

Minority Report:

C-9 Johnson Bay North & Central C-10 / Nancy Anderson

Minority Opinion: I believe FWC's Option 2 is the best choice. Change all or part of the existing zone to a shore-to-shore Slow Speed zone *during the warm season only or year round, for continuity.*

Information to support opinion:

1. Very High Fast Overlap / High Manatee Density during warm season

North: FWC identified it as potential higher risk area. Very high Fast Overlap and high manatee density during the warm season. Manatee density was high (4.5 times the overall mean density)
Fast Overlap was very high (8.8 times the overall mean) during the warm season but low during the cold season.

Central: FWC FWC identified it as potential higher risk area. Very high Fast Overlap and high manatee density during the warm season.
Manatee density was high (3.6 times the overall mean density)
Fast Overlap was very high 9.5 times the overall mean)

Although this data dates back 8-10 years (2006-2008), it's likely to still hold true today due to the following facts based on research see references below: ([*References for statements referring to reason #1*](#))

- Deeper channels, Intracoastal Waterways and the "travel corridors" of boats are the same travel corridors that manatees use during their migratory warm season.
- Manatees repeat their migratory patterns and destinations from one year to the next.
- Manatee calves learn the migratory patterns from their mothers and follow the same routes.

Because of these facts, it would be logical to conclude that that same very high fast overlap that was identified in 2006 would still exist today .

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References for statements referring to reason #1:

Manatee Movements / Travel Corridors:

Placing a transmitter on a manatee yields a great deal of information about the behavioral biology of both that individual and the species as a whole. (Reid et al. 1995; Deutsch et al.2003) Through tracking, we have learned that manatees use the same waterways that boats use to navigate from area to area. This habit of sharing canals and channels with boats puts manatees directly in harm's way.

The Florida Manatee Biology and Conservation: Roger L. Reep & Robert K. Bonde 2006
Deeper channels also used as migratory routes (Kinnaird 1983).
Boat channels are often used by manatees to travel from one region to another (Curran 1989; USGS/BRD 1993)

Migratory Patterns: A multi-year (1986-1998) telemetry study of 78 Florida manatees along the Atlantic coast of the United States: Travel routes typically followed the dredged channel of the Intracoastal Waterway between the mainland and barrier islands although some manatees also travelled in the ocean just beyond the breaking surf.

All tracked manatees moved from offshore seagrass beds to inland rivers, creeks and other sources of fresh water every 2-8 days, and travelled along distinct linear corridors (Stith et al. 2006).

Learned Behaviors: Manatees from the Atlantic coast that were calves when their mothers were tracked were also tracked as subadults; the subadults adopted the migratory patterns of their mothers and showed strong philopatry to the warm season ranges that they had occupied as nursing calves.

Individuals repeated their migratory patterns from one year to the next , and showed high fidelity to both warm season and winter destinations (Deutsch et al.2003)

2. Respiration Frequency

Manatees surface to breathe every 1-8 minutes thus increasing the possibility that a boat may come in contact with a manatee.

References for statements referring to reason #2:

Ecology and Conservation of the Sirenia / Dugongs and Manatees Helen March, Thomas J. O'Shea and John E. Reynolds III; p. 155

Respiration frequency is influenced by multiple factors, including activity level, body size, water temperature, water depth and reproductive status. Bottom-resting adult Florida manatees rise to breathe every 1-8 minutes (maximum 24 minutes; Reynolds 1981a), but breathe more frequently while traveling (Hartman 1979).

Exhalations last about 1-3 seconds, with inhalations slightly shorter, depending on activity level (Hartman 1979). Manatee cows and their calves often breathe synchronously (Hartman 1979; Reynolds 1981b), and synchronous breathing also occurs in small groups of manatees and dugongs (Jarman 1966; Hartman 1979; Hodgson 2004).

3. Seagrass/ Food Source shown to be in these areas

References for statements referring to reason #3

Ecology and Conservation of the Sirenia / Dugongs and Manatees Helen March, Thomas J. O'Shea and John E. Reynolds III; p. 141

Seagrass communities are important habitats for the West Indian manatee. Seagrasses are limited to coastal waters and are highly vulnerable to human impacts because the coastal zone supports a high proportion of the world's human population, a proportion that is increasing.

Ecology and Conservation of the Sirenia / Dugongs and Manatees Helen March, Thomas J. O'Shea and John E. Reynolds III; p. 141

Refer to Seagrass Study (Preliminary Data Benthic Habitats) Rookery Bay National Estuarine Research Reserve, presented 4/22/16

4. Boat Speed & Sublethal Injuries: refer to notes submitted by Nancy Anderson on 4/8 and 4/22/16

