Via E-mail and Certified Mail

May 31, 2016

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Re: Request to Withdraw Biological Opinion Associated with the Port Everglades Expansion Project and Reinitiate Consultation

Dear Madams and Sir,

On March 7, 2014, the National Marine Fisheries Service ("NMFS") completed a biological opinion ("2014 BiOp") in connection with the U.S. Army Corps of Engineers' ("Corps") planned dredging activities for the expansion of Port Everglades. Information from the similar, nearby PortMiami dredging project that came to light before, during and after consultation on the 2014 BiOp undermines NMFS's analysis of the effects of the planned dredging project on Endangered Species Act-listed coral species. Additionally, since completion of the biological opinion, several new coral species have also been listed as threatened under the Endangered Species Act ("ESA") and will be affected by the proposed dredging project. Therefore, NMFS should: (1) reinitiate formal consultation with the Corps immediately under Section 7 of the ESA; and (2) withdraw or rescind the 2014 BiOp.

On September 4, 2015, we sent a letter to the Corps and NMFS highlighting serious

deficiencies with the 2014 BiOp and the need for reinitiated consultation on the effects of the dredging project (attached as Exhibit A). In that letter, we outlined the significant information NMFS and the Corps learned from the recent and similar port expansion project at PortMiami that undermines the existing analysis and demonstrates that the effects of the planned Port Everglades dredging will be significantly more extensive than expected under the 2014 BiOp. The letter also noted five new coral species in the project area that NMFS has listed as threatened under the ESA since completing the 2014 BiOp. The letter requested an in-person meeting with the Corps and NMFS to discuss these issues. Since we sent that letter, NMFS and the Corps have neither provided any response nor reinitiated consultation, as required under the ESA.

Enclosed is a copy of the sixty-day ESA citizen suit notice sent to the Corps today (attached as Exhibit B). It is likely NMFS and the Corps were aware of some of the issues detailed in the attached notice before and during consultation on the 2014 BiOp, and therefore the 2014 BiOp is legally flawed and should be withdrawn. To the extent this information is new, it triggers NMFS's mandatory duties under the ESA to reinitiate consultation on the proposed dredging to expand Port Everglades. *See Salmon Spawning & Recovery Alliance v. Gutierrez*, 545 F.3d 1220, 1229 (9th Cir. 2008) (duty to reinitiate consultation lies with both the action agency and the consulting agency); 50 C.F.R. § 402.16 ("[r]einitiation . . . is required and shall be requested by the Federal agency or by the Service" when triggering event occurs). NMFS has ample authority to request that the Corps reinitiates consultation and to elevate the issue if the Corps refuses to comply. *See* ESA Handbook at p. 2-10; 50 C.F.R. § 402.14(a). The ESA's implementing regulations require that NMFS reinitiate consultation if "new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered." 50 C.F.R. § 402.16(b). The impacts of similar dredging activities at PortMiami on the same ESA-listed coral species represent precisely the kind of new information or unanticipated effects that trigger the duty to reinitiate consultation.

The ESA's implementing regulations also require that NMFS reinitiate consultation if "a new species is listed or critical habitat designated that may be affected by the identified action." 50 C.F.R. § 402.16(d). As noted above, NMFS has designated five new Caribbean coral species as threatened since completion of the 2014 BiOp. NMFS considered four of those species in a conference opinion as part of the 2014 BiOp, but the analysis was not comprehensive and the Corps has not yet requested that the conference opinion be confirmed as part of the biological opinion. Further, NMFS has so far failed to analyze the impacts on one newly-listed species that will occur in the project area, pillar coral. The listing of new coral species thus triggers NMFS's duty to reinitiate consultation.

In addition to reinitiating consultation, NMFS should also immediately withdraw or rescind the 2014 BiOp. Courts have consistently held that a consulting agency has the authority to withdraw a biological opinion once it has reinitiated consultation. *See, e.g.*, *Greenpeace v.*

NMFS, 80 F. Supp. 2d 1137, 1151-52 (W.D. Wash. 2000). Absent withdrawal, third parties may wrongly continue to use or rely on the existing biological opinion, even while the conclusions in the 2014 BiOp are being revisited by NMFS. *See Defenders of Wildlife v. BOEM*, 684 F.3d 1242, 1252 (11th Cir. 2012). Given that the lessons learned from PortMiami are so relevant to NMFS's analysis of the proposed project at Port Everglades, and that the Corps has not made assertive efforts to address unanticipated damage caused at PortMiami, NMFS should immediately rescind the 2014 BiOp.

We request that NMFS immediately: (1) reinitiate formal consultation with the Corps under Section 7 of the ESA; and (2) withdraw or rescind the March 7, 2014 biological opinion regarding the Port Everglades dredging activities. Ultimately, we look forward to a NMFS decision that will protect threatened coral species and critical habitat that will be harmed by the proposed dredging to expand Port Everglades.

Sincerely,

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Enclosures

cc: Hon. Jo-Ellen Darcy, Assistant Secretary of the Army, Department of the Army
Lt. Gen. Thomas P. Bostick, Commanding General, Army Corps of Engineers
Col. Jason A. Kirk, Commander, Jacksonville District Corps of Engineers

EXHIBIT A

Eric Summa, Branch Chief
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Re: Request for Reinitiation of Consultation and In-Person Meeting on the Port Everglades expansion project

September 4, 2015

Dear Mr. Summa,

We are writing to express our concern over the U.S. Army Corps of Engineers' ("Corps") failure to reinitiate consultation on the effects of the Port Everglades expansion project on threatened and endangered species under Section 7 of the Endangered Species Act ("ESA") and deficiencies with the existing biological opinion on the proposed project.[1]

Port Everglades and the marine waters off the coasts of Fort Lauderdale, Dania Beach, and Hollywood, Florida contain invaluable, highly sensitive endangered species and habitats. We are concerned that the Port Everglades channel widening and deepening project will seriously harm threatened corals that are protected under the ESA. Newly listed, threatened coral species in the area, as well as new information about the severity of the impacts of the project on adjacent corals reefs (based the recent and similar Miami port expansion project) warrant the reinitiation of consultation with the National Marine Fisheries Service ("NMFS"). Furthermore, in reinitiated consultation, NMFS and the Corps should consider seafloor stabilization as a condition of the biological opinion.

We hope that the Corps will act promptly to reinitiate consultation to remedy this problem. Please contact us at your earliest convenience to discuss how the Corps will come into compliance with the ESA.

I. The Corps Must Reinitiate Consultation

[1] 16 U.S.C. § 1356(a)(2).

The Corps must immediately reinitiate consultation, as NMFS has listed new species in the project area that may be affected by the project, turbidity sediment impacts may be more severe and widespread than previously anticipated, and the biological opinion relied upon survey inaccuracies. Section 7(a)(2) of the ESA requires federal agencies to "insure that any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered species."[2] To comply with this substantive mandate, federal agencies must consult with the Fish and Wildlife Service and the National Marine Fisheries Service whenever their actions "may affect" a listed species and utilize the "best scientific and commercial data available" in doing so.[3] At the completion of consultation, the expert wildlife agency issues a biological opinion that determines whether the action is likely to jeopardize the continued existence of the species. If so, the opinion must specify reasonable and prudent alternatives that would avoid the likelihood of jeopardy and allow the action to proceed.[4] The Services may also "suggest modifications" to the action during the course of consultation to "avoid the likelihood of adverse effects" to the listed species.[5]

The Act's implementing regulations, 50 C.F.R. § 402.16, state that, after the issuance of a final biological opinion and "where discretionary Federal involvement or control over the action has been retained or is authorized by law," the agency must reinitiate formal consultation if, *inter alia*:

> (1) the amount or extent of taking specified in the incidental take statement is exceeded;
> (2) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered;
> (3) the identified action is subsequently modified in a manner that causes an effect to the listed species . . . that was not considered in the biological opinion; or
> (4) if a new species is listed or critical habitat designated that may be affected by the identified action.

The Port Everglades expansion project triggers several of these requirements [specifically, (2) and (4)] for reinitiation of consultation on the required Port Everglades Biological Opinion. NMFS' Biological Opinion for the Port Everglades expansion project, completed March 7, 2014 ("BiOp") therefore must be updated. Considerations in an updated BiOp would also likely affect parameters of a Final Environmental Impact Statement ("FEIS") and Feasibility Study (specifically, Estimated Project Costs and Cost Benefit Analyses), which should similarly be updated in a supplementary EIS to reflect a new BiOp.

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[2] 16 U.S.C. § 1536(a)(2); 50 C.F.R. § 402.14(a).
[3] *Id*.
[4] 16 U.S.C. § 1536(b)(3)(A).
[5] 50 C.F.R. § 402.13.

NMFS' comments in its FEIS underscore the need for the Corps to reinitiate consultation:[6]

> Both NMFS and the Jacksonville District have committed to having the Port Everglades monitoring reflect lessons learned from recent monitoring of the Port of Miami expansion project. The environmental monitoring plan in Appendix E-6 3 of the Final EIS largely reflects experiences prior to the Port of Miami expansion.

Reinitiating consultation to reflect "lessons learned" from the Port of Miami process is an extension of that commitment.

In its review of the draft EIS ("DEIS"), the Environmental Protection Agency ("EPA") expressed concerns over potentially significant impacts:[7]

> …The USEPA continues to have some environmental concerns for the project as proposed, including concerns that were raised following the review of the DEIS and that remain unaddressed in the FEIS…In addition, numerous environmental issues associated with the Port of Miami project and its associated dredging impacts have further highlighted the need for Best Management Practices (BMPs) for the proposed dredging operations to avoid and minimize direct and indirect (secondary) impacts; an improved assessment methodology and monitoring plan; appropriate mitigation commitments for proposed dredging activities; and adequate budgeting for monitoring (including disposal site) and mitigation.

A. NMFS has listed new coral species that may be affected by the action

The conference opinion on the corals that were proposed for listing at the time of the BiOp is insufficient, and the Corps and NMFS must reinitiate formal consultation on these corals. On September 10, 2014, NMFS listed five corals in the area as threatened under the Endangered Species Act:[8]

- *Dendrogyra cylindrus* - Pillar coral
- *Mycetophyllia ferox* - Rough cactus coral
- *Orbicella annularis* - Lobed star coral
- *Orbicella faveolata* - Mountainous star coral
- *Orbicella franksi* - Boulder star coral

[6] Roy Crabtree (NMFS) letter to Col. Alan Dodd (USACE) at 2 (April 17, 2015).
[7] EPA comments on FEIS.
[8] *See generally, Endangered and Threatened Wildlife and Plants: Final Listing Determinations on Proposal to List 66 Reef-Building Coral Species and To Reclassify Elkhorn and Staghorn Corals*, 79 Fed. Reg. 53852 (Sept. 10, 2014).

