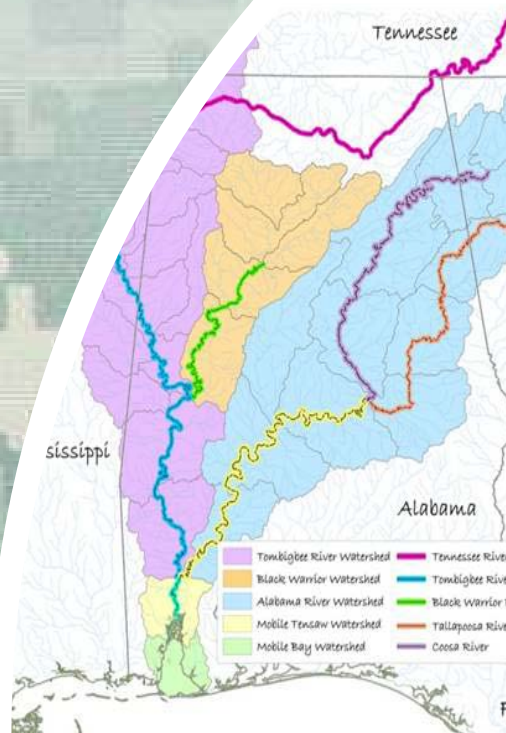


USACE Threatened & Endangered Species Team (TEST) Approach

Advancing Mission Sustainability: Integrating ESA Section 7(a)(1) & Engineering With Nature

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USACE – ERDC
Environmental Laboratory

October 15, 2014



Advancing Mission Sustainability: Integrating Section 7(a)(1) & Engineering With Nature

Outline

- USACE Threatened & Endangered Species Team (TEST) Approach
 - ▶ Purpose, Background
 - ▶ Approach, Goals, Initiatives Sample
- Endangered Species Act (ESA)
 - ▶ Purposes
 - ▶ 7(a)(2) Standard Practice
 - ▶ 7(a)(1) Integration
 - Why
 - How
- Employing Engineering with Nature
- Questions & Discussion



USACE Threatened & Endangered Species Team (TEST) Approach

- Purpose

Accelerate the development of solutions to priority threatened and endangered species issues that will:

- ▶ *Improve operational flexibility*
- ▶ *Reduce future costs*
- ▶ *Improve budget planning capabilities*
- ▶ *Reduce adverse impacts to mission execution*
- ▶ *Improve species conservation outcomes*



USACE Threatened & Endangered Species Team (TEST) Approach

■ Background

- ▶ Scope of USACE Missions – Construction and O&M; unique, diverse & repeated activities, distant out-year budgeting, increasing demand
- ▶ Species distributions and life history – Wide ranges, complex trophic interactions, varied effects knowledge sets, characterizations, and 7(a)(2) outcomes.
- ▶ USACE ESA Section 7 Conservation
 - 400+ projects
 - 450+ species



▶ Posture

- Reactionary
- Resource constrained
- Lacking scientific evidence for effects assessments
- Accustomed to confrontational consultation
- Without a strategic, corporate approach for addressing TES issues and mission impacts.

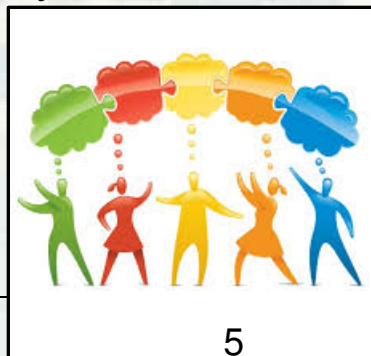


USACE Threatened & Endangered Species Team –TEST

Advancing the USACE Approach

■ “T” in TEST

- ▶ HQ - Mr. Joe Wilson, Coordinating Lead; Mr. Jeff Krause, NRM; Legal, Business Line Leaders, Others
- ▶ MSC & District Chiefs and T&E Leads
- ▶ ERDC - Dr. Todd Bridges, ST; Ms. Jennifer Gerhardt Smith, Coordination; and Subject Matter Experts (SMEs) across labs
- ▶ District Staff – Project Managers, SMEs
- ▶ Additional USACE Resources – IWR, Military Programs T&E SMEs, others
- ▶ Resource Agencies, Industry, Academia, Other Stakeholders



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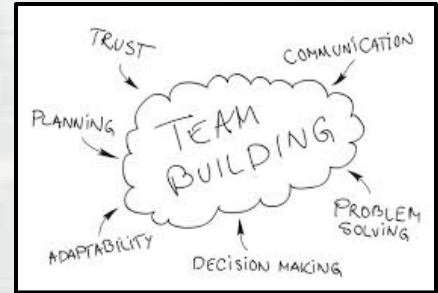
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USACE Threatened & Endangered Species Team -TEST

