Missouri River Recovery Management Plan/EIS

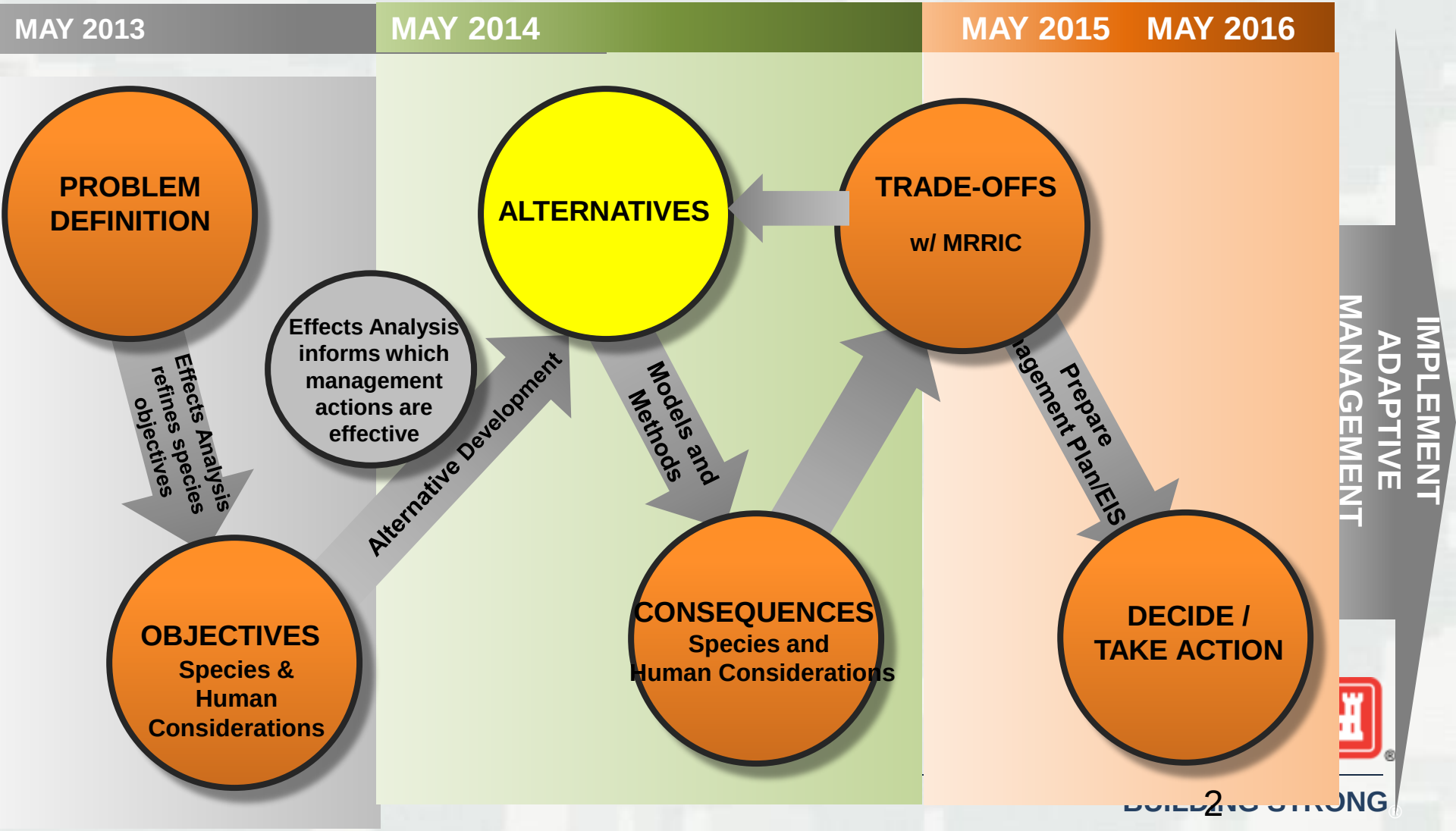
MRBIR- January 28, 2015

One Team : One River : One Mission

US Army Corps of Engineers

®BUILDING STRONG®

Pr-O-A-C-T Process



Problem Definition

The purpose of the Missouri River Recovery Management Plan and integrated Environmental Impact Statement is to develop a management plan that includes a suite of actions to meet ESA responsibilities for the piping plover, the interior least tern, and the pallid sturgeon using USACE authorities. These may include Missouri River System operations for listed species and acquisition and development of land needed for creation of habitat for listed species provided by section 601(a) of Water Resources Development Act (WRDA) of 1986, as modified by section 334(a) of WRDA 99, and further modified by section 3176 of WRDA 2007.