Pillar coral is very rare and particularly vulnerable to sedimentation. Rough cactus coral has a limited range and typically low recruitment. It is susceptible to nutrient enrichment and does not exist in areas with poor water quality. Lobed star coral is highly susceptible to bleaching and sedimentation, which harms its primary productivity and growth. Monitoring shows declines of mountainous star corals in many sites with a 65 percent decline across five countries, and is highly susceptible to sedimentation and nutrient enrichment. Similarly, boulder star coral has declined in cover and colony size and is also susceptible to sedimentation.

Despite some consideration of these species in the BiOp, the analysis for these corals was lacking. Furthermore, the Corps must still gain NMFS' concurrence and take authorization now that the final listing has been completed. The BiOp affirms this procedure for the conference opinion:[9]

> Since the USACE has requested conference consultation on the proposed species, at the proper time they must request that this Conference Opinion be confirmed as NMFS's Biological Opinion should the species be listed/reclassified. At that time, the USACE will also request take authorization for the corals that are ultimately listed as endangered that are proposed to be lethally taken and/or relocated from the action area.

However, mere concurrence with the Conference Opinion is insufficient because NMFS must evaluate the impacts on pillar coral, address impacts beyond the 150-meter buffer, and obtain better information on the newly listed corals in the area.

Notably, pillar coral was not evaluated in the BiOp. Pillar coral may be within the impact area of Project and it is susceptible to sedimentation.[10] "*D. cylindrus* may be more sensitive to turbidity due to its high reliance on nutrition from photosynthesis and as evidenced by the geologic record."[11] Yet, the BiOp did not analyze impacts to *Dendrogyra cylindrus*, and NMFS' incidental take statement does not authorize the take of this species.[12] As a necessary precaution, the Corps should reinitiate consultation before it approves the 404 permit so that NMFS and the Corps can more adequately conduct species surveys, assess potential threats and impacts, and integrate a mitigation strategy to ensure these corals are not harmed during Port construction or operation. Failure to correct this oversight places these corals at an unacceptably heightened risk.

Additionally, as described in more detail below new information from monitoring at the Port of Miami expansion project indicates that the harmful impacts on newly listed corals will be greater than previously analyzed in the BiOp. Also, existing surveys were insufficient to address the impacts to newly listed corals and improved information on the

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[9] BiOp at 29.
[10] *See* Mcdevitt et al., A Species Action Plan For The Pillar Coral Dendrogyra Cylindrus, Fla. Fish & Wildlife Comm'n 3 (2013); 79 Fed. Reg. 53926 (Sept. 10, 2014).
[11] *Id.*
[12] *See* BiOp at 129.

newly listed corals is necessary to evaluate the project's impacts on these threatened corals.

On information and belief, further consultation steps that are required here have not yet been fulfilled, and the Corps lacks an incidental take statement for newly listed corals and an adequate BiOp as required to issue such a statement. The proper course is to reinitiate consultation.

B. New information reveals effects of the action in a manner or to an extent not previously considered

1. New information indicates that turbidity sediment impacts will be more severe and widespread than anticipated

The Corps has significantly underestimated the "indirect impact area," and new information from the Port of Miami further supports that the evaluation of "indirect" effects must be increased to account for turbidity and sedimentation impacts beyond 150 meters.

The FEIS states:[13]

> USACE expects turbidity and sedimentation effects associated with the Port Everglades Navigation Project Recommended Plan to be similar to those seen at the ongoing Miami Harbor expansion project.

And:[14]

> The material disposed in the Port of Miami project is the same type of material being dredged at Port Everglades (hard limestone) and should result in similar conditions regarding associated sedimentation and turbidity generated by the material.

Sedimentation and its lethal impacts to corals are currently occurring beyond 150 meters of the expansion of the Port of Miami (Figure 1),[15] despite pre-construction assurances that sediment impacts would be minimal.[16] The extensive and uncontrolled sedimentation impacts currently occurring in the Port of Miami are the center of ongoing litigation,[17] state Water Quality Certification ("WQC") violation,[18] and documented impacts to listed

[13] At 194.
[14] At 199.
[15] D. Bernhart (NMFS) letter to J. Spinning (USACE). May 14, 2015.
[16] NMFS 2011 Miami Biological Opinion at 30.
[17] *Biscayne Bay Waterkeeeper et. al., v. U.S. Army Corps of Engineers,* Case No. 14-CV-23632-FAM (2014).
[18] U.S. Environmental Protection Agency. 12 December 2014. Letter to Eric Summa, Environmental Branch Chief, Jacksonville District Corps of Engineers. 2pp.

coral species and Essential Fish Habitat.[19] The Florida Department of Environmental Protection ("FDEP"), the Miami-Dade County Division of Environmental Resources Management ("DERM"), and the National Oceanic and Atmospheric Administration ("NOAA") each documented impacts well beyond 150 meters at Port Miami (extent of sediment impacts noted by: FDEP >650m,[20,21] DERM ~450 m,[22] and NMFS >200m).[23] These impacts are also supported by observations made by Miami Waterkeeper (formerly Biscayne Bay Waterkeeper) and relayed to the Corps and NMFS on January 20, 2015, February 16, 2015, and June 19, 2015.[24] The Corps stated, in its reinitiation of consultation on the BiOp with NOAA in Miami:[25]

> Additionally, effects of sedimentation, while considered in the Biological Opinion, may exceed the assumptions of the either the Biological Assessment or Biological Opinion.

NMFS also concluded that the Port of Miami project had impacts far outside of the boundaries of the indirect impact area, stating:[26]

> NMFS unequivocally reiterates that the sedimentation actually experienced at the Port of Miami greatly exceeds the amount that we predicted in our BO, both in area affected and environmental consequences, and that reinitiation of consultation was required to consider these unanticipated sedimentation effects.

The determination of 150m indirect impact zone used in the FEIS appears to be based on a 1980-1981 Port Everglades dredging project and a 2004 Key West dredging project. The Key West Project has already been discounted as an inadequate reference for open ocean conditions like the Port of Miami and Port Everglades.[27] The erroneous comparison to dredging in Key West led to the utilization of an inappropriate sediment monitoring methodology in Miami (i.e. sediment blocks),[28] and led to the sediment levels on the reef being largely unregulated-- resulting in litigation.

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[19] National Oceanic and Atmospheric Administration. 13 February 2014. "Port of Miami *Acropora cervicornis* Relocation Report, Final Report." 15pp.
[20] Florida Department of Environmental Protection. 18 August 2014. "Field notes on impact assessment in Miami Phase III Federal Channel Expansion Permit #0305721-001-BI." 39pp.
[21] FDEP Site Visit Summary and Impact Assessment. July 15, 2015.
[22] Miami-Dade Department of Regulatory and Economic Resources, Division of Environmental Resources Management. July 2014. "US Army Corp [sic] of Engineer's Port of Miami Channel Deepening Project: Report on Opportunistic Hardbottom/Reef Inspections." 10pp.
[23] National Oceanic and Atmospheric Administration. 13 February 2014. "Port of Miami *Acropora cervicornis* Relocation Report, Final Report." 15pp.
[24] Miami Waterkeeper Dive Surveys on 14 January 2015, 30 January 2015, 23 June 2015.
[25] USACE letter to NMFS. 14 Sept 14. "Attachment 2, 7a/7d analysis."
[26] D. Bernhart (NMFS) letter to J. Spinning (USACE) 14 May 2015.
[27] Miami Harbor Monthly Inter-Agency Coordination Meeting Minutes February 6, 2014, page 3.
[28] *Id.*

A.

Photo C-24c. *Acropora cervicornis* colony #24 immediately post-reattachment.

BBWK photo 1/30/15

B.

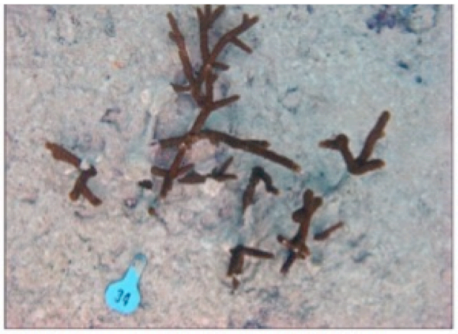

Photo C-34d. *Acropora cervicornis* colony #34 30 days post-reattachment.

CSA 1/14/14

BBWK photo 1/30/15

C.

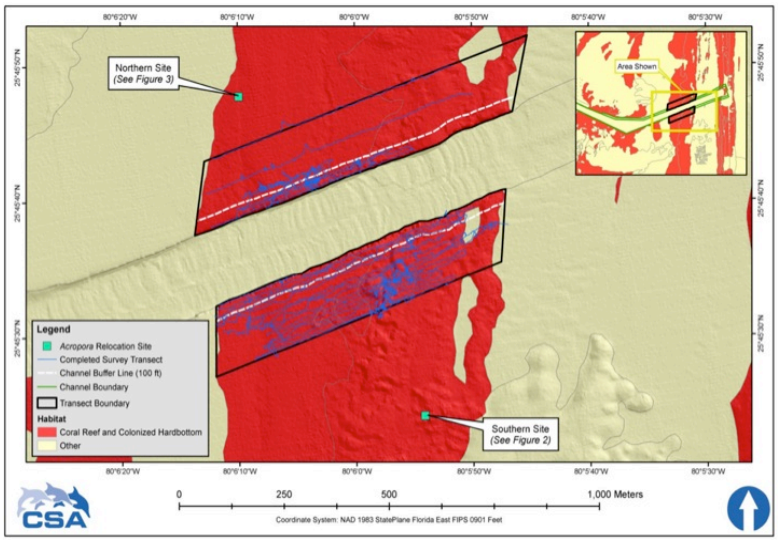

Figure 2A & B. *Acropora cervicornis* coral 24 and 34, relocated to the Northern Relocation Site, outside of the indirect impact zone (See Figure 2C for location), and then after one year, observed by Biscayne Bay Waterkeeper (BBWK).

