

Marine Shoreline Development 2005-2015

Do we see no net loss of intertidal habitat in King County?

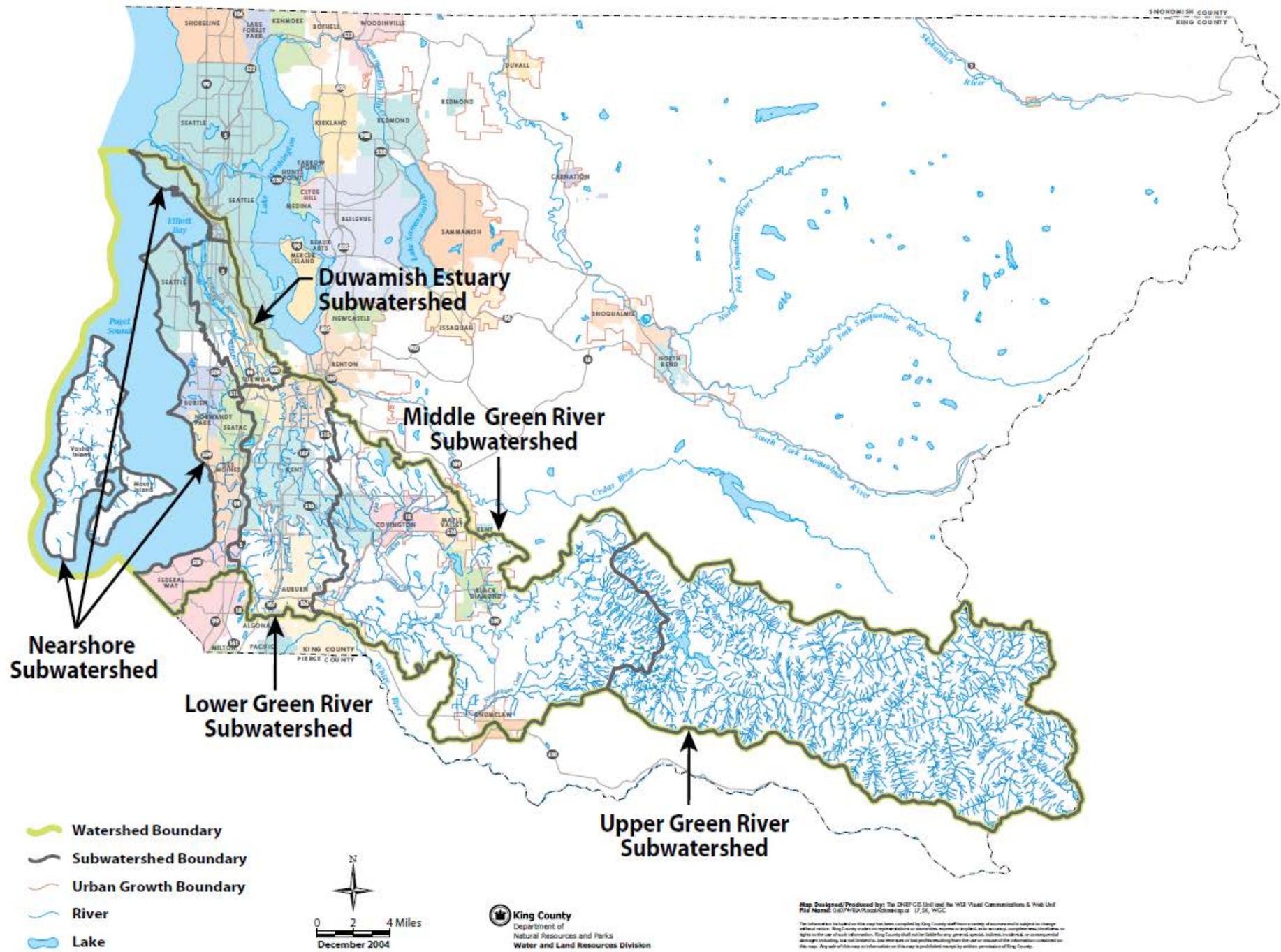
Alexis Henry and Kollin Higgins

Watershed and Ecological Assessment Team



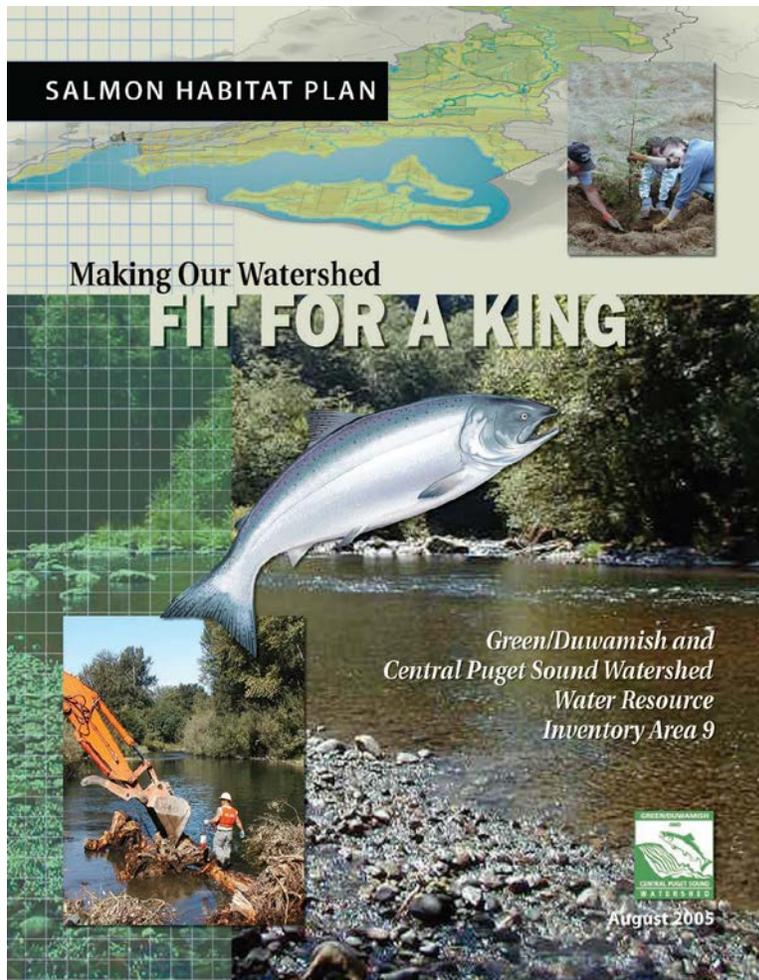
King County

Fall Science Seminar
November 2, 2017



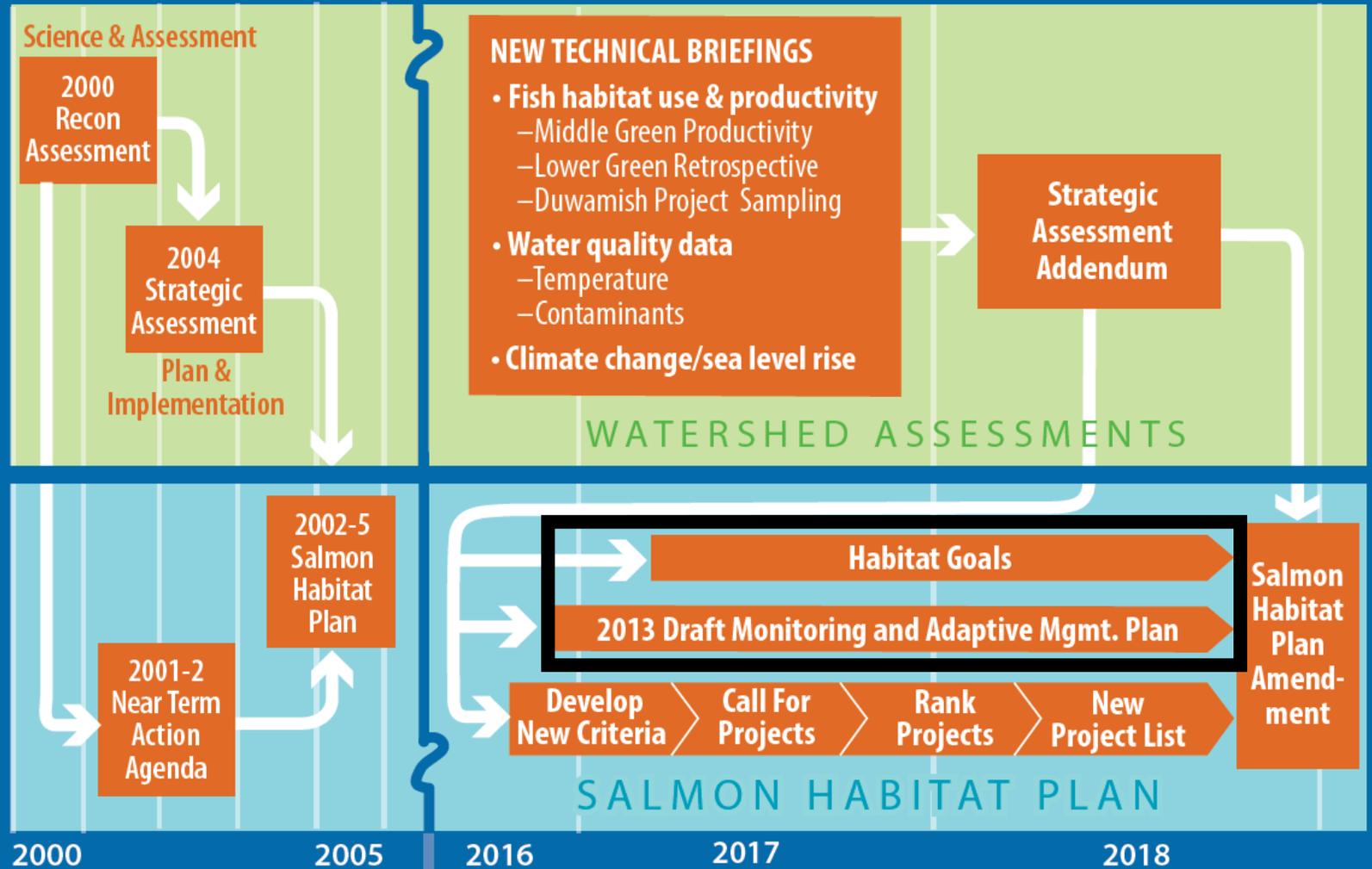
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King County
 Department of
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 Water and Land Resources Division



TIMELINE FOR WRIA 9 SALMON HABITAT PLAN

Key Products and Milestones



Conservation Hypothesis - Nearshore 2

