CWG Review 1: Spring 2015

Tier 1 Information:

1. Management Action

S-120 Improve management and maintenance activities of beaches to reduce impacts to coral reefs (including nearshore reefs), make beaches more sustainable, and minimize need for future renourishment projects.

This RMA is a combination of the following original RMAs:

- N-98: Develop, fund, and implement a SEFCRI-wide beach management plan for sustainable management of beaches and to protect and minimize impacts to reefs from turbidity caused by erosion.
- S-120: Improve management of beach renourishment projects to reduce impacts to coral reefs (including nearshore reefs), make beaches more sustainable, and minimize need for future renourishment projects.
- N-106: Minimize the use of beach renourishment and other coastal construction projects to prevent negative impacts and destruction of near shore environments.
- S-9: Protect near shore juvenile fish habitat from renourishment projects to enhance fishery and stop reduction of habitat.
- S-115: Reduce/ beach renourishment projects to prevent excessive siltation and turbidity.
- N-110: Enable movement of natural sand transport, interrupted by construction of inlets, via dedicated, moveable, seagoing dredge vessels similar to Hillsboro Inlet District, to help eliminate wasteful and harmful dredge and fill projects.

2. Intended Result (Output/Outcome)

What is the end product/result of this management action?

- This plan would be in concert with other beach management plans which may be based on sand cells or other engineering or municipality plans.
- Plan would include multiple actions to reduce impacts:
    - Better management/maintenance of the existing sand and beach habitat including eliminating, reducing, or improving raking practices on beaches that are state or federally funded in order to extend lifetime of beach project and reduce impact to resources through siltation.
    - Avoidance and Minimization of impacts is the ultimate goal, which is built into the permitting process
    - Manage it as a cell. Broward and Miami-Dade have a county wide plan, Palm Beach does not. Fewer nourishment projects is the goal.
    - Best Management Practices reduce or eliminate raking, improve sand standards including grain size and percent fines (recommend 3% fines). In certain areas that have nearshore hardbottom in closer proximity make those requirements or standards tighter.
    - Find a way to filter silt before placing material on the beach. R&D with the dredge companies now to improve the needs nationally.
    - New standards for protocols and techniques for turbidity/sedimentation monitoring that is much more protective of corals
    - It is understood that ETOF are a construct of the permitting process and that realistically there is no guarantee of where the sand will settle. However, lessons learned should take into account past projects that have exceeded the anticipated ETOF and then error on the side of caution and assume that the maximum impact will occur.
    - Identify existing beach erosion issues that are created by storm water runoff and require municipalities or relevant entities that are receiving State or Federal assistance retrofit/fix those issues before additional beach projects will be constructed.
    - Require Dunes and stabilization through planting. Neither Broward nor Miami-Dade have dune features in their current federal authorization. Both Counties have elected to build dune features at 100% local

cost, where the beach is wide enough to support a dune feature. During reauthorization Miami-Dade and Broward Counties will be/should be required to include a dune feature. Also Palm Beach and Martin counties should require dune features.

- Also require appropriate methods of placing material on the beach by constructing berms and retention areas to let the material settle.
- Submerged breakwaters may be appropriate in some areas such as hot spots.
- Bypassing such as Constructing bypass stations or a moveable dredge would help with this.
  - Bypassing should have contingency plans for when there is excess material in the system (such as during Hurricane Sandy), a plan should be in place to move that material elsewhere rather than force it through the system resulting in burial of nearshore habitat.
- The State requires that sand that is beach quality be placed on the adjacent eroded beach during a dredge project; however the Federally maintained channels that are maintenance dredged, if it is more cost effective to put offshore than on beach USACE is required to do so and therefore the cost goes back to state, or local community. So need to work to require that State or local community pick up that cost difference.
- Retreat of infrastructure, while not a main priority at this time should be considered and worked towards.

3. Duration of Activity

Is this a discrete action or a recurring activity? Explain.

- To develop, fund and implement this type of plan is a multi-step process, so the action is neither discrete nor recurring.

4. Justification

What issue or problem will this management action address? Explain.

- There are many associated issues with the deposition of sediments (burial) on nearshore environments during and after projects, including impacts from turbidity and siltation. Turbidity can also directly cover/smother the benthic community.
- This action will address uncoordinated efforts between cities/counties resulting in reef damage (turbidity, cost, etc). If all standards must be met then it will not matter that a project crosses or is adjacent to a county boundary. That is, if all projects are required to have dunes then a project that may span a county line or municipality line will not have dunes on one side and no dunes on the other.

5. Potential Pros

What are the potential advantages associated with this management action?