Figure 2C. Port of Miami Middle reef. Northern Site shows location of corals in Figure 1 A, B, which are outside of the 150m indirect impact area (shown by a black box). ("CSA Final Report for the 30-Day Post-Relocation Monitoring Survey for *Acropora cervicornis* associated with the Miami Harbor Construction Dredging (Phase 3) Project", 25 February 2014).

NMFS also concurs that a 150m buffer zone for Port Everglades is insufficient, and in a letter to the Corps on August 12, 2013 states:[29]

> …indirect impacts to coral and hardbottom habitat would result within the 150 meter zone around the channel, [but] NMFS does not agree that sedimentation and turbidity impacts would be limited to this zone.

The recent and ongoing dredging in the Port of Miami is a more accurate and recent reference for potential impact zones in Port Everglades. The "indirect impact area" should therefore be expanded to include the full extent of sediment impacts observed in the Port of Miami dredging project (estimated to be between 650-1000m from the channel)[30] when a comprehensive sediment delineation survey is completed, especially considering that the FEIS explicitly states that the Port of Miami dredging project was used as the basis for these estimations.[31]

Similarly, the coral resource survey should be expanded beyond the 150m indirect impact area as well. Coral resources should be mapped in the full sediment-impacted area observed at the Port of Miami (i.e. locate the number of threatened corals potentially impacted out to 650m-1000m or more. See below for further information about the geographic extent of sediment impacts).

Hundreds of thousands of corals are intended to be outplanted for mitigation purposes in Port Everglades.[32] Outcomes in the Port of Miami must be acknowledged and appropriately analyzed in an EIS with respect to this plan. Without understanding the full

Figure 1. An example of a *Diploria* coral ~250m north of the Port of Miami Channel showing signs of severe past and ongoing sediment impacts. Areas buried under sediment had dead skeleton underneath. 14 Jan 2015 (Photo: E. D'Alessandro)

[29] NMFS letter to USACE August 12, 2013, At 3.
[30] NOAA Port of Miami Field Observations from May 19, 2015 (June 17, 2015).
[31] See Reinitiation of Consultation Letter USACE to NMFS; September 14, 2014 (page 3) "In summary, by this letter, we are requesting the following: (1) reinitiation of consultation with respect to additional relocation Acropora corals; (2) reinitiation of consultation with respect to Acropora corals potentially subject to project-related sedimentation between 100 ft. and 450 ft. both north and south of the channel.
[32] FEIS, Appendix E.5.

range of potential sediment impacts, mistakes can easily be made. For example, in the Port of Miami, ESA-listed Acroporid corals that were relocated to an area thought to be outside the potential impact area (i.e. 261 meters north of the channel), but were heavily impacted by sediments during dredging (See Figures 2A, 2B, 2C).[33, 34] It is imperative, therefore, to fully understand the potential extent of the sedimentation impacts to avoid damaging relocated corals thought to be safe in nearby "mitigation reef" areas. These potential impacts should be considered in an updated BiOp.

Additionally, ESA-listed Acroporid coral thickets have been recently discovered near Port Everglades and will potentially be jeopardized by dredging activities and widespread associated sedimentation impacts.[35] Loss of these newly discovered thickets would be devastating for our nation and the recovery of this ESA-listed species. The updated BiOp (and FEIS) should account for the location of these thickets and should monitor them throughout the project.

2. New information indicates that surveys may no longer be accurate

Surveys of coral species in the vicinity of dredging that were relied upon to form the 2014 BiOp can no longer be used as an accurate analysis of risk to resources.

In the nearby Port of Miami project, surveys conducted in 2010 that were similar to the Port Everglades Dial Cordy & Associates 2010 survey were no longer accurate when the project commenced in 2013, and underestimated staghorn coral populations by almost ten times. The listed coral surveys for Port of Miami and Port Everglades were conducted by the same contractor, using the same methodology, just a few months apart. This faulty survey contributed to the resulting unauthorized "take" of these additional staghorn corals. As noted by the contractors surveying the Port of Miami indirect impact area in 2013, just before construction began:[36]

> Results from the survey indicated the coral abundance was more than 10 times that identified during the 2010 survey, greatly exceeding the anticipated coral colony numbers.[37]

Whether due to different methodologies or a "bloom" of staghorn corals in the last few years, as the Corps asserts,[38] the inaccuracy of the 2010 Dial Cordy staghorn survey for

[33] Miami-Dade Department of Regulatory and Economic Resources, Division of Environmental Resources Management. July 2014. "US Army Corp [sic] of Engineer's Port of Miami Channel Deepening Project: Report on Opportunistic Hardbottom/Reef Inspections." 10pp.
[34] Biscayne Bay Waterkeeper. January 30th 2015. "Biscayne Bay Waterkeeper Survey Dive, Middle Reef, ~100-250m North of the Port of Miami Channel 1/30/15." 48 slides.
[35] David Fleshler. 2 January 2015. "Forests of rare coral discovered off South Florida. Sun Sentinel.
[36] At 2.
[37] CSA Final Report for the 30-Day Post-Relocation Monitoring Survey for *Acropora cervicornis* Associated with the Miami Harbor Construction Dredging (Phase 3) Project, 25 February 2014).
[38] National Oceanic and Atmospheric Administration 14 September 2014. "Revised Section 7a(2)/7d Evaluation/Supplemental Biological Assessment for Miami Harbor Navigation Project (deepening to 50 ft)" 19pp.

the Port of Miami merits an updated survey of staghorn corals adjacent to Port Everglades.[39] The listed coral survey for Port Everglades must therefore be redone based on new information from Port of Miami and this new information should be incorporated in the BiOp.

The Port Everglades FEIS states that surveys found no threatened corals within 150m of the channel.[40] This finding must be reevaluated and the survey conducted again, and, if threatened corals are present, they must considered in the BiOp and mitigation and monitoring plans.

3. New information indicates that direct effects could be more severe than previously analyzed

The BiOp should consider all direct[41] and indirect[42] effects to listed corals, in both the direct and indirect impact areas. Direct effects in the indirect impact area have far exceeded direct effects in the direct impact area for the Port of Miami. Thousands of corals in the indirect impact area (over 150m north and south of the channel and likely beyond) in the Port of Miami have suffered near or total mortality due to "indirect" impacts such as sedimentation. Port of Miami's BiOp initially predicted "temporary and insignificant impacts" as a result of sedimentation in the indirect impacts zone. However, NMFS stated in its May 14, 2015 letter to the Corps:[43]

> Insignificant effects relate to the size or severity of the impact and include those effects that are undetectable, not measurable, or so minor that they cannot be meaningfully evaluated. Insignificant is the appropriate effect conclusion when plausible effects are going to happen, but will not rise to the level of constituting an adverse effect. That means the ESA-listed species may be expected to be affected, but not "taken" (e.g., injured or killed). The partial and total mortality of coral colonies caused by the dredging-induced sedimentation at Miami Harbor is not an insignificant effect, it is take, and it was not predicted in our 2011 BO and not included in the incidental take statement.

[39] CSA Ocean Sciences Inc. 25 February 2014. "Final Report for the 30-Day Post-Relocation Monitoring Survey for *Acropora cervicornis* Associated with the Miami Harbor Construction Dredging (Phase 3) Project." 64pp.
[40] At 144.
[41] 40 CFR §1508.8(a) defines "direct effects" as those that "are caused by the action and occur at the same time and place."
[42] 40 CFR §1508.8(b) defines "indirect effects" as those that "are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, populations density or growth rate, and related effects on air and water and other natural systems, including ecosystems."
[43] D. Bernhart (NMFS) letter to J. Spinning (USACE). May 14, 2015.

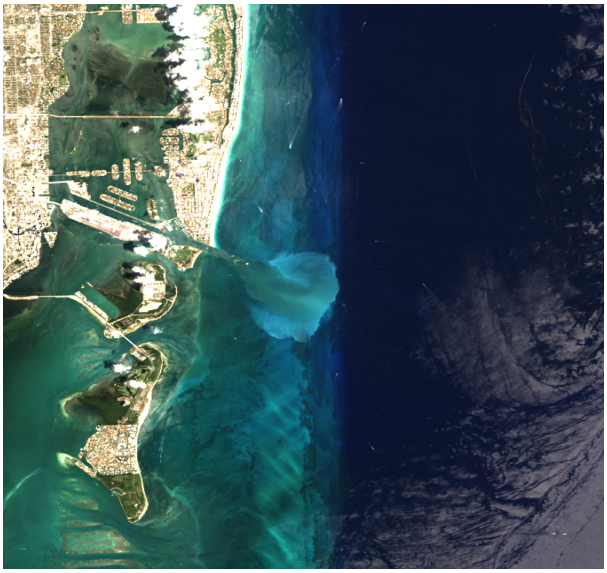

Figure 3. Landsat image accessed April 24, 2014 showing an immense plume of turbidity at the Port of Miami.

We would expect to see similar impacts in Port Everglades.[44] These types of lethal effects in the indirect impact area and beyond have not been factored into the BiOp for Port Everglades and must be considered during consultation, along with appropriate prevention, mitigation, and monitoring recommendations.

4. New information indicates that turbidity limits are too high to protect corals

The FEIS relied on a turbidity limit of 29 NTUs. This high turbidity limit proved ineffective in the Port of Miami to protect adjacent reefs from sediment and turbidity impacts. Because the Corps claims that there have only been a handful of turbidity violations in the Miami project, the observed sediment damage must have occurred within this 29 NTU limit.

Observations of both massive turbidity plumes (measured at 1500m at times from satellite images) and corals buried under 14cm of fine, dredging-related sediments[45] were made in the Port of Miami (Fig.3). Because these corals were buried in sediment that fell out of suspension from a turbidity plume, these observations are related. Allowing another project to take place near fragile reefs with this 29 NTU turbidity limit is not prudent and restrictions on turbidity limits should be made in the BiOp.

NOAA pointed out in its August 12, 2013 letter to the Corps that a 29 NTU limit is "not conservative and should be reevaluated".[46] However, the Corps did not respond to the comment in the FEIS, inexplicably deeming it "No Response Required."[47]

[44] FEIS pages 194 and 199, quoted in Section I above.
[45] Florida Department of Environmental Protection. 18 August 2014. "Field notes on impact assessment in Miami Harbor Phase III Federal Channel Expansion Permit #0305721-001-BI." 39pp.
[46] At 3.
[47] FEIS Appendix L, page 20.

