Land-Based Sources of Pollution Response Document April 2016

***For context on this document, please see meeting minutes from April 2016.**

Title:

N-1: Educate the public on the effects of land-based sources of pollution to reduce the amount of pollutants entering storm drains and waterways.

Background:

- This recommended management action relates to the entire Southeast Florida Coral Reef Initiative (SEFCRI) region and all relevant habitats.
- This recommended management action is being proposed because of the public's lack of awareness concerning pollutants that enter storm drains and waterways.

Objective:

- The intended outcome of this action is to reduce the amount of pollutants entering storm drains and waterways by educating the public on pollutants' effects.
- Improved water quality and reef health will lead - both in number and quality - to enhanced recreational opportunities (diving, fishing, boating, etc.) which, in turn, will lead to increased economic benefits via recreationally based tourism.
- A public that is better educated on land-based sources of pollution (LBSP) and their effects on reefs will develop a greater understanding of the importance of coral reefs and, in turn, have an increased appreciation of their value.

Intended Benefits and/or Potential Adverse Effects:

- Benefits of implementation of this recommended management action include decreased levels of pollutants entering waterways due to a better educated public on pollutants' effects.
- There are no anticipated negative environmental impacts.
- The duration of the benefits of this recommended management action are reoccurring.
- A potential benefit of implementation of this recommended management action is the belief that a more educated public becomes more likely to prevent land-based sources of pollution.
- Some possible issues that may arise with implementation of this recommended management action include: (1) increased awareness of LBSP problems may lead to reduced use or enjoyment of coral reefs due to the perception that the water environment is unsafe for human health, (2) economic ramifications could include reduced recreational activities and, therefore, reduced direct and value-added revenue associated with these activities, (3) property values along the interior waterways (watersheds, rivers, marinas, estuaries, canals) could decrease as a result of persistent perceptions of degraded water quality, and (4) an increased perception that the entire ecosystem is degraded may lead to increased cynicism and inaction regarding potential solutions to LBSP issues.
- Negative social/economic impacts can be both short and long term. Episodic events (e.g.,

oil spills, excessive freshwater discharges) can result in immediate short-term economic impacts (cessation of recreational activities, decreased visitation and tourism, costs related to clean-up and remediation). If perception of a degraded environment persists, economic impacts may be long term (declining tourism, reduced property values).

- If this recommended management action is not implemented, the lack of effective education coupled with increasing numbers of new visitors and residents will ultimately lead to an increasingly uninformed, unengaged public. In the absence of single events that galvanize the public, such as an oil spill, a lack of effective education on the effects of LBSP may result in less support for actions and legislation aimed at addressing this problem.

Agencies/ Organizations:

- The lead agency for implementation of this recommended management action could be any of the agencies listed in the Agencies and Actions Reference Guide that already have, or could develop, education programs about LBSP.
- Other potential agencies or organizations who could be involved include environmental non-governmental organizations (NGOs) and city and town governments.
- The key stakeholders for this recommended management action would be the general public, commercial and recreational fishers, the diving community, schools and universities, local governments, some maritime industries (marinas, boating, and cruise industry) and environmental NGOs.
- There is potential opposition from the agriculture and horticulture industries, convention and tourism bureaus, chambers of commerce, other maritime industries (shipping, coastal construction, boat manufacturing, and cruise industry), chemical and petrochemical industries, and local governments. Some support or opposition may arise within the same stakeholder group depending on intra-industry efforts to show compliance/support for addressing LBSP issues. Opposition would likely arise to existing or new programs that assign blame to particular stakeholders.
- The legislative considerations entail taking into account that programs and materials may need to keep current with changes in laws and regulations, particularly if there is variation at the local level (e.g., county, city or town ordinances).

Permitting/ Enforcement Requirements of RMA:

- There are no permitting requirements with this recommended management action.
- Ways of measuring the success of this recommended management action include: socio-economic surveys related to LBSP, number of education/outreach programs delivered, number of people attending education/outreach programs, and the level of support for legislation related to addressing LBSP issues.

Cost:

- The estimated direct cost of implementing this recommended management action is unknown, but an estimate in the $100,000 range per year seems appropriate. These costs would be recurring as annual printing costs and potential outreach programs continue.
- Potential funding sources include the United States Environmental Protection Agency (EPA) or the National Oceanic and Atmospheric Administration (NOAA).

Time Frame & Extent:

- The anticipated timeframe for implementation of this recommended management action is 1 - 2 years.

Miscellaneous Info:

- This recommended management action is linked with N-68, N-71 and S-25.
- Some uncertainties or gaps with this recommended management action exist, such as the difficulty of gauging the effectiveness of educational programs that are aimed at increasing public awareness and whether the increased awareness leads to positive actions.
- Supporting and relevant data were not provided for this recommended management action.
- Currently there are several agencies/organizations that have programs that address some aspect of land-based sources of pollution:
    - FDEP (SEFCRI LBSP) http://www.dep.state.fl.us/coastal/programs/coral/land-based.htm
    - FDEP Clean Marina Program http://www.dep.state.fl.us/mainpage/programs/clean_marina.htm
    - Officer Snook http://www.7-dippity.com/edprog/ep_osinfo.html
    - SFWMD (What YOU Can DO) http://my.sfwmd.gov/portal/page/portal/xweb%20protecting%20and%20restoring/what%20you%20can%20do
    - Palm Beach County http://www.protectingourwater.org/watersheds/map/lake_worth_lagoon_palm_beach_c/
    - Broward County (Know the Flow) http://www.broward.org/KNOWTHEFLOW/Pages/protect.aspx
    - Miami-Dade County http://www.miamidade.gov/environment/water-protection.asp

Goals/ Objectives to be achieved:

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

- FL Priorities Goal C1.
- FDEP CRCP Education and Outreach Obj. 1.
- SEFCRI LAS LBSP Issue 5.

N-1 Public Comment Report:

Land-Based Sources of Pollution

Educate the public on the effects of land-based sources of pollution to reduce the amount of pollutants entering storm drains and waterways.

Quick Stats:

- Total number of comments on this RMA = 36
- This RMA was called out by 4 stakeholder groups and one individual via letters of support.
    - American Sportfishing Association/ Keep Florida Fishing Initiative
    - Coastal Conservation Association Florida
    - Personal Letter (MK)
    - Miami Waterkeeper
    - West Palm Beach Fishing Club (1300 members)
- The letters above state general, blanket support for LBSP RMAs.
- Community Working Group response: Letters do not request any modifications to RMA. Letters were read and content discussed.

Long Responses:

1. **"What do you support, or how could this RMA be changed to an action you could support?":**

Category	Comment	Ref #	CWG response
Support	Education is key. Visitors & residents should understand that their daily activities have an impact on the world around them.	1202	Read & Acknowledged
Support	I think it should not just include the residential but also the commercial industry we can have one change and the other still be doing the same old thing. It has to be a change across the state i think on both sides we have seen a drastic impact from the Lake O Discharges into the east and west coasts of florida Sea turtles i sea at gumbo limbo little yearlings 4-8 tiny little 30-40 pound green turtles with huge tumors from all the chemchicls and run off in the intercoastal water ways from home owners using lawn care and pesticides that runoff into the water ways. We have to keep Florida Beautiful	1198	Read & Acknowledged
Support	Nice idea. I am not sure it will change anything but it is worth a try.	1174	Read & Acknowledged
Support	I think this is a great idea and it should be implemented so the public is better informed.	1030	Read & Acknowledged
Support	I support how the RMA is trying to raise awareness to show people how on land pollutants have an affect on our reefs. this is important because we need to take care of the Earth and the amount of pollutants we're throwing on it. It's very sad to think that humans are the cause for certain things that wouldn't happen if we weren't here.	974	Read & Acknowledged

Support	I support this RMA because I want to reduce the amount of pollution and warn the community about the dangers of pollutants entering storm drains and waterways.	973	Read & Acknowledged
Support	I support this draft because I believe it has really good ideas to reduce pollution and we definitely need to reduce it to live in a better city.	972	Read & Acknowledged
Support	This draft will definitely educate the public but it should include a hands on program to show the effects of pollution and how to save our marine environment.	971	Read & Acknowledged
Support	I am a student from Alonzo and Tracy Mourning Senior High and I support this cause. I will try to make this more aware to more peers.	969	Read & Acknowledged
Support	I'm student a from atm I support you guys in what u are doing to stop pollution	968	Read & Acknowledged
Support	The RMA could do more things to bring in a younger demographic to help the reefs. By appealing to the younger demographic, we can get the interest of people who will live in the earth longer than previous generations	960	Read & Acknowledged
Support	I think that the land-based pollution is affecting the coral reefs and marine plants and animals extremely. Sources like power plants, factories and other land-based pollutants are big reasons as to why the oceans are in bad shape. Also, garbage being thrown away by wondering people and carelessness of marine life is not helping. Awareness of marine life and their need for a better and cleaner habitat is what all fish and plants would agree with if they could talk.	958	Read & Acknowledged
Support	I support this because many animals and entire ecosystems are dying for the cause of pollution. Us humans benefit ourselves but don't think of how it can affect others around us, and don't even think of animals. Animals are so important... especially fish and many more marine animals. If we continue what we are doing and don't stop it will bring these species to extinction as it has already done to many.	947	Read & Acknowledged
Support	I support the fact that you want to inform people how polluting is hurting the coral reefs and the ocean and this will most likely decrease the number of pollution	878	Read & Acknowledged
Support	I support this website because i love how they support the reefs and raise awarnace	876	Read & Acknowledged
Support	I support this page because I love that this raises awareness to protect the reefs. Thanks	875	Read & Acknowledged
Support	education is most effective when translated into regulations and enforceable programs	23	Read & Acknowledged
Support	Under the education program, really think about actually telling people about industry practices or the extreme amount of discharges or wastes & contamination that industry produces & how these adversely affect the coastal environments. As an example the discharges from a power	126	Read & Acknowledged

	plant or manufacturing plant. Educate the public about the amount of water that may be used in a local manufacturing operation. Secondly, educate the public about where/options for these discharges and what affects they may have on environments. The public tyically needs some of these manufactured goods & serves so how can we better co-exist in our own daily practices.		
Other	A huge threat to the coral reefs which I do not see addressed in your recommendations is beach renourishment. First of all, there is a simple, ridiculously low cost solution that would eliminate the need for costly beach renourishment - place rock berms along the beach as the City if Deerfield Beach has had for decades. Deerfield has rarely, if ever, needed to renourish their beach and Deerfield has a beautiful first reef system. The City of Boca Raton, on the other hand, spends millions of dollars on beach renourishment. The dredging only temporarily replaces the beach and at a devastating cost to the reef. Just the act of dredging itself has led to accidents like dragging chains across and mowing down huge swaths of reef or spilling so much sand on the reef that it can be seen in satellite images. Even without accidents, the renourishment physically buries the first reef. I dive recreationally almost weekly and have seen this first hand. Despite claims of turbidity monitoring, I see the visibility reduced to nothing for weeks following this process, If a city wants to renourish their beach, they MUST install rock berms aloing the beach to prevent future erosion. Simple solution, save millions of dollars and the reefs. Thank you for your efforts.	953	Passed to MICCI
Other	I support the fact that RMA is trying to help protect the highly targeted reef fish species. Every animal is an important part of the food chain. If people fish too much then certain types of fish will become extinct and the ecosystem can collapse.	921	Read & Acknowledged
	I have participated in past events on cleaning up the beach and such. Perhaps by simply cleaning up the beach/ocean or, using less plastic products. Although I don't know what we could do to stop pollution through nature such as land slides. But I believe if everyone is aware of this we can work together to fix the problem and potentially find a solution. Thanks	879	Read & Acknowledged
Other	This long term solution will be fought by developers who have their financial interests at heart	749	Read & Acknowledged
Other	Here is a link from the washington post regarding the damage to reefs caused by sunscreen lotion: https://www.washingtonpost.com/news/energy-environment/wp/2015/10/20/after-sunscreen-protects-humans-it-massacres-coral-reefs/	633	Read & Acknowledged

	http://www.washingtonpost.com/wp-dyn/content/article/2009/08/12/AR2009081201097.html		

2. "Other comments or input":

Category	Comment	Ref #	CWG response
Other	Good Job guys ! Very nice project. Att: Nicolas Brugger student at Alonzo and Tracy Mourning Senior High	973	Read & Acknowledged
Other	Also, I think that is important to advice population about the danger of pollution and how pollution can affect our community. Att: Bruna Soares, student, from Alonzo and Tracy Senior Mouning High.	972	Read & Acknowledged
Other	By decreasing pollution, the reefs can grow healthier and more efficiently. Pollution is caused by the laziness of people who litter. Throwing trash into the ocean can invade the habitats of many animals	960	Read & Acknowledged
Other	This could change our world	876	Read & Acknowledged
Other	Although I don't live in the area I have vacationed in the area. Sailed, swam, dove in the areas mentioned. You have a great treasure and the responsibility to protect it. This would be a great start.	847	Read & Acknowledged
Other	the public knows - educatie the politicians	11	Read & Acknowledged

Title:

N-8: Promote public education programs like "Be Floridian", "Rain Gardens", "Nature Scape", and "Florida Yards and Neighborhoods" to encourage eco-friendly yard and garden practices to help reduce the amount of nutrients and other pollutants reaching the reefs through residential runoff.

Background:

- This recommended management action relates to the Southeast Florida Coral Reef Initiative (SEFCRI) counties and upland communities (urban and suburban), in particular those densely populated areas with high percentages of impervious surface area.
- This recommended management action is being proposed due to nutrients entering the estuaries and reefs from residential properties that contribute to poor water quality, algal blooms, etc. Rain gardens are designed to slow rainwater runoff, allow percolation and increase nutrient reduction while enhancing localized urban landscapes. By reducing stormwater runoff, pollutants are able to be filtered out of water by plants and soil. The volume of untreated water reaching surface waters (e.g. estuaries) is reduced, along with pollutant levels.

Objective:

- The intended outcomes of this action are: (1) to increase awareness among homeowners on how their behaviors can help reduce nutrients entering the estuaries and ocean from runoff associated with lawn care and gardening practices, (2) to improve water quality as a result of the reduction of nutrients entering the system from residential sources, and (3) to leverage existing programs (e.g., Be Floridian, Rain Gardens, Nature Scape**,** and Florida Yards and Neighborhoods) to distribute educational materials that link residential nutrient inputs to the reefs.

Intended Benefits and/or Potential Adverse Effects:

- Benefits of implementation of this recommended management action include giving the public an "action item" - something they can do to help save the lagoon, reefs and ocean. The messaging helps make the connection between backyards and the larger watershed and raises homeowners' awareness of their impact on the marine ecosystem. This recommended management action will also reduce the volume of surface water runoff, replenish the surficial aquifer and help reduce pollutant loads in ground and surface waters. This action aims to improve the quality of the water reaching surface water and ground water. It may encourage the use of native plants, reduce grassy lawn areas and decrease nutrient and pesticide contamination of surface waters.
- There will be a reduction of nutrient pollution caused by fertilizer. Lowering nutrient loading from residential fertilizer will eventually reduce the amount of nitrogen entering the watershed from stormwater and ground water. This in turn will reduce algal blooms and other nutrient-related eutrophication issues in the estuaries, improve habitats for juvenile reef fishes and result in cleaner water reaching the reefs.
- This action could also provide small, highly-localized stormwater runoff catchment basins in areas where large municipal projects are not feasible.
- Once established, this program would help build a cadre of citizens actively engaged in protecting and restoring the estuaries and reefs and could add a new area of focus for gardening enthusiasts (Master Gardeners and Native Plant Society chapters).
- Some possible issues that may arise with implementation of this recommended management action include: the difficulty of measuring the success or impact of this type of education/outreach campaign, and the financial cost and level of effort needed to retrofit existing landscapes could make it challenging for some.
- The duration of the benefits of this recommended management action will need to be recurring to reach a broad and sometimes changing target audience (e.g., new homeowners moving into the

region).

- There is minimal threat to implementing this recommended management action. The extent of the impact depends upon number built, e.g., if implemented in densely populated areas, rain gardens could have a measurable impact on the quality and quantity of both runoff and groundwater.

Agencies/ Organizations:

- The lead agency for implementation of this recommended management action would be the Florida Department of Environmental Protection (FDEP) Coral Reef Conservation Program's Education and Outreach section, which could design brochures and provide them to relevant, existing programs, such as the University of Florida's *Institute of Food and Agricultural Sciences* (UF-IFAS) and county agricultural extension offices. The South Florida Water Management District (SFWMD) could provide educational brochures.
- Other potential agencies or organizations who could be involved include nature centers (e.g., Hobe Sound Nature Center in Martin County, Gumbo Limbo in Palm Beach County), the Florida Yards and Neighborhoods and Florida Master Gardener programs, 4-H and ag clubs. This action would probably be best implemented by relevant county governments, local Master Gardener programs and local chapters of the Florida Native Plant Society (FNPS). County government involvement would lend legitimacy to the program. Master Gardener and FNPS could provide practical, hands-on advice.
- The key stakeholders for this recommended management action are estuary and reef advocates.
- No legislative considerations were identified for this recommended management action.

Permitting/ Enforcement Requirements of RMA:

- Permitting requirements for this recommended management action may include the need to obtain waivers to work in buffer/setback zones
- There are no enforcement requirements for this recommended management action.
- Measurable Outcomes/Success Criteria/Milestones for this recommended management action could include: (1) the number of homeowners reached by the program, as reflected in the numbers of brochures distributed and hits on websites, etc., (2) increase in homeowner awareness of the potential impacts of nutrients on coral reefs could be measured via a web-based survey that randomly polls people throughout the SEFCRI region. (The survey could be repeated 2 years after the implementation of the program.), and (3) each property owner who implements the program could be asked to voluntarily provide information to the county UF-IFAS office, which could then compile data on a county-by-county basis. Ideally, there would be a cumulative database established that could quantify the volume of runoff and pollutants that are being prevented from directly entering our surface waters. (Comment from SEFCRI Team/TAC 2015 Review.)

Cost:

- The estimated direct cost of implementing this recommended management action is 0 - $100,000.
- Potential funding may be acquired through numerous grant programs available for the promotion of pollution reduction education. The following agencies and entities offer such programs: the United States Environmental Protection Agency (EPA), UF-IFAS, individual counties, SFWMD, Florida Native Plant Society, Flower Wild Flower Society and several license plate funds.

Time Frame & Extent:

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

Miscellaneous Info:

- This recommended management action is linked with N-1, N-5, N-21 and N-68.
- Some uncertainties or gaps with this recommended management action include: understanding the effectiveness of public awareness initiatives is a difficult undertaking, with no clearly measureable metrics showing the degree of success. There is a need for documentation demonstrating the linkage between what happens in our coastal estuaries and conditions on our nearshore reefs.
- Supporting and relevant data includes the following:
    - Residential fertilizers are a well-documented source of excessive nitrogen in receiving waters (Baker et al 2001, Driscoll et al 2003, Boyer et al 2002, Law et al 2004, Zhu et al 2004, Bowen and Valiela, 2008).
    - In the northeast United States, research estimates that fertilizer contributes up to a quarter of the total nitrogen loads to aquatic systems (Howarth et al 1996).
    - Florida studies show varying results but have indicated a strong enough correlation that the Tampa Bay National Estuary Program (TBNEP) instituted the "Be Floridian" program. Research by MACTEC (2009) estimated fertilizer contributed 20% of total nitrogen loads to Wekiwa Springs, while Leggette, Brashears and Graham, Inc. (2004) estimated that it contributed 79% of nutrient loads to Lake Tarpon in Pinellas County.
    - The west coast "Be Floridian" campaign created an engaging web site (www.BeFloridian.org) and Facebook page, as well as news and billboard advertisements, educational materials, and engagement activities that can easily be revised for use in the SEFCRI region. Educational materials include information on Florida friendly lawn care products, and fertilizer impacts to water quality.
    - The proposed project could target both retail businesses and homeowners. The Tampa Bay market study demonstrated that changing behavior was most successful if the message was received in both a broadcast format (billboards, radio PSA, Facebook, etc.) as well as at points of sale (summer restriction reminders, product lists, fertilizer rack cards, etc.). The project will deliver many tangible products to be used throughout the SEFCRI region, including printed materials, point of purchase sales rack cards, the multi-faceted and dynamic "Be Floridian" website, and three "Be Floridian" Event Toolkits that educators throughout the watershed could use at festivals and events. A media campaign could be conducted using the creative messaging and social media strategies that were so effective in the Tampa Bay area to activate and energize the public as protectors of our waterways.
    - A "Be Floridian" program, customized to the IRL counties, was recently launched (www.befloridiannow.org).
    - Seagrass enhancement: The TBNEP's focus on nutrient pollution led to the development of the Nitrogen Management Consortium, an innovative public-private partnership that brought together a variety of stakeholders to address the causes of worsening water quality and loss of seagrasses in Tampa Bay. Over the years, reductions in nutrient inputs has resulted in a resurgence in seagrasses, with a more than 6,000-acre increase over 1980s levels.
    - United States Geological Survey began researching this concept in the early 2000s (see: http://pubs.usgs.gov/sir/2005/5189/PDF/SIR2005_5189.pdf
    - The results of EPA research on this topic can be found at :http://www.epa.gov/greeningepa/stormwater/edison_rain_garden.htm)
    - UF-IFAS research and recommendations are available at: http://www.gardeningsolutions.ifas.ufl.edu/design/types-of-gardens/rain-gardens.html
    - Local governments and UF-IFAS have conducted enough research that they market the concept to homeowners (see https://fyn.**ifas**.ufl.edu/.../LA_CEU_Module_3_**Rain_Gardens**_April_13_2010.ppt)

- Currently, educational initiatives regarding environmental stewardship have been increasing in recent years as we have learned more about the adverse impacts of runoff from residential properties on aquatic ecosystems.
    - The "Be Floridian" initiative began with the Tampa Bay National Estuary Program and, due to its success, is now being used as a model for counties in the Indian River Lagoon Watershed. Simultaneously, UF-IFAS has been working to increase homeowner knowledge about environmental stewardship through its Florida Yards and Neighborhoods Homeowner program. Although these programs are increasing the awareness of residents that proper stewardship of their properties can have an effect on the environment, these programs currently do not include information on how our Florida reefs can benefit from such stewardship.
    - Martin County Engineering Department and Martin County Extension Office are cooperating to encourage property owners to build rain-gardens (created low areas planted with wetland plants) designed to capture runoff from roofs, driveways, etc. They have developed two demonstration rain gardens on public lands, one at a public library and one associated with a stormwater retrofit location in old Palm City. The City of Stuart has installed pervious concrete on some roads to reduce levels of runoff.
    - Similarly, Palm Beach County has developed a demonstration rain garden as part of the garden complex at the UF-IFAS Agricultural Extension office Mounts Building.
    - In Broward County, through their Nature Scape program, property owners are encouraged to use rain barrels, rain gardens and bio-swales, all designed to reduce direct runoff into surface waters.
    - Miami-Dade's Parks and Recreation Department and Agricultural Extension office recommends the use of rain barrels and rain gardens and offers workshops in rain barrel creation.