Objectives

Piping Plover and Least Tern Objectives

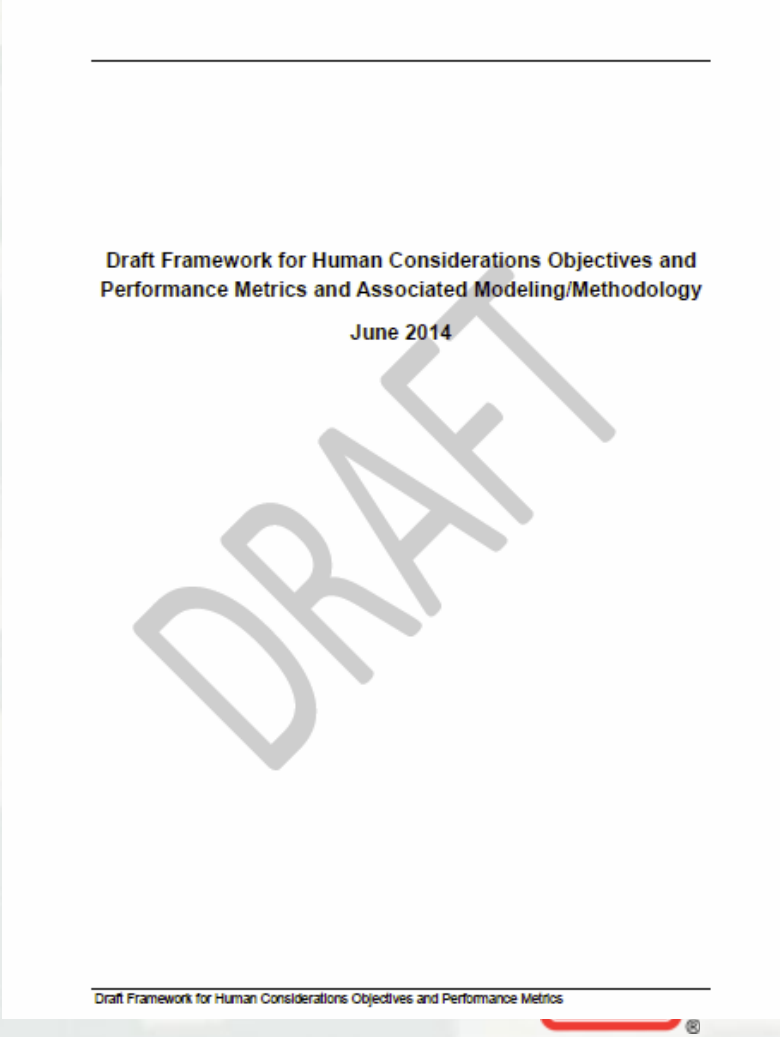
- **Fundamental Objective: Avoid jeopardizing the continued existence of the piping plover and least tern from the US Army Corps of Engineers actions on the Missouri River.**
  - Sub-objective 1: Maintain a total population number of Missouri River birds that keep the population resilient on the Missouri River in the long term.
  - Sub-objective 2: Maintain a long-term trend in population growth that is at least stable.
  - Sub-objective 3: Increase and maintain the success of breeding pairs on Missouri River.
  - Sub-objective 4: Maintain a geographic distribution of plovers in the river and reservoirs in which they currently occur.

Pallid Objectives

- **Fundamental Objective: Avoid jeopardizing the continued existence of the pallid sturgeon from the US Army Corps of Engineers actions on the Missouri River.**
  - Sub-objective 1: Increase pallid sturgeon recruitment to age 1.
  - Sub-objective 2: Maintain or increase numbers of pallid sturgeon as an interim measure until sufficient and sustained natural recruitment occurs.

