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[Corrected from original November 3, 2025 submission]

VIA E-mail

US Army Corps of Engineers
Wilmington District
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RE: [Corrected] Southern Environmental Law Center Comments on Wilmington Harbor 403 Draft Letter Report & Environmental Impact Statement

The Southern Environmental Law Center ("SELC") submits these comments on behalf of Audubon North Carolina, Cape Fear River Watch, Center for Biological Diversity, CleanAIRE NC, Defenders of Wildlife, League of Women Voters of Lower Cape Fear, North Carolina Coastal Federation, North Carolina Conservation Network, North Carolina NAACP, and North Carolina Sierra Club, regarding the U.S. Army Corps of Engineers' ("Corps") Draft Environmental Impact Statement ("DEIS")[1] and Draft Letter Report for the Wilmington Harbor, North Carolina Project.[2] We have previously submitted three letters on this project, and because many of the attachments we provided to the Corps in those prior letters were omitted from the DEIS' listed references, we attach and incorporate them by reference here.[3] Further, we provide many new relevant attachments with our comments here, including a technical review of the Corps' DEIS completed by Lynker Corporation, a science and engineering consultant.[4] All attachments are available at links provided at the end of this letter. In the below comments, we reiterate the extensive environmental damage likely to be caused by this project and raise significant questions left unanswered by the DEIS.

[1] U.S. Army Corps of Eng'rs, Wilmington Harbor 403 Draft Environmental Impact Statement Wilmington Harbor Navigation Project, North Carolina, EISX-202-00-K7P-1755163795 (Sept. 12, 2025) [hereinafter "DEIS"].
[2] U.S. Army Corps of Eng'rs, Draft Letter Report: Wilmington Harbor Section 403 Wilmington Harbor Navigation Project Wilmington, North Carolina (Sept. 5, 2025) [hereinafter "Letter Report"].
[3] Letter from Sierra B. Weaver, et al., S. Env't L. Ctr., to Elden Gatwood, U.S. Army Corps of Eng'rs (Oct. 11, 2019), Attachment 1 [hereinafter "SELC, 2019 Scoping Comments"]; Letter from Ramona H. McGee, et al., S. Env't L. Ctr., to Bret Walters & Suzanne Hill, U.S. Army Corps of Eng'rs (June 30, 2023), Attachment 2 [hereinafter "SELC, 2023 Early Scoping Comments"]; Letter from Hannah M. Nelson, et al., to Daniel H. Hibner and Andrew Stolba, U.S. Army Corps of Eng'rs (July 22, 2024), Attachment 3 [hereinafter "SELC, 2024 Scoping Comments"].
[4] Lynker Corp., Wilmington Harbor Navigation Improvement Project Draft Environmental Impact Statement Technical Review (Oct. 30, 2025), Attachment 4 [hereinafter "Lynker Report"].

I. Introduction

For over six years, the North Carolina Ports Authority has pursued a controversial proposal to expand Wilmington Harbor in response to the Panama Canal's enlargement and the resulting increase in larger shipping vessels. The current plan would deepen the harbor from 42 to 47 feet, widen significant portions of the channel by several hundred feet, and extend the harbor's entrance farther offshore.[5] This massive undertaking carries a construction price tag exceeding $1 billion, with an additional $14 million in annual maintenance costs. Yet even these staggering figures fail to capture the full cost of the project—omitting the profound environmental and ecological consequences of altering the Lower Cape Fear River.

Despite years of planning and the enormous financial commitment, the Ports Authority and the Corps have yet to justify the need for such a destructive project. And they offer no clear explanation of how expanding Wilmington Harbor would benefit North Carolina's communities, businesses, or families.

The stakes are high. The Lower Cape Fear River is one of the most ecologically significant and biodiverse river systems in the region. It encompasses estuarine, brackish, and freshwater ecosystems, forming a delicate interface between saltwater and freshwater habitats. When healthy, the river supports robust fish populations and provides important habitat for threatened and endangered species such as piping plovers, red knots, Atlantic and shortnose sturgeon, and several species of sea turtles. Just upstream, the river serves as a drinking water source for over 500,000 residents in Wilmington and surrounding counties. Near the Port, barrier islands, tidal creeks, and marshes support recreational and commercial fisheries and offer irreplaceable natural beauty. The Cape Fear River is not just a waterway—it is a lifeline for Southeastern North Carolina's communities and wildlife. Any decision to alter it must be weighed with care, transparency, and accountability.

Unfortunately, the Corps' Letter Report and DEIS fall far short of the agency's responsibility. Instead of rigorously assessing how the proposed expansion would jeopardize the already vulnerable communities, species, wetlands, shorelines, and ecosystems of the Lower Cape Fear River, the agency largely dismisses these concerns. The Corps relies on erroneous and unexplained assumptions, and fails to disclose or assess the compounding effects of the deepening with the effects of climate change—minimizing how the deepening could worsen storm surge and flooding experienced by local communities. In a troubling attempt to justify these oversights, the Corps argues that because the Cape Fear River is already threatened by climate change, the expansion won't significantly worsen the situation. This logic is not only flawed—it's an attempt to disavow the agency's responsibilities under the National Environmental Policy Act ("NEPA").

[5] DEIS, *supra* note 1, at 1-4.

Vulnerability is not a license for further harm. The fact that the Cape Fear River is already under stress makes it even more critical to protect, not exploit. The Corps must return to the DEIS and meaningfully address the environmental risks outlined in detail below.

II. The history of the proposed expansion.

In 2019, the North Carolina State Ports Authority began promoting plans to deepen and widen Wilmington Harbor. A year prior, the Water Resources Development Act ("WRDA") had been amended to expand the role of private, nonfederal entities to prepare the feasibility report required by Section 203 of WRDA and submit that report to the Corps.[6] In June 2019, the Ports Authority prepared a feasibility study and draft environmental report pursuant to Section 203 proposing to expand Wilmington Harbor.[7] The Corps responded with significant concerns about the initial 203 Feasibility Report, related to plan formulation, project economics, sea level rise, and compliance with NEPA.[8] As a result, the Corps instructed the Ports Authority to revise its analysis to address the agency's concerns.[9] In September 2019, the Corps initiated a separate NEPA review by announcing its intent to prepare a DEIS for this project.[10]

In late February 2020, the Ports Authority submitted a revised 203 feasibility report to the Corps,[11] and in May 2020, the Corps again responded with significant concerns.[12] The Corps noted continued deficiencies in the treatment of sea level rise, real estate, and economics, and indicated that many assumptions in the Ports Authority's study were not adequately justified. While the Corps ultimately found the proposal "technically sound and feasible," it concluded that "unresolved issues contained within [the] Review Assessment will need to be addressed prior to construction."[13] In December of 2020, the Water Resources Development Act of 2020 ("WRDA 2020") was signed into law, authorizing a series of projects, including the Wilmington Harbor Navigational Improvement Project.[14] The authorization of the Wilmington Harbor expansion was made subject to the resolution of the deficiencies the Corps identified with the 203 Feasibility Report, including the requirement to complete the NEPA review for the project.[15]

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[6] Pub. L. 115-270 § 1152 (Oct. 23, 2018).
[7] N.C. Ports, Wilmington Harbor, North Carolina Navigation Improvement Project Integrated Section 203 Study & Environmental Report (June 2019).
[8] U.S. Army Corps of Eng'rs, Wilmington Harbor Navigation Improvement Project Section 203 Feasibility Study/Environmental Report, dated June 2019: Policy Review Assessment (July 2019) [hereinafter "2019 Review Assessment"].
[9] *Id* (stating "the report would need significant revisions before it would be considered to be legally and policy sufficient").
[10] Notice of Intent to Prepare a Draft Environmental Impact Statement (DEIS) for the Wilmington Harbor Navigation Improvement Project Integrated Feasibility Study and Environmental Report, New Hanover and Brunswick Counties, NC, 84 Fed. Reg. 48131 (Sept. 12, 2019).
[11] *See* N.C. Ports, Wilmington Harbor, North Carolina Navigation Improvement Project Integrated Section 203 Study & Environmental Report (Feb. 2020) [hereinafter "203 Feasibility Report"].
[12] U.S. Army Corps of Eng'rs, Review Assessment of Wilmington Harbor, North Carolina Navigation Improvement Project Integrated Section 203 Study & Environmental Report (May 2020) [hereinafter "2020 Review Assessment"].
[13] *Id.* at 4.
[14] P. L. 116-260 § 403(a)(5) (Dec. 27, 2020).
[15] *Id.* § 403(b).

On March 10, 2023, the Corps formally withdrew its 2019 scoping notice, explaining "the Section 403 authorization" under WRDA 2020 "is conditioned upon the resolution of comments from the review assessment of the ASA(CW)" from May 2020.[16] The Corps further explained that the agency "will be initiating a separate environmental review process for the Federal action related to the conditional authorization under Section 403 of WRDA of 2020."[17] The Corps held an early scoping comment period in 2023,[18] and initiated formal scoping under NEPA in the summer of 2024.[19]

III. The Corps' current purpose and need statement is too narrow.

Over the past six years, the purported need for the Wilmington Harbor expansion project has shifted drastically. At the outset, the Ports Authority demanded the expansion to accommodate increased imports and job growth.[20] In tandem, the Ports Authority touted the dramatic ultimatum that if Wilmington Harbor was not deepened, shipping companies would completely abandon the Port—threatening economies in Wilmington and across the Southeast.[21] While eye catching, this conclusion was entirely unjustified, drawing significant criticism from the Corps and the public.[22]

Over time, the need for the project dwindled to the point where the current purported purpose and need statement fails to present a compelling reason for federal investment. The Corps now states that the purpose of the project is "to contribute to national economic development ("NED") by addressing transportation inefficiencies for the forecasted vessel fleet, consistent with protecting the Nation's environment."[23] Despite acknowledging that "the same volume of cargo is assumed to move through Wilmington Harbor"[24] with or without the project, the Corps claims the project is necessary to "address the constraints that contribute to inefficiencies in the existing navigation system's ability to safely serve forecasted vessel fleet and cargo types and volumes."[25] The purpose and need statement is inappropriately narrow and not justified by the DEIS.[26] It also directly conflicts with the Ports Authority's goals for the project which remain to "attract more import and export business," and "[b]oost[] job growth."[27]

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[16] Withdrawal of Notice of Intent to Prepare a Draft Environmental Impact Statement, 88 Fed. Reg. 14993 (Mar. 20, 2023).
[17] *Id.*
[18] U.S. Army Corps of Eng'rs, Notice of Early Scoping Public Comment Period (May 30, 2023).
[19] Intent To Prepare an Environmental Impact Statement (EIS) for a Letter Report for the Wilmington Harbor, North Carolina Project, New Hanover and Brunswick Counties, North Carolina, 89 Fed. Reg. 48602 (June 7, 2024).
[20] *See, e.g.*, 203 Feasibility Report, *supra* note 11, at 185.
[21] *Id.* at 121.
[22] *See, e.g.*, 2019 Review Assessment, *supra* note 8, at 3; 2020 Review Assessment, *supra* note 12, at 25–26.
[23] DEIS, *supra* note 1, at 1-8.
[24] *Id.* at 2-7.
[25] *Id.*
[26] The Ports Authority also appears to be struggling to justify the project. Internal emails show the tension between asking for a deeper Port while also demonstrating that the Port is "handling the volume [of cargo] today." Email from Brian Clark, N.C. Ports Authority, to Hans Bean, N.C. Ports Authority (July 6, 2023), Attachment 5.
[27] *See Harbor Enhancement: Wilmington Harbor Navigation Improvement Project*, N.C. PORTS, https://perma.cc/5YMG-YR39 (last visited Nov. 2, 2025).