- Reduction or elimination of negative impacts to coral reefs and nearshore hardbottom from beach management actions.
- More efficient and effective beach maintenance and management. Beach health will improve, costs will be less to residents.
- Retaining the beach by improving raking practices, improving dunes, and improving grain size will help the projects have better longevity thereby reducing cost and reducing a chronic impact to resources.

6. Potential Cons

What are the potential disadvantages associated with this management action?

- Trying to implement a plan for such a large, and diverse area could become cumbersome, expensive and non-responsive. Recently a management program for a single county took over a year to implement, untold hours of staff and consultant time. Additionally, most if not all of the regulations are already in place to deal with the issue.
- This could be cost-prohibitive. Competing economic interests/politics makes collaboration/compromise challenging.
- Any kind of retreat could impact the tax base.
- Mobilization costs for truck hauls (which could potentially bring in better quality sand and place it in a less

environmentally impactful manner) are more expensive and disrupt daily life for residents and tourists.

- Bypass stations can cause harm when they are overloaded. During Hurricane Sandy a bypass station pumped much more material than it normally did and resulted in burying the nearshore hardbottom. Need to have contingency plans in place for when there is material in excess of normal load and what can be done with that material rather than just sending it through the bypass station.

7. **Location**

   County/Counties: Miami-Dade, Broward, Palm Beach, Martin, Other?

   - SEFCRI region, although could then be applied state wide.

   Relevant Habitats: Coral reef, seagrass, watershed, etc.?

   - Coral reefs near beaches and nearshore hardbottom habitat, such as worm reefs

   Specific Location: City, site name, coordinates, etc.?

   - Inlet to Inlet is the general approach to manage beaches holistically.

8. **Extent**

   Area, number, etc.

   - SEFCRI region

9. **Is this action spatial in nature?**

   - yes

Marine Planer Information:

N/A

Tier 2 Information:

WHY?

1. **Strategic Goals & Objectives to be Achieved**

   Refer to the SEFCRI Coral Reef Management Goals and Objectives Reference Guide.

   - N-98 FL Priorities Goal C3 Obj 4 FL Priorities Goal C4, Obj 3,4 5 FL Priorities Goal A1 Obj 3 FDEP CRCP Coral Reef Ecosystem Conservation Goal C FDEP CRCP Coral Reef Ecosystem Conservation Obj 5 SEFCRI LAS MICCI Issue 1 Goal Obj 2 SEFCRI LAS MICCI Issue 2 Goal

2. **Current Status**

   Is this activity currently underway, or are there planned actions related to this recommendation in southeast Florida? If so, what are they, and what is their status.

   - Development - Each beach maintenance project has its own plan, some are federal projects, some are local projects. Each has a permit that requires the identification of appropriate sand source prior to construction - to deal with turbidity caused by erosion after a project. Each permit has a specific condition requiring certain construction practices that will minimize turbidity and keep it within acceptable limits - dealing with turbidity generated during construction. Funding - There is a FDEP beach management program, but it does not receive sufficient funding for projects statewide. Implementation - The state is currently reviewing its requirements for monitoring and enforcement of turbidity limits.
   - Hot spot projects are underway and have been successful in Miami-Dade County.
   - Some inlets already have bypass stations.
   - The FDEP currently identifies areas of critical beach erosion and has developed a strategic beach management plan to address these areas.

3. Intended Benefits (Outcomes)

What potential environmental benefits or positive impacts might this management action have?

- Reduced burial, turbidity, and sedimentation over nearshore reefs due to best practices during project management and due to less nourishment events because of beach maintenance.
- Increased areas for shorebirds and turtles.
- Natural shoreline stabilization, protection of Essential Fish Habitat for early life history stages of species managed under the snapper-grouper complex and spiny lobster fishery management plans, protection of foraging and resting habitat for marine turtles, and increased opportunities for recreational fishing.

What potential social/economic benefits or positive impacts might this management action have?

- Better water quality conditions for beach goers
- Longer-lived projects will reduce the cost to taxpayers
- Better nearshore reefs for diver/snorkelers All of the above will help increase tourism

What is the likely duration of these benefits - short term or long-lasting? Explain.

- If this Plan can be successfully developed, funded and implemented, then the effects should be long lasting since new projects would be held to this new criteria.

4. Indirect Costs (Outcomes)

What potential negative environmental impacts might this action have?

- Sand characteristics that would maximize the life and minimize the turbidity of a beach project could be in conflict with the characteristics needed by nesting sea turtles.

What potential negative social/economic impacts might this action have?

- Beach projects would become more expensive as additional verification of sand sources may be required such as additional cores, or if fines are reduced may need to look elsewhere for sand sources.
- Monitoring costs could increase, contractor costs will increase anytime a new requirement is implemented.
- May have less beach for tourists if part of the footprint is dune.

What is the likely duration of these negative impacts - short term or long-lasting? Explain.

