FLORIDA KEYS NATIONAL MARINE SANCTUARY
Water Quality Protection Program Steering Committee Meeting

August 11, 2022

DRAFT MINUTES

Steering Committee Members Present
Wade Lehmann, US Environmental Protection Agency (EPA), Region 4 (Chair)
Jason Andreotta, Florida Department of Environmental Protection (DEP) (Co-Chair)
Sarah Fangman, Florida Keys National Marine Sanctuary (FKNMS)
Scott Rogers, Department of Economic Opportunity (DEO)
Tom Matthews, Florida Fish and Wildlife Conservation Commission (FWC)
Sue Heim, Key Largo Wastewater Treatment District (KLWTD)
Julie Cheon, Florida Keys Aqueduct Authority (FKAA)
Craig Cates, Monroe County Board of County Commissioners (MC BOCC)
George Garrett, City of Marathon
Patrick Rice, FKNMS Sanctuary Advisory Council (SAC)
Chris Bergh, Florida Keys Program, The Nature Conservancy (TNC)
Sandy Walters, Resource Environmental Solutions, LLC (RES)
Patience Cohn, Marine Industries Association of South Florida (MIASF)

Summary of Resolutions

- Motion 1 (passed): Sandy Walters made the motion to approve the agenda and March 2022 meeting minutes; Sarah Fangman seconded. Both were approved with no changes.
- Motion 2 (passed): Sandy Walters made a motion to commit to three meetings a year with at least one in person meeting. George Garrett seconded the motion. Chair Lehmann called the question. The motion passed with no objections.
- Motion 3 (passed): Sandy Walters made a motion requesting that the TAC be convened to review and discuss the concept of a resolution on roadways and water quality improvements. The intended output of a TAC discussion is revised resolution language to be presented to the Steering Committee for a vote. Ms. Walters agreed to provide a written draft of the resolution for the TAC to discuss. George Garrett seconded the motion. Chair Lehmann called the question. The motion passed with no objections.

I. Introduction and Opening Remarks

Wade Lehmann, Ocean and Estuarine Section Chief, EPA, Region 4, called the meeting to order and welcomed everyone. Jason Andreotta, Southeast District Director, DEP, and Dr. Lehmann are the meeting co-chairs. Dr. Lehmann reminded attendees of the importance of participation in these meetings, and urged Steering Committee members to prioritize attendance.

Steering Committee members in attendance were recognized.

Karen Bohnsack introduced the virtual meeting format and instructions for attendee participation. The presentations and materials associated with the meeting will be available at the Steering Committee page on the Water Quality Protection Program website http://ocean.floridamarine.org/FKNMS_WQPP/.

Dr. Lehmann gave the opening remarks for EPA. On behalf of EPA's Regional Administrator, Daniel Blackman, and the Division Director, Jeaneanne Gettle, welcome to the WQPP Steering Committee meeting. EPA is in the process of filling another position with the South Florida Program, to further assist Steve Blackburn and Wade Lehmann with its administration. The 2022 South Florida Program Request for Applicants (RFA) is currently open through August 29, 2022. The Regional Administrator, Daniel Blackman, may have a Keys trip in October; anyone on the Steering Committee or with local agencies who would like to to meet with him during his trip should let Wade and Steve know. It may not be possible to accommodate all requests. Thank you to Steve and Karen Bohnsack (FKNMS) for doing the background work to make this meeting possible.

Mr. Andreotta gave the opening remarks on behalf of DEP. Mr. Andreotta is the Director of DEP's Southeast District office, located in West Palm Beach. He will be representing DEP on the Steering Committee moving forward. Mr. Andreotta has worked for DEP since 2003, and spent many years with the Environmental Resource Permit (ERP) program. He also has experience with wetlands, seagrasses, coral reefs, etc. While DEP's regulatory overview of Monroe County has historically fallen within the South District, this is shifting to the Southeast District effective September 1st. This change will better align with internal DEP coordination (for example, the District 5 Parks), existing coral reef program engagement (such as the U.S. Coral Reef Task Force [USCRTF] and the Southeast Florida Coral Reef Initiative [SEFCRI]), and offer opportunities for enhanced communications and coordination with the Regional Planning Councils (RPCs) that are aligned on the southeast side of the state. Jon Iglehart, Director of the South District, sends his regrets that he can't join today's meeting, but expressed gratitude to the Committee.

Agenda and Minutes
Dr. Lehmann reviewed the agenda and March 2022 meeting minutes and requested edits or a vote to approve from the Steering Committee. He noted that the agenda has changed slightly as one of the presenters for agenda item #6 (roadways and water quality) was unable to attend. Sandy Walters made the motion to approve the agenda and minutes; Sarah Fangman seconded. The agenda and minutes were approved with no changes.

II. FKNMS Restoration Blueprint

Sarah Fangman, FKNMS Superintendent provided an update on the sanctuary's Restoration Blueprint. The Restoration Blueprint is important as this will help shape the future of the Florida Keys. The Florida Keys economy is tied to the natural resources here, but unfortunately our marine resources are at risk. While some of these challenges are caused by circumstances outside of our control, there are things we can do locally to make this system stronger. That is the intent of the Restoration Blueprint, the next iteration of which - the Notice of Proposed Rulemaking - is now open to public comment. A lot of time and community input went into crafting this draft document, including 70 public meetings and 35,000 public comments. This draft attempts to turn those comments into compromise. We recognize that not everyone will be 100% happy with what is being proposed, but we have to agree to work together towards compromise.

The Notice of Proposed Rulemaking includes proposed changes to sanctuary boundaries, regulations and marine zones, and pulls from public comment and all four alternatives from the draft Environmental

Impact Statement released in 2019. This is also accompanied by a management plan that is a separate document.

Ms. Fangman described specifics for some of the proposed changes:

- Sanctuary boundary expansion. The sanctuary boundary is proposed to be expanded in three places: to align with the Area to Be Avoided (ATBA) on the oceanside, encompass the proposed modified Tortugas South Conservation area, and include Pulley Ridge as a non-contiguous area to protect deep photosynthetic corals. Sanctuary wide regulations would apply throughout these areas.
- Sanctuary-wide regulations: The Restoration Blueprint includes a proposal to prohibit discharges of any material or other matter from a cruise ship except cooling water (will remove the current exemption for gray water and deck washdown). This also includes a proposal to protect seafloor habitats by prohibiting anchoring, mooring, or occupying vessels at risk of becoming derelict, deserting vessels aground, at anchor, or adrift, and leaving harmful matter aboard a grounded or deserted vessel.
- Marine zone changes: Changes to marine zones are being proposed to protect sensitive habitats and create consistency. Proposed changes include no anchoring in Sanctuary Preservation Areas (SPAs), and the creation of two new SPAs, including one at Turtle Shoal. Additional Conservation Areas will have the same prohibitions as SPAs, with the addition of transit only (with some exceptions). A new "Restoration Area" zone type has also been proposed to protect coral nurseries and outplanting sites. Finally, there are 23 new Wildlife Management Areas being proposed. This is the most prevalent zone type; they are very small with protections dictated by the goals within each specific area.

The Restoration Blueprint website (floridakeys.noaa.gov/blueprint) has much more information about what is being proposed in the draft rule. This also includes a link for submitting public comment and information about upcoming public meetings. FKNMS is seeking feedback from the community on what is being proposed. Public comment is open until October 26th, 2022. Comments will be posted online.

Questions & Answers/Comments/Discussion:

- Jason Andreotta, DEP: What is the enforcement presence currently if there are violations to sanctuary regulations?
    - A: Sanctuary regulations are enforced in a number of ways. We are co-managed by the State of Florida and FWC officers are trained and help with FKNMS enforcement. USCG also supports FKNMS regulation enforcement, and we have a small number of NOAA law enforcement officers in the Keys. Occasionally NOAA law enforcement form elsewhere comes down for pulse enforcement activities. Enforcement concerns were one of the top 3 things we heard during the last public comment period (along with water quality and education). Enforcement and education are connected. We have activities in the management plan portion of the proposal that speak to that. We will not catch all violators, but enough people will follow the rules and that provides protections and benefits to our resources.
- Chris Bergh, TNC: Regarding law enforcement, we do need more, but on a per capita basis we have as much as anywhere in the state, if not more. Regarding water quality, the Connectivity Team feels their best opportunity to provide comments is within the Management Plan. The regulatory side includes cruise ship discharges; was there anything else on the regulatory side that was left out of the Blueprint as far as water quality goes?
    - A: Nothing is coming to mind. Water quality was a priority for the sanctuary and the discharge rule plus working with WQPP and other partners is our way of influencing things outside of the FKNMS jurisdiction.

