

CCMP Revision Comments on November Preliminary Final Draft

Date	Name	Action	Page #	Comment	Response
11/7/2018	Chris Hendricks, REALTOR®	Overall	N/A	I have reviewed the CCMP and believe it presents a great opportunity for its users to improve the Indian River Lagoon. I encourage all to support and fund the projects identified and the methodology used to identify, manage and assess the results.	Thank you!
11/9/2018	Paul Carlisle, City of Sebastian	Message from the IRLNEP Executive Director	viii	May want to add to paragraph 2 "Kissimmee River and Shingle Creek," these waters drain into Lake Okeechobee and create the need for the discharges.	Noted - this is more detail than needed for this document
11/9/2018	Paul Carlisle, City of Sebastian	Responding to Lake Okeechobee Release Events	9 and 10	May want to add the Kissimmee Basin and development in Orange and Volusia Counties and the effects of their discharges that ultimately end up in Lake Okeechobee and create the need for the Lake Okeechobee discharges.	Noted - this is more detail than needed for this document
11/9/2018	Paul Carlisle, City of Sebastian	Measuring Changes In IRL Vital Signs	16	Stormwater - May consider adding residential and recreational reduction in fertilizers. Most of these never obtain soil tests before applying fertilizers or chemicals. Farmers do take these tests as it is a significant cost to their production and over application is not something that would benefit them.	Added recreational fertilizer to list of indicators
11/9/2018	Paul Carlisle, City of Sebastian	Measuring Changes In IRL Vital Signs	17	Marinas and Boating - May want to add moored vessels to the list as they remain anchored for extended periods of time and may not go to a marina for a pump out.	Added moored vessels to the list of indicators
11/9/2018	Paul Carlisle, City of Sebastian	Stormwater	31	Strategies - Educate and reduce residential and recreational uses of fertilizers and chemicals.	Modified last strategy to include recreational sources
11/9/2018	Paul Carlisle, City of Sebastian	Federal, State, and Local Policy Opportunities	150	May want to look at Comprehensive Plans and the process and approval to make amendments to them that increase density and increase development and the needed infrastructure to support them. May want to revisit the Bert J. Harris Act as it has become an entitlement and a big reason for urban sprawl.	Noted - this can be done as part of implementing Policy Considerations-1
11/21/2018	Clay Henderson, Stetson University	Overall	N/A	Other than EPA, there is not much mention of the role of federal agencies and the need for ongoing coordination in a range of activities. The federal government is the largest single landowner within the IRL watershed. The National Park Service, USFWS, ACOE, NASA, and USAF all have significant roles, responsibilities, and capacity to contribute to restoration of the lagoon.	These federal agencies are listed in appropriate action tables for each Vital Sign
11/21/2018	Clay Henderson, Stetson University	Overall	N/A	We need a stronger statement on the role of academia. We are fortunate to have a number of institutions of higher learning with physical and intellectual connections to the IRL. While academia generally and some institution's specifically are mentioned in the CCMP, it seems to me we need a stronger overarching statement on the need to coordinate among our universities on the issues of research and monitoring.	Added text in the IRLNEP Management Conference section

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11/21/2018	Clay Henderson, Stetson University	Overall	N/A	As good as this CCMP is, it will not be successful without a dedicated funding source to support restoration. Amendment 1 is a once in a generation opportunity for dedicated funding. The Florida Legacy component of Amendment 1 currently provides dedicated funding for Everglades, springs, and Lake Apopka. Restoration of Indian River Lagoon is an important statewide issue and worthy of significant funding under Amendment 1. Both the amendment sponsors and the Legislature have specifically mentioned funding for Indian River Lagoon restoration as authorized by the Amendment.	Added text about the need for stable, recurring funding in the CCMP Implementation and Financing section
11/21/2018	Clay Henderson, Stetson University	Indian River Lagoon	4	"However, decades of land use activities....." The issue here is far beyond "land use activities." The IRL has been impacted by over a century of manipulation including new inlets, drainage canals, mosquito control ditches, and causeways, which have effectively doubled the size of the watershed.	Added text to this paragraph
11/21/2018	Clay Henderson, Stetson University	IRLNEP Management Conference	5	Proposed new first sentence: President George H. W. Bush announced the designation of Indian River Lagoon as an "Estuary of National Significance," on Earth Day 1989, and on April 30, 1991, the Indian River Lagoon National Estuary Program was formally established.	Added text
11/21/2018	Clay Henderson, Stetson University	Impaired Waters	21	Please delete the final sentence above "strategies." The Mosquito Lagoon RAP no longer proposes to change water quality standards.	Deleted this sentence
11/21/2018	Clay Henderson, Stetson University	Wastewater	24	Thank you for including the concise description of the Indian River Lagoon Act, but you failed to include the sentence regarding septic tanks. I would suggest you add the following sentence at the beginning of the sections on OSTDS: "The Indian River Lagoon Act also addressed septic tanks. The Act required local governments to identify areas where package treatment plants and septic tanks posed threats to the IRL and implement plans to provide centralized sewage treatment to these areas."	Added text
11/21/2018	Clay Henderson, Stetson University	Wastewater	24	Consider adding a sentence to the OSTDS paragraph on alternative systems: "In October 2018, the Brevard County Commission passed an ordinance that requires alternative septic tank systems on the barrier island and within an identified overlay zone along the IRL."	Added text
11/21/2018	Clay Henderson, Stetson University	Land Conservation	75	Add FCT: Consistent with this, the Legislature re-initiated Florida Forever and Florida Communities Trust funding in the 2018 Legislative Session.	Added FCT
11/21/2018	Clay Henderson, Stetson University	Land Conservation	76	Action Plan: Inconsistent use of terms. Use "Land Acquisition Trust Fund" as this is the way Amendment 1 funds are distributed.	Changed
11/21/2018	Clay Henderson, Stetson University	Connected Waters	81	Ocean Inlets. There seems to be some disagreement about St. Lucie Inlet. There appears to be no historical consensus as to whether it is natural or perhaps natural at one time. A small connection between the Ocean and IRL was built manually in 1844. The record is also clear that it was later dredged in 1892, but definitely NOT stabilized in 1844 as noted in the draft. This is one of those areas where it is important to get the history correct as the connection between St. Lucie Inlet and Lake Okeechobee is wholly man-made.	Modified text

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11/21/2018	Clay Henderson, Stetson University	Species of Concern	90	We have rare and declining species within the IRL that are not listed; accordingly, I offer the following under strategies: Develop a "watch list" of non-listed species with significant population declines.	Added to list of strategies
11/21/2018	Clay Henderson, Stetson University	CCMP Implementation and Financing	142	There needs to be a strong statement as to the need for dedicated funding for IRL restoration: "In 2014, Florida voters approved the Water and Land Legacy Amendment often referred to as Amendment 1 (Art. X Sec.28 Fla. Const.). The amendment dedicates one third of the documentary stamp tax to the land acquisition trust fund for 20 years for land and water conservation including "restoration of natural systems." Current revenue estimates indicate the fund will general over \$20 billion over the 20-year life of the amendment. In 2016, the Florida Legislature passed the Florida Legacy Act, which dedicates funds from Amendment 1 for restoration of the Everglades, springs, and Lake Apopka. A portion of this now funds important portions of the Indian River Lagoon-South Project of CERP. The IRL Management Conference and partners should seek opportunities to fund IRL restoration from Amendment 1."	Added text about the need for stable, recurring funding
11/21/2018	Clay Henderson, Stetson University	CCMP Implementation and Financing	142	Strategies: "Promote dedicated sufficient recurring source of revenue from Amendment 1 for restoration of Indian River Lagoon."	Added a new strategy
11/21/2018	Clay Henderson, Stetson University	Federal, State, and Local Policy Opportunities	150	Suggest additional strategy statement to promote collaboration between agencies: "Coordinate federal land and water management plans to seek cooperation between federal, state, and local agencies to promote policies and projects within the CCMP."	Added to list of strategies
11/21/2018	Mark Crosley, FIND	IRLNPEP: Core Values	12	Include "public enjoyment and use of IRL"?	The vision, mission, promise, and goals were adopted by the IRL Council and cannot be modified in the CCMP.
11/21/2018	Mark Crosley, FIND	Role of the IRLNPEP	14	FIND has a pending economic update for the waterway within our District. Note that most economic update need to occur every 3 to 5 (max 7) years.	Noted - this information will be useful for future updates of the economic analysis
11/21/2018	Mark Crosley, FIND	Measuring Changes In IRL Vital Signs	17	Include reference to responsible boating includes marking and maintaining channel (and other marine infrastructure) and keeping boats in areas designated for boating access.	Noted - these can be used as techniques to achieve the action plan goals
11/21/2018	Mark Crosley, FIND	Wastewater	23	Include reference to boats in wastewater (I note it is included later in plan).	This section is more focused on WWTPs and wastewater from boats is included in Marinas and Boating
11/21/2018	Mark Crosley, FIND	Legacy Loads and Healthy Sediments	40	Note navigation dredging has the secondary benefit of water quality benefits by removing nutrient-rich fine sediments in channel	Noted - dredging in navigational channels is included
11/21/2018	Mark Crosley, FIND	Legacy Loads and Healthy Sediments	41	Under "Challenges to Success" include long-term storage and beneficial use of dredged materials. (later may be include in strategies?)	Added to list of strategies