Advancing the USACE Approach

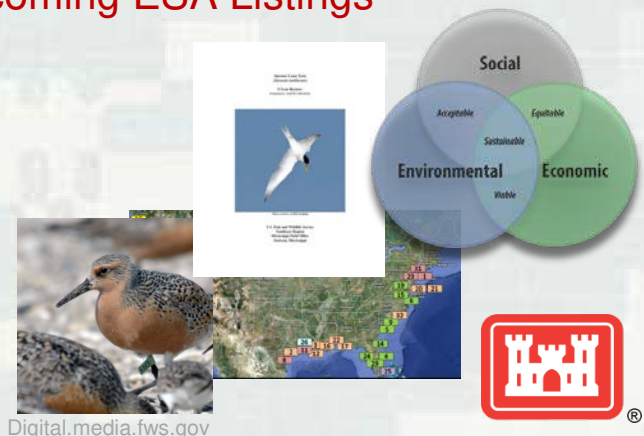
■ Goals

- ▶ Develop, sustain organizational capability and technical team
- ▶ Address priority, resolvable issues; ROI
- ▶ Provide evidence-based science, methods, and support
- ▶ Develop, deploy solutions
- ▶ Support implementation, measure effectiveness, evolve strategies
- ▶ Document, transfer, and utilize lessons learned → multiply benefits.



■ Initial Activities

- ▶ Issue Identification, Action Planning and Decision Support Tools
- ▶ **Proactive Assessment of Potential Impacts – Upcoming ESA Listings**
 - <http://el.erdc.usace.army.mil/dots/tes/>
- ▶ Support to ILT 5-year Review & Delisting
- ▶ Invigorating Collaboration w/USFWS, Region 4
- ▶ **ESA Compliance Opportunity Assessments**
 - Applying Engineering With Nature
 - Integrating Section 7(a)(1)



Advancing Mission Sustainability: Integrating Section 7(a)(1) & Engineering With Nature

- Endangered Species Act of 1973 (as amended)
- Purposes – Section 2(b):
 - ▶ .. To provide a means whereby the ecosystems upon which endangered species depend may be conserved
 - ▶ .. To provide a program for the conservation of species
- Policy – Section 2(c):
 - ▶ .. all Federal... agencies shall seek to conserve... and shall use their authorities in furtherance of this purpose



Advancing Mission Sustainability: Integrating Section 7(a)(1) & Engineering With Nature

- **ESA – Section 7 – Interagency Cooperation**

- ▶ Federal agency shall, in consultation with [the Services]...

- **Section 7(a)(2)**

- ▶ .. Insure **that any action... is not likely to jeopardize** the continued existence of any endangered or threatened species... **or result in destruction...** of [critical] habitat...
- ▶ Focus on negative primary action effects - minimizing harm

- **Section 7(a)(1):**

- ▶ .. Utilize their authorities by **carrying out programs for the conservation** of threatened and endangered species
- ▶ Focus is holistic, and encourages consideration of net effects - benefits



Advancing Mission Sustainability: Integrating Section 7(a)(1) & Engineering With Nature

- **ESA – Section 7(a)(2) vs 7(a)(1)**
 - ▶ Example – Navigation dredging with placement on beach in sea turtle range
- **Section 7(a)(2)**
 - ▶ The projects will dredge material (risking entrainment)
 - Restriction and requirements – Normally very inflexible
 - ▶ The projects will place material on the beach (adv. covering/modifying habitat)
 - Restriction and requirements – Normally little flexibility
- **Section 7(a)(1):**
 - ▶ The projects will dredge sediments using best practices for avoiding harm, and where geo-technically possible and economically feasible, the sediments will be utilized to increase/improve habitat availability/contribute to conservation.
 - Net effects of benefits – Can increase operational flexibility and may lower costs in the short- and long-term, and over time can contribute to the recovery of species, further enhancing mission sustainability.



Integrating Section 7(a)(1) & EWN into Section 7 Practice

- WHY 7(a)(1)??
- Question:



Integrating Section 7(a)(1) & EWN into Section 7 Practice

- WHY 7(a)(1)??
- Question:

Is 7(a)(2) Standard Practice Working?



Integrating Section 7(a)(1) & EWN into Section 7 Practice

- WHY 7(a)(1)??
- Question:

Is 7(a)(2) Standard Practice Working?



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Integrating Section 7(a)(1) & EWN into Section 7 Practice

- WHY 7(a)(1)??
- Question:

Is 7(a)(2) Consultation Working?

USACE Perspective

- The job gets done, but it
 - Took more time
 - Cost more money
 - Got pushed to a time when we couldn't do beneficial use of material
 - Had to shut down operations and restart
- Frustrated with being “told” what to do – not reasonable, no authority, no \$.
- Always in defensive mode.

