

# Case Studies of Monitoring Programs

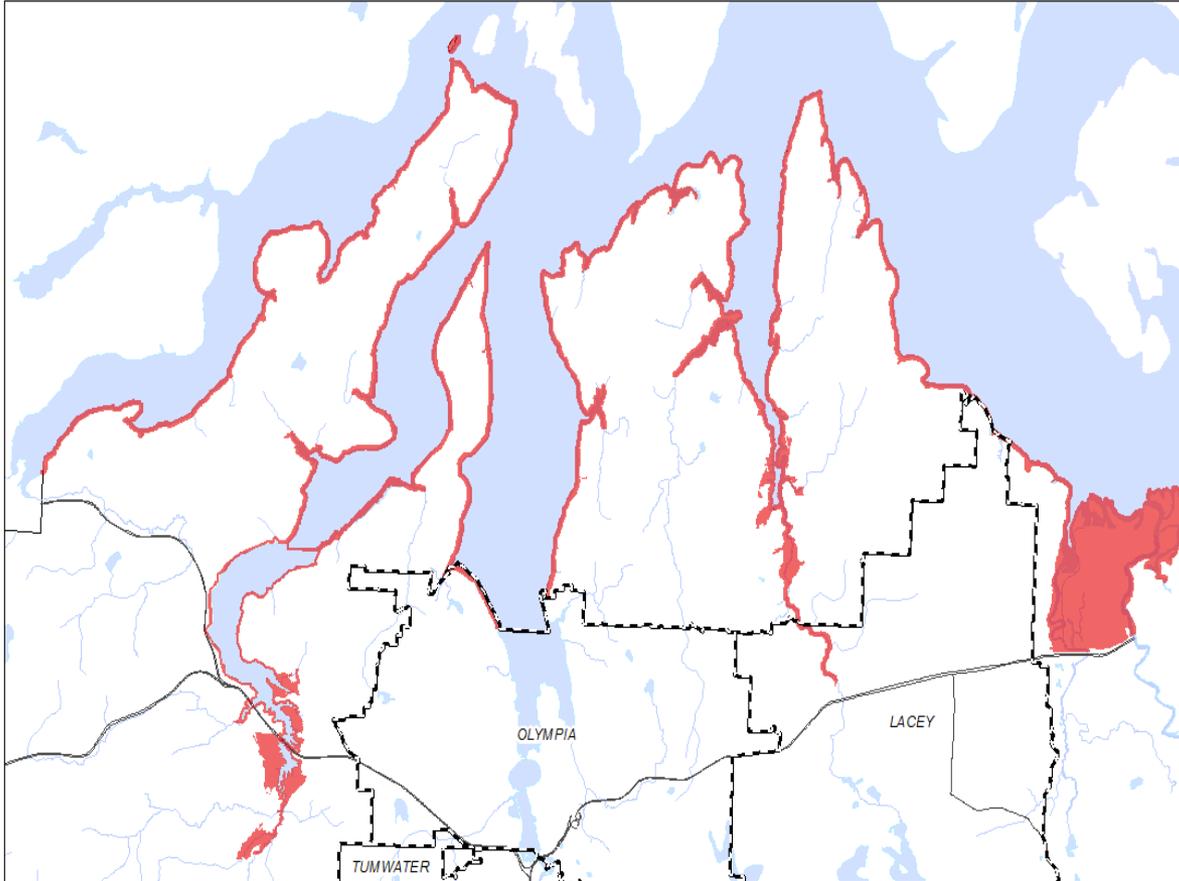
## Retroactive evaluations:

- San Juan County Initiative
  - Jefferson County
  - WDFW Hydraulic Project Approvals
  - Snohomish County
  - Thurston County
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- The diagram consists of two blue brackets. The first bracket is positioned to the right of the first three items in the list (San Juan County Initiative, Jefferson County, and WDFW Hydraulic Project Approvals) and points to the text 'Permit records, site visits'. The second bracket is positioned to the right of the last two items (Snohomish County and Thurston County) and points to the text 'Remote sensing component'.
- Permit records,  
site visits
- Remote sensing component

## Ongoing compliance monitoring

- City of Kirkland
- Ecology Wetland Regulatory Effectiveness
- US Army Corps Mitigation Compliance

# Thurston County



## Marine SMP Study Area in Thurston County, WA



### Legend

-  Marine SMP
-  UGA Boundaries

0 1 2 3 4 Miles



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Measure change in the marine SMP area using WDFW High Resolution Change Detection

Pilot test of HRCD to measure compliance

6-year retroactive study of permits

# Total change in shoreline

Super easy

Year	Sum of Total Change	Sum of Canopy Loss	Sum of Impervious Gain	Sum of Semi-Impervious Gain
2006-2009	3.37 acres *	2.14 acres	1.56 acres	0.19 acres
2009-2011	3.91 acres *	2.47 acres	1.15 acres	0.28 acres
2011-2013	4.23 acres	3.14 acres	0.80 acres	0.32 acres
<b>Grand Total</b>	<b>11.52 acres</b>	7.75 acres	3.51 acres	0.79 acres

< ½ of 1% of total marine area

\* Acreage change due to Nisqually Restoration Project removed (~26 ac)

# Change by Environment designation

Environment Designation	Total Change (acres)	Canopy Loss (acres)	Impervious Gain (acres)	Semi-Impervious Gain (acres)
Conservancy	4.27	3.38	0.77	0.27
Natural	0.02	0.02	0.02	0
Rural	7.22	4.34	2.72	0.52
<b>Grand Total</b>	<b>11.52</b>	<b>7.75</b>	<b>3.51</b>	<b>0.79</b>

