

Habitat Structure and Hydrology 2016 Preliminary Results

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What We Measured

- ▶ Hydrology
- ▶ Temperature
- ▶ Photo Points
- ▶ Elevation
- ▶ Sediment Accretion
- ▶ Vegetation Cover
- ▶ Vegetation Community
- ▶ Primary Production



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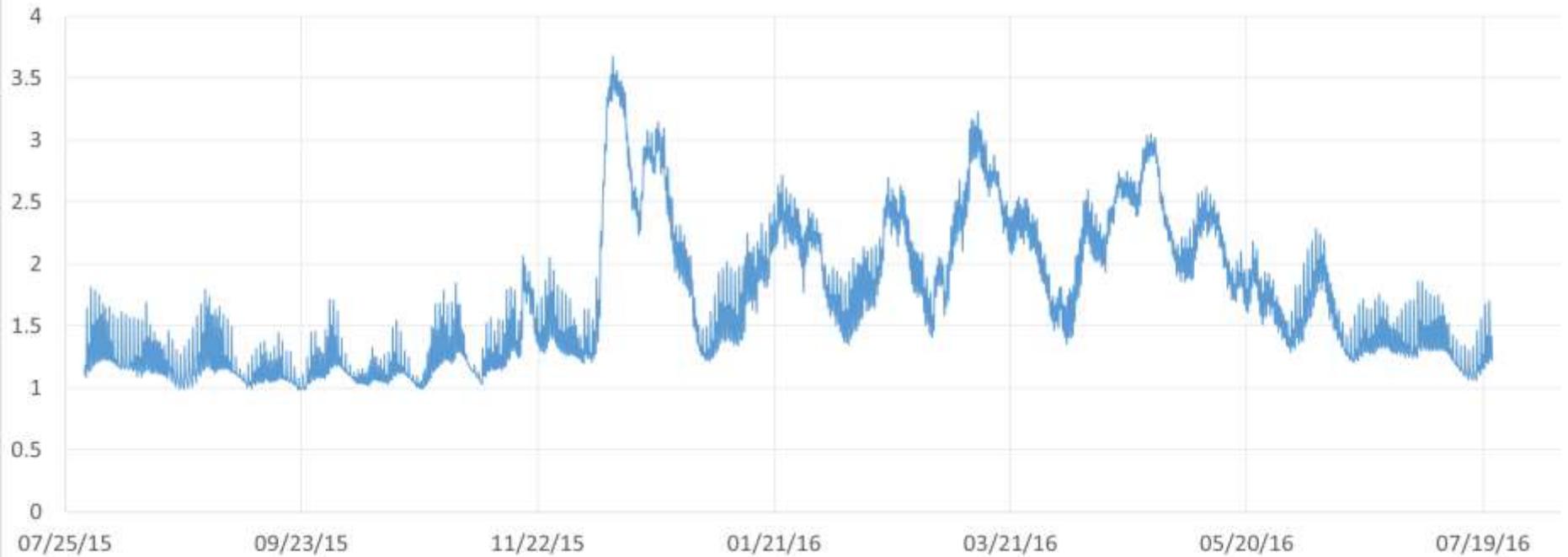
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Hydrology

Campbell Slough WL Elev (m, CRD)



