



Atlas of Seabird Distribution at Sea in Alaska

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DRAFT
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This Atlas was prepared from records compiled in the North Pacific Pelagic Seabird Database < <http://www.absc.usgs.gov/research/NPPSD/> > and includes data collected by hundreds of observers and numerous organizations during the 1970s through 2000s (see web site for details). Contributors (so far) to the effort of compiling and analyzing NPPSD data include G. Vernon Byrd, Robert Day, Don Dragoo, George L. Hunt, Jr., Michelle St Peters, Vjatcheslav P. Shuntov, Shawn Stephensen, Shiway Wang, Jennifer Wetzel, and Dennis Zwiefelhofer. Maps presented in this draft were prepared by Marc Romano.

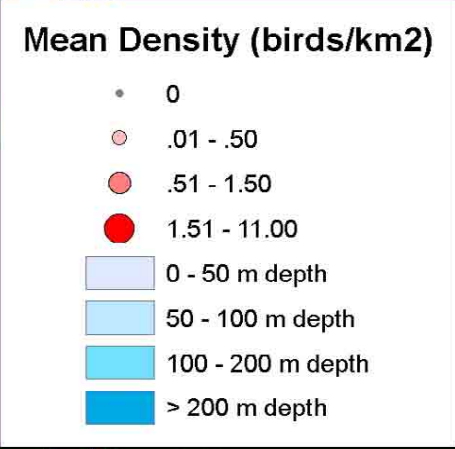
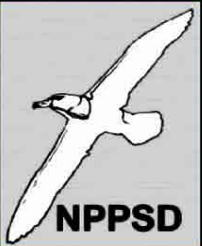
Atlas of Seabird Distribution at Sea in Alaska

The need for comprehensive geographic data on the pelagic distribution of seabirds in Alaska and the North Pacific has long been recognized. Data on the pelagic distribution and abundance of seabirds are critical for understanding their basic ecology and role in marine ecosystems, monitoring population trends, assessing human impacts from oil spills and fishery by-catch, identifying critical marine habitats, and educating the public about marine conservation issues. During the Outer Continental Shelf Environmental Assessment Program (OCSEAP) of the 1970's, millions of dollars were spent to gather these data in advance of oil development on Alaska's continental shelves. This work culminated in an atlas on the "Pelagic Distribution and Abundance of Seabirds in the Gulf of Alaska and Eastern Bering Sea" (Gould et al. 1982) which documented the at-sea distribution and abundance of 16 common seabird species in Alaska. There has been no attempt to update that distribution atlas until now.

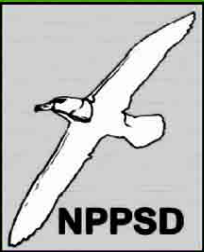
The following maps result from a joint effort by U.S. Geological Survey and U.S. Fish and Wildlife Service biologists to consolidate data on the pelagic distribution of seabirds in Alaska and the North Pacific. This effort has been aided substantially by grants from the North Pacific Research Board, Alaska Fisheries Science Center (NOAA), and Minerals Management Service. Data collected by numerous observers and organizations in Canada, Russia and the U.S. between 1974 and 2003 were compiled, checked for errors, standardized for codes and format, documented with metadata, and organized into the North Pacific Pelagic Seabird Database (NPPSD). The current Version 1.0 of the NPPSD includes data from 456 individual studies, comprising 65,644 transects conducted in Alaska and the North Pacific that include observations of 6,995,932 seabirds and 29,739 marine mammals. Maps presented here focus only on Alaska marine waters. Mean densities of seabirds were calculated from individual transects binned into 50 km² blocks. Only data collected in the months of May-September were included in this analysis.

The following maps of 31 species illustrate what the new "Atlas of Seabird Distribution at Sea in Alaska" will look like when completed. The final Atlas will contain distribution maps of about 80 species, seasonal (spring/summer vs. fall/winter) distribution maps for common species, and species accounts that interpret pelagic distribution patterns in light of seabird life history, feeding ecology, oceanographic setting and human activities. This is a work in progress and we will seek collaborations to complete the Atlas. Several large datasets have recently been acquired and will be added to the database. Several known datasets have yet to be acquired. Pelagic seabird data are collected annually in Alaska, and a database project such as this is an ongoing exercise. However, we have acquired enough data now to produce a spatially comprehensive product, and the final Atlas will be generated from data at hand during the final phases of the Atlas project. In the meantime, the current dataset and maps are available for use in this PDF compilation.

All Loons



NOTE: The visual quality of maps will vary with presentation format. Low quality PDFs have been made here to facilitate email distribution. Much higher quality maps in different formats are available for other uses.

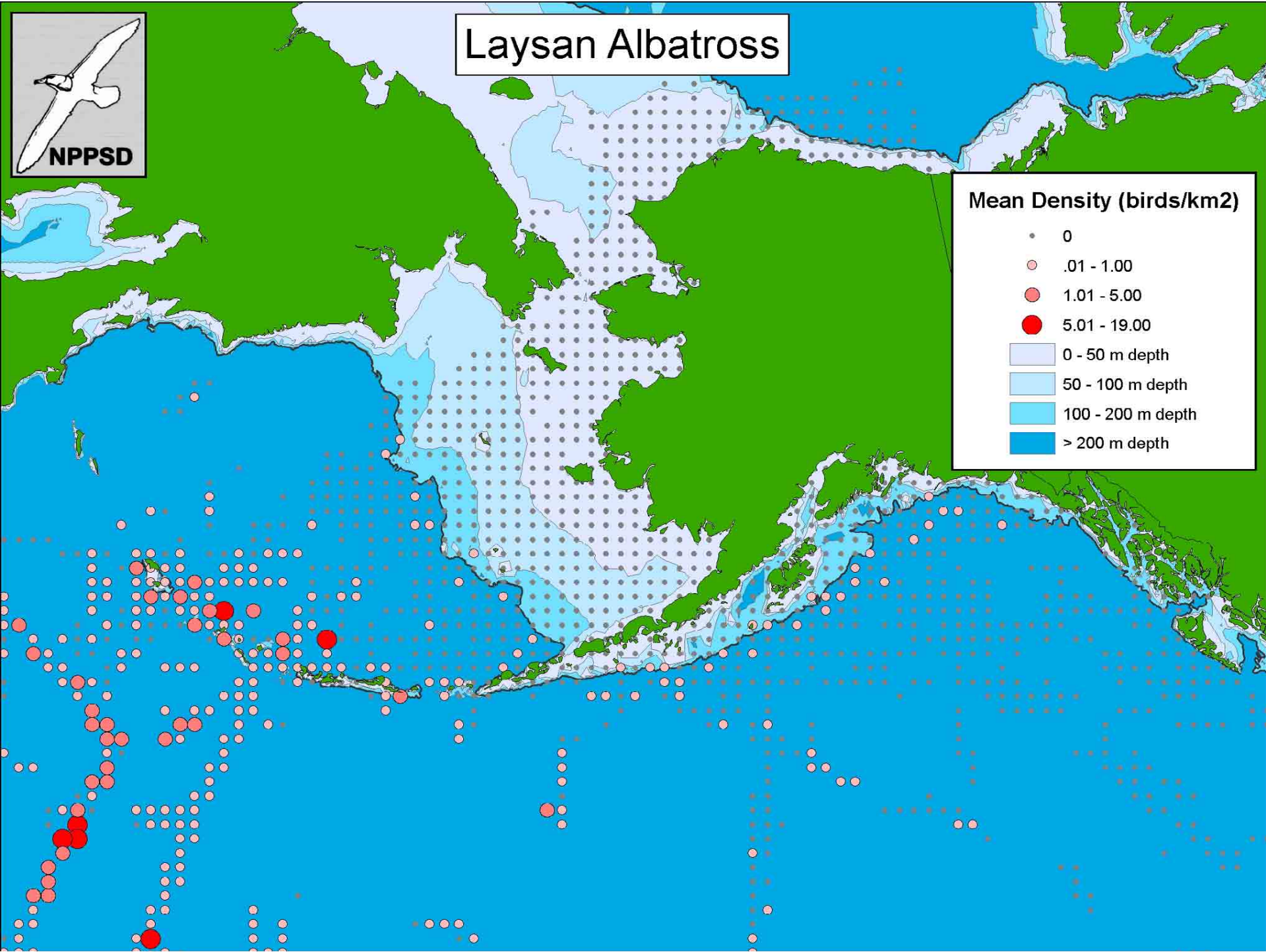


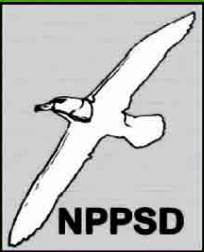
Laysan Albatross

Mean Density (birds/km²)

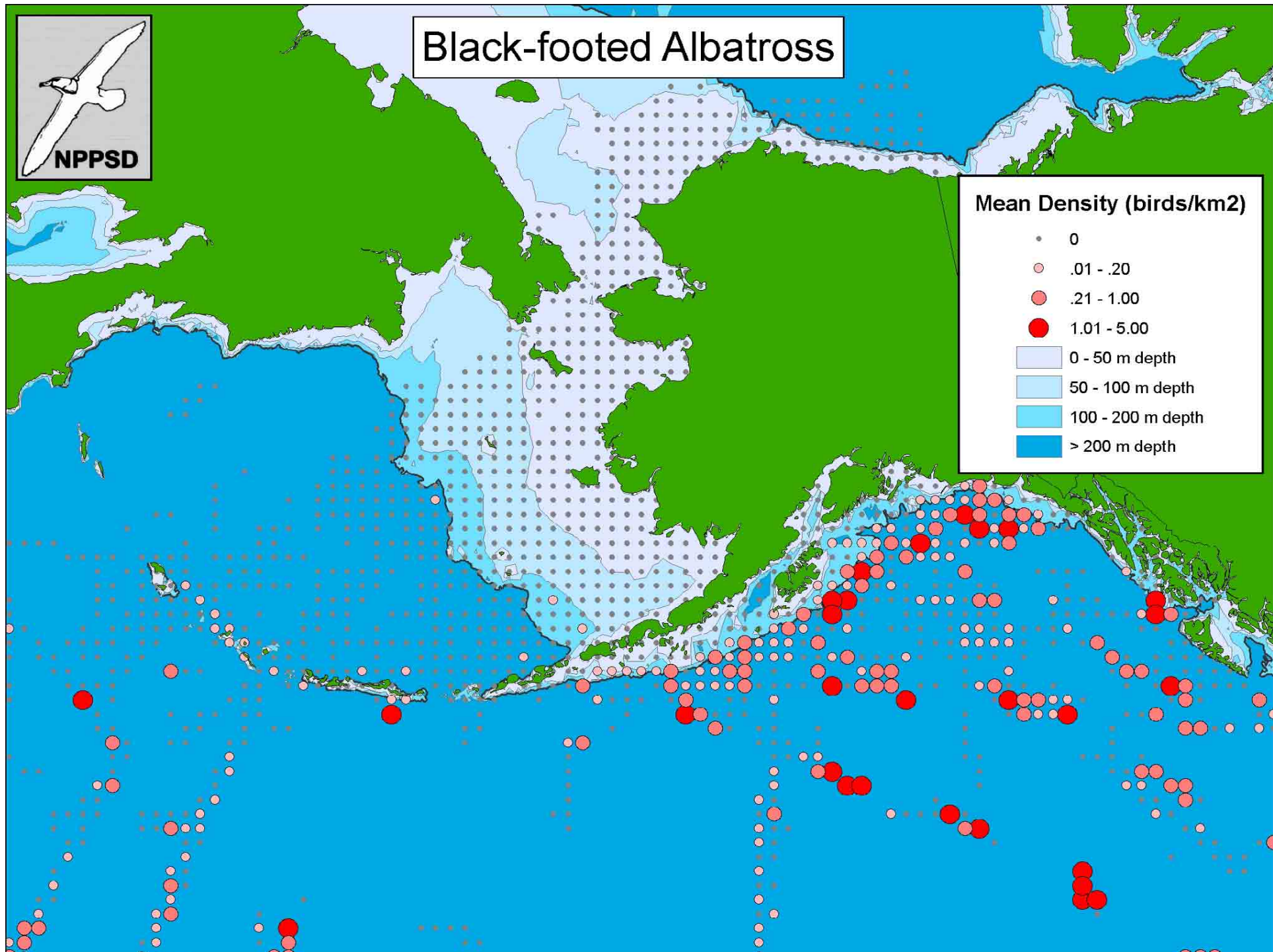
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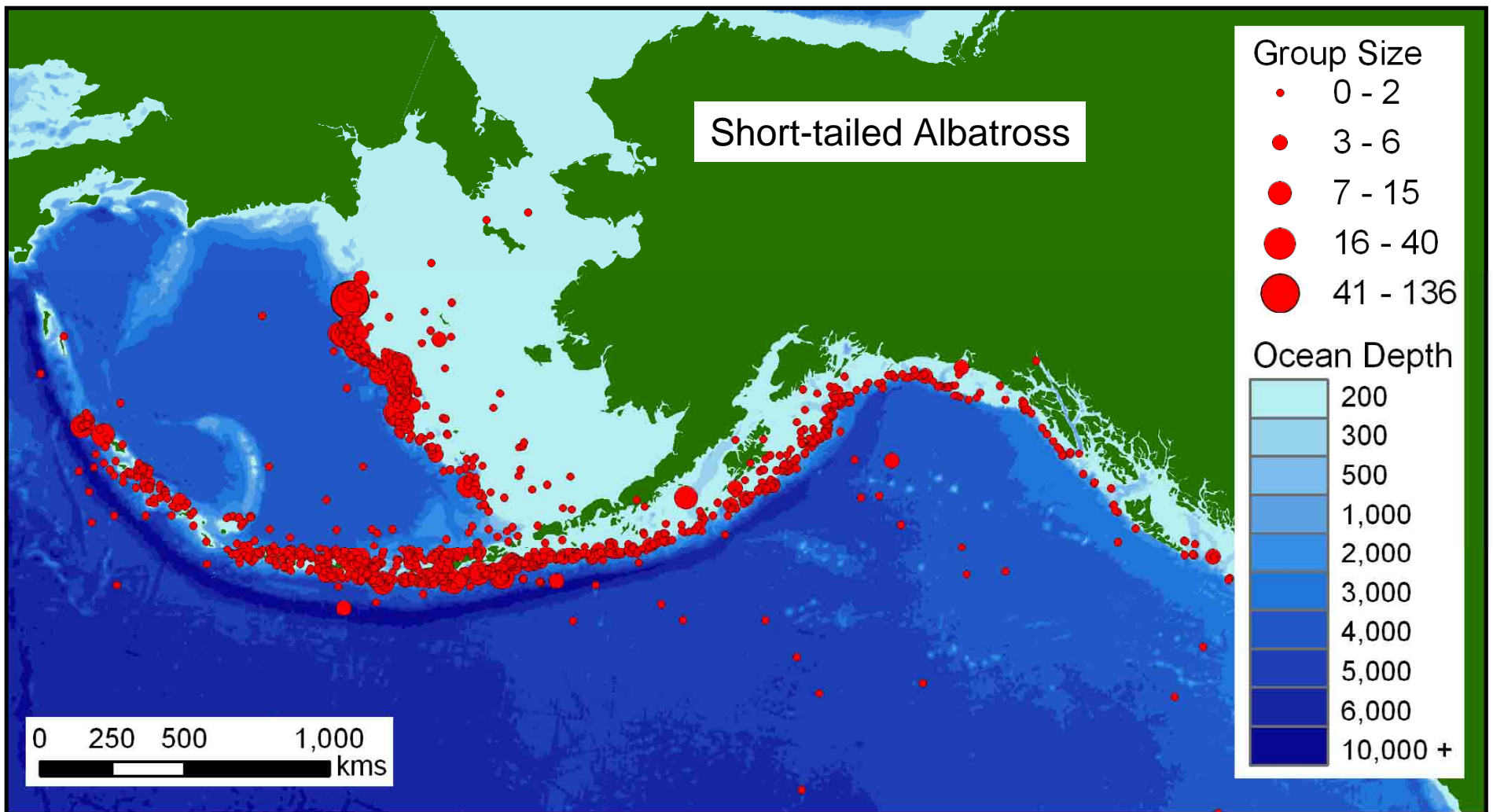
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- 100 - 200 m depth
- > 200 m depth



