THE PEW CHARITABLE TRUSTS

Advancing Nature-Based Solutions

An overview of living shorelines and the U.S Army Corps of Engineers' proposed permit

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Nature-based solutions provide sustainable, cost-effective, multi-purpose and flexible alternatives that make us more resilient.
Photo Credit: NOAA

Reduce barriers for living shorelines

© Rachel Gittman

Easy for land owner to obtain federal permit to harden the shoreline

© Tracy Skrabal

Difficult for land owner to obtain federal permit for living shoreline

Nature-based Solutions and SAGE, A Systems Approach to Geomorphic Engineering

RESILIENT SHORELINES
SAGE
THRIVING COMMUNITIES

US Army Corps of Engineers®

Charley Chesnutt, Senior Coastal Engineer
Institute for Water Resources, U.S. Army Corps of Engineers
July 7, 2016

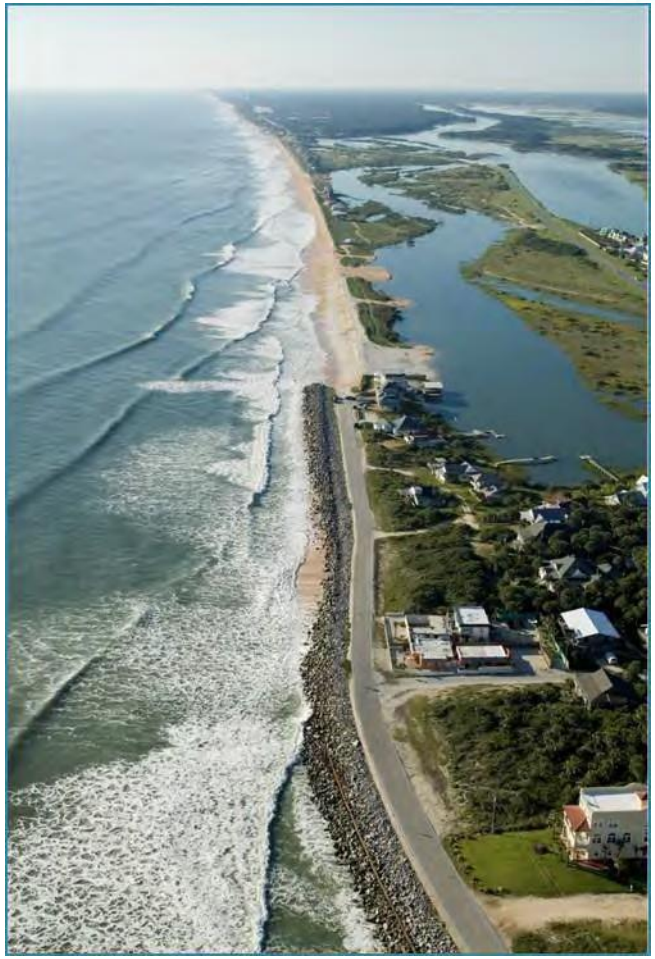
We love our coasts

- 23 of the 25 most densely populated counties
- 19 out of 20 major cities
- 45% of our GDP
- 51 million jobs

Increasing vulnerability

Coastal populations and critical infrastructure are experiencing the effects of a changing climate, including **severe storms and sea-level rise.**

Building resilience



- Understand shoreline changes in the broad, regional context of natural systems
- Integrate green and gray solutions for coastal protection
- Engage sectors and stakeholders, and build partnerships

Enter a *Systems Approach to Geomorphic Engineering*

Reducing risk

Natural coastal systems can provide protective services:

- Wave attenuation
- Flood storage capacity
- Erosion control

Reducing risk & living shorelines

Green **Hybrid** **Gray**

Living shoreline brochure available online at:
http://sagecoast.org/info/information.html

Who is SAGE?

A Community of Practice

Among others…

SAGE Goals

Create and maintain healthy coastal economies, communities, and ecosystems.

Reduce risks from changes in coastal storm intensity, sea level, and precipitation patterns

Utilize the full range of “green” nature-based and “gray” structural techniques for coastal protection.

Promote a systems approach to coastal protection on a regional scale with a long-term view.

