

# Kitsap Natural Resources Asset Management Program

## Core Team Workshop 3

*June 17, 2024, 2:00-4:00 pm*



# Welcome – Agenda & Goals

## Goals:

- Consider a list of scenarios (strategies) for work in each pilot watershed and determine which scenarios to start with.

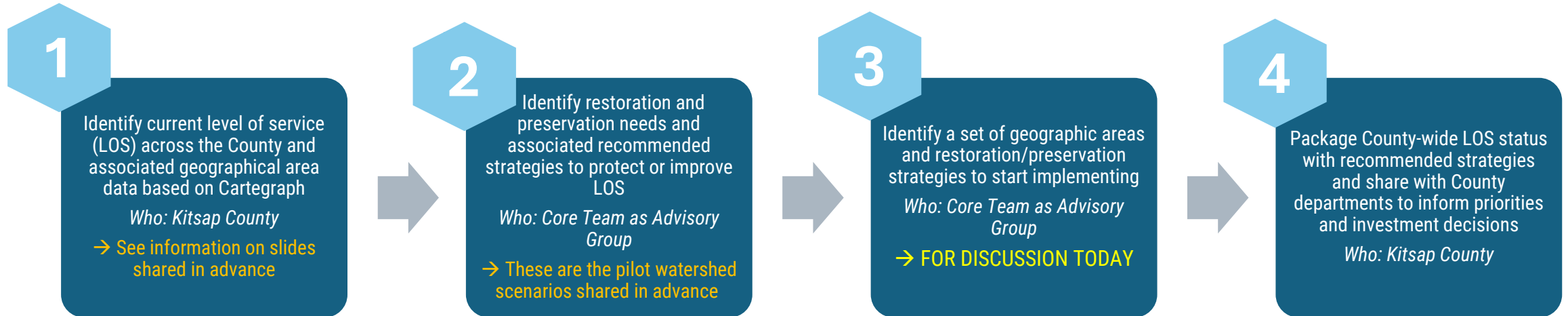
Time	Agenda Item
1:00 PM	<b>Welcome and Introductions</b>
1:05 PM	<b>Workshop Objectives and Approach</b> – WCAEF / Ross Strategic
1:15 PM	<b>Big Beef Scenarios &amp; Discussion on Where to Start</b> – WCAEF / Ross Strategic
2:00 PM	<b>Chico Creek Scenarios &amp; Discussion on Where to Start</b> – WCAEF / Ross Strategic
2:45 PM	<b>Updates from Partners</b> <ul style="list-style-type: none"><li>• Suquamish Tribe</li><li>• Port Gamble S'Klallam Tribe</li><li>• Kitsap County</li></ul>
3:00 PM	<b>Adjourn</b>

# 2024 Milestones



# Framing the desired outcomes for today:

## Using LOS Information to Manage Assets County-Wide and in the Pilot Watersheds



*For each strategy, consider:*

- a) Estimated costs and timelines (information provided with the scenarios)
- b) How much "lift" the strategy could provide
- c) How quickly the lift might be achieved
  - a. how much progress toward the DLOS could the strategy achieve
  - b. How quickly/ slowly would the improvements be realized
- d) Desired mix of protection and restoration emphasis
- e) Implementation ease / difficulty:
- f) Technically feasible
- g) Consistent with County policies
- h) Ease of funding (either through County, partners, or external sources)
- i) Joint County interest or inter-jurisdictional participation

# Discussion on Where to Start

***In addition to the information presented, for each strategy also consider:***

- How much "lift" the strategy could provide
- How quickly the lift might be achieved
  - How much progress toward the DLOS could the strategy achieve?
  - How quickly/slowly would the improvements be realized?
- Desired mix of protection and restoration emphasis
- Implementation ease / difficulty:
  - More complex strategies (e.g., multiple phases, more resources, longer timeframe)
  - More simple strategies (low hanging fruits, e.g., existing resources, clear pathway to address)
- Technically feasible
- Consistency with County or other local government policies
- Ease of funding (either through County, partners, or external sources)
- Joint County interest or inter-jurisdictional participation
  - Is the area of joint interest among multiple County divisions?
  - Is there multi-jurisdictional participation in planning, funding, or implementing this action?
  - Are there already existing efforts by other organizations to address this effort?

# Scenarios & Discussion on Where to Start for the Pilot Watersheds

## Goals

- Provide the Core Team with comparable information about each Scenario (strategy).
- Answer any clarifying questions about the scenarios (strategies).
- Gather feedback and reach agreement on which strategies to start with first in each watershed.
- Use the decision-making framework to discuss scenarios of importance.



# Summary Slide -- Big Beef Creek Shorelines

SCEN	WHAT	COST	WHO	LOS improvement	Area Size
1	Increase forest cover to 90% or 4563 ft of planting	\$228,000	WDFW, Kitsap County Transportation, KCD, ...	MU_64 +13.8 MU_65 +5.5	<b>4563</b> ft of shoreline planting
2	Decrease armor to 50% or remove 4021 ft	\$4,020,000	Kitsap County Transportation, Shore Friendly	MU_64 +9.7	<b>4021</b> ft of shoreline armoring removed
3	Admin step (no in situ action)	Nom.	KCHD, DOH	MU_65 +16.7	No in situ action
4	Decrease bacteria via PIC Program	\$100,000	KCHD, DOH	MU_65 +16.67	<b>1</b> PIC Program to identify and correct pollution
5	Increase forest cover by planting 1799 ft and reduce armoring by removing 892 ft	\$981,950	Kitsap County Transportation, Shore Friendly, WDFW, KCD	MU_64 +6.9 MU_65 +3.3	<b>1799</b> ft of shoreline planting and <b>892</b> ft of armor removed

# Summary Slide – Big Beef Creek Streams

SCEN	WHAT	COST	WHO	LOS Improvement	Area Size
6	Increase riparian forest % by planting 5,547 linear feet or 79.1 acres	\$158,000 -- \$4,744,338	WDFW, DNR, GPC, KCD, Parks	S_33 +1.57  S_41 +16.24	<b>5547</b> linear ft or <b>79.1</b> acres of riparian vegetation planted
7	Remove 2 fish passage barriers (full blockages)	\$1,000,000	County Divisions (Roads, DCD,...)	S_33 +12.25	<b>2</b> full blockage fish passage barriers removed
8	Increase riparian vegetation % by planting 2,320 linear feet or 70.3 acres and remove 2 fish passage barriers (full blockages)	\$1,140,600 -- \$5,217,912	County Divisions (Roads, DCD,...), WDFW, DNR, KCD, Parks	S_33 +12.25  S_41 +11.24	<b>2320</b> linear ft or <b>70.3</b> acres of riparian veg planted and <b>2</b> barriers removed



# Summary Slide – Big Beef Creek Forests

SCEN	WHAT	COST	WHO	LOS Improvement	Area Size
9	Increase forest cover by planting 1054 acres of upland forest	\$21,084,678	DNR, WDFW, GPC, other land trusts, private landowners ...	+6.36	
10	Improve mature forest % by acquiring 1491 acres of land for protection	\$8,943,107	DNR, GPC and other land trusts...	+6.84	
11	Scenario 9 and 10 full actions	\$30,027,785	DNR, WDFW, GPC and other land trusts	+13.58	
12	Increase forest % by planting 549 acres, and increase mature forest % by acquiring 672 acres of land for protection	\$15,012,000	KCD, DNR, WDFW, GPC and other land trusts	+6.22	

# Summary Slide – Chico Creek Shorelines

SCEN	WHAT	COST	WHO	LOS Improvement	Area Size
1	Increase forest cover to 95% by planting 7,240 ft	\$362,000	WDFW, WSDOT, KCD, ...	MU_147 +25.3 MU_148 +21.8 MU_149 +20.6	<b>7240</b> ft of shoreline planting
2	Decrease shoreline armoring to 15% by removing 5,548 ft	\$5,548,000	WSDOT, Shore Friendly	MU_147 +20.2 MU_148 +0.1 MU_149 +19.2	<b>5548</b> ft of armoring removed
3	Admin step (No in situ action)	Nom.	KCHD, DOH	MU_148 +13.3	No in situ action
4	Decrease bacteria via PIC program	\$100,000	KCHD, DOH	MU_148 +13.3	<b>1</b> PIC Program to identify and correct pollution
5	Increase forest cover by planting 2397 ft and remove 2886 ft of shoreline armoring	\$3,312,850	WDFW, WSDOT, KCD, KCHD, DOH, Shore Friendly	MU_147 +24.6 MU_148 +17.4 MU_149 +19.3	<b>2397</b> ft of shoreline planted and <b>2886</b> ft of armoring removed

# Summary Slide – Chico Creek Streams

SCEN	WHAT	COST	WHO	LOS Improvement	Area Size
6	Increase riparian forest % by planting 25,414 linear feet	\$676,400 -- \$20,293,612	KCD, Parks, DNR, DCD, GPC...	S_627 +16.66  S_55 +11.17  S_413 +16.66	<b>25414</b> linear ft or <b>338.2</b> acres of riparian veg planted
7	Remove 6 fish passage barriers (full blockages) and plant 8,312 linear feet or 105.5 acres	\$3,211,000 -- \$9,830,888	Various County Divisions (Roads, DCD, Stormwater), the Navy, KCD, DNR, GPC,...	S_627 +16.62  S_55 +10.08  S_413 +4.37	<b>6</b> full blockage fish barriers removed and <b>8312</b> ft or <b>105.5</b> acres of riparian veg planted

# Summary Slide – Chico Creek Forests

SCEN	WHAT	COST	WHO	LOS improvement
8	Increase forest cover by planting 494 acres of upland forest	\$9,879,035	City of Bremerton, DNR, KCD...	+10.57
9	Improve mature forest % by acquiring 2615 acres of land for protection	\$15,691,145	DNR, GPC, other land trusts...	+9.99
10	Scenario 8 and 9 full actions	\$25,570,180	City of Bremerton, DNR, KCD, GPC and other land trusts	+20.56
11	Increase forest % by planting 367 acres, and increase mature forest % by acquiring 181 acres of land for protection	\$8,426,000	City and County Parks, DNR, GPC and other land trusts, KCD	+10.34

# Big Beef Creek Scenarios & Discussion

#	SCENARIOS
1	Increase forest cover to 90% or 4563 ft of planting
2	Decrease armor to 50% or remove 4021 ft
3	Admin step (no in situ action)
4	Decrease bacteria via PIC Program
5	Increase forest cover by planting 1799 ft and reduce armoring by removing 892 ft
6	Increase riparian forest % by planting 5,547 linear feet or 79.1 acres
7	Remove 2 fish passage barriers (full blockages)
8	Increase riparian vegetation % by planting 2,320 linear feet or 70.3 acres and remove 2 fish passage barriers (full blockages)
9	Increase forest cover by planting 1054 acres of upland forest
10	Improve mature forest % by acquiring 1491 acres of land for protection
11	Scenario 9 and 10 full actions
12	Increase forest % by planting 549 acres, and increase mature forest % by acquiring 672 acres of land for protection

*In addition to the information on the slides for each strategy, also consider:*

- How much "lift" the strategy could provide
- How quickly the lift might be achieved
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  - How quickly/slowly would the improvements be realized?
- Desired mix of protection and restoration emphasis
- Implementation ease / difficulty:
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  - More simple strategies (low hanging fruits, e.g., existing resources, clear pathway to address)
- Technically feasible
- Consistency with County or other local government policies
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# Chico Creek Scenarios

#	SCENARIOS
1	Increase forest cover to 95% by planting 7,240 ft
2	Decrease shoreline armoring to 15% by removing 5,548 ft
3	Admin step (No in situ action)
4	Decrease bacteria via PIC program
5	Increase forest cover by planting 2397 ft and remove 2886 ft of shoreline armoring
6	Increase riparian forest % by planting 25,414 linear feet
7	Remove 6 fish passage barriers (full blockages) and plant 8,312 linear feet or 105.5 acres
8	Increase forest cover by planting 494 acres of upland forest
9	Improve mature forest % by acquiring 2615 acres of land for protection
10	Scenario 8 and 9 full actions
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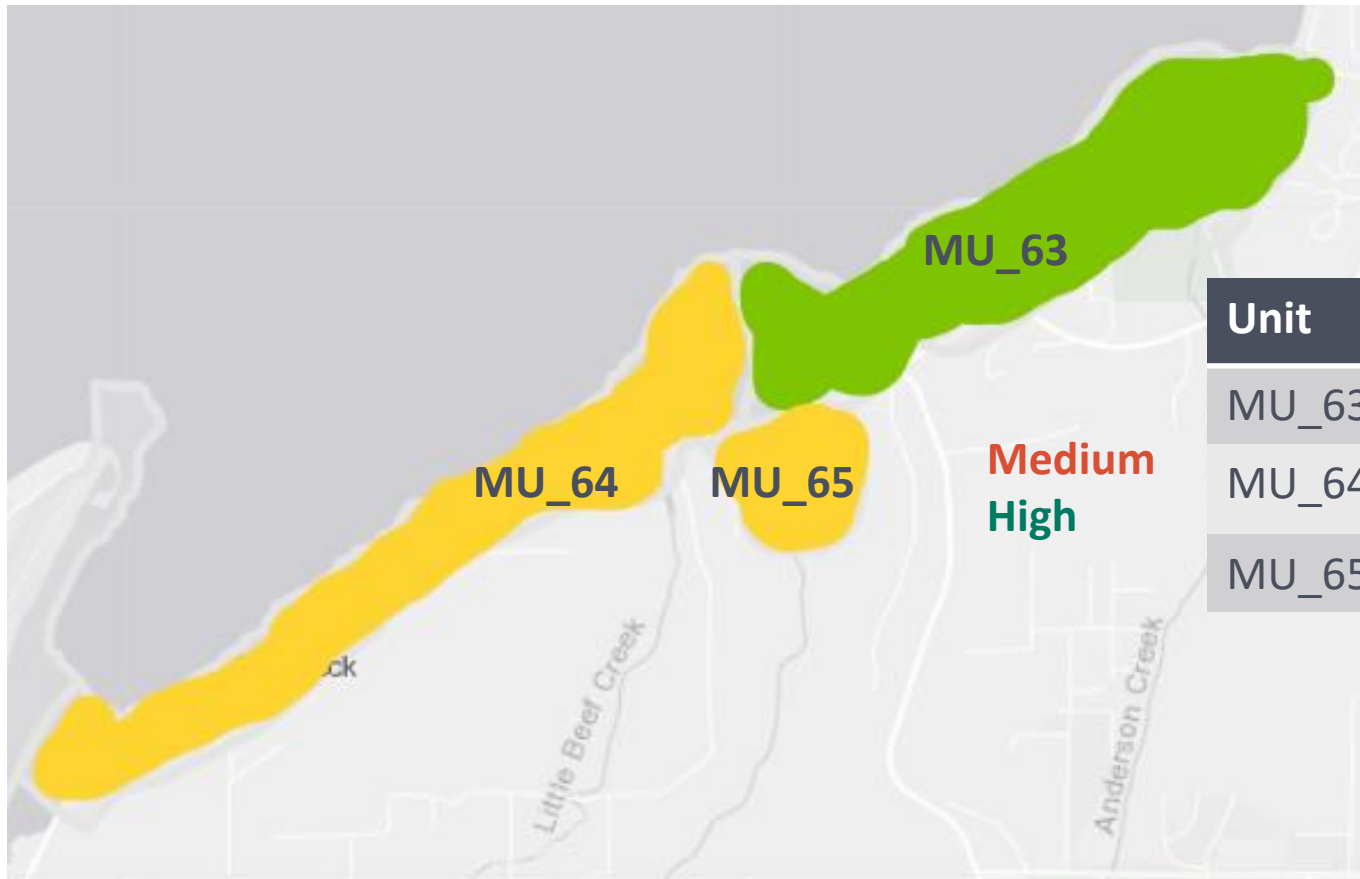
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  - Are there already existing efforts by other organizations to address this effort?