Goals/ Objectives to be achieved:

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

- FL Priorities Goal C1, Obj. 1 / FL Priorities Goal C1, Obj. 2 / FL Priorities, Goal C3, Obj. 3 / FL Priorities Goal C2 Obj. 4.
- FDEP CRCP Conservation Goal B, Obj. 3 / FDEP CRCP Education & Outreach, Goal C FDEP CRCP Education & Outreach, Goal D, Obj. 1.
- SEFCRI LAS LBSP Issue 5 Goal.
- SE Coastal Oceans Taskforce Recommendations under "Water Quality" that relate to Yards, gardens and golf courses and Public education support this RMA.

N-8 Public Comment Report:

Land-Based Sources of Pollution

Promote public education programs like "be Floridian", "rain gardens", "nature scape", and "Florida Yards and Neighborhoods" to encourage eco-friendly yard and garden practices to help reduce the amount of nutrients and other pollutants reaching the reefs through residential run-off.

Quick Stats:

- Total number of comments on this RMA = 11
- This RMA was called out by 3 stakeholder groups and one individual via letters of support.
    - American Sportfishing Association/ Keep Florida Fishing Initiative
    - Coastal Conservation Association Florida
    - Personal Letter (MK)
    - Miami Waterkeeper
- The letters above state a general, blanket support for LBSP RMAs.
- Community Working Group response: Letters do not request any modifications to RMA. Letters were read and content discussed.

Long Responses:

3. "What do you support, or how could this RMA be changed to an action you could support?":

Category	Comment	Ref #	CWG response
Support	Reduces a major land-based pollution issue, especially for estuaries.	1407	Read & Acknowledged
Support	Same with N-1, this RMA provides a way for people to realize their influence on the environment in their everyday lives. Giving people specific action items such as plants to grow and landscape ideas would greatly enhance the effectiveness of this RMA.	1204	Read & Acknowledged
Support	Nice idea but I doubt it will result in any improvements.	1175	Read & Acknowledged
Support	It is astounding how many people still don't understand the damage they cause by using pesticides and herbicides in their yards. The Florida Yards and Neighborhoods program does a great job promoting use of native plants, right-plant-in-the-right-place, etc. More people need to be aware of the coming drinking water crisis that we will be facing in South Florida, too. I think taking all these issues and programs up a notch by promoting them and tying them to the health of our reefs and other marine habitats is a great idea.	1128	Read & Acknowledged
Support	Great idea. This should be implemented.	1031	Read & Acknowledged
Support	residents need to understand why use of fertilizers etc impact the lagoon they love	22	Read & Acknowledged
Support	OF/IFAS information on turfgrass is groundcover if fertilizer application should not be used. Their study compared aturfgradd retention of nitrogen with sand- The amounts of fertilizer they recommend are excessive. Find better info for homeowners!	47	Read & Acknowledged
Support	very important particularly along canals	109	Read & Acknowledged

4. "Other comments or input":

Category	Comment	Ref #	CWG response
Other	Focus on florida native plants appropriate to geographic areas in education - non-natives oftern require pesticide/fertilizer use, focus on native plants!	47	Read & Acknowledged

Title:

N-68 - Reduce and regulate fertilizers, herbicides, fungicides, and pesticides *and promote BMPs* to reduce nutrient and pollutant loading to improve water quality and provide protection to the reefs and promote the use of Florida friendly herbicides and pesticides ~~to reduce or eliminate toxic chemicals~~ *to eliminate adverse impacts to the coastal environment and its watershed*.

Background:

- This recommended management action relates to Southeast Florida Coral Reef Initiative (SEFCRI) counties and all watersheds connecting to estuaries in these counties.
- This recommended management action is being proposed to reduce the overuse of fertilizers and pesticides which eventually make their way to waterways and diminish water quality. Nitrogen runoff contributes to ocean acidification which, in turn, leads to coral diseases and coral bleaching. This action will address land-based sources of pollution (LBSP) and nutrient imbalances in the water and watersheds and reduce algal growth/impacts on corals. This may fulfill the mandate to each county and municipal government located within the watershed of a body or water segment that is listed as impaired by nutrients to, at a minimum, adopt the Florida Department of Environmental Protection (FDEP) Model Ordinance for Florida-Friendly Fertilizer Use on Urban Landscapes pursuant to Fla. Stat. 403.9337.

Objective:

- The intended outcomes of this action are: (1) to reduce nutrient and pollutant loading to improve water quality and provide protection to the reefs, (2) formulate and articulate best management practices (BMPs) for the purchase (do not stockpile) usage (reduce it during the rainy season) and application (clear label instructions) of household fertilizers within watersheds that contribute to nutrient loadings in the SEFCRI region estuaries. Because the first line of defense is an educated consumer there are advantages to creating BMPs instead of enforcing use restrictions. A simple labeling color "restrict application during heavy rain events" may be better than a fine, (3) expand county-specific fertilizer ordinances for each county to reduce the application of fertilizers during rainy periods throughout the state. It should be noted that fertilizer ordinances are already in force in the northern part of the SEFCRI region that recently went into effect in 2014. (e.g. Fertilizer Ordinance 895, Martin County (2011), Best Management Practices Ordinance for Fertilizers, Lee County, Best Management Practices Certification for Fertilizers, Lee County, Florida Pest Management Association has a list of ordinances, and (4) reduced nutrient loads resulting in improved water quality at the receiving watersheds and downstream waterbodies.

Intended Benefits and/or Potential Adverse Effects:

- Benefits of implementation of this recommended management action include: reduced fertilizer impacts and Harmful Algal Blooms (HAB), reduced toxins from herbicides, pesticides and toxic compounds found in HABs, the decrease of which will result in more submerged vegetation and habitat. Reducing lost dive/fish revenue that occurs with HABs results in improved tourist revenues and protection of an important economic engine.
- An anticipated social/economic negative impact associated with this recommended management action is less luxurious landscaping. Additional potential disadvantages with

implementing this recommended management action include: (1) the difficulty in regulating the use of these products, (2) industry and fertilizer user backlash (e.g. golf courses, farms, manufacturers, retailers), (3) lack of economically feasible alternatives, (4) potential negative effects property values, (5) difficult to ban use during rainy seasons by sales alone due to long shelf life, and (6) lost fertilizer sales due to a change in timing.

- The duration of the benefits of this recommended management action should be an ongoing effort reflected in (1) the creation of BMPs, (2) informing the consumer and (3) working with manufacturers and distributors to promote the correct application.
- There is a high environmental risk associated with not implementing this action: major impacts from loss of business in the fishing and tourism industries.

Agencies/ Organizations:

- The lead agencies for implementation of this recommended management action would be the FDEP, *Florida* Department of Agriculture and Consumer Services (FDAC) and the United States Environmental Protection Agency (EPA).
- Other potential agencies or organizations who could be involved include the various SEFCRI county governments.
- The key stakeholders for this recommended management action are fertilizer companies, retail outlets, landscapers and homeowners of large properties.
- There are no legislative considerations to take into account since this action supports Total Maximum Daily Load and *Basin Management Action Plan* regulations for impaired water bodies.

Permitting/ Enforcement Requirements of RMA:

- Permitting for this recommended management action will be required. Landscapers and farmers currently have to comply with BMPs.
- Enforcement requirements for this recommended management action include inspection of retail outlets, landscapers and agricultural operators.
- Measurable ways of showing success with this recommended management action include improved water quality, less HABs, and less fish kills.

Cost:

- The estimated direct cost of implementing this recommended management action is unknown.
- Potential funding may be acquired through EPA and FDAC.

Time Frame & Extent:

- The anticipated timeframe for implementation of this recommended management action is 3 years.

Miscellaneous Info:

- This recommended management action is possibly linked with N-1 for its educational purposes.
- Uncertainties or information gaps with this recommended management action were not identified.
- Supporting and relevant data should be looked at from municipal governments with their existing fertilizer ordinances.
    - This recommended management action is already occurring in the St. Lucie River, Indian River Lagoon and Lake Worth Lagoon.

- Most local governments have some sort of relevant ordinance. However, enforcement and effectiveness of these are uncertain.

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.

N-68 Public Comment Report:

Land-Based Sources of Pollution

Reduce and regulate fertilizers, herbicides, fungicides, and pesticides ***and promote Best Management Practices*** to reduce nutrient and pollutant loading to improve water quality and provide protection to the reefs and promote the use of Florida friendly herbicides and pesticides ~~to reduce or eliminate toxic chemicals~~ ***to eliminate adverse impacts to the coastal environment and its watershed***.

Quick Stats:

- Total number of comments on this RMA = 24
- This RMA was called out by 4 stakeholder groups and one individual via letters of support.
    - American Sportfishing Association/ Keep Florida Fishing Initiative
    - Coastal Conservation Association Florida
    - Personal Letter (MK)
    - Miami Waterkeeper
    - West Palm Beach Fishing Club (1300 members)
    - Golf Course Superintendents Association of Florida
    - The letters above state a general, blanket support for LBSP RMAs, with the exception of the Golf Course Superintendents Association of Florida, which notes that a BMP program currently exists for golf courses in the state of Florida.
- Community Working Group response: Letters do not request any modifications to RMA, with exception of GCSA, which notes program already exists. Letters were read and content discussed.
- Group's proposed change suggested on 3/8/16: Add language similar to N-94: "promoting BMPs" and "eliminate adverse impacts on the coastal environment and its watershed." -----> Reduce and regulate fertilizers, herbicides, fungicides, and pesticides and promote BMPs to reduce nutrient and pollutant loading, and promote the use of Florida friendly herbicides and pesticides to eliminate adverse impacts to the coastal environment and its watershed. Group's note: "reduce" does not necessarily address impacts, "reduce" needs to be quantifiable.

Long Responses:

5. "What do you support, or how could this RMA be changed to an action you could support?":

Category	Comment	Ref #	CWG response
Support	The reduction of fertilizers and pesticides is so important for the health of the reefs. Climate change already creates significant stresses on the reefs, we need to curb other stressors such as pesticides and fertilizers. Great RMA.	1209	Read & Acknowledged
Support	Good idea but it will be very difficult to monitor and enforce.	1176	Read & Acknowledged
Support	We must stop these pollutants from hitting our reefs. The Lake O run off is horrible and this type of thing cannot be allowed.	1079	Read & Acknowledged
Support	Great Idea. This should be implemented. Our coral reefs should not be sacrificed for an unnaturally green lawn.	1032	Read & Acknowledged
Support	I support the RMA, however, counties with stronger fertilizer ordinances should be allowed to keep them.	48	Read & Acknowledged
Support	reduce the use of all chemical fertilizers etc which changes our water quality	340	Read & Acknowledged
Oppose	As a Golf Course Superintendent, I'm a proud steward of our environment in Florida. As a member of the Florida GCSA I proudly support my profession, the Association and our "Green Club" certification program for golf courses; called the Golf Course Best Management Practices (BMP) Certification Program. Our industry takes proactive measures to demonstrate our responsibility to the environment. In 2012, we implemented a voluntary Golf Best Management Practices (BMP) Certification Program that we developed in cooperation with the Florida Department of Environmental Protection, United States Golf Association Green Section, and the University of Florida. The goal was to agree on attainable management practices to keep golf a profitable business in Florida while protecting state water and natural resources, according to the Clean Water Act and other state and local ordinances. Participants receive training using the "Best Management Practices for the Enhancement of Environmental Quality on Florida Golf Course" handbook which includes the following: • Environmental Concepts • Environmental Monitoring • Design and Construction • Irrigation • Nutrition and Fertilization • Cultural Practices • Lake and Aquatic Plant Management	1049	Read & Acknowledged

	• Turfgrass Pest Management • Pesticide Management • Maintenance Operations Participants must also pass a comprehensive exam to earn the Certification. Our program has been recognized across the country and continues to be the model for other BMP Programs. Through these efforts, the Florida GCSA was recently recognized by the Golf Course Superintendents Association of America with the 2015 Excellence in Government Relations Award. The Florida GCSA believes that Florida superintendents are truly environmental stewards and by providing a certified program, we will continue to demonstrate our positive respect and impact on the environment. In addition to our program, the Green Industry-BMP (Gi-BMP) is a science based educational program for all green industry workers (lawn Care and landscape maintenance professionals), operated by the University of Florida/IFAS Florida Friendly Landscaping Program. The Gi-BMPs teach environmentally safe landscaping practices that help conserve and protect Florida's ground and surface waters. All commercial fertilizer applicators must have this certification as well as a Limited Commercial Fertilizer Applicator Certificate (LCFAC) that is issued by FDACS. The industry supports efforts to insure compliance. Many non-commercial industry applicators are required to pass training by local ordinances or voluntarily participate in the program to better serve their clients. Both of these programs are already in place and would eliminate the need for a "Green Club" certification as indicated in your final recommendation report. And finally, I urge you to solicit peer-reviewed science related to such topics as nutrients and runoff/leaching, the use of glyphosate, and attributes of Paspalum versus other varieties as referenced in your report. For example, although Paspalum has many positive benefits given the right set of conditions, it's not the universal solution for many, if not most lawn and golf course applications, as section 7.Vii would have you believe. It is more important to have the right plant in the right place. I would encourage you to reach out to the turf and research scientists of University of Florida/IFAS for more information. They have been instrumental in working alongside our Association making sure that we are using the best scientifically proven methods to maintain golf courses across		

	the state while protecting Florida's environmental quality and communities. As you can see, our industry is already taking the appropriate actions and because of this I do not support, nor find necessary, Recommendations N-68 and N-94. Respectfully, Brett Sullivan Pine Tree Golf Club		
Oppose	As a Golf Course Superintendent, I'm a proud steward of our environment in Florida. As a member of the Florida GCSA I proudly support my profession, the Association and our "Green Club" certification program for golf courses; called the Golf Course Best Management Practices (BMP) Certification Program. Our industry takes proactive measures to demonstrate our responsibility to the environment. In 2012, we implemented a voluntary Golf Best Management Practices (BMP) Certification Program that we developed in cooperation with the Florida Department of Environmental Protection, United States Golf Association Green Section, and the University of Florida. The goal was to agree on attainable management practices to keep golf a profitable business in Florida while protecting state water and natural resources, according to the Clean Water Act and other state and local ordinances. Participants receive training using the "Best Management Practices for the Enhancement of Environmental Quality on Florida Golf Course" handbook which includes the following: • Environmental Concepts • Environmental Monitoring • Design and Construction • Irrigation • Nutrition and Fertilization • Cultural Practices • Lake and Aquatic Plant Management • Turfgrass Pest Management • Pesticide Management • Maintenance Operations Participants must also pass a comprehensive exam to earn the Certification. Our program has been recognized across the country and continues to be the model for other BMP Programs. Through	1045	Read & Acknowledged

	these efforts, the Florida GCSA was recently recognized by the Golf Course Superintendents Association of America with the 2015 Excellence in Government Relations Award. The Florida GCSA believes that Florida superintendents are truly environmental stewards and by providing a certified program, we will continue to demonstrate our positive respect and impact on the environment. In addition to our program, the Green Industry-BMP (Gi-BMP) is a science based educational program for all green industry workers (lawn Care and landscape maintenance professionals), operated by the University of Florida/IFAS Florida Friendly Landscaping Program. The Gi-BMPs teach environmentally safe landscaping practices that help conserve and protect Florida's ground and surface waters. All commercial fertilizer applicators must have this certification as well as a Limited Commercial Fertilizer Applicator Certificate (LCFAC) that is issued by FDACS. The industry supports efforts to insure compliance. Many non-commercial industry applicators are required to pass training by local ordinances or voluntarily participate in the program to better serve their clients. Both of these programs are already in place and would eliminate the need for a "Green Club" certification as indicated in your final recommendation report. And finally, I urge you to solicit peer-reviewed science related to such topics as nutrients and runoff/leaching, the use of glyphosate, and attributes of Paspalum versus other varieties as referenced in your report. For example, although Paspalum has many positive benefits given the right set of conditions, it's not the universal solution for many, if not most lawn and golf course applications, as section 7.Vii would have you believe. It is more important to have the right plant in the right place. I would encourage you to reach out to the turf and research scientists of University of Florida/IFAS for more information. They have been instrumental in working alongside our Association making sure that we are using the best scientifically proven methods to maintain golf courses across the state while protecting Florida's environmental quality and communities. As you can see, our industry is already taking the appropriate actions and because of this I do not support, nor find necessary, Recommendations N-68 and N-94. Respectfully, Wesley Dinsmoor		

Other	Base your recommendations on real science and not false information	1043	Read & Acknowledged
Oppose	If you really want to fix the reefs stop the flow of Lake O into the ocean and return it to the Glades! This other stuff you guys are talking about is smoke and mirrors!	1041	Read & Acknowledged
Oppose	Lake O is the problem. Return it to the Glades and things will be fine.	1040	Read & Acknowledged
Oppose	As a Golf Course Superintendent, I'm a proud steward of our environment in Florida. As a member of the Florida GCSA I proudly support my profession, the Association and our "Green Club" certification program for golf courses; called the Golf Course Best Management Practices (BMP) Certification Program. Our industry takes proactive measures to demonstrate our responsibility to the environment. In 2012, we implemented a voluntary Golf Best Management Practices (BMP) Certification Program that we developed in cooperation with the Florida Department of Environmental Protection, United States Golf Association Green Section, and the University of Florida. The goal was to agree on attainable management practices to keep golf a profitable business in Florida while protecting state water and natural resources, according to the Clean Water Act and other state and local ordinances. Participants receive training using the "Best Management Practices for the Enhancement of Environmental Quality on Florida Golf Course" handbook which includes the following: • Environmental Concepts • Environmental Monitoring • Design and Construction • Irrigation • Nutrition and Fertilization • Cultural Practices • Lake and Aquatic Plant Management • Turfgrass Pest Management • Pesticide Management • Maintenance Operations Participants must also pass a comprehensive exam to earn the Certification. Our program has been recognized across the country and continues to be the model for other BMP Programs. Through these efforts, the Florida GCSA was recently recognized by the Golf Course Superintendents Association of America with the 2015 Excellence in Government Relations Award. The Florida GCSA believes that Florida superintendents are truly environmental stewards and by providing a certified program,	1039	Read & Acknowledged

	we will continue to demonstrate our positive respect and impact on the environment. In addition to our program, the Green Industry-BMP (Gi-BMP) is a science based educational program for all green industry workers (lawn Care and landscape maintenance professionals), operated by the University of Florida/IFAS Florida Friendly Landscaping Program. The Gi-BMPs teach environmentally safe landscaping practices that help conserve and protect Florida's ground and surface waters. All commercial fertilizer applicators must have this certification as well as a Limited Commercial Fertilizer Applicator Certificate (LCFAC) that is issued by FDACS. The industry supports efforts to insure compliance. Many non-commercial industry applicators are required to pass training by local ordinances or voluntarily participate in the program to better serve their clients. Both of these programs are already in place and would eliminate the need for a "Green Club" certification as indicated in your final recommendation report. And finally, I urge you to solicit peer-reviewed science related to such topics as nutrients and runoff/leaching, the use of glyphosate, and attributes of Paspalum versus other varieties as referenced in your report. For example, although Paspalum has many positive benefits given the right set of conditions, it's not the universal solution for many, if not most lawn and golf course applications, as section 7.Vii would have you believe. It is more important to have the right plant in the right place. I would encourage you to reach out to the turf and research scientists of University of Florida/IFAS for more information. They have been instrumental in working alongside our Association making sure that we are using the best scientifically proven methods to maintain golf courses across the state while protecting Florida's environmental quality and communities. As you can see, our industry is already taking the appropriate actions and because of this I do not support, nor find necessary, Recommendations N-68 and N-94. Respectfully, Eric Swenson, GCS Floridian National Golf Club Palm City, Florida.		