Since the turbidity monitoring protocol for the Miami project failed to capture the siltation events, a thorough review of the sampling methodology should be conducted. In addition to the 29 NTU limit, sampling frequency, sample collection depth, and location also require examination.

Newly-discovered staghorn coral reefs were identified in close proximity to Port Everglades. These new thickets of *Acropora cervicornis* corals are exceedingly rare. Although these corals reside outside the currently designated 150m impact area, a consideration of possible impacts to this species should be considered in a BiOp, and the potential for uncontrolled, lethal sedimentation impacts must be considered.

Turbidity from sediment plumes can also shade corals, making it difficult for them to obtain energy from sunlight via their symbiotic algae. This results in decreased energy stores for corals, leading to slower growth, reduced reproduction, and greater disease risk. Atlantic *Acropora*, specifically, are known to be reliant on access to sunlight for fulfilling their energetic needs, as they are poor feeders, and are therefore unlikely to be able to compensate for a loss of energy from shading. Staghorn corals are known to be among the most susceptible species to turbidity stress.[48] Estimating a similar range of sediment impacts and size of turbidity plume in Port Everglades, these newly-discovered staghorn reefs could be at risk and must be included in the FEIS.

Due to the vulnerability of these corals to turbidity stress, impacts from turbidity and limits on turbidity levels during this project should be considered in the BiOp.

5. New information indicates that disease risks must be considered

Dredging-related disease impacts on corals have not been considered in the BiOp. The impact of disease on corals adjacent to dredging must be considered in light of recent studies, such as Pollock et al. 2014,[49] which showed that corals exposed to chronic dredging sediments are twice as likely to develop diseases. Although this study was conducted in Australia, the dominant coral genera in the study (*Acropora*) is the same genera as South Florida's threatened staghorn and elkhorn coral. It is common practice in Caribbean coral reef ecology to draw conclusions from studies conducted on Pacific corals. Pollock et al. 2014's findings are particularly relevant for staghorn corals, which are highly susceptible to disease; disease outbreaks largely led to over 95% declines in staghorn corals since the 1970's. In the Port of Miami, outbreaks of white plague disease have been observed recently near the Port channel. The Weekly Offshore Coral Stress and Sediment Report from Port of Miami (Weeks 69 & 70) states:

[48] Rogers, C.S. 1990. Responses of coral reefs and reef organisms to sedimentation. *Marine Ecology Progress Series* 62:185-202.

[49] Pollock, F. J., Larnb, J. 8., Field, S. N., Fleron, S. F., Schaffelke, 8., Shedrawi, G., & Willis, B. L. (2014). Sediment and turbidity associated with offshore dredging increase coral disease prevalence on nearby reefs. PloS ONE, 9(7), e102498.

> The recently high levels of scleractinian coral mortality attributed to the white plague disease event have created a confounding factor when examining total coral stress and sediment stress data from compliance monitoring sites. As a result, the confounding effect of coral mortality was limited to a small proportion of all coral stress data.

While dredging cannot be conclusively determined to be the cause of this disease outbreak, this observation is deeply concerning and could indicate a widespread and long lasting impact to coral reefs that has not been previously accounted for. Furthermore, turbidity from sediment plumes can also shade corals, making it difficult for them to obtain energy from sunlight via their symbiotic algae, leading to sublethal effects such as greater disease risk.[50] Reinitiated consultation must consider the dredging-related disease impacts to coral.

II. Seafloor stabilization should be a condition of the BiOp

NMFS notes in its comments in the DEIS:[51]

> Coral reef communities in the channel would be directly impacted through (1) removal by the dredge; (2) coral fragments and dredged material, including rubble and sediments, moving downslope or down current and shearing coral reef organisms from the substrate; and (3) fractures in hardbottom and lithified coral propagating into the reef framework, thereby destabilizing attachment of coral reef organisms. The latter two impacts create an unstable coral reef environment resulting in lower coral abundance and fewer large coral colonies. The steeply sloped, eastward facing spur-and- groove reef habitats are particularly at risk from the downslope movement of sediment and rubble. Stabilizing the seafloor following the dredging at Port Everglades may be the most significant measure that could minimize post-injury impacts on the surrounding reef communities and newly established reef organisms on uncovered substrate (Dial Cordy and Associates 2006).

The Corps' response to this concern is that it will mitigate for any below-dredge-depth impacts to not-previously-impacted hardbottom.[52] However, stabilizing the hardbottom following dredging would *prevent* this damage and avoid future mitigation costs. Because it would constitute an avoidance and minimization measure, reducing potential environmental impacts to reefs, including ESA-listed corals, stabilization should be required as a condition of the BiOp.

[50] Erftemeijer, P.L.A., Riegl, B., Hoeksema, B.W., Todd, P.A. (2012) Environmental Impacts of dredging and other sediment disturbances on corals: A review. Marine Pollution Bulletin. 64:1731-1765.
[51] FEIS Appendix L, page 19.
[52] *Id*.

III. Conclusion

To prevent excessive damage to corals and the environment, all relevant information related to deleterious environmental impacts from the Port of Miami dredging project must be addressed and considered in the Port Everglades EIS. As a first step toward this goal, comprehensive impact studies must be conducted in Miami immediately, before the Port Everglades BiOp can adequately considered all potential impacts. Delays in doing a "post mortem" survey on Miami's reefs will obfuscate important data, also for the updated BiOp for Miami, that is critical for decision making BiOp determinations. On information and belief, no comprehensive surveys on the extent of sedimentation impacts on the reef in Miami or the number of corals impacts have been finalized, despite eight months having passed since the completion of offshore dredging in Miami, despite six months having passed since NMFS requested this information, and despite the issuance of the Chief's Report for Port Everglades, approving the FEIS for Port Everglades without this vital information.[53]

We therefore request that the Corps reinitiate consultation with NMFS immediately to address these and other relevant, newly developing concerns. We also request an in-person meeting with the Corps and NMFS at your earliest convenience to discuss these issues and how the Corps intends to come into compliance with the ESA.

Sincerely,

Cc:
Roy Crabtree, NMFS
David Bernhart, NMFS PRD
Kelly Logan, NMFS PRD
Virginia Fay, NMFS HCD
Terri Jordan-Sellers, USACE
Jason Spinning, USACE
Laurel Reichold, USACE
Fred Aschauer, FDEP

[53] R. Crabtree (NMFS) letter to E. Summa (USACE) February 11, 2015.

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EXHIBIT B

Via E-mail and Certified Mail

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Re: Notice of Intent to Sue for Violations of the Endangered Species Act Related to Port Everglades, Florida Channel Deepening and Widening

Dear Madams and Sirs:

On behalf of Miami Waterkeeper, the Center for Biological Diversity, Florida Wildlife Federation, and Sea Experience, this letter serves as a sixty-day notice of our intent to sue the United States Army Corps of Engineers ("Corps") for violations of the Endangered Species Act ("ESA"), 16 U.S.C. § 1531 *et seq*., relating to the proposed expansion of Port Everglades Harbor and planned dredging. More specifically, and as described further below, the Corps has violated

and is violating ESA Section 7 by arbitrarily and capriciously relying on a flawed biological opinion; failing to reinitiate consultation after the Corps learned of new information revealing that the effects of the proposed dredging project may affect listed species and critical habitat in a manner or to an extent not previously considered; and failing to reinitiate consultation following the listing of a new species or designation of critical habitat that may be affected by the project. The Corps recently finished a similar dredging project at the Port of Miami ("PortMiami"). The construction for that project violated the ESA by taking hundreds more corals than allowed for under the relevant incidental take statement and causing significant impacts that were not accounted for in the related biological opinion. The Corps must stop flouting its ESA responsibilities and violating the law now, before construction begins in Port Everglades.

I. FACTUAL BACKGROUND

The National Marine Fisheries Service ("NMFS") listed *Acropora cervicornis* (staghorn coral) and *Acropora palmata* (elkhorn coral) as "threatened" under the ESA in 2006.[1] In an effort to further reverse the rapid loss of coral reefs, on September 10, 2014, NMFS added pillar coral (*Dendrogyra cylindrus*), rough cactus coral (*Mycetophyllia ferox*), lobed star coral (*Orbicella annularis*), mountainous star coral (*Orbicella faveolata*), and boulder star coral (*Orbicella franksi*) to the ESA list as "threatened."[2] Most of these ESA-listed corals or critical habitat for these corals have been found near Port Everglade's existing entrance channel.[3] In fact, some of the largest known thickets of ESA-listed staghorn coral within the United States are located off Broward County[4] and approximately 19,200 acres of staghorn coral critical habitat occur within the project "action area."[5]

Dredging in Port Everglades threatens to harm coral species. Dredging projects pose enormous threats to coral reef systems, as they directly destroy coral colonies during construction. In addition, the fine sedimentation produced by dredging projects can smother coral and coral habitat, choking access to light and food, interfering with reproduction, and contributing to disease.[6] The proposed channel deepening and widening at Port Everglades would be the second major project the Corps has undertaken in South Florida in the past five years to accommodate larger tanker and container ships. The first project, at PortMiami, highlighted fundamental problems with the Corps' and NMFS's approach to impacts on corals.

PortMiami Background

Port Everglades lies approximately 30 miles north of PortMiami, where the Corps recently completed deepening and widening of the Miami Harbor Channel to accommodate "post

[1] 71 Fed. Reg. 26,852 (May 9, 2006).
[2] 79 Fed. Reg. 53,852 (Sept. 10, 2014).
[3] *See* March 7, 2014, National Marine Fisheries Service Endangered Species Act Section 7 Consultation Biological Opinion ("PE BiOp") at 16, 105-06.
[4] *Id.* at 43.
[5] *Id.* at 89.
[6] *Id*. at 57.

Panamax" vessels. Similar to Port Everglades, the Miami Harbor Channel bisects coral reefs and staghorn coral critical habitat. Over the course of the Miami dredging, over 5 million cubic yards of material was dredged and transported offshore for disposal. The Corps believes the impacts to corals and their critical habitat in Port Everglades will be the same as in Miami[7] and so the results of the deep dredge of the Miami Harbor Channel are relevant to the Port Everglades project.

The results of the PortMiami dredging project demonstrate that many of the fundamental assumptions and conclusions in the biological opinion for Port Everglades are erroneous. Lessons learned from PortMiami also reveal that the dredging may affect listed species and critical habitat in a manner or to an extent not previously considered. Among other things, the PortMiami information demonstrates that sedimentation will have a significantly greater impact over a much wider area than anticipated in the Port Everglades biological opinion.