• Resource Agencies Perspective

- Little recovery achieved – “permitting”
- Objectives unfulfilled, frustrated



Integrating Section 7(a)(1) & EWN into Section 7 Practice

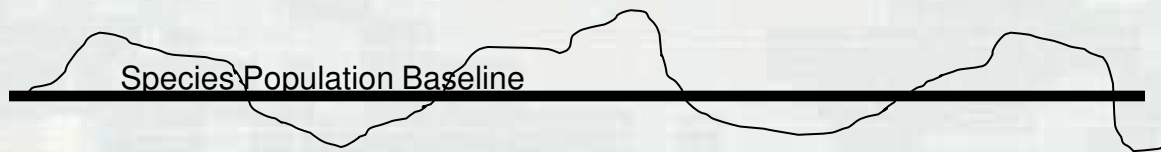
- WHY 7(a)(1)??
 - ▶ Puts USACE in the drivers seat – We CAN do THESE THINGS....
 - What and where is at the agency's discretion, flexible to accommodate authorities, funding variability, information evolution. Self-determination.
 - ▶ Record number of listings upcoming; Alternative approach to 7(a)(2) alone
 - ▶ Can be small improvements overtime, doesn't need to be landscape level.
 - ▶ Facilitates positive agency collaboration and leveraging with stakeholders
 - Paradigm shift attracts partners
 - ▶ Platform to present actions from a beneficial perspective
 - ▶ Demonstrates conservation intent; Compliments, streamlines, and facilitates Section 7(a)(2)
 - ▶ Works towards improvements to the species baseline... increases future options



WHY 7(a)(1)??

