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Comments on the Draft Environmental Assessment for Operation and Maintenance Dredging and Dredged material Placement for Miami Harbor Navigation Project in Miami-Dade County

September 26, 2019

Dear Col. Kelly,

On July 28, 2018, the U.S. Army Corps of Engineers (Corps) released to the public the *Draft Environmental Assessment for Operation and Maintenance Dredging and Dredged material Placement for Miami Harbor Navigation Project in Miami-Dade County* (Draft EA). The Corps also proposed a Finding of No Significant Impact (FONSI) for the Operation and Maintenance dredging of approximately 100,000 cubic yards of shoaled material from within the inner harbor of the PortMiami shipping channel over an estimated 45 day period.

We have identified several concerns with Draft EA circulated by the Corps.

I. The Corps' Failure to Provide Key Documents Has Deprived the Public and the Agency the Opportunity to Meaningfully Analyze and Comment on the Project's Impacts

The public is unable to fully provide comments on the Draft EA or the FONSI, as the Draft EA largely relies on compliance with a set of protections in a document that is not yet finalized, nor publicly accessible; namely, the South Atlantic Regional Biological Opinion (SARBO) and the South Atlantic Regional Biological Assessment (SARBA) upon which the SARBO will be based.

Congress enacted the National Environmental Policy Act (NEPA) to integrate into the normal business practices of the federal government procedures for an agency to meaningfully consider environmental and public interest factors prior to taking action. 40 C.F.R. § 1501.2; 42 U.S.C. § 4332; *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 348-49 (1989). NEPA requires informed decision-making and emphasizes public engagement in governmental decisions that may affect the human environment. *Robertson*, 490 U.S. at 349-50; 40 C.F.R. § 1500.1(b)-(c).

Although the EA states that dredging would not commence until the SARBO is finalized, selecting preferred alternatives and making findings about predicted impacts while relying on documents that do not yet exist is both premature and prevents public participation in the process. At best, this is poor public policy. At worst, the lack of information upon which this finding is based is arbitrary and capricious. The twin aims of NEPA, public participation and informed agency

decisionmaking, are not met in this case because the Corps has not yet released those fundamental documents to the public..

Therefore, we ask that the Draft EA be supplemented and republished, and the Corps delay its analysis until the SARBA and the SARBO are finalized and the public can evaluate the effectiveness of the proposed protections.

II. The Corps' Assumptions Regarding the the 1,000 foot Buffer are Unfounded

The Draft EA states, in several locations, “[b]ecause the current maintenance event only addresses the inner channel cuts, the scope avoids dredging within 1,000 feet of the outer channel benthic habitat, minimizing potential adverse effects to corals and hardbottom habitats to the maximum extent practicable while the Corps continues to review the new information”(for example, see page i, iii, 1, and 9). However, there is no evidence that a 1,000-foot buffer between dredging and fragile hardbottom habitats and species is protective. To the contrary, multiple studies from the last Miami Harbor dredging project, including Barnes et al. 2014, Miller et al. 2016, Cunning et al. 2019, NOAA report (2016), FDEP field notes (2014), third-party reviews and tracer studies commissioned by the Corps from Air and Water research (2017), all show conclusively that sediment from dredging travels further than 1,000 feet from the site of dredging – and caused permanent impacts at distances more than 10 times that far.

Furthermore, the dragbar work is proposed within just 500 feet of hardbottom habitat and perhaps less, and we suspect that the area proposed for dragbar work contains corals as well.

The Corps categorizes several key scientific studies, including those listed above, as “Still Under Review” (page 28). The Corps should not make findings about the impact of this project until the best available science has been reviewed, considered, and fully incorporated into the BA. Citing relevant science but failing to review it before a proposed FONSI is arbitrary and capricious.

III. The Dredging will Likely Cause Significant Impacts to Coral and Habitat

The Draft EA states that the O&M project is anticipated to last 45 days and would include dredging 24 hours a day. This length of time and this volume of sediment is significant.

