



Western Washington University
Western CEDAR

Salish Sea Ecosystem Conference

2018 Salish Sea Ecosystem Conference
(Seattle, Wash.)

Apr 6th, 9:15 AM - 9:30 AM

Monitoring Salish Sea bull kelp (*Nereocystis luetkeana*) via kayak surveys

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Shull, Suzanne; Hart, Lucas; and Berry, Helen, "Monitoring Salish Sea bull kelp (*Nereocystis luetkeana*) via kayak surveys" (2018). *Salish Sea Ecosystem Conference*. 463.

<https://cedar.wwu.edu/ssec/2018ssec/allsessions/463>

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Monitoring bull kelp via kayak surveys





A kayak-based survey protocol for Bull Kelp in Puget Sound

Prepared for the Northwest
Straits Commission

Emily Bishop
NOAA Hollings Scholar



This report was funded in part through a cooperative agreement
with the National Oceanic and Atmospheric Administration.

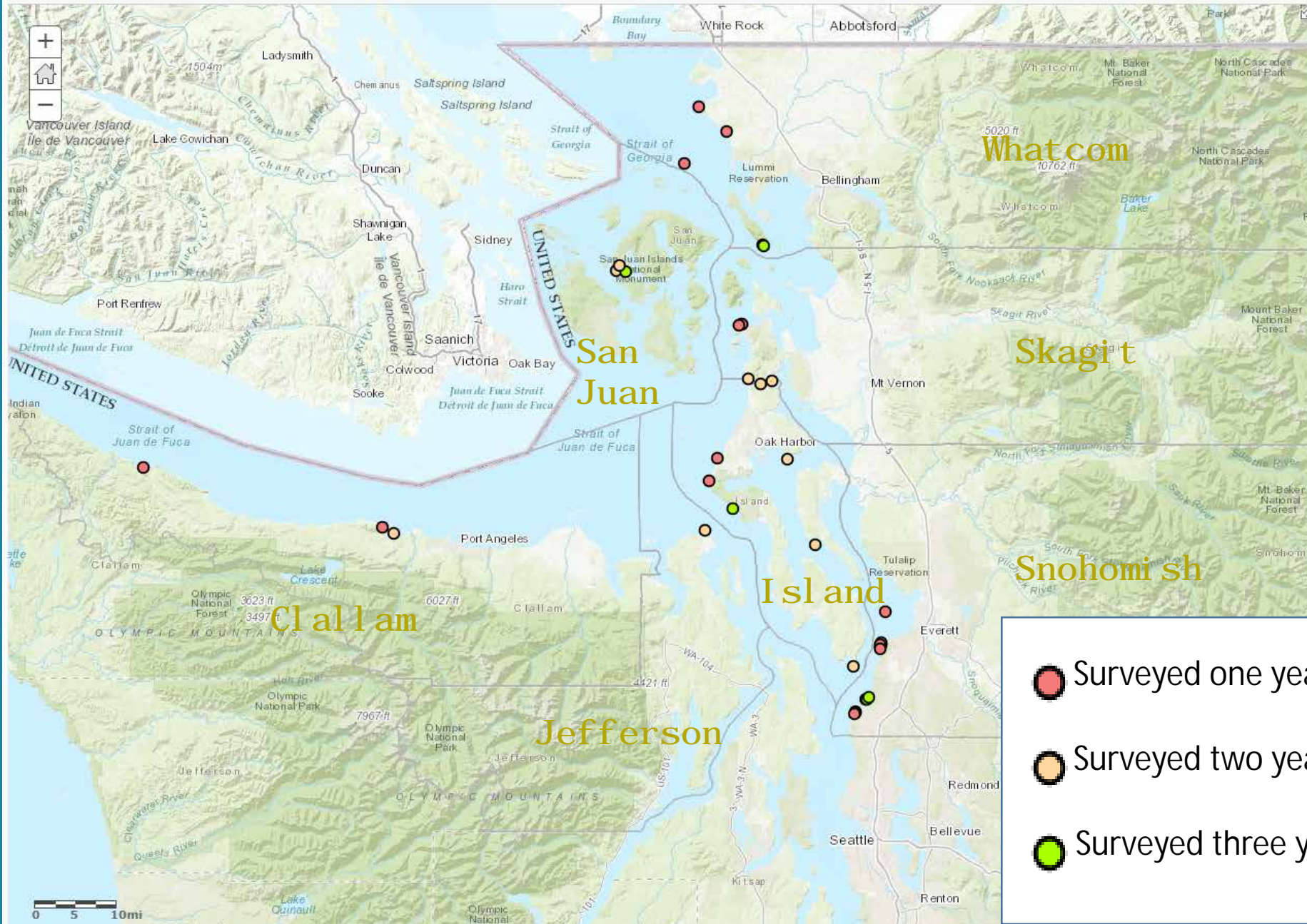
October 2014

Updated May 2016

Details Basemap

Share Print Measure

Find address or place



- Surveyed one year
- Surveyed two years
- Surveyed three years

Variability

- Human Interpretation
- Tides & Currents
- GPS
- Seasonality



July – Surveyor 1



July Low Surveyor 1: Meadowdale 1	
BedName	Meadowdale 1
SurveyDate	July 2016
Acres	1.16
TidalHT_Ft	-1.3
Time (GMT)	2016-07-18T17:35:07Z
Surveyor	Lincoln
Zoom to	

July – Surveyor 2

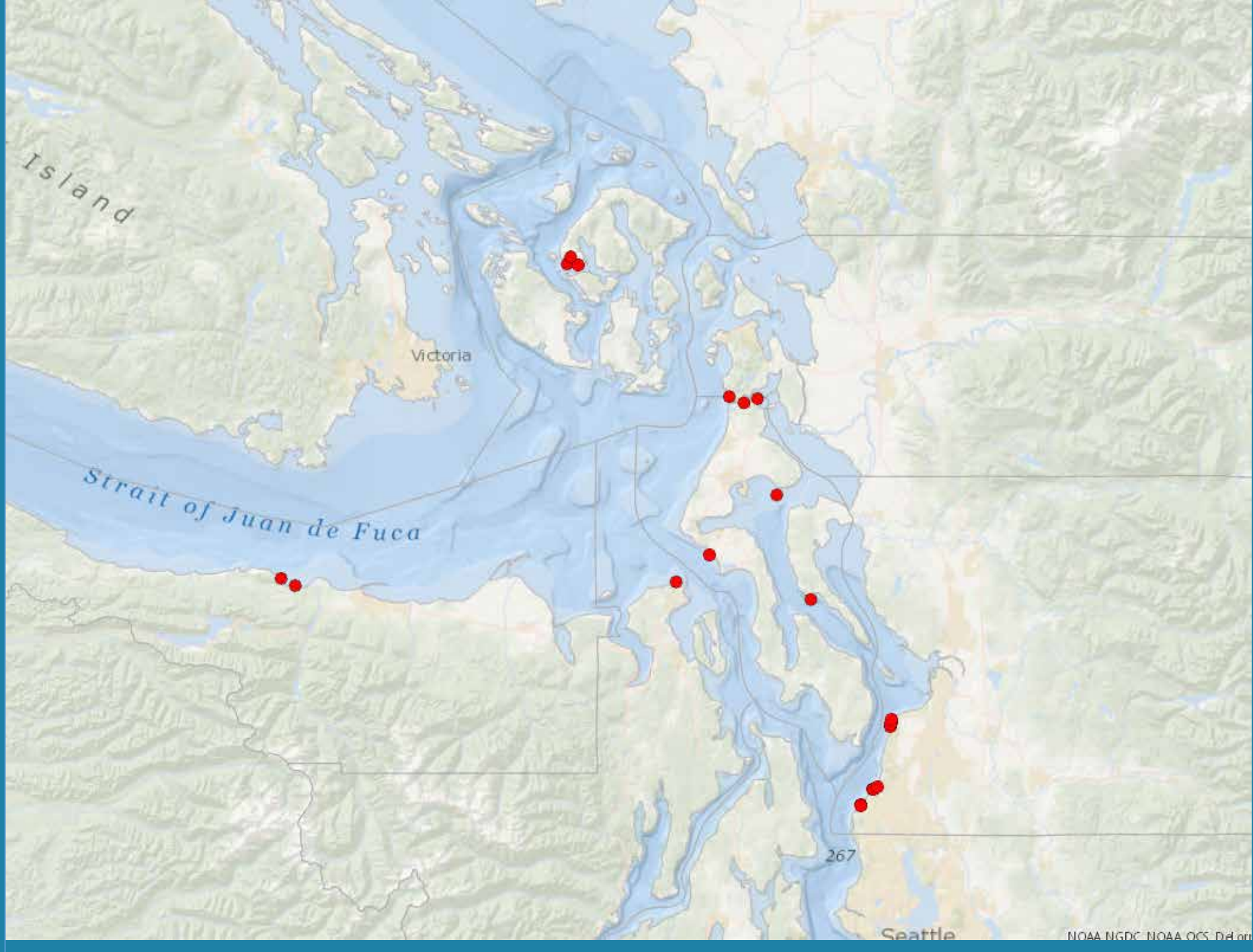
1.46 acres

July Low Surveyor 2: Meadowdale 1	
BedName	Meadowdale 1
SurveyDate	July 2016
Acres	1.46
TidalHt_Ft	-1.3
Time (GMT)	2016-07-18T17:45:01Z
Surveyor	Kathleen
Zoom to	