6. "Other comments or input":

Category	Comment	Ref #	CWG response
Oppose	As a Golf Course Superintendent, I'm a proud steward of our environment in Florida. As a member of the Florida GCSA I proudly support my profession, the Association and our "Green Club" certification program for golf courses; called the Golf Course Best Management Practices (BMP) Certification Program. Our industry takes proactive measures to demonstrate our responsibility to the environment. In 2012, we implemented a voluntary Golf Best Management Practices (BMP) Certification Program that we developed in cooperation with the Florida Department of Environmental Protection, United States Golf Association Green Section, and the University of Florida. The goal was to agree on attainable management practices to keep golf a profitable business in Florida while protecting state water and natural resources, according to the Clean Water Act and other state and local ordinances. Participants receive training using the "Best Management Practices for the Enhancement of Environmental Quality on Florida Golf Course" handbook which includes the following: • Environmental Concepts • Environmental Monitoring • Design and Construction • Irrigation • Nutrition and Fertilization • Cultural Practices • Lake and Aquatic Plant Management • Turfgrass Pest Management • Pesticide Management • Maintenance Operations Participants must also pass a comprehensive exam to earn the Certification. Our program has been recognized across the country and continues to be the model for other BMP Programs. Through these efforts, the Florida GCSA was recently recognized by the Golf Course Superintendents Association of America with the 2015 Excellence in Government Relations Award. The Florida GCSA believes that Florida superintendents are truly environmental stewards and by providing a certified program, we will continue to demonstrate our positive respect and impact on the environment. In addition to our program, the Green Industry-BMP (Gi-BMP) is	1295	Read & Acknowledged

	a science based educational program for all green industry workers (lawn Care and landscape maintenance professionals), operated by the University of Florida/IFAS Florida Friendly Landscaping Program. The Gi-BMPs teach environmentally safe landscaping practices that help conserve and protect Florida's ground and surface waters. All commercial fertilizer applicators must have this certification as well as a Limited Commercial Fertilizer Applicator Certificate (LCFAC) that is issued by FDACS. The industry supports efforts to insure compliance. Many non-commercial industry applicators are required to pass training by local ordinances or voluntarily participate in the program to better serve their clients. Both of these programs are already in place and would eliminate the need for a "Green Club" certification as indicated in your final recommendation report. And finally, I urge you to solicit peer-reviewed science related to such topics as nutrients and runoff/leaching, the use of glyphosate, and attributes of Paspalum versus other varieties as referenced in your report. For example, although Paspalum has many positive benefits given the right set of conditions, it's not the universal solution for many, if not most lawn and golf course applications, as section 7.Vii would have you believe. It is more important to have the right plant in the right place. I would encourage you to reach out to the turf and research scientists of University of Florida/IFAS for more information. They have been instrumental in working alongside our Association making sure that we are using the best scientifically proven methods to maintain golf courses across the state while protecting Florida's environmental quality and communities. As you can see, our industry is already taking the appropriate actions and because of this I do not support, nor find necessary, Recommendations N-68 and N-94. Respectfully, Erik J. Thor		
Oppose	As a Golf Course Superintendent, I'm a proud steward of our environment in Florida. As a member of the Florida GCSA I proudly support my profession, the Association and our "Green Club" certification program for golf courses; called the Golf Course Best Management Practices (BMP) Certification Program. Our industry takes proactive measures to demonstrate our responsibility to the environment. In 2012, we implemented a voluntary Golf Best Management Practices (BMP) Certification	1056	Read & Acknowledged

	Program that we developed in cooperation with the Florida Department of Environmental Protection, United States Golf Association Green Section, and the University of Florida. The goal was to agree on attainable management practices to keep golf a profitable business in Florida while protecting state water and natural resources, according to the Clean Water Act and other state and local ordinances. Participants receive training using the "Best Management Practices for the Enhancement of Environmental Quality on Florida Golf Course" handbook which includes the following: • Environmental Concepts • Environmental Monitoring • Design and Construction • Irrigation • Nutrition and Fertilization • Cultural Practices • Lake and Aquatic Plant Management • Turfgrass Pest Management • Pesticide Management • Maintenance Operations Participants must also pass a comprehensive exam to earn the Certification. Our program has been recognized across the country and continues to be the model for other BMP Programs. Through these efforts, the Florida GCSA was recently recognized by the Golf Course Superintendents Association of America with the 2015 Excellence in Government Relations Award. The Florida GCSA believes that Florida superintendents are truly environmental stewards and by providing a certified program, we will continue to demonstrate our positive respect and impact on the environment. In addition to our program, the Green Industry-BMP (Gi-BMP) is a science based educational program for all green industry workers (lawn Care and landscape maintenance professionals), operated by the University of Florida/IFAS Florida Friendly Landscaping Program. The Gi-BMPs teach environmentally safe landscaping practices that help conserve and protect Florida's ground and surface waters. All commercial fertilizer applicators must have this certification as well as a Limited Commercial Fertilizer Applicator Certificate (LCFAC) that is issued by FDACS. The industry supports efforts to insure compliance. Many non-commercial industry applicators are required to pass training by local ordinances or voluntarily participate in the program to better serve their clients.		

	Both of these programs are already in place and would eliminate the need for a "Green Club" certification as indicated in your final recommendation report. And finally, I urge you to solicit peer-reviewed science related to such topics as nutrients and runoff/leaching, the use of glyphosate, and attributes of Paspalum versus other varieties as referenced in your report. For example, although Paspalum has many positive benefits given the right set of conditions, it's not the universal solution for many, if not most lawn and golf course applications, as section 7.Vii would have you believe. It is more important to have the right plant in the right place. I would encourage you to reach out to the turf and research scientists of University of Florida/IFAS for more information. They have been instrumental in working alongside our Association making sure that we are using the best scientifically proven methods to maintain golf courses across the state while protecting Florida's environmental quality and communities. As you can see, our industry is already taking the appropriate actions and because of this I do not support, nor find necessary, Recommendations N-68 and N-94. Respectfully, Matt Sorrell Pine Tree Golf Club		
Oppose	As a Golf Course Superintendent, I'm a proud steward of our environment in Florida. As a member of the Florida GCSA I proudly support my profession, the Association and our "Green Club" certification program for golf courses; called the Golf Course Best Management Practices (BMP) Certification Program. Our industry takes proactive measures to demonstrate our responsibility to the environment. In 2012, we implemented a voluntary Golf Best Management Practices (BMP) Certification Program that we developed in cooperation with the Florida Department of Environmental Protection, United States Golf Association Green Section, and the University of Florida. The goal was to agree on attainable management practices to keep golf a profitable business in Florida while protecting state water and natural resources, according to the Clean Water Act and other state and local ordinances. Participants receive training using the "Best Management Practices for the Enhancement of Environmental Quality on Florida Golf Course" handbook which includes the following: • Environmental Concepts • Environmental Monitoring	1047	Read & Acknowledged

	• Design and Construction • Irrigation • Nutrition and Fertilization • Cultural Practices • Lake and Aquatic Plant Management • Turfgrass Pest Management • Pesticide Management • Maintenance Operations Participants must also pass a comprehensive exam to earn the Certification. Our program has been recognized across the country and continues to be the model for other BMP Programs. Through these efforts, the Florida GCSA was recently recognized by the Golf Course Superintendents Association of America with the 2015 Excellence in Government Relations Award. The Florida GCSA believes that Florida superintendents are truly environmental stewards and by providing a certified program, we will continue to demonstrate our positive respect and impact on the environment. In addition to our program, the Green Industry-BMP (Gi-BMP)is a science based educational program for all green industry workers (lawn Care and landscape maintenance professionals), operated by the University of Florida/IFAS Florida Friendly Landscaping Program. The Gi-BMPs teach environmentally safe landscaping practices that help conserve and protect Florida's ground and surface waters. All commercial fertilizer applicators must have this certification as well as a Limited Commercial Fertilizer Applicator Certificate (LCFAC) that is issued by FDACS. The industry supports efforts to insure compliance. Many non-commercial industry applicators are required to pass training by local ordinances or voluntarily participate in the program to better serve their clients. Both of these programs are already in place and would eliminate the need for a "Green Club" certification as indicated in your final recommendation report. And finally, I urge you to solicit peer-reviewed science related to such topics as nutrients and runoff/leaching, the use of glyphosate, and attributes of Paspalum versus other varieties as referenced in your report. For example, although Paspalum has many positive benefits given the right set of conditions, it's not the universal solution for many, if not most lawn and golf course applications, as section 7.Vii would have you believe. It is more important to have the right plant in the right place. I would		

	encourage you to reach out to the turf and research scientists of University of Florida/IFAS for more information. They have been instrumental in working alongside our Association making sure that we are using the best scientifically proven methods to maintain golf courses across the state while protecting Florida's environmental quality and communities. As you can see, our industry is already taking the appropriate actions and because of this I do not support, nor find necessary, Recommendations N-68 and N-94. Respectfully, [Unsigned/Note by Dcox]		
Oppose	As a Golf Course Superintendent, I'm a proud steward of our environment in Florida. As a member of the Florida GCSA I proudly support my profession, the Association and our "Green Club" certification program for golf courses; called the Golf Course Best Management Practices (BMP) Certification Program. Our industry takes proactive measures to demonstrate our responsibility to the environment. In 2012, we implemented a voluntary Golf Best Management Practices (BMP) Certification Program that we developed in cooperation with the Florida Department of Environmental Protection, United States Golf Association Green Section, and the University of Florida. The goal was to agree on attainable management practices to keep golf a profitable business in Florida while protecting state water and natural resources, according to the Clean Water Act and other state and local ordinances. Participants receive training using the "Best Management Practices for the Enhancement of Environmental Quality on Florida Golf Course" handbook which includes the following: • Environmental Concepts • Environmental Monitoring • Design and Construction • Irrigation • Nutrition and Fertilization • Cultural Practices • Lake and Aquatic Plant Management • Turfgrass Pest Management • Pesticide Management • Maintenance Operations Participants must also pass a comprehensive exam to earn the Certification. Our program has been recognized across the country and continues to be the model for other BMP Programs. Through	1043	Read & Acknowledged

	these efforts, the Florida GCSA was recently recognized by the Golf Course Superintendents Association of America with the 2015 Excellence in Government Relations Award. The Florida GCSA believes that Florida superintendents are truly environmental stewards and by providing a certified program, we will continue to demonstrate our positive respect and impact on the environment. In addition to our program, the Green Industry-BMP (Gi-BMP) is a science based educational program for all green industry workers (lawn Care and landscape maintenance professionals), operated by the University of Florida/IFAS Florida Friendly Landscaping Program. The Gi-BMPs teach environmentally safe landscaping practices that help conserve and protect Florida's ground and surface waters. All commercial fertilizer applicators must have this certification as well as a Limited Commercial Fertilizer Applicator Certificate (LCFAC) that is issued by FDACS. The industry supports efforts to insure compliance. Many non-commercial industry applicators are required to pass training by local ordinances or voluntarily participate in the program to better serve their clients. Both of these programs are already in place and would eliminate the need for a "Green Club" certification as indicated in your final recommendation report. And finally, I urge you to solicit peer-reviewed science related to such topics as nutrients and runoff/leaching, the use of glyphosate, and attributes of Paspalum versus other varieties as referenced in your report. For example, although Paspalum has many positive benefits given the right set of conditions, it's not the universal solution for many, if not most lawn and golf course applications, as section 7.Vii would have you believe. It is more important to have the right plant in the right place. I would encourage you to reach out to the turf and research scientists of University of Florida/IFAS for more information. They have been instrumental in working alongside our Association making sure that we are using the best scientifically proven methods to maintain golf courses across the state while protecting Florida's environmental quality and communities. As you can see, our industry is already taking the appropriate actions and because of this I do not support, nor find necessary, Recommendations N-68 and N-94. Respectfully, [Unsigned/Note by Dcox]		

Oppose	As a Golf Course Superintendent, I'm a proud steward of our environment in Florida. As a member of the Florida GCSA I proudly support my profession, the Association and our "Green Club" certification program for golf courses; called the Golf Course Best Management Practices (BMP) Certification Program. Our industry takes proactive measures to demonstrate our responsibility to the environment. In 2012, we implemented a voluntary Golf Best Management Practices (BMP) Certification Program that we developed in cooperation with the Florida Department of Environmental Protection, United States Golf Association Green Section, and the University of Florida. The goal was to agree on attainable management practices to keep golf a profitable business in Florida while protecting state water and natural resources, according to the Clean Water Act and other state and local ordinances. Participants receive training using the "Best Management Practices for the Enhancement of Environmental Quality on Florida Golf Course" handbook which includes the following: • Environmental Concepts • Environmental Monitoring • Design and Construction • Irrigation • Nutrition and Fertilization • Cultural Practices • Lake and Aquatic Plant Management • Turfgrass Pest Management • Pesticide Management • Maintenance Operations Participants must also pass a comprehensive exam to earn the Certification. Our program has been recognized across the country and continues to be the model for other BMP Programs. Through these efforts, the Florida GCSA was recently recognized by the Golf Course Superintendents Association of America with the 2015 Excellence in Government Relations Award. The Florida GCSA believes that Florida superintendents are truly environmental stewards and by providing a certified program, we will continue to demonstrate our positive respect and impact on the environment. In addition to our program, the Green Industry-BMP (Gi-BMP) is a science based educational program for all green industry workers (lawn Care and landscape maintenance professionals), operated by the University of Florida/IFAS Florida Friendly Landscaping Program. The Gi-BMPs teach environmentally safe	1036	Read & Acknowledged

	landscaping practices that help conserve and protect Florida's ground and surface waters. All commercial fertilizer applicators must have this certification as well as a Limited Commercial Fertilizer Applicator Certificate (LCFAC) that is issued by FDACS. The industry supports efforts to insure compliance. Many non-commercial industry applicators are required to pass training by local ordinances or voluntarily participate in the program to better serve their clients. Both of these programs are already in place and would eliminate the need for a "Green Club" certification as indicated in your final recommendation report. And finally, I urge you to solicit peer-reviewed science related to such topics as nutrients and runoff/leaching, the use of glyphosate, and attributes of Paspalum versus other varieties as referenced in your report. For example, although Paspalum has many positive benefits given the right set of conditions, it's not the universal solution for many, if not most lawn and golf course applications, as section 7.Vii would have you believe. It is more important to have the right plant in the right place. I would encourage you to reach out to the turf and research scientists of University of Florida/IFAS for more information. They have been instrumental in working alongside our Association making sure that we are using the best scientifically proven methods to maintain golf courses across the state while protecting Florida's environmental quality and communities. As you can see, our industry is already taking the appropriate actions and because of this I do not support, nor find necessary, Recommendations N-68 and N-94. Respectfully, Steven M. Wright CGCS Pine Tree Golf Club !0600 Pine Tree Terrace Boynton Beach, Fl. 33436 561-734-9688		
Support	Very important	15	Read & Acknowledged
Other	heavy regulations to flow down runoff	345	Read & Acknowledged

Title:

N-69: Support initiatives and provide financial incentives to restore and preserve wetlands north of Lake Okeechobee to stop discharges to coastal estuaries to protect estuaries and reefs.

Background:

- This recommended management action relates to Southeast Florida Coral Reef Initiative (SEFCRI) counties, as well as counties contributing to the Kissimmee River and St. Lucie River watersheds.
- This recommended management action is being put forth because water flows into Lake Okeechobee six times faster from its sources, the Kissimmee River and other tributaries, then it leaves. In wet years, this results in long-duration discharges to the St. Lucie and Caloosahatchee Rivers. Storage and treatment north of Lake Okeechobee is essential to improving the estuarine conditions in southeast Florida. This recommended management action will address discharges from the Lake Okeechobee watershed to tide, e.g. the estuaries and ocean within the SEFCRI region.

Objective:

- The intended outcomes of this action are to provide incentives for municipalities, agriculture, and government agencies to implement creative new ways to restore wetlands for better storage and filtration within the Lake Okeechobee and St. Lucie River watersheds. The ultimate result of this recommended management action is to reduce eutrophication of Lake Okeechobee and reduce discharge of its water to tide in the SEFCRI region. The outcome of this actions will also encourage partnerships between local, state and federal governments and private land owners to develop new surface water management and water quality improvement techniques that will continue to provide flood protection and environmental services while reducing peak flows and pollution loads to Lake Okeechobee and southeast Florida estuaries.
- There is a need to increase the understanding that the hydrology of the Lake Okeechobee and St. Lucie River watersheds are connected with water quality on our nearshore coral reefs. Too few people understand that there is a connection.

Intended Benefits and/or Potential Adverse Effects:

- Benefits of implementation of this recommended management action include: increased retention of water upstream is expected to improve ecological conditions north of the lake and water storage capacity in Lake Okeechobee and, subsequently, improved water quality for southeast Florida coral reef ecosystem including estuaries, nearshore habitats, and coral reef tract.
- A possible issue that may arise with implementation of this recommended management action is the cost and administration of the program e.g., providing sufficient funding for agricultural users to commit to the program for the long term. If the new system of water management does not have flexibility, then in dry years, or successive dry years, agricultural interests south of the lake may want more water. This may result in less than optimal water quality and quantity within the watersheds and estuaries of southeast Florida.
- The duration of the benefits of this recommended management action are the following: (1) the discrete action of creating the program and (2) the recurring management and

support of the program with incentives. The program would be implemented via a phased approach. This action will be on-going until the large freshwater discharges that adversely affect the estuary and nearshore reefs in the SEFCRI area are reduced in magnitude and pollutant load.

- If this recommended management action is not implemented the following will continue: (1) adverse impacts to water quality and quantity, (2) a continued degradation of coral reef ecosystem resources, and (3) a continued degradation of wetland resources in southeast Florida.

Agencies/ Organizations:

- This recommended management action supports on-going initiatives that are in various stages of implementation by federal and state agencies, including the United States Army Corps of Engineers (USACE) (Lake Okeechobee), the United States Fish and Wildlife Service (USFWS) (Everglades Headwaters National Wildlife Refuge), Florida Department of Environmental Protection (FDEP) (Total Maximum Daily Load (TMDL)/*Basin Management Action Plan* (BMAP)), the Florida Fish and Wildlife Conservation Commission (FWC) (Management of lake levels in the Kissimmee Chain of Lakes), South Florida Water Management District (SFWMD) (Payment for Environmental Services), and likely many others.
- Support by SEFCRI for these initiatives would enhance their collective abilities to acquire funds to further their programs. Additional entities could include: all Florida water management districts overseeing this area, The Nature Conservancy and other appropriate non-governmental organizations that oversee this region, all counties and local municipalities within the watersheds, agricultural consortiums (owners of agricultural lands are going through difficult times), ranchers, and conservation organizations.
- The key stakeholders for this recommended management action include the Florida Cattleman's Association and conservation groups in both the SEFCRI area and throughout the state. This recommended management action is consistent with existing local, state and federal regulations and actively supports on-going initiatives.

Permitting/ Enforcement Requirements of RMA:

- Permitting requirements for this recommended management action include approvals that will need to be obtained from federal (USACE) and state (e.g., FDEP, SFWMD) agencies prior to implementing some hydrologic restoration projects.
- There are no enforcement requirements with this recommended management action.
- Measurable Outcomes/Success Criteria/Milestones to show success with this recommended management action include increased water storage north of Lake Okeechobee.
    - Metrics are fairly straightforward: measurements of discharge volumes and pollutant quantities (e.g., nitrogen, phosphorous) that are discharged from the St. Lucie Locks are already calculated. Economic and ecological metrics already have been published for the FRESP project – See Hilary M. Swain, Patrick J. Bohlen, Kenneth L. Campbell, Laurent O. Lollis, and Alan D. Steinman. Integrated Ecological and Economic Analysis of Ranch Management Systems: An Example from South Central Florida. Rangeland Ecology & Management: January 2007, Vol. 60, No. 1, pp. 1-11. As more water storage projects come online, discharges

should be reduced and the quantities of pollutants should simultaneously decline.
    - Additional suitable metrics for this recommended management action may be available from the Central Everglades Planning Project (CERP) on the USACE website.
- Success will be attained when discharges from the Lake Okeechobee and St. Lucie River watersheds into the coastal estuaries and nearshore reefs no longer have detrimental impacts on these ecosystems. However, solving the issues surrounding Lake Okeechobee and its watershed, as well as the quality, quantity, timing, and distribution of hydrologic flow, will not, on their own, result in fully rehabilitated estuaries.

Cost:

- The estimated direct cost of implementing this recommended management action is subject to legislation at the state and federal levels.
- Potential funding may be acquired through: ***the Florida State Legislature,*** North American Wetlands Conservation Act, Wetland Reserve Program, Landowners Incentive Program, and the SFWMD's Dispersed Water Management Northern Everglades--Payment for Environmental Services (NE-PES) program. The possibility exists to obtain protected species funding from USFWS &/or FWC if individual projects will benefit flora and fauna that are designated as threatened or endangered.

