Fall & Early Winter Marine Bird Surveys in Prince William Sound

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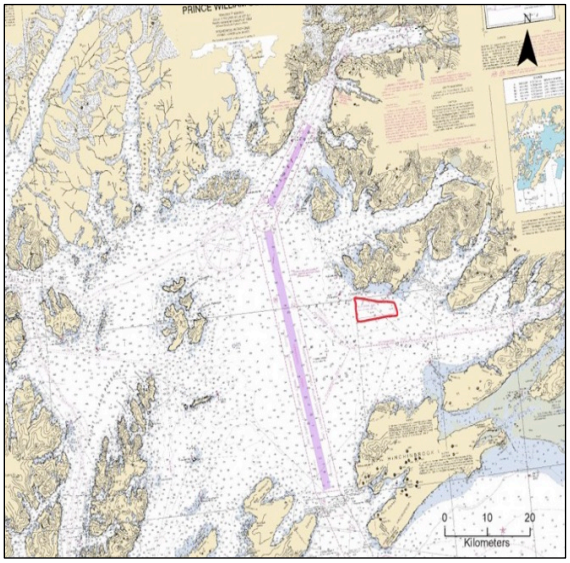
Background

1989 Exxon Valdez Oil Spill injured overwintering marine birds including:

- 9 marine bird species
- 1 marine bird species group
- 3 species have still not recovered

2

Historically, tanker escort zone under-surveyed



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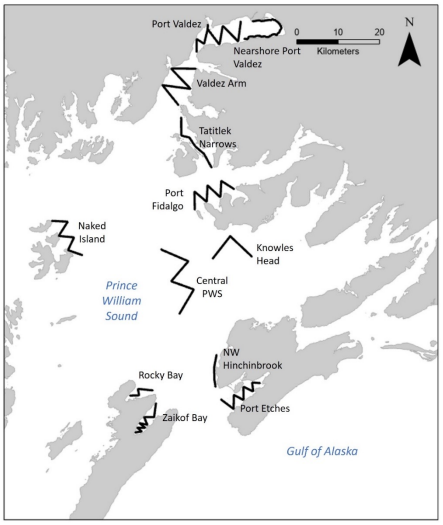
Objectives

- Conduct marine bird and marine mammal transects in under-surveyed areas in & around PWS tanker escort zone during
  - fall (**September**)
  - early winter (**November**)
- Provide recommendations for prioritizing oil spill response efforts in and around the tanker escort lane



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Field Methods

- 300 m wide strip along fixed transects (150 m each side of vessel)
- Record species, number, behavior
- Calculate relative density for each 3 km segment of transect
- Marine mammals recorded out to 1 km

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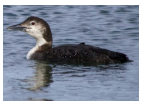
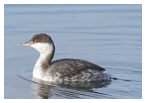
15 Species Groups


Loons


Mergansers


Murres


Grebes

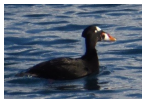

Large Gulls


Murrelets


Cormorants


Small Gulls


Guillemots


Deep Diving Ducks


Kittiwakes


Shearwaters


Inshore Ducks


Puffins

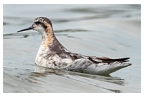

Phalaropes

Photo credits: VJ Anderson, D. Keats, A. Riego & C. McClarren, D. Daniels, R. Knight, A. Schmierer, G. Schechter, A. Berndtsson, G. Smith, B. Yurasits, J.J. Harrison, L. Whitehouse (USFWS)

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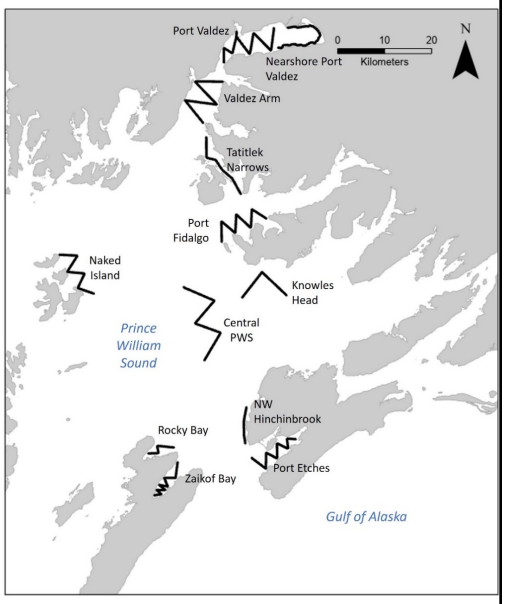
Results

- **September** 229 km

  2,820 birds, 21 species
  (2024: 1,551 Birds, 26 spp)

