ENDANGERED ANIMALS

A Reference Guide to Conflicting Issues

Edited by
Richard P. Reading and Brian Miller

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Florida Manatee

Galen B. Rathbun and Richard L. Wallace

Common Name: Florida manatee
Scientific Name: *Trichechus manatus latirostris*
Order: Sirenia
Family: Trichechidae
Status: Vulnerable on the 1996 IUCN Red List; listed in Appendix I in CITES; Endangered under the U.S. Endangered Species Act (ESA) of 1973; Protected under the U.S. Marine Mammal Protection Act (MMPA) of 1972, the Florida Endangered and Threatened Species Act of 1977, and the Florida Manatee Sanctuary Act of 1978.
Threats: Collisions with watercraft contribute to a high rate of mortality. Creation of artificial warm-water refuges may indirectly cause mortality owing to disruption of traditional behavior patterns and hypothermia.
Habitat: Near-shore coastal areas; estuaries; inland waterways.
Distribution: Florida and southern Georgia. During summer some individuals disperse northward along the Atlantic coast through the Carolinas and along the Gulf of Mexico coast as far west as Texas.

DESCRIPTION

The Florida manatee is a subspecies of the West Indian manatee, which occurs in coastal areas of northern South America, Central America, the Caribbean, and the southeastern United States (Lefebvre et al. 1989). Manatees are streamlined and adapted to an aquatic existence, and they are unable to completely leave water. Their front limbs are modified into flippers, they have entirely lost their rear limbs, and their tail is modified into a flat, rounded paddle. Their gray skin is tough, thick, and essentially furless. External ears are absent, and their eyes are small. Adults reach a total length of 3–4 m and weigh about 550 kg (Reynolds & Odell 1991).

NATURAL HISTORY

Eating aquatic plants requires unique behaviors not found in most marine mammals, which must be nimble or fast swimmers in order to catch their prey. Manatees must remain stationary in the water to graze on rooted and floating plants, and thus they are not accomplished divers or swimmers (Hartman 1979). Aquatic vegetation is relatively low in calories and nutrients, so manatees spend 6 to 8 hours a day grazing. To conserve energy,

they maintain a relatively low basal metabolic rate. They also are relatively poor producers and conservators of body heat. Physiology restricts manatees to the warm waters of the tropics and subtropics; in the southeastern United States they are at the northern edge of their distribution (Irvine 1983).

In response to seasonal changes in water temperatures, many manatees in the United States undertake a north/south migration (Rathbun et al. 1990; Reid et al. 1991). In addition, many aggregate at sources of warm water to escape the cold. Some of these winter refuges are created by natural springs, but most have been created by the effluents of power plants and pulp mills (O'Shea 1988). However, when the water temperature at these refuges drops below about 20°C for several days, manatees become hypothermic, or cold stressed, and may die (Ackerman et al. 1995). During the summer manatees are widely dispersed, making them difficult to find and observe (Rathbun et al. 1990).

Florida manatees mate mostly during the summer months and gestate their single calves (rarely twins) for about 12 months. The cow/calf bond is strong, usually lasting 1 to 2 years, and males take no part in raising the calf. Sexual maturity is usually reached in 3 to 5 years (Rathbun et al. 1995).

Historically, manatees were largely restricted to the southern third of the Florida peninsula during the winter, but there are no reliable estimates of their abundance (O'Shea 1988). Winter aggregations in Florida, however, are often in clear water, which makes counting them easier. During a 1996 winter aerial count of the entire southeastern U.S. population, 2,639 animals were spotted (Florida Department of Environmental Protection unpublished data). However, it is unclear whether manatee numbers are currently increasing or decreasing (O'Shea & Ackerman 1995).

