

CPCG Director
Andy Wood

CPCG Board

Dr. Larry Cahoon, Ph.D.; Wilmington, NC
Mr. Marcus Rich, Wilmington, NC
Mr. Gene Williamson; Seal Rock, OR

Coastal Plain
Conservation Group



Dr. John Dindo, Ph.D.; Dauphin Island, AL
Dr. Mike Spranger, Ph.D.; Gainesville, FL

Ms. Terri Hathaway, M.A.Ed.; Manteo, NC
Dr. Rick Tinnin, Ph.D.; Port Aransas, TX

Date: 16 July 2024

To: US Army Corps of Engineers
Wilmington District
ATTN: Wilmington Harbor 403
69 Darlington Avenue
Wilmington, NC 28403

From: Andy Wood, Director
Coastal Plain Conservation Group
PO Box 1008
Hampstead, NC 28443
awood@coastalplaincg.org
910-742-2675
www.coastalplainconservationgroup.org

Will Harlan
Center for Biological Diversity
338 Merrimon Avenue
Asheville, NC 28801
828-230-6818
wharlan@biologicaldiversity.org
www.biologicaldiversity.org

Re: WILMINGTON HARBOR 403 LETTER REPORT AND ENVIRONMENTAL IMPACT
STATEMENT WILMINGTON HARBOR NAVIGATION PROJECT, NORTH CAROLINA (WH403)

This letter provides comments from COASTAL PLAIN CONSERVATION GROUP, and the CENTER FOR BIOLOGICAL DIVERSITY regarding the WILMINGTON HARBOR 403 LETTER REPORT AND ENVIRONMENTAL IMPACT STATEMENT WILMINGTON HARBOR NAVIGATION PROJECT, NORTH CAROLINA ((WH403).

Coastal Plain Conservation Group (CPCG) is a nonprofit organization dedicated to protecting North Carolina's imperiled coastal plain species and their habitats, regardless of glamour, size, or obscurity. CPCG's activities support its mission to conserve forests, marshes, and other coastal plain ecosystems that support communities of plants and wildlife and enrich the lives of people.

The Center for Biological Diversity ("Center") is a national nonprofit, public interest environmental organization dedicated to protecting imperiled species and the habitat and climate they need to survive through science, law, and policy. The Center is supported by more than 1.7 million members and supporters and works to secure a future for all species, great or small, hovering on the brink of extinction.

Comments in this letter are meant to draw attention to concerns we think need to be included in the Wilmington Harbor 403 Letter Report and Environmental Impact Statement (WH403), with particular attention to the following substantive concerns:

1. North Carolina needs to do more in its efforts to prepare for and adapt to inevitable consequences of climate change and subsequent global change;
2. The lower Cape Fear River has lost thousands of acres of bottomland swamp forest and continues to lose more swamp acres due to downstream saltwater drowning resulting from decades of dredge-deepening efforts on behalf of the Wilmington State Port Authority;
3. North Carolina's natural coastal plain swamp and wetland forests are being recklessly clearcut to convert whole trees into wood pellets for export, via the Wilmington State Port, to Europe where the pellets are burned with coal to inefficiently generate electricity;
4. The species richness (biodiversity) of Cape Fear River swamp forests is declining due to saltwater intrusion;
5. Expanded Cape Fear River Dredging further imperils the endangered Magnificent Ramshorn snail and the WH403 needs to be updated to reflect this fact.

The following is from the USACE website [[USACE Mission](#)]:

"A primary goal of the Regulatory Program is to protect the nation's aquatic resources, particularly wetlands.

In some cases, projects will have an unavoidable impact on wetlands. In these instances, USACE requires replacement of the wetlands. Although USACE issues permits that affect wetlands, the Regulatory Program also requires that those effects are offset by wetlands were restored, created, enhanced or preserved wetlands. In many cases, several small, separate, low value wetlands were replaced with more environmentally beneficial large wetland complexes. The regulatory program also plays a key role in protecting endangered species."

For background, Cape Fear River communicates directly with the Atlantic Ocean. With river dredging and deepening, ocean saltwater intrudes upstream into tidal creeks that meander through tidal freshwater bottomland hardwood and cypress swamps. With each high tide ocean saltwater repeatedly intrudes into swamp creeks and streams and infiltrates into the swamp's organic soil, harming the soil's community of freshwater bacteria and other microorganisms that help consolidate otherwise hydric soil particles.

A previous Cape Fear River channel deepening project, conducted in the late 1990s, was promoted with the false claim that 'modeling' showed the estuary would become fresher after dredging. This was obviously wrong, and demonstrably led to acceleration of wetland alteration, soil subsidence, ghost tree formation, and displacement of freshwater and oligohaline (brackish) species.