As a preliminary matter, merely contributing to national economic development is not a proper purpose under the current principles and guidelines governing water resource investment. Federal projects must focus on a much broader range of issues than national economic development when setting a federal objective, including:

> reflecting national priorities, encouraging economic development, and protecting the environment by seeking to maximize sustainable economic development, seeking to avoid the unwise use of floodplains, and protecting and restoring the functions of natural systems and mitigating unavoidable damage to natural systems.[28]

Nevertheless, and despite this specific instruction, the Corps' sole purpose for this project is to contribute to national economic development—there are no considerations for the environmental, community, or resilience needs around the Port of Wilmington.[29]

Second, and as we have explained in detail through prior comments,[30] there is no explanation for what inefficiencies are occurring or will occur in Wilmington should the Project not proceed. To the contrary, the Ports Authority highlights that Wilmington Port has the "highest container truck gate and crane productivity *on the U.S. East Coast*."[31] In business materials, the Ports Authority claims to have "[t]he fastest turn times on the East Coast," and states the Port is "big ship ready."[32] As the DEIS acknowledges, the Ports Authority continues to complete "improvement" projects that will "increase the efficiency and throughput capacity of the Port of Wilmington" without deepening the channel.[33] Indeed, even letters of support from shippers fail to identify the harbor deepening as necessary to support their economic goals.[34] These accolades and continued enhancement projects directly conflict with the transportation inefficiencies cited as a purported need for deepening Wilmington Harbor.

Articulating a proper purpose and need is not just a paper exercise—it is the first step to identifying reasonable alternatives.[35] By failing to articulate a proper need and limiting the range of alternatives to varying depths of deepening, the Corps wrongly presumes that deepening is the only way to achieve the project's purpose.[36] The narrow purpose and need statement caused the

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[28] U.S. Army Corps of Eng'rs, Final Rule, Corps of Engineers Agency Specific Procedures to Implement the Principles, Requirements, and Guidelines for Federal Investments in Water Resources, 89 Fed. Reg. 103992, 103993 (Dec. 19, 2024).
[29] DEIS, *supra* note 1, at 2-3.
[30] *See* SELC, 2023 Early Scoping Comments, *supra* note 3, at 4–5; SELC, 2024 Scoping Comments, *supra* note 3, at 3–4.
[31] *Fast Facts*, N.C. PORTS, https://perma.cc/8PZG-5R2U (last visited Nov. 2, 2025) (emphasis added).
[32] N.C. Ports, Welcome to North Carolina Ports (2023), Attachment 6.
[33] DEIS, *supra* note 1, at 1-18 ("These without-project condition terminal improvements enhance current terminal operations and efficiency independent of improvements to the federal channel.").
[34] *See* Combined Letters and Emails from Companies to N.C. Ports Authority (2021), Attachment 7.
[35] *City of Carmel-By-The-Sea v. U.S. Dep't of Transp.*, 123 F.3d 1142, 1155 (9th Cir. 1997) ("The stated goal of a project necessarily dictates the range of 'reasonable' alternatives and an agency cannot define its objectives in unreasonably narrow terms"); *see also Webster v. U.S. Dep't of Agric.*, 685 F.3d 411, 422 (4th Cir. 2012) ("a purpose is unreasonable when the agency defines it so narrowly as to allow only one alternative").
[36] DEIS, *supra* note 1, at 2-1 to 2-3; Letter Report, *supra* note 2, at 2-8 to 2-12.

Corps to eliminate without study other alternatives such as widening the channel (without also deepening it), which the agency admits "would allow" the large Post-Panamax III vessels "to use the channel on a regular basis."[37] Another alternative could include moving the container terminal portion of the Port to the river's mouth, an endeavor that the Port of Mobile, Alabama undertook in 2008 to address the inefficiencies of moving large ships up river.[38] Yet another option would be to consider the East Coast ports regionally and evaluate whether it makes more sense (economically and environmentally) for the ports to operate as a hub-and-spoke system thereby removing the constant pressure for each harbor to house the deepest port.

If the project's purpose is honestly to address transportation inefficiencies and thus contribute to national economic development, then the Corps must both provide evidence of inefficiencies and explain why the project will meet other priorities that the agency has mandated drive federal investment.[39] If, on the other hand, the real purpose for the project aligns with the Ports Authority's goals of attracting more import and export business, then the Corps must expand its environmental analysis to address the associated impacts of such growth, including induced development and the water, wildlife, and community impacts that will result from it.[40] Additionally, the Corps must ensure that all feasible alternatives are considered.

Questions

- What evidence of transportation inefficiencies at Wilmington Harbor has the Corps identified?
- How does the Corps rationalize the stated purpose for the Wilmington Harbor expansion with the Corps' current Principles, Requirements, and Guidelines?
- Did the Corps consider moving part of the port to the mouth of the Cape Fear River like other southern riverine ports, including Alabama?

IV. The project's minimal benefits do not justify the extreme costs.

For there to be a federal interest in a water resources project, the benefits to National Economic Development must outweigh the cost to construct and maintain the project.[41] The

[37] Letter Report, *supra* note 2, at 2-6.
[38] *See The Evolution of containerization in Mobile Bay: From Local Port to Global Gateway*, NAT'L MARITIME MUSEUM OF THE GULF (May 19, 2025), https://perma.cc/P55Y-6WKF; *see also* AL. PORT AUTHORITY, Port of Mobile Map (2024) https://perma.cc/82NL-M3TL; *Alabama Port Authority and APM Terminals Mobile Ink Deal Container Terminal Enters Fourth Expansion*, AL. PORT AUTHORITY (May 19, 2022), https://perma.cc/KP7Q-NE2B.
[39] *See* 89 Fed. Reg. at 103993.
[40] For example, across Southeastern ports we have witnessed that harbor deepening projects are closely followed by induced industrial growth. *See, e.g.*, S. Env't L. Ctr., Map of Savannah Distribution Centers (2025), Attachment 8 (showing that since the deepening project began construction, approximately 251 distribution centers have been developed around Savannah Port). Induced growth leads to serious environmental concerns, like the destruction of wetlands, displacement of wildlife, and increased air and noise pollution. The industrial development also creates more hard concrete surfaces in coastal areas, exacerbating the effects of flooding, storm surge, and sea level rise. If the Corps actually expects imports to increase, it must re-do the environmental analysis taking these—and other concerns—into consideration.
[41] *See* Letter Report, *supra* note 2, at 2-3.

Corps projects that expanding the harbor will cost more than $1.3 ***billion*** in construction costs alone.[42] Annual maintenance will tack on an additional $14.4 million per year.[43] Because the Corps acknowledges that the same amount of cargo will move through Wilmington Harbor with or without the expansion,[44] the only identified benefit associated with these significant costs is a reduction in the number of voyages large cargo vessels will have to take each year resulting in "significant cost savings to the shippers."[45] In short, the Corps recommends expanding Wilmington Harbor and damaging extensive environmental resources so that international shipping companies can save a few dollars by putting more cargo on less ships.

The Corps' current benefit-cost-ratio admits that the possible benefits are narrow—the ratio is a mere 1.3, meaning that for every one dollar spent, the Corps expects 1.3 dollars in benefits.[46] For comparison, the Corps predicted a 7.3 benefit-cost-ratio when deepening the Savannah Harbor,[47] and a 6.4 benefit-cost-ratio when deepening Charleston Harbor.[48] Only projects with a benefit-cost-ratio greater than 1.0 are considered justified.[49] With a ratio this low (1.3), practically any increase to the project's costs or reduction in expected benefits could shift the ratio below one, rendering the project infeasible.

a. The project's benefits rely on unsupported assumptions.

As mentioned above, the only purported benefit of expanding Wilmington Harbor is the alleged reduction in costs to shipping companies.[50] Not only does the DEIS fail to connect this benefit to national economic development,[51] the Corps relies on multiple unsupported assumptions to conclude that vessels will in fact increase their loads and reduce their number of voyages each year. For instance, the DEIS assumes the shipping companies will more fully load their ships but does not provide data on how much more capacity each type of vessel can (or will) carry into Wilmington Harbor if they do not have to light-load.[52]

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[42] U.S. Army Corps of Eng'rs, Wilmington Harbor 403 Letter Report: Attachment 4 – Cost Appendix (Sept. 5, 2025), at 12.
[43] U.S. Army Corps of Eng'rs, Wilmington Harbor 403 Letter Report: Attachment 5 – Economic Considerations (Sept. 5, 2025), at 58.
[44] *Id.* at 32 ("In the [future] without and in the future with project conditions, the same volume of cargo is assumed to move through Wilmington Harbor . . . ").
[45] *Id.* at 49.
[46] *Id.* at 57, 58.
[47] *What is SHEP?*, U.S. ARMY CORPS OF ENG'RS, https://www.sas.usace.army.mil/Missions/Civil-Works/Savannah-Harbor-Expansion/What-is-SHEP/ (last visited Nov. 2, 2025).
[48] Jackie Pennoyer, *Final Harbor Deepening Contracts Awarded*, U.S. ARMY CORPS OF ENG'RS (Dec. 22, 2020), https://www.sac.usace.army.mil/Media/News-Stories/Article/2454681/final-harbor-deepening-contracts-awarded/. While these were the BCRs the Corps identified in both projects, we note that they were likely inflated to serve the associated port's benefits. That said, even assuming some inflation of benefits, the BCRs are significantly higher than the one calculated for the Wilmington Harbor expansion.
[49] Attachment 5 – Economic Considerations, *supra* note 43, at 1.
[50] *Id.* at 49.
[51] *Id* (failing to connect any benefits to the national economy and stating that the only economic benefits are to international shipping companies).
[52] *See id.* at 48 (explaining assumptions without justifications).

Rather than provide actual data to support its assumption, the Corps used a model to predict the number of each type of vessel that would call with or without the project. That model projected that if Wilmington Harbor is deepened, the number of Post-Panamax I (smaller vessels) would drastically decrease from 237 without the expansion to 115 vessels with the expansion, and the number of Post-Panamax III (large vessels) would remain the same at 103 vessels.[53] The Corps uses those projections to determine that shipping companies will reduce the number of voyages on smaller ships and instead put more cargo on larger ships.[54] But the model used is fundamentally flawed. Currently, only **one** Post-Panamax I is part of the Asia/USEC fleet,[55] and the Corps acknowledges that the vast majority of new Post-Panamax ships being built and deployed are Generation III.[56] Nevertheless, the Corps' model predicts that without the project, in 2036, the number of Post-Panamax I in rotation **will jump from one to 237 vessels**.[57] Said differently, in 2021 (the base year for the Corps economic analysis), Post-Panamax I vessels made up 1.1% of the Post-Panamax fleet, but by 2036, Post-Panamax I vessels would make up a staggering 47% of the fleet calling to Wilmington.[58] At the same time, Post-Panamax III vessels, which made up 94% of the fleet in 2021, would only account for 20% of the fleet in 2036.[59] In short, the Corps artificially inflates the number of Post-Panamax I vessels that would call at Wilmington without the expansion, contrary to industry trends.[60]

Wrongly assuming that there will be more Post-Panamax I vessels is not a minor error. The Corps' cost-benefits-ratio resulted from reduced *number* of vessels calling in Wilmington with the deepening, as compared with the no action alternative.[61] They reached that conclusion by showing a shift from Post-Panamax I to Post-Panamax III.[62] But the Corps' concludes that "modifications to the channel framework at Wilmington alone will not be sufficient to cause changes in the vessel fleet servicing the U.S."[63] Therefore if—as is likely given industry trends—more cargo would simply be loaded on to the Post Panamax III vessels in circulation under the no action alternative, the comparative cost savings with the expansion would be reduced.

Additionally, the DEIS does not explain how the reduction of vessel voyages can or will be implemented.[64] Currently, all Asia/USEC services are provided on a weekly basis and each of

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[53] *Id.* at 55.
[54] Attachment 5 – Economic Considerations, *supra* note 43, at 49.
[55] *Id.* at 48.
[56] *Id.* at 42.
[57] *Id.* at 48.
[58] *Id.*
[59] *Id.*
[60] *See, e.g.*, DEIS, *supra* note 1, at 1-8.
[61] Attachment 5 – Economic Considerations, *supra* note 43, at 49.
[62] We note that the Corps' economic projections of number of vessels at varying depths deceptively *does not* include the depth identified as the preferred alternative in the DEIS. *See id.* at pg. 55 (showing vessel projections for 46 feet and 48 feet).
[63] *Id.* at 59.
[64] *See generally id* (failing to provide an explanation for how vessel traffic will shift based on the change in loading more cargo onto fewer shifts).

these vessels follow a multiport rotation, with Wilmington included as a mid-port.[65] If the Corps is to assume that fewer vessels are calling in Wilmington, there must be a similar assumption that fewer vessels will call at Savannah, Charleston, or any other port within Wilmington's rotation. The DEIS does not explain how that pattern will (or even could) change. To the contrary, the agency acknowledges that "the number" of Post-Panamax vessels calling to the Port are expected to increase in the future with or without the expansion.[66]

In summary, the Corps assumes (without providing any evidence to support) that shipping companies will opt to both (1) increase the amount of cargo per vessel and (2) reduce the number of vessels currently calling to Wilmington Port. The Corps relies on those assumptions to calculate its benefit-cost-ratio and to evaluate environmental impacts of the project. These assumptions are questionable and misleading, and they likely do not accurately reflect what will actually occur in Wilmington. The Corps must justify or revise its assumptions before moving forward with a final decision.

b. If the Corps' assumptions prove inaccurate, the environmental impacts of the project will be more severe.

