

## NEFSC REPORT TO FISHERY MANAGEMENT COUNCILS (JULY 30, 2015)



## SURVEYS AND FIELD STUDIES

**Bottom Trawl Survey:** The Spring Bottom Trawl Survey, conducted on NOAA Ship *Henry B. Bigelow*, took place from March 3 – May 10, 2015. There were four cruise legs, which included trawl, plankton and CTD sampling. In addition, light sensors were installed to collect data to examine the effect of light on the catchability of a variety of species.

**Integrated Benthic/Sea Scallop Survey** - The Sea scallop survey, conducted on U. Delaware ship *Hugh R. Sharp*, took place from May 16 – June 24, 2015. There were three cruise legs, with HabCam video integrated with scallop dredge sampling.

**Integrated Pelagic Survey / Ecosystem Monitoring Survey:** The EcoMon survey, conducted on the *Henry B. Bigelow*, took place from May 19 – June 3. The survey measured ocean chemistry, physics, and biology, including plankton and fish larvae. The data will contribute to NEFSC efforts to improve stock assessments.

**AMAPPS Aerial Surveys:** NEFSC scientists conduct aerial surveys of marine mammals and sea turtles from the coast to 2000m depth from New Jersey to Halifax, Nova Scotia. Surveys took place in 2014 and early 2015. Surveys are recommencing for spring/summer 2015. Right whale aerial surveys are running this spring/summer, in coordination with NOAA ship *Gordon Gunter*.

**American shad:** NEFSC staff participated in sampling American shad in cooperation with USGS and CT-DEEP, in the upper Connecticut River (Holyoke, Turners Falls).

**Atlantic salmon :** Center staff are participating in surveys of the Penobscot Estuary in cooperation with the Darling Marine Center. Studies include physical properties of the estuary during salmon migration, hydroacoustics, and pelagic fish community. NEFSC staff participated in the ME DMR Inshore Survey during May 18-22 to collect groundfish stomach samples. The project is a collaboration between ME DMR, NEFSC Food Web Dynamics, and the Atlantic Salmon Research and Conservation Task.

**Northern shrimp survey:** Shrimp survey is scheduled on *Gloria Michelle*, July 19 – August 14.

**Deep sea corals:** Coral survey is scheduled on *Henry B. Bigelow*, July 27 – August 7.

**Surfclam and ocean quahog survey:** Clam survey is planned for August 3- 21 aboard an industry vessel.

**Observer Program (Fisheries Sampling):** Fisheries Sampling Branch (FSB) completed 8,839 sea days during October 2014 – June 2015. This comprises days from the Northeast Fisheries Observer Program (NEFOP) (4,259 sea days), At-Sea Monitoring (ASM) (2,489 sea days), and Industry funded Scallop (IFS) (2,091 sea days), for Fiscal Year 2015 (partial).

For the Multispecies Groundfish 2015 year, FSB's preliminary estimates of coverage are 7.5% NEFOP and 11.6% ASM (19.1% combined), totaling 406 observed trips. This is below the target which is 24% combined NEFOP/ASM, due primarily to trip cancellations. FSB participated in outreach opportunities at the Massachusetts Lobstermen's Association Annual Meeting, Maine Fishermen's Forum, Bristol County Aggie Spring Expo, Ocean Fun Days and Sandy Hook Open House, and Port of Cape May Commercial Fishermen's Festival. This summer and fall we are scheduled to attend the Boston Seafood Festival, Joint NEFSC Bigelow Open House, The Working Waterfront Festival, Delaware Coast Day, and Welfleet Oyster Festival. FSB staff have attended other industry meetings, with expanding observer coverage in the lobster pot and clam dredge fleets.

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#### STOCK ASSESSMENTS AND PEER REVIEWS

**Herring:** The herring Operational Assessment and peer review took place in April 2015. <http://www.nefsc.noaa.gov/nefsc/saw/herring-review-2015/>

**Scup and Bluefish.** Peer review of the scup and bluefish benchmark stock assessments took place from June 2-5, 2015 in Woods Hole as SAW/SARC60. <http://www.nefsc.noaa.gov/nefsc/saw/>

**Georges Bank Yellowtail flounder, Eastern GB haddock, Eastern GB cod.** These stocks are co-managed with Canada and assessed jointly within the TRAC process. The TRAC took place this year from July 7-9 in St. Andrews Canada. <http://www.nefsc.noaa.gov/saw/trac/>

**Lobster.** Peer review of the lobster stock assessment, done in collaboration with ASMFC, took place during the week of June 8, 2015. <http://www.asmfc.org/species/american-lobster>

**NEFSC Protected Species Branch (PSB).** The Program Review of PSB took place during April 13-16, 2015 in Woods Hole. [www.nefsc.noaa.gov/program\\_review](http://www.nefsc.noaa.gov/program_review)

**Multispecies Groundfish.** Preparation is underway for an Operational Assessment of 20 groundfish stocks managed under the NE multispecies FMP. Key dates: Public information outreach meetings in Maine, New Hampshire and Massachusetts, July 22; Assessment Oversight Panel meeting in Woods Hole, July 27; Peer review meeting in Woods Hole, September 14-18.