Peer-reviewed research on the [effects of sulfate and other seawater ions on microbial communities](#) proves that saltwater intrusion into freshwater wetlands increases the availability of sea salt sulfate ion (SO₄⁼), which supports the metabolism of anaerobic sulfate-reducing bacteria (SRB). These bacteria in turn metabolize the organic matter in wetland soils, which causes those wetlands to subside as their organic carbon content literally dissolves, becoming greenhouse gases CO₂ and methane. The salt water does not so much kill the freshwater microbiome as favor an alternative microbiome. Similar effects are now well known in Dare and Hyde counties, where ditching has allowed sea water intrusion farther inland, causing soil subsidence and drowning what used to be productive farm fields, killing obligate freshwater vegetation, and generating large masses of standing dead vegetation that provide fuel for wildfires that, in turn, contribute CO₂ and other pollutants to our planet's atmosphere.

Repeated saltwater inundation kills freshwater-adapted plant root hairs, severing the important plant root-soil connection and eventually exposing swamp tree roots in the process. To this point, existing plants adapted to freshwater are relegated to drown in salty water while freshwater-adapted wildlife are forced to shift, along with their host plants, in advance of saltwater intrusion inexorably hastened by dredging a river that communicates directly with the Atlantic Ocean.

To be clear, habitat shifting is a slow process historically measured in geologic timeframes tied to historic climate changes. Anthropogenic dredging and deepening of Cape Fear River is a problem for the river's habitats and associated plants and wildlife because the resultant changes happen too quickly for natural communities that evolved with geologic climate change to respond by shifting location or adapting to new environmental changes driven by increased concentrations of the greenhouse gases Carbon Dioxide (CO₂) and Methane (CH₄) in Earth's atmosphere, resulting from human activities including combustion of carbon-based fossil fuels.

In short, swamp forests cannot shift fast enough to outpace the current rate of saltwater intrusion resulting from anthropogenic changes to Cape Fear River's depth and width. This makes upstream swamps more imperative to protect against ocean expansion for the long term, and especially in response to hastened saltwater intrusion resulting from Cape Fear River dredging and deepening.

Concurrent with wetland harms resulting from anthropogenic river deepening are the associated activities conducted by the wood pellet industry worsen the future opportunity for species that must shift upstream to escape saltwater. It's worth noting here that this forest extraction scheme is an environmental justice issue for all people because the forests being destroyed are our most important tool for mitigating climate change. Plus, burning wood contributes CO₂ to the atmosphere, and 30-40% of the potential energy in each pellet is lost through the harvesting, drying, packing, and shipping processes.

Few endeavors are so inefficient and detrimental as the wood pellet to electricity scheme, as regards climate and energy, and is mentioned here to connect the dots between river dredging, the State Port, and the wood pellet scheme that depends on the State Port to shuttle NC trees to Europe where they are burned to generate fleeting amounts of electricity for a small percentage of Great Britain's populace.

Cape Fear River supports rare, imperiled, and endangered species within and upstream of the zone proposed for river dredging and deepening, including the endangered Magnificent Ramshorn (*Planorbella magnifica*), a Pulmonate aquatic snail known-only from ponds and streams located in the lower Cape Fear River zone that will be negatively impacted by increased saltwater intrusion resulting from expanded river dredging. This saltwater intolerant snail received Endangered Species status in August 2022 because the US Fish and Wildlife Service concluded it had been extirpated from its natal habitats due to saltwater intrusion, unarguably hastened by river dredging and deepening: [Magnificent ramshorn proposed listing and critical habitat | U.S. Fish & Wildlife Service \(fws.gov\)](#).

The Wilmington Harbor 403 Letter Report and Environmental Impact Statement Wilmington Harbor Navigation Project does not include reference to the Magnificent Ramshorn and the impacts this project will have on the snail and its historic habitats.

It is well known that Cape Fear River dredging has brought broad and sweeping changes to the river's lower reaches, including associated streams, swamps, and freshwater marshes. Impacts of saltwater intrusion to the aforementioned snails and their habitats, as a consequence of river dredging, were highlighted in the US Fish & Wildlife Service Endangered Species Bulletin, released on 23 July 2014:

“The magnificent ramshorn is North America’s largest air-breathing freshwater snail. Its brown coiled shell resembles a ram’s horn and grows to the size and weight of a dollar coin. The snail is adapted to still or slow flowing aquatic habitats, where it eats submerged aquatic plants, algae, and detritus. While small and seemingly insignificant, this snail is an integral part of a complex food web found in freshwater swamps along coastal North Carolina.

The magnificent ramshorn was first described in 1903 by Henry Pilsbry, a prolific naturalist. The snail is unique to southeastern North Carolina, occurring nowhere else in the world. According to Bill Adams, a former biologist with the U.S. Army Corps of Engineers, the snail was likely once common throughout the lower Cape Fear River basin, especially in the numerous antebellum rice plantations, when the river was still shallow and fresh nearly to its mouth. The snail disappeared from the Cape Fear area after the river was dredged to make passage for big ships in the early 1930s. Tidal fluctuations in the lower Cape Fear changed from several inches to over four feet (1 meter). As the lower river was manipulated, salt water flowed farther upriver. And, salt is the one thing the snails cannot tolerate.”