Relying on the conclusion that shipping companies will send more cargo on less ships has serious consequences for the Corps' environmental analysis. Throughout the DEIS, the Corps minimizes environmental impacts of the project by claiming that fewer vessels will be traversing the channel leading to less environmental damages. For instance, the Corps concluded that the stress put on river shorelines from vessel wakes would be reduced when compared to the no action alternative because fewer ships would be passing through the channel and therefore creating less wakes.[67] The Corps also determined that air emissions would decrease under the deepening alternatives because less vessel traffic would result in less air pollution.[68] And the Corps predicted that certain species would be at less risk of vessel strikes due to less frequent traffic.[69] As it stands, the Corps has not explained its assumption that shipping companies will consolidate more cargo onto less ships, which in turn taints the DEIS's discussion of environmental impacts.

c. Other environmental issues that must factor into the cost-benefit analysis.

Other environmental issues are relevant to the Corps' economic analysis and could drive down the benefit-cost-ratio. For instance, the Corps assumes that "approximately half" of the material taken from the harbor due to deepening "would be placed in a beneficial way," either through the creation of mudflats in the river's estuary, placement on bird islands, or placement on

[65] *See, e.g.*, *Transpacfic Services Update – Amberjack & Emerald*, MSC (Feb. 19, 2023), https://perma.cc/J6VA-A6MW (showing historic route of EC2 indicating that Wilmington is a middle port of call).
[66] Letter Report, *supra* note 2, at 1-23.
[67] DEIS, *supra* note 1, at 3-23.
[68] *Id.* at 3-70.
[69] *Id.* at ES-3, 3-89.

nearby beaches.[70] Reusing dredged material in this alleged beneficial way drives down the cost of the project because it reduces the distance that dredging vessels have to travel to place materials.[71] But the Corps assumes that it *can* beneficially reuse this material without comprehensively studying what is in the sediment or whether the beneficial use plans will be approved. Because so much surrounding the beneficial use of sediment is uncertain, the Corps should have evaluated the cost of the project with and without the beneficial use to more transparently evaluate whether the project is feasible to move forward.

Considering whether beneficial use is even possible is particularly important here because (as discussed in more detail below) the sediment in the lower Cape Fear River is highly contaminated with per- and polyfluoroalkyl substances ("PFAS") from upstream industries.[72] The Corps did not analyze any existing PFAS data, nor did it collect its own.[73] This is highly problematic because in 2024, the U.S. Environmental Protection Agency ("EPA") classified two particularly harmful PFAS compounds (PFOA and PFOS) as hazardous substances under the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"), or Superfund Law.[74] Dredging and disposing of hazardous waste requires particular care during both construction and placement—and managing hazardous waste can significantly drive up the costs of a project. States who are leaders in addressing PFAS contamination have restricted the use of PFAS-laden dredged material for beneficial use.[75] For example, Michigan prohibits disposal in open water when PFAS levels exceed state thresholds, and the state requires extensive testing and mitigation measures be taken if the material is to be used for beneficial use.[76]

While North Carolina does not yet have the same policy, research consistently shows that PFAS are impacting wildlife in the Lower Cape Fear River—including shorebirds, alligators, and fish.[77] Material contaminated with toxic PFAS chemicals should not be placed on bird islands,

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[70] *Id.* at 2-16 to 2-18.
[71] U.S. Army Corps of Eng'rs, Wilmington Harbor 403 Letter Report Appendix D: Beneficial Use Plan (Sept. 5, 2025), at pg. 15-16.
[72] Megumi S. Shimizu et al., *Distribution of Legacy and Emerging Per- and Polyfluoroalkyl Substances in Riverine and Coastal Sediments of Southeastern North Carolina, USA*, 11 ENV'T SCI. PROCESSES & IMPACTS (June 3, 2022), Attachment 9; Saleeby, Brittany, et al., *Isomers of Emerging Per- and Polyfluoroalkyl Substances in Water Sediment From the Cape Fear River, North Carolina, USA*, 262 CHEMOSPHERE 128359 (2021), Attachment 10; *see also* Harfmann, Jennifer, et al., *Sorption of Hexafluoropropylene Oxide Dimer Acid to Sediments: Biogeochemical Implications and Analytical Considerations*, ACS EARTH SPACE CHEM (2021), Attachment 11; *see also* N.C. DEQ, PFAS Sediment Study – Performed January 2021 to August 2021 (2021), Attachment 12.
[73] *See* DEIS, *supra* note 1, at 3-61 to 3-66 (describing impacts to sediment and the affected environment under each alternative and failing to even mention PFAS, much less analyze the impacts of the pollutants).
[74] Designation of Perfluorooctanoic Acid (PFOA) and Perfluorooctanesulfonic Acid (PFOS) as CERCLA Hazardous Substances, 89 Fed. Reg. 39124, 39125 (May 8, 2024); *see also EPA's Principal Claim of PFAS Progress is Untrue*, PUBLIC EMPLOYEES FOR ENV'T RESPONSIBILITY (Oct. 29, 2025), https://perma.cc/F8X8-BATR (providing evidence that PFOA and PFOS continue to be used and released into the environment by industries).
[75] Mich., Department of Environment, Great Lakes, and Energy Sediment Dredging Guidance (June 13, 2025), Attachment 13, at 6.
[76] *Id.* at 4, 6–7.
[77] Anna R. Robuck, et al., Legacy and Novel Per- and Polyfluoroalkyl Substances in Juvenile Seabirds from the U.S. Atlantic Coast, 54 ENV'T SCI. & TECH 12938 (Sept. 2020), https://pubs.acs.org/doi/pdf/10.1021/acs.est.0c01951; Univ. of RI, PFAS in Seabirds: Narragansett Bay, Massachusetts Bay, Cape Fear, SCI. DAILY (Sept. 23, 2020),

estuaries where young fish grow, or beaches where sea turtles nest, all of which is currently proposed in the DEIS. Because the Corps has not studied the levels of PFAS in the material that will be dredged, it does not know how it will be able to dispose of the material, whether the agency will be able to meet standards of sediment compatibility, and most importantly, whether it will be able to beneficially reuse the sediment—or whether the reuse would cause consequent harm. If the agency cannot (or if it is required by the state to mitigate effects of using that material), the costs of the project will drastically increase.[78]

In addition, and again as discussed in more detail below, the mitigation planned to address wetland and aquatic resource impacts is vastly inadequate. Addressing that deficiency will require additional mitigation measures to be implemented. Mitigation is factored into the benefit-cost-ratio[79] and, therefore, an increase in mitigation costs will disrupt the Corps' conclusion that this project results in a net gain. Finally, the Corps' economics analysis should also consider the negative economic impacts to fisheries, decreases in tourism and recreation dollars, incremental increases in flooding damages, and impaired ecosystem services from destroyed or damaged natural resources.[80]

In summary, the Corps' economics analysis relies on significant assumptions that are not supported within the DEIS. The Corps must revise these assumptions or provide support for them before moving forward with a decision on this project.

Questions

- What is the Corps' basis for concluding that shipping companies will both (1) increase capacity on vessels and (2) decrease the number of vessels calling to Wilmington Harbor?
- Why does the Corps assume that the number of Post-Panamax I vessels will increase substantially without the project? In particular, please explain the jump from one to 237 Post-Panamax I vessels listed in Table 5.38 in Attachment 5 – Economic Considerations.
- What would the cost of deepening Wilmington Harbor be if the Corps could not beneficially reuse some or all of the sediment?

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https://perma.cc/S3ZS-NZ7K; Guillette et al., Blood Concentrations of Per- and Polyfluoroalkyl Substances Are Associated with Autoimmune Like Effects in American Alligators From Wilmington, North Carolina, FRONTIER TOXICOLOGY 4:1010185 (Oct. 20, 2022), https://perma.cc/T95J-RH2G; T.C. Guillette, et al., Elevated levels of per- and polyfluoroalkyl substances in Cape Fear River Striped Bass (Morone saxatilis) are associated with biomarkers of altered immune and liver function, 136 ENV'T IN'TL 105358 (Mar. 2020), https://perma.cc/8523-J7EF; Tracey Peake, High Levels of PFAS Affect Immune, Liver Functions in Cape Fear River Striped Bass, N.C. STATE (Feb. 7, 2020), https://news.ncsu.edu/2020/02/pfas-striped-river-bass/; *NCDHHS Recommends Limiting Fish Consumption From the Middle and Lower Cape Fear River Due to Contamination With "Forever Chemicals,"* N.C. DEP'T HEALTH & HUMAN SERVS. (July 13, 2023), https://perma.cc/E8FU-N69H [hereinafter "Cape Fear Fish Consumption Advisories"].

[78] Appendix D: Beneficial Use Plan, *supra* note 71, at 17.

[79] U.S. Army Corps of Eng'rs, Attachment 4 – Cost Appendix (Sept. 5, 2025), at 2 (listing mitigation as a factor in project cost).

[80] *See* U.S. Army Corps of Eng'rs, Planning Guidance Notebook Regs. 1105-2-100 (Apr. 22, 2000), at C-15 (explaining that environmental resources should be monetary value "based upon the contribution the resources makes to the Nation's economy"), https://perma.cc/2Y5J-U2R4.

- Why did the Corps not consider negative impacts to local economies in Wilmington, including local fisheries and ecotourism businesses?
- What would the Corps' response be if the costs for the project were to outweigh the benefits? Said another way, if the BCR drops below 1, could the Corps continue to recommend this project?

V. The Corps cannot use sea level rise to excuse the project's impacts.

At the outset, we appreciate the Wilmington District's use of the Corps' High scenario for evaluating sea-level rise impacts for this project. Having the High scenario underpin the DEIS should help facilitate a sounder project and the development of more resilient mitigation measures. Unfortunately, the Corps has misused these projections. Rather than utilize sound science to thoroughly and comprehensively evaluate how this project will impact the Lower Cape Fear River, the Corps used the projections to entirely obfuscate the project's impacts. For example, the DEIS acknowledges that deepening Wilmington Harbor will increase the mean high-water level throughout the project area, increase peak water levels (by more than 3%), and expand the total area that will be flooded by rising tides.[81] But the agency diminishes these impacts by stating that the increases are minimal "when compared to the substantial influence of sea level change."[82]

In reaching this conclusion, the DEIS compares the immediate increases caused by the project (based on mean tidal datum values using average water levels from 1983 to 2001)[83] to sea levels projections for 2086.[84] But impacts from this project will be felt much sooner, with construction expected to be completed in 2036. Instead of comparing the project's impacts solely against sea levels in 2086, at the end of the project's life, the Corps should have compared the impacts of the project against sea levels in 2036 to give an honest comparison of the project's impacts against sea levels at that time. Said differently, what the Corps considers a "negligible" impact compared to projected sea levels of 3.77 feet in 2086 would likely be more significant compared with a the much lower projected sea level of less than a foot in 2036. While it is true that sea-level rise will have massive impacts on the Wilmington area, so too will this project within the shorter term. The Corps cannot use future sea-level rise impacts over the next five decades to dodge this Project's many impacts on a much shorter timescale. The Corps must fully consider and evaluate the impacts this project will have on the human and natural environment without brushing aside impacts because they are less than future sea-level rise projections.

Most importantly, the Corps must consider how sea-level rise will interact with the deepening project and exacerbate flooding events that will create compounding and increasingly severe impacts. The Cape Fear Basin is especially vulnerable to compound flooding events— or

[81] DEIS, *supra* note 1, at 3-60 to 3-61.
[82] *Id.* at 3-61.
[83] *Id.* at 3-59.
[84] *Id.* at 3-60.

floods caused by multiple factors.[85] However, the DEIS fails to adequately address these dynamics. It treats sea-level rise as a static, isolated phenomenon rather than a dynamic force that will continuously impact tidal ranges, compound flooding, and the resulting need for maintenance dredging. This failure leads to a drastic underestimation of the risks to Wilmington and the communities that call this area their home.