PortMiami was deepened and widened to accommodate larger vessels, with construction spanning November 2013 through August 2015. Before beginning that project, the Corps identified two threatened coral species that might be present in the Miami action area, staghorn and elkhorn coral. For the Miami project, the Corps assumed indirect impacts to the threatened coral and its critical habitat would extend out 150 meters from the harbor. In 2010, the Corps contracted with Dial Cordy to survey the area within 150 meters of the Miami Harbor Channel to determine whether staghorn or elkhorn corals were present. Dial Cordy identified 31 staghorn colonies in the 150-meter indirect impact area.[8] In 2011, NMFS issued a biological opinion for the PortMiami dredging project ("Miami BiOp"). Based on the 2010 Dial Cordy survey, the Miami BiOp only analyzed the project's effects on 31 colonies of staghorn coral within 150 meters of the Miami Harbor Channel,[9] which the Corps proposed removing and transplanting.[10] The Miami BiOp also considered the impacts of sedimentation on the staghorn critical habitat. NMFS concluded the impact of dredge related sediments on the critical habitat would be "temporary," "localized" and "insignificant."[11]

The Incidental Take Statement in the Miami BiOp authorized the take of the 31 staghorn colonies by transplantation, but did not authorize the take of staghorn corals by sedimentation or any other means.[12] It did not anticipate any critical habitat would be permanently impacted by sedimentation.

In late September 2013, one month before the planned commencement of dredging, the Corps engaged a different contractor to find the 31 staghorn colonies identified in the May 2010

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[7] May 2015. U.S. Army Corps of Engineers. Port Everglades Final Environmental Impact Statement (Port Everglades Harbor Navigation Study) Broward County, FL ("FEIS") at 194, 199.
[8] May 2010 Dial Cordy Final Report Miami Harbor *Acropora* Coral Survey at 3.
[9] September 8, 2011, National Marine Fisheries Service Endangered Species Act Section 7 Consultation Biological Opinion ("Miami BiOp") at 26-27.
[10] *Id.*
[11] *Id.* at 30.
[12] *Id.* at 35.

Dial Cordy survey for the purpose of beginning the relocation work. Rather than finding 31 colonies, however, the new contractor identified 243 colonies after surveying just over half of the anticipated indirect impact area.[13] The Corps attributed the substantial increase in the number of colonies to a change in survey methodologies and to a "bloom" of staghorn corals in southeast Florida that occurred following completion of the 2010 Dial Cordy survey.[14] The Corps explained:

> [I]t appeared as though there had been a "bloom" of [staghorn coral] in southeast Florida between 2010 and 2013. In Broward County, NOVA Southeastern University conducted a "county-wide" [staghorn coral] survey and between Port Everglades and the Palm Beach County line along 4,000 meter long east-west transects across all the offshore habitats, more than 10,000 colonies of [staghorn coral] were mapped, including a significant number of colonies in areas that had previously been devoid of the species (Los Angeles Times, January 19, 2015).[15]

Of the 243 staghorn colonies found in the 150-meter indirect impact area, the Corps relocated 38 colonies nearest to the Channel. Of those, 17 colonies were transplanted to a location 261 meters north of the Channel.[16] Unfortunately, 261 meters was too close to the Channel to avoid sediment-related impacts, and over 90% of those staghorn corals suffered partial mortality likely due to dredge-related sedimentation.[17]

In addition to the discovery of hundreds of additional staghorn corals in the 150-meter indirect impact area, local agencies realized that the sediment impacts to corals were much more devastating than predicted. After the commencement of dredging in November of 2013, officials noted that sediment impacts to corals were significant within and extending well beyond the 150-meter area and out to more than 650 meters from the Channel. Those impacts included complete mortality of coral.

In response to reports of sediment stress and large turbidity plumes, in early July 2014, almost a year after dredging began, the Miami-Dade County Division of Environmental Resources Management ("DERM") sent a team of biologists to dive the Channel and evaluate the condition of the corals and hardbottom habitat. They found areas of the reef heavily covered

[13] October 21, 2013, email from Terri Jordan-Sellers (USACE) to Kelly Logan (NMFS PRD); Sept. 14, 2014, Corps Revised Section 7a(2)/7(d) Evaluation/Supplemental Biological Assessment for Miami Harbor Navigation Project at 2.
[14] Sept. 14, 2014, Corps Revised Section 7a(2)/7(d) Evaluation/Supplemental Biological Assessment for Miami Harbor Navigation Project at 4; January 27, 2016, Supplemental Biological Assessment for the Reinitiation of Consultation Under Section 7 of the Endangered Species Act—PortMiami Navigation Project at 20.
[15] January 27, 2016, Supplemental Biological Assessment for the Reinitiation of Consultation Under Section 7 of the Endangered Species Act—PortMiami Navigation Project at 20.
[16] February 2015 Coastal Systems International, Inc. *Acropora cervicornis* One Year Post-relocation Monitoring Report for the Miami Harbor Phase III Federal Channel Expansion at 1.
[17] May 11, 2015, letter from Miami Waterkeeper to Frederick L. Aschauer, Jr., Director, Florida Department of Environmental Protection Division of Water Resource Management.

with dredge related sediments as well as dead and dying corals.[18]

In response to the DERM report, the Florida Department of Environmental Protection ("FDEP") sent a team of scientists to inspect the corals. In their report, they wrote:

> The observed sediment cover has had a profound effect on the benthos. There were no [hard coral] or [soft coral] recruits or juveniles less than 3 cm in maximum dimension observed along the assessment transects at the Inner and Middle Reefs; other small benthic organisms of the same size were also buried under the sediments. The survival of impacted [hard] corals and [soft corals] in size class < 10 cm is highly unlikely; according to our observation, the sediment layer has resulted in anoxic conditions. Larger size classes of [hard] corals, [soft corals], and sponges were also adversely affected by project-related sedimentation, and impacts to these larger organisms is considerable. More than half of the larger [hard] corals (> 10 cm in max dimension) observed had partial mortality caused by sediment accumulation, which can increase diseases in corals through infections in the affected areas. . . .
>
> The character of [the] impact indicates that it was recent. Large areas of hardbottom were covered with 1 cm to 14 cm [.39 to 5.5 inches] thick layer of fine sediments (visually silt and clay, with some mixture of fine sand at the monitoring stations). Such sediment cover is not characteristic for the hardbottom of this area (DEP staff pre-construction observations; pre-construction survey at monitoring stations). The sedimentation was observed during dredging activity (DERM reports).[19]

According to FDEP, the impacts extended at least 200 meters from the Channel "and farther" but that "the full spatial extent of the impact could not [be] defined because . . . 200 m long assessments transects were not long enough to identify the end of impact areas."[20] FDEP concluded that the lost reproductive output and recruitment from the sedimentation would have long-lasting effects and would persist for some time, with "even more profound effects on the ecological function of the communities."[21]

Following up on its inspection, on August 18, 2014, FDEP issued the Corps an enforcement "Warning Letter," identifying possible violations of the dredging permit FDEP had issued to the Corps in association with its dredging. In the Warning Letter, FDEP stated it had identified "significant impacts" to corals during its July 2014 dive inspection and the impacts

[18] DERM Report on Opportunistic Hardbottom/Reef Inspections—July 2014.
[19] FDEP Field Notes on Impact Assessment in Miami Harbor Phase III Channel Expansion.
[20] *Id.*
[21] *Id*.

violated the FDEP issued dredging permit.[22] Subsequently, in a September 12, 2014, letter the Secretary of FDEP, Herschel Vinyard, told the Corps that violations had occurred and that FDEP wanted to "resolve the existing violations to ensure the project is completed in a way that prevents any additional harm." Secretary Vinyard asked the Corps to meet with his staff and "to enter into a Consent Order that addresses our concerns and provides additional environmental assurances."[23]

Despite the discovery of the additional 200 staghorn corals in the 150-meter indirect impact area and the realization that sediment impacts were more extensive than anticipated, the Corps failed to reinitiate ESA Section 7 consultation for nearly a year after construction began and continued its harmful dredging operations relying on a flawed biological opinion, in violation of the law. On July 16, 2014, Miami Waterkeeper sent the Corps a sixty-day notice letter of its intent to sue for ongoing violations of the ESA in Miami.

The threat of litigation by Miami Waterkeeper finally resulted in the Corps reinitiating formal consultation with NMFS on September 14, 2014. In its letter requesting to reinitiate consultation, the Corps acknowledged that its own reports "demonstrat[ed] a larger geographical extent of project-related sedimentation than originally anticipated" and that:

> New information reveals that the number of staghorn corals present in the project area are greater than previously anticipated, with the potential for higher take than estimated in the [Miami BiOp] Incidental Take Statement. Additionally, effects of sedimentation, while considered in the [Miami BiOp], may exceed the assumptions of either the Biological Assessment or Biological Opinion.[24]

The sedimentation within the 150-meter area was found to be so extensive and the harm to ESA-listed staghorn corals so severe that in September 2014 NMFS issued an emergency relocation recommendation calling for the immediate rescue and removal of the hundreds of staghorn corals the Corps left behind within the 150-meter area.[25]

After the Corps declined NMFS's request for the emergency relocation, in October 2014, Miami Waterkeeper and others filed a citizen suit and sought emergency injunctive relief to compel the Corps to act. In resolving that matter, the Corps agreed to fund the relocation and

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[22] August 18, 2014, letter from Mark Thomasson, Director, FDEP Division of Water Resources Management to Eric Summa, Chief, Corps Jacksonville District, Environmental Branch, Planning Division.

[23] September 12, 2014, letter from Herschel Vinyard, FDEP Secretary, to Colonel Alan M. Dodd, Corps Jacksonville District. (The Corps' subsequently refused to into a consent order, claiming sovereign immunity.)

[24] September 14, 2014, letter from Eric Summa, Chief, Corps Jacksonville District, Environmental Branch, Planning Division, to David Bernhart, NMFS Assistant Regional Administrator for Protected Resources, Attachment 4 at 1.

