EARTHJUSTICE

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VIA ELECTRONIC AND CERTIFIED MAIL

Re: Sixty-Day Notice of Violations of the Endangered Species Act for Failing to Reinitiate Consultation Concerning Water Pollution in the Indian River Lagoon and Effects on Species Under National Marine Fisheries Service Jurisdiction

Dear Officials of the U.S. Environmental Protection Agency:

On behalf of Center for Biological Diversity, Defenders of Wildlife, and Save the Manatee Club, we hereby provide notice in accordance with the citizen suit provision of the Endangered Species Act ("ESA"), 16 U.S.C. § 1540(g), that the U.S. Environmental Protection Agency ("EPA") is in violation of the ESA for failing to reinitiate consultation under ESA section 7, *id*. § 1536, concerning water quality in the Indian River Lagoon and its effect on species under the jurisdiction of the National Marine Fisheries Service ("NMFS"). Specifically, EPA has unlawfully failed to reinitiate section 7 consultation with NMFS in light of significant new information undermining EPA and NMFS's conclusions that the current estuary-specific numeric nutrient criteria are not likely to adversely affect any federally listed species or their critical habitats, including the threatened green turtle, the threatened loggerhead turtle, the endangered smalltooth sawfish, and the threatened Johnson's seagrass.

On December 20, 2021, we provided notice that EPA is in violation of the ESA for failing to reinitiate consultation with the U.S. Fish and Wildlife Service ("FWS") in light of the recent catastrophic die-off of manatees in the Indian River Lagoon caused by nutrient pollution.[1] We explained that new evidence shows that the current estuary-specific numeric nutrient criteria suffer from lax enforcement, an inappropriately long trajectory to achieve compliance, and a failure to account for the impact of legacy pollution. Recent scientific evidence shows that this same pollution currently devastating the manatee causes tumors in green and loggerhead turtles, contributes to loss of key habitat for the smalltooth sawfish, and is leading to the disappearance of Johnson's seagrass. EPA must therefore reinitiate consultation with NFMS to address the harms from nutrient pollution to these species.

I. LEGAL BACKGROUND

A. EPA's Obligations in Approving Water Quality Standards under the Clean Water Act

The Clean Water Act ("CWA") was enacted almost 50 years ago to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." Federal Water Pollution Control Act Amendments of 1972, Pub. L. No. 92-500, § 2, 86 Stat. 816, codified as amended at 33 U.S.C. §§ 1251–1387 (2013) (the "Clean Water Act"). To achieve this goal, the CWA requires states to set water quality standards protective of public health and the environment, 33 U.S.C. § 1313(c), and to develop pollution budgets known as "total maximum daily loads" ("TMDLs") for each pollutant impairing a waterbody, *id*. § 1313(d); 40 C.F.R. §130.2(i). These TMDLs set a numeric target reflecting the maximum amount of the pollutant that a waterbody can contain and still be considered in compliance with water quality standards. 33 U.S.C. § 1313(d).

EPA oversees Florida's development of water quality standards and TMDLs. *Id*. § 1313(c)(3), (d)(2). Pursuant to guidance implementing EPA's CWA regulations, EPA is to carefully review the adequacy of TMDLs, including ensuring that the TMDLs have a margin of safety to account for lack of knowledge concerning the relationship between load and wasteload allocations and water quality and that the TMDLs provide "reasonable assurances" that point and nonpoint source control measures will achieve the expected load reductions.[2]

B. EPA's Consultation Obligations under the ESA

Congress enacted the Endangered Species Act in 1973 to provide "a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved" and "a program for the conservation of such endangered species and threatened species." 16

[1] *See* Letter from Center for Biological Diversity et al. to EPA re Sixty-Day Notice of Violations of the Endangered Species Act for Failing to Reinitiate Consultation Concerning the Unusual Mortality Event for Manatees in the Indian River Lagoon (Dec. 20, 2021).
[2] *See* EPA, Guidelines for Reviewing TMDLs under Existing Regulations Issued in 1992 (May 20, 2002), *available at* https://www.epa.gov/sites/default/files/2015-10/documents/2002_06_04_tmdl_guidance_final52002.pdf (last visited Nov. 30, 2021).

U.S.C. § 1531(b). The statute contains an array of provisions designed to afford imperiled species "the highest of priorities," so that they can recover to the point where federal protection is no longer needed. *Tenn. Valley Auth. v. Hill*, 437 U.S. 153, 174 (1978).

Section 7(a)(2) of the ESA imposes on federal agencies such as EPA a substantive duty to ensure that actions they authorize or carry out—including approval of a state's water quality standards—are not likely to jeopardize listed species or destroy or adversely modify critical habitat designated for such species. 16 U.S.C. § 1536(a)(2); *see also* Memorandum of Agreement Between the Environmental Protection Agency, Fish and Wildlife Service and National Marine Fisheries Service Regarding Enhanced Coordination Under the Clean Water Act and Endangered Species Act, 66 Fed. Reg. 11202 (Feb. 22, 2001) ("EPA & NMFS MOU"). Such "action agencies" must discharge this obligation in consultation with the appropriate expert fish and wildlife agency—NMFS in the case of the green and loggerhead turtles, the smalltooth sawfish, and Johnson's seagrass. *See id.*; 50 C.F.R. § 402.01(b). If the action agency determines its action may adversely affect listed species or critical habitat, it must initiate formal consultation with NMFS. 50 C.F.R. § 402.14(a). If the action agency determines, with written concurrence of NMFS, that the proposed action is not likely to adversely affect any listed species or critical habitat, the action agency need not initiate formal consultation. *Id*. § 402.13(c).