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11/21/2018	Mark Crosley, FIND	Atmospheric Deposition or Contaminants of Concern	43 or 47	How does the naturally-occurring arsenic get into Florida's ecosystem. Is it worth mentioning?	The focus is on anthropogenic sources of contaminants that we can help to control.
11/21/2018	Mark Crosley, FIND	Contaminants of Concern	49	Include reference to "boat discharges"?	Boat discharges are covered under Marinas and Boating
11/21/2018	Mark Crosley, FIND	Seagrasses	54 or 55	Strategies or challenges?: Include the development of seagrass mitigation banking? Further limit human activity in areas of concern for benthic resources.	Protection from human activity added to list of strategies
11/21/2018	Mark Crosley, FIND	Living Shorelines	62	Second line, boat "wakes" (not waves)?	Changed
11/21/2018	Mark Crosley, FIND	Wetlands and Impounded and Altered Marshes	67	Under Strategies include wetland mitigation banking and marsh creation?	Added to list of strategies
11/21/2018	Mark Crosley, FIND	Spoil Islands	71	Add "FIND" to 1st line under "strategies."	Added to list of entities
11/21/2018	Mark Crosley, FIND	Land Conservation	75	Add reference to managing agricultural lands for caracara? (mostly an inland species, I know, but the "regulators" don't seem to understand this)	That management falls under a different program from the FDACS program discussed
11/21/2018	Mark Crosley, FIND	Connected Waters	80	Note that FIND has funding for "reef balls" and other habitat projects in the IRL as part of an overall public access project. Under "ocean Inlets" want to include marine economics as a consideration?	Added FIND funding for reef balls to Filter Feeders section
11/21/2018	Mark Crosley, FIND	Connected Waters	81	Note most listed inlets are already stabilized so the "natural opening and closing" WAS occurring. Last line of that paragraph might want to start last sentence with "Typically" and remove other comas.	Modified as suggested
11/21/2018	Mark Crosley, FIND	Invasive Species	93	Include encouraging the (commercial) harvest of invasive species as a management tool?	Added to list of strategies
11/21/2018	Mark Crosley, FIND	Commercial and Recreational Fisheries	100	Is there any data on fish population AFTER the net ban? Or maybe a noted trend?	The net ban occurred in 1995 and the fish population data in the chart are from 2015
11/21/2018	Mark Crosley, FIND	Commercial and Recreational Fisheries	101	2nd line, 3rd paragraph, include "or moved on to other occupations" after "forced out of work"?	Modified
11/21/2018	Mark Crosley, FIND	Harmful Algal Blooms	104	Next to last line... include "and ACTION" after "prepares a of investigation"	The plan was only for investigation
11/21/2018	Mark Crosley, FIND	Climate Ready Estuary	109	Should we be looking for opportunities for mangrove and seagrass habitats in areas NOT currently "wet" in preparation of sea-level rise?	This could be considered as part of land conservation
11/21/2018	Mark Crosley, FIND	Vibrant 21st Century Communities	112	FIND pending economic data applicable here	Noted
11/21/2018	Mark Crosley, FIND	Marinas and Boating	120	Need to include "with commercial activity mostly located on the IWW" at end of second paragraph.	Added

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11/21/2018	Mark Crosley, FIND	Marinas and Boating	121	Under "Strategies" include the establishment and maintenance of beneficial marine infrastructure to promote safe boating and habitat protection (i.e. mark and maintain channels and KEEP the boats there!)	Added to list of strategies
11/21/2018	Mark Crosley, FIND	Emergency Preparation & Response	128	Develop a "call center" or "clearing house for observed environmental impacts. (i.e. "911" number for the environment!)	Hotlines exist through several of the state agencies
11/21/2018	Mark Crosley, FIND	Monitoring and Data Sharing	132	Note that most in-water projects have to conduct benthic resources surveys and the FDEP and USACE SHOULD be compiling this data and making it available to other users as a data source.	Noted - this can be included in the Monitoring Plan development
11/21/2018	Mark Crosley, FIND	Citizen Engagement and Education	147	Include "information dissemination" under "challenges to success".	Modified existing Challenge to Success
11/25/2018	Bob Ulevich	Overall	N/A	Emphasis on SUSTAINED LONG-TERM funding	Added text about the need for stable, recurring funding
11/25/2018	Bob Ulevich	Overall	N/A	Emphasis on Monitoring (I know the whole section) but more so on the need for continual and expanded instrumentation network/placement and maintenance—I recall our discussion regarding the one monitoring station that funding was cut off for and the issue of where does the buck stop arose	Noted - a separate IRL Monitoring Plan will be developed
11/25/2018	Bob Ulevich	Hydrology and Hydrodynamics	N/A	? Flushing	Flushing (exchange) is discussed in Hydrology and Hydrodynamics and Connected Waters and Watersheds
11/25/2018	Bob Ulevich	Wastewater	N/A	Septic conversion	Septic system upgrades and connection to sewer are included in the Wastewater Vital Sign and projects will be included in the Projects Plan
11/25/2018	Bob Ulevich	Hydrology and Hydrodynamics	N/A	FDOT road systems and bridge/causeway designs – to allow for better flow and blending	The action for this is included in Hydrology and Hydrodynamics
11/25/2018	Bob Ulevich	Stormwater	N/A	ASR & Deep Water Storage---reduction and re-use of stormwater runoff	Added to list of strategies
11/25/2018	Bob Ulevich	Wastewater	N/A	Conservation—reuse—Expand into nontraditional areas –such as irrigation –beyond yards and golf courses???	Added to list of strategies
11/25/2018	Bob Ulevich	Overall	N/A	Tourism –Summarization—albeit many applicable segments are included and rightfully so---just don't know how to work that in the big picture without taking focus away from the science????	Tourism included throughout and will be included in updated economic analysis
11/25/2018	Bob Ulevich	Stormwater	31	I did note some references to costs estimates---and was curious i.e. Page 31--what is the source of the estimates	The costs for Stormwater-1 came from the SJRWMD report. The costs for Stormwater-5 came from the stakeholder projects submitted for the separate Projects Plan

