



NCECER

4th National Conference on Ecosystem Restoration

**Pre-Conference Technical Workshop:
Assessing Cumulative Ecosystem Effects of
Multiple Restoration Projects**

Monday, August 1st, 2011

9:00 – 12 noon

Marriott Waterfront, Baltimore, MD

Columbia Estuary Ecosystem Restoration Program (CEERP)

Ecosystem Restoration Drivers

- NOAA 2000 BiOp operation FCRPS – Restore 10,000 acres estuary proper
- NOAA 2008/10 BiOp operation FCRPS – Increase survival from last dam to the mouth approximately 9% ocean type Chinook and 6% stream type
- CAP – 1135, 206, etc.
- WRDA 2000 Section 536 (specific to Columbia River)
- Basically restoration authority to accomplish mitigation, timeline 2000 to 2018

Impetus for Cumulative Assessment

- Corps Portland District knew they'd be involved in a major restoration effort in the CRE.
- We didn't have any way of evaluating the effects multiple restoration sites might have on the ecosystem as a whole.
- Multiple entities evaluating restoration effectiveness with no common methods or metrics, completely ad hoc.
- Methods to measure or evaluate the cumulative effects of ecosystem restoration were not available.

CE Project

- Conducted from 2004 into 2011; in closeout now.
- Multi-disciplinary effort by PNNL, NMFS, UW, and others.
- Included field, lab, and office work.
- Published annual report each year, culminating in 2011 ([//www.nwp.usace.army.mil/evoronmental/home.asp](http://www.nwp.usace.army.mil/evoronmental/home.asp)).
- Project results disseminated via peer-reviewed publications and conference papers (see citations in workshop flyer).
- The project involved much more than the CE methodology itself because the state-of-knowledge on restoration science in the CRE was limited.
- The first-ever LOE assessment is scheduled to be delivered to the Corps December 31, 2011.

Expectations

- CE session at NCER 2009 in Los Angeles – reported the research and approach to date.
- The Portland District is excited about the NCER 2011 workshop on CE and being able to transfer techniques and knowledge to the benefit of other regions in the country.
- We sincerely want as many of you as possible to take this technology home to use and share to benefit your agency and region.
- We also would appreciate feedback & input from your perspective and experiences.

Products

- Cumulative effects methodology
- Effectiveness monitoring protocols
- Database structure and data archive
- Adaptive management framework

Legacy Products

Product	Description	Vehicle
Action-Effectiveness Research		
Journal Article	CE Approach: Peer-reviewed method to evaluate the cumulative effects of ecosystem restoration	2011, Rest. Ecol.
CE Presentation	Presentation showing the generic steps to perform a CE levels-of-evidence analysis	Powerpoint
Meta-Analysis	Pilot meta-analysis of effectiveness data	Report appendix PDF
Action-Effectiveness Monitoring and Research		
Protocols	Protocols for action-effectiveness monitoring of ecosystem restoration projects in the LCRE	NOAA Technical Memorandum PDF
CE Database	Data archive, including meta-data	TBD
Critical Uncertainties Research		
Journal Article	Salmon-Habitat Relationships, Restoration Sites	2010, Trans. Am. Fish.
Journal Article	Hydraulic Geometry Relationships, Restoration Sites	2008, Ecohydro. & Hydrobio.
Journal Article	Channel Morphology, Restoration/Reference Sites	2009, Rest. Ecol.
Adaptive Management		
Adaptive Management	Two versions (short and long) of the framework developed for the USACE, Portland District	Report chapter PDFs
CEERP Adaptive Management	Slides of diagrams showing the regional process and annual deliverables	Powerpoint