



Apr 4th, 4:45 PM - 5:00 PM

A practical and informative sandpiper monitoring procedure for the Salish Sea

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Ydenberg, Ronald; Lank, Dov B.; Johnston, Richard; Hope, David; and Canham, Rachel, "A practical and informative sandpiper monitoring procedure for the Salish Sea" (2018). *Salish Sea Ecosystem Conference*. 118.

<https://cedar.wwu.edu/ssec/2018ssec/allsessions/118>

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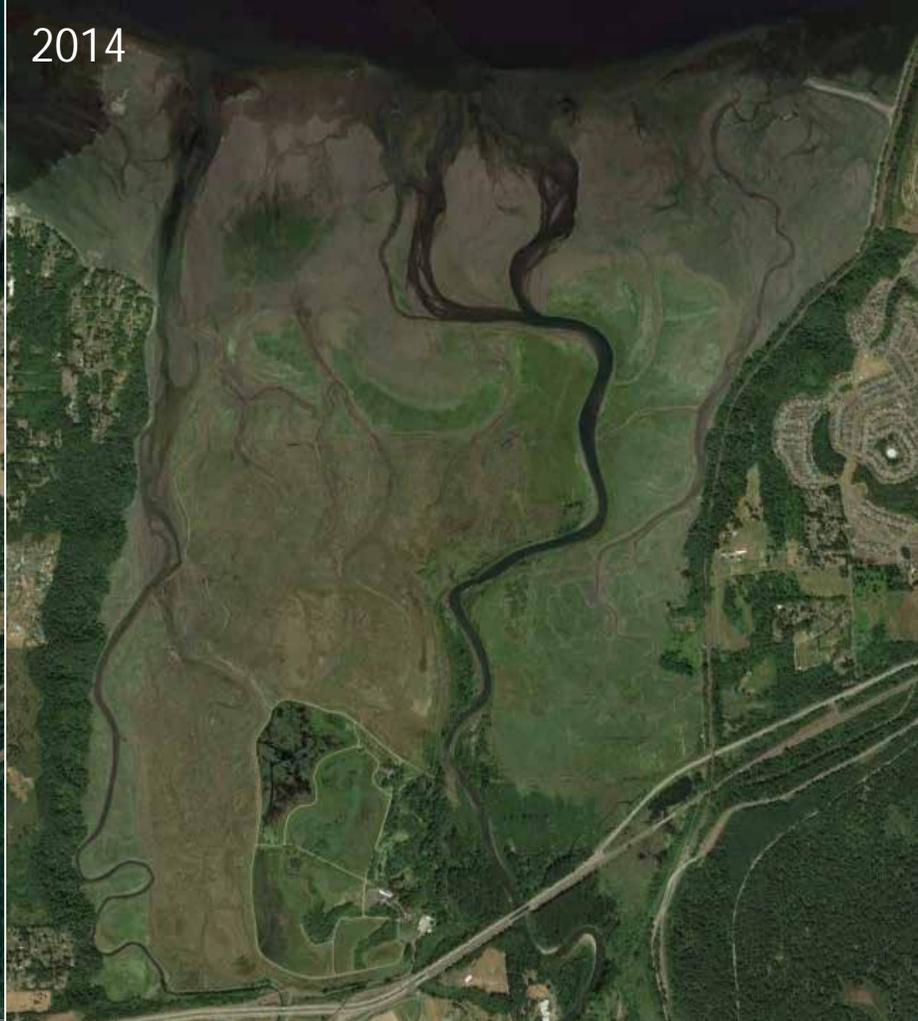
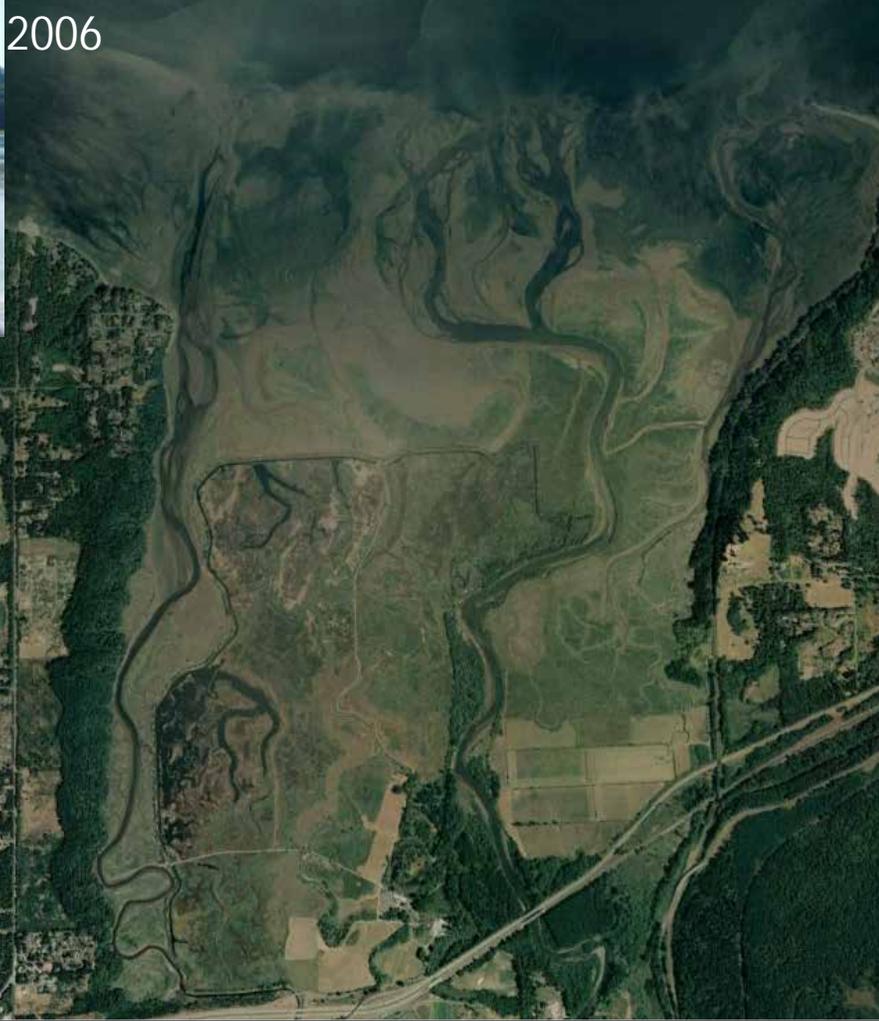
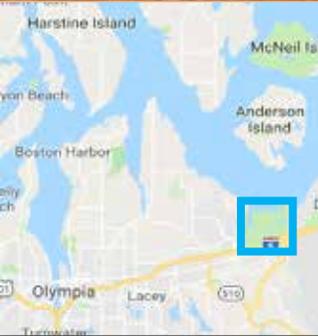
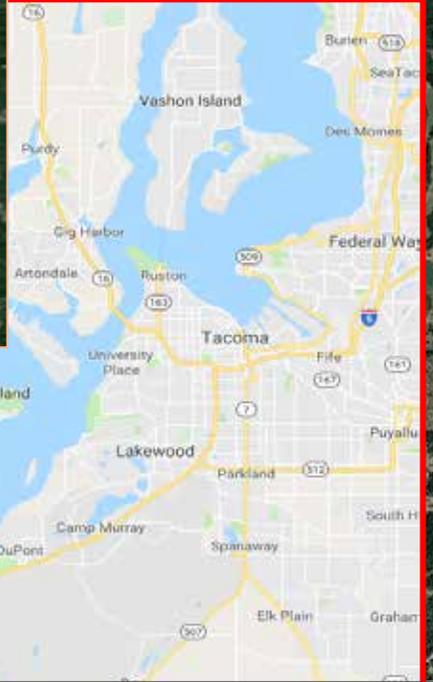
A practical and informative sandpiper monitoring procedure for the Salish Sea



Canham R
Hope D
Johnston R
Lank DB
Ydenberg RC



2006



2014

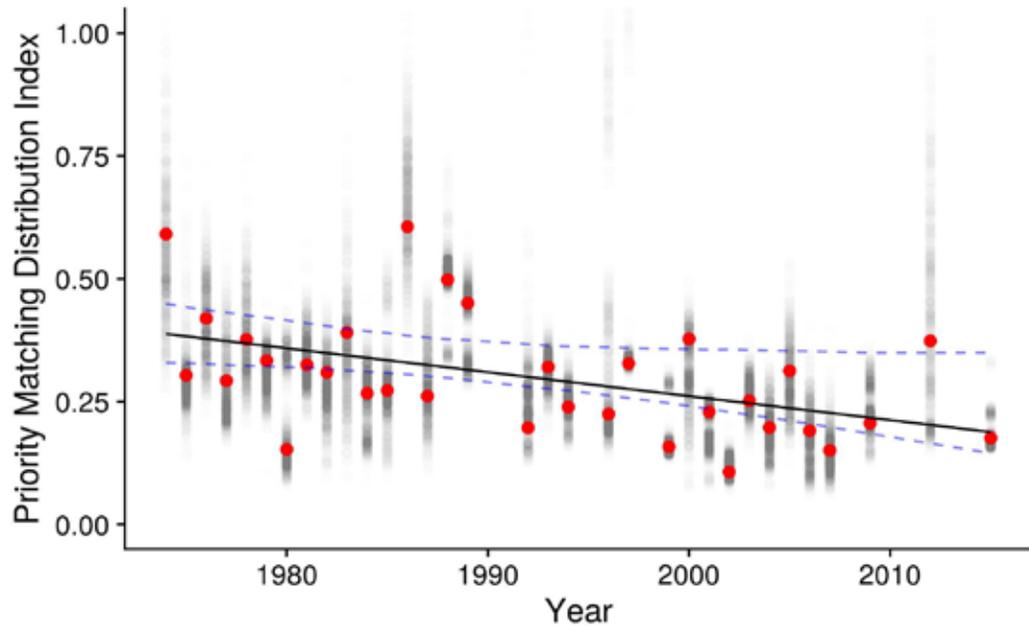
Can we use counts of shorebirds as an indicator of estuarine health?