This above excerpt is included for purposes of brevity, and to demonstrate that a respected US Corps of Engineers biologist (retired) has acknowledged the fact that saltwater intrusion, resulting from dredging in the Cape Fear River, has led to the decline and likely extirpation of Magnificent Ramshorn. CPCG’s work indicates the same saltwater intrusion has also apparently brought about the extirpation of Greenfield Ramshorn (*Helisoma eucosmium*), another salt-intolerant aquatic Pulmonate snail.

With this as background, CPCG and the Center respectfully request the USCOE to update the “Wilmington Harbor 403 Letter Report and Environmental Impact Statement Wilmington Harbor Navigation Project” to include salient information regarding negative impacts that this river dredging project will impose on this endangered species. This species is endangered by habitat loss exacerbated by dredging the Cape Fear River.

Without exaggeration, the expanded dredging in Cape Fear River makes extinction more likely for the endangered Magnificent Ramshorn (*Planorbella magnifica*); an aquatic Pulmonate (lunged) snail, known-only from freshwater habitats connected to the river’s lower reach via tributary streams. Prior to modern dredging and deepening activities, this snail’s habitats supported lush and vibrant cypress swamp forests.

These same freshwater wetland forests are now observably languishing and dying amid salty water as evidenced by the skeletal remains of dead cypress trees—sentinels alerting us to increased and expanded saltwater intrusion and drowning of freshwater swamp forests, streams, and ponds connected to Cape Fear River.

Given the river’s post-colonial history, which includes freshwater rice cultivation that halted with the end of the Civil War, it is understood that recent swamp forest decline in the river’s lower reach has come as a consequence of dredging a river that directly communicates with the Atlantic Ocean (part of the Great Ocean).

Other Cape Fear River species needing special consideration in the WH403 include, but are not limited to, the Rare Skipper (*Problema bulenta*), a butterfly inhabiting oligohaline marsh habitat found near the Navassa railroad bridge, about seven river-miles upstream of the Wilmington State Port. This imperiled butterfly requires a variety of obligate wetland plants that will be harmed by increased salinity caused by downstream deepening of Cape Fear River;

The Diamondback Terrapin (*Malaclemys terrapin*) is an obligate brackish water turtle that nests in soils threatened by the effects of sulfate and other seawater ions on microbial soil communities. This reptile is listed as a NC Special Concern Species and listed as a threatened species by the World Conservation Union and the WH403 should investigate impacts of this dredging project on this imperiled species;

Cape Fear Spatterdock (*Nuphar sagittifolia*), is an unusual riverine waterlily known only from a few riverine systems including freshwater zones of the lower Cape Fear River and is harmed by salty water. The WH403 dredge and deepen project will predictably increase salinity in this uncommon plant's known aquatic habitat, where its vegetative leaves and stems provide refuge and food for a great diversity of aquatic life including, but not limited to, arthropods, mollusks, fishes, amphibians, reptiles, birds, and mammals. These animals are, in turn, also imperiled by the changes in water chemistry that will predictably result from deepening a freshwater river that communicates directly with the ocean.

While CPCG and the Center understand the important economic impact of shipping to and from the Wilmington State Port, via the Cape Fear River's dredged channel, we are requesting that consideration be given to the full costs of continued and expanded river dredging, as outlined in the Draft Integrated Feasibility Report and Environmental Assessment – Wilmington Harbor Navigation Improvements (2020).

Related to structural benefits provided by the Wilmington State Port to the State's economy, CPCG and the Center request USACE and USEPA consider the economic benefits of biodiversity in the Cape Fear River ecosystem. Just as it is unwise to lose nuts, bolts, and rivets holding together the State Port's infrastructure, it is unwise, metaphorically-speaking, to lose the living nuts and bolts of an ecosystem—the biodiversity that, in turn, supports our own species. It is unwise to lose biodiversity, including snails that consume algae and plants, in turn producing fecal matter that gets consumed by tiny organisms that are in turn eaten by small fishes, that are in turn eaten by large fishes, and so-on, thus helping power our multi-billion-dollar fishing economy. Yes, freshwater snails are that measurably important.

Before approving further dredging and deepening efforts in Cape Fear River, CPCG and the Center respectfully request USACE and USEPA to account the full economic and ecologic costs of increased dredging to include consequential impacts to Cape Fear River swamps, marshes and tributary streams and creeks, with emphasis on addressing wetland mitigation to allow habitat shifting to occur into upstream areas as a conservation strategy to protect Cape Fear River endemic and migratory species, notably candidate, endangered, and other listed species.

