

# Seattle's Shorelines Today and Tomorrow



Shoreline Environmental  
Inventory & Characterization

# Shoreline Inventory

- Ecological
- Land Use
- Utilities
- Transportation
- Public Access
- Historical/Archeological Sites

# Shoreline Ecological Inventory

- Presence of overwater structures
- Presence of armoring – above, at, or below OHW
- Canopy cover within 200-ft of the shoreline
- Presence of roads within 200-ft of the shoreline
- Presence/loss of wetlands
- Presence/loss of feeder bluff areas

# Shoreline Ecological Characterization

- King County developed a model to measure ecosystem-wide processes and ecological functions
- Inventory data was used to score the level of alterations to the processes and functions
- Results – map of Seattle shorelines showing the relative level of alterations on the shoreline.

# Shoreline Characterization

Based on - ***Protecting Aquatic Ecosystems:***

***A Guide for Puget Sound Planners to Understand Watershed Processes*** - written by Stanley et al.

Identifies seven watershed processes. Analyzes the delivery, movement, and loss for each process in the riverine environment.

The seven watershed processes are:

- 1) Large Woody Debris
- 2) Nitrogen,
- 3) Pathogens,
- 4) Phosphorous,
- 5) Sediment,
- 6) Toxins, and
- 7) Water

# Shoreline Characterization

King County adjusted the model to include Marine and Lake Environment:

- 1) Wave Energy
- 2) Light Energy

Marine Environment only

- 1) Tidal Influences

# Shoreline Characterization

Seattle adjusted the model to accommodate different data available and conditions within the City:

- 1) Canopy layer was used instead of LU data from UW
- 2) Size of stream basins were used for outfalls
- 3) LU zoning was used to measure certain impacts

# Ecological Indicator - Sediment



Presence of bank armoring, location if present – at, above or below OHW

# Ecological Indicator - Sediment



Presence of stream mouth piped/open?

# Ecological Indicator - Sediment



Type of shoreline – feeder bluff, transport zone, accretions zone, etc?

# King County's Shoreline Characterization Model

- Example of indicators and metrics:  
Process: Light (delivery, movement, loss)  
Indicators and metrics for the marine environment:

# Ecological Indicator - LWD



Vegetation Type at the Shoreline

# Ecological Indicators - LWD



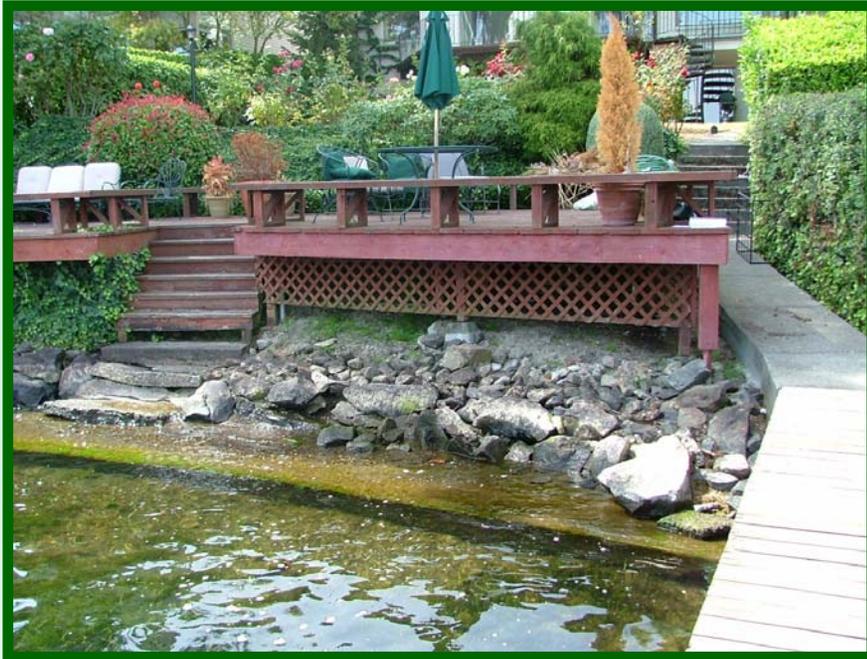
Presence of Over Structures

# Ecological Indicator - LWD



Presence of stream mouth piped/open?

