

October 1995

## WEST INDIAN MANATEE ((*Trichechus manatus manatus*) ANTILLEAN STOCK

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### STOCK DEFINITION AND GEOGRAPHIC RANGE

Manatees are typically found in the temperate and equatorial waters of the southeastern U.S., the Caribbean basin, northern and northeastern South America, and equatorial West Africa. Their nearest relative, the dugong (*Dugong dugon*), is found in the Indo-Pacific region. At present, manatees of the genus *Trichechus* are represented by three allopatric species: *T. senegalensis*, the West African manatee, *T. inunguis*, the Amazonian manatee, and *T. manatus*, the West Indian manatee (U.S. Fish and Wildlife Service, 1986). The West Indian species is subdivided into two subspecies, the Antillean manatee (*Trichechus manatus manatus*) and the Florida manatee (*Trichechus manatus latirostris*). Such subspeciation may reflect reproductive isolation brought on by the temperate northern coast of the Gulf of Mexico and characteristically strong currents found in the Straits of Florida (Domning and Hayek, 1986).

The Antillean manatee is found in eastern Mexico, Central America, northern and eastern South America, and in the Greater Antilles (Lefebvre et al., 1989). In Puerto Rico, the manatee is most abundant along the south and east coasts, particularly in the area of Fajardo and Ceiba (Roosevelt Roads Naval Station) and in the Jobos Bay area between Guayama and Salinas. In general, manatees are not abundant on the north coast although they are infrequently seen in areas immediately to the west of San Juan (Mignucci Giannoni, 1989, Caribbean Stranding Network, unpubl. data). Manatees are rarely seen near Culebra Island and are generally absent from Mona Island and the Virgin Islands (Caribbean Stranding Network, unpubl. data). The U.S. has jurisdictional responsibilities for the Antillean subspecies only in Puerto Rico and the U.S. Virgin Islands.

### POPULATION SIZE

The exact number of Antillean manatees known to occur in Puerto Rico is unknown but, based on aerial surveys conducted on July 16 and 17, 1994, this population includes at least 86 individuals (Oland, pers. comm.). Manatees are virtually unknown from the U.S. Virgin Islands (Lefebvre et al., 1989). A rare sighting and stranding was reported here in 1988 (Caribbean Stranding Network, unpubl. data).

### Population Trends

Quantitative information is limited regarding trends in the abundance of the Antillean manatee, although "[h]istorical accounts indicate that manatees were once more common and that hunting has been responsible for declining numbers throughout much of their range" (Lefebvre et al., 1989).

In Puerto Rico, efforts have been made to assess the status of the Antillean manatee by conducting aerial surveys and by means of a carcass salvage program. Aerial surveys were initiated in 1978 and have continued sporadically to the present. Carcass salvage efforts were initiated in April 1974, by the U.S. Fish and Wildlife Service (Rathbun et al., 1986). In 1989, the Caribbean Stranding Network initiated a dedicated salvage, rescue, and rehabilitation program and has assumed responsibility for all carcass recovery efforts in Puerto Rico. Despite these assessments, limited information exists by which to determine trends in this population of manatees.

Based largely on historical accounts and increasing human pressures, the Antillean manatee as a subspecies appears to be in decline. However, efforts to quantify population levels and trends are preliminary and there are no conclusive indications as to whether or not the population of Antillean manatees is stable, increasing, or decreasing either in Puerto Rico or throughout its range.

### ANNUAL HUMAN-CAUSED MORTALITY

Since the inception of Puerto Rico's manatee carcass salvage program, 70 manatee deaths have been recorded from that area (Caribbean Stranding Network, unpubl. data). Many of the deaths have been attributed to human-related causes. Carcass collection efforts have documented mortalities associated with nets and watercraft (N=37). Many net-related mortalities involve poaching and are not substantiated by the presence of a carcass (Rathbun et al., 1985). From 1974 until 1988, 41.5 percent of the documented mortality was attributed to poaching. Watercraft-related mortalities are increasing. During the period 1988 to 1991, watercraft-related mortalities accounted for 43 percent of the known mortalities (U.S. Fish and Wildlife Service, 1992).

### FISHERIES INFORMATION

In Puerto Rico, fisheries interactions have been documented through the carcass recovery program and in numerous anecdotal reports. Manatees are captured primarily in gill and/or turtle nets either intentionally or inadvertently during fishing activities. Reports indicate that manatee meat is sold to ready buyers, although the extent to which this occurs is unknown (Mignucci et al., 1993). Given the scarcity of detailed information, little is known about capture sites, seasonality of occurrence, etc. (Rathbun et al., 1985). Because these deaths account for a substantial proportion of known human-related mortalities (and because of the prevalence of fishery reports), it is apparent that fisheries interactions significantly affect the status of the manatee in Puerto Rico.

#### **STATUS OF STOCK**

The manatee is listed as "endangered" under provisions of the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.), as amended. The manatee is considered a "strategic stock" as defined in Section 12 of the Marine Mammal Protection Act of 1972, as amended. The basis for this designation is the high level of documented mortality relative to the estimated population level and continuing, severe threats to critical manatee habitats throughout its range.

