

Late Winter Marine Bird Hotspots in Prince William Sound

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Background

March 1989 Exxon Valdez Oil Spill injured overwintering marine birds including:

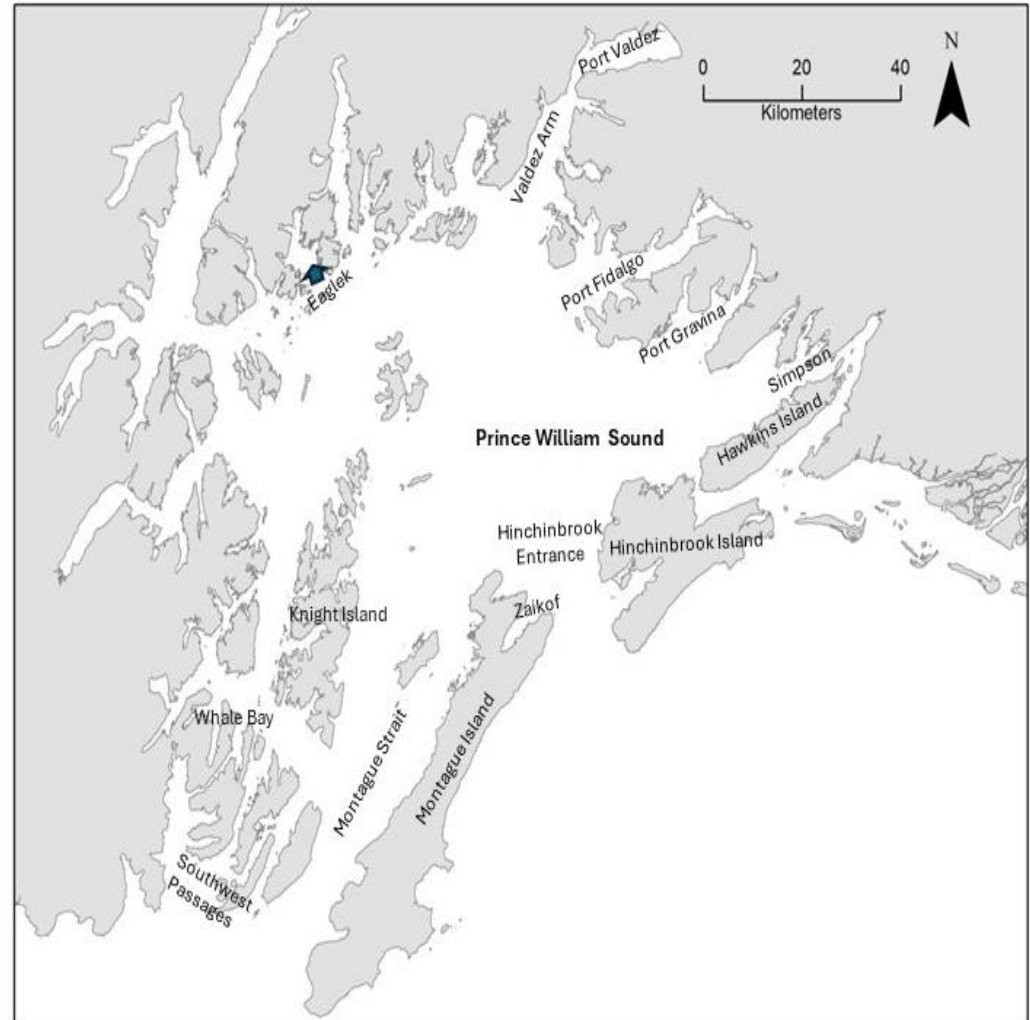
9 marine bird species

1 marine bird species group



Objectives

- Identify high-use marine bird areas in PWS during late winter (March)
- Provide recommendations for prioritizing oil spill response efforts in and around the tanker escort lane & other key areas in PWS



Methods

March Fieldwork

Strip transect surveys

Species & Number

Behavior

12 species groups

14 Survey Years

EVOS Trustees

2007-2014

2018-2020

RCAC + EVOS

2021-2023



Hot Spot Analyses

5 km x 5 km grid cells

Surveys occurred in 249 cells

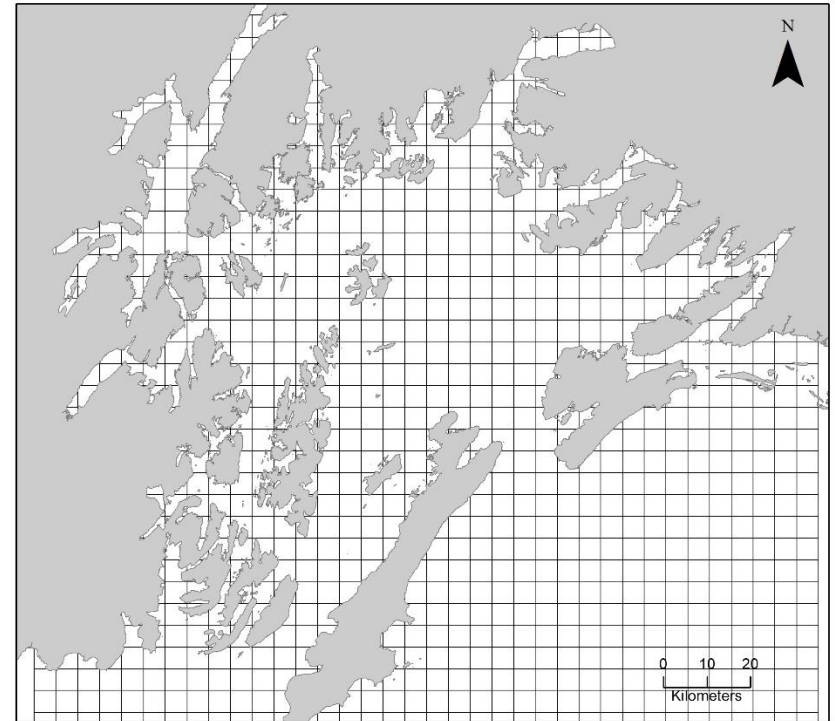
FOR EACH CELL CALCULATED:

years species group observed /
years cell was surveyed)