Overall Impressions

■ Vegetation is lush at all sites, except Baker Bay

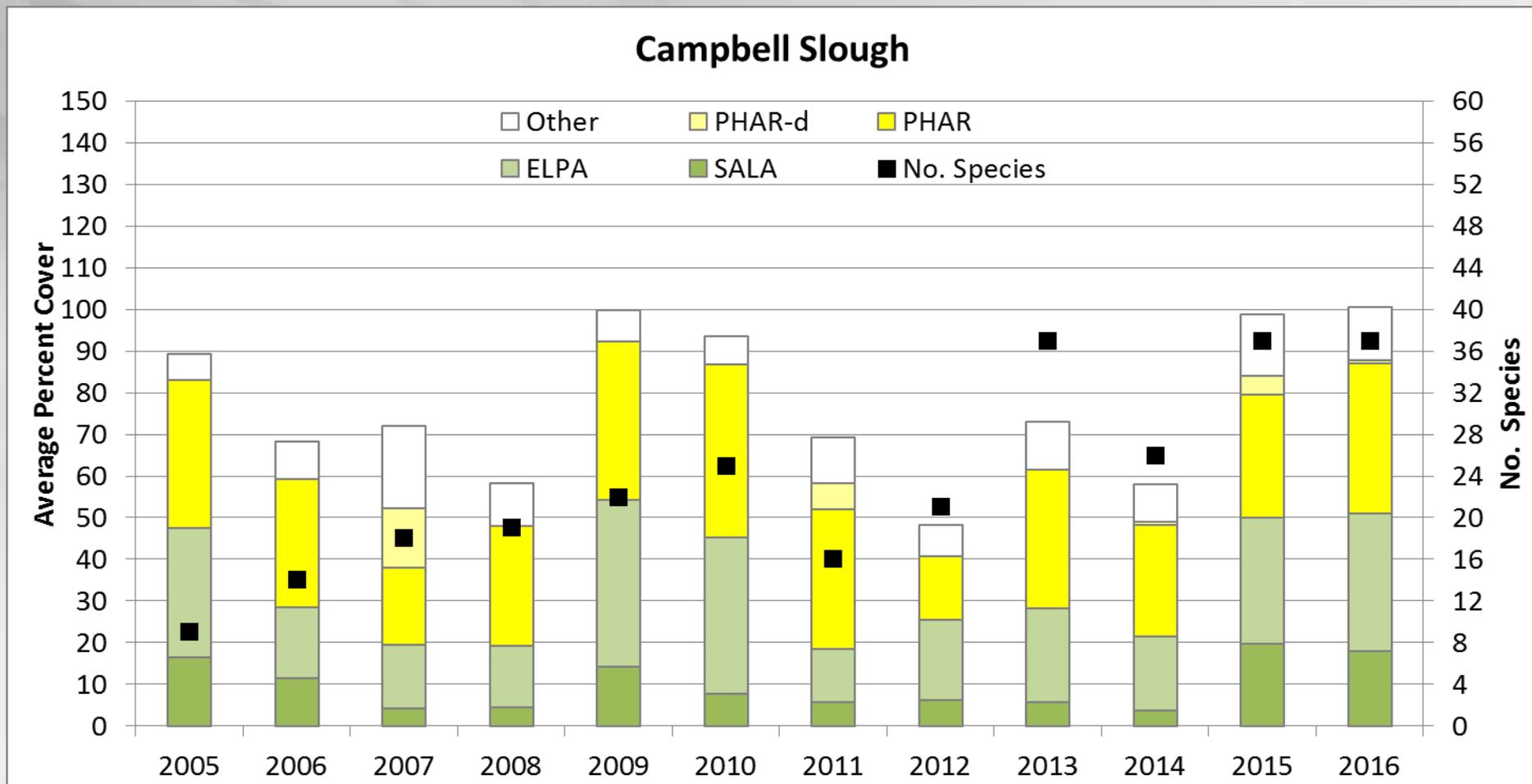
- Baker Bay appeared to be dying back, past the peak
- Water smartweed (*Polygonum amphibium*) very dominant at Franz Lake
- Wapato tall and dense at Cunningham and Campbell Slough
- First year since 2005 that wapato covered much of the “Lake”
- Reed canarygrass still dominant, not affected by hydrology either way