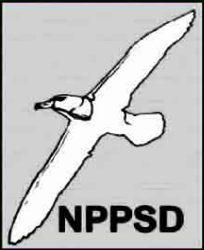


Black-footed Albatross

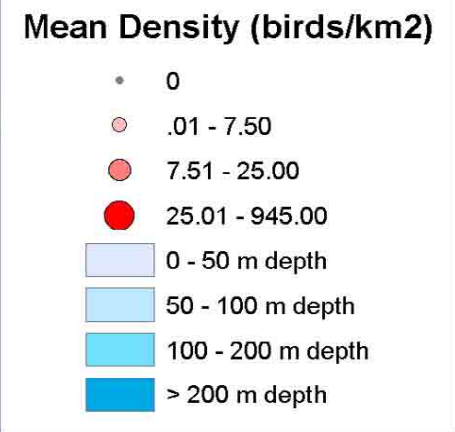
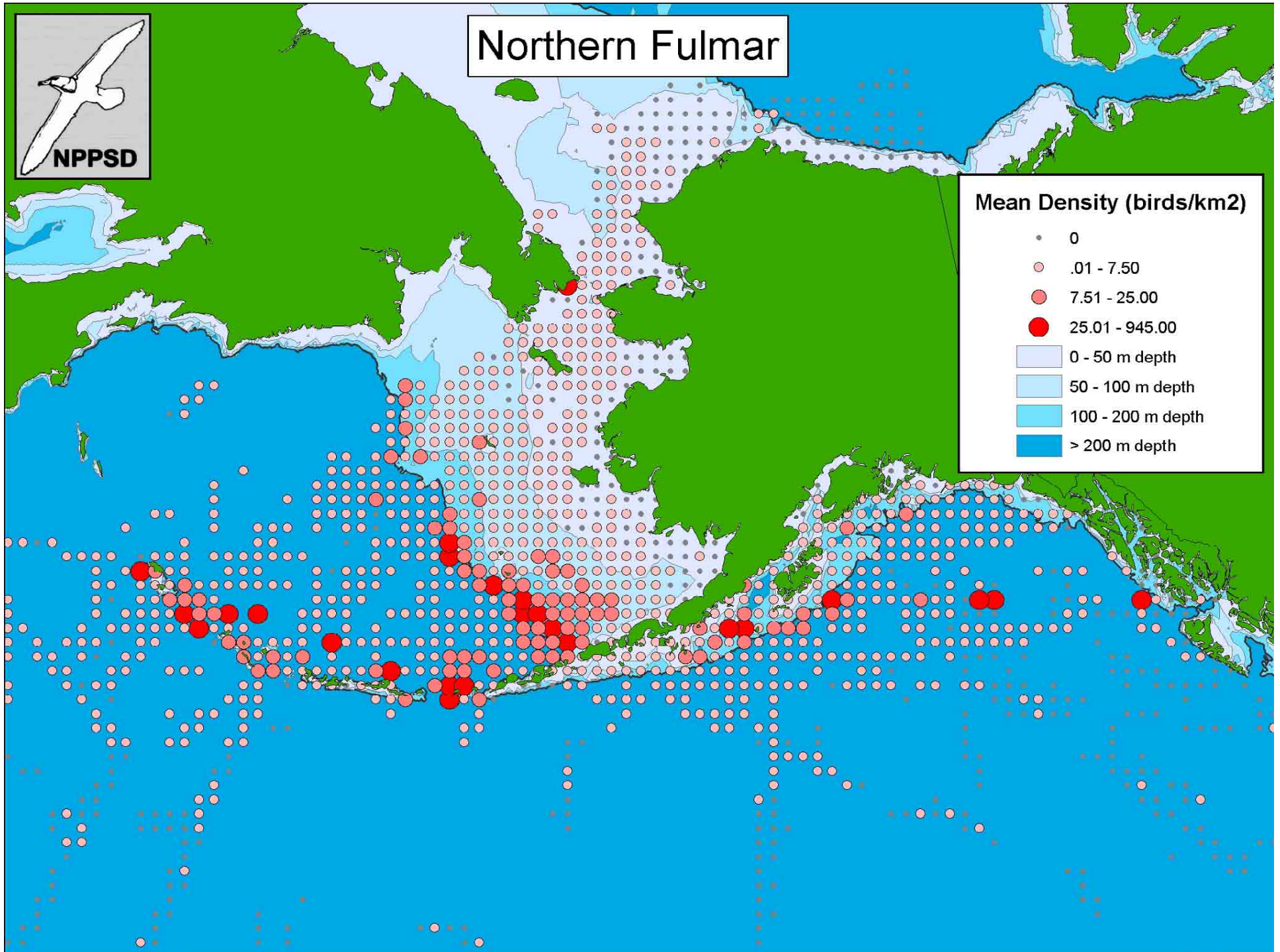


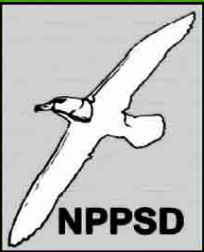


Data for maps of Short-tailed Albatross (STAL) distribution come from a different database than the other maps in this Atlas. The STAL database was compiled from observations of STAL made by fisheries observers, biologists, and bird-watchers on various ships of opportunity. In contrast to other NPPSD observations, no effort data are associated with these STAL observations. The STAL database was compiled by Jenny Wetzel and John Piatt at the USGS Alaska Science Center for Greg Balogh, USFWS Endangered Species Office, Anchorage, as part of a collaborative USGS/FWS project. Updates to this database can be found in the future on the NPPSD web site: <http://www.absc.usgs.gov/research/NPPSD/>

