

SCIENCE IN WRIA 8 SALMON RECOVERY



WRIA 8 Salmon
Recovery Council

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Project Effectiveness Monitoring – why projects?

WRIA 8 Technical Committee

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Project Effectiveness Monitoring

“Is the action doing what we thought it would do?”

“Can we do it better?”

WRIA 8 Salmon Plan strategy –
Chapter 6 (vol. 1): Measures and Monitoring for Gauging Progress

Confirmed by NOAA and PSP,
GSRO, Monitoring Forum, SRFBoard, many others

- Habitat Recovery = Protection + Restoration – Future Degradation (?)

Evaluations may have different timelines to show results

Monitoring Type	Annual	5 yr	10 yr	30 yr
Implementation	√	√	√	√
Project Effectiveness		√	√	√
Status and Trends/ Cumulative Effectiveness			√	√
Validation - VSP				√

2005 Steering Committee Guidance – Use monitoring results to...

“Evaluate progress towards habitat goals

Assure actions are making a difference – cause/effect

Communicate with public, decision-makers and restoration practitioners – benefits/costs

Prioritize actions that are most effective/ reduce uncertainty in other actions with risk

Improve implementation of actions – project location, sequencing, design, experimentation, construction, and monitoring

Help confirm or improve plan strategy and guide level of effort”

Paraphrased from Ch 6, pages 5-6

What do we need to learn?

Are projects effectively treating habitat limiting factors and causes of degradation?

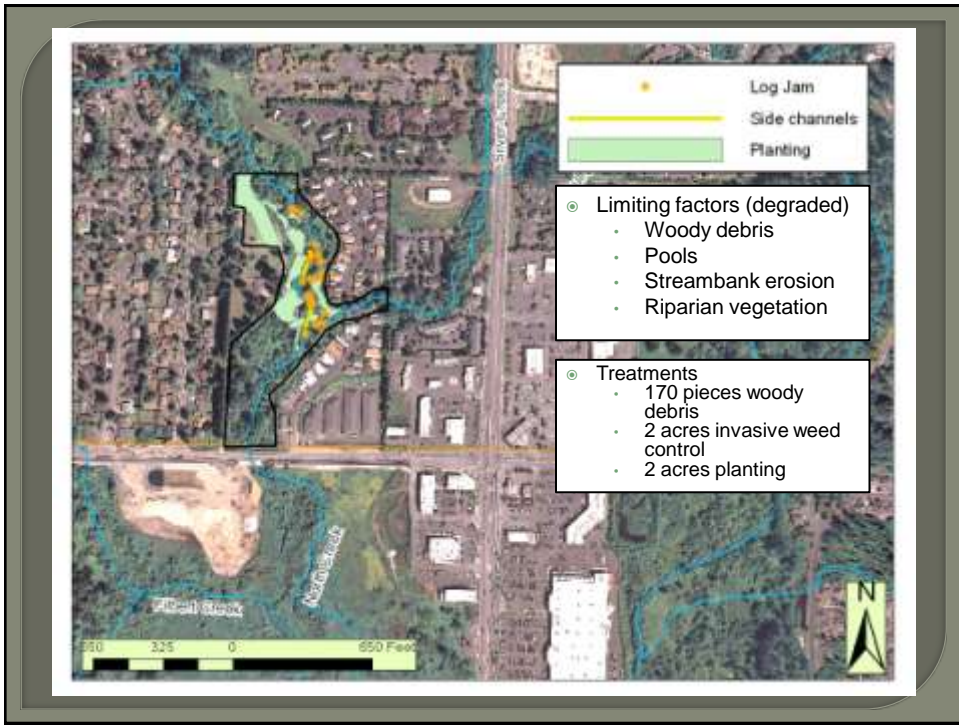
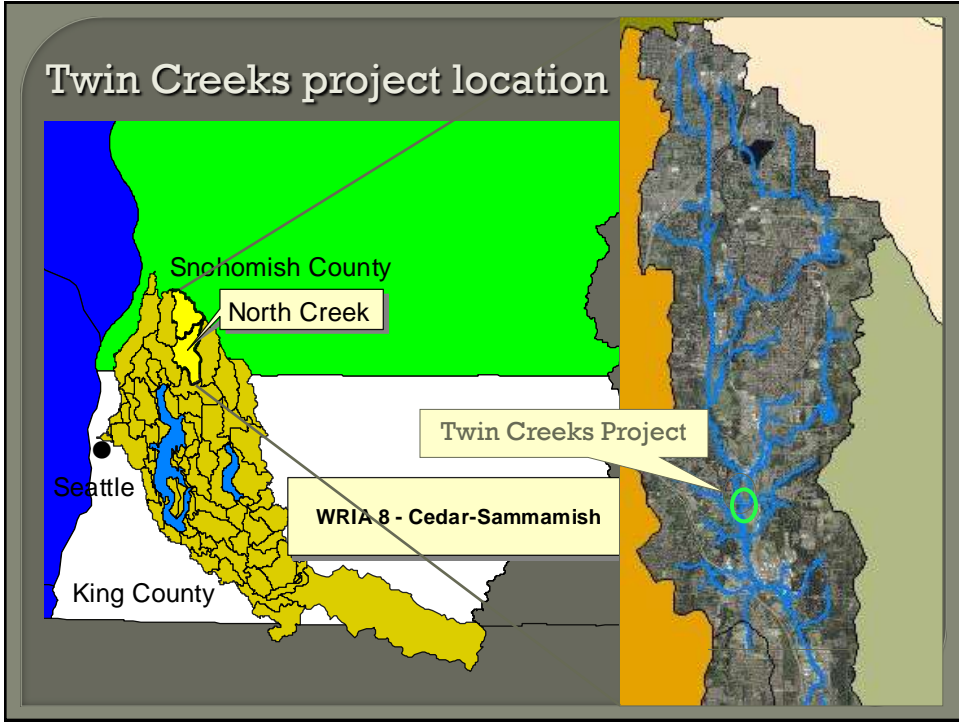
Are projects effective relative to habitat or design objectives?

