



**NOAA
FISHERIES**

Silver Spring,
Maryland

Engineering with Nature and Benefits to NOAA Trust Resources

2018 Restore America's Estuaries Conference
Engineering with Nature® Short Course

December 13, 2018

NOAA's Mission

- NOAA: Science, Service, & Stewardship
 - To conserve and manage coastal marine ecosystems and resources
- NOAA Fisheries (NMFS)
 - Nation's ocean resources and their habitat
 - Protect and restore habitat and maintain coastal ecosystems
- NMFS Office of Protected Resources
 - Conserve, protect, and recover ESA and MMPA species

Endangered Species Act: Overview

- Purpose: conservation of threatened and endangered species and their ecosystems
- 2,300 species listed under the Endangered Species Act (ESA)
 - Habitat-related recovery goals



Habitat and Recovery

- Habitat Loss
 - Loss of access, complexity
- Habitat Degradation
 - Pollution, run-off
 - Unsuitable water conditions
 - Temperature, dissolved oxygen, salinity
- Habitat Restoration Efforts
 - Dam removal, flood plain restoration, wetlands
 - Multiple ecological benefits



Engineering with Nature[®] and NOAA's Priorities

- USACE: Engineering with Nature (EWN[®])
 - Leveraging nature for engineering value
- NOAA: Mission Priorities
 - Protecting coastlines
 - Benefits to trust resources
 - Promoting Federal partnerships



Engineering with Nature® Elements

Producing Efficiencies



Using science and engineering to produce operational efficiencies

Using Natural Processes



Using natural processes to maximize benefit

Broadening Benefits



Increasing the value provided by projects to include social, environmental, and economic benefits

Promoting Collaboration



Using collaborative processes to organize, engage, and focus interests, stakeholders, and partners

EWN[®]: Impacts and Benefits

- Near-term
 - Species, Habitats
 - Mitigation
 - Consultation
 - Early Discussion
- Long-term
 - Habitat Improvement
 - Performance
 - Monitoring
 - Adaptive Management

Balancing Trade-offs

EWN[®], Habitat Restoration Examples

- Floodplain Restoration
 - Tillamook Bay Southern Flow Corridor (OR)
 - Oroville Wildlife Area (CA)
 - Grasslands Floodplain Restoration (CA)
- Benefits
 - Flood Control
 - ESA-listed Salmon
- Partnerships



ESA and EWN[®]

- Benefits to ESA species

- Islands
- Beaches



- Path to Environmental Compliance

- Consultation
- Mitigation
- Potential Partnerships



NOAA and EWN[®]: Current Cooperation



- Impact: USACE projects potential to co-occur with NOAA trust resources
- Research and Monitoring
 - USACE-led project: Mordecai Island, NJ; Swan Island, MD
- Natural and Nature-Based Features Guidelines
 - Participation across NOAA
- Collaboration Meetings
 - USACE Districts, NOAA Regional Offices, and State Partners
 - Emergency Supplemental Funding
- Efforts to use EWN[®] practices
 - ESA Section 7 consultations

Needs

- Early Awareness—Early Involvement
 - Planning Input
 - Reduce Impacts
- Monitoring
 - Demonstrating and Quantifying Benefits
 - Adaptive Management
- Outreach and Consistency

EWN[®] Elements & the ESA



- Producing Efficiencies
 - ESA consultation



- Promoting Collaboration
 - Achieving mission goals through partnerships



- Using Natural Processes
 - Green versus gray



- Broadening Benefits
 - Habitat-related recovery goals

Broad Scope of Engineering with Nature®

- Partnerships to Maximize Benefits
- Engineering with Nature Techniques
 - Coastal resiliency, flood risk reduction
 - Restoring habitat and ecological function
 - Avenue to environmental compliance
 - Habitat-related recovery goals for ESA species

Questions?

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