THURSTON COUNTY CASE STUDY

Shoreline Master Program Effectiveness Monitoring

Maya Buhler, Associate Planner

Thurston HRCD Pilot Project

- Funding:
  - *Grant from WDFW*
  - *EPA: Puget Sound Marine and Nearshore program*

- Partners
  - *WDFW & Ecology*

Thurston HRCD Pilot Project

Grant Deliverables

- Framework for implementing HRCD data in SMP areas

- Results Report of HRCD analysis in Thurston County marine SMP

- Recommendations on using HRCD data

- Web application for HRCD data

- Workshop on HRCD data

Shoreline Master Program Effectiveness Monitoring
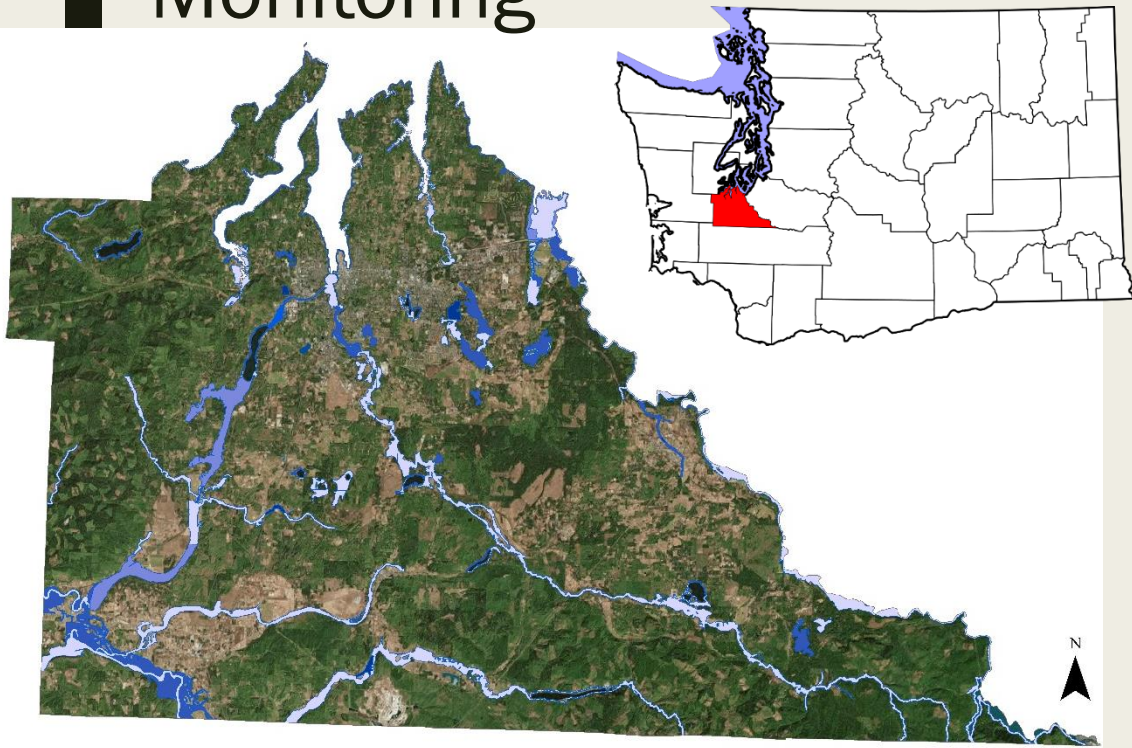
Thurston County SMP
- Currently under review
- CAO updated in 2012