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11/25/2018	Kelli McGee	Overall	N/A	Many thanks to you, the IRL Council and all its stakeholders for the many hours you have contributed to this outstanding document. I am pleased to support the CCMP and the direction of the NEP.	Thank you!
11/27/2018	Robert Stephen	Legacy Loads and Healthy Sediments	38-41	I have been working on the problem with Glyphosate for 3+ years. Thank you for addressing it.	Thank you!
11/27/2018	Linda Walters, UCF	Filter Feeders	57	I asked our biogeochemist about the denitrification numbers on page 57 of draft CCMP. Dr. Chambers does not think the report values were correct, so I think you should consider removing them from text. Dr. Chambers and I and colleagues have published a peer-review article on nutrients around oysters in Mosquito Lagoon in Estuaries and Coasts. It is attached here and probably a safer bet for CCMP document.	Text was updated to include Chambers reference and to revise information from Schmidt study
11/27/2018	Linda Walters, UCF	Indian River Lagoon	3	In middle paragraph, you have "and Mosquito lagoons". I think the expected language is really "and Mosquito Lagoon".	Reworded
11/27/2018	Linda Walters, UCF	Living Shorelines	61	There is research listed in action plans, so I would list academia in these sections. Attached are a few of our publications on IRL living shorelines that you can cite if you like. There are currently no peer-review articles in this section.	Added academia to list of partners for actions 1 and 3. Added text and citation from information provided
11/27/2018	Linda Walters, UCF	Biodiversity	85	I would explicitly include research on restoration on biodiversity success.	Added to list of strategies
11/27/2018	Linda Walters, UCF	Trash-Free Waters	116	Maybe consider a different trash clean-up photo? In this image it looks like some of the boys are tromping on mangrove roots.	The photo for the divider page was changed
11/27/2018	Linda Walters, UCF	Emergency Preparation & Response	128	Somewhere in text it mentions Mytella as an invasive. Since most folks do not know what it is, it would be worth writing it as the mussel Mytella charruana.	Modified

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11/29/2018	Patrick Pitts	Overall	N/A	<p>What I liked: I find the document to be very thorough and detailed. I like the shift of the revised CCMP “to active WQ and habitat restoration focus”. Although my expertise on water quality is very limited, I see that as the most important issue in the IRL. I think you covered all the WQ bases—at any rate I’m at a loss to think of any base you missed. I like the inclusion of close community coordination and collaboration, and the new action items under “Vibrant 21st Cent Communities” and “Citizen Engagement” vital signs. You can’t accomplish this CCMP working in an environmentalist/resource management vacuum. And I like the beefier and more state-of-the science “Monitoring and Data Sharing” vital sign, especially the new action items. I also liked the “State of the Lagoon” technical reports to inform subsequent CCMP updates, and the inclusion of the new Technology Innovation section. Before reviewing the document, there were a number of things I was hoping you addressed—things that need to be included but may have fallen through the cracks—such as: legacy loads associated with muck, known and emerging contaminants of concerns, conservation and management of wetlands, climate change, living shorelines, and derelict boats. I was pleased to see that you had dedicated vital signs sections for almost all of these. I especially liked the action items for addressing muck on pages 40-41 and I think you did a great job on addressing climate change with your “Climate Ready Estuary” vital sign. Other things I liked were the “connected waters and watersheds” vital sign (a critical component), the NEW action items for filter feeders, and the forage fish vital sign (I hadn’t thought of that).</p>	Thank you!
11/29/2018	Patrick Pitts	Overall	N/A	I didn’t really understand the mission of “One Lagoon-One Community-One Voice” until I got well into the document. Maybe a little explanation up front would be good.	Added information in the Taking Action section
11/29/2018	Patrick Pitts	Overall	N/A	If you haven’t already done so, you may want to cross-check the CCMP against other NEP CCMPs that have similar characteristics, especially those with similar water quality problems. The main purpose with this exercise would be to lower the chances you missed something. There is some indication on page 10 that you may have done this, and you probably did, but I’m not sure.	The IRLNEP staff reviewed all other CCMPs while developing this CCMP revision.
11/29/2018	Patrick Pitts	Overall	N/A	I recommend that you spell out/define each acronym when it first appears in the text (e.g., best management practice (BMP)). The acronym list at the beginning of the document can be referred to when a reader forgets what the acronym is, which is great. The standard format of most documents of this sort that I have read has the acronym list, but spells out/defines the acronym the first time it is used.	Each acronym is defined on first use in the document.
11/29/2018	Patrick Pitts	Overall	N/A	Almost all graphics and photos have poor resolution/quality (e.g., the map on p. 4, flowchart on p.6, vital signs wheel on p.15), at least the version that I accessed online does.	Graphics in the final CCMP will be high resolution.

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11/29/2018	Patrick Pitts	CCMP Revision: Responding to a Changing Lagoon	9 - 10	It would be good to see something on restoration of adjacent wetlands as a "key issue."	This is discussed in the Wetlands and Impounded and Altered Marshes
11/29/2018	Patrick Pitts	Measuring Changes In IRL Vital Signs	16 - 18	The tables cover a lot of ground. I'm a little concerned about the target aspect of those tables. In my work on Everglades restoration, we got a lot of flack when targets were not numeric specific. Increasing or decreasing trends were not considered viable targets. I see "defensible reference targets" used a few times, in those tables, but "defensible reference targets" are oftentimes difficult to determine. Just beware that target determination can be difficult.	Noted - identifying and refining targets will be an ongoing effort
11/29/2018	Patrick Pitts	Contaminants of Concern	50	Regarding contaminants, shouldn't the USEPA be one of the responsible lead agencies in the Action Plan Outputs table.	USEPA would be a funding source but the focus for the responsible agencies were on local entities
11/29/2018	Patrick Pitts	Seagrasses	52	Paragraph 4 refers to a "map" prepared in 2017 that documents seagrass acreage changes and reduced spatial extent offshore, but what is provided is a histogram plot. You may want to check this.	Modified wording
11/29/2018	Patrick Pitts	Seagrasses	53 - 55	What about including something on boater education and perhaps signage to prevent prop scarring in seagrass beds? Those steps are becoming more common in other regions like the Keys. I noticed a little bit about this in the "Marinas and Boating" vital sign, but I think it could be more explicit.	Noted - this can be included in the updated Boaters Guide to the IRL
11/29/2018	Patrick Pitts	Measuring Changes In IRL Vital Signs	16 - 18	When reading through the vital signs section, I noticed that the "One Lagoon" component followed the order that is in master vital signs table on p.16-18. However, for the "One Community" and "One Voice" components, the vital signs are in a different order. I noticed this because I cross-checked the individual vital signs write-ups against the tables to make sure no vital sign write-up was left out (and no vital sign was left out). I recognize this is a minor thing but just wanted to point it out.	The tables were revised to match the order of the document.
11/29/2018	Patrick Pitts	Measuring Changes In IRL Vital Signs	16 - 18	Also, there are slight differences in the "names" of the vital signs between the tables on p.16-18 and the vital signs sections (e.g., under One Voice the table refers to "Policy Consideration" and in the write-up it is titled "Policy Opportunities"). Again, very minor but wanted to point it out.	The titles in the table were revised to match the Vital Signs titles.
11/29/2018	Patrick Pitts	Monitoring and Data Sharing	131	The graphic at the bottom of p. 131 is so fuzzy I can't determine if it is even referenced in the text but I don't think it is. Need to fix.	This graphic is meant to be an example of monitoring and output and the results are not referenced in the text