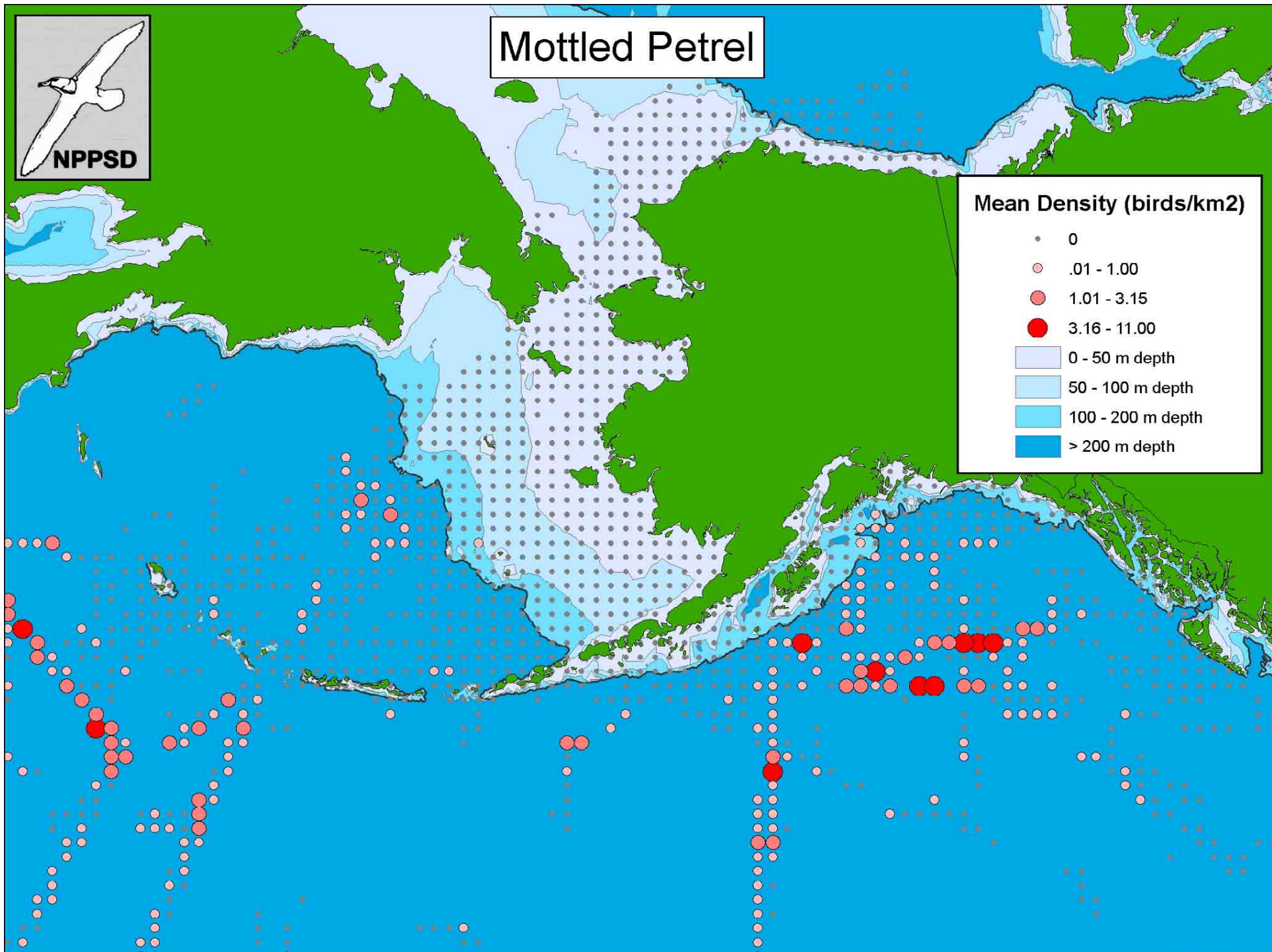


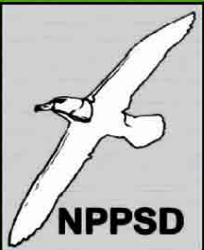
Northern Fulmar



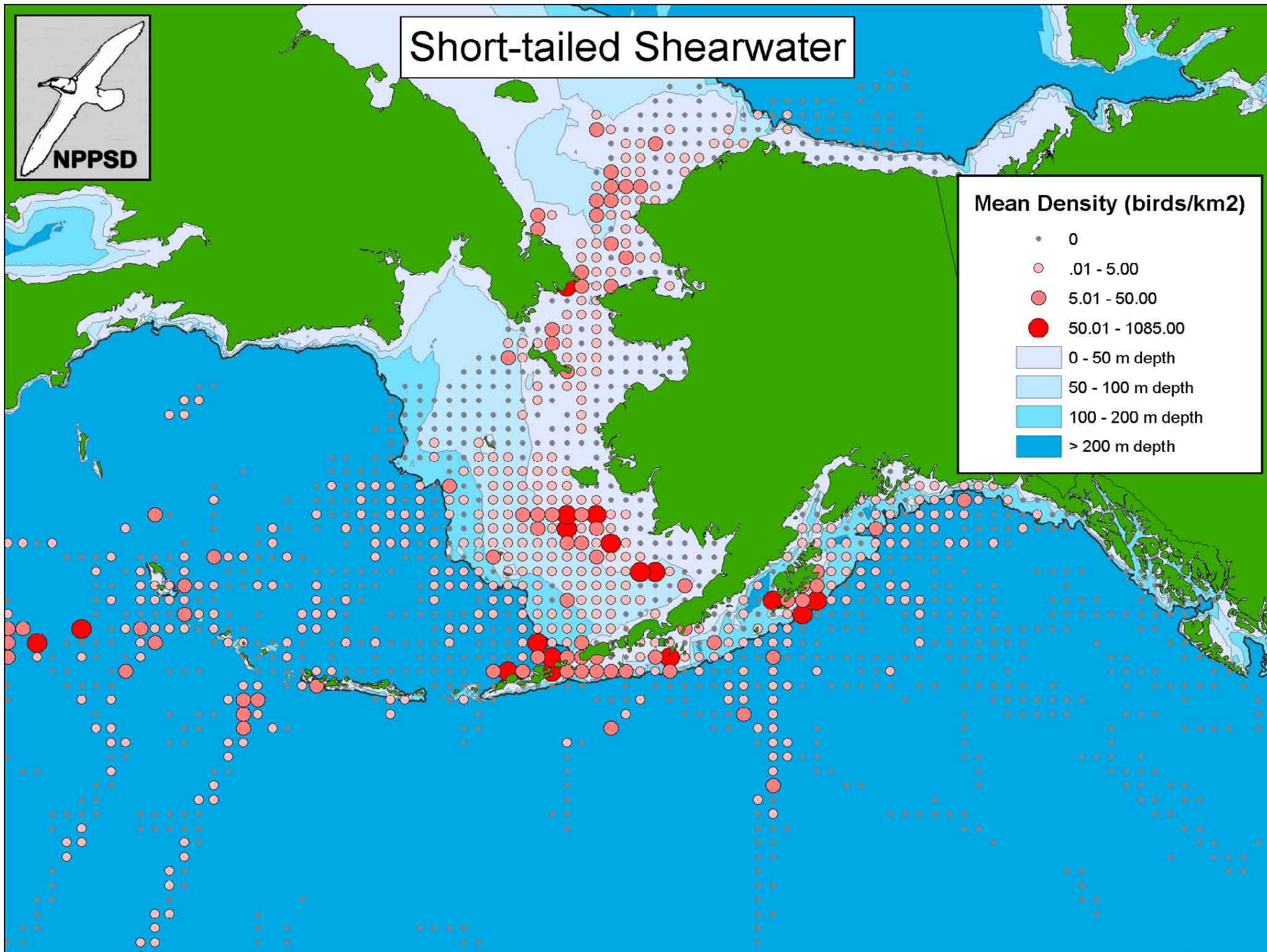


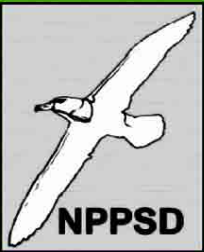
Mottled Petrel



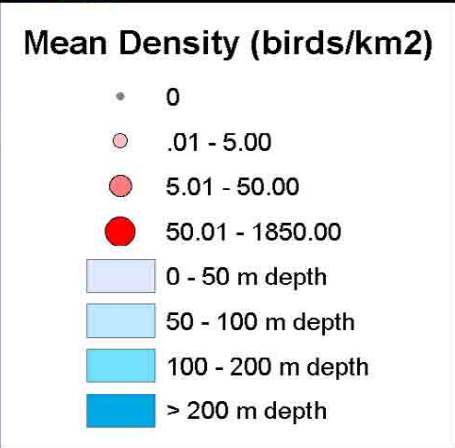
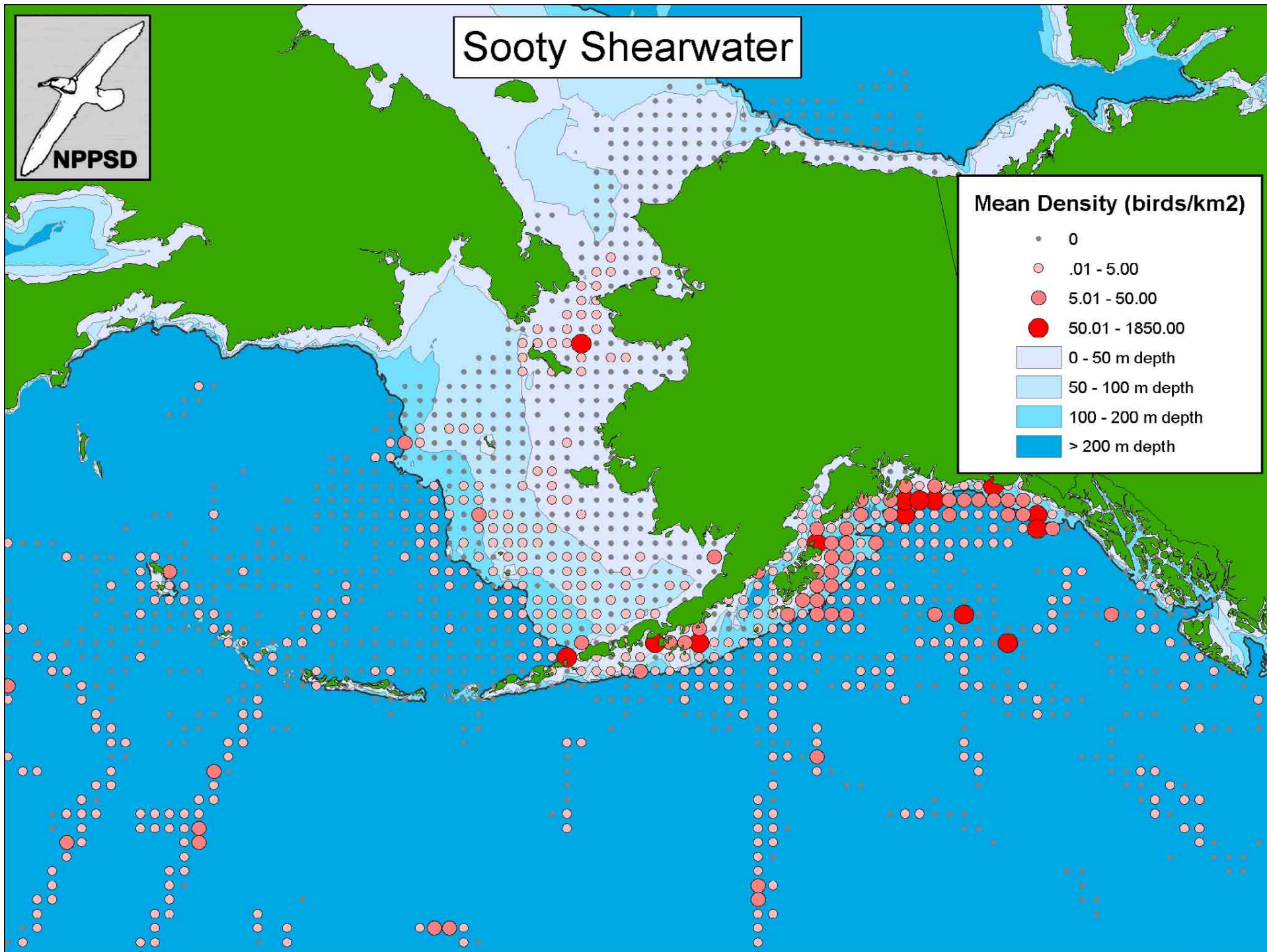


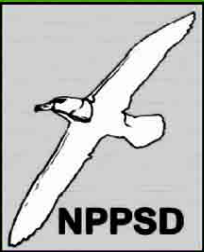
Short-tailed Shearwater



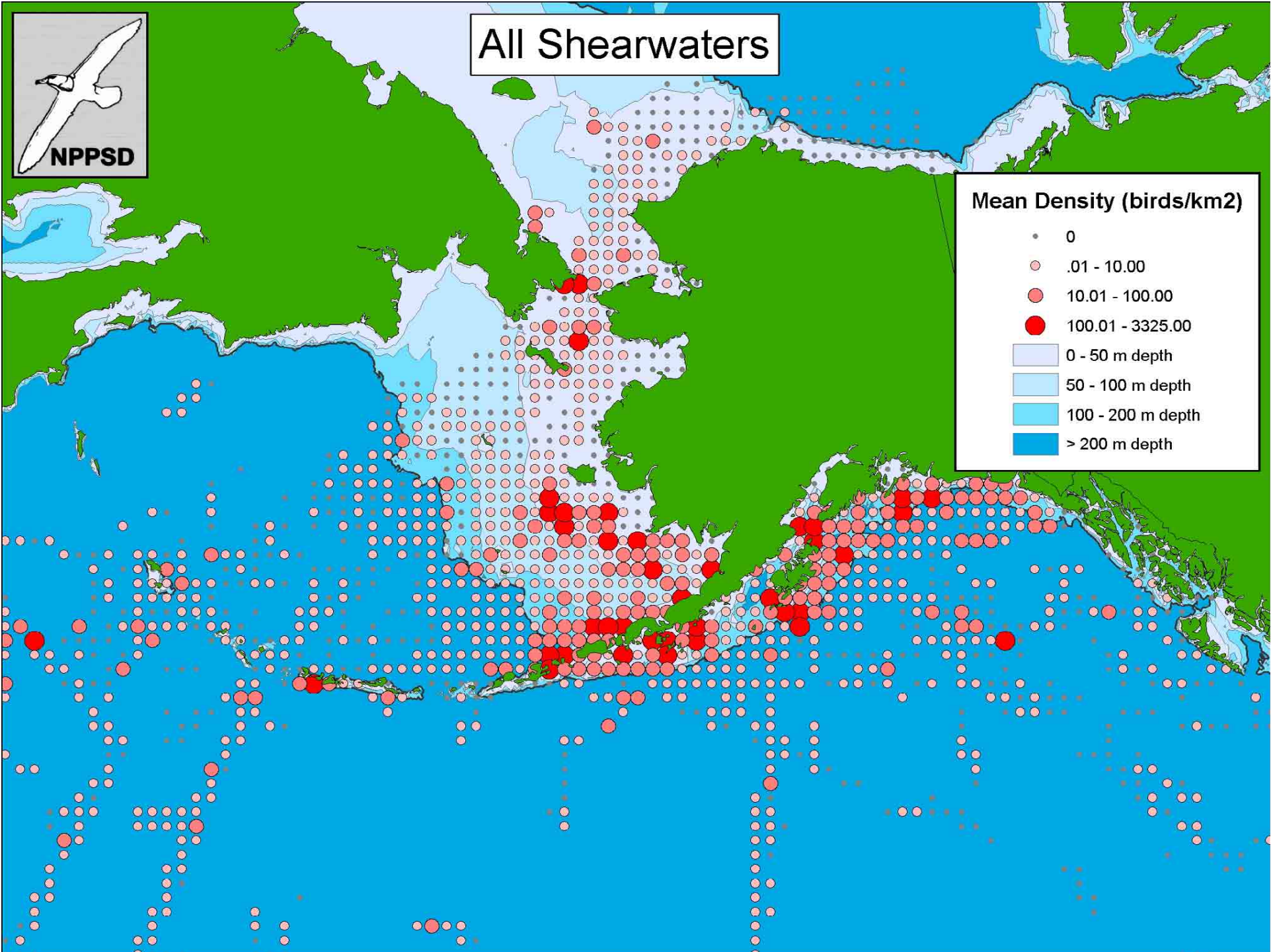
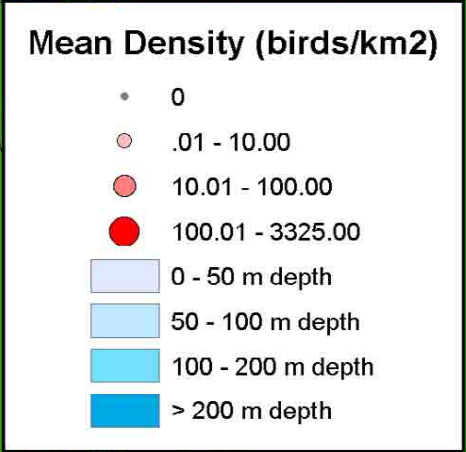


