

CWG Review 1: Spring 2015

Tier 1 Information:

1. Management Action

N-82 Support and promote existing and create innovative new initiatives that increase stormwater storage, and reduce stormwater runoff, enhance treatment, increase reuse, and reduce nutrients and other contaminants to the watershed, especially from surface water, to restore healthy estuaries.

- increase stormwater storage to extend residence time and reduce freshwater discharges to southeast Florida estuaries enhance stormwater treatment,
- increase water reuse to extend residence time and reduce freshwater discharges to southeast Florida estuaries

2. Intended Result (Output/Outcome)

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

- The intended outcome of this action is: improved water quality resulting in ecosystem condition improvement for areas identified for priority reef habitat along reefs in the SEFCRI region; increased awareness among resident populations; decreased or eliminated areas of unmanaged storm water runoff; and identification of priority areas of coral reef habitat for conservation action and increased management. Reduction of the algae on the reef will lead to improve overall water quality. With improved estuarine quality, there would be a positive impact on sea grasses and the surrounding coral reefs. Strengthening the runoff water quality standards through standardizing regulation and increasing enforcement shall occur. In the past, there have been proposed standards to stop runoff, however, through the political processes, these have been weakened so much so that they are ineffective at protecting reefs and estuaries. There needs to be more enforcement through monitoring and reporting. There also needs to be public education about the importance of having improved water quality and reducing land-based sources of pollution.
- Counties regulate this area, so support would entail acquiring more funding to continue the initiatives that will increase storm water storage, treatment and contaminant removal and reuse surface water well-funded storm water management program.
- This management action would support what is currently being done, including BMAP basins, restoration, and the link between upland water quality to better estuarine and coral reef water quality.
 - Watershed scale planning will work on areas with bad water quality but not bad enough to make it a BMAP (TMDL is for human health, not coral reef ecosystem health)
 - Possible improvements:
 - Green development projects could improve this (e.g., new developed land and don't take off native vegetation)
 - Create new could be ofw
 - Improve existing could be c11 and c51 that are already planned, like wellington (section 24)

3. Duration of Activity

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

- The duration of this management action is both ongoing and discrete. The planning process and identification of watersheds would be discrete, however the ongoing monitoring of the impact, maintenance or anything installed or managed would be recurring and the education aspect of this management action would be a recurring event.

4. Justification

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

- This management action is being put forth to: address untreated and unmanaged stormwater, which detrimentally impacts the reef ecosystem, as there is a lack of knowledge or understanding among the residential populations regarding how their actions on land impact coral reefs, and impacts on the whole ecosystem including nearshore and offshore habitats; QQTD - quality; quantity; timing; and distribution; and to improve the quality, rate and volume of rain-water run-off. Estuaries are not as healthy as they should be largely based on storm water runoff. Water quality is a major driver in the health of estuaries including seagrass beds, mangrove and associated back reef habitats. Counties have insufficient funds so partnerships may be necessary to collect enough money to cross any jurisdictional boundaries in order to put this management action into effect.

5. Potential Pros

What are the potential advantages associated with this management action?

- The anticipated benefits to implementation of this management action includes improved water quality, improved and increased awareness and a reduction of storm water runoff; and creation of additional 'natural' habitats and introduction of natural landscapes into built areas. This management action will raise the visibility of the importance of estuary health and raise awareness in order to change behavior problems to reduce negative impacts.
- There are existing planned projects awaiting funding before they begin, so implementation of this management action will put many projects into action.
- This management action will foster improved ecosystem health in estuaries and the reefs, resulting in increased tourist activity, financial benefits to the overall community, improved recreational and commercial fishing, improved diving, improved beach conditions, less harmful algal blooms, and will lessen wildlife impacts.

6. Potential Cons

What are the potential disadvantages associated with this management action?

- Increased cost.
- Land in areas where rain-water run-off needs to be collected and treated will be in short supply and expensive. Appropriately planted areas may be more expensive to maintain than traditional bahia grass basins.
- Even if project acquires enough funding, the maintenance and monitoring may not be funded so overall project may still be under-funded. Stakeholders opposition in changes to the watershed.
- There will be opposition from agricultural property owners, golf courses, and individual homeowners. There will be costs regarding the education, retrofitting, monitoring, and enforcement.

7. Location

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

- All four counties
- all counties in relevant watersheds

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

- All ecosystem habitats including watershed
- predominantly urban/suburban areas
- All (primarily watershed and estuaries)
- Estuaries, coral reefs, watershed.

