August 1, 2016

Mr. David Olson
U.S. Army Corps of Engineers
Attn: CECW-CO-R
441 G Street, NW
Washington, D.C. 20314-1000

RE: Docket ID: COE-2015-0017 / RIN: 0710-AA73

Dear Mr. Olson:

On behalf of the Pew Charitable Trusts, I thank you for the opportunity to offer comments on the U.S. Army Corps of Engineers (the Corps') proposal to issue a new Nationwide Permit (NWP) for Living Shorelines (NWP B).

Pew strongly supports a new nationwide permit for living shorelines, which authorizes nature-based techniques to curb erosion – while conserving coastal habitats that people and nature rely upon. By finalizing NWP B, the Corps will remove a key federal permitting barrier for such projects and encourage greater implementation of natural infrastructure.

Background

People are drawn to places where land and water meet. More than 123 million people—39 percent of the U.S. population—live in "coastal shoreline" counties, those that are directly adjacent to the open ocean, major estuaries, and the Great Lakes (National Oceanic and Atmospheric Administration, 2013). The high concentration of people and property, combined with challenges such as erosion and sea-level rise, has led landowners to build infrastructure such as bulkheads or seawalls. This hardening of the shoreline, in turn, has caused loss of wetlands and natural habitats vital to communities and the environment.

A recent analysis found that at least 14 percent, about 14,000 miles, of the nation's tidal shoreline is currently hardened with shoreline protection structures. Without intervention, this

figure is expected to grow. If the current rate of shoreline armoring continues (approximately 124 miles per year), one-third of the U.S. tidal shoreline will be armored by 2100 (Gittman et al. 2015).

New Pew-supported research lead by marine ecologist Rachel Gittman, Ph.D. found clear distinctions in the quality of habitat for marine organisms provided along seawalls and bulkheads relative to natural shorelines. Specifically, the research found that seawalls have a significant negative effect on the biodiversity and abundance of marine life and vegetation. In areas with hard or "gray" structures along the shore, the study reported a nearly 25 percent loss of biodiversity and a 45 percent drop in the abundance of individual species. In contrast, the study found no significant difference in the types and number of fish near natural shorelines and those with a combination of rocks and vegetation. This research will be published in an upcoming *BioScience* article, *"Ecological Consequences of Shoreline Hardening: A Meta-analysis"* (Gitman, et al. *in press)*.

Maintaining biodiversity along the shoreline helps sustain ecosystem functions and services. For example, bivalves such as oysters and mussels filter nutrients and pollutants out of the water column, improving water quality, and small crustaceans and fishes serve as prey for larger commercially and recreationally valuable fishes. The more diverse and abundant organisms are in an ecosystem, the less likely human activities or natural disturbances are to result in a loss of ecosystem function or of entire species or populations (Gittman n.d.). Other critical benefits of healthy ecosystems and living shorelines include nutrient cycling, carbon sequestration, and storm surge abatement (Currin et al. 2010; Gedan et al. 2011; Spalding et al. 2014; Bilkovic et al. 2016). Living shoreline techniques mark a positive response to growing scientific understanding about alternatives to structural bank stabilization approaches.

Further, the durability and ecosystem benefits of living shorelines increase over time as the natural components of the shoreline establish themselves, compared to structural approaches which cause degradation of nearby habitats (Seitz et al. 2006). In terms of costs, while local construction markets vary greatly, numerous sources show that initial construction costs of nature-based projects can be less than structural techniques which begin to break down and depreciate immediately after construction. Additionally, lifetime maintenance costs are often less for nature-based approaches which require minor on-going maintenance versus full replacement (Restore America's Estuaries 2015).

Existing permits that address bank stabilization (NWP 13) and aquatic ecosystem restoration (NWP 27) do not cover most living shoreline activities. Thus, without the newly proposed permit, living shoreline projects would remain subject to greater federal scrutiny and longer permit reviews than hard infrastructure. We strongly agree with the Corps that, "by providing an efficient authorization option, landowners have an incentive to select an environmentally preferable bank stabilization option where appropriate."