Average birds/km²

All Birds

Each Species Group





Loons



Inshore
Ducks



Kittiwakes



Grebes



Mergansers



Murres



Cormorants



Large
Gulls



Murrelets



Scoters



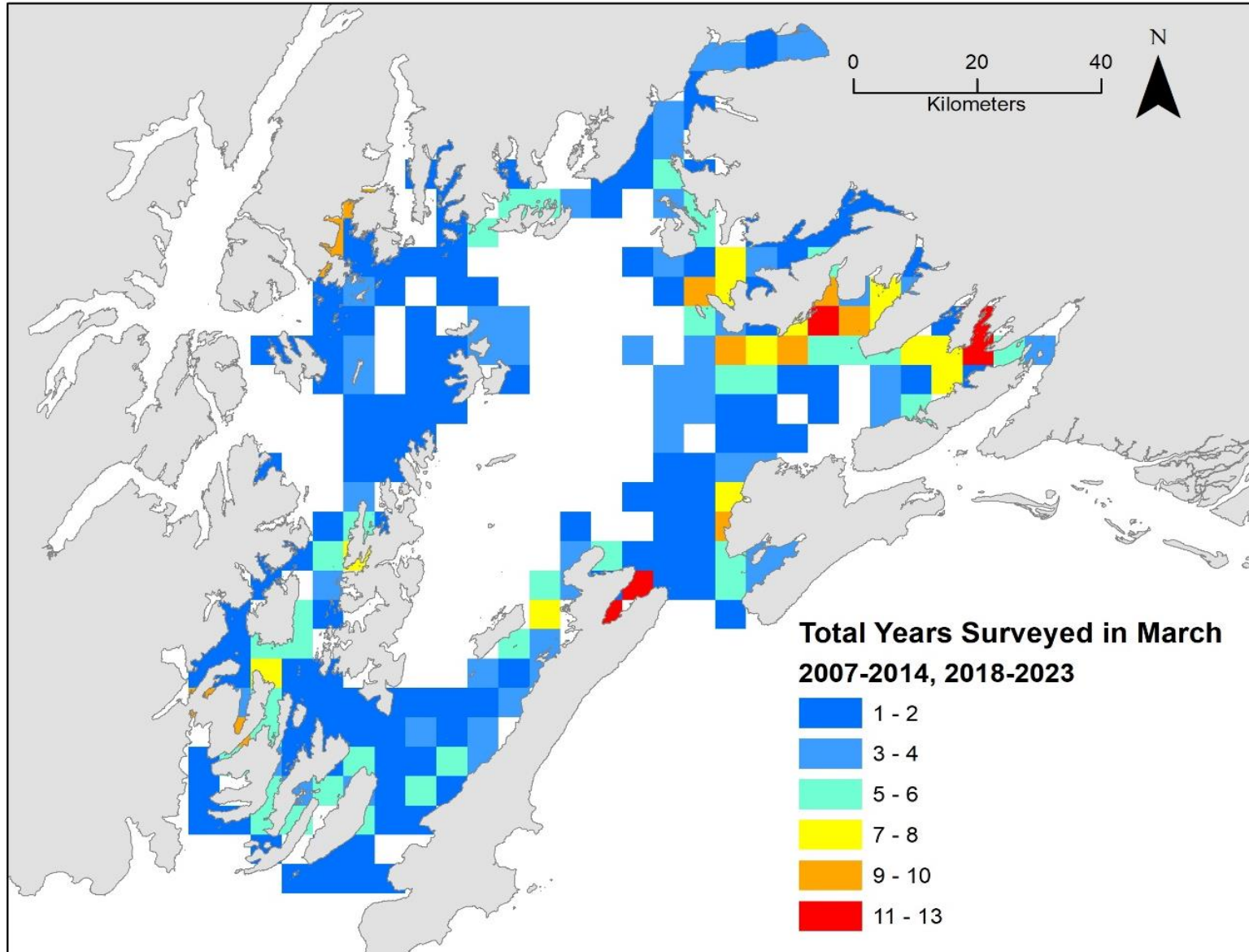
Small
Gulls



Guillemots

Photo credits: VJ
Anderson, D. Keats, A.
Riego & C. McClarren,
D. Daniels, R. Knight, A.
Schmierer, G.
Schechter, A.
Berndtsson, G. Smith

15 marine bird surveys during late winter (March)