Thurston County Shorelines
- 116 miles of marine
- 400+ miles of total

Steps in Developing a
Monitoring and Adaptive Management Program

1. Determine the Reasons for Monitoring

2. Establish Key Objectives & Study Questions

3. Design the Monitoring Program

4. Determine the Monitoring Time Frame
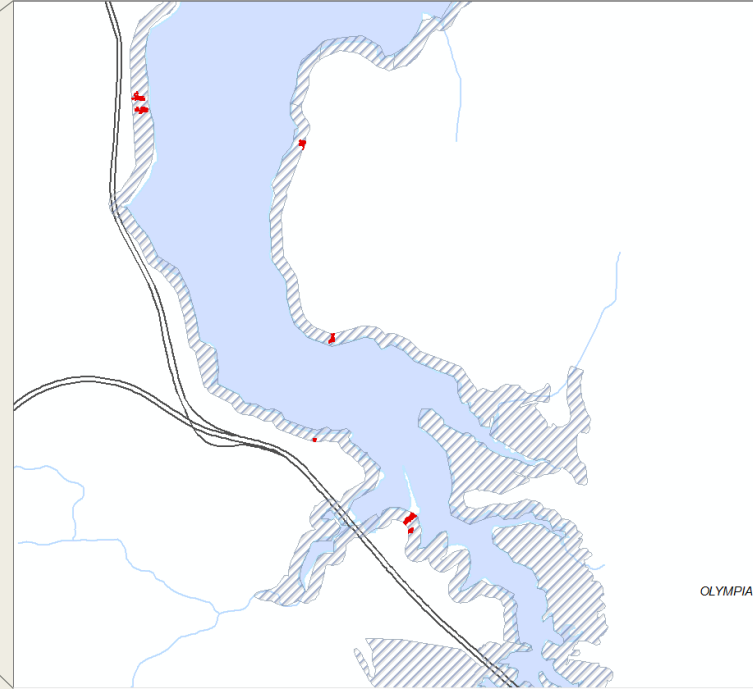
5. Evaluate Results and Make Recommendations

Key Questions

1. How much change is occurring in the shoreline jurisdiction?

2. Is change that occurs **permitted** and **appropriate**?
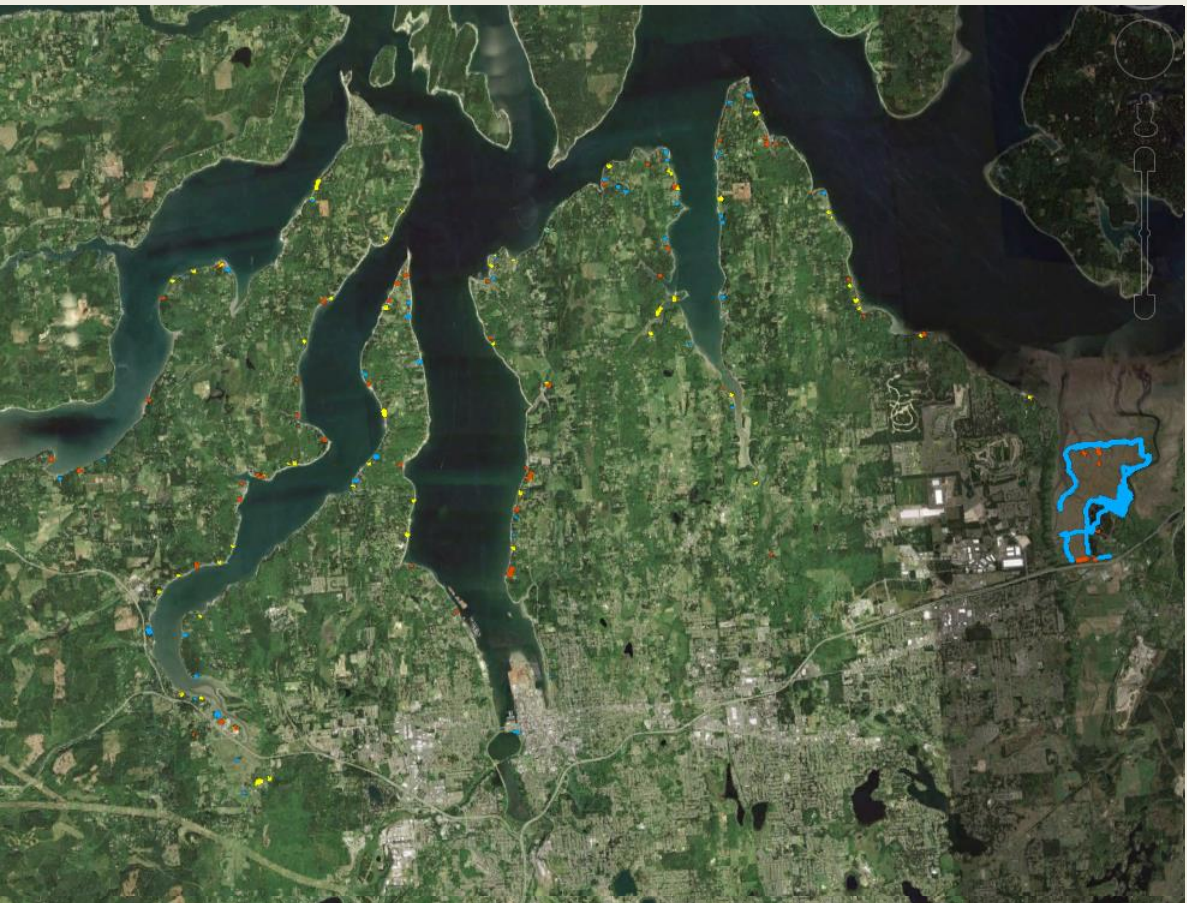
3. Can HRCD data be used to monitor No Net Loss?