A large number of shorebirds, likely sandpipers or similar species, are captured in flight over a wet beach at low tide. The birds are scattered across the frame, with many in the foreground and others further back. The water is shallow and reflects the light, creating a shimmering effect. The background shows the dark, wet sand of the beach.

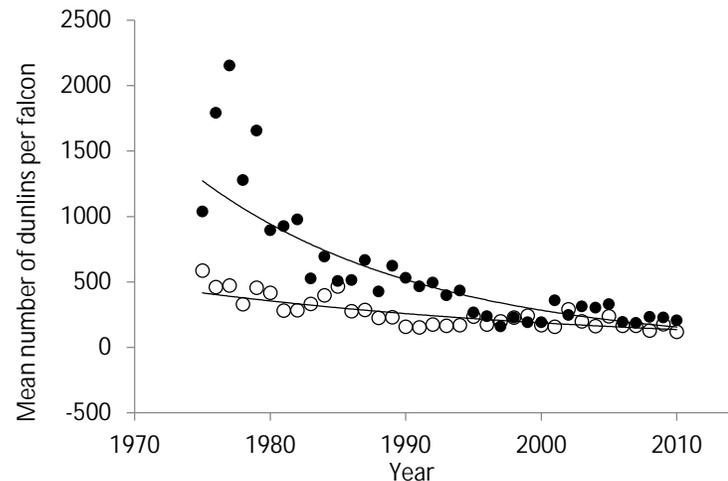
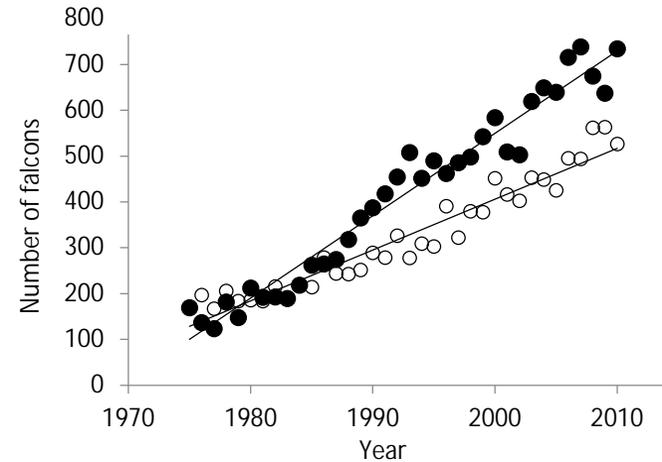
Problems with counting shorebirds

- Highly mobile
- Sensitive to changing conditions
- Migratory counts – short residences create issues

Shorebird responses to predators

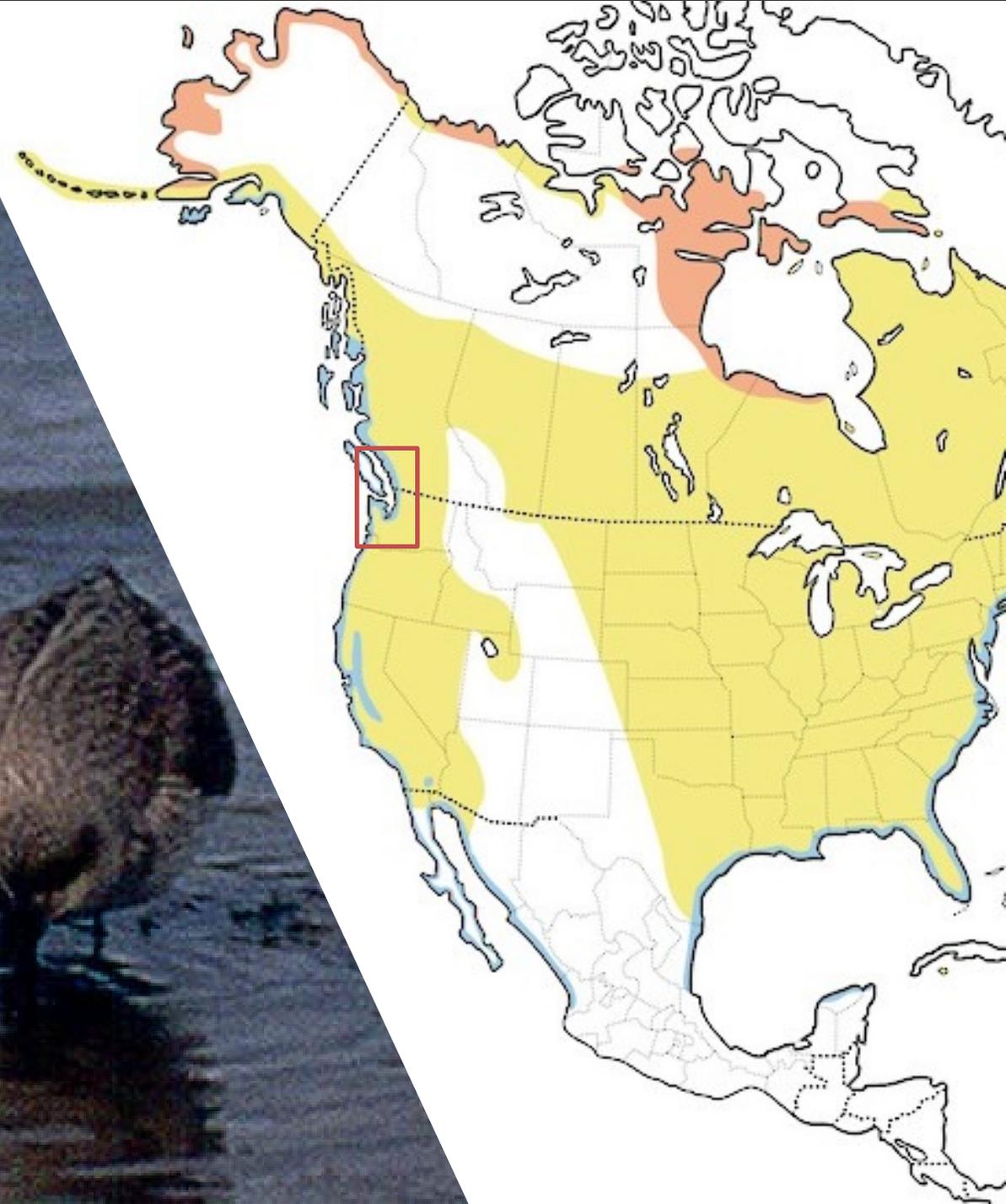


Semipalmated sandpipers have shifted their migratory stopover usage towards the safest sites and increased aggregation



Wintering Dunlin have increased their aggregation and reduced their exposure to falcons

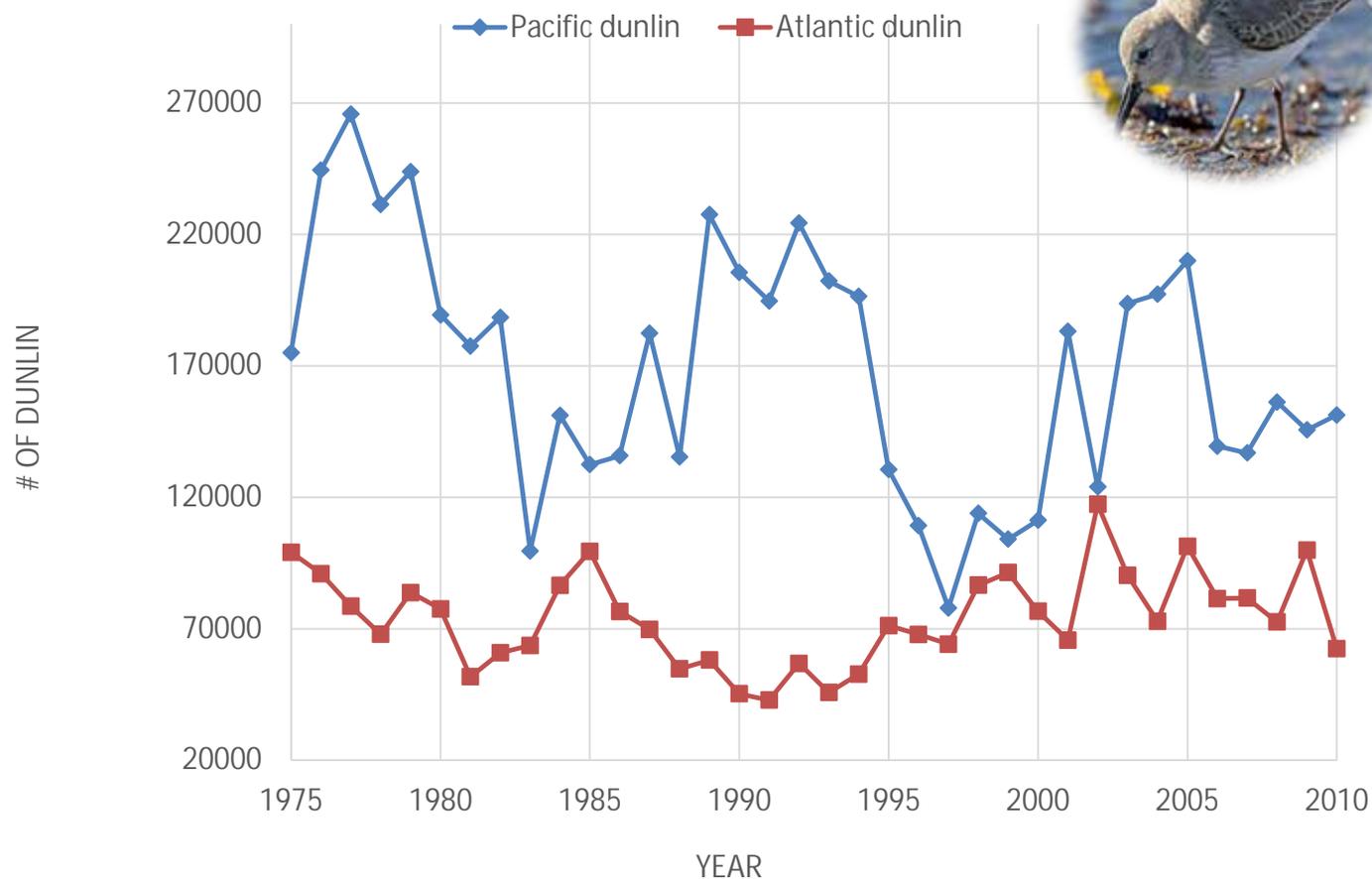
Non – breeding
dunlins: a useful
shorebird?