Human Considerations (HC) Objectives

- Basis for evaluating alternatives' effects on HC during final Trade-Off step
- Approximately 32 Objectives
- Described as monetary or non-monetary values
- MRRIC reached final consensus at Aug meeting



Need for HC Proxies

- Full set of HC objectives and metrics is complex and time-consuming for use in early stages of alternative evaluation
- Need ‘proxy’ measures in early stages to help stakeholders efficiently conduct trade-off analysis among alternatives
- Full set of HC objectives will be used in later stages of alternative evaluation

A Good Proxy…

- Should be quick and easy to calculate
- Should help reveal the relative trade-offs across alternatives without complex analysis (e.g. should help answer the question, “is alternative A or B better for this objective”)
- Is clearly related to the underlying human considerations objectives and metrics

Example HC Proxy

- Interim step in objective calculation:
  - if a desired objective is:
    - **Regional Economic Development (RED) contribution of Recreation in $ / yr,**
  - a proxy might be:
    - **# of days reservoir elevations and river stages are in a desirable range during the recreation season**

HC Proxies

- Wastewater
- Fish and Wildlife
- Irrigation
- Navigation
- Property Tax Base
- Cultural Resources
- Hydropower
- Commercial Dredging
- Flood Risk/Agriculture
- Recreation
- Thermal Power
- Water Supply

Effects Analysis Team

- Three sub-tems:
  - Hydro/Geomorphic- Led by Craig Fischenich, ERDC
  - Pallid- Led by Robb Jacobson, USGS
  - Birds- Led by Kate Buenau, Pacific Northwest National Laboratory
- Effects Analysis Interim Reports
  - Conceptual Species Ecological Models (CEMs)
  - Compilation and Assessment of best available information
  - Management Hypotheses/Actions
  - Quantitative Predictive Models