Process of Using HRCD

Running Analysis

1. Input data

2. Intersect in ArcGIS

3. Recalculate acreage

4. Export tables

5. Excel Analysis

2006-2009

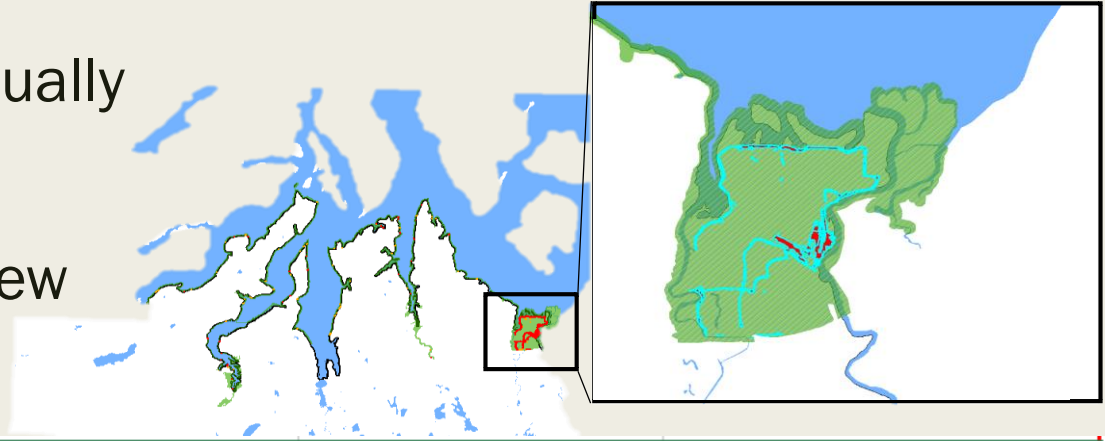2009-2011

2011-2013

HRCD-Identified Changes

Analyzing the Data

- Restoration Events accounted for manually

- PivotTables to review analyze change

Row Labels	Sum of Total Calculated Change	Sum of Tree Decrease	Sum of Impervious Increase	Sum of Semi-Impervious Increase
Development	5.816102627	2.420359998	4.080596888	0.336979267
Other, Natural	2.75782238	2.75782238	0	0
Other, Non-Natu	0.222885353	0	0	0.222885353
Redevelopment	1.391030232	0.269018016	0.361624886	0.194239841
Retention Pond	0.736001324	0.420572185	0	0.525715231
Tree Removal	25.86237625	25.86237625	0	0.084465139
STREAM	0.012035172	0.012035172	0	0
FORESTRY	0.250706475	0.250706475	0	0
Grand Total	37.04895981	31.99289047	4.442221774	1.36428483