■ Beaver dam is back at Franz Lake

- Farther down channel
- Lower willow cover
- More ponded water behind dam

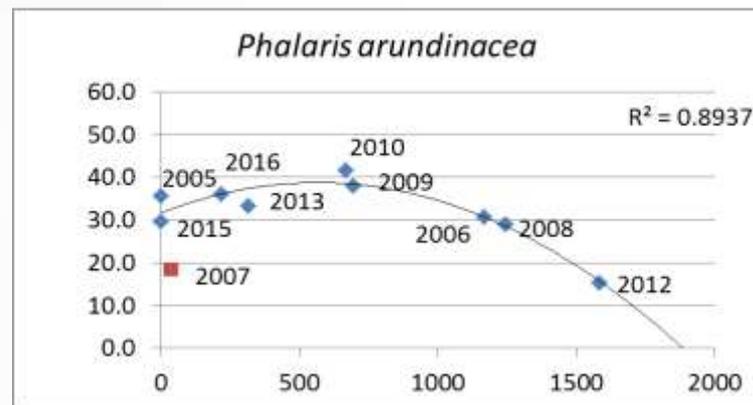
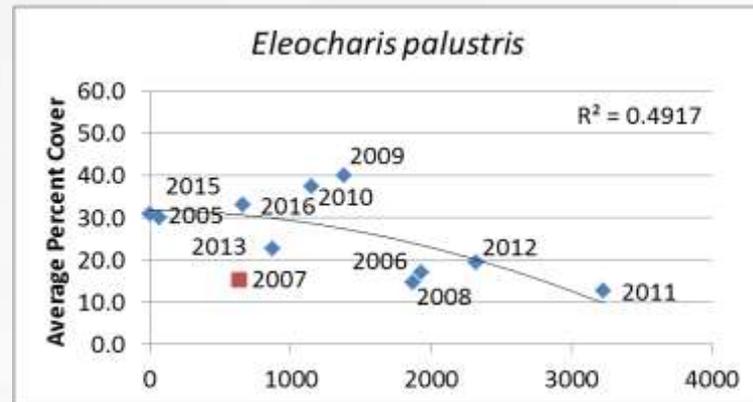
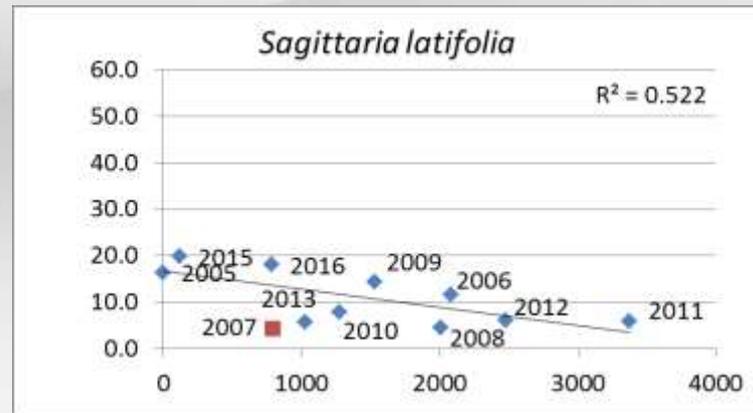