# Scenarios/Strategies— Big Beef Creek Shorelines



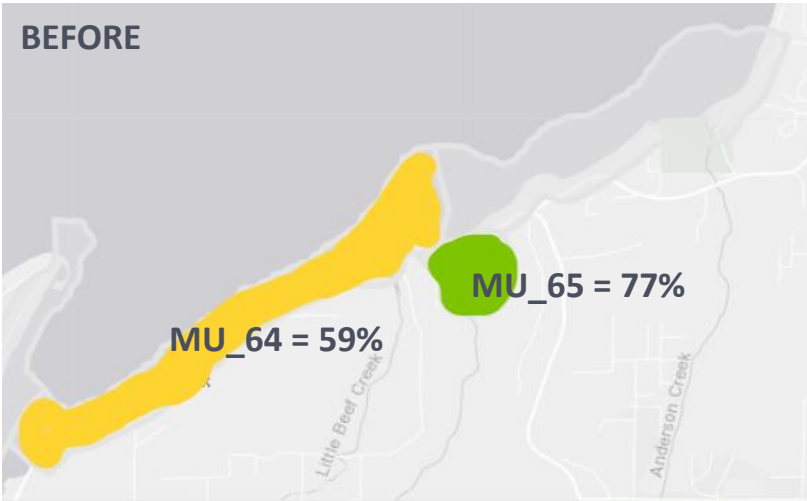
# Current levels of service for three MUs



Unit	LOS	DLOS	LOS Gap
MU_63	70.18	60	+10.18
MU_64	53.16	60	6.84
MU_65	56.70	60	3.30

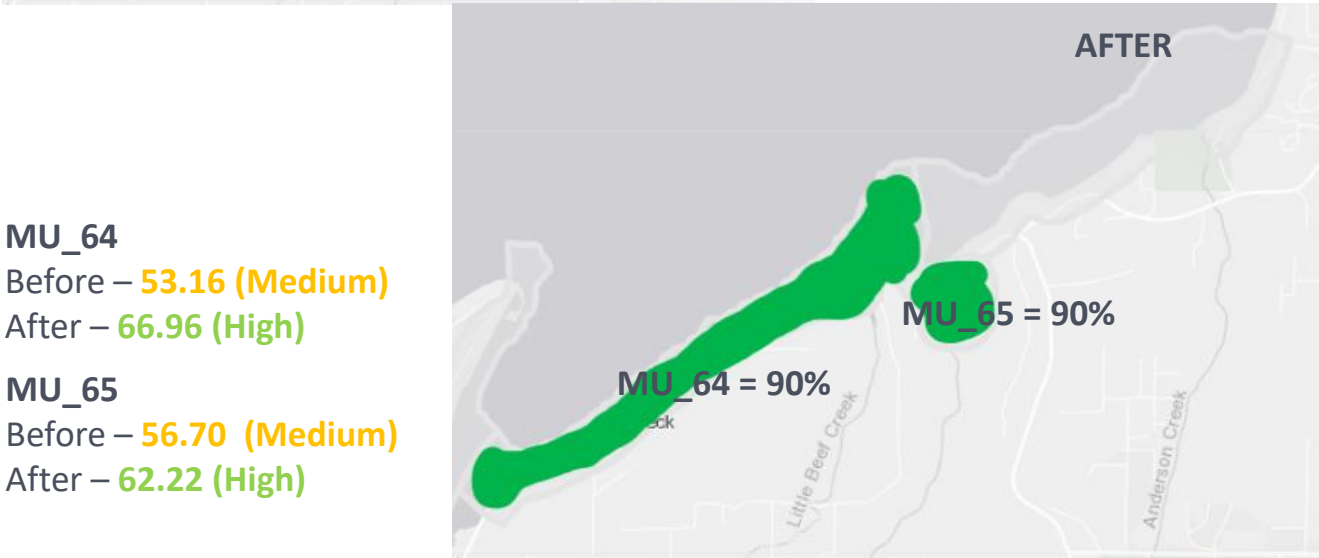


# Scenario 1 – increase shoreline vegetation to at least 90% in the two MUs with Medium LOS



% FOREST:  
**Medium (55-70%)**  
**High (70-85%)**  
**Very High (85-100%)**

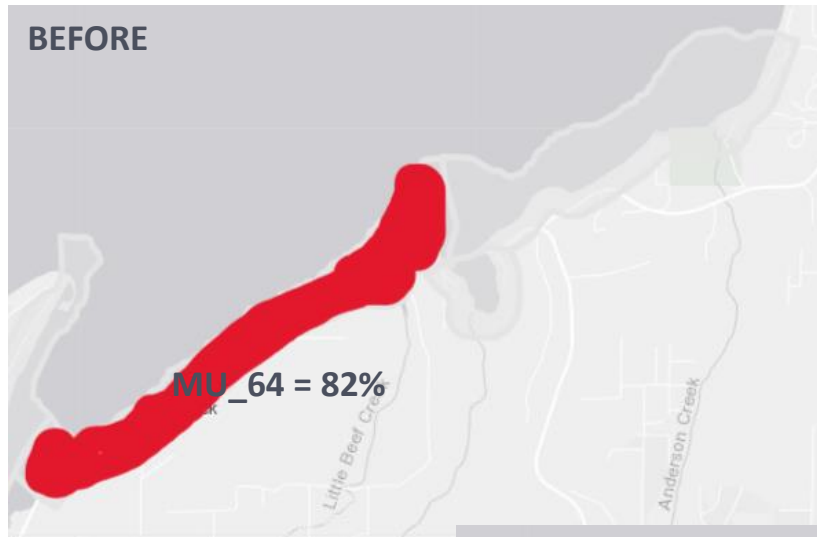
- Cost: \$228,000 (Medium)
  - **4563** ft of shoreline planted
- Who
  - WDFW revegetate lands
  - Kitsap County Transportation plantings
  - Private landowners – free native plants for shoreline property owners
  - Kitsap Conservation District



**MU\_64**  
Before – **53.16 (Medium)**  
After – **66.96 (High)**

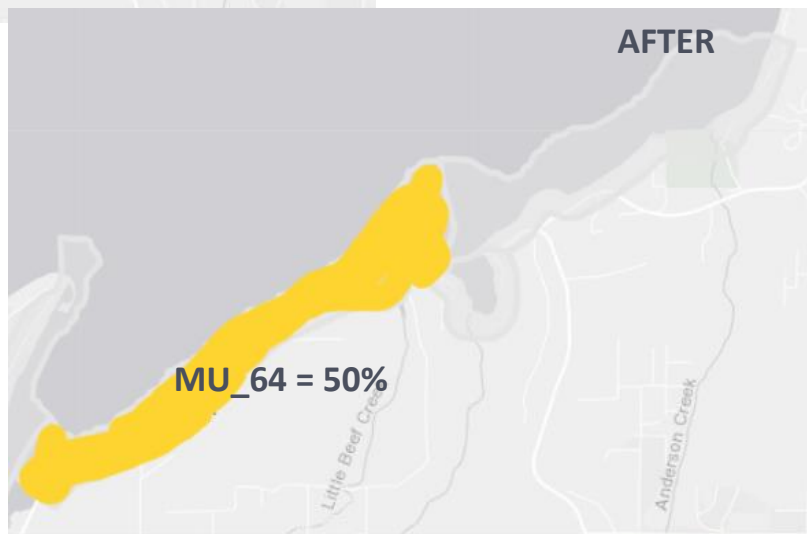
**MU\_65**  
Before – **56.70 (Medium)**  
After – **62.22 (High)**

# Scenario 2 – decrease shoreline armoring to <50% for MU\_64 with Medium LOS



% ARMOR:

**Very Low (75-100%)**  
**Medium (25-50%)**



MU\_64  
Before – 53.16 (Medium)  
After – 62.88 (High)

- Cost: \$4,020,000 (High)
  - 4021 ft of shoreline armor removed
- Who:
  - Kitsap County Transportation armor removal as part of upcoming bridge replacement?
  - Shore Friendly project management

NOTE: would need to be coupled with %forest or shellfish growing area projects in MU\_64 to achieve High LOS

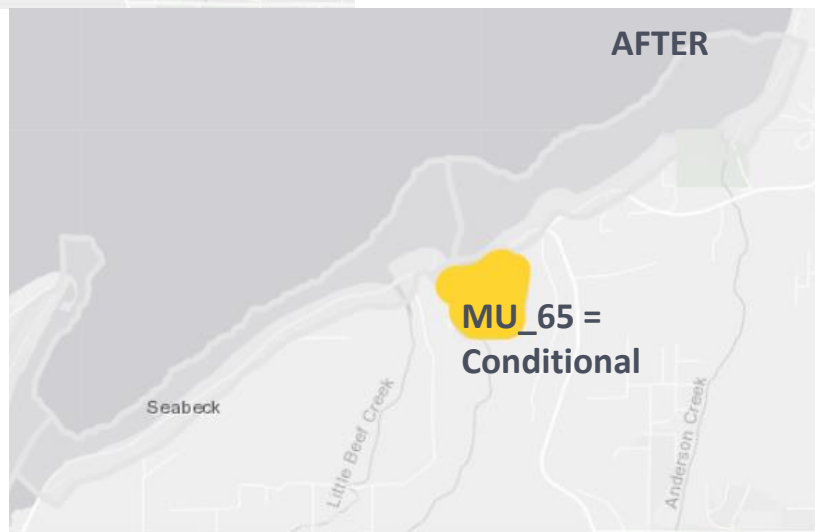
# Scenario 3 – Upgrade shellfish growing area in Big Beef Creek estuary from PROH to COND



SGA CLASS:

**Very Low (prohibited)**  
**Medium (conditional)**

MU\_65  
Before – **56.70 (Medium)**  
After – **73.37 (High)**



- Cost: nominal (Low)
  - No in situ actions needed
- Who:
  - KC DCD check with KCHD on Big Beef Creek freshwater monitoring
  - KC DCD and KCHD check with DOH on administrative update to reflect current data

NOTE: would need to be coupled with %forest or %armor projects in MU\_64 to achieve High LOS

# Scenario 4 – Upgrade shellfish growing area in Big Beef Creek estuary from PROH to COND



SGA CLASS:

**Very Low (prohibited)**  
**Medium (conditional)**

MU\_65  
Before – **56.70 (Medium)**  
After – **73.37 (High)**

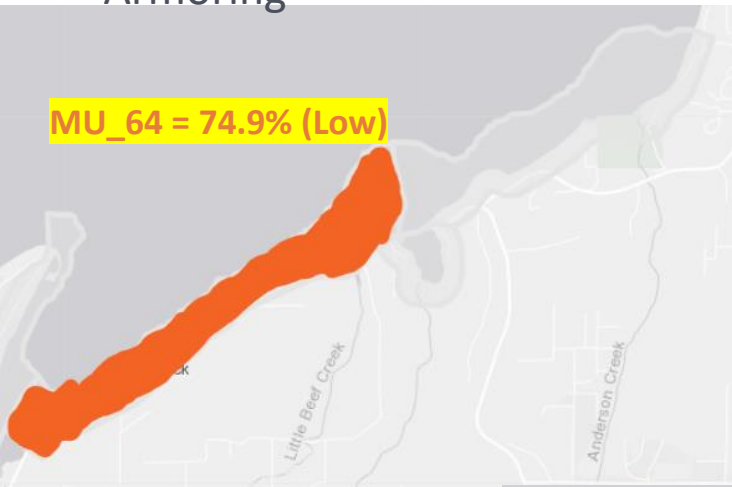


- Cost: \$100,000 (est.) (Low)
  - One Pollution Identification and Correction Program
- Who:
  - Kitsap County Health District conducts PIC program targeted on shoreline adjacent to Big Beef Creek estuary
  - DOH monitors marine waters

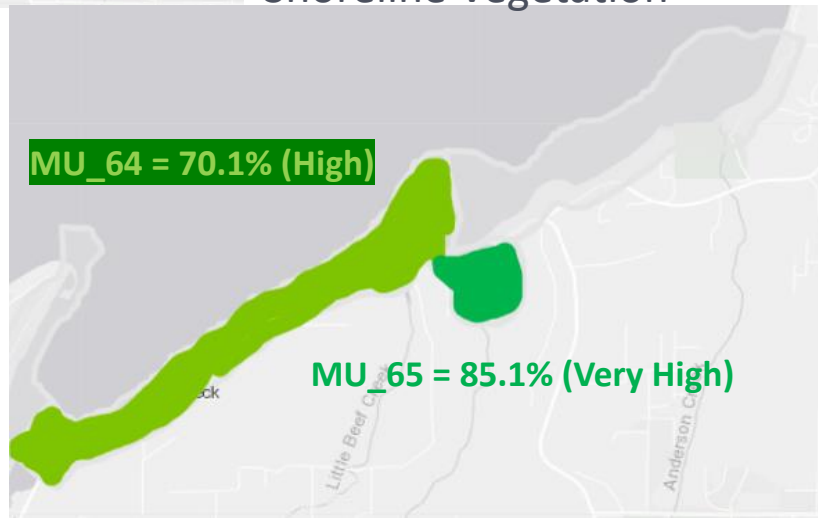
NOTE: would need to be coupled with %forest or %armor projects in MU\_64 to achieve High LOS

# Scenario 5 – In MU\_64 reduce armoring to 74.9% and improve riparian vegetation to 70.1% and in MU\_65 improve riparian vegetation to 85.1%

## Armoring



## Shoreline Vegetation



- Cost \$981,950 (Medium)
  - 892 ft of armor removed
  - 1799 ft of riparian planting
- Who
  - WDFW revegetate lands
  - Kitsap County Transportation
  - Private landowners – free native plants for shoreline property owners
  - Shore Friendly
  - Kitsap Conservation District

MU\_64  
Before – 53.16 (Medium)  
After – 60.08 (High)

MU\_65  
Before – 56.70 (Medium)  
After – 60.04 (High)

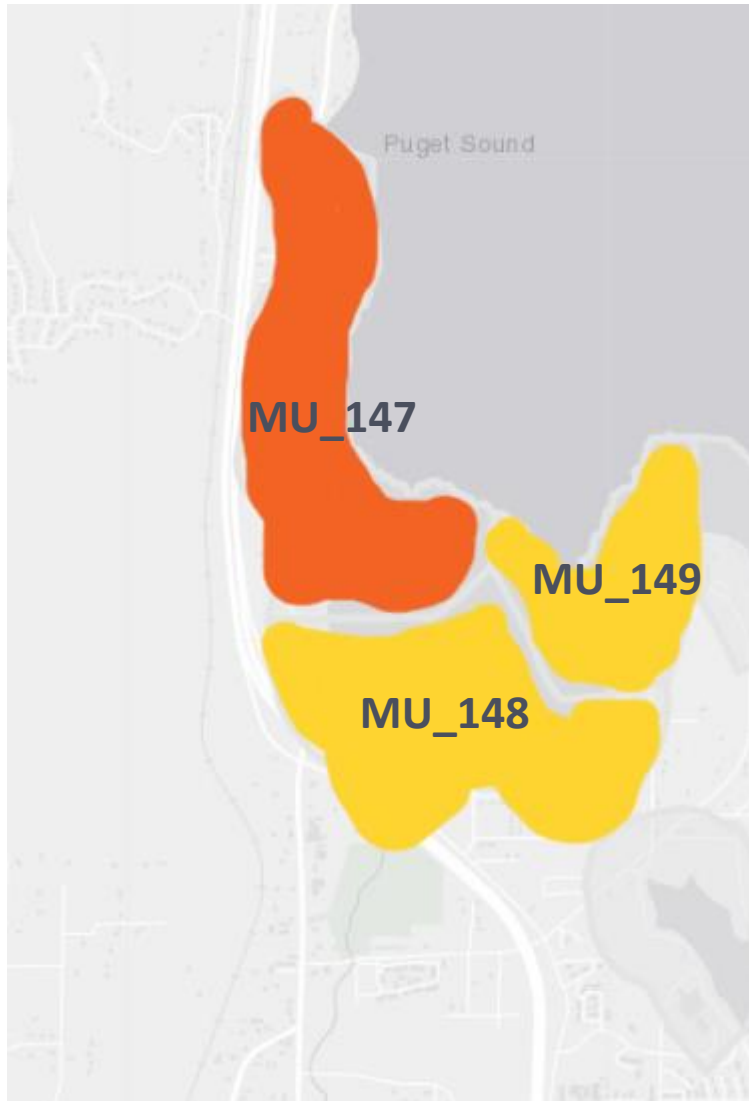
# Summary Slide -- Big Beef Creek Shorelines