Protecting and increasing the availability of vegetated shallow nearshore and marsh habitats will enhance habitat quantity and quality and lead to greater juvenile salmon residence time, greater growth, and higher survival.

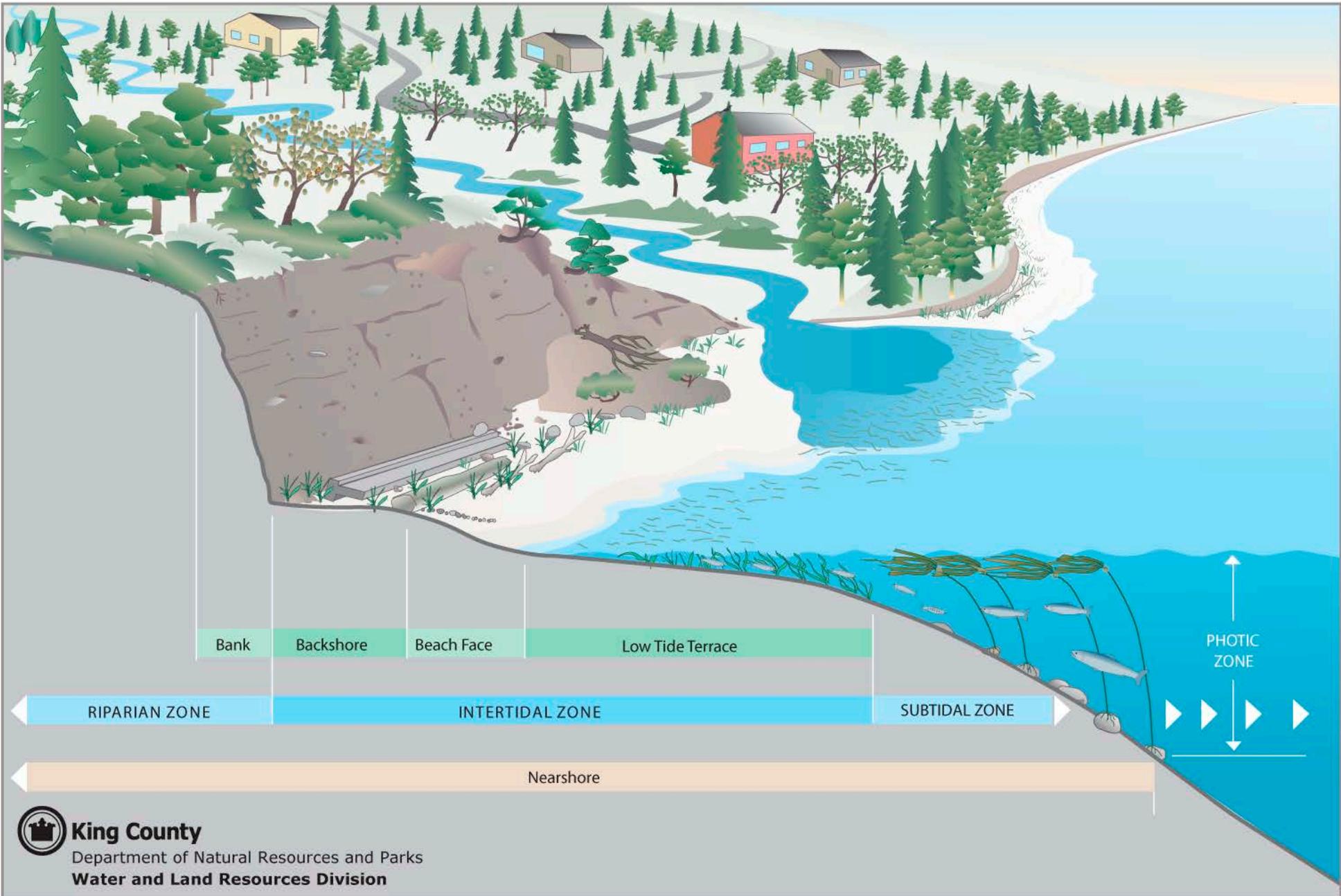
Subwatershed	Id #	Tier	Conservation Hypothesis (condensed)	Evaluated?
Watershed wide	All-2	1	Protect and improve Riparian vegetation	yes
Watershed wide	All-4	1	Allow natural flows	yes
Watershed wide	All-6	1	Prevent new bank armoring and remove existing armoring	yes
Nearshore	Near 2	1	Protect and increase the availability of vegetated shallow nearshore and marsh habitats	no
Nearshore	Near-3	1	Protect and restore nearshore sediment transport processes	yes