7.05 acres per 1,000 acres of **Rural** designation changes

2.33 acres per 1,000 acres of **Conservancy** designation changes

0.68 acres per 1,000 acres of **Natural** designation changes

$$\frac{\text{acreage of total change in Natural area in marine SMP from 2006–2013}}{\text{acreage of Natural designation in marine SMP}} * 100$$

# Unpermitted events

Tedious and difficult

No “developments” were out of compliance... (some development doesn't need a permit)



2006-2009

2006-2009

2009-2011

2011-2013

## 38 unpermitted events

- 16 tree removal
- 6 development
- 2 redevelopment
- 13 natural
- 1 non-natural

75 events total

## 9 unpermitted events

- 8 tree removal
- 1 development

50 events total

## 24 unpermitted events

- 14 tree removal
- 4 development
- 3 natural
- 1 non-natural
- 1 forestry
- 1 stream

71 events total

# Ecology Wetlands Evaluation Program

## Site inspections

- As-built
- Mid-monitoring
- End of monitoring (*10 years*)

## Formal follow-up letters

## Review reports

- Track deadlines
- Ensure reports have complete information per Ecology's Order



Element	What to Look For (add in specifics from order, mitigation plan, and/or as-built)	Comments or Deviations from the Plan/Permit	Follow-up / Contingency	For Administrative Use
<b><i>On-the-Ground Elements</i></b>				
1.	Grading	<i>(for example, slopes, elevations, topographic features, microtopography, soil treatment)</i>		
2.	Water/ hydroperiod	<i>(for example, water-control structures, specified water regime, wetland hydrologic indicators)</i>		
3.	Planting	<i>(including: presence, numbers, location, spacing, and size of planted or seeded vegetation species or plant communities; plant protectors, irrigation)</i>		
4.	Management/ control of invasive species	<i>(for example, mowing, rolling, spraying, covering with plastic)</i>		
5.	Habitat features	<i>(for example, nest boxes, snags, stumps, LWD, brush piles)</i>		
6.	Required acreage of mitigation	<i>(Does mitigation area appear to be the appropriate size?)</i>		
7.	Other	<i>(for example, buffers, signs, fences, trails)</i>		



# Wetlands Program Benefits



**Increased mitigation success:** work with the applicant to address issues that would result in site failure.

**Improved permitting decisions:** lessons learned during site visits can be applied to review of current mitigation proposals.

**Voluntary compliance:** improves when people expect oversight (less time needed to check on every project)

Improved **consistency and predictability** by standardizing permit conditions or project plan requirements

# Kirkland tracking spreadsheet

A prescriptive SMP, with a quantitative tracking protocol.

Cumulative Impact Analysis was quantitative in its predictions.

City keeps running tally of indicators on spreadsheet.



## 2. Pier and Docks Standards

### B. Replacement Piers and Major Repairs

- Major repair = >50% of pilings and decking/stringers.
- **Mitigation =**
  - Existing skirting removed
  - Remove other in-water structures 30' of OHWM
- **Dimensional standards** same as new pier, except pier area & expedited review by Corps, OR

# Kirkland

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P		
1	PLEASE READ TUTORIAL TAB FIRST																	
2																		
3					NATIVE VEGETATION (SQ FT) WITHIN SHORELINE SETBACK													
4	ADDRESS	PERMIT# OR DATE	APPLICANT NAME	PLANNER	# OF TREES REMOVED	# TREES RETAINED	# OF TREES PLANTED	SHRUBS	GROUND COVER	LAWN	REMOVAL OF LAWN	REMOVAL OF ORNAMENTAL	REMOVAL OF INVASIVE	AQUATIC VEGETATION	MITIGATION FOR TREE REMOVAL	MITIGATION FOR 83.550.5.B.5 (10%) SQ FT		
5	XXXX Lake Washington Blvd	BLD10-00500	DOE	CPG														
6	XXX Lake Ave West	BLD10-00314	SMITH	CPG	0		0	0	0	0	0	0	0	0				
7	XXXX Lake Ave West	BLD11-00181	JONES	CPG		1	3	500	300	809	720	280	0	65				
8	XXXXX Holmes Point Road	BLD11-00431	JOHNSON	CPG	0		7	600	400	2280	0	0	0	0				
9	XXXXX Champagne Pt Rd SE	BLD11-00534	TAYLOR	CPG	0		3	365	170	950	535	0	0	0				
10	XXXX NE 154th St	BLD11-00351	JACKSON	CPG														
11	XXXX SW 166th	BLD11-00350	JAMES	CPG														
12	XXXXX Champagne Pt Rd NW	MIS11-00006	DAWES	CPG	0		0	0	0	0	0	0	0	0				
13	XXX Lake Ave West	SHR11-00004	BAILEY	CPG														
14	XXX Lake Ave West	BLD11-00109	BRONSON	CPG	0		0	0	0	0	0	0	0	0				
15	XXXXX Holmes Point Road	1/10/2012	GLASS	CPG														
16	XXX Lake Ave West	BLD11-00462	SIMS	STL			6	6	90	632	400	990	0	0	Y	N		
17	XXXX Rose Point Lane	BLD11-00689	RIVERA	CPG														
18	Marina Park Pier	exemption	City	TJS														
19		0	0	0	0													
20		0	0	0	0													
21		0	0	0	0													
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46		0	0	0	0													

Example facts from spreadsheet:

- 9,800 sf of solid pier decking removed.
- 12,400 sf grating, replacing solid decks
- 1,100 feet of skirting removed from piers.
- 48' of bulkhead replaced with soft shore