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April 25, 2016

Via U.S. Mail and Electronic Mail

Colonel Kevin P. Landers, Sr.
District Engineer
U.S. Army Engineers District, Wilmington
Corps of Engineers
69 Darlington Avenue
Wilmington, N.C. 28403-1343
Attn: Ronnie Smith
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Re: Regional General Permit No. 197800080—Comments

Dear Colonel Landers:

The Southern Environmental Law Center (SELC) submits these comments concerning Regional General Permit 80 (RGP 80) on behalf of the North Carolina Coastal Federation (NCCF), the National Wildlife Federation (NWF), and the North Carolina Wildlife Federation (NCWF).

NCCF is a nonprofit environmental organization that since 1982 has worked to protect and restore coastal water quality and habitats throughout the North Carolina coast. The National Wildlife Federation is the nation's largest member-supported conservation organization. It is committed to reconnecting people with nature, and inspiring Americans to protect wildlife for our children's future. NCWF is a conservation organization that brings together outdoor enthusiasts, government and industry to protect North Carolina's wildlife and habitat. And SELC, through its work over the past 30 years with groups like NCCF, NWF, and NCWF, has become a leading force in protecting the South's air, water, and special places. We offer these comments in response to the Wilmington District's (Corps') public notice dated March 25, 2016 concerning RGP 80.

RGP 80 is a general permit that the Corps first issued more than a decade ago under the authority of the Clean Water Act¹ and the Rivers & Harbors Act of 1899.² The Corps uses RGP 80 to authorize activities that are designed “[t]o maintain, repair, construct and backfill bulkheads and riprap structures along eroding high ground shorelines”³ The Corps also uses RGP 80 to authorize the construction of “riprap structures to protect eroding wetland shorelines .

¹ 33 U.S.C. § 1344.

² 33 U.S.C. § 403.

³ U.S. Army Engineers District, Wilmington, Proposed General Permit No. 197800080.

...⁴ As required by Section 404 (e) of the CWA, the Corps must reauthorize RGP 80 every five years.⁵ This public comment period is part of that reauthorization process.

Summary of Comments

- 1) Section 330.5 of the Corps' regulations requires that the Corps make available during the public comment period "information supporting the Corps' provisional determination" to reauthorize any general permit.⁶ The Corps has not made any supporting information available during the comment period for RGP 80. By failing to do so, the Corps has violated its own regulations as well as denied the public a legitimate opportunity to comment on RGP 80.
- 2) Because the bulkheads and riprap approaches covered by RGP 80 have bioengineered analogs, such approaches must be considered during the reauthorization process. If the Corps were to fail to consider bioengineered approaches such as living shorelines, it would be in violation of the CWA's 404(b)(1) Guidelines (Guidelines) and the National Environmental Policy Act (NEPA). Both require that the Corps consider alternatives before it reauthorizes a general permit.
- 3) The Guidelines provide that the Corps cannot develop a regional general permit for an activity that has more than "minimal" adverse effects on the aquatic environment individually or cumulatively.⁷ As proposed, RGP 80 would allow permit applicants to build bulkheads and riprap revetments up to 500 feet in length without any mitigation and without any notice to the Corps prior to construction. A 500 foot-long bulkhead, regardless of where it is constructed, has more than "minimal" impacts on the aquatic environment. Unless the Corps puts further restrictions on RGP 80, RGP 80 will be in violation of the Guidelines.⁸
- 4) Because scientific studies have demonstrated that in most cases living shorelines are more effective in curbing erosion, are less expensive, and are better for the environment than bulkheads and riprap revetments, the use of living shorelines is in the public interest. Bulkheads and riprap revetments, in contrast, have negative ecological and societal impacts. In light of the negative impacts associated with bulkheads and the superior living shoreline alternative, the Corps must find that bulkheads and riprap revetments are contrary to the public interest.
- 5) The Corps has not taken sea level rise into account in developing the proposed RGP 80. Considering that sea level rise will have a profound impact on our coastlines, the Corps cannot ignore sea level rise in the reauthorization of RGP 80.

⁴ *Id.*

⁵ *See* 33 U.S.C. § 1344(e).

⁶ 33 C.F.R. § 330.5(b)(2)(i).

⁷ *See* 40 C.F.R. § 230.7.

⁸ *Id.*

- 6) To comply with the Guidelines, the Corps must take into consideration secondary effects such as scouring that will take place as a result of the Corps' reauthorization of bulkheads and riprap revetments under RGP 80. If the Corps does not consider such effects prior to reauthorizing RGP 20, it will be acting in violation of the Guidelines.
- 7) Bulkheads and riprap revetments will cause a reduction in the amount of habitat for fish and wildlife and will cause harm to adjacent marsh and reduce the capacity of that marsh to assimilate nutrients, purify water, and reduce wave energy. Unless the Corps can demonstrate that these impacts are not significant, it will not be able to reauthorize RGP 80.
- 8) As explained further below, there are aspects of RGP 80 and its conditions that offer some protection to coastal waters. We are concerned, however, that the majority of permits issued for bulkhead and riprap projects in the 20 coastal counties are processed under a state general permit that does not contain these protections.

Background

For the last four hundred years, we have used bulkheads, seawalls, and revetments to curb erosion along our shorelines. As our coastlines have become increasingly developed, the use of these structures has accelerated. Over the last few decades, however, we have grown to understand that these structures are causing serious ecological and societal harm.

A comprehensive body of scientific research is now in place that shows that when we armor our shorelines, we greatly reduce the function and resilience of highly productive and valuable coastal ecosystems.⁹ Shoreline armoring, specifically the use of seawalls or bulkheads, can steepen and shorten shallow intertidal habitat over time, resulting in the loss of foraging habitat for shore birds and commercially and recreationally valuable fishes and crustaceans.¹⁰ Impacts to the marsh in front of such structures can also affect the habitat of marsh birds and wading birds.

⁹ J. E. Dugan, *et al.*, 8.02 *Estuarine and Coastal Structures: Environmental Effects, a Focus on Shore and Nearshore Structures*, in TREATISE ON ESTUARINE AND COASTAL SCIENCE 17–41 (Eric Wolanski and Donald McLusky eds. 2011); JAMES G. TITUS, MITIGATING SHORE EROSION ALONG SHELTERED COASTS (1998); James G. Titus, *Rising Seas, Coastal Erosion, and the Takings Clause: How to Save Wetlands and Beaches Without Hurting Property Owners*. 57 Maryland Law Review 1279–1318 (1998).

¹⁰ M. N. Dethier *et al.*, *Multiscale Impacts of Armoring on Salish Sea Shorelines: Evidence for Cumulative and Threshold Effects*, 175 ESTUARINE, COASTAL, AND SHELF SCIENCE 106-117 (2016); J.E. Dugan *et al.*, *Ecological Effects of Coastal Armoring on Sandy Beaches*, 29 MARINE ECOLOGY 160–170 (2008).

