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Assessment of floodplain condition across Puget Sound: an emerging tool for tracking investments and communicating status

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Assessment of Floodplain Conditions across Puget Sound

*An emerging tool for tracking investments and
communicating status*

Jennifer Burke,

Data Systems & GIS Manager

Puget Sound Partnership

April 6, 2018



Background

- **Puget Sound Partnership**
 - Coordinate recovery – Mountains to the Sound
 - Puget Sound Regional Salmon Recovery Coordinator
- **Report on recovery progress via suite of indicators**



Floodplain Indicators and Targets

- Restore 15% degraded (*impaired condition*) floodplains
- No net loss of floodplain function
- Floodplain Connectivity
- Floodplain land *use* and land *cover*

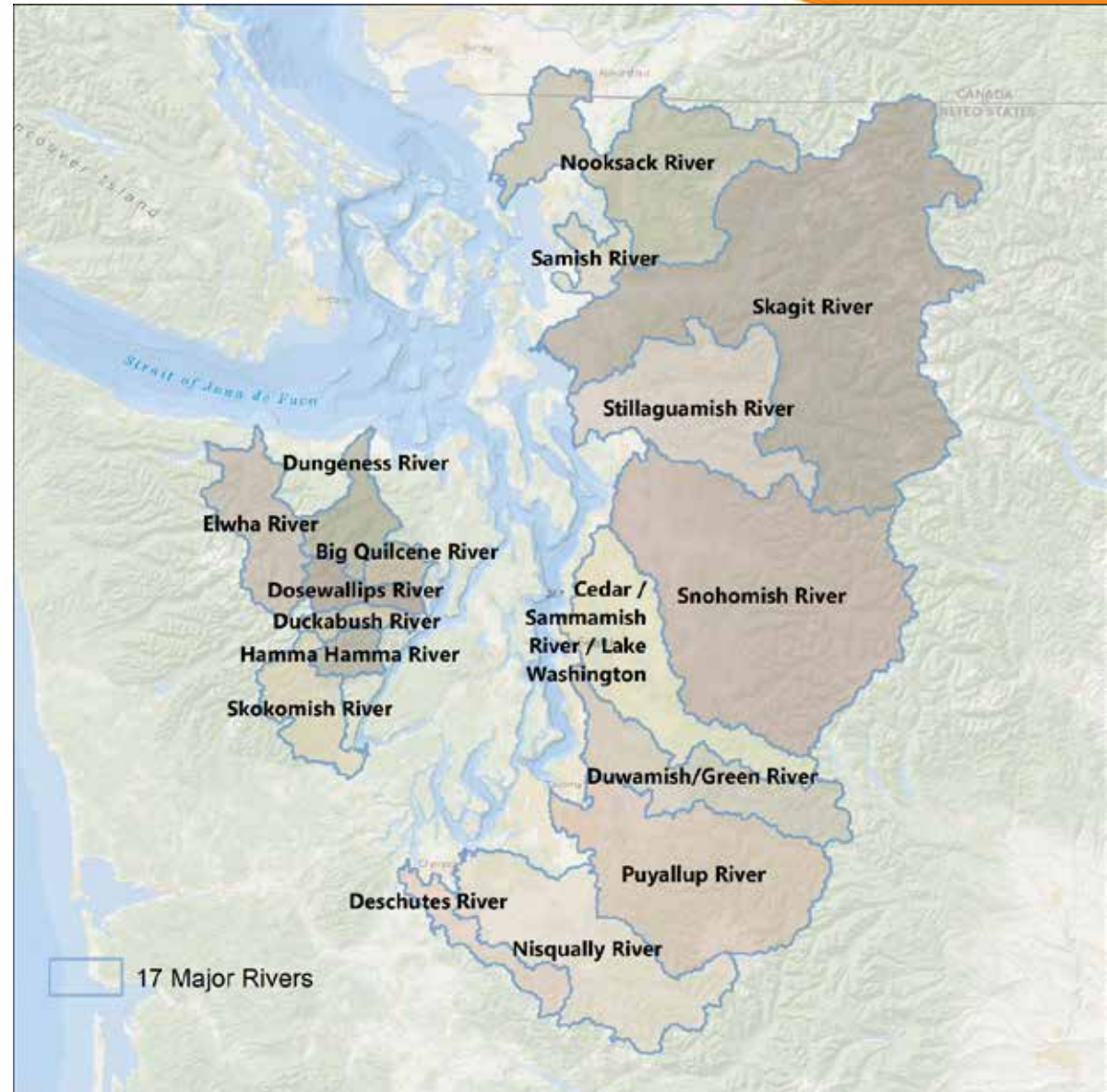
Vital Sign
Program

Common
Indicators
Program



Scope

- 17 major rivers
 - Tributaries
- Deltas



Refining the Floodplain Vital Sign

- **GOAL:** *Improve* the ability to regionally track and communicate progress towards recovery goals
- **Quantify of floodplain conditions**
 - Lack an accurate assessment for restoring 15% degraded
- **Simple, sustainable, and transparent approach**
 - Not sophisticated

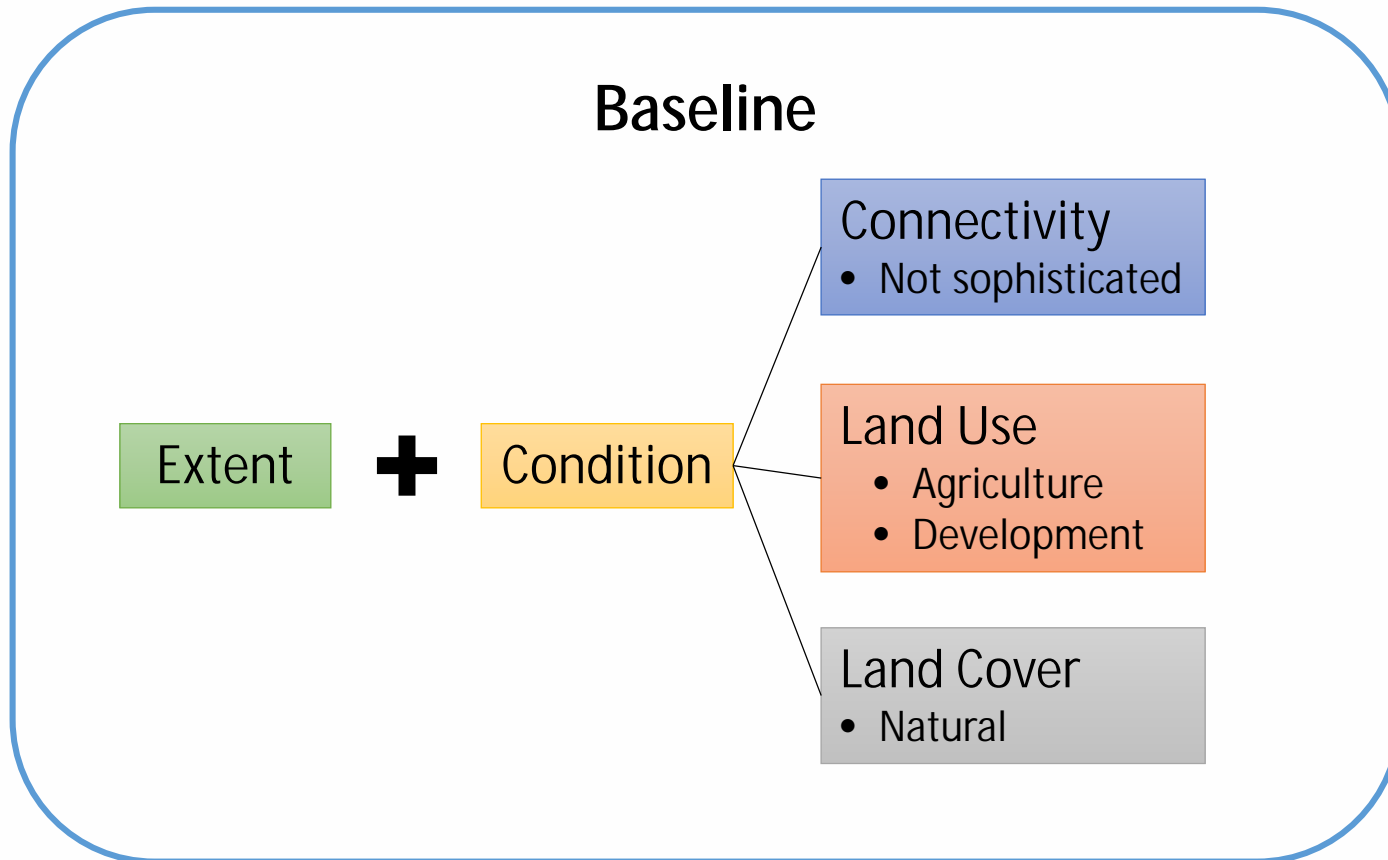
Refining the Floodplain Vital Sign

- **Co-managed with Department of Ecology**
 - Co-manager of Floodplains by Design
- **Support by ESA**
- **NTA in 2016 Action Agenda**
- **Funded by Habitat Strategic Initiative (EPA NEP funds)**

