

Case Studies and Other Data Sources/Resources

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February 27, 2018
Seattle Workshop



Case Studies of Monitoring Programs

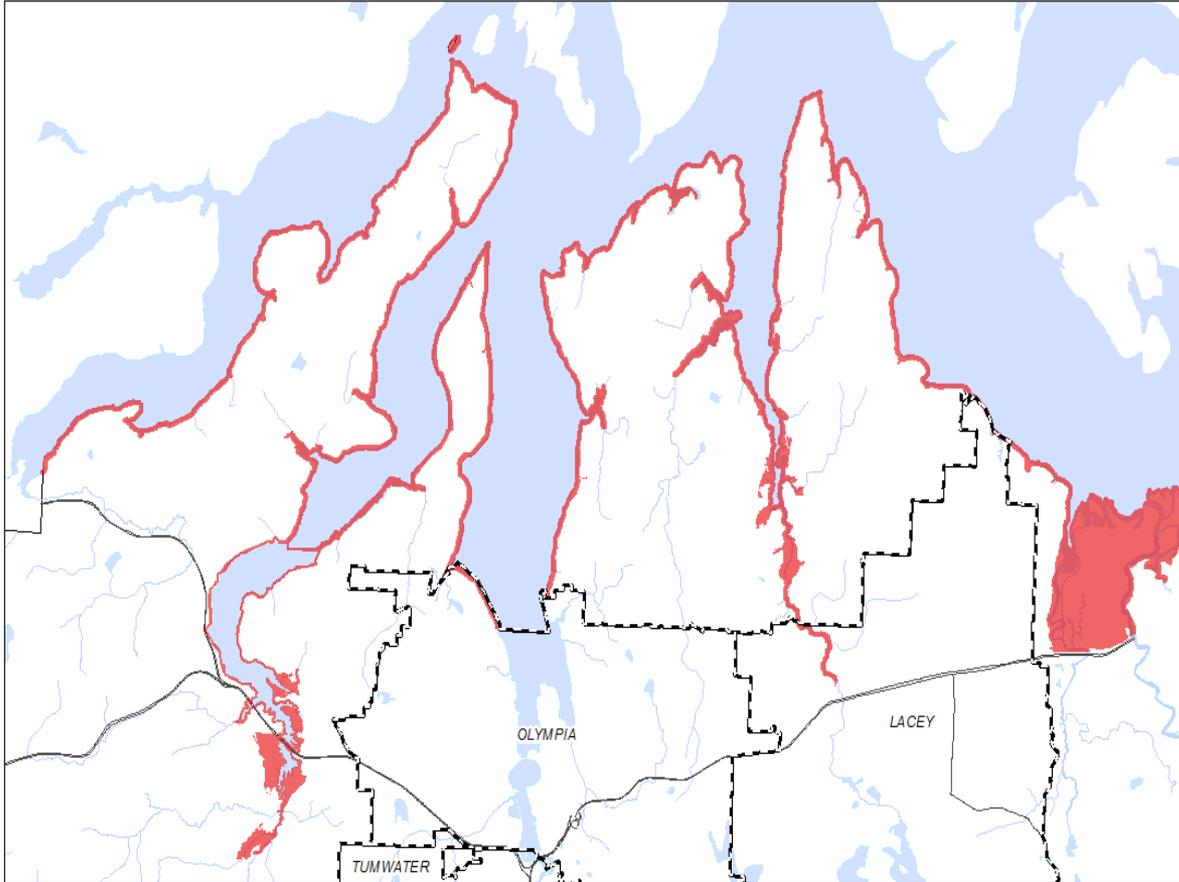
Retroactive evaluations:

- San Juan County Initiative
 - Jefferson County
 - WDFW Hydraulic Project Approvals
 - Snohomish County
 - Thurston County
-
- 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'.

Ongoing compliance monitoring

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

Thurston County HRCD pilot project

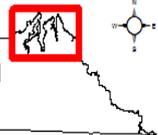


Measure change in the marine SMP area using WDFW High Resolution Change Detection

Pilot test of HRCD to measure compliance

6-year retroactive study of permits

Marine SMP Study Area in Thurston County, WA



Legend

- Marine SMP
- UGA Boundaries

0 1 2 3 4 Miles



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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
Grand Total	11.52 acres	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

Easy math!