SCEN	WHAT	COST	WHO	LOS improvement	Area Size
1	Increase forest cover to 90% or 4563 ft of planting	\$228,000	WDFW, Kitsap County Transportation, KCD, ...	MU_64 +13.8 MU_65 +5.5	<b>4563</b> ft of shoreline planting
2	Decrease armor to 50% or remove 4021 ft	\$4,020,000	Kitsap County Transportation, Shore Friendly	MU_64 +9.7	<b>4021</b> ft of shoreline armoring removed
3	Admin step (no in situ action)	Nom.	KCHD, DOH	MU_65 +16.7	No in situ action
4	Decrease bacteria via PIC Program	\$100,000	KCHD, DOH	MU_65 +16.67	<b>1</b> PIC Program to identify and correct pollution
5	Increase forest cover by planting 1799 ft and reduce armoring by removing 892 ft	\$981,950	Kitsap County Transportation, Shore Friendly, WDFW, KCD	MU_64 +6.9 MU_65 +3.3	<b>1799</b> ft of shoreline planting and <b>892</b> ft of armor removed

# Scenarios/Strategies – Chico Creek Shorelines



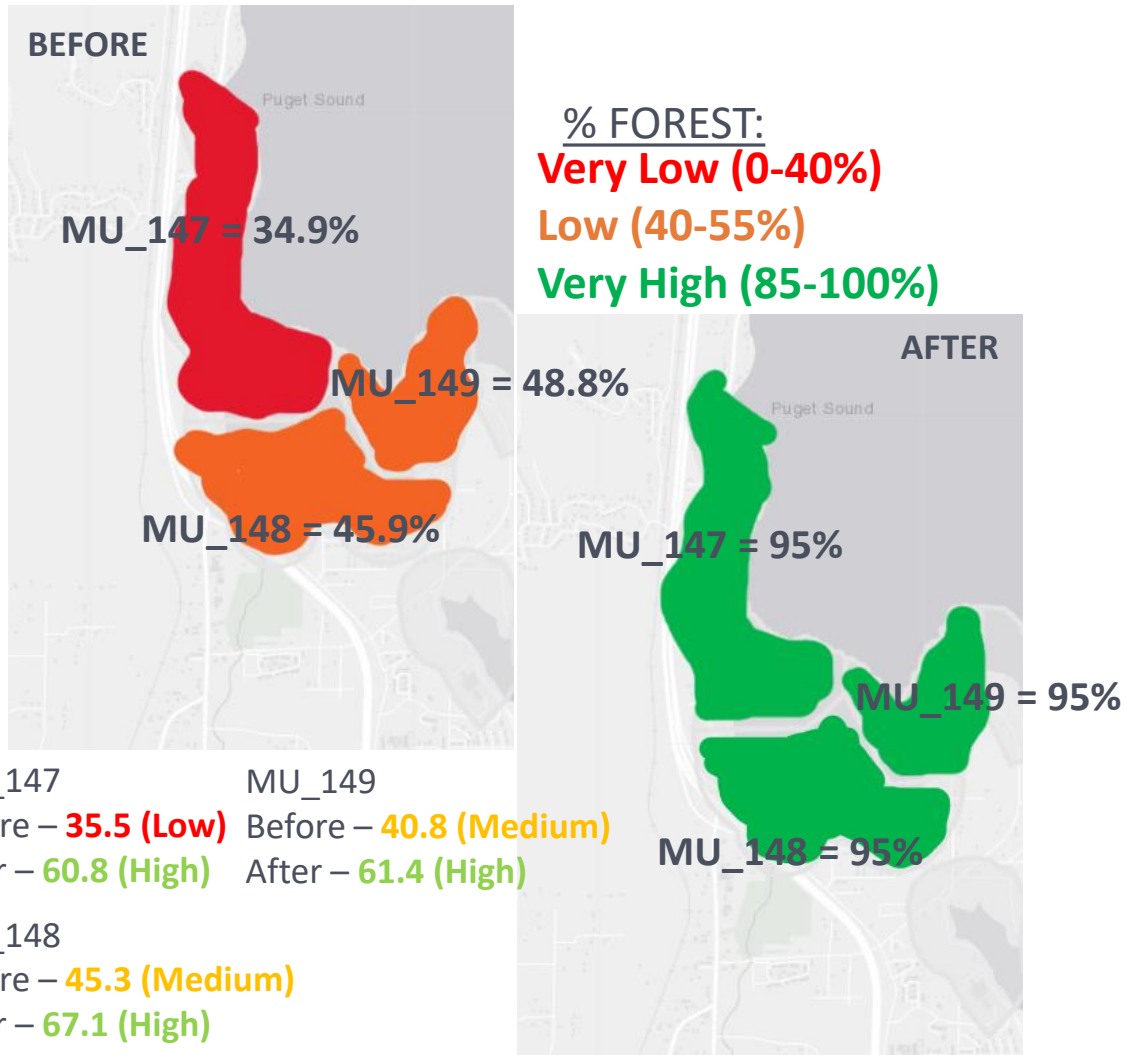
# Current levels of service for three MUs



Unit	Current LOS	DLOS	LOS Gap
MU_147	35.5	60	24.5
MU_148	45.3	60	14.7
MU_149	40.8	60	19.2



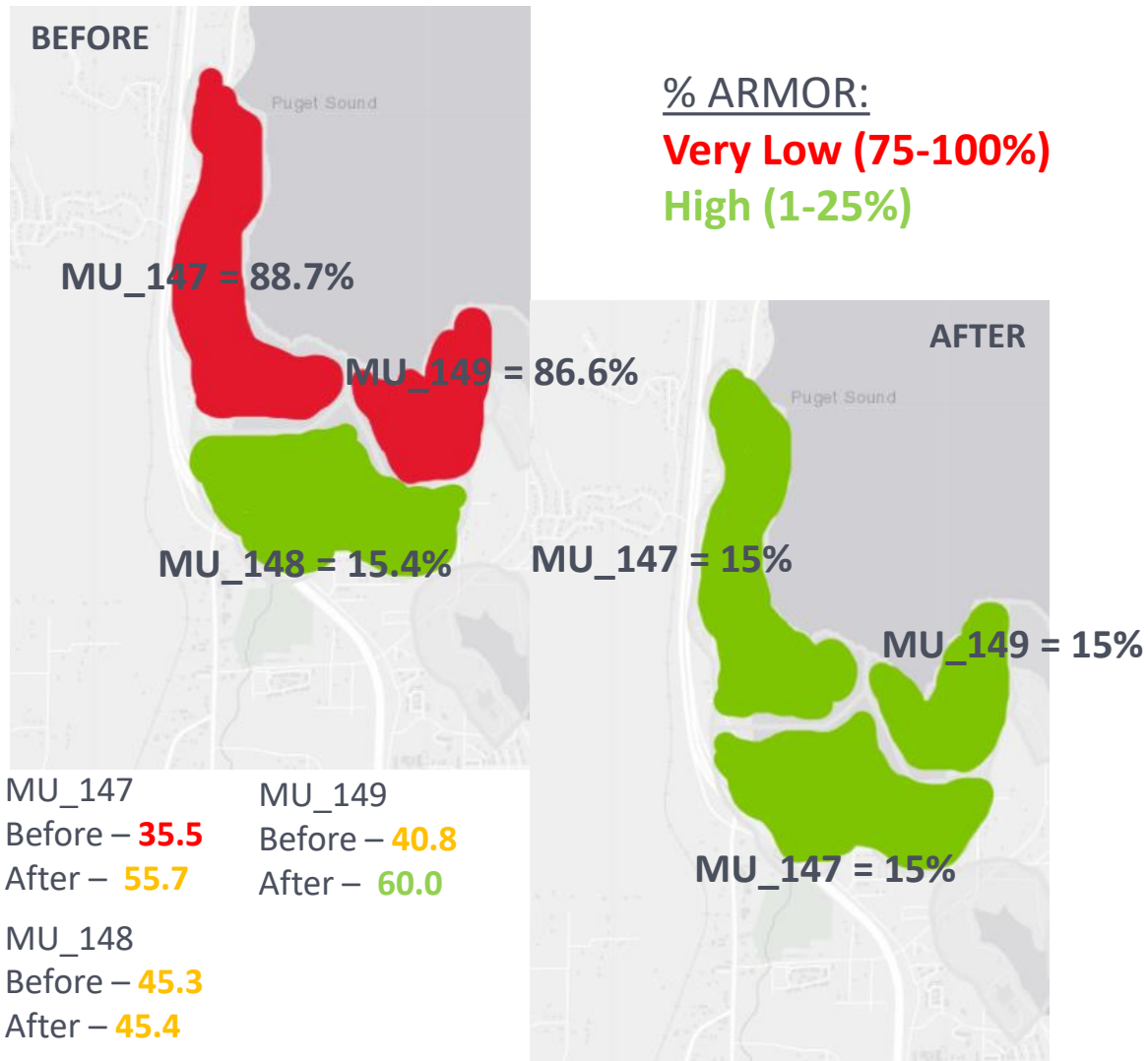
# Scenario 1 – increase shoreline vegetation to at least 95% in all three MUs



- Cost: \$362,000 (Medium)
  - 7,240 ft of shoreline planted
- Who
  - WDFW revegetate lands
  - WSDOT plantings
  - Private landowners – free native plants for shoreline property owners
  - Kitsap Conservation District

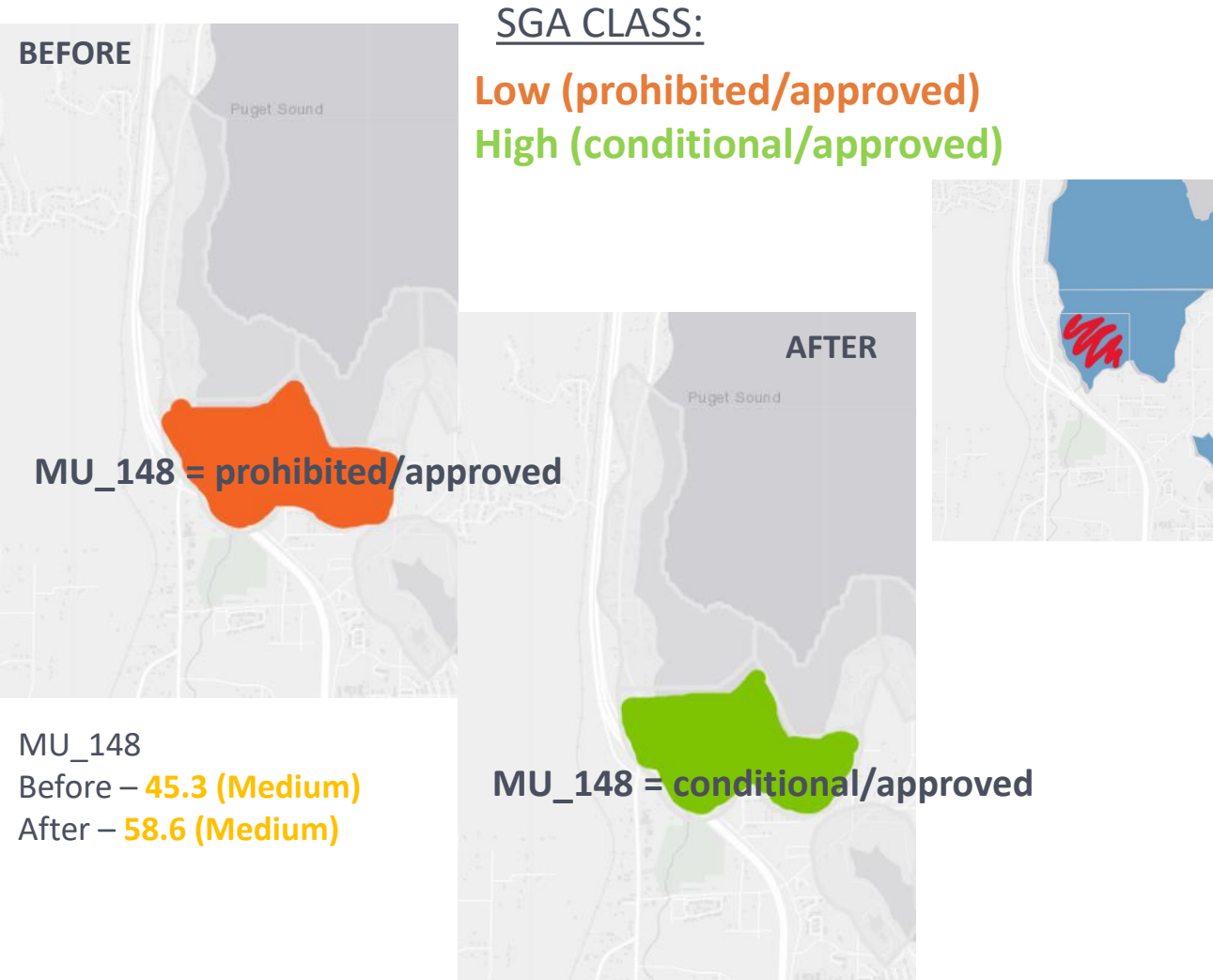
# Scenario 2 – decrease shoreline armoring to <15% for all MUs

- Cost: \$5,548,000 (High)
  - 5,548 ft of shoreline armor removal
- Who:
  - Any armor still present from the culvert replacement of Hwy3 into Chico Bay? -- north or the culvert, no rock armoring.
  - Shore Friendly project management



NOTE: would need to be coupled with %forest projects in MU\_147 & MU\_148 to achieve High LOS

# Scenario 3 – Upgrade shellfish growing area in Chico Bay from PROH to COND



- Cost: nominal (Low)
  - No in situ actions needed
- Who:
  - KC DCD check with KCHD on Chico Creek freshwater monitoring
  - KC DCD and KCHD check with DOH on administrative update to reflect current data

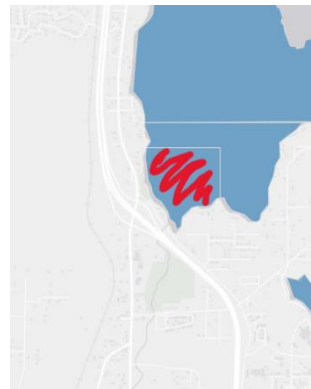
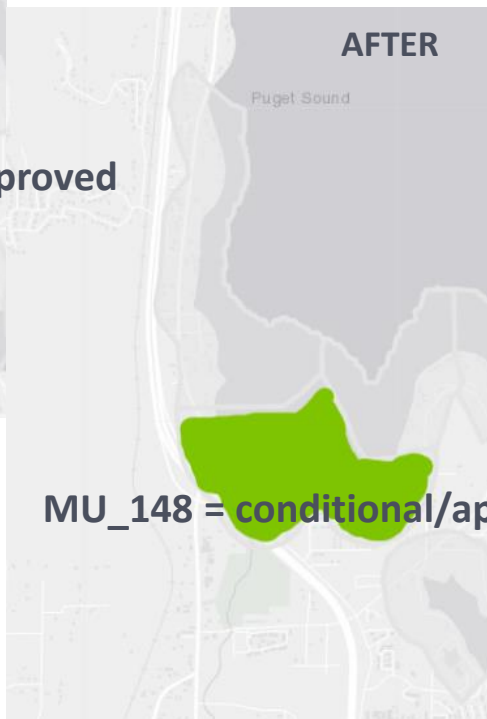
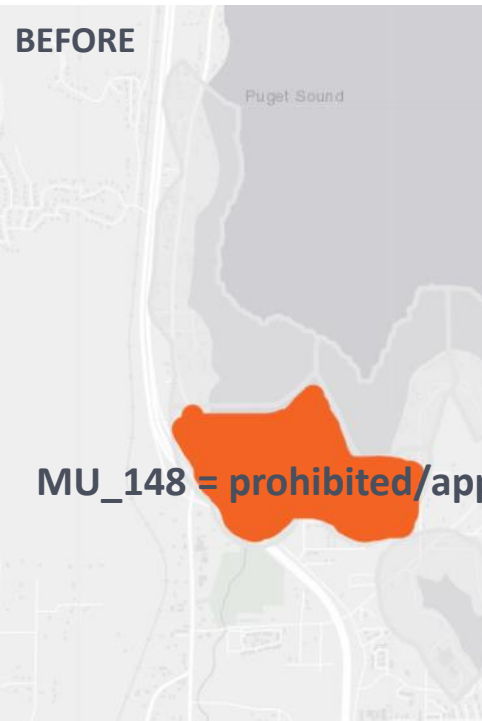
NOTE: would need to be coupled with %forest or %armor projects in MU\_147 & MU\_149 to achieve High LOS