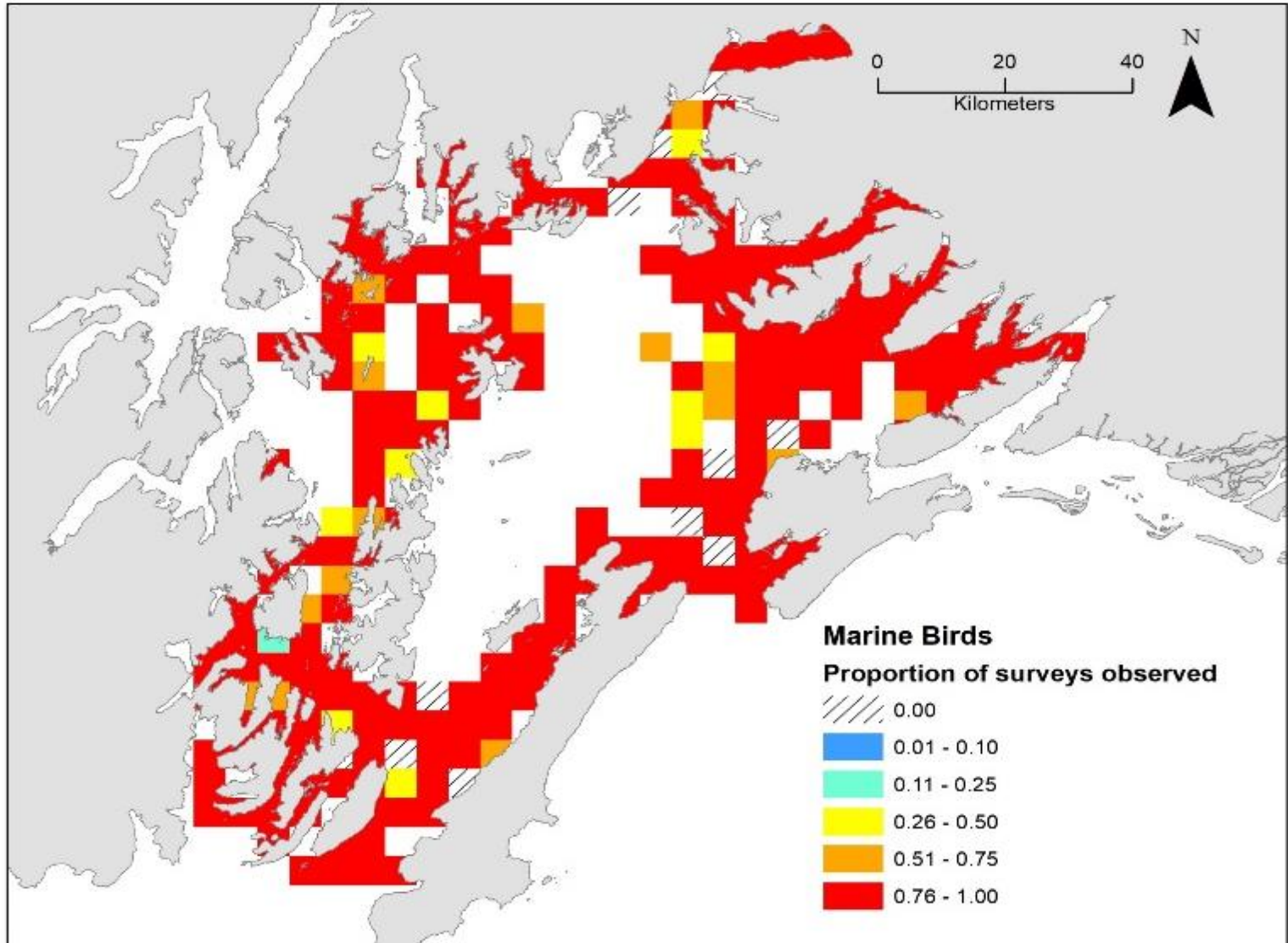


RESULTS



D. Janka

Birds observed in >95% of surveyed cells



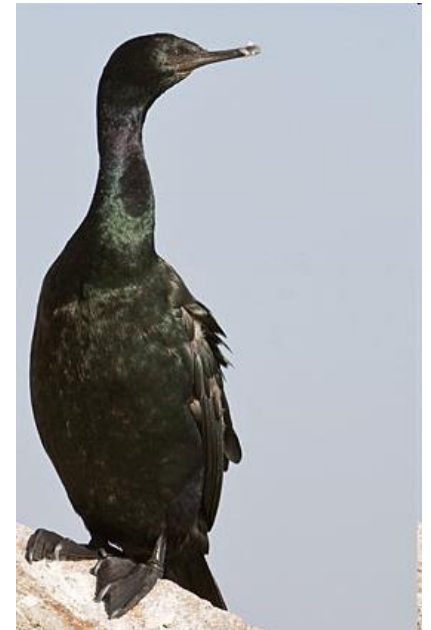
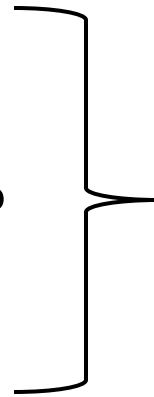
Species Observed Most Often in 5 km x 5 km Cells:

Large Gull (Glaucous-winged Gulls) = 65% } plunges, surface feeder

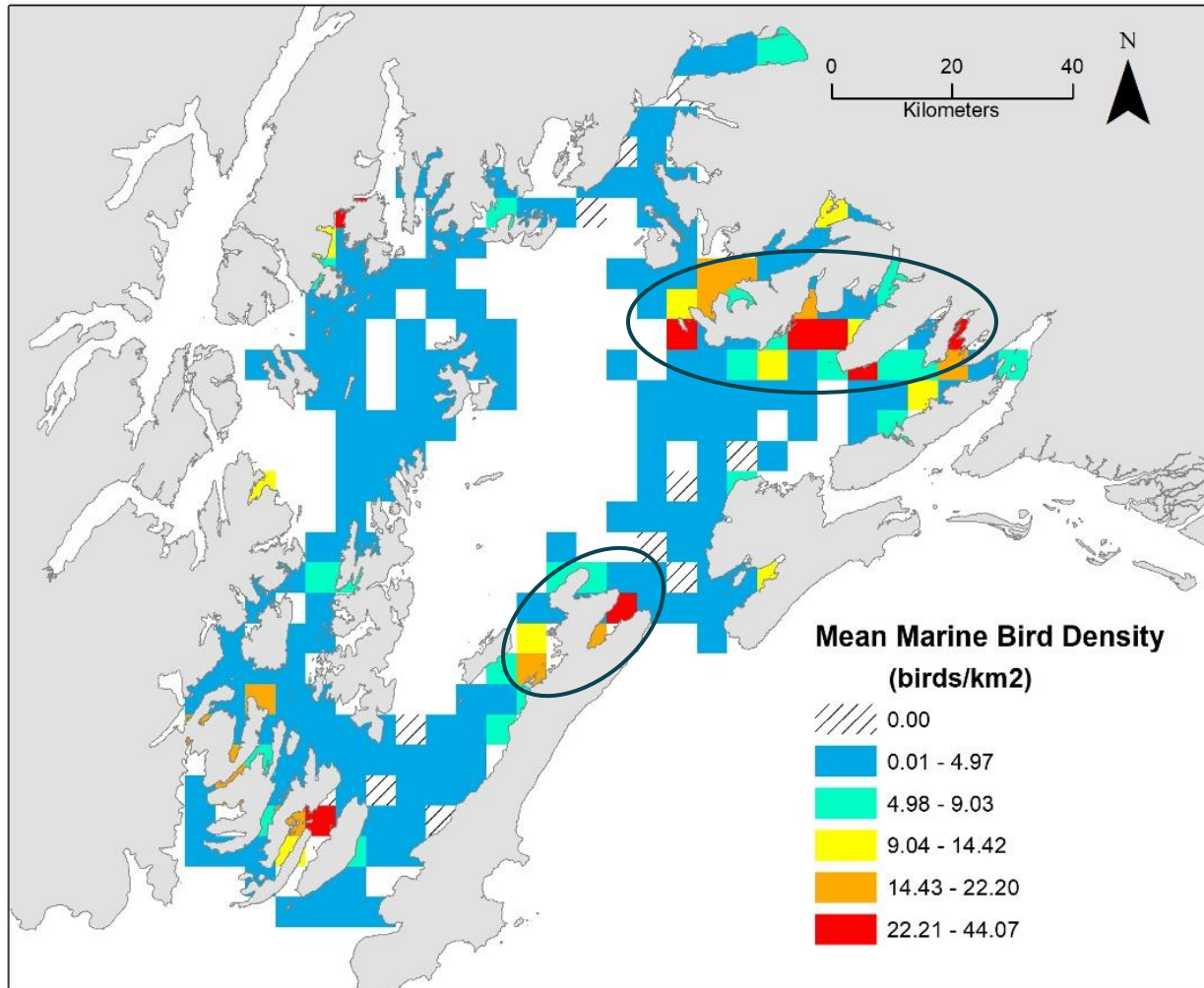
Common Murre = 64%

Cormorants (Pelagic) = 57% } Divers

Murrelets (Marbled) = 53%



Results: Mean Density All Species Groups



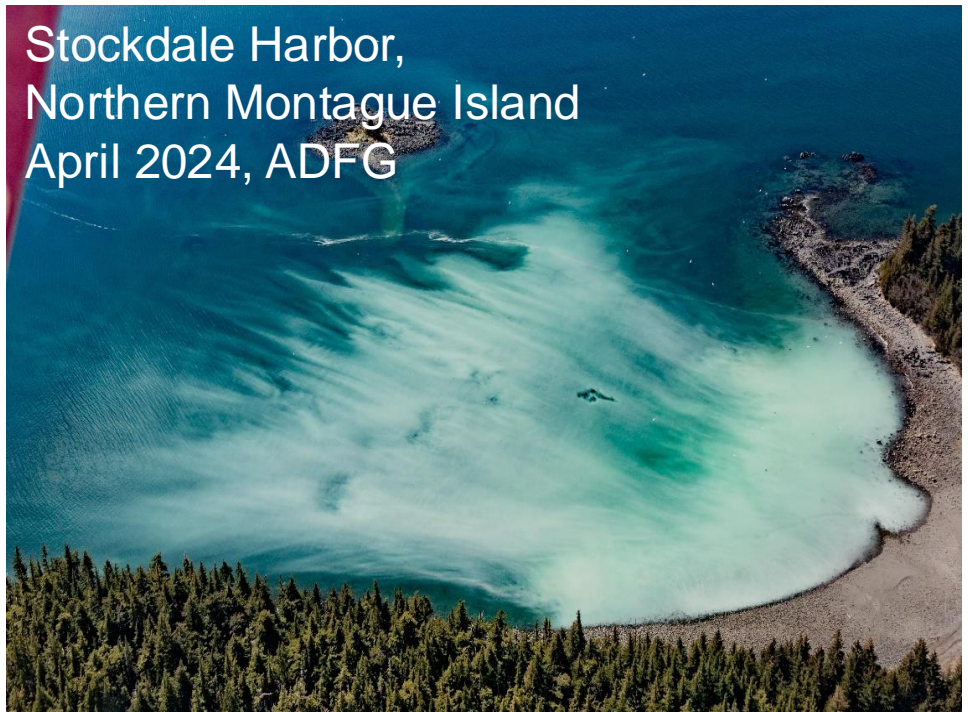
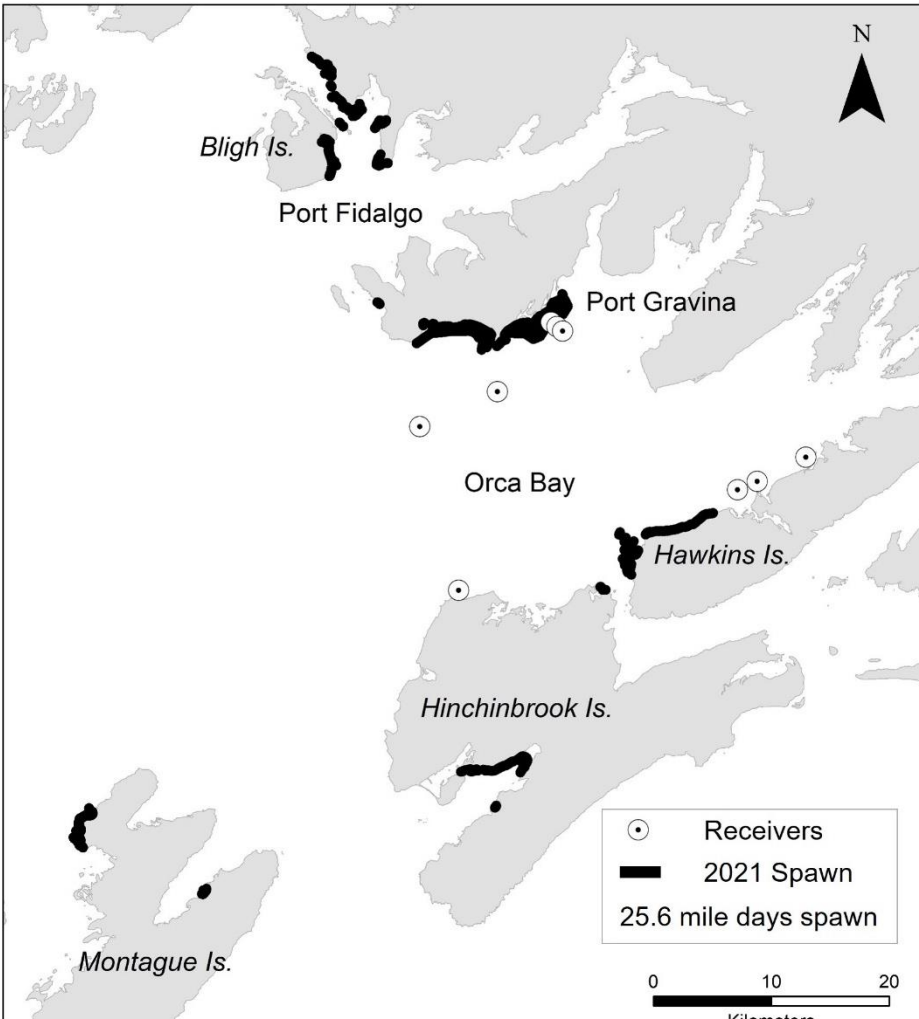
Favored habitats:
Semi-protected Waters of Bays & Passages

Refuge from Gulf of Alaska Winter storms

Why NE PWS & N. Montague Island in March?

Predictable Schools of Herring!