WRIA 9 Status and
Trends Monitoring
Report: 2005-2010

Prepared by the
WRIA 9 Implementation
Technical Committee

Prepared for the WRIA 9
Watershed Ecosystem Forum

February 2012

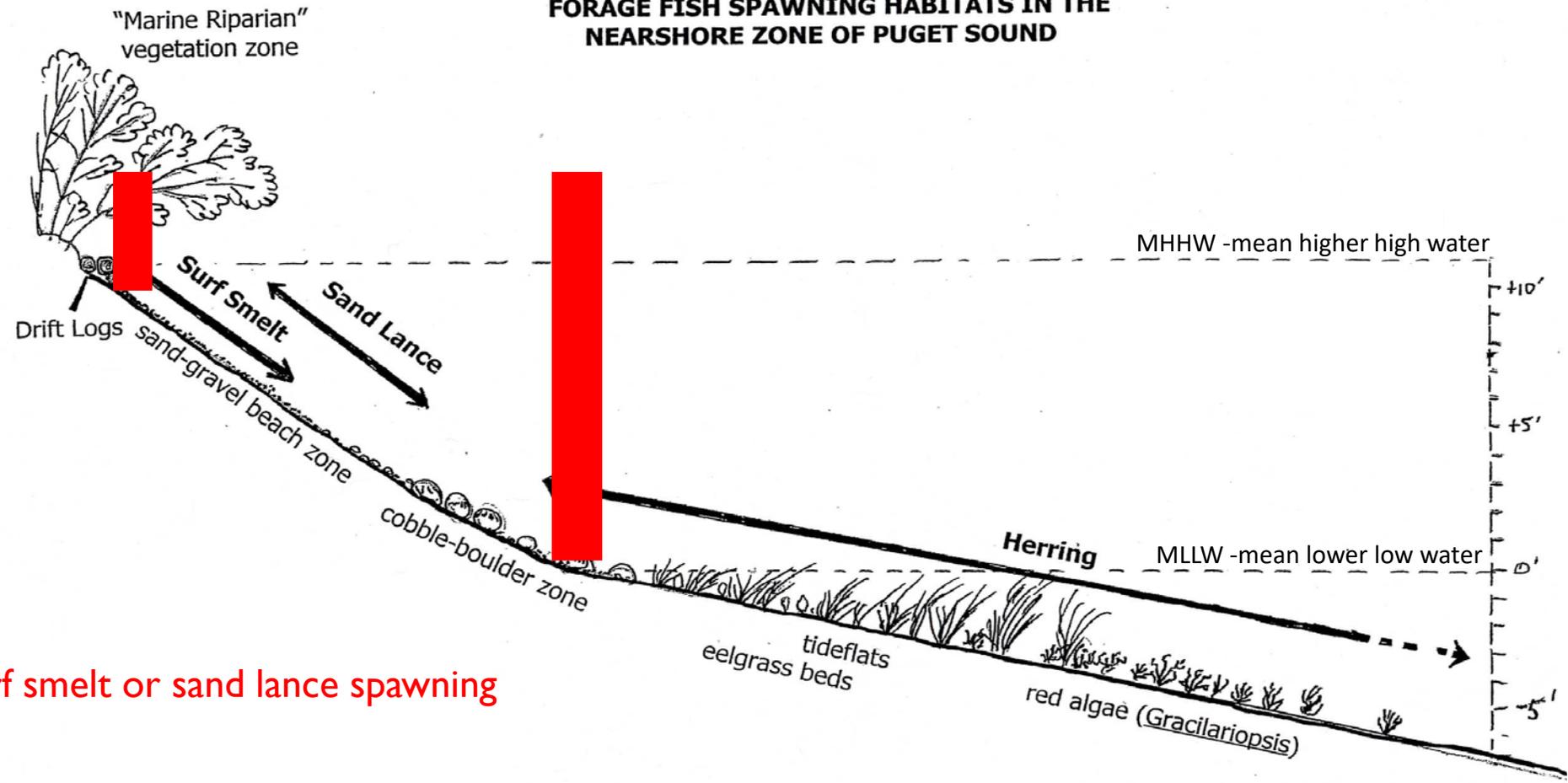


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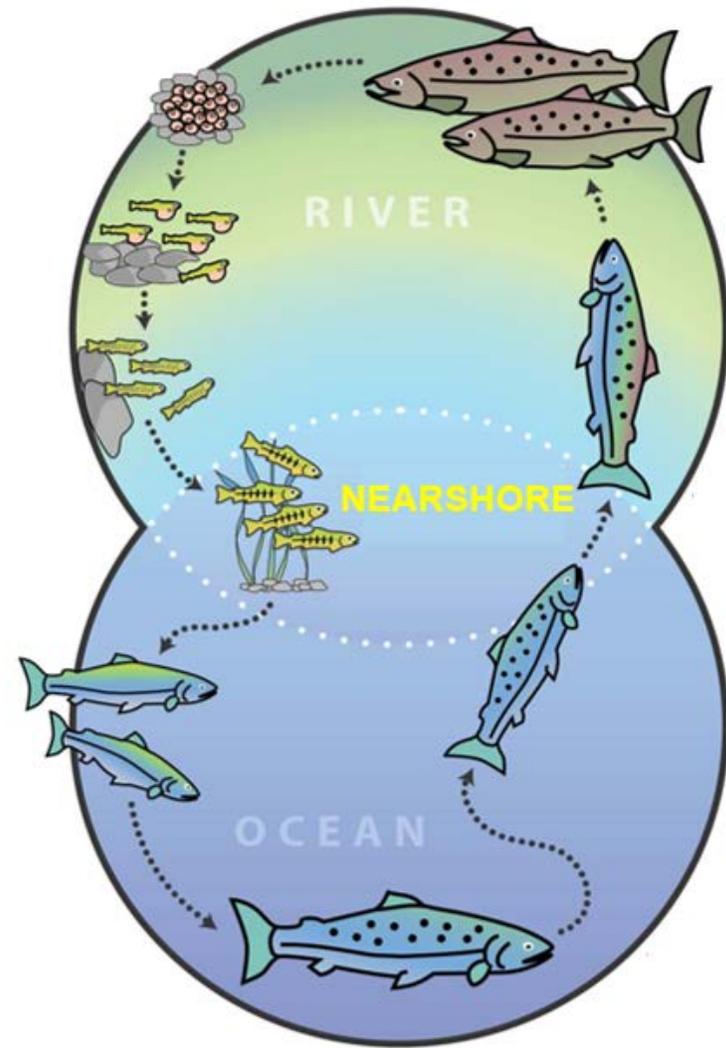