Dunlin abundance estimates from CBC (1975-2010)

Substantial fluctuations
NO significant long-term trends

Pacific: $r^2 = 0.03$ & $p = 0.32$;
Atlantic: $r^2 = 0.02$ & $p = 0.41$



Popul Ecol
DOI 10.1007/s10144-015-0502-5



ORIGINAL ARTICLE

Large and irregular population fluctuations in migratory Pacific (*Calidris alpina pacifica*) and Atlantic (*C. a. hudsonica*) dunlins are driven by density-dependence and climatic factors

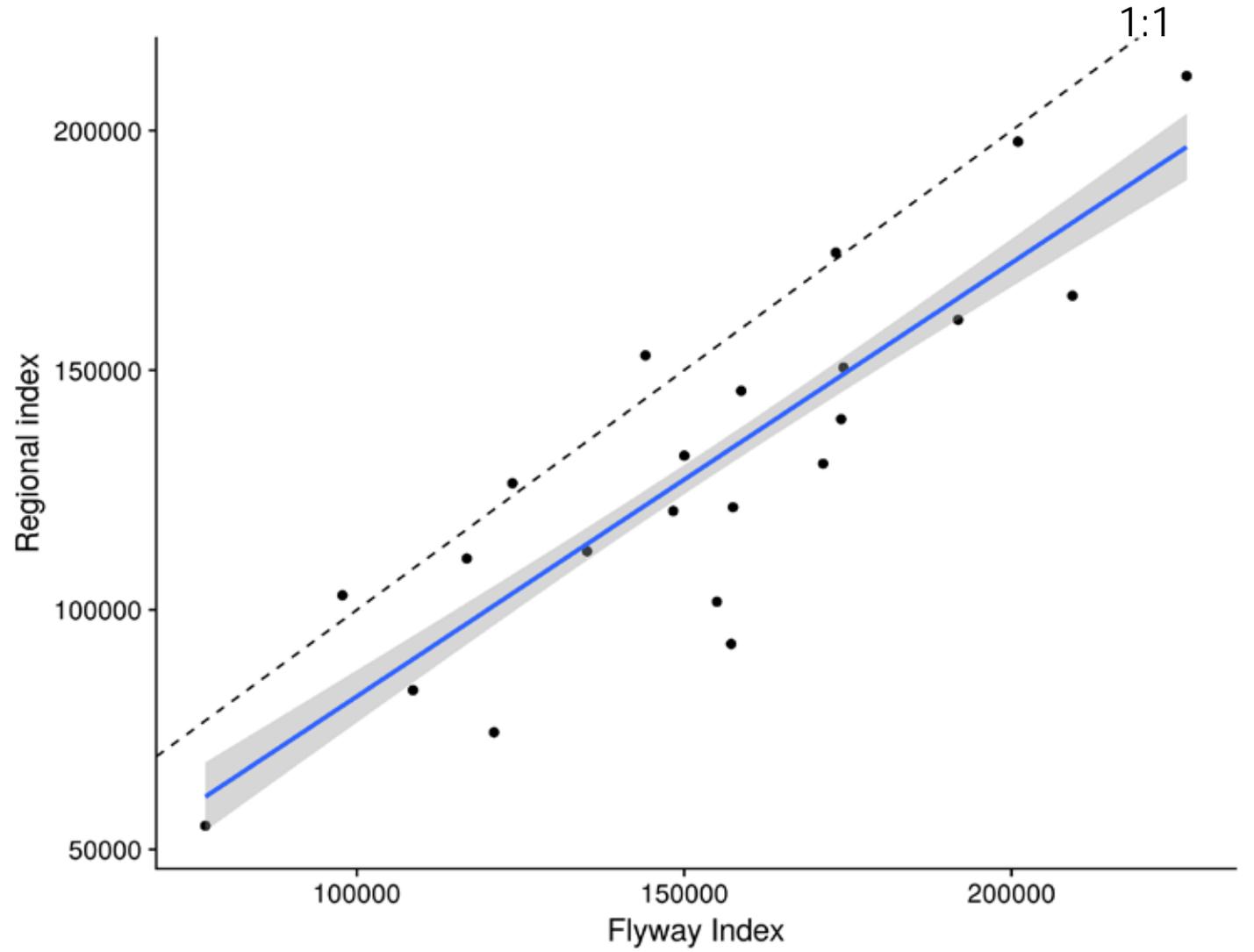
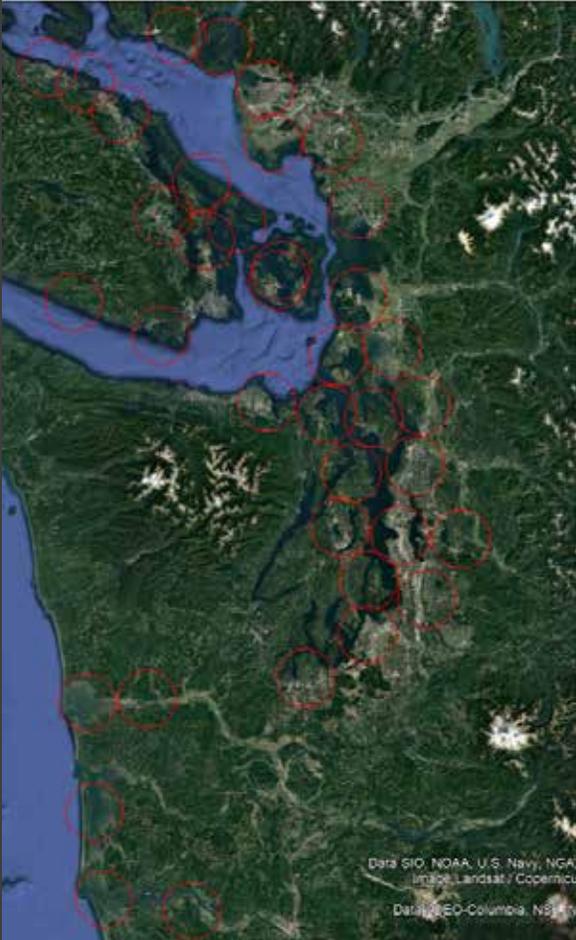
Caillin Xu¹ · Jennifer Barrett¹ · David B. Lank¹ · Ronald C. Ydenberg¹

Dunlins and Christmas Bird Counts

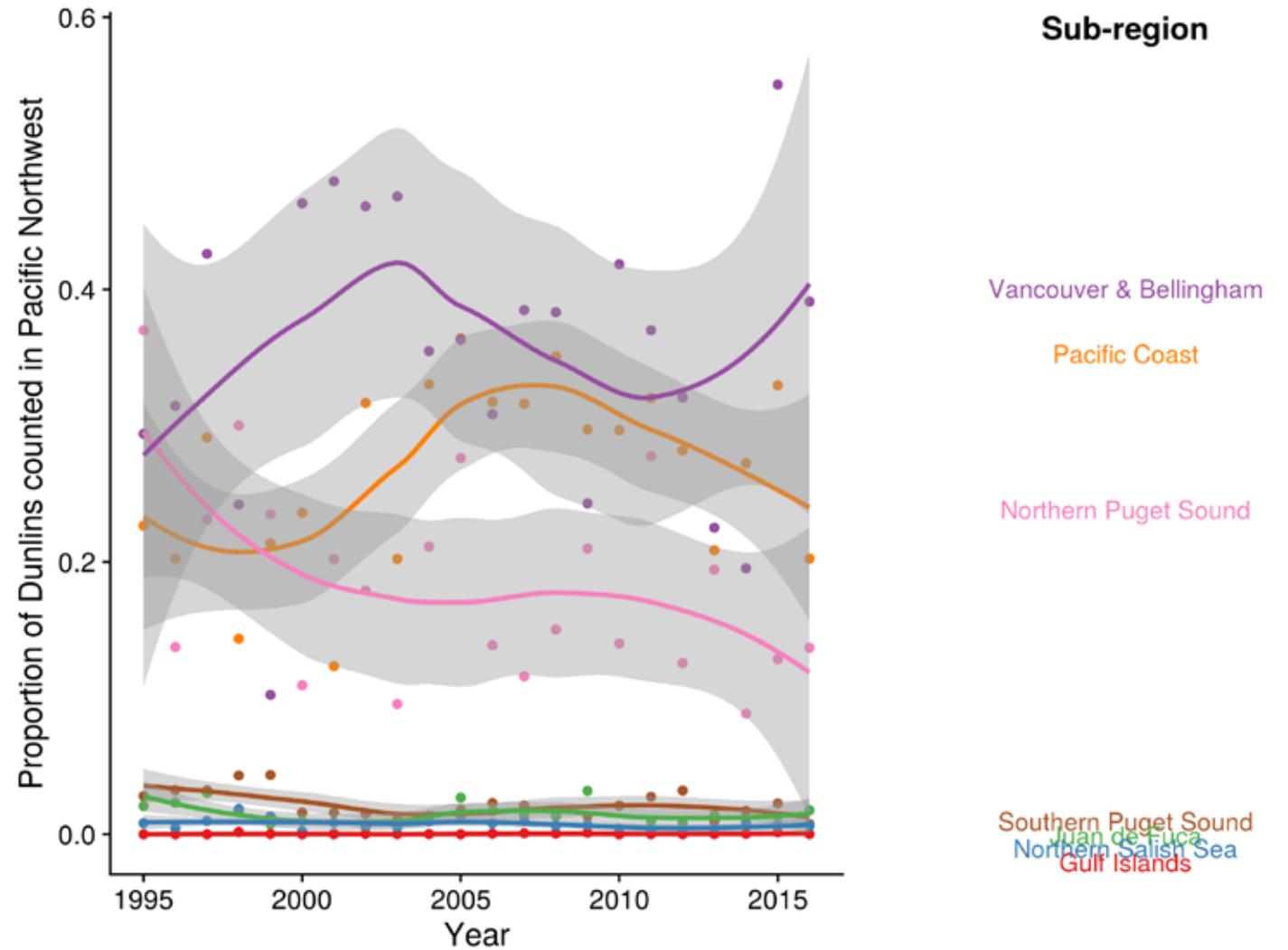
- How can we make counts of Dunlin useful as an indicator?
 - Need context from flyway and locally
- Is there an existing monitoring program that covers the Salish Sea region?
- Audubon's Christmas Bird Counts
 - Annually conducted by volunteers
 - Relatively standardized
 - Good coverage at Dunlin wintering sites