The ESA also requires that consultation be reinitiated in certain circumstances where "discretionary Federal involvement or control over the action has been retained or is authorized by law." 50 C.F.R. § 402.16. With regards to state water quality standards, EPA has continuing discretionary involvement and control under 33 U.S.C. § 1313(c)(4)(B), which allows it to revise water quality standards "in any case where the [EPA] Administrator determines that a revised or new standard is necessary to meet the requirements of [the Clean Water Act]." *See also* EPA & NMFS MOU at 11206 ("EPA and the Services have agreed that where information indicates an existing standard is not adequate to avoid jeopardizing listed species, or destroying or adversely modifying designated critical habitat, EPA will work with the State/Tribe to obtain revisions in the standard or, if necessary, revise the standards through the promulgation of federal water quality standards under section 303(c)(4)(B) of the CWA."); *Wild Fish Conservancy v. United States Env't Prot. Agency*, 331 F. Supp. 3d 1210, 1222–26 (W.D. Wash. 2018) (finding that EPA retains discretionary involvement and control over approved water quality standards for the purposes of reinitiating consultation). Reinitiation of consultation is required:

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

50 C.F.R. § 402.16(a).

II. HISTORY OF INDIAN RIVER LAGOON WATER QUALITY STANDARDS AND ESA CONSULTATION

On June 13, 2012, Florida submitted revised water quality standards for EPA's approval under 33 U.S.C. § 1313(c). *See* Decision Document of United States Environmental Protection Agency Determination Under § 303(c) of the Clean Water Act, Review of Amendments to Florida's Rule 62-302 and 62-303 (Nov. 30, 2012) (approving Fla. Admin. Code Ann. r. 62-302.531). EPA approved the revisions on November 30, 2012. *Id.* The revisions included a rule adopting a framework for developing criteria to numerically interpret the existing statewide narrative nutrient criterion that "in no case shall nutrient concentrations of a body of water be altered so as to cause an imbalance in natural populations of aquatic flora or fauna." *Id.* at 18. The framework explains that where a site-specific nutrient analysis has been performed for a particular waterbody—including through development of a total maximum daily load—this site-specific analysis will be considered the applicable numeric interpretation of the narrative criterion for a particular waterbody. *Id.*; Fla. Admin. Code Ann. r. 62-302.531. For the Indian River Lagoon and its constituent Banana River Lagoon, Florida's Department of Environmental Protection ("FDEP") set TMDLs for nitrogen, phosphorus, and dissolved oxygen in 2009. *See* FDEP, TMDL Report, Nutrient and Dissolved Oxygen TMDLs for the Indian River and Banana River Lagoon (Mar. 2009). EPA approved these TMDLs as the numeric nutrient criteria on July 29, 2013, and they are codified as the "Estuary-Specific Numeric Interpretations of the Narrative Nutrient Criterion" under Fla Admin. Code r. 62-302.532(aa) (referencing Fla Admin. Code r. 62-304.520 (Indian River Lagoon TMDLs)).

Pursuant to section 7 of the ESA, EPA consulted with NMFS—as well as with the FWS[3]—multiple times under 50 C.F.R. § 402.13 on its approval of Florida's water quality standards.[4] NMFS concluded that EPA's approval of the estuary-specific numeric nutrient criteria would not likely jeopardize any species under NMFS jurisdiction.[5]

III. NEW INFORMATION REQUIRES REINITATION OF CONSULTATION

Three significant pieces of new information underscore the requirement for EPA to reinitiate consultation with NMFS under 50 C.F.R. § 402.16 on Florida's estuary-specific numeric nutrient criteria. First, new information indicates harm to the green and loggerhead turtles, the smalltooth sawfish, and Johnson's seagrass, due to deterioration in water quality resulting from continuing nitrogen and phosphorus pollution in the Indian River Lagoon, calling into question the overall adequacy of the current TMDLs. Second, new information demonstrates there is a lack of reasonable assurance that the current measures to reduce point and nonpoint source pollution will achieve expected load reductions. Third, new information indicates that the

[3] *See* Letter from Center for Biological Diversity et al. to EPA re Sixty-Day Notice of Violations of the Endangered Species Act for Failing to Reinitiate Consultation Concerning the Unusual Mortality Event for Manatees in the Indian River Lagoon (Dec. 20, 2021) (detailing FWS consultation history).

[4] *See* National Marine Fisheries Service, Biological Opinion on EPA Approval of Water Quality Standards Under Section 303 of the Clean Water Act 3–4 (July 29, 2016) (detailing consultation history with NMFS).

[5] *See id.* at 186.

current TMDLs do not adequately take into account pollution from legacy muck, and therefore do not contain an adequate margin of safety. Finally, new information suggests that the TMDLs underestimated the role of septic systems and climate change in nutrient loading in the Indian River Lagoon and that the TMDLs are therefore inadequate to prevent harmful algal blooms.