- Gerald Ward: Management plans can be very effective or just a document sitting on a shelf. What is the process you envision going forward to get it adopted and working?
    - A: The management plan is what lays out the priorities of our work every single day, although it is an under-appreciated part of managing the sanctuary. It is also part of the public comment process. ONMS management plans are much more streamlined documents than they used to be, and they speak to high level priorities to give more flexibility to the people on the ground without losing sight of what needs to be accomplished.
- Rob Ruzicka, FWC: How long after public comment closes until we see a final rule?
    - A: It depends on what kind of feedback we get and what changes need to be made or discussed. What is out now is the result of extensive agency review, so we are hopefully close to finding compromise.

III. Mission: Iconic Reefs

Sarah Fangman, FKNMS Superintendent, provided an overview and status update on Mission: Iconic Reefs (MIR). MIR is a significant initiative that has been underway for a few years. Led by NOAA, this is a collaborative effort with many individuals and organizations. The Florida Keys historically had well known, iconic reef systems, however these have suffered declines from a variety of threats. We have had a lot of restoration work over the years, much of which was pioneered in the Keys, but unfortunately those existing efforts were not keeping up with the decline. Thus, MIR was developed as a strategy to reverse course and provide for more comprehensive, ecosystem-level restoration at seven reefs in the Florida Keys.

It took a year of intensive planning with many partners to develop the framework and restoration targets for MIR. Initial efforts will focus on elkhorn and staghorn restoration. These species are unaffected by the ongoing Stony Coral Tissue Loss Disease, are already in production, and provide an opportunity to quickly restore critical structure to the reef. Additional efforts over the next 15+ years will include the incorporation of a greater diversity of coral species and greater quantities of outplants.

Ms. Fangman reviewed the accomplishments since MIR was initiated, including specifics at Eastern Dry Rocks, Looe Key and Carysfort. At Eastern Dry Rocks, in addition to outplanting there are efforts to investigate the impact of coral restoration on coastal protection as those corals grow and theoretically provide an additional buffer against wave action and storm surge. Detailed imagery is being collected to track changes to the ecosystem from the concentrated restoration effort, and a pilot project is underway to investigate the impact of site maintenance on restoration success.

As outplanting and monitoring have increased at these sites, the MIR team has also identified and adapted to challenges. A dashboard helps track the variety of work going on and survival rates. Last summer, unusually high mortality was observed among the outplants, likely due to warm water temperatures, which led to a pause in outplanting. Luckily as the water cooled mortality decreased and outplanting was able to resume. In response, the agencies have developed a best practices document to avoid future mortality situations. In addition to planting corals, MIR includes restoring herbivores to improve ecosystem health and recovery. MIR will also engage volunteers to help with site maintenance and include educational opportunities to visit restoration sites and nurseries. A three-tiered stewardship program is under development in cooperation with the restoration practitioners and Blue Star dive operators.

Questions & Answers/Comments/Discussion:

- None noted during the meeting.

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IV. Florida Keys Coral Reef Updates

Coral Reef Evaluation and Monitoring Project

Rob Ruzicka, FWC, provided an update on benthic community status. This is the 27th year of sampling for the Coral Reef Evaluation and Monitoring Project (CREMP). This has been made possible due to funding from EPA and other sources, and is only rivaled by monitoring programs on the Great Barrier Reef in terms of tenure and the information it's been able to provide. Over the years, this program has collected over 467k photos from benthic cover surveys and 5M+ data points to determine coral cover. Mr. Ruzicka described the distribution of sites and survey methodology, including modifications to the program over the years to collect additional information of interest to managers (e.g., stony coral tissue loss disease [SCTLD] prevalence). SCTLD is now entering its 8th year, and is considered endemic in most places with the exception of the Dry Tortugas which became affected in May 2021. CREMP data has helped confirm that more than 20 species are affected and shows an 80-90% reduction in abundance and/or live tissue for several species, including important framework building corals and the oldest, largest corals, which disproportionately contribute to lost coral cover. Several slides described the impact of SCTLD on coral abundance as well as on population structure change in *S. siderastrea* and other "weedy" coral species that provide some coral cover but are generally smaller and do not build reef framework. On a positive note, recruitment is still occurring, as evidenced by the presence of <4cm corals at these sites. Mr. Ruzicka reviewed coral cover trends through time, and noted that the perceived increase in 2008-2009 was due to patch reefs being added to the sampling framework; this is not actually an increase in coral cover at the CREMP sites. Major disturbance events that led to coral cover declines included the 1997-1998 El Nino bleaching event, 2010 cold water anomaly, and SCTLD. While SCTLD declines do not look as extreme, these occurred on a different composition of corals than existed in the past, and affected corals that had previously survived other disturbance events.

In addition to stony corals, CREMP collects data on other predominant taxa in the Florida Keys, including octocorals, macroalgae, sponges and zoanthids. Giant barrel sponges (*Xestospongia muta*) have an increasing trend over the past decade, including recovery after hurricane Irma. This provides some habitat structure that has been lost due to coral decline. CREMP data has helped to provide timely information for SCTLD response and serves as a reference for setting restoration targets and evaluating restoration success.

Questions & Answers/Comments/Discussion:

- None due to time constraints.

Stony Coral Tissue Loss Disease Response: Coral Rescue Update

Stephanie Schopmeyer, FWC, reviewed recent information about the coral rescue effort. The goals of this effort are to rescue corals from the wild ahead of the disease boundary in order to protect a subset of the population from becoming affected with SCTLD, preserve genetic diversity, and create broodstock for future propagation and restoration efforts. Coral rescue planning started with genetic diversity targets of 50 genets per species. Because many of the rescue species lacked genetic information., it was estimated that 200 colonies of each species were needed to ensure the diversity targets were reached. In total, 19 species, plus *Dendrogyra cylindrus* (pillar coral, collected via a partner effort) were targeted, for a total of 3800 corals needing to be collected. Collections were set up to include 8 colonies per species per reef to maximize spatial distribution and genetic diversity. Target colony size was between 10-30cm to maximize space at holding facilities and ensure collected colonies were of reproductive size/age. High

priority species included those that were highly susceptible to SCTLD, are ESA-listed, or rare with low overall recruitment on the reef.

The coral rescue plan included development of genetic markers for all rescue corals, and establishing a network of holding facilities for intermediate and long-term coral care, maintenance as broodstock, and propagation for future outplanting. Ms. Schopmeyer detailed the current holding facilities and partners currently assisting with the coral rescue program, which currently include 26 facilities in 14 states, and the advisory teams and working groups within the Association of Zoos and Aquariums.

Coral collection trips started in September 2018, and were ramped up via multi-day collection cruises beginning in May 2019. In total, collections occurred at over 60 sites in the lower Keys and included over 1800 corals across 19 species. In August 2020 collections also began in the endemic zone to capture important genetics from corals that survived SCTLD. Pillar coral rescue started in 2016 because of declining populations before SCTLD. In total 535 colonies were collected and are at 3 facilities. These were included in the coral rescue program beginning in 2020. Coral rescue stats are available on a coral monitoring dashboard.

Overall, the coral rescue effort was successful with an 80% survival rate over 5 years. This is particularly good because many of these species were never held in captivity before this effort. Over those years, the corals have grown 350 square meters of tissue and have begun spawning on their own in captivity. For 9 species, sexual recruits have been successfuly raised in captivy, which will benefit future restoration efforts. Outplanting studies are underway to help understand how to improve survivorship and experiment with new strategies for predator mitigation. After one year of study, they have learned that larger corals do better, barbeque skewers around the corals help with survival by reducing predation, and acclimation in in-situ nurseries for 3 months also helps improve survival. Genetic markers and genotyping have been completed for 3 species and will be made publicly available.