[25] September 10, 2014, NMFS Port of Miami Emergency Remediation Recommendations from NMFS [Protected Resources Division].

also represented that its contractor, Great Lakes Dredge & Dock Corporation, "has recently implemented adaptive management measures to minimize sediment and turbidity during the remainder of the project."[26] The Corps stated in open court that it "confirms that adaptive management measures will be used during project construction to minimize turbidity generation and sedimentation in accordance with the existing permit . . . and existing contract."[27] However, Dial Cordy, in a report prepared for Great Lakes, acknowledged that "[a]fter months of implementing adaptive management strategies for the dredging operations, corals at channel-side sites were still exhibiting 'stress above normal' as defined by the FDEP permit."[28]

In February 2015, FDEP scientists returned to the Channel for an inspection, as did NOAA divers in May and December 2015. In their findings, they each reported that sediments were continuing to cause coral stress and mortality.[29] In a February 2015 letter, NMFS asked the Corps to fully define the geographic extent of the sedimentation and its impacts, and to submit a mitigation proposal based on that information.[30] After the Corps declined to provide the requested information, NMFS wrote:

> We are concerned by the continued lack of acknowledgment by the Corps that the impacts that have actually occurred to listed corals and their habitats, are vastly different than those that were predicted and authorized in the [Miami BiOp]. The biological opinion and the Corps' EIS for the project predicted only "temporary," "minimal," and "insignificant" impacts to corals and coral habitats from the dredging project. The only adverse effects (take) predicted in the biological opinion were the potential mortalities of a percentage of relocated coral colonies; no adverse effects of any kind were predicted from sedimentation. The adverse impacts that have resulted thus far from the dredging project are anything but the "temporary" and "insignificant" effects predicted, including widespread coral injury and mortality, and burying of coral habitats to an extent that will result in further mortality, and interference with settlement, recruitment and recovery.[31]

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[26] October 20, 2014. *Biscayne Bay Waterkeeper et al. v U.S. Army Corps of Engineers*, Case No. 14-23632, U.S. Southern District of Florida, U.S. Army Corps of Engineers Memorandum in Opposition to Miami Dade Reef Guard's Motion for Emergency Injunction, Docket No. 18, at 20.

[27] October 23, 2014 *Biscayne Bay Waterkeeper et al. v U.S. Army Corps of Engineers*, Case No. 14-23632, U.S. Southern District of Florida. Emergency Injunction Hearing Transcript, Docket No. 48, at 310.

[28] August 2015 Dial Cordy Delineation of Potential Sediment Effect Area Within Middle and Outer Reef Habitats at 3.

[29] February 9, 2015 FDEP Report on Sites Visited in Port of Miami Expansion Project; June 17, 2015, NOAA Port of Miami Field Observations from May 19, 2015.

[30] February 11, 2015, letter from Roy E. Crabtree, NMFS Regional Administrator, to Eric Summa, Chief, Corps Jacksonville District, Environmental Branch, Planning Division.

[31] March 17, 2015, email from Kelly Logan NMFS Protected Resources Division to Eric Summa, Chief, Corps Jacksonville District, Environmental Branch, Planning Division.

In addition to the unanticipated sediment impacts within the 150-meter indirect impact area, impacts from dredge-related sediments were found to extend far beyond the 150-meter zone. According to NMFS, the impact zone is "significantly larger than the 150 meters" predicted in the Miami BiOp "ranging well over 400 meters and potentially up to 1,000 meters or more" from the Channel.[32]

As part of the ongoing reinitiated consultation, the Corps sent NMFS a memo arguing that the original Miami BiOp discussed and evaluated all the potential effects from sedimentation.[33] In response, NMFS confirmed that these impacts, in fact, had not been considered in the Miami BiOp, saying:

> NMFS unequivocally reiterates that the sedimentation actually experienced at the Port of Miami greatly exceeds the amount that we predicted in our [Miami BiOp], both in area affected and environmental consequences, and that reinitiation of consultation was required to consider these unanticipated sedimentation effects. Our [Miami BiOp] only considered possible sedimentation impacts within the 150 meter "indirect" impact zone adjacent to the federal channel and predicted that those impacts would be temporary and insignificant.
>
> Your April 10, 2015, memo seems to be based on a misinterpretation of the term "insignificant." That term is very clearly defined in the context of ESA section 7 analysis. Insignificant effects relate to the size or severity of the impact and include those effects that are undetectable, not measurable, or so minor that they cannot be meaningfully evaluated. Insignificant is the appropriate effect conclusion when plausible effects are going to happen, but will not rise to the level of constituting an adverse effect. That means the ESA-listed species may be expected to be affected, but not "taken" (e.g., injured or killed). The partial and total mortality of coral colonies caused by the dredging-induced sedimentation at Miami Harbor is not an insignificant effect, it is take, and it was not predicted in our [Miami BiOp] and not included in the incidental take statement.[34]

In an August 2015 report, Dial Cordy confirmed sediment-related impacts extending up to 750 meters from the Channel where partial coral mortality was observed and pockets of dredge-related sediments were found.[35]

The Corps completed the dredging portion of the project in September of 2015 before providing NMFS with the information NMFS requested in its February 2015 letter. Under the pressure of continuing litigation, in January 2016, the Corps finally submitted to NMFS a

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[32] May 14, 2015, letter from David Bernhart, NMFS Assistant Regional Administrator for Protected Resources, to Jason Spinning, Corps' Jacksonville District, at 2.
[33] *Id*. at 1.
[34] *Id*.
[35] August 2015, Dial Cordy Delineation of Potential Sedimentation Effect Area Within Middle and Outer Reef Habitats at 42.

Supplemental Biological Assessment, wherein the Corps acknowledged that up to 290 colonies of staghorn coral located within 150 meters of the Channel suffered sediment accumulation.[36] The assessment also documented impacts up to 600 meters north of the Channel.[37] The consultation ended on February 29, 2016 without issuance of a new biological opinion.[38]

Most recently, NMFS issued a damage assessment report based on the agency's own investigation by its coral damage assessment specialist team.[39] The report presented results from its December 2015 survey of one portion of the impacted reef area, the north middle reef. In the report, NMFS found that 95% of the reef area surveyed suffered impacts from sedimentation, four percent of which was lost forever, permanently converted from reef to sand due to dredging-related sedimentation.[40] NMFS reported that divers observed sedimentation impacts, including the "accumulation of fine white sediments, partial mortality of sceleractinian corals, [and] burial of octocoral holdfasts" at all survey sites in the middle reef.[41] Sedimentation impacts extended beyond 700 meters north of the Channel.[42] NMFS concluded that the "disproportionate decline in [] coral species richness" was not consistent with the Corps' theory that region-wide disease, independent of dredging activities, could account for the coral mortality, and that sediment deposition from dredging activities was the most plausible explanation for impacts.[43] NMFS also reported that out of the ten other survey reports from the north middle reef, sediment accumulation was consistently described as recent and distinguishable from natural sediment.

The United States Environmental Protection Agency ("EPA") also threatened the Corps with an enforcement action, writing in December 2014 that the Corps was, among other violations, allowing its dredging contractor to decant sediment laden water from scows in the Channel "while passing by critical aquatic habitat" which "unnecessarily risks the health of the adjacent coral reef environment" in violation of the Marine Protection Research and Sanctuaries Act.[44] Additional violations occurred even after receipt of the EPA letter and, in a June 6, 2015,

[36] January 27, 2016, Supplemental Biological Assessment for the Reinitiation of Consultation Under Section 7 of the Endangered Species Act—PortMiami Navigation Project, at 4.
[37] *Id*.
[38] February 29, 2016, letter from David Bernhart, NMFS Assistant Regional Administrator for Protected Resources to Jason Spinning, Corps' Jacksonville District.
[39] April 2016 Examination of Sedimentation Impacts to Coral Reef along the Port of Miami Entrance Channel, NMFS, December 2015, Final Report.
[40] *Id*. at 1, 51 (demonstrating that 6.6 acres out of the total 167 acres surveyed (4%) suffered "very severe" impacts and transitioned to sand).
[41] *Id*. at 8.
[42] *Id*.
[43] *Id*. at 35, 47.
[44] December 23, 2014, letter from Jennifer Derby, U.S. EPA Region IV Acting Chief, Wetlands Coastal and Ocean Branch, to Eric Summa, Chief, Corps Jacksonville District, Environmental Branch, Planning Division.

letter, EPA identified 125 non-compliance events.[45] EPA's investigation is ongoing.

Port Everglades Project Background

Port Everglades is on Florida's east coast near the City of Ft. Lauderdale in Broward County, Florida. This manmade harbor was first federally authorized in 1930. It is a major seaport for petroleum delivery, has U.S. Navy and U.S. Coast Guard stations, and is the third largest cruise ship terminal in the world. It lies adjacent to ecologically and economically important bodies of water containing corals, seagrass meadows, and mangrove forest ecosystems, and is home to numerous threatened, endangered, or protected marine species. The three linear reefs that comprise the Florida reef tract, the only coral reef system in the continental United States, lie just offshore of the Port. These reefs are bisected by the shipping channel. The Florida reef tract provides hundreds of millions of dollars to the local economy annually, supporting eco-tourism, fishing, diving, and boating industries, while also protecting coastlines from storm surge and providing habitat for fish and other creatures.