HRCD-identified change
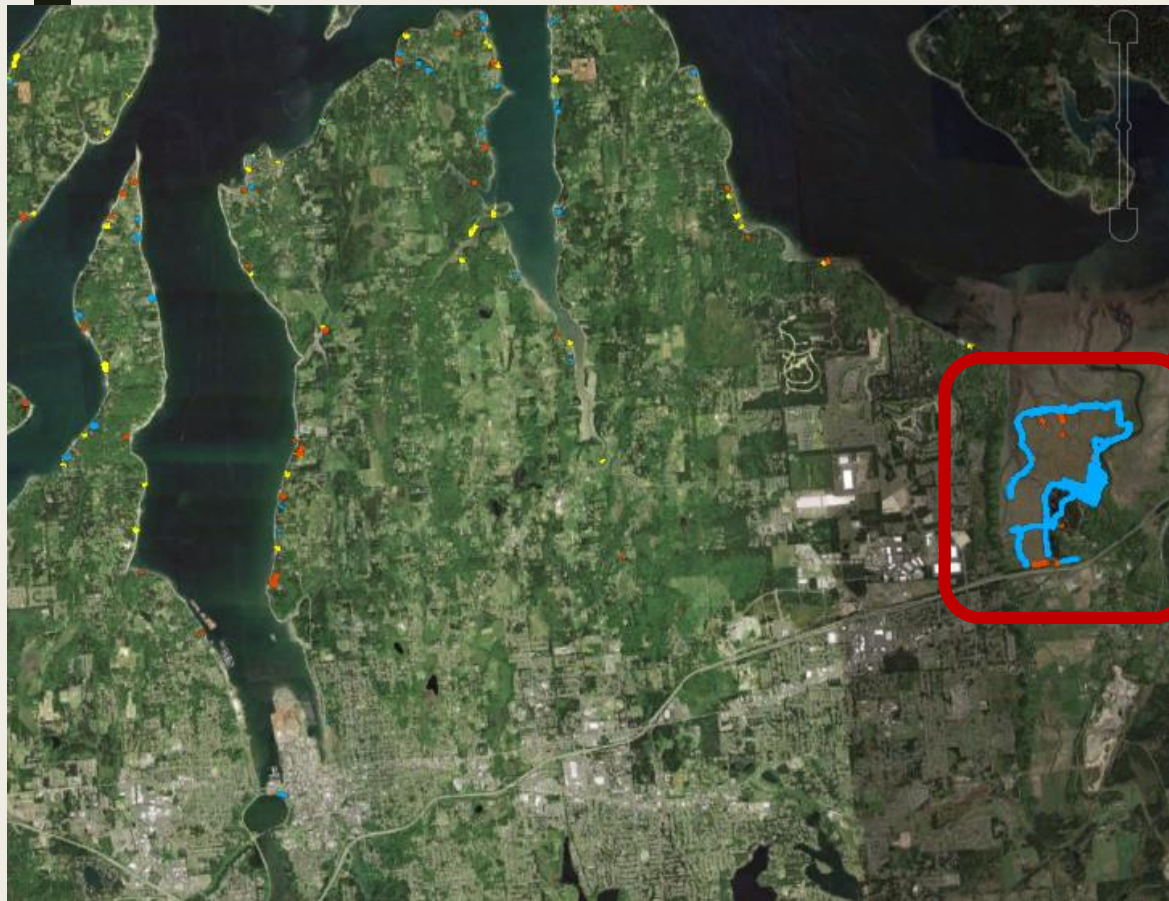
Between 2006-2013, 205 change events were identified

