

An aerial photograph showing a river estuary restoration project. The river flows through a lush, green forested area. The water is a deep blue color, and the surrounding land is covered in dense green vegetation. The text "Salmon River Estuary Restoration Continues..." is overlaid in the center of the image in a white, serif font.

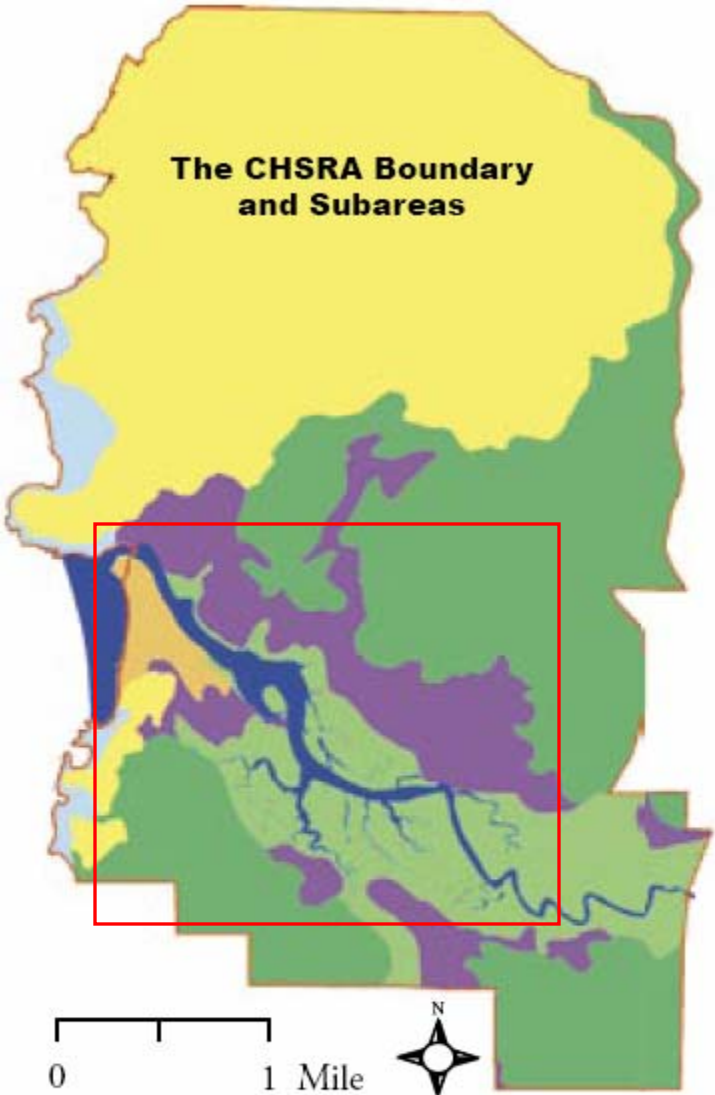
Salmon River Estuary  
Restoration Continues...

# CONTEXT



- o UN Biosphere Reserve
  - Cascade Head Experimental Forest
  - Cascade Head Scenic Research Area
- o Cascade Head Preserve (TNC), Westwind Stewardship Group, Siuslaw National Forest

### The CHSRA Boundary and Subareas



- Headlands
- Coastline
- Sand Dune-Spit

- Lower Slope Dispersed Residential
- Upper Timbered Slopes
- Estuary and Associated Wetlands

An aerial photograph showing a network of blue waterways (rivers and streams) winding through a dense green forest. The waterways converge into a larger body of water, likely an estuary, in the upper right portion of the image. The overall scene is a natural, undisturbed landscape.

# Estuary and Associated Wetlands

“...to provide present and future generations with the use and enjoyment of certain ocean headlands, rivers, streams, estuaries, and forested areas; to insure the protection and encourage the study of significant areas of research and scientific purposes; and to promote a more sensitive relationship between man and his adjacent environment...”

-Purpose of the Cascade Head Scenic Research Area (CHSRA)

An aerial photograph showing a wide river estuary flowing through a lush, green landscape. The water is a deep blue, and the surrounding land is covered in dense vegetation. The river branches out into smaller channels and wetlands, creating a complex network of waterways. The overall scene is a natural, undisturbed ecosystem.

# Estuary and Associated Wetlands

“Revitalization and restoration of the Salmon River Estuary and its associated wetlands to a functioning estuarine system free from the influences of man.”

