



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
GREATER ATLANTIC REGIONAL FISHERIES OFFICE
55 Great Republic Drive
Gloucester, MA 01930

August 9, 2024

Wade Chandler, Chief
Regulatory Branch
U.S. Army Corps of Engineers
Baltimore District
2 Hopkins Plaza
Baltimore, Maryland 21201

Re: Public Notice 24-17; NAB-2023-61698-M07; GreenVest LLC; MedStar Harbor Hospital
Tidal Wetland

Dear Mr. Chandler:

We have reviewed the Public Notice (PN 24-17) and essential fish habitat (EFH) assessment, both dated June 12, 2024, which describes an application by GreenVest LLC to establish tidal marsh channelward of the existing shoreline at Medstar Harbor Hospital in the Patapsco River, Baltimore City, Maryland. The applicant is seeking authorization from the U.S. Army Corps of Engineers Baltimore District (the District) to place 58,465 cubic yards (cu yds) of clean fill along approximately 1,100 linear feet (lf) of shoreline to create approximately 9 acres of marsh and approximately 2.6 acres of gravel breakwater and interior ponds in existing tidal shallows. The applicant also proposes to address coastal flooding of the adjacent parking lot and Potee Street through the creation of an upland berm along the existing shoreline and implementation of stormwater wetlands in an existing park. The site will be protected from wind-driven waves through the construction of a 1,600 lf stone/gravel sill channelward of the proposed marsh. The resulting area is proposed to support 4.3 acres of intertidal low marsh and 4.7 acres of irregularly-flooded high marsh.

Overall, the proposed fill will replace existing subtidal shallows with gravel berms, tidal marsh, and intertidal channels/pools for the purposes of habitat creation and water quality improvement. We acknowledge the historical loss of intertidal marshes in the Patapsco River estuary and the challenges posed by diminished water quality, yet we are concerned that this project sets a precedent that expansive wetland creation in the remaining subtidal shallows is a suitable avenue to address these issues. We also highlight the anticipated challenges presented by this site and others that are proposed as part of the broader Middle Branch Resiliency Initiative (MBRI). For these reasons, we have significant concerns regarding the potential for long-term ecological uplift presented by this wetland creation project and others that are part of this portfolio.

Project History

The concept of shoreline restoration at this site was first previewed as part of a larger MBRI during the April 29, 2020 Joint Evaluation (JE) meeting. During that meeting discussion, we raised concerns about the potential for a substantial amount of shallow tidal filling using dredged material and noted the value of a pilot project to build support for successful implementation.



During subsequent JE meetings (May 26, 2021, August 31, 2022, February 22, 2023) the project team further described conceptual elements of the MBRI, including the development of the wetland project adjacent to MedStar Hospital. During these meetings the project team presented a narrative about tidal wetland loss through historical wetland to upland conversion (i.e., filling) and advocated for the creation of wetlands in the shallow waters of the Patapsco Middle Branch estuary.

In their November 28, 2023, Joint Permit Application (JPA), the applicant described the proposed wetland creation project at MedStar Hospital, including site plans, geotechnical investigations, coastal modeling, and other resources to allow for the evaluation of the project. We received a subset of those materials upon publication of the PN and requested additional information from the District to develop our review. In our July 10, 2024, letter, we requested additional time to review the JPA in its entirety. The receipt of a complete application package allowed us to initiate our formal EFH consultation.

Consultation Authorities

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) and the Fish and Wildlife Coordination Act (FWCA) require federal agencies to consult with one another on projects such as this that may adversely affect EFH and other aquatic resources. In turn, we must provide recommendations to conserve EFH. These recommendations may include measures to avoid, minimize, mitigate, or otherwise offset adverse effects on EFH resulting from actions or proposed actions authorized, funded, or undertaken by that agency. This process is guided by the requirements of our EFH regulation at 50 CFR 600.905, which mandates the preparation of EFH assessments and generally outlines each agency's obligations in this consultation procedure.

The Middle Branch Patapsco River estuary is designated EFH for six species of federally-managed fish including summer flounder (*Paralichthys dentatus*), bluefish (*Pomatomus saltatrix*), Atlantic butterfish (*Peprilus triacanthus*), black sea bass (*Centropristis striata*), windowpane flounder (*Scophthalmus aquosus*), and clearnose skate (*Raja eglanteria*). The Patapsco River serves as a migratory pathway for several diadromous species including striped bass (*Morone saxatilis*), American shad (*Alosa sapadissima*), alewife (*A. pseudoharengus*), and blueback herring (*A. aestivalis*). The project area also provides habitat for a variety of other prey species including white perch (*Morone americana*), spot (*Leiostomus xanthurus*), Atlantic menhaden (*Brevoortia tyrannus*), and blue crab (*Callinectes sapidus*).

