

Adaptive Management – Ecological Restoration Conference



**STEVE VIGG,
COLUMBIA RIVER ESTUARY HABITAT MOA
COORDINATOR
ECOSYSTEM RESTORATION GROUP
WASHINGTON DEPARTMENT OF FISH & WILDLIFE**

MAY 25-26 ASTORIA, OREGON

What is the Driver of the Washington Estuary Habitat MOA? → the FCRPS BiOp



- ✓ The MOA is a vehicle for funding aquatic habitat restoration in Washington below Bonneville Dam.
- ✓ The funding is a match of BPA revenue and the Corps' \$536 Columbia River Estuary Restoration Program - congressional appropriations.
- ✓ WDFW contributes access to aquatic lands, work-in-kind, O&M.
- ✓ The focus is ESA-listed anadromous salmonid stocks.
- ✓ The Vision is restoration of natural processes throughout the Columbia River Estuary Ecosystem → that results in increased survival of all 13 Columbia Basin salmon and steelhead ESU's and DPS's.
- ✓ Essential for success is estuary partnerships and willing land owners.

Topics Related to Conference Theme



- **Previous Columbia Basin F&W Restoration Models**
- **Current Estuary Ecosystem Restoration Paradigm**
- **Adaptive Management – integrated M&E component**
- **Resource Management & Policy Issues**

Previous Columbia Basin Restoration: Protect, Mitigate and Enhance ... **the Wildlife Paradigm**



**PROVIDE GOOD HABITAT AND
WILDLIFE WILL THRIVE.**

**METRIC – HABITAT UNITS
TOOL – LAND ACQUISITION**

{FAITH-BASED → NO M&E NEEDED}

Previous Columbia Basin Restoration: Protect, Mitigate and Enhance ... **the Fish Paradigm**



**IT'S A NUMBERS GAME –
INCREASE PRODUCTION AND LIFE
CYCLE SURVIVAL**

{E.G., THE COUNCIL'S (1992) DOUBLING GOAL}

METRIC – PRODUCTION

TOOLS – HATCHERIES & SPAWNING HABITAT

METRICS – JUVENILE AND ADULT SURVIVAL

**TOOLS – HYDRO PASSAGE IMPROVEMENTS AND
HARVEST REDUCTION**

Current Estuary Ecosystem Restoration Paradigm



**RESTORE NATURAL ECOLOGICAL PROCESSES →
IN ORDER TO RESTORE PROPERLY FUNCTIONING
ESTUARY ECOSYSTEM.**

Controlling
Factors



Fish-Habitat
Structure



Natural
Ecological
Processes



Ecosystem
Functions

(After Spence et al. 1996; Diefenderer et al. 2003; Fresh et al. 2004; Evans et al. 2006)

Project Selection



“IN LIEU OF THE PRESENT AD HOC APPROACH TO HABITAT RESTORATION, ESTUARY-WIDE STRATEGIC PLANNING IS NEEDED TO DIRECT LIMITED RECOVERY RESOURCES TOWARD THOSE GEOGRAPHIC AREAS, HABITATS, AND ACTIVITIES THAT WILL MOST BENEFIT MULTIPLE SALMON ESUs.”

“RECOVERY EFFORTS SHOULD ENCOMPASS THE ENTIRE HABITAT CONTINUUM, NOT JUST SITES IN THE LOWER ESTUARY, WHERE MOST RESEARCH AND RESTORATION ACTIVITIES HAVE BEEN FOCUSED.”

BOTTOM ET AL. (2008)

Adaptive Management – RM&E

The Framework is in place:

- ❑ Diefenderfer et al. (2003) Systematic Approach to Coastal Ecosystem Restoration.
- ❑ Fresh et al. (2004) Guidance for Protection and Restoration of the Nearshore Ecosystems of Puget Sound.
- ❑ Roegner et al. (2008) Protocols for Monitoring Habitat Restoration Projects in the Lower Columbia River and Estuary.
- ❑ Johnson and Diefenderfer, Eds. (2008) Evaluating cumulative ecosystem response to restoration projects in the Columbia River Estuary, Final Report.

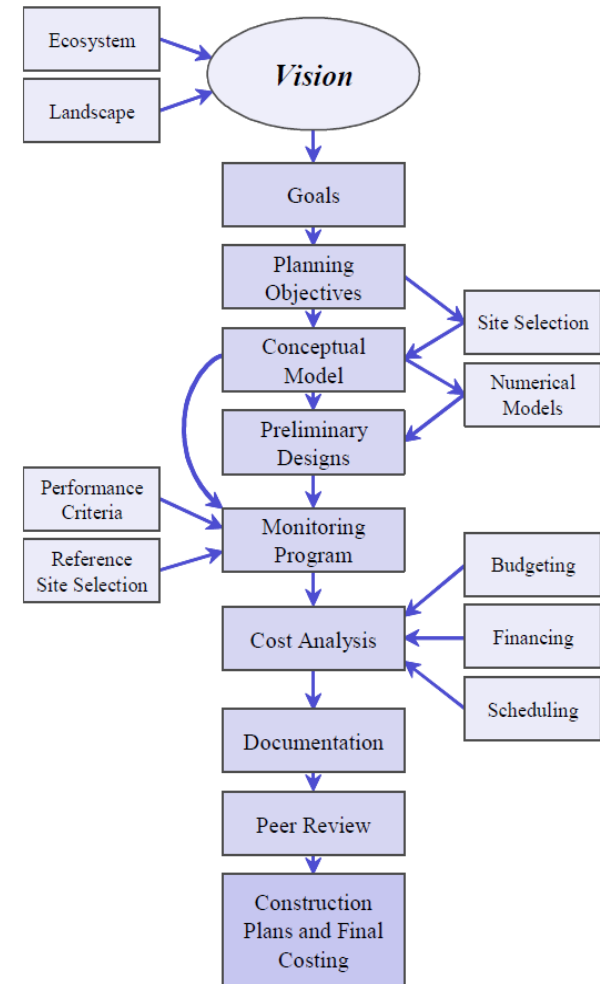


Figure 2. A coastal restoration project planning process.

Adaptive Management – WDFW Estuary MOA Projects

- **COORDINATE WITH ...**
 - ❑ **ACTION AGENCIES TO INCORPORATE RM&E COMPONENT INTO INDIVIDUAL §536 Projects**
 - ❑ **WDFW Wildlife Program – Areas for restoration**
 - ❑ **WDFW Fish Program – Ongoing RM&E Projects**
 - ❑ **WDFW Habitat Program/Ecology – Intensively Monitored Watershed (IMW) Program, e.g. M-A-G**
 - ❑ **Estuary Partners for monitoring consistency – LCREP, CREST, CLT, LCFRB, LCFEG, WCCD, Cowlitz Tribe, etc.**

Resource Management & Policy Issues



Need empirical data to link Habitat Restoration Actions → Fish Response

- ✓ What stocks are actually present at each restoration site (systematic fish samples, PIT-tags, genetics)
- ✓ Need fish survival trends (CWT and genetic sampling programs)

Regional resolve to integrate RM&E into all Projects

- ✓ Need long-term funding commitments – Action Agencies, NOAA Fisheries, States.