



NOAA

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NOAA Researchers Survey Mid-Atlantic Ridge Looking For New Forms of Marine Life, Clues to Deep-Sea Communities

An international team of researchers is surveying the Mid-Atlantic Ridge halfway between Iceland and the Azores to determine its biodiversity and perhaps discover new species and clues to deep-sea food webs. The project is part of a 16-nation effort to determine if the underwater mountain chain in the middle of the North Atlantic Ocean has its own distinct animal communities.

Led by NOAA researcher Mike Vecchione of the Northeast Fisheries Science Center (NEFSC), headquartered in Woods Hole, Mass., the research team is working aboard the 208-foot NOAA ship *Henry B. Bigelow* for six weeks as part of the Mid-Atlantic Ridge Ecosystem Project, or MAR-ECO. The cruise is funded by NOAA Fisheries Service with additional support from the Alfred P. Sloan Foundation.

The MAR-ECO project is one of 14 field programs that are part of the Census of Marine Life, a 10-year global study of the abundance, distribution and diversity of marine life in the world's oceans. The Census began in 2000 and seeks by 2010 to determine what lives in the ocean and how this life has changed with time. The Census also strives to make information about marine life more accessible and usable through products like an on-line encyclopedia of both old and newly-discovered species.

Vecchione, a specialist in deep-sea squids and octopods and director of NOAA's National Systematics Laboratory, participated in a Norwegian MAR-ECO cruise in 2004. He also led an expedition in 2003 using the human-occupied Russian MIR submersibles to explore depths on the ridge up to 15,000 feet.

"The mid-ocean ridge system is a huge feature of the earth's surface but has generally been the subject of very little biological study. It is important to understand what lives in the deep waters around and above mid-ocean ridges because they are such a major component of our planet's living space," Vecchione said. "We are also investigating how the deep-sea food web works. We really don't know what is living in these waters, who eats whom, or how deep-sea fishing and the decline of many large species, such as deep-diving whales, at the top of the food web may be affecting everyone else."

Much of the expedition, which began June 12 and ends July 17, is focused on an area of the ridge around 52 degrees north latitude known as the Charlie Gibbs Fracture Zone, which divides the ridge into northern and southern sections. Water depths here

range from 1,600 to almost 15,000 feet and the terrain is very rugged, making it a challenging environment to sample and collect data.

The *Henry B. Bigelow* is one of four new NOAA Fisheries research vessels and supports the Northeast Fisheries Science Center. The *Bigelow's* primary mission is to study and monitor marine fisheries in the Northeast U.S., but the ship also conducts marine mammal and bird surveys, participates in habitat assessments and is an observing platform for weather, sea state and other environmental data. The vessel is equipped with advanced technology known as "quiet-hull" that reduces the impact of sound on marine life and other advanced technologies for sampling and on-board studies.

"Because of its fishing capabilities, the *Bigelow* is especially well suited for the goal of this cruise: to sample the deep-sea nekton - swimming animals like fishes, shrimps, and squids," Vecchione said.

MAR-ECO is coordinated by the Institute of Marine Research and the University of Bergen in Norway to study the Mid-Atlantic Ridge from Iceland to the Azores. In addition to Vecchione and colleagues from the NOAA Fisheries laboratory in Woods Hole, Mass., researchers on the current expedition represent the American Museum of Natural History, Harbor Branch Oceanographic Institution, the Los Angeles County Museum, the Smithsonian Institution, University of the Azores, University of Georgia, University of St. Andrews in Scotland, and the Virginia Institute of Marine Science. Also onboard is a NOAA "Teacher at Sea" from Opelika Middle School in Opelika, Alabama.

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Related links:

MAR-ECO: <http://www.mar-eco.no/>

NOAA Ship Henry B. Bigelow: <http://www.nefsc.noaa.gov/Bigelow>

NOAA Ship tracker:

http://shiptracker.noaa.gov/ship.aspx?ship_code=HBSCSACQ&timeframe=cc&mapservice=st_nmao

NOAA Teacher at Sea: <http://teacheratsea.noaa.gov/2009/meadows/index.html>

Census of Marine Life: <http://www.coml.org/>

National Systematics Laboratory: <http://www.nefsc.noaa.gov/nefsc/systematics/>