For instance, the Corps entirely dismisses the increase in mean high water caused by the project, arguing that sea level rise will overshadow its effects. What the Corps fails to consider in that conclusion, however, is that even an increase of 0.11 feet (as expected from the deepening) will drastically accelerate the rate of high-tide flooding. Peer-reviewed research has demonstrated that the volume of water flowing through the river's channel is a dominant driver of chronic low-level flooding—particularly in estuarine environments like the Lower Cape Fear River.[86] This means that even a "modest" increase in water flowing through the Lower Cape Fear River creates a substantial risk to Wilmington communities—especially in the downtown area.

Beyond mean high water, the Corps fails to account for other hydrodynamic consequences of the project. Deepening a channel like Wilmington's reduces friction through the water system making it easier for more water to flood into the channel—especially during storm conditions.[87] This causes a nonlinear increase in the tidal range and flooding risk,[88] resulting in "higher water levels, faster currents, and longer-lasting inundation farther inland."[89] A recent study of tidal conditions in Jacksonville, Florida show when shallow estuaries are deepened, they provide less protection against "long-waves" or storm induced flooding which can pose a significant risk to the communities nearby.[90] Similarly, a study on channel deepening in Louisiana showed that deepening allows more water to flood the system during a storm event, drastically increasing the flooded area around the channel.[91] When sea level rise is considered alongside the deepening project, there are increased flood risks caused by a larger, more powerful storm surge.[92]

Despite well-established research showing that flood risks are not static, but are indeed a culmination of many factors, the DEIS critically does *not* take into account how the combination of channel deepening, tidal amplification, storm surge, vessel wakes, and sea-level rise will

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[85] Avanitka Gori, Ning Lin, & James Smith, *Assessing Compound Flooding From Landfalling Tropical Cyclones on the North Carolina Coast*, 56 WATER RESOURCES RESEARCH 1 (2020), Attachment 14.
[86] *See* Kelly McKeon & Christopher G. Piecuch, *Compound Minor Floods and the Role of Discharge in the Delaware River Estuary*, 130 JGR OCEANS 1 (2025), Attachment 15.
[87] Lynker Report, *supra* note 4, at 4; Ramin Familkhalili, Stefan A. Talke & David A. Jay, *Tide-storm Surge Interactions in Highly Altered Estuaries: How Channel Deepening Increases Surge Vulnerability*, 125 JGR OCEANS 1, 15 (2020), Attachment 16.
[88] *Tide-storm Surge Interactions*, *supra* note 87, at 2.
[89] Lynker Report, *supra* note 4, at 8.
[90] Stefan A. Talke & David A. Jay, *Changing Tides: The Role of Natural and Anthropogenic Factors*, 12 ANN. REV. OF MARINE SCI. 121, 132–33 (2020), Attachment 17.
[91] Maqsood Mansur, Julia Hopkins & Qin Chen, *Estuarine Response to Storm Surge and Sea-level Rise Associated with Channeling Deepening: A Flood Vulnerability Assessment of Southwest Louisiana, USA*, 116 NAT. HAZARDS 3879, 3889 (2023), Attachment 18.
[92] *Id* at 3890.

create greater impacts on the project area—impacts that are both more environmentally and economically damaging.[93] We urge the Corps to model this Project in a way that takes into account these compounding effects so that the agency and the public may better understand the impacts this Project will have in the region.

Unfortunately, the Corps' failure to meaningfully study and integrate sea level rise and compound effects into the NEPA analysis leads to questionable conclusions throughout the DEIS. For example, the Corps tries to claim that sea level rise "could lead to a reduction in required maintenance due to increased depth in the channel."[94] This statement is not only a disingenuous attempt to spin sea level rise as a positive impact for the community, it is also fundamentally wrong. Sea level rise does not simply mean that water levels will increase evenly throughout the channel and not impact anything else. Sea level rise changes the ebbs and flows of the tidal range and will drastically impact sediment transport in the system thereby making maintenance dredging less effective.[95] Also, as discussed above, the reduced friction in the channel caused by dredging can exacerbate upstream flooding and erosion, amplifying sediment movement in the project area.[96] In other words, the Corps will be required to perform *more* maintenance dredging in the project area as sea levels continue to rise. This is a project impact and cost that was not considered throughout the DEIS.

As we have raised extensively in our prior comments, the area surrounding Wilmington Harbor is extremely vulnerable to sea level rise and changing tidal patterns.[97] So while we appreciate the Corps' acknowledgement that sea levels are indeed going to rise and pose significant threats to the Wilmington area, the agency cannot use those existing threats to mask the impacts of this project. Rather than using sea level rise data as a static factor to compare the project impacts against, the Corps must weave sea level rise into its analysis studying how—when viewed together—the project may exacerbate the risks associated with changing sea levels, including substantial flooding risks to the Wilmington community. This transparency is critical to the environmental and cost analyses present throughout the DEIS.

Questions

- Why did the Corps not consider or model the compound relationship between sea-level rise, the deepening project itself, and flooding events?
- Why did the Corps not complete a joint hazard probability distribution analysis to accurately demonstrate the total expected damage from compounding flood and storm events?

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[93] Lynker Report, *supra* note 4, at 8. As further explained in the report, even the Corps' storm surge modeling from Hurricane Helene suffers from this failure to recognize the compounding and variable nature of such events.
[94] DEIS, *supra* note 1, at 3-72.
[95] Lynker Report, *supra* note 4, at 4; Jana R. Cox et al., *Effects of Sea-Level Rise on Dredging and Dredged Estuary Morphology*, 127 J. OF GEOPHYSICAL RSCH.: EARTH SURFACE 1, 2 (2022), Attachment 19.
[96] *Tide-storm Surge Interactions*, *supra* note 87, at 2.
[97] SELC, 2023 Early Scoping Comments, *supra* note 3, at 5–7; SELC, 2024 Scoping Comments, *supra* note 3, at 7–10.

- Why did the Corps not complete hydrodynamic modeling that integrate compounding factors like wind and river volume to calculate the peak water level risk associated with deepening Wilmington Harbor?
- Did the Corps review studies that show deepening projects reduce friction throughout the channel thereby increasing flood risks and storm surge penetration? If so, why were those conclusions not included in the DEIS?
- What would the increased costs of maintenance dredging be if sea level rise increases sedimentation and erosion throughout the channel?
- What would be the projected difference in the numbers of days communities and businesses will feel impacts of flooding with or without the project?

VI. The DEIS fails to adequately address devastating environmental impacts.

The purpose of NEPA is "[t]o declare a national policy which will encourage productive and enjoyable harmony between man and his environment."[98] NEPA demands: (1) thoughtful, informed agency decisionmaking, and (2) making information available to the public at a meaningful time.[99] NEPA is an "action-forcing" statute[100] and achieves its goals by requiring agencies to take a "hard look"[101] at the "reasonably foreseeable environmental effects of the proposed agency action,"[102] and to "ensure scientific integrity" in their analyses by "mak[ing] use of reliable data and resources."[103] An EIS must do more than list potential impacts—it must rigorously analyze their scope, severity, and cumulative effects, using the best available information. When "essential to a reasoned choice among alternatives," an agency must undertake new technical or scientific research.[104] By requiring thorough consideration and disclosure of environmental impacts and alternatives, NEPA serves as a "democratic decisionmaking tool:" it "ensures that the agency will not act on incomplete information" and "permits the public . . . to react to the effects of a proposed action at a meaningful time."[105]

[98] 42 U.S.C. § 4321; *Hughes River Watershed Conservancy v. Glickman*, 81 F.3d 437, 443 (4th Cir. 1996) ("NEPA declares a national policy of protecting and promoting environmental quality.").
[99] *See* 42 U.S.C. § 4332; *see also Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349 (1989); *Seven Cnty. Infrastructure Coal. v. Eagle Cnty., Colorado*, 145 S. Ct. 1497, 1507 (2025).
[100] *Kleppe v. Sierra Club*, 427 U.S. 390, 409 (1976).
[101] *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989)
[102] 42 U.S.C. § 4332(C)(i).
[103] *Id.* §§ 4332(D), (F).
[104] *Id.* § 4336(3)(B).
[105] *N.C. Wildlife Fed'n. v. N.C. DOT*, 677 F.3d 596, 601–02 (4th Cir. 2012) (citations omitted).

For over five years, we have raised significant concerns with the potential environmental impacts of the proposed expansion, identifying specific effects and issues the Corps must consider in its DEIS. Unfortunately, the DEIS fails to adequately review and disclose pertinent impacts, including those relevant to our previously raised concerns.

a. Underrepresented Wetland Impacts and Inadequate Mitigation Measures

Wilmington is located within the North Carolina Coastal Plain, a region that is marked by a vast array of wetlands.[106] In addition to their role as hotspots for biodiversity, wetlands also provide shoreline stabilization, natural water filtration systems, storm buffers, and flood reduction services.[107] Freshwater wetlands also provide economic benefits for their role as nurseries for commercially important fish and shellfish.[108]

Despite the billions of dollars in services they provide,[109] thousands of acres of wetlands are being lost in North Carolina.[110] Most of this loss has occurred within coastal watersheds like the Cape Fear due to development, sea level rise, and climate change.[111] Additionally, hundreds of thousands of acres of wetlands have been converted or disturbed into different types of wetlands which result in "altered ecosystem function . . . and loss of important habitat."[112] As changes in interpretation of federal law[113] and consequent state law changes[114] rollback protections for many wetlands across southeastern North Carolina, it is critically important that the Corps not damage even more for an unnecessary deepening project.

Our past comments have raised concerns about this Project's potential to exacerbate marsh migration and cause wetland loss. At the outset, as raised earlier in this comment, we have concerns with the wetland loss from this project being diminished as compared to long-term wetland loss projected from sea level rise. Again, the Corps cannot use sea level rise as a basis to excuse the impacts of this project. In addition, we also raise concern with the use of outdated wetland conditions data as a basis for its analysis that does not take into account years of erosion, development, and wetland conversion within the region.[115] The use of outdated data as a baseline for the DEIS's modeling likely masks the project's impacts to wetlands.

Beyond the modeling data, the DEIS posits that the Project would result in the conversion of 1,071 acres of tidal freshwater wetlands to higher salinity wetlands under a no sea level rise

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[106] *Assessment of Change in North Carolina's Outer Coastal Plain Wetlands*, NORTH CAROLINA WETLANDS (July 2024) at 11, Attachment 20.
[107] *Id.*
[108] *Id.*
[109] *Id* (noting that the functions provided by wetlands are estimated to be worth $25.6 billion).
[110] *The Status and Trends of Wetland Loss and Legal Protection in North Carolina*, N.C. STATE EXTENSION, https://perma.cc/P9K2-JTEW (last visited Oct. 16, 2025).
[111] *Id.*
[112] *Id.*
[113] *See Sackett v. EPA*, 598 U.S. 651, 679 (2023) (limiting the scope to wetlands within the purview of the Clean Water Act to those with a "continuous surface connection" with a water of the United States).
[114] *See* 2023 Sess. L. 63 § 15.(c) (June 12, 2023).
[115] Lynker Report, *supra* note 4, at 14.

modeling.[116] The wetland loss under higher sea level rise projections is much higher. This assumption suffers from several flaws. First, the DEIS erroneously concludes that wetlands will convert to higher salinity wetland types. The DEIS seems to assume, without any explanation, that the acres of wetlands lost under any of the alternatives and different sea level rise scenarios will essentially be canceled out by acres of (different types) of wetlands gained elsewhere.[117] Further, the DEIS assumes that wetlands will be able to migrate into new areas without impediments—an assumption that is unfounded given the level of existing and projected development in the action area. Indeed, the DEIS provides no explanation of *where* these newly created wetlands will be.

While the DEIS posits that the wetlands will merely be converted to higher salinity wetland types, thus minimizing some environmental impacts, converted wetland habitats would result in an altered ecosystem function than existed before. The loss of freshwater wetlands would directly impact both the health of North Carolina's fishery resources and the natural filtration system wetlands provide. Moreover, conversion may accelerate upstream saltwater intrusion that would lead to the further spread of ghost forests in the region.[118] Even bald cypress trees that have adapted to survive in somewhat higher salinity environments along Smith Creek at the upper portions of the Lower Cape Fear are threatened by the permanently increased salinity that this deepening project would cause, rendering them more sensitive to climate variability.[119] Increased ghost forests lead to a decrease in ecosystem services, including protection from storm impacts and habitat for wildlife.[120] It's not just a problem of creating ghost forests. It's a problem of losing a critically important ecosystem. The loss of freshwater wetlands is exacerbated by the inadequate mitigation measures provided for by the DEIS, as described in greater detail below.