Time Frame & Extent:

- Expanding existing payment-for-environmental services programs can be implemented very quickly. These programs are very popular with ranchers, who are very conservation-minded, but their continued existence (funding) remains uncertain and is being debated in Tallahassee.

Miscellaneous Info:

- This recommended management action complements and is linked with N-71 and S-28. It need not be done in isolation or as a necessary step toward implementing other recommended actions. All recognize that the health of our reef ecosystems (biodiversity, fish abundance, etc.) is affected by conditions in the contributing watersheds. Improving water quality in the Kissimmee River, Everglades and Inlet Contributing Areas will improve conditions in our estuaries and have a positive effect on the Florida Reef Tract ecosystem.
- Little data are available on adverse impacts of water from the Lake Okeechobee and its watershed on reefs in the SEFCRI region, especially when water is being discharged to tide for flood control.
- Supporting and relevant data includes the following: St Lucie River Watershed Protection Plan/updates SFWMD 2009/2012, modeling and evaluation of water storage north of Lake Okeechobee have been conducted by SEFCRI partners, including SFWMD, USFWS, FWC and the USACE. (Reference: CERP at http://www.evergladesrestoration.gov/).
    - See: Options to Reduce High Volume Freshwater Flows to the St. Lucie and Caloosahatchee Estuaries and Move More Water from Lake Okeechobee to the Southern Everglades, An Independent Technical Review by the University of Florida Water Institute. (2015)
- The following are currently underway:

    - SFWMD Northern Everglades and Estuaries Protection Program, Lake Okeechobee Restoration plan and BMAP.
    - FRESP and Dispersed Water Management Northern Everglades, Payment for Environmental Services (NE-PES) program.
    - The federal government and state are already developing these programs. The Everglades Headwaters National Wildlife Refuge, the Dispersed Water Management Program, improvements to the structural integrity of the Herbert Hoover Dike (USACE), the Lake Okeechobee Basin Action Management Plan, the Florida Ranchlands Environmental Services Project (now incorporated into the Dispersed Water Management Northern Everglades--Payment for Environmental Services (NE-PES) program), and others are all examples of initiatives that have begun to address this issue.
- The goal of this recommended management action is not to duplicate, replicate or in any form take away from these on-going initiatives. The goal is to support these initiatives because they will improve conditions in the northern SEFCRI estuaries (e.g., St. Lucie Estuary, Lake Worth Lagoon) and on coral reefs near canals and inlets that receive water from the Lake Okeechobee watershed.

Goals/ Objectives to be achieved:

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

- FL Priorities Goal A1 / FL Priorities GOAL A4 / FL Priorities GOAL C1 / FL Priorities Goal C1, Obj. 1 / FL Priorities Goal C1, Obj. 7 / FL Priorities GOAL C2 / FL Priorities GOAL C2, Obj. 1 / FL Priorities GOAL C2, Obj. 2 / FL Priorities GOAL C3.
- SEFCRI LAS LBSP Issue 4, Goal Obj. 3.

N-69 Public Comment Report:

Land-Based Sources of Pollution

Support initiatives and provide financial incentives to restore and preserve wetlands north of Lake Okeechobee to stop discharges to coastal estuaries to protect estuaries and reefs.

Quick Stats:

- Total number of comments on this RMA = 17
- This RMA was called out by 4 stakeholder groups, one agency of the State (SFWMD), and one individual via letters of support.
    - American Sportfishing Association/ Keep Florida Fishing Initiative
    - Coastal Conservation Association Florida
    - Personal Letter (MK)
    - Miami Waterkeeper
    - West Palm Beach Fishing Club (1300 members)

    - South Florida Water Management District (SFWMD)
- The letters above state a general, blanket support for LBSP RMAs.
- Community Working Group response: Letters do not request any modifications to RMA. Letters were read and content discussed. Regarding SFWMD suggestion, group responds to not remove SFWMD's potential involvement, but add state legislature as funding source

Long Responses:

7. "What do you support, or how could this RMA be changed to an action you could support?":

Category	Comment	Ref #	CWG response
Support	CCA supports the RMAs relating to Land Based Sources of Pollution. CCA strongly supports N-69 as the discharges to our estuaries must be stopped and the natural flow of fresh water to the south is needed. The mechanisms for moving the water south involve complex intergovernmental relationships and need a dependable source of immediate funding. The impacts of local storm water, sources of population and over fertilization are also major problems.	1268	Read & Acknowledged
Support	The discharges from Lake O destroy so much in our estuaries and on our reefs. Any Action taken to clean up the water, send it South & keep it out of our ecosystem is a step in the right direction	1212	Read & Acknowledged
Support	Great idea but this has been the "holy grail" for water improvement for decades and has been unattainable thus far. To be successful, this would require more money than is probably available and you would need to drop a net over the Army Corps of Engineers (good luck with that one). But, I do support this proposal. If this can be pulled off, I am certain it will improve our water quality, estuaries and offshore reef ecosystems.	1177	Read & Acknowledged
Support	I support this as a solution to storm water treatment.	1155	Read & Acknowledged
Support	The MOST important thing right now is saving the lagoon. Im afraid "saving" is too late. All the sea grass south of the FPL plant is dead. We can't save fish and reefs without stopping the discharges first. We can't restrict recreational fishing and charters to no-fishing no-take zones when our estuaries are dead. "Save the bait-fish" should be the campaign !	719	Read & Acknowledged
Support	Include the dumping of polluted water from Lake Okeechobee into the St Lucie River that discharges directly on our reefs covering them in silt.	695	Read & Acknowledged
Support	stop agriculture discharges	2	Read & Acknowledged
Support	better wetland delineation with more home rule would help our area. Martin county has long had rules that require	30	Read & Acknowledged

	restoration of wetlands destroyed since 1982 so SFWMD should help implement.		
Support	I would like to see a focus on wetlands restoration for the long term that also helps the estuaries – ie. Not only focusing on short term solutions like water farming	51	Read & Acknowledged
Other	more involvement of local communities and developments (education)	46	Read & Acknowledged

8. "Other comments or input":

Category	Comment	Ref #	CWG response
Support	Very important	15	Read & Acknowledged
Support	3rd most important	36	Read & Acknowledged
Other	seeking more clear statements of actions/plans that will be used to implement this plan	46	Read & Acknowledged
Other	since the orlando area wants water but also discharges stormwater- greater focus might be put on a way of supplying water to urban areas instead of getting it from south into the kissimee system	51	Read & Acknowledged

Title:

N-71: Maintain and coordinate a unified monitoring program to detect, identify, and eliminate sources of pollution flowing through inlets to improve water quality and protection to reef.

Background:

- This recommended management action relates to all Southeast Florida Coral Reef Initiative (SEFCRI) counties and cities with ocean inlets in the SEFCRI region.
- This recommended management action is being put forth due to the lack of sustained water quality monitoring efforts required to address land-based sources of pollution (LBSP) impacts to coral reefs via ocean inlets.

Objective:

- The intended outcome of this action is to create a coordinated water quality monitoring program and strategy to target pollutants at the nine southeast Florida inlets.

Intended Benefits and/or Potential Adverse Effects:

- Benefits of implementing this recommended management action include: (1) having a unified monitoring plan and protocol across the SEFCRI region and improved coordination among all agencies involved in water quality monitoring, (2) resulting baseline data and event-specific data that can be used in the future, (3) project results that can be used in watershed planning and as baseline information to measure LBSP reductions within each Inlet Contributing Area (ICA), (4) expected reductions in LBSP, (5) reduced water pollution and subsequent improvements in the southeast Florida coastal environment, stronger tourism industries.
- An anticipated negative impact associated with this recommended management action includes the cost to organizations to fund and implement such a program (project funding sources have not been identified), and the project will not automatically identify sources of LBSP.
- The duration of the benefits of this recommended management action are ongoing.
- If this recommended management action is not implemented there will be continued LBSP loading, which is expected to exacerbate coral decline and benthic species composition changes in southeast Florida. This would adversely affect economic and environmental services and values provided by the coral reef ecosystem.

Agencies/ Organizations:

- The lead agencies for implementation of this recommended management action include the Florida Department of Environmental Protection, the United States Environmental Protection Agency (EPA), the National Oceanic and Atmospheric Administration's (NOAA) Fisheries Service, NOAA's National Ocean Service, and NOAA's Atlantic Oceanographic and Meteorological Laboratory.
- Other potential agencies or organizations who could be involved include SEFCRI counties and the South Florida Water Management District.
- The key stakeholders for this recommended management action would be municipalities, utilities, and drainage districts.

- The project is consistent with legislation and laws.

Permitting/ Enforcement Requirements of RMA:

- There are no permitting requirements for this recommended management action.
- There are no enforcement requirements for this recommended management action.
- Measurable Outcomes/Success Criteria/Milestones were not identified for this recommended management action.

Cost:

- The estimated direct cost of implementing this recommended management action is greater than $250,000.
- No potential funding sources have been identified at this time.

Time Frame & Extent:

- The anticipated timeframe for implementation of this recommended management action is 1 - 5 years.

Miscellaneous Info:

- LBSP loading to coral reef ecosystem is related to a number of other recommended management actions, however none were specified in this action.
- Some uncertainties or gaps in this recommended management action include the lack of quantified pollutant loads reaching the reefs via coastal inlets, which is a data gap that would be filled by the recommended management action.
- Supporting and relevant data includes the following:
    - Pickering, N. and Baker, E. 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. 2015. Sandwich, MA. 84 pp.
    - Trnka, M., K. Logan, P. Krauss and N. Craig. Land-Based Sources of Pollution Local Action Strategy Combined Projects 1 &2. Nova Southeastern University, Oceanographic Center. 2006. Dania Beach, Florida. 207pp.
    - Gregg, K. 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. 2013. West Palm Beach, Florida. 55 pp.
- Similar activities are being developed ad hoc at various locations. This action would standardize the activities and provide a framework for a tiered approach that may be necessary due to fiscal constraints on resource management agencies.

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.

N-71 Public Comment Report:

Land-Based Sources of Pollution

Maintain and coordinate a unified monitoring program to detect, identify, and eliminate sources of pollution flowing through inlets to improve water quality and protection to reef.

Quick Stats:

- Total number of comments on this RMA = 12
- This RMA was called out by 3 stakeholder groups and one individual via letters of support.
    - American Sportfishing Association/ Keep Florida Fishing Initiative
    - Coastal Conservation Association Florida
    - Personal Letter (MK)
    - Miami Waterkeeper
- The letters above state a general, blanket support for LBSP RMAs.
- Community Working Group response: Letters do not request any modifications to RMA. Letters were read and content discussed.

Long Responses:

9. "What do you support, or how could this RMA be changed to an action you could support?":

Category	Comment	Ref #	CWG response
Support	It's important for us to monitor what spills out of the river and into the ocean. A uniform, simple plan would provide a great deal of valuable information.	1215	Read & Acknowledged
Support	if you don't have data and enforcement the protections don't work	25	Read & Acknowledged
Support	I strongly support this recommendation. Monitoring is extreemely imporant.	107	Read & Acknowledged
Support	we need better data on discharges. Research on discharges is necessary	150	Read & Acknowledged
Oppose	Not a realistic proposal. Lots of aspiration but no substance. HOW would this monitoring by a unified agency take place? This really is one where the devil is in the details. Without any details, I cannot support this RMA.	1178	Read & Acknowledged
Other	"Maintain and coordinate a unified monitoring program to detect, identify, and eliminate sources of pollution flowing through inlets to improve water quality and protection to reef." Pollution is one of the most crucial issues of the modern society. I believe that if society will find a way to reduce an amount of the pollution or, at least, the consequences of it,	863	Read & Acknowledged

	our society and nature wil be able to flourish and develop without looking back.		

10. "Other comments or input":

Category	Comment	Ref #	CWG response
Support	Important	25	Read & Acknowledged
Support	Important	10	Read & Acknowledged
Other	Stop the discharges from Lake Okeechobee.	1002	Read & Acknowledged

Title:

N-75: Promote/offer free pump out stations to better water quality and allow boats a better option than dumping waste offshore.

Background:

- This recommended management action relates to Miami-Dade, Broward, Palm Beach, and Martin counties, i.e. those of the Southeast Florida Coral Reef Initiative (SEFCRI) region.
- The primary target is coastal estuaries, but because boaters may dump their holding tanks anywhere, the positive effects could be widespread.
- This recommended management action is being put forth to improve water quality over the reefs and in the estuaries due to the degradation of coastal waters directly related to boats dumping their holding tanks into surface waters, as opposed to having them pumped out.

Objective:

- The intended outcome of this action is to improve water quality, reduce sewage in surface waters and, as a result, have potentially fewer coliform-related health warnings.
- The improved water quality will bring more tourism and improve the economy along with residents' quality of life.

Intended Benefits and/or Potential Adverse Effects:

- Some potential benefits of implementation of this recommended management action are: (1) boaters are more likely to use free pump-out services as opposed to paying to have their tanks pumped out, usage will increase if boaters can easily access information on locations of free pump-out services, (2) improved water quality because the tanks are not being dumped into the waterways, and (3) improved water quality will bring more tourism and benefit the economy along with residents' quality of life.
- Potential negative environmental impacts could result from spillages associated with the pump-out vessel itself. It should be noted, however, that Martin County has had no such issues since initiating this service in 2000.
- The potential negative social/economic impacts of this action include: existing, for-profit companies that provide waste pump-out services may oppose this initiative as it could negatively affect their revenue. This problem could be mitigated by the development of a database listing all pump-out services on a county-by-county basis, which would provide for-profit pump-out service providers with free publicity.
- The duration of the benefits of this recommended management action are long term. As opportunities for free pump-out become more well-known, the program would hopefully become increasingly popular and well-utilized.
- Some possible issues that may arise with implementation of this recommended management action include: (1) funding, as the costs would need to be covered by grants or other sources, (2) potential opposition from existing for-profit businesses that offer similar services, (3) increased enforcement if you want to make sure that boats are being pumped out, and (4) maps showing locations of pump-out services may need to be updated frequently (suggestion would be to develop and post the locations electronically).
- If this recommended management action were not implemented coastal waters will continue to degrade as a result of boaters who choose to illegally dump their waste rather than having it pumped out.

Agencies/ Organizations:

- The lead agencies for implementation of this recommended management action would be county governments, which would be the most likely entities to implement this action. Funding for Martin County's program comes from Florida Department of Environmental Protection's (FDEP) Clean Vessel Act grant program. Promotion could be by SEFCRI via a mobile phone app.
- Other potential agencies or organizations who could be involved include the Florida Fish and Wildlife Conservation Commission (FWC) and county health departments.
- The key stakeholders for this recommended management action would be boaters, the fishing and diving industries and marinas.
- There are no conflicts with current laws and, unless there is a mandate for boaters to use pump-outs stations, no new regulation would need to be considered.

Permitting/ Enforcement Requirements of MA:

- There are no permitting requirements for this recommended management action.
- A means of measuring the success of this recommended management action includes tallying the number of boats pumping out and the volume of sewage pumped out.

Cost:

- The estimated direct cost of implementing this recommended management action includes an upfront cost of $200,000 - $300,000, depending on the size of the pump-out vessel and its capacity i.e. number of boats serviced. The annual cost to Martin County is approximately $80,000 for vessel operation and staff. Costs would increase due to the need for a larger vessel and the larger number of boats in Palm Beach, Broward and Miami-Dade counties. The counties could approve this recommended management action as part of their annual budget.
- Potential funding could be acquired through the FDEP's Clean Vessel Act grant program.

Time Frame & Extent:

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

Miscellaneous Info:

- This recommended management action is linked to N-97 and with land-based sources of pollution in general, especially septic tank/sewage issues.
- An uncertainty associated with this recommended management action is determining whether free pump-out services will translate into increased voluntary compliance.
- Supporting and relevant data includes the free pump-out services currently being provided in Monroe and Martin counties. Use of the service is highly regarded by boaters and prevents thousands of gallons of sewage from being discharged into coastal waters each year.
- Currently, Martin County offers free pump-out services to any boat within the county boundary.

Goals/ Objectives to be achieved:

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

- FL Priorities Goal A1 / FL Priorities Goal C1, Obj. 4.
- SEFCRI LAS FDOU Issue 3 Goal Obj. 3.

N-75 Public Comment Report:

Land-Based Sources of Pollution

Promote/offer free pump out stations to better water quality and allow boats a better option than dumping waste offshore.

Quick Stats:

- Total number of comments on this RMA = 11
- This RMA was called out by 3 stakeholder groups and one individual via letters of support.
    - American Sportfishing Association/ Keep Florida Fishing Initiative
    - Coastal Conservation Association Florida
    - Personal Letter (MK)
    - Miami Waterkeeper
- The letters above state a general, blanket support for LBSP RMAs.
- Community Working Group response: Letters do not request any modifications to RMA. Letters were read and content discussed.

Long Responses:

11. "What do you support, or how could this RMA be changed to an action you could support?"

Category	Comment	Ref #	CWG response
Support	I support the very real probability that this will help curb offshore dumping.	1217	Read & Acknowledged
Support	There are already lots of free pump out stations in my area and when I have to pay, it is usually only a few dollars which is not very much. I could dump offshore if I wanted to but I am supportive of keeping sewage out of the water so I go out of my way to use pump out stations (even if I have to pay). I doubt it is the few dollars that is preventing pump outs but rather laziness to seek out the pump out stations. However, it is a good idea and it will save me a few dollars here and there.	1179	Read & Acknowledged
Support	Sounds like a great idea. Who is going to pay for it ?	1119	Read & Acknowledged
Support	funding pump out stations by a fee with the vehicle registration means some portion is paid for users and not all on taxpayers	20	Read & Acknowledged
Oppose	It would be great for boaters, but I believe there are better things to spend money on that will have a larger impact. I do not support this recommendation at this time.	1152	Read & Acknowledged
Other	Enforce regular pump-outs for all ahcnored boats.	58	Read & Acknowledged

12. "Other comments or input":

Category	Comment	Ref #	CWG response
Support	bottom of my list but still a plus	14	Read & Acknowledged
Support	While I wish that enforcement was the solution to this problem, a free pump out station is probably the most realistic, and likely to be used, option.	1217	Read & Acknowledged
Other	for the service to be effective there would have to be enough pump out stations to make it convenient to boaters, which could be very costly due to the boating activity here in south florida. Difficult to overcome the convenienve of dumping wherever you currently are unfortunately.	243	Read & Acknowledged

Title:

N-78: Reduce ground water pollution from sources such as septic and storage tank infrastructure to watersheds associated with priority reef areas to improve water quality and reef health.

Background:

- This recommended management action relates to all Southeast Florida Coral Reef Initiative (SEFCRI) counties, inlets and watersheds, as well as all associated coral reef, hardbottom, seagrass, oyster and mangrove habitats.
- This recommended management action is being proposed because groundwater is a major source of freshwater to estuarine and nearshore coastal waters in southeast Florida. Groundwater has been contaminated with pollutants that adversely affect coral reef ecosystems. SEFCRI partners need to identify groundwater pollution sources (to aquifers, subsurface flow), such as septic tanks, saltwater intrusion, deep-well injection and aquifer storage and recovery that affect priority watersheds and, subsequently, evaluate methods to remediate or contain the pollutants.

Objective:

- Some intended outcomes from implementing this recommended management action include: (1) improved groundwater quality, (2) identification of sources and types of pollutants, (3) reduction of septic tank use in the SEFCRI region, (4) implementation of advanced wastewater treatment before disposal via injection in deep wells, and (5) improved infrastructure to increase system capacity and reduce storm-driven treatment bypass events i.e. Combined and Sanitary Sewer Overflows (addressed in N-82).

Intended Benefits and/or Potential Adverse Effects:

- Potential advantages associated with this recommended management action include: (1) improved groundwater quality, (2) a reduction in land based sources of pollution (LBSP) loading to watersheds in southeast Florida, (3) reduction of pollution reaching reef areas, and (4) identification and tracking of sources of pollution in groundwater that may result in new partnerships within SEFCRI.
- No potential disadvantages of implementation of this recommended management action have been identified. There are no anticipated negative environmental impacts or threats of adverse social or economic effects.
- The duration of the benefits of this recommended management action would be recurring**.**
- Adverse consequences of not reducing groundwater pollution include continued water quality degradation, reduced wetland and aquatic ecological functions, and reduced aquifer capacity for human and environmental needs.

Agencies/ Organizations:

- The lead agencies for implementation of this recommended management action are the Florida Department of Environmental Protection (FDEP), ***the Florida Department of Health,*** ~~the South Florida Water Management District (SFWMD),~~ the United States Geological Survey (USGS), United States Environmental Protection Agency (EPA) and United States Army Corps of Engineers (USACE).
- Individuals or groups that can help draft proposed legislation need to be identified.
- Other potential agencies or organizations who could be involved include county water resource agencies, municipalities, and water utilities.
- The key stakeholders for this recommended management action would include water utilities and homeowners using septic systems.
- The RMA is consistent with local, state and federal laws and regulations.

Permitting/ Enforcement Requirements of RMA:

- There will be no permitting requirements for the recommended management action itself. However, individual projects will require permits.
- There are no enforcement requirements associated with this recommended management action.
- A measurable way to show success with this recommended management action is to quantify the reduction in septic system usage and the reduction of measurable pollutants found in groundwater.