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## OTHER CENTER ACTIVITIES/ACHIEVEMENTS

**NEFSC Strategic Plan Update:** A pre-final draft of the Center’s new strategic plan is currently under internal review. The Councils and ASMFC will be given the opportunity to preview the plan before it is published later this summer. Center representatives will present the new plan at Council meetings later this year.

**Climate-related research.** NOAA program “Understanding Climate Impacts on Fish Stocks and Fisheries to Inform Sustainable Management” is supporting projects: 1.)Evaluating Social-Ecological Vulnerability and Climate Adaptation Strategies for Northeast U.S. Fishing Communities and 2.)Indicators of habitat change affecting commercial species of the U.S. Northeast Shelf: A design to facilitate proactive management in the face of climate change. Ocean Acidification (OA). 1. )There are ongoing research projects at the Howard Laboratory involving early life-stages (gametes, embryos, pre-feeding, and feeding larval stages up to metamorphosis) of Winter flounder. 2.) NEFSC scientists are investigating the impact of OA on surfclam larvae. 3.) scup from Long Island Sound will be used to examine effects of different levels of CO<sub>2</sub> on embryos in the laboratory. 4.) black sea bass embryos will be used to examine effects of different levels of CO<sub>2</sub> in the laboratory.

**Hydrographic Conditions in 2014.** NEFSC Hydrographic Monitoring Program summarized oceanographic conditions on the Northeast U.S. Shelf during 2014. The NEFSC is a major contributor of data to the ICES Report on Ocean Climate (<http://ocean.ices.dk/iroc/>) and the NOAA National Oceanographic Data Center World Ocean Database.

**Sturgeon.** Preparations are underway at the Howard Laboratory for a multiyear experimental study of climate, contaminants, and hypoxia on shortnose and Atlantic sturgeon. This will involve collaboration with NYU and CUNY Queens College. The research is relevant to conservation of sturgeon under the Endangered Species Act.

**Bioaccumulation of mercury.** Fishery Biology Program helped process and age samples collected by Professor Sunderland (Harvard U.). These samples are part of a study on bioaccumulation of mercury in Canadian fish.

**BOEM Benthic Habitat project .** NEFSC staff presented an overview of the NEFSC BOEM Benthic Habitat project to the Massachusetts Div. of Marine Fisheries Habitat Working Group on Offshore Renewable Energy.

**Howard Marine Sciences Laboratory at Sandy Hook.** The Lab had an open house in May to demonstrate and explain ongoing research programs to preserve and protect the living marine resources of the north Atlantic. This event attracted about 4000 visitors to the Lab.

**Cod acoustics.** The NEFSC Protected Species Branch is collaborating with fishing industry partners to study of sounds made by cod and to learn their locations. This project was featured on NPR's "All things Considered":

<http://www.npr.org/sections/thesalt/2015/06/15/413672058/scientists-fishing-fleet-team-up-to-save-cod-by-listening>

**New York (Coney Island) Aquarium project.** The New York Aquarium contacted the NEFSC in June regarding information for a new exhibit to feature Hudson Canyon and its fauna. Discussions centered on how the NEFSC could contribute to the exhibit by providing photos, videos and data on species in the canyon. This could serve as a valuable public outreach project.

**Atlantic Deep-sea Red Crab.** NEFSC researchers, in collaboration with Delaware State University, are conducting laboratory studies of red crab to track larval hatching rate and volume. Some larvae from each crab will then be used to conduct a feeding experiment to determine an optimal diet for rearing.

**Woods Hole science community Open House.** The NEFSC will join with other members of the Woods Hole science community to host the *Woods Hole Science Stroll* event on August 9, 2015. In addition to the NEFSC, event participants include the Woods Hole Oceanographic Institution (WHOI), the Marine Biological Laboratory (MBL), the Sea Education Association (SEA), the Woods Hole Research Center. The event will be open to the public and include tours of the NOAA Ship *Henry B. Bigelow*, and an opportunity to see WHOI's newly upgraded research submersible Alvin as well as other underwater robotic vehicles. The goal of this event is to provide the opportunity to experience an historic marine research community, learn more about current research initiatives, and engage with the organization and agency personnel.