-Long Term Management Goal of the Cascade Head Scenic Research Plan

# History of Coho in Salmon River

- o Historically viable Wild Coho population
- o Hatchery Coho produced since 1975 (being phased out)
- o Habitat loss and degradation
- o Wild Coho possibly extirpated in Salmon River in 1990s (ODFW assessment)
- o Increased estuarine rearing opportunities documented after removal of dikes by USFS in past three decades (Cornwell et al. 2001)

Cornwell, T.J. et al. *Rearing of Juvenile Salmon in Recovering Wetlands of the Salmon River Estuary*. Oregon Sea Grant Research Project ECO-02 index NA5OV. June 2001.



An aerial photograph of a river winding through a dense, green forest. The river is a prominent blue line, and the surrounding land is covered in lush vegetation. The text is overlaid on the upper portion of the image.

# Future of Coho in Salmon River

- o Hatchery Coho currently being phased out by ODFW
- o Re-colonization of Wild Coho anticipated via straying from adjacent populations
- o Current USFS restoration plans expected to increase rearing habitat for Coho and other salmonids by restoring functional estuarine marsh along tidal gradient

# Landscape Changes

1972 Aerial Photograph

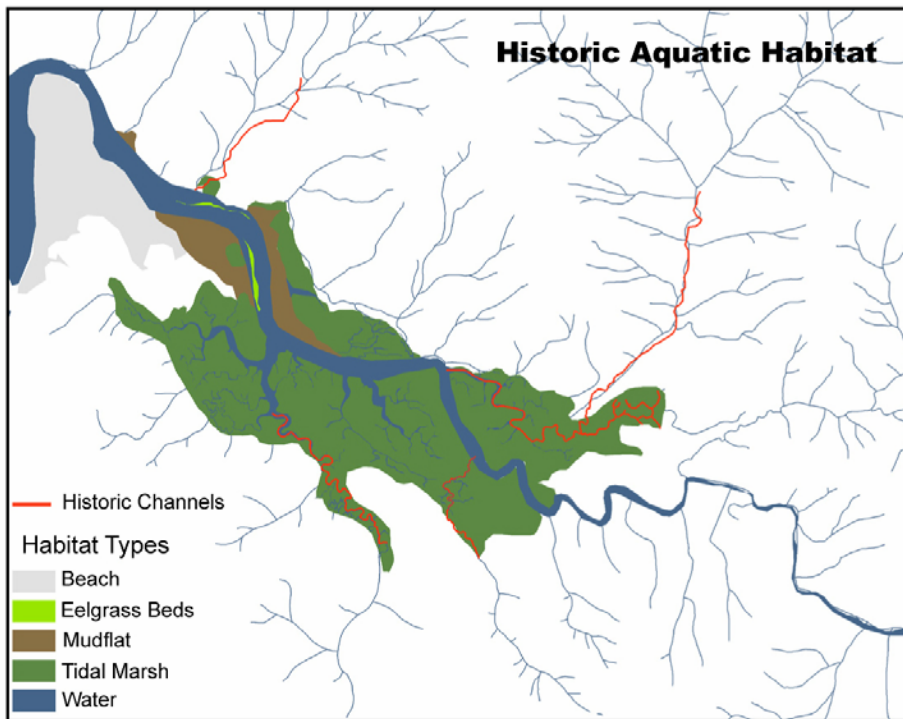


1945 Aerial Photograph

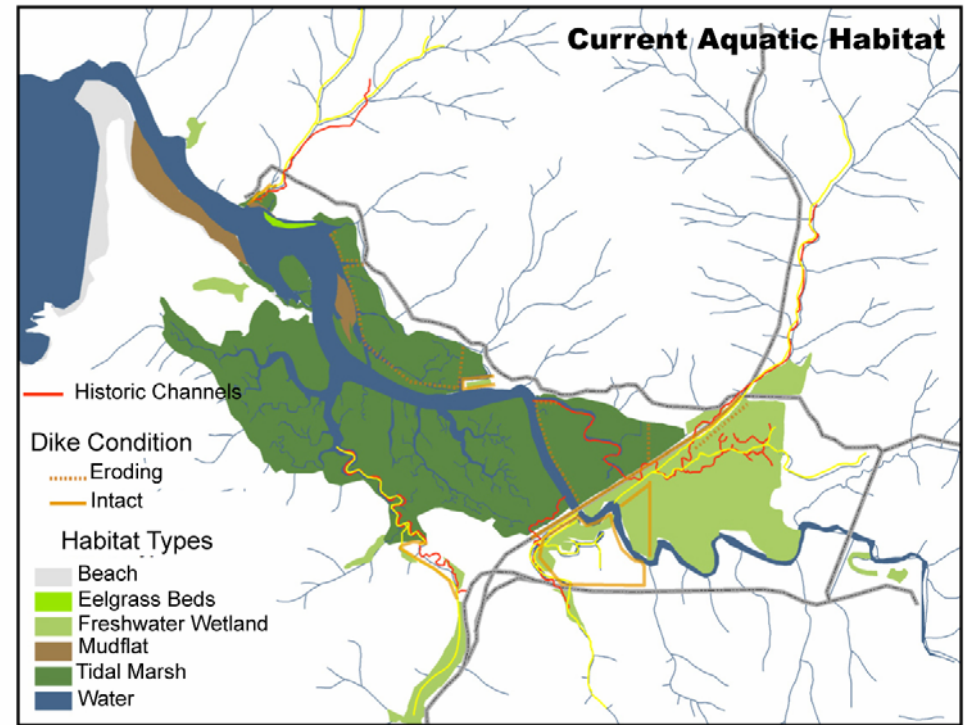




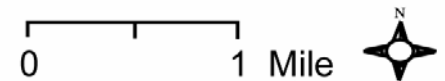
# Aquatic Habitat Changes



Historic extent of aquatic habitats in the estuary based on 1945 aerial photos.



Present extent of aquatic habitat based on 2005 aerial photos and current National Wetland Inventory maps.





# Salmon River Estuary Project History

- o Land Acquisition - Westwind
- o Forest Service Land Acquisitions
- o Mitchell Marsh 1976
- o Y Marsh 1987
- o Salmon Creek 1996
- o Gnos Dike 1996-to present
- o Tamara Quays 2003  
(final land acquisition)





Mitchell Marsh  
Restored 1976

Y Marsh Restored 1987

Salmon River

Salmon Creek Marsh  
Restored 1996

Salmon Creek

US Highway 101

Tamara Quays

Pixieland

Otis



# Salmon River Estuary Research History

- o EPA Research-Bob Frenkel 1972
- o Sea Grant Research-Dan Bottom 1996
- o PNW Research Station-Sarah Greene Cascade Head Experimental Forest