#### **POTENTIAL BIOLOGICAL REMOVAL**

Because of its endangered status, the recovery factor for the Antillean manatee in Puerto Rico should be 0.1, the lowest allowable figure. Given a minimum population estimate of 86 and an  $R_{max}$  (maximum net productivity rate) of 0.04, the Potential Biological Removal (PBR) rate for Antillean manatees in Puerto Rico and the U.S. Virgin Islands is as follows:

$$PBR = (86)(.02, \text{ or } 1/2 R_{max})(.1) = 0$$

We currently have insufficient knowledge of the Puerto Rican manatee population to determine the Optimum Sustainable Population. Inadequate information on population size and net productivity rate for manatees in Puerto Rico render the calculation of a PBR level for this population an exercise of limited value. Marmontel (1994) estimated net productivity for the Florida manatee population. This estimate, based largely on a long term sex and age dataset for that population, suggested that the net productivity was essentially zero (-0.003). When the default value above (0.2) is replaced with this empirical value, the equation results in a PBR level of zero.

The U.S. Fish and Wildlife Service has consistently concluded in Section 7 Biological Opinions, pursuant to the Endangered Species Act, that the take of a single manatee would "jeopardize the continued existence" of the species. We therefore believe that designating any level of take for Antillean manatees would be inappropriate and inconsistent with manatee recovery plans.

#### **REFERENCES CITED**

- Ackerman, B.B., S.D. Wright, R.K. Bonde, D.K. Odell, and D.J. Banowetz. (In press). Trends and patterns in mortality in Florida, 1974-1992. In: T.J. O'Shea, B.B. Ackerman, and H. F. Percival, editors. Population Biology of the Florida manatee (*Trichechus manatus latirostris*). National Biological Service, Biological Report.
- Domning, D.P. and L.C. Hayek. 1986. Interspecific and intraspecific morphological variation in manatees (*Sirenia: Trichechus*). Mar. Mammal Sci. 2:87-144.
- Freeman, J. and H. Quintero. 1990. The distribution of West Indian manatees (*Trichechus manatus*) in Puerto Rico: 1988-1989. NTIS PB91-137240. Springfield, VA. 43 pp.
- Lefebvre, L.W., T.J. O'Shea, G.B. Rathbun and R.C. Best. 1989. Distribution, status, and biogeography of the West Indian manatee. Biogeography of the West Indies, 1989: 567-610.
- Marmontel, M. (In press). Age and reproductive parameter estimates in female Florida manatees. In: T.J. O'Shea, B.B. Ackerman, and H.F. Percival, eds. Population biology of the Florida manatee (*Trichechus manatus latirostris*). National Biological Service, Biological Report.
- Mignucci Giannoni, A.A. 1989. Zoogeography of marine mammals in Puerto Rico and the Virgin Islands. Unpublished master's thesis, The University of Rhode Island, Kingston, RI.
- Mignucci Giannoni, A.A. 1990. Manatee mortality in Puerto Rico: urgent need for assessment and preventive action. Whalewatcher, Journal of the American Cetacean Society, 24(1): 10-12.
- Mignucci Giannoni, A.A., E.H. Williams, B. Pinto Rodríguez and R.A. Montoya Ospina. 1991. Marine mammal mortality assessment in the Caribbean and the established Caribbean Stranding Network. Presented at the Ninth Biennial Conference on the Biology of Marine Mammals, Chicago, IL, 7 December.
- Mignucci Giannoni, A.A., B. Pinto-Rodríguez, R.A. Montoya-Ospina, D.P. Moore, and E.H. Williams. 1993. Stranding and mortality assessment of marine mammals in Puerto Rico and the Virgin Islands. Presented at the Tenth Biennial Conference on the Biology of Marine Mammals, Galveston, TX, 11-16 November.

- National Marine Fisheries Service. 1992. Proposed Regime to Govern Interactions Between Marine Mammals and Commercial Fishing Operations. Silver Spring, MD. 96 pp.
- Oland, J.P. 1994. Personal communication, July 19, 1994. From: James P. Oland, Supervisor, FWS Caribbean Field Office, Boqueron, PR. To: Robert O. Turner, Manatee Recovery Coordinator, FWS Jacksonville Field Office, Jacksonville, FL.
- Rathbun, G.B., Carr, N., Carr, T., and C.A. Woods. 1985. The distribution of manatees and sea turtles in Puerto Rico, with emphasis on Roosevelt Roads Naval Station. NTIS PB 85-151847 AS. Springfield, VA. 83 pp.
- U.S. Fish and Wildlife Service. 1986. Recovery plan for the Puerto Rico population of the West Indian manatee (*Trichechus manatus manatus* L.). Prepared by: G.B. Rathbun and E. Possardt for the U.S. Fish and Wildlife Service, Atlanta, GA. 28 pp.
- U.S. Fish and Wildlife Service. 1992. Letter dated June 4, 1992, to the U.S. Army Corps of Engineers from the FWS Caribbean Field Office, Boqueron, PR.
- Young, N.M., S. Iudicello, K. Evans, and D. Baur. 1993. The incidental capture of marine mammals in U.S. fisheries: problems and solutions. Center for Marine Conservation, Washington, D.C. 415 pp.