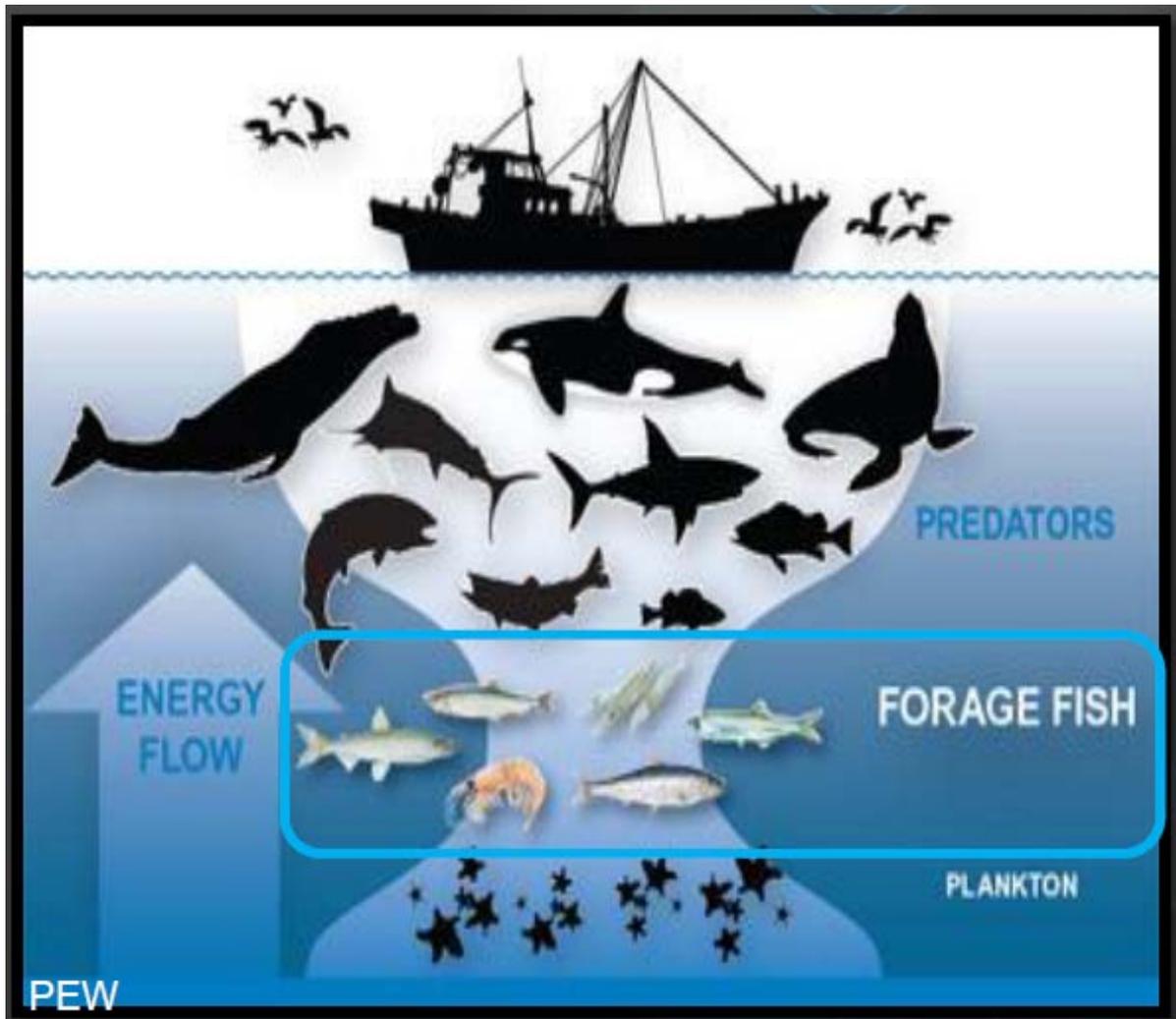
FORAGE FISH SPAWNING HABITATS IN THE NEARSHORE ZONE OF PUGET SOUND



No surf smelt or sand lance spawning



Washington Department of Fish and Wildlife
Marine Resources Division
LaConner, Washington 98257



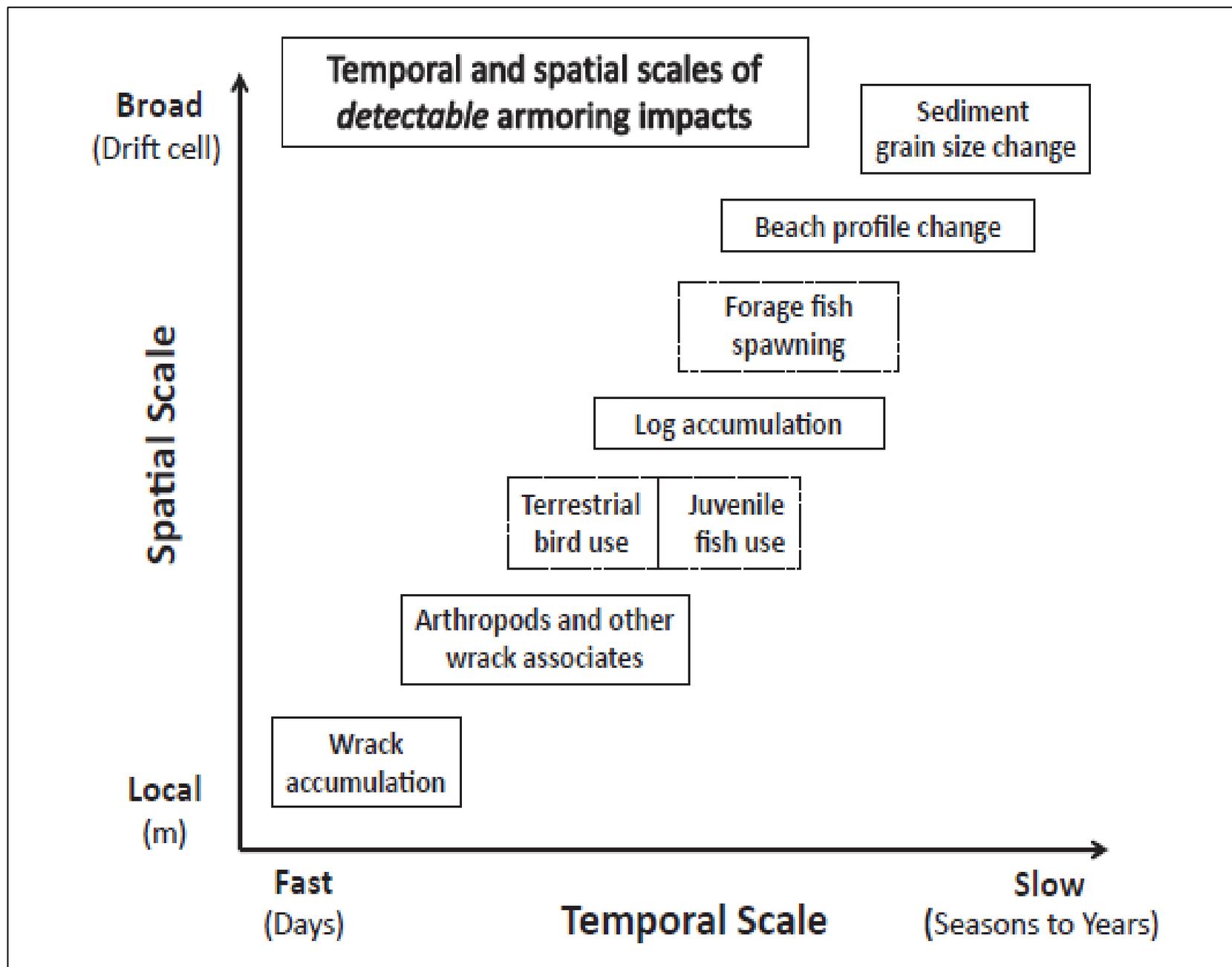
**Armoring below High Water Line
reduces LWD and drift logs**