- **November** 221 km

  792 Birds, 26 species
  (2024: 796 Birds, 28 spp)



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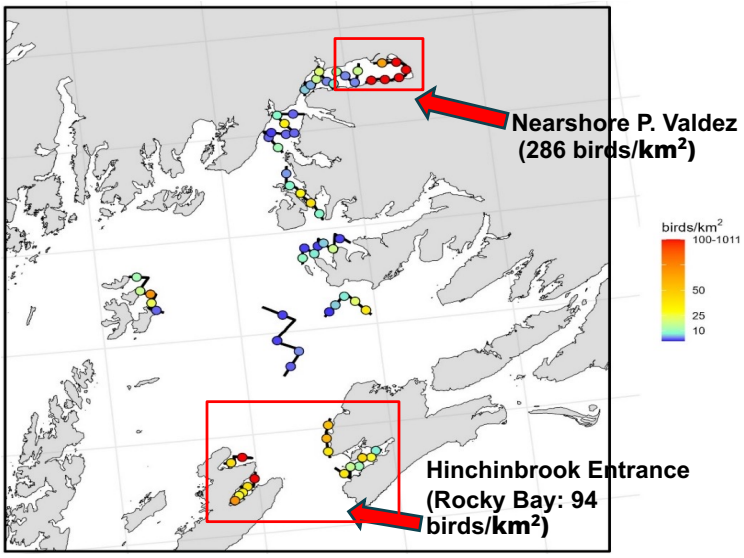
High density areas - September



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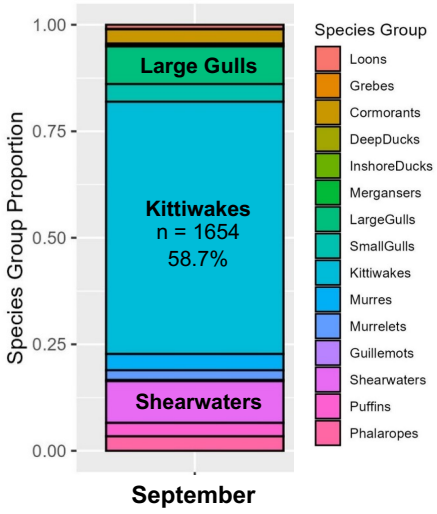
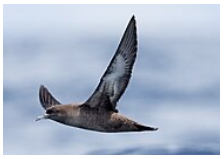
Species Composition





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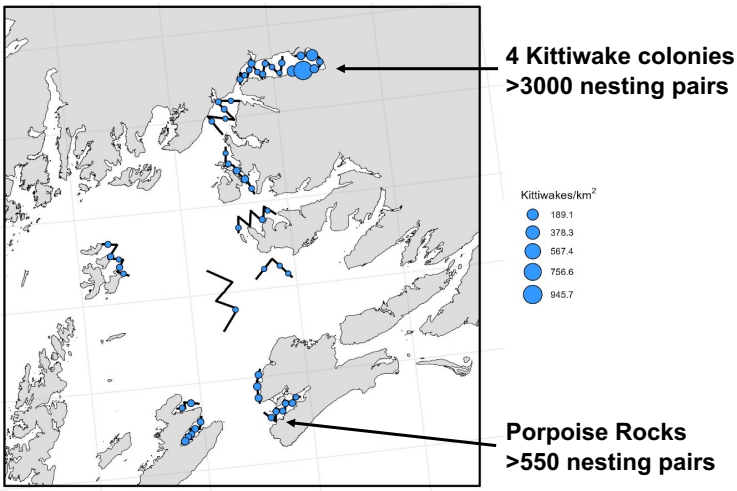
September Kittiwake Densities



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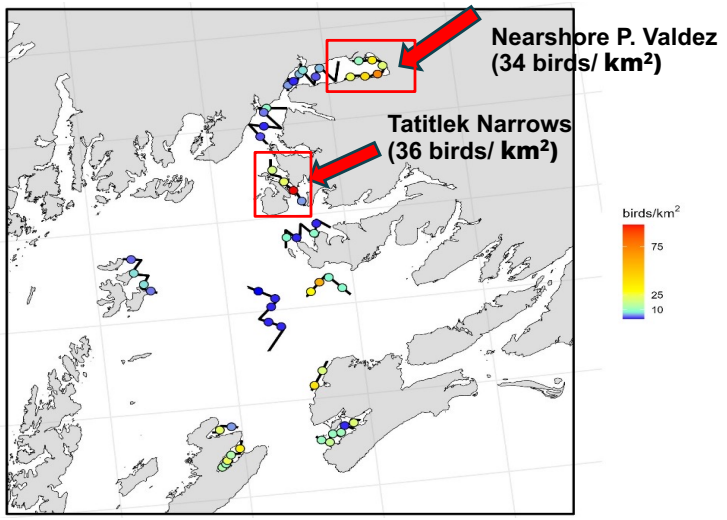
High density areas - November