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
Grand Total	11.52	7.75	3.51	0.79

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

38 unpermitted events

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

75 events total

2006-2009

2011-2013

2009-2011

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

** 401 WQ certifications for compensatory mitigation projects*



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
<i>On-the-Ground Elements</i>				
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

New Guidance: Local Buffer Compliance



Characterizing Wetland Buffers in Washington State

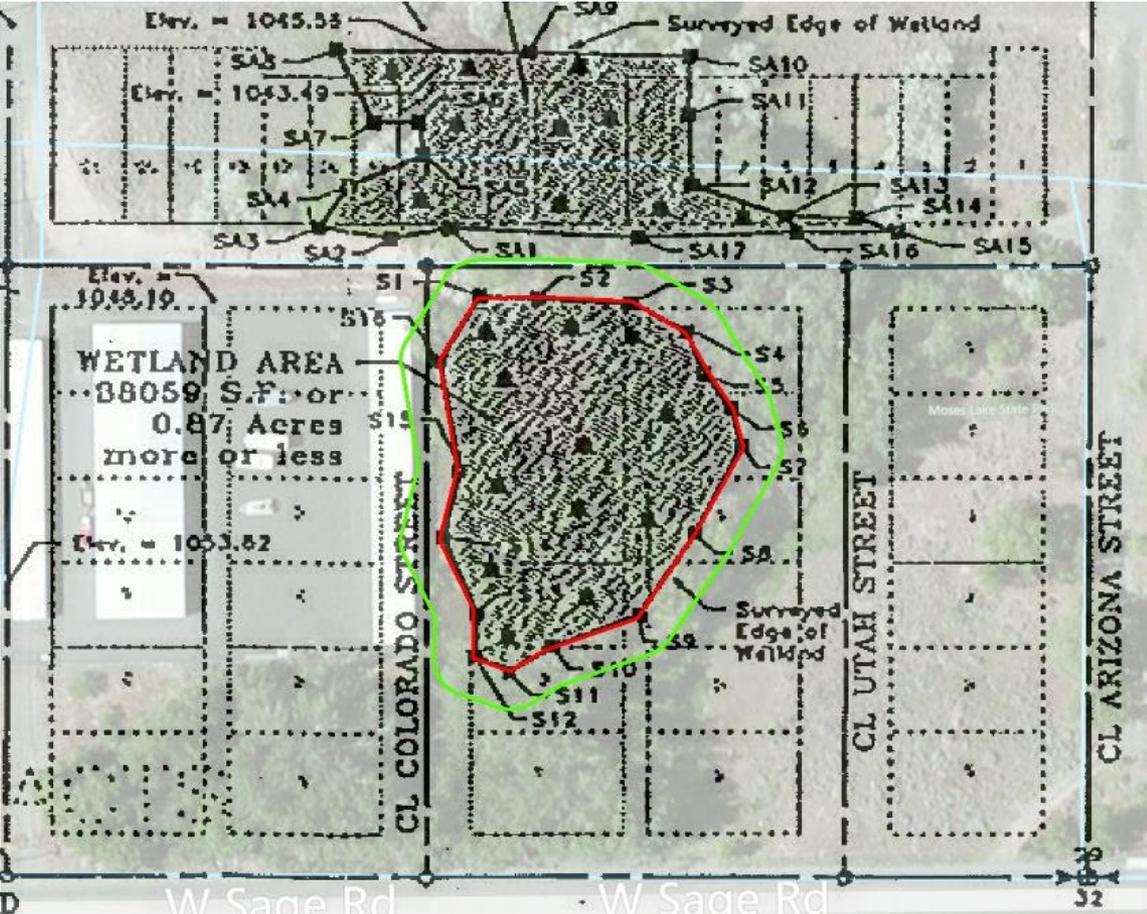
September 2017
Publication No. 17-06-008

Outlines **steps** for characterizing how well regulations are protecting buffers.

