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MEMORANDUM

TO: Cameron Luck, NC DCM Policy Analyst and Federal Consistency Coordinator
FROM: Derek Detweiler, NC DMF Fisheries Resource Specialist
SUBJECT: Federal Consistency Determination, Wilmington Harbor 403 Navigation Project, New Hanover and Brunswick Counties, North Carolina
DATE: January 14, 2026

The North Carolina Division of Marine Fisheries (hereafter NC DMF or the Division) has reviewed the Federal Consistency Determination for the Wilmington Harbor 403 Navigation Project for actions that will impact fish and fish habitat under the NC Coastal Area Management Act (CAMA), NC Dredge and Fill Law, and associated rules of the NC Coastal Resources Commission. The Division previously reviewed the Draft Letter Report and Environmental Impact Statement (EISX-202-00-K7P-1755163795) associated with this project and submitted detailed comments and recommendations (summarized in Appendix A) to the U.S. Army Corps of Engineers (USACE) Wilmington District on November 17, 2025.

Aside from the No Action Alternative, the USACE has proposed to deepen and widen the existing Wilmington Harbor Federal Navigation System (FNS) primarily from current authorized depths of –42 ft. Mean Lower Low Water (MLLW) to either –47 ft. MLLW (Action Alternative 1; Preferred) or –46 ft. MLLW (Action Alternative 2). Both alternatives include a proposed extension and deepening of the existing entrance channel from current authorized depths of –44 ft. MLLW to –49 ft. MLLW (Action Alternative 1) or –48 ft. MLLW (Action Alternative 2). This project is primarily located along the Cape Fear River in New Hanover and Brunswick Counties, North Carolina.

Pursuant to North Carolina General Statute 113-131(b), NC DMF has the authority to evaluate projects that may affect public trust resources so as to conserve and protect public trust rights. The following comments pertain to both action alternatives, their associated impacts to fisheries habitats (nursery and anadromous fish spawning areas, wetlands, submerged aquatic vegetation, shellfish, and the water column), and proposed mitigation plans (informed by Habitat Suitability Indices, HSI and the Uniform Mitigation and Assessment Method, UMAM) that fall specifically within jurisdictional waters.

Nursery and Anadromous Fish Spawning Areas. The Cape Fear River and its tributaries are characterized by state-designated Primary Nursery Area (PNA) [15A NCAC 03R.0103(19)],

Secondary Nursery Area (SNA) [15A NCAC 03R.0104(11)], and / or Anadromous Fish Spawning Area (AFSA) [15A NCAC 03R.0115(25)] depending on location along the estuarine salinity gradient. State-designated nursery areas are characterized by estuarine waters and shallow, soft bottom substrates that support the early post-larval and juvenile development of many ecologically and economically valuable finfish and shellfish species. Anadromous fish are those that migrate from ocean waters to upstream riverine systems to spawn, and AFSAs are characterized by water bodies for which there is historic evidence of fish spawning through direct observation, the collection of running ripe females, or the presence of eggs and early larvae from species such as American and hickory shad, American eel, striped bass, river herring, and both Atlantic and shortnose sturgeon.

Deepening and widening the Wilmington Harbor FNS will have significant adverse impacts to and result in the permanent loss of PNA, SNA, and AFSA. Proposed mitigation for these impacts includes the construction of fish passage structures (e.g., excavation of a bypass channel and creation of riffle and pool complexes with rip-rap fill at Lock and Dams 1 and 2, respectively) to promote anadromous fish spawning in historic grounds. However, this plan is not sufficient as it does not specify quantifiable target metrics for evaluating the success of the proposed fish passage structures. Evidence that target species use the structures fulfills performance standards, but it is unclear the abundance or diversity of species that would be considered successful. Moreover, no mitigation was proposed specifically for the permanent loss of PNA and SNA.