# Lower Salmon River Project

June 19, 2006 – August 11, 2006



## *Project Team*

Greer Anderson  
Fish & Wetland Ecologist

Mary Bushman  
Botanist

Corrina C. Chase  
Marine Affairs

Grant Morehead  
Urban & Regional Planning

Sarah Schrock  
Landscape Architecture

*Project Managers:*  
Karen Bennett & Katie Brehm

*Continuing a Vision for a Treasured Landscape*

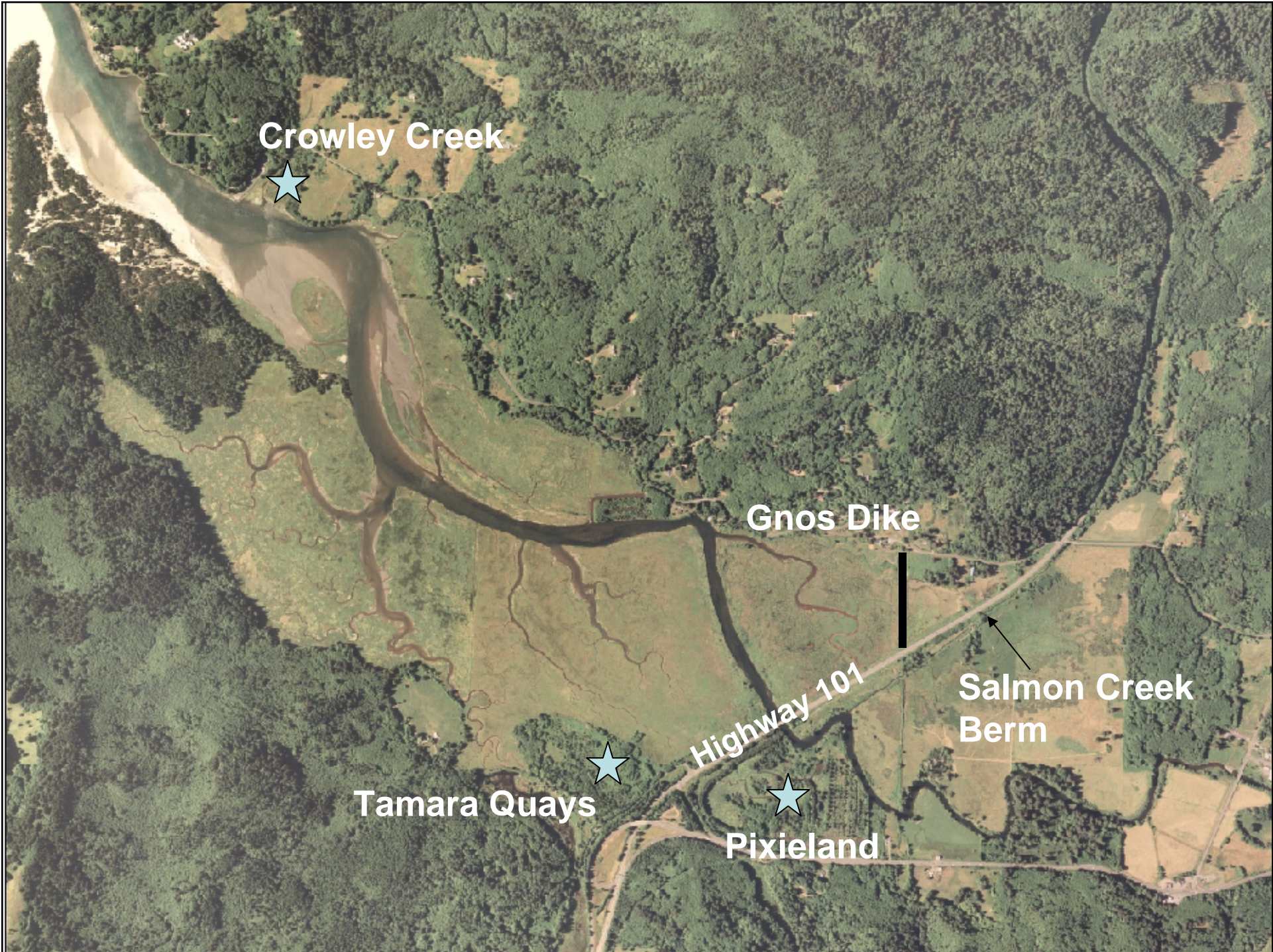




# Salmon River Estuary Continues...

- o Gnos Dike
  - Repair dike (2008)
- o Crowley Creek
  - Remove dike across from Knight Park (2008)
- o Tamara Quays
  - Restore hydrology and native vegetation (2007 - 2008)
- o Pixieland
  - Asphalt and noxious weed removal, restore native vegetation (2007)
  - Restore hydrology and continue native vegetation restoration (2008)
- o Highway 101 – Salmon & Fraser Creeks
  - Restore stream and tidal flows





Crowley Creek



Gnos Dike

Highway 101

Tamara Quays



Pixieland



Salmon Creek Berm





# Gnos Dike



1961 photo

Failure to protect private land when the Salmon Creek tidegate was removed in 1996.

1961 photo shows condition of pasture land that was maintained throughout the area prior to saline introduction.



# Gnos Dike



2-foot berm was built in 1996-Improper material was used.

Berm was initially not allowed to touch Hwy 101-Later corrected with coarse pit run rock in 45-foot swath.

3-4 attempts to correct situation, always without the proper funds, materials or support.

