



November 18, 2008

Florida Fish
and Wildlife
Conservation
Commission

Susan Markley, Ph.D.
Miami-Dade Department of
Environmental Resources Management
701 NW 1st Ct.
Miami, FL 33136

Re: Manatee Mortality Question

Dear Dr. Markley:

Attached is a document that staff prepared in response to your previous question regarding manatee mortalities from commercial versus recreational vessels. We hope this information will be useful to you, and others in the county working on manatee protection efforts. We appreciate that you and others in the county are trying to understand the various risks that manatees face from all types of human activities. While the information we have compiled will hopefully assist your understanding of the issue of vessel related deaths and injuries to manatees, focusing too much on separating out one type of vessel related impacts from another is not always the best focus of your efforts. We must consider the impacts of all vessel types that may occur in a particular county, on manatees . The remedies to off set these impacts often include various management strategies, such as vessel speed limits and appropriate placement and size of boat facilities. Together a blend of approaches can provide the needed protections for manatees while still providing public access to coastal waters.

If you have any follow up questions, please contact me at (850) 922-4330 or by e-mail at Carol.Knox@Myfwc.com.

Sincerely,

Carol A. Knox, Biological Administrator III
Imperiled Species Management Section
Division of Habitat and Species Conservation

ck
Enclosure

cc: K. Cairns, FWS

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Response to “commercial vs. recreational” request from Miami-Dade DERM

The Miami-Dade DERM letter of 10/18/07 included a paragraph stating that DERM was directed to:

“...request FWC to provide information on manatee mortality in Miami-Dade caused by commercial vessels in comparison to recreational vessels. Our staff is generally aware that few vessel strikes are witnessed. However, we are requesting assistance in responding to Chair Barreiro, so that this information can be provided to the new committee.”

Between 1974 and August 2008, there were 6,701 manatee deaths recorded in Florida, 1,616 of which were attributed to watercraft collisions. Less than 2% of the watercraft-related deaths statewide (24 of 1,616) can be attributed to a specific vessel – because the collision was reported by the operator or an eyewitness – while in another 1% (15 cases), the responsible vessel is suspected but not known for certain. During this same period, 266 manatee deaths were recorded in Miami-Dade County, with 57 of these attributed to watercraft collisions. None of the cases where the exact vessel is known or suspected occurred in Miami-Dade County. The relatively small number of cases where the exact vessel has been identified make it difficult to definitively address the specific question related to commercial and recreational vessels; however, it may be worth noting that in two of the 24 “known” cases the vessel was associated with commercial activities (while two others involved vessels being operated by government agencies). Also, vessels of all sizes are among those that have been involved in witnessed collisions.

For the over 95% of watercraft-related deaths that cannot be associated with a specific vessel, which includes all of the deaths in Miami-Dade County, researchers can sometimes estimate the size or type of the responsible vessel by examining the nature and characteristics of the wounds. This type of investigation can only be pursued for manatee deaths caused by a vessel’s propeller, if the wound dimensions can be accurately measured and the carcass is not too decomposed. In some of the cases, this investigation can indicate or at least strongly suggest the general size class of the responsible vessel or the propeller configuration. These forensic methods alone, however, cannot provide information positively identifying the responsible vessel as having been involved in commercial versus recreational activities (Rommel et al. 2007). The reason for this is that vessels of all types and sizes can be used for both commercial as well as recreational purposes. Most vessels in the smaller class ranges (e.g., less than 40 feet in length) are typically involved in recreational activities; however, some are used for commercial purposes, including commercial fishing, professional guiding, and as water taxis. Conversely, many of the vessels in the larger class ranges (especially greater than 110 feet in length) are engaged in commercial activities, although the number of large recreational vessels (“mega yachts”) registered in or visiting the state has grown considerably in recent years. Because of this overlap, it is usually not possible to assess the commercial versus recreational question even in those cases where the forensics provides information on the probable size class of the responsible vessel. Also, non-recreational vessels of all sizes may be used by government organizations for law enforcement, military operations, research, and various public works purposes.

A number of studies and reports concerning watercraft-related manatee mortality have been published in recent years and several deal directly with the forensic techniques and/or the assessment of the size or type of the responsible vessels. Lightsey et al. (2006) and Rommel et al. (2007) are two of the more important ones published recently. Calleson & Frohlich (2007) includes a summary of much of the recent work as well as a discussion of how the findings affect how the manatee-vessel collision issue is managed by the FWC and other government agencies. One conclusion from this analysis is that just about all types and sizes of vessels being operated in the state are capable of injuring or killing

manatees even at relatively slow speeds. Focusing on just one type or size (or purpose) of vessel will never fully address the whole issue.

Deaths attributed to very large propellers are probably the ones most likely to have been caused by commercial vessels since a large proportion of the vessels that have very large propellers are commercial, including container ships, cruise ships, tankers, and the tug boats that assist them. Pitchford et al. (2005) investigated this issue by examining the state-wide mortality data from the 1990s and found that 4.2% of these deaths (22 of 526) were likely caused by very large propellers. Two of these carcasses were recovered in Miami-Dade County (on consecutive days in 1997 near Government Cut), with both manatees transected or nearly transected by the propeller (16 watercraft-related deaths were recorded in the county during the 1990s). In neither case, however, can it be determined if the responsible vessel was being operated for commercial or recreational purposes. This report does not include the review of vessel-related manatee deaths before 1990 or after 1999. Review of older and more recent cases, using similar forensic indicators, may lead to identification of additional mortalities suggestive of large vessel impacts. For instance, in 1987 a manatee carcass that had been severed into three pieces, most likely by a large prop, was recovered from the upper Miami River.

In summary, at this point in time we can provide only general evaluations of how watercraft-related manatee mortality caused by commercial vessels compares to mortality caused by recreational vessels in Miami-Dade County because there have been no cases where the exact vessel has been identified. There have been 57 watercraft-related deaths recorded in the county through August 2008, none of which can be conclusively associated with a specific vessel. However, it is not possible to rule out either commercial or recreational vessels as being responsible for these deaths. At least three of the 57 deaths were caused by very large propellers, and thus probably by very large vessels or tugs. While there is a fairly high probability these deaths were caused by larger commercial vessels, this cannot be determined for certain because some large recreational vessels can have propellers large enough to cause the injuries found on these carcasses.

Literature Cited:

Calleson, CS, and RK Frohlich. (2007) Slower boat speeds reduce risks to manatees. *Endangered Species Research* 3(3): 295-304.

Lightsey, JD, SA Rommel, AM Costidis, and TD Pitchford (2006) Methods used during gross necropsy to determine watercraft-related mortality in the Florida manatee (*Trichechus manatus latirostris*). *Journal of Zoo and Wildlife Medicine* 37(3): 262-275.

Pitchford, TD, SA Rommel, and ME Pitchford (2005) Characterizing and interpreting watercraft-related wounds in Florida manatees: a retrospective analysis of Florida manatee mortality data for evidence of deaths attributable to (very) large vessels, 1990-1999. Final Report submitted to the United States Fish and Wildlife Service. 20 pp. + figures and tables.

Rommel, SA, AM Costidis, TD Pitchford, JD Lightsey, RH Snyder, and EM Haubold (2007) Forensic methods for characterizing watercraft from watercraft-induced wounds on the Florida manatee (*Trichechus manatus latirostris*). *Marine Mammal Science* 23(1): 110-132.