: 4/8/13

Principal Investigator: Steven X. Cadrin, Ph.D.

It is proposed to conduct research and outreach needed to continue the SMAST bycatch avoidance system for the 2013 scallop fishing year. Work will commence with the Limited Access fleet to further the bycatch avoidance system for the access area fisheries in 2013. Work will be conducted with the General Category fleet to continue the yellowtail flounder bycatch avoidance system in southern New England, including statistical areas 537, 539 and 613. Following extensive input from industry stakeholders, the bycatch avoidance system will be expanded for the Limited Access fleet to include open area fishing grounds and other important bycatch species, such as winter flounder and windowpane flounder.

Project team will hold a series of meetings with members of the scallop industry, at major fishing ports from Virginia to Massachusetts. The purpose of these meetings will be to educate the scallop fleet about the bycatch advisory, solicit their feedback for implementing and expanding the advisory to include open areas and additional species, and to promote increased participation in the program. Project work was conducted in 2012 with Boatracs (Vessel Monitoring System service provider) to develop a macro software program that streamlined and simplified the data reporting process for scallop vessels. The macro minimized data transmission errors, and increased the efficiency of data analysis. As the bycatch avoidance program is expanded to include the open area fishery, the spatial scale of the advisory and the number of reporting areas will increase. We will work with Boatracs to modify the existing reporting macro to include a larger number of fishing grounds, and additional fields to report other bycatch rates. A series of informational mailings to the scallop fleet will be sent to increase participation in the program. These will provide the fleet with instructions on how to participate in the program.

NA13NMF4540016 University of Massachusetts, Dartmouth - SMAST
"High-Resolution Video Survey of the Sea Scallop Resource in George's Bank Closed Area II (South) and Delmarva"
$866,849 Awarded: 4/26/13

Principal Investigator: Kevin D. E. Stokesbury, Ph.D.

It is proposed to intensively survey two access areas in the Mid-Atlantic where high scallop recruitment was observed in 2012, Hudson Canyon closed area and the Elephant Trunk. The study will result in 289 stations sampled in the Elephant Trunk closed area, and 267 in the Hudson Canyon closed area. These 556 stations will require 16 days at sea. The sampling procedure for these surveys will be a multistage centric systematic design. Project will produce estimates of size specific sea scallop density, a map series of the sea floor (featuring the distribution of substrate, depth, live/dead scallops and megafauna (sponges, starfish, filamentous fauna)). To identify areas of recruitment, a 12.3 megapixel digital still camera coupled with the 3 video cameras will be employed. Elephant truck area was permanently opened in 2011, and high densities of juvenile scallops (<70 mm) were observed in both areas. This recruitment restored the Mid-Atlantic scallop abundance from a low of 2.4, to a high of 4.0 billion scallops (similar to abundances observed from 2004 to 2009). Following the growth and mortality of this recruitment class, and determining new recruits, will be critical to determining the health of the Mid-Atlantic

resource. This project will examine habitat characteristics and the abundance, spatial distribution, size composition and recruitment patterns of scallops in these areas.

NA13NMF4540017 University of Massachusetts, Dartmouth - SMAST
"Survey of Persistent Scallop Aggregations and an Examination of Their Influence on Recruitment Using the FVCOM Oceanographic Model"
$993,844 Awarded: 4/26/13

Principal Investigators: Kevin D. E. Stokesbury, Ph.D., Changsheng Chen, Ph.D., Pingguo He, Ph.D, and Bradley P. Harris, Ph.D.

It is proposed to intensively survey 13 persistent high-concentration scallop aggregations on Georges Bank, and perform an examination of their influence on recruitment using the FVCOM oceanographic model. Scallops are highly fecund broadcast spawners whose fertilization success depends on the synchrony of spawning and the proximity of mates. Given these conditions, the locations which support persistently high scallop concentrations may be contributing a disproportionately large number of recruits to the commercial fishery. Potential zygote dispersion from these persistent aggregations will be assessed with the Northeast Ocean Forecast System. This project will examine the hypothesis that extremely large recruitment events in the Mid-Atlantic in 2003, and in the central portion of the Gulf of Maine and along the northern edge of the great south channel and Georges Bank in 2009, resulted from hydrographic conditions which enhanced larval transport from the persistent aggregations to these recruitment areas. This work will generate high quality data for estimating area-specific TACs to support the stock assessment. 11 of the 13 persistent high concentration aggregations are located in groundfish closed areas. The contribution of these areas needs to be considered when examining future access area boundaries. Most importantly, this work aims to enhance understanding of scallop population dynamics by assessing the relationship between the spatial distribution of the adult stock and recruitment. Understanding these recruitment dynamics is essential to predicting how the sea scallop resource is likely to respond to spatial and temporal variations in harvest.

NA13NMF4540018 Virginia Institute Of Marine Science
"A Synoptic Survey of the Sea Scallop Resource in the Mid-Atlantic"
$1,592,471 Awarded: 4/26/13

Principal Investigators: David B. Rudders

It is proposed to conduct a synoptic high resolution (350 stations) survey of the mid-Atlantic scallop resource encompassing the DelMarva Closed Area (DMV), the open area formally known as the Elephant Trunk Closed Area (ETCA), the Hudson Canyon Closed Area (HCCA) and the open area to the southern edge of the Hudson Canyon during the month of May for 2013 and 2014. For the proposed study, sampling stations within the aforementioned area will be surveyed by simultaneously towing a standard NMFS sea scallop survey dredge and a Coonamessett Farm Turtle Deflector Dredge (CFTDD). Current abundance patterns show a significantly reduced biomass of adult scallops in the rotational areas of the mid-Atlantic Bight (MAB). Evidence from a number of different sources, however, suggests that a large recruiting class approximately 2 years old (YC 2010) exists throughout a large portion of the MAB. This presents an interesting challenge as to how to best preserve the class until they are at least 4.5 to 5 years old while maintaining some level of commercial harvest. To meet this challenge, managers will need accurate yearly information pertaining to the distribution and growth of the juvenile scallops as well as spatially explicit estimates of the abundance, distribution and biomass of the adult scallops available for harvest.