Vegetation Cover



Vegetation Cover

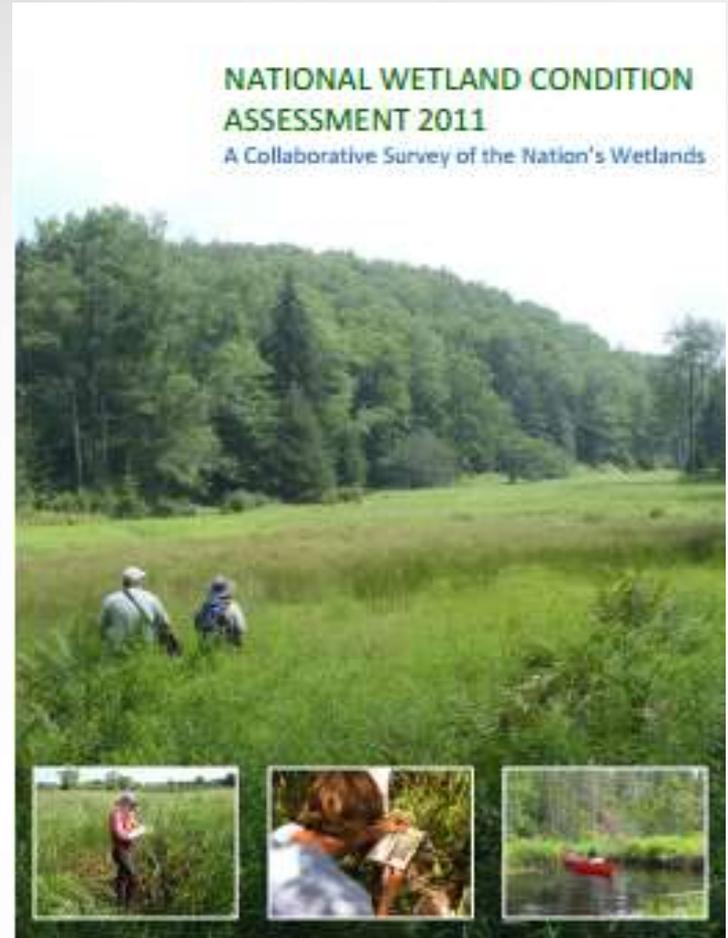
- ▶ Wapato responds favorably to lower inundation levels
- ▶ Spikerush more variable, but generally higher cover with lower inundation
- ▶ Reed canarygrass seems to peak at moderate inundation levels, though still relatively high cover at low levels



Inundation (SEV, m/growing season)

National Wetland Condition Assessment

- ▶ For Vegetation used a multi-metric index (VMMI)
 - Floristic Quality Assessment Index (FQAI)
 - Relative Importance of native species
 - Number of species tolerant to disturbance
 - Relative cover of native monocots



