

**Warning:** main(): Unable to access /news/inc/legacy.header.php in /home/virtual/site2/fst/var/www/html/news/april\_03/WCS\_news\_042403.html on line 12

**Warning:** main(/news/inc/legacy.header.php): failed to open stream: No such file or directory in /home/virtual/site2/fst/var/www/html/news/april\_03/WCS\_news\_042403.html on line 12

**Warning:** main(): Failed opening '/news/inc/legacy.header.php' for inclusion (include\_path='./:/php/includes:/usr/share/php') in /home/virtual/site2/fst/var/www/html/news/april\_03/WCS\_news\_042403.html on line 12

## **Whale study links genetics and reproductive success**

*April 24, 2003*

Researchers compare reproduction rates in North Atlantic whales with genetic variation

A recent study focusing on the humpback whales of the Gulf of Maine revealed that differences in reproductive success of whale mothers may play a significant role in changing genetic variation in the population, according to scientists from the Wildlife Conservation Society (WCS), the American Museum of Natural History and their collaborators. Specifically, certain maternal lines of whales have produced more calves than other lines in the past decade, a finding that uncovers the often-complex role of genetics and environment in the makeup of this population of long-lived mammals.

In the study, published in the most recent issue of *The Journal of Heredity*, researchers compared more than two decades of field observations on humpback whales from the Whale Center of New England with genetic samples collected with biopsy darts, which remove a small piece of skin from the backs of these marine mammals. If current trends continue, the humpback whale population of the Gulf of Maine could show shifts in genetic variation over the next 75 years, with some maternal lines becoming more common than others.

"The humpback whale population in the Gulf of Maine represents an opportunity to compare the life histories of a large group of well-studied individuals with genetic structure," said Dr. Howard Rosenbaum of WCS's Science Resource Center, the study's lead author. "This examination gives us a better understanding of how differences in reproductive success among certain whales influences the genetic diversity of wild populations, something that is usually difficult to do on this scale."

The humpback population of the Gulf of Maine has been the focus of numerous field studies and whale watching expeditions, with life history records of individual whales dating back to 1979. Research is further facilitated by the fact that humpback whales can be identified by a variety of unique markings, such as scratches, dorsal fins and white markings beneath the tail flukes that can be viewed as the animal dives. The relationships between individuals--such as mothers and calves--have also been extensively documented over the same time period.

The advent of molecular technology now enables researchers to examine how reproductive success correlates to genetics as well as the environment. Maternal lineages were established for more than 300 individual whales, either through analysis of skin samples as well as from observed relationships from known mothers and their offspring. Of the 19 maternal lineages detected in the study, some will likely increase in frequency in the population over time, while others may level off or disappear entirely, if current trends persist.

"Our discovery that certain maternal lines are more productive or fecund than others illustrates how a population's genetic diversity can be affected by life histories on a large scale," said Rosenbaum. "This suggests that genetic research can add a valuable component to population projections that contribute to the effectiveness of conservation and management planning."

Rosenbaum's ongoing research program, which focuses on determining the distribution and abundance of marine mammals in northeastern Madagascar and throughout the southwestern Indian and South Atlantic Oceans, will be featured in the American Museum of Natural History's newly renovated Irma and Paul Milstein Family Hall of Ocean Life, which reopens to the public on May 17, 2003.

Wildlife Conservation Society



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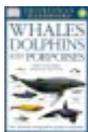
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