Partners

- Many at all levels – local and regional
- Key regional partners working on a floodplain solution
- Key to success
- 2-step vetting process
 - Regional Advisory Committee
 - Local and regional restoration and floodplain experts
 - NOAA Science Center, EPA, USGS, NWIFC, TNC, county floodplain managers, Conservation Commission and districts, and multiple state agencies
 - Technical Local Watershed committees
 - Contribute to their specific watershed data refinement

Objective

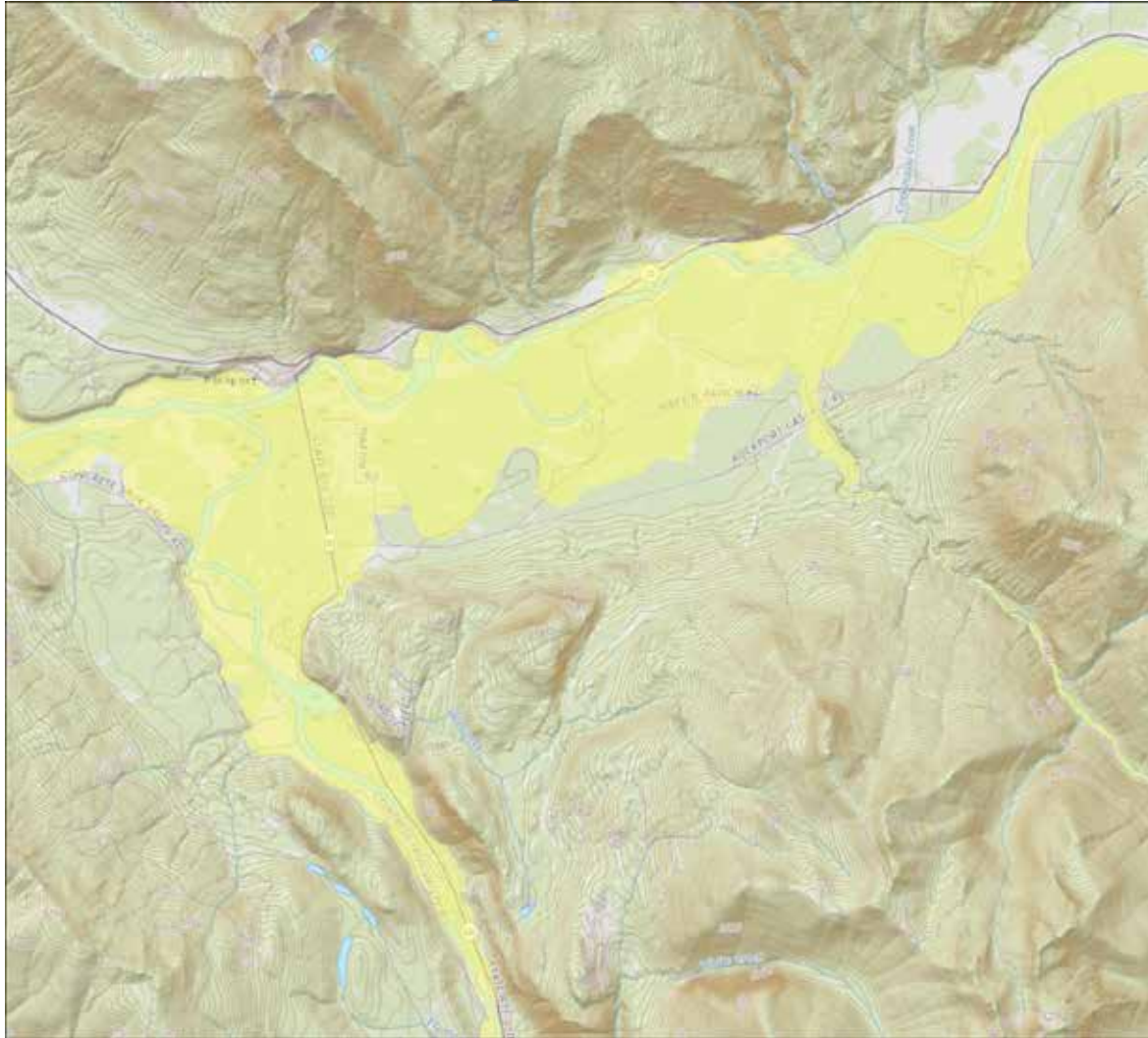


Establishing the Extent

Objective 1

- **Develop a *regionally-accepted* Extent**
- **Ecological function**
 - ARE NOT MAPPING:
 - Regulatory floodplains
 - Flood frequency
 - Flood risk management
 - Insurance purposes

Establishing the Extent

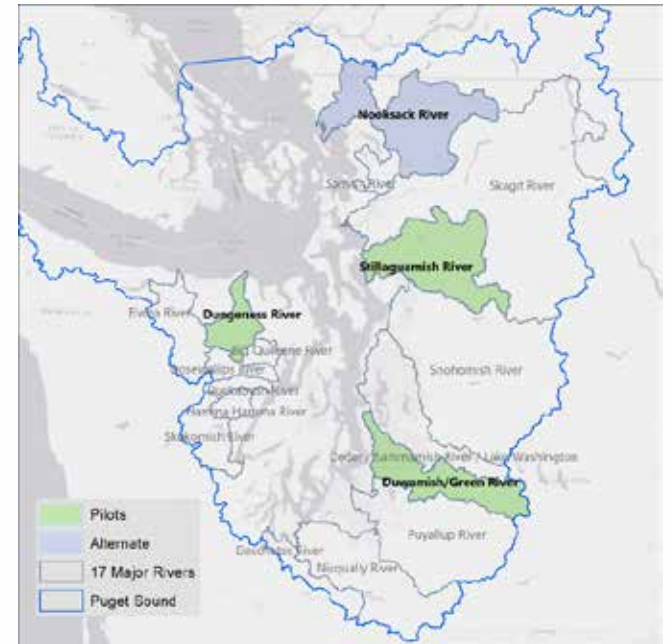


Floodplain data:
NOAA Science Center 2018

Establishing the Extent