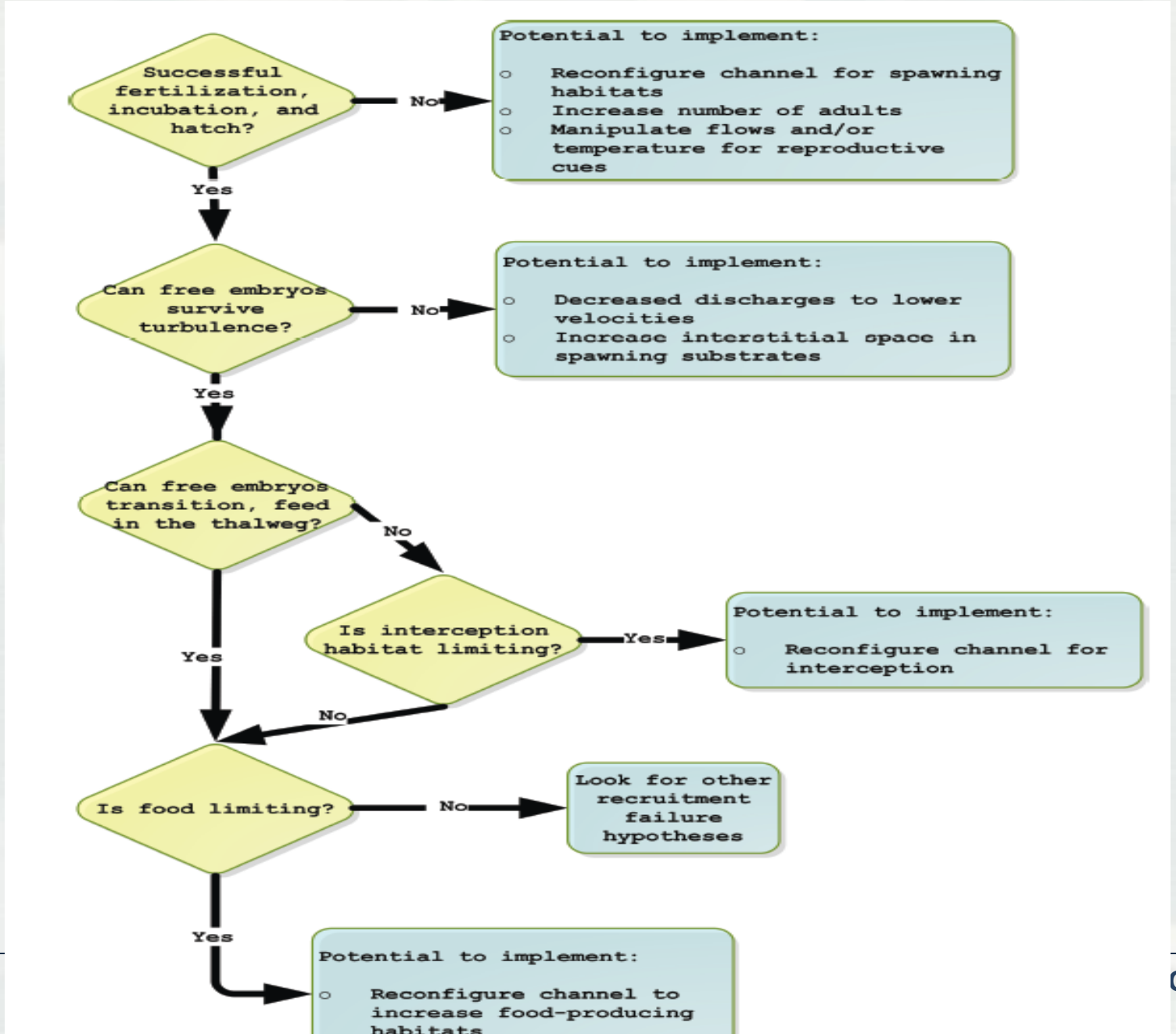
Bird Management Actions

- Actions that create habitat structure
  - Habitat-creating flows
  - Habitat-conditioning flows
  - Mechanical habitat creation
  - Vegetation removal
  - Mechanical augmentation of sandbars
  - Reservoir habitat creation
- Actions that affect availability of habitat, given existing structure
  - Reservoir water level management
  - Low summer flows
  - Steady or declining water levels during nesting season
- Actions that support long-term habitat availability
  - Channel modifications to increase width
  - Sediment redistribution
- Actions that increase egg/chick/(adult) survival
  - Steady or declining water levels during nesting season
  - Predator removal/ Nest caging
  - Restoration of predator habitat off-river
  - Human restrictions measures

Lower River Pallid
Management Hypotheses/Actions

Where	What	Management Hypothesis	Implied Limiting Factor
Lower Missouri River	Alter Flow Regime at Gavins Point	Naturalized flows for aggregation & spawning cues	Insufficient spawning cue signals
		Naturalized flows for increased productivity	Insufficient food producing habitat for Age-0 pallid sturgeon
		Naturalized flows for decreased energetic demands	Insufficient foraging habitat for Age-0 pallid sturgeon
		Decreased spring flows & velocities for reduced drift	Inappropriate drift dynamics
	Temperature management, Gavins Point	Naturalized temperatures, increased Aggregation and spawning cues	Insufficient spawning cue signals
	Channel Reconfiguration	Reconfigure channel for spawning habitats	Insufficient spawning habitat
		Reconfigure channel for food production habitats	Insufficient food producing habitat for Age-0 pallid sturgeon
		Reconfigure channel for foraging habitats	Insufficient foraging habitat for Age-0 pallid sturgeon
		Reconfigure chanel for interception habitats	Insufficient interception habitat
	Water Quality	Regulation of contaminants will decrease incidence of reproductive impairments	Presence of contaminants
	Flow Regime of Platte River	Naturalizatio of flow regime will allow recruitment to Missouri River population	Insufficient habitat in the Platte River
	Propagation Lower Basin	Improved stocking strategy, size classes	Insufficient number / fitness of adults
		Improved stocking strategy, parentage & fitness	Insufficient number / fitness of adults