Questions

- Why does the Corps assume that for every acre of wetland lost, an acre will be gained somewhere else? Where will the new wetlands be created?
- Why did the Corps use wetland condition data from 2016-2017 to make impact calculations?

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[116] DEIS, *supra* note 1, at 3-56.
[117] *See id.* at Table 3-34 (depicting wetlands changes under the no action alternative, where under SLC1 891 wetlands would be lost vs. 891 gained; under SLC2 2337 wetlands would be lost, vs. 2338 gained; and under SLC3 9,628 wetlands would be lost vs. 9,628 gained); Table 3-35 (depicting wetlands changes under the Action Alternatives, where under SLC0 with AA1 1,275 wetlands would be lost and 1,276 would be gained; and under SLC3 with AA1 1,214 wetlands would be lost and 1,214 wetlands would be gained).
[118] *See* Jessica Lynn Magolan and Joanne Nancie Halls, *A Multi-Decadal Investigation of Tidal Creek Wetland Changes, Water Level Rise, and Ghost Forests*, 12 REMOTE SENSING 1141 (2020), Attachment 21.
[119] Kendra Devereux et al., *Tree-Ring and Sediment Analyses Reveal Processes of Bald Cypress Ghost Forest Formation From Dredging in the Cape Fear River, North Carolina, USA*, 15 ECOLOGY & EVOLUTION 1, 14 (2025), Attachment 22.
[120] *Id.*

b. Inadequate Modeling for Vessel Wake Impacts & Coastal Erosion

The Corps repeatedly states that deepening the Wilmington Harbor will allow larger, more heavily loaded ships to enter the Port. In particular, the DEIS focuses on an increase of Post-Panamax ships calling into Wilmington, a class of ships that can hold up to 15,000 twenty-foot equivalent units ("TEUs").[121] The Corps notes that Wilmington is accommodating Post-Panamax III ships "at the present time" that can be loaded to 14,220 TEUs.[122]

As we have raised in our past comments, larger ships create larger vessel wakes that will lead to greater coastal erosion and threaten shoreline stability. However, the DEIS fails to calculate vessel wake analysis using the largest ships *that already enter* the Port[123] and the types of ships the Corps projects will increase in the Port with this deepening. Although the purpose of the project is to allow more heavily loaded Post-Panamax III ships which can be loaded up to 15,000 TEUs, the DEIS vessel wake model is calibrated for a 12,400 TEU vessel.[124] Using an undersized vessel to calculate vessel wake underestimates the impacts ships projected to call to the Port will have on shoreline erosion.[125]

In addition to using an inadequate vessel size, the Corps misapplies its sediment transport models to predict the type and extent of erosion that will be caused by vessel wakes. The Corps uses sand transport models that are designed to predict erosion on sandy beaches, rather than riverbanks.[126] Physics of riverbanks are fundamentally different than those on sandy beaches and therefore the models are unreliable, if not meaningless.[127] On top of this, while the Corps acknowledges that sediment forecasts are highly sensitive to grain size, the agency only looks at a single grain size when evaluating the extent erosion can be expected to occur.[128] And the Corps' model only assumes 1 to 2 inches in tidal increase, even though the agency acknowledges that the area could see a tidal increase of 3.77 feet by 2086.[129] All of these factors lead to an unreliable analysis. The Corps must revisit its erosion analysis using different or modified models that more accurately represent the movement of sediment in the *river* itself.[130]

And even for the areas where a sandy-beach model would be appropriate, the Corps did not look at site-specific data or modeling. At Baldhead Shoal Reaches 3 and 4 (the most dynamic

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[121] Attachment 5 – Economic Considerations, *supra* note 43, at 23.
[122] *Id.* at 26.
[123] Given that these ships are already using the port, the Corps could have—and should have—used data from these and the other smaller ships to inform its analysis here.
[124] DEIS, *supra* note 1, at 3-21; U.S. Army Corps of Eng'rs, Wilmington Harbor 403 Letter Report Appendix B-VIII: Vessel Wake Model Secondary Wave Calculations (July 16, 2025), at 2.
[125] Lynker Report, *supra* note 4, at 8.
[126] *Id.* at 2.
[127] *Id.*
[128] *Id.* at 3; U.S. Army Corps of Eng'rs, Wilmington Harbor 403 Letter Report Appendix B: Model Documentation (July 24, 2025), at B-206.
[129] Appendix B: Model Documentation, *supra* note 128, at B-184.
[130] While we note that the Corps validated the model for the Anchorage Basin, the variance for the model was nearly 400% signaling that it was not an accurate or useful model. DEIS, *supra* note 1, at 1-5, Lynker Report, *supra* note 4, at 3.

portions of the project area), the Corps used erosion data from other beaches that have different characteristics.[131] This decision likely underestimates the sediment movement that will occur near Bald Head and the amount of maintenance dredging that will be needed to maintain this part of the channel.[132]

Finally, the DEIS and the hydrodynamic analysis also fail to consider the aggregate impact of thousands of vessel wakes and sea-level rise over five decades. Rather, the vessel wake modeling only simulates the shoreline impact of single events,[133] and even then, the Corps obscures the data from those conclusions by reporting them in annual averages.[134] Erosion is driven by peak bed shear stress during a wake event and thus cannot be fully understood in averages. For example, at Fort Caswell, peak bed shear stress is expected to *double* under the Corps' preferred alternative, but that threat to that portion of the channel is hidden by presenting the data in averages.[135] In short, the Corps' modeling and data culmination does not take into account how repeated vessel wakes in conjunction with sea-level rise will have long-term impacts on coastal erosion.[136] We urge the Corps to conduct vessel wake modeling that both uses a more accurate vessel size that reflects the ships anticipated to enter the Wilmington Port and considers the aggregate impacts of numerous vessel wakes and sea-level rise.

Questions

- Why did the Corps not use a 15,000 TEU vessel—the size of vessel the harbor expansion is allegedly designed to accommodate—for conducting vessel wake and shoreline erosion modeling? Why did the Corps not use the size vessel that currently calls in Wilmington?
- Why did the Corps present bed shear stress in averages, masking the total impact?
- How does the Corps find additional clearance and less severe bed shear stress if the entire project's goal is to allow ships to come more fully loaded (thus causing the ships to sink downward)?
- Why did the Corps not use a bank stability model that better reflected the physical properties of the Cape Fear River instead of the sand-beach models that the Corps used for its erosion calculations?

c. Lack of Testing for PFAS or Forever Chemicals

As we have raised in our past comments, the water and sediment of the Lower Cape Fear River are contaminated with PFAS, a large group of toxic chemicals that have severe health impacts, even at low levels, in humans and animals.[137] In particular, PFAS exposure has been

[131] DEIS, *supra* note 1, at 3-20.
[132] Lynker report, *supra* note 4, 2.
[133] DEIS, *supra* note 1, at 3-6.
[134] *Id.* at 3-20 to 3-24.
[135] *See* Appendix B: Model Documentation, *supra* note 128, at B-258, Table 11-7 (showing that maximum bed shear stress doubles between current conditions and the deepening alternative).
[136] Lynker Report, *supra* note 4, 1–3.
[137] *See, e.g.,* Zeyan Lew, Houman Goudarzi & Youssef Oulhote, *Developmental Exposures to Perfluoroalkyl Substances (PFASs): An Update of Associated Health Outcomes*, 5 CURRENT ENV'T HEALTH REPS. 1 (2023).

linked to cancer, developmental delays, reduced vaccine response, and decreased fertility in humans.[138] Unlike other chemicals, PFAS take thousands of years to break down which increases the risk of exposure and bioaccumulation in the environment. Both North Carolina and the federal government have responded to the threats that PFAS pose. In 2023, North Carolina issued fish consumption guidance for certain species in the Middle and Lower Cape Fear River.[139] In addition, the EPA has classified two PFAS as hazardous under CERCLA and has established drinking water standards for PFOA and PFOS.[140]

Although we have repeatedly urged the Corps to fully consider whether this Project may increase the levels of PFAS and other contaminants in the Cape Fear River ecosystem, the DEIS dismisses any effect the Project may have on exposing or distributing hazardous, toxic and radioactive waste. The Corps' most recent sampling of the dredged material was done in 2020 within the ODMDS and tested for "PCBs, pesticides, semi-volatile organics (SVOAs), metals, total organic carbon, and butyl-ins."[141] Since then, research has uncovered extensive PFAS pollution in the Cape Fear River.[142] This pollution is comprised of legacy (long-chain PFAS) and new chemistries that companies have recently switched to.[143] There is no evidence that the Corps researched this existing data or conducted sampling of the water, dredged material, or riverbank for any type of PFAS that contaminates the footprint of this project. Given that this material is to be used on bird islands, estuaries (where young fish will feed, forage, and grow), and public beaches, the Corps should conduct PFAS testing of the dredged material and shoreline deposits of the Cape Fear before further exposing people and wildlife to hazardous materials.[144]

Additionally, as mentioned earlier, the Corps' cost calculations for this project assume that the dredged material can be placed on beaches, subtidal areas, and bird islands that are close to where the material is being dredged. Should the material be unsuitable for beneficial use, the material would have to be transported offshore several miles and dumped within the ODMDS.[145] Transporting and dumping tens of millions of tons of dredged material would cause the cost of this project to increase significantly and make the project economically infeasible. As such, the Corps should have fully considered scenarios where dredged material could not be used for beneficial use.

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[138] *Our Current Understanding of the Human Health and Environmental Risks of PFAS,* U.S. ENV'T PROT. AGENCY, https://www.epa.gov/pfas/our-current-understanding-human-health-and-environmental-risks-pfas (last visited Oct. 16, 2025).
[139] Cape Fear Fish Consumption Advisories, *supra* note 77.
[140] *See* PFAS National Primary Drinking Water Regulation, 89 Fed. Reg. 32532 (Apr. 26, 2024); Designation of Perfluorooctanoic Acid (PFOA) and Perfluorooctanesulfonic Acid (PFOS) as CERCLA Hazardous Substances, 89 Fed. Reg. 39124, 39125 (May 8, 2024).
[141] U.S. Army Corps of Eng'rs, Wilmington Harbor 403 Letter Report Appendix P: Wilmington Site Management and Monitoring Plan for Offshore Disposal at 18 (2023).
[142] *See* Megumi, *supra* note 72; Saleeby, *supra* note 72; *see also* Harfmann, *supra* note 72.
[143] Saleeby, *supra* note 72, at 3–7.
[144] This testing must take place even though the Corps routinely dredges the area. Because the Corps intends to deepen and widen the Harbor, it will encounter sediment that has been previously undisturbed and is likely highly contaminated.
[145] Appendix D: Beneficial Use Plan, *supra* note 71, at 17.

Questions

- Did the Corps conduct any testing for PFAS within the dredging area? If not, why did the Corps not conduct this testing?
- Why did the Corps not consider existing data regarding levels of PFAS in the sediment in the Lower Cape Fear River?
- How will the Corps' economic analysis be impacted if the agency cannot beneficially reuse sediment that contains PFAS contamination?

d. Noncomprehensive Groundwater Modeling

We have also raised concerns about the ways this Project could lead to saltwater intrusion into regional aquifers that impact both human communities and wildlife. In particular, harbor deepening projects generally can cause contamination of surface and groundwater. We urged the Corps to meaningfully evaluate these impacts, and the agency has failed to do so here.

At the outset, we call attention to the fact that the groundwater model the agency selected is a "yardstick" model, meaning "it is not precise enough to answer specific, localized questions." [146] Perhaps more significantly, as the Corps admits, the model "was not calibrated to predict salinity changes," and thus "salinity results are uncertain, and saltwater may move at different rates than the model suggests."[147] And to make matters worse, despite the recognition that they can influence groundwater conditions "the model does not simulate daily tidal fluctuations, storm events, or seasonal variations."[148] Despite these fatal flaws, the Corps relies on this model to conclude that salinity impacts to groundwater are "minor" particularly when compared to the threats posed by sea level rise.[149] A model this vague and imprecise cannot be used for a project area this important.[150] Additionally, the groundwater model figures (referenced in Appendix C) are not in the DEIS or attached documents, seriously inhibiting the public's review and analysis of this admittedly fault groundwater model.

