

Title:

S-116: Maintain the ecological function of the wrack line by reducing beach raking practices.

Background:

- This recommended management action relates to Miami-Dade, Broward, Palm Beach, and Martin counties, as well as the shore and nearshore communities, the littoral zone, beach communities, hardbottom, coral reefs, and the dune systems.
- This recommended management action is being put forth due to current beach management practices that may not be maintaining the slope of the beach and dune system as effectively as possible and, since sand is expensive, there is a need to do the best job possible of keeping it where it is placed to minimize recurrence with beach raking activities.
- The problem of beach raking and wrack removal is that it sterilizes the beach and creates a homogeneous environment, as well as exposing sand to increased erosion. With the removal of the wrack line and other natural debris on the beach there is a decrease in habitats, food sources, and biodiversity on the beach.

Objective:

- The intended outcome of this action is to maintain the ecological function of the wrack line by reducing beach raking practices. Improving the ecological function of the wrack line will improve resilience, fisheries habitats, and soil and sediment control. This recommended management action also aims to provide education about wrack lines to the community, and produce a guidance document for beach management activities that would minimize beach erosion and loss of material from shore. This document would include guidance for raking and dune construction with objectives including reduced need of nourishment projects and a more sustainable beach, due to decreased sand loss.

Intended Benefits and/or Potential Adverse Effects:

- Some potential benefits with implementation of this recommended management action include: (1) maintaining the beach and increasing the intervals between beach renourishments, (2) minimizing impacts to near shore resources, (3) a reduction in state and county expenses for beach maintenance, (4) increased biodiversity along the shoreline, (5) decreased beach erosion, and (6) providing a valuable source of nutrients for coastal flora and fauna, including migratory bird species.
- Some potential disadvantages associated with this recommended management action include: (1) a change in state and county procedures which involves staff time and altered contracts/permits, (2) there may be difficulty convincing people and municipalities of the importance of the wrack line, therefore difficulty in implementing strategies to leave it in place, (3) by not raking the beach, there may be an increase in complaints and a decrease in desire of beachgoers to use the beach, (4) beachgoers may see the wrack line as an eyesore, (5) it's impossible to ban raking activities entirely, and (6) economic input is not considered in this action which may be a negative.
- There are no anticipated negative environmental impacts.
- The duration of the benefits of this recommended management action is long term.
- If this recommended management action is not implemented there is a possibility of increased beach erosion leading to more frequent renourishment projects and thus an increased overall cost.

Agencies/ Organizations:

View the Entire RMA Document at: www.ourfloridareefs.org/RMAcomment

- The lead agency for implementation of this recommended management action would be the Florida Department of Environmental Protection, since the Coastal Construction Control Line gives permits to the beach rakers.
- Other potential agencies or organizations who could be involved include Florida Fish and Wildlife Conservation Commission, cities, and counties.
- The key stakeholders for this recommended management action would be beachgoers and coastal residents.
- There are no legislative considerations to take into account for this recommended management action.

Permitting/ Enforcement Requirements of RMA:

- There are no permitting requirements associated with this recommended management action. However, this proposed action recommends that the Coastal Construction Control Line permit be amended or a condition added to reduce raking frequency and raking in environmentally sensitive areas. There should also be a switch from mechanical to hand raking, though this would increase costs. Additionally, this proposes that a seasonal ban be put in place except in areas of high use.
- This recommended management action would require enforcement action if raking guidelines are not followed.
- A way to provide a means to measure the success of this recommended management action includes the frequency of beach projects and an increase in shorebird presence.

Cost:

- The estimated direct cost of implementing this recommended management action is dependent on the scale of implementation.
- Potential funding could be acquired through the county or municipality that owns the beach, as they should bear the cost of the raking itself. The development of the project could be by the Florida Department of Environmental Protection or a multi-county workgroup.

Time Frame & Extent:

- The anticipated timeframe for implementation of this recommended management action is 0 - 2 years.

Miscellaneous Info:

- Some uncertainties or gaps with this recommended management action include: (1) there have been no studies to prove the claim that seaweed on the beach actually reduces erosion, (2) this recommended management action would only help reefs if in fact it does reduce erosion. If more beach renourishment is necessary and, in fact, raking causes erosion, it could be important, (3) a list of beaches that are DO NOT RAKE beaches needs to be created, and (4) not really sure what happens to the wrack if its left alone or in place.
- Supporting and relevant data includes the following:
 - Nordstrom, Karl F., Reinhard Lampe, and Lisa M. Vandemark. "Reestablishing naturally functioning dunes on developed coasts." *Environmental Management* 25.1 (2000): 37-51. <http://link.springer.com/article/10.1007/s12237-011-9375-9/fulltext.html>
 - Colombini, I., et al. "Temporal and spatial use of stranded wrack by the macrofauna of a tropical sandy beach." *Marine Biology* 136.3 (2000): 531-541.
 - Patterson, Michael E., James D. Fraser, and Joseph W. Roggenbuck. "Factors

- affecting piping plover productivity on Assateague Island." *The Journal of wildlife management* (1991): 525-531.
- Bouchard, Sarah S., and Karen A. Bjorndal. "Sea turtles as biological transporters of nutrients and energy from marine to terrestrial ecosystems." *Ecology* 81.8 (2000): 2305- 2313.
 - Florida Beach and Shore Preservation Act http://www.leg.state.fl.us/Statutes/index.cfm?App_mode=Display_Statute&URL=0100-0199/0161/0161.html
 - Currently the following has been occurring:
 - Marco Island beach – Beach rake must stay at least 15 feet from dune line and 15 feet from the wrack line.
 - Palm Beach County has been active in developing living shorelines along publicly-owned property. Their approach could be expanded to other parts of southeast Florida.
 - Thirty years ago, Palm Beach County tried to ban beach cleaners. However, property owners that lived on the beaches did not like seaweed that would remain on them, even though there was effort made to educate people.
 - Palm Beach County does have seasonal bans on raking. Raking is allowed but it cannot occur where there are sea turtle nests. This is a practical ban not a regulation, but parks departments and sea turtle monitors can't facilitate raking activities. There is a coastal construction ordinance stating that sea turtle monitors have to clear the beach before the beach raker can work. In Ocean Reef Park North this a defacto ban.
 - Some towns were able to activate bans. Each raker has to have a specific permit, but territory changes on a monthly basis.
 - Palm Beach County has Best Management Practices in place but they are hard to implement. Years ago, it was the job of lifeguards job to rake the weed line.
 - Miami-Dade County parks wracks the entire beach. They run over it and bury it a little.
 - Broward County uses city contractors to rake in some parks.
 - Martin County has rules for wrack line - Jupiter Island has no raking. Look at "adopt-a-beach" project, no wrack removal in Martin County.
 - In Massachusetts, there's a restriction on when beach raking can take place to provide a food source for endangered or threatened migratory birds.
 - Sea oats have been found to be most effective to hold vegetation, which is a natural way to sustain beaches along with enhancing the dune line. Hand raking may help keep some ecological functions.

Goals/ Objectives to be achieved:

Refer to the [SEFCRI Coral Reef Management Goals and Objectives Reference Guide](#)

- Goals and Objectives were not identified within this recommended management action.