Cost:

- The costs will depend on the level and scale of implementation.
- Potential funding may be acquired through EPA and FDEP.

Time Frame & Extent:

- The anticipated timeframe for implementation of this recommended management action is years to decades.

Miscellaneous Info:

- This recommended action is linked to all recommended management actions that propose to reduce LBSP to the southeast Florida coral reef ecosystem.
- Uncertainties and large information gaps within this recommended management action include the types of pollutants, their loads and the discharge rates to the watersheds (wet season/dry season).
- Supporting and relevant data includes the following:
    - C.D. Reich, P.W. Swarzenski, J.W. Greenwood, and D.S. Wiese. Investigation of Coastal Hydrogeology Utilizing Geophysical and Geochemical Tools along the Broward County Coast, Florida. United States Geological Survey. 2009. Open-File Report 2008-1364.
    - J. Carrie Futch, Dale W. Griffin and Erin K. Lipp. Human enteric viruses in groundwater indicate offshore transport of human sewage to coral reefs of the Upper Florida Keys. Environmental Microbiology 12 (4). 2010. pp. 964-974
    - Peter W. Swarzenski, William H. Orem Benjamin, F. McPherson, Mark Baskaran, Yongshan Wan. Biogeochemical Transport in the Loxahatchee River Estuary, Florida. 2006.
    - The role of submarine groundwater discharge. Marine Chemistry 101. 2006. pp. 248–265
    - Jonathan B. Martin, Jaye E. Cable, Christopher Smith, Moutusi Roy, and Jennifer Cherrier. Magnitudes of submarine groundwater discharge from marine and terrestrial sources: Indian River Lagoon, Florida. Water Resources Research. Vol 43, W05440. 2007.
- Relevant research is ongoing at Nova Southeastern University, USGS, Florida Atlantic University and the National Oceanic and Atmospheric Administration (NOAA).
    - Looking at the goals and objectives below, (cleaning up the water before it goes into the ground/or not putting it in there at all), there is uncertainty that they match up with the work being done by USGS, NOAA etc. whose work is more along the line of sampling groundwater wells and looking at what is in the water. As for status, the Total Maximum Daily Load (TMDL) process may be a possible pathway to address some of the above goals and it already exists. The Coastal Ocean taskforce also had similar recommendations, so collaborating with that group to develop legislation could be worthwhile.

Goals/ Objectives to be achieved:

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

- FL Priorities Goal C1, Obj. 4 / FL Priorities Goal C4 Obj. 5.
- SEFCRI LAS LBSP Issue 4 Goal Obj. 3.

N-78 Public Comment Report:

Land-Based Sources of Pollution

Reduce ground water pollution from sources such as septic and storage tank infrastructure to watersheds associated with priority reef areas to improve water quality and reef health.

Quick Stats:

- Total number of comments on this RMA = 10
- This RMA was called out by 4 stakeholder groups, one agency of the State (SFWMD), and one individual via letters of support.
    - American Sportfishing Association/ Keep Florida Fishing Initiative
    - Coastal Conservation Association Florida
    - Personal Letter (MK)
    - Miami Waterkeeper
    - West Palm Beach Fishing Club (1300 members)
    - South Florida Water Management District (SFWMD)
- The letters above state a general, blanket support for LBSP RMAs.
- Community Working Group response: Letters do not request any modifications to RMA. Letters were read and content discussed. Regarding SFWMD suggestion, group responds to remove SFWMD and replace with Dept. of Health in two-pager document.

Long Responses:

13. "What do you support, or how could this RMA be changed to an action you could support?":

Category	Comment	Ref #	CWG response
Support	This helps keep the earth clean and free from chemicals it does pollute earth or water for millions of animals that live there	877	Read & Acknowledged
Support	martin county commission is working at eliminting package plants and problem septic areas and requiring regional utility hook up for most urban growth. Other communities should also	24	Read & Acknowledged
Support	under ground storage tanks/septic should be made of material not penetrable by fluids - no seepage	300	Read & Acknowledged
Other	This RMA is short of details. First, how are you going to make the determination that a septic system, injection well, etc is causing pollution? There would have to be a cost associated with making this determination any this RMA does not even consider this expense. Next, what happens if you do find a source of pollution? Will the property owner be forced to	1182	Read & Acknowledged

	abandon their current system? What if they have no reasonable alternative? What if sewers are not in the area? Who will pay to upgrade an onsite system (for example going from septic to advance treatment with injection)? This RMA sounds nice but like so many of them is short on details and amounts to nothing more than an aspirational goal.		
Other	injection wells of ASPs are problematical - make sure effective treatment of dirty water happens before using these disposal methods	52	Read & Acknowledged

14. "Other comments or input":

Category	Comment	Ref #	CWG response
Support	important	16	Read & Acknowledged

Title:

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.

Background:

- This recommended management action relates to Miami-Dade, Broward, Palm Beach, and Martin counties, those of the Southeast Florida Coral Reef Initiative (SEFCRI) region, as well as other counties in watersheds linked to SEFCRI estuaries.
- This recommended management action is being put forth to address: (1) stormwater that is insufficiently treated or poorly managed and which detrimentally impacts the reef ecosystem, (2) the quality, quantity, timing, and distribution of said stormwater, (3) to improve the quality, velocity and volume of runoff, and (4) improve residential property owners' knowledge or understanding about how their actions on land impact coral reefs and the environment as a whole.
- Estuaries are not as healthy as they should be due largely to on stormwater runoff. Water quality is a major driver of the health of estuaries, including seagrass beds, mangrove forests or fringes and associated back-reef habitats. Counties have insufficient funds so partnerships may be necessary to collect enough money to cross any jurisdictional boundaries to put this recommended management action into effect.
- This recommended management action will address the fact that existing water quality standards and enforcement are both ineffective and inadequate, thereby resulting in poor estuary water quality and a degraded coral reef ecosystem.

Objective:

- The intended outcomes of this action are: (1) improved water quality resulting in ecosystem condition improvement for priority reef habitats in the SEFCRI region, (2) increased awareness among resident populations, (3) decreased or eliminated areas of unmanaged stormwater runoff, (4) identification of priority areas of coral reef habitat for conservation action and increased management, and (5) improved estuarine quality will have positive impacts on seagrass, oysters, mangroves and coral reefs.
- Strengthening water quality standards for runoff via standardized regulations and increased enforcement are needed. In the past, proposed standards to stop runoff were weakened so much in the political process that they became ineffective at protecting water quality in estuaries. There needs to be more enforcement through monitoring and reporting. There also needs to be public education on the importance of improved water quality and reducing land-based sources of pollution.
- The State of Florida and counties regulate stormwater treatment, so support for this recommended management action will entail acquiring more funding to continue the initiatives that will increase stormwater storage, treatment and contaminant removal, as well as surface water reuse.
- This recommended management action supports current work, including *Basin Management Action Plans* (BMAP), restoration efforts and research into the links between upland water quality and better estuarine and coral reef water quality.
    - Watershed-scale planning will work in areas with bad water quality - but not so bad that the basin has been designated as a BMAP basin.

- Possible improvements:
  - Green development projects could improve stormwater management and treatment
  - Create new outstanding Florida waters.
  - Use existing improvement measures such as Wellington Section 24, along with stormwater reservoirs proposed for the C-11 and C-51 basins.

Intended Benefits and/or Potential Adverse Effects:

- The anticipated benefits of implementation of this recommended management action include: (1) improved water quality, (2) improved and increased awareness of stormwater issues, (3) a reduction of stormwater runoff, (4) creation of additional 'natural' habitats and the introduction of natural landscapes into built areas, (5) raised visibility of the importance of estuary health, and (6) raised awareness needed to change behavior and reduce negative impacts.
- Planned projects are awaiting funding to begin. Thus, implementation of this recommended management action will put many projects into action.
- This recommended 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 reduced wildlife impacts.
- The anticipated negative impacts include: (1) increased costs, (2) land in those areas where rainwater runoff needs to be collected and treated is in short supply and expensive, (3) appropriately planted areas may be more expensive to maintain than traditional bahiagrass basins, (4) even if the project acquires enough start-up funding, maintenance and monitoring may not be funded so the overall project may still be under-funded, (5) stakeholder opposition to changes in/to the watershed may come from agricultural, golf courses and individual homeowners, and (6) there may be significant costs associated with education, retrofitting, monitoring, and enforcement.
- The duration of the benefits of this recommended management action are both ongoing and discrete. The planning process and identification of watersheds would be discrete. Monitoring and maintenance of anything installed or managed would be recurring, as would educational aspects of this recommended management action.
- An issue that may arise with implementation of this recommended management action is the negative economic impact resulting from (increased) project costs.
- If this recommended management action is not implemented continued degradation of estuarine and coastal water quality is expected.

Agencies/ Organizations:

- The lead agencies for implementation of this recommended management action are ***local governments*** ~~municipalities~~, with coordination from the South Florida Water Management District (SFWMD).
- Other agencies or organizations that may participate include the Florida Department of Environmental Protection (FDEP), the *Florida* Department of Agriculture and Consumer Services (FDAC), the National Oceanic and Atmospheric Administration (NOAA) and NOAA's Coral Reef Conservation Program (CRCP).
- The key stakeholders for this recommended management action are utilities, municipalities, state regulators (FDEP, SFWMD, FDAC), and county regulators (e.g. health departments permitting septic tanks).

- This recommended management action is consistent with local, state and federal laws protecting water quality.

Permitting/ Enforcement Requirements of MA:

- Permitting requirements exist for any construction projects.
- A metric to measure the success of this recommended management action is targeted water quality monitoring in the estuarine and marine waters of Inlet Contributing Areas, with a focus on land-based sources of pollution.

Cost:

- The estimated direct cost of implementing this recommended management action depends on the scale and type of implementation.
- Potential funding may be acquired through the state legislature, county/local governments and federal grants, including the United States Environmental Protection Agency's 319 grant program.

Time Frame & Extent:

- The anticipated timeframe for implementation of this recommended management action is dependent on project scale. Some short-term pilot projects could be completed within 1 - 2 years, while other, larger projects could have a 5-year timeframe. Ecosystem-scale projects would have timeframes of 10 years or more.

Miscellaneous Info:

- This recommended management action is not linked to any other recommended management action nor does it conflict with any other recommended management action.
- No uncertainties or gaps with this recommended management action were indicated.
- Supporting and relevant data includes the following:
    - N. Pickering, and E. Baker. Watershed Scale Planning to Reduce the Land-Based Sources of Pollution (LBSP) for the Protection of Coral Reefs in Southeast Florida. 2015. Prepared for the National Oceanographic and Atmospheric Administration. Horsley Witten Group. Sandwich, MA.
    - K. Gregg, Literature Review and Synthesis of Land-Based Sources of Pollution Affecting Essential Fish Habitats in Southeast Florida. 2013. Prepared for: NOAA Fisheries, Southeast Region, Habitat Conservation Division. Coral Reef Conservation Program. West Palm Beach, Florida.
- The State of Florida currently regulates activities that affect estuarine resources and water quality. SFWMD rules apply the state's authority to the project-scale and regional-scale in southeast Florida. These regulated activities are often evaluated separately.

Goals/ Objectives to be Achieved:

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

- FL Priorities Goal C1 Obj. 1 / FL Priorities Goal C2 / FL Priorities Goal C2 Obj. 3 / FL Priorities Goal C2 Obj. 4.

N-82 Public Comment Report:

Land-Based Sources of Pollution

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.

Quick Stats:

- Total number of comments on this RMA = 8
- This RMA was called out by 4 stakeholder groups, one agency of the State (SFWMD), and one individual via letters of support.
    - American Sportfishing Association/ Keep Florida Fishing Initiative
    - Coastal Conservation Association Florida
    - Personal Letter (MK)
    - Miami Waterkeeper
    - West Palm Beach Fishing Club (1300 members)
    - South Florida Water Management District (SFWMD)
- The letters above state a general, blanket support for LBSP RMAs.
- Community Working Group response: Letters do not request any modifications to RMA. Letters were read and content discussed. Regarding SFWMD suggestion, group responds to change municipalities to local governments. SFWMD is not listed as a lead agency, no change needed there.

Long Responses:

15. "What do you support, or how could this RMA be changed to an action you could support?":

Category	Comment	Ref #	CWG response
Support	Good idea.	1183	Read & Acknowledged
Support	Programs that reduce Storm water discharge and stop the flow of fresh water in to the Loxachatee and Indian river !!! that water has the most impact to the reef. that needs to happen now!	853	Read & Acknowledged
Support	stormwater "pre" vs "post" rules are not "pre=post" dumping stormwater so it impacts our lagoons is critical	29	Read & Acknowledged
Oppose	I don't support the costs. I feel that many people are aware of the storm water issues. Creating a program to make people more aware and manage storm water is not the best used of funding at this time. I don't support the costs at this time.	1153	Read & Acknowledged

16. "Other comments or input":

Category	Comment	Ref #	CWG response
Support	Important	13	Read & Acknowledged
Support	2nd most important	29	Read & Acknowledged

Title:

N-94: ~~Develop and implement a "Green" Club~~ ***Support and promote a certification program and adaptive BMPs for all*** **golf courses (similar to Blue Star for dive industry and clean marina programs) to provide an incentive mechanism for golf courses ~~to reduce their impact on the marine environment~~** ***to eliminate adverse impacts on the coastal environment and its watershed.***

Background:

- This recommended management action relates to the estuaries, reefs, and watersheds of the entire Southeast Florida Coral Reef Initiative (SEFCRI) region and Monroe County.
- This recommended management action is being proposed to: (1) reduce the amount of pollution (pesticides, herbicides and fertilizers) coming from existing golf courses in the region, (2) reduce water consumption by reducing the volume of freshwater necessary for irrigation, and (3) raise awareness, and improve water quality and reef condition. A recommendation was made that a flag similar to that of the Clean Marina programs be provided for the golf courses to fly.
- Establishment of criteria for the award system would be a discrete action that would ideally be completed in one year. However, recertification and the award system logistics would be an ongoing effort.

Objective:

- The intended outcomes of this action are: (1) establish a regional recognition system e.g. "Green Club" for golf courses, (2) improve awareness among golf club management, maintenance personnel, operation personnel, and golfers about course impacts on coral reefs and estuaries, (3) potentially decrease coral reef impacts, (4) conserve water, (5) stop nutrient, pesticide, herbicide, hydrocarbon (e.g. mowers, edgers, leaf blowers) and cart battery runoff, (6) improve awareness among golf club management, personnel, and golfers about the amount of water required to maintain a course per round of golf played, (7) identify and implement Best Management Practices (BMPs) (e.g., replace turf grasses with salt-water tolerant species), (8) make the program a tiered certification (similar to LEED) so that the golf courses will compete amongst each other for higher recognitions, and (9) reduce occurrence of golf balls on reefs (e.g. Broward County).
- Examples of grasses that could be used for BMPs include *Paspalum vaginatum, Sporobolus virginicus, Distichlis spicata,* which can be irrigated with saltwater. Another species that is salt-water tolerant is common Bermuda grass. This practice represents cost savings associated with reduced pesticides (and potentially fertilizer) usage since saltwater is a natural weed/pest killer. Irrigation systems, however, must be saltwater capable and saltwater could affect golf carts and other equipment.

Intended Benefits and/or Potential Adverse Effects:

- Benefits of implementation of this recommended management action include: (1) long-lasting reduction of land-based sources of pollution (LBSP), (2) improved water quality leading to improved reef condition with an opportunity to engage golf industry in coral reef conservation, and (3) creation of a new option for reef-conscious users and one which also raises reef awareness of existing golfers.
- There are no anticipated negative environmental impacts, although a potential negative social/economic impact may be a short-term increased cost on industry to meet certification requirements. Certification, however, would be voluntary.

- Failure to implement this recommended management action entails ignoring a potentially large source of LBSP entering the surface waters of southeast Florida.

Agencies/ Organizations:

- The lead agency for implementation of this recommended management action would be the National Audubon Society through their *Audubon Cooperative Sanctuary Program*. See http://www.audubonintemational.org/acspgolf
- Other potential agencies or organizations who could be involved include the Florida Department of Environmental Protection, which would implement the tiered certification aspect of this recommended management action.
- The key stakeholders for this recommended management action would be golfers and any individual who uses the reefs.
- There are no legislative considerations associated with this recommended management action.

Permitting/ Enforcement Requirements of RMA:

- There are no permitting requirements with this recommended management action, although implementation would require some permitting.
- Means of measuring the success of this recommended management action include measured improvements in water quality and decreased presence of pesticides, herbicides and nutrients in inlets associated with certified golf courses.

Cost:

- The estimated direct cost of implementing this recommended management action would be a onetime cost of $100,000, with ongoing costs of $20,000 for staff and outreach.
- Potential funding may be acquired through the United States Environmental Protection Agency and non-profit organizations.

Time Frame & Extent:

- The anticipated timeframe for implementation of this recommended management action is 1 year to set up certification program, and 3 years to get a significant number (10%) of regional golf courses certified.

Miscellaneous Info:

- This recommended management action is not linked to any other recommended management actions.
- No uncertainties or information gaps for this recommended management action were identified.
- Supporting and relevant data would need to include additional regional studies to determine the loading/concentration of pollutants and therefore potential benefits.
- Currently the National Audubon Society offers a golf course certification via is Cooperative Sanctuary Program for Golf Courses, which focuses on protecting bird populations. This recommended management action would be regionally specific and focus on pollutants impacting coral reefs. The hope is that a well-known non-profit (e.g. Audubon) would lead this effort.

Goals/ Objectives to be achieved:

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

- FL Priorities Goal C1.
- FDEP CRCP Coral Reef Ecosystem Conservation Goal 8 Obj. 3.
- SEFCRI LAS LBSP Issue Goal 5.

N-94 Public Comment Report:

Land-Based Sources of Pollution

~~Develop and implement a "Green" Club~~ *Create, support and promote a certification program and adaptive Best Management Practices for all* golf courses (similar to Blue Star for dive industry and clean marina programs) to provide an incentive mechanism for golf courses ~~to reduce their impact on the marine environment~~ *to eliminate adverse impacts on the coastal environment and its watershed.*

Quick Stats:

- Total number of comments on this RMA = 18
- This RMA was called out by 5 stakeholder groups and one individual via letters of support.
    - American Sportfishing Association/ Keep Florida Fishing Initiative
    - Coastal Conservation Association Florida
    - Personal Letter (MK)
    - Miami Waterkeeper
    - Golf Course Superintendents Association of Florida
    - The letters above state a general, blanket support for LBSP RMA, with the exception of the Golf Course Superintendents Association of Florida, which notes that a BMP program currently exists for golf courses in the state of Florida.
- Community Working Group response: Letters, with exception of GCSA, do not request any modifications to RMA. GCSA opposes RMA on basis they it has its own program of BMPs. Letters were read and content discussed. Group's suggested change: Change verbage from "Develop and implement a "Green" club certification" to: Support and promote a certification program and adaptive BMPs for all golf courses (similar to Blue Star for dive industry and clean marina programs) to provide incentives for all golf courses to eliminate adverse impacts on the coastal environment and its watershed.