Issuance of the new permit for living shorelines marks a significant and important step toward advancing nature-based solutions and offering landowners an environmentally preferred alternative to bulkheads and seawalls.

Comments on the conditions of the proposed NWP B – Living Shorelines

1. Consider revision to Condition A that provides greater project design flexibility

> *Condition A: The structures and fill area, including sills, breakwaters, or reefs, cannot extend into the waterbody more than 30 feet from the mean high water line or ordinary high water mark, unless the district engineer waives this criterion by making a written determination concluding that the activity will result in no more than minimal adverse environmental effects.*

In response to the request for comment on the proposed limit, a 30 foot limit on the extent of structures and fill area for living shorelines could be too limiting for many living shoreline projects. Structure placement and fill area have considerable differences based upon geographic and site-specific conditions like tidal range, erosion rate, fetch, channel width, and water depth which will inform final width of the project design. Some examples to demonstrate the variance of living shoreline project widths include:

- According to Davis et al. (2015), marshes created as living shorelines are typically less than 30 meters or approximately **98 feet** from the shoreline.
- Guidance by the Maryland Department of the Environment (2008) also depicts a profile of marsh creation design with low profile sill as 35 feet from mean high water (MHW).
- Designs by Hardaway et al. (2010) describe Chesapeake Bay marsh establishment living shoreline projects as typically ranging from 20-25 feet in width (Hardaway et al. 2010) from the shoreline; however it's unclear whether this reference includes a sill.

While this limit may accommodate many projects in the Chesapeake Bay, we are concerned it could have limited applicability for the Gulf coast and south Atlantic. Additionally, we understand several organizations have encouraged the Corps to expand the proposed limit, including the Commercial Real Estate Association which has proposed the limit be expanded to 70 feet.

In order to ensure that this permit applies broadly and accounts for regional differences, we would support a higher limit or encourage district engineers to set regionally appropriate

thresholds through a regional condition. We would also support a variation of this limit that would provide landowners and their consultants with greater design flexibility while maintaining no more than minimal adverse environmental effects. One alternative approach would be to establish an acreage-based limit that could be waived with a written determination of a district engineer. For example, eleven other existing NWPs - 12, 14, 21, 29, 39, 42, 43, 44, 50, 51, and 52 - set a half-acre limit for each single and complete project. Applying this approach would be consistent with other permits while providing greater design flexibility for the width of the project without requiring a waiver.

For example, a living shoreline project that is 250 linear feet along the bank with the placement of an offshore structure, 35 feet from the mean high waterline would require a waiver from the district engineer under the "as proposed" limit. This example project's footprint would make up approximately 8,750 ft^2 or 1/5 acre. An acreage based limit would establish a limit on project scale yet allow for greater flexibility in design. Finally, we do not believe any mitigation requirement is appropriate for living shoreline projects because they result in a net ecological gain through habitat enhancement.

2. Consider elimination of proposed Condition G

> *Condition G: The activity does not involve discharges of dredged or fill material into special aquatic sites, unless the district engineer waives this criterion by making a written determination concluding that the discharge will result in no more than minimal adverse environmental effects.*

We strongly support the intent of this limit which protects the resource functions and services of special aquatic sites. However, we believe this condition could be overly restrictive for living shoreline projects which sometimes involve discharge of fill material into special aquatic sites. Living shoreline fill material consists primarily of native materials and provides property owners with erosion control while maintaining or enhancing the aquatic resource functions and services.

The definition of special aquatic sites is quite broadly defined at 40 CFR 230.3(m) and 40 CFR Part 230, Subpart E.

- 40 CFR 230.3(m) – *Special aquatic sites* means those sites identified in subpart E. They are geographic areas, large or small, possessing special ecological characteristics of productivity, habitat, wildlife protection, or other important and easily disrupted ecological values. These areas are generally recognized as significantly influencing or positively contributing to the general overall environmental health or vitality of the entire ecosystem of a region (see § 230.10(a)(3)).