1
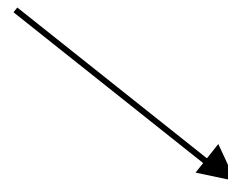
acres of *by loss*

cres of ew *rvious rface*

with new *ous surface*

2011

2013

Thurston County, WDFW

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Nisqually Wildlife Refuge Restoration

- ~25 acres of change
(out of 37 acres total)

HRCD-identified change by time period

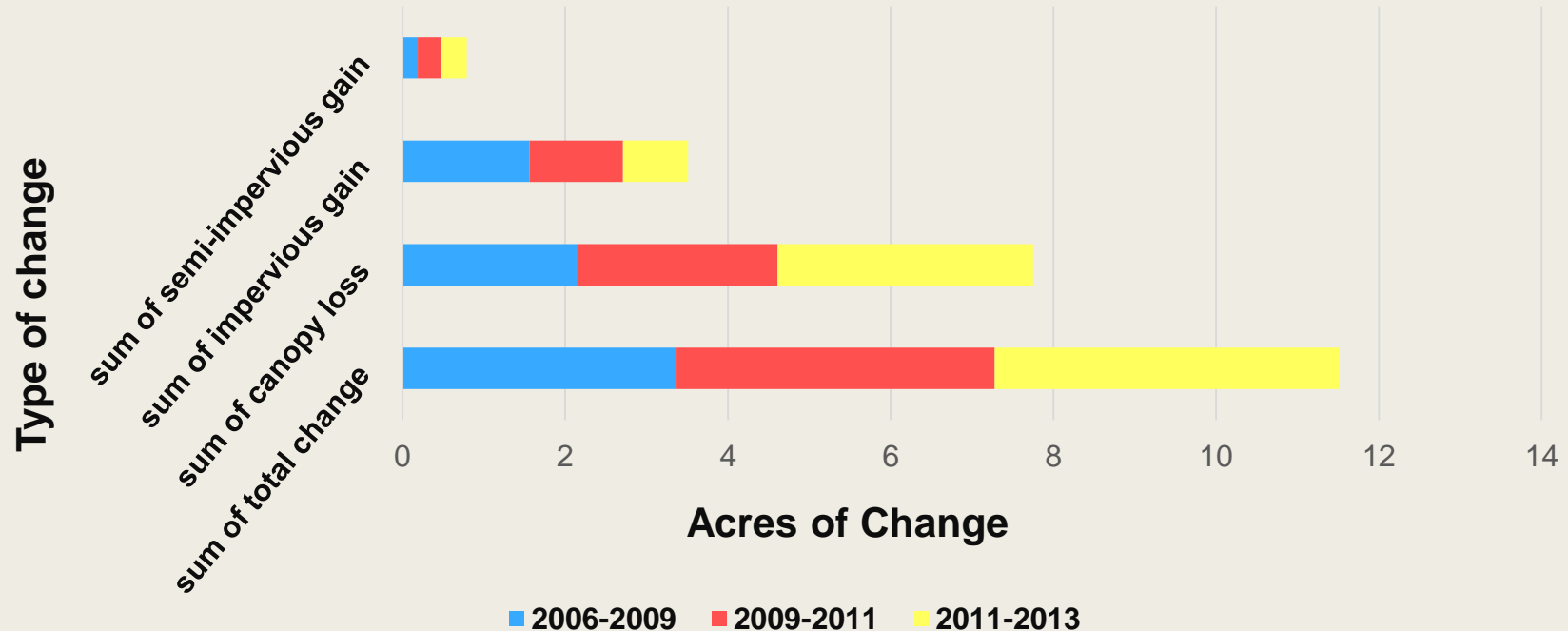| Year	Sum of Total Change*	Sum of Canopy Loss	Sum of Impervious Gain	Sum of Semi-Impervious Gain
2006-2009	3.4 acres	2.1 acres	1.6 acres	0.2 acres
2009-2011	3.9 acres	2.5 acres	1.2 acres	0.3 acres
2011-2013	4.2 acres	3.1 acres	0.8 acres	0.3 acres
Grand Total	11.5 acres	7.8 acres	3.5 acres	0.8 acres