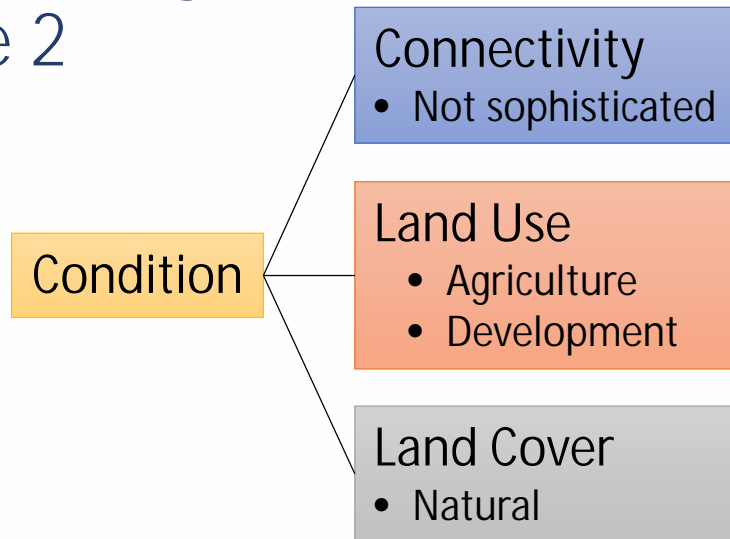
Objective 1

- Develop a *regionally-accepted* Extent
- Based on NOAA Floodplain (Science Center)
 - Developed for Status & Trends monitoring
 - Advisory Committee
- Refine 3 pilot watersheds
 - Stillaguamish
 - Duwamish/Green
 - Dungeness
- Local data and knowledge



Assessing Condition

Objective 2



- **Proposed characterization of *condition***
 - Refined by Advisory Committee
 - Refined at the local level in same three pilot watersheds
- **Freely available spatial data, local data, and local knowledge**

Tiers

Tier	Connectivity	Land cover and use
0	Connected	Natural land cover
1	Connected	Agriculture Open or Low Density Development
2	Disconnected	Natural land cover
3	Disconnected	Agriculture Open or Low Density Development
4	Connected Disconnected	Medium to High Density Development Medium to High Density Development