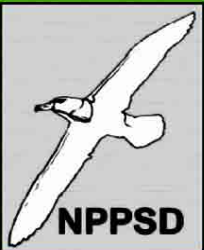
Sooty Shearwater



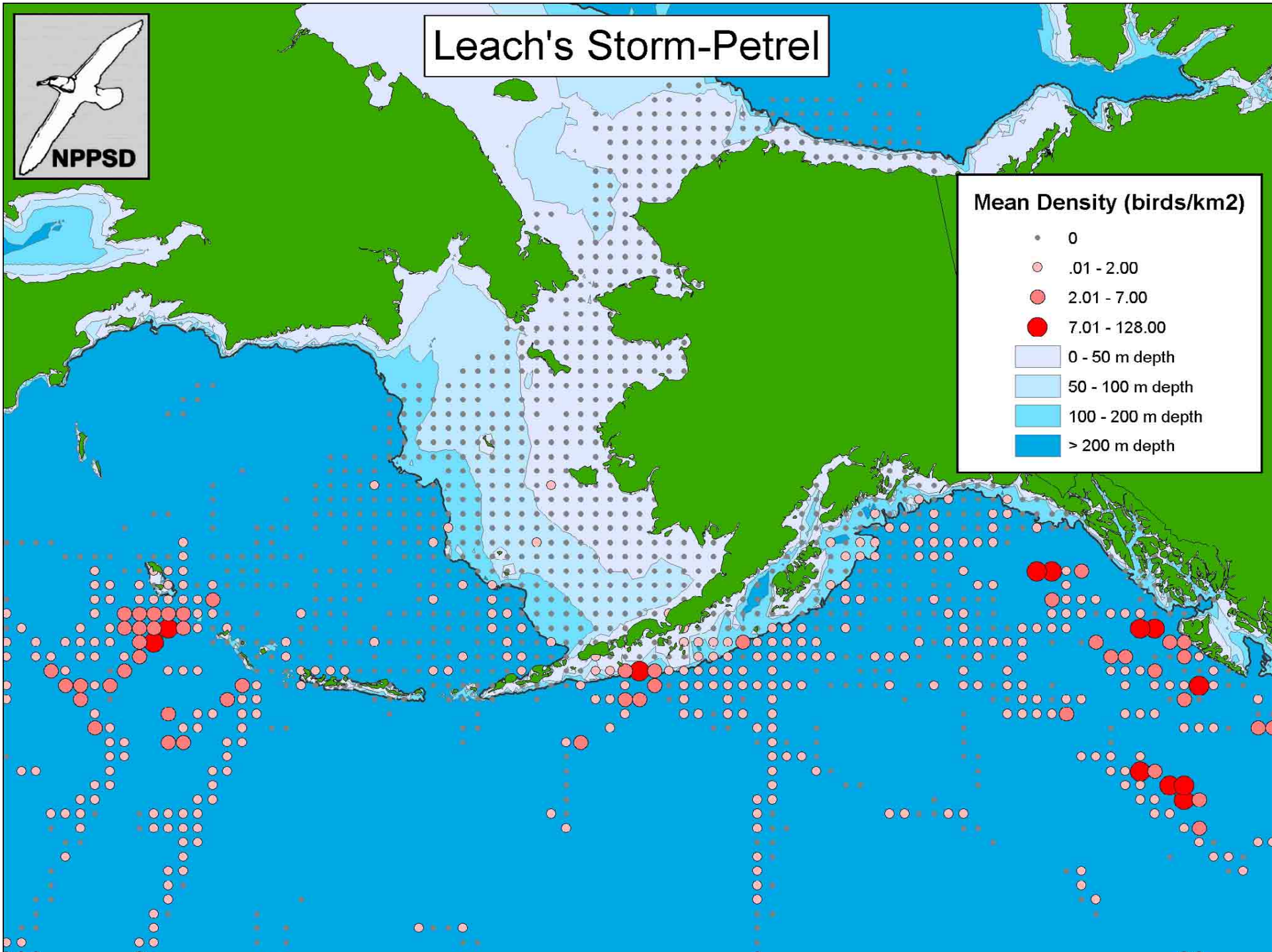
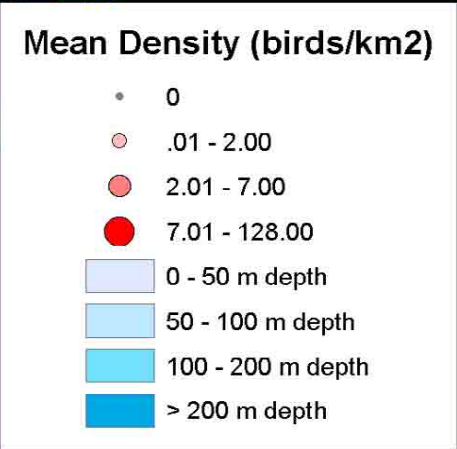


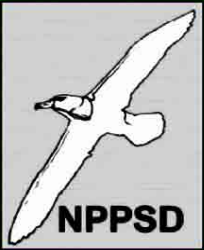
All Shearwaters



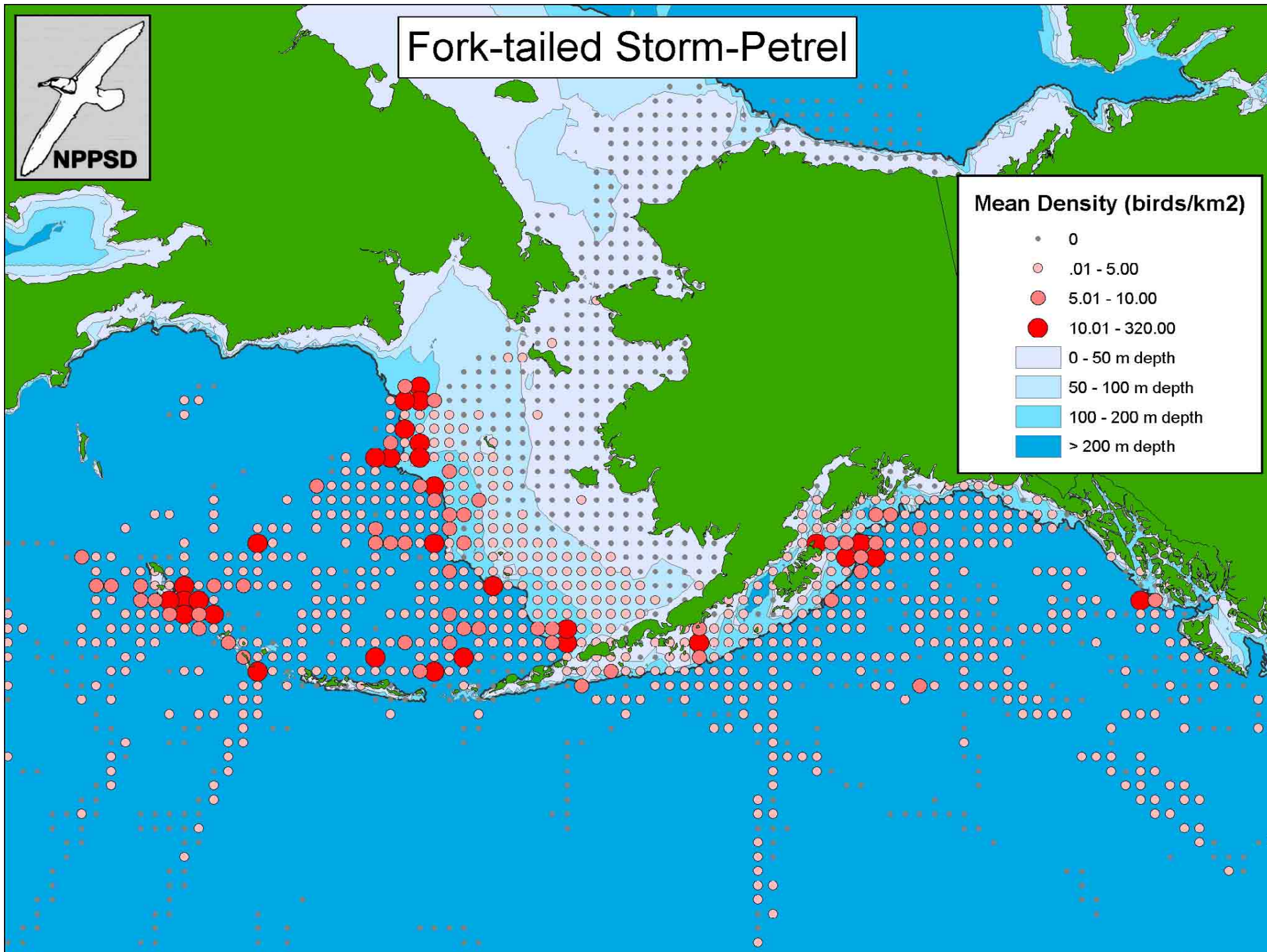


Leach's Storm-Petrel





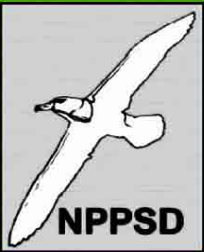
Fork-tailed Storm-Petrel



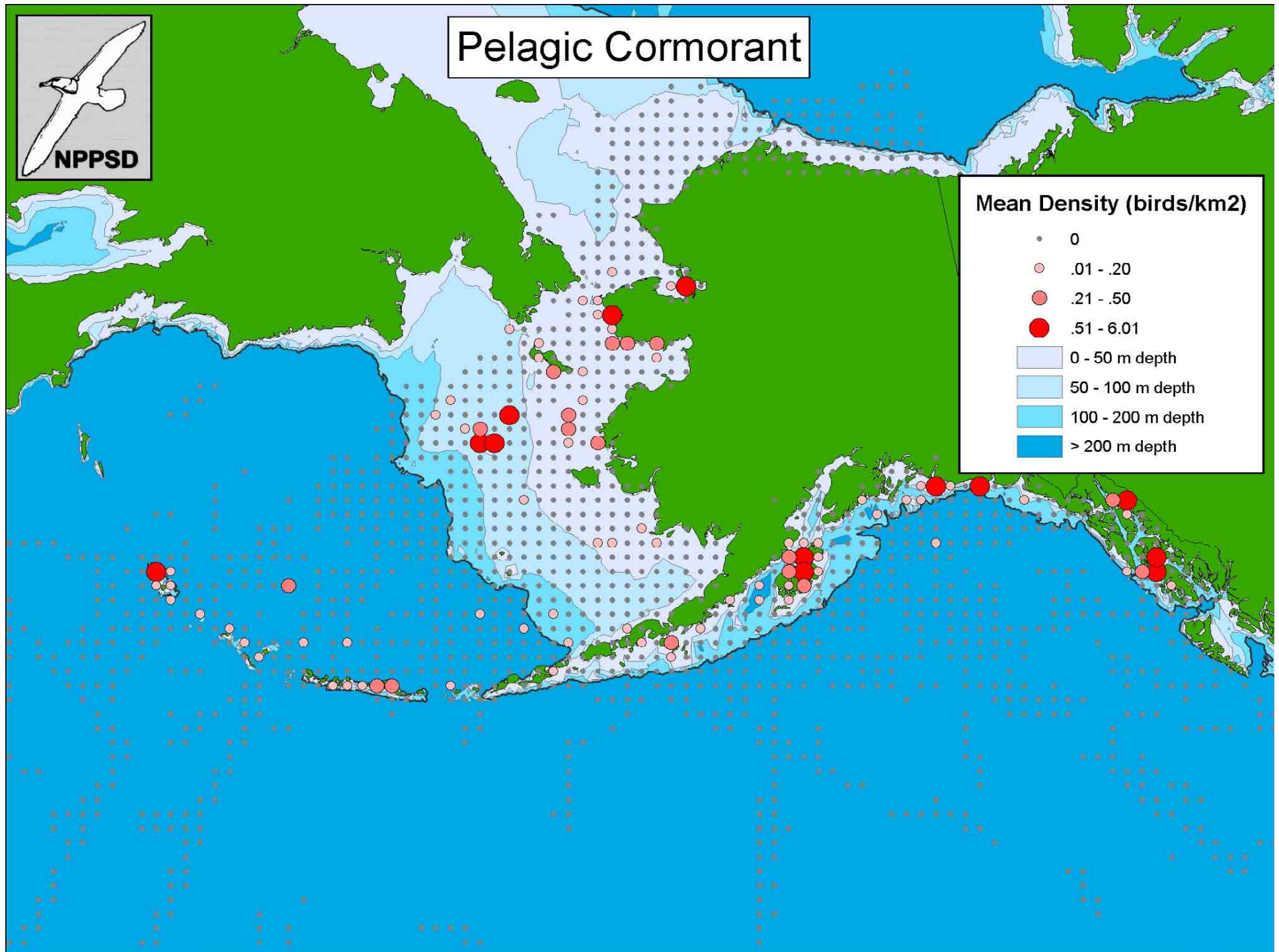
Mean Density (birds/km²)