# Scenario 4 – Upgrade shellfish growing area in Chico Bay from PROH to COND

## SGA CLASS:

Low (prohibited/approved)

High (conditional/approved)

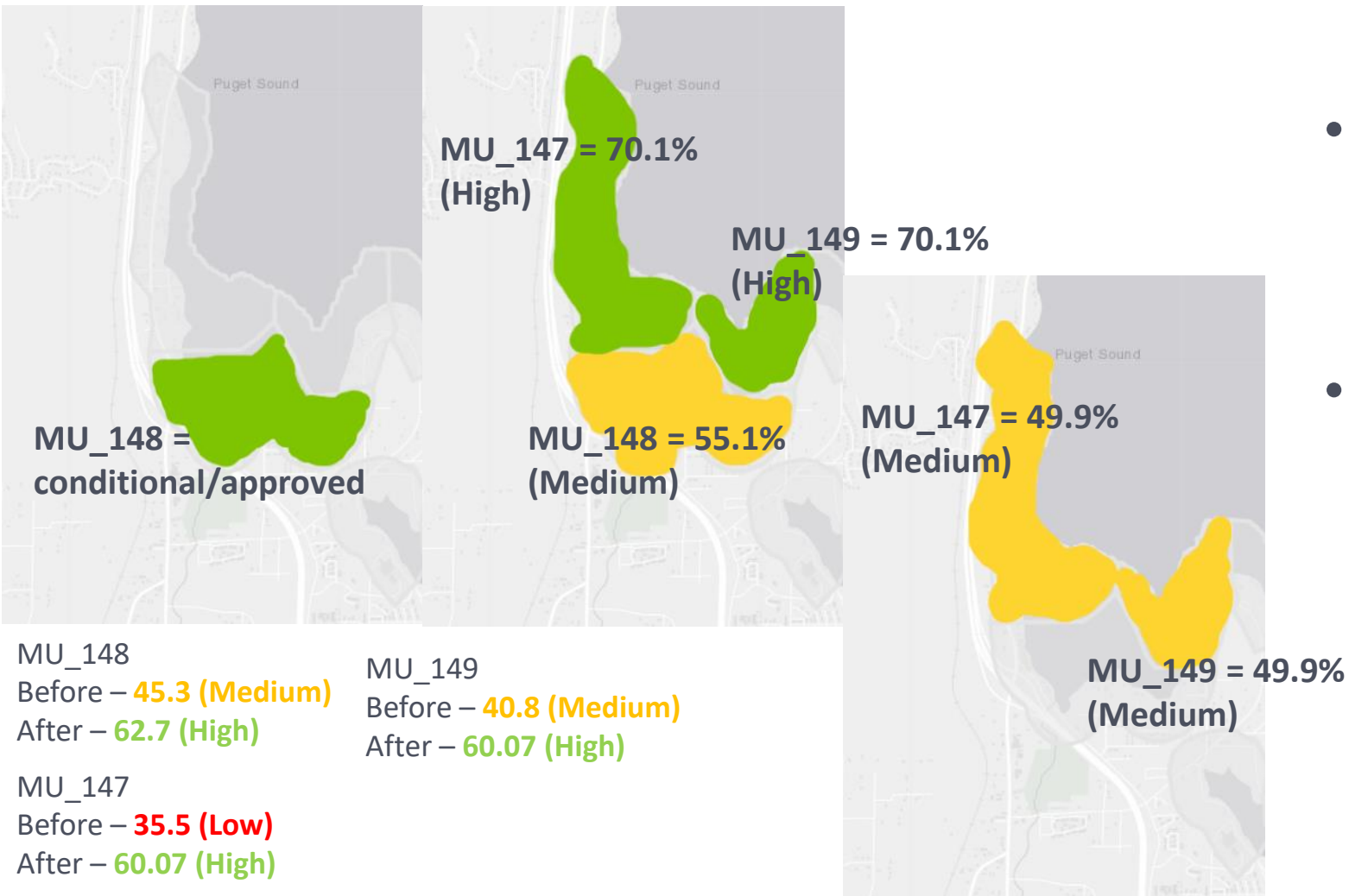


MU\_148  
Before – 45.3 (Medium)  
After – 58.6 (Medium)

- Cost: \$100,000 (est.) (Low)
  - One Pollution Identification and Correction Program
- Who:
  - Kitsap County Health District conducts PIC program targeted on shoreline adjacent to Chico Creek estuary
  - DOH monitors marine waters
  - WA DOH certain criteria for shellfish harvesting.

NOTE: would need to be coupled with %forest or %armor projects in MU\_147 & MU\_149 to achieve High LOS

Scenario 5 –In MU\_148 improve shellfish growing area to conditional and improve riparian vegetation to 55.1%, in MU\_147 and MU\_149 reduce armoring to 49.9% and improve riparian vegetation to 70.1%



- Cost: \$3,132,850 (High)
  - 2937 ft of shoreline planting
  - 2886 ft of armor removal
  - 1 PIC program
- Who
  - Kitsap County Health District
  - DOH
  - Shore Friendly
  - WDFW
  - WSDOT
  - KCD
  - Private Landowner incentive

# Summary Slide – Chico Creek Shorelines

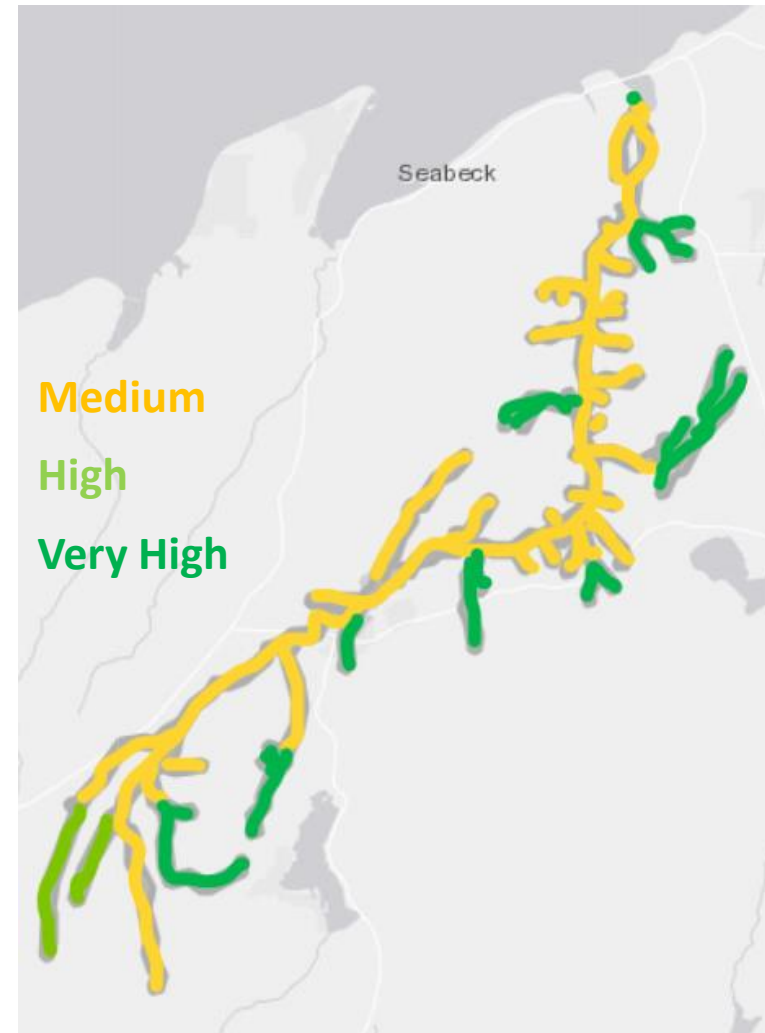
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# Scenarios/Strategies - Big Beef Creek Streams



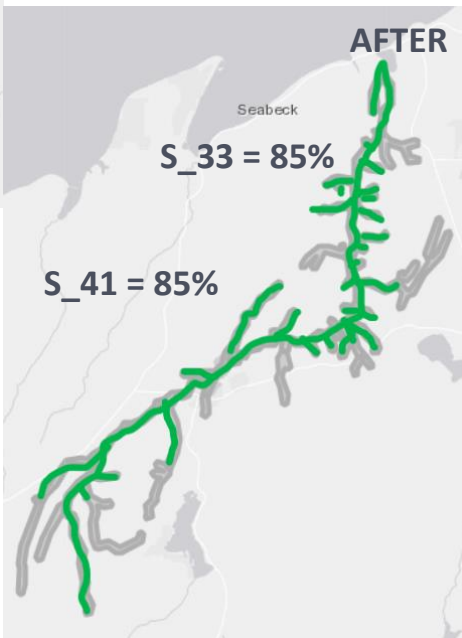
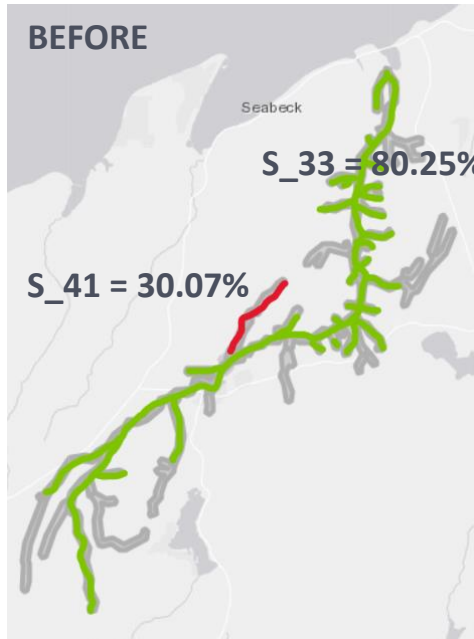
# Current Level of Service

Unit	LOS	DLOS	LOS Gap
S_665	87.97	60	+27.97
S_33	58.61	60	1.39
S_415	81.99	60	+21.99
S_49	84.33	60	+24.33
S_414	91.64	60	+31.64
S_585	90.72	60	+30.72
S_57	87.34	60	+27.34
S_48	84.80	60	+24.8
S_41	49.51	60	10.49
S_786	87.01	60	+27.01
S_400	89.93	60	+29.93
S_31	87.66	60	+27.66
S_660	61.06	60	+1.06
S_289	74.79	60	+14.79





# Scenario 6 – Increase % Riparian Vegetation up to 85% in S\_33 and S\_41 (Both currently Medium)



**S\_33 OCI**  
Before – 58.61  
After – 60.18

**S\_41 OCI**  
Before – 49.51  
After – 65.75

- Cost range: \$277,393 (estimate \$50/linear foot) to \$4,744,338 (estimate \$60k/acre)
  - 5,547 ft of linear stream planted or 79.1 acres planted
- County estimate of \$2k/acre = \$158,200
- Who:
  - GPC owned land (Smalser Refuge Conservation Easement and Big Beef Creek Salmon Sanctuary)
  - Incentivize private landowners to plant in RMZs
    - [KCD Programs](#)
    - Offer free plants to landowners with property in riparian areas.
  - [WDFW owned land](#)
  - [DNR owned land](#)

# Scenario 7 – Remove all (2) full blockage fish passage barriers from S\_33



Medium (1-2)  
Very Low (5+)



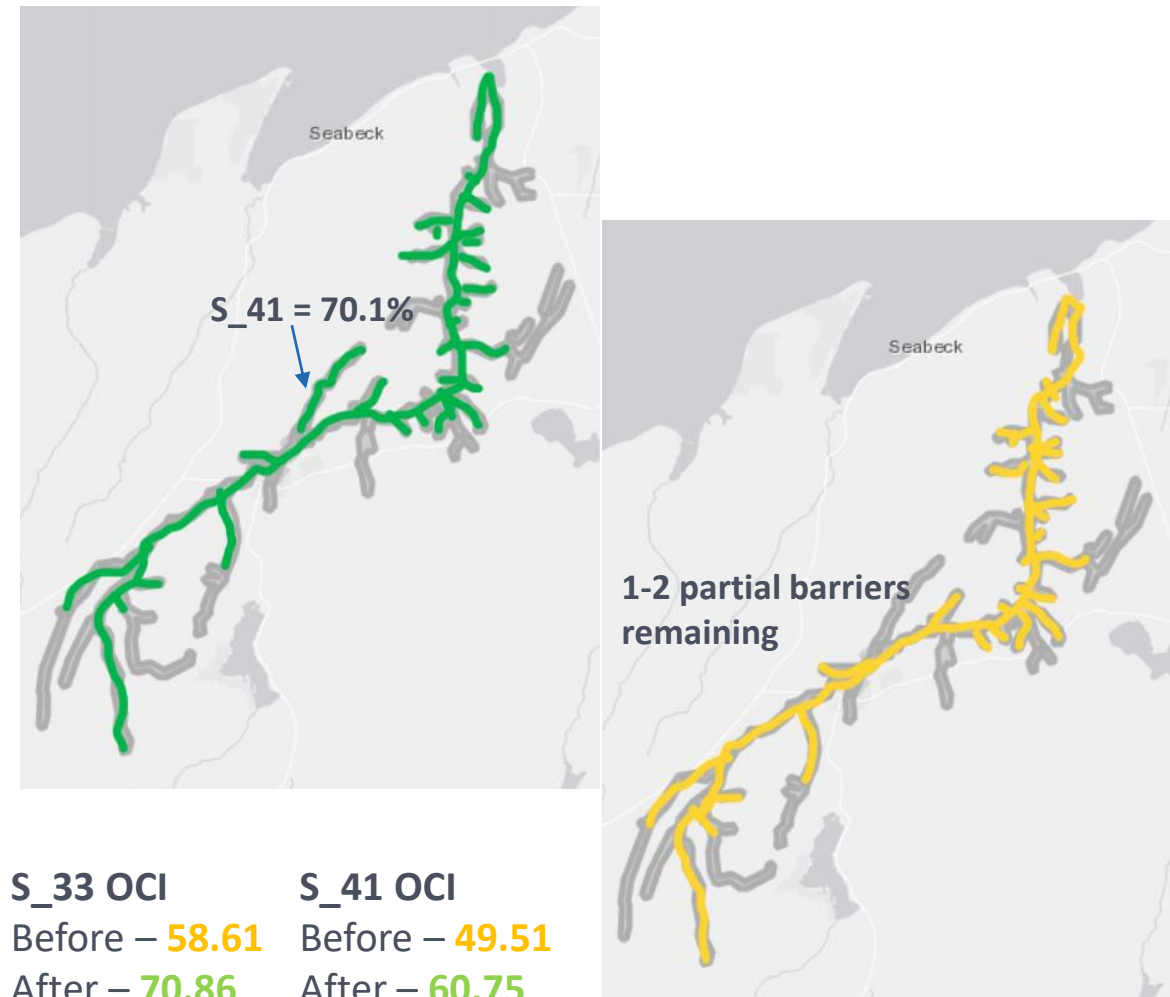
S\_33 OCI  
Before – 58.61  
After – 70.86

- Cost: \$1,000,000+ (estimate p\$500,000/barrier)
  - 2 fish passage barriers removed
- Who:
  - One County owned culvert (W One Mile Road) – Site ID 420717
  - One privately owned (Kid Haven Ln NW)
    - Incentives for private barrier removal?