A. New Information Demonstrates Harm to Green and Loggerhead Turtles, Smalltooth Sawfish, and Johnson's Seagrass Due to Continuing Deterioration in Water Quality

Manatees are not the only species suffering from the collapse of the Indian River Lagoon. Nutrient pollution causes harm to green and loggerhead turtles, smalltooth sawfish, and Johnson's seagrass. EPA must therefore reinitiate consultation with NMFS to consider whether the current water quality standards are adequate to protect these species.

1. *Green Turtle (Chelonia mydas) and Loggerhead Turtle (Caretta caretta)*

Green turtles (*Chelonia mydas*) were listed under the Endangered Species Act on July 28, 1978, with breeding populations in Florida and along the Pacific Coast of Mexico listed as endangered and all other populations listed as threatened.[6] In 2007, 11 distinct population segments ("DPS") were identified by NMFS and FWS, and in 2015 the listing status of each DPS was reevaluated. The North Atlantic DPS is now listed as threatened and includes the green turtle population that resides in the Indian River Lagoon.[7] "Historically, green turtles were exploited for their fat, meat and eggs, causing global population declines."[8] Bycatch, direct harvest, vessel strikes, loss of nesting habitat, pollution, climate change and disease continue to plague the species.[9] The Indian River Lagoon serves as an important foraging and developmental habitat for juvenile turtles in this DPS, and "[d]evelopmental habitats require the same intensity of protection as nesting beaches. If we fail to protect these habitats and their juvenile turtle residents, there will be no need to preserve nesting beaches."[10]

Loggerhead turtles (*Caretta caretta*) were listed as threatened throughout their range under the Endangered Species Act on July 28, 1978.[11] In 2011, the listing was revised to reflect nine DPSs. Five DPSs were listed as endangered and four were listed as threatened. Loggerhead turtles found in the Indian River Lagoon are in the Northwest Atlantic Ocean DPS which is listed

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[6] Seminoff et al., Status Review of the Green Turtle (*Chelonia mydas*) Under the Endangered Species Act (March 2015).
[7] *Id.*
[8] NOAA, Green Turtle (*Chelonia mydas*), *available at* https://www.fisheries.noaa.gov/species/green-turtle (last visited Jan. 6, 2022).
[9] *Id.*
[10] Zug and Glor, Estimates of Age and Growth in a Population of Green Sea Turtles (*Chelonia mydas*) from the Indian River lagoon system, Florida: A Skeletochronological Analysis (Aug. 1998); NOAA, Green Turtle (*Chelonia mydas*), *available at* https://www.fisheries.noaa.gov/species/green-turtle (last visited Jan. 6, 2022).
[11] NOAA, Loggerhead Turtle (*Caretta caretta*), *available at* https://www.fisheries.noaa.gov/species/loggerhead-turtle (last visited Jan. 10, 2022).

as threatened.[12] Threats to loggerheads include pollution, bycatch, loss of nesting habitat, vessel strikes, direct harvest, and climate change.[13] The Indian River Lagoon provides important developmental habitat for loggerhead subadults.[14]

One of the greatest threats to the green turtles in the Indian River Lagoon is the debilitating effects of fibropapillomatosis, "a chronic and often lethal tumor-forming disease in sea turtles."[15] It is characterized by tumor growth that occurs on the skin, eyes, conjunctiva, and visceral organs. The severity of the disease is determined by the size and location of the tumor growths, with mobility and organ function frequently impeded, leading to the stranding of turtles on beaches and subsequent death.[16] Since "[c]ancers have the potential to drive already threatened wildlife towards extinction" fibropapillomatosis is an exceptionally concerning issue[17]—so much so that the National Oceanic and Atmospheric Administration (NOAA) and FWS convened an expert workshop in 2017 to determine how to deal with the high prevalence of tumors in Florida turtles and the resulting high mortality rate.[18] Unfortunately, the workshop addressed current ineffective rehabilitation practices without addressing the root cause of the issue.

A 2021 study found a recent increase in the prevalence of fibropapillomatosis in green turtles, with the prevalence of fibropapillomatosis in the Indian River Lagoon particularly high.[19]

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[12] *Id*.
[13] *Id.*
[14] Ehrhart, Marine Turtles of the Indian River Lagoon System (1983).
[15] Van Houtan, et al., Eutrophication and the Dietary Promotion of Sea Turtle Tumors (Sep. 30, 2014).
[16] Herbst and Klein, Green Turtle Fibropapillomatosis: Challenges to Assessing the Role of Environmental Cofactors (1995); Perrault, et al., Insights on Immune Function in Free-Ranging Green Sea Turtles (*Chelonia mydas*) with and without Fibropapillomatosis (Mar. 18, 2021); Dujon, et al., Sea Turtles in the Cancer Risk Landscape: A Global Meta-Analysis of Fibropapillomatosis Prevalence and Associated Risk Factors (Oct. 8, 2021); Stacy, et al., Report of the Technical Expert Workshop: Developing Recommendations for Field Response, Captive Management, and Rehabilitation of Sea Turtles with Fibropapillomatosis (Sep. 6, 2017).
[17] Dujon, et al., Sea Turtles in the Cancer Risk Landscape: A Global Meta-Analysis of Fibropapillomatosis Prevalence and Associated Risk Factors (Oct. 8, 2021).
[18] Stacy, et al., Report of the Technical Expert Workshop: Developing Recommendations for Field Response, Captive Management, and Rehabilitation of Sea Turtles with Fibropapillomatosis (Sep. 6, 2017).
[19]Sposato, et al., Evaluation of Immune Function in Two Populations of Green Sea Turtles (*Chelonia mydas*) in a Degraded versus a Nondegraded Habitat (Oct. 2021); Herbst and Klein, Green Turtle Fibropapillomatosis: Challenges to Assessing the Role of Environmental Cofactors (1995); Perrault, et al., Insights on Immune Function in Free-Ranging Green Sea Turtles (*Chelonia mydas*) with and without Fibropapillomatosis (Mar. 18, 2021); Stacy, et al., Report of the Technical Expert Workshop: Developing Recommendations for Field Response, Captive Management, and Rehabilitation of Sea Turtles with Fibropapillomatosis (Sep. 6, 2017).