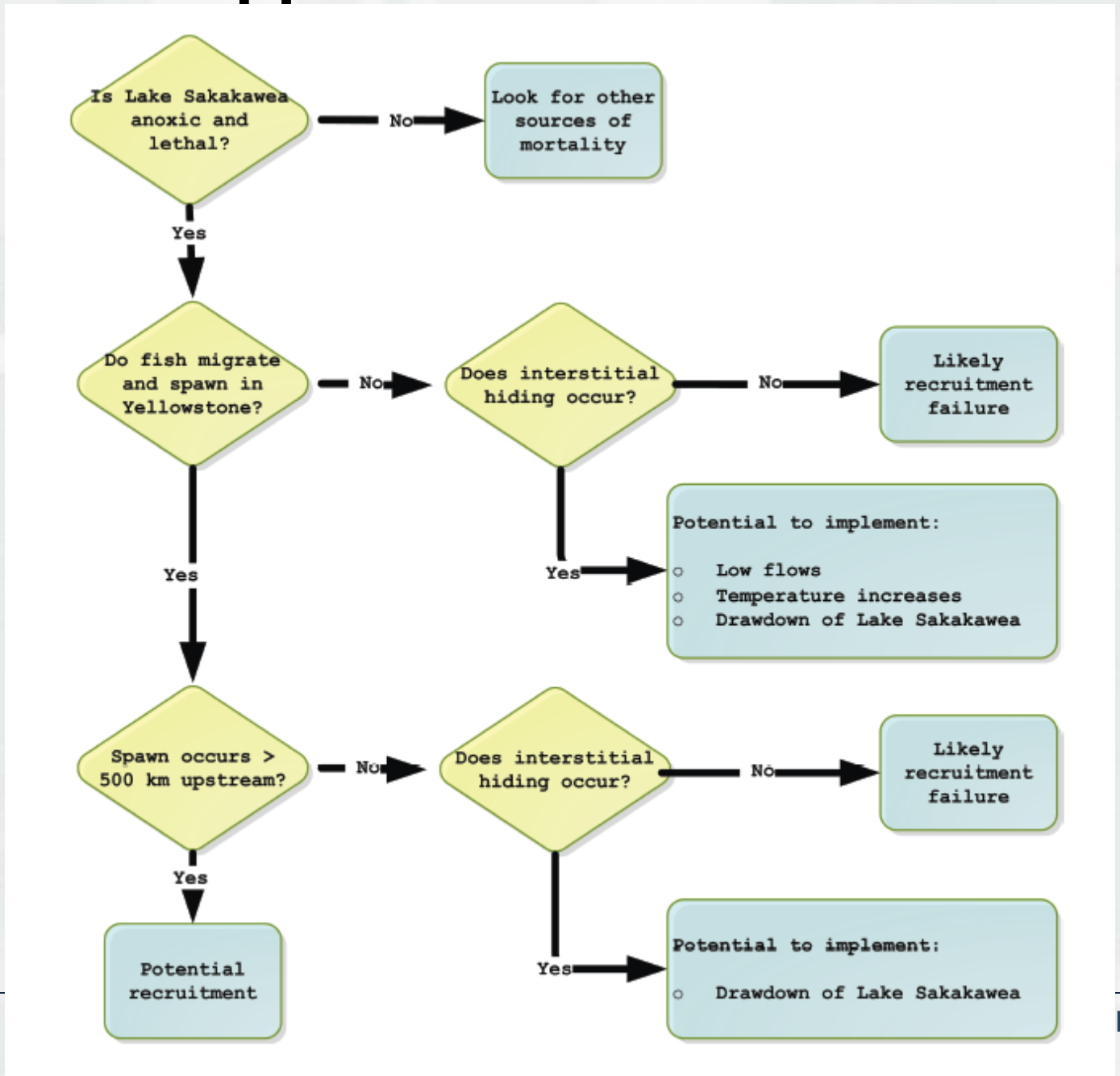
Lower Pallid Decision Tree



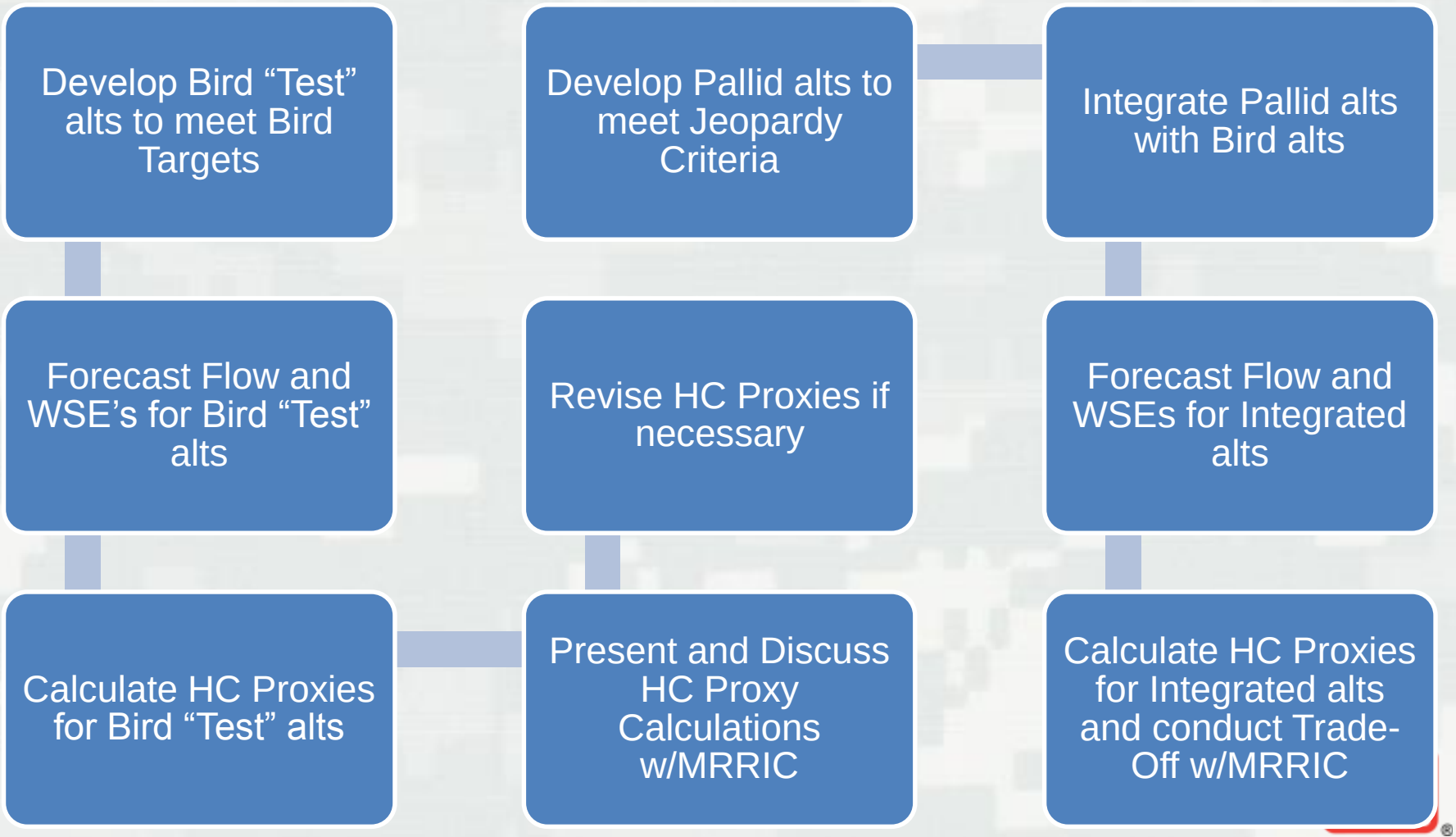
Upper River Pallid
Management Hypotheses/Actions

Where	What	Management Hypothesis	Science Notes
Upper Missouri River	Alter Flow Regime at Fort Peck	Naturalized flows, food and energetic demands	No model available, exploratory field experiment
		Naturalized flows, aggregation & spawning cues	No model available, research
		Decreased spring flows & velocities, reduced drift	Models available, validate with field experiment; research on hiding
	Temperature Control, Fort Peck	Increased temperature, increased productivity	No models available, exploratory field experiment
		Increased temperature, increased growth, decreased drift	Models available, validate with field experiment; research on hiding
	Sediment Augmentation, Fort Peck	Increased turbidity, decreased predation	No model available, research
Yellowstone River	Passage at Intake	Increased potential drift distance	Models available, implemented, validate with field experiment; research on hiding; monitor movements, spawning
Upper Missouri and Yellowstone	Upper Basin Propagation	Improved stocking strategy, size classes	Implemented, validate with monitoring
		Improved stocking strategy, parentage & fitness	No model available, research
Lake Sakakawea	Drawdown, Lake Sakakawea	Increased potential drift distance	Models available, validate with field experiment; research on hiding.