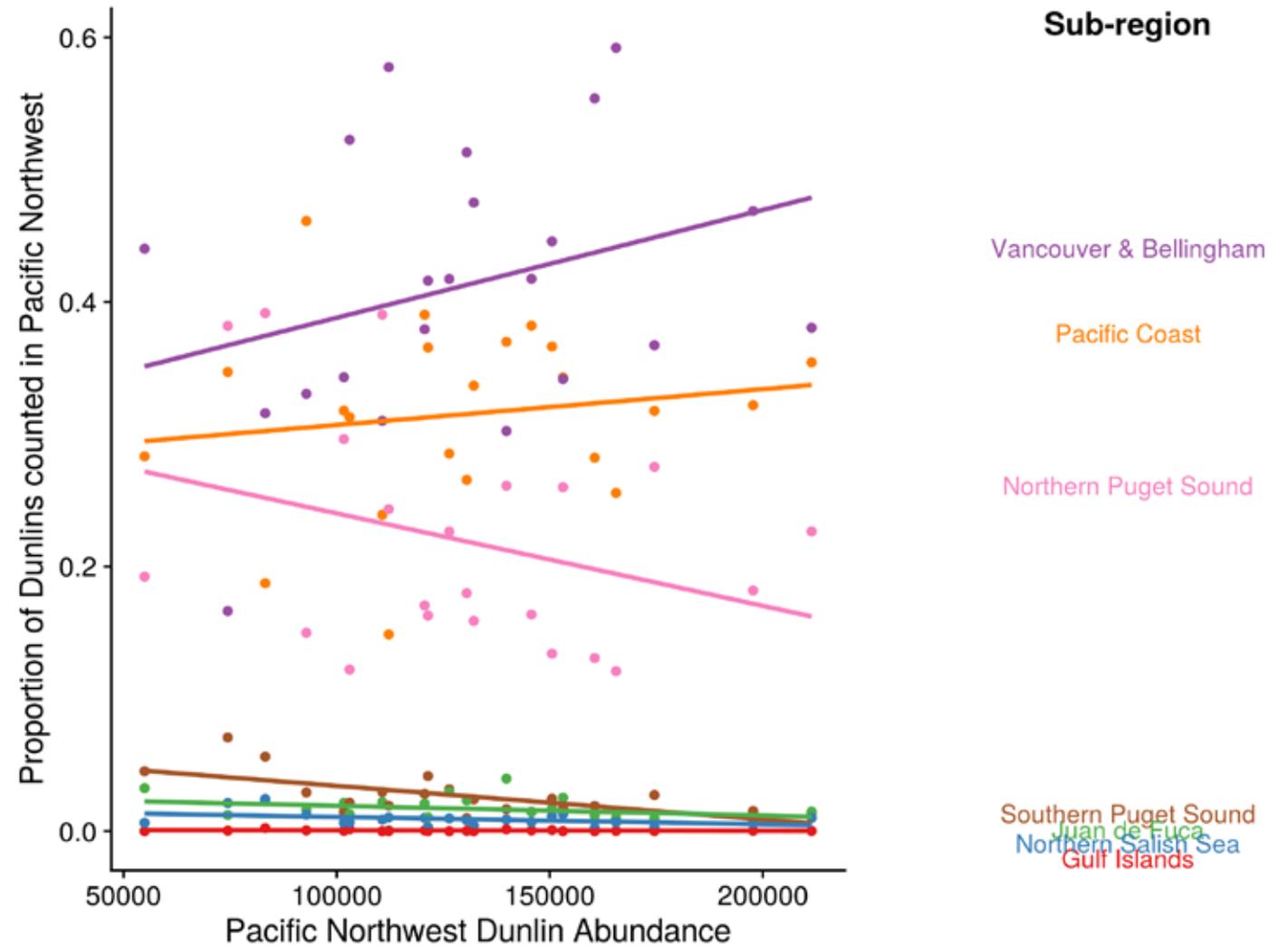
CBC Pacific NW



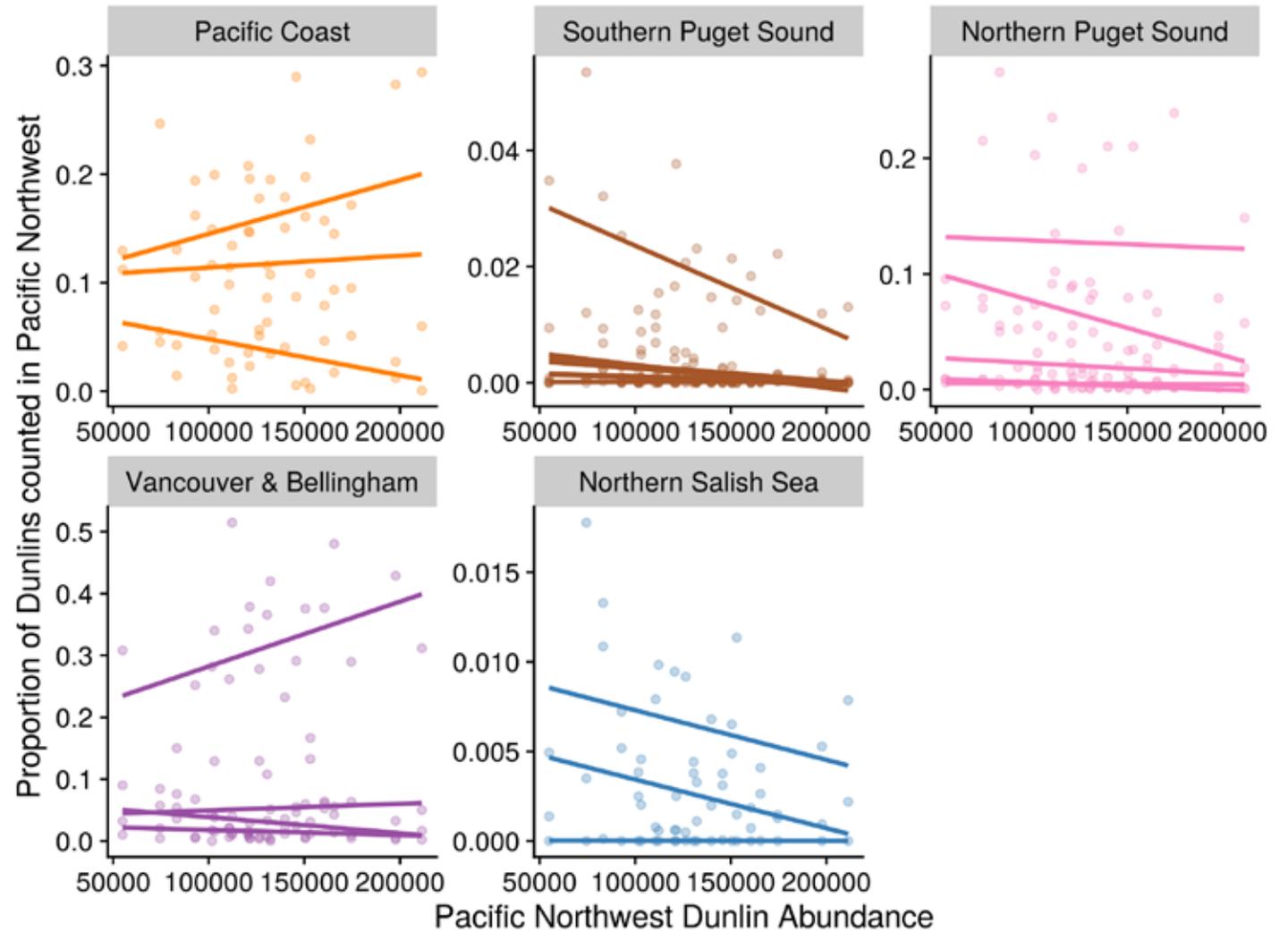
Distribution across region



Distributions across region

