

FINAL
LAKE WASHINGTON/CEDAR/SAMMAMISH WATERSHED (WRIA 8)
CHINOOK SALMON CONSERVATION PLAN

VOLUME I JULY 2005



Monitoring Salmon Recovery in WRIA 8

April 27, 2010

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King County Department of
Natural Resources and Parks



Wednesday
March 24, 1999

Part II

**Department of
Commerce**

National Oceanic and Atmospheric
Administration

50 CFR Parts 223 and 224

**Endangered and Threatened Species:
Threatened Status for Three Chinook
Salmon Evolutionarily Significant Units in
Washington and Oregon, and Endangered
Status of One Chinook Salmon ESU in
Washington; Final Rule**

**Partial 6-Month Extension on Final
Listing Determinations for Four
Evolutionarily Significant Units of West
Coast Chinook Salmon; Proposed Rule**

**1999: Puget Sound
Chinook salmon listed
as Threatened under
ESA**

Water Resource Inventory Area 8:

Lake Washington,
Cedar, Sammamish
Watershed

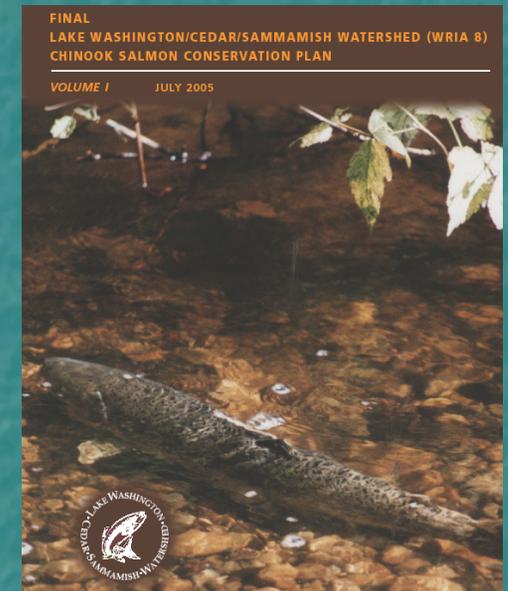
“Lead Entity” for
Salmon recovery

Collaborative
“Salmon Recovery
Council” of 27
jurisdictions plus
business and
environmental
groups



Science-based Chinook Conservation Plan (2005) requires monitoring to:

- Measure and document progress toward salmon recovery and habitat restoration goals
- Assure \$\$ is spent on actions that make a difference
- Provide information to guide course corrections, if (when) needed – i.e., **Adaptive Management**



WRIA 8 Monitoring Framework

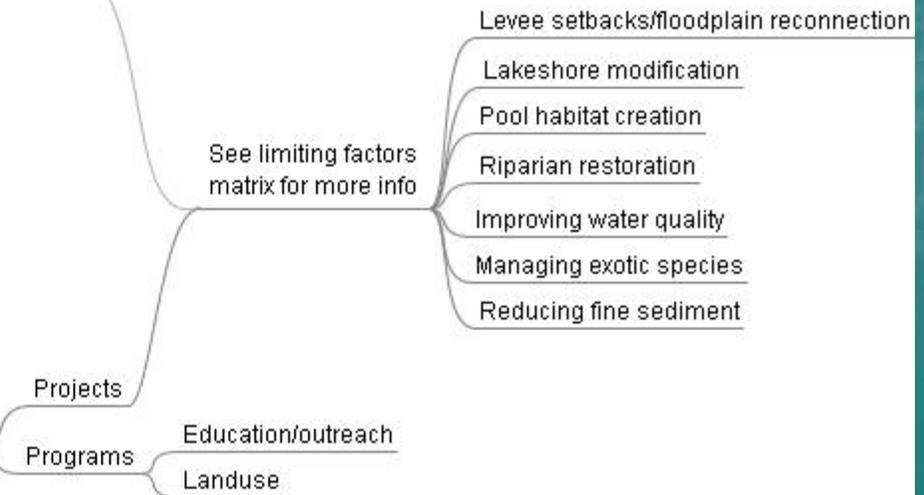
Status and Trends



Implementation



Direct Effectiveness



Is the watershed producing more Chinook? (“Fish in/Fish Out” Status and Trends Monitoring)