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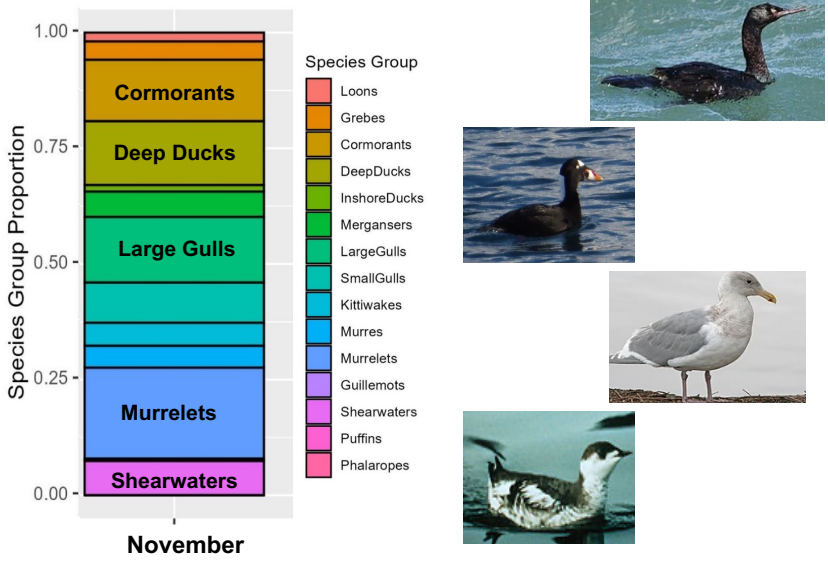
Species Composition



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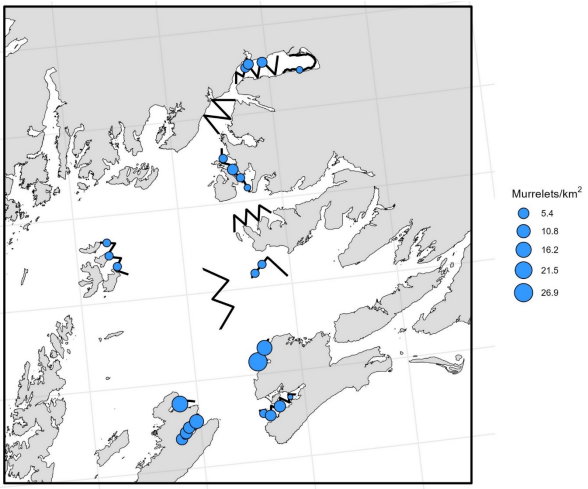
November Murrelet Densities



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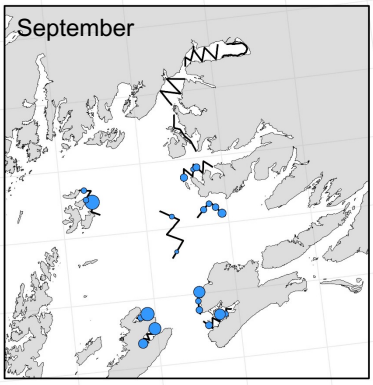
Shearwaters



Shearwaters/km²
9.3
18.6
27.8
37.1
46.4

Photo credits: M. Harms

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Results: Marine Mammals (including beyond 300 m)

Species	Sept	Nov
Dall's Porpoise	4	5
Harbor Seal	117	0
Steller Sea Lion	77	17
Sea Otter	56	108
Humpback Whale	1	0

No killer whales or harbor porpoises observed on or near transects in either survey


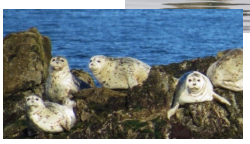
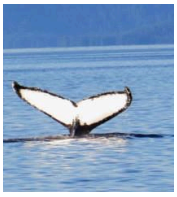

