

Cooperative Research Seeks to Fill In Data Gaps to Support Fisheries Science and Management Efforts

Fisheries management is a data hungry endeavor. Whether it be recreational catch, commercial landings, fishing effort, or data on fish biology and life history, data feeds stock assessment processes and fisheries management decisions. Unfortunately, data collection is costly, labor intensive, and is becoming increasingly more challenging as state and federal fisheries science and management budgets and personnel have decreased in recent years.

The Commercial Fisheries Research Foundation (CFRF), a non-profit, private foundation established by commercial fishermen to conduct collaborative fisheries research and educational projects, seeks to provide more complete and consistent data to support fisheries science and management in a cost-efficient and scientifically reliable way.

CFRF's work allows for the incorporation of fisherman-collected data into science and management measures. The cooperative research approach is especially useful for fisheries with significant temporal and spatial data gaps that would otherwise go unsampled (e.g., offshore areas).

CFRF is currently leading several projects, three of which are highlighted below.

Black Sea Bass Research Fleet

Black sea bass is a popular fishery throughout the Mid-Atlantic and Southern New England. Over the past few years, the distribution of black sea bass has begun to expand its range into more northern waters, largely in response to warming waters, leading to increased abundance throughout Southern New England. The species is also a protogynous hermaphrodite, meaning individuals change from female to male. These two factors – the species changing distribution and unique life history – make gathering comprehensive information about the population for use in future stock assessments and management plans particularly challenging and important.

The Black Sea Bass Research Fleet is a partnership between CFRF and the Rhode Island Department of Environmental Management

(RI DEM) to collect and communicate black sea bass biological data in a cost-effective way using modern electronic technology and fishermen's time on the water. The goal is to develop a model approach for fishery-dependent data collection that involves the commercial and recreational fishing industries. The fleet consists of nine Rhode Island commercial and recreational fishermen, using several different gear types, to collect biological and fishery data on black sea bass during routine fishing practices throughout the year. Data collected include gear type and effort, sampling depth, percentage of catch retained and discarded, as well as fish length and sex. Data are transmitted to CFRF through a mobile tablet application, and then to RI DEM and the Atlantic Coastal Cooperative Statistics Program, allowing for timely transfer of the data for

scientific and management use. The fishermen participating in the Black Sea Bass Research Fleet have sampled over 8,000 black sea bass since December 2016 and will continue through April 2019.

For more information on the Black Sea Bass Research Fleet, please contact Tom Heimann at theimann@cfrfoundation.org.

Supporting Management of Jonah Crab and American Lobster Fisheries in the Northeast

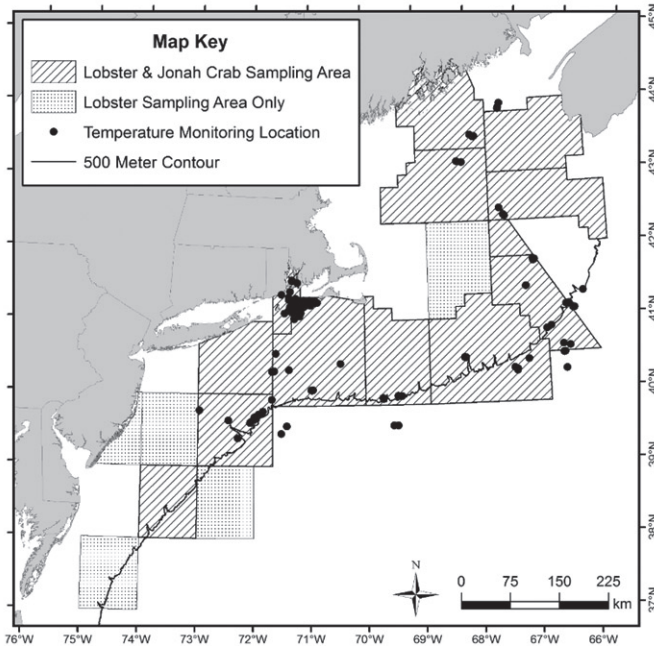
The Jonah Crab and Lobster Research Fleet works to implement a cost-effective method to collect critically

needed biological data for two commercially important species. The American lobster fishery is one of the most valuable fisheries in New England, but significant data gaps exist in the southern part of its range and offshore waters. While the adult lobster population in the Gulf of Maine and Georges Bank is at historic highs, the Southern New England population is depleted, a status most likely driven by overfishing and changing environmental conditions, such as increased water temperatures in the area. Jonah crab is a rapidly expanding fishery whose popularity is partially driven by the decrease in availability of Southern New England lobster. An Interstate Fishery Management Plan for Jonah crab was approved in 2015. Information is needed to support the species' first stock assessment and evaluate the status of the stock.



