Peter Blum, Chief
Planning Division
Philadelphia District
U.S. Army Corps of Engineers
Wanamaker Building
100 Penn Square East
Philadelphia, PA 19107-3390

RE: Mispillion Inlet and Cedar Creek Maintenance Dredging

Dear Mr. Blum:

We have reviewed the information provided in your letter dated September 11, 2019, and emails and attachments dated September 19 and 20, 2019, for the proposed Mispillion Inlet and Cedar Creek Maintenance dredging project in Sussex County, Delaware. The U.S. Army Corps of Engineers, Philadelphia District (District), is proposing to dredge the Mispillion Inlet and Cedar Creek during the fall/winter of 2019 within and beyond the existing jetty and behind the groins. Dredging will be performed by the U.S. Army Corps of Engineers-owned shallow-draft, split-hull hopper dredge Currituck. Approximately 5,000 cubic yards (cy) of sand will be removed from areas within the inlet channel with depths less than -6 feet mean lower low water (MLLW). Recent grain size analyses indicate the material to be dredged is coarse-grained sand. The dredged material will be placed in an area approximately 5,000 feet from the shore on the north side of the north jetty to keep the dredged material within the littoral sediment system. The dredged material is similar to the existing substrate in the shallow water placement area, which is approximately -10 feet MLLW. The Currituck is capable of dredging, transporting and disposing of small (200-250 cy) quantities in the placement area to allow for natural littoral transport processes to distribute the material. The dredging is expected to take less than one week and consist of approximately 20 to 25 loads. The District has determined the adverse effect on essential fish habitat (EFH) or federally managed fisheries is not substantial. We agree with this determination and have concluded that EFH conservation recommendations are not necessary. Should the project schedule or other project elements change, re-initiation of consultation and a reevaluation of the potential impacts to NOAA-trust resources will be necessary.

The Fish and Wildlife Coordination Act (FWCA) and the Magnuson-Stevens Fishery Conservation and Management Act (MSA) require you to consult with us on projects such as this that may affect EFH and other aquatic resources. As the nation’s federal trustee for the conservation and management of marine, estuarine, and anadromous fishery resources, we provide the following comments and recommendations pursuant to the authorities of the MSA and FWCA.
Beneficial Use

While we agree with the District’s determination on the impacts of the proposed project, this project and other small projects like it can bring benefits to resources under our purview, including horseshoe crabs (*Limulus polyphemus*), with minor modifications. As we have mentioned in previous discussions with the District, we continue to recommend the District place materials directly on the beach. At a minimum, the first consideration for these type of projects should be to use dredge material to create or maintain beach habitats when the grain size is appropriate. Placing sand in the beach-dune area will benefit our resources by addressing sea level rise and restoring or creating additional beach-dune habitat for various resources, including horseshoe crabs.

We understand that there will likely be additional opportunities to use the *Currituck*, and its sister vessel, the *Murden*, in the future. As these opportunities arise, the District should consider potential impacts and benefits to the wide variety of aquatic and avian resources of the Delaware Bay when planning and scheduling projects. With advanced planning, the opportunity exists to enhance habitats and provide coastal storm risk management benefits while minimizing impacts to aquatic resources. We are open to working with the District on this effort and a programmatic EFH consultation for use of the *Currituck*, *Murden*, and other split-hull vessels of similar capacity in this area to reduce the need for individual consultations and to assist the District in their planning and scheduling of future projects. To assist in the development of more comprehensive plan for the use of the *Currituck*, *Murden* or similar dredge plant and a programmatic consultation, we offer the following technical assistance below:

Magnuson Stevens Fishery Conservation and Management Act (MSA)

