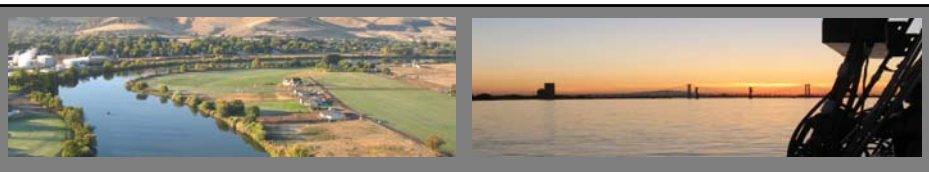


Benton County
Shoreline Master Program Update

Shoreline Advisory Committee

Inventory & Analysis: October 18, 2012

BENTON COUNTY
Shoreline Master Program Update

Agenda

- What does the Analysis Report do?
- How should the Analysis Report be utilized?
- Analysis Report Elements & Methods
  - Inventory elements
  - Methodology for assessing functions
  - Relation to future elements

What does the Analysis Report Do?

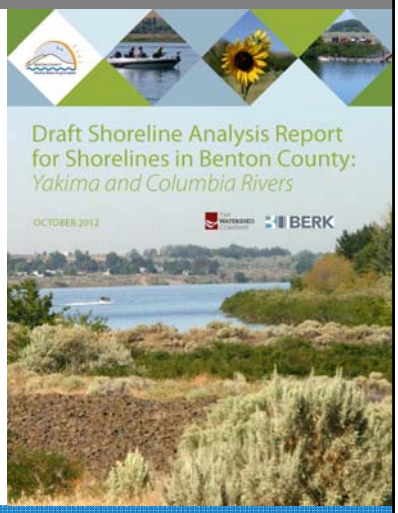
- Develops current baseline condition (i.e. inventory)
- Analyzes existing shoreline ecological functions
- Analyzes current land use and identifies likely future changes (including public access)
- Identifies potential restoration opportunities

How is it utilized?

- Provides an inventory of today's condition
- Guides development of Environment Designations
- Provides management recommendations for SMP issues
- Starting point for future restoration plan

Analysis Report Outline

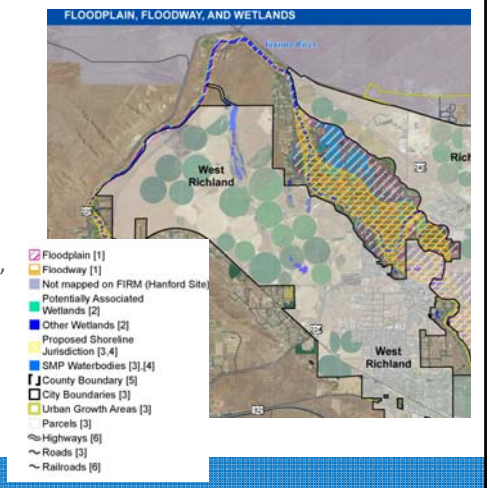
- Introduction (Ch 1)
- Current Regulatory Summary (Ch 2)
- Summary of Ecosystem Conditions (Ch 3)
- Shoreline Inventory (Ch 4)
- Analysis of Ecological Functions (Ch 5)
- Land Use Analysis (Ch 6)
- Shoreline Management Recommendations (Ch 7)



Inventory Elements

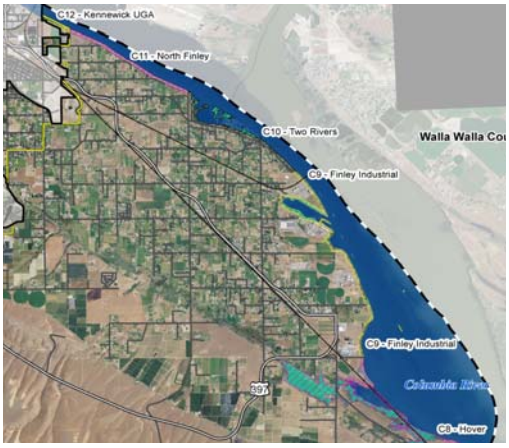
Full Range of Natural & Built Environment Topics

Comprehensive Plan designations
Channel migration zone
Current land use
Floodplains, floodways and wetlands
Geologically hazardous areas
Impervious surfaces
Vegetation
Ownership
Priority Habitats and Species
Shoreline Modifications (overwater structures, levees)
Soils
Surface water system
Surficial geology
Water quality
Zoning



Reaches

- Delineation of reaches weighted heavily on existing/planned land use to maximize utility for SMP development
- 15 reaches on Columbia
- 12 reaches on Yakima River



Functional Analysis

- Synthesis of Inventory elements
- SMP Guidelines ask for identification of "which ecological functions are healthy, which have been significantly altered and/or adversely impacted, and which functions may have previously existed and are missing"
- Developed systematic methodology using both quantitative and qualitative results to evaluate functions related to primary processes(hydrologic, habitat, vegetation, hyporheic) for each reach

Example Scoring Matrix

- High-Moderate-Low relative to range of actual conditions
- Different treatment of Yakima and Columbia shorelines