Photo credits: M. Baird, A. Morkill,

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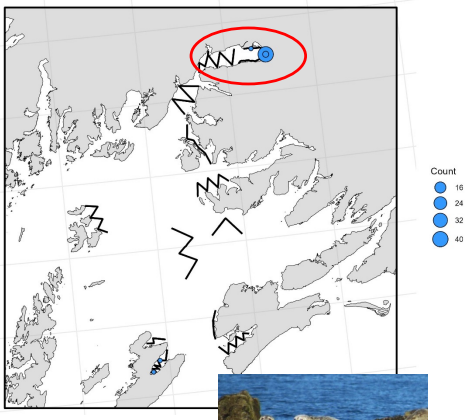
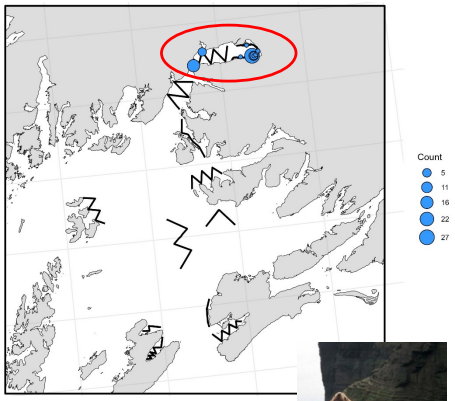
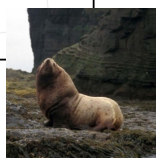
September 2025

Seals



Sea Lions





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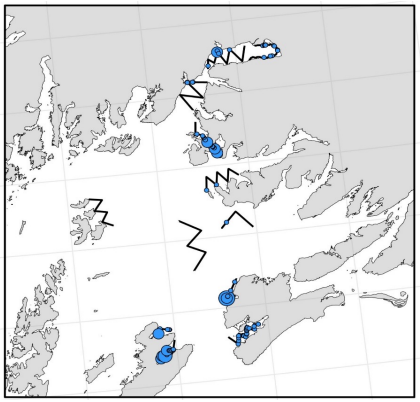
November 2025

Sea Otters



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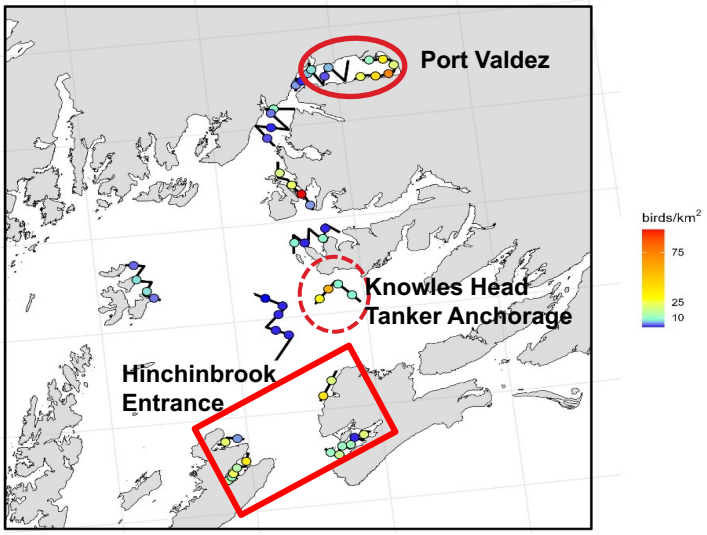
Recommendations – Priority Areas



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Recommendations - Priority Areas for Protection

Port Valdez
Fall: high abundance of kittiwakes, large gulls, seals, sea lions due to proximity to colonies & fish hatchery
Early Winter: deep and shallow ducks (extensive mudflats)

Hinchinbrook Entrance
Fall: Porpoise Rocks (multiple species)
Early Winter: offers protected waters from Gulf of Alaska

Knowles Head Tanker Anchorage
Fall & Early Winter: juvenile herring nursery & overwintering adult herring attract multiple bird species

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Spill response planning

- Our data are important for planning and refining oil spill response efforts around the tanker lane
- Environmental Response Management Application (ERMA)
  - Online mapping tool to aid resource managers
  - Informs environmental response, damage assessment, recovery/restoration efforts
- Data contributions to ERMA
  - March (2021-2023)
  - High Use Areas: March (2007-2023)
  - September & November (2024-2025)
- Future Environmental Sensitivity Index update