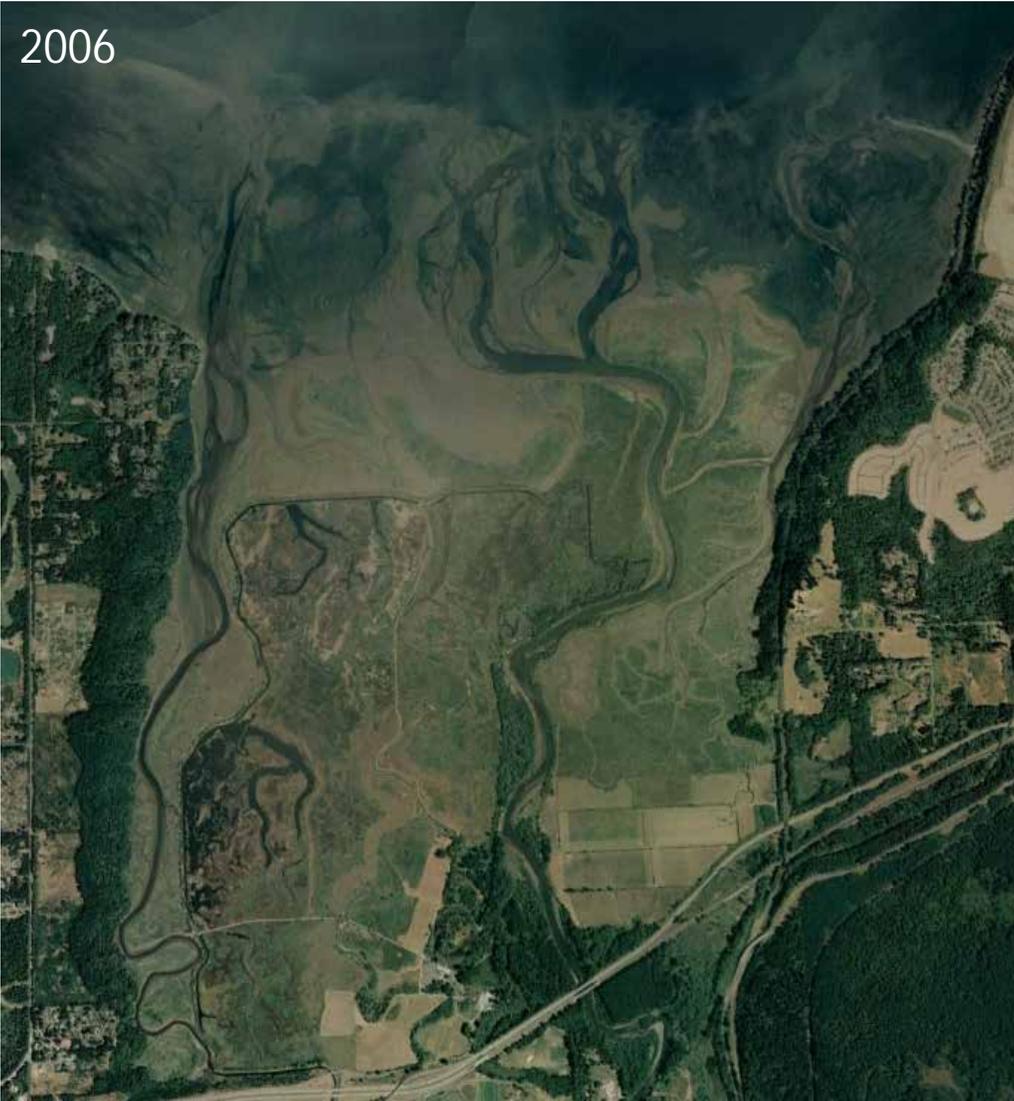


Distributions within sub-regions

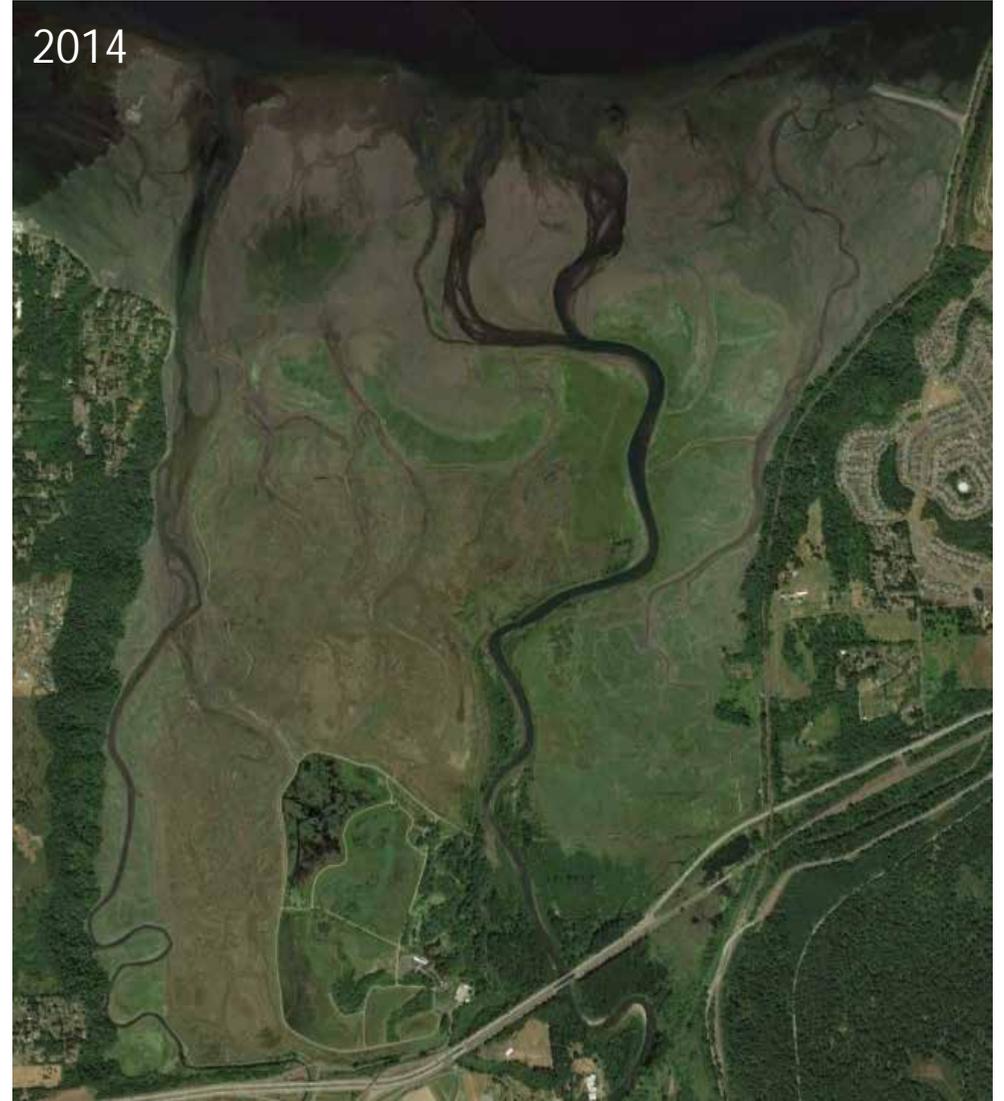


Can we use the CBC counts to look at restoration?