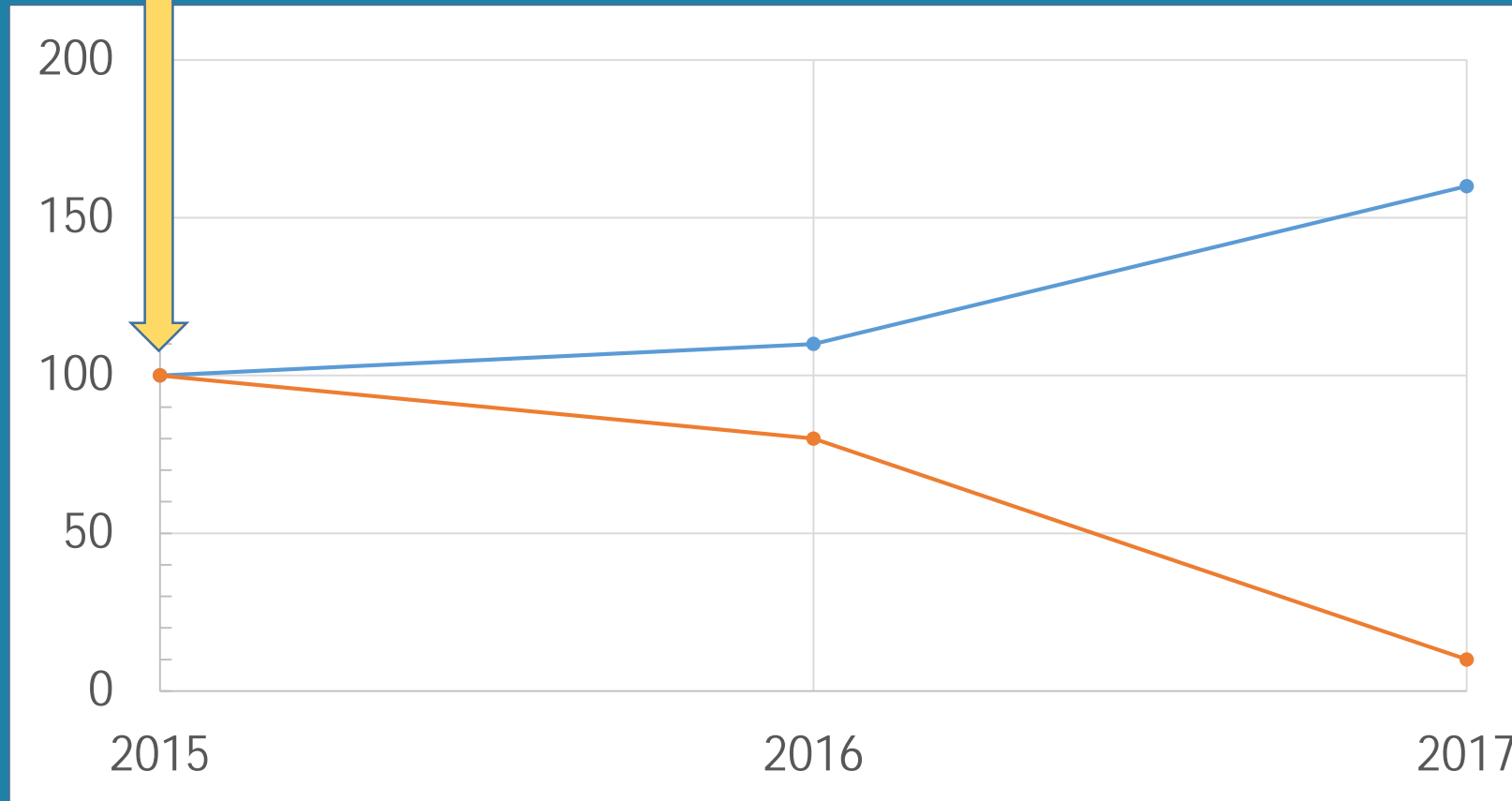
July to Sept – Surveyor 1 & 2



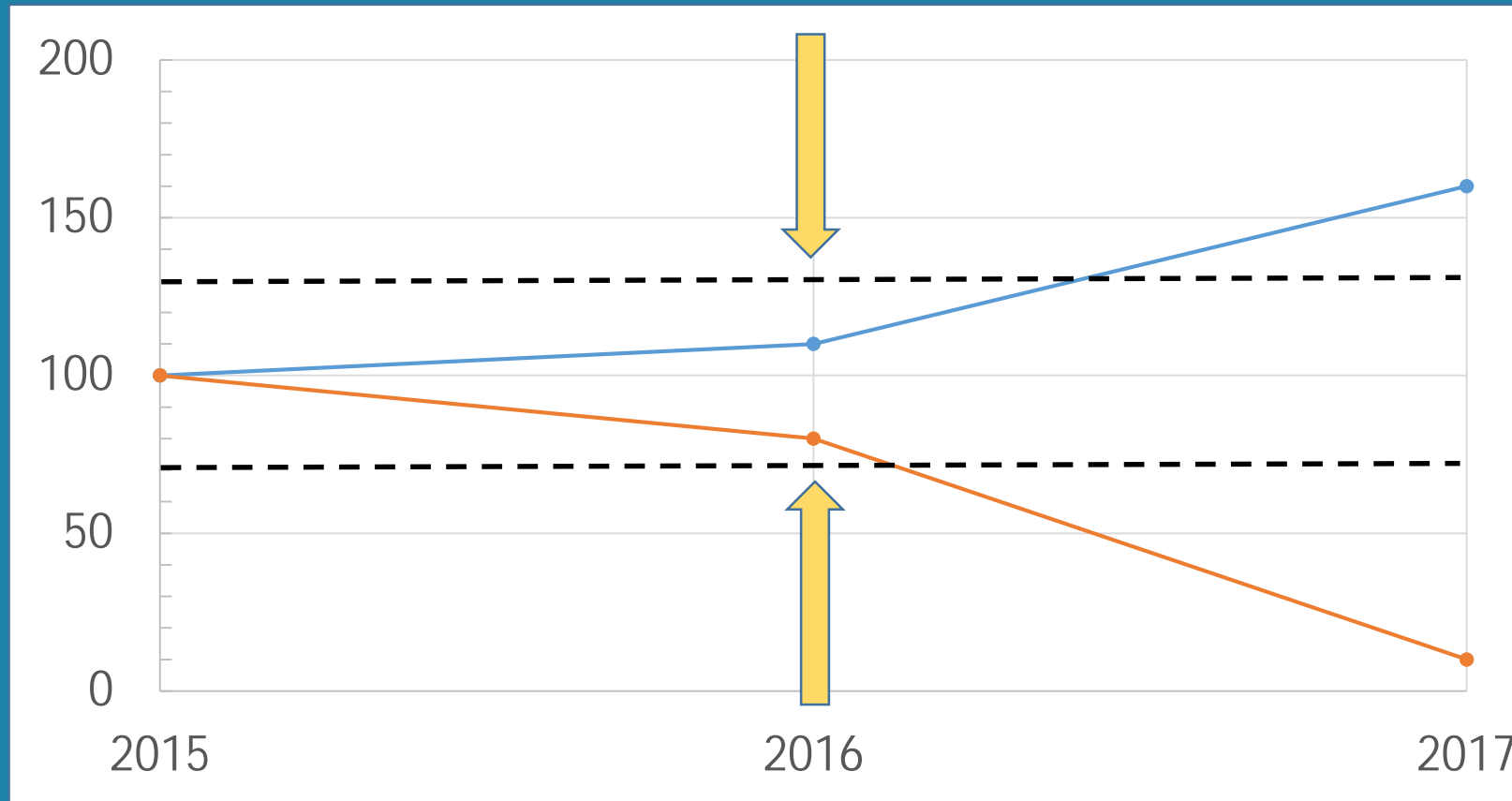
21 Multi-year Sites



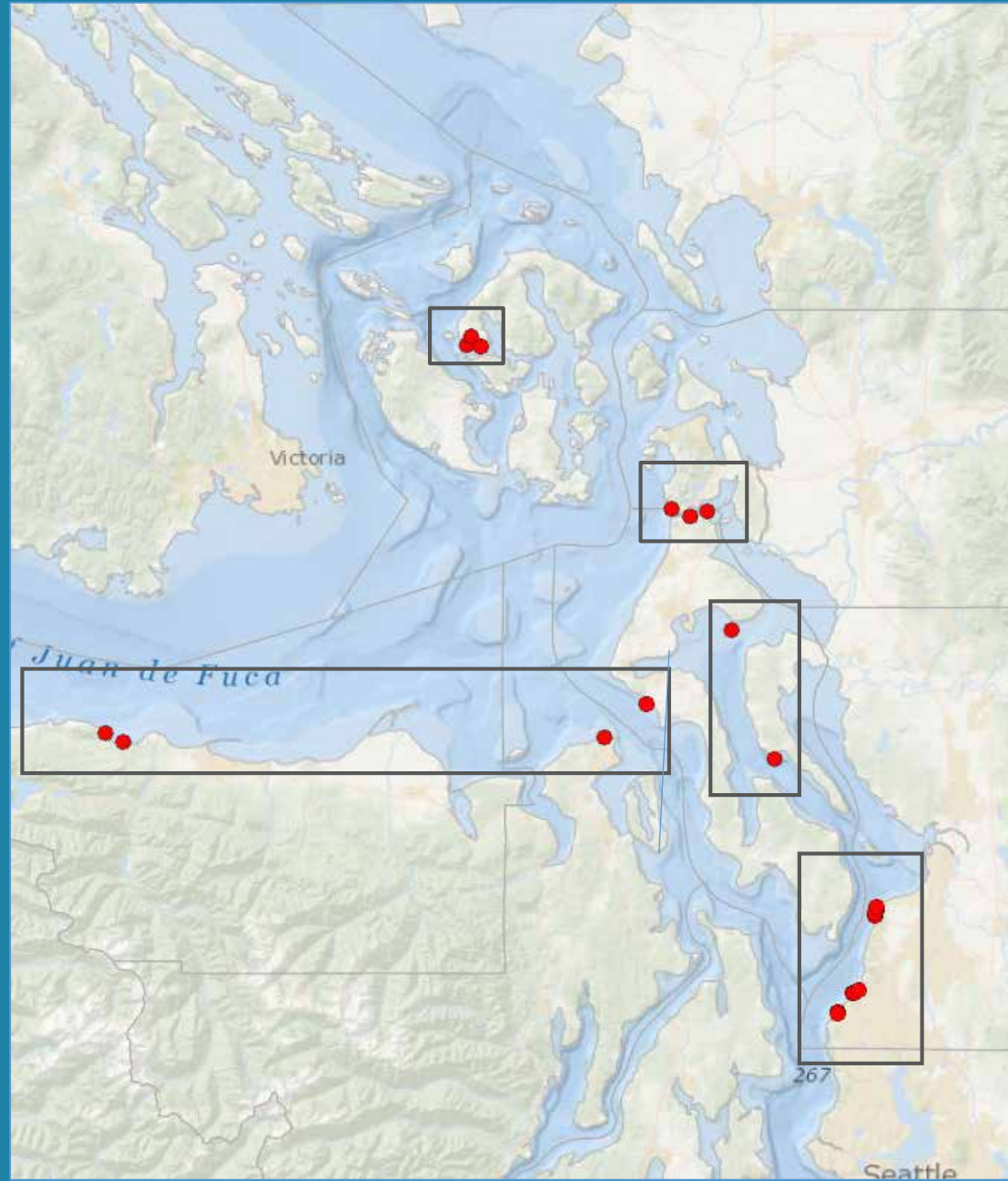