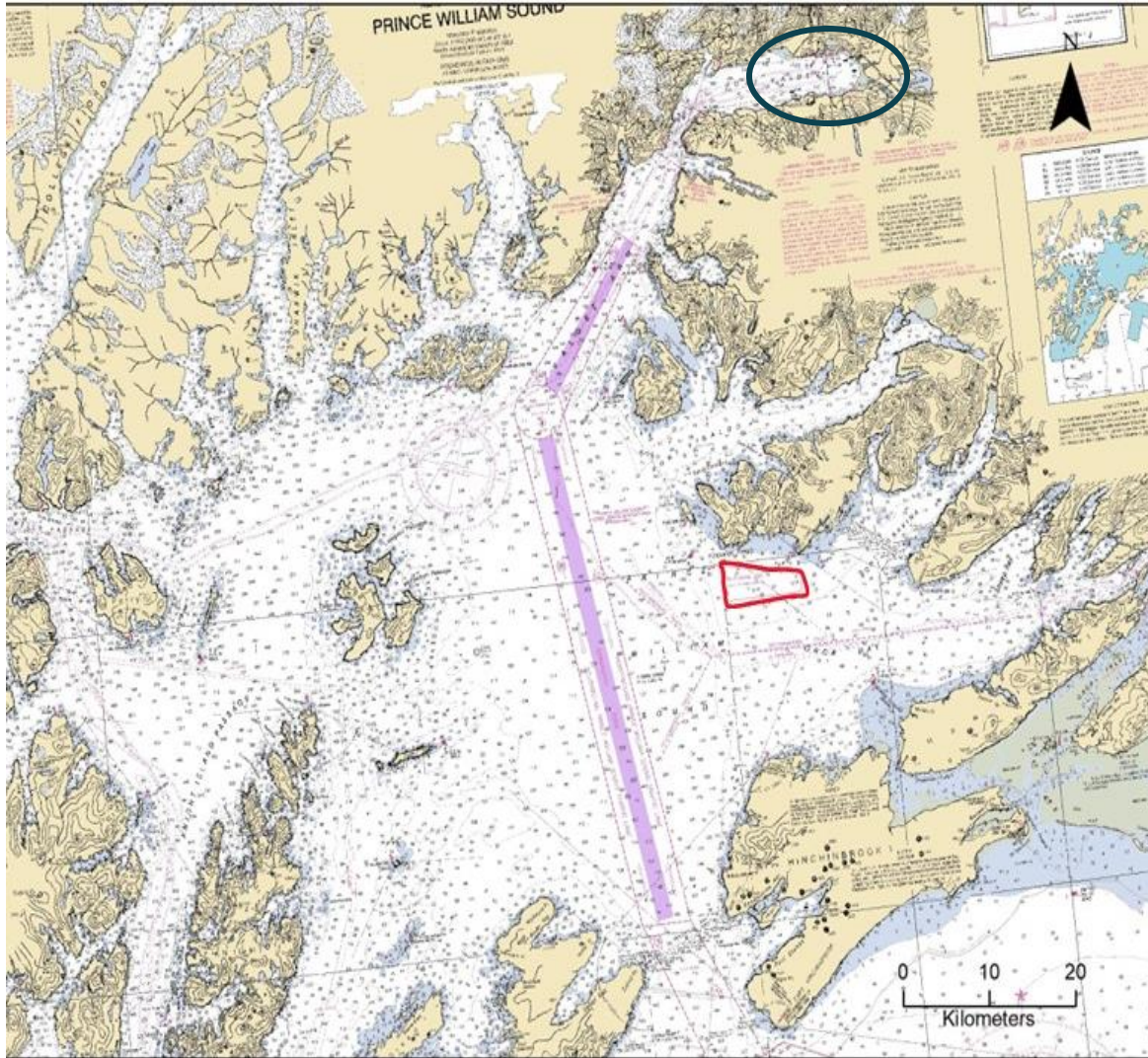


Tanker Escort Zone & Tanker Anchorage Area

**Mid, Near-high, and/or High-Density
Marine Bird Areas**



Port Valdez – head of bay