NOTE: would need to be coupled with %riparian veg improvement to minimum 70% in S\_41 to achieve High LOS

# Scenario 8-- Combination of fish passage barrier removal and riparian vegetation planting

- Remove all full blockage barriers from S\_33
- Improve riparian vegetation % in S\_41 to 70.1%
- Cost range: \$1,115,986 to \$5,217,912
- County estimate of \$2k/acre = \$1,140,600
  - 2,320 ft of riparian planting or 70.3 acres planted
  - 2 fish passage barriers removed
- Who
  - County Divisions (Roads, Stormwater, DCD)
  - DNR
  - WDFW
  - GPC
  - KCD



# Summary Slide – Big Beef Creek Streams

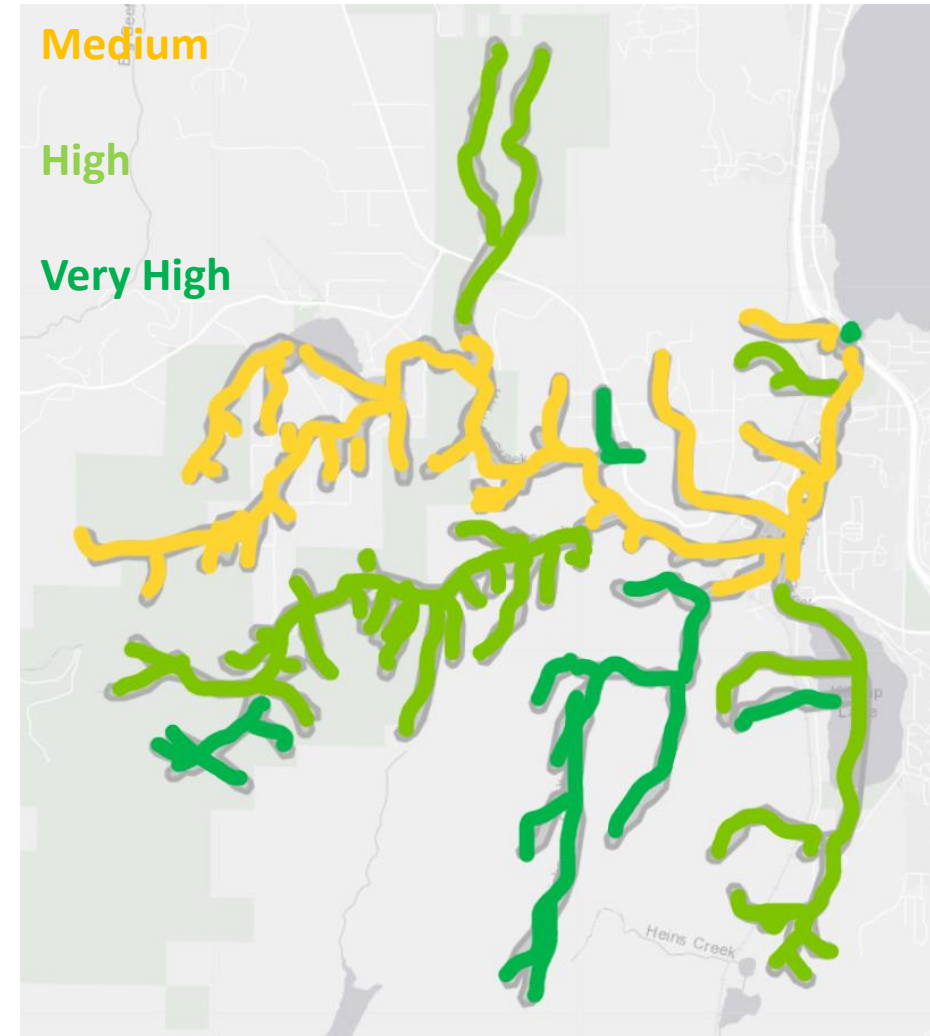
SCEN	WHAT	COST	WHO	LOS Improvement	Area Size
6	Increase riparian forest % by planting 5,547 linear feet or 79.1 acres	\$158,000 -- \$4,744,338	WDFW, DNR, GPC, KCD, Parks	S_33 +1.57  S_41 +16.24	<b>5547</b> linear ft or <b>79.1</b> acres of riparian vegetation planted
7	Remove 2 fish passage barriers (full blockages)	\$1,000,000	County Divisions (Roads, DCD,...)	S_33 +12.25	<b>2</b> full blockage fish passage barriers removed
8	Increase riparian vegetation % by planting 2,320 linear feet or 70.3 acres and remove 2 fish passage barriers (full blockages)	\$1,140,600 -- \$5,217,912	County Divisions (Roads, DCD,...), WDFW, DNR, KCD, Parks	S_33 +12.25  S_41 +11.24	<b>2320</b> linear ft or <b>70.3</b> acres of riparian veg planted and <b>2</b> barriers removed

# Scenarios/Strategies - Chico Creek Streams



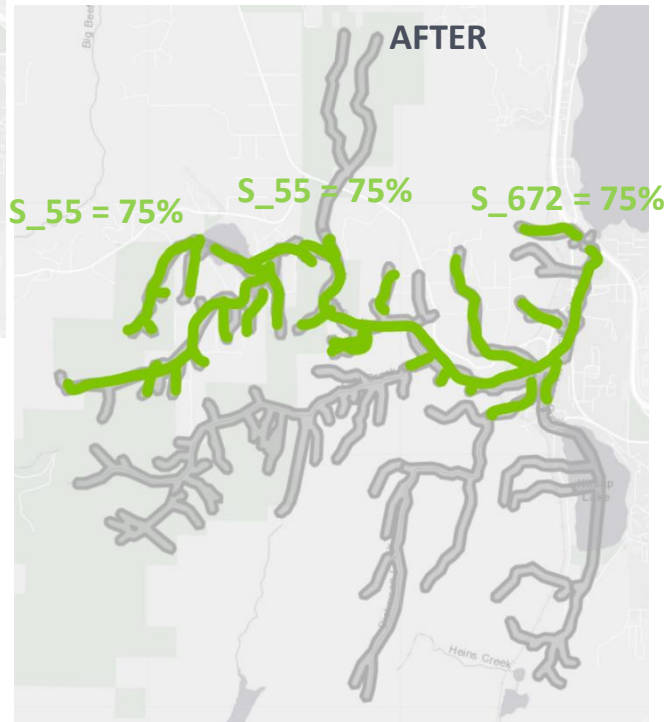
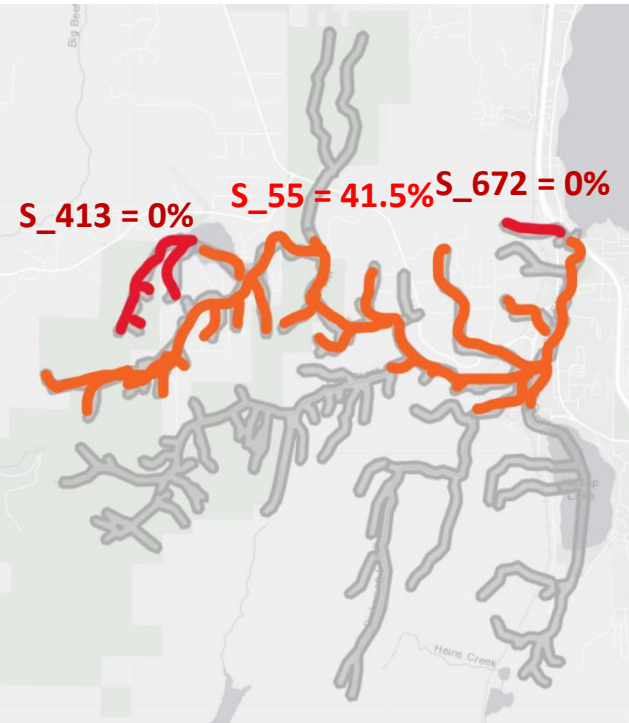
# Current Levels of Service

Unit	LOS	DLOS	LOS Gap
S_422	69.86	60	+9.86
S_423	78.92	60	+18.92
S_672	43.98	60	16.02
S_55	51.09	60	8.91
S_91	76.81	60	+16.81
S_791	83.45	60	+23.45
S_308	78.32	60	+18.32
S_80	92.14	60	+32.14
S_79	96.07	60	+36.07
S_56	68.31	60	+8.32
S_298	90.75	60	+30.75
S_413	57.47	60	2.53
S_81	76.97	60	+16.97
S_92	86.58	60	+26.58



# Scenario 6 – Increase riparian vegetation to 75% in 3 MUs with Medium LOS

BEFORE



Overall LOS Score

S\_672

Before – 43.98

After – 60.64

S\_55

Before – 51.09

After – 62.26

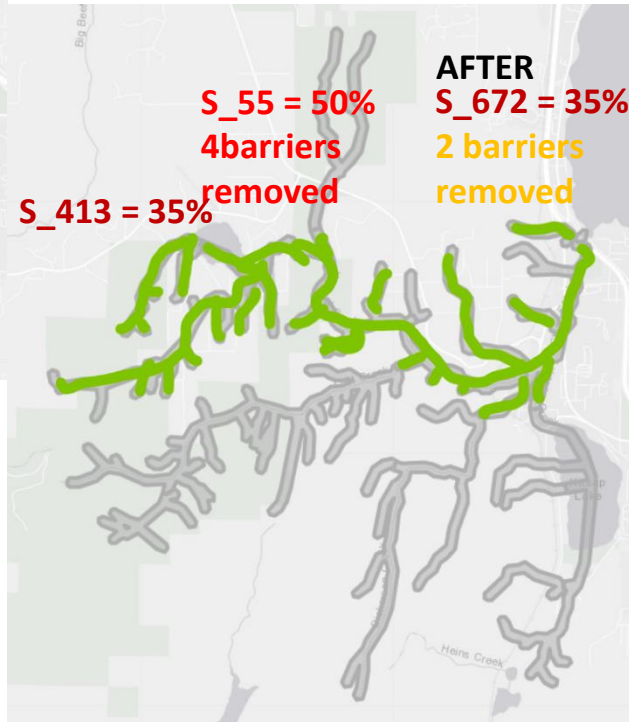
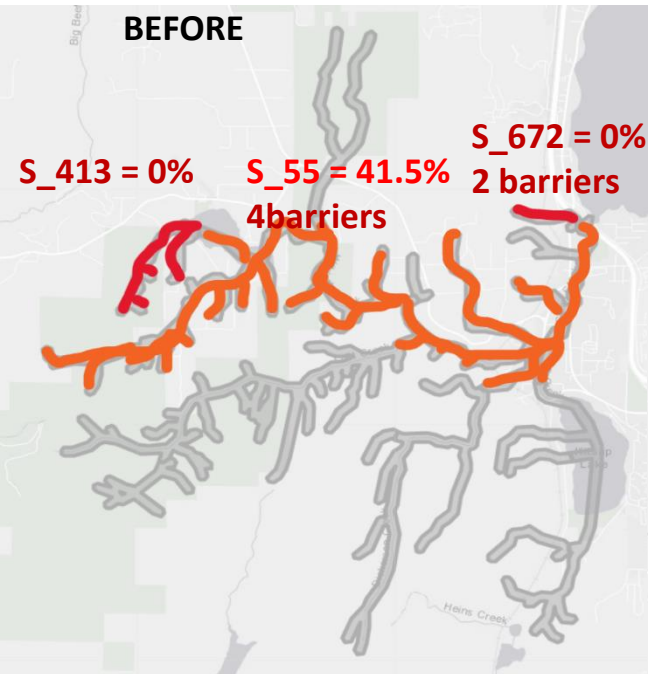
S\_413

Before – 57.47

After – 74.13

- Cost range: \$1,270,685 (estimate \$50/linear foot) to \$20,293,612 (estimate \$60k/acre)
- County estimate \$2k/acre = \$676,400
  - 25,414 ft of linear stream planted or 338.2 acres planted
- Who:
  - [GPC owned land](#) (Chico Creek Estuary Conservation Easement and Ueland Tree Farm)
  - Incentivize private landowners to plant in RMZs
    - [KCD Programs](#)
    - Offer free plants to landowners with property in riparian areas.
  - Any county or state parks/forests in the area? YES – Green Mountain State forest
  - [DNR owned land](#) – altering from revenue generating to conservation

# Scenario 7 – Remove all full blockage fish passage barriers and improve riparian % in 3 MUs currently rated Medium



## Overall LOS Score

S\_672

Before – 43.98

After – 60.60

S\_55

Before – 51.09

After – 61.17

S\_413

Before – 57.47

After – 61.84

- Cost range: \$3,415,589 (estimate \$50/linear foot) to \$9,330,888 (estimate 60k/acre)
- County estimate \$2k/acre = \$3,211,000
  - 8,312 ft of riparian plantings or 105.5 acres planted
  - 6 fish barriers removed
- Who:
  - 2 county owned (Site ID 998106, 601625)
    - County division (Roads, Stormwater, DCD)
  - 2 federally owned (Navy)
  - 2 privately owned
    - Incentives for private barrier removal?
- GPC
- KCD
- DNR



# Summary Slide – Chico Creek Streams

SCEN	WHAT	COST	WHO	LOS Improvement	Area Size
6	Increase riparian forest % by planting 25,414 linear feet	\$676,400 -- \$20,293,612	KCD, Parks, DNR, DCD, GPC...	S_627 +16.66  S_55 +11.17  S_413 +16.66	<b>25414</b> linear ft or <b>338.2</b> acres of riparian veg planted
7	Remove 6 fish passage barriers (full blockages) and plant 8,312 linear feet or 105.5 acres	\$3,211,000 -- \$9,830,888	Various County Divisions (Roads, DCD, Stormwater), the Navy, KCD, DNR, GPC,...	S_627 +16.62  S_55 +10.08  S_413 +4.37	<b>6</b> full blockage fish barriers removed and <b>8312</b> ft or <b>105.5</b> acres of riparian veg planted

# Scenarios/Strategies - Big Beef Creek Forests

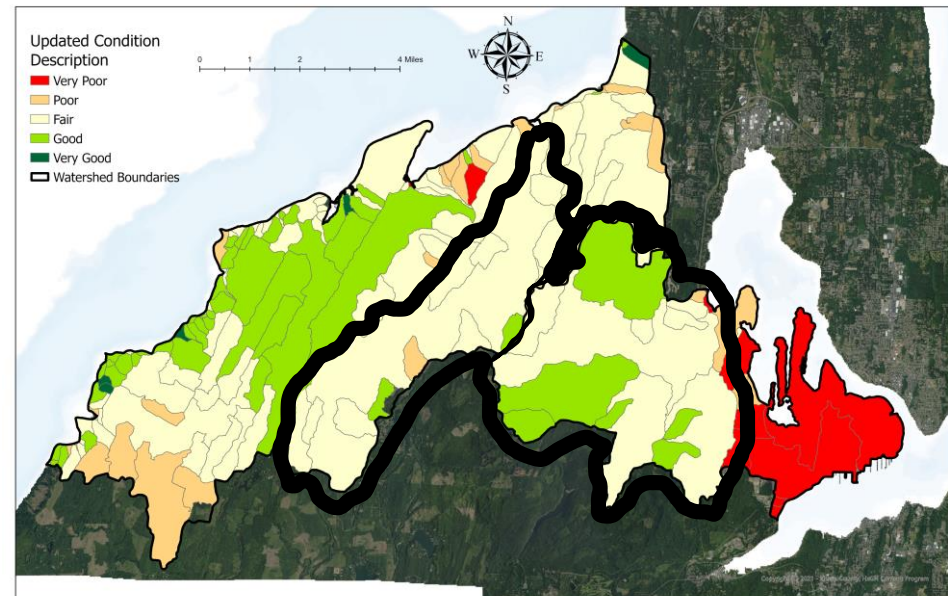
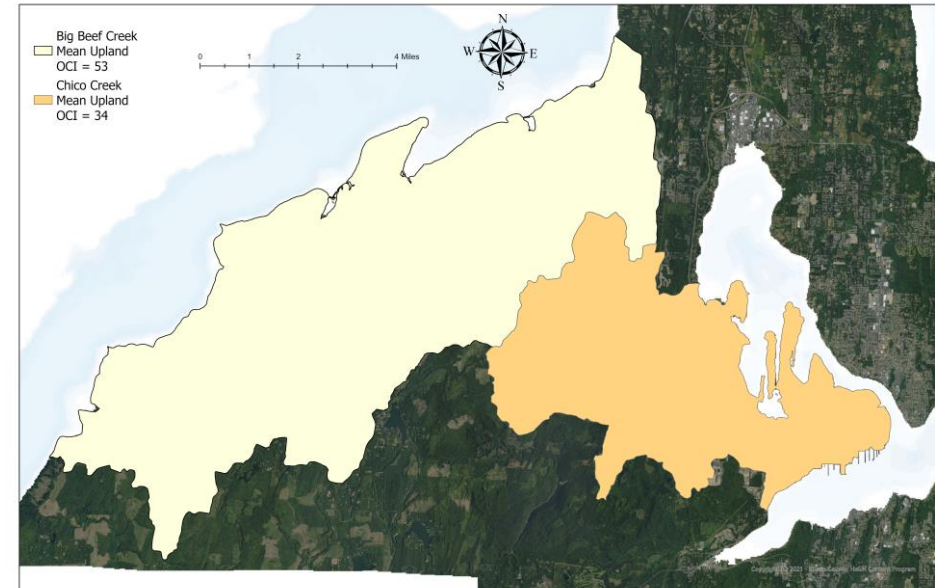


# Forest LOS Reminder

- LOS for Forests is being aggregated over the entire watershed.
- Previous discussions in November 2023 workshop highlighted difficulty in achieving DLOS for urban forests.
- Also discussed if we are aggregating across the watershed, we should be weighting the LOS by size of the management unit.