- Mostly intermittent with each nourishment event.

5. Risk

What is the threat of adverse environmental, social, or economic effects arising from not implementing this action?

- Current level of turbidity impacts to nearshore coral reefs would continue and impact nearshore water quality = beach use, diving/snorkeling, tourism.
- Not implementing this action would result in the continued reduction in quantity and quality of nearshore hardbottom habitats in the SEFCRI area which could create a demographic bottleneck for coral reef fishes that use nearshore hardbottom as settling and early life history stage habitat

6. Relevant Supporting Data

What existing science supports this recommendation? (Provide citations)

- http://www.dep.state.fl.us/beaches/publications/pdf/EFNHBE.pdf
- Telesnicki & Goldberg paper: Telesnicki, G., and Goldberg, W., 1995. Effects of turbidity on the photosynthesis and respiration of 2 South Florida reef coral species. Bulletin of Marine Science, 57, 527–539.
- Rogers, C. S., 1983. Sublethal and lethal effects of sediments applied to common Caribbean reef corals in the field. Marine Pollution Bulletin, 14, 378–382.
- Marszalek, D. S., 1981. Impact of dredging on a subtropical reef community, Southeast Florida, U.S.A. In Proceedings of Fourth International Coral Reef Symposium, Manila, Philippines. Vol. 1, pp. 147–153.
- Dodge, R. E., and Vaisnys, J. R., 1977. Coral populations and growth patterns: responses to sedimentation and

turbidity associated with dredging. Journal of Marine Research, 35, 715–730.

- Encyclopedia of Modern Coral Reefs: Structure, Form and Process: David Hopley, 2010;
- Impacts of Sedimentation on Coral Reefs, Michael J. Risk, Evan Edinger, pp. 575-583 [links: http://link.springer.com/referenceworkentry/10.1007%2F978-90-481-2639-2_25#;
- https://books.google.com/books?id=5umXDDmqxwIC&pg=PA577&lpg=PA577&dq=Telesnicki,+Goldberg+sedimentation+coral+paper&source=bl&ots=u8Ew0lI973&sig=lbyWI3yVC_gyJ6xeXUsp6XRF2I&hl=en&sa=X&ei=mU-7VNLgHoGJNpOGggC&ved=0CEsQ6AEwBw]
- Junjie RK, Browne NK, Erftemeijer PLA, Todd PA (2014) Impacts of Sediments on Coral Energetics: Partitioning the Effects of Turbidity and Settling Particles. PLoS ONE 9(9): e107195. doi:10.1371/journal.pone.0107195
- "Ecological function of nearshore hardbottom habitat in East Florida: a literature synthesis http://www.dep.state.fl.us/beaches/publications/pdf/EFNHBE.pdf

7. Information Gaps

What uncertainties or information gaps still exist?

- What grain size, percent fines, and NTU limits should be set.

WHEN?

8. Anticipated Timeframe for Implementation

How long will this recommendation take to implement?

- 5 years to develop and implement, but then continued as work to implement as each beach project goes forward and agreements are reauthorized.

9. Linkage to Other Proposed Management Actions

Is this activity linked to other proposed management recommendations?

- Yes this action is a combination of the following:
- N-98, S-120, N-106, S-9, S-115, N-110

WHO?

10. Lead Agency or Organization for Implementation

What agency or organization currently has/would have authority? Refer to the Agencies and Actions Reference Guide.

- FDEP/USACOE

11. Other Agencies or Organizations

Are there any other agencies or organizations that may also support implementation? Explain.

- NOAA, FWC, USFWC, County/City/project sponsors are responsible for the actual individual construction projects.

12. Key Stakeholders

Identify those stakeholders most greatly impacted by this management action, including those from whom you might expect a high level of support or opposition. Explain.

- County governments, NGO's - sea turtle groups (for or against, depends on the grainsize issues); coral reef groups - support; dive industry - support; tourism industry - support if improves beach and water conditions

HOW?

13. Feasibility

Is there appropriate political will to support this? Explain.

- Unknown. There is political will to fund beach maintenance, but not the funds to assist all the projects to reduce

environmental impacts. An initiative that will add costs for a new management plan development and potentially increase construction costs may run into resistance in the current political environment.

What are the potential technical challenges to implementing this action? Has it been done elsewhere?

- This would be a beast. Coordination of 4 different counties with municipalities running some of the projects, add in the federal projects that exist in each of the counties, the varying funding mechanisms, differing sediment characteristics throughout the region as well as widely different wave climates and nearshore geology - There are enough challenges to go around.

14. Legislative Considerations

Does the recommendation conflict with or actively support existing local, state, or federal laws or regulations? Explain.

