

Protecting Florida's Sirens

Scientists are taking a close look at an old and dying breed with hopes of saving the whiskery "mermaid"

BY JANET RALOFF

The bucolic creatures Christopher Columbus is believed to have mistaken for mermaids still loll in murky waters that flow in a liquid maze throughout peninsular Florida. Lacking natural predators, the manatee—or sea cow—has evolved into a slow-moving, shy and virtually defenseless aquatic animal. Once hunted nearly to extinction for its meat, hide, blubber, bone and oil, its comeback in this century has been tenuous; and it's still considered seriously endangered. If it can be saved, current scientific research will probably provide the clues as to how.

The manatee, which resembles a blunt-nosed, stubby-flipped seal, belongs to sirenians, one of the two orders of totally aquatic mammals. Bearing superficial resemblances to cetaceans, which include whales and porpoises, sirenians actually evolved from landed herbivores. In fact, morphological similarities in their long bones (which include ribs), ovaries and dentition indicate that their closest living relatives are elephants and hyraxes (small-hoofed rodent-like mammals native to the Middle East and Africa), according to John Reynolds, a University of Miami manatee researcher.

Current estimates, largely based on aerial surveys, suggest there are only 800 to 1,000 members of the tropical, West Indian manatee in the United States. (There are two other species elsewhere, which are also threatened or endangered.) Although they have been seen from southern Virginia, around the Gulf Coast to Texas, and on down to northern South America, many, if not most, call Florida home.

Feeding on grasses, water hyacinths, algae and other aquatic plants, they graze serenely—and as they do most everything else, slowly—near freshwater springs, in brackish rivers, marine estuaries and saltwater bays. In fact, their ability to thrive in both fresh and salt water is rather unusual.

Another distinguishing characteristic, especially among the Florida population, are blade-like scars etched into the animals' hides. These unique signatures, often used to identify individuals, are testimony to the confrontations between sea cows and propellers from the state's estimated 500,000 recreational boats.



In competing with humans for Florida's waterways, the manatee has engaged in a losing battle. An estimated 10 percent of the population is killed annually and signs indicate the birth of new calves does not offset that decline. Laws to protect the manatee were enacted as early as 1893. Hunting was outlawed in 1907. But the most important regulations are two federal laws: the Marine Mammal Protection Act of 1972 and Endangered Species Act of 1973. Both prohibit the killing, harassment and capture of live manatees and outlaw the sale of manatee products. But the laws were never aggressively enforced.

More encouraging, Florida recently established sanctuaries for the manatee—adopted as its state mammal—in 10 counties. On October 23, 1979, the U.S. government adopted supporting regulations that made violation of Florida manatee laws a federal offense.

From November 15 to March 31, Florida boaters must reduce their speed to "slow" or "idle" at posted refuges; in some critical regions, boating and scuba diving are prohibited. The intent is to give the animals time to evade the crafts or to give boaters time to steer around the animals when wintering manatees congregate—often to the point of physically crowding—in hot springs and warm-water sanctuaries.

Since 1974, manatee "salvage" programs run by the U.S. Fish and Wildlife Service and cooperating agencies have picked up and autopsied every dead animal reported. Roughly half are too badly decomposed to determine cause of death, says John Oberheu, a manatee specialist with FWS. Of the rest, most are human-caused—60 percent due to collisions with boats or barges. Sanctuaries may cut down manatee losses during winter when the death rate is highest.

The second largest human-related cause of death is drownings at automatic flood-control gates. When opened a few inches at the bottom to permit freshwater spillage into the brine, intense suction pressures can pull a nearby manatee down to the gate where it is crushed or pinned



until drowned. An experimental modification under consideration would open gates higher—perhaps 2.5 feet or more—so that animals get flushed through instead of pinned.

But Oberheu isn't convinced that anything short of a major engineering "breakthrough"—such as a propeller guard that doesn't seriously hurt engine fuel economy—will save the manatee. As leader of the government's manatee-recovery program, he is charged with drafting a list of priority actions to protect the creature. But, he told SCIENCE NEWS, boat traffic increases annually, intensifying the pressure on the animal's critical habitat.

One issue with which all manatee researchers agree is that hope for the manatee's preservation rests with data—from behavior, diet, physiology, metabolism and social patterns to communication and detailed migratory routes. Only three years ago, virtually nothing about the animal was known, Oberheu said. Since then, research efforts have mushroomed.

The largest and broadest program is run out of the U.S. Fish and Wildlife Service's Gainesville laboratory. Everything from field studies of behavior to toxicological tests for pesticides on autopsy tissue are underway.

John Bengtson of the University of Minnesota heads a particularly fruitful project. Using state and local money, he has radio-tagged a cluster of manatees wintering at Blue Spring Run, north of Orlando. Already in its second year, the program monitors day and night, throughout the year, 10 or 12 animals wearing radio-frequency collars about their tails. Teams of researchers who try to remain out of sight record social interactions, feeding schedules, seasonal travels and correlations between animal vigor and the weather.

Lacking defenses—even aggression for defense of a pup—the manatee is among the world's most guileless and vulnerable mammals. Data to anticipate the manatee's activities may permit development of strategies to stem the growing number of inadvertent but lethal confrontations between humans and this gentle giant. □