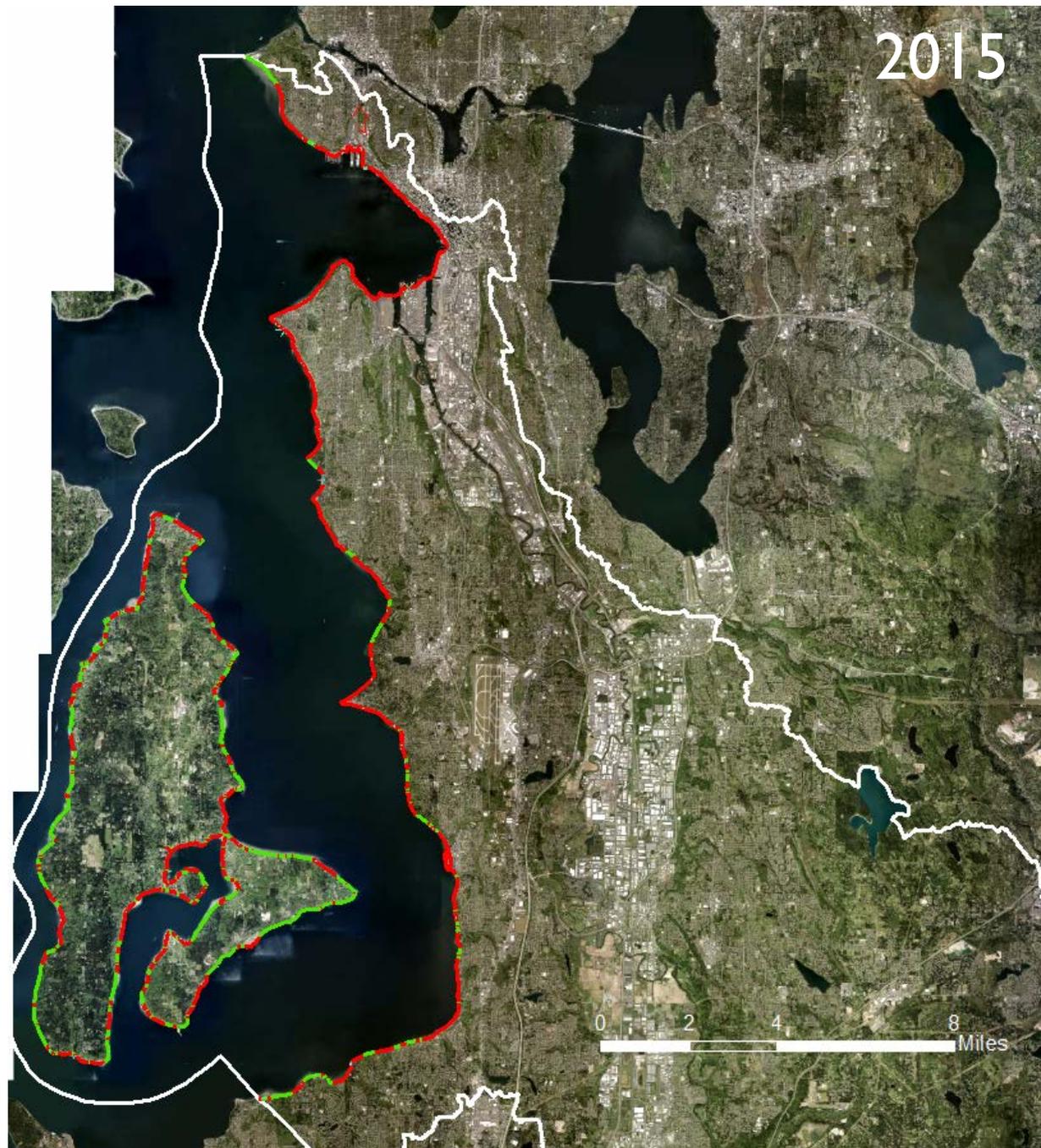


Filling/Armoring

- **Loss of shallow water
(wood)**
 - **Loss of riparian
functions
(vegetation)**
 - **Changes in hydrology
(sediment)**
- **Elimination of
spawning, rearing and
refuge habitat**







2015

92 miles shoreline
68% armored



+



=



→





2005

Seahurst Park



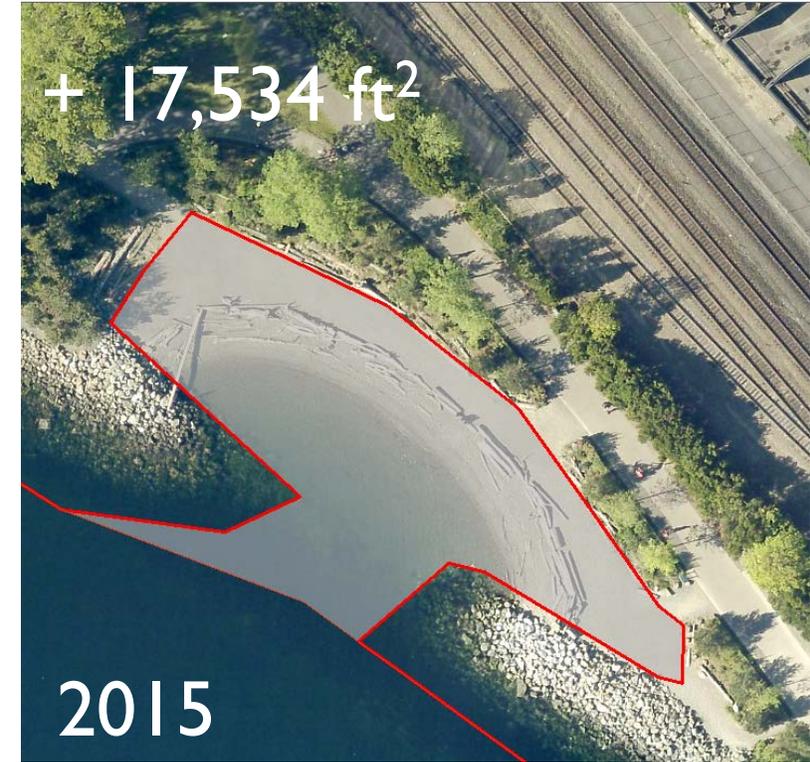
+ 21,914 ft²

2015

Olympic Sculpture Park

- Increase larval fish
- Increase juvenile salmon
- Increase juvenile feeding
- Higher invertebrate taxa

(Toft et al. 2013)