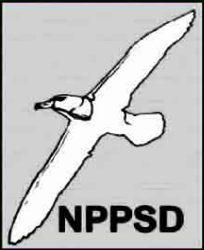
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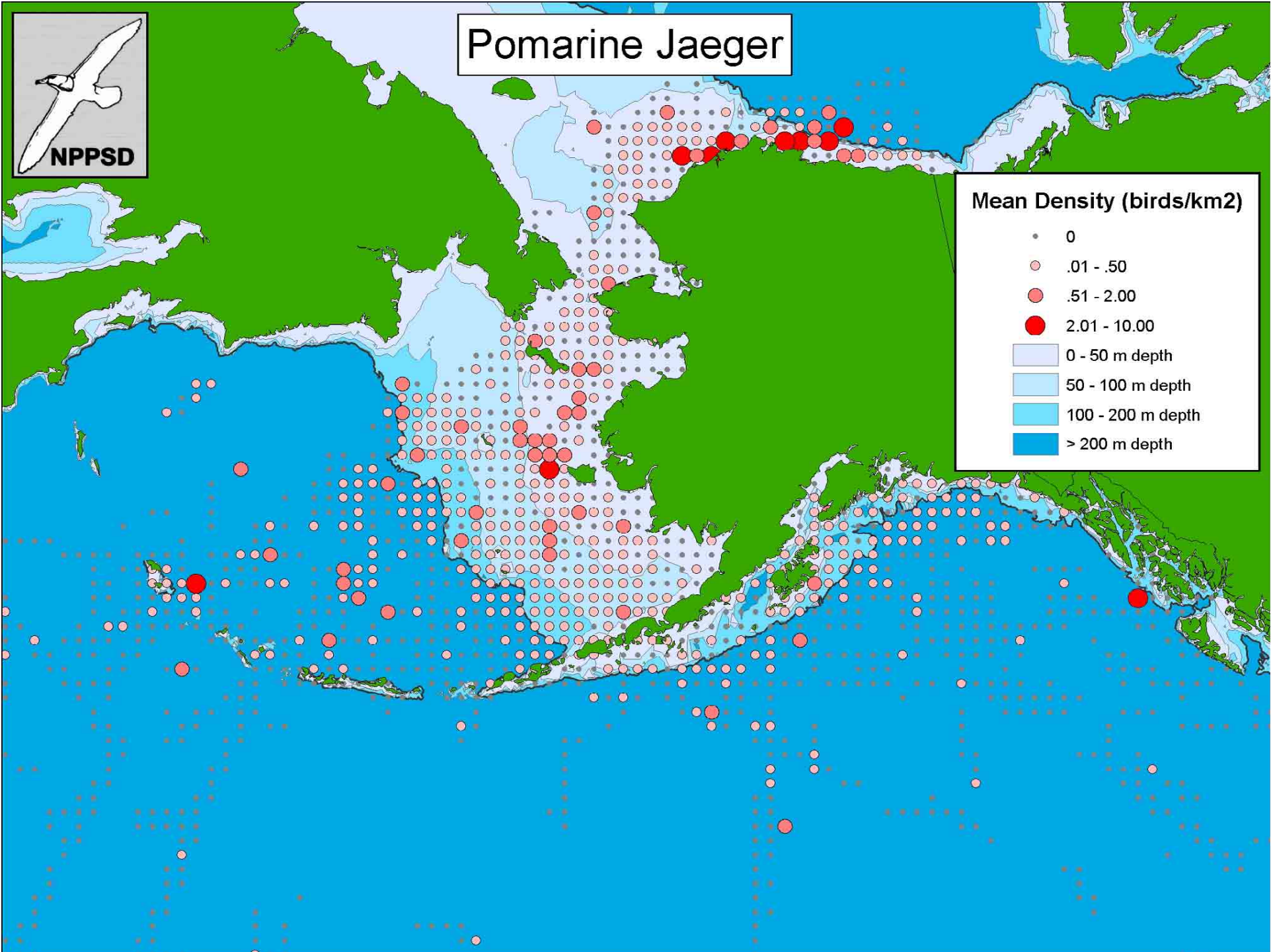


Pelagic Cormorant



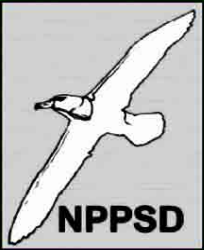


Pomarine Jaeger

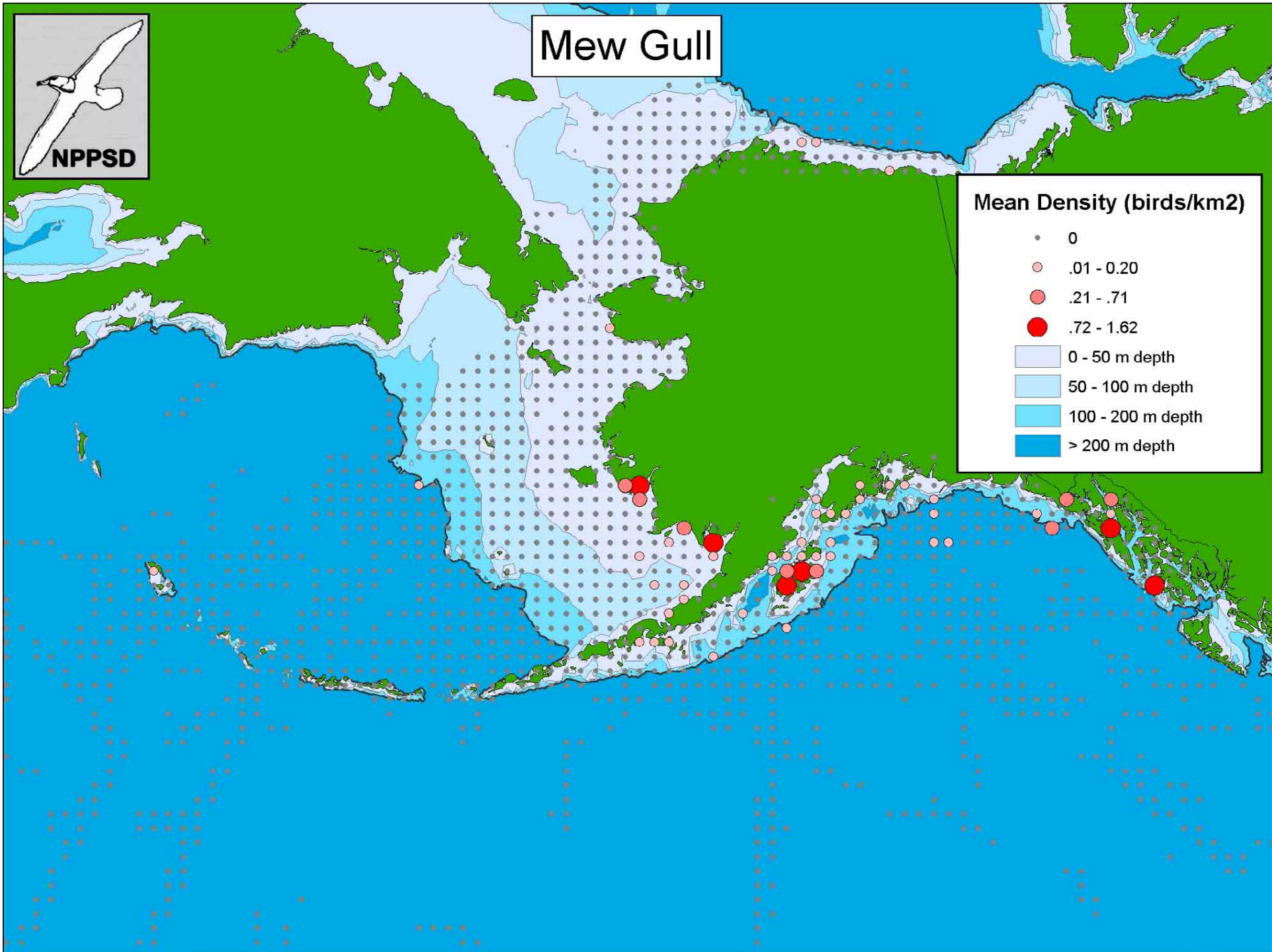
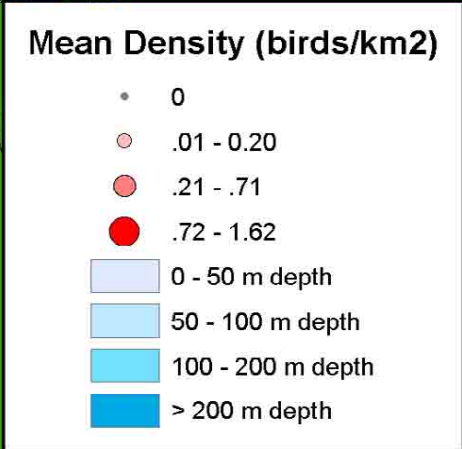


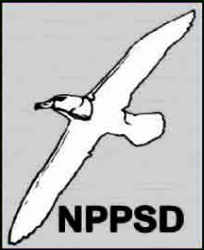
Mean Density (birds/km²)

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- 0 - 50 m depth
- 50 - 100 m depth
- 100 - 200 m depth
- > 200 m depth