- 40 CFR Part 230, Subpart E
    - § 230.40 — Sanctuaries and refuges.
    - § 230.41 — Wetlands.
    - § 230.42 — Mud flats.
    - § 230.43 — Vegetated shallows.
    - § 230.44 — Coral reefs.
    - § 230.45 — Riffle and pool complexes.

The proposed permit requires every permittee to submit pre-construction notification (PCN) to the district engineer prior to commencing construction and requires applicants to include a delineation of special aquatic sites. PCN, a separate and existing proposed requirement, ensures the district engineer has the opportunity to review proposed living shoreline projects before they are constructed.

Living shorelines, while utilizing some fill, maintain or enhance ecological processes and provide a positive alternative to shoreline armoring. Structural bank stabilization approaches, such as bulkhead and seawall projects, on the other hand typically do not involve any or much fill. Despite this difference, living shorelines techniques have been clearly demonstrated to have less adverse impact on the aquatic ecosystem. Additionally, while the footprint of many structural bank stabilization projects may not encroach upon special aquatic sites, they have caused negative impacts on the aquatic ecosystem and adjacent special aquatic sites.

Finally, only 5 of the existing NWPs contain any mention of special aquatic sites: NWP 13, 14, 18, 22, and 36. Notably, NWP 27 and 48 do not include any similar limitation. We appreciate the spirit of the intent, but encourage the Corps to consider removing this limitation because living shoreline activities maintain or enhance ecological processes.

3. Discussion of suitability of proposed pre-construction notification (PCN) questions for bank stabilization activities

> *The first question will ask whether the applicant has considered the use of living shorelines, if he or she is submitting a PCN for a bank stabilization activity. The second question will ask if there are consultants and contractors in the area that are qualified to design and construct living shorelines. We will also modify our automated information system to track the responses to those questions. We will use the responses to those questions during evaluations of the use of NWPs 13 and B.*

We applaud the Corps for considering ways to track information and better evaluate the use of NWPs 13 and B; however, we have concerns about the specific proposed PCN questions. The proposed PCN thresholds for bank stabilization under NWP 13 are only triggered if a project,

"(1) involves discharges into special aquatic sites; (2) is in excess of 500 feet in length; or (3) will involve discharge greater than an average of one cubic yard per running foot along the bank below the plan of the ordinary high water mark or the high tide line."

Projects requiring PCN reflect the largest and greatest impact projects. Any resulting data from the proposed questions will come from an unrepresentative sample and be skewed by responses from too limited a data set to provide any value. For example, according to the National Marine Fisheries Service (2014), the average project length for NWP 13 is 215 linear feet. It would be more valuable and useful to know whether the average project considered a living shoreline approach versus knowing whether or not living shoreline approach was considered by just a handful of much larger projects.

We are also concerned that the proposed questions are not directed to the appropriate audience. Asking consultants and contractors, i.e. those who are likely responsible for submitting the PCN form on the landowner's behalf, about whether the applicant considered other approaches or whether there are contractors qualified to carry out an alternative approach is not appropriate.

We appreciate the spirit of collecting more information and greater transparency but caution any reliance on the results for any evaluation given the limited dataset. PCN forms involve "checking boxes" as opposed to meaningful research. We encourage the Corps to work cooperatively with partners and in coordination with state agencies to determine the availability of living shoreline contractors.

Conclusion

We strongly support the Corps' proposal to issue NWP B for living shorelines and appreciate the opportunity to offer our comments. The proposed permit provides landowners with a more efficient authorization option, reduces time and costs associated with living shoreline project approvals, and encourages the consideration of a nature-based approach to address erosion. When adopted, the permit will ensure nature-based approaches to bank stabilization are not held to higher review standards than hard infrastructure, helping to level the playing field.

Thank you for the consideration of our comments and we look forward to working with you to advance the Corps' commitment to environmental protection.