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11/29/2018	Frank Catino	Overall	N/A	Most important thing NEP can do is educate the public on the things they can be doing to help the lagoon.	Noted - in addition to the Lagoon-Friendly campaign, the IRLNEP will be developing an IRL Communications Plan and IRLNEP "One Community – One Voice" Initiative to help with education
11/29/2018	Frank Catino	Overall	N/A	There are many splinter groups out there all putting out information that may or may not be scientifically based and accurate. We need to work toward getting the info we want out to people on how they can participate in fixing the lagoon. Other issues like stormwater and septic to sewer will fall on counties and municipalities to address. The average person has nothing to do with that at all. But there are things citizens can do to help and NEP should be focused on that.	Noted - in addition to the Lagoon-Friendly campaign, the IRLNEP will be developing an IRL Communications Plan and IRLNEP "One Community – One Voice" Initiative to help with education
11/29/2018	Frank Catino	Overall	N/A	Try to position the NEP to be the umbrella and bring all of the various groups together to find the common messages that need to be conveyed to the public. Some groups are not relating scientific information and the public can't tell the difference a lot of time. People want to do the right thing, but they have to be told what the right thing is. NEP should fill that role and help unite all the groups out there so people hear a correct, science-based message and feel like they can do something to help.	Noted - this is the goal of the "One Community – One Voice" Initiative
11/29/2018	LeRoy Creswell	Wastewater	23	Improve wastewater infrastructure - septic transition to municipal	This is included in the Wastewater Strategies and Actions and projects will be included in the Projects Plan
11/29/2018	LeRoy Creswell	Legacy Loads and Healthy Sediments	38	Prioritize legacy loads and much	Legacy Loads and Healthy Sediments is one of the Vital Signs and is therefore a priority
11/30/2018	Carter Henne	Seagrasses	53	"However, all require good water quality and clarity to survive and grow" This statement suggests that all seagrass growth strategies are the same. This statement is an oversimplification, most likely intended for individuals that are not experienced with seagrass restoration. I am concerned that this statement does not account for the large plasticity between seagrass species or the site condition being planted in. I believe that this statement could read "The seven-seagrass species that live within the IRL all have unique survival strategies for growth."	Modified the sentence

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11/30/2018	Carter Henne	Seagrasses	53	<p>“Although seagrass recovery will begin when water quality improves in the IRL” Seagrass rebounding after water quality increases is a very tried and true model for seagrass managers to follow. This model was seen very clearly in Tampa Bay and is the primary reason for the abundance of seagrass that grow in waters deeper than 6ft there. The IRL and Tampa Bay obviously are vastly different in morphology. Seagrass expansion in Tampa Bay has a vastly shorter spatial distance to travel than colonizing seagrass in the IRL. For instance, areas that are devoid of seagrass within the IRL may have a very challenging time recruiting seagrasses because the seabed no longer sponsors conditions that are suitable for it. These negative conditions include the microbial biome, sediment stabilization, grazing pressure resistance, and so on. These factors can be seen in areas adjacent to the North of Feather Sound in Old Tampa Bay. This area has not enjoyed the same proportional seagrass improvements as seen in other areas of the Bay. Water quality obviously plays an important part of retarding growth to rooted seagrass, but there are many more factors to consider when it comes to re-colonization of bare areas. My point is an increase in water quality will only allow seagrass to grow deeper, it does not influence increasing recruitment or density.</p>	Modified the sentence
11/30/2018	Carter Henne	Seagrasses	53	<p>“Proactive planting is a restoration technique that can complement and enhance natural recovery” I would also add planting is an effective tool for restoring seagrass, but it could be mentioned that there are also other highly effective methods including nutritional improvements, wave protection, and Herbivore exclosures. However, without a sense of scale the likelihood of any intervention will likely be unsuccessful.</p>	Added to the text
11/30/2018	Carter Henne	Seagrasses	53	<p>“Whether it is the relocation of an entire bed or the removal of random plugs from an existing bed, the use of donor beds is necessary for seagrass restoration now” It depends on how much area is going to be planted at one time. Experienced growers can grow seagrass at surprising speeds in controlled conditions. It takes only roughly 5,000 planting units per acre at 3 ft o.c. That is not a difficult number to achieve in controlled grow out conditions.</p>	Modified this sentence

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11/30/2018	Carter Henne	Seagrasses	54	<p>“Seagrass-3: Fund innovative pilot projects and partnerships. (NEW) Evaluate new seagrass restoration techniques. IRLNEP, academic research partners, private companies WMDs Planting costs range from \$25,000 to \$80,000 per hectare (\$10,000 to \$32,500 per acre)⁶ ; additional costs for stock, staff time, and monitoring DEP, FWC, USFWS, NPS, academia, interest groups Conduct, coordinate, and collaborate” The cost per acre is way off. This number was paraphrased out of the FWC seagrass toolkit which was cited from a NOAA Document. The NOAA document went on to say that actual costs are upwards of \$200k per acre. Mechanically planting, protecting, and maintaining nursery grown seagrass should cost around \$100k per acre and less if there are economies of scale. Transplanting an acre of seagrass is one thing but it is an entirely different venture to transplant and cultivate it in an area that has been denuded. It often requires wave attenuation, growth stimulants, or herbivore exclosures.</p>	Updated costs
11/30/2018	Carter Henne	Seagrasses	54	<p>Outcomes: Intervention on bare or sparsely occupied areas should occur tomorrow. The more there is seagrass loss the higher the grazing pressure and the impacts from sedimentation will be on the beds left behind and further increase the rate of seagrass decline for the entire IRL. Obviously, there are areas in the lagoon as well that are not currently suitable for seagrass restoration. I believe that the medium-term outcome could be evaluated while restoration is occurring. If the NEP took on a “pay for performance” or “Contractor at Risk” model to incentivize organizations that can perform seagrass restoration it would alleviate risk to the IRLNEP and reduce time lag.</p>	Modified the outcomes
11/30/2018	Chris Bodisco, Stetson University	Overall	N/A	<p>Overall, I think it is a strong, effective document. I like the format, especially how each piece is placed in a larger context. I think more attention might be devoted to briefly linking issues with other relevant issues to clarify how the IRL is an integrated system, e.g. living shorelines with climate readiness. I also appreciate the identification of obstacles as well as goals in the text. I would like to see the IRLNEP role in tables to be expanded beyond coordinate and collaborate. Some specific actions that could improve the likelihood of a project getting approved would add value to this cell of the table. For example, coordinate/enhance education outreach, or aggregate political allies. This would be particularly effective if it incorporated some attack on the obstacles listed below each table.</p>	<p>Additional text linking Vital Signs as added throughout in the version that went out in November, the Role of the IRLNEP in the introduction provides more detail on the IRLNEP roles including developing an IRL Communications Plan and implementing the “One Community – One Voice” Initiative</p>
11/30/2018	Chris Bodisco, Stetson University	The National Estuary Program	2	<p>Agree with Clay, need summary statement about IRL: description, ecological and economic significance.</p>	This was added in the draft that went out in November
11/30/2018	Chris Bodisco, Stetson University	Pathway to IRL Restoration	11	<p>“For this CCMP, a healthy IRL provides essential ecosystem functions that deliver sustainable ecosystem services to society” How will we agree what those are? Need to refer to objective, science based measures that indicate the broader goal is being achieved.</p>	This sentence was revised in the draft that went out in November