Corals exposed to heavy, chronic, or repeated sedimentation can be overwhelmed and unable to successfully rid themselves of sediment (Bak, 1978; Bessell-Browne et al., 2017a; Flores et al., 2012; Marszalek, 1981). When this occurs, corals – particularly those with mounding morphologies – begin to accumulate rejected sediment in “berms,” or piles of sediment around the colony perimeter (Miller et al., 2016), making sediment removal even more difficult as the berm increases in height. With enough sedimentation, energetically costly sediment removal mechanisms in corals become exhausted and they can become partially or completely buried, resulting in mortality (Lirman et al., 2003; Marszalek, 1981; Miller et al., 2016; Nugues and Roberts, 2003; Riegl, 1995). Mortality commonly occurs first under sediment berms that pile up at colony bases, producing a condition of partial mortality around the base in a “halo” pattern (Marszalek, 1981; Miller et al., 2016).

Data from the last dredging revealed serious impacts to corals within a 45-day period, (see Dial Cordy data, Cunning et al. 2019, Miller et al. 2016), and in areas over 1,000 feet away from the dredging. Figure 1 below shows data adapted from Cunning et al. 2019. Red lines indicate sites directly adjacent to the channel (<50 m), blue lines indicate intermediate sites 1.25-2.5 km from the channel, and green lines indicate sites >9 km from the channel. The data shows significant increases in percent sand cover at both near and intermediate sites within 45 days of dredging (shown by the vertical blue line). The intermediate sites shown far exceed 1,000 feet from the channel, and yet significant increases in habitat burial can be observed there within this timeframe. Specifically, increases at near and intermediate sites increased by 15-30% during the 45-day period. In some sites, this means that over 75% of the seafloor was covered in sediment during this time period. The severity of these impacts within this timeframe and distance from dredging are not properly considered in the Draft EA. A lack of this consideration renders the FONSI arbitrary and capricious.