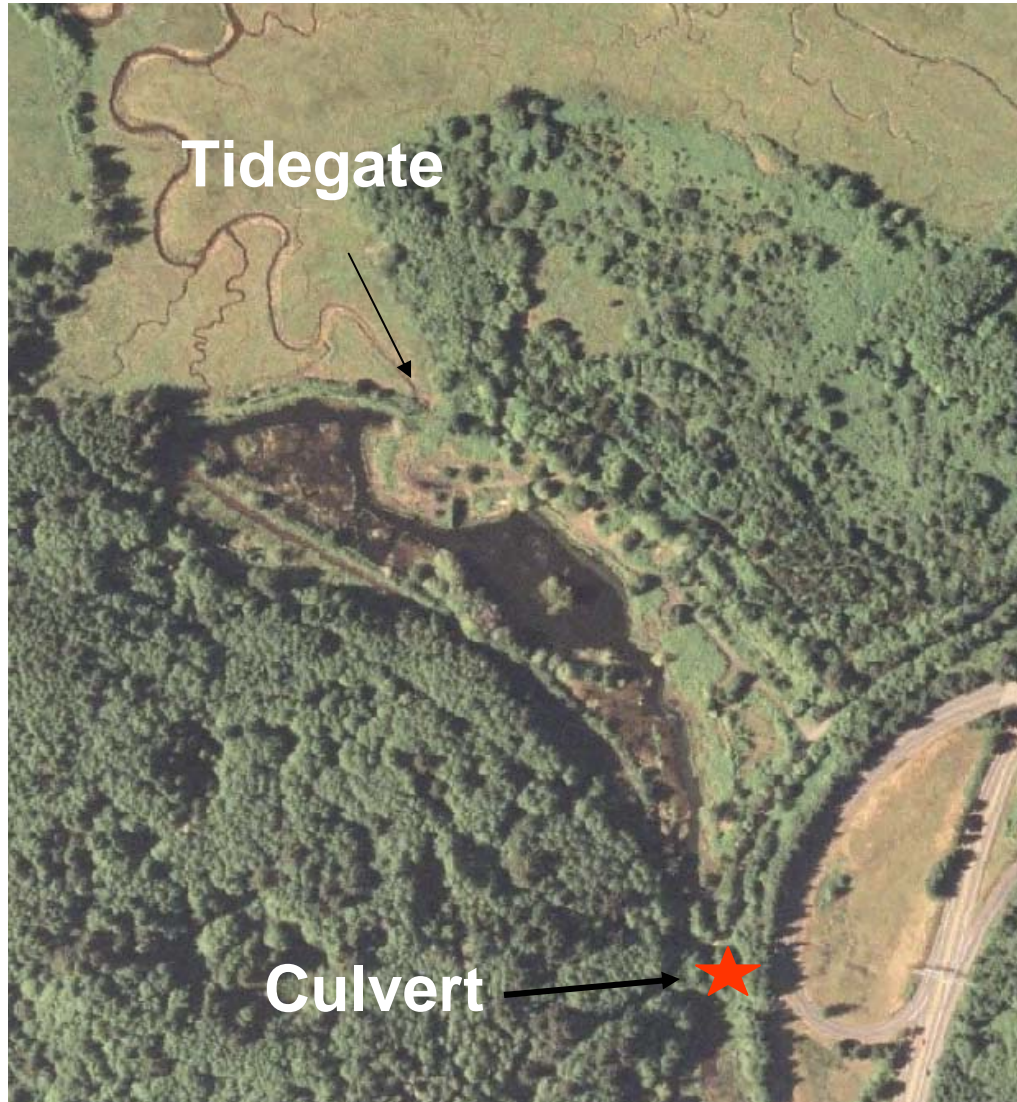


# Crowley Creek Restoration





# Tamara Quays Restoration



Remove dikes, tidegates, and Kingfisher Lake.

Restore Rowdy Creek channel complexity.

Fill ditches and replace culvert with fish-passage culvert.

Restore native vegetation.

Properly decommission septic system.

2005 photo-Tamara Quays, Kingfisher Lake and dikes

# Pixieland



Remove dike, concrete and asphalt.

Fill ditches and pond.

Restore native vegetation.

Possible fishing access site.

Restore Fraser Creek.



# Highway 101 Project



Hwy 101 is the last major dike through estuary.

Restore hydrologic connection between Salmon Creek and Fraser Creek.

# Salmon Creek



1961 photo

Trenching of Salmon Creek when Hwy 101 was built.

1961 photo shows Salmon Creek stream channel prior to Hwy 101.



# Salmon Creek Berm



Salmon Creek Ditch

1961 photo

Short-term repair to prevent juvenile Coho fatalities in pastures.

Long-term goal to work with landowner on stream restoration.



# Fraser Creek



Reconnect  
Fraser Creek

Restore Fraser  
Creek channel  
and connection  
from Estuary to  
headwaters.

# Highway 101 Project

## Restore ecological function of Salmon River Estuary

- o Reconnect Salmon Creek
- o Reconnect Fraser Creek
- o Restore tidal flows
- o Restore marshes
- o Restore aquatic life & habitat

An aerial photograph of a river valley. A highway bridge crosses the river in the upper middle part of the image. The river flows through a lush green valley, surrounded by dense forest. The sky is a clear, pale blue.

# Highway 101 Projects

- o Ecological viability of river
- o Transportation safety and sustainability
- o Fish & wildlife passage
- o Research & interpretation
- o Links to long-term goals and management direction

An aerial photograph of a river winding through a dense, green forest. The river is a prominent blue line, and the surrounding land is covered in thick vegetation. The overall scene is a natural, undisturbed landscape.

# Monitoring?

- oBaseline Monitoring
- oEffectiveness Monitoring
- oContinuing the long-standing research in the new project areas.

An aerial photograph of a river valley. The river is a prominent blue line winding through lush green hills. The hills are densely forested, and the overall scene is a natural, scenic landscape. The text is overlaid on the center of the image.

# Questions or Comments?

- oTiming and strategy
  - oFunding
  - oPlanting
  - oExcavating
  - oHwy 101
  - oPrivate property protection
  - oResearch