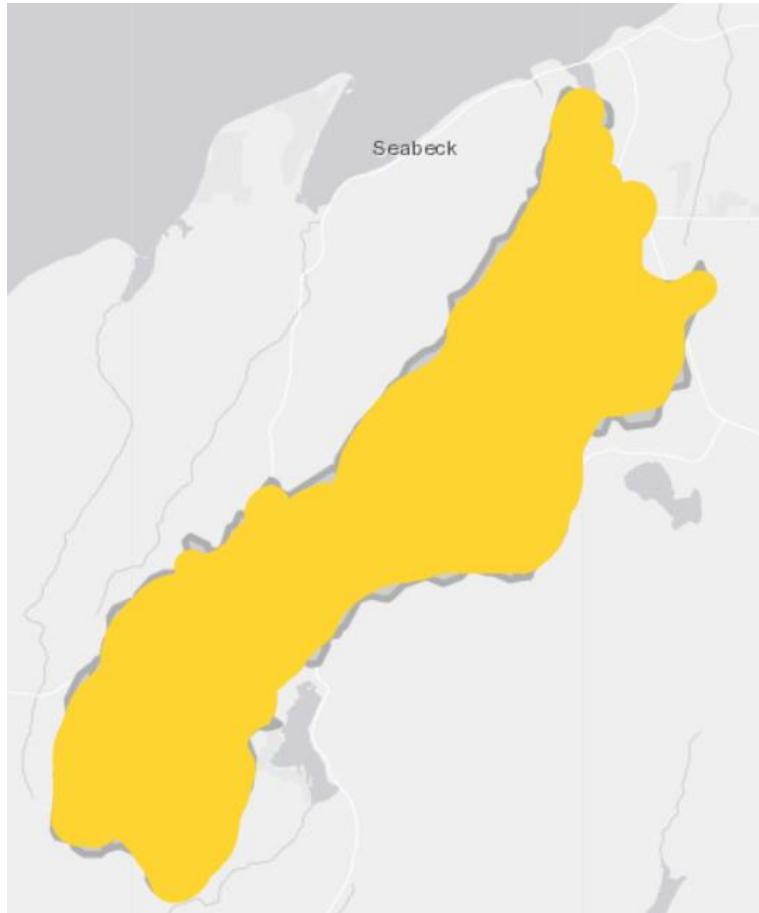
Top: HUC12 Watershed boundaries and aggregate LOS score

Bottom: Individual MU LOS score. Black outline is where scenarios are focused.



# Current Level of Service

Watershed Aggregate



## Overall

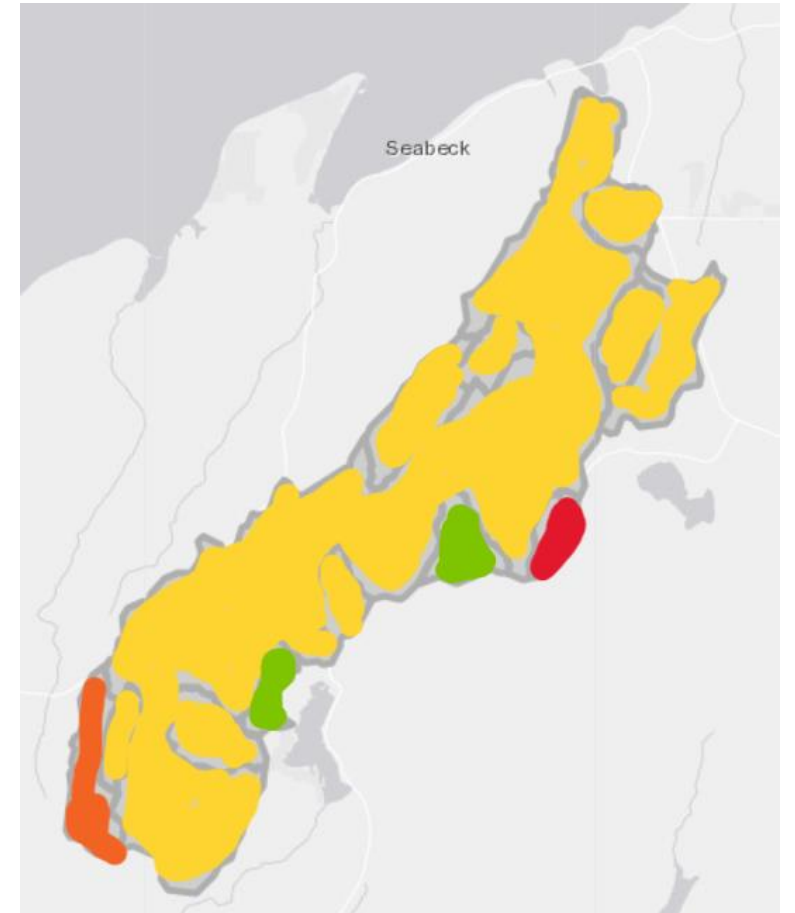
High (60-80)

Medium (40-60)

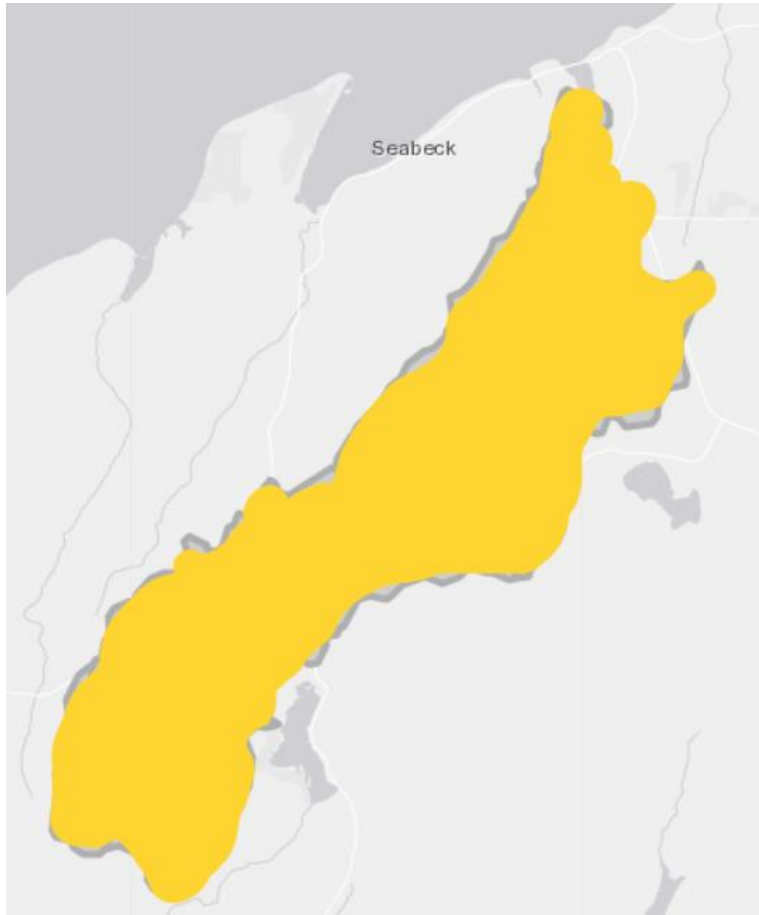
Low(20-40)

Very Low(0-20)

Individual MUs



# Weighted score for watershed aggregate



## OCI Scoring

Average across all management units =  
49.65 (**Medium**)

Weighted average based on management  
unit area = 54.26 (**Medium**)

**BB Creek  
Watershed**

**Aggregate LOS**

**DLOS**

**LOS Gap**

**54.26**

**60**

**5.74**

# Scenario 9 – Improve forest cover in all MUs to 90% and F\_398 to 92%

Cost: \$21,084,678 (High) (estimated \$20k/acre)\*

**1054** acres of forest planted

Who:

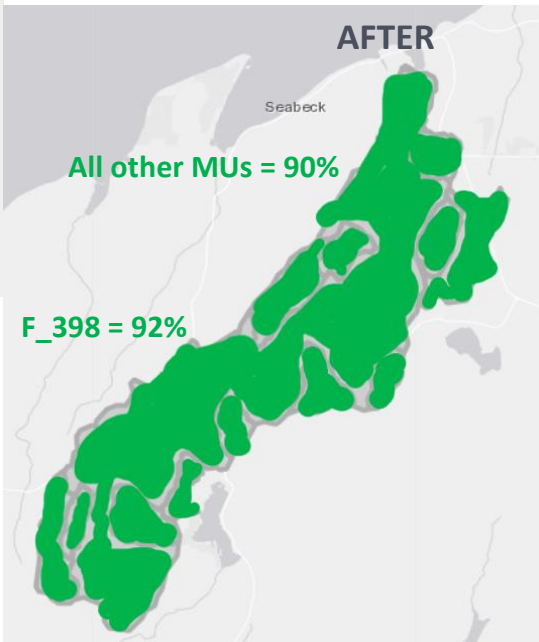
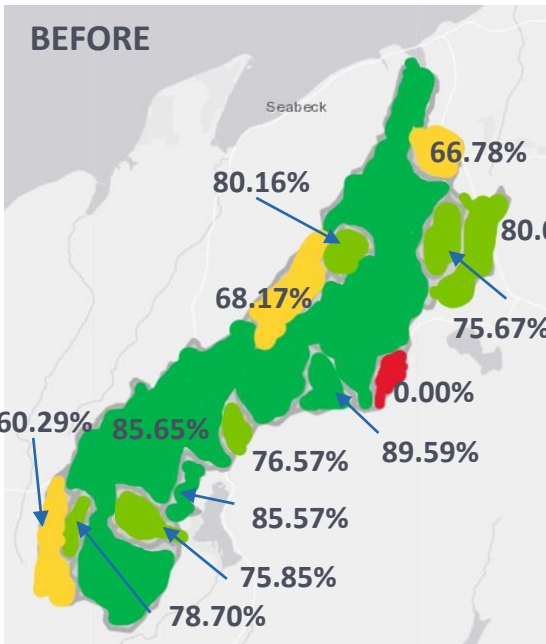
- [GPC owned land](#)
- [DNR managed forest](#)
- [WDFW owned land](#)
- KCD
  - Backyard habitat program
  - Other incentives for private landowners

**Very High (>85%)**

**High (70-85%)**

**Medium (55-70%)**

**Very Low (<40%)**

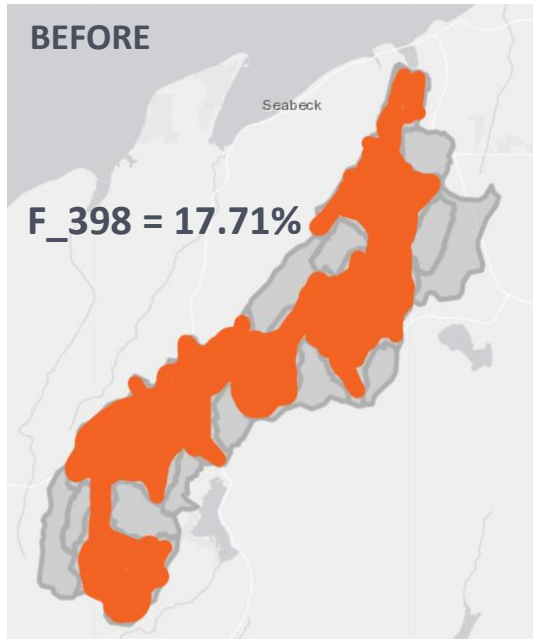


Weighted average based on area of management unit:

Before – **54.26 (Medium)**

After -- **60.62 (High)**

# Scenario 10 – Protect forested area in F\_398 to increase mature forest % up to 45%



Weighted average based on area of management unit = 61.10 (High)

Low (1-25%)

Medium (25-50%)

Cost: \$8,943,107 (High) (estimated \$6k/acre for acquisition) \*

**1491** acres of land acquired to protect forests growing toward maturity (Class E)

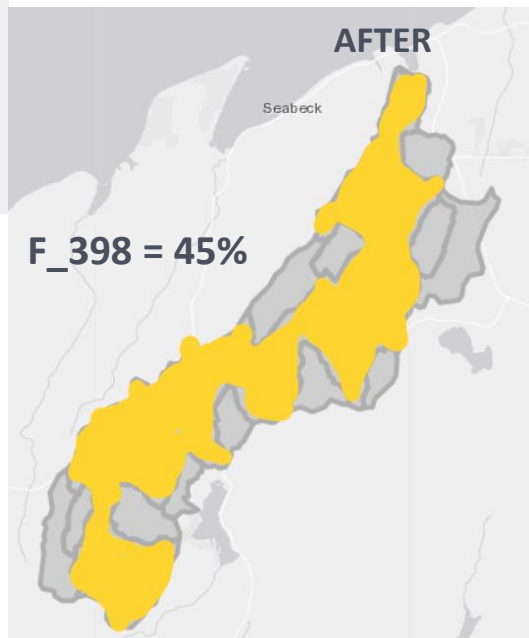
Who

- Partner with GPC and other land trusts to acquire forest land to protect.
- Partner with DNR to alter harvesting schedule/area to promote areas to grow to mature forests.