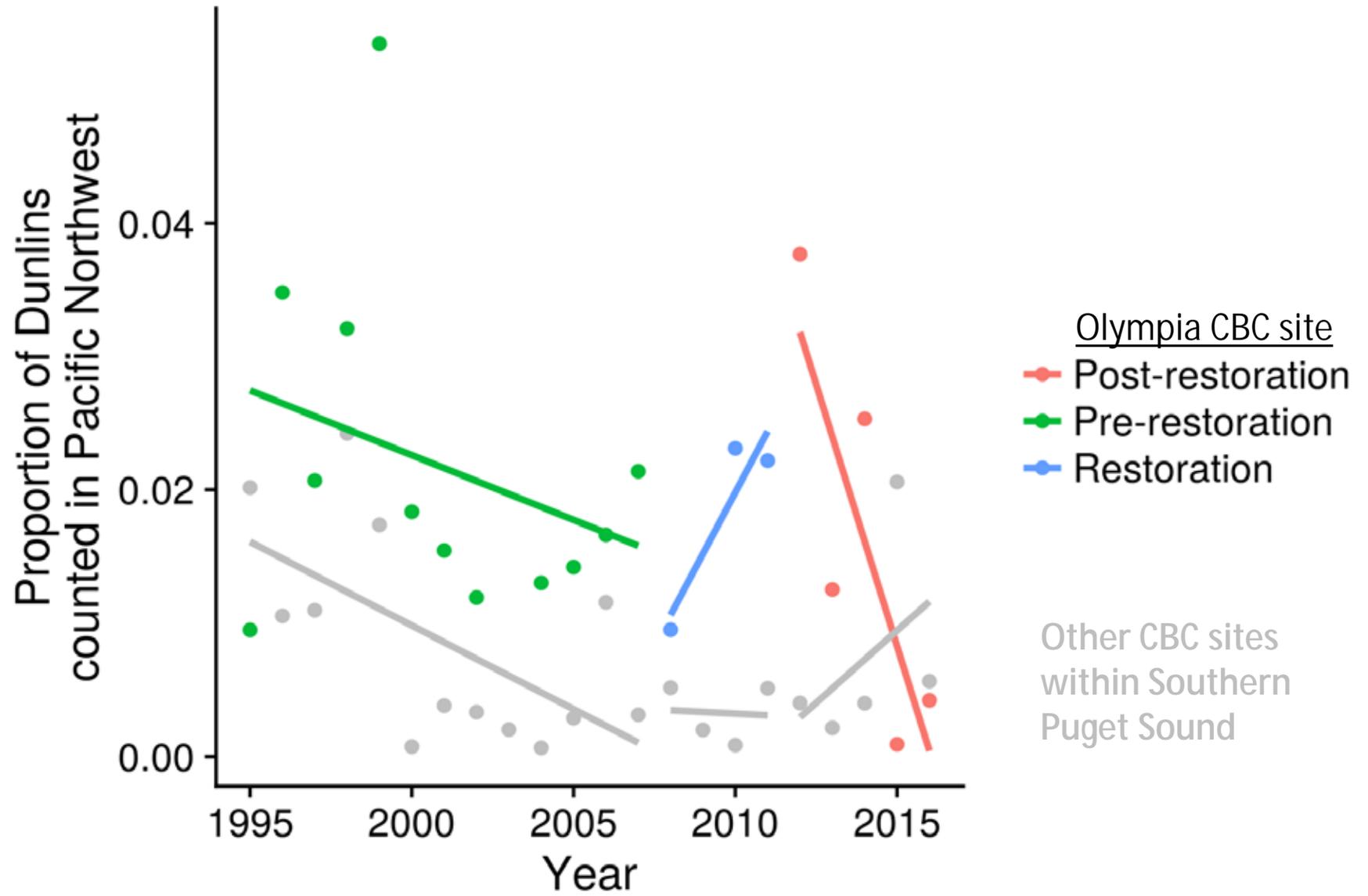
2006



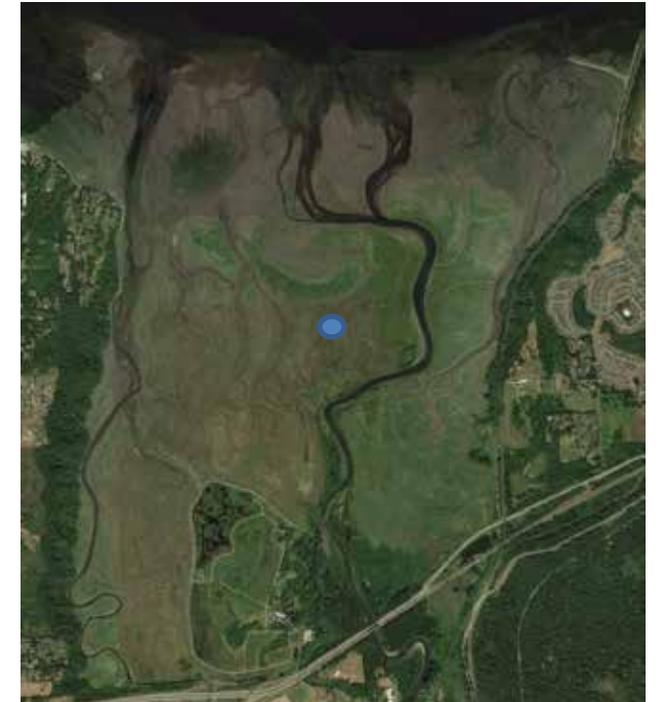
2014



Response to restoration?

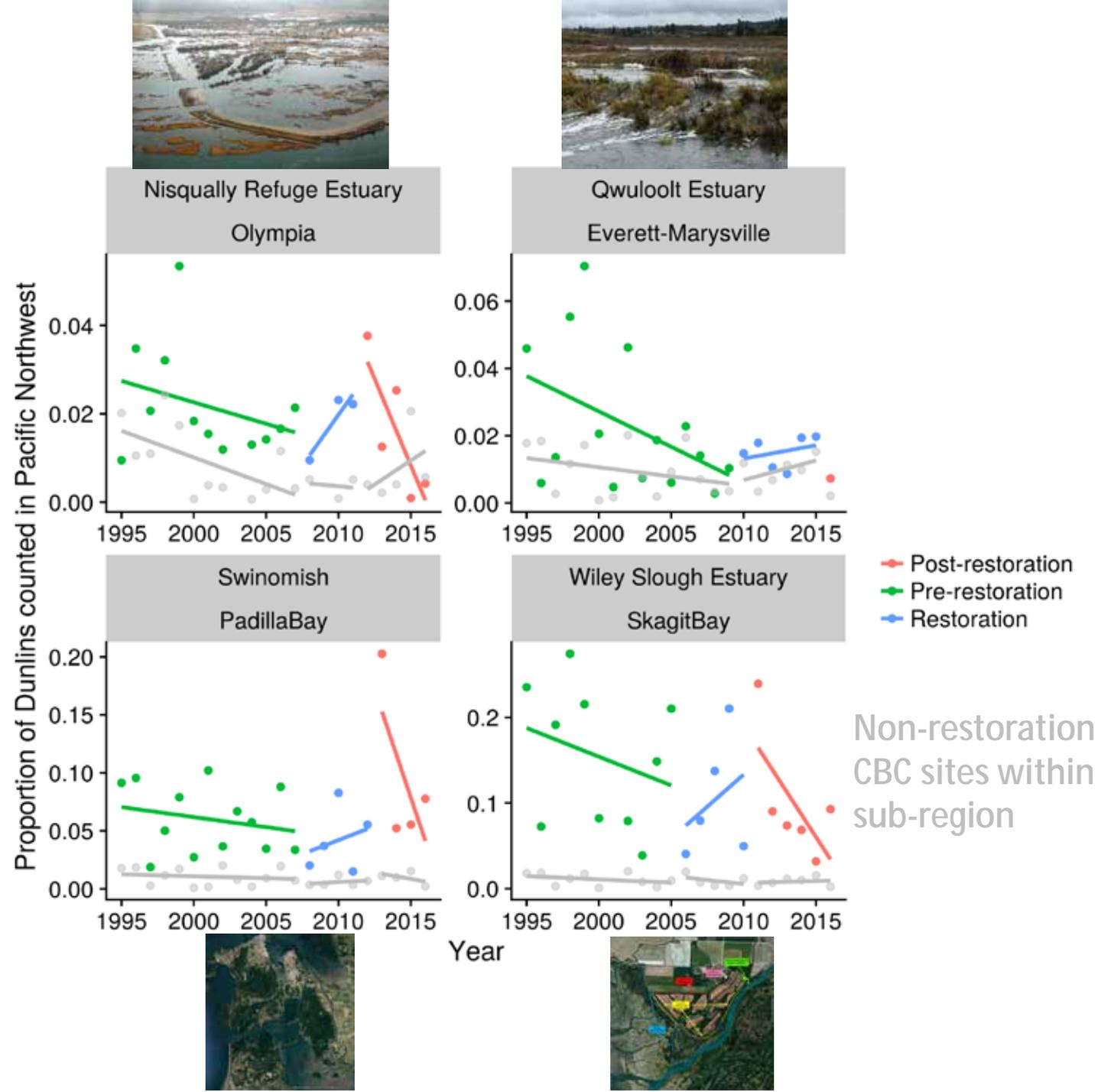


Is restored habitat good for Dunlins?



Davis, Melanie & Woo, Isa & Ellings, Chris & Nakai, Glynnis. (2016). Channel erosion, sediment accretion, and vegetative regrowth on the restoring Nisqually River Delta. 10.13140/RG.2.2.27834.49603.

Other restoration sites



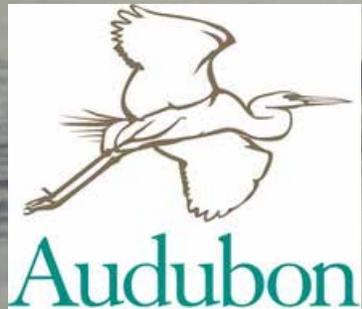
Summary

- Need to account for external changes when assessing counts
- Wintering Dunlin represent a stable, abundant indicator species
- Audubon's Christmas Bird Counts are an established annual standardized count.
- Restoration projects need to study non-target species responses in more detail
- Increased focus on areas surrounding restored area

Thank you for your attention

Data access provided by:

- National Audubon Society



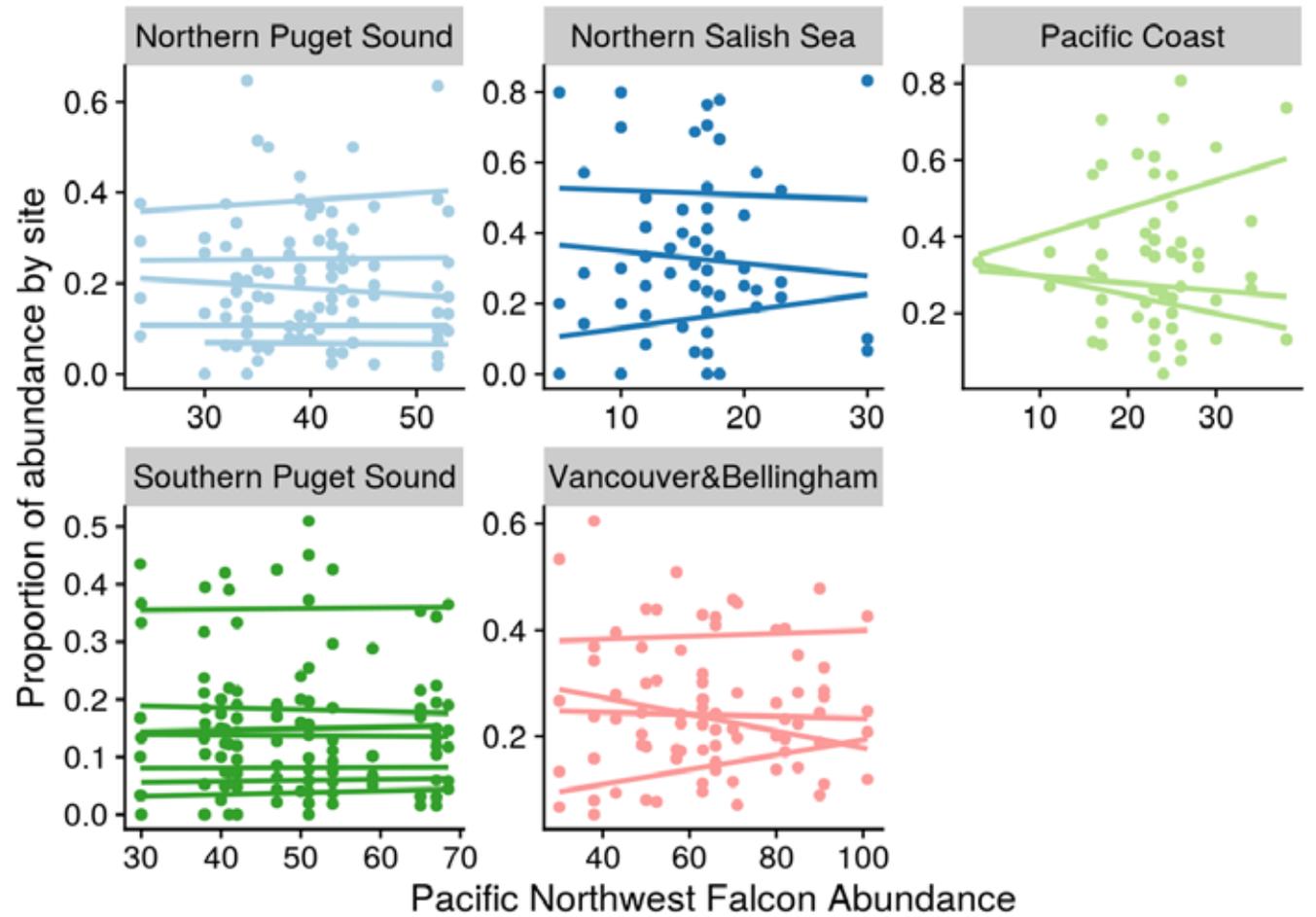
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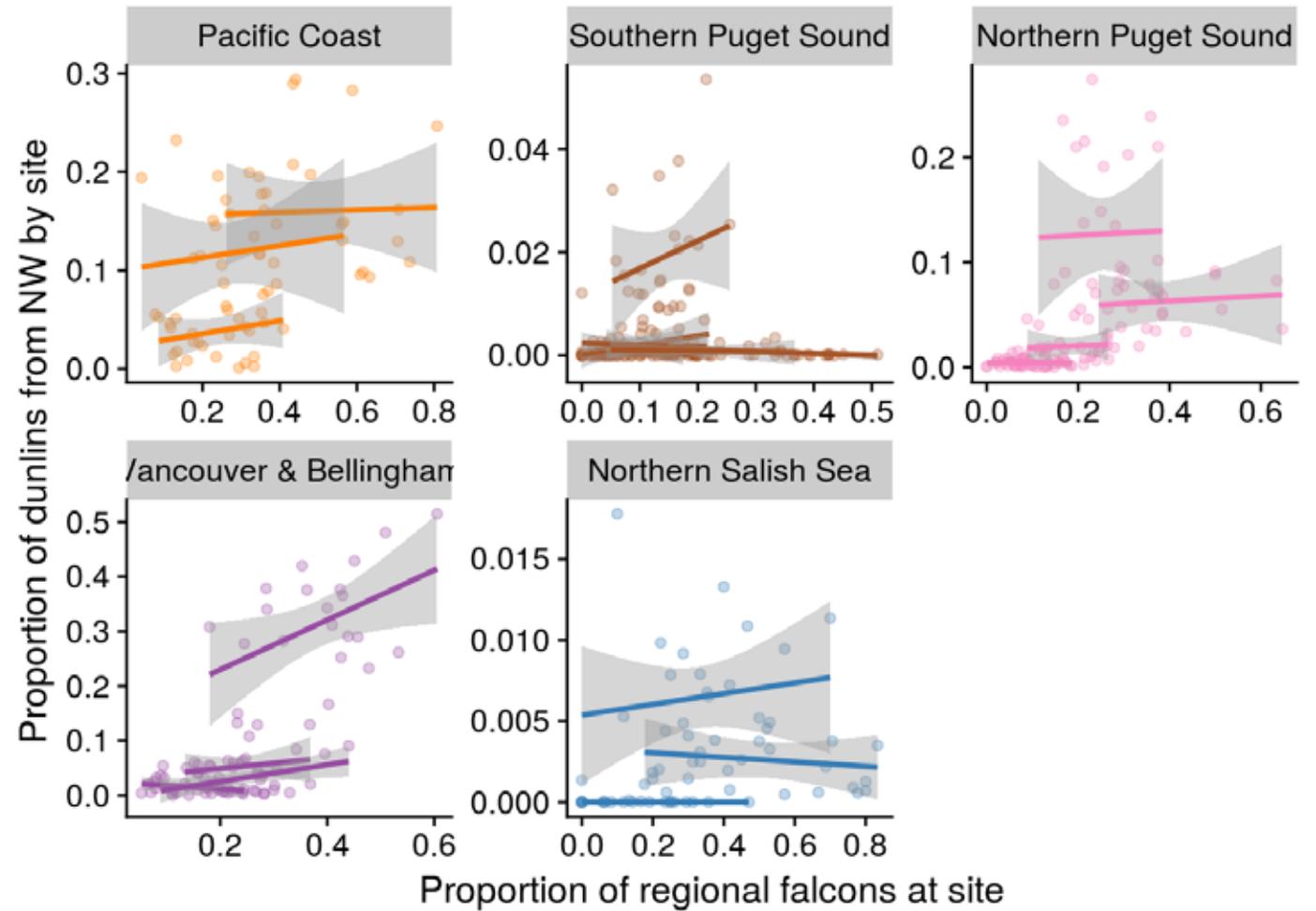
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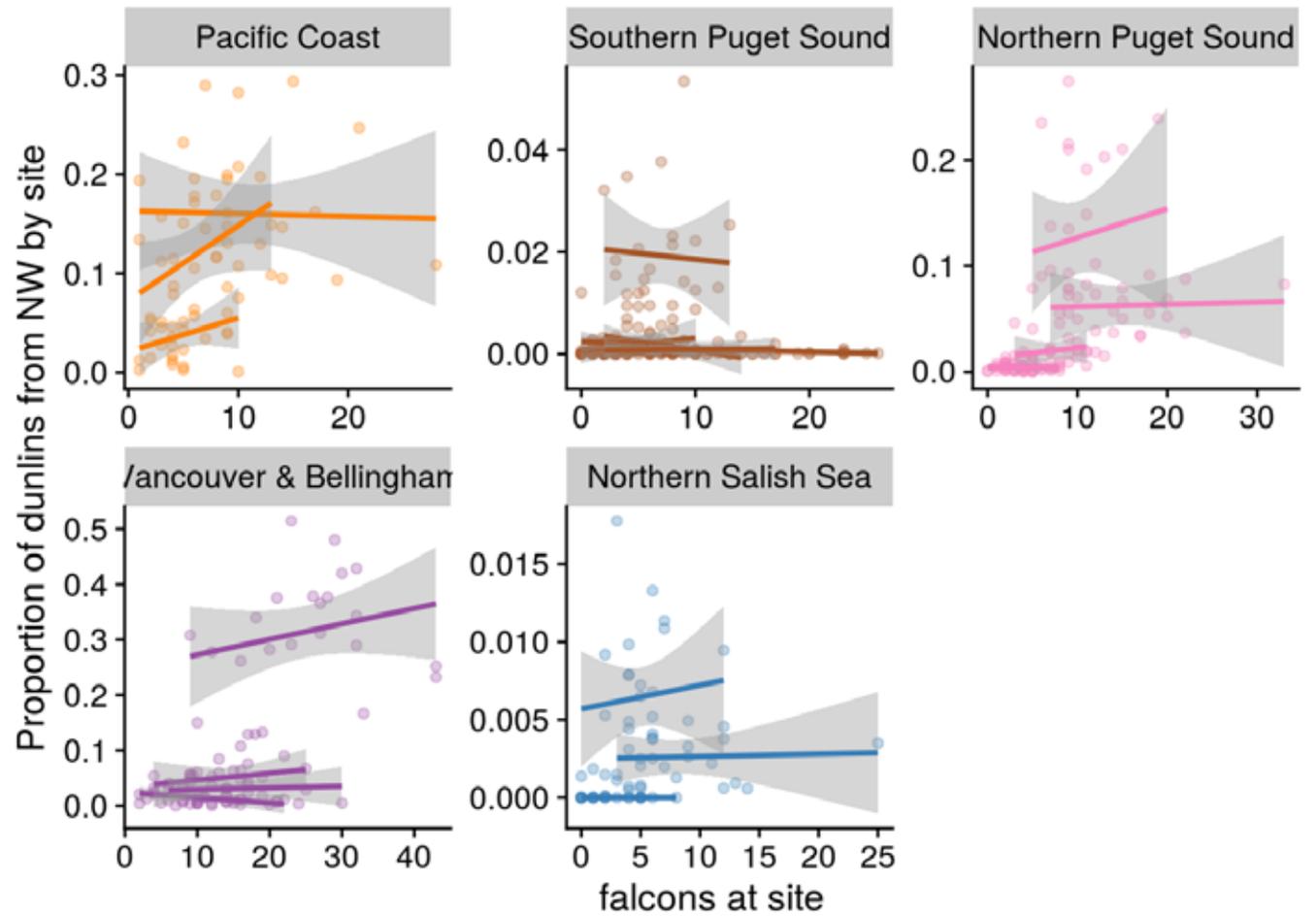
Falcons across sites