Change – percent change in max extent from first year



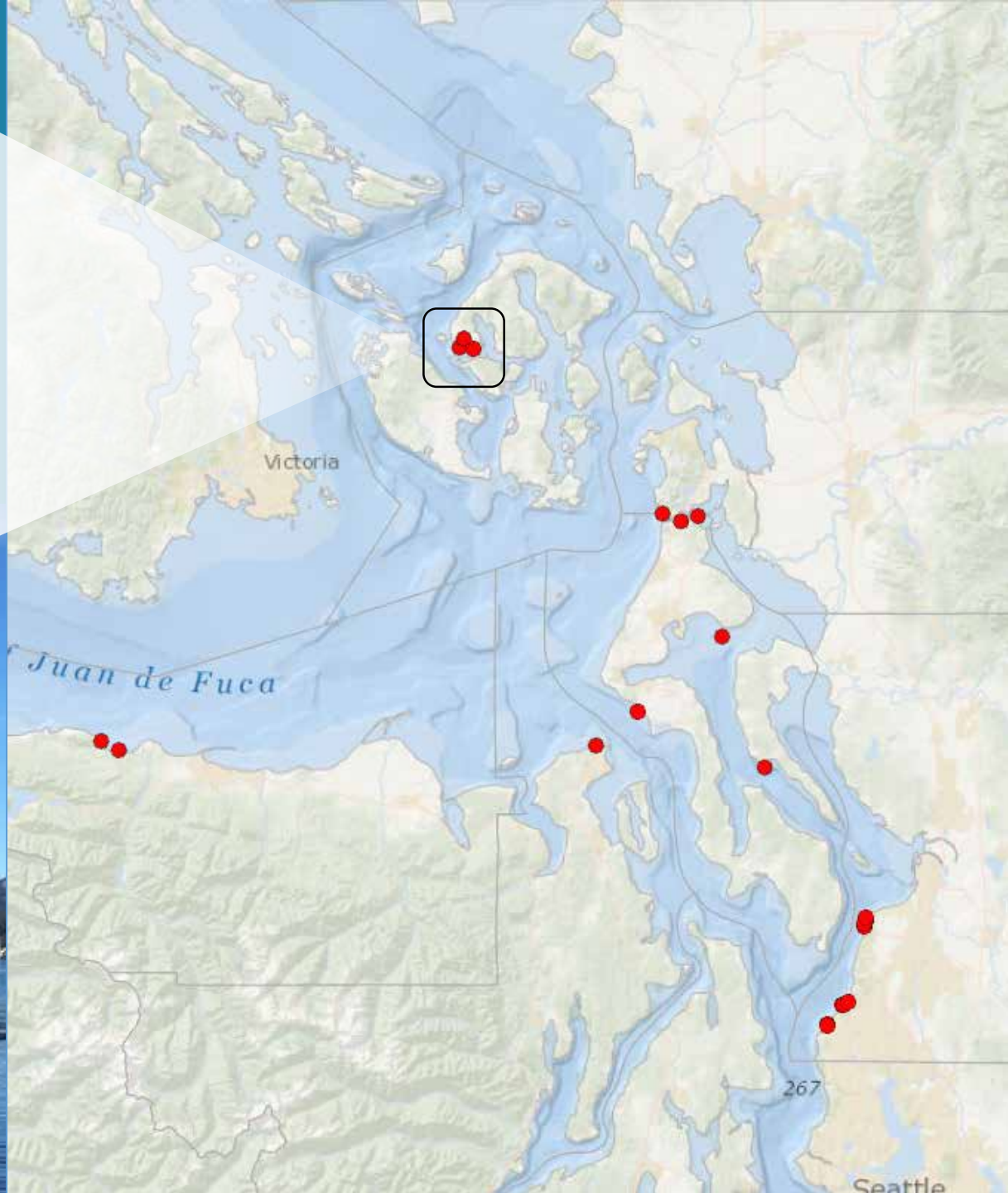
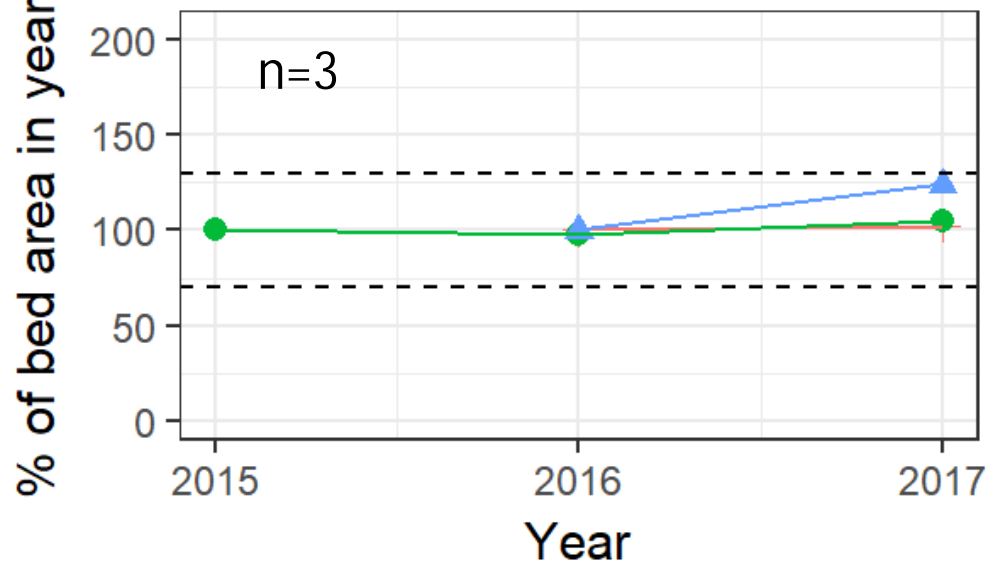
Change – real change is greater than 30% (gain or loss)