Bulkheads and seawalls provide less physically complex habitat as compared with natural shorelines, thus they support fewer species.¹¹ Specifically, a recently completed meta-analysis of the peer-reviewed literature found that seawalls and bulkheads supported 23 percent lower biodiversity and 45 percent fewer organisms than natural shorelines.¹² Because bulkheads and seawalls are constructed landward of tidal wetlands, these structures also increase seaward scour during storm events and will prevent upslope migration of tidal wetlands as sea level rises, leading to their eventual loss (termed “coastal squeeze”).¹³ These findings suggest that as coastal development continues to increase, management policies and actions that influence the types of engineered shore structures used will greatly impact the habitat value and functioning (e.g., nutrient uptake,¹⁴ carbon sequestration,¹⁵ and storm resilience¹⁶) of nearshore ecosystems.

¹¹ Maura G. Chapman, *Paucity of Mobile Species on Constructed Seawalls: Effects of Urbanization on Biodiversity*, 264 MARINE ECOLOGY PROGRESS SERIES 21–29 (2003); Rachell K. Gittman, *Living Shorelines Can Enhance the Nursery Role of Threatened Estuarine Habitats*, 26 ECOLOGICAL APPLICATIONS 249–263 (2016); S. B. Scyphers, *Natural Shorelines Promote the Stability of Fish Communities in an Urbanized Coastal System*, in PLOS ONE 10:e0118580 (Maura G. Chapman ed. 2015); R. Seitz, *Influence of Shallow-Water Habitats and Shoreline Development on Abundance, Biomass, and Diversity of Benthic Prey and Predators in Chesapeake Bay*, 326 MARINE ECOLOGY PROGRESS SERIES 11–27 (2006).

¹² Rachel K. Gittman *et al.*, *Ecological Consequences of Shoreline Hardening: A Meta-Analysis (in review)*, Bioscience.

¹³ C.M. Bozek and D.M. Burdick, *Impacts of Seawalls on Saltmarsh Plant Communities in the Great Bay Estuary, New Hampshire U.S.A.*, 13 WETLANDS ECOLOGY AND MANAGEMENT 553–568 (2005); N. Pontee, *Defining Coastal Squeeze: A Discussion*, 84 OCEAN & COASTAL MANAGEMENT 204–207 (2013); J. Titus, *Rising Seas, Coastal Erosion, and the Takings Clause: How to Save Wetlands and Beaches Without Hurting Property Owners*, 57 MARYLAND LAW REVIEW 1279–1318 (1998).

¹⁴ T. O'Meara *et al.*, *Effects of Shoreline Hardening on Nitrogen Processing in Estuarine Marshes of the US Mid-Atlantic Coast*, 23 WETLANDS ECOLOGY AND MANAGEMENT 385–394 (2015).

¹⁵ J. L. Davis, *et al.*, *Living Shorelines: Coastal Resilience with a Blue Carbon Benefit*, 10 PLOS ONE e0142595 (2015).

¹⁶ Katie K. Arkema *et al.*, *Embedding Ecosystem Services in Coastal Planning Leads to Better Outcomes for People and Nature*, 112 PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA 739–739 (2015); Katie K. Arkema, *et al.*, *Coastal Habitats Shield People and Property from Sea-Level Rise and Storms*, 3 NATURE CLIMATE CHANGE 1–6 (2013); Rachel K. Gittman, *et al.*, *Marshes with and without Sills Protect Estuarine Shorelines from Erosion Better than Bulkheads During a Category 1 Hurricane*, 102 OCEAN & COASTAL MANAGEMENT 94–102 (2014); Katie K. Arkema *et al.*, *Embedding Ecosystem Services in Coastal Planning Leads to Better Outcomes for People and Nature*, 112 PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA 739–739 (2015).

The societal impacts of these changes are numerous too. As the fisheries along the coast decline, the livelihoods of commercial and recreational fishermen are put at risk.¹⁷ As the marsh disappears, so too does the aesthetic beauty of the coast and the tourism jobs that depend on showcasing it. The fishing industries and tourism industries on the North Carolina coast are not insignificant. The fishing industry in North Carolina supported 18,000 jobs and brought in approximately \$2 billion in revenues in 2011.¹⁸ Tourism in North Carolina's coastal counties supported over 206,000 jobs and brought in over \$21 billion in expenditures that same year.¹⁹

Despite the adverse societal and ecological impacts of armoring, the rate of shoreline armament continues to increase. A recent study confirmed that 14 percent of the United States coastline has been armored with bulkheads, seawalls, and revetments.²⁰ If the current armament trend continues, 30 percent of our coastlines will be armored by 2100.²¹ Unfortunately, many estuaries in this country surpassed the 30 percent threshold decades ago. For example, by 1997, a third of Mobile Bay's shoreline was armored.²² Mobile Bay is not alone. Some parts of the Chesapeake Bay in Virginia and Maryland, as well as parts of Barnegat Bay in New Jersey, are now 50 percent armored.²³

North Carolina's estuaries will likely suffer a similar fate. Developers favor coastal areas with gradual elevation profiles like North Carolina.²⁴ As these low-lying areas are developed, the

¹⁷ Rachel K. Gittman, *et al.*, *Engineering Away our Natural Defenses: an Analysis of Shoreline Hardening in the US*, 13(6) FRONT ECOL. ENVIRON., 301, 306 (2015).

¹⁸ NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION FISHERIES, NOAA REPORT FINDS THAT COMMERCIAL AND RECREATIONAL SALTWATER FISHING GENERATES \$199 BILLION IN 2011 (MAR. 7, 2013), *available at* http://www.nmfs.noaa.gov/mediacenter/2013/03/07_noaa_report_finds_commercial_and_recreational.html.

¹⁹ U.S. TRAVEL ASSOCIATION, THE ECONOMIC IMPACT OF TRAVELERS ON NORTH CAROLINA COUNTIES 2013, 2 (2014).

²⁰ Rachel K. Gittman, *et al.*, *Engineering Away our Natural Defenses: an Analysis of Shoreline Hardening in the US*, 13(6) FRONT ECOL. ENVIRON., 301, 306 (2015).

²¹ *Id.*

²² Scott L. Douglass, *et al.*, *The Tide Doesn't Go Out Anymore--The Effect of Bulkheads on Urban Bay Shorelines*, Civil Engineering and Marine Sciences Departments-University of South Alabama 67.2 & 3 (1999) p. 19, 21.

²³ J. E. Dugan, *et al.*, 8.02 *Estuarine and Coastal Structures: Environmental Effects, a Focus on Shore and Nearshore Structures*, in TREATISE ON ESTUARINE AND COASTAL SCIENCE 17, 22 (Eric Wolanski and Donald McLusky eds. 2011); *see also* Fabio Bulleri and Maura G. Chapman, *The Introduction of Coastal Infrastructure as a Driver of Change in Marine Environments*, 47 JOURNAL OF APPLIED ECOLOGY 26, 27 (2010) (50 percent of some developed coastlines in California, Virginia, and Maryland have been armored).

