Improving NEPA Documentation for Objective Decision Making in Ecosystem Restoration and Endangered Species Recovery on the Missouri River: The Benedictine Bottoms Case Study

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Recurring NEPA Document Comment on MO River Restoration Projects

- "Pre-decisional Alternative Selection"
  - Where's the Science/Engineering?
  - Needs More Objective Evaluation/Comparison
Problems with Ecosystem Restoration NEPA Documents

- Poor Documentation
  - Unclear Goals and Objects
  - Lacking Project Constraints
  - Lacking Full Range of Measures Considered
  - Lacking of Screening Criteria and Screening
  - Unclear Alternatives Formulation Process
  - Lacking Objective Alternative Evaluation/Comparison
  - Lacking Alternative Re-formulation
Benedictine Bottoms NEPA Case Study

- Missouri River BSNP Fish & Wildlife Habitat Mitigation
- ESA Compliance - Pallid Sturgeon SWH Habitat
Benedictine Bottoms Overview

Owned by Corps – Managed by KDWPT
Wildlife Area – Wetlands, Grasslands, Forest
Benedictine Bottoms Overview

Legend
- Project Boundary
- Federal Levee MRLS 440-R

0 1,000 2,000 4,000 Feet
Benedictine Bottoms Overview

Existing Habitat

Federal Levee
Improving NEPA Documentation

- Tell The Story
  - Clear Program/Project Goals and Objectives
  - Constraints - Technical, Social, Cost
  - Full Range of Measures
  - Screening Criteria and Measure Screening
  - Alternative Formulation
  - Objective Alternative Evaluation and Comparison
  - Alternative Re-formulation
Benedictine NEPA Documentation

- Program Objectives (BSNP Habitat Mitigation)
  - Species and Habitat Diversity
  - Reconnect River to Floodplain
  - Optimize Habitat Conditions for Each Site

- Project Objective (ESA BiOP Requirements)
  - Maximize Shallow Water Habitat Pallid Sturgeon
  - Native MO River Fish Habitat Research
Benedictine NEPA Documentation

- Constraints
  - Federal Levee/Underseepage Considerations
  - Existing Habitat
  - Navigation Channel
  - Adjacent Private Property
Benedictine NEPA Documentation

- Full Range of SHW Measures
  - Single Flow-through Chute
  - Independence Creek Flow-through Chute
  - Independence Creek Braided Mouth
  - Full Excavation of River Bank
  - Removal of River Training Structures
  - Perpendicular Secondary Tieback Chutes
  - Secondary Tieback Chutes
  - Levee Setback
  - Backwater Areas
  - Oxbow Lake
  - Bench Cuts
Benedictine NEPA Documentation

- **Screening Criteria**
  - Maximize Shallow Water Habitat (Pallid Sturgeon)
  - Reflects Native Fish Habitat Development Research
  - No SWH Development within 1,000’ Levee
  - Avoid/Minimize Impacts to Existing Mitigation Habitat
  - No Adverse Effects to Navigation
  - No Adverse Effects to Adjacent Private Property
Benedictine NEPA Documentation

- Screening
  - Single Flow-through Chute - > 1,000’ from levee
  - Independence Cr. Flow-through Chute – habitat recomm.
  - Independence Cr. Braided Mouth – uncertain SHW benefits
  - Full Excavation of River Bank – nav. channel impacts
  - Removal of River Training Structures - nav. channel impacts
  - Perpendicular Secondary Tieback Chutes – hydraulic/habitat
  - Secondary Tieback Chutes – habitat recomm.
  - Levee Setback – don’t provide SWH; costs
  - Backwater Areas – habitat siltation concerns
  - Oxbow Lake – levee and connectivity challenges
  - Bench Cuts – habitat recomm.
Benedictine NEPA Documentation

- **Alternative Formulation**
  - Single Flow-through Chute
  - Independence Creek Flow-through Chute
  - Single and Independence Creek Flow-through Chutes
  - Single Flow Through Chute w/ Bench Cuts
  - Single Flow-Through Chute w/ Secondary Tieback
  - No Action
Benedictine NEPA Documentation

- Objective Alternative Evaluation and Comparison
  - Meet Program and Project Objectives
  - Meet Native Fish Habitat Development Research Recommendations
  - Compatibility with Project Constraints
  - Maximizing Shallow Water Habitat Outputs
- Alternative Re-formulation
Benedictine Final Alternative
QUESTIONS??

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