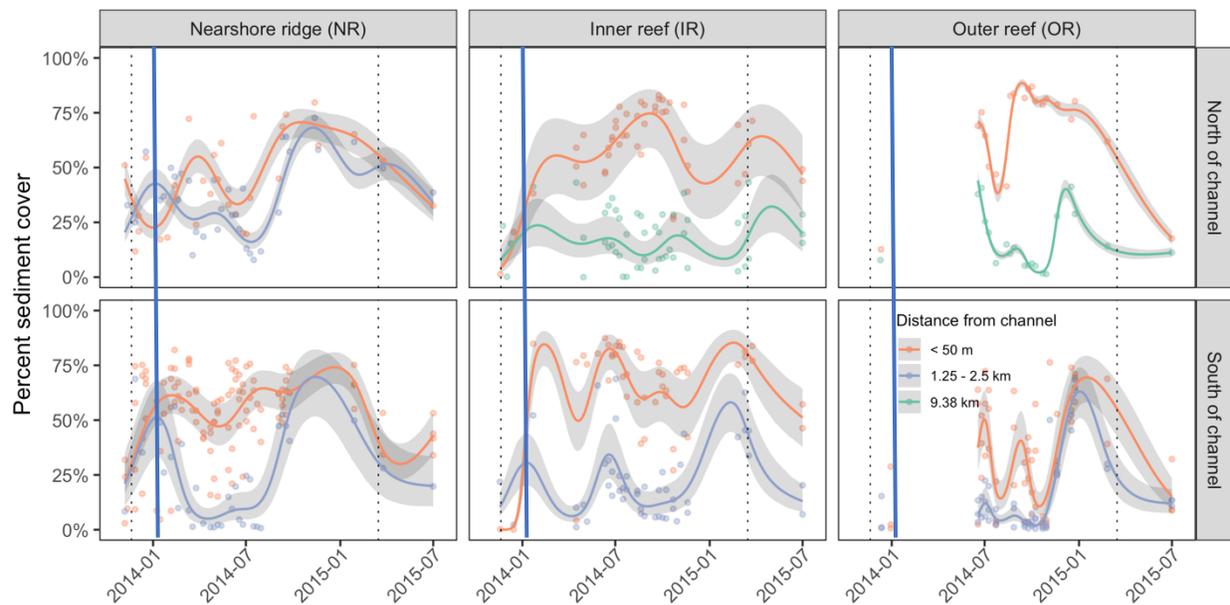


Figure 1. (Adapted from Figure 6 of Cunning et al. 2019). Percent sediment cover at each monitoring area during dredging operations. Points indicate the mean percent sediment cover for each transect measured by CPCE analysis, and smooth lines show GAMM fits for each monitoring area ($\pm 95\%$ CI). Fitted lines are colored by distance from channel. Vertical dotted lines indicate the beginning (2013-11-20) and end (2015-03-16) of dredging operations. Vertical blue lines approximate 45 days of dredging.

Sedimentation has also been shown to inhibit coral sexual reproduction in a number of ways (Jones et al., 2015), including by impairing spawning success (Ricardo et al., 2016), fertilization (Ricardo et al., 2015), settlement (Babcock et al., 2002; Ricardo et al., 2017), and recruitment (Moeller et al., 2016). Sediment may also directly remove available recruitment space by covering hard surfaces required for larval settlement (Babcock and Davies, 1991; Ricardo et al., 2017). Recruitment may still be reduced even if sediment is subsequently removed, likely due to the negative impacts of sediment on crustose coralline algae, a key settlement cue (Ricardo et al., 2017). For recently-settled coral recruits, sedimentation tolerance may be at least an order of

magnitude lower than for adult corals (Fabricius, 2005), and even relatively low sedimentation rates ($16.6 \text{ mg cm}^{-2} \text{ d}^{-1}$) can result in mortality (Moeller et al., 2016). Even sediment that is not deposited on the seabed, but that is moving through the system, is likely to abrade and kill newly-settled coral recruits and other benthic organisms, in addition to blocking photosynthetically active radiation (Storlazzi et al., 2015).

A discussion of the impact of this project on coral reproduction is missing from the Draft EA, but must be considered. A FONSI without this review is arbitrary and capricious.

IV. The Corps' Reliance on the Outdated and Inaccurate 2004 Environmental Impact Statement is Arbitrary and Capricious

The Draft EA states that, "The Corps also commissioned an independent examination of the recent construction of the Miami Harbor Navigation Project's data and reports to further capture all lessons learned, potential improvements, and application to future projects (see Appendix D for the full report)" (see page 29). While a few of the proposed "Lessons Learned" in these external reviews are noted in the Draft EA, many are missing and are not addressed in the Draft EA.

For example, "Task 1 Report" by Water and Air Research Inc. repeatedly points out that reliance on the 2004 EIS for the last Miami Harbor dredging project was inappropriate because of the "availability of emerging science [...] enactment of new legislation" that the "Environmental Impact Statement (EIS) (2004) and other key documentation should have been reviewed, updated, and re-issued." (Page 1) The Task 1 report goes on to state, "[m]any of the comments provided by SAJ in SAJ 2004 were often irrelevant, defensive in nature despite being reasonable suggestions, including considering a more cautionary approach, which was dismissed by SAJ." It is logical that if this independent, third party reviewer feels that it was inappropriate to rely on the 2004 EIS in the dredging that commenced in 2013, that it is even more inappropriate to rely up the 2004 EIS for a project being proposed in 2019.

In addition to being out of date and shown to be inaccurate by actual impacts during the 2013-2015 POM expansion dredging, it is not clear to what extent a Corps staff member, Tracey Jordan Sellers, may have worked on this 2004 document and may have had her interests in this project compromised. Similarly, to the extent that this staff member had input into this draft EA or its findings, we strongly recommend that any and all of her work or her analyses be reviewed, redone, and reconsidered by other Corps staff.

As such, we believe that reliance on the 2004 EIS in this BA is invalid and reliance on the document is arbitrary and capricious.