²⁴ Rachel K. Gittman, *et al.*, *Engineering Away Our Natural Defenses: An Analysis of Shoreline Hardening in the US*, 13(6) FRONT ECOL. ENVIRON., 301, 306 (2015).

rate of armoring will increase there as well. In Atlantic Beach, North Carolina, for instance, the percentage of armored shoreline already exceeds 35 percent.²⁵

However, the rate of armoring in this state, and elsewhere, could decrease if property owners were to opt for bioengineered shorelines instead of bulkheads. As numerous scientific studies have shown, the “living shoreline” approaches and naturally vegetated marsh and intertidal oyster shorelines are more effective at preventing erosion, more resilient to storms, and more cost effective to install and maintain than shoreline armoring.²⁶ Additionally, “living” or bioengineered shorelines enhance coastal habitats by supporting higher abundances, biomass, and diversity of marine organisms than bulkheads. Bioengineered shorelines often include marsh vegetation or intertidal oysters, which provide more structurally complex refuges and foraging opportunities than bulkheaded shorelines.²⁷

In light of the benefits of bioengineered shorelines and the detriments of armored shorelines, some Corps districts such as the Mobile District have embraced bioengineered techniques. Before a permit applicant in coastal Alabama or coastal Mississippi can obtain a bulkhead permit, the applicant must demonstrate that a bioengineered shoreline is not feasible.²⁸ It is time that other Corps districts follow the lead of the Mobile District. For instance, the Wilmington District should be making every attempt to encourage the use of bioengineered shoreline techniques. If the Wilmington District were to ignore the growing body of scientific studies showing that bioengineered shorelines are a superior alternative to armored shorelines, as explained below, it would be violating federal law. The Wilmington District would also be doing

²⁵ NORTH CAROLINA DIVISION OF COASTAL MANAGEMENT, NORTH CAROLINA ESTUARINE SHORELINE MAPPING PROJECT 2012 STATISTICAL REPORTS 26 (2015), *available at* <http://ncdenr.s3.amazonaws.com/s3fs-public/Coastal%20Management/GIS/Data/ESMP%202012%20Report%20FINAL%2001302015.pdf>.

²⁶ Rachel K. Gittman *et al.*, Marshes with and without Sills Protect Estuarine Shorelines from Erosion Better than Bulkheads During a Category 1 Hurricane, 102 OCEAN & COASTAL MANAGEMENT 94–102 (2014); S. B. Scyphers *et al.*, *Participatory Conservation of Coastal Habitats: The Importance of Understanding Homeowner Decision Making to Mitigate Cascading Shoreline Degradation*, 8 CONSERVATION LETTERS 41-49 (2015); S. Crooks and R. K. Turner, *Integrated coastal management: sustaining estuarine natural resources*, in 29 ADVANCES IN ECOLOGICAL RESEARCH 241–289 (D. B. Nedwell and D. G. Raffaelli., eds. 1999); I. Möller *et al.*, *Wave Attenuation over Coastal Salt Marshes under Storm Surge Conditions*, 7 NATURE GEOSCIENCE 727–731 (2014); B. P. Piazza, *The potential for created oyster shell reefs as a sustainable shoreline protection strategy in Louisiana*, 13 RESTORATION ECOLOGY 499 – 506 (2005); C. C. Shepard *et al.*, *The Protective Role of Coastal Marshes: A Systematic Review and Meta-Analysis*, 6 PLOS ONE e27374–11 (2011).

²⁷ C. H. Peterson, *Living Shorelines Can Enhance the Nursery Role of Threatened Estuarine Habitats*, 26 ECOLOGICAL APPLICATIONS 249–263 (2016).

²⁸ See Army Corps of Engineers, Mobile District, ALG10-2011 and ALG11-2011 (2011); see Army Corps of Engineers, Mobile District, MSGP-01 and MSGP-03 (2013).

a disservice to those who rely on the North Carolina coast for their livelihood, or who simply enjoy the coast and its abundant natural resources.

Comments

Below we provide our comment on the proposed RGP 80. We ask that the Corps respond to each of the comments and their subparts, as well as to the series of questions that we have posed at the end of these comments.

- 1) The Corps neglected to make available to the public a draft decision document providing the supporting information for RGP 80, and thus, has failed to provide a genuine public comment period.**

Section 330.5(b)(2)(i) of the Corps regulations states as follows:

Upon proposed issuance of new NWP's or modification, suspension, revocation, or reissuance of existing NWP's, the Chief of Engineers will publish a document seeking public comments, including the opportunity to request a public hearing. *This document will also state that the information supporting the Corps' provisional determination that proposed activities comply with the requirements for issuance under general permit authority is available at the Office of the Chief of Engineers and at all district offices.*²⁹

Although this provision applies to the Chief of Engineers when the Corps is proposing to issue or reauthorize a nationwide permit, this provision has just as much relevance to the development and reauthorization of regional general permits. This provision is designed to ensure that the public has the information it needs to analyze and understand the reasoning the Corps is using to support its decision to reauthorize the general permit at issue. Every five years the Corps is required under Section 404(e) of the CWA to take a hard look at the existing general permit and determine whether it should be reissued. Unless the Corps makes available any information supporting the Corps' decision to reauthorize the permit, the public has no ability to determine whether the Corps has taken that hard look.

Furthermore, as in this case, the landscape surrounding a general permit may have changed dramatically since it was last reauthorized. As explained below, the science surrounding living shorelines has advanced considerably over the last five years, yet without any supporting documentation, the public cannot determine what if any consideration the Corps has given to living shorelines in making its provisional determination to reissue RGP 80. Similarly, the science on sea level rise has developed further over the last five years. Without supporting documentation, the public has no way to gauge whether the Corps has taken sea level rise into account in deciding to reauthorize RGP 80.

²⁹ 33 C.F.R. § 330.5(b)(2)(i)(emphasis added).

In light of the Corps' failure to adequately inform the public about its rationale for reauthorizing RGP 80, the Corps must first set forth that rationale in a draft decision document, make that document available to the public, and then provide a second comment period for RGP 80. That is the only cure for the Corps' procedural deficiency.

- 2) To comply with the Guidelines and NEPA, the Corps would have to adequately address alternatives.**
 - a) To comply with the Guidelines, the Corps would have to consider all practicable alternatives.**

The Guidelines were developed by the Environmental Protection Agency (EPA) in conjunction with the Corps to provide substantive criteria to be applied whenever an applicant sought to obtain a permit for a discharge of dredged or fill material under Section 404 of the CWA.³⁰ The Corps must apply the Guidelines whether an applicant is seeking an individual or a general permit.³¹ In short, the Guidelines ensure that benefits associated with a project outweigh the damage caused by those activities. In the end, if a permit applicant cannot meet the requirements of the Guidelines, the Corps must deny the application.³² Similarly, the Corps cannot issue a general permit that would allow a permit applicant to circumvent those requirements.

One of the key determinations that the Corps must make during this evaluation is whether there is a "practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem"³³ An alternative is practicable under the Guidelines if it is "available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes."³⁴

When the Corps prepared its decision document for RGP 80 in 2010 (2010 Decision Document),³⁵ it offered only two alternatives for the general permit; it stated that the Corps could require permit applicants to obtain individual permits for bulkheads and riprap revetments or could require those applicants to follow all the conditions of NWP13. Over the past 5 years, another practicable alternative has been identified—living shorelines. If the Corps were to fail to consider living shorelines as an alternative to bulkheads and riprap revetments during this reauthorization period, the Corps would be violating the Guidelines.

³⁰ 40 C.F.R. §§ 230.1, 230.2.