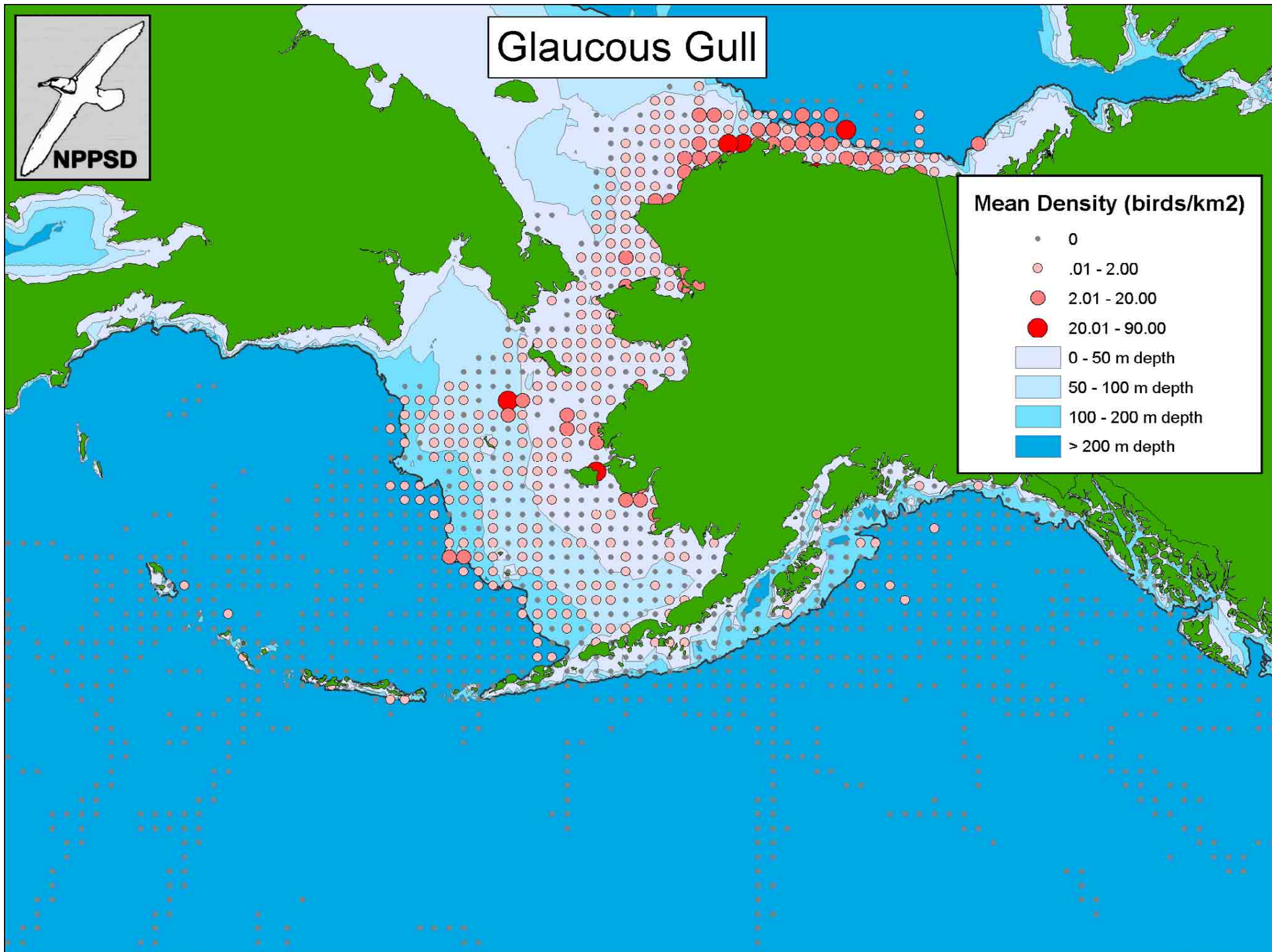


Mew Gull





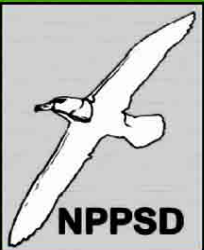
Glaucous Gull



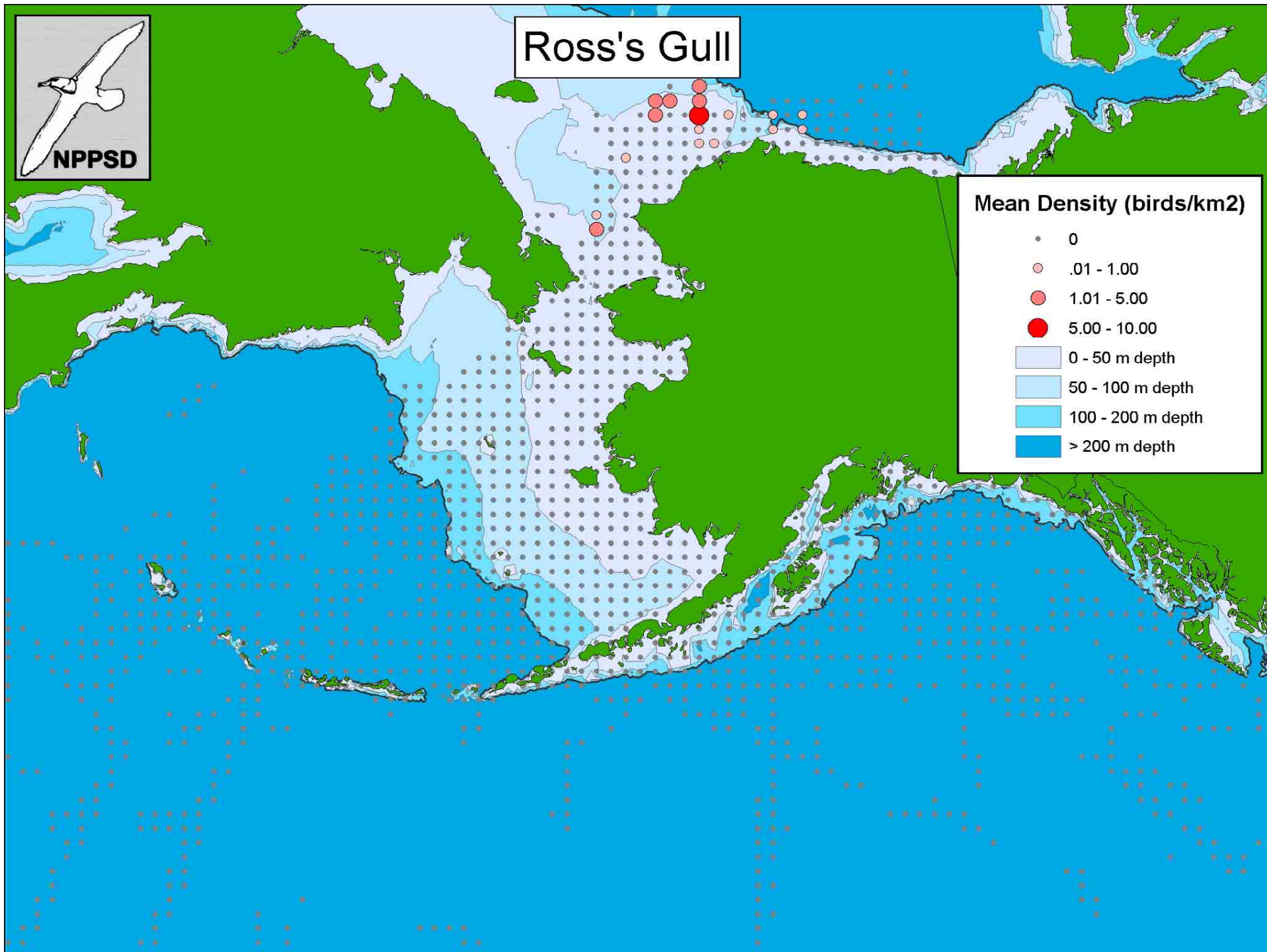
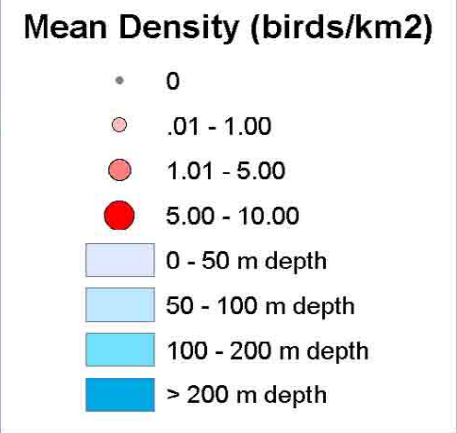
Mean Density (birds/km²)

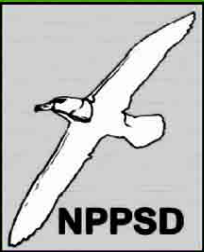
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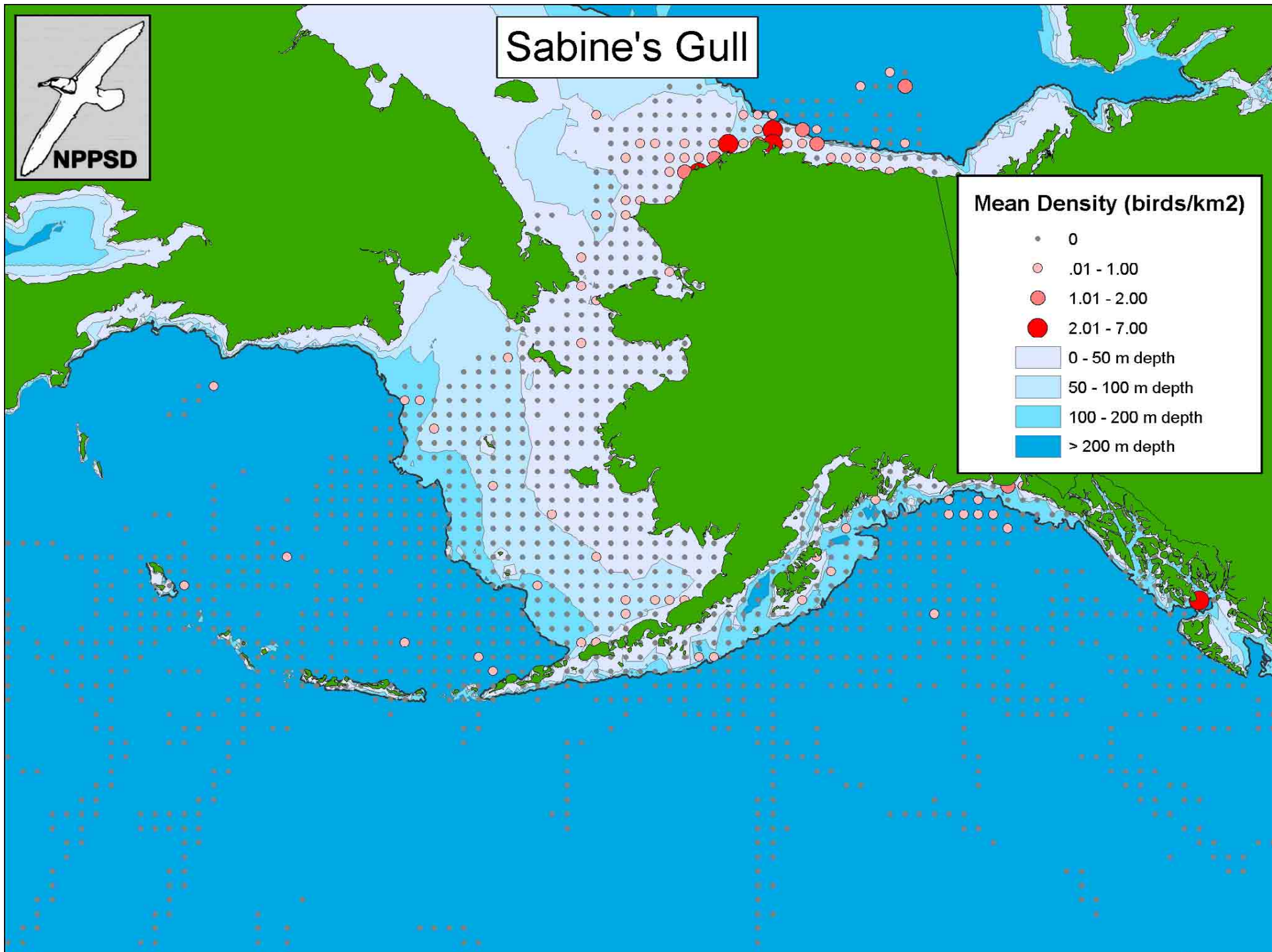


Ross's Gull





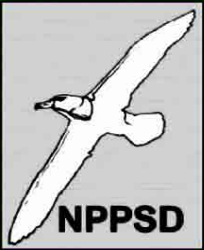
Sabine's Gull



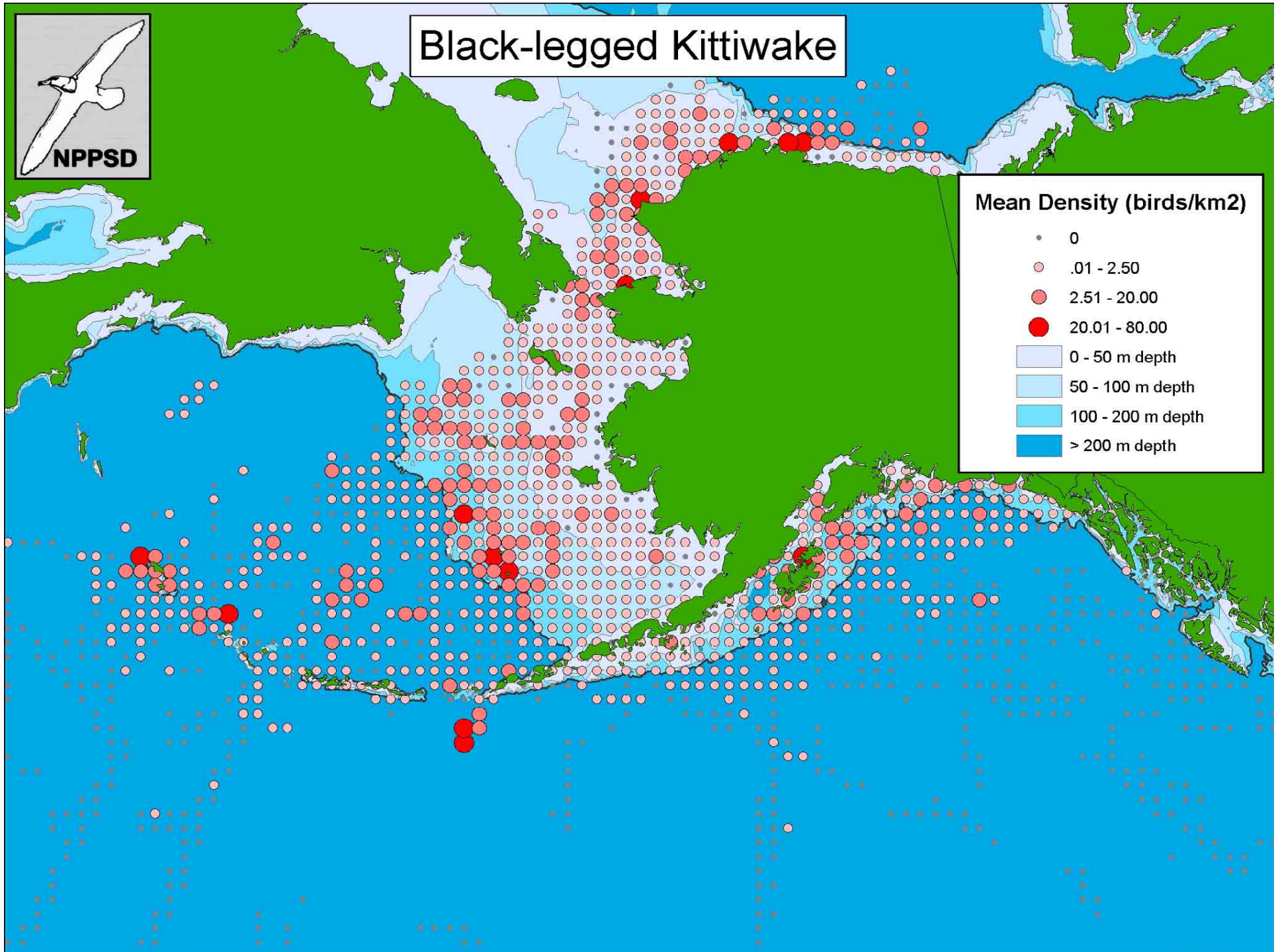
Mean Density (birds/km²)