The article explained that there was a strong correlation between the increased numbers of green turtles suffering from tumors and eutrophication of coastal waters caused by nutrient pollution.[20]

It was originally thought that only green turtles acquire fibropapillomatosis but studies now show that all marine turtles, including the loggerhead turtle, are susceptible to these debilitating tumors, "raising concerns about disease impacts on these species."[21] Fibropapillomatosis is not widely researched in loggerhead turtles and its exact impact on loggerhead turtle populations is not fully understood, but the tumors are associated with heavily polluted coastal waters in all turtles.[22] It can therefore be assumed that the effects of fibropapillomatosis could be equally detrimental to the loggerhead turtle in the Indian River Lagoon. EPA must therefore reinitiate consultation with NMFS to consider new information demonstrating harm to green and loggerhead turtles from nutrient pollution in the Indian River Lagoon.

2. *Smalltooth sawfish (Pristis pectinata)*

Smalltooth sawfish (*Pristis pectinata*) were once commonly found in waters from Texas to North Carolina. Now they are only found in the waters of southern Florida, and it is thought that their population is less than 5% of its size at the time of European settlement.[23] This decline is due to bycatch and habitat loss, especially the loss of red mangrove habitats. NOAA listed the U.S. DPS of smalltooth sawfish as endangered in 2003.[24] It was the first marine fish to receive federal protection.[25]

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[20] Sposato, et al., Evaluation of Immune Function in Two Populations of Green Sea Turtles (*Chelonia mydas*) in a Degraded versus a Nondegraded Habitat (Oct. 2021; Van Houtan, et al., Land Use, Macroalgae, and a Tumor-Forming Disease in Marine Turtles (Sep. 29, 2010); Van Houtan, et al., Eutrophication and the Dietary Promotion of Sea Turtle Tumors (Sep. 30, 2014); Dujon, et al., Sea Turtles in the Cancer Risk Landscape: A Global Meta-Analysis of Fibropapillomatosis Prevalence and Associated Risk Factors (Oct. 8, 2021); Sposato, et al., Evaluation of Immune Function in Two Populations of Green Sea Turtles (*Chelonia mydas*) in a Degraded versus a Nondegraded Habitat (Oct. 2021).

[21] Herbst and Klein, Green Turtle Fibropapillomatosis: Challenges to Assessing the Role of Environmental Cofactors (1995); Aguirre and Lutz, Marine Turtles as Sentinels of Ecosystem Health: Is Fibropapillomatosis and Indicator (May 13, 2004).

[22] Aguirre and Lutz, Marine Turtles as Sentinels of Ecosystem Health: Is Fibropapillomatosis and Indicator (May 13, 2004).

[23] NMFS and NOAA, Smalltooth Sawfish Recovery Plan (*Pristis pectinata*) (Jan. 2009)

[24] *Id*.

[25] NOAA, Smalltooth Sawfish (*Pristis pectinate*), *available at* https://www.fisheries.noaa.gov/species/smalltooth-sawfish (last visited Jan. 10, 2022).

Sawfish rely primarily on red mangroves as nurseries.[26] Red mangroves are one of the primary mangrove species in the Indian River Lagoon.[27] Nurseries provide food for maturing sawfish as well as protection from predators.[28]

Mangrove loss worldwide has been catastrophic ranging from 20% to 35% since 1980, at a 1-8% rate of loss per year.[29] This rate of loss exceeds that of tropical rainforests and coral reefs.[30] The Indian River Lagoon alone has seen an 86% loss in its mangrove population since the 1940s.[31] "If special management needs aren't addressed, the functional elimination of nurseries through habitat destruction could push populations [of smalltooth sawfish] to a tipping point where suitable nursery areas become a limiting factor to recovery."[32] This is especially relevant in the Indian River Lagoon where the Florida Fish and Wildlife Conservation Commission states that a fisherman in the late 1800s caught 300 smalltooth sawfish in one season.[33] In comparison, only seven sawfish have been caught in the Indian River Lagoon since 2016.[34]

The loss of mangrove habitats is due primarily to anthropogenic threats including logging for timber and fuel, and removal for coastal development and aquaculture.[35] But research shows

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[26] Brame, et al., Biology, Ecology, and Status of the Smalltooth Sawfish *Pristis pectinata* in the USA (May 23, 2019); NMFS and NOAA, Smalltooth Sawfish Recovery Plan (*Pristis pectinata*) (Jan. 2009); Norton, et al., Designating Critical Habitat for Juvenile Endangered Smalltooth Sawfish in the United States (Aug. 13, 2012).

[27] SJWMD, Indian River Lagoon: An Introduction to a Natural Treasure (2007).