³¹ 33 U.S.C. §§ 1344(e)(1)(A), 1344(b).

³² 33 C.F.R. § 320.4(a)(1).

³³ 40 C.F.R. § 230.10(a).

³⁴ 40 C.F.R. § 230.10(a)(2).

³⁵ DEPARTMENT OF THE ARMY, ENVIRONMENTAL ASSESSMENT, 404(B)(1) ANALYSIS, FINDING OF NO SIGNIFICANT IMPACT (FONSI), AND STATEMENT OF FINDINGS, 1-19 (Dec. 27, 2010).

In its most recent guidance document on living shorelines, the National Oceanic and Atmospheric Administration defines a living shoreline as follows:

Living shoreline is a broad term that encompasses a range of shoreline stabilization techniques along estuarine coasts, bays, sheltered coastlines, and tributaries. A living shoreline has a footprint that is made up mostly of native material. It incorporates vegetation or other living, natural “soft” elements alone or in combination with some type of harder shoreline structure (e.g. oyster reefs or rock sills) for added stability. Living shorelines maintain continuity of the natural land–water interface and reduce erosion while providing habitat value and enhancing coastal resilience.³⁶

In short, living shorelines are a bioengineered solution to erosion.

The ecological benefits of living shorelines over bulkheads and riprap shoreline projects are considerable. As one study explained, living shorelines, with or without a hardened element such as a sill, “provide clear ecological advantages over traditional armouring [sic] of the shore, such as increased primary productivity, improved water quality or enhancement of habitats for birds, amphibians and crabs.”³⁷ As the study concluded, “In general, there was a demonstrative benefit in constructing a marsh-sill (or breakwater³⁸) instead of a riprap revetment in terms of the presence of intertidal infauna with a diversity of ecological roles.”³⁹ Another benefit of living shorelines is that they can be designed to incorporate fringe marshes along the shoreline. These fringe marshes can “provide a tremendous return in ecosystem services.”⁴⁰

In light of all the benefits of living shorelines and in light of the fact that they are more effective in curbing erosion than bulkheads (because they do not reflect wave energy and cause erosion elsewhere), the Corps would be acting in violation of NEPA if it were to fail to consider living shorelines in the 2016 Decision Document. In its 2010 Decision Document, the Corps

³⁶ National Oceanic and Atmospheric Administration, *Guidance for Considering the Use of Living Shorelines* 7 (2015).

³⁷ Fabio Bulleri and Maura G. Chapman, *The Introduction of Coastal Infrastructure as a Driver of Change in Marine Environments*, 47 *JOURNAL OF APPLIED ECOLOGY* 26, 30-31 (2010); see also, D. M. Bilkovic, and M. M. Mitchell, *Ecological Tradeoffs of Stabilized Salt Marshes as a Shoreline Protection Strategy: Effects of Artificial Structures on Macrobenthic Assemblages*, 61 *ECOLOGICAL ENGINEERING* 469, 479 (2013).

³⁸ Steven B. Scyphers, *et al.*, *Ecological Value of Submerged Breakwaters for Habitat Enhancement on a Residential Scale*, *Env. Management* 1 (Nov. 4, 2014).

³⁹ D. M. Bilkovic, and M. M. Mitchell, *Ecological Tradeoffs of Stabilized Salt Marshes as a Shoreline Protection Strategy: Effects of Artificial Structures on Macrobenthic Assemblages*, 61 *ECOLOGICAL ENGINEERING* 469, 469 (2013).

⁴⁰ C. A. Currin, *et al.*, *Developing Alternative Shoreline Armoring Strategies: The Living Shoreline Approach in North Carolina*, in *PUGET SOUND SHORELINES AND THE IMPACTS OF ARMORING—PROCEEDINGS OF A STATE OF THE SCIENCE WORKSHOP* 91, 93 (2010).

identified only the following alternatives: no action, minimization, and mitigation.⁴¹ The Corps then rejected each of these alternatives. If the Corps were to apply the same analysis in the 2016 Decision Document, it would be completely inadequate. In 2010, the Corps had a somewhat viable excuse for not considering living shorelines—the science was still developing—but today there is a robust body of scientific knowledge that demonstrates that living shorelines are a viable alternative to bulkheads.

b) To comply with NEPA, the Corps would have to adequately consider all reasonable alternatives.

The Corps will prepare an environmental assessment (EA) to publish with RGP 80. The EA will be included in the 2016 Decision Document. Like an environmental impact statement, an EA must contain an alternatives analysis.⁴² As the NEPA regulations provide, an EA “should include brief discussions of . . . alternatives as required by [42 U.S.C. § 4332(2)(E)] . . . [and] environmental impacts of . . . alternatives.”⁴³ These regulations go on to state that federal agencies should use the NEPA process “to identify and assess the reasonable alternatives to proposed actions that will avoid or minimize adverse effects of these actions upon the quality of the human environment.”⁴⁴

To make a “reasoned choice” as to which alternatives should be selected, the permitting agency must be able to select those alternatives that relate to the purpose of the general permit.⁴⁵ In this case, the Corps must select alternatives that are designed to curb erosion. Because living shorelines are designed to curb erosion, are comparably priced, and are as effective as bulkheads, if the Corps were to fail to consider living shorelines as a reasonable alternative to bulkheads, the Corps would be violating federal law.

3) To comply with Section 404 (e) of the CWA and the Guidelines, the impacts of any bulkhead or riprap revetment authorized under RGP 80 would have to be “minimal.”

Before the Corps can issue a general permit, the CWA and its implementing regulations require the Corps to make a finding that the permit would have minimal adverse effects on the environment, when considered both individually and cumulatively.⁴⁶ The Guidelines narrow this

⁴¹ DEPARTMENT OF THE ARMY, ENVIRONMENTAL ASSESSMENT, 404(B)(1) ANALYSIS, FINDING OF NO SIGNIFICANT IMPACT (FONSI), AND STATEMENT OF FINDINGS 6 (Dec. 27, 2010).

⁴² See 40 C.F.R. § 1508.9.

⁴³ *Id.*

⁴⁴ 40 C.F.R. § 1500.2(e); see *Sierra Club v. U.S. Army Corps of Engineers*, 464 F. Supp. 2d 1171, 1226 (M.D. Fla. 2006), *aff'd* 508 F.3d 1332 (11th Cir. 2007).

⁴⁵ See *Colorado Env'tl. Coal. v. Dombeck*, 185 F.3d 1162, 1174 (10th Cir.1999); see also, *Sierra Club v. U.S. Army Corps of Engineers*, 464 F. Supp. 2d 1171, 1227-28 (M.D. Fla. 2006), *aff'd*, 508 F.3d 1332 (11th Cir. 2007).

⁴⁶ 33 U.S.C. § 1344(e)(1); 40 C.F.R. § 230.7(a).

requirement further. Under the Guidelines, the Corps cannot authorize a general permit if the activities covered by the permit would have more than “minimal cumulative adverse effects on *water quality and the aquatic environment.*”⁴⁷ The Guidelines also prohibit discharges of dredged or fill material that would cause significant adverse effects to “aquatic ecosystem diversity, productivity, and stability” or “recreational, aesthetic, and economic values.”⁴⁸

a) Bulkheads and riprap revetments in excess of 500 feet in length have adverse effects that are more than “minimal.”