Acceptable mitigation plans should be developed in collaboration with state resource agencies to ensure projects are designed for optimal success. For example, an adaptive management plan is needed in case target metrics are not met. An acceptable mitigation plan should also incorporate, at minimum, the range of potential areal impacts to AFSA from rock blasting in the upper reaches of the Cape Fear River. Lastly, mitigation at Lock and Dam 3 or complete lock and dam removal would better ensure access to historic spawning grounds for anadromous species.

Wetlands. The Cape Fear River is characterized by non-tidal forested wetlands, tidal freshwater wetlands, and brackish coastal wetlands along the entire estuarine salinity gradient. Wetlands are among the most ecologically and economically important ecosystems in the world. Even when areal coverage is small, these biodiverse and highly productive ecosystems provide nursery habitats for commercially important finfish and shellfish; aid in shoreline stabilization and erosion control; dissipate wave action and flood damage particularly during storm events; and enhance water quality through nutrient and pollutant retention (Barbier et al. 2011). Environmental perturbations can therefore reduce habitat area, health, function, and the subsequent ability to perform the critical ecosystem services discussed above.

Deepening and widening the Wilmington Harbor FNS will have major, indirect impacts to wetlands within state-designated nursery and anadromous fish spawning areas due to dredging-

induced saltwater intrusion. Proposed mitigation for these impacts includes 1) the preservation of forested freshwater wetlands, and 2) the restoration of a brackish marsh area on Eagle Island via excavation of the invasive common reed *Phragmites australis*, creation of tidal pools, and planting of native wetland vegetation. However, this plan is not sufficient to completely offset habitat impacts without knowing mitigation success or accounting for uncertainty associated with HSI and UMAM model results, including the use of model outputs (and associated error) as data inputs for subsequent models.

While *P. australis* is an invasive, widespread marsh plant that outcompetes native species, its complete eradication requires consistent and rigorous effort over several growing seasons to combat persistent biomass growth associated with belowground rhizomes (Rohal et al. 2019; Hazelton et al. 2014). NC DMF also has concerns with the proposed use of herbicides to facilitate eradication given the constant exchange of tidal waters between Eagle Island and the Cape Fear and Brunswick Rivers. The application of herbicides to saturated and tidally influenced wetlands may have uncertain impacts on water quality. Wetlands vegetated with *P. australis* also provide many of the same ecosystem services, sometimes at higher capacities, as native *Spartina alterniflora* marshes (Yacano et al. 2022; Sheng et al. 2021; Theuerkauf et al. 2017; Kiviat 2013). While NC DMF supports the removal of invasive species given other negative ecological trade-offs (Dibble et al. 2013; Meyerson et al. 2000), alternative wetland mitigation approaches that aim to restore and enhance degraded habitats would better address agency concerns, including considerations outside the exclusive preservation of forested freshwater wetlands. Combined sea level rise and channel deepening may also cause areal loss (e.g., decrease in surface elevation and drowning) in addition to functional loss. Therefore, impacts to wetlands along the Cape Fear River may be underestimated.

While not proposed as mitigation, the draft EIS includes plans to beneficially use a portion (approximately 46%) of all dredged material for a combination of projects including intertidal mudflat creation. This plan falls well below the USACE Beneficial Use of Dredge Material (BUDM) Program and Command Philosophy Notice that aims to beneficially use at least 70% of dredged material by 2030 (Spellmon 2023). This goal could be leveraged by exploring additional opportunities for wetland and island creation and enhancement, and other novel beneficial uses of dredge material that enhance fisheries habitats. These projects would be most successful with appropriate containment or stabilization structures such as wetland vegetation plantings and intertidal sill structures, especially along shorelines susceptible to erosion and sediment loss.