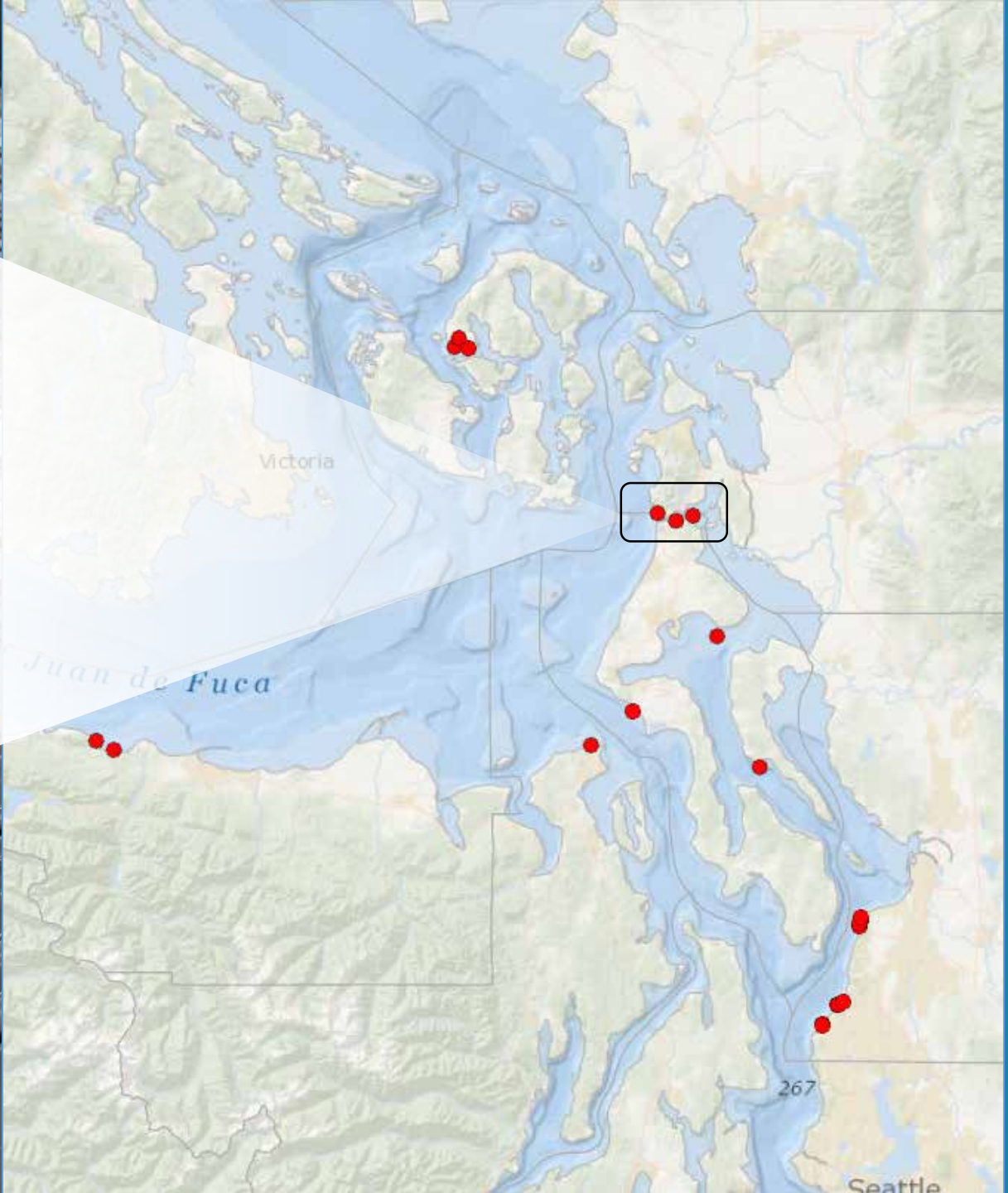
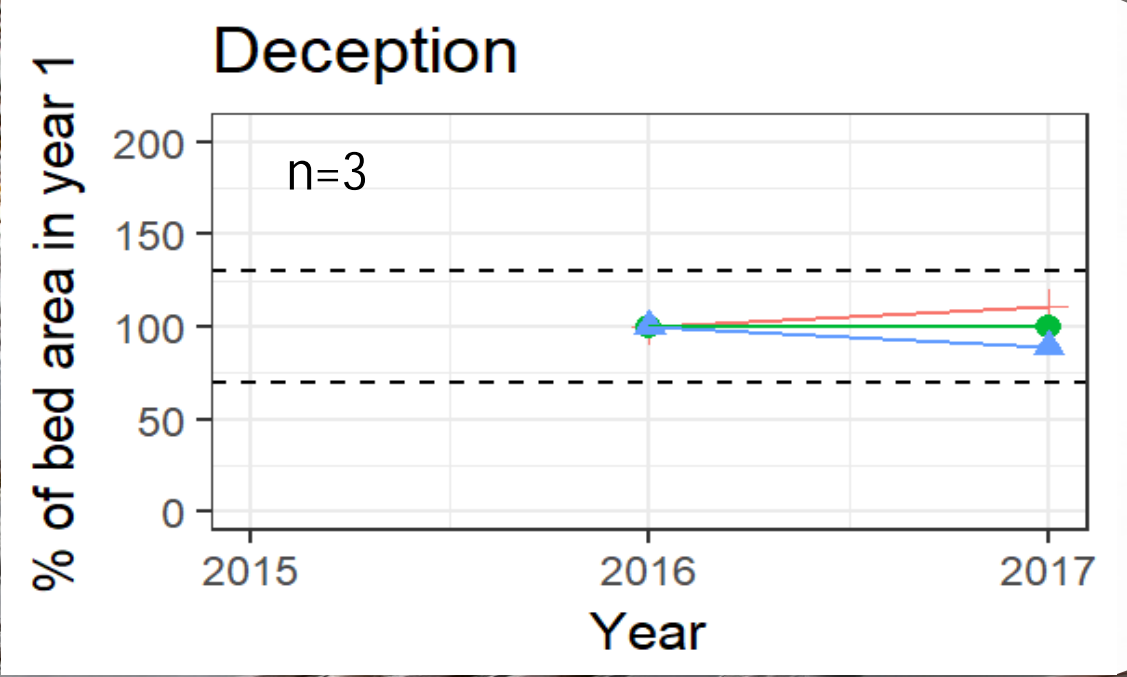
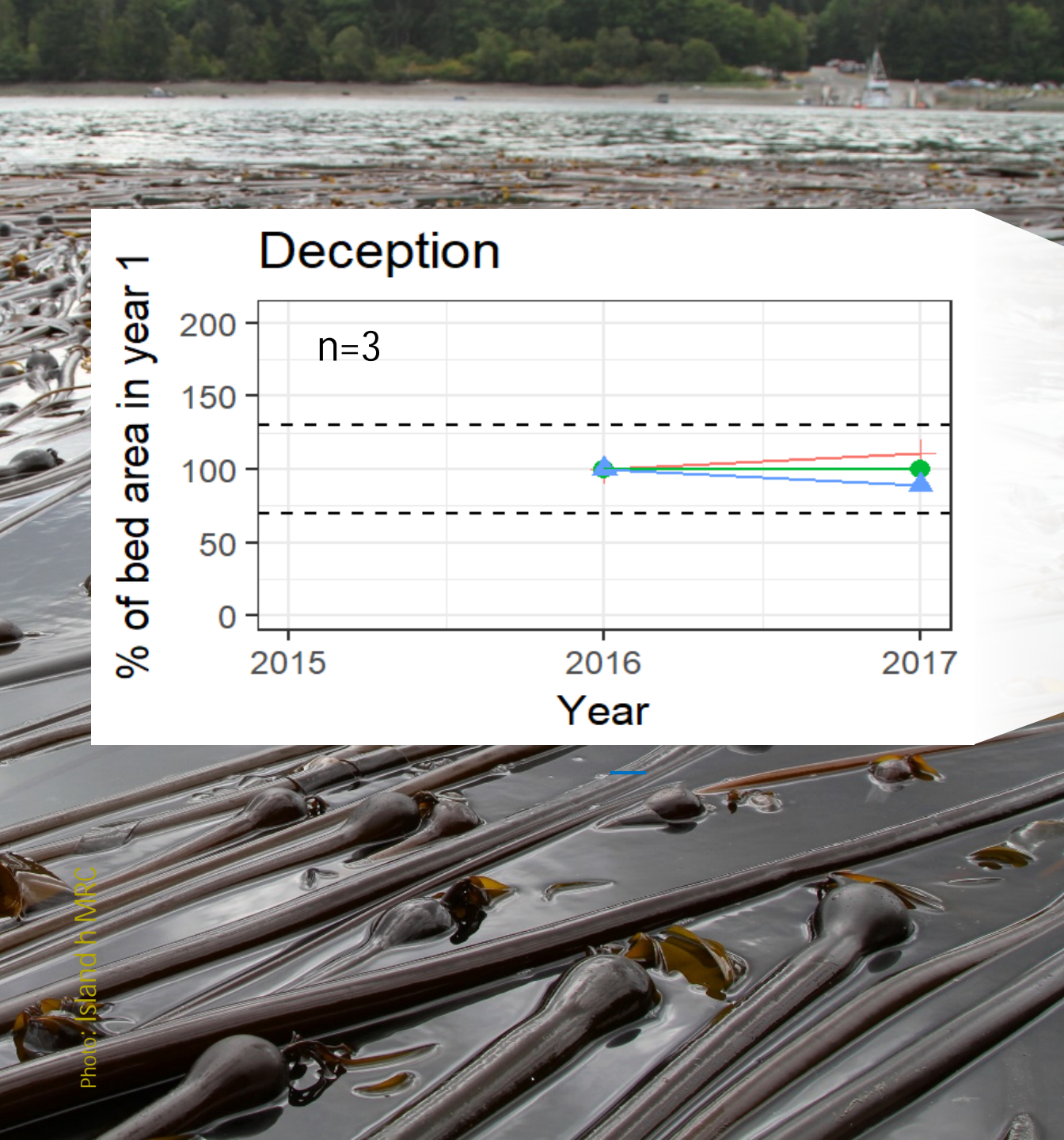