[28] Brame, et al., Biology, Ecology, and Status of the Smalltooth Sawfish *Pristis pectinata* in the USA (May 23, 2019); NMFS and NOAA, Smalltooth Sawfish Recovery Plan (*Pristis pectinata*) (Jan. 2009); Norton, et al., Designating Critical Habitat for Juvenile Endangered Smalltooth Sawfish in the United States (Aug. 13, 2012); Norton, et al., Designating Critical Habitat for Juvenile Endangered Smalltooth Sawfish in the United States (Aug. 13, 2012).

[29] Polidoro, et al., The loss of Species: Mangrove Extinction Risk and Geographic Areas of Global Concern (April 8, 2010); FAO, Status and Trends in Mangrove Area Extent Worldwide (Dec. 2003), *available at* https://www.fao.org/3/j1533e/j1533e00.htm (last visited Jan. 5, 2022); Valiela, et al., Mangrove Forests: One of the World's Threatened Major Tropical Environments (Oct. 2001).

[30] Valiela, et al., Mangrove Forests: One of the World's Threatened Major Tropical Environments (Oct. 2001).

[31] FDEP, Florida's Mangroves (Feb. 11, 2021).

[32] Norton, et al., Designating Critical Habitat for Juvenile Endangered Smalltooth Sawfish in the United States (Aug. 13, 2012).

[33] FFWCC, General Information on Smalltooth Sawfish, *available at* https://myfwc.com/research/saltwater/fish/sawfish/general-information/ (last visited Jan. 6, 2022).

[34] Galoustian, Endangered Juvenile Smalltooth Sawfish found in St. Lucie River (Nov. 19, 2020).

[35] Polidoro, et al., The loss of Species: Mangrove Extinction Risk and Geographic Areas of Global Concern (April 8, 2010); Valiela, et al., Mangrove Forests: One of the World's Threatened Major Tropical Environments (Oct. 2001).

that mangroves are also sensitive to the effects of eutrophication. High nutrient water content causes an increase in above-ground production, creating an appearance of high productivity and proliferation, but this comes at the cost of root production. Without a solid root foundation, mangroves are at risk to changes in weather and habitat conditions.[36] Nutrient pollution may thus continue to exacerbate the loss of mangrove habitats in the Indian River Lagoon, causing further loss of habitat for the smalltooth sawfish. EPA must therefore reinitiate consultation with NMFS to consider new information suggesting that nutrient pollution in the Indian River Lagoon may be contributing to loss of habitat, or causing other harmful impacts, for the smalltooth sawfish.

3. *Johnson's Seagrass (Halophila johnsonii Eiseman)*

Johnson's Seagrass (*Halophila johnsonii Eiseman*) is a rare seagrass found only in lagoons on the east coast of Florida and was the first marine plant species to be listed under the ESA.[37] In the Indian River Lagoon, Johnson's seagrass is found between Sebastian and Jupiter Inlets.[38]

Eutrophication is considered "a major cause of seagrass disappearance worldwide."[39] Its impact has been highly detrimental on the seagrass in the Indian River Lagoon.[40] Seagrass loss in the Indian River Lagoon has been disastrous with a 58% loss in the last decade.[41] Phytoplankton blooms caused by high nutrient loads resulted in "a 95% loss of seagrass cover" between 2011 and 2017 in the northern and central segments of the Indian River Lagoon.[42] Johnson's Seagrass is especially susceptible to the effects of these blooms.[43] EPA must therefore reinitiate consultation with NMFS to consider new information suggesting that nutrient pollution in the Indian River Lagoon may be contributing the loss of Johnson's seagrass.

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[36] Lovelock, et al., Nutrient Enrichment Increases Mortality of Mangroves (May 19, 2009); Reef, et al., Nutrition of Mangroves (June 21, 2010).
[37] NMFS is currently reevaluating the listing status of Johnson's seagrass based on new genetic information suggesting it is not a unique taxon. *See* 86 Fed. Reg. 72,908 (Dec. 23, 2021). However, unless and until that process concludes in the delisting of Johnson's seagrass from the endangered species list, EPA and NMFS have a duty to ensure its protection.
[38] Dawes et al., Seagrass Biodiversity in the Indian River Lagoon (1995).
[39] Burkholder, et al., Seagrass and Eutrophication (2007); *see also* Schmdt, et al., Regional-Scale Effects of Eutrophication on Ecosystem Structure and Services of Seagrass Beds (2012); Herren, et al., Septic Systems Drive Nutrient Enrichment of Groundwaters and Eutrophication in the Urbanized Indian River Lagoon, Florida (Oct. 9, 2021).
[40] Herren, et al., Septic Systems Drive Nutrient Enrichment of Groundwaters and Eutrophication in the Urbanized Indian River Lagoon, Florida (Oct. 9, 2021); SJRWMD, Recognizing the Importance of Seagrass, Working to Improve Water Quality (Mar. 4, 2021).
[41] Moore, Can this Seagrass Restoration Method Work even Before Indian River Lagoon Gets Clean? (Oct. 7, 2021); *see also* Herren, et al., Septic Systems Drive Nutrient Enrichment of Groundwaters and Eutrophication in the Urbanized Indian River Lagoon, Florida (Oct. 9, 2021).
[42] Herren, et al., Septic Systems Drive Nutrient Enrichment of Groundwaters and Eutrophication in the Urbanized Indian River Lagoon, Florida (Oct. 9, 2021).
[43] NMFS and NOAA, Final Recovery Plan for Johnson's Seagrass (*Halophila johnsonii* Eiseman) (Sep. 2002).