- Spawner counts, age structure, natural vs. hatchery
- Redd surveys
- Outmigrant trapping
- PIT tagging (survival, migration rates)

Partners: WDFW, local jurisdictions, King Conservation District, Muckleshoot Tribe

Provides cornerstone information about Chinook abundance, spatial distribution, productivity



Are watershed conditions improving? (Habitat Status and Trends Monitoring)



- Field assessments (EMAP)
- Land cover classification (CCAP)
- Water quantity (flow characteristics)
- Water quality

Key indicators of watershed health over time

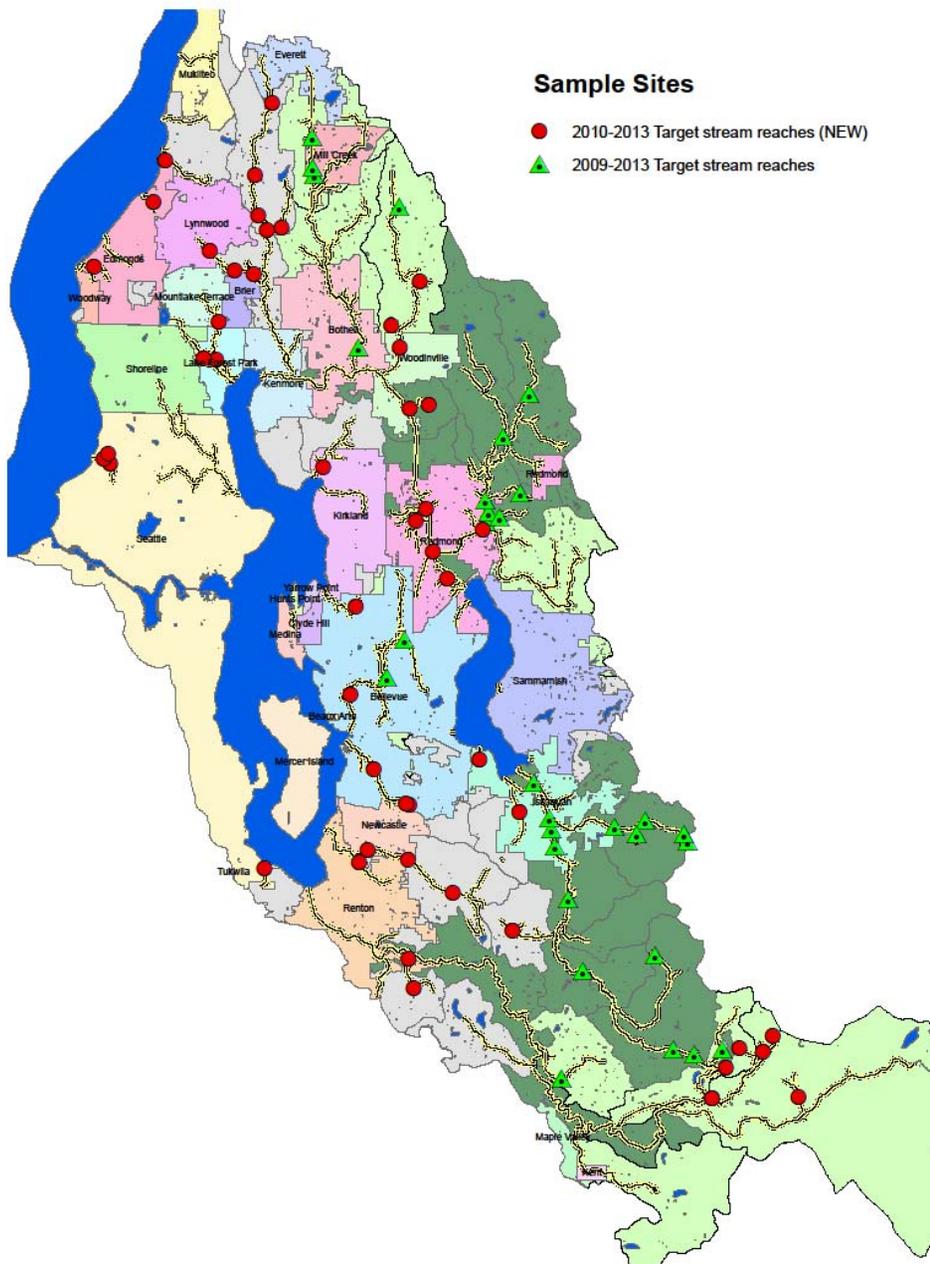
Field Assessments

Physical and Biological Characteristics

- Direct tie-in to WA Department of Ecology Status and Trends Monitoring Program
- Similar protocols to USEPA EMAP
- Uses Ecology random sampling strategy
- BIBI, FIBI



WRIA 8 Status and Trends Monitoring: Potential Sample Sites



EPA Grant

New for 2010:

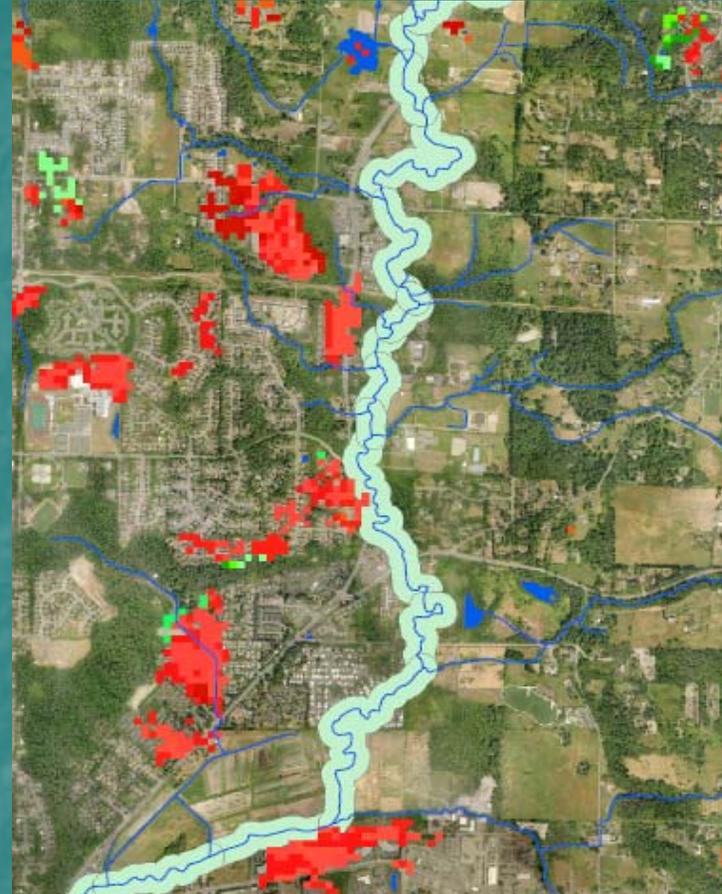
- Increase sample size to 50 sites in WRIA 8 and up to 10 EPA sentinel sites outside WRIA
- Funding secure through 2013
- Same physical and biological parameters, 12 added stream gauges
- Add hydrologic analysis (flow-habitat relationships)
- Requires stronger linkages to Adaptive Management
- King County is lead agency in collaboration with WRIA 8

Land Cover Change



- Are we retaining forest cover in the areas we said were important?
- Are we protecting riparian buffers?

- Quantify forest cover change...
- Then focus in on most crucial areas for a closer look



Flow Characteristics

- Use existing gauge data and analyses:
 - Winter high flows – more frequent and higher highs?
 - Summer low flows – lower lows?
 - Changes in overall timing?
 - Explore predictive computer models for places without flow gauges (EPA grant support)



Water Quality

- What do County data tell us about trends in:
 - Temperature
 - Dissolved Oxygen
 - Turbidity – total suspended solids
 - Pre-spawn mortality study
 - Stream benthos
- Thanks to Jim Simmonds and his group for their analytical support

Implementation Monitoring

FLOODPLAIN CONNECTIVITY: Setback and remove dikes and levees to restore floodplain connectivity. Floodplains provide off-channel and margin refuge habitats, as well as lower velocity areas during periods of high flow. (5 projects)
Goal: 6,800 Linear Feet **Actual:** 4,350 Linear Feet **Progress:** 64% Completed