The SAGE Community of Practice

Provides a forum for sharing information and lessons learned and leveraging resources

Is identifying research and policy needs

Is working across partners to develop the science, tools, and demonstrations to inform best practices

Is identifying public and private financing sources and mechanisms

Thank You

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www.SAGEcoast.org

Northeastern University
Marine Science Center

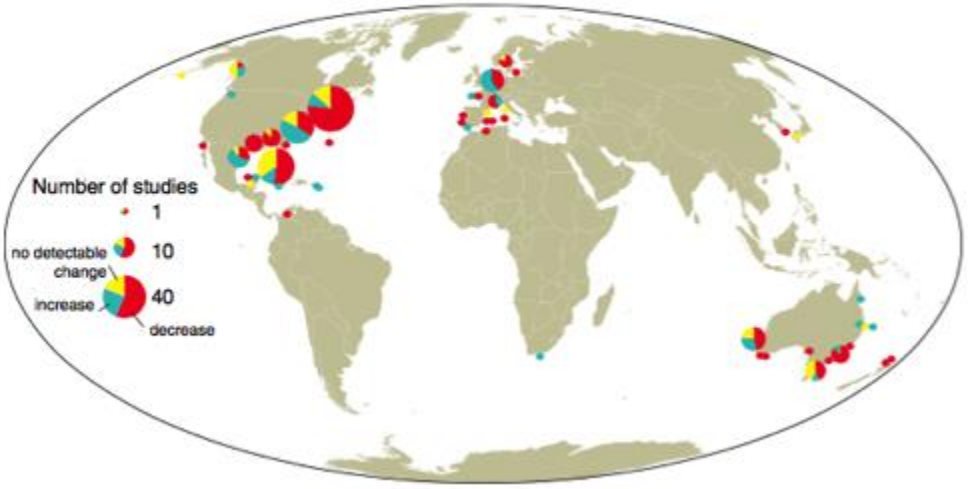
Living shorelines: Are we designing functional, sustainable, and resilient coasts?