Next steps and bottlenecks include developing coral propagation plans and expediting genetic data collection, increasing propagation, increasting coral holding infrastructure and staff training, funding, coral redistribution and transfer, and developing the overall restoration strategy.

Questions & Answers/Comments/Discussion:

- None due to time constraints.

V. Caribbean *Diadema* Die Off

Bill Sharp, FWC, provided an update on the status of the Caribbean die-off of *Diadema antillarum*. Long-Spined Sea Urchins are an important herbivore on Caribbean reefs. They suffered a mass mortality event in the Caribbean in the early 80s due to an unidentified epizootic; since then recovery has been slow and localized, but abundance in the Florida Keys remains low. Decline of long-spined sea urchins has been recognized as a contributing factor to the decline of coral reefs, and recovery of this species is a focus of coral restoration efforts.

Current reports of dead, dying or abnormally behaving urchins in the Caribbean began in mid-February 2022 in St. Thomas, U.S. Virgin Islands. By March, similar reports were coming from St. Johns, Jamaica, and St. Eustatius. AGRRA developed a *Diadema* response network and an online reporting form to track *Diadema* die off reports. Overall, the affected urchins were observed to die fairly quickly with their tissue and spines sloughing away. This data shows a timeline within which affected urchins were observed around the Caribbean; the first reports from Florida occurred in early May.

Prior to this phenomenon appearing in Florida, a NSF Rapid grant was awarded to identify the cause of this event. As part of that investigation, healthy and abnormal urchins were collected around the Caribbean, starting in late April. FWC was engaged in this effort and helped collect healthy control urchin samples at 5 sites between Key West and Port Everglades in Ft. Lauderdale. Of the 16 urchins collected, 15 appeared normal but one exhibited spine loss. This was the first indication that this event had reached Florida.

Upon its appearance in Florida, FWC mobilized to start regular surveys at sentinel sites to determine how widespread this was in the Keys. Sites were identified between the Upper Keys and Key West where urchins were sufficiently abundant to allow a change to be detected should the urchins at those sites become affected. Throughout May and into June abnormal urchins were observed off of Key Largo. Through time, actively dying urchins were no longer observed at these sites, however density declined until early August. Similar declines were observed at 11 Foot Mound (off Duck Key) between May and July. More recently some abnormalities have been observed in the Lower Keys, although density remained consistent through July, No observations of abnormalities or mortality in Key West had occurred as of mid-July.

Preliminary reports from molecular/microbial and histopathology teams have identified a microorganism associated with abnormal and dying *Diadema* collected from the Caribbean and Florida; that microorganism was absent at sites where all urchins were healthy. It is not yet clear if other urchin species are affected. Monitoring will continue in the middle and lower Keys sites where no abnormalities have yet been observed.

Questions & Answers/Comments/Discussion:

- Patrick Rice, CFK: What type of microorganism was identified?
    - A: Protozoan

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VI. Roadway Work Programs, Stormwater, and Potential Opportunities for Water Quality Improvements

Florida Department of Transportation (FDOT) Five-Year Work Program

Michael Lucero, FDOT, was unable to participate in the meeting. This presentation on the FDOT Five-Year Work Program process has been deferred to a future WQPP meeting.

Roadway Water Quality Improvement Projects and Opportunities

Alex Vazquez, BCC Engineering, provided an overview of water quality improvement tools, projects and opportunities along roadways. FDOT is required to follow the SFWMD water quality criteria in accordance with the ERP Applicant Handbooks, Volume I and II. The Florida Keys are subject to increased standards due to the Outstanding Florida Waters (OFW) designation. Water quality criteria typically applies to only new impervious areas of the project, unless the improvement accounts for more than 50%, in which case water quality criteria applies to the existing and improved area.. There is also Total Maximum Daily Load (TMDL) criteria for projects discharging into impaired water bodies or OFW. In these cases, the proposed loading of nitrogen and phosphorus cannot exceed existing loading conditions. FDOT also has to obtain NPDES permits and prepare stormwater pollution prevention plans, including soil erosion control, for construction projects over 0.5 acres. System maintenance and annual reporting is required as part of this permit. Mr. Vazquez discussed other FDOT requirements and

exemptions based on Florida Statutes, including exemptions for safety projects (bike lanes, shoulder widening, etc.)

Typical Best Management Practices used by FDOT to meet water quality criteria in Monroe County include: dry retention swales, exfiltration trenches (french drains), deep injection wells, and vortex structures or downstream defenders. Retention swales or ponds are preferred but limited by available right of way. Much of the 18-mile stretch has dry retention swales on both sides of the road, which provides full water quality/TMDL retention before discharge into the coastal areas of the Keys. This requires the bottom of the retention pond to be 1 foot above mean high water minimum, which can be a constraint if the road is low. Exfiltration trenches include an envelope of gravel wrapped around filter fabric that exfiltrates water into adjacent soils after providing some filtration. A skimmer retains oils/floatables before they go into the trench. This technique depends on the exfiltration capacity of soils, which is generally low in the Keys so in many cases may not work. This also depends on mean high water elevation. This is below ground so doesn't require a lot of right-of-way and is cost effective. Injection wells also use baffle boxes to prevent oils and floatables from going down the well. These work, but a disadvantage again is the mean high water level; injection does not occur until the water is 1.5 feet above mean high water. Pump stations can be used to create an artificial head to push water down the well. Vortex boxes allow sediments and suspended solids (where pollutants are often attached) to be dropped out of the first flush of stormwater. They also retain oils and floatables before discharging out to a pump station or drainage system. These work well downstream of a pump station. While other methods are preferred, this is accepted by SFWMD for water quality purposes if dry retention ponds or exfiltration trenches do not work.

A sample project along Bertha St and South Roosevelt Boulevard in Key West by Smathers Beach was reviewed. This is a 1 mile stretch of roadway which is low and floods extensively. The south half of the road drains into existing drainage wells that are ineffective because the groundwater is high so there is not enough head to use gravity injection wells. The north half of this road currently discharges into the salt ponds with no treatment. The proposed roadway project includes widening for safety (shared use bike lanes, etc.); raising the road to account for higher water levels with king tides/higher mean high-water tidal cycles. Water will be collected and discharged into a diversion box; the first flush will go into a vortex structure. Once sediment and solids are taken out, the water will go downstream into a proposed pump station, where a trash rack will retain any other floatables before the stormwater gets to the pumps. The pump station will then discharge into 8 drainage wells. The system will have an emergency generator elevated about storm surge levels, and all infrastructure is below ground (all you see are manholes). The pump station pressure injects runoff into the injection wells. Once capacity is met, excess water from the wells goes into a diversion structure, over a weir which helps minimize the amount of head (DEP has requirements on how much drainage well head you can have), then discharges to saltwater ponds - having already provided the required treatment. In a worst case scenario where there is no power and the pumps are not working, the gate can be opened to provide gravity bypass to at least drain the road. All treatment and attenuation is being done in a small footprint. The rest of the infrastructure is for collection and getting the water to that structure. With this design, a 10-year storm should result in no flooding. During a 100-year storm one lane will still be passable as required by permit and for evacuation.