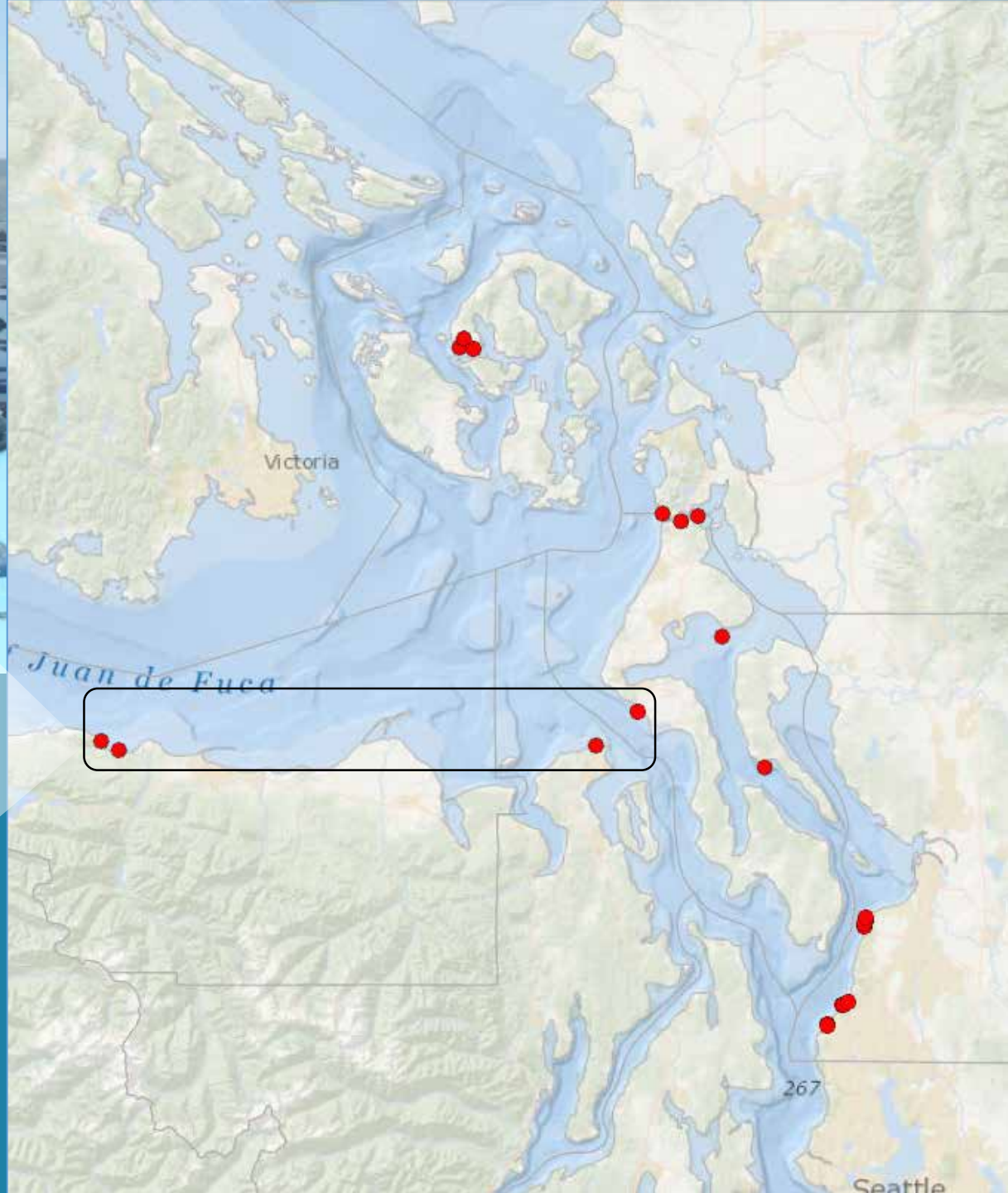
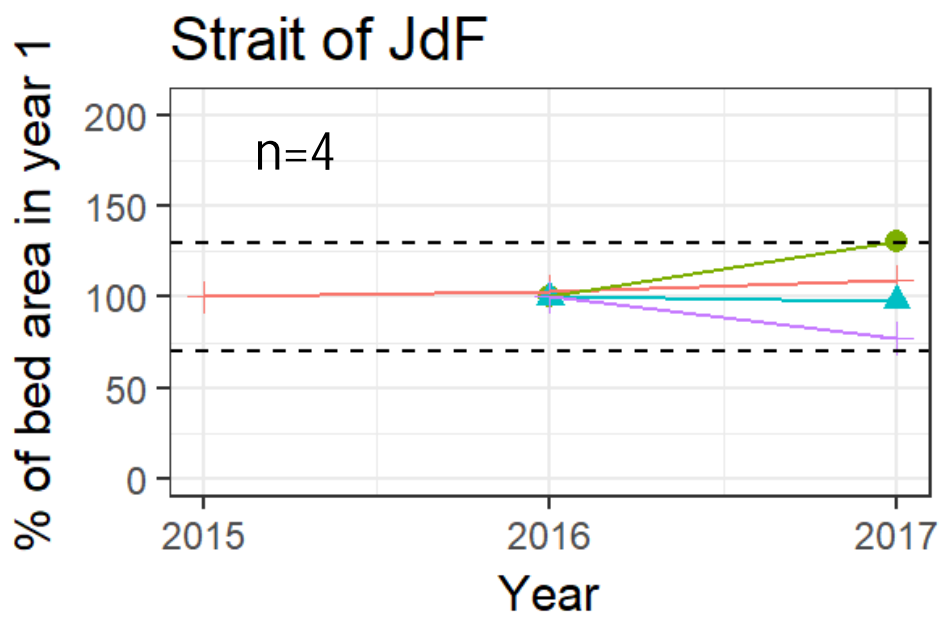
Grouping