V. The Corps' Failure to Analyze the Seagrass Die-off in Biscayne Bay is Arbitrary and Capricious

The Draft EA states, "[s]eagrasses adjacent to or near the project's dredging may experience localized smothering, burial and/or reduced light penetration from suspended sediments and turbidity. SAV from neighboring areas is expected to recolonize the area quickly" (see page 45). However, the Corps has provided no evidence that smothered seagrass will rapidly recolonize. To

the contrary, scientific studies, such as those highlighted in the review by Erftemeijer and Lewis 2006, show that seagrass impacts may take years to decades to recolonize when impacts include sedimentation and reductions in water quality.

Critically, Biscayne Bay has also suffered a major seagrass die-off in multiple basins in recent years (Miami-Dade County 2019). However, the draft EA cites photographs and surveys of the seagrass in the Bill Sadowski Critical Wildlife Area only from 1989-1998 (page 25). This area is directly adjacent to the proposed dredging and is highly protected. It is arbitrary and capricious to rely on data from over 2 decades ago from a high value area, particularly in the midst of a known and documented die-off event in the region.

The Corps must consult with the National Marine Fisheries Service and the Miami-Dade County Department of Environmental Resource Management on the latest status of the seagrass in Biscayne Bay; review and analyze the latest Miami-Dade County seagrass report, a re-evaluation of data produced during the last Miami Harbor dredging project; conduct new surveys regarding the status of the seagrass; and take special precautions not to increase stress on an already-stressed system. The Corps cannot rely on the unsubstantiated assumption about seagrass' ability to recover post-disturbance. A FONSI that does not rely on the best available science is arbitrary and capricious.

VI. Dredging in Biscayne Bay will Impact Reef Areas Offshore

The Draft EA's interpretation of the findings of the Sediment Tracer Report from Air and Water Research "Task 2" is inaccurate. The Draft EA states, "[...] suspended sediment emerging from Biscayne Bay via Government Cut [...] would be expected to have an influence on the Middle Reef area [...]"(see page 35). However, no tracers were released inside of Biscayne Bay.

The Draft EA also states, "[t]he results of the blue tracer analysis indicate that inner harbor maintenance dredging and potential low concentration of silt released into suspension as a byproduct of dredging operations will not pose a chronic sedimentation concern for the benthic environment, and that only 3 to 4 % of the proportion of silt in the 100kcy of material slated for immediate removal has the potential for transport and deposition" (see page 36). However, this finding is only relevant to material released at the entrance channel, and does not account for material dredging inside of Biscayne Bay. Further, these findings are only after Hurricane Irma dispersed the tracer. It is not accurate, therefore, to assume that only a small amount of sediment from the nearshore dredging will impact the reefs, and that the impacts will therefore be minimal. Finally, even 3-4% deposition of the total amount of sediment released may result in significant adverse impacts to nearby corals. The Corps must analyze these findings.

Photographs taken during the Miami Harbor Phase III project also clearly show dredging sediment from inside the Bay being transported offshore to reef areas (See Figure 2).



Figure 2. Photo taken of Government Cut on June 12, 2015 at 3:51pm, while dredging was taking place inside of Biscayne Bay, and silt is clearly be transported offshore onto the reef areas for long distances.

The Draft EA also states, “[i]t is likely the flora and fauna on Middle Reef are adapted to these [high sediment] conditions and potentially acute sedimentation (i.e. during a natural event such as hurricane) with significant sediment being transported when higher energy events occur” (see page 36). However, the Corps provides no evidence for this assumption; conversely, it is not reasonable to assume that any natural systems are “adapted” to acute human stress such as dredging. Impacts from sedimentation specifically due to dredging activities can be even more harmful to corals and reef habitat compared to other types of natural sedimentation for several reasons. Due to the rapid escalation in sediment load created by sudden commencement of dredging, the typical behavioral, acclimatory, and adaptive responses (for example, selection for particular coral species or morphologies) that normally operate at sites exposed to naturally high sedimentation (Lasker, 1980; Sofonia and Anthony, 2008) may not be able to operate effectively. Moreover, in contrast to other kinds of sedimentation events, such as hurricanes, that generate sediment over hours to days, dredging can generate high sediment conditions for months to years, exceeding the energetic reserves of corals that might otherwise be able to survive acute impacts caused by storms (Flores et al., 2012; Jones et al., 2015; Riegl and Branch, 1995). Dredging can also release sediment from deeper strata than might be disturbed by natural events, generating additional sediment not already existing in the system and with distinct mineralogies compared to those found in reef environments (Saussaye et al., 2017; Swart, 2016). Fine sediments have also been shown to be especially harmful for corals.