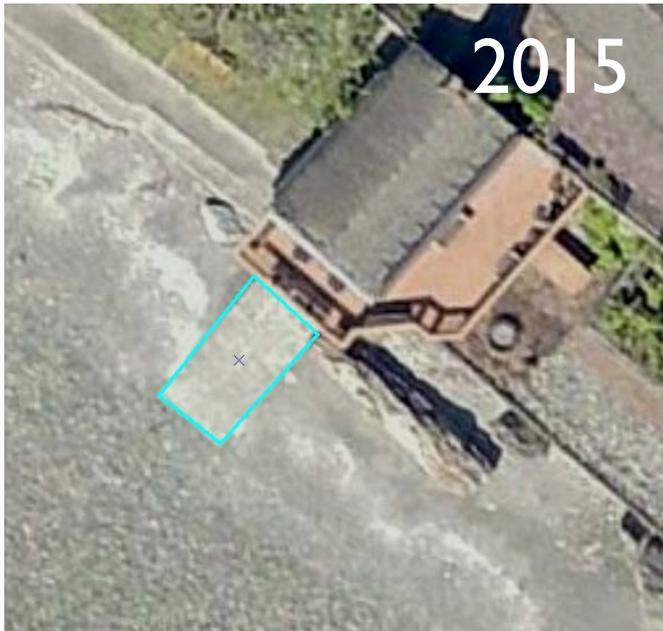
Landslide North of Saltwater Park



Fill



Fill



Fill

2005



2015



Erosion

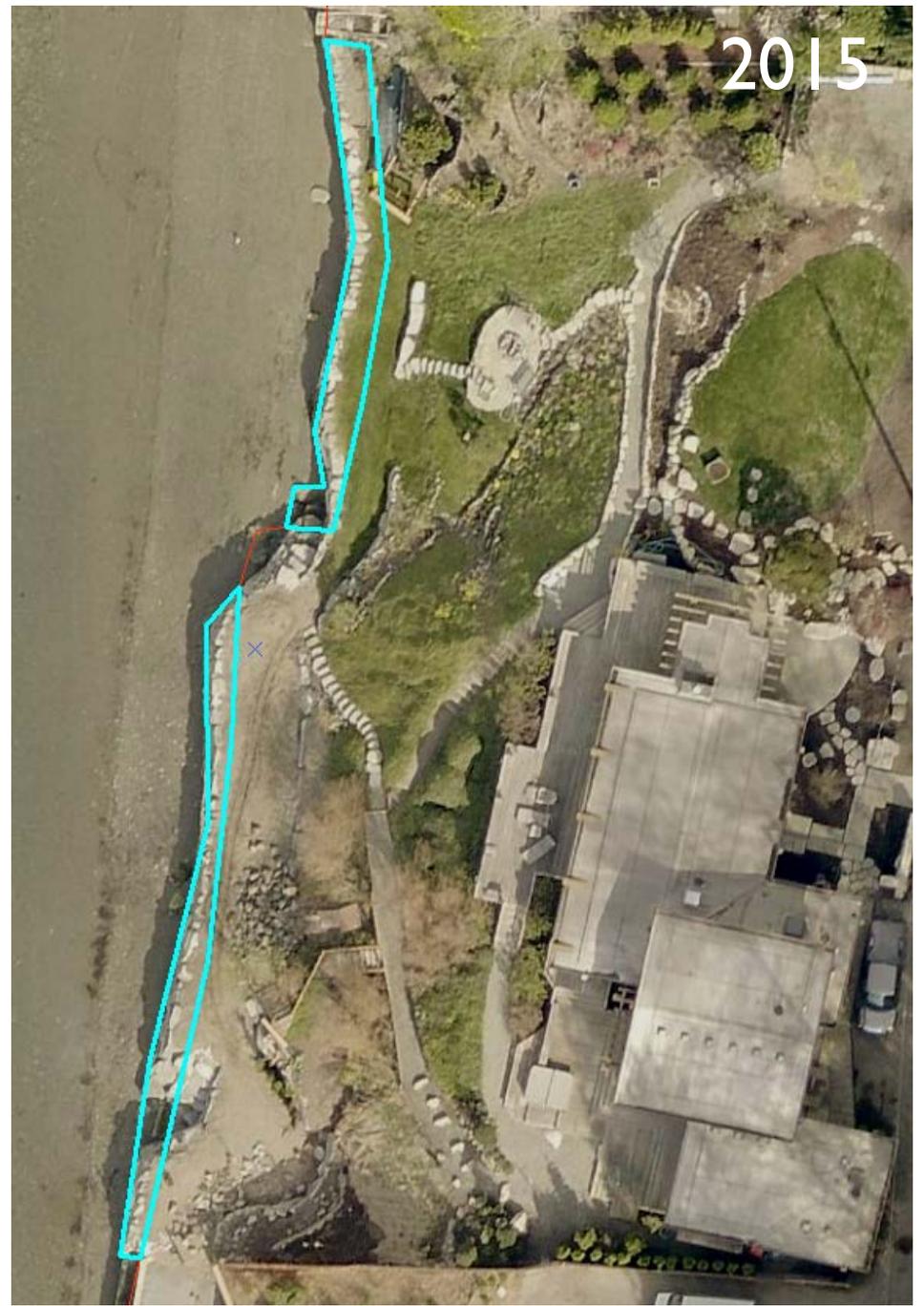
2005



2015



Fill



Fill



Fill



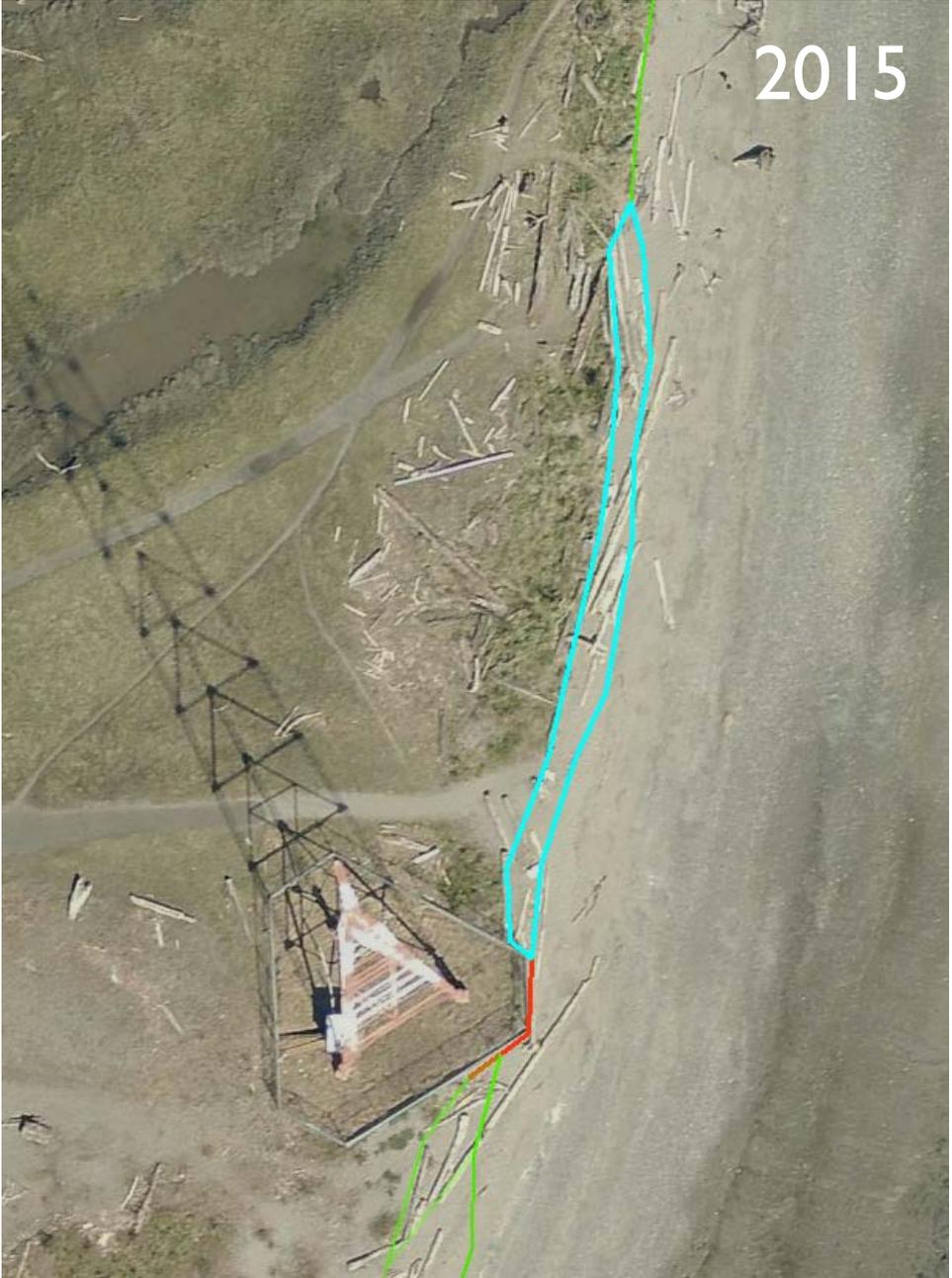
Fill



Accretion



Erosion



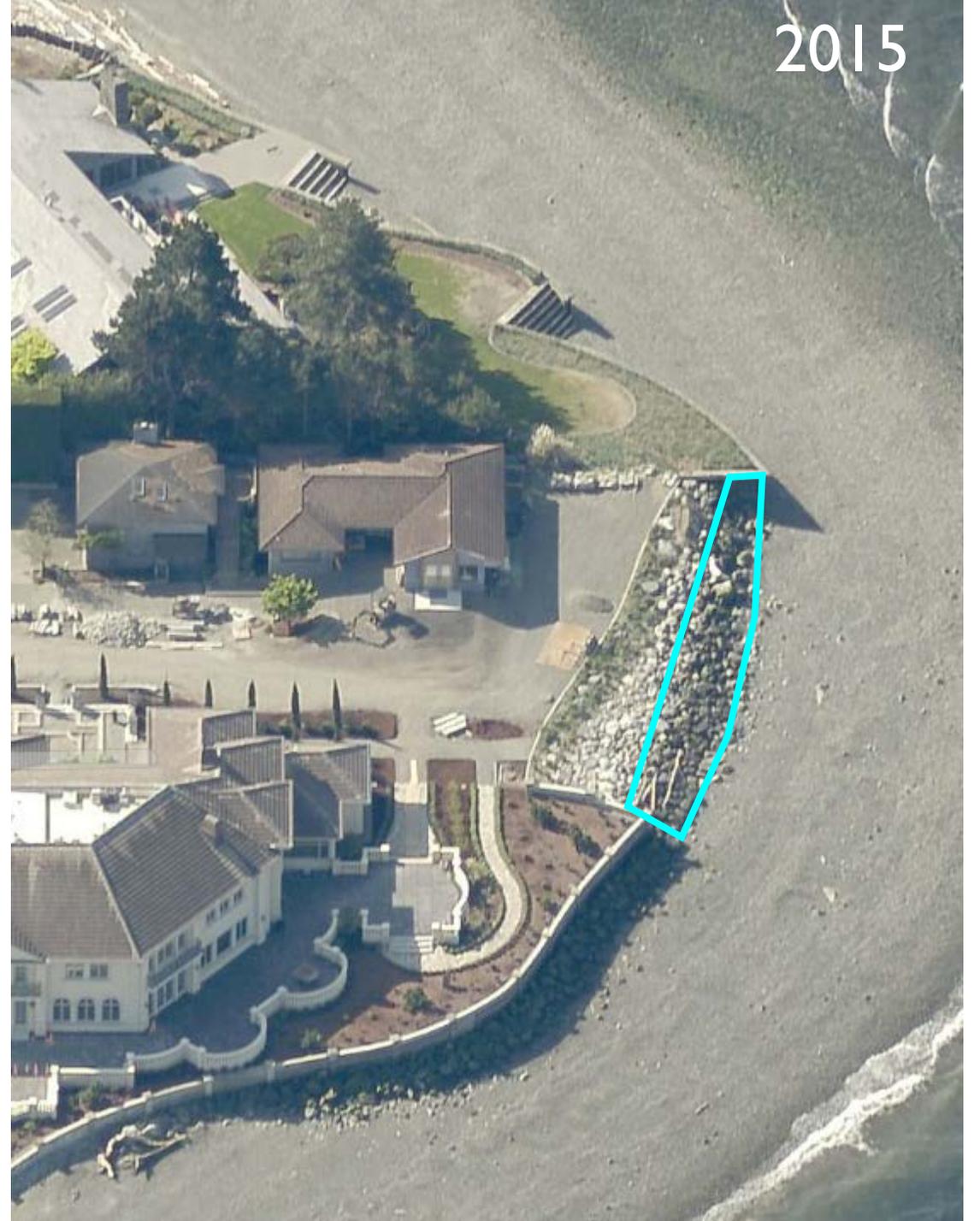
Fill



2005



2015



Results

Anthropogenic Net Total – gain 27,571 ft² intertidal habitat

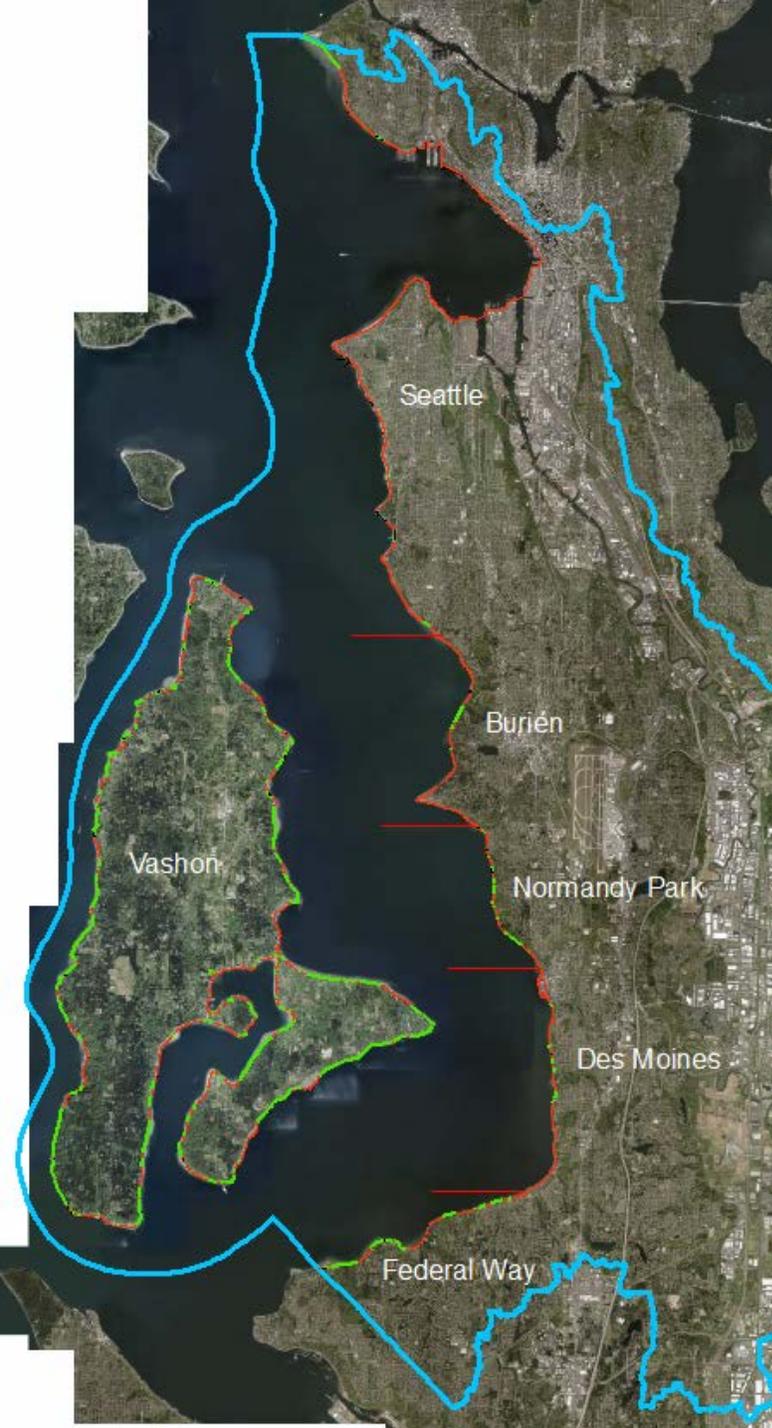