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Date	Name	Action	Page #	Comment	Response
11/30/2018	Chris Bodisco, Stetson University	CCMP Revision: Responding to a Changing Lagoon	9	"Most importantly, this revised CCMP shifts its emphasis to an active water quality and habitat restoration focus." This makes my previous point. Page 6 should support this emphasis by linking the social goal with the specific actions being taken.	The text was revised in the draft that went out in November
11/30/2018	Chris Bodisco, Stetson University	CCMP Revision: Responding to a Changing Lagoon	10	"Across the spectrum of external and internal sources of loads, a higher standard is required to rectify past loads, limit current loads, and prepare for the loads associated with growth of the human population that is yet to come." This is extremely important and yet appears to be inconsistent with some efforts by stakeholders to revise standards according to more recent, 'more relevant' benchmarks.	Noted
11/30/2018	Chris Bodisco, Stetson University	IRL Vital Signs	14	Health concern levels are very helpful for the public and for experts in areas where they are not as well informed. I would like to see more about these graphics. What are the actual values currently? What metrics determine the level of concern, who computes them, based on what data? Can we see examples of how they are being used?	The health concern levels were added to each Vital Sign in the version that went out in November based on feedback from the Management Conference
11/30/2018	Chris Bodisco, Stetson University	Measuring Changes In IRL Vital Signs	16	Shouldn't each vital sign have a concern level associated with each component? Have concern levels been established? Shouldn't this process be discussed by this point in the CCMP?	The health concern levels were added to each Vital Sign in the version that went out in November
11/30/2018	Chris Bodisco, Stetson University	Impaired Waters	20	"In March 2009, the DEP adopted TMDLs for the IRL watershed, which was determined to be impaired due to excessive amounts of TN and TP.1 " Would it make sense to show a table of the current values across IRL to show the level of impairment, and perhaps to link to concern levels?	This is more detailed than needed in this report
11/30/2018	Chris Bodisco, Stetson University	Impaired Waters	20	Graphic is good, but haven't we been doing those things, yet have increased problems? In tipping points these problems were discussed. Should they be re-addressed here?	Additional suggestions to help improve water quality are included in the Strategies and Actions
11/30/2018	Chris Bodisco, Stetson University	Impaired Waters	21	"to meet and exceed required water quality standards" If our goal is to exceed standards then, unless this is simply positioning of perceptions, some linking back to the 'higher standards to rectify past issues' concept should be emphasized at some point in this section.	References to higher standards are included in appropriate vitals signs, such as Wastewater and Stormwater
11/30/2018	Chris Bodisco, Stetson University	Impaired Waters	21	In a related point, Barriers to Success are substantial. How are they being addressed?	Implementing the Strategies and Actions should help to address the Challenges to Success
11/30/2018	Chris Bodisco, Stetson University	Wastewater	24	I simply want to highlight Clay's comments here.	Noted
11/30/2018	Chris Bodisco, Stetson University	Stormwater	31	Wording of point #4 concerning BMP's needs correcting.	This was reworded in the version that went out in November

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11/30/2018	Chris Bodisco, Stetson University	Climate Ready Estuary	108	I think it would be useful to address the effects of sea level rise on natural IRL features in addition to infrastructure impacts. "A climate ready estuary is one where ecosystems are given the opportunity to adapt to rapidly changing conditions spurred by a warmer climate. For example, living shorelines provide the opportunity for sea grass or marsh plants to migrate as water levels rise."	Information related to this was added in the version that went out in November
11/30/2018	Chris Bodisco, Stetson University	Monitoring and Data Sharing	132	Excellent point made in defense of data collection. Data collection is the only mechanism we have to conduct quality control on publicly funded projects, and ongoing monitoring cost fees should be included as a small part of every project grant to measure impacts and assess effectiveness.	Noted
11/30/2018	Chris Bodisco, Stetson University	Citizen Engagement and Education	147	Change "individuals' nice yard" to "landscapers' reliance on traditional concept of a grass lawn". A living shoreline with native plants can be nice too. (Granted, a few extra feet of yard provided by a sea wall can increase a home's value, but only if the quality of the lagoon does not deteriorate.)	This challenge had been reworded in the version that went out in November
11/30/2018	Anthony Catanese, FIT	Overall	N/A	The CCMP provides a broad vision and strategy to restore and enhance the IRL. It will be of great interest to the public and its elected representatives. It also provides a large array of research topics for experts in the various fields that are vital for this effort. I would also hope that this or some version of it be presented, even required, in K-12 schools. When Daniel Burnham did his plan for Chicago over a century ago, its basic points were presented to schoolchildren in the famous "Wacker's Manual." This provided the next generations with the knowledge they need for the future.	A separate public version of the plan will be prepared that highlights the key points and the IRLNEP will be developing an IRL Communications Plan and implementing the "One Community – One Voice" Initiative. Consideration can be made for education for K-12 schools
11/30/2018	Graham Cox	Message from the IRLNEP Executive Director	viii	The introduction, what is this plan, why is it important: This background and summary of the plan in the message from the executive director is a very helpful introduction. Is there a way – is there an item in the printing budget for the Council – to take the Executive Director's message, edit where needed, add some photos and graphs from the text as illustrative, and make this a separate summary web page and hand out document? For general public consumption. Very few people will plow through the whole CCMP but they will take notice of the very short summary message.	A separate public version of the plan will be prepared that highlights the key points

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Date	Name	Action	Page #	Comment	Response
11/30/2018	Graham Cox	CCMP Revision: Responding to a Changing Lagoon through Role of the IRLNEP	9 - 14	This is crucial information to put the lagoon and the IRL management structure in a broader context. Especially discussing the lagoon at a tipping point and the influence of the discharges from Lake O. In the management discussion, leveraging the knowledge of the NEP network is also critical to restoration success. We have to know that we are not alone out there; there is plenty of positive experience to draw from nationwide and even worldwide. With respect to mapping, monitoring, modeling: I am looking forward to the day we can get the lagoon on an interactive GIS website so that the public can access the attribute tables, bring up the data for each part of the lagoon and see how things change over time and area. Waiting for printed publications to appear every few years is not adequate to get people's attention and action.	Noted
11/30/2018	Graham Cox	How to Use the Vital Signs Wheel	15	The vital signs wheel is a useful way to present the big picture and the individual parts that will take us to a healthy lagoon but with help from graphic designers we may be able to overlay a graphic for each vital sign that can show improvements – or otherwise – in each spoke of the wheel, maybe as a color coded line that goes from red (no action) to green (making progress) from the outer rim to the central core – a restored, healthy lagoon. Essentially taking the indicators/measures on pages 16 through 18 and translating them from words to a colored line symbol. If this is not a clear explanation I will be happy to talk more about this with you.	This can be considered for the public summary version of the CCMP
11/30/2018	Graham Cox	Water Quality	20 - 52	These pages are a clear description of the issues we must resolve. The pages are packed with good information and the steps we can take to tackle each one. Page 48-51 is of special concern to me. These pages discuss some of the so-far unmonitored and unmeasured threats to water and wildlife including microplastics and glyphosate. I am pleased to see them identified as a serious threat to life in the lagoon and as a threat, as yet ignored, to the health of humans in the watershed as a whole. This is a serious issue in the lagoon and in the waterways that drain to the lagoon including the canal systems that drain the agricultural lands and the city and suburban areas.	Noted - the CCMP outlines strategies and actions to help gather information about these contaminants
11/30/2018	Graham Cox	Habitats and Living Resources	53 - 104	I will leave these pages and issues to the experts to comment. Save for one, on pages 89 – 91, species of concern. Audubon, local and national, has data or access to data from many bird surveys that should be used and integrated as indicators of the health of the ecosystems in and along the shores as well as inland. PIAS offered these data to the MRC on brown pelicans as an indicator of the health of the lagoon ecosystem over time as part of their report but these data did not make the MRC report. These data from many bird species would add some real visible detail to our assessment of the lagoon health	Added Audubon Society to list of partner entities on Species of Concern-1