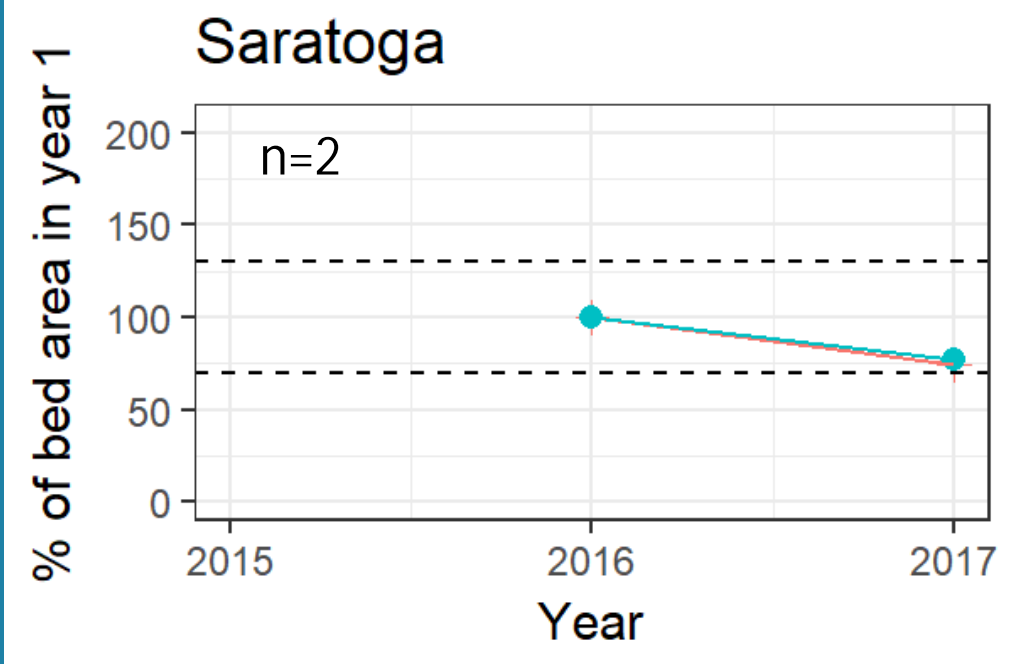
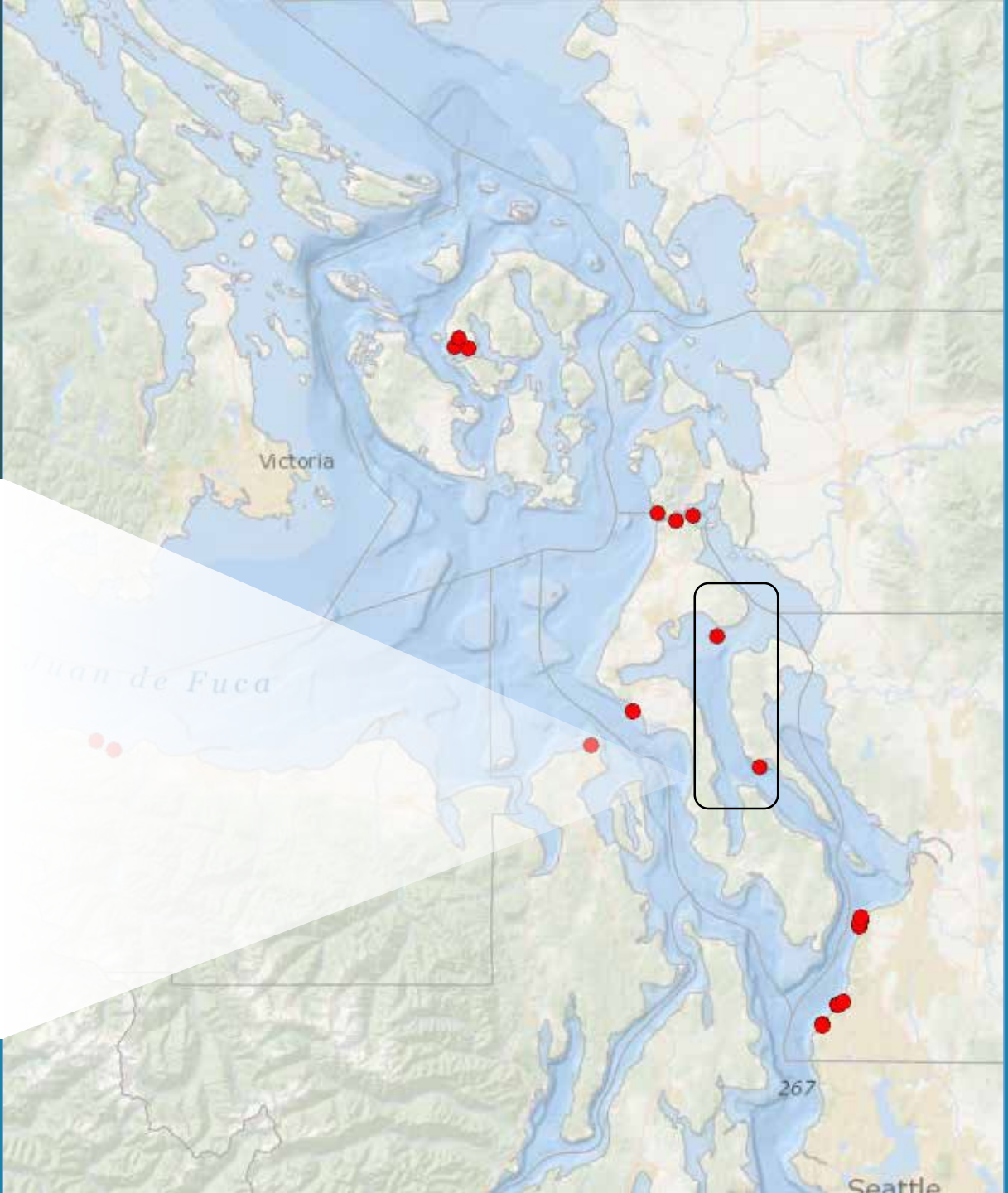


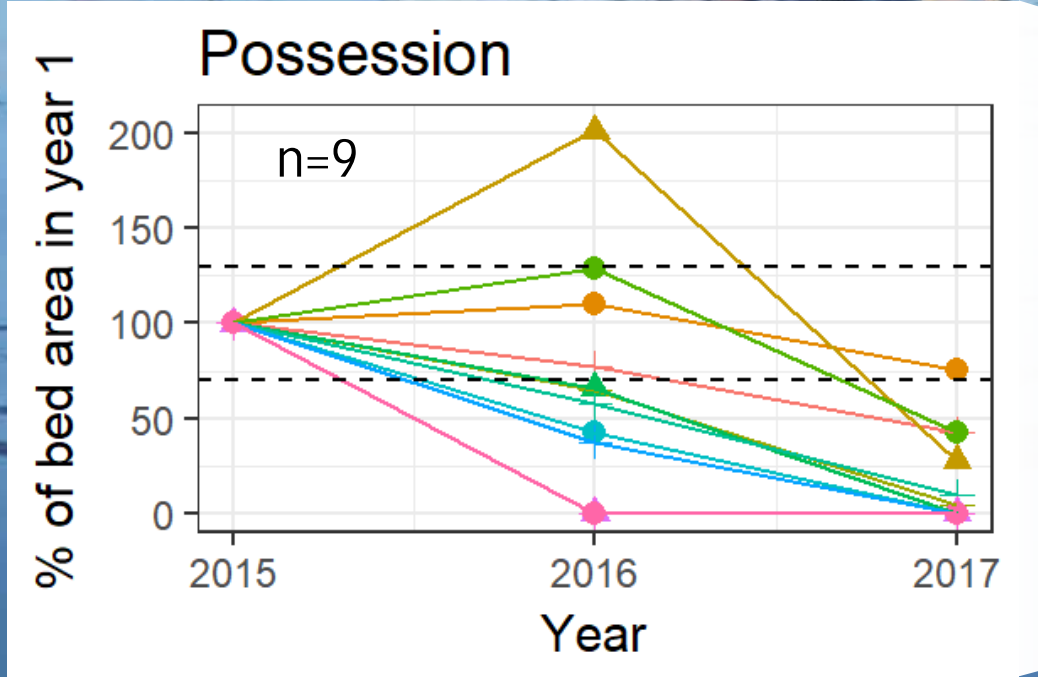
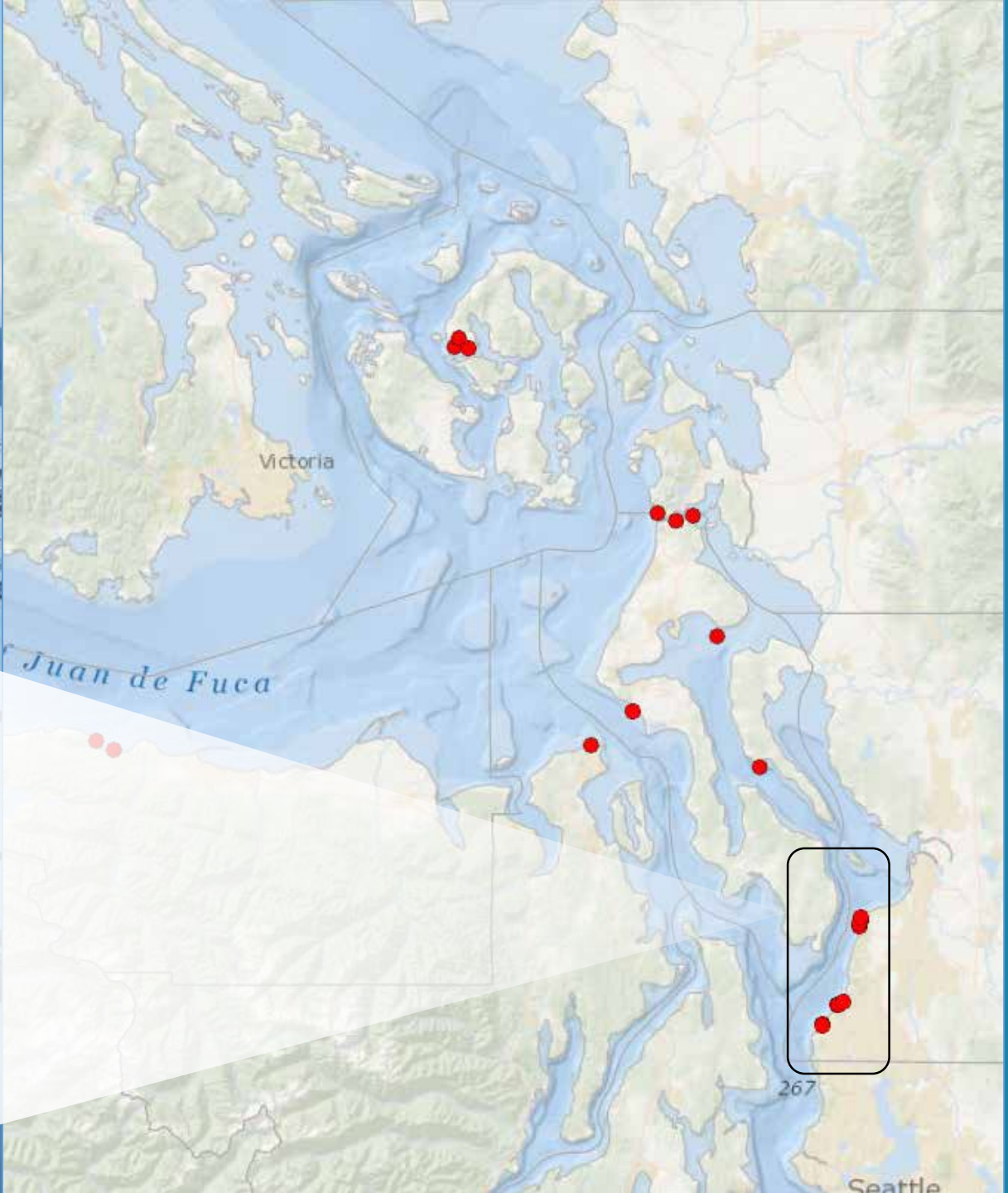
San Juan Channel



