



# NOAA's Undersea Research Center for the North Atlantic and Great Lakes

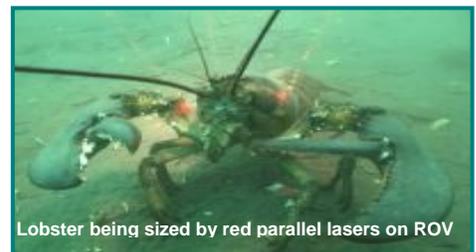
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The North Atlantic and Great Lakes represent two ecologically diverse and heavily impacted regions, which at the same time support some of the most valuable coastal resources in the nation. The length of the coastline of the Great Lakes rivals that of the entire eastern seaboard. New Bedford, MA reports the highest valued landings of any U.S. fishing port. Centuries of commercial and recreational fishing and decades of point and non-point contamination and nutrient input have severely altered our coastal and Great Lakes ecosystems. Understanding, sustaining and conserving these systems forms the basis of NURC-NA&GL's research program.



NURC's 1000 m remotely operated vehicle, Kraken



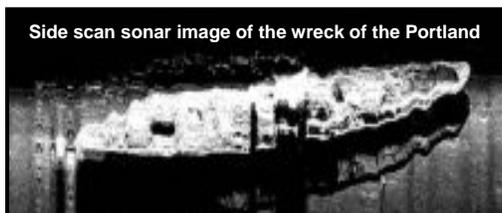
Lobster being sized by red parallel lasers on ROV



Trout in front of ROV with suction sampler

## Highlights

- The American lobster *Homarus americanus* is the U.S.'s second most economically important single-species fishery. Combining ROV and side-scan sonar technologies, NURC research has better defined the role that seafloor habitats play in the survival and production of juvenile lobsters.
- Aided the New England Fishery Management Council in developing management actions to conserve deepwater coral habitats off the North Atlantic. Some deep water corals serve as critical habitat for fish, most are vulnerable to fishing and others are long lived records of climate change.
- Used an ROV to validate that egg deposition and fry production of lake trout take place at Michigan's Mid-Lake Reef Complex. Future research will build upon this study to assist restoration of this extirpated species.



Side scan sonar image of the wreck of the Portland



ROV with complex BBL sampler

- Working in collaboration with the National Marine Sanctuary Program at Stellwagen Bank and Thunder Bay, NURC ROVs have been used to survey and document wreck sites, which are marine heritage resources. NURC research was pivotal in the listing of the steamship Portland on the National Register of Historic Places.
- The Great Lakes are "closed systems" and whatever enters remains within the basin indefinitely, ending up in sediments and the benthic boundary layer (BBL). NURC technology has led the way in examining the processes that sequester and bury or recycle and release nutrients or toxic substances that may either fuel or contaminate Great Lakes ecosystems.



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