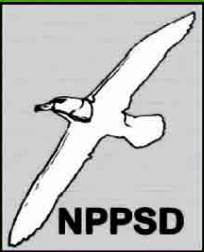
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- 2.01 - 7.00

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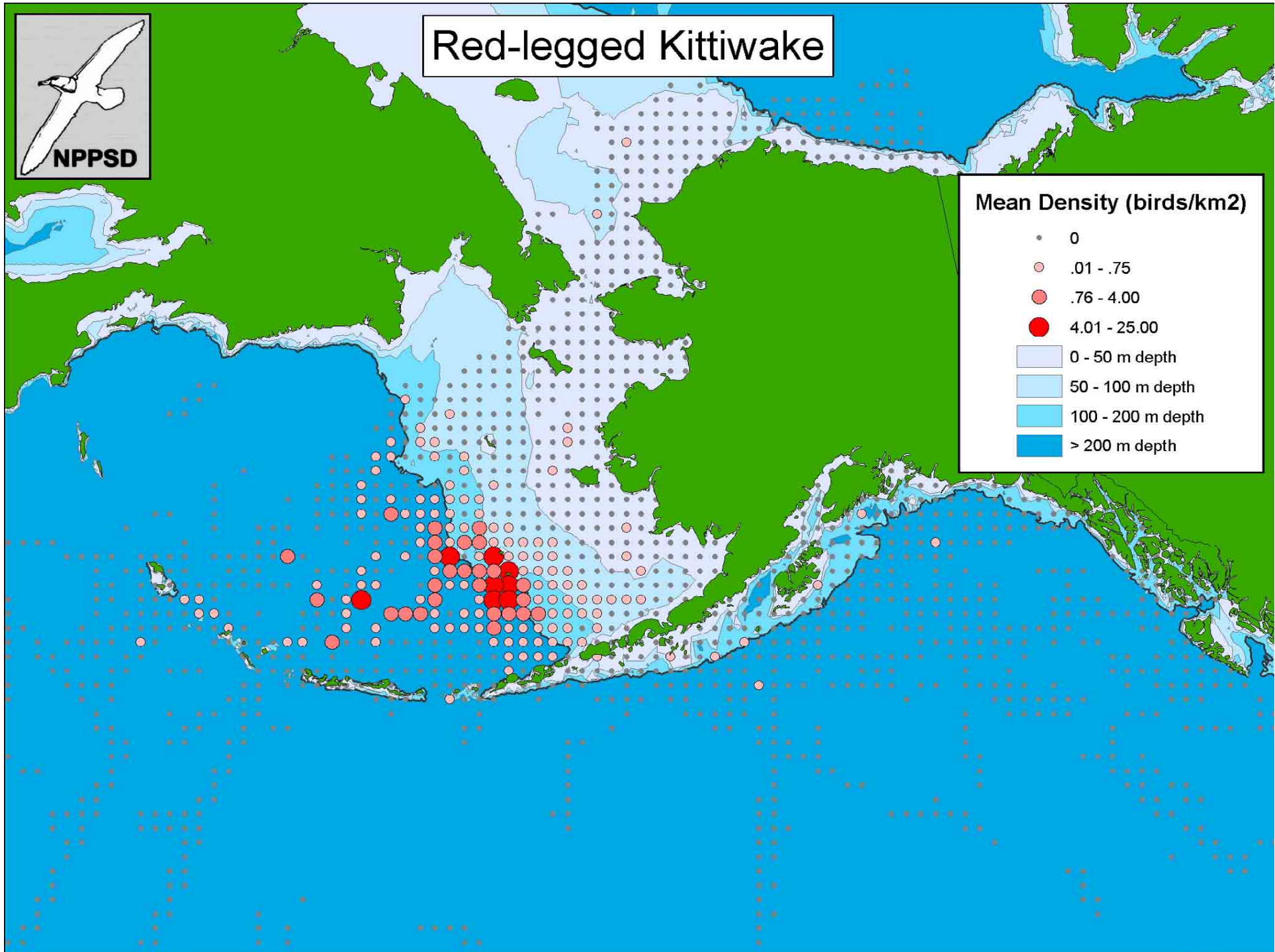


Black-legged Kittiwake

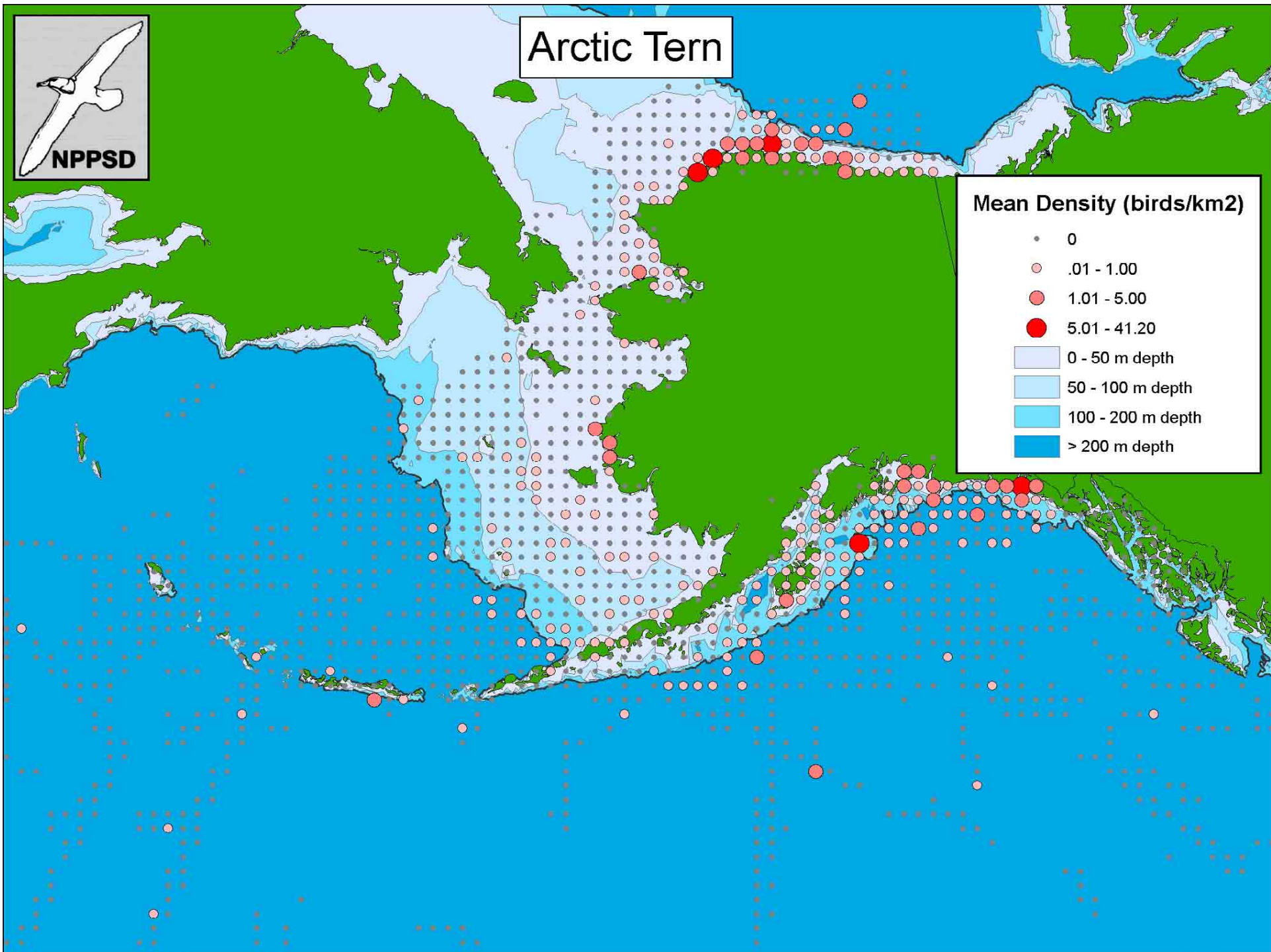
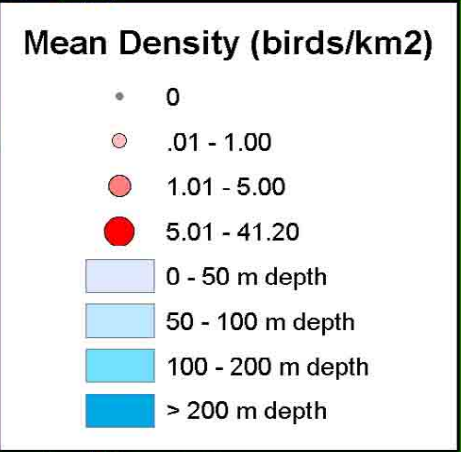
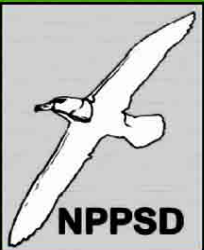