Upper Pallid Decision Tree



Alternative Development



Bird Test Alternatives

- Future w/o change condition
- Mechanical Based ESH Creation
- Flow Based ESH Creation
- Reservoir Level ESH Creation

Pallid Alternative Development

- Coordinating with USFWS to identify jeopardy avoidance criteria
- Working with USFWS to determine how to address each potential limiting factor in the initial step of the AM plan
- Identify metrics and decision triggers that will be used to move to next AM step
- Identify level of stakeholder engagement required for each AM decision point

NEPA Cooperating Agencies

- Western Area Power Administration
- National Park Service
- Bureau of Reclamation
- US Fish and Wildlife Service
- State of Wyoming
- State of South Dakota
- Nebraska Game and Parks Commission

Approach for Cooperating Agencies

- Information sharing via the MRRIC venue
  - Primarily SAM, SPA, HC Ad Hoc work groups
  - Following the Critical Engagement Points plan
- However, Cooperating Agency business is addressed directly with the Corps
- Consistent with the following Fact Sheet available on the website

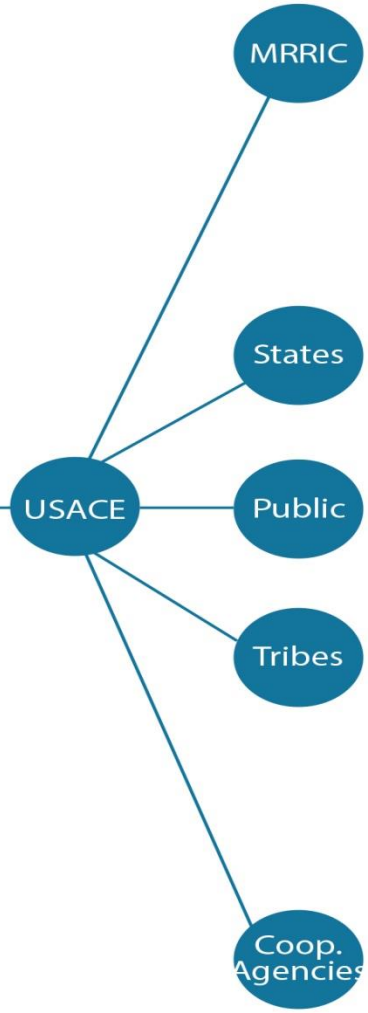
Management Plan/EIS Coordination Fact Sheet

How the Corps will coordinate throughout the Management Plan and EIS process

Coordination

The U.S. Army Corps of Engineers (Corps) plans to coordinate with the public, other federal agencies, states and Tribes throughout the Management Plan and EIS process:

Scoping
Public Outreach
Draft EIS review
Final EIS review
Tribal outreach



The Corps will collaborate with the Missouri River Recovery Implementation Committee (MRRIC), which represents a cross-section of basin interests, including federal and state agencies, Tribes, industry and other interests. Collaboration with MRRIC will allow for substantive input on key activities and products in a tight project timeline.

The U.S. Fish and Wildlife Service will support the Corps by engaging state fish and wildlife agencies in the Management Plan and EIS consistent with the Fish and Wildlife Coordination Act. State agencies are encouraged to take full advantage of this opportunity.

The Corps will provide opportunities to hear information about plan development and the science used to inform decision making. Initial public comments were collected in September 2013. Additional public scoping will be offered following the selection of a draft plan.

The Corps will engage with Tribes pursuant to Tribal Trust responsibilities, including government to government consultation as requested by Tribes.

Cooperating agencies have jurisdiction by law or special expertise with respect to any environmental impact involved in the federal action.

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