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A practical and informative sandpiper monitoring procedure for the Salish Sea

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A practical and informative sandpiper monitoring procedure for the Salish Sea

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

Photo: Nisquallydeltarestoration.org; Maps: Google
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: $r^2 = 0.02$ & $p = 0.41$
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
Distribution across region

- Southern Puget Sound
- Northern Puget Sound
- Vancouver and Bellingham
- Gulf Islands
- Northern Salish Sea
- Juan de Fuca
- Pacific Coast
Distributions across region

- Southern Puget Sound
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Graph showing the proportion of Dunlins counted in the Pacific Northwest, with data points and trend lines for different sub-regions.
Distributions within sub-regions

- Southern Puget Sound
- Pacific Coast
- Northern Puget Sound
- Gulf Islands
- Vancouver and Bellingham
- Northern Salish Sea
- Juan de Fuca
- Southern Puget Sound
- Pacific Coast
Can we use the CBC counts to look at restoration?
Response to restoration?

Other CBC sites within Southern Puget Sound

Proportion of Dunlins counted in Pacific Northwest

Year


Olympia CBC site
Post-restoration
Pre-restoration
Restoration

Other CBC sites within Southern Puget Sound
Is restored habitat good for Dunlins?

Other restoration sites

- Nisqually Refuge Estuary
  - Olympia
- Qwuloolt Estuary
  - Everett-Marysville
- Swinomish
  - Padilla Bay
- Wiley Slough Estuary
  - Skagit Bay

Non-restoration CBC sites within sub-region
• 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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Falcons across sites
Responses to Falcons
Responses to Falcons
Responses to Falcons
Responses to Falcons