Seawalls, like bulkheads, destroy habitat in front of them; a vertical wall is no substitute for a natural shoreline.⁴⁹ Bulkheads have very little structural complexity, and thus, are less attractive to coastal fish communities.⁵⁰ They attract fewer species of native plants and more species of invasive plants.⁵¹ In contrast to bulkheads, natural habitats that include such features as saltmarsh, oyster reefs, and submerged aquatic vegetation have the structural complexity that serves to provide superior habitat and nursery grounds for aquatic species. By destroying natural habitats, bulkheads destroy productive ecosystems.⁵²

Bulkheads can also decrease prey resources for fish and wildlife because they cause uplands to be vertically removed from the water. The wall created by a bulkhead also holds back a significant amount of organic material that would otherwise reach the water in front of the bulkhead.⁵³ And because they reflect wave energy, bulkheads often cause erosion on other adjacent shorelines, thereby degrading those habitats.⁵⁴ Wave energy that is redirected in this manner has been shown to cause even more erosion than would have occurred had the bulkhead never been built.⁵⁵

⁴⁷ 40 C.F.R. § 230.7(a)(3) (emphasis added).

⁴⁸ 40 C.F.R. § 230.10(c)(3) & (4).

⁴⁹ K. F. Nordstrom, *Estuarine, Living with Shore Protection Structures: A Review*, 150 COASTAL AND SHELF SCIENCE, 11, 20 (2014).

⁵⁰ David L. Strayer, *et al.*, *Biodiversity in Hudson River Shore Zones: Influence of Shoreline Type and Physical Structure*, 74 AQUATIC SCIENCES 597, 608 (2012).

⁵¹ *Id.*

⁵² Steven B. Scyphers, *et al.*, *Natural Shorelines Promote the Stability of Fish Communities in an Urbanized Coastal System*, 10 PLOS ONE 1, 5 (2015).

⁵³ Kathryn L. Sobocinski, *et al.*, *Effects of Shoreline Modifications on Supratidal Macroinvertebrate Fauna on Puget Sound, Washington Beaches*, 33 ESTUARIES AND COASTS 699, 699 (2010).

⁵⁴ Steven B. Scyphers, *et al.*, *Natural Shorelines Promote the Stability of Fish Communities in an Urbanized Coastal System*, 10 PLUS ONE 1, 5 (2015).

⁵⁵ Scott L. Douglass, *et al.*, *The Tide Doesn't Go out Anymore--The Effect of Bulkheads on Urban Bay Shorelines*, 67.2 & 3 Civil Engineering and Marine Sciences Departments-University of South Alabama 19, 21 (1999).

If wave energy is not reflected directly off the face of a bulkhead, it travels down in front of the bulkhead and erodes the soil at its base. This scouring causes the loss of intertidal water bottoms, the loss of fringing marsh, and increased turbidity.⁵⁶ Scouring destroys marsh by undercutting the roots of the marsh plants.⁵⁷ In addition to causing erosion through scour, bulkheads also eliminate sediment input from the uplands, which robs the area in front of the bulkhead of much needed soil.⁵⁸

Bulkheads and seawalls also block marsh retreat as sea levels rise.⁵⁹ Marsh grasses serve as a natural form of wave dispersion and in this way they can protect a shoreline from erosion. As sea levels rise, however, marshes gradually drown if they have no way to retreat to higher elevations. If there is a bulkhead between the marsh and that higher ground, the marsh drowns in place.⁶⁰

Even riprap, which tends to fare better in studies involving shoreline armoring because it does contain structural complexity, causes injury to ecosystems that contain submerged aquatic vegetation. One study demonstrated that in areas where the use of riprap is common, riprap can cause as much as a 10 percent decrease in the amount of SAV growing in an area.⁶¹

The erosion surrounding bulkheads not only impacts shoreline ecosystems, but it also jeopardizes the bulkheads themselves. As one study found, failure rates of coastal armoring from scour, undermining, outflanking, overtopping, and battering by storm waves, are relatively high, particularly for low-budget efforts. Even large well-engineered structures can experience overtopping by waves and catastrophic failure with risks not only to infrastructure but also to

⁵⁶ C. A. Currin, *Developing Alternative Shoreline Armoring Strategies: The Living Shoreline Approach in North Carolina*, in *Puget Sound Shorelines and the Impacts of Armoring—Proceedings of a State of the Science Workshop*, 91, 94 (2010); *see also* Rachel K. Gittman, *et al.*, *Engineering Away Our Natural Defenses: An Analysis of Shoreline Hardening in the US*, 13(6) *FRONT ECOL. ENVIRON.*, 301, 301 (2015).

⁵⁷ C. A. Currin, *Developing Alternative Shoreline Armoring Strategies: The Living Shoreline Approach in North Carolina*, in *Puget Sound Shorelines and the Impacts of Armoring—Proceedings of a State of the Science Workshop*, 91, 94 (2010).

⁵⁸ K. F. Nordstrom, *Estuarine, Living with Shore Protection Structures: A Review*, 150 *COASTAL AND SHELF SCIENCE*, 11, 13 (2014).

⁵⁹ Catherine M. Bozek and David M. Burdick, *Impacts of Seawalls on Saltmarsh Plant Communities in the Great Bay Estuary, New Hampshire USA*, 13 *WETLANDS ECOLOGY AND MANAGEMENT*, 553, 554 (2005).

⁶⁰ *Id.*

⁶¹ Christopher J. Patrick, *et al.*, *Effects of Shoreline Alteration and Other Stressors on Submerged Aquatic Vegetation in Subestuaries of Chesapeake Bay and the Mid-Atlantic Coastal Bays*, 37 *ESTUARIES AND COASTS* 1516, 1525 (2014).

human safety. There is always an ongoing need to monitor, repair, and maintain such structures, which is costly.⁶²

Another more recent study surveyed bulkheads along the North Carolina coast after Hurricane Irene made landfall in 2011.⁶³ The survey found that 76 percent of the bulkheads were damaged by the hurricane. Some of the bulkheads suffered erosion of the landward portion of the bulkhead, whereas other bulkheads were completely destroyed. In contrast, no visible damage was seen in living shoreline projects that included sills, riprap revetments, or hybrid shoreline structures.⁶⁴ In short, bulkheads were the only type of shoreline project that showed visible damage after the hurricane.⁶⁵ An earlier study conducted in South Carolina in the wake of Hurricane Hugo, recorded similar results.⁶⁶

In light of the adverse effects that bulkheads and riprap cause to the aquatic environment, it is unreasonable for the Corps to contend that a 500-foot-long bulkhead or riprap project could cause only minimal effects.

- b) To comply with the Guidelines, the Corps must include a condition in RGP 80 that would require permit applicants to minimize the adverse effects of bulkhead and riprap projects.**

As the Guidelines provide, “no discharge of dredged or fill material shall be permitted unless appropriate and practicable steps have been taken which would minimize potential adverse impacts of the discharge on the aquatic ecosystem.”⁶⁷ The most effective way to minimize the adverse effects of bulkhead and riprap projects is to incorporate living shoreline techniques into the project design.