Rachel Gittman

July 7, 2016

Habitat Degradation & Loss

Seagrass Losses >30%

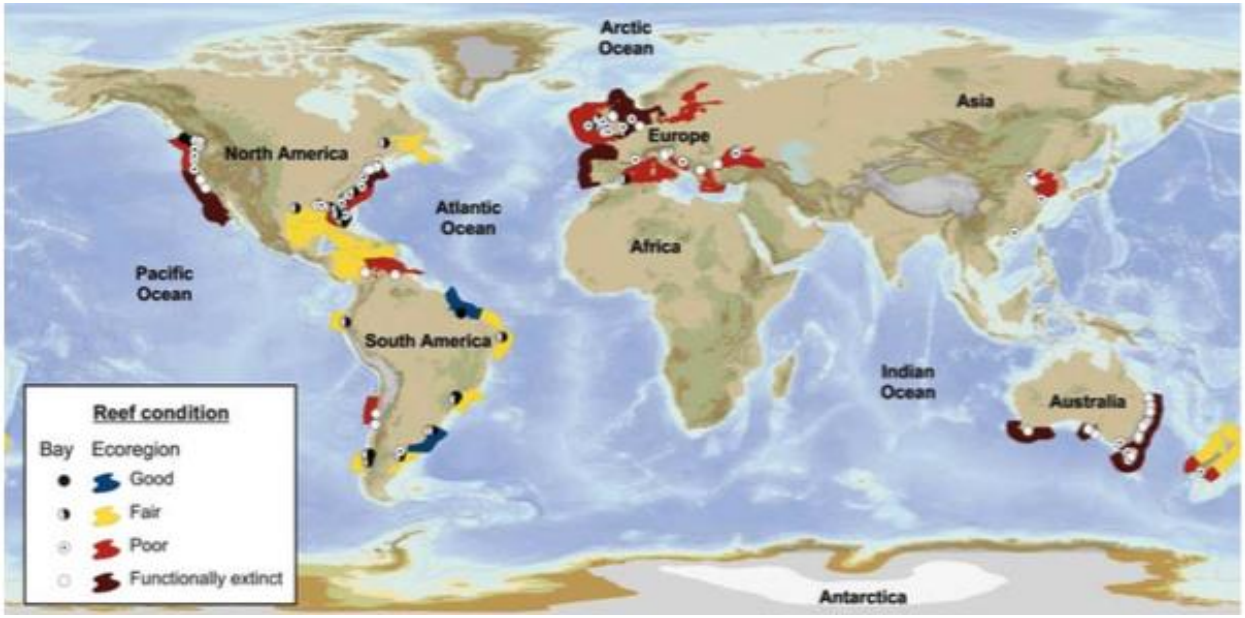


Waycott et al. 2009

> 40% decline of North American salt marshes

Gedan and Silliman 2009

Oyster Losses – 65-85%



Beck et al. 2011

35% of mangroves

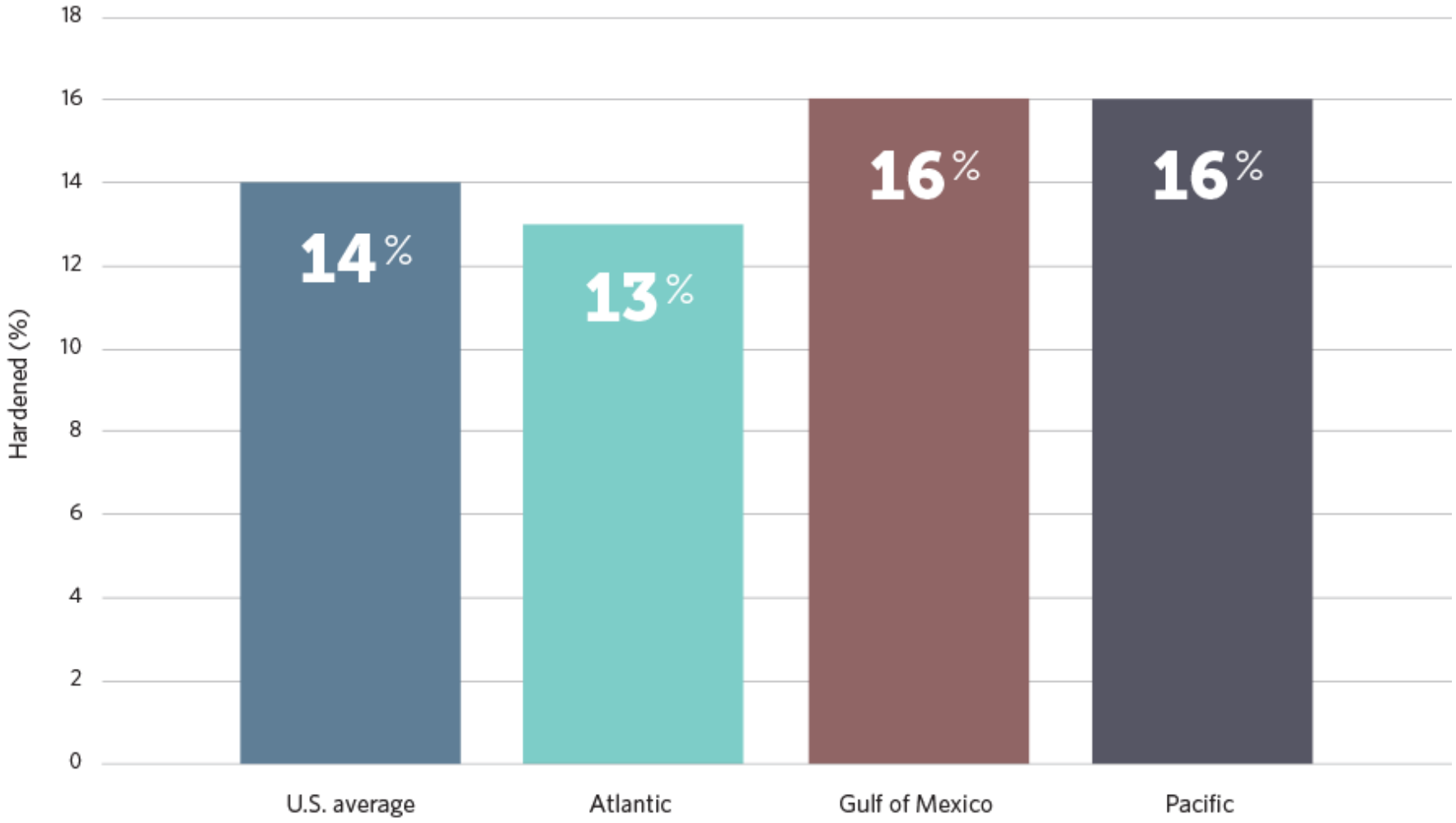
Valiela et al. 2001

Shoreline Hardening

How much of the US coastline is hardened?

Research Finds 14% of U.S. Coastline Is Armored

Estimates of hardening along regional shores