# Ecological Indicators - LWD



Presence of Armoring at the Shoreline

# Ecological Indicator - LWD



Landslide area at the shoreline?

# Results

# High habitat function - low alterations



Arboretum

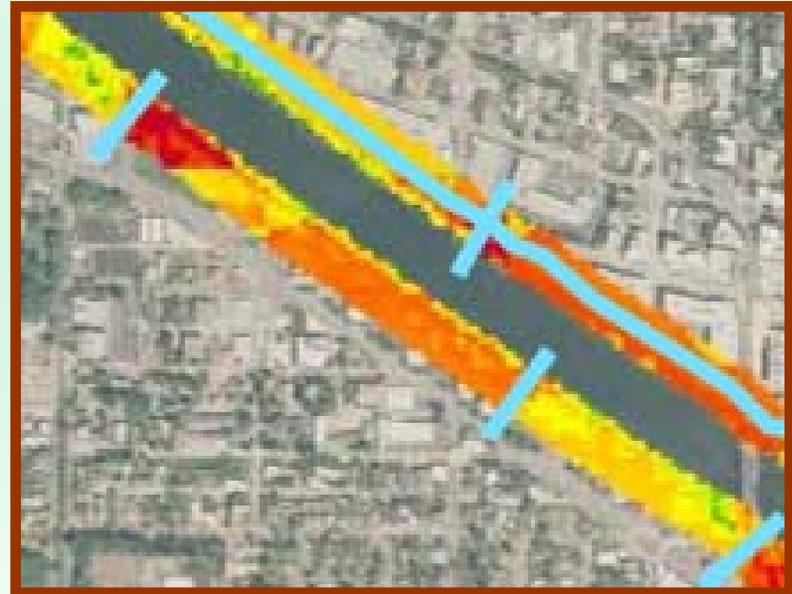


Discovery Park

# Medium habitat function - medium alterations



South Lake  
Washington

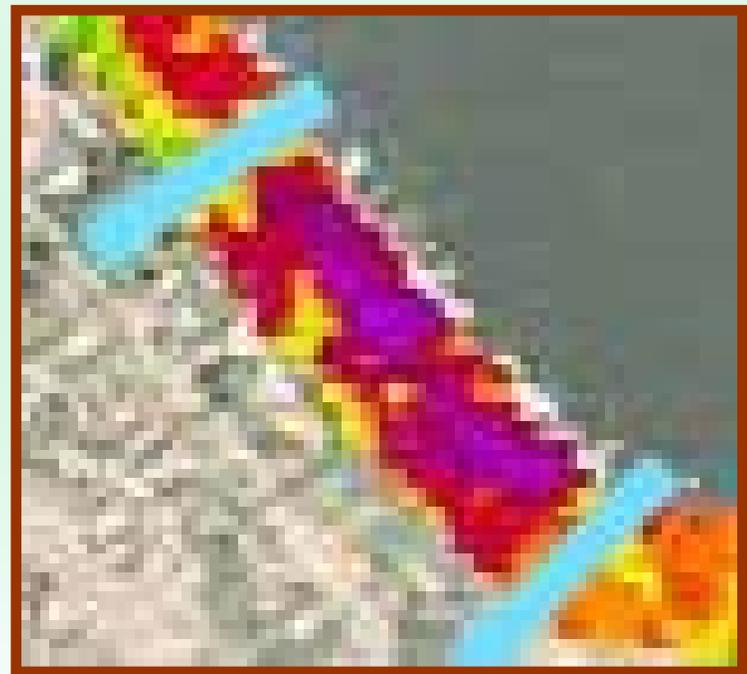


Ship Canal

# Low habitat function – high alterations



Fishermen's Terminal



South Lake  
Washington