

Abstract:

1. Under 50 CFR Part 402.14(c), whenever the U.S. Army Corps of Engineers (Corps) determines that a proposed project may adversely affect any species listed under the Endangered Species Act, the Corps requests the U.S. Fish and Wildlife Service (Service) to initiate formal consultation and in so doing the Corps has an obligation to furnish the Service with appropriate information that explains the basis for the Corps determination. The Corps and the Service have cooperatively identified the information required to fulfill this obligation when the project involves the West Indian Manatee.

2. As a result, the Corps analyzed existing statewide data to characterize the State's waterways according to their potential for adverse manatee-watercraft interaction. The State's waterways were divided into 81 "boating reaches" based on the following attributes: waterway shape location of inlets, and estimated boat traffic patterns. A set of 13 questions was developed based on factors thought to contribute to adverse manatee-watercraft interaction.

3. Geographic Information System (GIS) software was used to display existing state-wide data within each "boating reach." The analysis included estimates of the following variables: geomorphology in relation to its potential for high speed boat use; shallowness; quantity of seagrass; location of seagrass; potential for boats to stray into seagrass; dock density; boat density; potential for boat traffic to cross manatee aggregation areas; proximity to aggregation areas; presence of speed zones; the past ten years of watercraft-attributed mortality; and relative grouping of watercraft-attributed mortality.

4. The risk of manatee and watercraft interaction is highest where there are (1) a large number of manatees and (2) a large number of boats at (3) the same location.

a. First, we hypothesized that manatees will often be found in seagrass areas since they feed there. Second, some areas have been mapped as "aggregation areas" based on observations of manatees congregating at seagrass beds or powerplant discharges, freshwater discharges, etc. Third, areas adjacent to manatee aggregation areas would be expected to have a high number of manatees traveling to and from the aggregation area. Fourth, watercraft-attributed mortality gives some indication of manatee present given the ubiquitous presence of watercraft throughout the State. So these are characteristics that if present in a high degree could infer in a rough way the presence of a large number of manatees.

b. For boat presence, we further characterized the waterway as follows. First, the density of docks and number of marina/ramps indicate the popularity of a waterway for boating since most individuals prefer to moor or launch their boats in or near the waterway where they will operate their boat. Second, some waterways have some feature that attract boating from nearby areas (such as a lagoon into which a river flows into) so the density of boats may be higher due to transit from other areas. Third, presence of navigation channels provides an indication of boat presence and some indication of traffic patterns.

c. Last we looked at characteristics of manatee-watercraft location. First, mapped areas of seagrass that have been scarred by props certainly infer boating traffic patterns in areas with

expected manatee presence. Second, the shape of the waterway influences the number of the boats that will be traveling at high speed. Third, areas that are shallow increases the risk of interaction since at that area all the manatees that are present will be near the surface compared to deeper areas where some of the numbers will be at any one time at deeper depths. Fourth, the presence of speed zones could be (depending on degree of public awareness and enforcement) influencing boat speeds and traffic patterns.

5. For most of the characteristics, we estimated on a five increment scale (None, Low, Medium, High, and Very High). The variables and their scoring are represented on the Characterization of Reach document.

6. These data represent the Corps' best efforts at obtaining and synthesizing the best available scientific and commercial data as described under 50 CFR 402.14(d). 10Jan01