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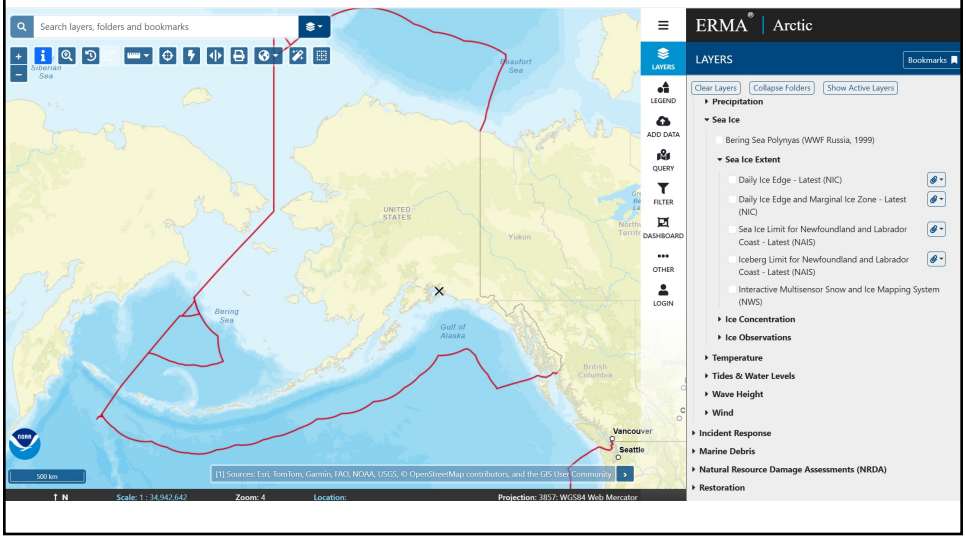
ERMA
https://erma.noaa.gov/arctic#layers



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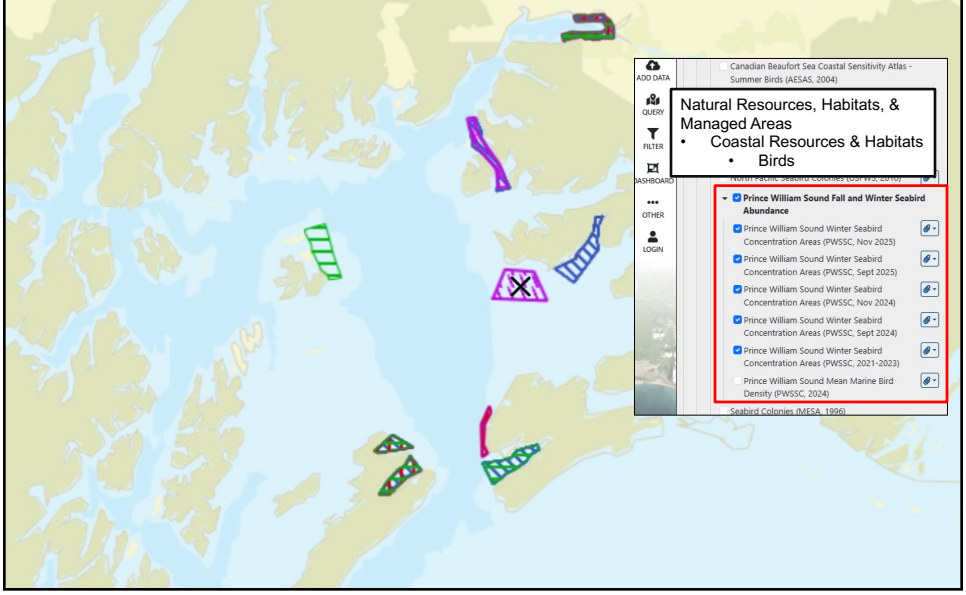
PWSSC data contributions



