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

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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
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

Baseline

Connectivity
- Not sophisticated

Land Use
- Agriculture
- Development

Land Cover
- Natural

Extent + Condition
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

<table>
<thead>
<tr>
<th>Tier</th>
<th>Connectivity</th>
<th>Land cover and use</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Connected</td>
<td>Natural land cover</td>
</tr>
</tbody>
</table>
| 1    | Connected    | Agriculture
|      |              | Open or Low Density Development |
| 2    | Disconnected | Natural land cover |
| 3    | Disconnected | Agriculture
|      |              | Open or Low Density Development |
| 4    | Connected    | Medium to High Density Development |
|      | Disconnected | Medium to High Density Development |

Floodplains Implementation Strategy - [https://pspwa.box.com/v/FloodplainsNarrative](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

Project Area

Indicator Area

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

Baseline + Activity Footprints = Dynamic Floodplains Dataset

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

Improvements
Addressing the Indicators

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

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

Conditions and Tracking Dataset
- Not Addressed
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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• **Partnership Vital Signs**

• **Floodplains by Design**
  • Ecology, The Nature Conservancy, and Partnership