Weighted average based on area of management unit:

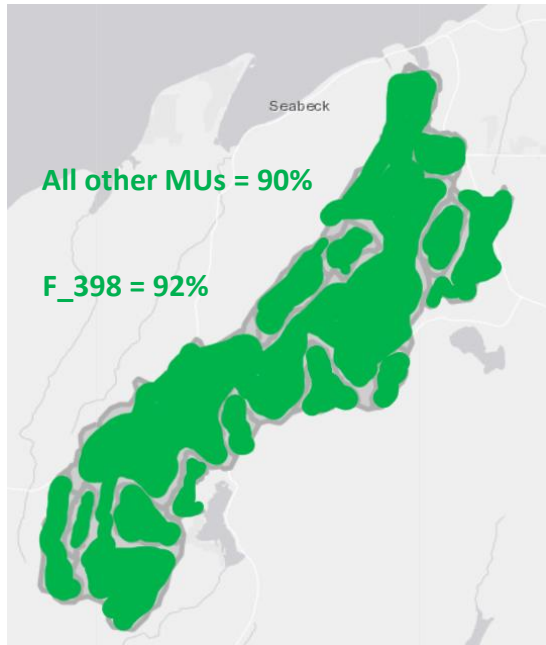
Before **54.26 (Medium)**

After **61.10 (High)**



# Scenario 11 – combination of Scenario 1 and 2, what if we did both?

Forest Cover %

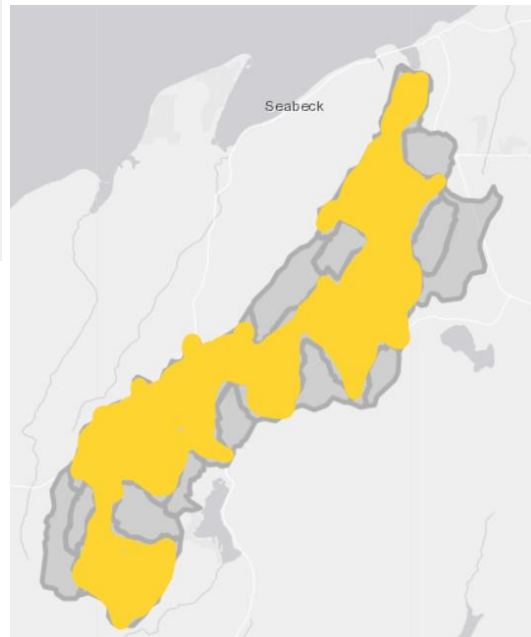


Weighted average based on area of management unit:

Before – **54.26 (Medium)**

After – **67.84 (High)**

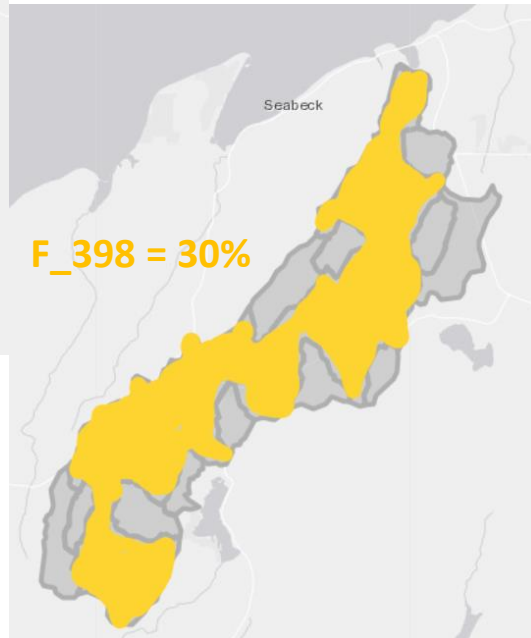
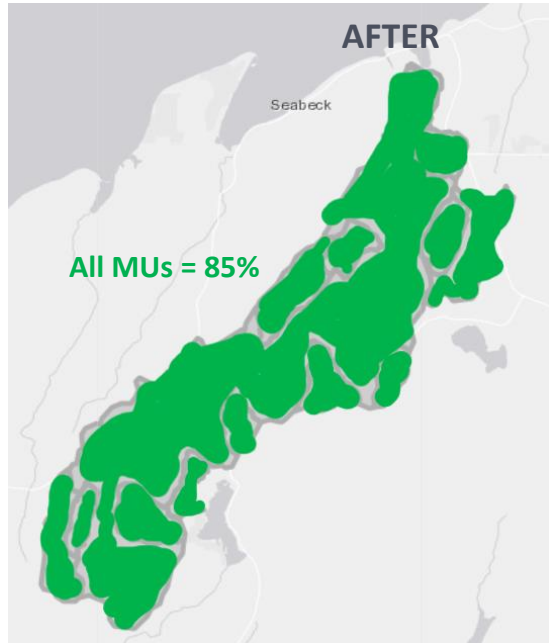
Mature Forest %



- Improve forest cover % in all MUs to 90% and F\_398 to 92%
- Improve mature forest % in F\_398 to 45%
- Cost: \$30,027,785 (High) \*
- **1054** acres of planting and **1491** acres of land acquired to protect
- Who



# Scenario 12 -- Increase forest cover to 85% where below and mature forest to 30% in F\_398



Weighted average based on area of management unit:

Before **54.26 (Medium)**

After **60.48(High)**

- Cost -- \$15,012,000 (High) \*
  - **549** acres of forest planting
  - **672** acres of land acquisition to improve mature forest %
- Who
  - [GPC owned land](#)
  - [DNR managed forest](#)
  - [WDFW owned land](#)
  - KCD
    - Backyard habitat program
    - Other incentives for private landowners

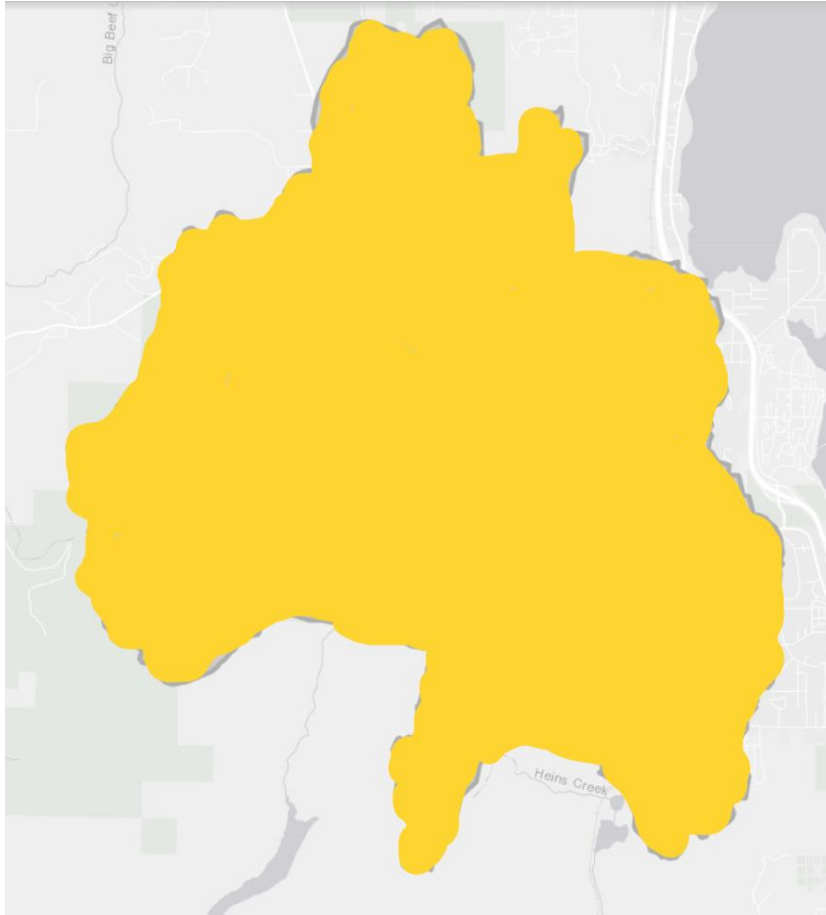
# Summary Slide – Big Beef Creek Forests

SCEN	WHAT	COST	WHO	LOS Improvement	Area Size
9	Increase forest cover by planting 1054 acres of upland forest	\$21,084,678	DNR, WDFW, GPC, other land trusts, private landowners ...	+6.36	
10	Improve mature forest % by acquiring 1491 acres of land for protection	\$8,943,107	DNR, GPC and other land trusts...	+6.84	
11	Scenario 9 and 10 full actions	\$30,027,785	DNR, WDFW, GPC and other land trusts	+13.58	
12	Increase forest % by planting 549 acres, and increase mature forest % by acquiring 672 acres of land for protection	\$15,012,000	KCD, DNR, WDFW, GPC and other land trusts	+6.22	

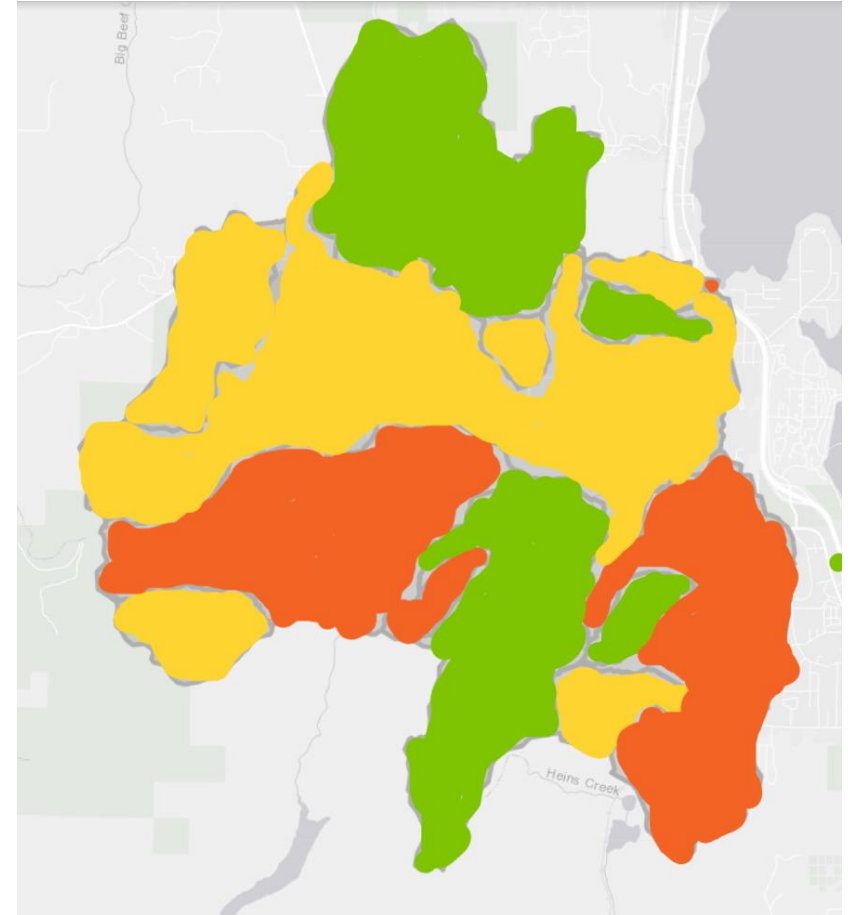
# Scenarios/Strategies - Chico Creek Forests



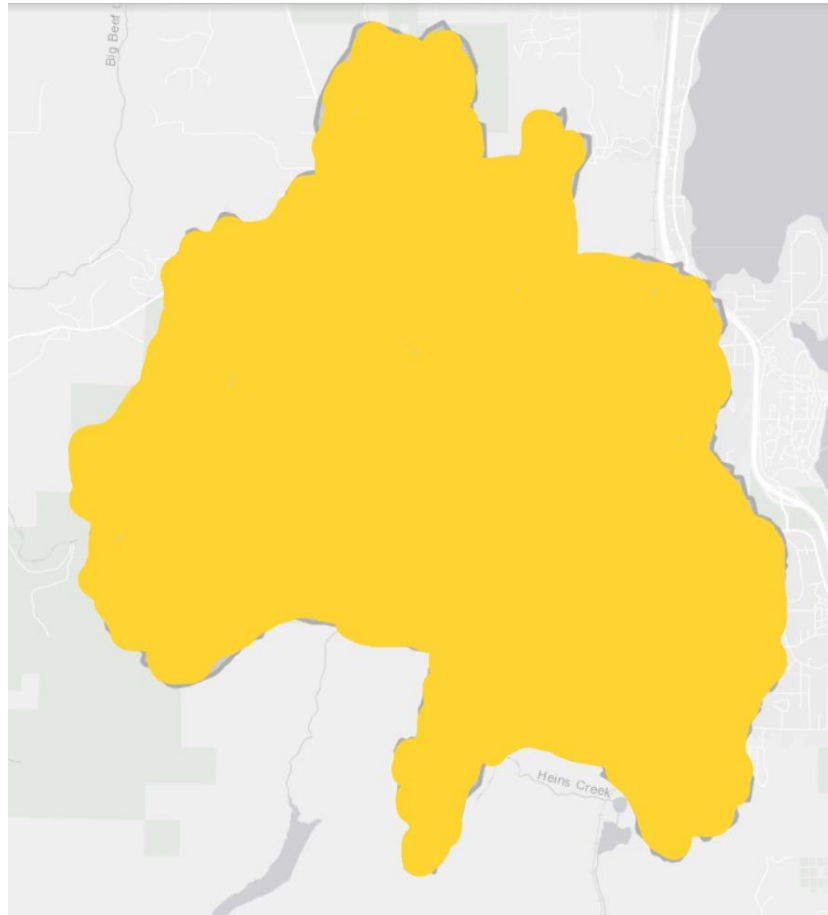
# Current Level of Service



**Overall**  
**High (60-80)**  
**Medium (40-60)**  
**Low(20-40)**



# Weighted score for watershed aggregate



## OCI Scoring

Average across all management units =  
50.44 (**Medium**)

Weighted average based on management  
unit area = 50.06 (**Medium**)