Source: Rachel Gittman et al., "Engineering Away Our Natural Defenses: An Analysis of Shoreline Hardening in the U.S.," *Frontiers in Ecology and the Environment* 13, no. 6 (2015): 301–307, doi:10.1890/150065

Do hardened shorelines provide functional habitat?

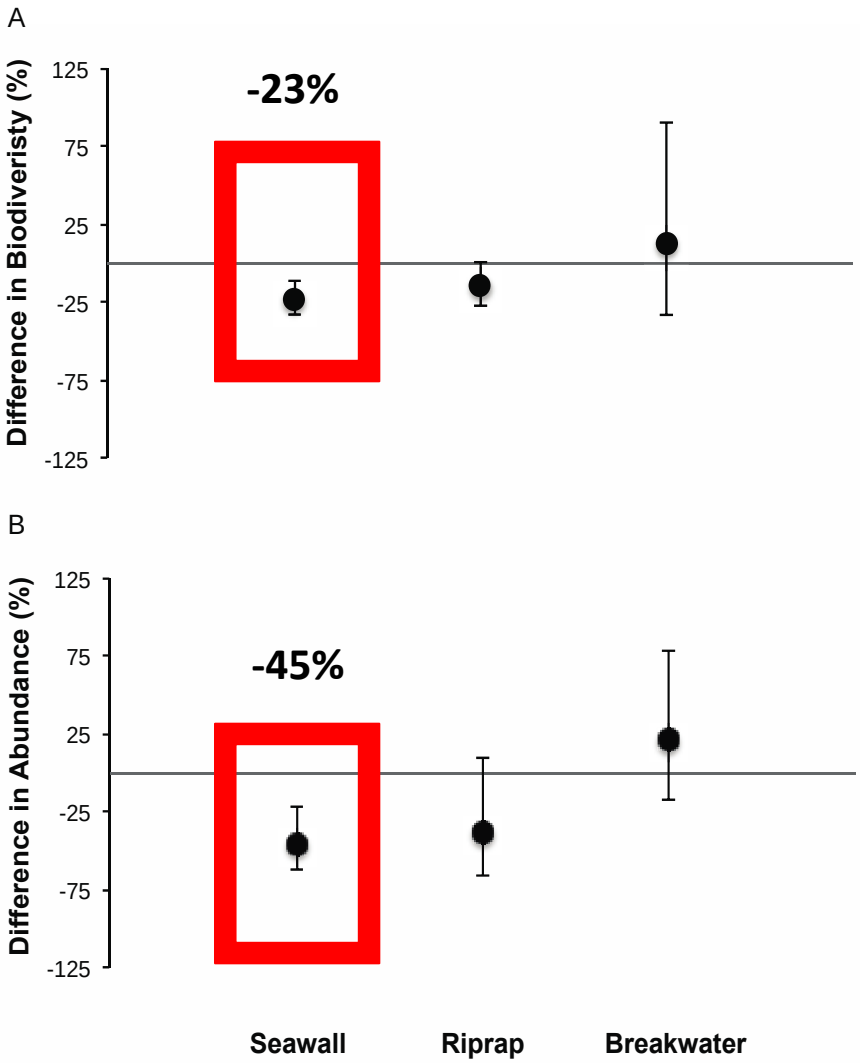
Seawalls/Bulkheads

Riprap revetments

Breakwaters

Gittman et al. *In press*. *BioScience*

Biodiversity and Abundance



Gittman et al. *In press*. *BioScience*

What are the alternatives?