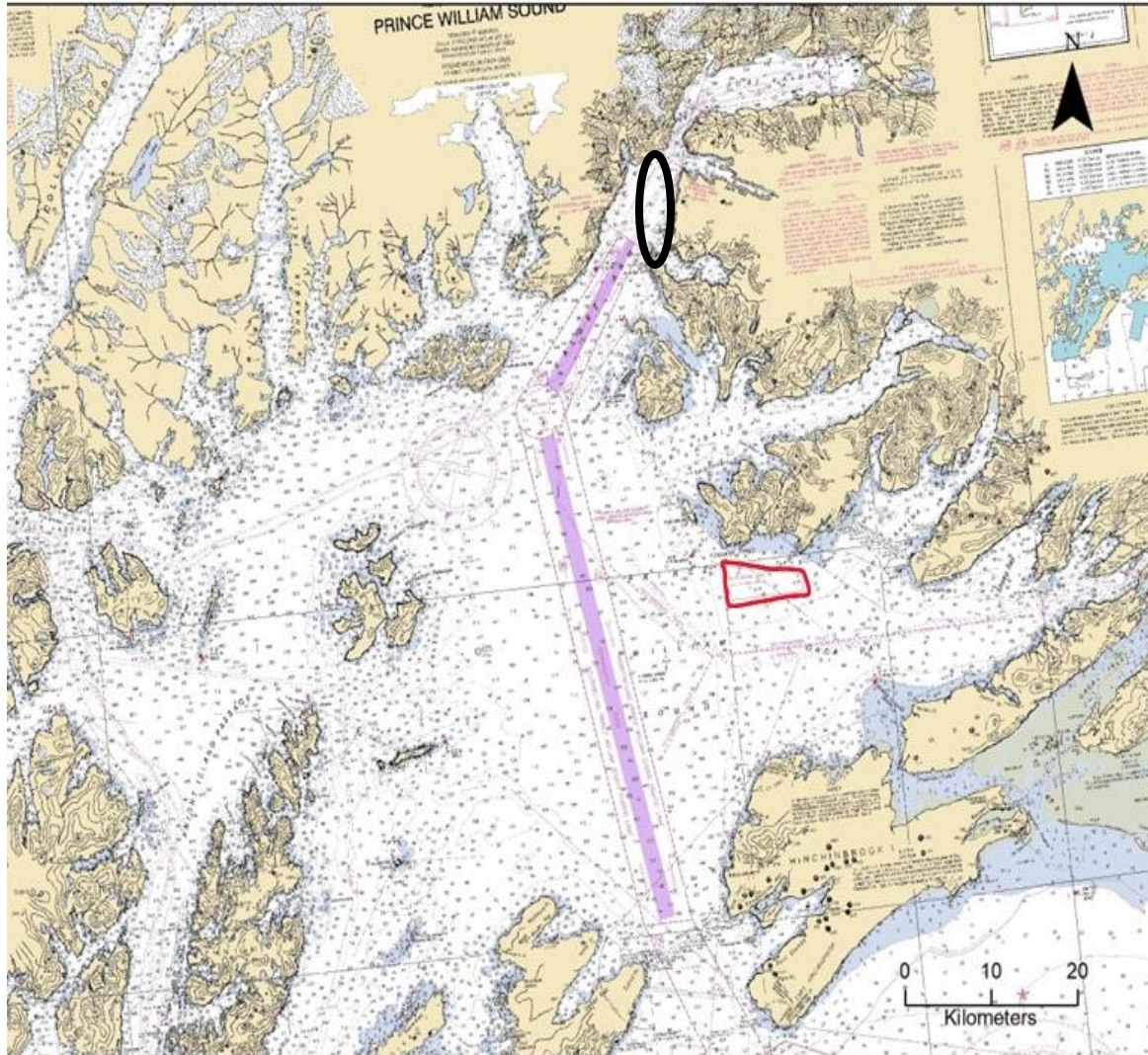


**Mid, Near-High, &/or
High Densities**

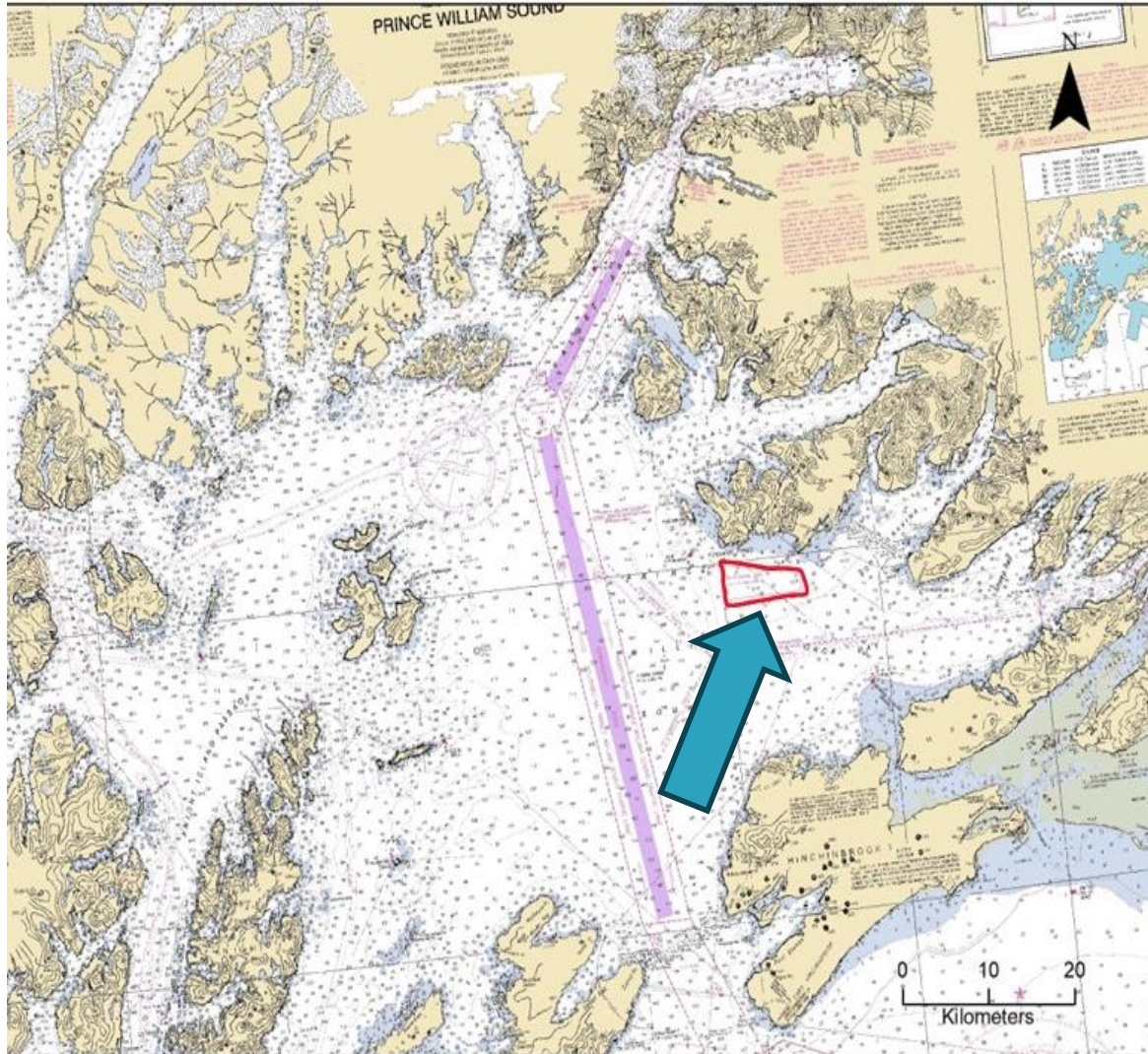
**Grebes
Inshore ducks
Mergansers
Cormorants
Murrelets**

