

Shoreline Master Program Inventory & Characterization

Department of Ecology

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The background image shows a wide, shallow riverbed with numerous large, moss-covered rocks. The water is calm and reflects the sky. In the background, there is a dense forest of evergreen trees on a hillside, and further back, rolling mountains under a cloudy sky.

Overview

- ❑ Significance of inventory & characterization
- ❑ Inventory basics
- ❑ Characterization basics
- ❑ Channel migration zones – Patricia
- ❑ Puget Sound broad scale characterizations – Stephen and Susan

Inventory & characterization

- Foundation for SMP!
 - Tells you what's on the shoreline
 - Identifies ecosystem processes & functions
 - Identifies potential sites for restoration, protection and public access
 - Guides development of strategy leading to policies, regulations & environment designations
 - Sets baseline for cumulative impacts analysis

Developing the inventory

- 1) Scope out the issues
- 2) Identify appropriate data sources
- 3) Gather data & information
- 4) Prepare maps



Kayak Point, Snohomish County

Inventory-- scoping

- Intent of scoping – focus on relevant issues & data
- Identify shoreline issues & opportunities
 - What do you already know?
 - Look at local and WRIA plans, Coastal Atlas, etc.
 - What are your shoreline management issues?
 - Storm runoff, flooding
 - Loss of riparian vegetation
 - Public access
 - Climate change impacts

Inventory – data sources

- Identify data & information sources
 - To understand the issues, develop questions
 - Link questions to data & information sources
 - Information should be relevant to issues
 - For example, lake shorelines – no need to list Puget Sound forage fish species
 - No hyperheic info for lakes – don't worry about it!

Inventory – data sources

- Link issues and questions to data source

Issue	Question	Data Source
Beach erosion	Has source of sediment & supply changed?	Historic aerial photos, ShoreZone data, local sediment assessments
Sea level rise	What are the projections for your shoreline?	Ecology climate change report
Water quality	What types of problems exist? Temperature, turbidity?	303 (d) list

Inventory – data sources

- ❑ Many data sources on Ecology's website at http://www.ecy.wa.gov/programs/sea/sma/data/report_table.htm [Coastal Atlas, PSNERP project, 303(d)]
- ❑ Other sources include federal & state agency websites, university studies, consultant studies, new SMP documents, local history, etc.
- ❑ Anecdotal information is valid

Inventory – gather data

□ Gather data

- You may need all or part from data sources, e.g. all of FEMA map, part of watershed report
- Compile information from sources, e.g. channel migration zone from series of aerial photos and maps
- Are there data gaps? Do you need the information? Did you miss a source?
- SMP grant does not fund new research

Inventory -- mapping

- Prepare relevant maps
 - Raw data and information
 - Land use, critical areas, shoreline jurisdiction
 - Maps developed from sources
 - Channel migration zones, erosion areas, public access

Inventory – products

- Inventory products due to Ecology

- Draft list of inventory data sources
- Working maps (digital format)

- City of Shoreline

- Daley Design. 2004. Appendix C Fish Utilization in City of Shoreline Streams. In Tetra Tech/KCM, Inc *City of Shoreline Stream and Wetland Inventory and Assessment*. Bainbridge, Washington. May 2004.
- Tetra Tech/KCM, Inc (TT/KCM). 2004. *Boeing Creek Basin Characterization Report*. Prepared for the City of Shoreline, Washington.
- Tetra Tech/KCM, Inc (TT/KCM). 2004. *City of Shoreline Stream and Wetland Inventory and Assessment*. Prepared for the City of Shoreline, Washington.

Conducting the characterization

- Analyzing data & information helps you to characterize the shoreline
 - Identifies ecosystem processes
 - Defines relationship of processes to functions and identifies health of shoreline functions
 - Identifies measures to protect & restore processes & functions
 - Establishes baseline for cumulative impacts analysis



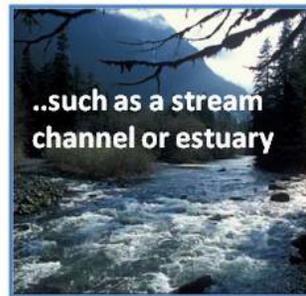
Ecosystem processes

Conducting the characterization

Processes



Structure



Function



Feedback loop from biological activities



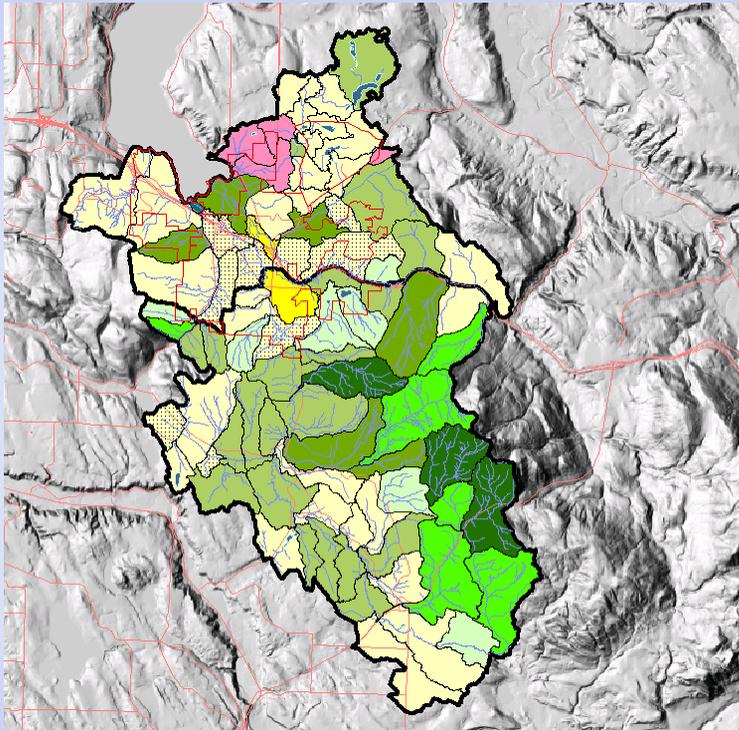
Conducting the characterization

- For Puget Sound communities, Ecology will provide:
 - Coarse scale characterization of ecosystem processes
 - Web-based maps showing areas important for protection & restoration
- Lots of work left for you