Floodplains Implementation Strategy - <https://pspwa.box.com/v/FloodplainsNarrative>

Tracking Activities

Objective 3

- Augment the Baseline Floodplain dataset
- Develop *criteria* for activities that improve floodplain conditions
- Consistent metrics
- Need?
 - Project footprints and metrics of acres restored not aligned with target
 - Current data systems, e.g. HWS and PRISM, metrics are not specific to indicators

Tracking Activities

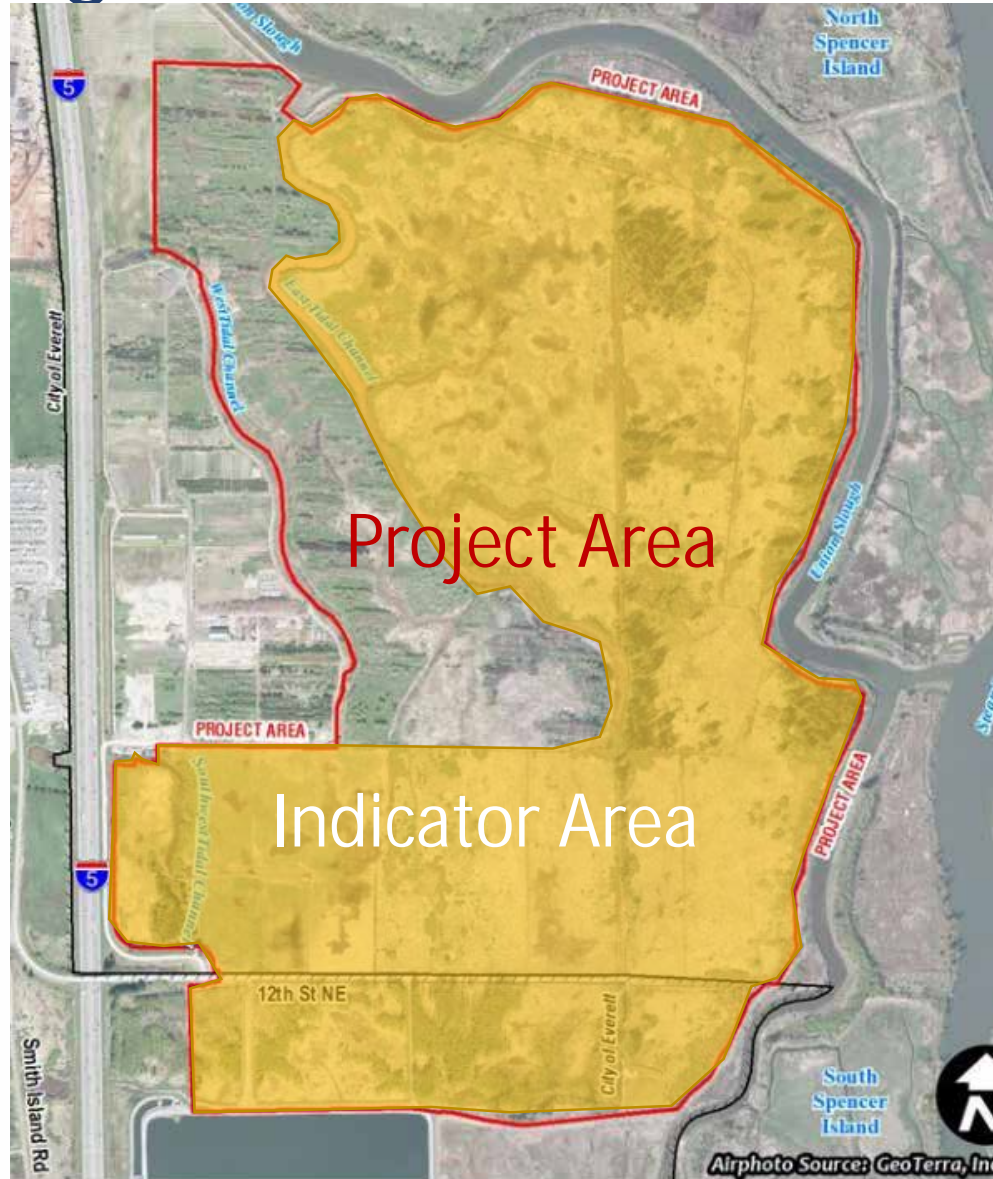
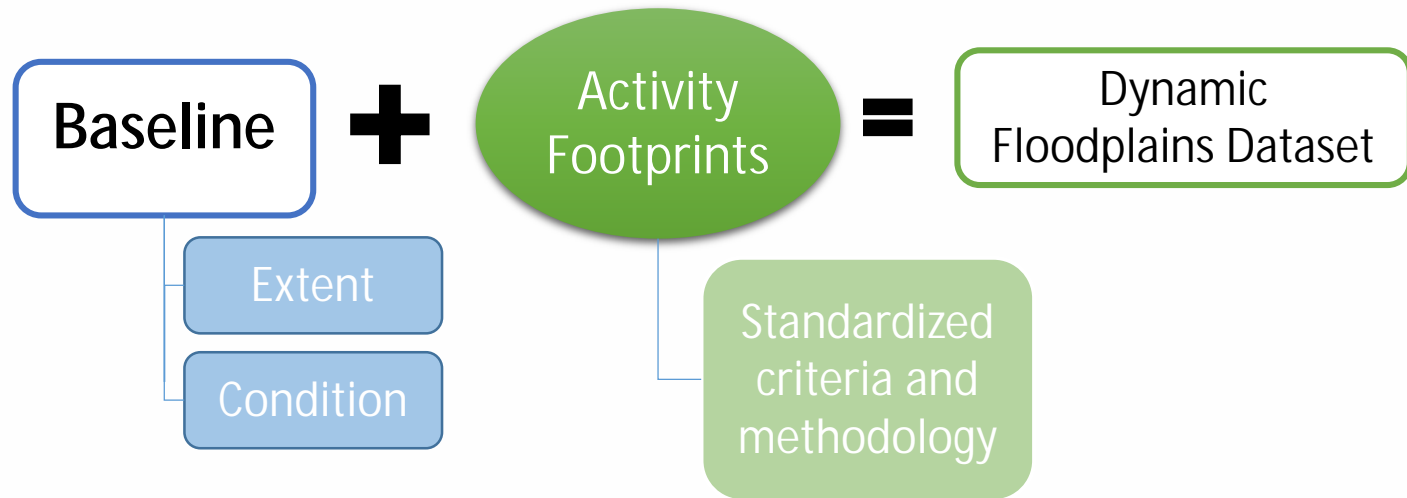