Brian Thibeault collecting Jonah crab data aboard the FV Ashley Ann.
Photo (c) CFRF.

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Map of the areas sampled by the CFRF Lobster and Jonah Crab Research Fleet from June 1, 2013 to July 1, 2017, including bottom water temperature monitoring locations (black circles). Image (c) CFRF

The Jonah Crab and American Lobster Research Fleet collects data on the two species, which are caught in similar gear types, in order to better inform their stock assessments and management decisions.

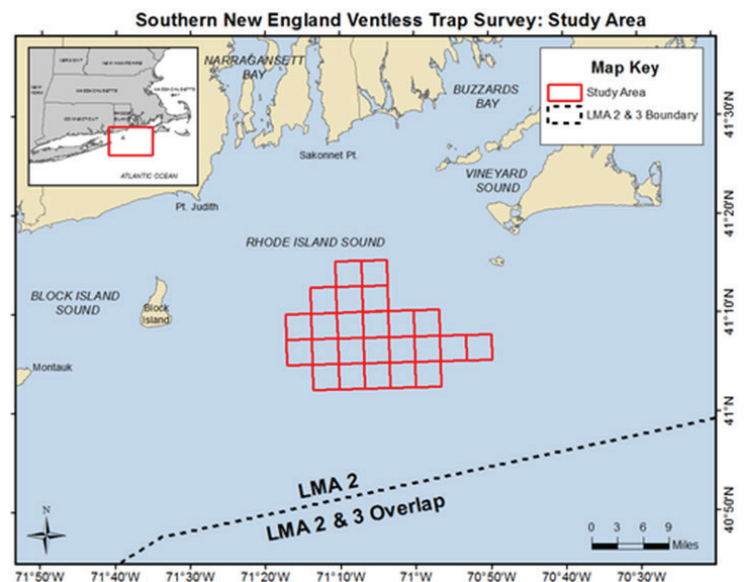
For the project, running since January 2013, 18 American lobster and Jonah crab fishing vessels use digital calipers and the 'On Deck Data' application (app) to collect biological and environmental data from their commercial and ventless traps. At the same time, fishermen also collect bottom water temperatures where they fish. The On Deck Data app was created by CFRF as a way for data to be easily deposited into Android tablets and transferred to a database for use. The project is especially useful in providing more complete temporal and spatial data for the species, as more traditional surveys that only sample within state waters and primarily during the summer months. The app records biological information, such as length, sex, shell disease, eggs, v-notch, shell hardness, and disposition. Each vessel samples at least 300 lobsters or 60 commercial traps each month, or 150 Jonah crabs or 60 commercial traps a month. For the past two years, over 2,300 male and female Jonah crabs have been collected from five geographical regions for Massachusetts Division of Marine Fisheries to analyze and better understand sexual maturity for both stocks. In 2018, the project started using Bluetooth caliper technology, hoping to pioneer its use in other fishery data collection projects. To date, the program has sampled 107,667 American lobsters and 47,400 Jonah crabs.

For more information on the Jonah Crab and American Lobster Research Fleet, please contact Aubrey Ellertson at aellertson@cfrfoundation.org.

Southern New England Cooperative Ventless Trap Survey

This survey is a continuation of the 2014/2015 Southern New England Ventless Trap Survey and will run from March 2018 to February 2019. The survey focuses on American lobster and Jonah crab, assessing the seasonal distribution, movement, and habitat use by these species in the Cox's Ledge Wind Energy Area. The goal is to establish a pre-construction baseline for the populations to enable assessment and mitigation of the impacts of offshore wind energy development. Commercial lobstermen are collaborating with CFRF on the project, providing the vessel capacity and expert knowledge to guide the research. Twenty-four lease blocks were selected in the Rhode Island-Massachusetts Wind Energy Area and biological sampling is conducted within each lease block twice a month from May to November. The project is being implemented in conjunction with a lobster tagging program to determine seasonal movement patterns and habitat use by lobsters in the area. The combined results of the projects will be used to better inform decisions about which locations should be selected for wind turbines in order to limit development impacts on American lobster and Jonah crab.

For more information on the Ventless Trap Survey, please contact Michael Long at mlong@cfrfoundation.org. Additional information on CFRF and its projects can be found at <http://www.cfrfoundation.org/>.



Map of the areas to be sampled by the Southern New England Cooperative Ventless Trap Survey from May 2018 - November 2018. Image (c) CFRF

-- This article was contributed by Jessica Kuesel, Fisheries Administrative Assistant