- Gain 54,031 ft² from removal of armor and fill – restoration
- Loss 26,460 ft² from fill – armor expansion, repair and rebuilds

45% (34 of 75) fills are less than 100 ft²

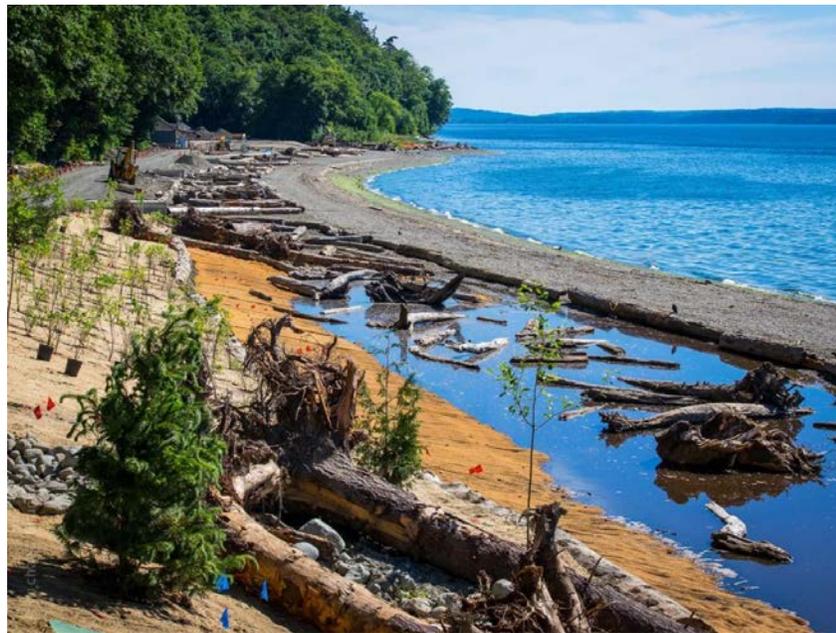
Accretion 51,610 ft² – 56% landslides

Erosion 126,772 ft² – 12% landslides





	Gained Intertidal	Added Fill/Armor	Net Total
Burien	22,281	-1,340	20,941
Federal Way	3,982	-281	3,701
Vashon	8,949	-6,858	2,091