Long Responses:

17. "What do you support, or how could this RMA be changed to an action you could support?":

Category	Comment	Ref #	CWG response
Support	Good idea to limit one source of land based pollution.	1184	Read & Acknowledged

Support	The River is in very bad shape and needs serious help to get it cleaned up.	1038	Read & Acknowledged
Support	there are some excellent colf course practices- they need to be more universal	19	Read & Acknowledged
Support	particularly golf courses along waterways. Golf couses use so many chemicals but are also important green spaces	108	Read & Acknowledged
Oppose	As a Golf Course Superintendent, I'm a proud steward of our environment in Florida. As a member of the Florida GCSA I proudly support my profession, the Association and our "Green Club" certification program for golf courses; called the Golf Course Best Management Practices (BMP) Certification Program. Our industry takes proactive measures to demonstrate our responsibility to the environment. In 2012, we implemented a voluntary Golf Best Management Practices (BMP) Certification Program that we developed in cooperation with the Florida Department of Environmental Protection, United States Golf Association Green Section, and the University of Florida. The goal was to agree on attainable management practices to keep golf a profitable business in Florida while protecting state water and natural resources, according to the Clean Water Act and other state and local ordinances. Participants receive training using the "Best Management Practices for the Enhancement of Environmental Quality on Florida Golf Course" handbook which includes the following: • Environmental Concepts • Environmental Monitoring • Design and Construction • Irrigation • Nutrition and Fertilization • Cultural Practices • Lake and Aquatic Plant Management • Turfgrass Pest Management • Pesticide Management • Maintenance Operations Participants must also pass a comprehensive exam to earn the Certification. Our program has been recognized across the country and continues to be the model for other BMP Programs. Through these efforts, the Florida GCSA was recently recognized by the Golf Course Superintendents Association of America with the 2015 Excellence in Government Relations Award. The Florida GCSA believes that Florida superintendents are truly environmental stewards and by providing a certified program, we will continue to demonstrate our positive respect and	1050	Only eight of SFs 300 golf courses submitted negative letter. "Oppose" comments are not about concept or idea of RMA, but rather state one such version has already been created. Golf courses are nutrient sources. Green courses reuse water per. Problem: no monitoring or policing. Can't confirm leachate. Golf course association claims may be false. Paspallum expensive and has its own problems. Working Group suggests following change: Change verbage from "Develop and implement a "Green" club certification" to: Support and promote a

	impact on the environment. In addition to our program, the Green Industry-BMP (Gi-BMP) is a science based educational program for all green industry workers (lawn Care and landscape maintenance professionals), operated by the University of Florida/IFAS Florida Friendly Landscaping Program. The Gi-BMPs teach environmentally safe landscaping practices that help conserve and protect Florida's ground and surface waters. All commercial fertilizer applicators must have this certification as well as a Limited Commercial Fertilizer Applicator Certificate (LCFAC) that is issued by FDACS. The industry supports efforts to insure compliance. Many non-commercial industry applicators are required to pass training by local ordinances or voluntarily participate in the program to better serve their clients. Both of these programs are already in place and would eliminate the need for a "Green Club" certification as indicated in your final recommendation report. And finally, I urge you to solicit peer-reviewed science related to such topics as nutrients and runoff/leaching, the use of glyphosate, and attributes of Paspalum versus other varieties as referenced in your report. For example, although Paspalum has many positive benefits given the right set of conditions, it's not the universal solution for many, if not most lawn and golf course applications, as section 7.Vii would have you believe. It is more important to have the right plant in the right place. I would encourage you to reach out to the turf and research scientists of University of Florida/IFAS for more information. They have been instrumental in working alongside our Association making sure that we are using the best scientifically proven methods to maintain golf courses across the state while protecting Florida's environmental quality and communities. As you can see, our industry is already taking the appropriate actions and because of this I do not support, nor find necessary, Recommendations N-68 and N-94. Respectfully, Brett Sullivan Pine Tree Golf Club		certification program and adaptive BMPs for all golf courses (similar to Blue Star for dive industry and clean marina programs) to provide incentives for all golf courses to eliminate adverse impacts on the coastal environment and its watershed.
Oppose	As a Golf Course Superintendent, I'm a proud steward of our environment in Florida. As a member of the Florida GCSA I proudly support my profession, the Association and our "Green	1046	See above comment

	Club" certification program for golf courses; called the Golf Course Best Management Practices (BMP) Certification Program. Our industry takes proactive measures to demonstrate our responsibility to the environment. In 2012, we implemented a voluntary Golf Best Management Practices (BMP) Certification Program that we developed in cooperation with the Florida Department of Environmental Protection, United States Golf Association Green Section, and the University of Florida. The goal was to agree on attainable management practices to keep golf a profitable business in Florida while protecting state water and natural resources, according to the Clean Water Act and other state and local ordinances. Participants receive training using the "Best Management Practices for the Enhancement of Environmental Quality on Florida Golf Course" handbook which includes the following: • Environmental Concepts • Environmental Monitoring • Design and Construction • Irrigation • Nutrition and Fertilization • Cultural Practices • Lake and Aquatic Plant Management • Turfgrass Pest Management • Pesticide Management • Maintenance Operations Participants must also pass a comprehensive exam to earn the Certification. Our program has been recognized across the country and continues to be the model for other BMP Programs. Through these efforts, the Florida GCSA was recently recognized by the Golf Course Superintendents Association of America with the 2015 Excellence in Government Relations Award. The Florida GCSA believes that Florida superintendents are truly environmental stewards and by providing a certified program, we will continue to demonstrate our positive respect and impact on the environment. In addition to our program, the Green Industry-BMP (Gi-BMP) is a science based educational program for all green industry workers (lawn Care and landscape maintenance professionals), operated by the University of Florida/IFAS Florida Friendly Landscaping Program. The Gi-BMPs teach environmentally safe landscaping practices that help conserve and protect Florida's ground and surface waters. All commercial fertilizer		

	applicators must have this certification as well as a Limited Commercial Fertilizer Applicator Certificate (LCFAC) that is issued by FDACS. The industry supports efforts to insure compliance. Many non-commercial industry applicators are required to pass training by local ordinances or voluntarily participate in the program to better serve their clients. Both of these programs are already in place and would eliminate the need for a "Green Club" certification as indicated in your final recommendation report. And finally, I urge you to solicit peer-reviewed science related to such topics as nutrients and runoff/leaching, the use of glyphosate, and attributes of Paspalum versus other varieties as referenced in your report. For example, although Paspalum has many positive benefits given the right set of conditions, it's not the universal solution for many, if not most lawn and golf course applications, as section 7.Vii would have you believe. It is more important to have the right plant in the right place. I would encourage you to reach out to the turf and research scientists of University of Florida/IFAS for more information. They have been instrumental in working alongside our Association making sure that we are using the best scientifically proven methods to maintain golf courses across the state while protecting Florida's environmental quality and communities. As you can see, our industry is already taking the appropriate actions and because of this I do not support, nor find necessary, Recommendations N-68 and N-94. Respectfully, Wesley Dinsmoor		
Oppose	You do not need to reinvent the wheel. we have these systems in place already	1044	See above comment

18. "Other comments or input":

Category	Comment	Ref #	CWG response
Oppose	As a Golf Course Superintendent, I'm a proud steward of our environment in Florida. As a member of the Florida GCSA I proudly support my profession, the Association and our "Green Club" certification program for golf courses; called the Golf Course Best Management Practices (BMP) Certification Program. Our industry takes proactive measures to demonstrate our	1296	See above comment

	responsibility to the environment. In 2012, we implemented a voluntary Golf Best Management Practices (BMP) Certification Program that we developed in cooperation with the Florida Department of Environmental Protection, United States Golf Association Green Section, and the University of Florida. The goal was to agree on attainable management practices to keep golf a profitable business in Florida while protecting state water and natural resources, according to the Clean Water Act and other state and local ordinances. Participants receive training using the "Best Management Practices for the Enhancement of Environmental Quality on Florida Golf Course" handbook which includes the following: • Environmental Concepts • Environmental Monitoring • Design and Construction • Irrigation • Nutrition and Fertilization • Cultural Practices • Lake and Aquatic Plant Management • Turfgrass Pest Management • Pesticide Management • Maintenance Operations Participants must also pass a comprehensive exam to earn the Certification. Our program has been recognized across the country and continues to be the model for other BMP Programs. Through these efforts, the Florida GCSA was recently recognized by the Golf Course Superintendents Association of America with the 2015 Excellence in Government Relations Award. The Florida GCSA believes that Florida superintendents are truly environmental stewards and by providing a certified program, we will continue to demonstrate our positive respect and impact on the environment. In addition to our program, the Green Industry-BMP (Gi-BMP) is a science based educational program for all green industry workers (lawn Care and landscape maintenance professionals), operated by the University of Florida/IFAS Florida Friendly Landscaping Program. The Gi-BMPs teach environmentally safe landscaping practices that help conserve and protect Florida's ground and surface waters. All commercial fertilizer applicators must have this certification as well as a Limited Commercial Fertilizer Applicator Certificate (LCFAC) that is issued by FDACS. The industry supports efforts to insure compliance. Many non-commercial industry applicators are required to pass training by local ordinances or voluntarily participate in the program to		

	better serve their clients. Both of these programs are already in place and would eliminate the need for a "Green Club" certification as indicated in your final recommendation report. And finally, I urge you to solicit peer-reviewed science related to such topics as nutrients and runoff/leaching, the use of glyphosate, and attributes of Paspalum versus other varieties as referenced in your report. For example, although Paspalum has many positive benefits given the right set of conditions, it's not the universal solution for many, if not most lawn and golf course applications, as section 7.Vii would have you believe. It is more important to have the right plant in the right place. I would encourage you to reach out to the turf and research scientists of University of Florida/IFAS for more information. They have been instrumental in working alongside our Association making sure that we are using the best scientifically proven methods to maintain golf courses across the state while protecting Florida's environmental quality and communities. As you can see, our industry is already taking the appropriate actions and because of this I do not support, nor find necessary, Recommendations N-68 and N-94. Respectfully, Erik J. Thor		
Oppose	As a Golf Course Superintendent, I'm a proud steward of our environment in Florida. As a member of the Florida GCSA I proudly support my profession, the Association and our "Green Club" certification program for golf courses; called the Golf Course Best Management Practices (BMP) Certification Program. Our industry takes proactive measures to demonstrate our responsibility to the environment. In 2012, we implemented a voluntary Golf Best Management Practices (BMP) Certification Program that we developed in cooperation with the Florida Department of Environmental Protection, United States Golf Association Green Section, and the University of Florida. The goal was to agree on attainable management practices to keep golf a profitable business in Florida while protecting state water and natural resources, according to the Clean Water Act and other state and local ordinances. Participants receive training using the "Best Management Practices for the Enhancement of Environmental Quality on Florida Golf Course" handbook which includes the following: • Environmental Concepts	1057	See above comment.

	• Environmental Monitoring • Design and Construction • Irrigation • Nutrition and Fertilization • Cultural Practices • Lake and Aquatic Plant Management • Turfgrass Pest Management • Pesticide Management • Maintenance Operations Participants must also pass a comprehensive exam to earn the Certification. Our program has been recognized across the country and continues to be the model for other BMP Programs. Through these efforts, the Florida GCSA was recently recognized by the Golf Course Superintendents Association of America with the 2015 Excellence in Government Relations Award. The Florida GCSA believes that Florida superintendents are truly environmental stewards and by providing a certified program, we will continue to demonstrate our positive respect and impact on the environment. In addition to our program, the Green Industry-BMP (Gi-BMP) is a science based educational program for all green industry workers (lawn Care and landscape maintenance professionals), operated by the University of Florida/IFAS Florida Friendly Landscaping Program. The Gi-BMPs teach environmentally safe landscaping practices that help conserve and protect Florida's ground and surface waters. All commercial fertilizer applicators must have this certification as well as a Limited Commercial Fertilizer Applicator Certificate (LCFAC) that is issued by FDACS. The industry supports efforts to insure compliance. Many non-commercial industry applicators are required to pass training by local ordinances or voluntarily participate in the program to better serve their clients. Both of these programs are already in place and would eliminate the need for a "Green Club" certification as indicated in your final recommendation report. And finally, I urge you to solicit peer-reviewed science related to such topics as nutrients and runoff/leaching, the use of glyphosate, and attributes of Paspalum versus other varieties as referenced in your report. For example, although Paspalum has many positive benefits given the right set of conditions, it's not the universal solution for many, if not most lawn and golf course applications, as section 7.Vii would have you believe. It is more		

	important to have the right plant in the right place. I would encourage you to reach out to the turf and research scientists of University of Florida/IFAS for more information. They have been instrumental in working alongside our Association making sure that we are using the best scientifically proven methods to maintain golf courses across the state while protecting Florida's environmental quality and communities. As you can see, our industry is already taking the appropriate actions and because of this I do not support, nor find necessary, Recommendations N-68 and N-94. Respectfully, Matt Sorrell Pine Tree Golf Club		
Oppose	As a Golf Course Superintendent, I'm a proud steward of our environment in Florida. As a member of the Florida GCSA I proudly support my profession, the Association and our "Green Club" certification program for golf courses; called the Golf Course Best Management Practices (BMP) Certification Program. Our industry takes proactive measures to demonstrate our responsibility to the environment. In 2012, we implemented a voluntary Golf Best Management Practices (BMP) Certification Program that we developed in cooperation with the Florida Department of Environmental Protection, United States Golf Association Green Section, and the University of Florida. The goal was to agree on attainable management practices to keep golf a profitable business in Florida while protecting state water and natural resources, according to the Clean Water Act and other state and local ordinances. Participants receive training using the "Best Management Practices for the Enhancement of Environmental Quality on Florida Golf Course" handbook which includes the following: • Environmental Concepts • Environmental Monitoring • Design and Construction • Irrigation • Nutrition and Fertilization • Cultural Practices • Lake and Aquatic Plant Management • Turfgrass Pest Management • Pesticide Management • Maintenance Operations Participants must also pass a comprehensive exam to earn the Certification.	1048	See above comment

	Our program has been recognized across the country and continues to be the model for other BMP Programs. Through these efforts, the Florida GCSA was recently recognized by the Golf Course Superintendents Association of America with the 2015 Excellence in Government Relations Award. The Florida GCSA believes that Florida superintendents are truly environmental stewards and by providing a certified program, we will continue to demonstrate our positive respect and impact on the environment. In addition to our program, the Green Industry-BMP (Gi-BMP)is a science based educational program for all green industry workers (lawn Care and landscape maintenance professionals), operated by the University of Florida/IFAS Florida Friendly Landscaping Program. The Gi-BMPs teach environmentally safe landscaping practices that help conserve and protect Florida's ground and surface waters. All commercial fertilizer applicators must have this certification as well as a Limited Commercial Fertilizer Applicator Certificate (LCFAC) that is issued by FDACS. The industry supports efforts to insure compliance. Many non-commercial industry applicators are required to pass training by local ordinances or voluntarily participate in the program to better serve their clients. Both of these programs are already in place and would eliminate the need for a "Green Club" certification as indicated in your final recommendation report. And finally, I urge you to solicit peer-reviewed science related to such topics as nutrients and runoff/leaching, the use of glyphosate, and attributes of Paspalum versus other varieties as referenced in your report. For example, although Paspalum has many positive benefits given the right set of conditions, it's not the universal solution for many, if not most lawn and golf course applications, as section 7.Vii would have you believe. It is more important to have the right plant in the right place. I would encourage you to reach out to the turf and research scientists of University of Florida/IFAS for more information. They have been instrumental in working alongside our Association making sure that we are using the best scientifically proven methods to maintain golf courses across the state while protecting Florida's environmental quality and communities. As you can see, our industry is already taking the appropriate actions and because of this I do not support, nor find necessary, Recommendations N-68 and N-94.		

	Respectfully,		
Oppose	As a Golf Course Superintendent, I'm a proud steward of our environment in Florida. As a member of the Florida GCSA I proudly support my profession, the Association and our "Green Club" certification program for golf courses; called the Golf Course Best Management Practices (BMP) Certification Program. Our industry takes proactive measures to demonstrate our responsibility to the environment. In 2012, we implemented a voluntary Golf Best Management Practices (BMP) Certification Program that we developed in cooperation with the Florida Department of Environmental Protection, United States Golf Association Green Section, and the University of Florida. The goal was to agree on attainable management practices to keep golf a profitable business in Florida while protecting state water and natural resources, according to the Clean Water Act and other state and local ordinances. Participants receive training using the "Best Management Practices for the Enhancement of Environmental Quality on Florida Golf Course" handbook which includes the following: • Environmental Concepts • Environmental Monitoring • Design and Construction • Irrigation • Nutrition and Fertilization • Cultural Practices • Lake and Aquatic Plant Management • Turfgrass Pest Management • Pesticide Management • Maintenance Operations Participants must also pass a comprehensive exam to earn the Certification. Our program has been recognized across the country and continues to be the model for other BMP Programs. Through these efforts, the Florida GCSA was recently recognized by the Golf Course Superintendents Association of America with the 2015 Excellence in Government Relations Award. The Florida GCSA believes that Florida superintendents are truly environmental stewards and by providing a certified program, we will continue to demonstrate our positive respect and impact on the environment. In addition to our program, the Green Industry-BMP (Gi-BMP) is a science based educational program for all green industry	1044	See above comment

	workers (lawn Care and landscape maintenance professionals), operated by the University of Florida/IFAS Florida Friendly Landscaping Program. The Gi-BMPs teach environmentally safe landscaping practices that help conserve and protect Florida's ground and surface waters. All commercial fertilizer applicators must have this certification as well as a Limited Commercial Fertilizer Applicator Certificate (LCFAC) that is issued by FDACS. The industry supports efforts to insure compliance. Many non-commercial industry applicators are required to pass training by local ordinances or voluntarily participate in the program to better serve their clients. Both of these programs are already in place and would eliminate the need for a "Green Club" certification as indicated in your final recommendation report. And finally, I urge you to solicit peer-reviewed science related to such topics as nutrients and runoff/leaching, the use of glyphosate, and attributes of Paspalum versus other varieties as referenced in your report. For example, although Paspalum has many positive benefits given the right set of conditions, it's not the universal solution for many, if not most lawn and golf course applications, as section 7.Vii would have you believe. It is more important to have the right plant in the right place. I would encourage you to reach out to the turf and research scientists of University of Florida/IFAS for more information. They have been instrumental in working alongside our Association making sure that we are using the best scientifically proven methods to maintain golf courses across the state while protecting Florida's environmental quality and communities. As you can see, our industry is already taking the appropriate actions and because of this I do not support, nor find necessary, Recommendations N-68 and N-94. Respectfully,		
Oppose	As a Golf Course Superintendent, I'm a proud steward of our environment in Florida. As a member of the Florida GCSA I proudly support my profession, the Association and our "Green Club" certification program for golf courses; called the Golf Course Best Management Practices (BMP) Certification Program. Our industry takes proactive measures to demonstrate our responsibility to the environment. In 2012, we implemented a voluntary Golf Best Management Practices (BMP) Certification Program that we developed in cooperation with the Florida	1037	See above comment

	Department of Environmental Protection, United States Golf Association Green Section, and the University of Florida. The goal was to agree on attainable management practices to keep golf a profitable business in Florida while protecting state water and natural resources, according to the Clean Water Act and other state and local ordinances. Participants receive training using the "Best Management Practices for the Enhancement of Environmental Quality on Florida Golf Course" handbook which includes the following: • Environmental Concepts • Environmental Monitoring • Design and Construction • Irrigation • Nutrition and Fertilization • Cultural Practices • Lake and Aquatic Plant Management • Turfgrass Pest Management • Pesticide Management • Maintenance Operations Participants must also pass a comprehensive exam to earn the Certification. Our program has been recognized across the country and continues to be the model for other BMP Programs. Through these efforts, the Florida GCSA was recently recognized by the Golf Course Superintendents Association of America with the 2015 Excellence in Government Relations Award. The Florida GCSA believes that Florida superintendents are truly environmental stewards and by providing a certified program, we will continue to demonstrate our positive respect and impact on the environment. In addition to our program, the Green Industry-BMP (Gi-BMP) is a science based educational program for all green industry workers (lawn Care and landscape maintenance professionals), operated by the University of Florida/IFAS Florida Friendly Landscaping Program. The Gi-BMPs teach environmentally safe landscaping practices that help conserve and protect Florida's ground and surface waters. All commercial fertilizer applicators must have this certification as well as a Limited Commercial Fertilizer Applicator Certificate (LCFAC) that is issued by FDACS. The industry supports efforts to insure compliance. Many non-commercial industry applicators are required to pass training by local ordinances or voluntarily participate in the program to better serve their clients. Both of these programs are already in place and would eliminate		

	the need for a “Green Club” certification as indicated in your final recommendation report. And finally, I urge you to solicit peer-reviewed science related to such topics as nutrients and runoff/leaching, the use of glyphosate, and attributes of Paspalum versus other varieties as referenced in your report. For example, although Paspalum has many positive benefits given the right set of conditions, it’s not the universal solution for many, if not most lawn and golf course applications, as section 7.Vii would have you believe. It is more important to have the right plant in the right place. I would encourage you to reach out to the turf and research scientists of University of Florida/IFAS for more information. They have been instrumental in working alongside our Association making sure that we are using the best scientifically proven methods to maintain golf courses across the state while protecting Florida’s environmental quality and communities. As you can see, our industry is already taking the appropriate actions and because of this I do not support, nor find necessary, Recommendations N-68 and N-94. Respectfully, Steven M. Wright CGCS Pine Tree Golf Club !0600 Pine Tree Terrace Boynton Beach, Fl. 33436 561-734-9688		
Oppose	this RMA is reinventing the wheel! There already is a very good program for gold courses in existance. Aubadan and 2 others in europe, use those. Push golf courses to enroll in those programs.	165	See above comment
Other	some do good job -encourage existing ones don’t build more	9	Read & Acknowledged

Title:

N-97: Target, prioritize, and implement land-based sources of pollution reduction activities at identified pollution hotspots within Southeast Florida Coral Reef Initiative watersheds to improve coastal water quality.

Background:

- This recommended management action relates to one watershed or Inlet Contributing Area (ICA) in each of the four counties within the Southeast Florida Coral Reef Initiative (SEFCRI) region, as well as the watersheds upstream of the SEFCRI region.
- This recommended management action is being proposed to locate sources of stormwater pollution flowing into creeks, rivers, canals and lagoons that eventually reach southeast Florida's coral reefs and to aid in the reduction of stormwater runoff from private properties. Given the difficulty of pinpointing specific pollutant sources and the high cost of land-based sources of pollution (LBSP) reduction activities, this recommended action would help agencies and SEFCRI partners focus resources on priority reef areas and maximize the efficient use of funding. The pilot LBSP reduction approach would be evaluated in terms of effectiveness in improving water quality and, subsequently, reef condition, after which it could be considered for implementation along the entire reef tract.

Objective:

- The intended outcome of this action is improved water quality inputs from watersheds, rivers and lagoons leading to the reefs. Improvements in water quality in priority watersheds will lead to improved estuary health and reef conditions due to reduced or eliminated point sources of pollution. This action will also help restore groundwater hydrology/storage by reducing runoff and discharges to southeast Florida estuaries.