**Chico Creek  
Watershed**

**Aggregate LOS**

**DLOS**

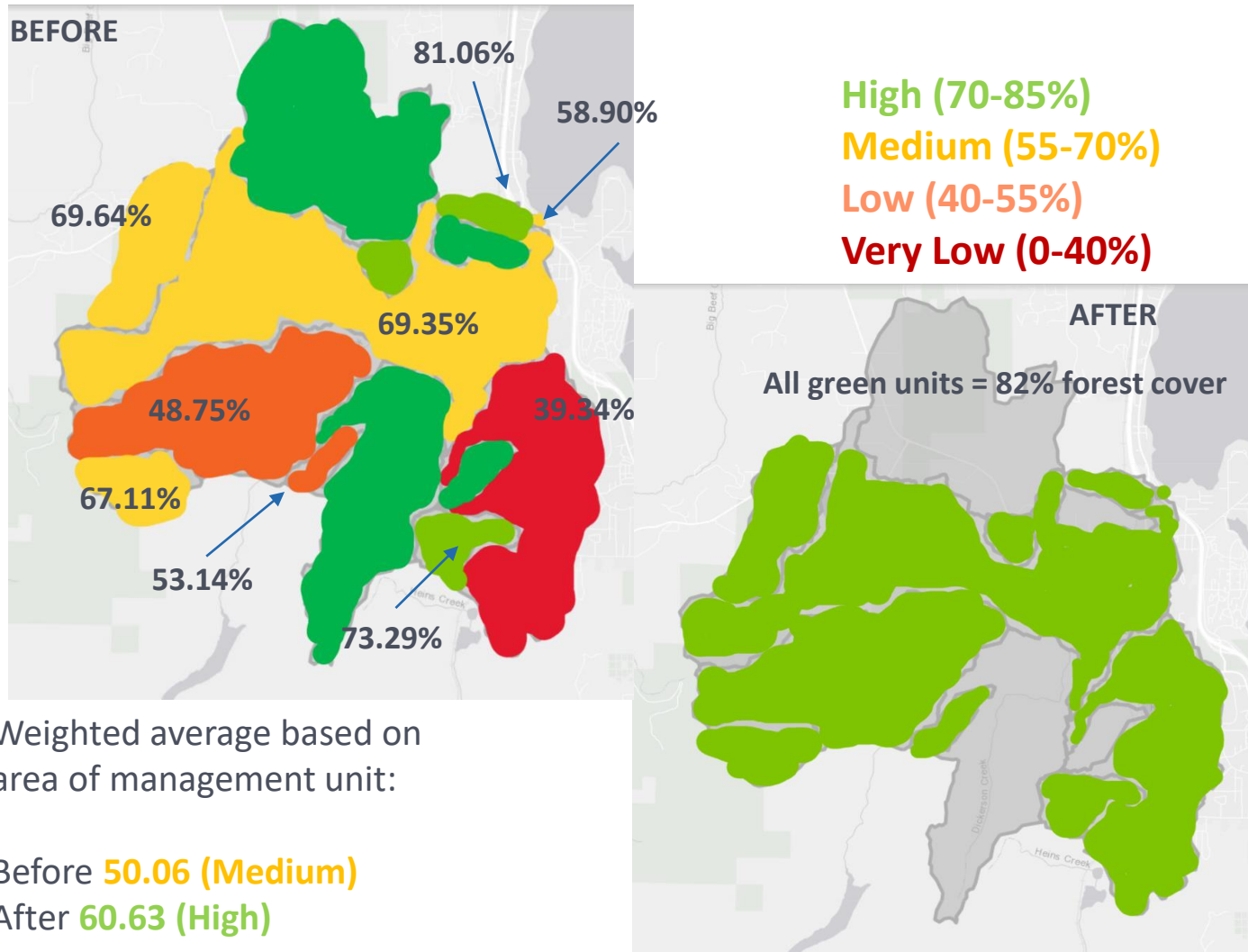
**LOS Gap**

**50.06**

**60**

**9.94**

# Scenario 8 – improve all MUs below 82% forest cover up to 82%

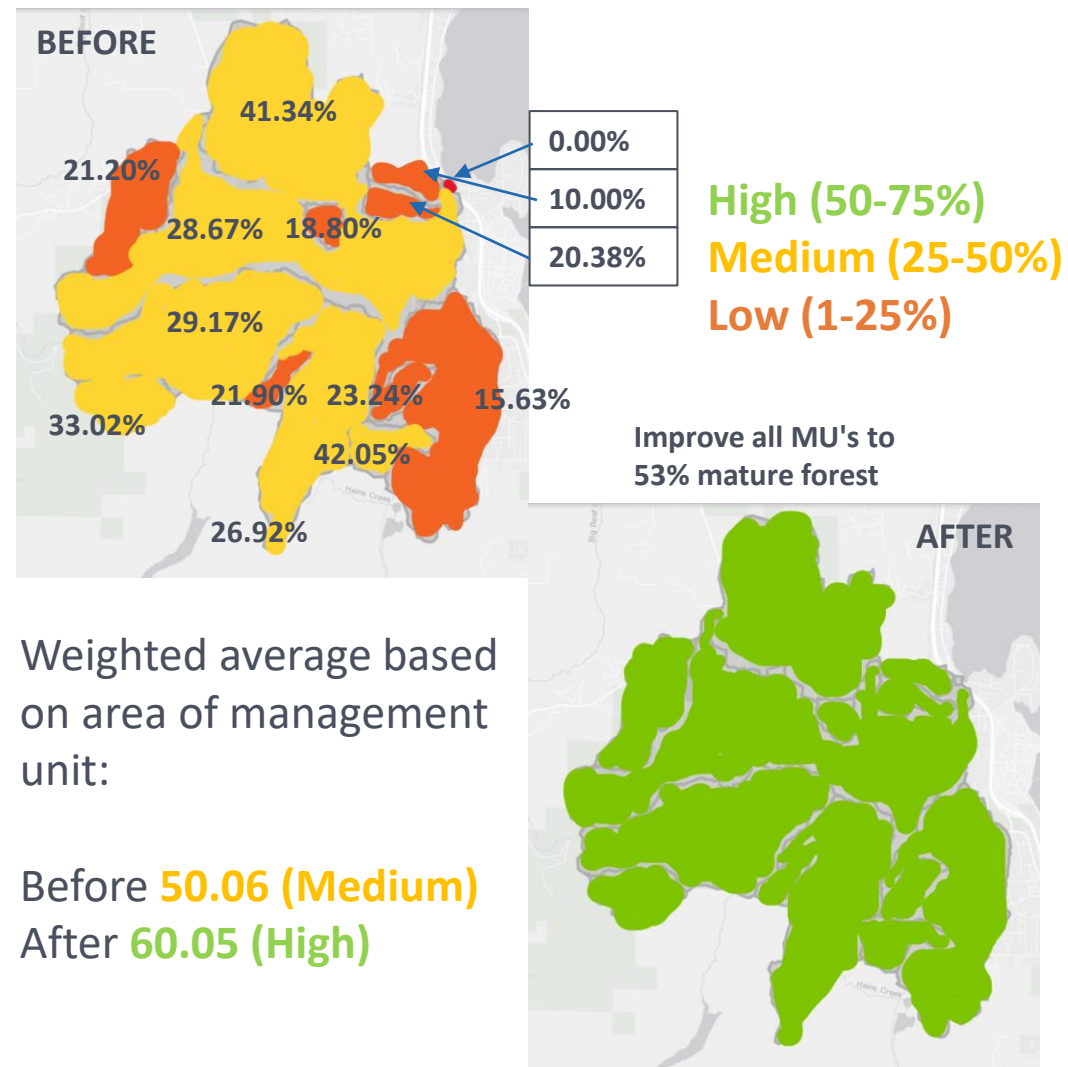


Weighted average based on area of management unit:

Before **50.06 (Medium)**  
After **60.63 (High)**

- Cost: \$9,879,035 (High) (estimated \$20k/acre planting) \*
  - **494** acres of forest planted
- Who:
  - City/County owned land (Erlands Point, Chico Salmon and Newberry Hill Heritage Park)
    - Some City of Bremerton owned land
  - DNR (Green Mountain State Forest)
  - KCD
    - Backyard habitat program
    - Other incentives for private landowners
  - Comp plan tree retention and replacement policies (only within UGAs)

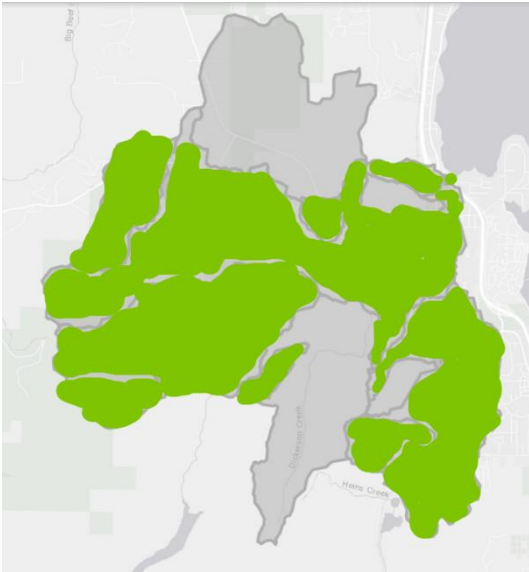
# Scenario 9 – Acquire and protect forest to achieve High LOS across the watershed by improving % mature forest



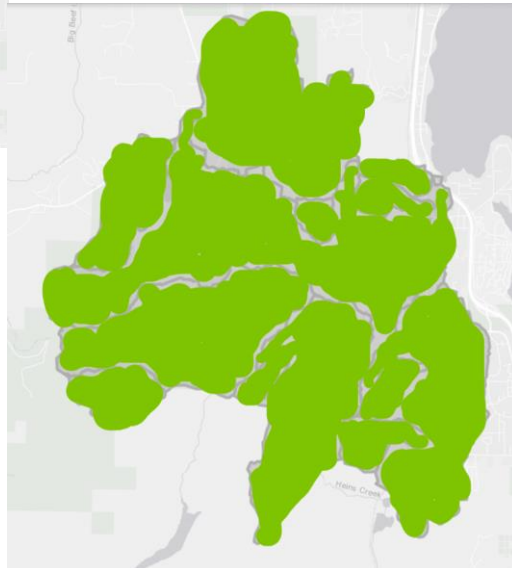
- Cost: \$15,691,145 (High) (estimated \$6k/acre acquisition) \*
  - **2615** acres of land acquired to protect forests growing to maturity (Class E)
- Who
  - Partner with GPC and other land trusts to acquire forest land to protect.
  - Partner with DNR to alter harvesting schedule/area to promote areas to grow to mature forests.
  - Kitsap County Comp plan tree retention policy.

# Scenario 10 – combination of Scenario 1 and 2. What if we did both?

Forest cover %



Mature forest %



Weighted average based on area of management unit:

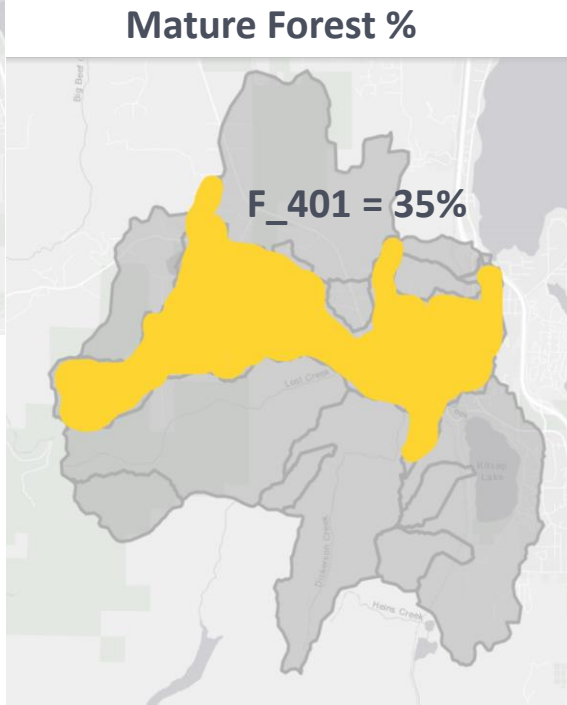
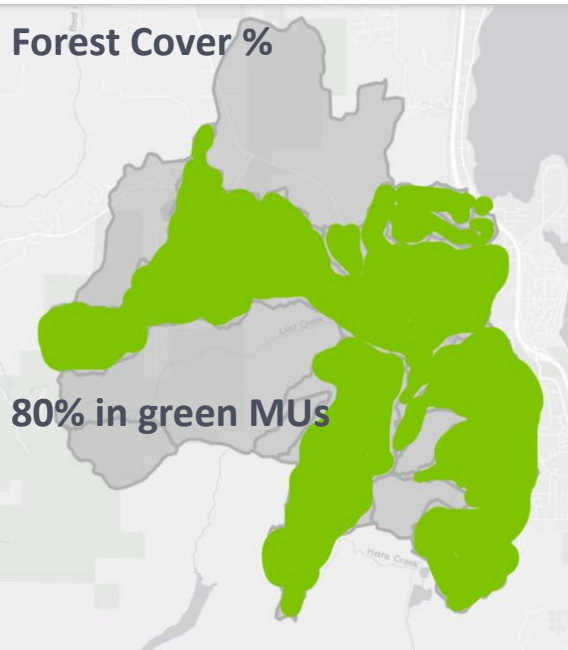
Before – **50.06 (Medium)**

After – **70.62 (High)**

- Improve all forest unit up to 82% forest cover.
- Improve mature forest % to 53% in all units
- Cost \$25,570,180 (High) \*
  - **494** acres of planting and **2615** acres of land acquired to protect.
- Who
  - City and County owned parks
  - DNR
  - KCD
  - GPC and other land trusts



# Scenario 11 -- Improve forest cover to a minimum of 80% in all MUs and mature forest to 35% in F\_401



- Cost: \$8,426,000 (High) \*
  - **367** acres of forest planting
  - **181** acres of land acquired to protect
- Who
  - DNR
  - GPC and other land trusts
  - City and County owned parks
  - KCD

Weighted average based on area of management unit:

Before **50.06 (Medium)**

After **60.40 (High)**

# Summary Slide – Chico Creek Forests

SCEN	WHAT	COST	WHO	LOS improvement
8	Increase forest cover by planting 494 acres of upland forest	\$9,879,035	City of Bremerton, DNR, KCD...	+10.57
9	Improve mature forest % by acquiring 2615 acres of land for protection	\$15,691,145	DNR, GPC, other land trusts...	+9.99
10	Scenario 8 and 9 full actions	\$25,570,180	City of Bremerton, DNR, KCD, GPC and other land trusts	+20.56
11	Increase forest % by planting 367 acres, and increase mature forest % by acquiring 181 acres of land for protection	\$8,426,000	City and County Parks, DNR, GPC and other land trusts, KCD	+10.34

# Timelines for scenarios/strategies

# Shoreline armor removal



Pre work

0 – 3 yrs

3 – 10 yrs

10 – 20 yrs

>20 yrs

Conceptual Design  
Financing  
Design  
Permits  
Contracts

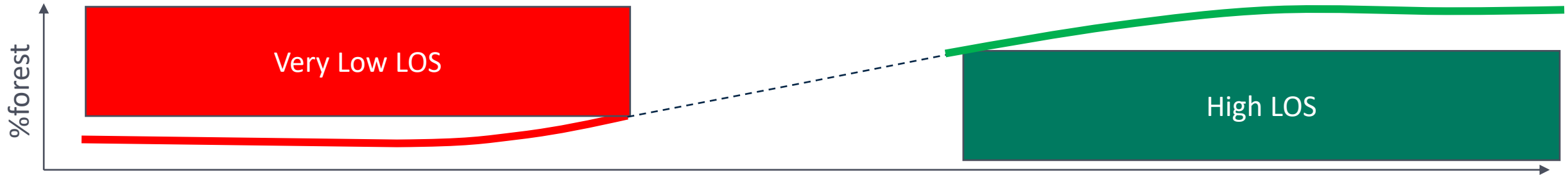
Remove hard armor  
Construct soft shore  
Plantings  
Maintain plants

Nearshore  
environment recovers

Healthy nearshore

Healthy nearshore

# Increase forest cover



Pre work

0 – 3 yrs

3 – 10 yrs

10 – 20 yrs

>20 yrs

Funding  
Project design  
Acquire materials

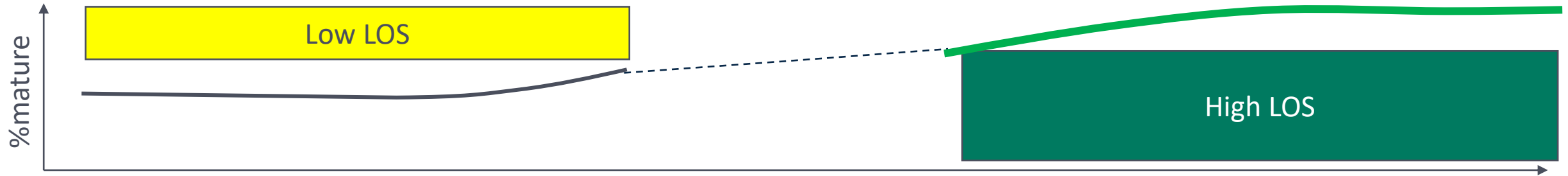
Remove invasives  
Soil conditioning  
Plantings  
Maintain plants

Weeding  
Maintain plants  
Replace plants

Canopy closure  
Conservation thinning

Ecological functions  
emerge

# Increase mature forest



Pre work

0 – 3 yrs

3 – 10 yrs

10 – 20 yrs

>20 yrs

Funding  
Purchase agreements

Conservation thinning  
if needed  
Suppress invasives

Suppress invasives

Suppress invasives

Suppress invasives

# Shellfish growing area status – admin steps



Pre work

0 – 3 yrs

3 – 10 yrs

10 – 20 yrs

>20 yrs

County / state / Tribe meetings to confirm conditions

Monitoring Shellfish harvests

Monitoring Shellfish harvests

Monitoring Shellfish harvests

Monitoring Shellfish harvests

# Shellfish growing area status – PIC program



Pre work

0 – 3 yrs

3 – 10 yrs

10 – 20 yrs

>20 yrs

Project design  
Funding

Conduct PIC program  
Correct problems  
Financing

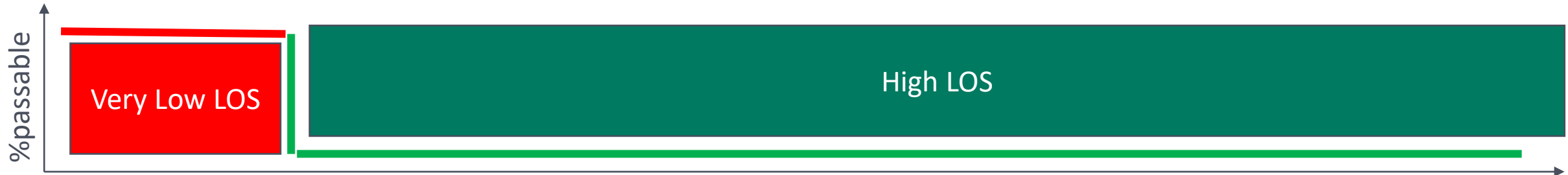
Monitoring  
Shellfish harvests

Monitoring  
Shellfish harvests

Monitoring  
Shellfish harvests



# Fish passage barrier removal



Pre work

0 – 3 yrs

3 – 10 yrs

10 – 20 yrs

>20 yrs

Conceptual Design  
 Financing  
 Design  
 Permits  
 Contracts

Remove barrier  
 Plantings  
 Maintain plants

Downstream  
 environment recovers

Fish passage

Fish passage



# Core Team Updates

- Suquamish Tribe
- Port Gamble S’Klallam Tribe
- Kitsap County



**Thank you!**