Monroe County Road Elevation Planning Update

Rhonda Haag, Monroe County, gave an update on Monroe County's roadway vulnerability analysis and capital plan. Roadways in Monroe County are vulnerable to sea level rise and for the past two years the county has been undertaking a roadway elevation planning exercise for the purpose of maintaining longer term access to homes and businesses. An engineering study looked at 300 miles of roadways in the Keys that the county maintains and identified what roads to elevate, how high, and when that would need to occur based on seal level rise projections of 5.5 feet in 78 years (by the year 2100) and king tide

predictions. Roads were assessed for vulnerability and criticality based on factors such as roadway surface inundation depth, roadway groundwater clearance, number of residential units, association with critical facilities, natural habitats associated with roads, etc. Adaptations will incorporate stormwater features. Several examples of currently vulnerable and anticipated vulnerable streets were provided. An example project for proposed improvement on Stinger Road in Tavernier was shown. This roadway, like many in the Keys, is narrow and thus limited in how extra water can be handled. In this scenario, the road elevation is designed to accommodate the sea level rise projection, and pumps will have to be used to deal with king tide as higher road elevation is not possible without widening the road. Ms. Haag showed the various project locations throughout the upper, middle and lower Keys, and provided an adaptation plan and program costs for stages from 2025 through 2035 and onward. By 2025, the Adaptation Plan calls for $889M worth of projects in 49 neighborhoods to keep roads dry. By 2030, another 10 neighborhoods will require road elevations. In total this is projected to cost $1.6B to complete. By 2045 53% of roads (which account for 76% of residential units) will be vulnerable and require adaptation. A website is available at www.keysroadsplan.com where residents can look up conceptual designs, maps, etc. This only includes roadways in unincorporated Monroe County, however the county is helping the municipalities undertake a similar exercise. Once the science and engineering is complete, the next step will be to look at policy and implementation, as well as how to help adapt private areas. We can elevate roads, but that will not stop water from coming in and potentially affecting private property. True resilience will require county-wide adaptation and private response.

Candidate Roadways for Water Quality Retrofits

Gerald Ward, Professional Engineer, discussed potential candidate roadways for a pilot water quality project. This concept stemmed from the recognition that we have two Aquatic Preserves in Monroe County - Lignumvitae Key and Coupon Bight Aquatic Preserves. Lignumvitae Key is in the process of having its management plan updated, and water quality is an important consideration. We spent nearly $1B on wastewater upgrades, now we should look at roadways. Indian Key Fill contains 2 miles of DOT roads that are adjacent to Lignumvitae Key Aquatic Preserve but generally does not have water quality treatment due to permitting exemptions. Within the scope of the DOT 5-year plan, if projects can be added to the plan, they get done. DEP is also in the middle of a rule change for stormwater. The Clean Waterways Act of 2020 required changes to best management practices to be more effective in removing nutrients and other pollutants from stormwater. Mr. Ward referenced a 3-page memo he sent (Attachment 1) for more information. Other upcoming projects in the Keys include Long Key Bridge (2 miles of roadway) and the 7-mile bridge. Both of these projects should also be evaluated for water quality treatment improvements vs. allowing water to drain down the scuppers directly into the Keys' nearshore waters. Mr. Ward suggested that the WQPP consider how to get a water quality project included in the 5-year plan and encouraged the committee to be involved in the stormwater rule-making process.

Questions & Answers/Comments/Discussion:

- Chris Bergh, TNC: Regarding the roadway work being undertaken by Monroe County, it is nice to see this commitment to addressing sea level rise issues. How are property owners handling not being on the proposed list of roads to be elevated or protected?
    - A: All 156 miles of roads that are vulnerable to the 2045 projections are now in the plan. What can be accomplished will come down to funding, however, as it's unlikely that we will get enough funding to cover every roadway. These conversations about what we can and cannot afford have not happened yet. Elected officials will have to decide how far we want to go to pay for this (utility tax, extra penny tourist tax, etc.). If we cannot develop a funding source, we'll have to make hard decisions, including the possibility of being unable to maintain access to some areas. Early on, some residents understood why they might not be eligible for roadway elevations due to logistical constraints.

- Sandy Waters, RES: Has been concerned about stormwater treatment associated with roadway projects for some time. She helped permit the 18-mile stretch a number of years ago; there are trade-offs between not treating runoff or having wetland impacts to provide retention and treatment. Stormwater treatment is only required on roadways where impervious area is increasing; this is a problem and needs to change. Many roadways in the Keys are only milled and resurfaced, and because the footprint doesn't change we are not required to add stormwater treatment retrofits. As a result, we continue to get sheet flow from the roadways. With the infrastructure funding that emphasizes the environment, we have an opportunity now to reconsider this approach. The WQPP should consider a resolution to state and federal agencies requesting a revision of this concept and the provision of funding to provide retrofits for existing impervious surfaces on our roadways. A lot of the roadway does not currently have stormwater treatment.
- Sue Heim, KLWTD: What are the regulatory issues/hurdles between all the different agencies involved in this work, especially DEO which is in charge of Areas of Critical State Concern?
    - A: Let's table that for the next meeting so we can do some background research and invite the agencies to weigh in.
- Wade Lehmann, EPA: Understands that there has been some interest in the past on having someone from FDOT on the Steering Committee. Is the Committee interested in pursuing this?
    - George Garrett, City of Marathon: FDOT would be a good addition to the Steering Committee.
    - Chris Bergh, TNC: This may be a logical option; or it may be better to have someone on call to participate as needed versus having them be a full Steering Committee member.
    - Sue Heim, KLWTD: We can ask if FDOT is interested in participating. They could also be given a seat on the Technical Advisory Committee.
- Sandy Walters, RES: What kind of maintenance and associated costs do these FDOT stormwater systems require? A lack of maintenance can result in issues with stormwater retention and treatment systems
    - A: Would defer to the FDOT maintenance director to provide this information. The NPDES permit includes a list of items that need to be maintained annually. This is also reported on annually. Maintenance for the local roads is the responsibility of the city or county.

VII. Florida Keys and South Florida Ecosystem Connectivity Team

Chris Bergh, TNC, reviewed the activities and progress of the Florida Keys and South Florida Ecosystem Connectivity Team. The Connectivity Team is a joint effort between the Sanctuary Advisory Council (SAC) and WQPP that was developed approximately 2 years ago based on discussion of outside influences affecting water quality in the sanctuary. The team has been particularly focused on impacts related to Everglades restoration and other mainland issues, such as wastewater treatment systems. Jerry Lorenz (Audubon Florida) is the Chair, and Cara Capp (National Parks Conservation Association) is the Vice Chair of the team, which meets every 2 months on opposite months of the SAC meetings. Since the group's inception, four resolutions developed by the team have been passed by the FKNMS SAC to support activities and projects that would protect or preserve water quality in the Florida Keys. These include:

- Resolution on the Lake Okeechobee System Operating Manual (LOSOM). This has repercussions for the northern estuaries and the Keys when we don't get the clean water necessary for a healthy ecosystem. The resolution asked LOSOM to prioritize sending more clean water south into Everglades National Park, Florida Bay and the Keys.
- Miami-Dade County Urban Development Boundary. This was related to a proposal to expand the urban development boundary and develop a large extent of undeveloped/agricultural land in

Homestead. This has the potential to affect the Biscayne Bay Southeastern Everglades Ecosystem Restoration project, as much of that land is important for rehydrating wetlands to support restoration of Biscayne Bay. The resolution supported the county staff's recommendation to deny the application for boundary expansion.

- Historic funding for Everglades Restoration. This resolution expressed appreciation for the historic levels of funding and supported continued, sustained funding for Everglades restoration.
- Mainland wastewater treatment system upgrades. This resolution was directed at specific counties and municipalities in south Florida to thank them for their efforts to upgrade their wastewater systems and encourage continued efforts to finish the job.

The team continues to look for other opportunities to be proactive towards regional threats to FKNMS water quality, and is currently reviewing the sanctuary's Restoration Blueprint to provide connectivity related feedback for the SAC. This is an opportunity to strengthen the draft proposal related to water quality and regional connectivity. Any feedback from the WQPP on what more this team can focus on would be appreciated.

Questions & Answers/Comments/Discussion:

- Sarah Fangman, FKNMS: Thank you for reviewing the Restoration Blueprint. Please let us know if there are things we should consider that are not currently included in the draft.
- Chris Bergh, TNC: Adam Gelber (DOI) noted that hurricane Irma-induced mangrove die-offs along the southern boundary of Everglades National Park may be leading to peat collapse in the area, which releases nutrients and fuels phytoplankton blooms that spill into Florida Bay and FKNMS. Is this something that we could look into more?
    - A: Adam Gelber will gather some information and bring it back to the Connectivity Team. This may be a topic for discussion at a future meeting.