Source: Thurston County, WDFW

* *With restoration acreage from the Nisqually Restoration Project removed, which includes:*
- *22.85 acres from 2006-2009*
- *2.69 acres from 2009-2011*

HRCD-identified change by change category

2006-2013 in Thurston County Marine SMP

HRCD-identified change by environment designation

Environment Designation	Sum of Total Change*	Sum of Canopy Loss	Sum of Impervious Gain	Sum of Semi-Impervious Gain
Rural	7.2 acres	4.3 acres	2.7 acres	0.5 acres
Conservancy	4.3 acres	3.4 acres	0.8 acres	0.3 acres
Natural	0.02 acres	0.02 acres	0.02 acres	0 acres
Grand Total	11.5 acres	7.8 acres	3.5 acres	0.8 acres

Source: Thurston County, WDFW

* *With restoration acreage from the Nisqually Restoration Project removed, which includes:*
- *22.85 acres from 2006-2009*
- *2.69 acres from 2009-2011*

Q: How much change is occurring in the SMP?

A: 11.5 acres over 8 years
(Total SMP Marine area = 2,889 acres)

But is this appropriate?

Using HRCD for permit compliance

- Same general process to run HRCD

- Data scrubbing

- Cross-reference with AMANDA database

HRCD-identified change
unpermitted events

2006

2009

➢ No <u>developments</u> appear out of compliance

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

75 events total

2009-2011

2006-2009

2011-2013

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

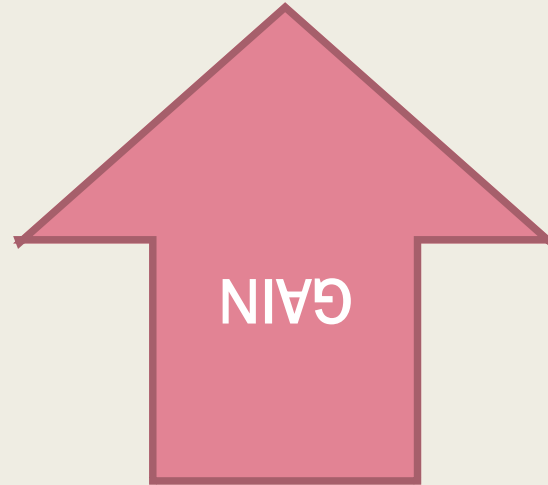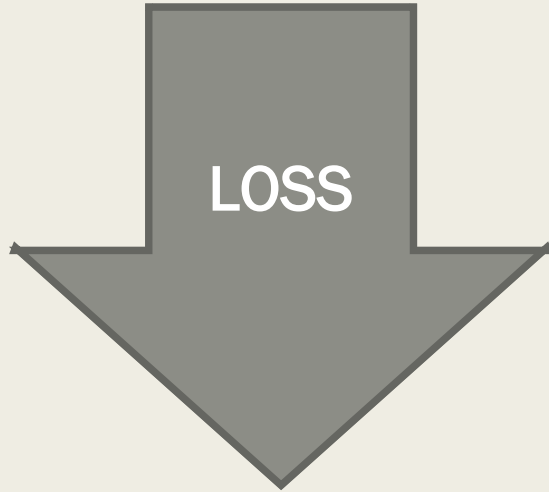**Q: Is change that occurs permitted?**

A: Yes, but…

Q: Is change that occurs appropriate?

A: New SMP to focus on vegetation clearing

Q: Can HRCD data be used to monitor No Net Loss?

A: Partially

Other Uses of HRCD

- WRIA 13

- Voluntary Stewardship Program

Conclusions:

Benefits

- User-friendly

- Extent of data

- Utility increases over time

- Small-scale helps answer big questions

Challenges

- Misses smaller, vertical changes (bulkheads, docks)

- Doesn't identify positive change (ie, restoration)

- Time lag limits use for compliance

Q&A