⁶² Rachel K. Gittman, *et al.*, *Marshes with and without Sills Protect Estuarine Shorelines from Erosion Better than Bulkheads During a Category 1 Hurricane*, 102 OCEAN & COASTAL MANAGEMENT 94, 98 (2014); S. B. Scyphers, *Participatory Conservation of Coastal Habitats: The Importance of Understanding Homeowner Decision Making to Mitigate Cascading Shoreline Degradation*, 8 CONSERVATION LETTERS 41-49 (2015).

⁶³ Rachel K. Gittman, *et al.*, *Marshes with and without Sills Protect Estuarine Shorelines from Erosion Better than Bulkheads During a Category 1 Hurricane*, 102 OCEAN & COASTAL MANAGEMENT 94, 98 (2014).

⁶⁴ *Id.*

⁶⁵ Rachel K. Gittman, *et al.*, *Marshes with and without Sills Protect Estuarine Shorelines from Erosion Better than Bulkheads during a Category 1 Hurricane*, 102 OCEAN & COASTAL MANAGEMENT 94, 98 (2014).

⁶⁶ *Id.*; E. R. Thieler and R. S. Young, *Quantitative Evaluation of Coastal Geomorphological Changes in South Carolina after Hurricane Hugo*, 8 J. COAST. RES. 187e200 (1991).

⁶⁷ 40 C.F.R. § 230.10(d).

- c) To comply with the Guidelines, the Corps must fully analyze all the cumulative effects of the bulkheads and riprap revetments to determine if they will have more than minimal effects.**

To assess cumulative impacts under the Guidelines, the Corps must do three things: 1) predict to the extent reasonable and practical the, “[c]umulative effects attributable to the discharge of dredged or fill material in waters of the United States[,]” 2) “collect information and solicit information from other sources about the cumulative impacts on the aquatic ecosystem,” and 3) document and consider this information during the “decision making process concerning the evaluation of . . . the issuance of a General permit”⁶⁸

While the Corps did not publish a draft decision document along with the proposed RGP 80 (on which we are now commenting), the Corps did provide a copy of the final decision document that accompanied RGP 80 the last time it was reauthorized (2010 Decision Document). That document was deficient because it lacked a complete cumulative effects analysis. Unless the Corps significantly improves its cumulative effects analysis in the decision document it will issue with the proposed RGP 80 (2016 Decision Document), that decision document will not comply with the Guidelines.

To bring the decision document into compliance, the Corps would have to collect and solicit information on the cumulative effect of RGP 80 on the aquatic environment.⁶⁹ Yet all the Corps does in discussing such effects in the 2010 Decision Document is contend that any negative impacts caused by these structures will be offset by the erosion that they will prevent. What the Corps fails to acknowledge is that bulkheads can cause as much erosion as they stop.⁷⁰

The key paragraph in the 2010 decision document is the following:

A large volume of stabilization projects are conducted under the authority of this RGP within any given year. Although the effects of individual activities authorized under this regional general permit will be minor and short-term, the cumulative effects such as loss of natural shoreline, wetland and aquatic flora, and permanent alterations to bottom habitat *may well result in greater than minimal adverse impacts to the aquatic environment. Cumulative impacts could become greater than minimal in coastal areas.*

⁶⁸ 40 C.F.R. § 230.11(g)(2) (emphasis added).

⁶⁹ See *Wyoming Outdoor Council Powder River Basin Res. Council v. U.S. Army Corps of Engineers*, 351 F. Supp. 2d 1232, 1257 (D. Wyo. 2005).

⁷⁰ Scott L. Douglass, *et al.*, *The Tide Doesn't Go Out Anymore-The Effect of Bulkheads on Urban Bay Shorelines*, 67.2 & 3 Civil Engineering and Marine Sciences Departments-University of South Alabama 19, 21 (1999).

The NCDPCM currently issues individual authorization for these projects in coastal areas and supplies the Corps with a copy of this authorization.⁷¹

This analysis is flawed because the Corps makes no attempt to determine how many bulkheads and riprap revetments will be approved during the next five years should the regional general permit get reauthorized. In this paragraph, the Corps also admits that the cumulative effect of the structures authorized by RGP 80 are more than minimal. But the Corps is not clear about how those structures are permitted. If the Corps were to include a comparable cumulative impact analysis in the 2016 Decision Document, it would not comply with the Guidelines.

Scientific studies support the District's conclusion that cumulative impacts of armoring projects are more than minimal. As one scientific study concluded: "Although the effect of a single bulkhead on the adjacent habitat complex may be comparatively small, the cumulative impact of multiple bulkheads can result in significant habitat degradation with associated ecosystem effects."⁷² Another recent study found that "armoring was consistently associated with reductions in beach width, riparian vegetation, numbers of accumulated logs, and amounts and types of beach wrack and associated invertebrates."⁷³ This study showed that local adverse impacts of shoreline armoring scale-up to have cumulative, negative effects on coastal ecosystems.

And although we agree with the Corps' statement that the cumulative effects of bulkheads and riprap revetments result in greater than minimal adverse impacts to the aquatic environment, we have not witnessed over the last few years any reduction in DCM's use of its general permit. In the 2016 Decision Document for the proposed RGP 80, please include a breakdown of the number of general permits and individual permits that were issued by the DCM over the past five years, as well as any permits issued by the Corps under either RGP 80 or NWP 13.

3) To perform a cumulative impact analysis under NEPA, the Corps must include the present effects of past activities authorized by RGP 80.

In its 2010 Decision Document, the Corps did not conduct the cumulative impact analysis contemplated by NEPA. Under NEPA, the Corps has to analyze the "impact on the environment which results from the incremental impact of [RGP 80] when added to other past, present, and

⁷¹ ARMY CORPS OF ENGINEERS, WILMINGTON DISTRICT, DECISION DOCUMENT, EXHIBIT C - CUMULATIVE AND SECONDARY EFFECTS OF WILMINGTON DISTRICT REGIONAL GENERAL PERMITS 27-28 (Dec. 21, 2010) (emphasis added).

⁷² C. A. Currin, *Developing Alternative Shoreline Armoring Strategies: The Living Shoreline Approach in North Carolina*, in *Puget Sound Shorelines and the Impacts of Armoring—Proceedings of a State of the Science Workshop*, 91, 94 (2010).