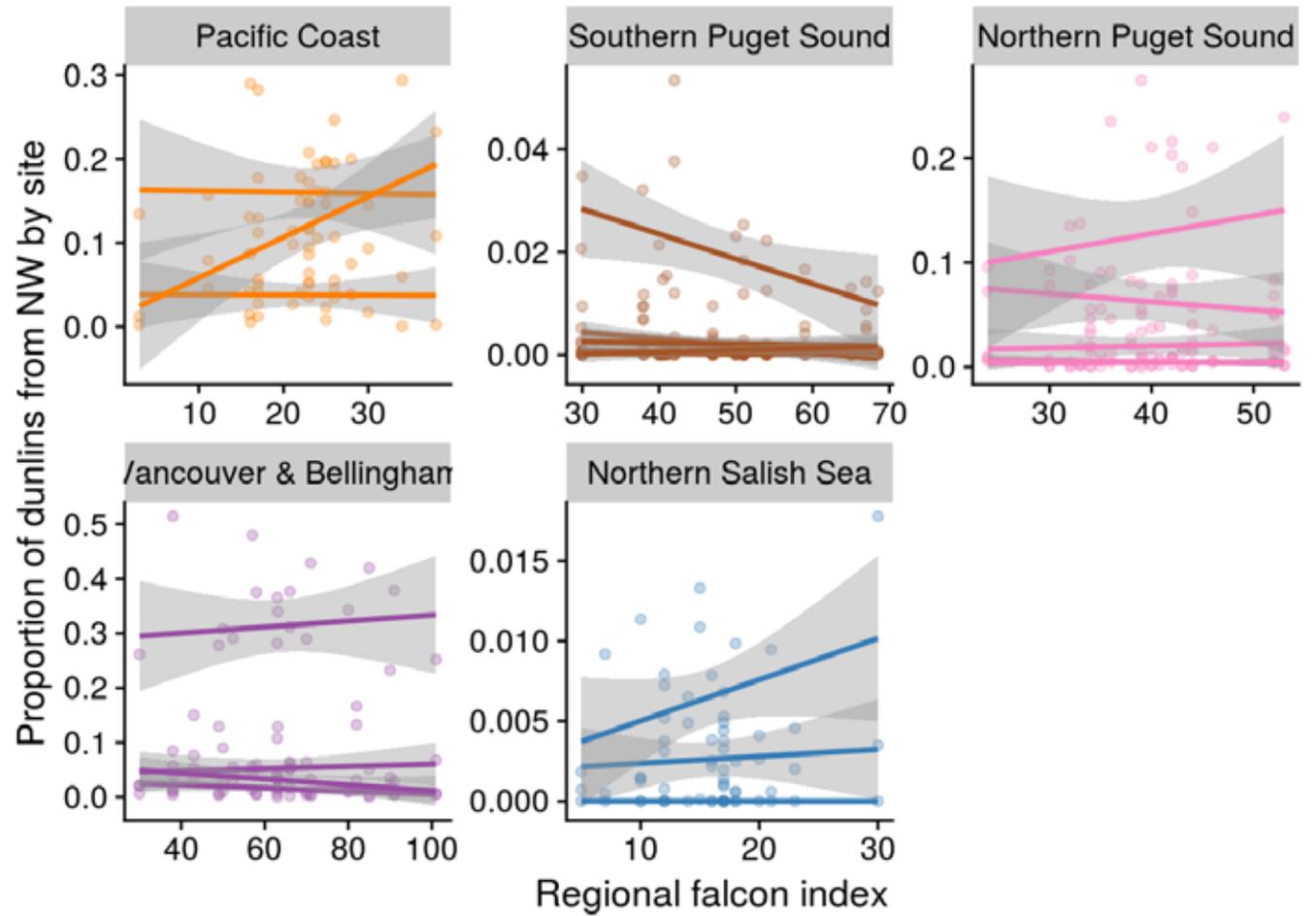
Responses to Falcons



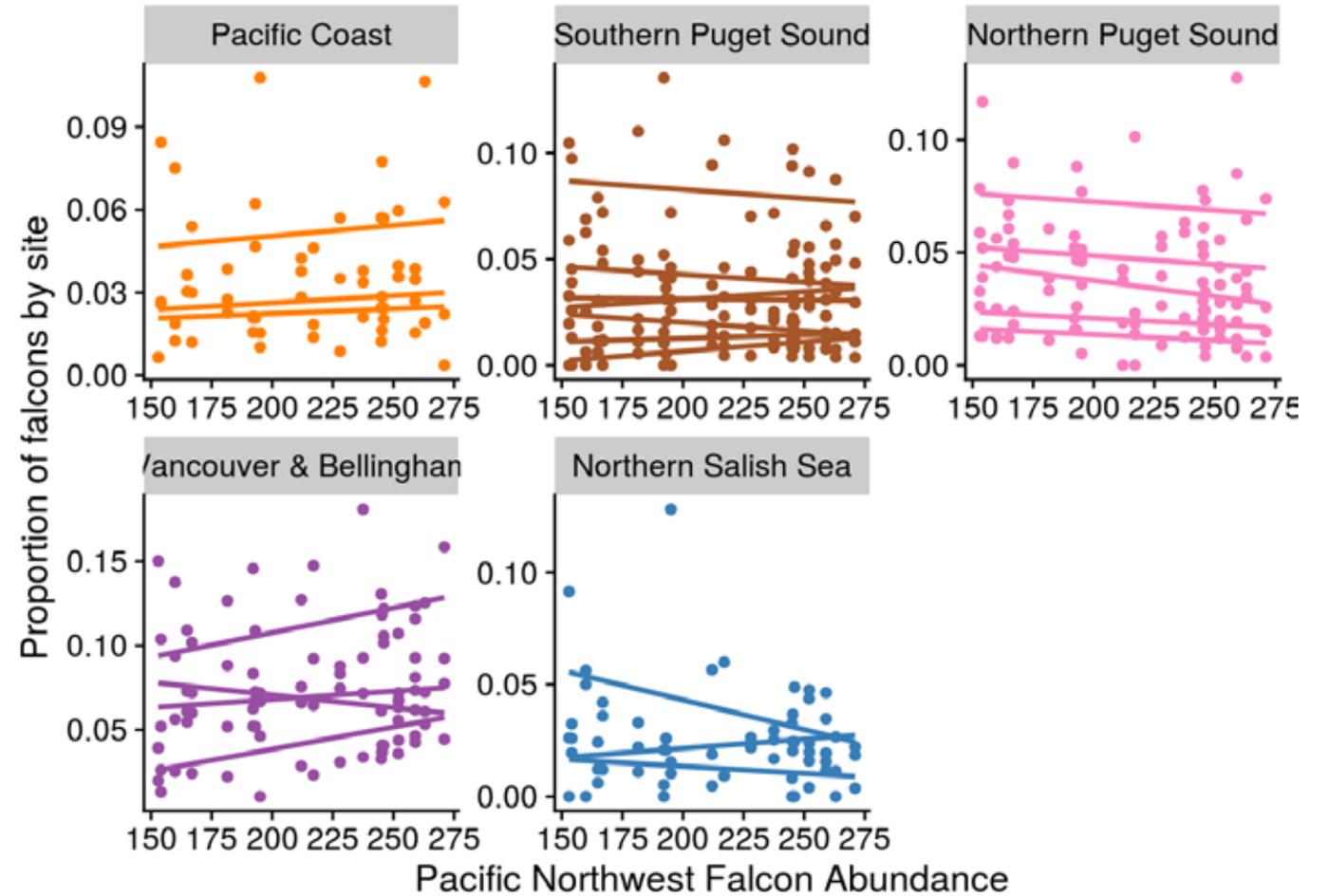
Responses to Falcons



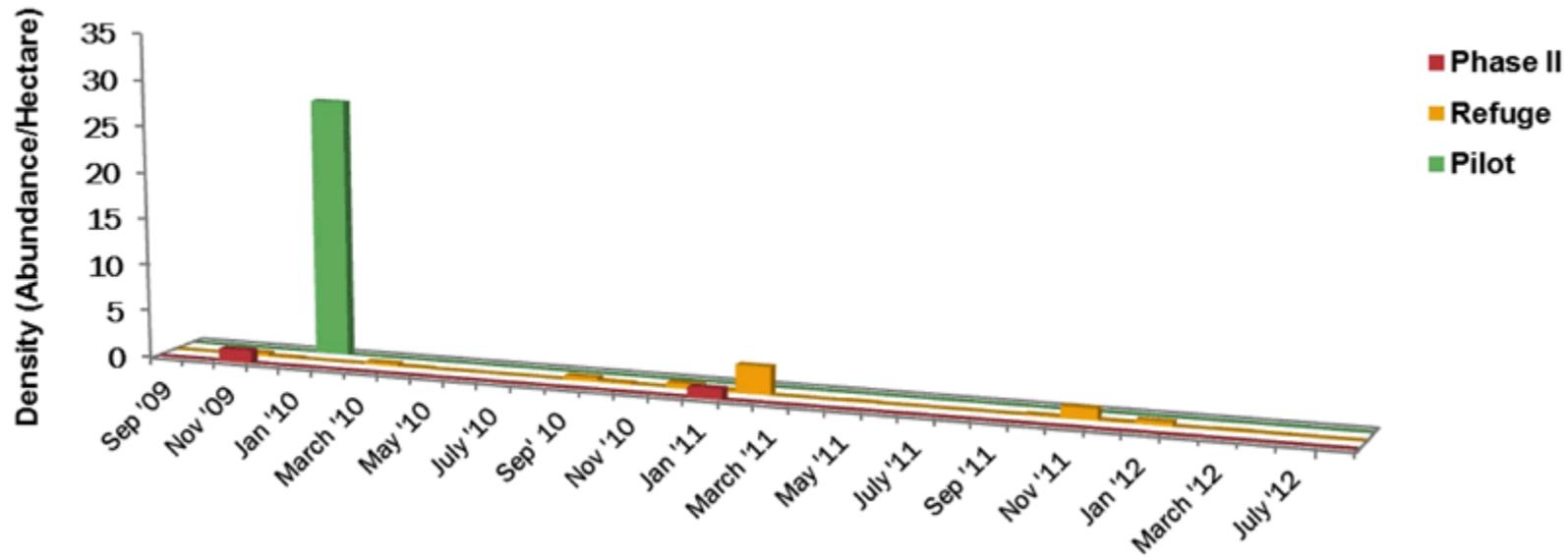
Responses to Falcons



Responses to Falcons



Number of Dunlin Observed



http://nisquallydeltarestoration.org/science_birds_dunlin.php