Sincerely,

Laura Lightbody
Project Director, Flood-Prepared Communities
The Pew Charitable Trusts

Diane Hoskins
Officer, Government Relations
The Pew Charitable Trusts

References Cited:

Bilkovic, D. M., Mitchell, M., Mason, P., and Duhring, K. (2016). The Role of Living Shorelines as Estuarine Habitat Conservation Strategies. Coastal Management, 44(3), 161-174.

Currin, C. A., Chappell, W. S., and Deaton, A. (2010). Developing alternative shoreline armoring strategies: the living shoreline approach in North Carolina. *Shipman, H., Dethier, M. N., Gelfenbaum, G., Fresh, K. L., and Dinicola, R. S., eds,. Puget Sound Shorelines and the Impacts of Armoring-Proceedings of a State of the Science Workshop.* 91-201.

Davis, J. L., Currin, C. A., O'Brien, C., Raffenburg, C., and Davis, A. (2015). Living shorelines: coastal resilience with a blue carbon benefit. *PloS ONE*, *10*(11), e0142595.

Gedan, K. B., Kirwan, M. L., Wolanski, E., Barbier, E. B., and Silliman, B. R. (2011). The present and future role of coastal wetland vegetation in protecting shorelines: answering recent challenges to the paradigm. Climatic Change, 106(1), 7-29.

Gittman, R.K., Fodrie, F.J., Popowich, A.M., Keller, D.A., Bruno, J.F., Currin, C.A., Peterson, C.H. and Piehler, M.F. (2015). Engineering away our natural defenses: an analysis of shoreline hardening in the US. *Frontiers in Ecology and the Environment*, *13*(6), 301-307.

Gittman, R. K. (n.d.). 'Living Shorelines Provide Better Habitat and Erosion Protection Than Bulkheads' Retrieved July 22, 2016, from http://www.pewtrusts.org/en/research-and-analysis/q-and-a/2016/07/living-shorelines-provide-better-habitat-and-erosion-protection-than-bulkheads

Gittman, R. K., Popowich, A. M., Bruno, J. F., and Peterson, C. H. (2014). Marshes with and without sills protect estuarine shorelines from erosion better than bulkheads during a Category 1 hurricane. Ocean and Coastal Management, 102, 94-102.

Gittman, R.K., Scyphers, S.B., Smith, C.S., Neyland, I.P., and Grabowski, J.H. *in press*. Ecological consequences of shoreline hardening: a meta-analysis. *Bioscience*.

Maryland Department of the Environment (2008). Shoreline erosion control guidelines for waterfront property owners, 2nd Edition. Available online at: http://dnr2.maryland.gov/ccs/Publication/Shoreerostext.pdf

National Marine Fisheries Service. (2014). Endangered Species Act Section 7 Consultation Biological Opinion and Conference Biological Opinion. 437 pp.

National Oceanic and Atmospheric Administration. (2013). National Coastal Population Report: Population Trends from 1970 to 2020. Retrieved from http://oceanservice.noaa.gov/facts/

coastal-population-report.pdf/

Restore America's Estuaries. (2015). Living Shorelines: From Barriers to Opportunities. Retrieved from https://www.estuaries.org/images/stories/RAEReports/RAE_LS_Barriers_report_final.pdf

Scyphers, S. B., Powers, S. P., Heck Jr, K. L., and Byron, D. (2011). Oyster reefs as natural breakwaters mitigate shoreline loss and facilitate fisheries. PloS ONE, 6(8).

Seitz, R. D., Lipcius, R. N., Olmstead, N. H., Seebo, M. S., and Lambert, D. M. (2006). Influence of shallow-water habitats and shoreline development on abundance, biomass, and diversity of benthic prey and predators in Chesapeake Bay. *Marine Ecology Progress Series*, *326*, 11-27.

Spalding, M. D., Ruffo, S., Lacambra, C., Meliane, I., Hale, L. Z., Shepard, C. C., and Beck, M. W. (2014). The role of ecosystems in coastal protection: Adapting to climate change and coastal hazards. Ocean and Coastal Management, 90, 50-57.