**Mudflats: dabbling
ducks**

Valdez Narrows – near-high kittiwake densities



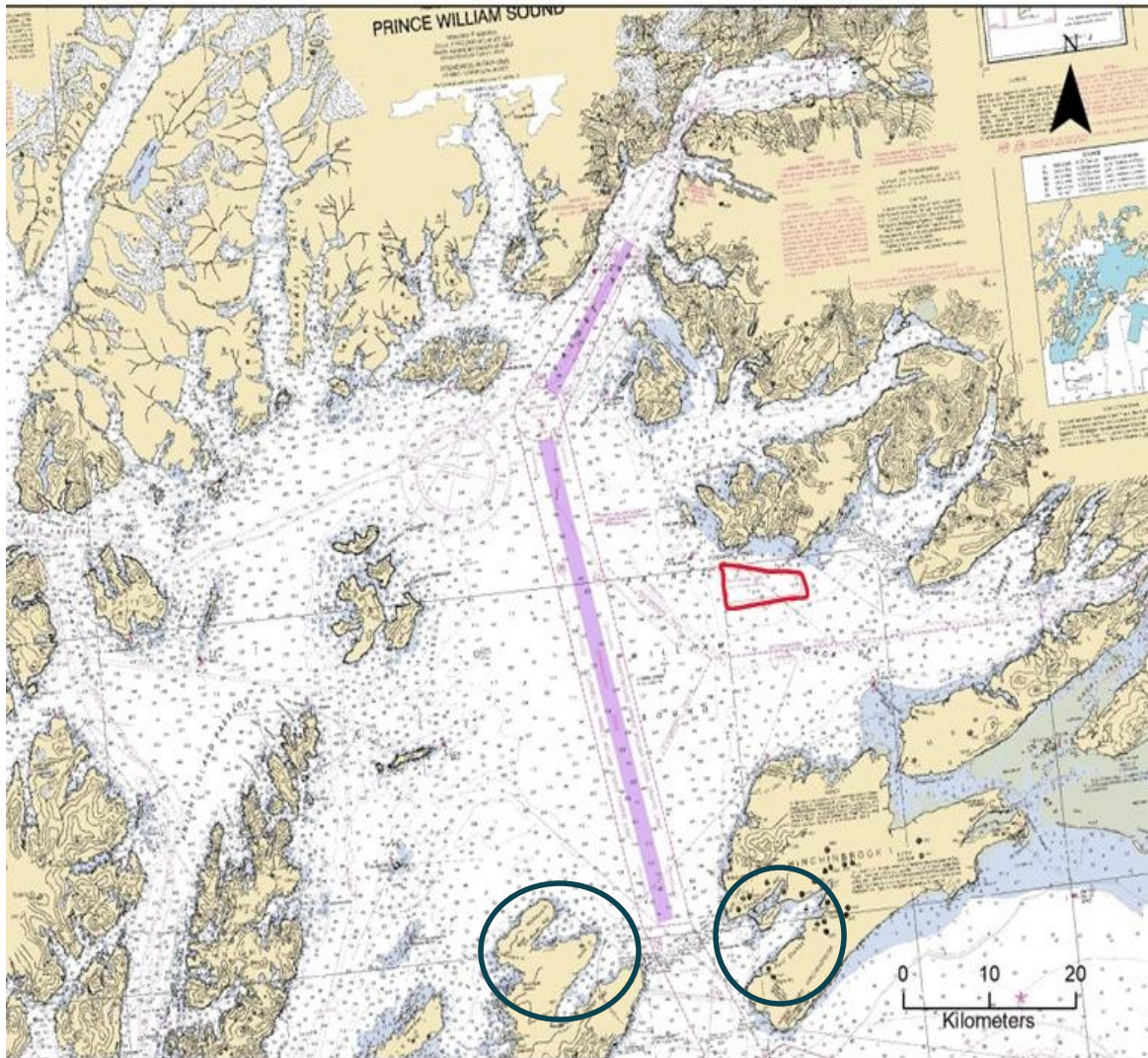
Knowles Bay Tanker Anchorage



**Mid, Near-High,
&/or High Densities**

**Loons
Cormorants
Scoters
Large gulls
Kittiwakes
Murrelets
Guillemots**

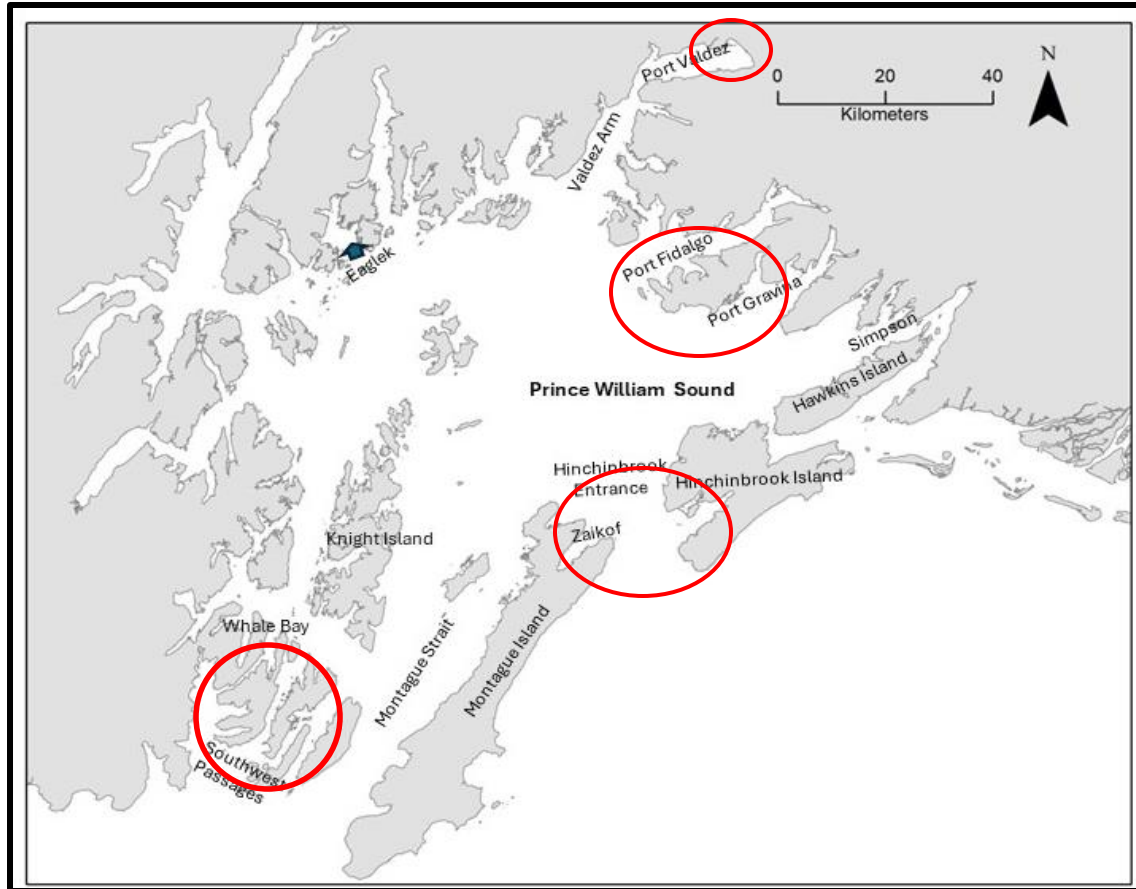
Hinchinbrook Entrance – bays



**Mid, Near-High,
&/or High Densities**

**10 of the 12
Species Groups!
(all but inshore
ducks &
mergansers)**

Recommendations – Priority Areas

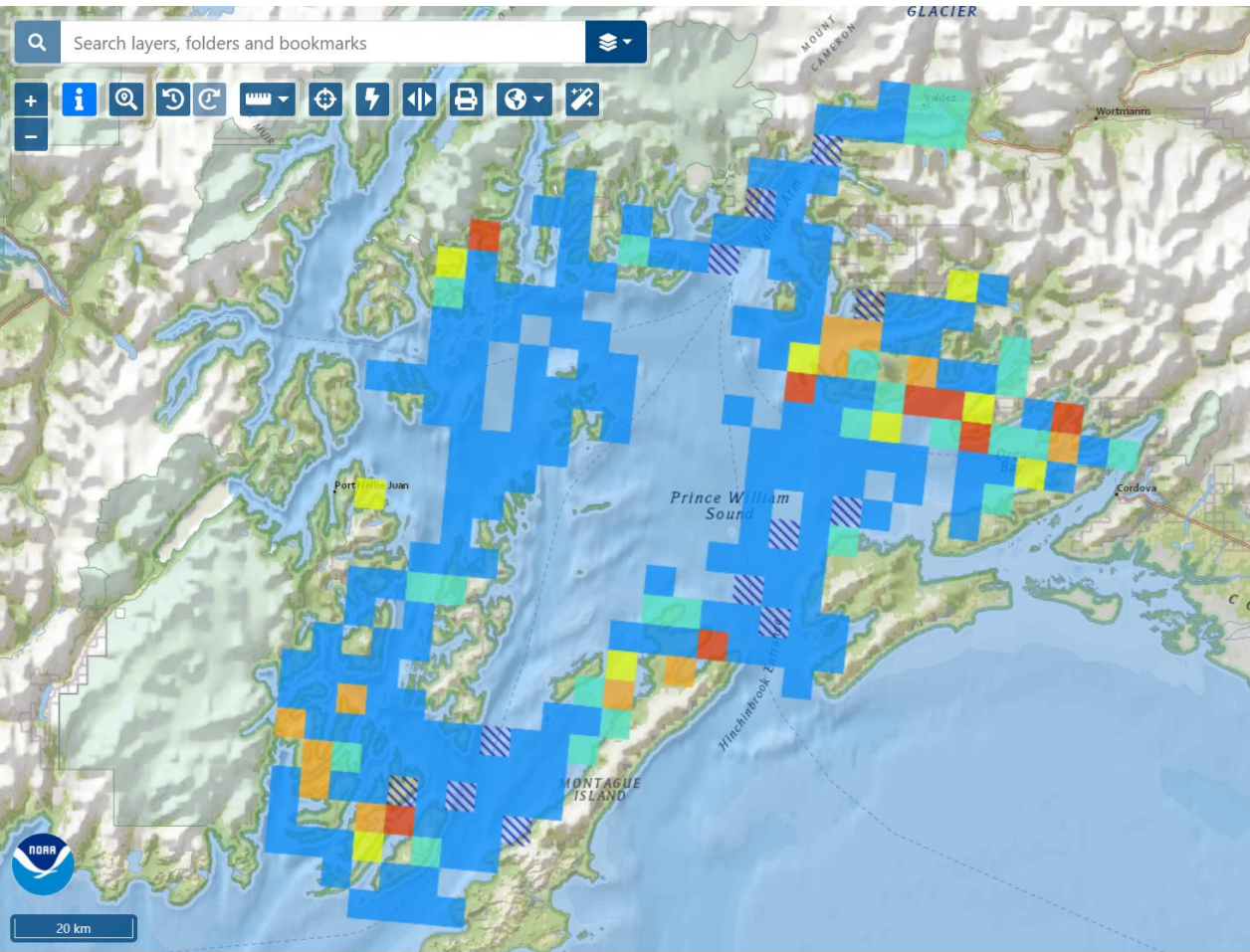


Management Applications



NOAA Environmental Response Management Application (ERMA)

- Online mapping tool
- Visualize information relevant to spill preparedness and planning
- Assist in coordinating response efforts and situational awareness for human and natural disasters
- Supports Natural Resource Damage Assessment process
- Aids in ecological recovery and restoration efforts
- Publicly accessible