Conducting the characterization

- 1) Determine shoreline reaches and contributing watersheds
- 2) Conduct analysis to characterize processes and functions
- 3) Prepare inventory and characterization report

Characterization - watersheds



- Determine what watersheds directly influence the shoreline
 - Check local watershed or WRIA plans
 - Use Ecology “hydrologic units”

Characterization - reaches

□ Determine shoreline reaches

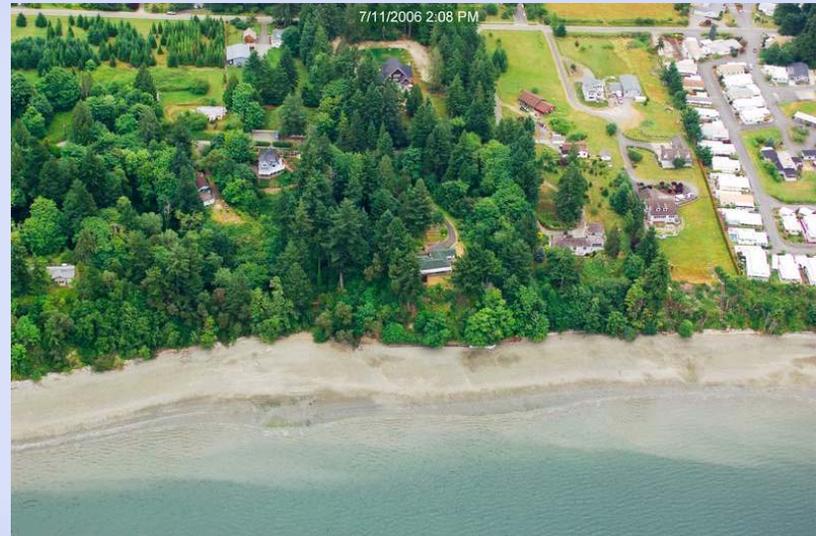
- Use maps and aerial photos
- Consider physical & biological changes – slope, vegetation, drift cells, tidal influence, land use
- Review marine inventories, DNR ShoreZone Inventory
- Classify shoreline types – dunes, sand-gravel beaches, estuaries, glacial scour lakes, etc.

http://www.ecy.wa.gov/programs/sea/sma/st_guide/SMP/inventory/analysis/eco_functions/shore_types.html

Characterization - reaches



Priest Point Park



Budd Inlet



Characterization - analysis

- ❑ Conduct analysis to determine ecosystem processes and shoreline functions
- ❑ Three approaches cited in Guidelines
 - Use framework of existing regional environmental plan such as watershed plan
 - Use available scientific & technical information
 - Conduct characterization of greater scope and complexity (landscape process)
- ❑ Consider jurisdiction size & complexity

Characterization - analysis

Use analysis template to address issues (Issaquah example)

•Unimpaired Conditions: Assessment of watershed processes & functions	•Level of impairment to processes & functions and associated issues	•Solutions & actions: •Recommended protection & restoration measures and environment designations
<i>•What areas are important in the watershed for maintaining ecosystem processes at this reach?</i>	<i>•How have the ecosystem processes been impaired?</i>	<i>•What are the solutions and actions based on analysis of processes and functions (columns 1 and 2)?</i>
<i>•What shoreline functions are present at the reach (un-impaired conditions)?</i>	<i>•How have the shoreline functions been impaired?</i>	<i>•What are recommended designations, development standards and regulations?</i>

Characterization - analysis

- Use inventory information to help answer questions in table
 - Establish the relationship between processes and functions
 - Identify impairments to processes and functions
 - Briefly discuss historical impacts, if relevant
 - If needed, relate geology to shoreline issues

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Characterization - solutions

- Develop preliminary recommendations for shoreline management (Column 3)
 - What are appropriate types and intensity of development?
 - What are the best areas for restoration and protection?
 - What types of mitigation are needed in certain shoreline areas?

Preparing the report

- Inventory and characterization report includes:
 - Inventory information
 - Ecosystem characterization
 - Shoreline functions
 - Shoreline use analysis
 - Public access opportunities
- Should be useful for making decisions

Preparing the report

□ Compile maps

- Not all new maps! Use some inventory maps
- What's appropriate to explain your shoreline?
- Basic: vicinity, shoreline jurisdiction, corporate & watershed boundaries, land use
- Biological features: e.g., spawning areas, habitat, listed species
- Opportunities: protection, restoration, public access

Preparing the report

- ❑ Summarize regional setting, shoreline description, areas that influence shorelines
- ❑ Discuss ecosystem processes, relationship between processes and shoreline functions
- ❑ Discuss type & extent of alteration to processes and functions
- ❑ Point out public access needs & opportunities
- ❑ Discuss land use, projected trends

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Preparing the report

- ❑ Ecology prefers narrative-table combo
- ❑ Table helps you to think this through and provides orderly presentation
- ❑ Narrative only is OK for smaller jurisdictions

Inventory & characterization

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Photos: Hugh Shipman, Patricia Olson, Betty Renkor, Washington Coastal
Atlas