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## PUBLICATONS

**Sedimentary facies, geomorphic features and habitat distribution at the Hudson Canyon head from AUV multibeam data.** Pierdomenico, Guida, Macelloni, Chiocc, Rona, Scranton, Asper & Diercks. Accepted by: Deep Sea Research II

**Validation of the i-STAT system for the analysis of blood gases and acid–base status in juvenile sandbar shark (*Carcharhinus plumbeus*).**T. S. Harter, P. R. Morrison, J. W. Mandelman, J. L. Rummer, A. P. Farrell, R. W. Brill, and C. J. Brauner. (2015) Conservation Physiology, 3: 1-10

**Solar zenith angles for biological research and an expected catch model for diel vertical migration patterns that affect stock size estimates for longfin inshore squid, *Doryteuthis pealeii*.** LD Jacobson, LC Hendrickson, J Tang. Accepted by: Canadian Journal of Fisheries and Aquatic Sciences

**A U.S. Northeast Passive Acoustic Sensing Network for Monitoring, Reducing Threats and the Conservation of Marine Animals.** Sofie M. Van Parijs, Mark Baumgartner, Danielle Cholewiak, Genevieve Davis, Jason Gedamke, Dana Gerlach, Samara Haver, Joshua Hatch, Leila Hatch, Cara Hotchkin, Annamaria Izzi, Holger Klinck, Eric Matzen, Denise Risch, Gregory K. Silber, & Michael Thompson. (2015). NEPAN: Marine Technology Society Journal, Volume 49, Number 2, pp. 70–86

**Quantifying alosines in the diets of marine piscivores in the Gulf of Maine.** McDermott SP, N Bransome, SE Sutton, BE Smith, JS Link, TJ Miller. (In press). Journal of Fish Biology

**An Integrated Assessment Model for Helping the United States Sea Scallop (*Placopecten magellanicus*) Fishery Plan Ahead for Ocean Acidification and Warming.** Sarah R. Cooley, Jennie E. Rheuban, Deborah R. Hart, Victoria Luu, David M. Glover, Jonathan A. Hare, and Scott C. Doney  
(<http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0124145>)

**Gastric evacuation rates in male Clearnose Skate (*Leucoraja eglanteria*) in the laboratory.** Linda L. Stehlik, Beth A. Phelan, John Rosendale, and Jonathan A. Hare. Accepted by: Journal of Northwest Atlantic Fishery Science

**Assessing Demographic Effects of Dams on Diadromous Fish: A Case Study for Atlantic Salmon in the Penobscot River, Maine.** Julie Nieland, Tim Sheehan, and Rory Saunders. Accepted by: ICES Journal of Marine Science

**Productivity change and fleet restructuring after transition to individual transferable quota management.** Fare, Rolf, Shawna Grosskopf, and John Walden. (in press). Marine Policy

**Productivity Change in Commercial Fisheries: An introduction to the special issue.** John Walden, Ben Fissel, Dale Squires, Neils Vestergaard, Accepted by: Marine Policy.

**Using a remotely operated vehicle (ROV) to observe loggerhead sea turtle (*Caretta caretta*) behavior on foraging grounds off the mid-Atlantic United States.** Smolowitz, RJ, SH Patel, HL Haas, S Miller. (2015). Journal of Experimental Marine Biology and Ecology 471:84–91

**Mixed assemblages of drilling predators and the problem of identity in the fossil record: A case study using the muricid gastropod *Ecphora*.** Michelle M. Casey, Úna C. Farrell, Gregory P. Dietl, and David J. Veilleux, Michelle M. Casey and Úna C. Farrell. Accepted by: Paleobiology

**Benthic ecology of northern quahog beds with different hydraulic dredging histories in Long Island Sound.** Renee Mercaldo-Allen, Ronald Goldberg, Paul Clark, Catherine Kuropat, Shannon Meseck, and Julie Rose. Accepted by: Journal of Coastal Research

**Hudson submarine canyon head offshore New York and New Jersey: A physical and geochemical investigation.** Rona, P., Guida, V., Scranton, M., Gong, D., Macelloni, L., Pierdomenico, M., Diercks, A., Asper, V. and Haag, S. (in press). Deep Sea Research II

**Spatial and annual variation in fecundity and oocyte atresia of yellowtail flounder, *Limanda ferruginea*, in U.S. waters.** W. David McElroy, Mark J. Wuenschel, Emilee K. Towle, Richard S. McBride, Accepted by: Journal of Sea Research.

**Seasonal sea surface temperature anomaly prediction for coastal ecosystems.** Stock, C.S., K. Pegion, G. Vecchi, M. Alexander, D. Tommasi, N. Bond, P. Fratantoni, R. Gudgel, T. Kristiansen, T. O'Brien, Y. Xue and X. Yan. Accepted by: Progress in Oceanography.

**Aquatic animal telemetry: a window into the underwater world.** Hussey, N. E., S. T. Kessel, K. Aarestrup, S. J. Cooke, P. D. Cowley, A. T. Fisk, R. G. Harcourt, K. N. Holland, S. J. Iverson, J. F. Kocik, J. E. Mills Flemming, and F. G. Whoriskey. (2015). Science (348): 1255642-1 - 1255642-10