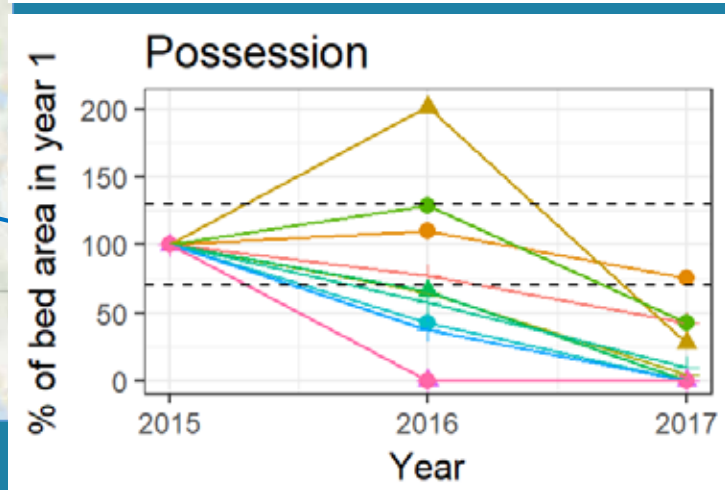
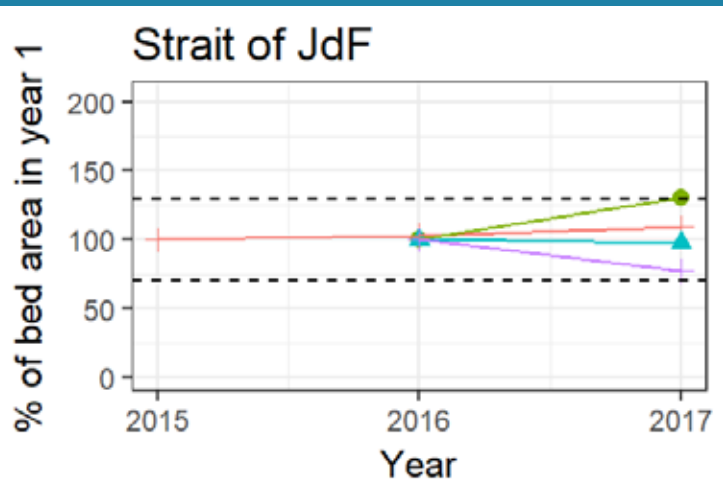
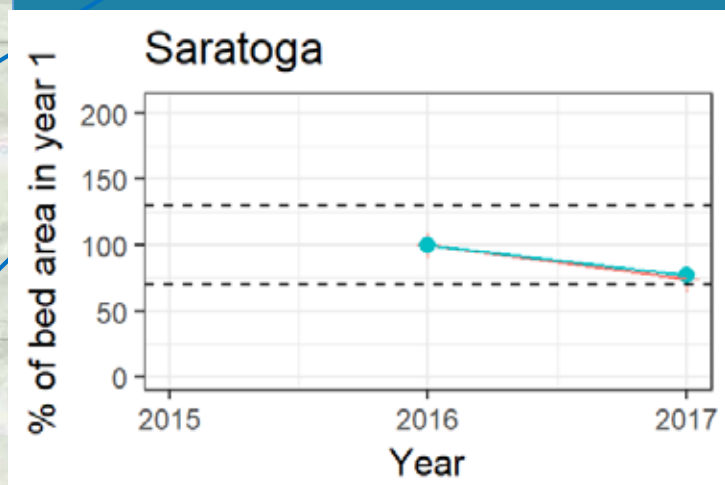
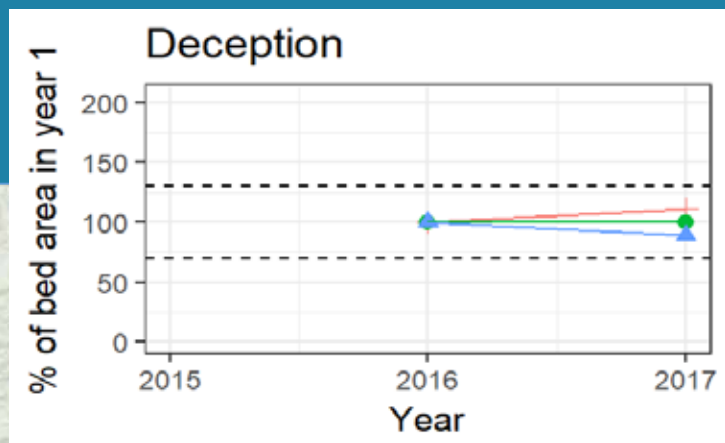
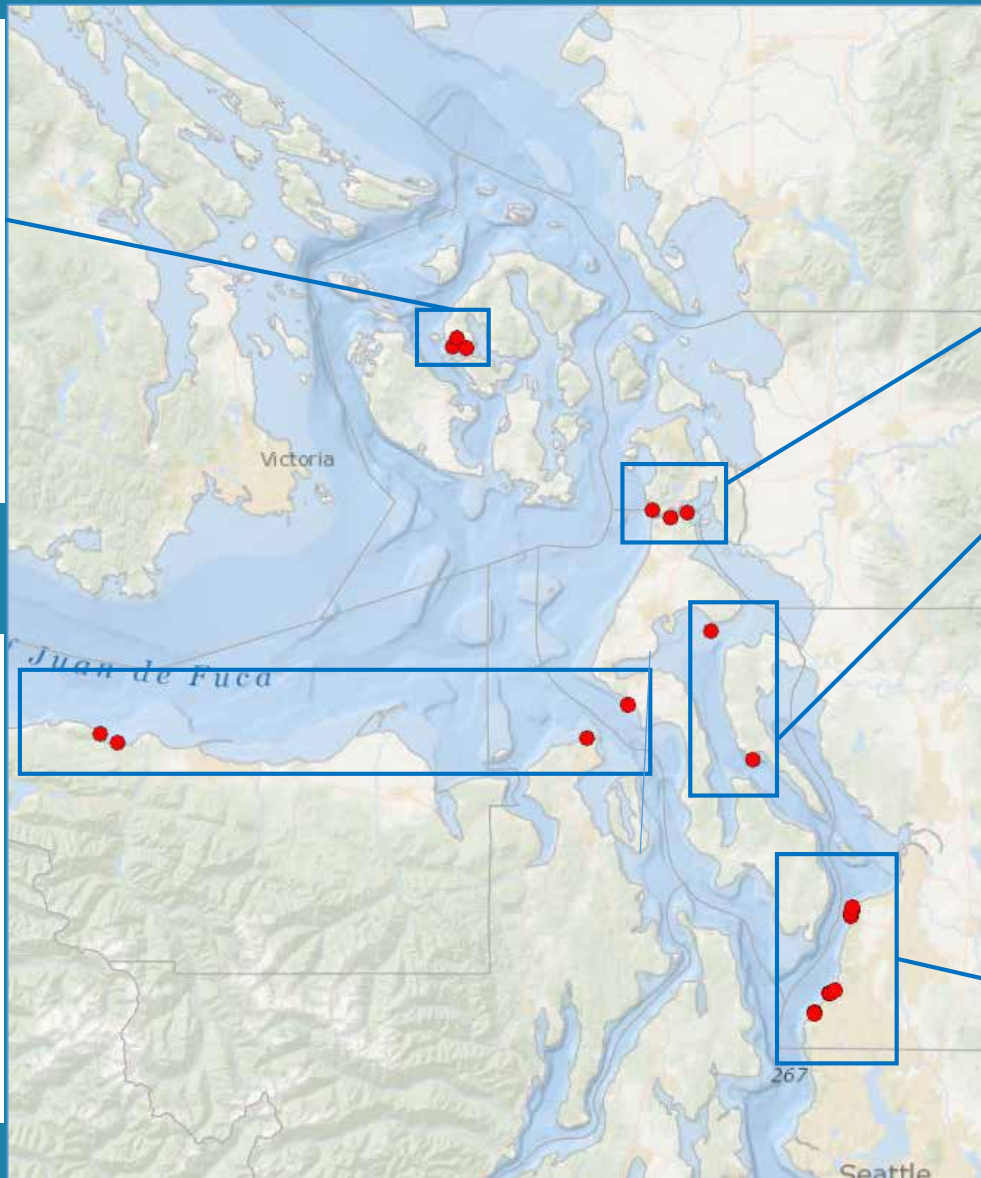
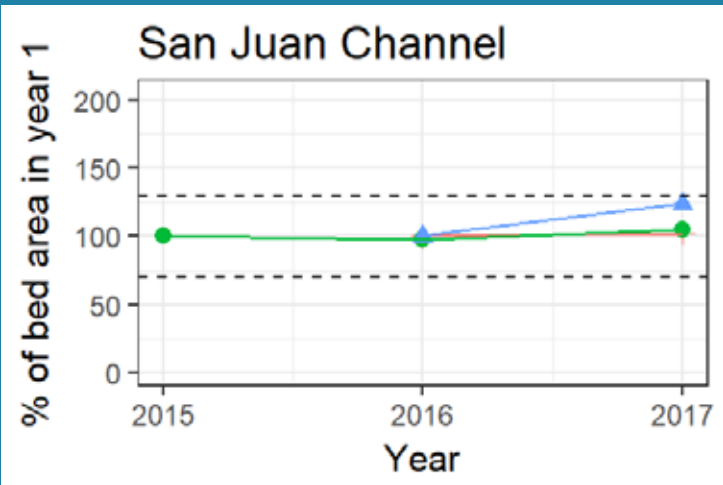