NA13NMF4540019 Virginia Institute Of Marine Science
"An Assessment of Sea Scallop Abundance and Distribution in the Access Area of the Nantucket Lightship Closed Area"
$314,628 Awarded: 4/26/13

Principal Investigator: David B. Rudders

It is proposed to conduct a fine scale dredge survey in the access area of NLCA during the spring/summer of 2013. A dredge-based survey has the advantage in that one can access and sample the target species. One parameter routinely measured in VIMS' surveys is the relationship between shell height and meat weight, a parameter used to determine swept area biomass for the area surveyed at that time, as well as an indicator of seasonal shifts in biomass due to spawning. FMP Amendment 10 set into motion changes to the sea scallop fishery designed to improve yield and promote stability. This stability is an expected result of a spatially explicit rotational area management strategy where areas of juvenile scallops are identified and protected from harvest until they reach an optimum size. Project will: provide current estimates of sea scallop abundance and distribution in areas of interest that may suffer from a paucity of detailed sampling, assess the scallop population prior to an opening of a closed area in order to set total allowable catches, provide ancillary information (i.e. scallop biology, bycatch, gear performance) that can readily be obtained from a survey utilizing this experimental approach, and utilize the capital, skills and experience of the sea scallop industry to aid in the stock assessment of the resource as fine scale, spatially explicit resource information becomes more vital in support of future management actions.

NA13NMF4540020 Virginia Institute of Marine Science
"An Assessment of Sea Scallop Abundance and Distribution in the Northeast George's Bank Area"
$347,122 Awarded: 5/1/13

Principal Investigator: David B. Rudders

It is proposed to conduct a fine scale dredge survey in the access area of CAII during the spring/summer of 2013. A dredge-based survey has the advantage in that one can access and sample the target species. One parameter routinely measured in VIMS' surveys is the relationship between shell height and meat weight, a parameter used to determine swept area biomass for the area surveyed at that time, as well as an indicator of seasonal shifts in biomass due to spawning. FMP Amendment 10 set into motion changes to the sea scallop fishery designed to improve yield and promote stability. This stability is an expected result of a spatially explicit rotational area management strategy where areas of juvenile scallops are identified and protected from harvest until they reach an optimum size. Project will: provide current estimates of sea scallop abundance and distribution in areas of interest that may suffer from a paucity of detailed sampling, assess the scallop population prior to an opening of a closed area in order to set total allowable catches, provide ancillary information (i.e. scallop biology, bycatch, gear performance) that can readily be obtained from a survey utilizing this experimental approach, and utilize the capital, skills and experience of the sea scallop industry to aid in the stock assessment of the resource as fine scale, spatially explicit resource information becomes more vital in support of future management actions.

NA13NMF4540021 Arnies Fisheries, Inc.
"Optical Survey of Scallop Resource Areas: Closed Area I, Closed Area II HAPC, & Contiguous Areas"
$995,894 Awarded: 5/10/13

Principal Investigator: Richard Taylor

It is proposed to conduct two cruises in the summer of 2013 to collect optical imagery within the Elephant Trunk Access Area and CAI using the HabCam towed instrument system. An area of dense settlement in the Elephant Trunk was first identified by fishermen in 2010, and recently verified by the 2012 NOAA Fisheries annual scallop survey. The extent of the settlement area is the key issue for investigation. The efforts within Closed Area I will complement earlier HabCam surveys in the area, with the primary purpose being to monitor scallop populations after two years of fishery removals by the scallop fleet.

NA13NMF4540022 University of Massachusetts, Dartmouth - SMAST
"Combined High-Resolution Video Survey and Biological Sampling Using a Modified Sled Dredge of the Sea Scallop Resource in Nantucket Lightship Access Area"
$628,653 Awarded: 4/26/13

Principal Investigator: Kevin D. E. Stokesbury, Ph.D.

It is proposed to intensively survey the Nantucket Lightship area using both a video survey and modified sled dredge with mounted camera for targeted biological sampling, and to identify areas of recruitment. This area reopened for fishing in 2012 and fishermen have observed meat quality "gray meat" issues in this area that are associated with large scallop year classes. Recruitment observed in the SMAST 2012 video survey and fishermen reports indicated large numbers of seed scallop in this area. The combination of these two survey methods will produce total and exploitable sea scallop biomass estimates for the area as well as SH/MW values, meat quality assessment, locate distribution areas and verify relative abundance of small year classes, and document the occurrence of potentially harmful macro benthic invertebrates such as boring sponges (*Clinoa* sp.) and encrusting tunicates *Didemnum* cf. *lahillei* in the area. Further, it will examine habitat characteristics and the abundance, spatial distribution, size composition and recruitment patterns of scallops in this area. This continues a fourteen year time series. These data will provide fisheries managers with important information on the population dynamics and health of the stock in this area. The proposed survey will provide up-to-date biomass estimates in this area, helping to support management decisions.