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Navy Teams to Study Marine Mammals in the Mediterranean

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By Tracey Moriarty, Chief of Naval Operations Environmental Readiness Division

WASHINGTON (NNS) -- New data gathered during a recent multinational study supported by the U.S. Navy and the Strategic Environmental Research and Development Program (SERDP) gives researchers hope of better understanding the Mediterranean and its marine populations.

For all of the historical and cultural studies devoted to the Mediterranean, the offshore waters of the Mediterranean Sea remain relatively uncharted for the world's marine mammal researchers.

The study, entitled "Biological and Behavioral Studies of Marine Mammals in the western Mediterranean Sea," or informally referred to as "MED 09," focused on marine mammal behavioral patterns and habitats. This multinational study included participation from organizations in Italy, Spain, France, and the United States.

"Many of the areas we are studying in the Mediterranean have not been systematically surveyed," said Angela D'Amico of the U.S. Navy's Space and Naval Warfare Systems Command, and co-principal investigator on the MED 09 project.

According to D'Amico, MED 09 was the first behavioral response study in which beaked whales were monitored exclusively with listening equipment located on a primary research vessel rather than with listening equipment attached to the ocean floor on Navy ranges. Researchers say their ability to acoustically monitor marine mammals and integrate these measurements with specialized visual monitoring outside of Navy ranges will enhance future studies in areas not equipped with bottom-mounted listening devices.

Beaked whales were of particular interest to the project's researchers because they appear, from previous stranding events and related experiments, to be especially sensitive to certain man-made sounds, including mid-frequency active sonar. Researchers believe a better understanding of the basic biology, normal uses of sound communication and the effects of human sounds on beaked whales will allow for improved protection of the species.

To collect the data, researchers integrated highly trained visual observers and advanced listening technologies such as towed hydrophone arrays and deployed sonobuoys with deep water hydrophones to track animals at the surface and during dives. This integration enabled researchers to regularly detect beaked whales throughout the study. Once a desirable group of animals was located, researchers maneuvered their primary ship, the North Atlantic Treaty Organization research vessel Alliance, toward their targets. The Alliance then deployed a small, quiet tagging boat, allowing researchers to get close enough to affix monitoring tags to the animals.

Beaked whales are notoriously difficult to observe, track, and tag. They can dive up to two kilometers and stay underwater for over an hour. When they do momentarily surface, usually for just a few minutes at a time, their low profile makes them nearly invisible in anything but the calmest ocean conditions.

The elusive nature of beaked whales combined with unfavorable weather made it impossible to attach monitoring tags to the animals during MED 09, which began in late July and ended Sept. 5. Though researchers were disappointed to leave without tagging a beaked whale, they say it did not undermine the effectiveness of the study.

"We have made major strides in refining the tools and technologies for [tagging beaked whales], as well as significant contributions in terms of basic biology and behavior," said Dr. Brandon Southall, senior scientist at Southall Environmental Associates and co-principal investigator on the MED 09 project. "These advances and...complementary approaches will be useful not only with regard to future naval operations in the Mediterranean Sea, but also in constructing sound exposure models for military exercises in other areas and informing mitigation methods. This is cutting edge science, and we are pushing the boundaries of what is possible in studying some of the most extreme animals on Earth."

D'Amico agrees. "Collectively, we are contributing to the understanding of key species that live in the Mediterranean Sea such as Cuvier's beaked whales. With the supporting environmental data we collected in different areas, we are beginning to develop an understanding of the habitat in which they live."

The Navy funds a variety of marine mammal research projects similar to MED 09, including two studies completed earlier this year in the Bahamas and Southern California in which researchers tagged marine mammals and tracked their movements before, during and after Navy sonar training exercises or simulated sonar exposures.

Peter Tyack, director of Woods Hole Oceanographic Institution's Marine Mammal Center for Research and Conservation was the third co-principal investigator on the MED 09 project. Primary sponsors of MED 09 included the Office of Naval Research, Chief of Naval Operations Environmental Readiness Division, SERDP, and the National Oceanographic and Atmospheric Association.

For a full list of organizations and to read the MED 09 blog, visit <http://med09-expedition.blogspot.com/>.

For more news on the Navy's environmental programs, visit <http://www.navy.mil/oceans>.

For more news from Ocean Stewardship, visit www.navy.mil/local/oceans/.

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MEDITERRANEAN SEA (Aug. 7, 2009) Pilot whales surface near the NATO Research Vessel Alliance during the Biological and Behavioral Studies of Marine Mammals in the Western Mediterranean Sea (MED 09) study. This multinational study, which focused on marine mammal behavioral patterns and habitats, was primarily sponsored by the U.S. Navy and the Strategic Environmental Research and Development Program (SERDP). Researchers affixed monitoring tags to two pilot whales, and acoustically monitored beaked whales and other marine mammals to learn more about their basic biology. (U.S. Navy photo by Ann Allen/Released)

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