Improvements to the Species Baseline

Recovery



Jeopardy

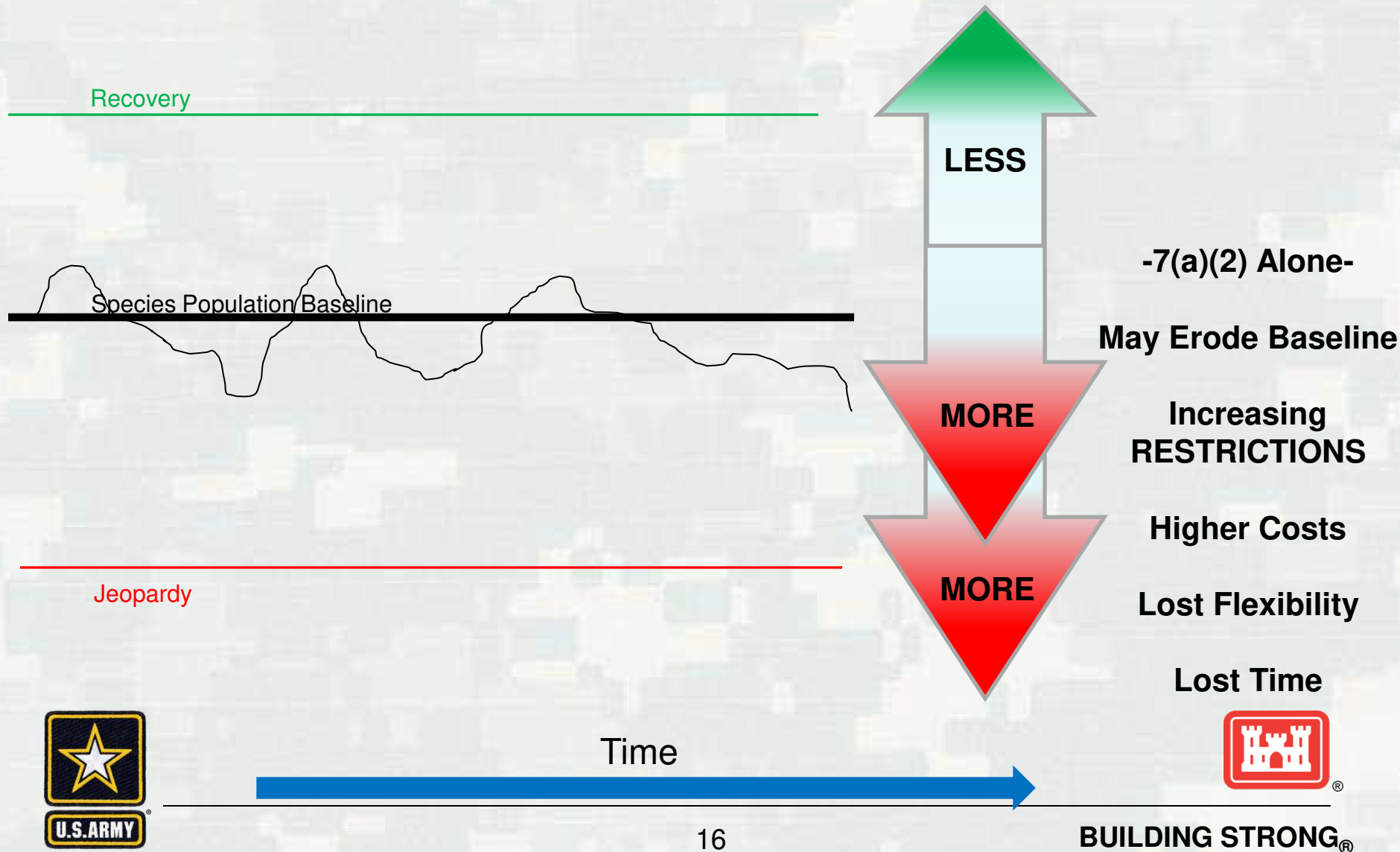
Time



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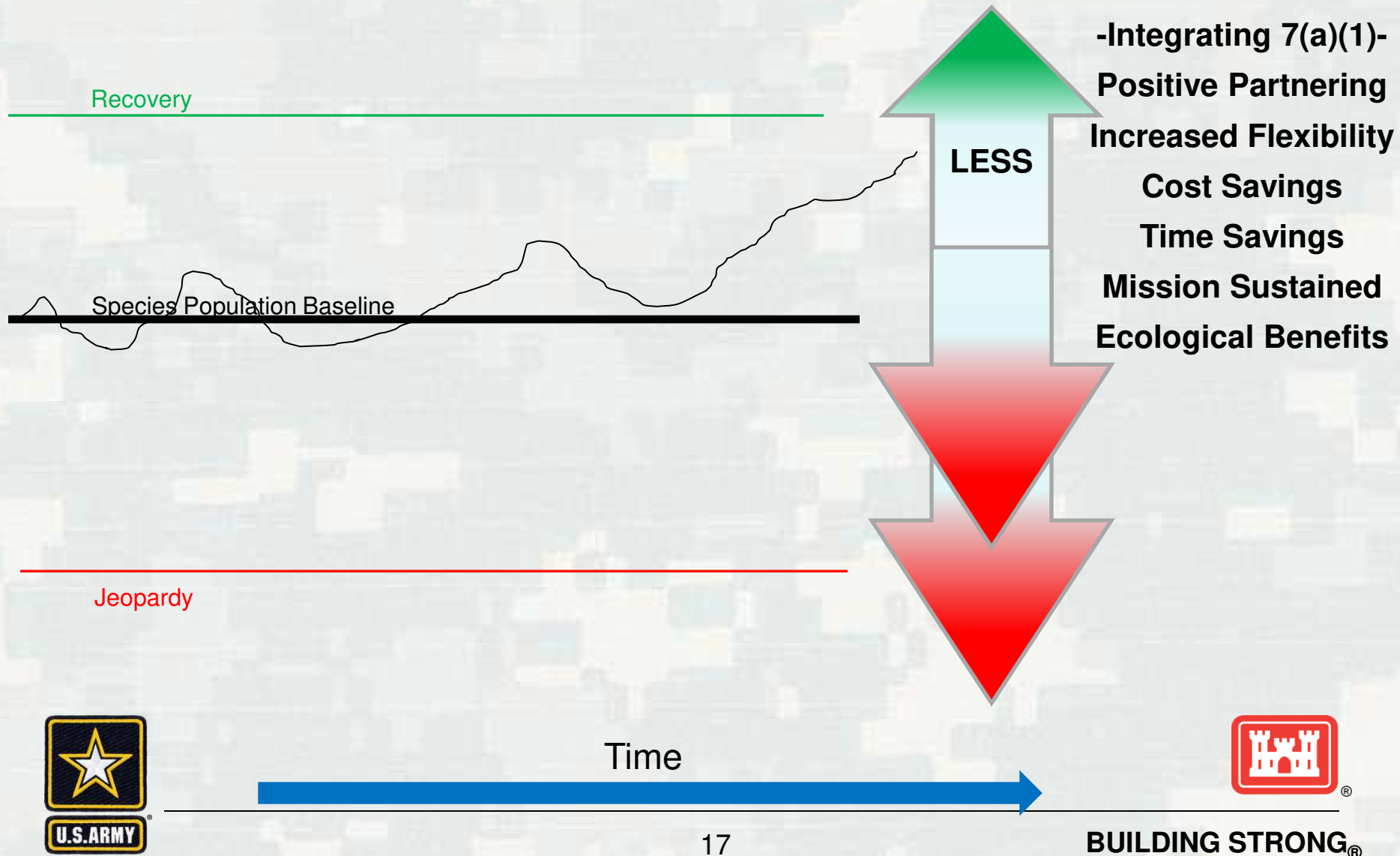
WHY 7(a)(1)??

Improvements to the Species Baseline



WHY 7(a)(1)??

Improvements to the Species Baseline



What does a 7(a)(1) Plan Contain?

- Flexible - Few exist; No written guidance or standards
- Can be a stand-alone 7(a)(1) -or- built upon BA or other docs
- Can incorporate current BMPs, not all MCMs must be novel.