Even without the Corps' groundwater model data, it is clear that the DEIS does not fully consider the risk posed by saltwater intrusion into groundwater. The Corps acknowledges that salinity in groundwater is influenced by sea level rise and groundwater pumping, but the agency fails to show how deepening the channel would or would not add additional stress to a degraded groundwater system. Rather, the DEIS assumes that the Cape Fear is a gaining river that would not impact aquifers at all. Communities in this part of the state are well aware this is not always the case. Indeed, one of the main reasons many of the groundwater wells are contaminated with toxic PFAS is because Chemours contaminated the Cape Fear River, and the pollution spreads

[146] U.S. Army Corps of Eng'rs, Wilmington Harbor 403 Letter Report Appendix C: Geology and Geotechnical Engineering at C-15 (2025).
[147] *Id.*
[148] *Id.*
[149] DEIS, *supra* note 1, at 3-68.
[150] *See* Lynker Report, *supra* note 4, at 12; Christian D. Langevin et al., DOCUMENTATION FOR THE MODFLOW 6 GROUNDWATER FLOW MODEL (2017).

from surface water to groundwater.[151] In addition, it is well-documented that coastal rivers like the Cape Fear River can influence groundwater during storm surges and high tides (elements that the Corps' model explicitly did not evaluate).[152]

The DEIS also assumes a static salinity boundary and average seasonal stress over a 50-year period.[153] These assumptions fail to take into account the scenarios where groundwater intrusion are the most likely, such as during prolonged periods of drought and increased pumping during the summer months.[154] By failing to look at seasonal differences, the Corps "obscures the most dangerous scenario: summer conditions when maximum tourist pumping coincides with hurricane season, storm surge, and lowest natural recharge–exactly when breached confining units from deepening would create maximum vulnerability."[155] Ignoring these conditions (by averaging pumping across the seasons), the Corps concludes that deepening Wilmington Harbor will not worsen saltwater intrusion. This is likely false, dangerously disregards the communities who rely on groundwater for drinking water, and ignores threats to wildlife from severe salinity impacts. The DEIS thus inadequately considers risks to groundwater, and the Corps should use more robust modeling to fully consider potential impacts of this Project.

Questions

- Why did the Corps choose the groundwater model used for this DEIS? How does the Corps justify the use of a model that cannot predict site specific impacts?
- Why did the Corps not consider information showing that pollution spreads from the Cape Fear River to groundwater, indicating the river does indeed influence groundwater at times?
- Why did the Corps average seasonal stress to groundwater rather than consider seasonal variations?
- Did the Corps consider and compare impacts from the last deepening on groundwater?

d. Species of Concern

The current discussions in the DEIS and corresponding appendices omit and downplay critical details to understanding the full scope of harms to wildlife. While the DEIS and corresponding biological assessments do acknowledge some adverse effects on listed species, the previously described errors in modeling and other impacts analyses mean that even those staggering effects are likely underestimates. Worse, the Corps fails to disclose necessary

[151] Letter from Sushma Masemore, NC DEQ to Seth Bailey, Chemours Fayetteville Works (July 3, 2025), Attachment 23; Geosyntec Consultants, Assessment of Table 3+ PFAS in New Hanover, Brunswick, Columbus, and Pender Counties at 49 (Sept. 20, 2024), Attachment 24 (explaining that during flood conditions the Cape Fear River can influence groundwater and this is a likely route of groundwater PFAS contamination).
[152] *See* Anner Paldor and Holly A. Michael, *Storm Surges Cause Simultaneous Salinization and Freshening of Coastal Aquifers, Exacerbated by Climate Change*, 57 WATER RESOURCES RESEARCH 1 (2021) (noting that modeling has shown that storm surges cause saltwater to infiltrate into aquifers), Attachment 25.
[153] Lynker Report, *supra* note 4, at 11.
[154] *Id.* at 14.
[155] *Id.*

information about the scope and likely impacts to threatened and endangered species from dredging, and completely omits analysis about other vulnerable species.

i. Effects of Cascading Modeling Errors

As an initial matter, modeling assumptions throughout the DEIS taint the Corps' assessment of species impacts. If more ships will call at the Port than the Corps assumes, that will correspond to greater vessel strike risks as well as additional wake and erosion impacts that harm important habitat. Even if the Corps' assumptions that fewer but larger ships will call at the Port are correct, if the ships that do call at the Port are larger than the design vessel used in the Corps' modeling, those impacts would be correspondingly more severe. As is, ship wakes have directly harmed and washed away migratory waterbird nests—but the DEIS failed to consider such impacts at all. Such underlying flaws and assumptions taint the Corps' consideration of species impacts.

A particularly troubling example is the Corps' cursory dismissal of any harm to the critically endangered magnificent ramshorn, largely based on the Corps' current tidal and groundwater modeling. As described above, those models and consequent conclusions are flawed, meaning the Corps' conclusion that saltwater intrusion into the two lakes where the ramshorn may occur (and which are designated critical habitat) must be revisited as well. Indeed, the U.S. Fish and Wildlife Service recognized when it listed the magnificent ramshorn that dredging and consequent saltwater intrusion have long been threats to the species.[156]

Similarly, the DEIS downplays impacts to migratory waterbirds—including the federally threatened red knot and piping plover—largely based on its coastal erosion models and predictions. As explained in greater detail in the attached Lynker report, these analyses suffer from "critical methodological deficiencies that likely lead to an underestimation of key environmental risks."[157] These include how the Corps used an "uncalibrated model and misleading annualized metrics" to support its conclusion that erosion will decrease.[158] The flaws in that erosion discussion carryover to the consideration of waterbird impacts, which are heavily premised on the belief erosion will decrease. And assumptions about alleged beneficial use of dredged material regardless of its PFAS-contamination status means that those possible "benefits" to birds are likely overstated.

The cascading errors described in preceding sections about hydrodynamic modeling and water quality monitoring also taint the DEIS's consideration of habitat suitability, since those habitat suitability indices were developed based on those modeling results.[159] The habitat suitability indices models also contain their own unfounded assumptions, including completely

[156] Endangered Species Status for Magnificent Ramshorn and Designation of Critical Habitat, 88 Fed. Reg. 56471, 56476 (Aug. 18, 2023).
[157] Lynker Report, *supra* note 4, at 1.
[158] *Id.* at 2.
[159] U.S. Army Corps of Eng'rs, Wilmington Harbor 403 Letter Report Appendix H: Aquatic Habitat Suitability at 2-3 (2025).

removing substrate information for the Atlantic sturgeon models because "spawning habitat substrate is not expected to be impacted by the project."[160] This assumption is never justified and would seem to run counter to the impacts of increased dredging of such substrate and "established evidence that sturgeon eggs require clean gravel or sand for adhesion and oxygenation, and that fine sediment deposition can bury eggs."[161]

ii. Unexplained and Unexamined Dredging Impacts

First, the DEIS fails to indicate *when* dredging for project construction and maintenance will occur—which is critical to understanding the scope of impacts, as the Corps is well aware.[162] Dredging operations during sea turtle nesting season, for example, can be especially harmful as sea turtles approaching beaches to nest are vulnerable to being sucked into and killed by damaging hopper dredges. The Corps should commit to its traditional hopper dredging window of November 1 to April 30 to avoid sea turtle season and the consequent higher risk of sea turtle takes. At a minimum, even if the Corps refuses to adhere to this protective, science-backed seasonal window, the Corps must explain the time of year when the Corps will dredge for project construction in order to understand the consequent harm to sea turtles, sturgeon, and other species that can be maimed and killed by hopper dredges in particular.

Further, neither the DEIS nor the accompanying appendices make any attempt to disclose the number of turtle takes from dredging activities in Wilmington Harbor that has occurred in the past or is likely to occur in the future as a result of project construction. This not a difficult disclosure to make: the Corps has *decades* of its own, directly on-point data about takes of threatened and endangered species during dredging operations at Wilmington Harbor to inform this analysis.[163] Specifically, the Corps maintains the Operations and Dredging Endangered Species System, or "ODESS" website,[164] where it tracks listed species takes from dredging operations. That data shows that between the years of 1994 and 2020, more than 70% of the turtle takes occurred outside of the dredging window.[165] Yet the Corps does not provide or analyze any of this information in the instant documents. The website includes information about the time of year of the dredging and the amounts being dredged, all of which is relevant to understanding possible takes from the proposed project.

Next, the DEIS fails to provide information about the expected incremental increase in regular maintenance dredging as a result of the expanded navigation channel footprint post-construction. While the DEIS offers that maintenance dredging costs are expected to be $14 million annually, there is no information about how the volume of material dredged or the

[160] *Id.* at 12 (Attachment 1: HSI Methodology).
[161] Lynker Report, *supra* note 4, at 15.
[162] *E.g. Cape Fear River Watch v. United States Army Corps of Eng'rs*, 2022 WL 4468268 (E.D.N.C. 2022).
[163] *Id.* at *12 (noting the Corps had "substantial additional evidence in the record" regarding endangered species takes "that could be the subject of more robust analysis regarding potential effects on wildlife").
[164] *Operations and Dredging Endangered Species System (ODESS)*, U.S. ARMY CORPS OF ENG'RS, https://odess.usace.army.mil/ (last visited Nov. 2, 2025).
[165] *See, e.g.*, Letter from Andrew Hutson, Audubon North Carolina, to Emily Hughes, U.S. Army Corps of Eng'rs (Oct. 2, 2020), https://perma.cc/MB4L-BDLV (summarizing ODESS turtle take data).

number of days of dredging will increase during regular maintenance dredging operations post-project. This information about the effects of increased maintenance dredging is necessary to understand the full scope of increased risk to sea turtles, sturgeon, and other marine wildlife.

The Corps also cannot hide increases in expected take due to a larger maintenance dredged area by deferring to the South Atlantic Regional Biological Opinion ("SARBO"). Throughout the DEIS and the accompanying Biological Assessment for NMFS, the Corps refers heavily to the 2020 SARBO. In the DEIS, the Corps repeatedly states that "[i]mpacts from maintenance dredging would remain consistent with the determinations made in the 2020 SARBO . . . ."[166] But the now five-years-old 2020 SARBO never considered a larger Wilmington Harbor's maintenance dredging needs.[167]

Additionally, the SARBO is a programmatic review of a broad geographic scope and nature different than the project-specific analysis the Corps must conduct here.[168] The 2020 SARBO does *not* cover new project construction like the instant expansion. The 2020 SARBO itself admits that it provides only a high level, generalized review that requires later, project-specific review[169] In fact, at one point, the 2020 SARBO even highlights Wilmington Harbor as an example where certain mitigation measures may not be effective (due to its unique characteristics) and may lead to more unobserved sea turtle injuries and deaths, which underscores the need for a thorough project-specific analysis here.[170] Despite this, the Corps relies on the 2020 SARBO's general recommendations in its biological assessment prepared for NMFS—suggesting that they can satisfy the Corps' obligations for this NEPA process.[171] They do not. In this environmental review under NEPA, the Corps must disclose and assess the impacts that would be a direct result of the deepening—including increased risks to threatened and endangered species from project construction and increased maintenance dredging due to the expansion.

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[166] *E.g.*, DEIS, *supra* note 1, at 3-15 (regarding sea turtles), 3-16 (regarding impacts to Giant Manta Ray).
[167] *See* U.S. Army Corps of Eng'rs, *South Atlantic Regional Biological Opinion for Dredging and Material Placement Activities in the Southeast United States* at 17–18 (2020) ("While it is anticipated that activities covered by this Opinion will continue to occur with the same frequency and volume as they have historically . . . .") [hereinafter "SARBO"].
[168] *Id.* at 13 ("NMFS uses programmatic consultations to evaluate the effects of authorizing certain categories of frequently occurring activities . . . where the specifics of any individual future project . . . are not definitely known at the time of the programmatic consultation[.]").
[169] *Id.* at 69 (explaining the Corps must "conduct a project-specific review of all project details to ensure compliance with all applicable PDCs" prior to authorizing an activity under the SARBO).
[170] *Id.* at 330 (explaining how hopper dredging mitigation techniques are ineffective at Wilmington reducing the ability to observe and prevent take of endangered species).
[171] *E.g.* U.S. Army Corps of Eng'rs, Wilmington Harbor 403 Letter Report Appendix N: Environmental Compliance Documentation at 20 ("The project will follow Project Design Criteria that are included in the SARBO as described by species in Section F.5 below."), 44–45 ("Section 5 identifies the effects that may occur as a result of the activities covered under this assessment in Section F.2, *as described and limited by the PDCs from the 2020 SARBO.*" (emphasis added)).

iii. Missing Species Analyses

The DEIS also fails to account entirely for impacts to specific listed and unlisted but vulnerable species.