The following, quoted from the USCOE website section, [USACE-Regulatory-Environmental-Benefits](#) “Regulatory: Environmental Benefits,” unequivocally states:

“A primary goal of the Regulatory Program is to protect the nation's aquatic resources, particularly wetlands.

In some cases, projects will have an unavoidable impact on wetlands. In these instances, USACE requires replacement of the wetlands. Although USACE issues permits that affect wetlands, the Regulatory Program also requires that those effects are offset by wetlands were restored, created, enhanced or preserved wetlands. In many cases, several small, separate, low value wetlands were replaced with more environmentally beneficial large wetland complexes. The regulatory program also plays a key role in protecting endangered species.”

This USACE admission binds their own actions to the same standards that other entities are required to follow. CPCG and the Center therefore request the USCOE mitigate freshwater wetland losses resulting from hastened saltwater intrusion as a consequence of dredging and deepening Cape Fear River. If USCOE questions the veracity of the claim that dredging Cape Fear River will increase wetland harms, we respectfully ask USCOE to prove their dredging activity will not harm freshwater wetlands.

The following is quoted from the USEPA website [<https://www.iwr.usace.army.mil/Missions/Value-to-the-Nation/Regulatory/Regulatory-Environmental-Benefits/>] and included here because the USEPA has governing authority over wetland protection:

“Types of Mitigation under CWA Section 404: Avoidance, Minimization and Compensatory Mitigation Overview

The White House Council on Environmental Quality (CEQ) has defined mitigation in its implementing regulations for the National Environmental Policy Act to include avoiding, minimizing, rectifying, reducing over time, and compensating for impacts. The Clean Water Act Section 404(b)(1) Guidelines, developed by EPA in coordination with the U.S. Army Corps of Engineers and issued in 1980, establish substantive environmental criteria which must be met for activities to be permitted under Clean Water Act Section 404. The types of mitigation enumerated by CEQ are compatible with the requirements of the Guidelines; however, as a practical matter, they can be combined to form three general types of mitigation: avoidance, minimization, and compensatory mitigation.

As discussed in their 1990 Memorandum of Agreement on the mitigation requirements of the Guidelines, the Department of the Army and EPA agree that these mitigation types are generally applied sequentially in the following order:

Avoidance means mitigating an aquatic resource impact by selecting the least-damaging project type, spatial location and extent compatible with achieving the purpose of the project. Avoidance is achieved through an analysis of appropriate and practicable alternatives and a consideration of impact footprint.

Minimization means mitigating an aquatic resource impact by managing the severity of a project's impact on resources at the selected site. Minimization is achieved through the incorporation of appropriate and practicable design and risk avoidance measures.

Compensatory Mitigation means mitigating an aquatic resource impact by replacing or providing substitute aquatic resources for impacts that remain after avoidance and minimization measures have been applied, and is achieved through appropriate and practicable restoration, establishment, enhancement, and/or preservation of aquatic resource functions and services.”

CPCG and the Center also consider the WH403 to be an environmental justice issue because it has potential to reduce the thickness of the confining layer between the bottom of the river and the freshwater aquifer that supplies drinking water to the lower Cape Fear region’s Gullah Geechee, and other communities of color, along with low-wealth and other white populations. Given the predictable likelihood that an anticipated or unintended breach in the confining layer separating salty river water from fresh aquifer water, we respectfully ask the USCOE to conduct an updated objective and comprehensive accounting of economic and hydrologic impacts that the WH403 project will impose on this region’s critically important freshwater aquifer drinking water supply that thousands of our region’s residents require for their wellbeing.

We remind all parties involved with the Wilmington Harbor Navigation Project that this endeavor is an economic want and not an ecological need; the latter being of greater importance to the long-term safety of this region’s human residents and visitors. We highlight the distinction between wants and needs because this project is prioritized to support private for-profit endeavors at the expense of public trust resources, in addition to taking public funding that could otherwise fund efforts to clean and improve the river’s water quality.

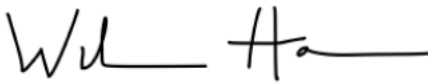
With this letter and supporting documentation from the US Army Corps of Engineers and US Environmental Protection Agency, CPCG and the Center hereby stress the need for USCOE to be held accountable for harms inflicted to Cape Fear River wetlands, and consequential harms to the river's underlying aquifer, resulting from river dredging and deepening activities associated with the Wilmington Harbor Navigation Project. conducted for the purpose of facilitating shipping enterprises to conduct private, for-profit activities that may or may not provide public benefit.

Thank you for your consideration of these comments and we are glad to provide more information regarding this matter.

Sincerely,



Andy Wood, Director
Coastal Plain Conservation Group



Will Harlan
Southeast Director
Center for Biological Diversity