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Date	Name	Action	Page #	Comment	Response
11/30/2018	Graham Cox	Distinctive Lagoon Communities	125	<p>Environmental justice communities: This section discusses reaching out to minority communities, but this whole issue and text needs to be beefed up. We have Black and Latino communities throughout the Treasure Coast region. They are as seriously impacted by the deterioration of the lagoon as anyone, maybe more. They are the service workers, the laborers in the citrus groves and in the fields, yet we have done a poor job linking their lives and the their specific health hazards to the lagoon, the chemical soup that we are serving. We have quality of life indicators for three minority communities in Indian River County. We need to expand this discussion to all the minority communities in the five counties. The health of the minority communities must be an indicator all of its own. Topping the 20 indicators we have developed for Indian River County's minority communities are several physical indicators – flooding and poor drainage, septic tanks that do not work, the need for sewers and sewage treatment, paved roads instead of dirt roads. Also heading the list – public safety, the need for jobs and need for education opportunities. Each one of these indicators is connected to the health of the lagoon and its watershed. Yet we have not given these indicators the attention they deserve in these minority communities.</p>	Noted - that level of detail is greater than what is needed in this document
11/30/2018	Graham Cox	Monitoring and Data Sharing and State of the Lagoon	131 - 137	<p>Monitoring, data sharing, state of the lagoon reports: The whole CCMP report is based on developing indicators. That is a reassuring note to PIAS – the CCMP authors have not ignored PIAS pitches on this topic over the last few years. It is based on the idea that if we cannot measure it we cannot manage it, or on the idea that better data means better discussion and in the end better decisions on policy and action. Thank you for using indicators as the base for this report.</p>	Thank you!
11/30/2018	Graham Cox	Citizen Engagement and Education	144 - 148	<p>Citizen engagement and education: we might want to talk about citizen input to the CCMP as a constant activity, not a once every five year activity. You might want to strengthen the citizen engagement and education chapters, starting on page 145. The text identifies some education programs but does not mentioned Audubon Advocates and educating young people, even though the Council has invested heavily in PIAS and the Audubon Advocates lagoon science program. I think we should be talking much more about the role of our schools and colleges and linking the lives of our younger folks to the lagoon. They are the ones who will benefit from a clean lagoon and they are the ones who will be paying the bills.</p>	<p>In addition to the Lagoon-Friendly campaign, the IRLNEP will be developing an IRL Communications Plan and implement the “One Community – One Voice” Initiative to help with education and outreach. Added Audubon Advocates to this section</p>

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Date	Name	Action	Page #	Comment	Response
11/30/2018	Graham Cox	Federal, State, and Local Policy Opportunities	149 - 150	There is an opportunity to talk much more about transforming landscapes by changing landscape ordinances. There are also pages talking about land conservation and changing city and county master plans to be consistent with the CCMP recommendations. This is a big job, a long term job changing county and city landscape and land planning laws and codes to be consistent with the CCMP. But we do know what has to be done to change the rules that will help us bring back native vegetation, to get rid of non-native grasses, to cut down on stormwater flows to the lagoon. Again, it is a public education task that should be highlighted in the CCMP.	Noted - this will be part of working with local governments to modify comprehensive plans, land development regulations, codes of ordinances, or other guidance documents
11/30/2018	Graham Cox	IRLNEP Management Conference	8	Please feel free to add my name to the citizen advisory list	Added
11/30/2018	Douglas Gibson	Overall	N/A	I can't remember if I sent you my thoughts, but everything looked good to me	Thank you!
12/1/2018	Leesa Souto, MRC	Overall	N/A	Although I appreciate the hard work that was executed to prepare the current document, I am deeply disappointed in the method used to revise and update the CCMP, our community's most important management tool to restore the Indian River Lagoon. I am the leader of an organization that strives to build consensus on important lagoon actions and decisions through a facilitated bottom-up process - recruiting stakeholders, hiring facilitators, and doing the really hard work of building consensus. I have a hard time accepting a document that was for the most part driven from the top-down. MRC firmly believes in using community led discourse to reveal true brilliance, create lasting relationships, and reach solidarity in a goal. Facilitating meaningful discussion from your management conference as well as other stakeholders could have revealed new strategies that weren't previously considered. Arguing diverse viewpoints while building consensus may have illuminated a path to prioritizing actions. New partnerships could have formed to address solutions as people met and talked about their work. People expressing their concerns, their beliefs, their disappointments, their success stories, face to face, during guided workshops. This is really what we needed as a management conference, a chance to vent, to share, to get to know each other as we worked on OUR plan. Making it ours, with true buy-in. Instead we got a document sent to us that was written by a consultant and we were asked to individually, from our desks, in a vacuum, edit it. I found myself looking for typos, my typical role editing at my desk. I actually have much more to offer than that. I am sure others do too. I understand that there was some urgency to getting the document completed, but I don't think it would have taken much longer to do it with true community input. I believe that the outcomes would have been much more meaningful.	Discussions on the CCCMP revision have been ongoing since early 2017. These discussions occurred during all Management Conference meetings. IRLNEP staff also made 61 presentations to agency partners, community groups, and other organizations about the CCMP revision in FY2017-2018. The draft CCMP was provided for STEMAC review in March 2018 and was provided for larger Management Conference and public review in July 2018 and the comment period was extended through November 2018. IRLNEP made discussing the CCMP and obtaining input on the document a top priority. Facilitated discussions were held, presentations were made, surveys were sent out, comments were solicited, and extensive comments and information were obtained. All of this input made the CCMP a document that the IRLNEP partners support.

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12/2/2018	Billy Rotne, Captain	Commercial and Recreational Fisheries	101	Deliverables from action plan: I'm glad to see inclusion of fish stock enhancement, a possible path leading to protection of our unique red drum and sea trout population.	Thank you!
12/2/2018	Billy Rotne, Captain	Marinas and Boating	120	I would encourage the updated boaters guide to include mapping of remaining sea grass as well as cautionary information regarding manatee densities.	Noted - this can be considered when the Boaters Guide is being updated
12/2/2018	Billy Rotne, Captain	Contaminants of Concern	49	Thermal pollutions impact on the elimination of manatee migration should not be overlooked. This may have created a situation where the manatee population has exceeded the carrying capacity of the system, and could be influencing grass loss as well as fecal coliform levels.	Added reference to manatees in this section
12/2/2018	Billy Rotne, Captain	Wetlands and Impounded and Altered Marshes	65	The management of impoundments for waterfowl is indefensible, antiquated, and is not fair to the rest of the animals that utilize the habitat within impoundments and the greater ecosystem. Impoundments within MINWR, namely Mosquito Lagoon, should be reconnected to open water via excavation. Culverts are comparatively restrictive to earthen causeways, while both allow some water movement, it's insufficient to achieve proper ecosystem function and are used as justification of restoration, while true restoration is not being achieved.	Noted - this section states that only about 2% of the impounded wetlands are managed for waterfowl. A variety of options to reconnect wetlands will be explored
12/2/2018	Billy Rotne, Captain	Commercial and Recreational Fisheries	100	I strongly disagree with this sentence: "Recent fisheries data from the Fisheries- Independent Monitoring Program generally show fisheries stocks in the IRL to be stable, although smaller than historical numbers have been observed." There have been dramatic reductions in fish numbers, redfish and especially sea trout have been significantly impacted. It has become excessively apparent over the past 2 years that sea trout in particular have seen a massive reduction in population, beyond the previous levels of decline experienced by the overall sport fish population.	Noted - based on the cited data, the populations are stable but this trend may be changing
12/2/2018	Billy Rotne, Captain	Commercial and Recreational Fisheries	101	I would have also liked to see suggestions for catch and release management, for numerous reasons varying from population declines to potential safety issues with consumption of fish from such a polluted estuary, as studies have shown chemicals harmful to humans to be present from the bottom to the top of the lagoon food chain.	Added to the list of Strategies
12/2/2018	Melissa Martin	Overall	N/A	AWESOME; definitely "comprehensive" in covering all angles and considerations along the lagoon's space-time continuum.	Thank you!
12/2/2018	Melissa Martin	Vibrant 21st Century Communities	112	Under the current administration (interests), I believe the ROI paragraph on p.112 could be more prominently featured, perhaps in the beginning, with easy-to-understand info-graphics that would help relay the urgency of actions laid out in the Plan. I believe this aspect plays best with the socio-political paradigms of administrative officials.	Noted - this can be considered for updates to the IRL Economic Analysis
12/2/2018	Melissa Martin	Overall	N/A	Many of the graphics (at least in the hyperlinked pdf) were low-resolution, often hard to read.	The graphics will be higher resolution in the final document