⁷³ M. N. Dethier *et al.*, *Multiscale Impacts of Armoring on Salish Sea Shorelines: Evidence for Cumulative and Threshold Effects*, 175 *ESTUARINE, COASTAL, AND SHELF SCIENCE* 106-117 (2016).

reasonably foreseeable future actions.”⁷⁴ The terms “impacts” and “effects” are used synonymously in the NEPA regulations, and “effects” includes “ecological . . . , aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative.”⁷⁵ In its 2010 Decision Document, the Corps conducted no real analysis. Rather, it simply identified certain activities that have had and continue to have impacts on wetlands, streams, and other aquatic resources. It never combined the incremental impact of RGP 80 with those identified impacts to evaluate the overall, cumulative impact of authorizing RGP 80. And it never considered past, present, and reasonably foreseeable future actions with aesthetic, historic, cultural, economic, social, or health effects within the geographic scope of RGP 80.⁷⁶

To further illustrate this deficiency; nowhere in the 2010 Decision Document did the Corps identify the present effects of past projects authorized under RGP 80. As the Sixth Circuit Court of Appeals held in *Kentucky Riverkeeper v. Rowlette*:

An environmental assessment that omits consideration of past impacts, followed by a conclusory suggestion that past impacts did not matter, cannot be in conformance. *This is especially true where the reviewing agency reauthorizes a nationwide permit involving the same type of [] activities that cause the same type of environmental impacts.*⁷⁷

In addition, “the reviewing agency [must] ‘distinguish’ the use of past impacts to forecast future impacts *from* the use of past impacts to assess cumulative impacts.”⁷⁸

In its 2010 Decision Document, the Corps did neither. It did not use past projects to forecast future projects, and it did not include the present impacts of past projects to calculate cumulative impacts. The Corps simply reported that “[h]undreds of projects are conducted each year under the authority of [RGP 80].”⁷⁹ Should the Corps prepare a decision document that employs the same incomplete cumulative impact analysis in 2016, it too would be deficient.

4) RGP 80, as proposed, is contrary to the public interest.

In addition to considering cumulative effects on the aquatic environment for the purpose of performing a minimal effects analysis, the Corps must consider the cumulative effect of RGP 80 on the various public interest factors.⁸⁰ These factors include the following: “conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and

⁷⁴ 40 C.F.R. § 1508.7.

⁷⁵ *Id.* at § 1508.8.

⁷⁶ *See id.*

⁷⁷ 714 F.3d 402, 410 (Sixth Cir. 2013) (emphasis added).

⁷⁸ *Id.*

⁷⁹ DEPARTMENT OF THE ARMY, ENVIRONMENTAL ASSESSMENT, 404(B)(1) ANALYSIS, FINDING OF NO SIGNIFICANT IMPACT (FONSI), AND STATEMENT OF FINDINGS, 6 (Dec. 27, 2010).

⁸⁰ 33 C.F.R. § 320.4(a)(1).

wildlife values, flood hazards, floodplain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership and, in general, the needs and welfare of the people.”⁸¹ Once the Corps has considered the effects, including cumulative effects, on the public interest factors, it balances the “benefits which reasonably may be expected to accrue” with the “reasonably foreseeable detriments.”⁸²

As explained above, bulkheads and riprap revetments, could have, depending on the project, adverse effects on the following public interest factors: conservation, aesthetics, general environmental concerns, wetlands, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shore erosion and accretion, recreation, and water quality. Any positive value of installing a bulkhead would only accrue to the owner of that land, whereas, the adverse impacts would affect society as a whole. Consequently, it is difficult to see how a bulkhead or riprap revetment project could pass the public interest test.

Living shorelines, in comparison to bulkheads and riprap revetments, are clearly in the public interest. They curb erosion at the project site, but then enhance the ecosystem in the surrounding area as well. When a number of living shorelines are constructed throughout an estuary, it can have a significant positive effect. By increasing oyster growth within a waterbody, for instance, the oysters can improve water quality. A healthy oyster can filter up to fifty gallons of water in a day.⁸³ In the Chesapeake Bay, the oyster reefs and living shorelines have increased the number of oysters dramatically. As a result, the water quality in certain parts of the Bay has improved.

In light of the site-specific benefit (curbing erosion on landowner’s shoreline); as well as the societal benefits (better water quality) associated with living shorelines, it is difficult to understand how the Corps could find that bulkheads and riprap revetments are deserving of expedited permitting treatment, but living shoreline projects are not.

5) The Corps cannot reauthorize RGP 80 without taking sea level rise into account.

Section 2 of Executive Order 13,653 requires that government agencies incorporate considerations of sea level rise and climate change into their decision-making.⁸⁴ In particular, Executive Order 13,653 requires that the Corps: “remove or reform barriers” that discourage efforts to increase the “Nation’s resilience to climate change”; and “identify opportunities to support and encourage smarter, more climate resilient investments by States”⁸⁵

⁸¹ 33 C.F.R. § 320.4.

⁸² *Id.*

⁸³ CHESAPEAKE BAY FOUNDATION, GREAT SHELLFISH OF THE BAY, 1 (2016), *available at* <http://www.cbf.org/about-the-bay/more-than-just-the-bay/creatures-of-the-chesapeake/eastern-oyster>.

⁸⁴ Exec. Order No. 13,653, 3 C.F.R. 13,653 (2013).

⁸⁵ *Id.*

In response to Executive Order 13,653, the Corps developed the U.S. Army Corps of Engineers 2014 Climate Change Adaption Plan. In that plan, the Corps pledges to “encourage the transfer of knowledge between our partners and stakeholders at all levels to reduce vulnerability and improve resilience to the effects of climate and extreme weather.”⁸⁶ In its 2015 update to that plan, the Corps states that it will “lead in developing and adopting resiliency concepts.”⁸⁷ The Corps also announced in the 2015 Update that it has developed guidance on how the agency is to evaluate and adapt to sea level rise.⁸⁸ It goes on to specifically identify living shorelines as a risk reduction strategy available to improve community climate preparedness and resilience.⁸⁹

Finally, the Corps developed an Engineering Construction Bulletin with the objective of supporting the “incorporation of new science and engineering products” into its construction projects to make them more resilient.⁹⁰

In short, the Corps is studying the scientific advances surrounding sea level rise and climate change in an effort to protect the structures it builds in tidal waters, yet it is making no attempt to apply that same information in the regulatory context. The Corps continues to expedite the permitting of bulkheads and riprap revetments when scientific studies have demonstrated that living shorelines fare far better than bulkheads in violent storms.⁹¹ It is time that the Corps starts applying the same science across the board. Executive Order 13,653, as well as its own Climate Change Action Plan dictate that the Corps do so.

6) The Corps has given no indication that it intends to examine the secondary effects associated with RGP 80.

The Guidelines require that the Corps consider the secondary effects of any discharge of dredged or fill material that it authorizes.⁹² The Guidelines define “secondary effects” as “effects on an aquatic ecosystem that are associated with a discharge of dredged or fill materials, but do not result from the actual placement of the dredged or fill material.”⁹³ The Guidelines go on to explain that secondary effects must be considered by the Corps “prior to the time final section

⁸⁶ UNITED STATES ARMY CORPS OF ENGINEERS CLIMATE CHANGE ADAPTATION PLAN, UPDATE TO 2014 PLAN, 8 (2015).

⁸⁷ UNITED STATES ARMY CORPS OF ENGINEERS CLIMATE CHANGE ADAPTION PLAN, UPDATE TO 2014 PLAN 2 (2015).

⁸⁸ *Id.* at 8.

⁸⁹ *Id.* at 13.

⁹⁰ U.S. ARMY CORPS OF ENGINEERS, ENGINEERING AND CONSTRUCTION BULLETIN, GUIDANCE FOR INCORPORATING CLIMATE CHANGE IMPACTS TO INLAND HYDROLOGY IN CIVIL WORKS STUDIES, DESIGNS, AND PROJECTS, No. 2014 1 (2014).