BREAK

VIII. Management Committee Updates

Nick Parr, DEP, provided an update on an effort to hire a new WQPP coordinator position in the Keys. Coordination of the WQPP has been split between various agency personnel over recent years, and this will be an improvement by having a dedicated staff member responsible for WQPP coordination. This position will also manage other DEP water quality efforts in the Keys. Interviews for this position are next week and DEP hopes to have someone fill this position in the next month or two.

Steve Blackburn, EPA, provided an update on the EPA South Florida Program funding. The Request for Applications (RFA) closes August 29th, 2022. EPA will award $8 million this year, with higher levels of funding ($200k-$750k) available for individual projects. $3.2 million is available from the Infrastructure Investment and Jobs Act. This is available for the next 5 years and is intended to prioritize natural habitat restoration, climate resilience, natural infrastructure and underserved communities. Most of the WQPP recommendations for funding priorities were included in the RFA. This funding is for the Everglades watershed that includes the Florida Keys. Over the past 7 years, a total of $12.5 million has been invested in the Keys, across approximately 40 projects. Much of this funding was spent on long-term monitoring programs and coral reef research.

Karen Bohnsack, FKNMS, provided an update on other WQPP administrative business. WQPP members were reminded to please notify us of any change in membership status or contact information so that the membership lists can be kept updated. Consistent engagement and attendance at the WQPP meetings is important, and members can assign designees and/or assign a staff member to sit on the Management

Committee to improve interagency coordination within the program. As a reminder, the Bylaws were updated and adopted in November 2021. Those still need to be circulated for signature, which will hopefully occur as follow-up to this meeting. Input was requested from the Steering Committee about how meetings are conducted in the future. As all are aware, this meeting was reverted from a hybrid in-person meeting to a virtual only meeting last week. Hybrid meetings are complicated to orchestrate and still imperfect in terms of full engagement and networking opportunities. One suggestion to balance convenience with in-person engagement was to collectively commit to at least one in-person meeting per year.

Questions & Answers/Comments/Discussion:

- Sarah Fangman, FKNMS: Being in person adds to the discussion and improves progress on agenda items. With a hybrid meeting, attendees who are not in person are at a disadvantage. A full-in person should be held at least once per year. This could still allow a virtual element, as long as that piece is deemphasized.
    - Jason Andreotta (DEP) and Sue Heim (KLWTD) agreed to this notion of an in person meeting at least once per year, subject to the health situation at the time..
- Chris Bergh, TNC: Suggested that given the complexity and cost of traveling, once per year may be the right approach. An effort should be made to build those in-person meetings to be more discussion and decision-oriented, with less general information sharing. These could also be 2-day meetings and include a field trip to emphasize and enrich the experience.
    - Members of the Steering Committee agreed with this concept, and noted the additional benefit of in person meetings allows new members to meet others involved with the WQPP. For future in person meetings, a request was also made to avoid last minute cancellations.

Motion (passed)
Sandy Walters made a motion to commit to three meetings a year with at least one in person meeting. George Garrett seconded the motion. Chair Lehmann called the question. The motion passed with no objections.

IX. WQPP Report to Congress

Karen Bohnsack, FKNMS, and Steve Blackburn, EPA, briefly highlighted the status and next steps needed to complete the Report to Congress. The draft report is still a work in progress and, unfortunately, has been delayed. The intern working on this was unable to complete the project due to a change in circumstances.Steve, Karen, and Shelley Krueger have committed to helping shepherd this across the finish line, and we may look for support from the new DEP WQPP Coordinator as well. This is a Steering Committee report so others from the Steering Committee will also be contacted to provide content for the report. Steve will also be reaching out to project offices and principal investigators that have received EPA funding to ask that they provide a summary of activities, outcomes, photos and significance. We will need to capture projects the local municipalities are working on as well, especially those activities that have leveraged EPA funds. Consider what should be included on the accomplishments timeline that is in the report.

Questions & Answers/Comments/Discussion:

- Wade Lehmann: As a reminder, EPA funding comes from an annual congressional allocation. This report is important to ensure the funding streat continues. Please carve out some time to contribute to this report.

- Sue Heim: Updates were recently provided to DEP for the 2022 update of the Reasonable Assurance Document. This could be of value and help identify accomplishments for the Report to COngress. This could also be included on the timeline.
    - Steve Blackburn agreed, and reiterated that it's important for the Steering Committee members to help call out what is important within this document.

X. Friends of the Lower Keys (FOLKS) Update

This item was removed from the agenda and will be rescheduled at a later date.

XI. Public Comment

Arlo Haskell, Treasurer, Key West Committee for Safer Cleaner Ships
As committee members consider emerging topics of relevance, they should consider the action by DEP to increase the permitted area of the cruise port by 50%. This is a temporary use authorization that will encourage larger ships to transit the sanctuary than we've experienced in the past. There is tremendous evidence that cruise ships contribute to turbidity that is greater than allowed by the Clean Water Act. When the ships are at the dock using thrusters, they are essentially prop dredging the sediment, which is disturbed and distributed around the channel. This is a dredging activity that happens at the dock and also between the dock and reefline. Safer Cleaner Ships has videos showing evidence of this as soon as the ships cross the reefline, and especially at Cut A and the dock. This is clearly bad. This is documented in videos but you can also look at studies from the U.S. Army Corps of Engineers, Navy, and others that go back to 1999 when Pier B was expanded to its current configuration. DEP issued an ERP and there were turbidity studies done. Parameters of the lease were set and included a self-administered turbidity monitoring program. The permit was apparently issued without consultation with USACE, the Navy, or the City of Key West and there is public concern about the impacts. DEP has not offered to do an EIS or any other justification for expansion that is well over and above what was permitted 25 years ago. Our concern within the [FKNMS] management plan that was put forth, is that there are limitations on cruise ship gray water, but it's not clear whether ships will be capable of abiding by the new regulations. Regarding turbidity and sedimentation, some recent studies suggest that stony coral tissue loss disease may be transmitted by sediment and turbidity, including dredging sediment and turbidity. It is clear that when cruise ships operate their thrusters at the dock they are operating as dredges. There is a lot of public interest in this water quality issue and it is not going away.

Gerald Ward, Key West Resident
In reference to Superintendent Fangman's first and second presentations, the sanctuary management plan is an issue that we ought to focus on. The rules are put in the CFR and used for legal purposes. We need to look at the fact that water quality monitoring needs to be more prominent in the sanctuary. Look at the Department of Interior and Everglades National Park; they get much more work done with the SFWMD. Part of the management plan should include enhanced water quality monitoring. SFWMD has ad valorem taxing so there is a funding source for their work. There needs to be an element of that. Second, with the iconic reefs, all the sites selected were in the Straits of Florida and not the Gulf of Mexico. I know they're not as productive but there are patch reefs with coral and we need to start looking and learning about that so that in 20-30 years we're not stuck asking what we should have done. Mr. Haskell brings up a good point; we have one of 15 deepwater ports. They have a lot of influence, authorities, and funding opportunities, including contracts between the city and Pier B and the ability to take money from cruise passengers. Since 1942 when the sub basin was deepend that was 32 years and it was turned over we would certainly find that no maintenance was done. We just need to do a bit of dredge and fill maintenance.

Adam Gelber, Executive Director of Everglades Restoration Initiatives, Department of Interior
On the connectivity topic discussed by Mr. Bergh, I wanted to point out the Chlorophyll A readings we've gotten in Florida Bay and possibly more south. The State of Florida has proposed that the South Florida Ecosystem Restoration Task Force (SFERTF) consider creating a coral reef connectivity subteam under the Working Group. This would focus on coral reef activities that ultimately feed back to the Task Force. The charter for this coral reef team was first vetted earlier this summer and will be voted on at the next meeting of the Working Group on September 1st. If it passes, it will go to the full Task Force for approval at the October 19th meeting in Washington D.C. This is another step to further highlight connectivity between the SFERTF, coral reefs, and the Florida Keys.

Nancy Diersing, Monroe County Resident
Comments were submitted in writing and are included below (Attachment 2).