The Corps seeks to deepen, widen, and lengthen the existing "Outer Entrance Channel" and other harbor areas to accommodate "post-Panamax" vessels, much like it did in PortMiami. The "Recommended Plan," identified in the March 2015 Final Environmental Impact Statement (modified May 2015) ("FEIS") includes, among other things:

- Deepening the Outer Entrance Channel from an existing 45-ft depth to 57 feet deep, extending the Channel an additional 2,200 feet seaward, and widening the entire Outer Entrance Channel from 500 feet to 800 feet;
- Deepening the Inner Entrance Channel and the Main Turning Basin from 42 to 50 feet;
- Blasting of up to 900 days to pre-treat rock prior to dredging; and
- Transporting approximately 5.47 million cubic yards of dredged material across the reefs and for offshore disposal.[46]

The project is expected to take five years to complete.[47]

The Corps initiated Section 7 consultation with NMFS in 2002 on the Port Everglades Project.[48] On March 7, 2014, six months after it came to light that the 2010 Dial Cordy Survey vastly underestimated the number of coral in the project area for PortMiami, NMFS published its

[45] June 6, 2015, letter from James D. Giattina, U.S. EPA Region IV Director, Water Resources Management Division, to Eric Summa, Chief, Corps Jacksonville District, Environmental Branch, Planning Division.
[46] FEIS at 28; PE BiOp at 8.
[47] PE BiOp at 7.
[48] *Id*. at 6.

biological opinion regarding the project's impacts on ESA listed species, corals then proposed for ESA listing, and the ESA designated staghorn coral critical habitat ("PE BiOp").[49] NMFS concluded that the project "may adversely affect loggerhead and green sea turtles, Johnson's seagrass, staghorn coral and corals [then] proposed for listing under the ESA, and designated critical habitat for staghorn coral" but that the project was not likely to jeopardize their continued existence or destroy or adversely modify the designated critical habitat.[50]

The PE BiOp concluded that expanding the Outer Entrance Channel would directly impact 21.66 acres of staghorn coral critical habitat and an additional 98.09 acres were expected to be impacted by dredge-related sedimentation.[51] NMFS estimated that two percent of the 98.09 acres would experience permanent sediment-related impacts.[52] NMFS also estimated the dredging project would kill over 20,000 colonies of newly ESA-listed corals but was not expected to impact, directly or by sedimentation, any ESA-listed staghorn corals.[53]

The conclusions in the PE BiOp were reached shortly after the beginning of the PortMiami dredging project and before the full extent and severity of sedimentation impacts in Miami were realized. The conclusions in the PE BiOp were based, in part, on (1) a 2010 Dial Cordy and Associates survey using the same flawed protocol as PortMiami; (2) the erroneous assumption that impacts from dredge-related sediments would be confined to the area within 150 meters of the Outer Entrance Channel (the "indirect impact area"); (3) the erroneous assumption that no more than two percent of the indirect impact area would suffer permanent impacts; and (4) the belief that adaptive management measures could successfully be used to abate unanticipated dredge-related sediment impacts.

In reaching its conclusions in the PE BiOp, NMFS relied on a 2010 survey prepared by Dial Cordy on behalf of the Corps. The survey concluded that no staghorn coral colonies are present within the 150-meter indirect impact area. This led NMFS to conclude that no staghorn corals would be taken by sedimentation and also that the impact to critical habitat would be "insignificant."[54] NMFS chose not to require sediment-related incidental take authorization and attendant mitigation for staghorn corals based on its assumption that no staghorn corals occur in the 150-meter indirect impact area. Yet, in PortMiami, later surveys demonstrated that the 2010 Dial Cordy survey underestimated the amount of coral in that area by ten or more times, either as a result of an alleged "bloom" or because of flawed survey techniques.

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[49] *Id*.
[50] *Id.* at 4, 126. Impacts to staghorn corals are limited to those associated with transplantation. The PE BiOp does not anticipate dredging-related sediments will impact any staghorn coral colonies.
[51] *Id.* at 11, 99-100.
[52] *Id.* at 101.
[53] *Id.* at 129.
[54] *Id* at 101, 123.

In the PE BiOp, NMFS also assumed that indirect impacts would extend 150 meters away from the Channel.[55] This same 150-meter indirect impact area was used in the PortMiami deep dredging project and, according to the Corps, it expected:

> [T]urbidity and sedimentation effects associated with the Port Everglades Navigation Project Recommended Plan to be similar to those seen at the ongoing Miami Harbor expansion project [and that]…[t]he material disposed in the Port of Miami project is the same type of material being dredged at Port Everglades (hard limestone) and should result in similar conditions regarding associated sedimentation and turbidity generated by the material.[56]

NMFS used the 150-meter indirect impact area in the PE BiOp to form the basis of, among other things:

- the definition of the project "action area," a term used throughout NMFS's analysis of the project's impacts;[57]
- the conclusion that staghorn corals will not be taken by dredge-related sediments (because none were found in the 2010 Dial Cordy survey of the 150-meter area);[58]
- the conclusion regarding the number of other ESA listed corals likely to be taken as a result of the project (based on the number of those corals located in the 150-meter area);[59]
- the conclusion that sediment impacts on critical habitat will be "insignificant" (because no staghorn corals were found in the 150-meter area, permanent impacts to that area are deemed insignificant by NMFS);[60]
- the conclusion that monitoring within 150 meters of the Outer Entrance Channel will be sufficient to identify impacts from sedimentation;[61]
- the conclusion that only 98.09 acres of critical habitat will be impacted by sedimentation (based on the size of the area within the 150-meter indirect impact area);[62] and

[55] July 2014 Mitigation Requirements Analysis for Hardbottom Resources Associated with Port Everglades Harbor Navigation Improvements at 17 (Appendix E-3 to FEIS).
[56] FEIS at 194, 199.
[57] PE BiOp at 15-16, 98, 100.
[58] *Id.* at 100-01, 125.
[59] *Id.* at 105-06.
[60] *Id.* at 101.
[61] *Id.* at 131.
[62] *Id.* at 100.

- NMFS's concurrence with the Corps' proposed mitigation plan (which anticipated that impacts from sediments would be limited to the 150-meter indirect impact area).[63]

In sum, the use of 150 meters to define the area within which sediment impacts would be limited informed virtually every issue considered by NMFS in reaching its conclusions in the PE BiOp.

In the PE BiOp NMFS also concluded that only two percent of the 150-meter indirect impact areas would suffer permanent impacts, NMFS stated:

> [p]revious monitoring from dredge events at Key West and Port Everglades show no permanent impacts from sedimentation, but some NCRI scientists believe some permanent impacts due to sedimentation may occur from the proposed action. NMFS and USACE agreed [in a] meeting[] held in November 2013 that the majority of the sediment effects are likely to be temporary. To be conservative we will consider a maximum of 2% or 1.96 acres of the area predicted to be impacted by sedimentation will be permanently adversely affected and 96.22 acres of the area predicted to be impacted by sedimentation will only be temporarily adversely affected by dredging.[64]

The use of the 2% permanent impact number informed the mitigation plan.[65] In PortMiami, such conservative conclusions turned out to be wrong. Sedimentation impacts were far more widespread and severe than anticipated. As the Corps now knows, it should not be using the same assumptions in Ft. Lauderdale.

Finally, with regard to the terms and conditions necessary to implement the reasonable and prudent measures in the PE BiOp, NMFS relied on the Corps' use of "adaptive management" practices to avoid or minimize impacts to listed corals from sedimentation if monitoring demonstrated corals are being affected in a manner or to a degree exceeding the impacts considered in the PE BiOp.[66] Yet, in Miami, the adaptive management that the Corps utilized proved ineffective at minimizing the impacts to corals.

As a result of these flawed assumptions, the PE BiOp is invalid. Despite learning that the Dial Cordy Survey underestimated coral abundance at PortMiami, that sedimentation for that project was far more severe than anticipated, that a 150 meter buffer is insufficient, and that the Corps cannot reliably use adaptive management to protect coral, the Corps has used and relied upon the PE BiOp to obtain conditional approval for the project from the State of Florida under

[63] *Id.* at 7, 131.
[64] *Id.* at 101.
[65] July 2014 Mitigation Requirements Analysis for Hardbottom Resources Associated with Port Everglades Harbor Navigation Improvements at 17 (Appendix E-3 to FEIS).
[66] PE BiOp at 132.

the Florida Coastal Zone Management Act,[67] as support for the March 2015 Final Feasibility Study and Environmental Impact Statement, including the Comprehensive Mitigation Plan and Incremental Cost Analysis, in finalizing the June 2015 Chief's Report recommending Congressional authorization of the project, and in issuing the January 29, 2016, National Environmental Policy Act Record of Decision,[68] among other things.

II. LEGAL BACKGROUND

Congress enacted the ESA to provide a "means whereby the ecosystems upon which endangered species and threatened species depend may be conserved . . . [and to implement] a program for the conservation of such endangered species and threatened species."[69] At its core, the ESA prohibits any person from taking any species listed as endangered, and empowers NMFS to promulgate regulations prohibiting the taking of any species listed as threatened.[70] "Take" is defined broadly to include all manner of harm or harassment to protected species, including both direct injury or mortality and also acts and omissions which disrupt or impair significant behavioral patterns.[71] Similarly, federal agencies are required to "carry[] out programs for the conservation of endangered species and threatened species,"[72] and to "insure that any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of [the critical] habitat of such species."[73]

Section 7 consultation is required for "any action [that] may affect listed species or critical habitat."[74] If the action agency determines its action "may affect" a listed species, the agency must initiate formal consultation with an expert agency (in this case, NMFS).[75] Once the action agency has concluded formal consultation, NMFS is required to complete a biological opinion ("BiOp") for that proposed action.[76] The BiOp summarizes NMFS's findings and determines whether the proposed agency action will jeopardize the continued existence of any

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[67] June 13, 2014, letter from Mark Thomasson, Director, Division of Water Resource Management, FDEP to Eric Summa, Chief, Environmental Branch, Jacksonville District, U.S. Army Corps of Engineers.

[68] By signing the Record of Decision on January 29, 2016, Secretary Darcy signified to Congress that the Corps believes that the dredging project planning is complete and that the project is ripe for authorization and funding. The ROD also allows for initial funds to flow for the project; already, $1.2 million has been allocated.

[69] 16 U.S.C. § 1531(b).

[70] 16 U.S.C. §§ 1538(a)(1); 1533(d); 50 C.F.R. § 222.101.

[71] "Take" is defined by the ESA as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." 16 U.S.C. § 1532(19); 50 C.F.R. § 222.102.

[72] 16 U.S.C. § 1536(a)(1).

[73] *Id.*§ 1536(a)(2).

[74] 50 C.F.R. § 402.14(a).

[75] *Id.*; ENDANGERED SPECIES JOINT CONSULTATION HANDBOOK at 2-6.