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

- Specific locations to be determined
- Region-wide.
- Existing unfunded plans

8. Extent

Area, number, etc.

- Choosing 4 priority inlet contributing areas; 1 per a county.
- Watersheds, sub-basins and estuaries in all counties
- SEFCRI region offshore and inland toward the freshwater discharges.

9. Is this action spatial in nature?

- Yes
- No

Do you believe this management action could be informed by the Our Florida Reefs Marine Planner Decision Support Tool?

If yes, you will proceed to the next section on Marine Planner Information.

- No

Marine Planer Information:

Marine Planner Information

The Decision Support function of the OFR Marine Planner assists in providing spatial options for management recommendations. If the management action is spatial in nature, and it is believed that data layers in the OFR Marine Planner can be used to help provide spatial options for that management recommendation, please fill out the following to help us develop the tool to address your needs.

The Decision Support Tool provides spatial options based on features in the OFR Marine Planner that you select as being relevant. The critical information you need to provide for your recommendation are:

Feature - These are the data layers in the marine planner relevant to your management recommendation. For example:

- Depth
- Habitat types to avoid or target
- Proximity to other features (inlets, outfalls, artificial reefs)
- Types of reef-use to include or exclude
- Intensity of use
- Fish/coral density
- Fish/coral diversity
- Etc.

(Feature) Value - How much? This will be a unit of measure, e.g. #, %, distance, area, amount. If you are unsure you can state "high, medium, low" and allow input from advisors on how much is high, medium or low for our region. Also, you can make a statement like "far enough away to allow for ____" or "has enough of x to accomplish y," again allowing reviewers to help provide necessary input.

	FEATURE	VALUE
1.	Coral Density	High to low
2.	Coral biodiversity (species richness)	High to low
3.	Listed coral species	Presence, absence, abundance
4.	Coral colony size	Largest to smallest
5.	Fish spawning aggregations	presence and size
6.	Fish species richness (biodiversity)	High

7.	Rare fish species	presence or absence
8.	Areas of high fishing effort	distance to source of pollution
9.	Areas of high diving effort	
10.	Nutrient values (water quality) Salinity Light levels (turbidity and color) Locations of inlets	proximity of inlets and pollution sources to areas with high biodiversity

Tier 2 Information:

WHY?

1. Strategic Goals & Objectives to be Achieved

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

- - FL Priorities Goal C1 Obj 1: Minimize the impacts of reduced water quality associated with controlled freshwater deliveries and coastal construction activities on coastal, estuarine and lagoonal habitats (i.e., seagrass, oyster, mangrove, hardbottom and coral reef communities).
- - FL Priorities Goal C2: Restore and preserve coastal estuarine habitats that aid in naturally improving water quality and support the life histories of coral reef biota.
- FL Priorities Goal C2 Obj 3: Facilitate and encourage partnerships to access and coordinate restoration program grants and other related funds.
- FL Priorities Goal C2 Obj 4: Protect living shorelines and implement a program to help maintain their ecological value and to contain runoff from uplands in areas where natural wetland buffers have been eliminated through coastal construction activities.

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.

- - The State of Florida regulates activities that affect estuarine resources and water quality. South Florida Water Management District rules apply the state's authority to the project-scale and regional-scale in southeast Florida. These regulated activities are often evaluated separately.
- -

3. Intended Benefits (Outcomes)

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

- improved surface water quality in wetlands, estuaries and coastal waters.
- improved timing and distribution of freshwater flows enhance natural system functions.

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

- The need to retrofit existing developments and construction projects (specifically DOT projects) with stormwater management systems and water quality protection devices (e.g. nutrient separating baffle boxes, will be realized by more people.
-

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

- - Duration of benefits will be both short and long term.
- -

4. Indirect Costs (Outcomes)

What potential negative environmental impacts might this action have?

- - - negative outcomes from the RMA are not expected.

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

- - Negative economic impacts may result from increased project costs.

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

- - short term. Upfront costs that will accrue short and long term benefits.

5. Risk

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

- If this management action were not to be implemented continued degradation of estuarine and coastal water quality is an expected result.