1) Environmental Setting of Project/Program – Geo/Hydrology/Habitat

2) Description of Authorized Project – Broad and Specific Features

3) T&E Species - General Info:

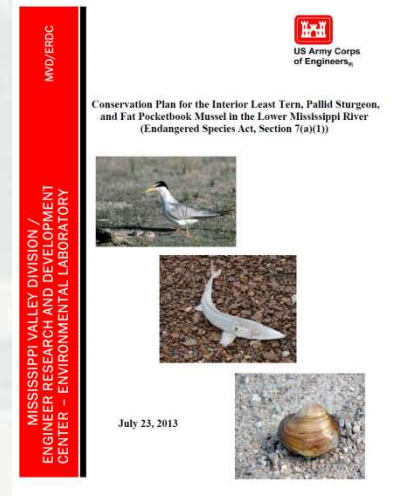
- ▶ Range, Life History Details (breeding, migration patterns)

4) Environmental Baseline

- ▶ Historical & Current – Across Range
- ▶ ALL factors affecting species (*not just USACE actions)

5) Effects of Project/Program on Subject T&E Species

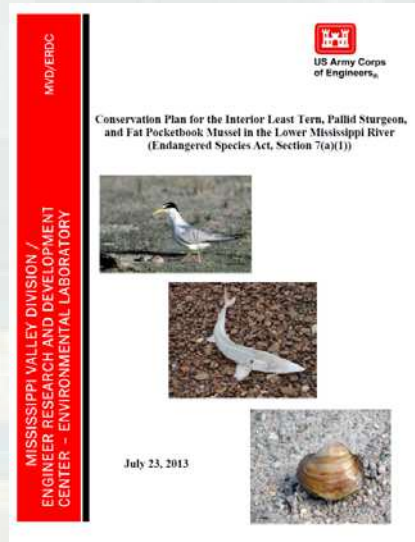
- ▶ Understanding Baseline in Action Area(s)
- ▶ Strategies & Actions
 - Avoidance and Minimization
 - Collaborative Partnerships (knowledge building, monitoring, adaptation)
 - Management and Conservation Measures (MCM) & Features
 - Monitoring/Research – To inform/improve activities/outcomes



Integrating Section 7(a)(1) & EWN into Section 7 Practice

Example Strategies & Actions (Highly-abridged and simplified from the LMR CIP)

<http://www.fws.gov/mississippies/pdf/LMR%20Conservation%20Plan%20Final%20USACE%20CIP%2023%20July%202013.pdf>



Example Strategies & Actions

(Highly-abridged & simplified versions - From the LMR CIP)

- **Strategy – Avoid adverse impacts directly associated with project actions**
 - Action - Comply with timing restrictions when appropriate and/or possible
 - Action - Avoid closure of secondary channels (i.e. retain connectivity)
- **Strategy – Develop Construction and O&M practices that support growing environmental benefits AND that are sustainable over time.**
 - Action - Utilize chevrons instead of dikes where appropriate
 - Action - Reuse large woody debris removed from dikes/levees to provide habitat diversity in-channel.
- **Strategy - Develop collaborative partnerships and cost-effective monitoring programs, as funding allows, to...document species response.**
 - Action - Collaborate w/partners to capitalize/grow knowledge, evolve approaches
 - Action - Utilize surrogate species for monitoring



Integrating Section 7(a)(1) & EWN into Section 7 Practice

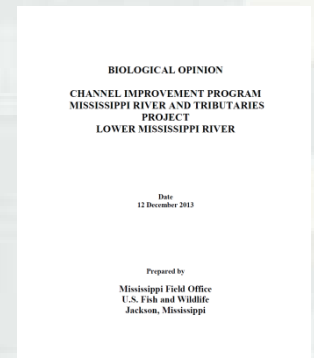
Resulting BiOp from LMR Example

http://www.fws.gov/MississippiES/_pdf/LMRBiologicalOpinion.pdf

Summary of Effects (Pg. 50):

The Corps Conservation Plan incorporates engineering design, construction strategies, applied research, and management actions to minimize the potential for adverse effects... and to promote conservation of species and their habitats...

....Suggesting any negative impacts to individuals... have been offset by gains in their... populations.



How to Construct a 7(a)(1) Plan

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2) Description of Authorized Project – Broad and Specific Features