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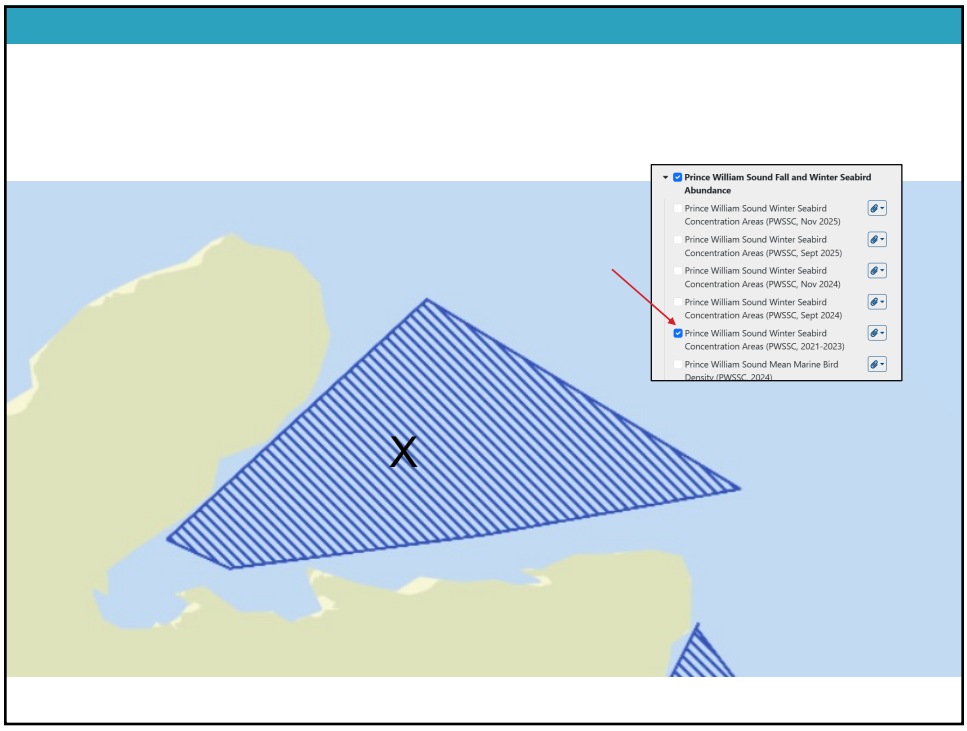
Prince William Sound Fall and Winter Seabird Abundance
Prince William Sound Winter Seabird Concentration Areas (PWSSC, Nov 2025)
Prince William Sound Winter Seabird Concentration Areas (PWSSC, Sept 2025)
Prince William Sound Winter Seabird Concentration Areas (PWSSC, Nov 2024)
Prince William Sound Winter Seabird Concentration Areas (PWSSC, Sept 2024)
Prince William Sound Winter Seabird Concentration Areas (PWSSC, 2021-2023)
Prince William Sound Mean Marine Bird Density (PWSSC, 2024)
X

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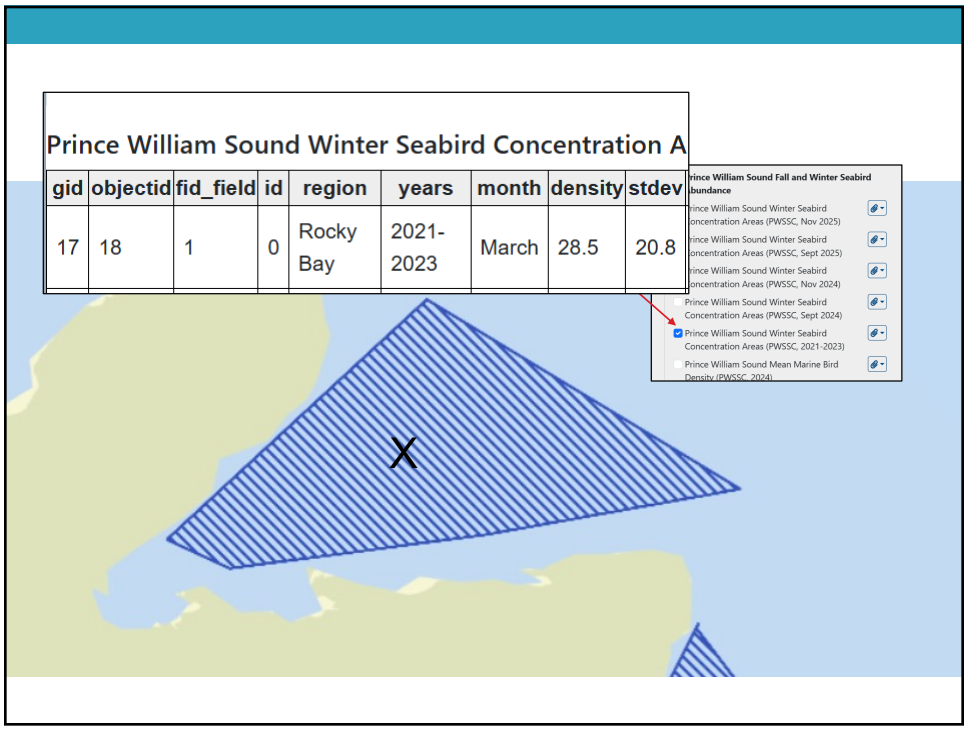
Prince William Sound Winter Seabird Concentration A
gid objectid fid_field id region years month density stdev
17 18 1 0 Rocky Bay 2021-2023 March 28.5 20.8
Prince William Sound Fall and Winter Seabird Abundance
Prince William Sound Winter Seabird Concentration Areas (PWSSC, 2021-2023)
X