6. Relevant Supporting Data

What existing science supports this recommendation? (Provide citations)

- Pickering, N. and Baker, E. 2015. Watershed Scale Planning to Reduce the Land-Based Sources of Pollution (LBSP) for the Protection of Coral Reefs in Southeast Florida. Prepared for the National Oceanographic and Atmospheric Administration. Horsley Witten Group. Sandwich, MA. 84 pp.
- Oceanographic and Atmospheric Administration. Horsley Witten Group. Sandwich, MA. 84 pp.
- Gregg, K. 2013. Literature Review and Synthesis of Land-Based Sources of Pollution Affecting Essential Fish Habitats in Southeast Florida. Prepared for: NOAA Fisheries, Southeast Region, Habitat Conservation Division. Coral Reef Conservation Program. West Palm Beach, Florida.
- Conservation Division. Coral Reef Conservation Program. West Palm Beach, Florida.
- -

7. Information Gaps

What uncertainties or information gaps still exist?

- -

WHEN?

8. Anticipated Timeframe for Implementation

How long will this recommendation take to implement?

- The anticipated timeframe for implementation of this management action is dependent on the scale of the project. Some short term pilot scale projects could be completed in 1-2 years, while other larger projects could be on a 5 year timeframe, and ecosystem-scale projects could be 10 or more years.

9. Linkage to Other Proposed Management Actions

Is this activity linked to other proposed management recommendations?

- -
- -

If so, which ones, and how are they linked? (e.g., is this activity a necessary step for other management actions to be completed?)

- -
- -

Does this activity conflict with other existing or proposed management actions?

- This RMA is not linked with any other RMA nor does it conflict with any other RMA.-

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](#).

- Municipalities with SFWMD coordination.

11. Other Agencies or Organizations

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

- FDEP, FDACS, NOAA CRCP
- -

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.

- Utilities, municipalities, state regulators (FDEP, SFWMD, FDACS), and county regulators (e.g. Health Departments permitting septic tanks)
- -

HOW?

13. Feasibility

Is there appropriate political will to support this? Explain.

- There is already some political will for some of the activities listed under this management action.

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

- -
- -

14. Legislative Considerations

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

- No, the RMA is consistent with federal, state and local laws protecting water quality.

15. -Permitting Requirements

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

- Permitting requirements for this management action would be required for any construction projects.

16. Estimated Direct Costs

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

- The estimated direct cost of implementing this management action depends on the scale and type of implementation.

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

- - - Recurring/ongoing, depending on projects implemented.
- -

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

- - - as long as projects are being implemented.
- -

17. Enforcement

Does this require enforcement effort?

- -- unlikely
-

Provide an explanation if available.

- -
- -

18. Potential Funding Sources

Identify potential funding organizations/grant opportunities, etc.

- Legislature, county/local funding, federal grants for projects, and EPA 319 funding.

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?

- Reductions of LBSP in estuarine and marine waters of ICAs.

SEFCRI/TAC Targeted Questions:

1. **TAC** - Is the recommendation likely to achieve the intended result? Explain.

Tier 1 – #2 (Intended Result - Output/Outcome)

- RED: No. This would be a huge effort with many moving parts.
- KL: It will be hard to define a direct link between managing stormwater and water quality
- ECP: Agree with RED and KL, even harder to show link between managing stormwater and improving reefs.
- If Nutrient content is reduced, then yes. JS.

2. **TAC** - Is the recommendation sufficient to address the identified issue or problem? Explain.

Tier 1 – #4 (Justification)

- RED: Too vague.
- KL: On its own: no. But it is a step in the right direction
- ECP: Agree with RED and KL.
- The recommendation is very general. JS

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)

- KL: Reducing stormwater runoff is technically and scientifically achievable. ECP: Yes.
- Combine N-81, N-87, S-110
- Science-based approach-stormwater, ID point sources using GIS or other mapping tool (industrial and other). Work done in Keys years ago (late 90's)
 - Issues: Runoff (fertilizers) and proper treatment of wastewater. Need public buy in to get these things done.
- Yes with some pain. JS.

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)

- KL: I am not familiar with the local counties' current stormwater management projects.
- EM: Yes, Palm Beach County has programs to address stormwater run-off as does the Lox River and other local gov'ts. CERP/ Army Corps/ SFWMD is addressing this through CERP.

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.