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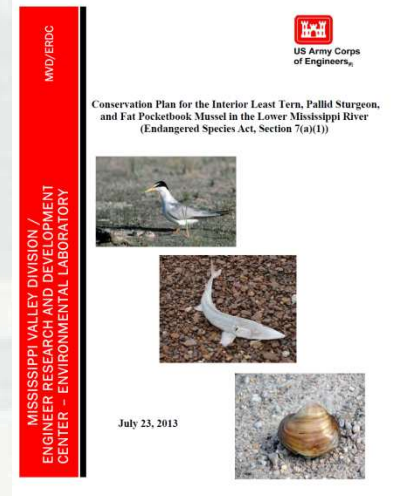
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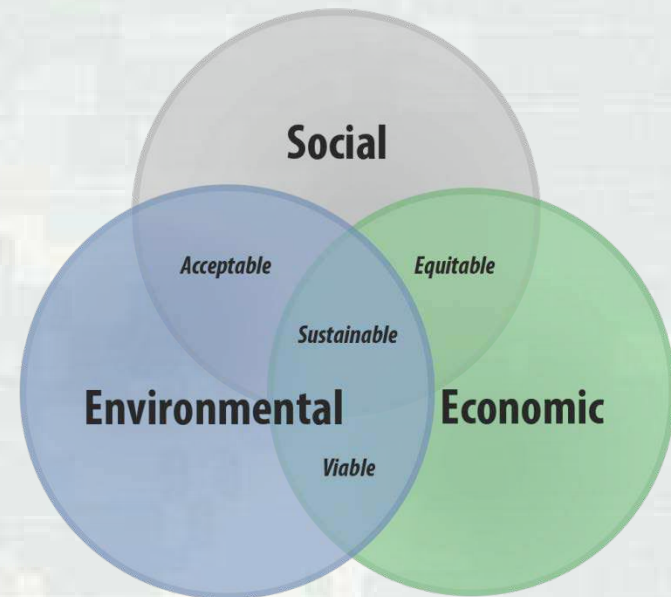


Integrating Section 7(a)(1) & EWN into Section 7 Practice Engineering With Nature

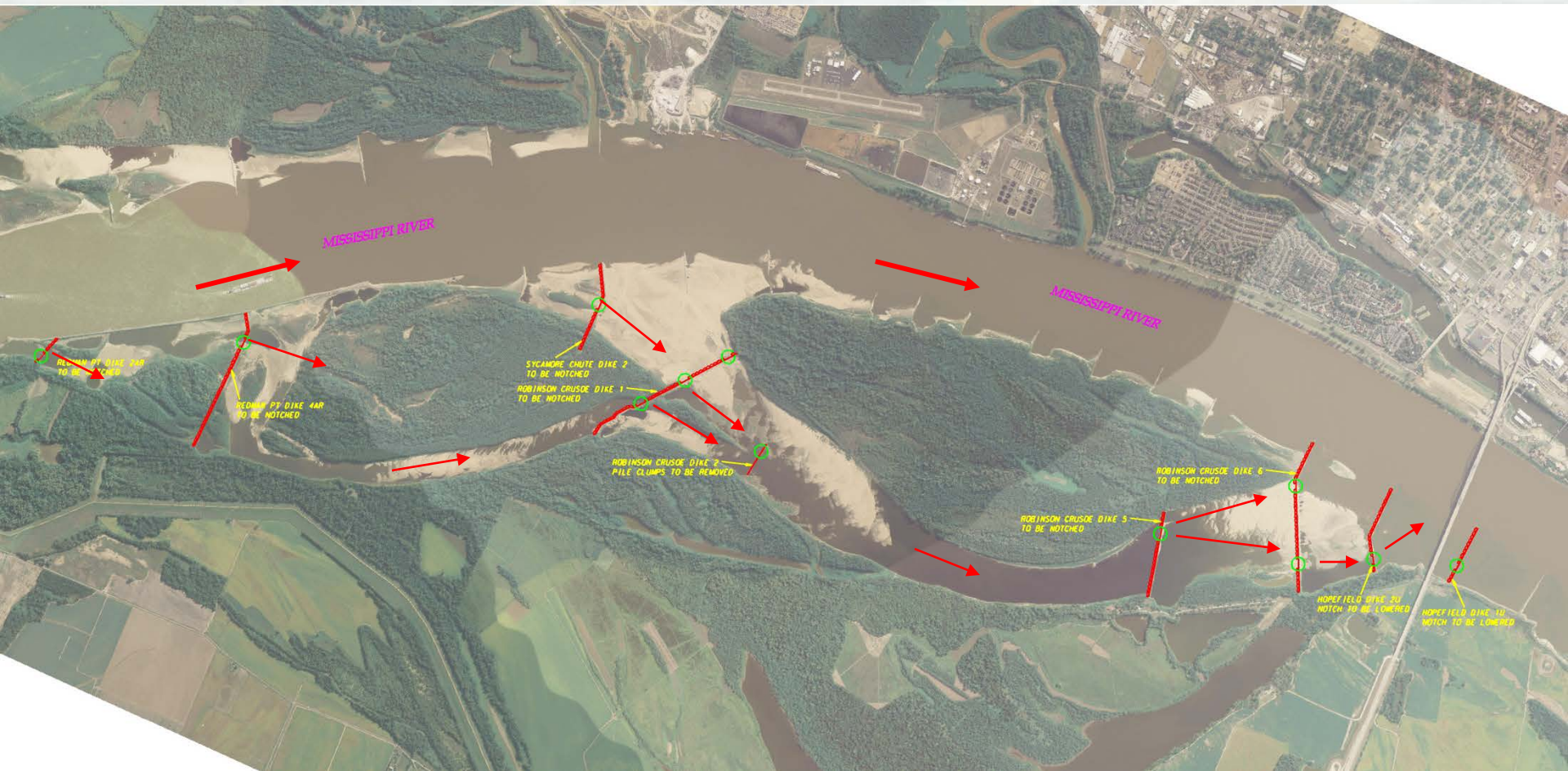
Engineering With Nature (EWN) ...the intentional alignment of natural and engineering processes to efficiently and sustainably deliver economic, environmental and social benefits through collaborative processes.