B. New Information Suggests a Lack of Reasonable Assurances that Point and Nonpoint Source Reductions Will Achieve Expected Load Reductions

In addition to the recent information detailing harms to federally-protected species from nutrient pollution, a growing record of inadequate efforts to comply with and enforce existing water-quality safeguards also necessitates reinitiation of consultation. For EPA to approve a TMDL, EPA must determine that the TMDL provides reasonable assurances that point and nonpoint source control measures will achieve expected load reductions.[44] Lax enforcement and compliance for both point and nonpoint sources suggests that the current TMDLs are ineffective at controlling nutrients into the Indian River Lagoon. EPA must therefore reinitiate consultation to consider this new information suggesting that the current TMDLs are not being effectively implemented and that the TMDLs lack reasonable assurances they will achieve load reductions. *See* 50 C.F.R. § 402.16(a)(1), (3).

1. Recent Reports Suggest Current Stormwater and Wastewater Treatment Facilities Fail to Meet the Presumption that they Achieve Expected Load Reductions

Several recent reports indicate that point source control measures and enforcement are inadequate, suggesting that the TMDLs must be revisited to ensure that they provide reasonable assurances that the wasteload allocation from point sources will be achieved.

First, in 2019, a "Blue-green Algae Task Force," appointed by Governor DeSantis to aid the Florida Department of Environmental Protection, concluded that "[t]he presumption that a stormwater treatment system constructed and permitted in compliance with [best management practice] design criteria will not cause or contribute to violations of surface water quality standards in adjacent and/or connected waterbodies has been evaluated and challenged. Available data suggest that a substantial number of stormwater treatment systems throughout the state fail to achieve their presumed performance standards." Blue-green Algae Task Force, DRAFT consensus Document #1 Final Draft – Revised 3 October 2019. The Task Force recommended "the development and implementation of a stormwater system inspection and monitoring program with the goal of identifying improperly functioning and/or failing systems so that corrective action can be taken to reduce nutrient pollution and other negative environmental impacts." *Id.* It further recommended "that stormwater design criteria be revised and updated to incorporate recent advances in stormwater treatment technologies and other practices that have demonstrated environmental benefits; nutrient reduction specifically." *Id.*

[44] *See* 40 C.F.R. 122.44(d)(1)(vii)(B) (requiring effluent limits in permits be consistent with "the assumptions and requirements of any available wasteload allocation" in an approved TMDL); EPA, Guidelines for Reviewing TMDLs under Existing Regulations Issued in 1992 at 4 (May 20, 2002), *available at* https://www.epa.gov/sites/default/files/2015-10/documents/2002_06_04_tmdl_guidance_final52002.pdf (last visited Nov. 30, 2021) (explaining that when waters are impaired by both point and nonpoint sources, "the TMDL should provide reasonable assurances that nonpoint source control measures will achieve expected load reductions in order for the TMDL to be approvable").

Second, a 2018 review of sewage pollution in the Indian River Lagoon suggested that harmful algae outbreaks are initiated and expanded by wet weather discharges from municipal wastewater treatment facilities. *See* Barile, Widespread Sewage Pollution of the Indian River Lagoon System, Florida (USA) Resolved by Spatial Analyses of Macroalgal Biogeochemistry, Marine Pollution Bulletin 128 (2018). The article explained that although direct surface water discharges of treated human wastewater effluent are prohibited, up to 90 days per year of "emergency wet weather" surface discharges are allowed when significant rain events overload the treatment system capacities. *Id.* at 559; *see also* Indian River Lagoon Act, Chapter 90-262 Laws of Florida, Sec. 2(c) (allowing wet weather discharges). The article posits that these poorly reported wet weather discharges—which can be several million liters per day per treatment plant during wet season events—may be a key factor supporting harmful algal outbreaks. Barile at 560, 572. The article suggests that significant wastewater treatment infrastructure upgrades, including conversion of municipal wastewater treatment plants to high nutrient removal advanced wastewater treatment, as well as mandatory septic-to-sewer conversion, are needed for seagrass regrowth in the Indian River Lagoon. *Id.* at 572.[45]

Finally, a 2020 Florida Public Employees for Environmental Responsibility ("Florida PEER") report disclosed that Brevard County had 38 instances of unpermitted sewage discharges, totaling 552,040 gallons discharged. *See* Florida PEER, Report on Enforcement Efforts by the Florida Department of Environmental Protection (2020), *available at* https://www.peer.org/2020-florida-enforcement-report/ (last visited Dec. 1, 2021). Florida PEER also reported that the Florida Department of Environmental Protection conducted fewer inspections in 2020 than in previous years, and that the severity of fines decreased. Moreover, "the enforcement actions used by the FDEP were largely short-form consent orders that required nothing more than paying a penalty, i.e., the traffic ticket approach." *Id.* at 35. As Florida PEER Director Jerry Phillips explained, "[r]ather than seeking major reductions in our pollution load, DEP's reliance on small fines makes pollution an acceptable cost of doing business." *See* Florida PEER, Press Release, Florida Pollution Enforcement Fell into Covid Coma, (Sep. 15, 2021) *available at* https://www.peer.org/florida-pollution-enforcement-fell-into-covid-coma/ (last visited Dec. 1, 2021). This information thus suggests that lax enforcement of unpermitted sewage discharges could be further contributing to nitrogen and phosphorous pollution in the Indian River Lagoon.[46]

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[45] *See also* Lapointe, et al., Evidence of Sewage-Driven Eutrophication and Harmful Algal Blooms in Florida's Indian River Lagoon, 43 Harmful Algae 82–102 (March 5, 2015) (suggesting that seagrass loss due to pollution from sewage indicates the need for improved sewage collection and treatment).