XII. Steering Committee Member Updates

Allison Higgins, City of Key West
An ad hoc water quality advisory team has been meeting and working through priority lists to identify actions that a city can work on to help improve water quality. The City and the College of the Florida Keys are partnering on water monitoring around the City of Key West, and will be collaborating on upcoming grant opportunities, including applying for EPA funding. The City set aside FY23 funds to support this and to begin a coral reef restoration and maintenance program; the details of which are still being worked out.

George Garrett, City of Marathon
The local governments have been operating since FKWQIP to acquire up to $100 million in appropriations. So far, $78 million has been acquired, with most going to wastewater improvement projects. We are working on another authorization bill this year to extend funding to $200 million, which would go a long way towards doing additional resiliency and canal restoration projects. The City of Marathon is working with Monroe County to do LiDAR project updates and look seriously at the roads that may or may not need to be raised in Marathon. They have both stormwater and wastewater systems in place on those streets already, so the issues will be a bit different. There is an infrastructure bill in Congress for $800 billion for coastal communities throughout the country. We need to get shovel ready projects in place to prepare for that money becoming available. The Marathon City Council met earlier this week and approved approximately $1.2 million in funding to complete a dredging restoration project for canal 257 east of Sombrero Beach road.

Sandy Walters, RES
Suggested the Steering Committee consider a motion urging FDOT to provide funding and pursue water quality treatment for all roadway improvement projects in the Florida Keys, including those that do not increase impervious surface area. This addresses roadway runoff as a priority and also supports the Florida Keys Reasonable Assurance Document in meeting state and federal water quality standards. George Garrett seconded the motion for discussion.

Discussion on this suggestion included the following:

- Wade Lehmann, EPA, suggested we ask the TAC to review this proposal before any action is taken by the Steering Committee.
- Chris Bergh, TNC, requested we move forward with this before the next meeting of this body and that a specific date for completion be set. Dr. Lehmann noted this could be a possibility if the Steering Committee agrees and the TAC is able to review, although the exact turnaround time will depend.

- Sue Heim, KLWTD, requested that the motion be amended to specify that this be reviewed by the TAC.

Motion (passed)
Sandy Walters, RES, made a motion requesting that the TAC be convened to review and discuss the concept of a resolution on roadways and water quality improvements, as discussed during this meeting. The intended output of a TAC discussion is revised resolution language to be presented to the Steering Committee for a vote. Ms. Walters agreed to provide a written draft of the resolution for the TAC to discuss. George Garrett seconded the motion. Chair Lehmann called the question. The motion passed with no objections.

Following the meeting, Sandy Walters drafted the following language to inform a discussion by the Technical Advisory Committee:

- "The EPA Water Quality Steering Committee for the Florida Keys National Marine Sanctuary urges the Florida Department of Transportation and the Federal Highway Administration to focus funding on providing water quality treatment for all roadway improvement projects in the Florida Keys including those that do not increase impervious surface. Sanctuary water quality is a primary focus of federal management and protection in the Florida Keys and therefore it must be a priority for roadway runoff to receive treatment—particularly to reduce nutrient input—to meet this federal priority. This also addresses the Florida Keys Reasonable Assurance Plan to meet State and federal water quality standards."

Chris Bergh, TNC
Relevant to Arlo Haskell's request that this body comment on the permit allowing larger ships, is this something that is possible? Can Steve Blackburn or anyone else involved in the EPA funded Key West Harbor monitoring project give a quick status report on the design of the monitoring program?

- Patrick Rice, College Florida Keys: With funding from EPA, this project to set up a water quality monitoring program in Key West Harbor has just started. The quality assurance plan was just approved. The process was slower than expected due to supply chain issues. It has also expanded in scope and CFK is now partnering with the City of Key West to expand the monitoring to areas around Key West and Stock Island. While the project objectives are the same, how those are achieved is being amended since some of the original planned equipment is now too expensive. However, they have identified new solutions, such as using a turnkey cabled system that gives instantaneous information to a shoreside station vs. the more expensive and labor intensive YSI probes.
- Jason Andreotta, DEP, noted he has limited background information on the Pier B situation but understands that the lease has been temporarily expanded. Temporary use agreements have no regulatory component. It is more of a state owned land/ real estate transaction. Mr. Andreotta will look into this and can provide more information at the next meeting.

Meeting Wrap-Up and Adjourn
Wade Lehmann thanked everyone for participating in the meeting and reviewed accomplishments and next steps.

Additional Documents for Distribution
The following were referenced and provided for circulation to the Steering Committee during the meeting:

1. Roadway Water Quality Improvement Memo: Gerald Ward (Attachment 1)
2. Written Public Comment: Nancy Diersing (Attachment 2)

Attachment 1

GERALD M. WARD, P.E.
Consulting Engineer
Coastal – Environmental
P.O. Box 6121
Key West, Florida 33041
561/863-1215
wardgm@gate.net

VIA ELECTRONIC SUBMITTALS

Office Location:
2135 Broadway, #5
Riviera Beach, Florida 3340424

10 August 2022

MEMORANDUM:

TO: FLORIDA KEYS WATER QUALITY PROTECTION PROGRAM STEERING COMMITTEE 8/11/22

FM: Gerry Ward

RE: FKWQPP **AGENDA VI. -- ROADWAY WORK PROGRAMS, STORMWATER & POTENITIAL OPPORTUNITIES FOR WATER QUALITY IMPROVEMENTS PARTICULARITY US1/SR5 Candidate Roadways for Water Quality Retrofits**

Monroe County's contribution with about an 80000 population to Florida Department of Transportation (FDOT) portion of its District 6 is small population wise, but given the mass of millions of tourist visits, produces revenue contributions to the Florida General Fund of substantial amounts for its sized population. The U.S. Environmental Protection Agency (USEPA) was formed in 1970 and almost immediately involved itself into "dredge & fill development projects" which also involved Florida Keys Canal Water Quality Monitoring. For much of the 1970s actual water quality monitoring was accomplished by USEPA. Monroe County residents have long incited water quality improvements as being the key to restoring tidewater water quality conditions. The most major of these efforts was the Wastewater Collection and Treatment works (septic to sewer) now substantially completed and effective (at a cost of almost $1 Billion). This Committee (origin 1990) was in fact the "shepherd" of that successful project.

The focus of my suggestions is that Florida Keys adjacent surface water quality is now in large part related to stormwater runoffs and that many future projects need to address such. Florida began to lead the nation beginning in the same era as the nation created an environmental focus (NEPA 1969, USEPA 1970, etc.) with WATER RESOURCES Law, Chapter 373 Florida Statues (1972). The five Water Management Districts provided by 1976, the South Florida Water Management District (SFWMD) which included ad valorem taxing authority in addition to regulatory authority, other SFWMD authorities can facilitate infrastructure projects assisting water quality improvements.

FKWQPP **AGENDA VI. -- ROADWAY WORK PROGRAMS, STORMWATER & POTENITIAL OPPORTUNITIES FOR WATER QUALITY IMPROVEMENTS PARTICULARITY US1/SR5**

Candidate Roadways for Water Quality Retrofits

10 August 2022

To further stormwater quality cleanup and maintenance, the **Clean Waterways Act**, now Chapter 2020-150, Laws of Florida FDEP initiated Rule Development as **FDEP Clean Waterways Act Rulemaking**: The location of the now underway, stormwater rule development materials were moved to their own site recently. The workshops and rule drafts are located here: https://floridadep.gov/water/engineering-hydrology-geology/content/clean-waterways-act-rulemaking-workshops

The **Clean Waterways Act FDEP Technical Advisory Committee Summary Report:** https://floridadep.gov/sites/default/files/CleanWaterwaysAct-TAC-SummaryReport.pdf provides recommendations for "Regional Stormwater Management Systems" and a "credits" system to allow potentials (including use of 373.413(6) F.S.) (Excerpted from (6) "In consideration thereof, the governing board or department shall allow alternatives to onsite treatment, including, but not limited to, regional stormwater treatment systems.")

We suggest this Committee follow and involve itself in proposed rule languages to facilitate design standards and more importantly the availability of compensation tradeoffs (mitigation or credits), particularly for use of local, regional, state (FDOT, etc.) and federal governments that are producing or maintaining infrastructure.