Key Elements:

- Science and engineering that produces **operational efficiencies**, supports sustainable delivery of benefits.
- **Using natural processes, reducing resource demands**, minimizing project footprints, enhancing quality of benefits
- **Broaden and extend the benefits** provided – “triple-win”
- Uses science-based **collaborative processes** to organize and focus interests, and reduce friction and delays



ESA Section 7(a)(1) Conservation Examples of EWN Measures & Features



Loosahatchie Bar Aquatic Habitat Rehabilitation

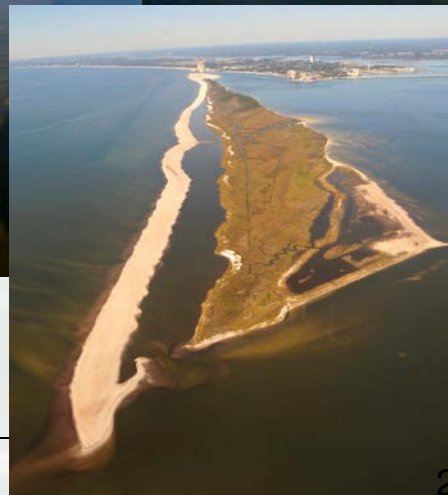


ESA Section 7(a)(1) Conservation

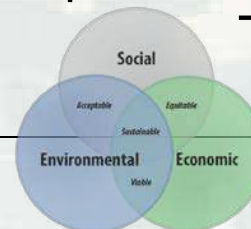
Examples of EWN Measures & Features



Loggerhead
Sea Turtle
Nest



Deer Island
Aquatic Ecosystem Restoration
Triple-Win!!!



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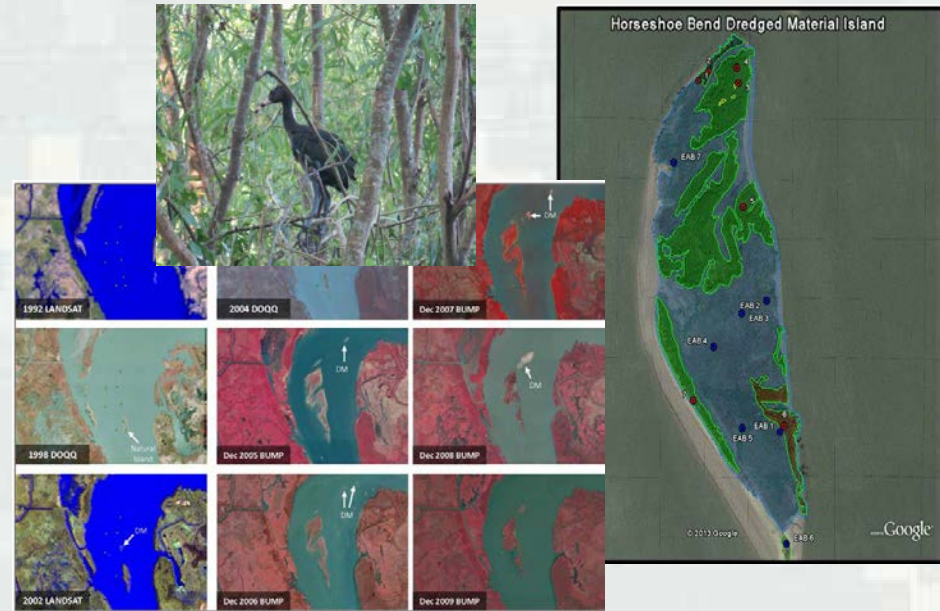
ESA Section 7(a)(1) Conservation

Examples of EWN Measures & Features



Upper Mississippi River Training Structures: Chevrons

Uses natural processes & supports sustainable delivery of broader benefits



Horseshoe Bend Atchafalaya River:
Beneficial Use of Dredged Material

Ongoing monitoring and analyses to improve understanding of natural processes for sustaining benefits and transferring practice