CONFLICTING ISSUES

Much of the early concern surrounding the manatee, including its federal listing as Endangered, was based on the unsubstantiated belief that it had almost been extirpated (O'Shea 1988). With the passage of the MMPA and ESA, the U.S. Fish and Wildlife Service (FWS) became the lead federal agency in developing research and conservation measures for the West Indian manatee. In 1974 the FWS initiated a research program in Florida that became the Sirenia Project (now part of the Biological Resources Division of the U.S. Geological Survey). The Marine Mammal Commission (MMC) is a federal agency that evaluates and provides advice on federal actions under the MMPA. The first manatee recovery team produced a recovery plan in 1980, and reorganized teams have produced two revised plans, the latest in 1996 (U.S. Fish and Wildlife Service 1996). In 1984 the state bolstered its research and conservation efforts, which are now part of the Florida Department of Environmental Protection (FDEP).

Nongovernmental organizations are also involved in manatee recovery,

including the Save the Manatee Club, a grass roots conservation organization. Boating interests are represented by the Marine Industries Association of Florida. The utilities industry, especially the Florida Power & Light Company, is also an active player.

Early assumptions of excessive manatee mortality in Florida resulted in an effort to document the causes of all deaths. Not only was an increasing trend found in mortality over the last 20 years, but nearly one-third of all deaths were related to human activities—mostly collisions with boats. For example, from 1986 to 1992 1,080 manatees were recovered dead in Florida, with 28.1% owing to accidents with watercraft (Ackerman et al. 1995).

Unlike many conflicts between humans and wildlife, manatees are killed unintentionally. They do not compete with people for food or directly threaten danger—they just get in the way of boats, of which there are more than 750,000 registered in Florida (plus another 250,000 that visit the state annually). The unintentional slaughter of this benign creature has created sympathy for its plight, as demonstrated by the phenomenal growth in membership of Save the Manatee Club over the past 15 years (Buffett 1996) and the proliferation of protective measures (Reynolds & Odell 1991).

As regulations have been imposed in an attempt to reduce human-related injuries and deaths, controversy has escalated. For example, is the increase in manatee mortality related to an expanding manatee population or an expanding boat and human population? The lack of reliable estimates of historical and current manatee numbers in Florida makes it difficult to answer this question (O'Shea 1995; Wright et al. 1995). The research community in Florida has also been slow to initiate studies to demonstrate the effectiveness of the numerous regulations instituted to reduce boat-related injuries and deaths. Without data, the controversy is bound to continue. In the meantime, boat-related manatee injuries and deaths continue.

The historical distribution of manatees in Florida and their north/south migration began to change when manatees learned to take advantage of artificial refuges in the 1950s and 1960s (Reid et al. 1991). However, these outfalls often are unreliable. During exceptionally cold weather some discharges do not produce enough warm water to meet manatees' needs, and sometimes sources are shut down for economic reasons or repair, resulting in manatees' deaths (Ackerman et al. 1995). Packard et al. (1989) have shown that manatees, faced with an unreliable source of warm water, may not be able to change their behaviors quickly enough to survive. The fact that manatees are adaptable is obvious—after all, they learned to use the artificial effluents. Sufficient time, however, may be needed to develop and learn new behaviors and movement patterns.

Technology can be a fickle friend. There is a growing movement to deregulate the electric power industries in many states, including Florida. In the future, economics may determine which power plants are operated and when. Although this may well serve ratepayers, it also may cause lethal prob-

lems for manatees when effluents are suddenly shut down or become unpredictable.

Uncertainties over historical and current manatee distribution and population numbers, the role of artificial refuges, and suggested solutions to deregulation are starting to be expressed (e.g., Rose 1997). The FWS, FDEP, and MMC are becoming embroiled in controversy (e.g., Frohlich 1998). The need for discussions, coordination, and leadership among all the interested and affected parties is obvious, but it has been slow in happening.

FUTURE AND PROGNOSIS

Successful manatee conservation requires teamwork. In 1997 a joint effort among the lead federal and state agencies resulted in an interagency coordinating committee to facilitate and improve coordination in the recovery program. Members include the FWS, FDEP, the Sirenia Project, and MMC.