To follow up on specifics of this **Agenda topic**, you have heard about the FDOT – Five-Year Work Program from Mickael Lucero, P.E. From the private sector perspective of Florida, this long established FDOT system produces some certainty of Project funding of a concept, then design, construction procurement and project accomplishment.

FDOT has several links for readable descriptions of the **Five-Year Work Program:**

FAQs: https://www.fdot.gov/topics/fdot-work-program/faqs

FDOT Adoption Process: https://www.fdot.gov/topics/fdot-work-program/adoption-process

State-wide Page:
https://fdotewp1.dot.state.fl.us/fmsupportapps/workprogram/WorkProgram.aspx

FDOT DISTRICT SIX (MONROE & MIAMI-DADE) (9/21) FY 2022-2027 TRIFOLD FLYER: https://www.fdotmiamidade.com/userfiles/files/FDOT_Tentative_Five_Year_Work_Program_2017_TRIFOLD_v15_9-21.pdf (Last years!)

Yes, the process is not quick, however the FDOT process does get projects conceived, then into a state funding list and in more cases than not, built. So! to this agenda sub-topic! The FDEP/Trustees of the Internal Improvement Trust Fund recent process for **Lignumvitae Aquatic Preserve** between Robbies Marina (MM77.5) and Bud and Mary's Marina south of roughly MM79.8 brought to light a poor water quality monitoring program and a "hot-button" section of "fills" of considerable concern to the Islamorada local municipality. The 6000-acre Outstanding Florida Waters Aquatic Preserve is overlain by the much larger **Lignumvitae Key Botanical State Park** which includes the historic **Indian Key**.

That over 2-mile State Road 5 distance is a product of the 1910 era Flagler Railroad with two bridges connecting three "fills" or causeways. Given the provisions of the FDEP/SFWMD rules and including 373.813(6) Florida Statutes these roadway segments of State Road 5 (U.S. Highway One) have been maintained, repaved and function with **nil** water quality treatment for stormwater which runs off the existing roadway surfaces. **For consideration of the Committee is whether projects should be conceived to ultimately reconstruct SR5 "fills" roadway segments though out Monroe County with rule and law Water Quality Treatment Standards??**

Under current and previous rule and law FDOT projects which involve new lanes or extensive wetland fill individual permits required full provisions for stormwater treatment. For instance, last centuries four-laning in Marathon or the "18-mile Stretch" and naturally curb and gutter urban sections such as within Key West are examples. Now there are other benefits, including to FDOT. As an attachment is a page or so of this years FDOT Five-Year Work Program for Monroe County. Of Note are planning studies for Snake Creek Bridge Replacement and Long Key Bridge. Long Key Bridge has construction beginning in 2027 with a cost estimate of $ 174 MILLION. In planning beyond the five-years is the complete replacement of the "7 Mile Bridge". Both bridges may now require water quality treatment of bridge deck runoff or some sort of "regional stormwater management system" or "credits".

The committee needs to consider **1)** To involve itself in rulemaking recommendations for the **Clean Waterways Act** update of State Stormwater Rules now underway and **2)** Whether to either make applications for **FDOT Five-Year Program projects** to address stormwater quality improvements for the "fills" throughout Monroe County **or** propose that **FDOT** itself initiate such projects for an alternative water quality treatment for miles long bridge replacements projected to occur and consider "credits" from FDOT "fills" projects.

/S/Gerry Ward/s/
Gerald M. Ward, P.E.

2203GMWWQPPSCMTG081122
Attachment as stated

ATTACHMENT G.M. WARD MEMO 10 AUGUST 2022:

FDOT 2023-2028 MONROE COUNTY SPECIFIC PROJECTS:
PLANNING, DEVELOPMENT & ENVIRONMENT STUDY (PD&E):
1) , SNAKE CREEK BRIDGE REPLACEMENT
PD&E: https://fdotewp1.dot.state.fl.us/fmsupportapps/workprogram/Support/WPItemRept.ASPX?RF=WP&D=06&CD=90&CT=A&PG=B&FY=FALSE|FALSE|FALSE|FALSE|FALSE|FALSE&ITM=442670~2&RP=ITEM
2) LONG KEY BRIDGE REPLACEMENT:
https://fdotewp1.dot.state.fl.us/fmsupportapps/workprogram/Support/WPItemRept.ASPX?RF=WP&D=06&CD=90&CT=A&PG=B&FY=FALSE|FALSE|FALSE|FALSE|FALSE|FALSE&ITM=448206~1&RP=ITEM

MONROE COUNTY LONG RANGE PLANNING: (YEARLY PROJ $300K-$400K/YR.)
https://fdotewp1.dot.state.fl.us/fmsupportapps/workprogram/Support/WPItemRept.ASPX?RF=WP&D=06&CD=90&CT=E&PG=A&FY=FALSE|FALSE|FALSE|FALSE|FALSE|FALSE&ITM=252228~2&RP=ITEM

Description		Type of Work
116TH STREET OVER VENICE WATERWAY BRIDGE #904512		BRIDGE REPLACEMENT
CARD SOUND ROAD AT MOSQUITO CREEK BRIDGE #904984		BRIDGE REPLACEMENT
CARD SOUND ROAD AT TUBBYS CREEK BRIDGE #904982		BRIDGE REPLACEMENT
CARD SOUND ROAD MILL AND RESURFACE		RESURFACING
COCO PLUM DR AT BONEFISH BAY BRIDGE #904540		BRIDGE REPLACEMENT
D/W CONTINGENCY FOR SMALL COUNTY OUTREACH PROGRAM		FUNDING ACTION
SNAKE CREEK BRIDGE PD&E STUDY		**PD&E/EMO STUDY**
SR 5 FRONTAGE ROAD AT BOCA CHICA KEY		RESURFACING
SR 5/OLD 7 MI BRIDGE FROM KNIGHTS KEY TO PIGEON KEY		BRIDGE-REPAIR/REHABILITATION
SR 5/OVERSEAS HIGHWAY OVER CHANNEL 5 BRIDGE # 900098		BRIDGE-REPAIR/REHABILITATION
SR 5/OVERSEAS HWY OVER NORTH PINE CHANNEL BRIDGE 900110		BRIDGE-REPAIR/REHABILITATION

ATTACHMENT G.M. WARD MEMO 10 AUGUST 2022:		
SR 5/OVERSEAS HWY. FROM MM 19.4 TO 19.8 AND MM 20.6 TO 23.1		**RESURFACING**
SR 5/OVERSEAS HWY. FROM MM 26.2 TO MM 27.4		**RESURFACING**
SR 5/OVERSEAS HWY. FROM MM 31.4 TO MM 32.5		**RESURFACING**
SR 5/OVERSEAS HWY. FROM MM 32.98 TO MM 36.57		**RESURFACING**
SR 5/OVERSEAS HWY. FROM MM 75.02 TO MM 81.44		LANDSCAPING
SR 5/OVERSEAS HWY. FROM S OF TOLLGATE BLVD TO LIGNUMVITAE CHANNEL		**RESURFACING**
SR 5/OVERSEAS HWY. NORTHBOUND FROM MM 97.0 TO MM 100.0		RESURFACING
SR 5/US 1 FROM UPPER SUGARLOAF KEY TO LOWER SUGARLOAF KEY		BIKE PATH/TRAIL
SR 5/US 1 LONG KEY BRIDGE OVER LONG KEY CHANNEL - BRIDGE 900094		**BRIDGE REPLACEMENT**
SR 5/US 1 LONG KEY BRIDGE OVER LONG KEY CHANNEL (BRIDGE 900094)		BRIDGE-REPAIR/REHABILITATION
SR 5/US 1/OVERSEAS HWY AT BURTON DR INTERSECTION		TRAFFIC OPS IMPROVEMENT
SR 5/US-1 OVERSEAS HWY OVER TORCH KEY CHANNEL - BRIDGE # 900113		BRIDGE-REPAIR/REHABILITATION
SR 5/US-1/OVERSEAS HIGHWAY FROM MM 108.4 TO MM 112.8	**SIS**	RESURFACING
SR 5/US-1/OVERSEAS HIGHWAY FROM MM 36.6 TO MM 38.4		RESURFACING
SR 5/US-1/OVERSEAS HWY FROM MM 87.16 TO MM 90.02 (PLANTATION KEY)		RESURFACING
SR 5/US-1/OVERSEAS HWY FROM WEST OF VENETIAN BLVD TO FRONTAINE DRIVE		RESURFACING