Intended Benefits and/or Potential Adverse Effects:

- Benefits of implementation of this recommended management action include: (1) reduced usage of pesticides and fertilizers to improve water quality in watersheds, (2) ameliorated salinity fluctuations, (3) reduced siltation and erosion, (4) potential improvement of shellfish habitat, (5) potential reopening of closed shellfish harvest areas, (6) improved recreational fishing, (7) fewer beach closures, and (8) the promotion of water reuse.
- Some potential disadvantages of implementation of this recommended management action include: (1) funding for increased monitoring, (2) developing effective enforcement, (3) focus on specific areas may draw efforts and attention away from areas that have not been prioritized for this recommended action, (4) being able to prove number of ppm is harmful to environment, (5) cost of retrofitting existing infrastructure, (6) opposition to changes in the status quo, potential for inconsistencies if working on a county-by-county basis, (7) source of pollution may be outside SEFCRI region, (8) technological hurdles in retrofitting, and (9) options may be fewer in historic neighborhoods.
- Negative environmental impacts are not expected to result from this action. However, if point sources of pollution into the aquatic environment are eliminated, other means of disposal will need to be found. This unintended consequence may have negative impacts in other areas. The cost of implementing this recommended action will be borne by taxpayers. If utilities and private industry are the point sources they will have to cover costs.
- The duration of benefits of this recommended management action are recurring, with outfall and/or source monitoring endeavored as a continuing process. The timeframe for implementation of this recommended management action is 5-10 years.
- Continued pollution of our rivers, lagoons and bays - and subsequent degradation of our reefs - will

occur if this recommended management action is not implemented.

Agencies/ Organizations:

- The lead agencies for implementation of this recommended management action are the Florida Department of Environmental Protection, United States Environmental Protection Agency and Florida Department of Health.
- Other potential participants include waste management agencies.
- The key stakeholders for this recommended management action are businesses and utilities responsible for point-source pollution.
- There are no known conflicts with any existing laws or regulations.

Permitting/ Enforcement Requirements of RMA:

- Permitting requirements for this recommended management action include permits for construction and removal of existing outfalls, along with permits for the disposal of pollutants.
- There are no enforcement requirements for this recommended management action.
- A measurable way of indicating success of this recommended management action is improved water quality in the vicinity of existing point sources of pollution and surface waters of SE Florida.

Cost:

- The estimated direct cost of implementing this recommended management action is greater than $250,000, though this amount is highly variable.
- Potential funding sources include taxpayers, utility customers and polluters (industrial).

Time Frame & Extent:

- The anticipated timeframe for implementation of this recommended management action has not been identified.

Miscellaneous Info:

- This recommended management action is linked to S-25. Information received from the water quality monitoring proposed here will be valuable to other recommended management actions.
- Some uncertainties or gaps with this recommended management action include: lack of knowledge of detrimental effects of some pollutants (contaminants of *emerging concern)* on public health or ecosystem, and fate of pollutants once point sources are identified.
- Supporting and relevant data: New golf courses are being designed with holding ponds to capture surface water runoff and allow for reuse of water and fertilizers.
    - Pickering and Baker. Watershed Scale Planning to Reduce the Land-Based Sources of Pollution for the Protection of Coral Reefs in Southeast Florida. 2015
- Water quality monitoring is currently being done at general sites where pollutants flow into estuaries. Monitoring is not done upstream to find true sources. The Martin County Commission recently passed an ordinance on the use of fertilizers near waterbodies.
- Existing legislation will eliminate ocean outfalls by 2025.

Goals/ Objectives to be achieved:

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

- FL Priorities Goal C1 / FL Priorities Goal C4 / FL Priorities Goal C4 Obj. 4.
- FDEP CRCP Coral Reef Ecosystem Conservation Objective 3 / FDEP CRCP Coral Reef Ecosystem Conservation Goal B.
- SEFCRI LAS LBSP Issue 4 Goal / SEFCRI LAS LBSP Issue 4 Goal Obj. 3 / SEFCRI LAS MICCI Issue 2 Goal.

N-97 Public Comment Report:

Land-Based Sources of Pollution

Target, prioritize, and implement land based sources of pollution reduction activities at identified pollution hotspots within Southeast Florida Coral Reef Initiative (SEFCRI) watersheds to improve coastal water quality.

Quick Stats:

- Total number of comments on this RMA = 12
- This RMA was called out by 4 stakeholder groups and one individual via letters of support.
    - American Sportfishing Association/ Keep Florida Fishing Initiative
    - Coastal Conservation Association Florida
    - Personal Letter (MK)
    - Miami Waterkeeper
    - West Palm Beach Fishing Club (1300 members)
- The letters above state a general, blanket support for LBSP RMAs.
- Community Working Group response: Letters do not request any modifications to RMA. Letters were read and content discussed.

Long Responses:

19. "What do you support, or how could this RMA be changed to an action you could support?":

Category	Comment	Ref #	CWG response
Support	Great idea but this has the potential to morph into a large governmental agency to oversee a project of this magnitude. This can be a very expensive endeavor. Enforcement could be a problem once a pollution hotspot has been identified. The authority of this agency to enforce any action is not in the proposal.	1187	Read & Acknowledged
Support	Stop allowing US Sugar to back pump pollution into Lake Okeechobee, then discharge billions of gallons of filthy, fresh water into our brackish estuaries.	1003	Read & Acknowledged
Support	follow the science and address the greatest impact point	18	Read & Acknowledged
Support	marine narrative nutrient criterion	86	Read & Acknowledged
Support	Marne Narrative Nutrient Criterion Standards similar to those created by DEP for estuarine water. Instead of nutrient standard for just total P, Total N and chl-a concentration, these	125	Read & Acknowledged

	standards should be expanded to biologically available nutrients such as DIN and SRP. Research by Dr. Brian Lapointe supports coral reef protection when DIN does not exceed 1 micrometer and SRP of 0.1 micrometer		
Support	analyze the sources of pollution identifying the hotspots and improvement of water quality	327	Read & Acknowledged
Other	concerned that focusing only reefs would over-ride possible protection actions for our estuaries.	49	Read & Acknowledged

20. "Other comments or input":

Category	**Comment**	**Ref #**	**CWG response**
Support	this recommendation needs to be strenthened so that it is enforceable, in it correct state it will not improve coral reef environment	86	Read & Acknowledged

Title:

N-116: Coordinate and implement regional "living shoreline" objectives to increase the use and protection of natural infrastructure (e.g., coral reefs, native vegetation, mangrove wetlands) to provide natural barriers to storm surge and maintain coastal biodiversity *with the agreement of property owners*.

Background:

- This recommended management action relates to all Southeast Florida Coral Reef Initiative (SEFCRI) counties and includes all lagoon and ocean shorelines.
- This recommended management action is being put forth to employ the "living shoreline" concept: counties, municipalities and waterfront homeowners will be able to protect their property from storm surge and erosion via natural means or "barriers" while providing an ecologically beneficial habitat for estuarine and marine species. This action promotes natural infrastructure to protect shorelines and offers a cost-effective and preferred approach (in many situations) over hardened structures such as seawalls.

Objective:

- The intended outcome of this action is for SEFCRI partners to produce a coordinated plan and working group with the goal of improving coastal resilience by increasing the efficiency, amount and scale of natural erosion controls and/or shoreline protection and, at the same time, maintaining coastal biodiversity. The working group will select projects in accordance with the objectives of the plan.

Intended Benefits and/or Potential Adverse Effects:

- Benefits of implementation of this recommended management action include: (1) the establishment of a Regional Living Shoreline Working Group that could serve as a clearinghouse for best practices and other technical information in the SEFCRI region, (2) identify representative examples of completed projects that may be used to inform planning and implementation of new projects, (3) assess regional opportunities for new projects that take into consideration the so-called "triple bottom line" - environmental, economic and social benefits, and (4) promote successful projects to help raise awareness and build community support, gain political approval and secure funding. The regional clearinghouse eliminates the need to start from scratch each living shoreline project as communities will be able to learn from the lessons learned of others.
- Challenges that may arise with implementation of this recommended management action include: overcoming waterfront homeowner bias against mangroves (e.g., blocking of views, increase in bugs and insects, etc.), and potentially prohibitive project costs.
- Failure to implement this recommended management action will likely result in continued increases in the use of hardened shorelines and consequent losses in habitat and decreasing property values due to risk of flooding.

Agencies/ Organizations:

- The lead agencies for implementation of this recommended management action are the Florida Department of Environmental Protection, South Florida Water Management District, United States Army Corps of Engineers, municipalities, counties, local governments, and non-governmental organizations.
- Other agencies or organizations who could be involved include SEFCRI partner agencies, The Nature Conservancy and other non-profits.
- The key stakeholders for this recommended management action are homeowners, public land owners, and the marine industry.

- The legislative considerations include local county resolutions adopting the Southeast Florida Regional Climate Change Compact Action Plan, which includes a living shoreline component.

Permitting/ Enforcement Requirements of RMA:

- In some instances, individual projects would need construction permits, but permits would not be required to implement the working group.
- There are no enforcement requirements with this recommended management action.
- Metrics to gauge success of this recommended management action include the numbers of acres of seagrass recruited and oyster reefs created, as well as measurable improvements in water quality.

Cost:

- Developing the regional program would have a minimum cost. The cost of implementing individual projects would vary according to scale and could range from $50,000-$20,000,000.
- Potential funding sources include the National Ocean Service's Coastal Resilience grants program and National Marine Fisheries Service's Coastal Ecosystem Resiliency grant.

Time Frame & Extent:

- Although some individual projects are already underway, the regional effort will take longer and be an ongoing process.

Miscellaneous Info:

- This recommended management action is linked to N-70. This recommended management action would be a pre-cursor to N-70, but not a requirement.
- An information gap exists with Martin County, which is not included in the current Shoreline Resilience Working Group. Thus, additional outreach/information gathering may be needed there to achieve all SEFCRI and Our Florida Reefs goals.
- Supporting and relevant data include many articles and studies supporting the concept of living shorelines.
    - Ariana E. Sutton-Grier, Kateryna Wowka, and Holly Bamford. "Future of our coasts: The potential for natural and hybrid infrastructure to enhance the resilience of our coastal communities, economies and ecosystems." See: http://www.sciencedirect.com/science/journal/14629011
    - In cooperation with the Shoreline Resilience Working Group, Dr. Mitsova, Florida Atlantic University, is planning to create a catalogue of living shoreline project types and a decision support tool (DST) to be hosted on TNC's *coastalresilience.org* that will help users to identify the types of living shoreline projects that can be implemented at their location of interest, as well as the ecosystem services provided by those projects. This version of the catalogue and DST will target most of the SEFCRI region. Together, the catalogue and DST will help make the case for local, state and federal government investments in living shoreline projects (large projects, multi-project packages and supportive, long-term programs) and will prompt private property owners to consider both their individual options and their place in regional efforts.
- At present, the Florida Fish and Wildlife Conservation Commission is finalizing a website on living shorelines targeted at waterfront homeowners. See www.floridalivingshorelines.com.

Goals/ Objectives to be achieved:

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

- FL Priorities, Goal C2, Obj. 4.
- SE Coastal Oceans Taskforce Recommendation under "Beaches" #5.

N-116 Public Comment Report:

Land-Based Sources of Pollution

Coordinate and implement regional "living shoreline" objectives to increase the use and protection of natural infrastructure (e.g. coral reefs, native vegetation, mangrove wetlands) to provide natural barriers to storm surge and maintain coastal biodiversity ***with the agreement of property owners***.

Quick Stats:

- Total number of comments on this RMA = 9
- This RMA was called out by 3 stakeholder groups and one individual via letters of support.
    - American Sportfishing Association/ Keep Florida Fishing Initiative
    - Coastal Conservation Association Florida
    - Personal Letter (MK)
    - Miami Waterkeeper
- The letters above state a general, blanket support for LBSP RMAs.
- Community Working Group response: Letters do not request any modifications to RMA. Letters were read and content discussed.
- Group's proposed change: Due to working waterfront concern: Add "with the agreement of property owners." --- > *Coordinate and implement regional "living shoreline" objectives to increase the use and protection of natural infrastructure (coral reefs, native vegetation, mangrove wetlands) to provide natural barriers to storm surge and maintain coastal biodiversity with the agreement of riparian property owners*.

Long Responses:

21. "What do you support, or how could this RMA be changed to an action you could support?":

Category	Comment	Ref #	CWG response
Support	Living shorelines are important for helping to curb erosion and to protect the precious bottom habitat from wave backlash caused by hardened walls.	1123	Read & Acknowledged
Support	Sounds like a good idea but the RMA is very short on specifics. Costs will be dependent upon the projects so really cannot be predicted.	1188	Read & Acknowledged
Support	hawaii/main has plants that are amazing at stopping beach erosion. What plants in florida do the same? A hotel removed the "hedge" and lost buildings to the next big storm. The hedge was restored.	17	Read & Acknowledged
Other	more rip rap less seawall	158	Read & Acknowledged

22. “Other comments or input”:

Category	Comment	Ref #	CWG response
Other	stop renourishment of beaches money being wasted. Do not send martin county sand to miami!	7	Passed to MICCI
Other	no moving sand from martin to miami	17	Passed to MICCI

Title:

N-120: Encourage influential entities to lobby for legislation to overturn current legislation restricting bans on plastic bags to protect marine habitats and wildlife.

Background:

- This recommended management action is being put forth to reduce the amount of plastic in the water and on the reefs. Plastic bags in waterways, wetlands and the ocean are often mistaken as a source of food by animals, such as sea turtles.
- This recommended management action relates to a proposed statewide ban on plastic bags.
- Please reference House Bill # 143 Disposable Plastic Bags. https://www.flsenate.gov/Session/Bill/2016/0143/BillText/__/PDF. This bill proposes to allow coastal municipalities with populations of 100,000 or less to create pilot programs to regulate or ban disposable plastic bags.

Objective:

- The intended outcome of this action is to phase out non-recyclable items, with the end result being a ban on single-use plastic bags in Florida to protect the marine environment and its inhabitants (e.g., turtles, whales, dolphins, etc.). Although current Florida legislation prohibits local municipalities from implementing such regulations, the House bill and this recommended management action would change that.
    - This recommended management action has defined:
        - Effects of plastics on the environment as: hard to see, animals eat them, suffocate the reefs when they cover them, block intakes to marine engines and cause damage to them,
        - One-time plastic use as: sandwich bags, grocery bags, bait bags, ice bags (Ziplocs are reusable and would not be included),
        - One-time use Styrofoam as: food containers,
        - Alternative actions as: use recyclable bags (bring your own bags), paper bags, wrap in newspaper,
    - This recommended management action has included the following: (1) added the language to restrict usage, (2) keep option open to charge for single-use plastic bags instead of banning them, (3) apply bans in small areas (e.g., state parks), (4) broadened definition of single-use plastic bags to not apply to garbage bags but be applicable to plastic doggie bags at restaurants, (5) the action has further defined environmental effects.
    - There is an existing education campaign about how single-use plastics can affect the marine environment. Surfrider has an educational campaign on plastics and could represent a potential partner or piggyback opportunity.
- The duration of this management activity is discrete for the pilot program but once passed into law would become a recurring activity.

Intended Benefits and/or Potential Adverse Effects:

- Some potential benefits of implementation of this recommended management action include: a long-lasting reduction in plastic bags that litter the beaches and the ocean, cause harm to sea turtles (who eat them thinking they are jellyfish) and entangle other animals;

less plastics in use equates to a healthier environment, and increased awareness of harmful effects of pollution.
- There are no anticipated negative environmental impacts.
- The duration of the benefits of this recommended management action are long lasting.
- Some possible issues that may arise with implementation of this recommended management action include: (1) the existing restriction on banning plastic bags in Florida, (2) (legal) costs may be required to pay someone to create the new law, (3) requires legislative buy-in, (4) requires a lifestyle change for individuals who frequent retail and consumer outlets, and (5) may be difficult to convince people and legislators of the need for this legislation.
- If this recommended management action is not implemented plastics will continue to enter our oceans and create additional negative impacts on the environment and animals that live there.

Agencies/ Organizations:

- The lead agency for implementation of this recommended management action is the Florida Department of Environmental Protection (FDEP) and Florida state legislature.
- Other potential agencies or organizations who could get involved include: large non-profit organizations, such as The Sierra Club, Surfrider, Ocean Conservancy and The Nature Conservancy, SEFCRI, and organizations such as wildlife rescue centers that deal with birds and sea turtles.
- The key stakeholders for this recommended management action include retail (e.g., liquor and clothing stores, etc.) and consumer outlets/industries (e.g., Target, Walmart, Home Depot, Winn Dixie, Publix, etc.).
- The political will to support this recommended management action exists. Currently, 132 U.S. cities and counties ban plastic bags in retail stores. State Senator Dwight Bullard wants to add Florida to that list, but Florida's legislature restricted the ability of towns and cities to ban plastic bags in 2008. The FDEP recommended guidelines for better regulating plastic, but the state has not acted on these. Senator Bullard has unsuccessfully challenged the state restriction on two occasions. Read more at: http://higherperspective.com/2014/10/bag-ban-ban.html#ICxmtvxg57psEJDC.99
- Until the legislature adopts the recommendations of the Community Working Group, no local government or agency, or state government agency may enact any rule, regulation, or ordinance regarding use, disposition, sale, prohibition, restriction, or tax of such auxiliary containers, wrappings or disposable plastic bags.

Permitting/ Enforcement Requirements of RMA:

- There are no permitting requirements with this recommended management action.
- Success of this recommended management action will occur when a ban on single-use plastic bags is enacted.

Cost:

- The estimated direct cost of implementing this recommended management action is a onetime cost of $250,000. However, legal fees may be required to overturn the existing legislation prohibiting municipalities from passing bans.

- No potential funding sources have been identified at this time.

Time Frame & Extent:

- The anticipated timeframe for implementation of this recommended management action is between 5 - 10+ years since it will require legislative action.

Miscellaneous Info:

- This recommended management action is not linked to any other recommended management actions.
- There were no uncertainties or gaps identified with this recommended management action.
- Supporting and relevant data includes the following: Over 100 million marine animals are killed each year due to plastic debris in the ocean. Currently, it is estimated that there are 100 million tons of plastic in the world's oceans. It is expected that another 60 billion pounds will be produced this year alone. In some areas, the buildup of plastics is estimated to span 5 million square miles. http://www.conserveturtles.org/seaturtleinformation.php?page=marine_debris.
- More than 1 billion single-use plastic bags are given out free of charge every day. In 2009 the United States International Trade Commission reported that 102 billion plastic bags were used. Plastic bags never biodegrade, but they do breakdown and, in the process, release toxic additives, including flame retardants, antimicrobials and plasticizers, into the environment. Many of these chemicals may disrupt the endocrine system—the delicately balanced set of hormones and glands that affect virtually every organ and cell in the bodies of humans and animals. http://ecowatch.com/2013/08/06/the- danger-of-plastic-bags-to-marine-life/.
- Currently, there is an online petition http://petitions.moveon.org/sign/ban-plastic-bags-in-florida that directly relates to this recommended management action. Florida is one of the few states that limits 'home rule' in regard to plastic bag ordinances. Since local municipalities cannot pass a plastic bag ban, Flagler College students are working with the St. Augustine City Commission and local businesses to voluntarily eliminate plastic checkout bags citywide. The resolution was approved in March 2013.
    - A ban on many single-use items is in effect in Rainbow River Park in Dunnellon, FL. This recommended management action could reference the language used for that ban, which includes items such as Tupperware, Rubbermaid, paper sacks, boxes, plastic water bottles, aluminum cans, breakable plastic utensils and paper napkins and towels. Visitors to the park comply with the ban since there are very few access points to the river and people do not want to be on the river all day without water.
    - Miami Beach has implemented a flashing sign that states plastic bags and Styrofoam are not allowed on the beach.

Goals/ Objectives to be achieved:

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

- FL Priorities Goal C4 Obj. 5.
- FDEP CRCP Coral Reef Ecosystem Conservation Obj. 3.

N-120 Public Comment Report:

Land-Based Sources of Pollution

Encourage influential entities to lobby for legislation to overturn current legislation restricting bans on plastic bags to protect marine habitats and wildlife.

Quick Stats:

- Total number of comments on this RMA = 10
- This RMA was called out by 3 stakeholder groups and one individual via letters of support.
    - American Sportfishing Association/ Keep Florida Fishing Initiative
    - Coastal Conservation Association Florida
    - Personal Letter (MK)
    - Miami Waterkeeper
- The letters above state a general, blanket support for LBSP RMAs.
- Community Working Group response: Letters do not request any modifications to RMA. Letters were read and content discussed.

Long Responses:

23. "What do you support, or how could this RMA be changed to an action you could support?":

Category	Comment	Ref #	CWG response
Support	Love this RMA. I'm extremely interested in its subsequent itinerary- actually banning single use products. It seems insane that there's a lae banning this ban; it seems arcane.	1218	Read & Acknowledged
Support	I spearfish and lobster (on scuba) and almost every dive I come back to the boat with those plastic grocery bags that I remove from the reef. I support eliminating these bags from general use. By the way, if the ban on spearfishing using scuba passes, I will no longer be diving and will no longer be removing these bags from the reef (or lionfish). Another good reason NOT to enact the ban on spearfishing while using scuba gear.	1190	Read & Acknowledged
Support	I support banning one-time use plastic bags. Charge people in the store for them. I believe they do this in california.	1151	Read & Acknowledged
Support	I agree . . . all one-time use plastic bags should be banned in the state of FL. I would also include helium filled balloons in the ban. We find these all the time in the ocean.	1519	Read & Acknowledged
Support	stories of turtles, dolphins, whales dying from our debris is tragic and fixable.	31	Read & Acknowledged

24. “Other comments or input”

Category	Comment	Ref #	CWG response
Other	do not ever vote for legislators who do not understand the importance of reefs, environment!!	6	Read & Acknowledged

Title:

S-25: Discourage public officials from granting or requesting extensions to current ocean outfall legislation to ensure the timely closure (prior to 2025) of all treated wastewater outfall pipes and build/upgrade infrastructure for advanced water treatment and reuse to improve ocean water quality, reduce destructive algal blooms, and increase water reuse in the SEFCRI region.