Living shorelines "A living shoreline incorporates vegetation or other '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 continuum and reduce erosion while providing habitat value and enhancing coastal resiliency. (NOAA 2015).

Do living shorelines provide better habitat than hardened shorelines?

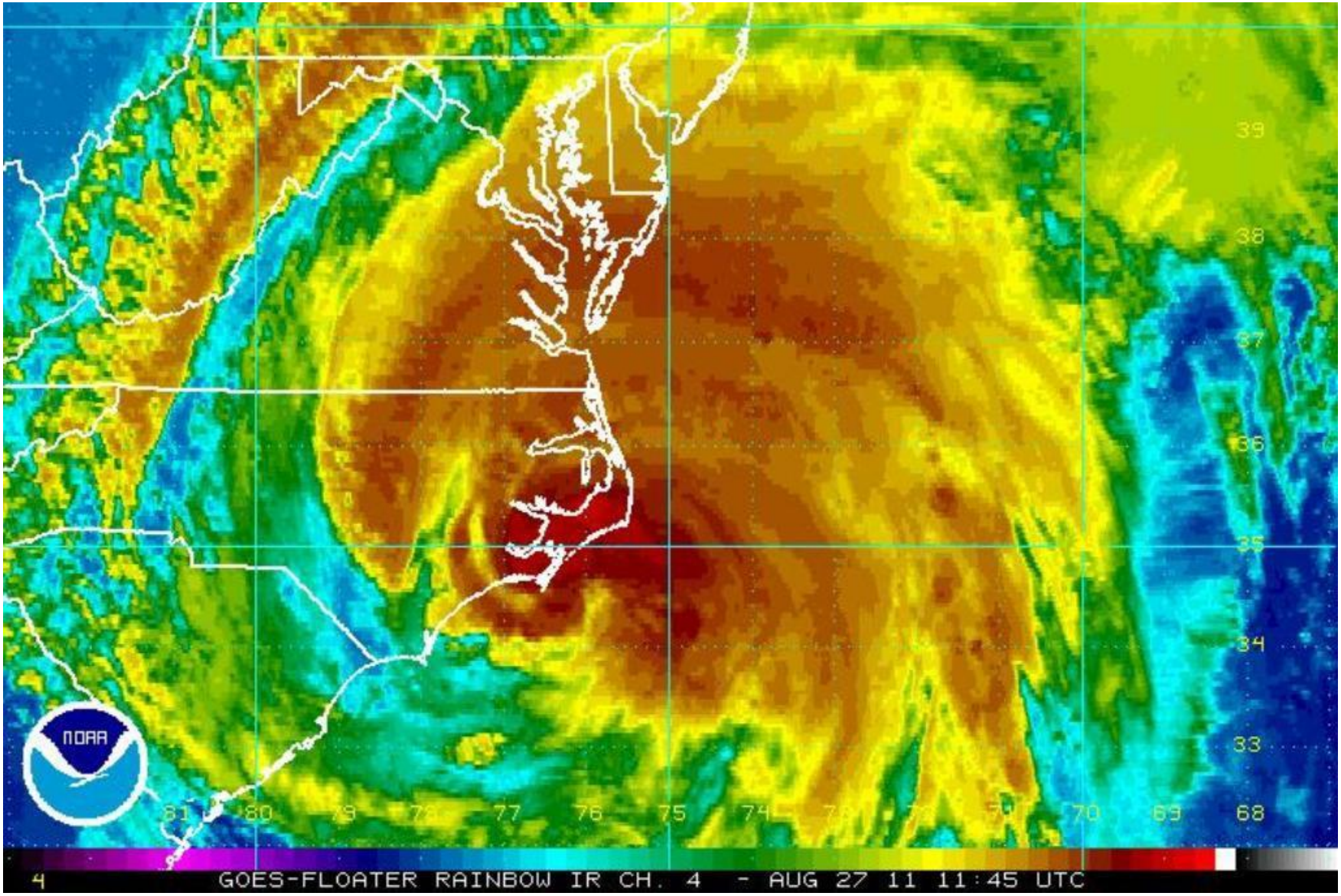
Gittman et al. 2016 *Ecological Applications*

Bulkhead

Marsh

Marsh and Sill

Are we creating sustainable & resilient shorelines?