Submerged Aquatic Vegetation. Broad flats of slender naiad (*Najas gracillima*) and other low-salinity SAV species have been reported by NC DMF and the National Marine Fisheries Service along the Brunswick River shoreline and its tributaries (e.g., Hackney and Brady 1996). Naiads are recognized as DMF fish habitat areas that support forage species utilized in the food chain and the entire life cycle of developing juvenile and adult populations of fish [15A NCAC 03I.0101(4)(i)]. Naiads are typical of tidal freshwater and oligohaline environments, and while they may

periodically tolerate more oligohaline or brackish conditions, long-term impacts associated with persistent increases in salinity are unknown (Moore 2012 and references therein; Brush and Hilgartner 2000). Deepening and widening the Wilmington Harbor FNS may have significant adverse impacts on low-salinity SAV, though the draft EIS does not address these potential impacts. Since there is limited information about the distribution of SAV and its salinity tolerance in Cape Fear River tributaries, it is necessary to evaluate potential SAV loss (and associated plans for mitigation) due to dredging-induced saltwater intrusion.

Shellfish. Oyster beds are an extremely productive, self-building three-dimensional habitat that exhibit high water filtration capacities, support diverse invertebrate and fish communities, and are therefore susceptible to negative impacts from sediment re-suspension and burial (Grabowski et al. 2012; Wilber and Clarke 2010). Deepening and widening the Wilmington Harbor FNS may encroach close to and therefore impact established oyster beds in the lower Cape Fear River, though the proposed distance between the two is not clear (see draft EIS Appendix J-14). Dredging in such close proximity to shallow bottom shell habitat can destabilize oyster beds and reduce total habitat area. No evidence was provided in the draft EIS to suggest that appropriate buffers will be maintained to avoid impacts to shellfish resources. Moreover, no mitigation was proposed in the event of habitat loss.

Water Column. The Cape Fear River has experienced significant inputs of per- and polyfluoroalkyl substances (PFAS) since the early 1980s. Though only detected ten years ago (Sun et al. 2016), recent work suggests that PFAS and other emerging contaminants have accumulated over several decades in a wide variety of organisms and environmental media (Ehsan et al. 2023). In 2023, the North Carolina Department of Health and Human Services (NC DHHS) issued a consumption advisory for freshwater fish in the lower and middle Cape Fear River due to PFAS accumulation in fish tissue (https://www.ncdhhs.gov/news/press-releases/2023/07/13/ncdhhs-recommends-limiting-fish-consumption-middle-and-lower-cape-fear-river-due-contamination). State testing by the North Carolina Department of Environmental Quality (NC DEQ) and Wildlife Resources Commission (NC WRC) has confirmed similarly concerning PFAS concentrations in recreationally and commercially important DMF-managed saltwater fish in the lower Cape Fear River. These results were recently presented to the NC Secretaries' Science Advisory Board (Nilsen 2025).

Due to the Cape Fear River's history with PFAS contamination, deepening and widening the Wilmington Harbor FNS may have significant adverse impacts on water column habitat. However, the draft EIS does not address these impacts. Characterizing sediments that may be sequestering PFAS is necessary to determine potential effects of re-suspension on the concentration, distribution, and fate of PFAS and other contaminants within the project area. Ultimately, the re-suspension of contaminated sediments would not only affect water quality and potential rates of bioaccumulation, but it would also continue affecting drinking water sources and community well-being in the Cape Fear region.

Cumulative Impacts to Fisheries Resources. Deepening and widening the Wilmington Harbor FNS will have cumulative impacts to fisheries resources over time that were not addressed in the draft EIS. Proposed mitigation activities were determined based on immediate, post construction habitat impacts but do not consider long-term implications of increased vessel capacity, industrial activities, annual maintenance dredging, or the addition and expansion of cargo terminals expected with commercial growth (at least one of which has already initialized the permitting process). The draft EIS assumes that total cargo volume will not increase due to larger draft capacities and the subsequent reduction in transits by smaller vessels. However, the proposed actions may incentivize additional cargo and transit volume given the cost savings motivating the project. Future operations associated with the Wilmington Harbor FNS may therefore contribute to additional degradation or loss of fisheries habitats.