[46] *See also* Waymer and Vazquez, Sewage spill keep taxing Indian River Lagoon, other waters; state issues fines, but is that enough?, Florida Today (Aug. 15, 2019). In late 2020, more than seven million gallons of raw sewage spilled into a pond at Sand Point Park that flows directly into the Indian River Lagoon, resulting in a fish die-off. *See* Vazquez, Protestors call for action in Titusville after raw sewage spill into Indian River Lagoon, Florida Today (Jan 9, 2021); Waymer, Titusville sewage fallout could top half a million, Florida Today (May 7, 2021).

EPA must thus reinitiate consultation with NMFS under 50 C.F.R. § 402.16 to take into consideration these recent reports demonstrating the lack of reasonable assurances that point source discharge control measures will achieve required load reductions.

2. The TMDLs Lack Reasonable Assurances that the Agricultural Best Management Practices Designed to Control Nonpoint Source Pollution Are Sufficient and Achievable

In addition to recent information indicating that point source discharge controls do not provide reasonable assurances that load reductions will be achieved, further new information suggests that nonpoint sources present an additional source of pollution that is inadequately addressed. Agricultural nonpoint sources are a significant contributor of nitrogen and phosphorous into the Indian River Lagoon. *See* FDEP, Central Indian River Lagoon Basin Management Action Plan 17 (Feb. 2021) ("CIRL BMAP"). To address these nonpoint sources, the FDEP has created three Basin Management Action Plans ("BMAPs"), dividing up the Indian River Lagoon into three subbasins: (1) the Central Indian River Lagoon; (2) the North Indian River Lagoon ("NIRL BMAP"); and (3) the Banana River Lagoon ("BRL BMAP"). These BMAPs include agricultural best management practices ("BMPs") that are aimed at reducing nitrogen and phosphorus runoff from agricultural practices. Under Florida law, it is the agricultural landowner's responsibility to implement the BMPs, and landowners who do not enroll in the BMP Program are supposed to be referred to FDEP for enforcement action.

Unfortunately, however, current landowner enrollment in the BMP program is very low: only 25% of agricultural acres are currently enrolled in the Central Indian River Lagoon, *see* CIRL BMAP at 153; only 6% are enrolled in the North Indian River Lagoon, *see* NIRL BMAP at 27; and 0% are enrolled in the Banana River Lagoon, *see* BRL BMAP at 22. This is far below the current average of 62% enrollment in the BMP Program statewide, and 82% enrollment of irrigated agricultural acres statewide. *See* Florida Department of Agriculture and Consumer Services, Office of Agricultural Water Policy, Status of Implementation of Agricultural Nonpoint Source Best Management Practices 2 (July 1, 2021). Moreover, although Florida Department of Agriculture and Consumer Services ("FDACS") is required to verify that landowners are properly implementing BMPs, including by conducting site visits every two years, FDACS conducted relatively few site visits to the Indian River Lagoon in 2020: only 91 out of 2,824 total visits statewide. *See id*. at 17. Furthermore, of the more than 6,600 referrals statewide from FDACS to FDEP for enforcement for agricultural producers not following the rules, none have faced penalties.[47] As Florida Agricultural Commissioner Nikki Fried described the situation in August, 2021, "[u]nfortunately we have not seen a hammer come down from

[47] *See* Chesnes, Ag Commissioner Nikki Fried wants boots on the ground to measure, reduce pollution, TCPalm (Aug. 4, 2021), *available at* https://www.tcpalm.com/story/news/local/indian-river-lagoon/2021/08/04/nikki-fried-visits-sewalls-point-discuss-clean-water-initiative/5452933001/ (last visited Dec. 1, 2021).

FDEP. . . . There's a carrot and there's a stick. [FDACS] is the carrot, and FDEP is the stick. And the stick's not working."[48]

Finally, although the BMAPs intend to increase enrollment over time, the BMAPs do not aim to achieve full targeted load reductions until 2035, *see, e.g.*, CIRL BMAP at 16. This lengthy trajectory, coupled with the currently low enrollment by agricultural landowners in the BMP Program and lack of meaningful enforcement, is inappropriate and insufficient given the current ecological collapse of the Indian River Lagoon. EPA must therefore reinitiate consultation with NMFS to consider new information demonstrating that the current enrollment and enforcement of BMPs, and planned trajectory of nitrogen and phosphorus reductions, has been insufficient to prevent seagrass loss, and that there are presently insufficient assurances that the measures to reduce nonpoint source pollution in the TMDLs will achieve expected load reductions.