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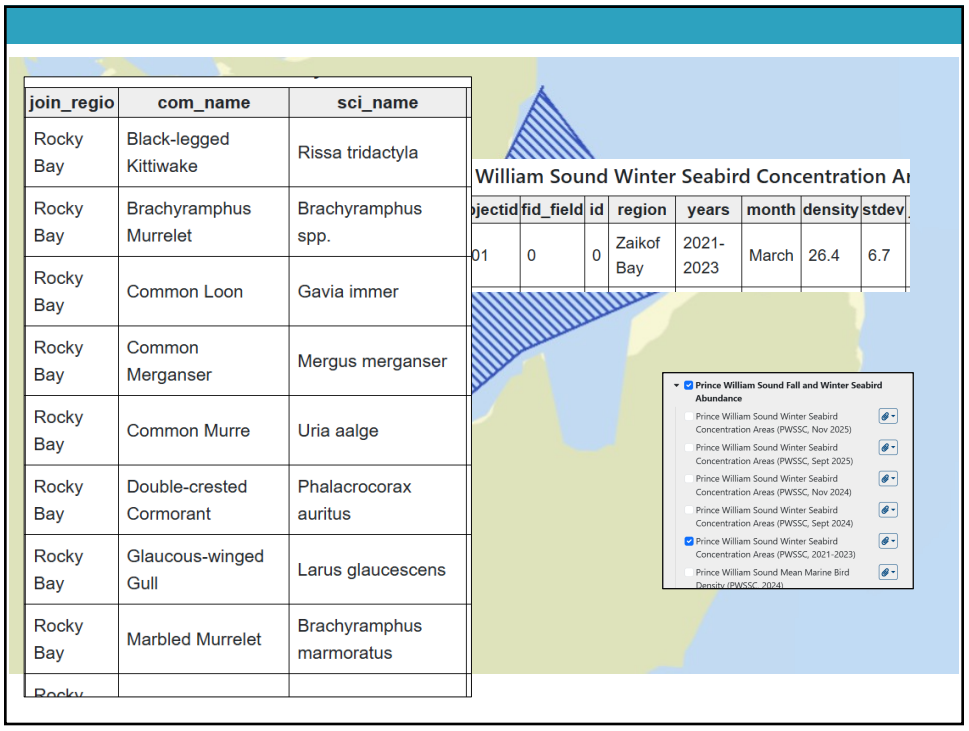

join_regio	com_name	sci_name
Rocky Bay	Black-legged Kittiwake	Rissa tridactyla
Rocky Bay	Brachyramphus Murrelet	Brachyramphus spp.
Rocky Bay	Common Loon	Gavia immer
Rocky Bay	Common Merganser	Mergus merganser
Rocky Bay	Common Murre	Uria aalge
Rocky Bay	Double-crested Cormorant	Phalacrocorax auritus
Rocky Bay	Glaucous-winged Gull	Larus glaucescens
Rocky Bay	Marbled Murrelet	Brachyramphus marmoratus
Rocky		

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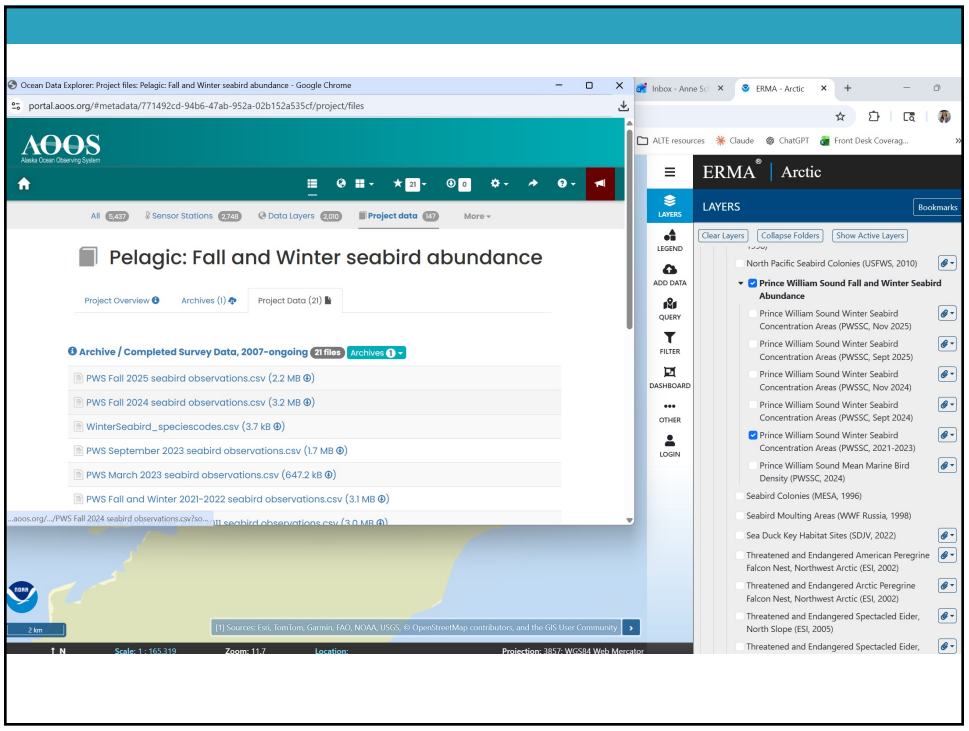