NOAA 2011

Hurricane Impacts



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2017 Nationwide Permits and Living Shorelines

Presentation for the
Pew Charitable Trusts

David Olson
Headquarters, U.S. Army Corps of Engineers
July 7, 2016

Session Topics

- What are Nationwide Permits (NWPs)?
- General overview of the proposed rule
- Proposed new NWP for living shorelines

Corps Regulatory Program

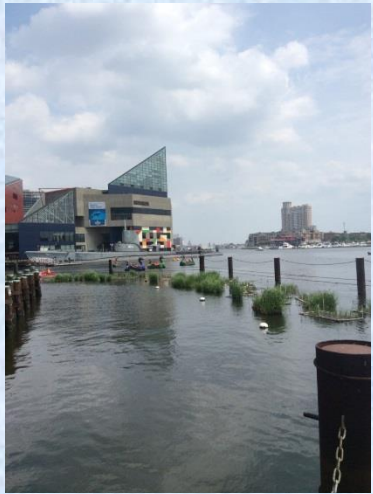
Structures and work : Section 10 Rivers and Harbors Act

Discharge of dredged and fill material: Section 404 Clean Water Act

Transport of dredged material to the ocean for disposal:
Section 103 Ocean Dumping Act

Nationwide Permits

- General permits issued by Corps Headquarters to authorize activities across the country
  - Categories of activities with no more than minimal individual and cumulative adverse environmental effects
  - Reissuance process every 5 years (cannot be extended)
  - A federal rulemaking activity
- Nationwide permits authorize:
  - Discharges of dredged or fill material into waters of the United States
    - Section 404 of the Clean Water Act
  - Structures or work in navigable waters
    - Section 10 of the Rivers and Harbors Act of 1899

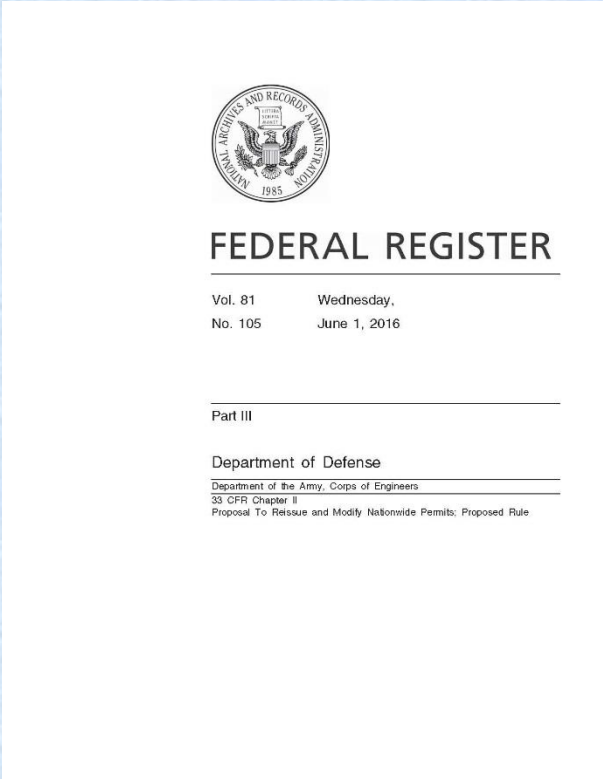


Nationwide Permits

- Congressional intent (Clean Water Act Section 404(e))
  - Streamlined authorization process for small activities with no more than minimal adverse environmental effects
- Authorize ~35,000 activities per year (reported) plus ~30,000 non-reporting activities
- First issued in 1977
  - 15 nationwide permits
- Current nationwide permits expire on March 18, 2017
  - 50 nationwide permits
  - 31 general conditions