Based on pilot of 10 random projects from:

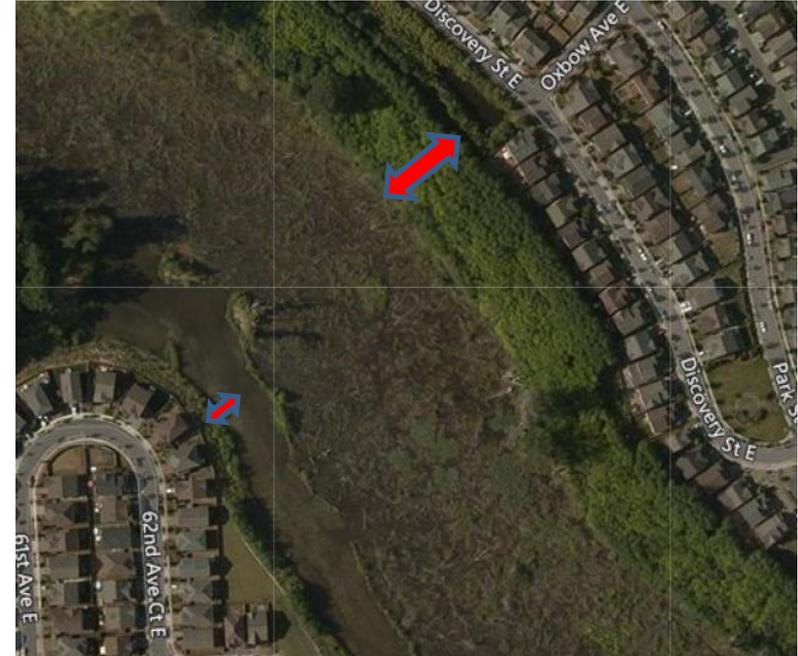
- Pierce County
- Tacoma
- Marysville
- Moses Lake

Review Permits, Assess Sites



Compare Permit Requirements to CAO

Wetland Category	Buffer width (in feet) based on habitat score			
	3-4	5	6-7	8-9
Category I: Based on total score	75	105	165	225
Category I: Bogs and Wetlands of High Conservation Value	190			225
Category I: Coastal Lagoons	150		165	225
Category I: Interdunal				225
Category I: Forested	75	105	165	225
Category I: Estuarine	150 (buffer width not based on habitat scores)			
Category II: Based on score	75	105	165	225
Category II: Interdunal Wetlands	110		165	225
Category II: Estuarine	110 (buffer width not based on habitat scores)			
Category III (all)	60	105	165	225
Category IV (all)	40			



- Was permit issued according to CAO requirements?
- Was buffer width more or less protective than basic CAO buffer?

Is justification for changes documented?

Consistent w/CAO criteria?

Compare Permit to Built Conditions



Is vegetation management consistent?
Fencing?



Signage?

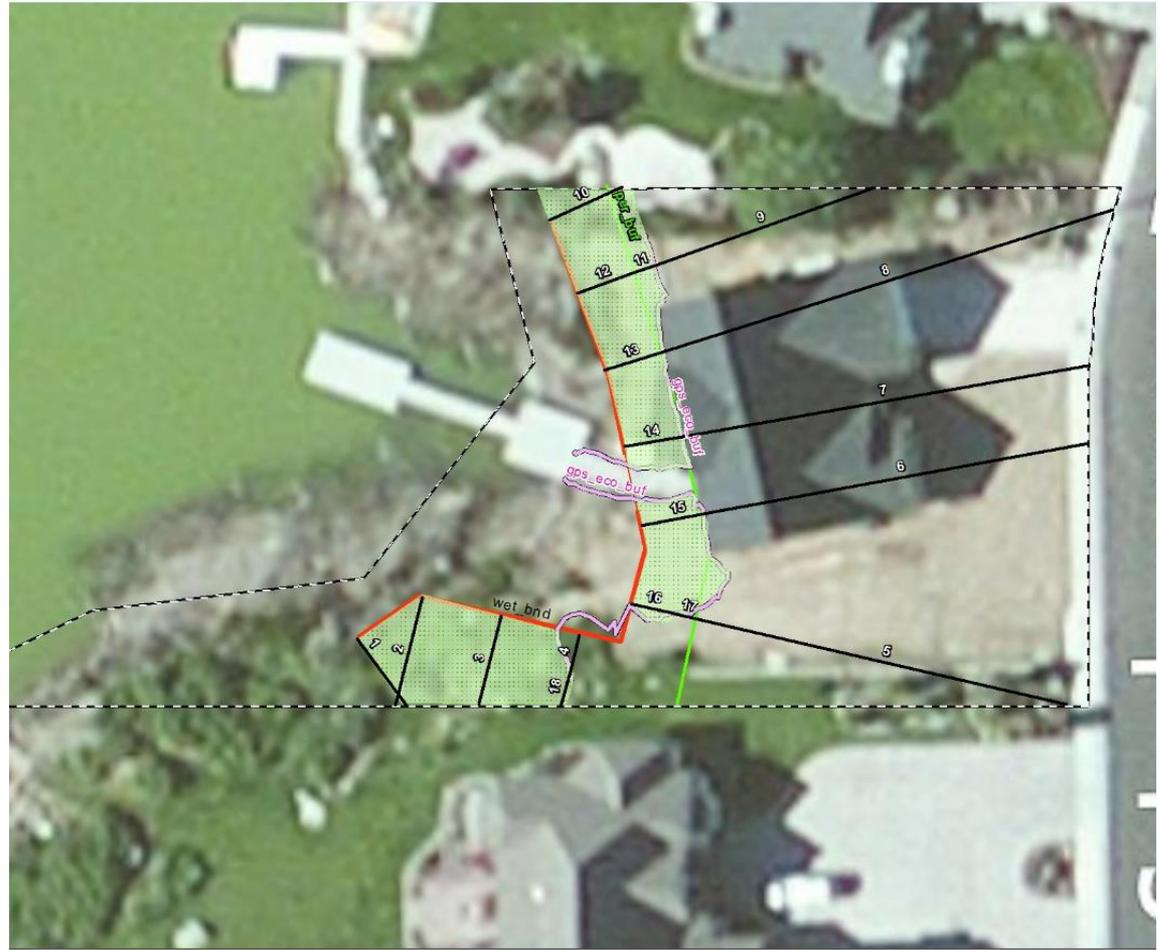
Characterize Ecological Condition of Buffer