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12/2/2018	Melissa Martin	Overall	N/A	From my military background, it helps with any comprehensive plan to clearly designate which unit is taking "lead" on any particular function/effort, and which units are clearly in "support." That may not be feasible in this case, but I offer it as an FYI for operational planning, engaging all players and stakeholders so everyone understands their role and responsibilities.	The action plan table for each Vital Sign lists the responsible lead and partner entities for each action
12/2/2018	Melissa Martin	Overall	N/A	It would be helpful to have a progress tracker hyperlinked from the Plan to a shared document that can be updated perhaps annually. For example, either by location (county) or function (vital sign)...lay out the benchmarks of progress and maintain a dashboard graphic of where we were, where we are and where we still need to go (Green, Yellow, Red highlights). This, too, assists with progress through socio-political "peer pressure" among IRLNEP board members; perhaps friendly competition of progress between counties(?)	Noted - this can be considered as part of plan implementation
12/2/2018	Melissa Martin	Overall	N/A	I think the CCMP needs to "socialize" better and capture collateral (Federal) efforts from KSC and CCAFS, at least identifying the Memorandum of Agreement (assuming there is one) terms, conditions, roles, responsibilities and routine meeting/plan analyses.	These details on coordination between the IRLNEP and federal agencies are not available
12/2/2018	Melissa Martin	Contaminants of Concern	49	I appreciate the discussion of contaminants like glyphosate etc. on p.49, and would love to see this incorporated more in identifiable actions; perhaps in policy development, monitoring, etc. I believe more attention needs to be placed on this ongoing (and potentially very harmful) government practice; if anything, to limit exposure to civil liability. Similarly, though mentioned, I believe the (human health) risks and dangers from microcystins should be more prominently addressed as it pertains to public policy. (See for ref, in addition to Dr. Widder's research, a recent study on toxic cyanobacteria interplay with salt - https://www.usgs.gov/news/salty-water-causes-some-freshwater-harmful-algae-release-toxins.)	These actions will be developed as part of implementing Contaminants of Concern-1 and 2 from the action plan table
12/2/2018	Melissa Martin	Citizen Engagement and Education	145	Finally, I'm not sure where or how it would be appropriate to include, but -- "comprehensively" -- with long-term factors in mind, I believe it's beneficial to assure education/outreach CLEARLY includes engagement with the public school system and other youth organizations (above and beyond MDC, Zoo, etc.). The Plan contemplates generations, and to solidify the future of Our Lagoon, we necessarily need to excite and inspire today's kids to eventually take the reins of stewardship in the not-too-distant future.	Noted - ways to engage the public school system and youth organizations will be considered when developing the Communication Plan and implementing the One Community – One Voice Initiative

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Date	Name	Action	Page #	Comment	Response
12/2/2018	Lewis Kontnik	Overall	N/A	The draft CCMP is a thoughtful, technically comprehensive and well written document. I like its four high level goals (water quality, healthy ecosystem, public awareness/coordination, and long term funding). I am impressed how these four areas are disaggregated into the 32 indicators and the plans related to each. This work represents a good summary of the current state of play for each indicator and does identify actions that are important in moving toward achieving the objectives and goals. Bravo for the work as far as it goes!	Thank you!
12/2/2018	Lewis Kontnik	Overall	N/A	My comment and concern is how this rather complex set of plans can and will be actually "operationalized." There are many, many actions called for by scads of different organizations, entities and actors. My concern is what knowledge and acceptance is there among all these parties as far as what their expected roles and deliverables are/will be and what the plan calls for if major roadblocks are encountered in key area? To take two examples: Healthy Communities-Marinas and Boating: The plan calls for education/handout materials, coordination to increase enforcement. Who will drive this process and what appeal or forcing mechanism can be called on if progress on actual performance lags? Water Quality-Stormwater: The plan lists the Everglades Comprehensive Restoration Plan, and yet this may be totally outside the ability of the actors within the CCMP to ensure. What, if any, response/alternative should be considered if this Plan is delayed or derailed? To some extent, my comment really asks: Are there priority projects/indicators that should be identified as being critical to the overall CCMP (because they are uniquely important and may be more "controllable" by the Council, or some other criteria)? Should the CCMP have a plan or mechanism to react to by slowness/lack of progress in these critical areas?	The CCMP was shared with the entities listed in the action plan tables to ensure they were comfortable with their roles. Some of the critical CCMP elements are assigned to the IRLNEP and the other actions will be the responsibility of the lead entities listed in the tables
12/2/2018	James Moir	Overall	N/A	The report is a nicely done readable hind cast. The narrative review of the recurring algal blooms was particularly well done. I know it is difficult to critique funding sources, but the lack of funding for monitoring and data collection by SFWMD has left a dramatically shifting ecosystem in the southern reaches of the Lagoon negligently undocumented by state agencies. The narrative about C-44 discharges is entirely accurate with regard to salinity regime and Cyanobacteria blooms but misses the large volumes of nitrogen and huge sediment loads carried by high volume Lake O discharges. I think if during the GIS spatial mapping of partner research projects is underway a parallel resource guide describing: what is being done, who is doing it, and at what stage or status the project is in would be more instructive.	Noted - these items will be included in the Monitoring Plan

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12/2/2018	Joe Falzone	Overall	N/A	Outstanding document, outlining the future of the preservation of our beloved Lagoon. Factually based on sound science, this plan addresses what needs to happen now and into the future so that our children and their children will enjoy what many of us have almost taken for granted. History shows that no action is no plan. This is a huge step to Save the Lagoon!	Thank you!
12/3/2018	Monte Falls, City of Vero Beach	Legacy Loads and Healthy Sediments	41	Under Challenges to Success, add reference to the practice of aquatic vegetation control by 298 Water Control Districts.	Added to list of Challenges to Success
12/3/2018	Jeff Beal, FWC	Overall	N/A	In general, the Plan revision represents a well-written, welcome departure from the previous CCMP documents and outlines a sound science- and management-based approach for the IRL moving forward. The plan format and additions such as the Vital Signs section offer a user-friendly approach. Please consider the following comments with regard to some specific content.	Thank you!
12/3/2018	Jeff Beal, FWC	Measuring Changes In IRL Vital Signs	16	The overarching goal of IRL restoration to a macrophyte-based system of primarily seagrasses and coastal wetlands, as opposed to the recent trend of macro- and/or micro-algal-dominated, is paramount and should be clearly stated. The issue of light attenuation is of particular importance with regards to seagrasses. The scientific literature suggests that this parameter might be the most important. While the relationship between nutrient input (and associated metrics such as POM) to the light field is strong (McGlathery et al. 2007), other influences such as color, turbidity, CDOM and salinity play a role and therefore nutrients alone cannot be the main focus with regards to seagrass restoration in particular. The issue of light is difficult to address in the CCMP format due to its complexity and is often implied in various sections of the document (stormwater, hydrology, seagrasses, HABS). It would be beneficial, however, to raise awareness of its importance by adding more text in key areas in the document. For example, the Table might include the following text under the Stormwater Vital Sign: light attenuation coefficient (under Indicators) and percent of light reaching the substrate (under Targets). (McGlathery, KJ, K Sundback, IC Anderson. 2007. Eutrophication in shallow coastal bays and lagoons: the role of plants in the coastal filter. MEPS 348:1-18.)	Added suggested indicator and target
12/3/2018	Jeff Beal, FWC	Measuring Changes In IRL Vital Signs	17	Also, consider amending the Target for Spoil islands as: Islands restored, enhanced, and managed. Some islands are converted to hammock without truly restoring them to aquatic habitat.	Modified as suggested