⁹¹ Rachel K. Gittman, *et al.*, *Marshes with and without Sills Protect Estuarine Shorelines from Erosion Better than Bulkheads during a Category 1 Hurricane*, 102 OCEAN & COASTAL MANAGEMENT 94, 98 (2014).

⁹² 40 C.F.R. § 230.11 (h).

⁹³ *Id.* at § 230.11(h)(1).

404 action is taken by permitting authorities.”⁹⁴ Thus, the Corps cannot reauthorize RGP 80 without first considering the secondary effects of the bulkheads and riprap revetments that it would cover with the general permit.

Two examples of the secondary effects that bulkheads and riprap revetments cause are the undercutting of marsh grasses⁹⁵ and the destruction of intertidal areas.⁹⁶ Both of these examples are driven by the scouring that occurs in front of these structures. Until the Corps examines secondary effects such as these, it cannot reauthorize RGP 80.

7) The reauthorization of RGP 80 would lead to the significant degradation of the water of the United States and therefore would violate the Guidelines.

The Guidelines provide that “no discharge of dredged or fill material shall be permitted which will cause or contribute to significant degradation of the waters of the United States.”⁹⁷ The Guidelines then go on to provide examples of how such degradation could occur. The examples most applicable to the harm bulkheads and riprap revetments could cause include “loss of fish and wildlife habitat or loss of the capacity of a wetland to assimilate nutrients, purify water, or reduce wave energy[.]”⁹⁸ As the discussion above reveals, bulkheads and riprap revetments clearly destroy fish and wildlife habitat and damage surrounding wetlands. In light of these adverse effects, the Corps would have to demonstrate that such effects would not be significantly adverse before it could reauthorize RGP 80.

8) Although RGP 80 contains some important safeguards, it is not clear whether these requirements are being imposed upon permit applicants who are obtaining their shore stabilization permits through the state.

In light of the fact that there are bioengineered shoreline techniques that are superior to the bulkhead and riprap approaches authorized under RGP 80, we do not support a standalone RGP 80 that does not require permit applicants to consider bioengineered alternatives. Nonetheless, RGP 80 does include some conditions that offer protection to the North Carolina coastline. With some modification, other conditions could provide similar protection.

⁹⁴ *Id.*

⁹⁵ C. A. Currin, *Developing Alternative Shoreline Armoring Strategies: The Living Shoreline Approach in North Carolina*, in *Puget Sound Shorelines and the Impacts of Armoring—Proceedings of a State of the Science Workshop*, 91, 94 (2010).

⁹⁶ M. N. Dethier *et al.*, *Multiscale Impacts of Armoring on Salish Sea Shorelines: Evidence for Cumulative and Threshold Effects*, 175 *ESTUARINE, COASTAL, AND SHELF SCIENCE* 106-117 (2016); J.E. Dugan *et al.*, *Ecological Effects of Coastal Armoring on Sandy Beaches*, 29 *MARINE ECOLOGY* 160–170 (2008).

⁹⁷ 40 C.F.R. § 230.10(c).

⁹⁸ *Id.* at § 230.10(c)(3).

a) RGP 80 contains some positive safeguards; it also contains some conditions that need to be modified.

Special condition “b” bans any use of RGP 80 on shorelines that are not eroding. This requirement should be an essential element of any permit involving shorelines.

Special condition “f” bans the use of RGP 80 anywhere there are any wetlands, seagrass, or submerged aquatic vegetation present. This is a positive safeguard. Although if the Corps were to develop a regional general permit for bioengineered projects, such a ban would not be appropriate because bioengineered projects often have a positive impact on such vegetation.

Special condition “g” bans the use of RGP 80 on any projects over 500 feet in length. Although this linear foot limit is too long, as we explain below, we do support the fact that there is no opportunity for the District Engineer to waive this upper limit.

Special condition “s” covers the construction of riprap structures. Until the Corps develops its own bioengineered shoreline regional general permit, special condition “s” should be redrawn so that it could be used for bioengineered shorelines.

Special condition “u” should be modified to state that RGP 80 should not be used in Areas of Environmental Concern.

General condition “f” requires the permittee to remove the permitted structure if required to do so. This is an important condition, because bulkheads are often abandoned.

General conditions “p – u” require the permittee to comply with a series of federal laws designed to protect the environment and historic properties. These are proposed additions to RGP 80 and are all positive additions. It is unclear, however, how the Corps is going to enforce any of these new conditions if the Corps does not receive any pre-discharge notifications before RGP 80 is used.

General condition “x” requires permittees to maintain their structures in good condition. It also says that permittees cannot abandon a structure. Like general condition “f”, this is an important condition.

b) It does not appear that permit applicants seeking authorization under the state’s general permit for bulkheads and riprap revetments are being required to meet all the conditions of RGP 80.

The state general permit for bulkheads and riprap revetments, which is administered by the N.C. Division of Coastal Management (DCM), shares most, but not all of the requirements of RGP 80.⁹⁹ For example, as discussed above, RGP 80 can be used only when a shoreline is

⁹⁹ See 15A NCAC 07H .1100.

eroding. There is no comparable requirement in the DCM general permit.¹⁰⁰ Yet, to obtain authorization for such projects, a permit applicant need only apply to the DCM. While many states have such joint application programs, they are only acceptable when the requirements of the federal and state programs mirror one another. That is not the case here. Thus, we do not understand how this joint application process complies with federal law.

In responding to these comments, we ask that you describe how the Corps and the DCM work together to process permit applications and take enforcement actions. We also ask that you answer the following additional questions:

- Is there a memorandum of understanding that describes the respective roles that the Corps and DCM have agreed to undertake as part of the permit process?
- What happens when a permittee, for example, wants to build a bulkhead in an area where there is no erosion—RGP 80 would ban such a bulkhead, but the state general permit would allow it?
- If the Corps does not require a pre-discharge notification, how does it learn about projects that have been approved by the DCM?
- If the state were to authorize a bulkhead under its general permit for bulkheads and riprap, how would the District's new special conditions regarding federal environmental and historic preservation get triggered? Wouldn't they have to be triggered by an action by the District?

In addition to responding to all our comments and the questions above, please respond to the following questions:

- Has the Corps ever taken an enforcement action on a bulkhead project in the 20 coastal counties?
- Has the Corps ever used NWP 13 to permit any bulkhead projects in the 20 coastal counties? If so, under what circumstances?
- How many bulkhead or riprap projects have been permitted by the DCM over the last 5 years? How many of those projects have been longer than 200 feet in length?
- At what point during the reauthorization process does the Corps begin drafting the decision document?

¹⁰⁰ Compare RGP 80, special condition b with 15A NCAC 07H .1100.

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- If the Corps doesn't release a draft decision document when the public comment period commences, what supporting information does it release?
- What criteria does the District Engineer use to determine whether a category of activities will have minimal adverse impacts on the aquatic environment both individually and cumulatively?

If you have any questions about these comments, please contact me at 404-521-9900 or bsapp@selcga.org.

Sincerely,

William W. Sapp
Senior Attorney

cc: Todd Miller, North Carolina Coastal Federation
Jan Goldman-Carter, National Wildlife Federation
Tim Gestwiki, North Carolina Wildlife Federation
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