Are actions effective by project category?

- instream habitat and woody debris placement,
- vegetation restoration,
- invasive species control,
- bank armor removal,
- shoreline restoration (lake and marine shoreline),
- over-water structures (docks),
- floodplain re-connection,
- fine sediment reduction,
- water quality enhancement

Effectiveness monitoring examples

- TetraTech - Wood Catalog Report (2011), Annual Progress (2004-2012) Reports, Puget Sound Report (2012) –SRFBoard Funded.
 - Floodplain enhancement projects - successful and cost-effective
 - Wood placement projects show positive and negative effects for fish/+ for coho; uncertain for Chinook
- Locally – Twin Creeks project on North Creek



Twin Creeks Project objectives

1 - Control erosion at one hazardous location (mobile homes)

2 - Increase woody debris to properly functioning condition.

3- Enhance pool habitat quantity and quality from woody debris.

4 – Increase side channel connections and area.

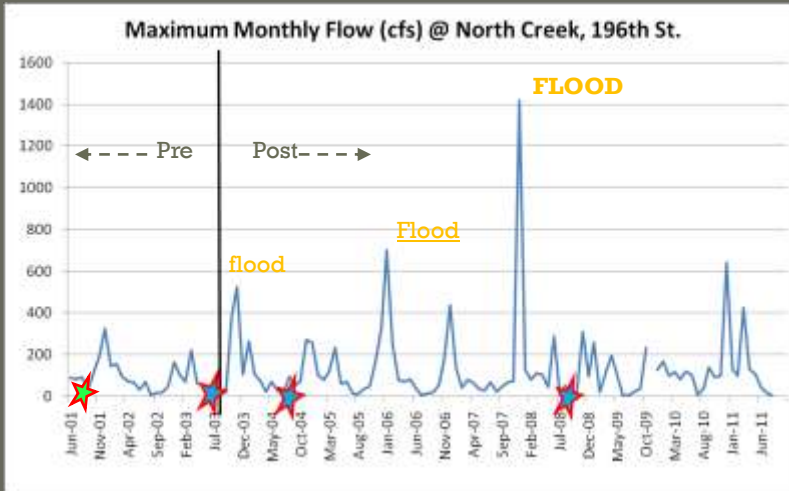
5 – Increase native vegetation cover within the easement area.

What do we mean by “effectiveness”?