SR 5/WHITEHEAD STREET FROM FLEMING STREET TO WEST OF TRUMAN AVENUE		RESURFACING
ATTACHMENT G.M. WARD MEMO 10 AUGUST 2022:		
SR A1A/S ROOSEVELT BLVD FROM E OF LA BRISA TO E OF KEY WEST OF THE SEA		TRAFFIC OPS IMPROVEMENT
SR A1A/S ROOSEVELT BLVD FROM GO TO LANE TO N OF ROOSEVELT BLVD		RESURFACING - RIDE ONLY
SR A1A/S. ROOSEVELT FROM BERTHA STREET TO END OF SMATHERS BEACH		WIDEN/RESURFACE EXIST LANES
SR-5/OVERSEAS HWY OVER OHIO BAHIA HONDA CHANNEL BRIDGE 900105		BRIDGE-REPAIR/REHABILITATION
SR-5/OVERSEAS HWY OVER SHARK CHANNEL BRIDGE 900081		BRIDGE-REPAIR/REHABILITATION
SR5/US1 OVERSEAS HWY OVER BAHIA HONDA CHANNEL - BRIDGE 900016 & 900045		BRIDGE-REPAIR/REHABILITATION
SR5/US1 OVERSEAS HWY OVER NORTH HARRIS CHANNEL BRIDGE #900109		BRIDGE-REPAIR/REHABILITATION
SR5/US1 OVERSEAS HWY OVER OHIO-MISSOURI CHANNEL - BRIDGE # 900104		BRIDGE-REPAIR/REHABILITATION
SR5/US1 OVERSEAS HWY OVER SPANISH HARBOR CHANNEL - BRIDGE #900106		BRIDGE-REPAIR/REHABILITATION
SR5/US1 OVERSEAS HWY SEVEN MILE BRIDGE OVER MOSER CHANNEL- BR# 900101		BRIDGE-REPAIR/REHABILITATION
SR5/US-1/N ROOSEVELT BLVD FROM EISENHOWER DR TO S ROOSEVELT		RESURFACING
SR5/US1-OVERSEAS HWY OVER TEA TABLE RELIEF - BRIDGE # 900088		BRIDGE-REPAIR/REHABILITATION
TRAFFIC OPERATIONS PUSHBUTTON CONSTRUCTION IN MONROE COUNTY		MISCELLANEOUS CONSTRUCTION
TRAFFIC OPERATIONS PUSHBUTTON CONSTRUCTION IN MONROE COUNTY		MISCELLANEOUS CONSTRUCTION

Attachment 2

FKNMS Water Quality Protection Program Steering Committee Meeting: August 11, 2022

Submitted by: Nancy Diersing, Monroe County Resident

Thank you for giving me the opportunity to comment in writing to the Water Quality Protection Program Steering Committee and other related committees and engaged persons.

My concerns center on the use of shallow water injection wells in a number of projects being undertaken by Monroe County and other agencies (FDOT) to "address" sea level rise and the king tides and greater storm intensity and frequency associated with climate change. At the August 2022 meeting, the WQPP Steering committee and members of the community were given a brief overview of what is being planned by the county and FDOT with regards elevating low-lying roads in the Keys.

A key consideration when elevating roads according to the current plan is the use of injection wells to dispose of the water that accompanies high tides, storms and sea level rise. The long-time scientific research, much of which was supported by the WQPP and published in the scientific literatures and Tropical Connections Book, has shown a direct connection between the groundwater and the surface waters of the Florida Keys National Marine Sanctuary, including sanctuary state waters designated as Outstanding Florida Waters. Recognizing the groundwater surface water connection and managing for pollution impacts would be in keeping with the recognition by the US Supreme Court that pollution entering nearshore waters via groundwater can be a violation of the US Clean Water Act. Through the Florida Keys National Marine Sanctuary and Protection Act, EPA and Florida DEP were charged with co-managing the WQPP and the waters of the FKNMS and that means enforcing the Clean Water Act.

Water being injected in shallow waters is likely to mingle with surface waters at some point, especially if it is fresh water, which is lighter and less dense than salt water. Pollutants (including chemicals, pesticides, nutrients) found in the injected water are likely to mix with surface waters that support mangrove, sandy bottom, seagrass beds, coral reefs and hard-bottom. The health of our marine environment is what makes Keys living so valued and so desirable. Nutrient and chemical pollution is detrimental to marine life. We are already facing deterioration of our precious marine communities as evidenced by disease in corals, degraded seagrass beds and threats to our health from water pollution, etc.

Injected water from road elevation projects, which receives minimal treatment, can be fresh water, which poses an added danger by changing the salinity of surface waters when the injected water surfaces. (This is also true for sewage wastewater injected into shallow wells.) Water with a freshwater component (less than marine) can create salinity conditions unsuitable for supporting marine life. Continual shallow water injection into the ground should be expected to degrade marine life in nearshore waters over time.

Passive injection wells have also been proposed for selected canals as a method of restoring canal water in degraded canals. Although this method was not evaluated by the canal demonstration studies conducted by scientists under the WQPP umbrella, it's my understanding that injection wells will be placed in two canals with the goal of improving canal dissolved oxygen in canal waters. In these cases, there will be no treatment for the water passing into the shallow wells located in the canals. This method, while inexpensive, simply moves the degraded water elsewhere, where it has the potential to

degrade marine communities. The impacts of this method may not be apparent at first, but over time even the smallest nutrient levels delivered repeatedly will cause changes in the kinds of plants and animals that inhabit an area, forever causing ecosystem deterioration. This is not conjecture. This is scientific fact.

The WQPP is the watch dog of water quality in the Florida Keys and should be commended for its long-term efforts to preserve the Keys environment. Vigilance is greatly needed in this time of rapid change and sea level rise. I strongly urge the WQPP to continue being a watch dog as we face the changes that are upon us now. To me this means being especially vigilant about shallow water injection wells that move land-based pollution into nearshore waters. As in the past with sewer requirements, state guidelines governing injection wells may not be enough to protect the marine ecosystem in much the same way that state wastewater standards were less than adequate for protecting Keys marine life.

The use of shallow injection wells, when necessary for road projects, should be done sparingly and with the assurance that well effectiveness will be maintained over time. Not only are injection wells sources of land-based pollution, the use of tax-payer money to elevate certain roads, including those already experiencing impacts, is unsustainable for our small community. No doubt costs will pale when compared to upgrading sewers or cleaning canals. This approach could destroy the foundation of the community of the Florida Keys.

Decision-makers should consider being be very conscientious about implementing such projects and consider the costly long-term maintenance and pollution associated with them. Perhaps, community leaders, decision-makers at all levels of government, and the WQPP should begin to face the facts that elevating roads that will succumb to sea level rise in the near and not so distant future is unsustainable for many reasons, including putting our nearshore marine life at risk. We should consider, whenever possible, compensating willing homeowners in a phased-out manner rather than opting to pollute the environment that makes the Keys so special and appealing to residents and visitors alike. In many cases, natural mangrove shoreline habitat was destroyed by developers to create the low-lying waterfront properties most vulnerable to sea level rise (which has been a recognized phenomenon for many years now). Please, let us think twice about destroying the marine environment that we value so much and that makes living in the Keys so special.

Recognizing the value of restoring mangrove shoreline would mitigate for the impacts to nearshore water quality expected with sea level rise. We could opt to embrace and recognize the science that shows the negative impacts to our current approaches, which are likely to result in the loss of sea life. I urge the WQPP steering committee, along with government agencies and Monroe County decision-makers, to provide leadership and guidance on policies and regulations that will be put into place when planning for and facing sea level rise issues that affect the waters and marine life of the Florida Keys National Marine Sanctuary. Sorry to say, sea level rise is here to stay. We need to learn to live with it as best as we can in harmony with the marine environment.