C. New Information Suggests the TMDLs Overlook, and Should Take into Account, Ongoing Contributions of Nitrogen and Phosphorous from Legacy Pollution

New information also highlights the important role that legacy pollution plays in the ecosystem collapse that is underway in the Indian River Lagoon, yet the existing TMDLs fail to account for this factor. Over time, the harmful levels of nutrients entering the Indian River Lagoon have led to muck accumulation on the lagoon bottom, which "fluxes" nutrients back into the lagoon. There are an estimated 5 million cubic yards of muck within the Indian River Lagoon, delivering roughly 30% of the total nutrient load.[49] Brevard County recently posited that "[n]itrogen and phosphorus released each year as muck decays are now larger than any current source of nutrient pollution to lagoon waters." Tetra Tech, Inc. and CloseWaters LLC. (2021) Save Our Indian River Lagoon Project Plan 2021 Update for Brevard County, Natural Resources Management Department Brevard County, Florida. Not only does legacy muck contribute to nitrogen and phosphorus pollution, but it can result in resuspension of sediment which decreases

[48] *Id. See also* MacLaughlin, Will Basin Management Action Plans Restore Florida's Impaired Waters?, 89 Fla. B. J. 31 (Feb. 2015) (suggesting that BMAPs "need more regulatory teeth if they are to succeed"); Blue-green Algae Task Force, DRAFT consensus Document #1 Final Draft – Revised (Oct. 3, 2019) ("[T]he [Blue-green Algae Task Force] recommends that the effectiveness of BMPs be supported by adequate data to justify the presumption of compliance granted upon enrollment and implementation").

[49] Fox and Tefry, Lagoon-wide Application of the Quick-Flux Technique to determine Sediment Nitrogen and Phosphorus Fluxes, Submitted to Brevard County, Fl. Natural Resources Management Department (June 2019); *see also* Tetra Tech, Inc. and CloseWaters LLC., Save Our Indian River Lagoon Project Plan 2021 Update for Brevard County, Natural Resources Management Department Brevard County, Florida (Feb. 2021), *available at* https://www.brevardfl.gov/SaveOurLagoon/ProjectPlan (last visited on Dec. 1, 2021).

light availability to seagrass and further contributes to seagrass loss.[50] It can also cover the natural bottom of the lagoon so that the seagrass is unable to grow.[51]

EPA's TMDL guidance explains that TMDL submittals should identify all "point and nonpoint sources of the pollutant of concern, including the location of the source(s) and the quantity of the loading" in order for EPA to adequately review the load and wasteload allocations and develop an adequate margin of safety "to account for any lack of knowledge concerning the relationship between load and wasteload allocations and water quality." EPA, Guidelines for Reviewing TMDLs under Existing Regulations Issued in 1992 at 1, 4 (May 20, 2002). But despite the outsize importance of this legacy muck as a pollution source, legacy inputs were not accounted for in the nitrogen and phosphorus TMDLs and the "Spatial Watershed Iterative Loading or 'SWIL' Model"—the model that calculates the load allocations for the Indian River Lagoon BMAPs—does not take this legacy muck into account. *See, e.g.*, NIRL BMAP at 39.

Without addressing legacy muck, it is likely that algal outbreaks and seagrass loss will continue.[52] EPA must therefore reinitiate consultation with NMFS in light of evidence that the current TMDLs lack an adequate margin of safety that takes into account the nutrient and sediment contributions of legacy pollution.

D. New Information Suggests the TMDLs Underestimate the Role of Septic Systems and Climate Change in Nutrient Loading in the Indian River Lagoon

The attached expert report by Dr. Peter Barile compiles additional new scientific evidence indicating that the current TMDLs in the Indian River Lagoon are insufficient at preventing harmful algal blooms and seagrass loss. Specifically, Dr. Barile's report explains that nutrient loads from septic tanks were underestimated in the approved numeric nutrient criteria and that they do not account for the confounding role of climate change in driving nutrient loading. He concludes that the current numeric nutrient criteria for nitrogen "are an order of magnitude above the maximum concentrations reported . . . for sustaining growth of some seagrass species found in the Indian River Lagoon system." Barile Report at 8. EPA must therefore reinitiate consultation in light of evidence that the current TMDLs are insufficient to protect ecosystem health in the Indian River Lagoon.

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[50] Phlips, Factors Affecting the Abundance of Phytoplankton in a Restricted Subtropical Lagoon, The Indian River Lagoon, Florida, USA, Estuarine, Coastal and Shelf Science (Sep. 2002).
[51] Florida Tech, Florida Tech Scientists and Engineers Seek Answers for Muck in the Indian River Lagoon (Aug. 13, 2017); Waymer, Muck: The arch-enemy lurks deep in Indian River Lagoon – Muck problem expensive to solve, Florida Today (Nov. 24, 2013).
[52] *See* Missimer, et al., Legacy Phosphorus in Lake Okeechobee (Florida, USA) Sediments: A Review and New Perspective, Water (2021) (explaining that in Lake Okeechobee, "[d]espite major efforts to control external nutrient loading into the lake, the high frequency of algal blooms will continue until the muds bearing legacy nutrients are removed from the lake").

IV. CONCLUSION

The ESA authorizes citizen suits to enjoin violations of the ESA. 16 U.S.C. § 1540(g)(1)(a). As set forth above, EPA is in violation of the ESA for failing to reinitiate formal consultation with NMFS concerning EPA's approval of Florida's estuary-specific numeric nutrient criteria in light of recent new information about harms to federally-protected species under NMFS jurisdiction and new information indicating that the current numeric nutrient standards are insufficient. If EPA is unwilling to take action within sixty days to reinitiate consultation, we plan to seek redress through litigation.

Sincerely,

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