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12/3/2018	Jeff Beal, FWC	Hydrology and Hydrodynamics	35-37	Although the CERP is part of the 2017 SJRWMD/FDEP project plan mentioned elsewhere, this section does not mention some key research and management documentation; namely, the IRL South Feasibility, the Loxahatchee River Watershed Restoration Plan, and the MFLs for the SLR and Lox Rivers. These could be highlighted as the standard for largescale restoration planning in the IRL because they incorporate hydrologic modeling at a necessary level of scale and downstream effects with explicit performance measures beyond just nutrient reductions. Also, other larger tributaries such as the Sebastian River, Turkey Creek, Crane Creek, and Eau Gallie River would benefit from this scope of planning historically conducted in the SLE/Lox. A suggested strategy bullet point: Develop and refine quantitative performance measures for abiotic and biotic components for all regional-scale projects. Also, a suggested Action Hydrology-4: Set performance measures for landscape-level projects based upon hydrologic models, literature values, and IRL research findings.	Added text about CERP, added suggested strategies
12/3/2018	Jeff Beal, FWC	Hydrology and Hydrodynamics	35-37	The issue of light should also be addressed in this section (see also text above in Vital Signs). The IRL has existing seagrass targets for the north/central (Steward et al. 2005) and south (Crean et al. 2007) which are largely based upon light and associated water quality parameters (color, turbidity, CDOM). These can be further refined using new technology such as satellite imagery and in situ instrumentation, but the indicators of light attenuation coefficient/percent of subsurface light reaching the substrate remain useful.	Added text in the Seagrasses section
12/3/2018	Jeff Beal, FWC	Hydrology and Hydrodynamics	35-37	References to be added: Crean, DJ, RM Robbins, N. Iricanin. 2007. Water quality target development in the southern IRL. Florida Scientist 70:522-531. Steward, JS, RW Virnstein, LJ Morris, EF Lowe. 2005. Setting Seagrass Depth, Coverage, and Light Targets for the Indian River Lagoon System, Florida. Estuaries 28(6): 923-935.	Added references to the Seagrasses section
12/3/2018	Jeff Beal, FWC	Legacy Loads and Healthy Sediments	38-42	Muck capping on the east coast of Florida is a proven technology given the success in Palm Beach County which encompasses hundreds of acres in various projects over the past decade. Please add the following Action Legacy Loads-4: Evaluate and assess muck capping projects in Florida and identify sources of suitable sediment for muck capping. The output is to gain understanding of technology such as the sand-shooter and its potential application in the IRL. Leads are FDEP and local governments with PBC, FWC, FIND as partner agencies. All of these entities have expressed interest in assisting with this important topic.	Added muck capping to Legacy Loads-3

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12/3/2018	Jeff Beal, FWC	Seagrasses	52-55	The McGlathery et al. 2007 reference is a good summary of what occurs when estuaries containing seagrasses experience eutrophication. A strategy in this regard is: Evaluate the current state of the IRL feedback mechanisms and nutrient cycling to assess the ability of the system as a 'coastal filter.' Because the efficacy of planting remains in question, consider modifying the strategy that reads 'Plant new seagrass beds in strategic areas to accelerate recovery' to read 'Develop and assess seagrass nursery techniques and planting strategies in strategic areas to determine the efficacy of accelerating recovery.' Also, consider adding Action Seagrass-5: Refine the existing seagrass restoration targets for the IRL based upon new technology measuring light attenuation. Output is Develop updated targets within each IRL segment for maximum depth and density. For Action 4, please add NERT/ECERT as partners.	Added suggested strategies and partners
12/3/2018	Jeff Beal, FWC	Seagrasses	52-55	References to be added: McGlathery, Steward, Crean (above)	Added references
12/3/2018	Jeff Beal, FWC	Filter Feeders	56-59	To the bullet starting with 'Develop a comprehensive filter feeder management plan...' please add genotypic variation as a benefit. Consider adding Action Filter Feeders-4 as follows: Assess and expand existing bivalve nursery operations for the benefit of commercial and restoration purposes and conduct research regarding culture and outplanting techniques. Leads would include those listed in Action3 with partners HBOI, FOS and UF Whitney Lab.	Modified existing bullet and added new suggested strategy
12/3/2018	Jeff Beal, FWC	Living Shorelines	60-63	Please add text regarding the UCF Shoreline Characterization report to Brevard County (Donnelly et al. 2017) regarding potential sites identified in the county for potential LS projects. Volusia County has also been characterized in similar fashion. Add a strategy bullet such as: Other IRL counties should develop comprehensive strategies such as those employed by Brevard/Volusia to assess hardening and to plan for living shoreline projects. Please add NERT/ECERT to Actions 1,2,3, and 5 as partner entities. (Donnelly, M, K Kibler, L Walters. 2017. Developing a Shoreline Habitat Restoration and Management Plan for Brevard County. Final Report Phase 1, 63pp.)	Added suggested strategy and partners
12/3/2018	Jeff Beal, FWC	Wetlands and Impounded and Altered Marshes	64-68	It is important to address the issue of acidity (CASS) somewhere in the document and this is the most appropriate section to do so. Perhaps amend the strategy bullet such as: 'Re-evaluate wetland management strategies regarding key parameters such as dissolved oxygen, acidity, and primary and secondary production such as fishery species in lieu of climate change.'	Reworded

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12/3/2018	Jeff Beal, FWC	Wetlands and Impounded and Altered Marshes	64-68	There is no mention in this section of tidal wetlands other than mangroves/saltmarsh/mangrove marsh and fringing habitats (living shorelines). It is important to add text regarding tidal wetlands associated with tributaries, especially in the Loxahatchee, St. Lucie, and Sebastian Rivers. These wetlands (tidal swamp, tidal forest) are meso- or oligo-haline and are especially vulnerable to hydrologic changes associated with restoration strategies. They are also very important as 'backwater' habitats for critical life stages of fishery species such as juvenile redfish, snook, and blue crabs. Some of these areas, such as those along the North Fork St Lucie River, have been examined for restoration (Herren et al. 2011) and a few oxbows have been reconnected. (Herren, L, B Sharpe, J Beal, J Tucker, C Conrad. 2011. Hydrological Restoration of the North Fork St. Lucie River and Ten Mile Creek: 2011 Needs Update. FDEP Report, 306 pp.)	Added text and reference
12/3/2018	Jeff Beal, FWC	Wetlands and Impounded and Altered Marshes	64-68	Please amend the following bullet as follows: Identify opportunities for wetlands restoration including all hydrologic impacts such as impounding, draglining, other ditching, berms, and tributary oxbow isolation.	Reworded
12/3/2018	Jeff Beal, FWC	Wetlands and Impounded and Altered Marshes	64-68	Also consider adding an Action Wetlands-5: Implement restoration of meso- and oligohaline tidal wetlands in tributaries, focusing on rehydration and reconnection of historical flow and headwaters. Output is Restore a more natural environment, increase water storage and filtration, and enhance biodiversity and juvenile fishery species habitat. Leads are FWC, Local govts. and partners are WMDs, FDEP, NERT/ECERT.	Added to list of strategies
12/3/2018	Jeff Beal, FWC	Wetlands and Impounded and Altered Marshes	64-68	Also please add NERT/ECERT to partners in Actions 3 and 4 and FWC and the SOMM as a partners in Action1.	Added suggested partners
12/3/2018	Jeff Beal, FWC	Spoil Islands	69-72	Please add the following text: 'To date, successful spoil island restoration/enhancement projects include those conducted on SL 3 and SL 15 in St. Lucie County. The 5.7acre SL 3 enhancement involved the replacement of the predominant Australian pine and Brazilian pepper community with native wetland and hammock plant species. The 10.5acre SL 15 project entailed removal of the exotic vegetation and 90,000 cubic yards of sediment in order to create coastal hammock, mangrove, and seagrass habitats. Largescale projects such as island scraping can be coupled with muck capping projects as the islands represent a suitable sediment source.' Use the pictures below taken just post-project in 2006 or in Jan 2017 if warranted. Please add the word 'enhancement' the output of Action2.	Added text and pictures, updated Spoil Islands-2