	Process/ Function	High	Moderate	Low
Hydrologic	Moderation of sediment transport	• No armoring or dams present within the reach AND • Creek mouths present with natural deltas	• Steep slopes present, but not developed or well-vegetated AND • Limited armoring present	• Steep slopes present with development OR • Majority of the reach is armored
	Development/ maintenance of in-stream habitat features	Backwater areas, islands, and wetlands occupy >30% of the reach	• Backwater areas, islands, and wetlands occasionally present OR • Off-channel habitats are isolated from the mainstem channel by armoring or causeways	• No backwater areas, islands, or wetlands OR • Off-channel habitats are significantly altered (i.e. dredged or armored)
	Attenuation of flow energy	• Majority of the reach is not armored or protected by levees AND • Large wetlands or backwaters are present AND • Floodway >50% of area (Yakima River only)	• Wetlands are occasionally present AND • Majority of the reach is not armored or protected by levees AND • Floodplain >20% of area (Columbia River Only) OR • Floodway 20-50% of area (Yakima River only)	• Levees present OR • Majority of the reach is armored OR • Floodplain area <20% of total area (Columbia River only) OR • Floodway <20% of total area (Yakima River only)

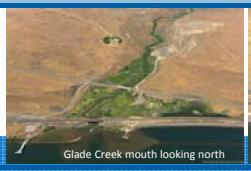
Example Reach Assessment

- Brief assessment of functions and alterations in each reach
- In addition to degree of function, noted "Cause" – supports identification of restoration opportunities

Reach C2 – Lake Umatilla

Process/Function		Function–Cause	Notes
Hydrologic	Moderation of sediment transport	Moderate - natural	Riverine wetlands provide wave energy attenuation and instream habitat complexity, but shoreline armoring throughout most of the reach minimizes the potential for instream habitat complexity and reflects wave energy.
	Development and maintenance of in-stream habitat features	Moderate - altered	
	Attenuating flow energy	Moderate - altered	
Vegetation	LWD and organic matter recruitment	Moderate - altered	Riparian forest and shrub vegetation is concentrated at creek mouths. Vegetation at creek deltas provides organic recruitment and nutrient filtration. Vegetation on small creeks helps maintain cool water sources. Armored shorelines limit vegetative functions.
	Filtration of upland inputs	Low - altered	
	Bank stabilization	Low - altered	
Habitat	Wetland/riparian habitat	High - natural	Wetlands at creek mouths provide significant habitat for waterfowl and off-channel shallow water habitat for small fish and salmonids.
	Space and conditions supporting wildlife, including PHS species	High - natural	
Hyporheic	Water storage, cool water refugia, and filtration	High - altered	Limited areas of forested vegetation are supported along the water's edge. Glade Creek is supported by groundwater seeps, and summer flows are higher due to irrigation runoff (Davis 1992).
	Support of vegetation	High- altered	

Key Environmental or Land Use Factors Affecting Processes/Functions:
Creek mouth deltas provide habitat diversity among the relatively uniform shores of the Columbia River. The confluence with Glade Creek provides a source of cool water refuge.


Glade Creek mouth looking north

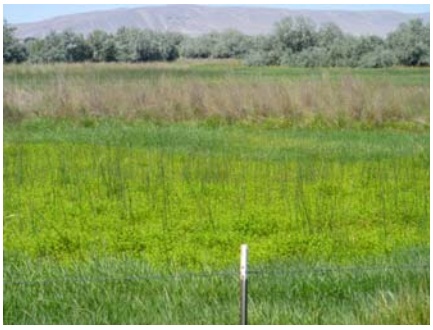
Road, railroad, and shoreline armoring with wetland vegetation looking north

Example Ranking Result

Reach Number/ Name		Rank	Hydrologic			Vegetative			Habitat		Hyporheic	
			Moderation of sediment transport	In-stream habitat features	Attenuating flow energy	LWD and organic matter recruitment	Filtration of upland inputs	Bank stabilization	Wetland/riparian habitat	Space and conditions supporting wildlife	Water storage and filtration	Support of vegetation
C3	UNWR	1	2	3	3	3	3	3	3	3	3	3
C14	Hanford	2	3	3	3	2	3	2	3	3	2	2
C5	Plymouth	3	3	3	3	2	2	2	2	3	2	2
C8	Hover	4	2	2	2	3	3	2	3	2	2	2
C2	Lake Umatilla	5	2	2	2	2	1	1	3	3	3	3
C10	Two Rivers	6	2	2	2	2	2	2	2	2	2	2
C15	Priest Rapids	7	2	2	2	2	2	2	1	2	1	1
C1	Crow Butte Park	8	2	1	2	2	2	2	1	2	1	1

General Function Findings

- Functional scores consistent with intuitive weighting
- Key alterations affecting functions:
  - Dams
  - Levees
  - Land ownership (public/ private)
  - Land use
  - Roads and railroads



Land Use Analysis

- Estimate the future demand for shoreline space
- Characterize current shoreline use patterns and projected trends

- Methods
  - Review Zoning and Assessor Use Map
  - Estimate housing and job capacity of vacant lands
  - Review subdivision potential of large lots
  - Review permit trends
  - Review port and other agency plans

Public Access Analysis

- Identify public access needs and opportunities
- Explore actions to enhance shoreline recreation facilities

- Methods
  - Map distribution of existing facilities
  - Review adopted parks and recreation plans
  - Consider location of population in relation to facilities
  - Gather stakeholder input

Status and Comment Opportunities

- Inventory Available Online Now – Please Comment
- Analysis Report – First Draft Pending – Subject of Next SAC Meeting