As noted in previous comments, the U.S. Fish and Wildlife Service listed the eastern black rail as threatened under the Endangered Species Act ("ESA") in 2020.[172] And yet the DEIS and corresponding FWS consultation appendix do not mention the bird at all. The Eastern black rail is a notoriously secretive marsh bird that has historically been found in the Wilmington area.[173] Indeed, the draft recovery plan for the Eastern black rail indicates that the entire coast of North Carolina—including the Wilmington and Lower Cape Fear area—is within the current range of the Eastern black rail.[174] Under both NEPA and the ESA, the Corps should consider impacts of the harbor expansion to this rare, imperiled bird.

As for species that are not listed under the ESA, the DEIS does little more than provide a list of some species that inhabit the project area and then conclude mammalian species specifically would be able to move away from the destroyed habitat to other nearby habitat, some habitat might be affected by salinity changes, and beach placement would "provide protection to the beach and dune systems."[175] The DEIS makes no mention of what the many non-mammalian species could expect in terms of direct effects, and doesn't address whether there is even suitable adjacent habitat for those mammalian species to move to. Further, the list of species is incomplete and fails to include species that commenters have specifically raised in the past, like the rare skipper,[176] Venus flytrap, or the increasingly imperiled diamondback terrapin, a state-listed Species of Greatest Conservation Need in North Carolina that is known to be threatened by harbor dredging.[177]

Questions

- How much will maintenance dredging needs increase in terms of volume of material dredged and likely days of dredging?
- What environmental window will the Corps adhere to for hopper dredging associated with project construction?
- How many federally protected sea turtles and sturgeon does the Corps anticipate taking as a result of project construction? Does the Corps have species take data from the last deepening, and if so, what does it show?

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[172] *See* SELC, 2023 Early Scoping Comments, *supra* note 3, at 10; SELC, 2024 Scoping Comments, *supra* note 3, at 11.
[173] eBird Range Data, "eBird Screenshot 2025-10-28 111610," Attachment 26 (showing known occurrences in Wilmington area); eBird New Hanover Bird List at 25, Attachment 27.
[174] U.S. Fish & Wildlife Serv., *Draft Recovery Plan for Eastern Black Rail* at Figure 1 (2025), Attachment 28
[175] DEIS, *supra* note 1, at 3-80.
[176] *See* 2023 Scoping Comments, *supra* note 3, at 11; 2024 Scoping Comments, *supra* note 3, at 11.
[177] Theodore Castro-Santos et al., *Assessing risks from harbor dredging to the northernmost population of diamondback terrapins using acoustic telemetry*, 42 ESTUARIES & COASTS 378 (Nov. 29, 2018), Attachment 29.

- Why does the Corps not acknowledge direct loss of migratory birds' eggs and chicks from ship wakes and other project-related impacts?
- Did the Corps consider and compare impacts from the last deepening on habitat and species?

e. Air Quality

The Ports Authority has made repeated statements about growing the Wilmington Port in order to accommodate "growth of cargo volumes, expanding the global coverage of vessel services [and] engaging and supporting state-wide economic development projects."[178] Refrigeration yard and railway expansion projects are already underway.[179] Moreover, the Ports Authority has stated that harbor deepening specifically would result in a more efficient Port that would "attract more import and export business"[180] and has noted that a key objective of the harbor deepening would be to "accommodate recent and anticipated growth in cargo vessel traffic."[181]

As addressed earlier, the Corps' baseline assumption for the Project–that the deepening would not result in an increase of ships or tonnage–is incompatible with statements made by the Ports Authority and other projects being completed at the Port. The baseline assumption of no net growth is also incompatible with the experiences of other southeastern ports that underwent deepening projects. Savannah,[182] Charleston,[183] and Norfolk[184] have all experienced an increase in the amount of cargo and ships after deepening projects were completed. This assumption has led the Corps to the conclusion that this Project "would result in less ships coming into the Wilmington Port, causing indirect effects to air quality by decreasing vessel emissions over

[178] Statements by Stephanie Ayers, Wilmington Urban Area Metropolitan Planning Organization Board Meeting Minutes at 4 (May 29, 2024), Attachment 30.
[179] Mara McJilton, *Port of Wilmington expands refrigeration yard, adds cold treatment facility at Lewis Nursery and Farms to increase imports of fresh produce*, WECT NEWS 6 (Dec. 13, 2023), https://perma.cc/DT76-VNUU, Attachment 31; *and* Emma Dill, *Port's Intermodal Rail Yard Project on Track for 2026 Completion*, WILMINGTONBIZ (May 12, 2025), https://www.wilmingtonbiz.com/ports_intermodal_rail_yard_project_on_track_for_2026_completion/2025/05/12/ports_intermodal_rail_yard_project_on_track_for_2026_completion/26551, Attachment 32.
[180] *Harbor Enhancement*, NORTH CAROLINA PORTS, https://perma.cc/Y77T-9CZM (last visited Oct. 16, 2025).
[181] *Id.*
[182] *Container volumes up 12.5% compared to last year*, GEORGIA PORTS (Feb. 25, 2025), https://perma.cc/WWT6-6ZS3 (noting that Savannah saw an increase of over 600,000 TEUs in one year and the port intends to add three large ship berths to accommodate an increase in large ships calling to the port, all after deepening was completed in 2022), Attachment 33.
[183] Claire Weber, *'Big deal!': Charleston Harbor deepening project complete with final $21.26M funding*, ABC 4, (Aug. 18, 2025), https://abcnews4.com/newsletter-daily/big-deal-charleston-harbor-deepening-project-complete-with-final-2128m-funding-lindsey-graham-south-carolina-port-authority-barbara-melvin-east-coast-wciv-abc-news-4-8-18-2025 (noting that after the deepening project was completed, the Charleston port saw an increase from 25 to 28 services per week), Attachment 34.
[184] Elizabeth Lake, *Port of Virginia channel widening boosts ship traffic*, VIRGINIA BUSINESS (April 30, 2025), https://perma.cc/T9N3-LMXF (noting that the Port of Virginia has seen cargo volume increase by 2% and ship calls increase by 5% since the deepening project only a year prior), Attachment 35.

time."[185] History shows that port deepening projects lead to an increase in traffic. The Corps must square this conclusion with these comparable results at other ports and the Port Authority's own statements on this project. Further, the Corps should model how air quality may be impacted by induced growth caused by this project.

Questions

- How does the Corps reconcile the baseline assumptions of this project—that there will not be an increase of ships into the Wilmington Port—with the history of port expansions in the southeast?
- Similarly, how does the Corps reconcile that this Project will not lead to an increase in ships with the North Carolina Port Authority's advertisement of this project as prompting an expansion of vessels and cargo?

f. Community Impacts and Cultural Resources

The Wilmington and the Lower Cape Fear River region have likely been continually occupied by humans since 10,000 BP (before present).[186] Indigenous people have hunted, farmed, and foraged within the region for millennia. European colonization of the region began in the 16th century, which eventually saw the rise and growth of the Cape Fear region into the Revolutionary War and serving as an important port city during the Civil War.[187] For over 10,000 years, Wilmington and the Lower Cape Fear region have been central locations for cultural and historic moments that have shaped the region. Seven sites along the Cape Fear are currently listed in the National Register of Historic Places.[188] Moreover, archeological research has unearthed countless artifacts that reflect the long history of the Cape Fear.[189] And the Gullah Geechee Cultural Heritage Corridor, a Congressionally designated Natural Heritage Area[190] recognizing the important historic and cultural contributions of the Gullah Geechee people, encompasses the Wilmington area.[191]

Under the National Historic Preservation Act, federal agencies are required to "take into account the effects of their undertakings" on historic resources.[192] Section 106 requires the federal agency to consult with the state historic preservation officer, Indigenous tribes, local governments, and individuals who have an interest in the property.[193] The federal agency must

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[185] DEIS, *supra* note 1, at 3-71.
[186] *Id.* at 3-30.
[187] *Id.*
[188] *National Register Database and Research*, NAT. PARK SERV., https://perma.cc/5XE6-E3QD (last visited Oct. 28, 2025); *see also* DEIS, *supra* note 1, at 3-32.
[189] *See, e.g., Archaeologists discover four at-risk shipwrecks on colonial waterfront at Brunswick Town/Fort Anderson Historic Site*, ECU (Aug. 4, 2025), https://perma.cc/9PSK-59HE.
[190] 54 U.S.C. § 120102 (b).
[191] *Gullah Geechee Cultural Heritage Corridor*, NAT. PARK SERV., https://www.nps.gov/places/gullah-geechee-cultural-heritage-corridor.htm (last visited Oct. 31, 2025); *Who we are*, GULLAH GEECHEE CULTURAL HERITAGE CORRIDOR, https://perma.cc/KHN6-E5WT (last visited Nov. 3, 2025).
[192] 36 C.F.R. § 800.1(a).
[193] *Id.* § 800.2(c).

first identify the historic properties[194] and then assess whether their project will result in adverse effects to that property.[195] Agencies typically do this as part of their NEPA review, which then gives the public an opportunity to review and comment on the affected historic resources.

Here, however, the Corps has not yet identified the historic properties nor conducted any review of potential effects to these resources because of alleged "[b]udget and schedule constraints."[196] The Corps has instead deferred the requirements of the NHPA to the pre-construction, engineering, and design phase.[197] Doing so, however, deprives the public of an opportunity to provide meaningful feedback on possible effects to historic resources. Once the Corps has completed the required review and consultations, it should disclose the results to the public with an opportunity for comment.

Further, the Corps has failed to acknowledge possible impacts to the Gullah Geechee Cultural Heritage Corridor. When Congress established the Corridor, it directed federal agencies to consult with the National Park Service and the Gullah Geechee Cultural Heritage Corridor Commission when "conducting or supporting activities directly affecting the Heritage Corridor."[198] We urge the Corps to engage in the necessary coordination to ensure the project "will not have an adverse effect on the Heritage Corridor."[199]

Finally, the Corps should consider impacts to lower income and communities of colors surrounding the Wilmington Harbor. All of the census tracts bordering the Port, particularly those east of the Cape Fear River, rank "high" on CDC's social vulnerability index, with high rates of poverty and high rates of uninsured.[200] Most of these census tracts also rank high on the health vulnerability index. The census tract south, downstream of the Port, has a high prevalence of asthma, coronary heart disease, and diabetes.[201] The communities in this area are burdened with dozens of existing polluting facilities, including multiple pre-regulatory landfill sites and dozens of hazardous waste sites.[202] Numerous air polluting facilities operate or store materials nearby, including asphalt and cement companies, oil and gas companies, and a wood pellet manufacturer.[203] Due to these cumulative impacts and vulnerabilities, the Corps should consider, at a minimum, the disproportionate impacts to these communities from increased land-based

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[194] *Id.* § 800.4(b).
[195] *Id.* § 800.5.
[196] DEIS, *supra* note 1, at 3-32.
[197] *Id.*
[198] National Heritage Areas Act of 2006, Pub. L. No. 109-338, § 295H, 120 Stat. 1783.
[199] *Id.*
[200] *See Place and Health – Geospatial Research, Analysis, and Services Program (GRASP)*, ATSDR, https://www.atsdr.cdc.gov/place-health/php/eji/eji-explorer.html (last visited Oct. 31, 2025) (search 2202 Burnett Blvd, Wilmington, NC, 28401 into left-hand search box; click through census tracts around port).
[201] *See id.*
[202] *See Environmental*, N.C. ENV'T JUSTICE HUB, https://perma.cc/W5RL-D4F5 (last visited Oct. 31, 2025) (turn on all layers; search 2202 Burnett Blvd, Wilmington, NC, 28401 into the right-hand search box; click colored parcels that appear on map).
[203] *Id.*

traffic, toxic air pollution, water quality impacts, and potential displacement as a result of induced growth from the harbor expansion.[204]

Questions

- Why didn't the Corps delay publication of the DEIS until it could complete the required National Historic Preservation Act consultation and provide the public an opportunity to provide feedback during this NEPA process?
- Why did the Corps not consider how the expansion might affect the Gullah Geechee Cultural Heritage Corridor?