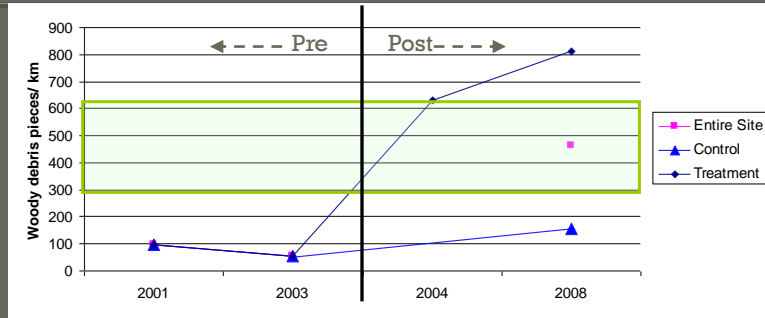
- Defining “success” – quantitative/qualitative objectives or expected outcomes/ trajectories

Category/ Action	Objectives	Monitoring Metrics	Outcome
Place woody debris in stream (Limiting factor)	Wood stability; Pool formation, cover for fish	Wood count, Pool count; pool area (m ² or %), cover (m ²)	Retain 50% of woody debris after 10 years; Increase pool count; increase pool area, increase overhead cover

North Creek, monthly peak flows, 2001-2011 Snohomish County SWM Stream gauging program



Placed 170 pieces of wood in 950 ft at 16 locations (4-27 pieces per location)

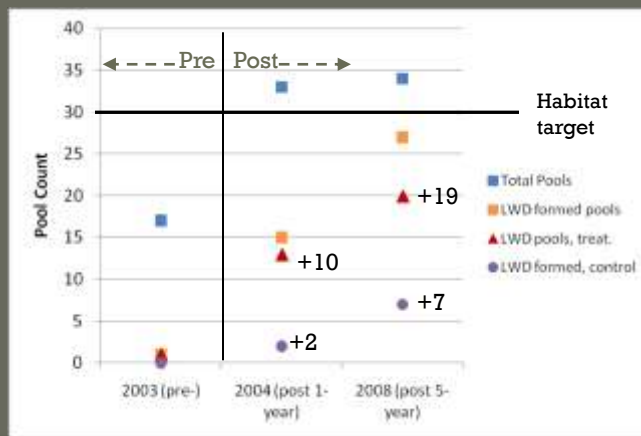


Shaded area represents 25-75 percentile from Fox and Bolton 2007 for naturally managed western WA streams

80% stable wood/ 92% was still in survey area;
single pieces and smallest pieces moved;

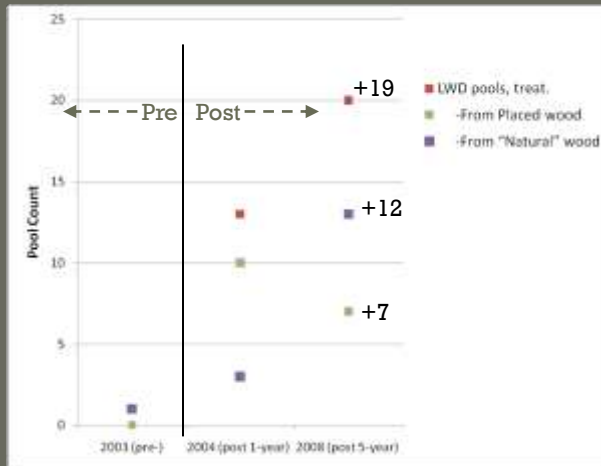
Pools (pre- to post- condition)

- Wood pools
 - 6% to 80%
- Pool Area
 - 30% to 46%
- Pool cover
 - 3% to 19% of total pool area



Change in LWD function?

- 80% stability
- 13 of placed LWD "lost"
- "Natural" LWD – 71 pieces



- Larger than 57% of all placed LWD
- 71 "natural" pieces associated with 12 pools
- 157 placed pieces to 7 pools

Changes over time – part of project trajectory and understanding "effectiveness" over time



Recap

- Project monitoring part of science-based salmon recovery
- Data are needed for evaluation and communication
- “Effectiveness” objectives should be part of goal setting
- Actionable results available sooner for decision-making
- Floodplain restoration and woody debris projects are effective at forming habitat
 - – fish population benefits from individual projects less understood
- Locally we have good monitoring examples – stream restoration, river projects, lake shorelines – important in urban setting

Questions



2003-2008