The EFH final rule published in the Federal Register on January 17, 2002 defines an adverse effect as: "any impact which reduces the quality and/or quantity of EFH." The rule further states that:

An adverse effect may include direct or indirect physical, chemical or biological alterations of the waters or substrate and loss of, or injury to, benthic organisms, prey species and their habitat and other ecosystems components, if such modifications reduce the quality and/or quantity of EFH. Adverse effects to EFH may result from the action occurring within EFH or outside EFH and may include site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

Because this project will result in temporary (e.g., turbidity) and permanent (i.e., conversion of benthic habitat) impacts to aquatic habitats, it meets the definition of an adverse effect to EFH. This determination under the MSA does not preclude the completion of the proposed action, but rather necessitates the consideration of measures to avoid, minimize, mitigate, or otherwise offset proposed impacts to EFH and other aquatic resources.

Project Impacts, Remaining Concerns, and Recommendations

As discussed in our previous comments and in subsequent inter-agency discussion, we have significant concerns regarding the extent to which unvegetated shallow waters are proposed to be filled for this project and subsequent efforts described as part of the broader MBRI. These concerns were most recently outlined in our February 15, 2024, letter regarding Site 5A. This included a summary of challenges observed with other local wetland creation projects as well as those described in a previous study completed by the District (USACE 2008). We appreciate that the project team included a bio-benchmarking study (JPA Appendix C), a monitoring plan (JPA Appendix H), and an adaptive management plan (JPA Appendix I), as these elements should help to ensure that the ecological project goals are met and maintained over time. We note that the adaptive management plan could be improved through the definition of specific triggers for adaptive management actions and as well as defined timelines for those actions.

If fully realized, the benefits presented here may, to some extent, offset the proposed conversion of shallow water habitats. The subtidal flats in question supported submerged aquatic vegetation (SAV) as recently as the early 2000's. The loss of that productive fisheries habitat is largely due to diminished water quality associated with pollution and impervious surface (Orth et al. 2017). One key intent behind the efforts to mitigate loadings of sediment and nutrients is to improve water clarity to benefit SAV and assist in the restoration to these historical shallow water habitats. Wetland creation projects that maximize the acreage of created wetlands to satisfy total maximum daily load requirements may indeed present water quality benefits, but the habitat conversion precludes natural recovery of SAV or other productive subtidal habitats in that particular area. For that reason, and considering the potential challenges associated with wetland creation at this site (e.g., low-bearing capacity and contaminated sediments, invasive species), a more typical living shoreline design would likely achieve many of the proposed benefits while minimizing risk. These designs typically employ near-shore structure to enhance the existing shoreline, rather than the wetland cell approach proposed here.

The proposed design extends nearly 400 lf channelward of the existing shoreline, whereas more typical approaches would convert only a fraction of this tidal flat. For example, if the living shoreline extended approximately 70 ft channelward, it would reduce project impacts by over 60 percent. While we acknowledge that the PN briefly describes minimization (19 acres to 11.6 acres) a more typical living shoreline alternative was not evaluated in the application material. Based on our experience reviewing shoreline and tidal wetland restoration projects throughout the mid-Atlantic region, creation of intertidal wetlands in areas where they did not recently occur (e.g., in the last 20 years) can present unforeseen challenges which can diminish the productivity of the site and/or increase the time needed for a marsh to achieve functional equivalence to reference marshes. This variable success rate has been noted elsewhere (see review by Broome et al. 2018; Weinstein et al. 2019) and supports a precautionary approach to evaluating tidal habitat tradeoffs (Barbier et al. 2011).

In restoration scenarios with such technical challenges, a pilot project can be helpful to demonstrate multifaceted benefits intended by the applicant. The applicant has previously characterized the project at Site 5A (ref: NAB-2022-617234) as a demonstration project because it presented similar logistical challenges that are anticipated across the portfolio of proposed MBRI projects. As you know, pilot projects are typically small-scale implementations with rigorous monitoring, the results of which are used to test or support the viability of the design and approach for future adjustment and replication. It is unfortunate that we do not have the benefit of these data to inform the review of this project and others anticipated as part of the MBRI in the near future. Should the District agree that the concerns raised in the USACE (2008) report as well as those expressed by regional restoration experts were sufficient to require successful pilot project completion prior to authorization of subsequent projects, including the MedStar Hospital wetland creation project, we would support that precautionary approach.