Overall Assessment. Fisheries resources within PNA, SNA, and AFSA collectively provide food, protection, and optimal environmental conditions during vulnerable life history stages and are therefore highly sensitive to physical disturbances. The protection and preservation of these areas are critical for the long-term growth and survival of many fish species, and state regulations prohibit new or expanded dredging specifically within PNA [15A NCAC 07H.0208] unless proposed actions are appropriately mitigated for and have public benefits that outweigh adverse environmental impacts. It is therefore the position of NC DMF that the proposed actions associated with deepening and widening the Wilmington Harbor FNS and as outlined in the Draft Letter Report and EIS will have significant adverse impacts to fisheries resources due to the permanent loss of state-designated nursery and anadromous fish spawning areas along the Cape Fear River estuary and its tributaries. There is also potential for significant adverse impacts to wetlands, SAV, shellfish resources, and water column habitat due to insufficient mitigation plans and uncertain impacts associated with the proposed actions that are not adequately discussed in the Draft Letter Report and EIS.

Thank you for the opportunity to comment. Please contact Derek Detweiler at (910) 796-7286 or derek.detweiler@deq.nc.gov with further questions or concerns.

Appendix A: Summary of DMF comments and recommendations provided to the USACE for the Wilmington Harbor 403 Navigation Project. Previously submitted on November 17, 2025.

#	Category	Recommendation Summary
1	Environmental Impact Analyses	Address model limitations associated with comparing environmental impacts from dredging and sea level rise at specified endpoints even though both events would occur independently on different timescales.
2	Environmental Impact Analyses	Incorporate baseline characterization of PFAS in Cape Fear River sediments and discuss potential impacts of channel deepening on the concentration, distribution, and fate of PFAS and other contaminants within the project area.
3	Environmental Impact Analyses	Consider SAV as a fisheries resource potentially impacted by the deepening and widening of the Wilmington Harbor FNS. Consider monitoring plans that include pre- and post-construction evaluation of SAV extent in the Brunswick River.
4	Environmental Impact Analyses	Acknowledge that outputs generated from analyses, model runs, simulations, etc. refer to datums that are expected to change, and caution should be exercised when comparing data from before and after the update.
5	BUDM & Mitigation Plans	Coordinate with resource agencies on all BUDM and mitigation projects as individual plans are developed.
6	BUDM Plan	Target 70/30 USACE goal for BUDM. Explore additional opportunities for wetland and island creation and enhancement and other novel beneficial uses of dredge material that enhance fisheries habitats.
7	BUDM Plan	Consider additional containment or stabilization structures for proposed intertidal mudflat creation. Consider other enhancement measures such as wetland vegetation plantings and intertidal sill structures.
8	Environmental Impact Analysis	Address accelerated impacts of combined channel deepening and sea level rise on high water levels and changes in salinity, wetland surface elevation, and loss.
9	Mitigation Plan	Provide compensatory mitigation for impacts to tidal freshwater wetlands under the SCL0 scenario (1,071 acres/972 acres for AA1/AA2).
10	Mitigation Plan	Consider additional restoration and enhancement strategies to mitigate for impacts to tidal freshwater wetlands rather than the exclusive use of preservation.
11	Mitigation Plan	Explore alternative wetland restoration measures aside from eradicating *P. australis* that better address agency concerns.

12	Mitigation Plan	Identify quantifiable target metrics for evaluating the success of the proposed fish passage structures. Develop an adaptive management plan in case target metrics are not met.
13	Mitigation Plan	Incorporate impacts associated with rock blasting into mitigation plans for anadromous fish habitat.
14	Mitigation Plan	Consider mitigation at Lock and Dam 3 to provide full access to historic spawning grounds for anadromous species.
15	Mitigation Plan	Consider lock and dam removal to address concerns with insufficient mitigation for permanent loss of anadromous fish habitat.
16	Environmental Impact Analysis	Incorporate potential cumulative impacts into relevant environmental assessments and mitigation plans.
17	Other Recommendations	Incorporate NC DMF-recommended in-water work moratoria into the project timeline.
18	Other Recommendations	Document and maintain appropriate buffers between the proposed dredge footprint and intertidal fisheries habitats such as coastal wetlands and shellfish beds.

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