- It actively supports some agencies mandates to protect and conserve habitat (e.g., the EFH provisions of the Magnuson-Stevens Act and critical habitat protection under ESA)
- It may appear to conflict with those operating under "the lowest cost option" however, it could be considered the lowest cost option of having environmentally responsible beaches.

15. Permitting Requirements

Will any permits be required to implement this action? Explain.

No

16. Estimated Direct Costs

Approximately how much will this action likely cost? (Consider one-time direct costs, annual costs, and staff time, including enforcement.)

- To develop the plan quickly would require a dedicated staff position or contractor and therefore $100,000-$250,000. This would provide for an unbiased third party to come in and organize the effort.

Will costs associated with this activity be one-time or recurring?

- To develop the standards will be a one time cost, the standards and BMPs may need/should be updated periodically but that could most likely be accomplished by staff.

If recurring, approximately how long will staff time and annual costs be necessary to implement the management action?

- -

17. Enforcement

Does this require enforcement effort?

- No

18. Potential Funding Sources

Identify potential funding organizations/grant opportunities, etc.

- State legislature through DEP or NOAA cooperative grant funding.
- NGOs
- USACE R&D sources

19. Measurable Outcomes/Success Criteria/Milestones

How will the success of this recommendation be measured? How will you know when the intended result is achieved?

- Success criteria will need to be determined during development of the Plan.
- Pre/Post benthic surveys with annual monitoring requirements to assess coral and hardbottom condition may be set up as permitting conditions. Success should also be reviewed after major storm events such as hurricanes. Results should be apparent within 1-2 years, but may be monitored up to 5 years.
- Reduced number of beach projects or increased longevity of beaches.

SEFCRI/TAC Targeted Questions:

1. **TAC - Is the recommendation likely to achieve the intended result? Explain.**
   Tier 1 – #2 (Intended Result - Output/Outcome)
   - -Yes and No. Sea level will continue to rise and therefore beach nourishment will not go away. Bypassing may be the most beneficial in reducing the number of nourishment projects needed.

2. **TAC - Is the recommendation sufficient to address the identified issue or problem? Explain.**
   Tier 1 – #4 (Justification)
   - -No. Sea level will continue to rise, these ideas are short term and short lived.

3. **TAC - Is the recommendation technically achievable from a science or management perspective? Explain.**
   Tier 2 – #8 (Anticipated Timeframe for Implementation) and Tier 2 - #13 (Feasibility)
   - Yes and No. Having criteria be more uniform across the counties and beach projects is achievable however the outcome of reduced beach projects or increased longevity is not likely.
   - Beaches will continue to erode as sea level continues to rise and shoreline dynamics change. Any of these efforts are short term because they will not last and will continue to cost taxpayer $$.

4. **SEFCRI Team, PPT & Other Advisors - Has this been done (by SEFCRI, other agencies or organizations in the SEFCRI region)? Explain.**
   Tier 2 – #2 (Current Status)
   - -Boca and Hillsboro Inlets have bypassing in place
   - Broward is designing a basin to catch sand and pump own drift every 3 years at Port Everglades.
   - Delray Beach has been able to reduce their beach projects over the years but it has come after a number of previous projects have created a healthy beach and dune system that is able to withstand storm events.

5. **SEFCRI Team, PPT & Other Advisors - Is this recommendation a research or monitoring project? (Recommendations should be turn-dirt management actions, not the step you take before a management action). Explain.**
   - -Reducing siltation may be a R&D type project.
   - Monitoring would need to be required to demonstrate performance criteria have been met.

6. **SEFCRI Team, PPT & Other Advisors - If either of the following applies to this management action, provide feedback on which information submitted by the Community Working Groups may be more appropriate, or if entries should be merged. Explain.**
   a. **There are different viewpoints for an individual management action (i.e. two working group members provided separate information, as indicated by a '//' marking between them).**
   b. **Information submitted for this and other draft management actions is sufficiently similar that they might be considered the same.**
   - -

7. **SEFCRI Team, PPT & Other Advisors - Non-agency Question: Is the recommendation technically achievable from your stakeholder perspective? If not, do you have suggestions that would allow this to become technically achievable from your stakeholder perspective? Explain.**
   Tier 1 - #5 (Potential Pros), Tier 1 - #6 (Potential Cons), Tier 2 - #3 (Intended Benefits), Tier 2 - #4 (Indirect Costs) and Tier 2 - #12 (Key Stakeholders)
   - -

8. **SEFCRI Team, PPT & Other Advisors - Agency Question: Is the recommendation technically achievable from a management perspective? If not, do you have suggestions that would allow this to become technically achievable**

from your agency's management perspective? Explain.

Tier 2 – #10 (Lead Agency or Organization for Implementation) and Tier 2 - #11 (Other Agencies or Organizations)

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