- KL: no EM: no

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.
- 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).
 - 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)*
- [Comments from SEFCRI Team Group Discussion of N-81, N-74, and N-821]:
 - KC: There is a Northern Everglades Restoration currently. Monies have gone to Lake Okeechobee and Indian River Lagoon this past year. Broward County has an integrated plan and Loxahatchee River has a water management plan.
 - JV: The RMA is trying to address improving estuary health will improve reefs. It has been demonstrated elsewhere but not here in Southeast FL. We are trying to do one in St. Lucie to link estuary water quality and health to coral reef health.
 - TJS: CERP and SEP have huge amounts of data, you may be able to pull it in here
 - JV: However, none of the CERP and SEP data links estuary to reefs.
 - TJS: You are right JV, but there is some data that you could start putting into the puzzle
 - DG: MARES tried to tie estuaries and reefs together. Couple of publications at their website: Sofla-mares.org
 - DG/JV: There was conceptual models developed by MARES for water quality on reefs.
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)*
- -

Comments from the Reviewers:

- Comments from N-74:
 - JDV: Ambitious and multifaceted MA, likely can be split out and some pieces combined with other MAs, particularly with regard to education and enforcement.
 - This action describes a combination of several actions (education, regulation, enforcement). All are important but perhaps should be addressed as individual issues. For example, (N-1) addresses education./awareness JS
 - Also, FDEP through the NPDES/TMDL process has recently reviewed and set estuarine criteria. NIC
 - There are efforts being made to develop better standards. (numeric nutrient criteria) Getting behind these ideas and enhancing them is consistent with this goal. JS
 - Estuarine NNC have been proposed and adopted by FDEP, it may be worthwhile to have someone from FDEP come down and provide a status update. NIC
 - Agreed. JS Note that algal blooms are not completely understood. JS. Same. NIC
 - JDV: Oyster reefs, nearshore, mangroves, etc.
 - Yes, this is a sum of several management actions. JS

- This will involve many agencies. JS
 - Marginally. JS [Tier 2, Questions 13]
- Comments from N-81:
 - JDV: Could not only reduce LBSP, but prevent dramatic salinity changes that result from uncontrolled runoff.
 - This is a good idea. As is mentioned in the cons section, acquiring the necessary land and maintaining the catchment areas will be difficult and expensive. Perhaps alternative methods of water storage and treatment might be explored as part of this action? JS Agreed NIC.
 - JDV: there are stronger pros to consider, e.g. a more flexible system with water control on multiple scales.
 - JDV: I would suggest more detailed information is needed to determine which areas would provide greatest bang for the buck.
 - JDV: Need to clarify if goals is catchment, or catchment with improved water quality as a result of natural or other processes. Both could be implement with positive benefits, clearly the latter would provide greater benefits but require higher cost.
 - Having the ability to treat storm water and perhaps reuse this water would be advantageous. As I previously mentioned, thinking of alternatives to surface catchment is probably necessary to implement this in highly developed urban areas. JS
 - Land acquisition. JS.
 - getting water in and out of catchments NIC
- Comments from N-82:
 - JDV: Combine with 81, similar comments apply
 - As mentioned in N-81, some new techniques for managing and treating storm water may be required for this to be realized in developed urban areas where land acquisition is nearly impossible. JS
 - May be worth looking into the status of NPDES/TMDL process for this region. NIC
 - A good example is Miami Beach. Very difficult to balance flooding and storage. Good benefit but difficult to implement in coastal areas (storage). PRG
 - What are the specific plans referred to here? JS
- Comments from N-84:
 - EM- three part recommendation: 1) identify priority areas, 2) develop outreach for residents in priority areas, 3) reduce/eliminate unmanaged run off. Each of these parts need to be developed. CERP and local governments may be addressing some of these issues. May be useful to tie-into efforts already underway.
 - RED: Very broad recommendation.
 - KL: reducing stormwater runoff is a great recommendation, but direct effects on water quality and reef health may not be quantifiable
 - ECP: Agree with RED and KL. The storm water will need to go somewhere, however. Perhaps "implementation of best management practices to alter stormwater runoff impacts"? Then areas where these have been implemented could be counted and changes in canal/inlet water quality monitored (before and after implementation) to determine effects upstream. If improvements noted, will probably help the nearshore waters and reefs, but as KL notes, hard to quantify.
 - KL: recurring
 - SEFCRI Team 15, 1/30/15- Combine N-81 and N-82
 - KL: recurring ECP: Agree
 - KL: We know managing storm water runoff *may* improve water quality.
 - EM: As mentioned above and below, further understanding of how stormwater affects the reefs would assist in more targetted and effective planning.
 - RED: A clear connection justification for adverse impacts from unmanaged storm water is not made.
 - ECP: Agree, other factors can affect water quality. Note also not just health of reef organisms may be affected, but also human health (beach goers, swimmers), so One Health approach and education important.
 - KL: May be tough to directly quantify EM: agree [Tier 1, Question 5]