The Mispillion River, Cedar Creek, the Delaware Bay and Estuary, and the surrounding coastal bays, creeks, inlets, marshes, submerged aquatic vegetation, shellfish, and mudflats have been designated EFH for various life stages of species managed by the New England Fishery Management Council (NEFMC), Mid-Atlantic Fishery Management Council (MAFMC), South Atlantic Fishery Management Council (SAFMC), and NOAA Fisheries. These areas provide feeding, spawning, resting, nursery, and staging habitat for a variety of commercially, recreationally, and ecologically important species. Species for which EFH has been designated in the project area include, but are not limited to, Atlantic butterfish (*Peprilus triacanthus*), bluefish (*Pomatomus saltatrix*), black sea bass (*Centropristis striata*), scup (*Stenotomus chrysops*), summer flounder (*Paralichthys dentatus*), windowpane flounder (*Scophthalmus aquosus*), clearnose skate (*Raja eglanteria*), little skate (*Leucoraja erinacea*), and winter skate (*Leucoraja ocellata*). These areas are also designated EFH for several Atlantic highly migratory species (tuna, swordfish, billfish, small and large coastal sharks, and pelagic sharks) including, but not limited to, sandbar shark (*Carcharhinus plumbeus*), spiny dogfish (*Squalus acanthias*), smoothhound shark complex (Atlantic stock), and sand tiger shark (*Carcharias taurus*). The sand tiger shark has been listed as a Species of Concern by NOAA. The project area is also designated as EFH for Spanish mackerel (*Scomberomorus maculatus*) and king mackerel (*Scomberomorus cavalla*).
The proposed project area has also been designated as Habitat Areas of Particular Concern (HAPC) for sandbar shark and sand tiger shark. HAPCs are a subset of EFH that are either rare, particularly susceptible to human-induced degradation, especially important ecologically, or located in an environmentally stressed area. The Delaware Bay is one of two principal nursery grounds for the sandbar shark on the U.S. East Coast (McCandless et al., 2007). Pregnant sandbar shark females occur in the area between late spring and early summer, give birth and depart shortly after while neonates (young-of-year) and juveniles (ages one and over) occupy the nursery grounds until migration to warmer waters in the fall (Rechisky & Wetherbee 2003 and Springer 1960). Neonates return to their natal grounds as juveniles and remain there for the summer. The Delaware Bay is also an important area for all life stages of the sand tiger shark. The Cooperative Atlantic State Shark Pupping and Nursery (COASTSPAN) survey conducted in Delaware and New Jersey state waters reports consistent, extensive seasonal use of Delaware Bay by all life stages of sand tiger from 2009 to 2014 (NOAA 2009-2014). McCandless et al. (2002) indicated nursery habitat characteristics in the Delaware Bay consisted of temperatures from 19 to 25 °C, salinities of 23 to 30 ppt at depths of 2.8-7.0 m in sand and mud areas. Kilfoil et al. (2014) found that tagged sand tiger sharks in Delaware Bay showed strong site attachment across years.

The June 2009 Amendment I to the Consolidated Highly Migratory Species (HMS) Fisheries Management Plan (NOAA 2009) states that non-fishing activities such as mining for sand and gravel (e.g., dredging) in estuarine and coastal waters have adverse impacts to sandbar and sand tiger shark EFH due to water column effects, such as changing circulation patterns, increasing turbidity, and decreasing oxygen concentrations. The 2009 amendment also include a number of EFH conservation recommendations for dredging projects proposed within EFH for highly migratory species. These general EFH conservation recommendations include, but are not limited to:

- Sand mining [and beach nourishment] should not be allowed in HMS EFH during seasons when HMS are using the area, particularly during spawning and pupping seasons.
- Sand and gravel extraction operations should be managed to avoid or minimize impacts to the bathymetric structure in estuarine and nearshore areas.

The Delaware River is also important habitat for anadromous fish such as alewife (Alosa pseudoharengus), blueback herring (Alosa aestivalis), and American shad (Alosa sapidissima), which use the Delaware Bay and River, including the areas in and around the proposed project site, as migratory, nursery, resting, and foraging habitat. These Alosa species have complex lifecycles where individuals spend most of their lives at sea then migrate great distances to return to freshwater rivers to spawn during the late winter, spring, and early summer. American shad (stocks north of Cape Hatteras, N.C.), alewife, and blueback herring are believed to be repeat spawners, generally returning to their natal rivers to spawn (Collette and Klein-MacPhee 2002).