A FONSI made without a review of best available science is arbitrary and capricious.

VII. Dredging will Produce a Large Volume of Fine Sediment

The type of sediment released by dredging activities can also be different from naturally occurring sediment (Jones et al., 2016). Dredging sediment is often more fine-grained than natural coarse sediment, and these fine particles can cause higher turbidity (Fourney and Figueiredo, 2017), can

take longer to settle out of the water column, can be distributed further (Duclos et al., 2013), and are more harmful to corals (Duckworth et al., 2017; Jones et al., 2015; Nugues and Roberts, 2003; Weber et al., 2006). When deposited on the benthos, this fine sediment may also have an adhesive, clay-like texture that is more resistant to bioturbation and dissipation (Jones et al., 2015), and is more likely to become anoxic (Piniak, 2007; Weber et al., 2006).

Releasing this sediment may result in acute acidification and/or eutrophication, and, particularly in areas such as shipping channels or ports (Nayar et al., 2007), may also release unwanted contaminants (Eggleton and Thomas, 2004; Jones, 2011; Su et al., 2002), sediment-borne pathogens (Hodgson, 1990; Voss and Richardson, 2006; Weber et al., 2012), or related immune impairment agents. Exposure to dredging plumes has been correlated with a doubling in the prevalence of white syndromes in corals on the Great Barrier Reef (Pollock et al., 2014), suggesting that dredging can either release potential pathogens and/or decrease coral health and compromise immunity. More work on the potential connection between dredging and the recent coral disease outbreak is also warranted.

The sediment proposed to be dredged in this project has a very high proportion of “fines,” estimated between 46-82%. The Corps has failed to properly consider the various impacts of fines on corals and coral habitat.

VIII. The Corps has not Analyzed Leaking from Transport Barges

During the Miami Harbor Phase III dredging project, the EPA found at least 125 violations of improper disposal of dredging sediment (see EPA letter to U.S. Army Corps, 6 June 2015). The Draft EA does not address how leaking will be prevented to avoid harming resources during the transportation of dredge materials.



Figure 3. Taken June 25, 2014 during the POM deepening project Phase III. Captain Dan Kipnis.

IX. The Corps Arbitrarily has not Analyzed Whether there are likely Corals in the Areas Proposed for the use of “drag bars”

It is not clear why the Corps has concluded that there are no corals in the area where “drag bars” are being proposed for dredging. Surveys would be required to confirm that there are no corals in the area. It is our understanding that corals do inhabit these areas, and therefore they would be impacted by the use of “drag bars”. A FONSI made without these surveys is arbitrary and capricious.

Summary

To ensure informed and transparent environmental decision-making, the Clean Water Act and NEPA require the opportunity for significant public engagement. 33 U.S.C. §§ 1251(e), 1344(a); 42 U.S.C. § 4332(2)(C).

While it is impossible for us to fully evaluate this Draft EA because of the lack of availability of documents relied upon in this document, we provide a preliminary review of the issues in this comment letter. These aforementioned failures not only violate the procedural requirements of NEPA, but also undermine the Corps’ duty to assess and disclose the significant effects of this O&M dredging project on the human environment, in violation of the CWA, NEPA and the APA.

We therefore recommend the Corps supplement and republish the Draft EA after it reviews and releases the supporting documents. The Corps’ proposed Finding of No Significant Impact should therefore also be revised and a full accounting of likely impacts be considered and a compensatory mitigation plan put in place.

Sincerely,

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