HABITAT PROTECTION: Protect property within the Cedar River basin through easements, acquisitions, or transfer of development rights. These actions will protect floodplain, riparian, and upland watershed processes and enable future restoration efforts. (18 projects)
Goal: 606 Acres **Actual:** 93.2 Acres **Progress:** 15% Completed



CHANNEL COMPLEXITY: Add large woody debris to create pools. Channel complexity provides juvenile Chinook with refuge and foraging opportunity, while adult Chinook benefit from areas to rest on their upstream migrations. (5 projects)
Goal: 3,500 Feet **Actual:** 800 Feet **Progress:** 23% Completed



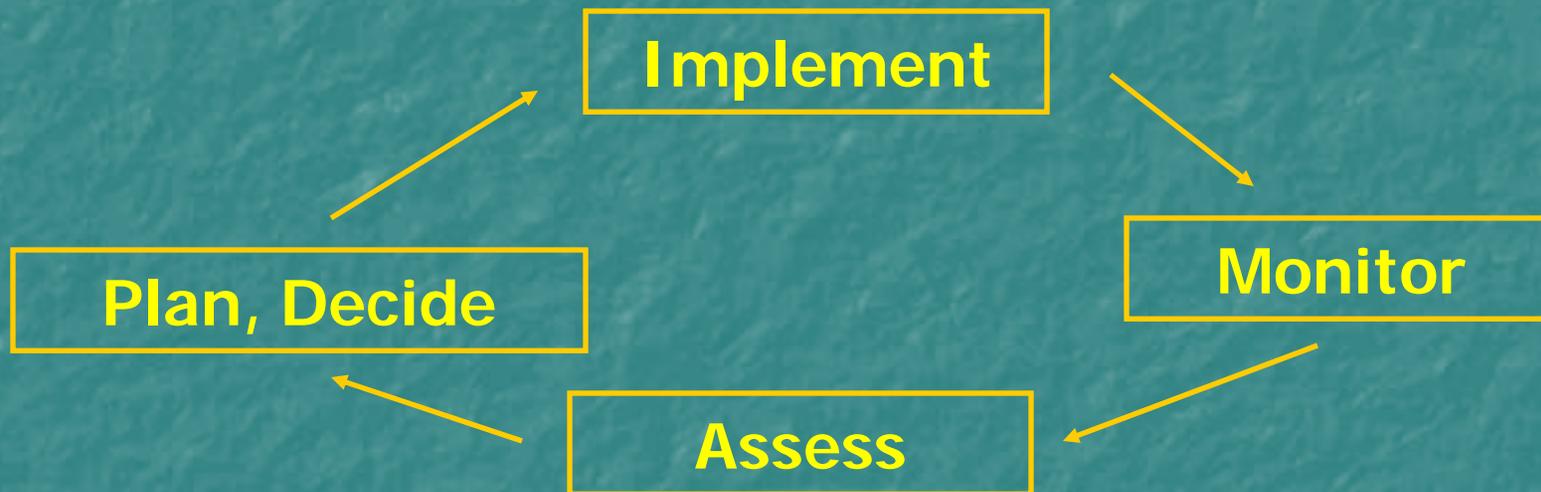
- Habitat Work Schedule

- Metrics under development

Effectiveness Monitoring

- Least-developed at this time
- Dependent on regional analyses (e.g., SRFB) or local agencies/jurisdictions
- Focus for the present is on compiling reports from partner jurisdictions, agencies, County departments

Adaptive Management



Adaptive Management

- Is the sum of our actions having the desired effect?
- If not, what are we going to do about it?

Adaptive Management

- One important element of the EPA grant was a strong feedback loop to jurisdictions, decision-makers
- WRIA 8 will tie the monitoring framework to course-correction framework through the Salmon Recovery Council (e.g., 2010 Summit), County Council, PSP and others

Thank you

- King Conservation District
- U.S. Environmental Protection Agency
- Puget Sound Partnership
- King County Environmental Lab
- King County Department of Natural Resources and Parks
- WRIA 8 Partner Jurisdictions, Agencies and supporters