Public Impacts and Benefits

The need to mitigate flooding and provide other public benefits is long overdue in the Middle Branch Patapsco River. The history of poor environmental stewardship which has negatively affected the surrounding underserved communities has led to the loss and degradation of shallow water habitats through filling and dredging of wetlands. Aside from direct sediment disturbance, the overall MBRI will likely entail a cumulatively significant loss of existing shallow water habitat in the Middle Branch Patapsco River. Based on the findings described in Woodland et al. (2022) the loss of shallow water habitat can diminish trophic pathways stemming from benthic production and strengthen planktonic trophic pathways which will likely enhance the delivery of methylmercury to the aquatic food web. The extent to which this may occur as a result of the projects is unclear. Additional research would help to illuminate the cumulative effects of the habitat conversions proposed under the MBRI and we would support any effort to fully describe the ramifications for local receptors, including members of the neighboring communities who consume fish caught in the Middle Branch.

Migratory Fish

The Patapsco River has been the focus of extensive connectivity restoration efforts to benefit migratory fish, including river herring (alewife and blueback herring, collectively). This includes the removal of Bloede Dam in 2018 and accompanying stock enhancement efforts. Despite these efforts, the returning spawning populations in the Patapsco River remain low relative to other systems in the region (Legett et al. 2023). Maintaining these unique spawning populations is also critically important given their depleted stock status (ASMFC 2017) and unique social-ecological functions (German et al. 2023). While certain measures (e.g., turbidity curtains) are proposed to minimize impacts to migrating species, we recommend that a time of year restriction on in-water work from March 1 to June 15 be observed for areas directly adjacent to the mouth of the Patapsco River to avoid adverse impacts to these fish during their sensitive spawning and rearing phases. This is necessary due to the relatively constricted entrance at this location. Should this required permit condition significantly extend the construction window for this project across multiple spawning seasons, we are willing to work with the applicant to determine how to best avoid and minimize impacts to these migratory fishes.

Contamination

We are concerned that this project represents the second in a series of projects that could enhance the delivery of contaminants into the estuarine food web. The geotechnical investigations (JPA Appendix B.2) completed for this project indicated that the project site contains elevated levels of persistent environmental contaminants such as heavy metals and petroleum hydrocarbons. While these levels were generally below the Effects Range Medium (ERM) level cited in NOAA's Screening Quick Reference Tables (NOAA 2008) there remains potential for adverse effects. The mechanisms by which common contaminants are incorporated by marine organisms are complex and largely depend on site-specific factors (Chen et al. 2014).

As described in the geotechnical analysis (JPA Appendix G), the low-bearing capacity of the existing sediments suggests that stone sills will likely sink approximately five feet into the existing substrate during construction, with additional settling anticipated over a period of 2.5 years. That sinking will displace approximately 15,000 cu yds of existing substrate, some of which is contaminated. We anticipate that this displaced material may be suspended by wave action until some relative equilibrium is reached. The applicant intends to employ a turbidity curtain during construction to mitigate the uncontrolled release of sediment. We support this measure and have recommended that the turbidity curtain be frequently inspected to ensure that it is effective throughout construction activities. In addition, the applicant is also proposing to pre-treat the project site with approximately 58 metric tons (MT) of activated carbon (AC) to diminish the bioavailability of mercury and PFAS. We also support this mitigative measure and have requested the monitoring results be shared with us, when available, to inform future potential project phases. Finally, we stress the importance of using clean sand fill in this wave-energy environment to ensure that any sediment mobilized from the site does not further challenge local water quality.

Monitoring and Adaptive Management

For large and complex ecosystem restoration efforts, we typically recommend that a monitoring and adaptive management plan be developed to ensure long-term project success. Given the scale of this project and the uncertainty around final elevations associated with wetland construction on existing low-bearing capacity sediments, we have previously recommended that such a plan be developed for MBRI projects (see recommendations in our February 15, 2024, letter for Site 5A). While the JPA materials did include a monitoring plan (JPA Appendix H) and adaptive management plan (JPA Appendix I), these plans were not linked. Coupling adaptive management with monitoring is necessary to ensure that success metrics are established, measured, and triggers for adaptive management actions are defined. The current plan includes conceptual success metrics, but no specific targets or thresholds for intervention. While these targets can be flexible (i.e., represent an acceptable range), they should be defined in the adaptive management plan. We acknowledge that the applicant will likely be required to meet basic vegetative cover requirements (e.g. 85% cover in 5 years), as is standard in Maryland, but note that challenges may extend beyond vegetation establishment. We also highlight that vegetation cover alone may not be a sufficient predictor for ecological function (see Weinstien et al. 2019). To more fully address our recommendations, the applicant should define when/how success will be evaluated and how long adaptive management will be pursued to ensure success. Should the applicant require examples of typical plans, we recommend they consider the approach outlined in Whitfield et al. (2022). We are also willing to provide additional examples, as needed.