Teamwork is difficult, particularly when team members are expected to give up some independence in the process of carrying out recovery tasks (Westrum 1994). One goal of the committee is to manage the lead agencies' agendas in a cooperative fashion by fine-tuning the recovery plan's research and management priority scheme and collaborating on priority tasks. However, the committee has not been effective in accomplishing this goal owing to organizational problems. For example, committee members are hesitant to relinquish individual agency control of data and funding decisions. There is some disagreement over which research and management tasks are highest priority, as individuals tend to feel most strongly about the tasks for which they are responsible. Interest in the committee process varies among members, and some agencies or individuals appear more devoted to succeeding than others. Because the manatee recovery program is based on shared responsibility, as opposed to being directed hierarchically by FWS, FWS is hesitant to direct the work of the other agencies. Perhaps most importantly, there is not a clear, shared goal among the committee members as to how to proceed.

Having a common goal or vision is critical to team success (Westrum 1994), as long as the vision is one that promotes the goals of manatee recovery. Although the committee members share the recovery plan as a common guide, their respective goals might differ based on their individual needs and interests. A common goal developed under these circumstances might resemble a "lowest common denominator" that meets everyone's individual needs but fails to adequately promote the overall goal of manatee recovery. Choosing a leader to direct the actions of the committee also must be a responsibility shared by all the committee members, who must all be comfortable with the expertise and abilities of the chosen individual. That person must be someone who can foster communication and cooperation among the represented agencies (Clark & Cragun 1994).

The committee is in a unique position to influence the future of manatee recovery. In terms of regulatory, research, and management authority, the agencies represented on the committee hold all the cards. Within statutory limits, they can make any decision to further any agenda they decide upon. That they all get along well enough to create this opportunity to coordinate is a rarity among domestic endangered species programs. The opportunity to make it work shouldn't be missed.

Several steps should be taken. A leader should be jointly selected to unite the members in prioritizing and coordinating recovery tasks. Their efforts must complement the recovery plan but not be limited by the plan's implementation schedule. Thereafter the committee should determine each agency's available funds, draft and adopt an agreement to share the costs of implementing priority tasks, assign tasks to the appropriate agencies or organizations, and develop a strict timetable for implementation. The committee should then meet regularly to review progress. The results of the committee's work should become the basis for revising the recovery plan. If the committee members cannot agree on goals and strategy, they should hire and share the costs of a facilitator to expedite the process.

The current recovery plan is a satisfactory base document, but it falls short of providing guidance to achieve interagency coordination, continuity, and stability in research and management actions. Given the difficulties to date in achieving consensus among the principal agencies in manatee recovery, a fresh start based on a new and substantially more aggressive approach to manatee conservation is needed.

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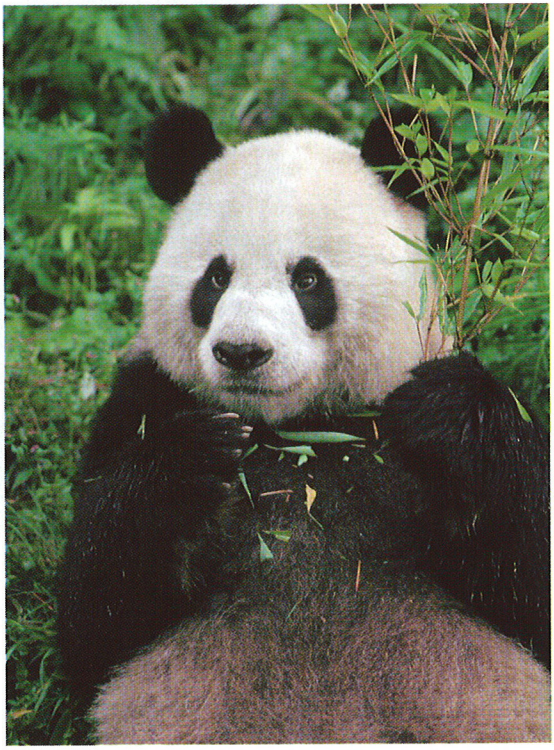

Top: Florida Manatee
(Trichechus manatus latirostris).
Photo by G. Rathbun.
Courtey of G. Rathbun.

Right: Giant Panda
(Ailuropoda melanoleuca).
Photo by R.P. Reading.
Courtesy of R.P. Reading.