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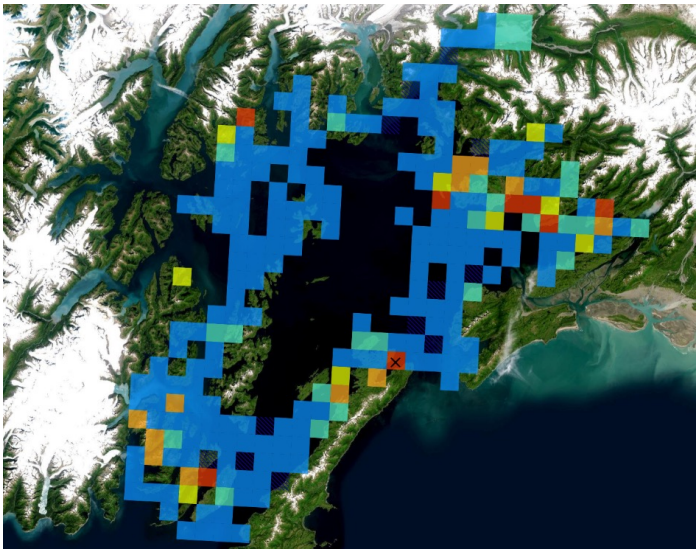
March 2007-2023 marine bird hot spots



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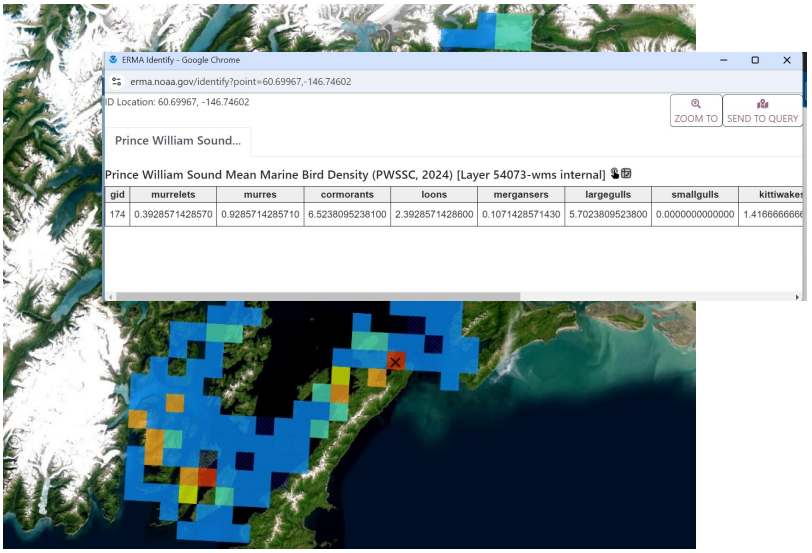
March 2007-2023 marine bird hot spots



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Conclusions

- PWS is a winter refuge from the Gulf of Alaska for marine birds
- Preference for protected waters and nearshore areas
- Our data are important for planning and refining oil spill response efforts around tanker lane

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Looking Ahead

- Continued surveys in September/November 2026 & 2027
- Hot spot analysis in 2027
- Annual contributions to ERMA

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Thank you!

PWS Regional Citizens' Advisory Council

Danielle Verna!

Zachary Winters-Staszak & Sarah Allan (NOAA)

Dr. Rob Campbell & Sarah Hoepfner, Prince William Sound Science Center

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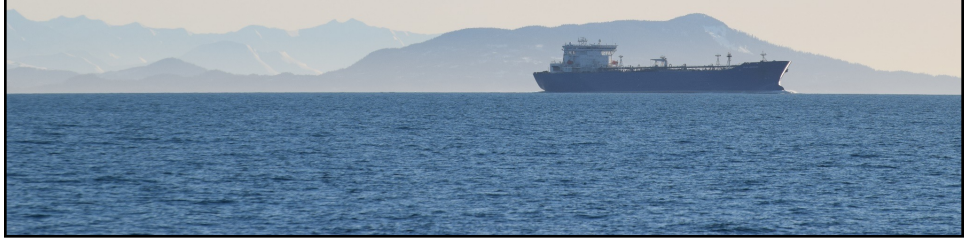
QUESTIONS?



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