

nearly twice that of the 1980s (118.2). In 2002, 305 manatee deaths were documented in Florida. Total deaths over the past 5 years are almost three times greater than they were in the first half of the 1980s. Although a large part of this increase may be due to an increase in manatee abundance, rapid growth in human activities and development may also be significant factors. Over the past 5 years, human-related manatee mortality has accounted for 33 percent of all manatee deaths, with watercraft-related deaths accounting for 28 percent of the total. These rates are about 5 to 7 percent higher than the early 1980s, when about 28 percent of all deaths were human-related and 21 percent were due to watercraft.

The continuing increase in the number of recovered dead manatees throughout Florida has been interpreted as evidence of increasing mortality rates (Ackerman *et al.*, 1995). Between 1976 and 1999, the number of carcasses collected in Florida increased at a rate of 5.8 percent per year, and deaths caused by watercraft strikes increased by 7.2 percent per year (Service, 2002). Because the manatee has a low reproductive rate, a decrease in adult survivorship due to watercraft collisions could contribute to a long-term population decline (O'Shea *et al.*, 1985). It is believed that a 1 percent change in adult survival likely results in a corresponding change in the rate of population growth or decline (Marmontel *et al.*, 1997).

Collisions with watercraft are the largest cause of human-related manatee deaths. Data collected during manatee carcass salvage operations in Florida indicate that a total of 1,145 manatees (from a total carcass count of 4,545) are confirmed victims of collisions with watercraft (1978 to 2002). This number may underestimate the actual number of watercraft-related mortalities, since many of the mortalities listed as "undetermined causes" show evidence of collisions with vessels. Collisions with watercraft comprise approximately 25 percent of all manatee mortalities since 1978. Approximately 75 percent of all watercraft-related manatee mortality has taken place in 11 Florida counties (Brevard, Lee, Collier, Duval, Volusia, Broward, Palm Beach, Charlotte, Hillsborough, Citrus, and Sarasota) (FWCC: Florida Marine Research Institute (FMRI) Manatee Mortality Database, 2003). The last 5 years have been record years for the number of watercraft-related mortalities.

The second largest cause of human-related manatee mortality is entrapment in water control structures and

navigation locks (FWCC: FMRI Manatee Mortality Database, 2003). Manatees may be crushed in gates and locks or may be trapped in openings where flows prevent them from surfacing to breathe. Locks and gates were responsible for 164 manatee deaths between 1978 and 2002, or approximately 4 percent of all deaths during this period. While there are no well-defined patterns characterizing these mortalities, it is believed that periods of low rainfall increase the likelihood of manatees being killed in these structures. These periods require more frequent, large-scale movements of water, which require more frequent gate openings and closings in areas that attract manatees searching for fresh water. We have been working, through an interagency task force, with various Federal and State agencies to retrofit these structures with reversing mechanisms that prevent manatee crushings.

Manatees are also affected by other human-related activities. Impacts resulting from these activities include deaths caused by entrapment in pipes and culverts; entanglement in ropes, lines, and nets; ingestion of fishing gear or debris; vandalism; and poaching. These activities have accounted for 124 manatee deaths since 1978, an average of more than 4 deaths per year. As with watercraft-related mortalities, these deaths also appear to be increasing, with 40 of these deaths occurring between 1998 and 2002 (an average of 8 deaths per year over the last 5 years).

Manatee Protection Areas

To minimize the number of injuries and deaths associated with watercraft activities, we and the State of Florida have designated manatee protection areas at sites throughout coastal Florida where conflicts between boats and manatees have been well documented and where manatees are known to frequently occur. These areas include posted signs to inform the boating public about restrictions and prohibitions. We propose to enhance existing protection areas by establishing three additional manatee refuges in five Florida counties.

Federal authority to establish protection areas for the Florida manatee is provided by the ESA and the MMPA, and is codified in 50 CFR, part 17, subpart J. We have discretion, by regulation, to establish manatee protection areas whenever there is substantial evidence showing such establishment is necessary to prevent the taking of one or more manatees (that is, to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or to attempt to engage in any such conduct).

In accordance with 50 CFR 17.106, areas may be established on an emergency basis when such takings are imminent.

We may establish two types of manatee protection areas—manatee refuges and manatee sanctuaries. A manatee refuge, as defined in 50 CFR 17.102, is an area in which we have determined that certain waterborne activities would result in the taking of one or more manatees, or that certain waterborne activities must be restricted to prevent the taking of one or more manatees, including but not limited to, a taking by harassment. A manatee sanctuary is an area in which we have determined that any waterborne activity would result in the taking of one or more manatees, including but not limited to, a taking by harassment. A waterborne activity is defined as including, but not limited to, swimming, diving (including skin and scuba diving), snorkeling, water skiing, surfing, fishing, the use of water vehicles, and dredge and fill activities.

Relationship to Manatee Lawsuit

On January 13, 2000, several organizations and individuals filed suit against the Service and the U.S. Army Corps of Engineers alleging violations of the ESA, the MMPA, the National Environmental Policy Act, and the Administrative Procedure Act. Four groups representing development and boating interests intervened. Following extensive negotiations, the suit was resolved by a Settlement Agreement dated January 5, 2001. On October 24, 2001, the plaintiffs filed a Formal Notice of Controversy alleging that the Service had violated provisions of the Settlement Agreement. On April 17, 2002, the plaintiffs filed an Expedited Motion to enforce the Settlement Agreement, and on July 9, 2002, the Court found that the Service had not fulfilled its settlement requirements to designate refuges and sanctuaries throughout peninsular Florida. On August 1, 2002, and November 7, 2002, the Court ordered the Federal defendants to show cause why they should not be held in contempt for violating the Court's orders of January 5, 2002, January 17, 2002, and August 1, 2002.

To resolve these controversies, the plaintiffs and Federal defendants entered into a Stipulated Order wherein the Service agreed to submit to the **Federal Register** for publication a proposed rule for the designation of additional manatee protection areas. The areas in this notice represent those areas that the Service has determined, based on the current, best available data,