% of wetland edge adjacent to “ecologically significant buffer”

Width of ecologically significant buffer

Area of ecologically significant buffer

What are dominant stressors?



Methods, Forms

Worksheet For Reviewing a Permit

Permit # _____
 Date of permit _____ Date of CAO in effect when vested _____
 Date of Review _____ Reviewed by: _____

Category of wetland for which permit is required

- Category I _____
- Category II _____
- Category III _____
- Category IV _____
- Other _____

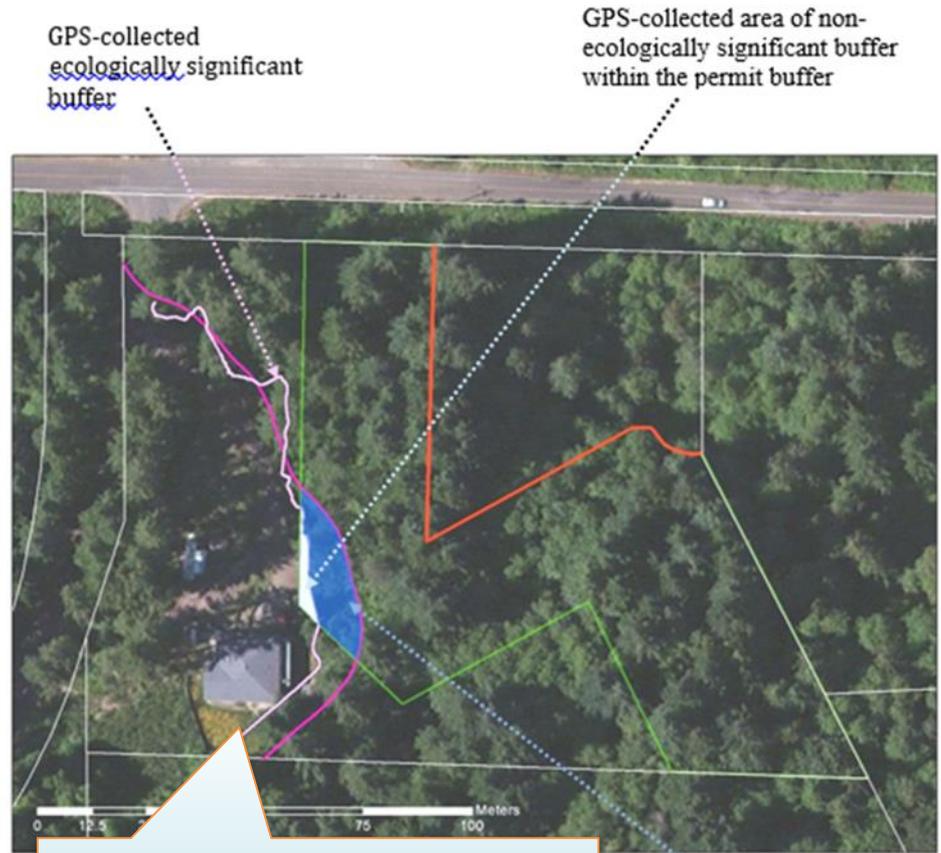
Basic buffer width specified in the permit _____ (including adjustment for habitat points and impact-reducing measures if properly documented) (N/A if not discussed in permit)