[76] 16 U.S.C. § 1536(b)(3)(A).

species or result in adverse modification of critical habitat.[77] If NMFS determines the agency action is likely to jeopardize the continued existence of a listed species or result in adverse modification, NMFS must provide an "incidental take statement," specifying the amount of such incidental taking on the listed species, any "reasonable and prudent alternatives" ("RPAs"), which would reduce action-related impacts such that the agency action may avoid jeopardizing listed species, and set forth the "terms and conditions" that must be complied with by the action agency.[78]

Federal agencies are also required to confer with the Service when an action is likely to jeopardize the continued existence of a species that has been proposed to be listed under the ESA.[79] Once a proposed species has been formally listed under the ESA, the Service may eventually adopt a conference opinion as a biological opinion, but only if "no significant new information is developed . . . and no significant changes to the Federal action are made that would alter the content of the opinion."[80] Any incidental take statement associated with a proposed species or a conference opinion does not become effective unless and until the Service formally adopts the conference opinion.[81]

Pervading the Section 7 consultation process is the mandate for "each agency [to] use the best scientific and commercial data available."[82] Importantly, each federal agency has an independent duty to "use the best scientific and commercial data available" to ensure any action it authorizes "is not likely to jeopardize the continued existence…or result in the destruction or adverse modification of [the critical] habitat" of any listed species.[83] Section 7(a)(1) of the ESA requires the Corps, in consultation with and with the assistance of NMFS, to utilize its authorities in furtherance of the purposes of the ESA by carrying out programs for the conservation of endangered and threatened species.[84] Federal agencies have an independent and substantive obligation to insure that their actions are not likely to jeopardize the continued existence of endangered or threatened species or adversely modify critical habitat.[85] Indeed, a "no jeopardy" biological opinion from the Fisheries Service does not absolve the action agency of its duty to insure that its actions comply with the ESA.[86]

Consultation must be reinitiated if, among other reasons, "new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent

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[77] 50 C.F.R. § 402.14(h).
[78] 16 U.S.C. §§ 1536(b)(3)(A), b(4); 50 C.F.R. § 402.14(j).
[79] 16 U.S.C. § 1536(a)(4); 50 C.F.R. § 402.10(a).
[80] 50 C.F.R. § 402.10(d).
[81] *Id*.
[82] *Id.* § 1536(a)(2).
[83] *Id*.
[84] 16 U.S.C. § 1536(a)(1).
[85] 16 U.S.C. § 1536(a)(2); *See Pyramid Lake Paiute Tribe of Indians v. U.S. Dep't of the Navy*, 898 F.2d 1410, 1415 (9th Cir. 1990).
[86] *Res. Ltd., Inc. v. Robertson*, 35 F.3d 1300, 1304 (9th Cir. 1994).

not previously considered," or "[i]f a new species is listed or critical habitat designated that may be affected by the identified action."[87]

III. ESA VIOLATIONS

The Corps is violating the ESA by arbitrarily and capriciously relying on a flawed biological opinion, by failing to reinitiate consultation after learning of new information that reveals that the effects of the dredging may affect listed species and critical habitat in a manner or to an extent not previously considered, and by failing to reinitiate consultation following the listing of new species of corals that may be affected by the dredging project.

A. The Corps is violating the ESA by arbitrarily and capriciously relying on a flawed biological opinion and by failing to reinitiate consultation after learning of new information that reveals effects of the action may affect listed species and critical habitat in a manner or to an extent not previously considered.

Before and after the PE BiOp was issued in March 2014, information revealing extensive adverse effects of the PortMiami dredging project became available to the Corps. The results of the PortMiami dredging project demonstrate that many of the fundamental assumptions and conclusions in the PE BiOp are erroneous. Furthermore, new information also reveals that the dredging may affect listed species and critical habitat in a manner or to an extent not previously considered. Among other things, the PortMiami information demonstrates that sedimentation will have a significantly greater impact over a much wider area than anticipated in the PE BiOp. The new information:

- Reveals that a 150-meter indirect impact area is insufficient for purposes of sediment monitoring and is insufficient for determining the extent of sediment impacts. At PortMiami, turbidity plumes have been measured as much as 1,500 meters long and sediment impacts to corals documented as far as 1,000 meters from the Channel. The Corps acknowledges that it expects "turbidity and sedimentation effects associated with the Port Everglades Navigation Project…to be similar to those seen"[88] at PortMiami. This new information from PortMiami, demonstrating that sediment impacts occurred well beyond the 150-meter indirect impact area creates a likelihood of a greater take than anticipated, the need for monitoring outside the 150-meter area, and the need for additional mitigation.

- Indicates that a "bloom" of staghorn corals occurred in southeast Florida after completion of the Dial Cordy Port Everglades staghorn survey report in 2010. In the PortMiami project, the Corps attributed an eight-fold increase in the number of staghorn corals to the "bloom" and reported that, in Broward County, scientists mapped more than 10,000 colonies of staghorn, *including a significant number of colonies in areas that had previously been devoid of the species.* Since the 2010

[87] 50 C.F.R. § 402.16.
[88] Port Everglades FEIS at 194, 199.

Dial Cordy report predates the bloom, the report's conclusion that no staghorn corals are located within 150 meters of the Outer Entrance Channel is outdated and unreliable. If, as occurred at PortMiami, staghorn corals are found within the area likely to be impacted by sedimentation the Incidental Take Statement and the mitigation requirements of the PE BiOp would need to be revised and the conclusion that impacts to critical habitat are insignificant revisited.

- Suggests that the area of staghorn coral critical habitat which may suffer permanent impacts may be more than double the estimate in the PE BiOp—an estimate that was derived in 2013 before the PortMiami dredging commenced. At PortMiami, four percent of the reef area that NMFS analyzed was converted to sand. This alters the mitigation calculation.

- Demonstrates that the turbidity limit of 29 Nephelometric Turbidity Units is insufficient for the protection of corals and critical habitat from sedimentation. Observations of massive 1,500-meter turbidity plumes and corals buried under up to 5 inches of fine, dredging-related sediments were made in PortMiami, purportedly without violation of the turbidity limit.

- Reflects a need for pumping the dredged material to the east of the Outer Entrance Channel before the material is loaded onto scows and for disallowing "dewatering" or decanting of sediment-laden water or leaking scows from contributing to sediment loading on the reefs.

- Suggests that sites selected for outplanting of staghorn corals may be at risk of sedimentation unless located 1,000 meters or more from the Outer Entrance Channel. At PortMiami, staghorns relocated from within the 150-meter indirect impact area to 261 meters north of the Channel suffered partial mortality due to sedimentation.

- Proves that adaptive management is not a reliable alternative for addressing sedimentation that exceeds expectations. At PortMiami, the Corps required that the dredging contractor implement adaptive management measures but could not require the implementation of any specific measure to reduce sedimentation. As acknowledged by Dial Cordy just prior to the completion of the dredging, adaptive management proved completely ineffective at abating the sedimentation.

Although the Corps was aware of this new information from PortMiami, and that it rendered the fundamental findings and conclusions of the PE BiOp invalid, the Corps used the flawed PE BiOp to obtain conditional approval for the dredging project from the State of Florida, as support for the FEIS, including the Comprehensive Mitigation Plan, in finalizing the June 2015 Chief's Report, and in issuing the January 2016 ROD. The Corps' arbitrary and capricious reliance on the flawed PE BiOp violates ESA Section 7. Any future reliance on the flawed PE BiOp by the Corps will constitute additional ESA Section 7 violations. Separately, based on this new information, and pursuant to 50 C.F.R. § 402.16(b), the Corps is obligated to reinitiate consultation with NMFS. Its failure to do so violates ESA Section 7.

In sum, the Corps cannot ignore and must acknowledge the facts of what occurred in Miami by immediately reinitiating formal consultation with NMFS.[89]

B. The Corps is violating the ESA due to its failure to reinitiate formal consultation following the listing of new coral species.

The Corps failed to reinitiate consultation even though the project will affect several species of corals listed after NMFS completed the PE BiOp. The PE BiOp contained a Conference Opinion on the coral species that NMFS then proposed for listing.[90] As NMFS described in the PE BiOp, however, this Conference Opinion did not satisfy the requirements of Section 7 consultation because NMFS had not yet completed the ESA listing.[91] The listing was made final in September 2014, and the Corps' failure to reinitiate consultation and/or request that the Conference Opinion be confirmed as NMFS's biological opinion is a violation of ESA Section 7 and 50 C.F.R. § 402.16(d).

Even if the Corps were to request confirmation, reinitiation to consider new information relevant to these corals is required under 50 C.F.R. § 402.10(d) for the same reasons as described in Section III.A. The Conference Opinion relied, in large part, on the same 2010 Dial Cordy survey to estimate the numbers of newly-listed coral species that could potentially be in the Port Everglades project area and relied on the same Miami assumptions, including the 150-meter indirect impact zone, to estimate impacts. A new survey needs to be conducted in order to accurately estimate the number of newly-listed coral colonies that are present in the action area.

Moreover, the Conference Opinion did not evaluate the impacts on pillar coral at all, concluding that it was not in the project area.[92] However, pillar coral may be within the impact area of project and it is susceptible to sedimentation.[93] Yet, the BiOp did not analyze impacts to *Dendrogyra cylindrus*, and NMFS's incidental take statement does not authorize the take of this species.[94] The Corps should reinitiate consultation so that NMFS and the Corps can more adequately conduct species surveys, assess potential threats and impacts, and integrate a mitigation strategy to ensure these corals are not harmed during project construction or operation.

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[89] In addition to the new information arising from the PortMiami project, new information has become available indicating that coral disease risks are heightened by exposure to dredging-related sediments and that corals exposed to chronic dredging sediments are twice as likely to develop disease. *See* Pollock, F. J., Larnb, J. 8, Field, S. N., Fleron, S. F., Schaffelke, 8., Shedrawi, G., & Willis, B. L. (2014). Sediment and turbidity associated with offshore dredging increase coral disease prevalence on nearby reefs. PloS ONE, 9(7), e102498

[90] PE BiOp at 1.

[91] *Id.* at 129.

[92] *Id*. at 40.

[93] *See* McDevitt et al., A Species Action Plan for the Pillar Coral *Dendrogyra Cylindrus*, Fish & Wildlife Conservation Comm'n, at iii, 3 (Nov. 1, 2013); 79 Fed. Reg. 53,852, 53,926 (Sept. 10, 2014). ("*D. cylindrus* may be more sensitive to turbidity due to its high reliance on nutrition from photosynthesis and as evidenced by the geologic record.").

[94] *See* PE BiOp at 129.

IV. CONCLUSION

New information arising out of the Corps' PortMiami deep dredge project demonstrates that fundamental assumptions and conclusions in the PE BiOp are flawed. Notwithstanding its knowledge of these flaws, the Corps continues to rely on the PE BiOp, using it to gain authorization and funding for the project. The Corps' arbitrary and capricious reliance on a flawed biological opinion violates ESA Section 7. Separately, new information indicates the project will impact listed corals and designated critical habitat in a manner and to an extent not anticipated in the PE BiOp. The Corps' failure to reinitiate consultation based on this new information also violates ESA Section 7. Finally, the Corps is obligated to reinitiate consultation due to the listing of new corals and its failure to act is a separate violation of ESA Section 7.

Please contact us to discuss the issues raised in this notice letter. We look forward to your prompt reply.

Sincerely,

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Enclosures