VII. The DEIS Provides Inadequate Mitigation Measures Under the Water Resources Development Act

The Water Resources Development Act ("WRDA") requires that "any water resources project" submitted to Congress for authorization must contain "a recommendation with a specific plan to mitigate for damages to ecological resources, including terrestrial and aquatic resources, and fish and wildlife losses created by such project" or a determination that the project will not negatively impact "ecological resources."[205] Mitigation plans must contain, "at a minimum," (1) a monitoring plan to ensure the success of the mitigation, (2) "the criteria for ecological success," (3) what land will be acquired for the mitigation plan, (4) the "types and amounts" of restoration to be done and the "functions and values" that will result, and (5) a contingency plan should the mitigation be ineffective.[206] Corps guidance further states that mitigation should be designed so that a project plan "will not have more than negligible adverse impacts on ecological resources."[207] Here, the DEIS proposes four mitigation sites for "unavoidable wetland and aquatic impacts."[208]

a. The mitigation measures are insufficient to address wetland loss and conversion.

If a project is expected to impact wetlands, Corps guidance urges that wetland impacts be "fully mitigated" with a goal of "no net loss to wetlands."[209] At the outset, the Corps' calculations make unfounded assumptions that the number of wetlands lost by this project will be precisely cancelled out by wetlands gained elsewhere.[210] The Corps calculates that the loss of 1,275 acres of tidal fresh and oligohaline wetlands will be conveniently replaced by 1,276 acres of mesohaline, polyhaline, and euhaline wetland types.[211] Given the rapid development in the

[204] *See* SELC, 2023 Early Scoping Comments, *supra* note 3, at 12.
[205] 33 U.S.C. § 2283 (d)(1).
[206] Water Resources Development Act, Pub. L. No. 110-114, §§ 2036(b)(i)–(v) (2007).
[207] Planning Guidance Notebook, *supra* note 80, at C-15 to C-16 (2000).
[208] DEIS, *supra* note 1, at 2-19.
[209] *Planning Guidance Notebook*, *supra* note 80, at C-17.
[210] DEIS, *supra* note 1, at 3-56.
[211] U.S. Army Corps of Eng'rs, Wilmington Harbor 403 Letter Report Appendix I: Wetland Impact Assessment and 404(b)(1) at I-6 (2025).

area, sea level rise, and impacts from climate change at large, it cannot be assumed that wetlands will easily replace themselves as the Corps' calculations assume.

Even accepting this dubious assumption that there will be no net loss in total wetlands, the Corps' own calculations show a stark loss of wetland types important for fish and biological diversity and a loss in functional value.[212] The transition to higher salinity wetland types is linked to an increase in invasive species (such as phragmites), a decrease in native species, and a decrease in regeneration and recruitment of fish.[213] The Corps' presented mitigation efforts, however, are insufficient to address this projected conversion and the cascading effects that would accompany it.

The DEIS presents two primary mitigation strategies and sites: conservation of the Black River corridor and habitat restoration and enhancement of Eagle Island/Alligator Creek.[214]

First, the Corps proposes to conserve 553 acres of old-growth swamp forest in the Black River Corridor.[215] While we acknowledge that the preservation of old-growth forest is vitally important for habitat connectivity and water quality, the proposal suffers from two primary deficiencies. One, the acreage conserved is insufficient given the loss of over 1,000 acres of freshwater wetlands, even when combined with the restoration and enhancement measures described below. Additionally, the Corps does not present criteria for ecological success as required by WRDA for mitigation plans. Instead, the Corps states that criteria is not needed because "mitigation is restricted to the preservation of wetlands."[216] We urge the Corps to create criteria that can aid in the most effective conservation of the Black River Corridor.

The DEIS also presents Eagle Island/Alligator Creek as a restoration and enhancement site of approximately 120 acres. One strategy presented is the removal and replacement of phragmites, an invasive and aggressive reed grass that displaces native plant species. There are several deficiencies with this proposal. Although the site is approximately 500 acres and contains roughly 300 acres of phragmites-dominant wetlands, the DEIS mitigation strategy is the removal of phragmites in an approximately 24-acre area of the site.[217] Given how aggressively phragmites can regrow, it is highly unlikely the removal of only a small portion of the plant's footprint at the site will be successful.

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[212] *Id.* at I-15.
[213] *Id.* at I-16.
[214] DEIS, *supra* note 1, at 2-19.
[215] U.S. Army Corps of Eng'rs, Wilmington Harbor 403 Letter Report Appendix M: Wetland and Fish Passage Mitigation Plan at M-27 (2025).
[216] *Id.* at M-49.
[217] *See id.* at M-23 (stating that the Eagle Island/Alligator Creek site "comprises 588 acres across five parcels. . . . and consists of approximately 384 acres of Phragmites marsh.") and DEIS, *supra* note 1, at 3-28 (noting that the "removal of approximately 24 acres of low quality, invasive phragmites stands and replacement with tidal pools and native vegetation" would have "beneficial incidental impacts.").

Moreover, the mitigation strategy envisions subsequent herbicide treatments to control phragmites returning.[218] To begin with, neither the DEIS nor the Appendix provide any information as to the type of herbicide that will be applied to the site. Herbicide can be harmful to ecosystems; especially given that the site could be utilized by sensitive species like the piping plover, red knot, and American alligator,[219] the Corps must provide further information on the herbicide that may be applied on the site.

Further, the DEIS and Mitigation Appendix state that the herbicide will be "reapplied as necessary,"[220] but details buried in an attachment to the Mitigation Appendix estimate the cost based solely on two herbicide applications being conducted one year apart.[221] This reapplication schedule would be insufficient to control the spread of phragmites in the site. The mitigation plan should take a long-term, holistic view of phragmites control into account in order to appropriately design and estimate the costs of this project and meet the requirements of WRDA. Finally, the Appendix also fails to provide a plan should the mitigation efforts be unsuccessful—an important requirement of WRDA. As such, the Corps must develop a robust contingency plan should the mitigation strategy fail.

The mitigation measures for wetland loss are not adequate to address the loss of ecologically more functional wetlands within the range of the project. Nor do these mitigation measures satisfy the Corps' objective of "no net loss of wetlands" when developing mitigation strategies.[222] Thus, the Corps should consider more robust, effective mitigation measures for wetland conversion that will truly result in no net loss of wetlands.

b. The mitigation measures are insufficient to address impacts to aquatic resources.

The other two sites, Lock and Dam 1 & 2 Fish Passages, are aquatic habitat improvement sites intended to mitigate impacts to "primary and secondary nursery habitats, essential fish habitat, and critical habitat."[223] The Corps calculates that this project will result in a 4.5% net decrease in available habitat for important fish species, including the Atlantic sturgeon, blueback herring, and the striped bass.[224] To offset some of the harms to fish species that actually are acknowledged in the DEIS, the Corps includes mitigation plans that would involve creating fish passage structures at the first two dams on the Lower Cape Fear River.

While we appreciate the possibility of facilitating fish passage around these barriers to natural fish migration, the DEIS and accompanying appendix only provides very high-level review and design concepts that call into question the efficacy of the proposed measures—and fail to meet the requirements of preparing mitigation plans under WRDA. It's not clear that the

[218] Appendix M, *supra* note 215, at M-44.
[219] *Id.* at C.3 (Appendix C).
[220] *Id.* at M-44.
[221] *Id.* at C.3 (Appendix C).
[222] *Planning Guidance Notebook*, *supra* note 80, at C-17.
[223] DEIS, *supra* note 1, at 2-20; Appendix M, *supra* note 215, at M-10.
[224] Appendix M, *supra* note 215, at M-20 (Table 9).

Corps even did any field work to assess the feasibility of the proposed bypass measures. And the Corps does not provide any analysis to establish the proposed measures would be appropriate for all target species. The Corps cannot ensure the likely success of these proposed bypass measures if it does not demonstrate whether these measures would even work.

Even so, the limited design details raise questions as to their functions and value. For example, for Lock and Dam 1, the Corps proposes to use an existing ditch that enters the river several thousand feet downstream of the dam that would then connect to the proposed bypass structure upstream of the dam. But the Corps apparently does not even know if the target fish species swim into the ditch,[225] calling into question whether fish would even use the bypass, especially since the entry would be several thousand feet downriver from the dam. It is also not clear how deep the bypass would be, which is a critical consideration for sturgeon which are benthic and require deeper waters to travel.

The Corps seems to be taking an approach of building the aquatic mitigation measures first and seeing if they will even work later, rather than creating a mitigation plan that is designed for success from the start. For example, the proffered ecological success criteria—"evidence of target species using bypass channel" and "the rock rapid structure"—are aimed at a threshold question of whether these are even viable mitigation measures to consider. Further, they contain no connection back to the quantified "lost functions and values of the habitat", [226] any consideration of *how many* fish would be using the measure, or even whether the measures will successfully enable and encourage fish to travel upstream.[227] In other words: as drafted, spotting a single sturgeon in the bypass channel might meet this criterion.

The Corps should conduct appropriate field review in addition to providing additional design details and reasons about why they believe the proposed measures would actually benefit sturgeon, shad, bass, and other target fish species.

Questions

- Why did the Corps decide to provide wetland mitigation that did not equal the number of wetlands projected to be lost due to the Project?
- What type of herbicide would be used in the phragmites treatment area?
- Why does the phragmites mitigation plan only include 24 acres of a 500-acre area?
- Given how aggressive phragmites grow, why do the calculations for the cost of the mitigation area only include two years of treatment?

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[225] *Id.* at M-39 (stating without any elaboration that "it is assumed the target species are already swimming into the ditch from the river.").
[226] *See* 33 U.S.C. § 2283(d)(3)(B) ("the criteria for ecological success by which the mitigation will be evaluated and determined to be successful based on replacement of lost functions and values of the habitat, including hydrologic and vegetative characteristics").
[227] 33 U.S.C. § 2283 (d)(3)(B)(v)(III) (mitigation plans must contain a description of "the functions and values that will result from the plan").

- Why did the Corps not include ecological success criteria for the Black River Corridor site?
- Did the Corps conduct any studies as to whether target fish species would use the proposed fish passages?

VIII. Conclusion

The Draft Letter Report and Draft EIS reveal that this project is likely infeasible, unnecessary, and extraordinarily damaging to the environment. The costs of this harbor expansion continue to climb as the alleged need and purported benefits simultaneously dwindle. On top of the questionable economic considerations, the project would come with a host of permanent harms to the natural environment of the Lower Cape Fear, cherished by locals and tourists alike. As the DEIS acknowledges, "unacceptable" effects include "adverse impacts that would not be tolerated by regulatory agencies, the local community, or society in general."[228] Between the meager, unjustified project benefits and the burden to local communities from flooding and other environmental damage, this project is hardly "acceptable." The Corps must go back to the drawing board to justify the escalating costs of the project against the questionable benefits and rectify the many errors and omissions in the economics and environmental analyses identified above. The stakes are too high to push forward this damaging and expensive project without that thorough, honest assessment.

We appreciate the opportunity to provide comments regarding the proper scope for the Corps' NEPA analysis and 403 Letter Report. We look forward to remaining engaged with the Corps and other agencies through the environmental review process. If you have any questions regarding this letter, please contact us at 919-967-1450 or *hnelson@selc.org*.

Sincerely,

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[228] DEIS, *supra* note 1, at 2-3.

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Attachments available at the following links:

- Attachments for SELC's 2025 DEIS Comments:
https://southernenvironment.sharefile.com/d-s22d1dc0b55564813bf2147d6e6e7873b

- Attachments for SELC's 2024 Scoping Comments:
https://southernenvironment.sharefile.com/d-s14b473447fbb4d0d8bf582eba0dd30e2

- Attachments for SELC's 2023 Early Scoping Comments:
https://southernenvironment.sharefile.com/d-sfbe078fed9234ccdb28ffbe5733a4773

- Attachments for SELC's 2019 Scoping Comments are provided in Attachment 1 of this letter.