Summary of June 1, 2016 proposed rule

- Propose to reissue 50 existing NWPs
  - 26 NWPs – no changes proposed
  - 24 NWPs – some changes proposed
- Propose to issue two new NWPs
  - Removal of low-head dams
  - Construction and maintenance of living shorelines
- Propose one new general condition
  - Activities affecting structures or works built by the United States (federal projects)



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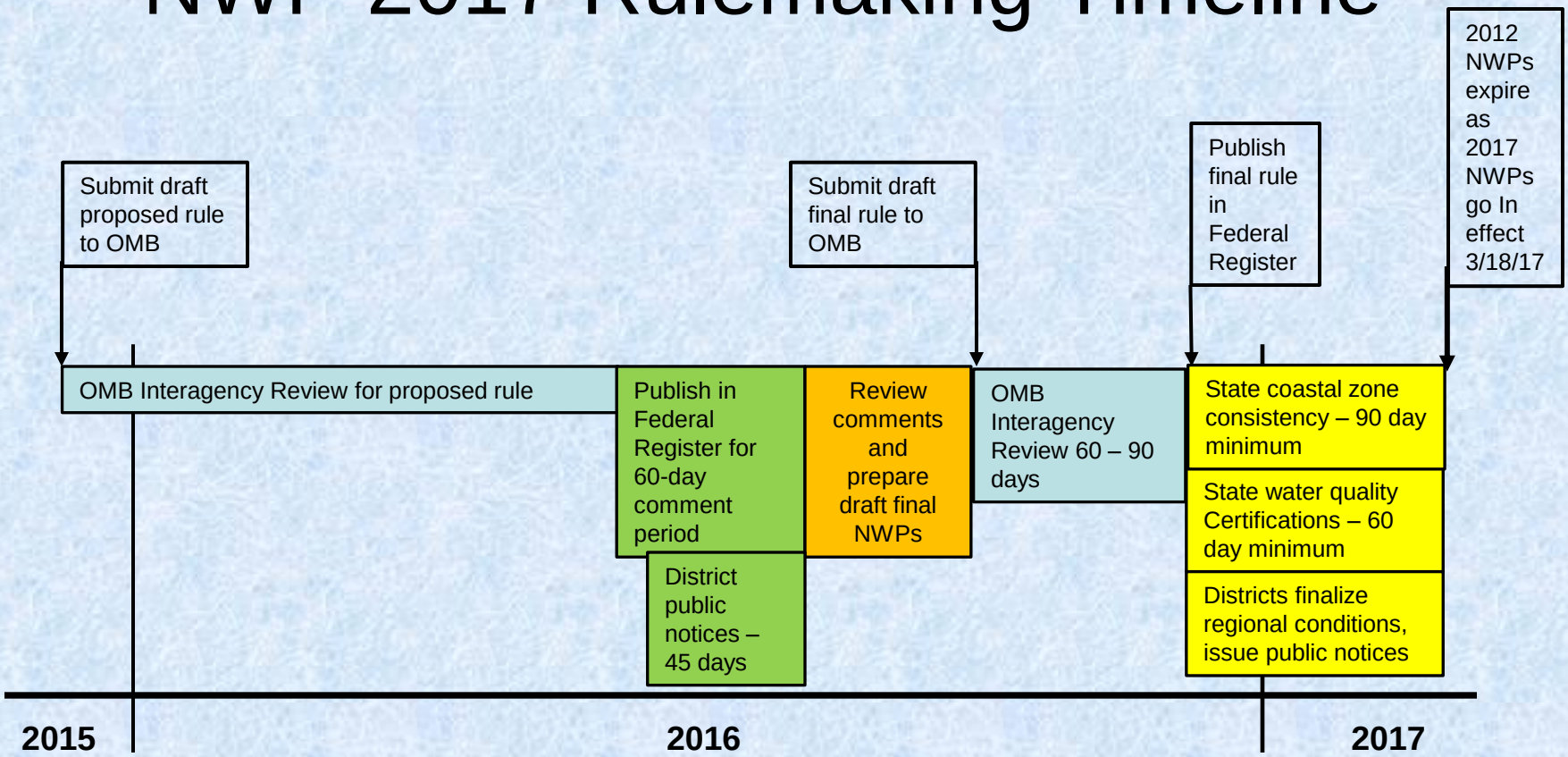
Part III