These Alosine fish are important forage for several species managed by the NEFMC and MAFMC as they provide trophic linkages between inshore and offshore systems. Buckel and Conover (1997) in Fahey et al. (1999) reports that diet items of juvenile bluefish include Alosa species. Additionally, juvenile Alosa species have all been identified as prey species for summer flounder and windowpane flounder in Steimle et al. (2000). The EFH final rule states that prey
species are an important component of EFH and that loss of prey may be an adverse effect on EFH and managed species. As a result, actions that reduce the availability of prey species, either through direct harm or capture, or through adverse impacts to the prey species' habitat may also be considered adverse effects on EFH.

American shad, blueback herring, and alewife formerly supported the largest and most important commercial and recreational fisheries throughout their range, with fishing spanning rivers (both freshwater and saltwater), estuaries, tributaries, and the ocean. Commercial landings for these species have declined dramatically from historic highs (ASMFC 2018). The most recent American shad stock assessment report identified that American shad stocks remain highly depressed from historical levels. Of the 24 river-specific stocks of American shad for which sufficient information was available, 11 were depleted relative to historic levels, two were increasing, and 11 were stable (but still below historic levels). The status of eight additional stocks could not be determined. Taken in total, American shad stocks do not appear to be recovering (ASMFC 2007). The 2007 assessment concluded that new protection and restoration actions needed to be identified and applied, which led to the development of Amendment 3 to the Interstate Fishery Management Plan for Shad and River Herring (American Shad Management). Amendment 3 identified significant threats to American shad, including spawning and nursery habitat degradation or blocked access to habitat, resulting from dam construction, increased erosion and sedimentation, and losses of wetland buffers. Protecting, restoring, and enhancing American shad habitat, including spawning, nursery, rearing, production, and migration areas, are necessary for preventing further declines in American shad abundance, and restoring healthy, self-sustaining, robust, and productive American shad stocks to levels that will support the desired ecological, social, and economic functions and values of a restored Atlantic coast American shad population (ASMFC 2010).

In the Mid-Atlantic, landings of alewife and blueback herring, collectively known as river herring, have declined dramatically since the mid-1960s and have remained very low in recent years (ASMFC 2017). The 2012 river herring benchmark stock assessment found that of the 52 stocks of alewife and blueback herring assessed, 23 were depleted relative to historic levels, one was increasing, and the status of 28 stocks could not be determined because the time-series of available data was too short (ASMFC 2012a). The 2017 stock assessment update indicates that river herring remain depleted at near historic lows on a coast wide basis. Total mortality estimates over the final three years of the data time series (2013-2015) are generally high and exceed region-specific reference points for some rivers (ASMFC 2017). The “depleted” determination was used in 2012 and 2017 instead of “overfished” to indicate factors besides fishing have contributed to the decline, including habitat loss, habitat degradation and modification (including decreased water quality), and climate change (ASMFC 2017). Because landing statistics and the number of fish observed on annual spawning runs indicate a drastic decline in alewife and blueback herring populations throughout much of their range since the mid-1960s, river herring have been designated as Species of Concern by NOAA. Species of Concern are those about which we have concerns regarding their status and threats, but for which insufficient information is available to indicate a need to list the species under the Endangered Species Act (ESA). We wish to draw proactive attention and conservation action to these species.
A significant contributing factor to the dramatic declines in shad and river herring populations is decreases in water quality, channelization, dredging, and in-water construction (ASMFC 2010; ASMFC 2017). Anthropogenic-induced elevated levels of turbidity and sedimentation, above background (e.g., natural) levels, can lead to various adverse impacts on diadromous fish and their habitats (Auld and Schubel 1978; Breitburg 1988; Newcombe and MacDonald 1991; Burton 1993; Nelson and Wheeler 1997; Thrush and Dayton 2002; Johnson et al. 2008; Kjelland et al. 2015). However, the proposed restrictions on the timing of dredging and disposal will avoid and minimize impacts to American shad, blueback herring, alewife, and other species under our purview.