Photo:
<https://snohomishcountywa.gov/1150/Smith-Island-Restoration-Project>

4/6/2018 Salish Sea 2018

Objectives



Improvements

- Restoration tracking - Tiers
- Investment tracking
- Strategic Planning and Prioritization
 - Local Recovery Plans
 - Floodplains Implementation Strategy
- Project Evaluation
 - Local and Regionally funded project

Addressing the Indicators

Floodplain Vital Sign targets

- Restore 15% degraded (*impaired condition*)
- No net loss of floodplain function

Conditions and
Tracking Dataset

Not Addressed

Floodplain Common Indicators

- Floodplain Connectivity
- Floodplain land *use* and land *cover*

Condition Dataset

Condition Dataset

No Net Loss of 'Function'

- **Spatial methods of detection**
 - Longer time-interval, e.g. 2 to 5 years
- **Propose to track land use and land cover changes**
 - WDFW High Resolution Change Detection
 - C-CAP 30m or 1m
- **Connectivity (?) loss**
 - Advisory Committee

Emerging Tool Products

- **Geospatial baseline floodplain dataset**
 - Extent and condition
 - Puget Sound-wide
 - *refined* in 3 watersheds
 - apply criteria and decision-rules to remaining 14 major river floodplains, if applicable
- **Criteria for restoration activities**
 - Qualify for Tiers
- **Protocols for quantifying metrics for the indicators and targets**

Emerging Tool Summary

- **Collective Effort**
 - Local and regional coordination
- **Success dependent on local partners**
- **Data will be local in origin and applied regionally**
 - Standardized
 - Local watershed distinctions
- **Shared Measures**
 - Data
- **Improve progress in attaining recovery goals**

Thank you

- **Habitat Strategic Initiatives**

- <https://pugetsoundestuary.wa.gov/what-we-do/projects/habitat-projects/>



- **EPA NEP Program**

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More Information

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- **Partnership Vital Signs**

- http://www.psp.wa.gov/vitalsigns/flood_plains.php

- **Floodplains by Design**

- Ecology, The Nature Conservancy, and Partnership
- <http://www.floodplainsbydesign.org/>