- RED: Vague [Tier 1, Question 5]
- KL: May be tough to directly quantify ECP: Agree [Tier 1, Question 5]
- EM: potentially high costs with little quantifiable benefits.
- ECP: Agree [Tier 1, Question 6]
- EM: May be easier to quantify improvements in estuarine systems. Perhaps start with projects in estuarine environments with obvious negative impacts directly attributed to run-off (e.g. muck accumulation)
- RED: Vague [Tier 1, Question 7]
- ECP: Agree, need to focus effort at first to determine feasibility and outcomes
- KL: Why only targeted watersheds? Is this a pilot project?
- EM: Would consider need and feasibility when selecting focus areas.
- ECP: Pilot project needed
- RED: Hard to identify the smoking gun for this one. Agree it would be good better manage storm water runoff. However, with the lack of information on contributions from various inputs, it is difficult to understand how to implement this recommendation.
- ECP: Agree. Removing contaminants and sediment contributed by storm water from the nearshore environment will likely improve reef organisms' condition, too, but many other confounding factors involved.
- EM: CERP and local governments likely planning actions related to this.
- FDEP LW: Some efforts, although small scale, include rain barrels and rain garden activities. Some stormwater swale areas are required during certain construction projects.
- RED: Staff should provide comment on this. [Tier 2, Question 2]
- If storm water is kept landward, the system will need less maintenance, less street flooding would occur which hurts business and transportation through the city. Proper storm water catchments (rain gardens and swales), cisterns and the like can reduce homeowners or business owners need to water lawns as frequently with fresh city water, reduces need to have fresh city water for large fountains.
- Storm water also carries debris to the ocean, so reduces debris.
- ECP: Somewhat addressed in Tier 1, but needs work
- ECP: More detail needed from Tier 1
- Continuing to use fresh aquifer water for fountains, lawns etc. increases the need for pumping more of it, increases issues during drought years. i.e. contact North Miami Whole foods to inquire about their cistern and watering program
- ECP: No action is a risk, but this action is vague and poorly supported, so better not to implement
- EM: What are priority areas, what is the significance of residential inputs (vs. commercial and ag)? Agree with KL below.
- KL: How does stormwater directly affect water quality and reef health?
- RED: There are enormous information gaps.
- ECP: Agree with RED and KL, some evidence in literature, but what is needed are data from this area.
- EM: Education components could be short term (2-5 and 5-10 years) but implementation of projects designed to reduce run-off maybe long term. Need more info on specific project ideas.
- KL: SFWMD
- EM: US Army Corps and others listed below
- RED: EPA, NOAA, FDEP, Counties
- RED: I think there is probably low political will or interest for this recommendation, compared to others.
- ECP: Agree, especially in its currently vague form.
- ECP: Perhaps these questions were not answered because of the nebulous nature of the action?

Questions from the Reviewers:

Questions/Information Needs Highlighted by the Reviewers		Addressed by CWG:	Not Addressed by CWG Because:
1.	Perhaps alternative methods of water storage and treatment	<input type="checkbox"/>	<input type="checkbox"/> This does not apply.

	might be explored as part of this action?		<input type="checkbox"/> Need help addressing it.
2.	What are the specific plans referred to here?	<input type="checkbox"/>	<input type="checkbox"/> This does not apply. <input type="checkbox"/> Need help addressing it.
3.	Why only targeted watersheds? Is this a pilot project?	<input type="checkbox"/>	<input type="checkbox"/> This does not apply. <input type="checkbox"/> Need help addressing it.
4.	How does stormwater directly affect water quality and reef health?	<input type="checkbox"/>	<input type="checkbox"/> This does not apply. <input type="checkbox"/> Need help addressing it.
5.	EM: What are priority areas, what is the significance of residential inputs (vs. commercial and ag)?	<input type="checkbox"/>	<input type="checkbox"/> This does not apply. <input type="checkbox"/> Need help addressing it.
6.		<input type="checkbox"/>	<input type="checkbox"/> This does not apply. <input type="checkbox"/> Need help addressing it.
7.		<input type="checkbox"/>	<input type="checkbox"/> This does not apply. <input type="checkbox"/> Need help addressing it.

Questions from the CWGs back to the Reviewers:

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