Understanding how the estuarine environment and the geomorphic features (e.g., shoreline, nearshore wetlands, and shoals) associated with it function to provide habitat is the product of complex interactions between biological processes and physical factors. There is potential for physical, biological, and chemical impacts from the proposed project in the Delaware Bay. Potential impacts include physical removal or burying of benthic faunal communities and disturbance of foraging, nursery, migratory, and potentially spawning habitat for fish and invertebrates.

**Fish and Wildlife Coordination Act (FWCA)**

The Fish and Wildlife Coordination Act (FWCA), as amended in 1964, requires that all federal agencies consult with us when proposed actions might result in modifications to a natural stream or body of water. It also requires that they consider effects that these projects would have on fish and wildlife and must also provide for improvement of these resources. Under this authority, we work to protect, conserve and enhance species and habitats for a wide range of aquatic resources such as shellfish, diadromous species, and other commercially and recreationally important species that are not managed by the federal fishery management councils and do not have designated EFH. The Mispillion River, Cedar Creek, and the Delaware Bay and Estuary serves as important habitat for many aquatic species and their forage including American shad, alewife, blueback herring, striped bass (*Morone saxatilis*), American eel (*Anguilla rostrata*), horseshoe crab, blue crab (*Callinectes sapidus*), black drum (*Pogonias cromis*) and other assorted baitfishes and invertebrates.

The area of the proposed project is significant for striped bass because of its importance as migration, spawning, nursery, foraging, and resting habitat. Atlantic striped bass have formed the basis of one of the most important and valuable commercial and recreational fisheries on the Atlantic coast for centuries; the fishery is also strongly tied to the cultural heritage of the eastern U.S (ASMFC 1981). However, overfishing and poor environmental conditions lead to the collapse of the fishery in the 1970s and 80s and development of the Striped Bass Fishery Management Plan (FMP) in 1981 (ASMFC 2003). After years of increasing numbers following implementation of the FMP, commercial and recreational landings of striped bass as well as female spawning stock biomass and recruitment, have declined since their peak in the early- to mid-2000s (ASMFC 2019). Most recently, the 2018 Atlantic Striped Bass Benchmark Stock Assessment found the resource overfished and that overfishing is occurring (ASMFC 2019). Accelerated declines in striped bass populations may result from the cumulative and synergistic
effects of overfishing and non-fishing related activities that impact reproduction, recruitment and survival.

The area of the proposed project is migration, spawning, nursery, and foraging habitat for the American eel. Catadromous American eels spawn in the Sargasso Sea and transit the Delaware Bay, and likely the Mispillion River, as part of their migration. They inhabit these freshwater areas until they return to the sea as adults. According to the 2012 benchmark stock assessment, the American eel population is depleted in U.S. waters. The stock is at or near historically low levels due to a combination of historical overfishing, habitat loss, food web alterations, predation, turbine mortality, environmental changes, exposure to toxins and contaminants, and disease (ASMFC 2012b). Actions being considered as part of the proposed project may impede the movements of these species between important freshwater habitats and the Atlantic Ocean in a number of ways including altering hydrologic conditions such as velocity and flow patterns, as well as changing water quality. The proposed restrictions on the timing of dredging and disposal will avoid and minimize impacts to American eels, striped bass, and other species under our purview.

We look forward to continued coordination with your office on this project as it moves forward. Please also note that a distinct and further EFH consultation must be reinitiated pursuant to 50 CFR 600.920 G) if new information becomes available, or if the project is revised in such a manner that affects the basis for the EFH determination, including a change in project schedule or timing. If you have any questions or need additional information, please do not hesitate to contact Keith Hanson in our Annapolis, MD field office at keith.hanson@noaa.gov.

Sincerely,

Karen M. Greene
Mid-Atlantic Field Offices Supervisor
Habitat Conservation Division

cc: ACOE – B. Conlin
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ASMFC – L. Havel
Literature Cited


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