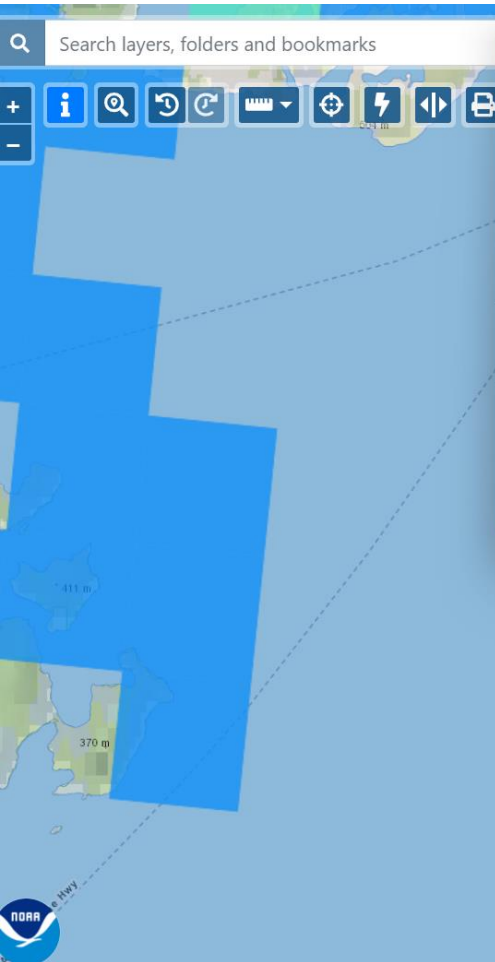


ERMA[®] | Arctic

LAYERS Bookmarks

Clear Layers Collapse Folders Show Active Layers

- ▶ Background Layers
- ▶ Admin Boundaries & Reference Features
- ▶ Bathymetry & Hydrology
- ▶ Environmental Quality & Monitoring
- ▶ Imagery & Remote Sensing
- ▼ Natural Resources, Habitats, & Managed Areas
 - ▼ Coastal Resources & Habitats
 - NOAA Deep-Sea Coral Data (NMFS)
 - Canadian Arctic Ecologically and Biologically Significant Areas (GC DFO)
 - ▼ Birds
 - Aleutian Tern Distribution (Audubon AK, 2017)
 - Audubon Important Bird Areas (National)
 - Sea Duck Key Habitat Sites (SDJV, 2022)
 - Arctic Birds (WWF Russia, 2011)
 - Black-legged Kittiwake Distribution (Audubon AK, 2017)
 - Birds (AESAS, 2004)
 - Bird Colonies (WWF Russia, 2011)
 - Birds Summer (AESAS, 2004)
 - Birds Winter (AESAS, 2004)
 - Eider Migration Routes of Eastern Russia (WWF Russia,



ERMA Identify - Google Chrome

erma.noaa.gov/identify?point=60.69967,-146.74602

ID Location: 60.69967, -146.74602

Prince William Sound...

Prince William Sound Mean Marine Bird Density (PWSSC, 2024) [Layer 54073-wms internal]

gid	murrelets	murres	cormorants	loons	mergansers	largegulls	smallgulls	kittiwakes
174	0.3928571428570	0.9285714285710	6.5238095238100	2.3928571428600	0.1071428571430	5.7023809523800	0.0000000000000	1.4166666666666

Canadian Arctic Ecogeography and Biogeography Significant Areas (GC DFO)

Birds

- Aleutian Tern Distribution (Audubon AK, 2017)
- Audubon Important Bird Areas (National)
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- Birds Summer (AESAS, 2004)

Future Management Application

Updated Environmental Sensitivity Index Maps

- Used to identify coastal resources at risk in the event of a spill
- Prince William Sound & Copper River Delta:
Most recent update 24 years ago (2000)



Conclusions

- PWS is a winter refuge from the Gulf of Alaska for seabirds
- Preference for protected waters and nearshore areas
- Priority areas:
 - Hinchinbrook Entrance bays
 - Head of Port Valdez
 - Ports Fidalgo & Gravina (including Knowles Head tanker anchorage)
 - Southwest Passages

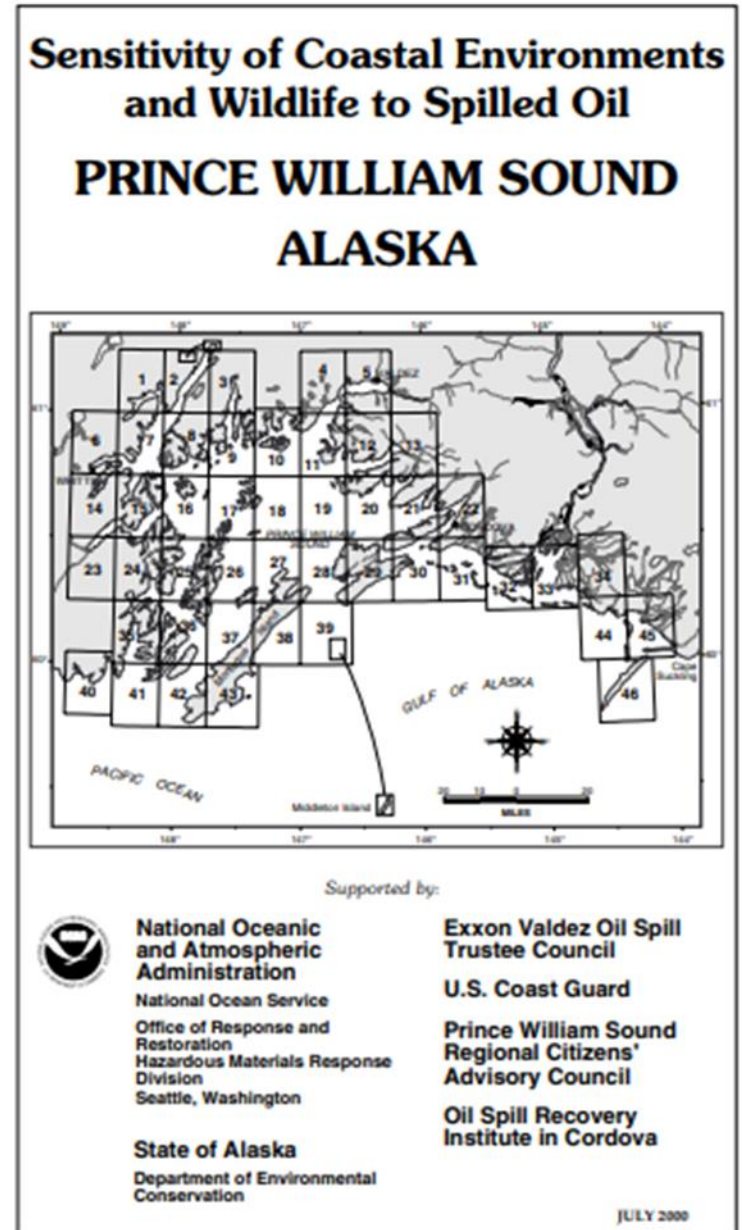


Conclusions

Our data are important for planning & refining oil spill response efforts around the Tanker lane

Data is available online with ERMA

Important to include in future ESI maps



Thank you!

PWS Regional Citizens' Advisory Council
Exxon Valdez Oil Spill Trustee Council

- Observers: N. Dawson, K. Brenneman, A. Lang, T. Morgan, B. Hsu, R. Kaler, J. Stocking
- Captains & Vessels: D. Janka (MV Auklet), A. Schroeder and T. Jones (RV Island C), and R. Campbell (RV New Wave)

