Research and Monitoring

Identifying Individual Humpback Whales

Two techniques, photo-identification and genetics, are used to identify and catalog individual humpback whales and link them to specific breeding and feeding areas.

Photo-Identification

Humpback whales have patterns of black and white pigmentation and scars on the underside of their tails that are unique to each whale, just as fingerprints are to humans. Researchers document the marks on the right and left lobes of the tail, or flukes, and rate the percentage of dark vs. light skin pigmentation from 100 percent white to 100 percent black.

For scientific purposes, each humpback whale sighted in the North Atlantic is assigned a catalog number. The unique scarring and shading patterns also provide the inspiration for common names. For Gulf of Maine humpbacks, researchers and naturalists work together each year to name new adult whales and young animals sighted in a second year. New calves are not named because their coloring and scarring often change dramatically during that first year.

Information collected for humpbacks in the sanctuary constitutes the longest and most detailed data set for baleen whales in the world. Photographs in the Gulf of Maine Humpback Whale Catalog, maintained by the Provincetown Center for Coastal Studies, and the North Atlantic Humpback Whale Catalog, maintained by the College of the Atlantic in Maine, allow scientists and naturalists to identify and monitor individual animals and gather valuable information about population sizes, migration, health, sexual maturity and behavior patterns.

Photographing individual whales and their calves each year helps to identify family relationships. Four generations of humpback whales have been documented in certain maternal lines, or “matrilines.”

The most famous Stellwagen Bank sanctuary whale is “Salt,” the first humpback whale to be given a name along with another female named Pepper. Unlike other whales whose names are inspired by their tail patterns, Salt’s name is based on the thick white scars on her dorsal fin that look like encrusted salt. She is known as the matriarch of the sanctuary and the “Grand Dame of Stellwagen Bank” because she has been seen here in all but one summer since 1976. She was also the first humpback whale to be identified by researchers on Silver Bank off the Dominican Republic. Those photos helped scientists confirm the migratory route that links northern feeding grounds with southern breeding grounds. Salt is a grandmother, and over the past 30 years she has escorted 12 known calves, the last born in 2010, from the Caribbean Sea back to Stellwagen Bank.

Genetics

Another way to identify individual whales and confirm family relationships is through DNA analysis. Genetic data are generally obtained from skin samples. Pieces of naturally sloughed skin can sometimes be collected from the water after a whale has been active at the surface. More commonly, researchers shoot a small dart from a special crossbow at the whale’s back. The biopsy dart takes a small plug of skin and blubber before bouncing off into the water. Back in the laboratory, DNA extracted from the sample can provide answers to questions about the sex of the individual whale, population structure, evolutionary history, paternity of offspring and social relationships.

http://stellwagen.noaa.gov
FOLLOW THAT WHALE
Being able to identify individual whales can be critically important during research projects. When attaching a data-recording device, scientists like to know as much about the tagged animal as possible. By knowing who the animal is, scientists may be able to find out about its age, sex and past associations with other whales. The whale can be recognized, even when in a group, and followed until the tag detaches. In some cases, whales have been tagged multiple times, giving scientists the opportunity to study the animal in different years, times of the day, and locations.

2009 TAGGED HUMPBACKS
Draco
Entropy
Fern
Fern’s calf
Glo-Stick
Jabiru
Lavalier
Lavalier’s calf
Milkyway
Samovar
Solas
Tripod
Upsilon
Valley

2008 TAGGED HUMPBACKS
Cajun
Cardhu
Colt
Etch-A-Sketch
Falcon
Hancock
Isthmus
Lavalier
Milkyway’s calf
Moray
Nile
Pepper
Persed
Pertussis
Tectonic
Venom

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