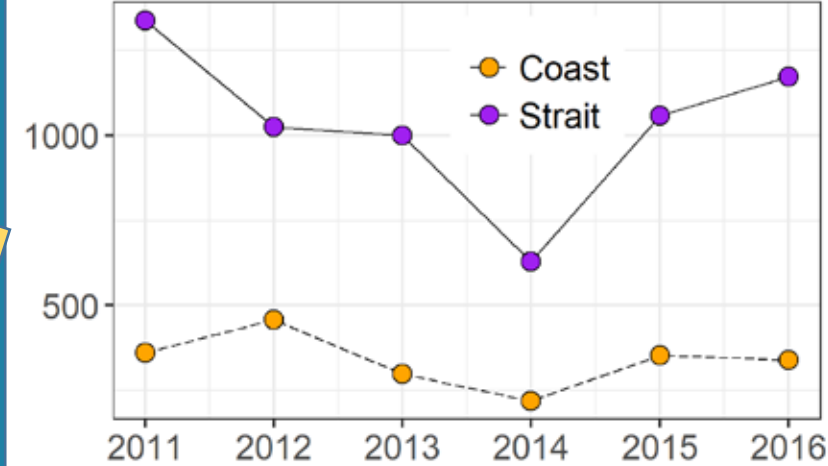
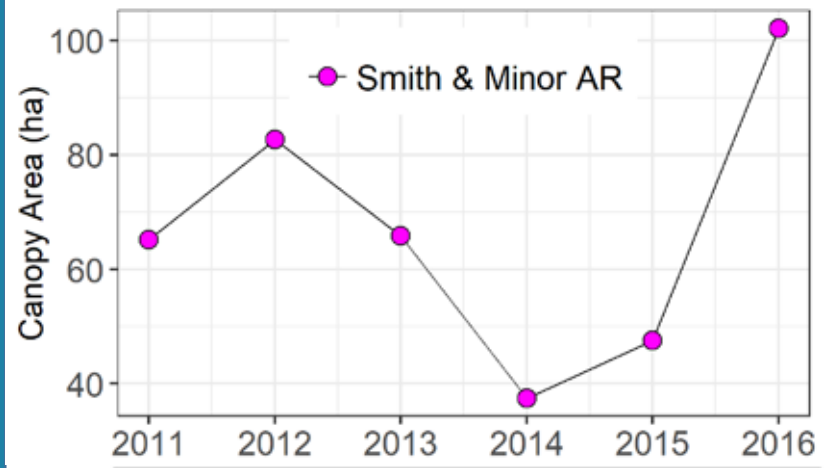
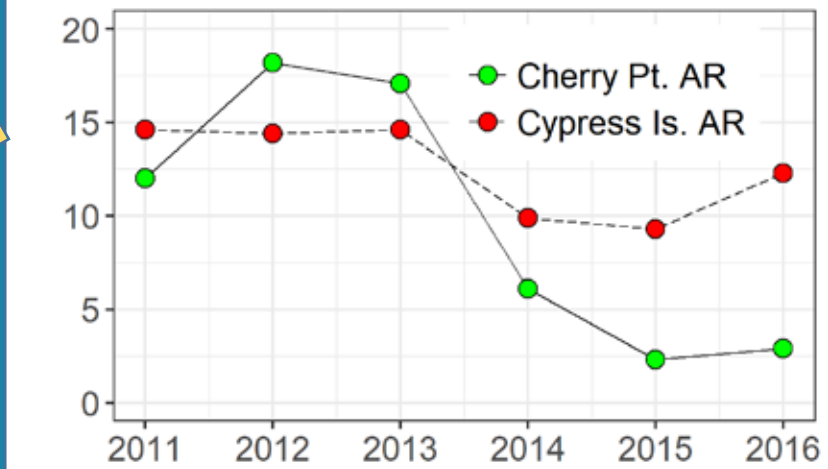
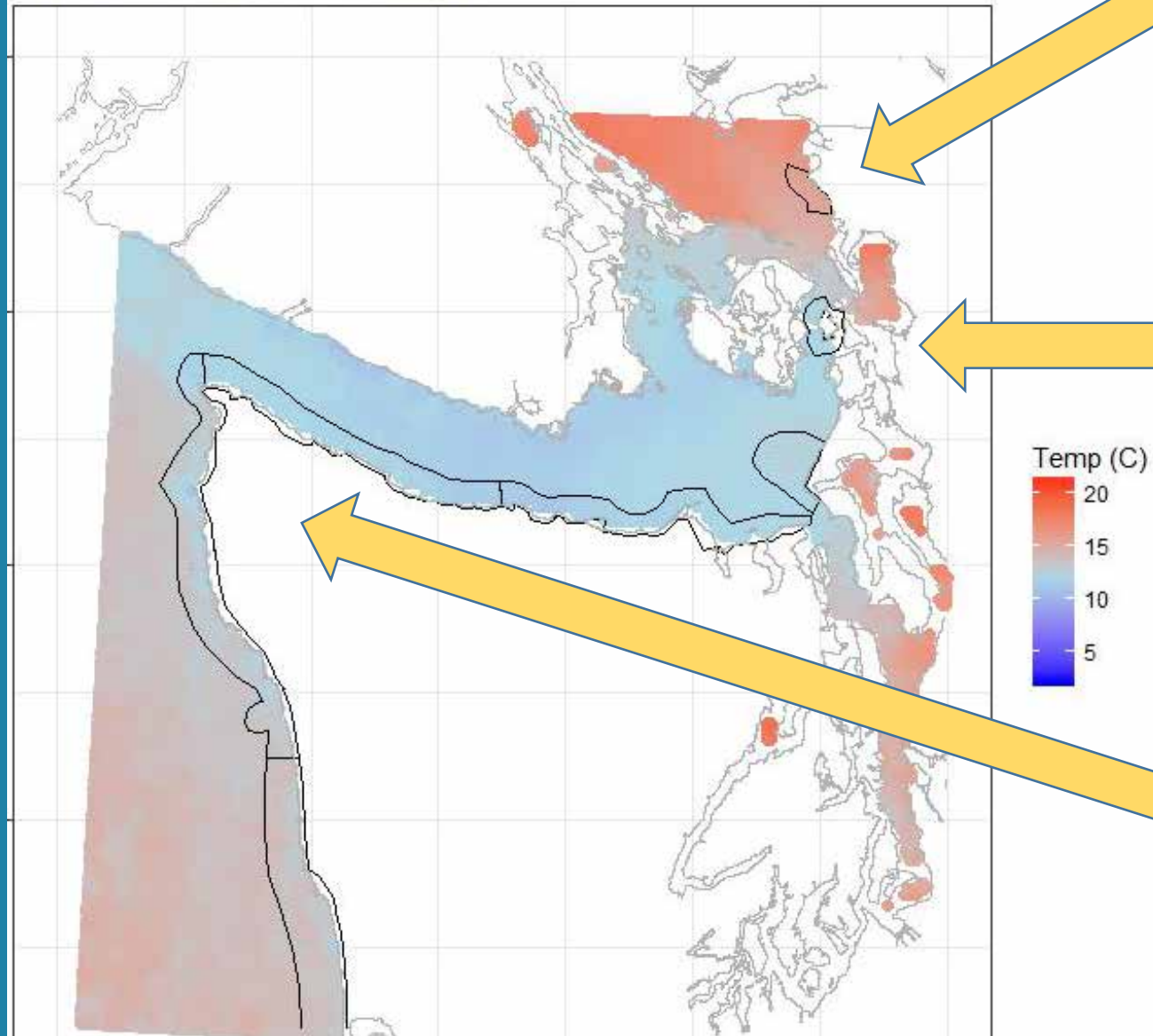


Grouping



Similar Patterns at WDNR Sites

SST June and July 2016 (AVHRR)



Conclusions – Data is useful, keep kayaking!



Acknowledgements

- Marine Resources Committees
- Caroline Gibson
- Emily Bishop
- Zoe Zilz, Brittany Jones
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