Background:

- The Southeast Florida Coral Reef Initiative (SEFCRI) team, Technical Advisory Committee (TAC) and Community Working Group (CWG) members of group 10 do not recommend implementing this recommended management action as there are potential unintended consequences i.e. bringing this statute to the attention of the Florida legislature and having them postpone the implementation date or add other loopholes. The CWG members feel this is not worth the risk. One ocean outfall has already closed and SEFCRI counties have committed more than $3B in initial design and implementation costs. This concern was brought before the entire CWG, which voted to keep this recommended management action active.
- This recommended management action relates to Miami-Dade, Broward and Palm Beach counties and the associated coastal areas (coral reefs, nearshore hardbottom, offshore habitats, etc.).
- This recommended management action is being proposed because poor water quality is: affecting the health of coral reefs and coastal habitats, related to poor diving conditions, and causing potential health hazards for coastal residents. There is a problem of partially treated wastewater being discharged directly into the ocean, potentially affecting fish populations by promoting algal growth on reefs. Pharmaceuticals in wastewater may be adversely affecting the growth and reproduction of fishes.

Objective:

- The intended outcome of this action is to end direct releases of wastewater onto coral reefs by closing outfall pipes and creating advanced water treatment systems in the SEFCRI region to improve water quality and increase water reuse. This recommended management action would take place before 2025 and without the 5 percent loophole.
- This would be a discrete action to create better upgrades to current wastewater systems and should be recurring as technology improves.

Intended Benefits and/or Potential Adverse Effects:

- Some potential benefits of implementation of this recommended management action are: (1) improved water quality, (2) elimination of known point sources of pollution, (3) assurances of compliance by sewer outfall operators, (4) improved human and fish health, (5) improved swimming areas along the beaches, and (6) decreased nutrient loading on coral reefs. Implementation of this recommended management action will result in a decrease in algal blooms and a decrease in pharmaceutical loading, which will increase the functionality of the reef ecosystem.
- Some possible issues that may arise with implementation of this recommended management action include: (1) the potential that sewer outfall operators will not comply,

(2) alternative ways of treating and disposing of sewage will need to be addressed, (3) funding will be needed for water quality monitoring, (4) potential job losses, (5) potential increases in utility costs and fees, (6) issues with municipal jurisdictions, responsibility, consistency and coordination may arise, (7) changing existing legislation to enact this prior to the 2025 date entails a political challenge, and (8) bringing this proposal to the legislature's attention may have the exact opposite effect of the desired intention i.e. the legislature may rescind or delay the existing statute.

  - These negative impacts could be long lasting, as costs to treat wastewater will be passed to residents. However, a market exists for re-using secondary treated wastewater for irrigation in South Florida. This practice is common throughout Florida and will help offset long-term costs.
  - Short-term costs may occur until systems are retrofitted. Federal grants may be available to defray initial costs.

- If this recommended management action is not implemented, the process to improve water quality will be delayed and continued offshore disposal of wastewater will increase nutrient loads on reefs, thereby reducing the overall health of the reefs and potentially leading to a decrease in coastal tourism.

Agencies/ Organizations:

- The lead agencies for implementation of this recommended management action are the Florida Department of Environmental Protection (FDEP), United States Environmental Protection Agency (EPA), ~~***South Florida Water Management District (SFWMD)***~~ and local health departments.
- Other agencies or organizations that could be involved include the National Oceanic and Atmospheric Administration, United States Fish and Wildlife Service and Florida Department of Health (DOH).
- The key stakeholders for this recommended management action are utilities, residents, tourists and local municipalities, who would have to cover the costs of retrofitting structures and finding alternative ways of disposing of wastewater.
- There is existing legislation. If utilities are currently meeting water quality standards, requiring them to eliminate/reduce outfalls would require a change in the legislation.

Permitting/ Enforcement Requirements of RMA:

- Permits would be required for outfall removal and implementing alternative means of treating existing wastewater. Any physical modifications to the existing pipes will require permits.
- Means of measuring success of this recommended management action include: water quality monitoring to track nutrient and pollutant loads, and complete elimination of ocean outfalls.

Cost:

- The estimated direct cost of implementing this recommended management action is greater than $250,000.
- Potential funding could come from residents/tax payers who use utilities and depend on the wastewater treatment facilities. FDEP, SFWMD, and DOH are other possible sources.

Time Frame & Extent:

- No timeframe for implementation of this action was put forth because of the recommendations of the SEFCRI Team, TAC and CWG members of Group 10 to ***not*** implement this recommended management.

Miscellaneous Info:

- This recommended management action is not linked to any other recommended actions.
- Some uncertainties or gaps with this recommended management action include: what alternatives exist for disposal of the wastewater currently discharged into the ocean; and are Total Maximum Daily Loads being calculated accurately in regards to wastewater reaching reefs?
- Supporting and relevant data include current water quality standards and the need to determine if more stringent limits need to be implemented.
- Currently, an existing plan to eliminate ocean outfalls by 2025 is in place.

Goals/ Objectives to be achieved:

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

- FL Priorities Goal C1 / FL Priorities Goal C1 Obj. 4 / FL Priorities Goal C4 / FL Priorities Goal C4 Obj. 4.
- FDEP CRCP Coral Reef Ecosystem Conservation Goal B / FDEP CRCP Coral Reef Ecosystem Conservation Obj. 3.
- SEFCRI LAS LBSP Issue 4 Goal / SEFCRI LAS LBSP Issue 4 Goal Obj. 2 / SEFCRI LAS LBSP Issue 4 Goal Obj. 3 / SEFCRI LAS MICCI Issue 2 Goal.

S-25 Public Comment Report:

Land-Based Sources of Pollution

~~Discourage public officials from granting or requesting extensions to current ocean outfall legislation~~ ***Strongly encourage elected and regulatory officials to oppose extensions to dates established in existing sewage treatment outfalls legislation*** to ensure the timely closure (prior to 2025) of all treated wastewater outfall pipes and build/upgrade infrastructure for advanced water treatment and reuse ***capacity*** to improve ocean water quality~~, reduce destructive algal blooms, and increase water reuse in the Southeast Florida Coral Reef Initiative (SEFCRI) region~~.

Quick Stats:

- Total number of comments on this RMA = 9
- This RMA was called out by 3 stakeholder groups, one agency of the State (SFWMD), and one individual via letters of support.

- American Sportfishing Association/ Keep Florida Fishing Initiative
- Coastal Conservation Association Florida
- Personal Letter (MK)
- Miami Waterkeeper
- South Florida Water Management District (SFWMD)

- The letters above state a general, blanket support for LBSP RMAs.
- Community Working Group response: Letters do not request any modifications to RMA. Letters were read and content discussed. Regarding SFWMD suggestion, group responds to remove SFWMD as lead agency in two-pager document.

Long Responses:

25. "What do you support, or how could this RMA be changed to an action you could support?":

Category	Comment	Ref #	CWG response
Support	This one is LONG overdue. The issue will be coming up with a replacement means of wastewater treatment that doesn't have its own adverse impacts.	1408	Read & Acknowledged
Support	The amount of nutrients coming from the outfall pipes is huge. The reefs near the outfall pipes are loaded with thick algae and fish life is decreased near the outfall pipes. These things need to be shut off for good.	1191	Read & Acknowledged
Support	Important	3	Read & Acknowledged
Support	outfalls of community utilities in broward and palm beach county for example should be stoppepd ASAP.	28	Read & Acknowledged
Support	this should be the first action taken instead of MPAs	251	Read & Acknowledged

26. "Other comments or input":

Category	Comment	Ref #	CWG response
Support	Very Important.	697	Read & Acknowledged
Support	no extensions for anybody	3	Read & Acknowledged
Support	4th most important	28	Read & Acknowledged

Title:

S-28: Support Everglades flow restoration to reduce land-based sources of pollution and improve water quality in estuaries and inlet contributing areas connected to the coral reef ecosystems of southeast Florida.

Background:

- This recommended management action relates to all counties in the Southeast Florida Coral Reef Initiative (SEFCRI) region and the nearshore coastal area where the nine southeast Florida inlets discharge. The Everglades, Florida Bay and coral reef ecosystems will benefit from improved quality, quantity, timing and distribution of cleaner freshwater.
- This recommended management action is being proposed due to the high volume of freshwater discharges from Lake Okeechobee to estuaries. These lead to seagrass, coral and oyster mortality and the accumulation of muck. This recommended management action will improve nutrient uptake by stormwater treatment areas and practices before the water is discharged to the Everglades or estuaries, thereby improving the quality of downstream waters.
- This recommended management action is consistent with goals and objectives of county, state and federal governments.
- The SEFCRI Technical Advisory Committee (TAC) fully supports this recommended management action and recommends that it be given high priority.

Objective:

- The intended outcomes of this action are improved water quality and improvements to the quantity, timing and distribution of water for human needs and the natural systems in south Florida.

Intended Benefits and/or Potential Adverse Effects:

- Benefits of implementation of this recommended management action include: (1) improved fish and wildlife health, (2) the entire south Florida region will experience improved water quality as a result of Everglades' restoration, (3) water management improvements, and (4) a reduction in harmful algal blooms.
- The potential disadvantage associated with this recommended management plan is the cost. The Comprehensive Everglades Restoration Plan (CERP) is estimated to cost $7.8 billion in project costs, and ***costs associated with Operations & Maintenance***. ~~an additional $182 million annually for maintenance~~. While the cost of Everglades restoration and water management are enormous, so are the benefits. This recommended management action will bring coral reef ecosystem into the discussion as water management in the south Florida region changes.
- Failure to implement this recommended management action and complete Everglades' restoration will result in continued degradation of the natural systems, including the coral reef ecosystem in southeast Florida.

Agencies/ Organizations:

- The lead agencies for implementation of this recommended management action are SEFCRI, the South Florida Water Management District (SFWMD), United States Army

Corps of Engineers (USACE), and Florida Department of Environmental Protection (FDEP).

- Other potential agencies or organizations who could be involved include the *Florida* Department of Agriculture and Consumer Services, United States Geological Survey, United States Environmental Protection Agency (EPA), National Park Service and county and municipal government agencies. It might be worth looking into activities of the National Oceanic and Atmospheric Administration (NOAA) and Florida Keys National Marine Sanctuary (FKNMS) as they relate to Everglades Restoration.
- Key stakeholders for this recommended management action were not identified.
- This recommended management action is consistent with current legislation.

Permitting/ Enforcement Requirements of RMA:

- There are no ***new*** permitting requirements with this recommended management action.
- Means of measuring the success of this recommended management action include: measuring loads of land-based sources of pollution (LBSP) at southeast Florida Inlet Contributing Areas (ICA), success criteria described in National Environmental Policy Act (NEPA) documents, and the creation and persistence of the ad hoc working group.

Cost:

- The estimated direct cost of implementing this recommended management action is minimal, as it would entail time allocation for SEFCRI members.
- Potential sources of funding include FDEP, SFWMD, NOAA and FKNMS.

Time Frame & Extent:

- The anticipated timeframe for implementation of this recommended management action is ongoing for decades.

Miscellaneous Info:

- This recommended management action is linked to N-69.
- Some uncertainties or gaps with this recommended management action include watershed management plans for ICAs within the SEFCRI region (east of the Everglades).
- Supporting and relevant data include NEPA evaluations and watershed protection plans completed by SFWMD and USACE.
- Currently, SEFCRI partner agencies are involved in planning, building and operating CERP projects and related systems. To date SEFCRI representation in CERP and CERP scoping/dialogue has been limited.

Goals/ Objectives to be achieved:

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

- FL Priorities Goal C1, Obj. 1 / FL Priorities Goal C1, Obj. 7.
  SEFCRI LAS LBSP Issue 4, Goal Obj. 3.

S-28 Public Comment Report:

Land-Based Sources of Pollution

Support Everglades flow restoration to reduce land based sources of pollution and improve water quality in estuaries and inlet contributing areas connected to the coral reef ecosystems of southeast Florida.

Quick Stats:

- Total number of comments on this RMA = 16
- This RMA was called out by 4 stakeholder groups, one agency of the State (SFWMD), and one individual via letters of support.
    - American Sportfishing Association/ Keep Florida Fishing Initiative
    - Coastal Conservation Association Florida
    - Personal Letter (MK)
    - Miami Waterkeeper
    - West Palm Beach Fishing Club (1300 members)
    - South Florida Water Management District (SFWMD)
- The letters above state a general, blanket support for LBSP RMAs.
- Community Working Group response: Letters do not request any modifications to RMA. Letters were read and content discussed. Regarding SFWMD suggestion, group responds to edit two-pager document to (1) change "no permitting requirements with this RMA" to "no new permitting requirements with this RMA" and (2) Edit costs by removing maintenance figure and adding "costs associated with O & M" 9no monetary figure).

Long Responses:

27. "What do you support, or how could this RMA be changed to an action you could support?":

Category	Comment	Ref #	CWG response
Support	The need is for immediate funding of CEPP and CERP	1280	Read & Acknowledged
Support	CCA supports the RMAs relating to Land Based Sources of Pollution. CCA strongly supports S-28 as the discharges to our estuaries must be stopped and the natural flow of fresh water to the south is needed. The mechanisms for moving the water south involve complex intergovernmental relationships and need a dependable source of immediate funding. The impacts of local storm water, sources of population and over fertilization are also major problems.	1269	Read & Acknowledged
Support	Restoring the flow to the Everglades is crucial for the health & future of the reefs at SLISP.	1220	Read & Acknowledged
Support	Great ideal but this has been in the works for decades. What is this RMA adding to what is already happening in this area?	1192	Read & Acknowledged

	Why not put the efforts into plans that can actually be put in place?		
Support	This will help all stakeholders. I support this.	1156	Read & Acknowledged
Support	flowway south to florida bay	1	Read & Acknowledged
Support	send the water south. Diversity is critical for ecosystem health	26	Read & Acknowledged
Support	stop feeding the algae	159	Read & Acknowledged

28. "Other comments or input":

Category	**Comment**	**Ref #**	**CWG response**
Support	stop corporate welfare to big agriculture 68% of pollution	1	Read & Acknowledged
Support	Most Important. Obey amendment 1!	5	Read & Acknowledged
Support	top! #1! Ammendment 1	26	Read & Acknowledged
Support	the handouths to explain in more detail are very helpful, maybe they could include more detail on the specific steps how the proposed objectives will be met.	45	Read & Acknowledged
Support	the costs of doing nothing or doing little will far exceed the costs of implementation - there has been enough study - lets get flow restored going south - otherwise everything we love about florida will die!	50	Read & Acknowledged
Support	improve water flow through everglades will reduce lake okeechobee outflow to east and west coast this will improve water quality throughout area	88	Read & Acknowledged
Support	buy sugar land, build retention ponds. Let h20 flow south.	159	Read & Acknowledged

Title:

S-110: Eliminate over beach discharge of water to eliminate those sources of beach erosion reducing the amount of beach fill needed which may improve near shore water quality.

Background:

- This recommended management action relates to Southeast Florida Coral Reef Initiative (SEFCRI) counties i.e. Miami-Dade, Broward, Palm Beach, Martin and their associated habitats.
- This recommended management action is being proposed to reduce dune erosion from end-of-pipe (point source) runoff and decrease the need for beach renourishment. The focus of this action is stormwater discharges (over-beach discharges) and how they erode our beaches. Such discharges are illegal, and there are existing laws and rules in place to address problem areas.

Objective:

- The intended outcomes of this action are: (1) divert stormwater runoff from beaches, (2) build up pavers/dunes systems, (3) diffuse end-of-pipe stormwater point source runoff, (4) eliminate over-beach discharges to decrease beach erosion, and (5) reduce the amount of beach fill needed which, in turn, may improve nearshore water quality.

Intended Benefits and/or Potential Adverse Effects:

- Some potential benefits to implementation of this recommended management action include the following: (1) less need for beach renourishment, (2) an improvement in water quality (lower turbidity and sedimentation), (3) decreased dune erosion and reduced "hotspot" beach renourishment areas, and (4) a reduction in the burial of nearshore habitats (e.g. seagrass beds, hardbottom and coral reefs) by sedimentation.
- The duration of benefits of this recommended management action is recurring.
- Some possible issues that may arise with implementation of this recommended management action include: local and city expenses, the cost of retrofitting infrastructure, cost of structure maintenance, and associated permitting costs.
- If this recommended management action is not implemented there will be continued stormwater runoff onto coastal areas, causing water quality degradation, dune habitat loss, and erosion.

Agencies/ Organizations:

- The lead agencies for implementation of this recommended management action would be the Florida Department of Environmental Protection's (FDEP) Beaches and Coastal Systems programs, municipal governments, and the United States Environmental Protection Agency's National Pollutant Discharge Elimination System (EPA NPDES) and stormwater programs.
- Other agencies or organizations who could be involved include local cities and counties.
- The key stakeholders for this recommended management action are local municipalities and homeowner associations which are required to maintain stormwater systems.
- This recommended management action both actively supports and does not conflict with local, state or federal laws and regulations.

Permitting/ Enforcement Requirements of RMA:

- Permitting requirements for this recommended management action would include retrofitting permits for individual cities or counties.
- Means of measuring the success of this recommended management action include visualization of "hot spots" for beach erosion and the decrease in projects (renourishment) in these areas.

Cost:

- The estimated direct cost of implementing this recommended management action is greater than $250,000. However, each project could cost less if implemented on its own. Changing the direction or angle of beach access and dune planting can done at a low cost. Dune plantings using free plants have taken place across Broward County.
- This cost to retrofit old infrastructure would be a one-time cost.
- Potential funding may be acquired through: the FDEP budget, EPA, the National Oceanic and Atmospheric Administration and United States Fish and Wildlife Service.

Time Frame & Extent:

- The anticipated timeframe for implementation of this recommended management action is 2 - 5 years. Retrofitting stormwater discharge pipes to divert runoff away from beaches is a discrete action. Dune building and/or restoration are also discrete actions.

Miscellaneous Info:

- This recommended management action is not linked to nor conflicts with any other recommended management action.
  - Some uncertainties or information gaps with this recommended management action include determining the problematic locations in Miami-Dade, Palm Beach and Martin counties. Broward County lists all illegal stormwater discharges across their beaches (Broward Drainage and Derelict Structures, Olson & CP&E, 2001).
- Supporting and relevant data include Lauderdale by the Sea's dune planting and street-end retrofits.
- Stormwater regulations exist for coastal construction projects. Street ends at Lauderdale by the Sea have been retrofitted to divert runoff away from the beaches, a practice that has greatly reduced erosion.

Goals/ Objectives to be achieved:

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

- FL Priorities Goal C1 / FL Priorities Goal C1 Obj. 1 / FL Priorities Goal C1 Obj. 7 / FL Priorities Goal C2 Obj. 1 / FL Priorities Goal C2 Obj. 4 / FL Priorities Goal C3 Obj. 4 / FL Priorities Goal C4 / FL Priorities Goal C4 Obj. 5.
- FDEP CRCP Coral Reef Ecosystem Conservation Obj. 3 / FDEP CRCP Coral Reef Ecosystem Conservation Goal C / FDEP CRCP Coral Reef Ecosystem Conservation Obj. 5.
- SEFCRI LAS LBSP Issue 4 Goal / SEFCRI LAS MICCI Issue 1 Goal Obj. 2.

S-110 Public Comment Report:

Land-Based Sources of Pollution

Eliminate over beach discharge of water to eliminate those sources of beach erosion reducing the amount of beach fill needed which may improve near shore water quality.

Quick Stats:

- Total number of comments on this RMA = 7
- This RMA was called out by 3 stakeholder groups and one individual via letters of support.
    - American Sportfishing Association/ Keep Florida Fishing Initiative
    - Coastal Conservation Association Florida
    - Personal Letter (MK)
    - Miami Waterkeeper
- The letters above state a general, blanket support for LBSP RMAs.
- Community Working Group response: Letters do not request any modifications to RMA. Letters were read and content discussed.

Long Responses:

29. "What do you support, or how could this RMA be changed to an action you could support?":

Category	Comment	Ref #	CWG response
Support	This is a big problem	1412	Read & Acknowledged
Support	I am not familiar with any of these areas of water run off over the beaches but where it exists, I would support stopping it to reduce beach erosion and to reduce silting of our nearshore waters and smothering of the reefs with the silt.	1193	Read & Acknowledged
Support	bathtub beach impact from the neighboring development is proof of the impact of even minor construction on our reefs.	27	Read & Acknowledged

30. "Other comments or input":

Category	Comment	Ref #	CWG response
Other	moratorium on building on beaches coastline and rivers	4	Read & Acknowledged