Seattle	18,816	-16,873	1,943
Des Moines	0	-479	-479
Normandy Park	0	-629	-629



Seahurst Park, Burien

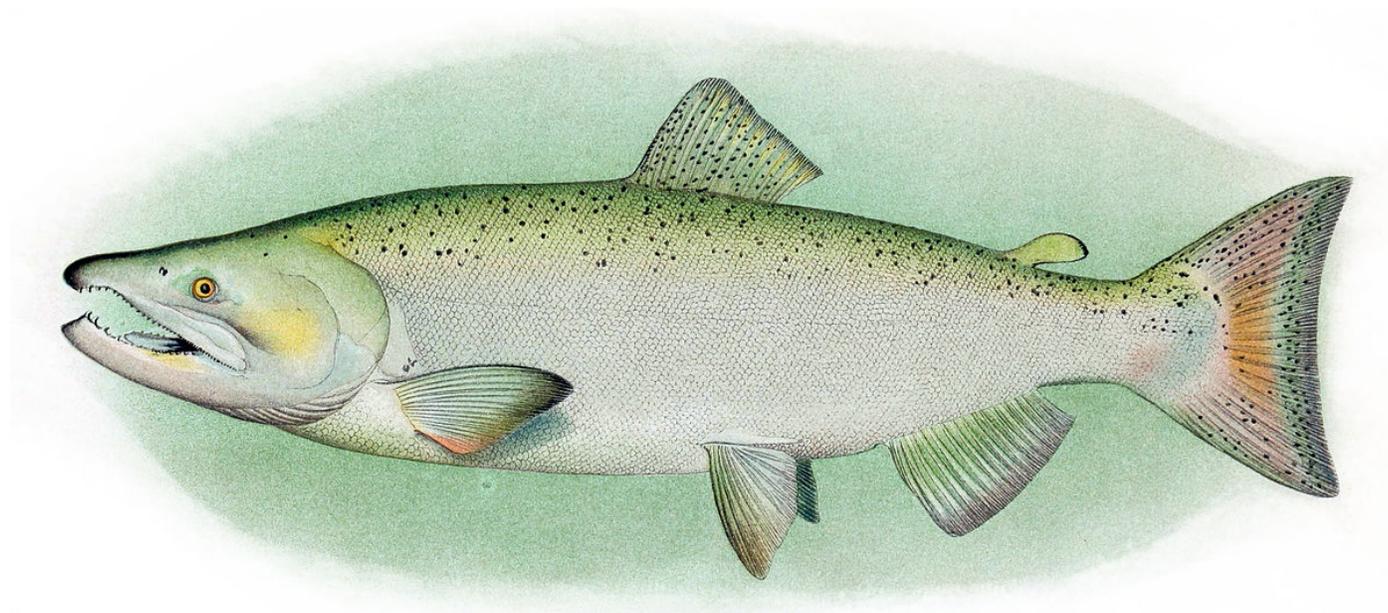


Olympic Sculpture Park, Seattle

Integrating Results in Salmon Habitat Plan Update

Track shoreline and nearshore habitat changes

- Are we meeting our restoration goals?
- Do we want to change strategies and policies in the update?



Questions?

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