Department of Defense

Department of the Army, Corps of Engineers
33 CFR Chapter II
Proposal To Reissue and Modify Nationwide Permits; Proposed Rule

NWP 2017 Rulemaking Timeline



Corps regulatory program policies related to erosion control

- Waterfront landowners have general right to protect their property
- Corps can advise landowners of alternative approaches that cause fewer adverse impacts
  - ► Limited to providing advice because of potential liabilities to Federal government
- Landowner (and his/her consultant) requests Corps authorization for a preferred approach and design

Proposed NWP B – Living Shorelines

- Authorize the construction and maintenance of living shorelines for shore erosion control in low- to mid-energy coastal and lake environments
  - Estuarine and lacustrine coasts, bays, sheltered coastlines, and tributaries
- Living shorelines must have a substantial biological component, either tidal or lacustrine fringe wetlands or reef structures

Proposed NWP B – Living Shorelines

- Proposed definition of “living shoreline”:
  - Has a footprint that is made up mostly of native material.
  - 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
  - Should maintain the natural continuity of the land-water interface, and
  - Retains or enhances shoreline ecological processes

Proposed NWP B – Living Shorelines

- Proposed limits:
  - Structures and fills can extend no more than 30 feet from mean high water or ordinary high water mark
  - Maximum extent of 500 linear feet along the shore
  - No discharges of dredged or fill material into special aquatic sites
- Limits can be waived by district engineer, with determination of “no more than minimal adverse environmental effects”
- Fills and structures in jurisdictional waters and wetlands must be the minimum necessary

Proposed NWP B – Living Shorelines

- Other proposed requirements:
  - Coir logs, coir mats, stone, native oyster shell, native wood debris and other structural materials must be adequately secured so they do not wash away
  - For tidal or lacustrine fringe wetlands, permittee must use native plants appropriate for current site conditions, including salinity
  - Must have no more than minimal adverse effects on:
    - Water movement between the waterbody and the shore and
    - The movement of aquatic organisms between the waterbody and the shore

Proposed NWP B – Living Shorelines

- Pre-construction notification to district engineer required for all proposed construction of living shorelines
  - Must include a delineation of special aquatic sites
  - Notification not required for maintenance and repair activities
- Does not authorize beach nourishment or land reclamation activities

NWP 13 – Bank stabilization activities

- First issued in 1977
  - 500 linear foot limit, fills cannot exceed one cubic yard per running foot
- Pre-construction notification requirements
  - Discharges in special aquatic sites (e.g., wetlands, mud flats)
  - Fills or structures greater than 500 linear feet
  - Fills greater than 1 cubic yard per running foot
- Propose to require agency coordination for activities passing these notification thresholds

NWP 13 – Bank stabilization activities

- Other proposed changes
  - Clarify that this NWP authorizes a variety of bank stabilization activities, not just bulkheads and revetment
  - Cubic yard limit to be measured along bank, and includes in-stream techniques (e.g., barbs)
  - Authorize maintenance of bank stabilization activities
  - Require native plants appropriate for site conditions to be used for bioengineering or vegetative stabilization

Activities authorized by NWP 13

Revetment

Stream Barbs

Bulkheads

Vegetative Stabilization

Sills

Gabions

We’re seeking comment on:

- How to make proposed new NWP B (living shorelines) and NWP 13 (bank stabilization) as equitable as possible
- For proposed new NWP B (living shorelines), the 30 foot limit for structures and fills channelward from mean high water, and the ability for district engineers to waive that limit

Submitting comments

- There are several ways to submit comments:
  - Federal eRulemaking Portal: http://www.regulations.gov (docket number COE-2015-0017)
  - E-mail: NWP2017@usace.army.mil
  - Mail: U.S. Army Corps of Engineers, Attn: CECW-CO-R, 441 G Street NW, Washington, DC 20314-1000
- Draft decision documents and Regulatory Impact Analysis are also available for review and comment in docket number COE-2015-0017

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