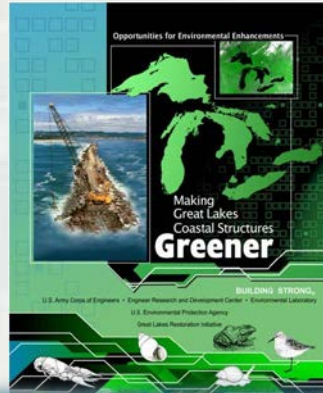


ESA Section 7(a)(1) Conservation

Examples of EWN Measures & Features



Nesting & Rearing
Habitat



Collaborative Scoping
Cost-Sharing



Colonization
Foraging Habitat

Cooperative Monitoring
Adaptive Management



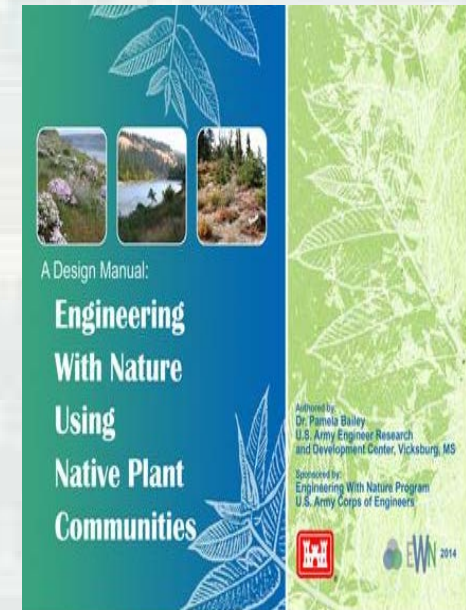
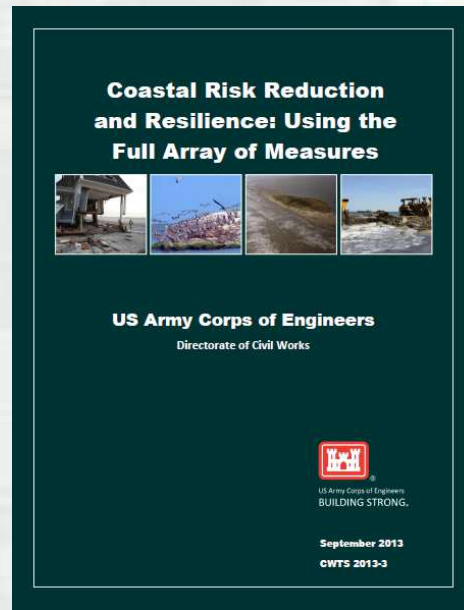
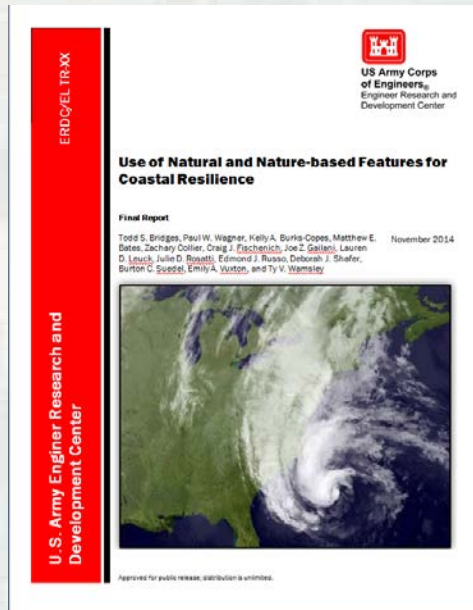
Ashtabula Breakwater Maintenance & Repair



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ESA Section 7(a)(1) Conservation

Examples of EWN Resources



“The USACE planning approach supports an **integrated approach** to reducing coastal risks and increasing **human and ecosystem** community resilience through a combination of **natural, nature-based, non-structural and structural measures**. This approach considers the engineering attributes of the component features and the dependencies and interactions among these features over both the short- and long-term. It also considers the **full range of environmental and social benefits** produced by the component features.”



Advancing Mission Sustainability: Integrating Section 7(a)(1) & Engineering With Nature

Take-Aways

- Goal – Mission sustainability advancement through → Achieving cost-effective net-positive conservation benefit for species/habitats
- Remember!!! They consult on what we bring them – when possible – go with 7(a)(1).
 - Increases ESA management
 - Increases Operational flexibility
- EWN provides a toolbox of sustainable engagement and engineering practices. www.EngineeringWithNature.org
- ESA 7(a)(1) provides a process for improved Section 7 Compliance processes and outcomes.



Advancing Mission Sustainability: Integrating Section 7(a)(1) & Engineering With Nature

- POCs

- ▶ USACE

- Mr. Joe Wilson, Senior Environmental Advisor, HQ
joseph.r.wilson@usace.army.mil
- Dr. Todd Bridges, Senior Research Scientist, ERDC
todd.s.bridges@usace.army.mil
- Ms. Jennifer Gerhardt Smith, Research Biologist, ERDC
jennifer.m.gerhardt-smith@usace.army.mil

- ▶ Your Local Resource Agency Offices

- USFWS Region 4 Momentum
- Note Guidance for 7(a)(1) is 1-sentence, vice 315 page 7(a)(2)
Handbook = Paradigm Shift!!!



Advancing Mission Sustainability: Integrating Section 7(a)(1) & Engineering With Nature

Thank you!!!

Your Thoughts???