Allowable discretionary changes to buffer width

- Averaging _____ how much _____
- Reduction if enhanced _____ how much _____
- Increases for _____ what conditions _____
- Other _____

Other requirements _____
 Erosion control _____
 Sedimentation _____
 Signage _____
 Fencing _____
 Other _____

Includes samples of forms used in these steps.



Includes an example of a GIS/GPS-based method to collect data

Area of non-ecologically significant buffer from review of aerial photos

New: Guide for Using Ecology Air Photos



DEPARTMENT OF
ECOLOGY
State of Washington

Washington Oblique Aerial Photography



September 2017
Publication no. 17-06-026

1997



2002



2006



2016



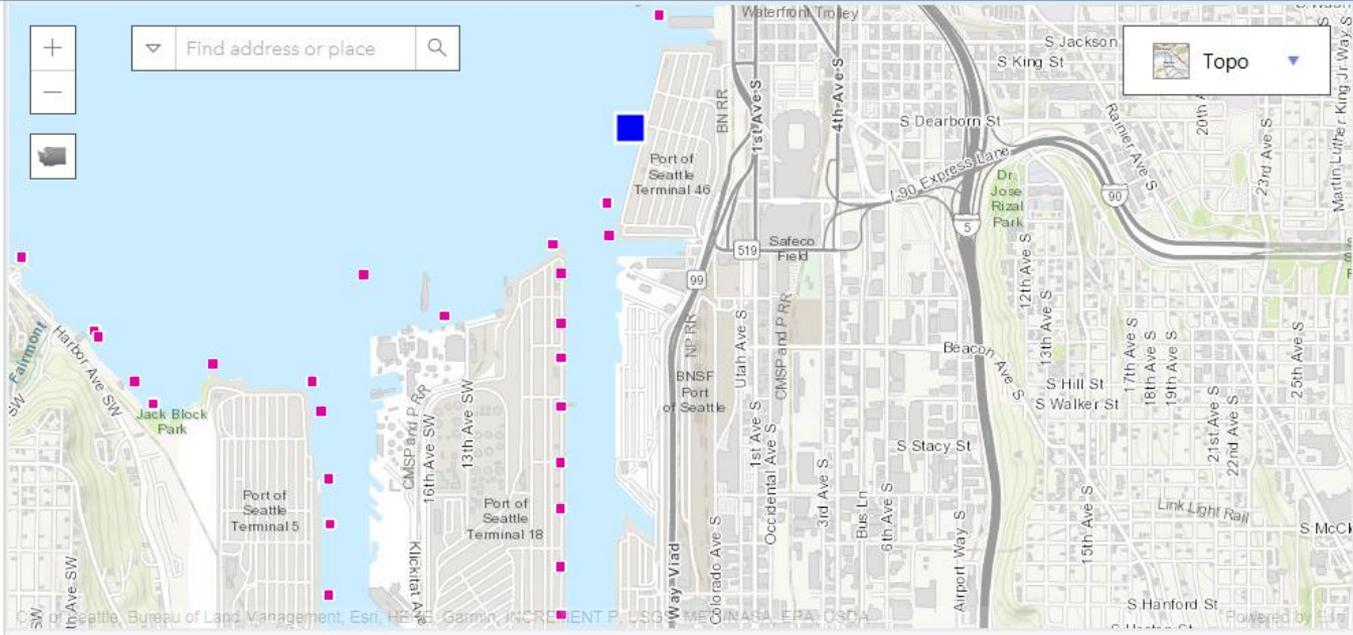
Choose a photo series:

- 2016-17
- 2006-07
- 2000-02
- 1992-97
- 1976-77

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Elliott Bay (7/29/2016)

2016

[Back](#)



2006

2000

1990



1970