Cumulative Impacts

While we agree that the Middle Branch Patapsco River estuary does present greatly diminished and degraded wetland habitat relative to historical conditions, we remain concerned regarding the cumulative effects associated with filling existing sub-tidal shallows for the purposes of marsh creation. Aside from the potential ramifications for the delivery and bioaccumulation of contaminants in the estuarine food web (Woodland et al. 2021), the filling of subtidal shallows may diminish primary and secondary aquatic productivity should the created wetlands fail to provide productive habitats for benthic infauna and nekton. The ability of created wetlands to recreate the functions apparent in reference marshes has been inconsistent and often exhibits extended time lags to meet functional equivalence (Broome et al. 2018, Weinstein et al. 2019). For example, created marshes at Poplar Island appear to present lower diversity of species and age classes for estuarine fishes (Meyer and Teer *in press*). The applicant is proposing semi-annual fish and nekton surveys to document the productivity of the project site prior to and following marsh establishment efforts. We support this monitoring effort and are willing to work with the project team to review results and discuss the temporal extent of this monitoring program.

EFH Conservation Recommendations

As stated above, we have highlighted the numerous potential technical challenges anticipated with the MBRI wetland creation projects, including those raised by USACE (2008). For these reasons we would support a pilot approach where the results of Site 5A restoration project can be used to inform this project and others in the MBRI portfolio. If you choose to approve this project prior to the construction of the Site 5A project, we recommend pursuant to Section 305(b)(4)(A) of the MSA that you adopt the following EFH conservation recommendations as special conditions of any Department of the Army permit issued to minimize adverse impacts on EFH:

- (1) Perform no in water work within 1,000 lf of the mouth of the Patapsco River (measured from the Potee Street Bridge) during the migratory fish spawning period (March 1 to June 15).
- (2) Require the use of a turbidity curtain throughout construction. Require that the turbidity curtain be inspected regularly (e.g., weekly) and following any significant wind-driven wave events to ensure structural integrity throughout project construction.
- (3) Require the development of an integrated monitoring and adaptive management plan with designated success criteria, methods and timelines for evaluation, and defined intervention approaches. Provide NMFS HESD with a copy of the proposed plan for review and comment before its approval
- (4) Provide NMFS HESD with the results of monitoring efforts, as detailed in JPA appendices H and I, including a summary of any adaptive management efforts required to meet established project success criteria.

Please note that Section 305(b)(4)(B) of the MSA requires you to provide us with a detailed written response to these EFH conservation recommendations, including a description of measures adopted by you for avoiding, mitigating, or offsetting the impact of the project on EFH.

In the case of a response that is inconsistent with our recommendations, Section 305(b)(4)(B) of the MSA also indicates that you must explain your reasons for not following the recommendations. Included in such reasoning would be the scientific justification for any disagreements with us over the anticipated effects of the proposed action and the measures needed to avoid, minimize, mitigate, or offset such effects pursuant to 50 CFR 600.920(k). This response must be provided within 30 days after receiving our EFH conservation recommendations and at least 10 days prior to permit issuance. Please also note that further EFH consultation must be reinitiated pursuant to 50 CFR 600.920(j) if new information becomes available, or if the project is revised in such a manner that affects the basis for the above determination.

Endangered Species Act

Threatened or endangered species under our jurisdiction including the endangered Atlantic sturgeon (*Acipenser oxyrinchus*) may be present in the project area. As the lead federal action agency, you are responsible for determining the nature and extent of effects and for coordinating with our Protected Resources Division as appropriate. Should you have any questions about the section 7 consultation process, please contact Brian Hopper at (240) 628-5420 or brian.d.hopper@noaa.gov.

Conclusion

As always, we are available to coordinate with your staff so that this project can move forward efficiently and expeditiously as possible while still meeting our joint responsibilities to protect and conserve aquatic resources. If you have any questions or need additional information, please contact Jonathan Watson in our Annapolis field office at jonathan.watson@noaa.gov or (978) 675-2180.

Sincerely,



Louis A. Chiarella
Assistant Regional Administrator
for Habitat and Ecosystem Services

cc:

USACE – J. DaVia; M. Teresi
NMFS HESD – K. Greene
NMFS PRD – B. Hopper
FWS – R. Li
EPA – E. French, C. Mazzarella
MDE – T. Roberson; M. Wallach
MD BPW – W. Morgante
MDNR – T. Redman
MAFMC – C. Moore

NEFMC – C. O’Keefe
ASFMC – R. Beal

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