Mary Kentula et al., EPA 2016

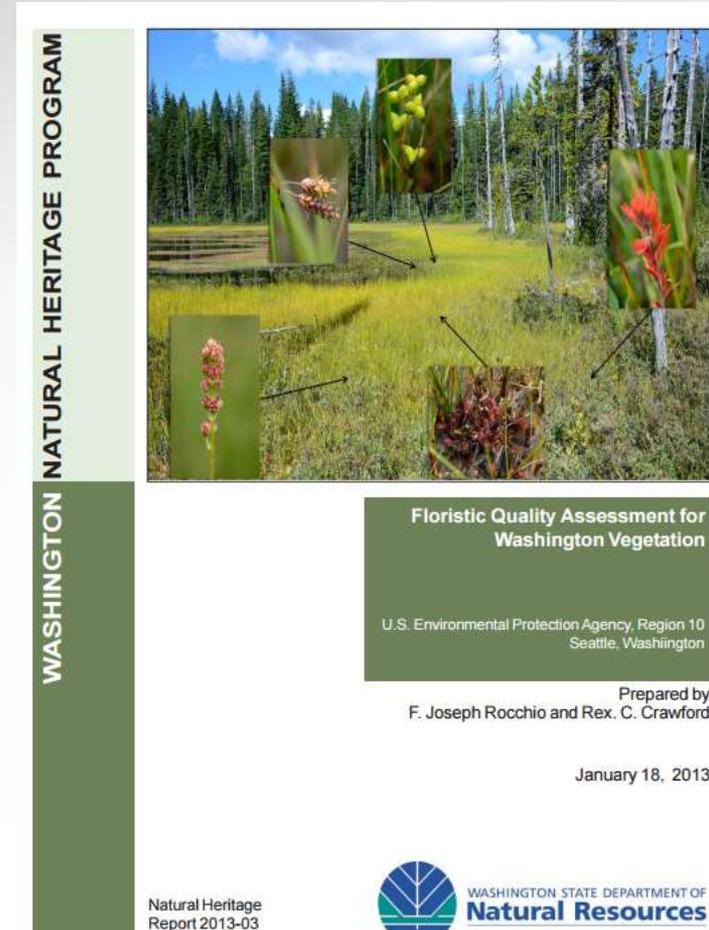
Floristic Quality Assessment



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- ▶ Coefficient of Conservatism (C-value): An assigned value describing the tendency of an individual plant species to occur in disturbed versus pristine conditions.
- ▶ Values are state or regionally specific and scaled from
 - 0 = non-natives or widespread, generalist species that thrive under disturbed conditions
 - 10 = occur in specific habitats that are minimally disturbed
- ▶ FQA database (>2700 species)
- ▶ FQA calculator $\left(\frac{\overline{Cn}}{10} * \frac{\sqrt{N}}{\sqrt{S}} \right) * 100$



<http://www1.dnr.wa.gov/nhp/refdesk/communities/fqa.html>

C-Values for LCRE species

C-Value	Number of species	Percent of species
0	98	28%
1	8	2%
2	19	5%
3	67	19%
4	87	25%
5	32	9%
6	14	4%
7	10	3%
8	3	1%
9	1	0%
no value	15	4%
Total	354	

Species	Common name	C-Value
<i>Carex lyngbyei</i>	Lyngbyei sedge	5
<i>Eleocharis palustris</i>	Common spikerush	4
<i>Phalaris arundinacea</i>	Reed canaygrass	0
<i>Polygonum amphibium</i>	Water smartweed	4
<i>Sagittaria latifolia</i>	Wapato	7

Floristic Quality Assessment

Site	BBM	SRM-L	SRM-H	WI2	WHC	CLM	CS1	FLM
Mean C (native species)	5.2	4.2	4.1	4.2	4.1	3.9	3.8	4.0
Mean C (all species)	4.5	3.8	3.2	3.4	3.1	3.2	2.4	3.0
Mean C (native herbaceous)	5.2	4.2	4.2	4.3	4.2	4.0	4.1	4.1
FQAI (native species)	18.58	18.35	22.46	23.53	21.92	15.75	17.70	18.10
FQAI (all species)	18.42	19.05	20.73	21.77	20.02	14.77	14.85	16.64
Adjusted FQAI	45.07	36.71	35.07	36.30	33.43	33.58	29.09	33.05
% intolerant (C value ≥ 7)	12%	4%	7%	5%	2%	5%	5%	7%
% tolerant (C value ≤ 3)	29%	24%	49%	40%	47%	45%	51%	47%
Species Richness (all)	17	25	41	42	43	22	37	30
Species Richness (native)	13	19	30	31	28	16	22	21
% Non-native	24%	24%	27%	26%	35%	27%	41%	30%
Wet Indicator (all)	-4.15	-4.79	-3.43	-4.11	-4.11	-4.24	-3.48	-3.27
Wet Indicator (native)	-4.45	-4.78	-3.82	-4.32	-4.54	-4.57	-4.39	-3.88
% hydrophyte	71%	76%	68%	76%	74%	73%	62%	60%
% native perennial	59%	60%	63%	55%	51%	55%	43%	53%
% native annual	18%	8%	2%	7%	2%	9%	5%	7%
% annual	20%	10%	3%	8%	3%	10%	9%	15%
% perennial	80%	76%	87%	77%	82%	75%	76%	70%
% native forbs	35%	56%	46%	50%	42%	55%	35%	43%
% native graminoids	41%	20%	17%	17%	19%	14%	16%	17%

Primary Productivity

	Live	Dead
Row Labels	Average Net Dry Wt (g/m ²)	Average Net Dry Wt (g/m ²)
CALY	669	120
CALY/AGSP	309	77
ELPA/SALA	255	61
HM	448	58
LM	96	11
PHAR	440	100
POAM	700	548
SALA	190	21
SALA/ELPA	127	410