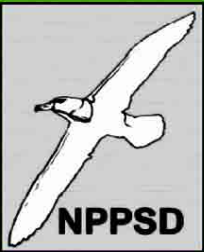


Red-legged Kittiwake

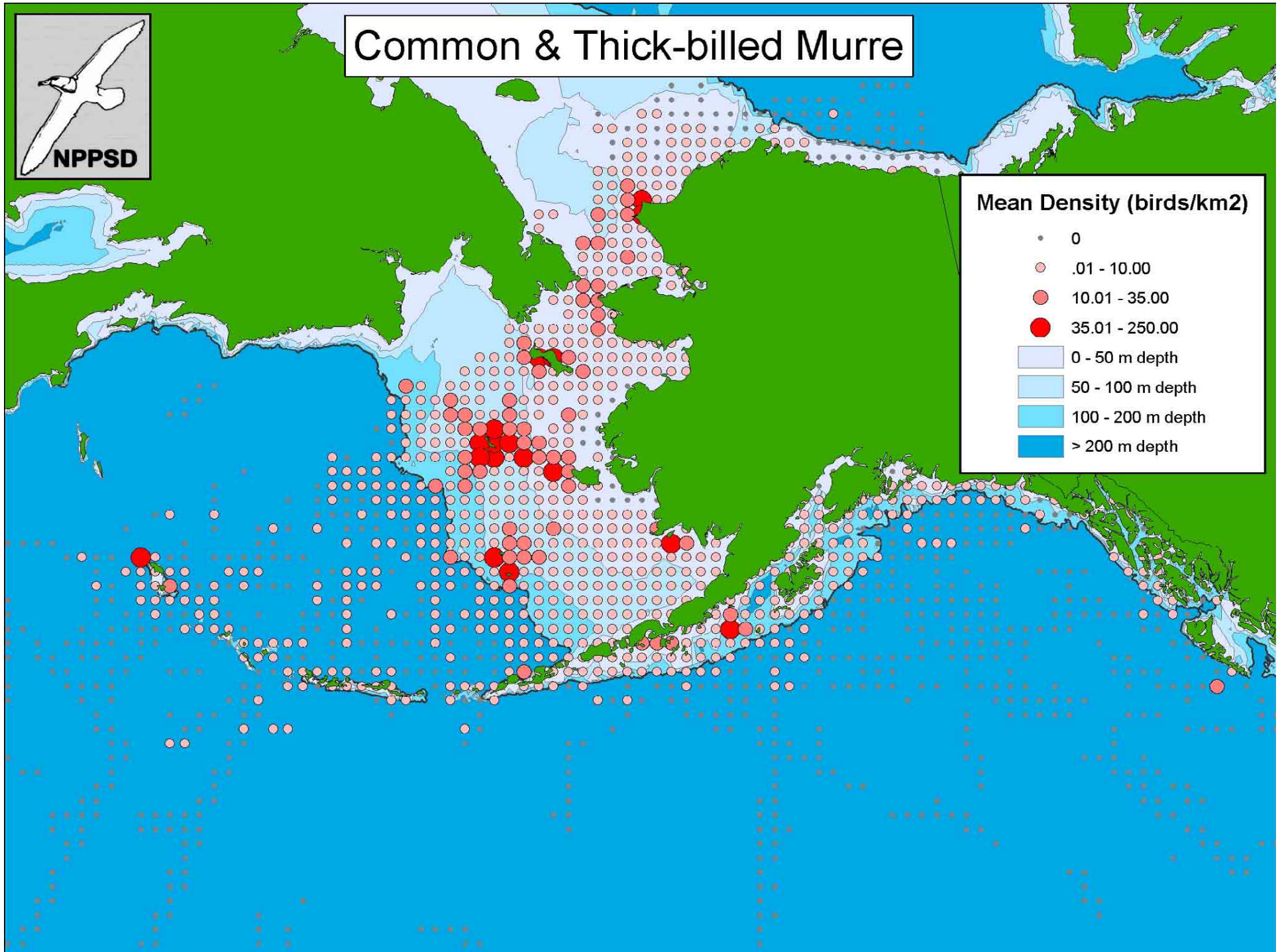


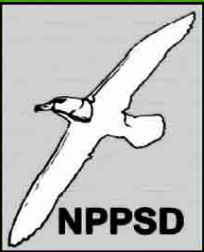
Arctic Tern



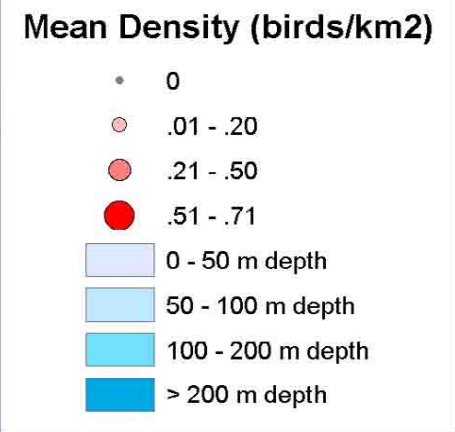
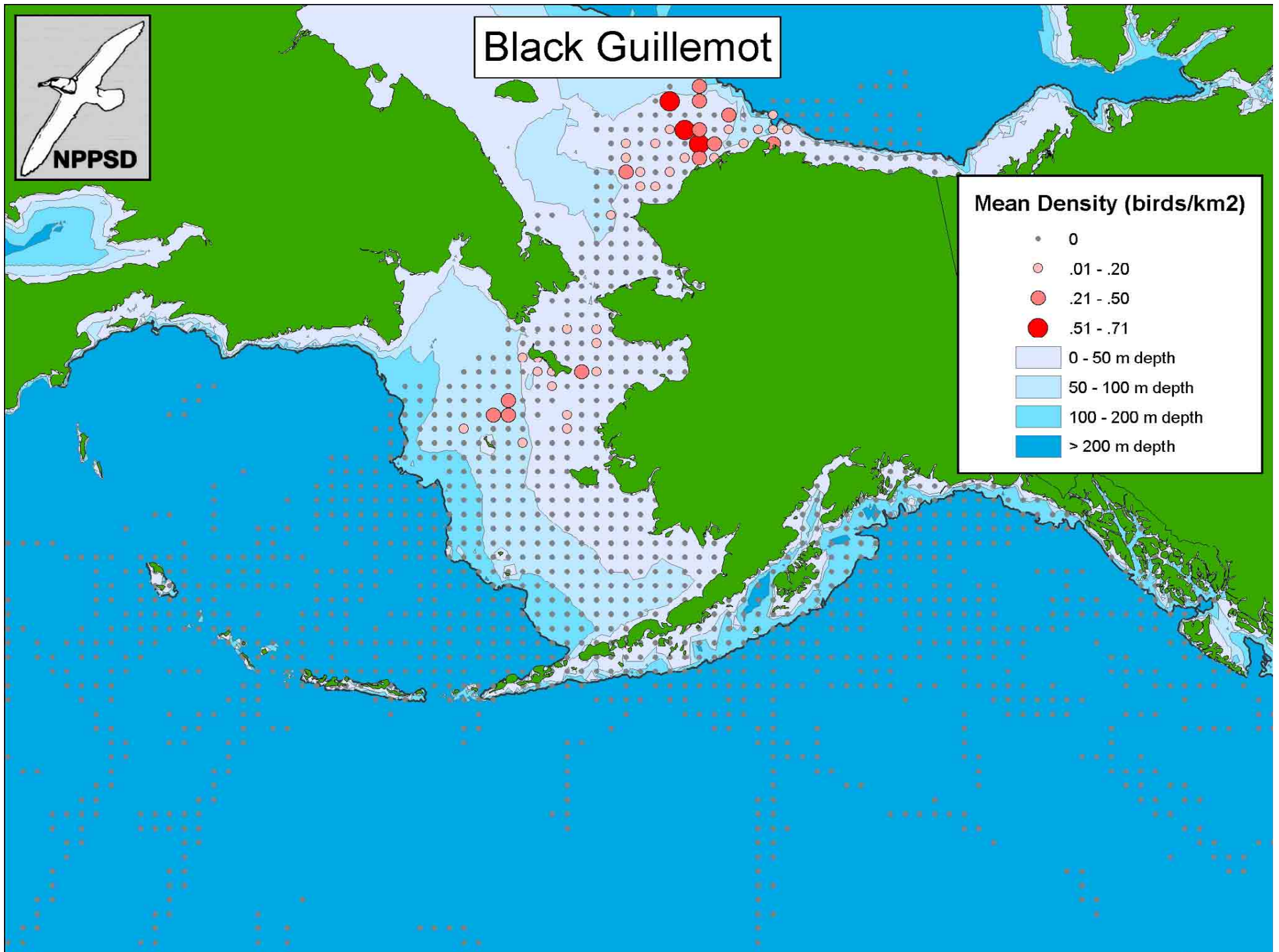


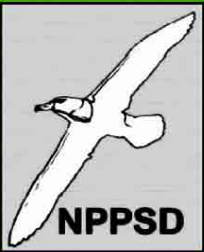
Common & Thick-billed Murre





Black Guillemot



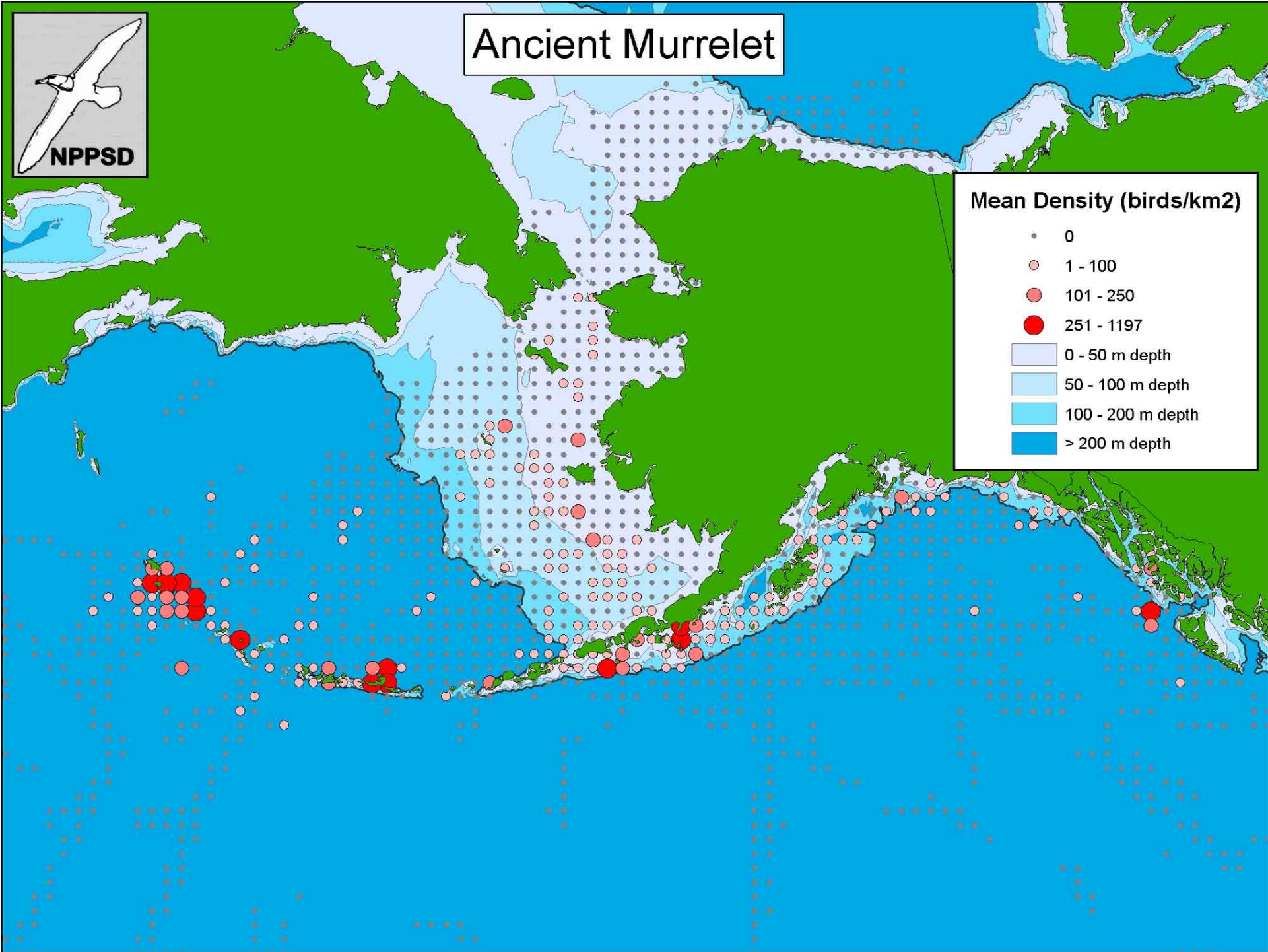


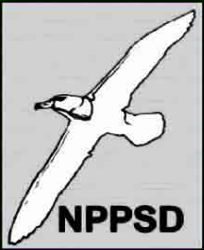
Ancient Murrelet

Mean Density (birds/km²)

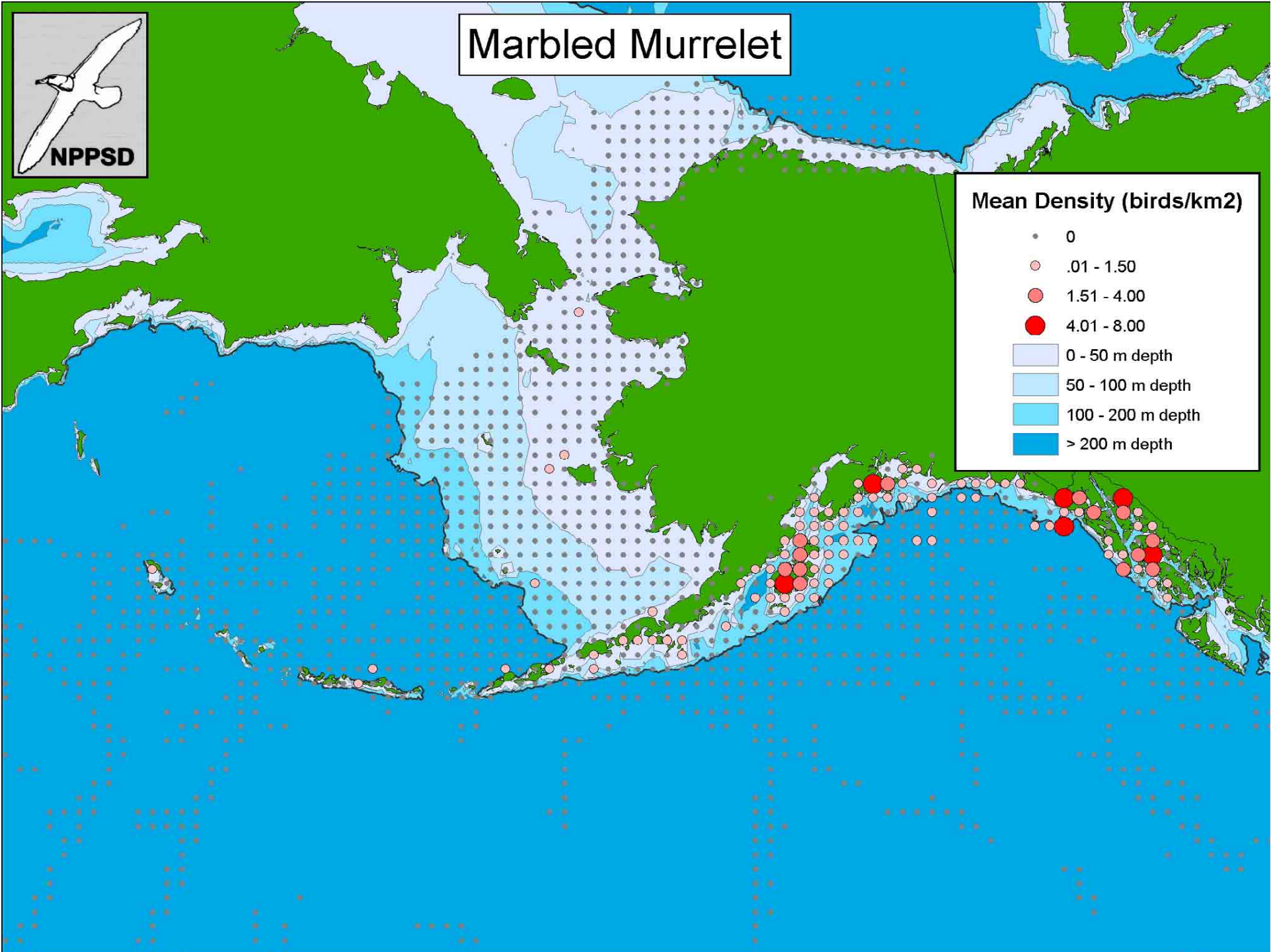
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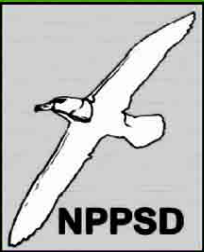
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Marbled Murrelet



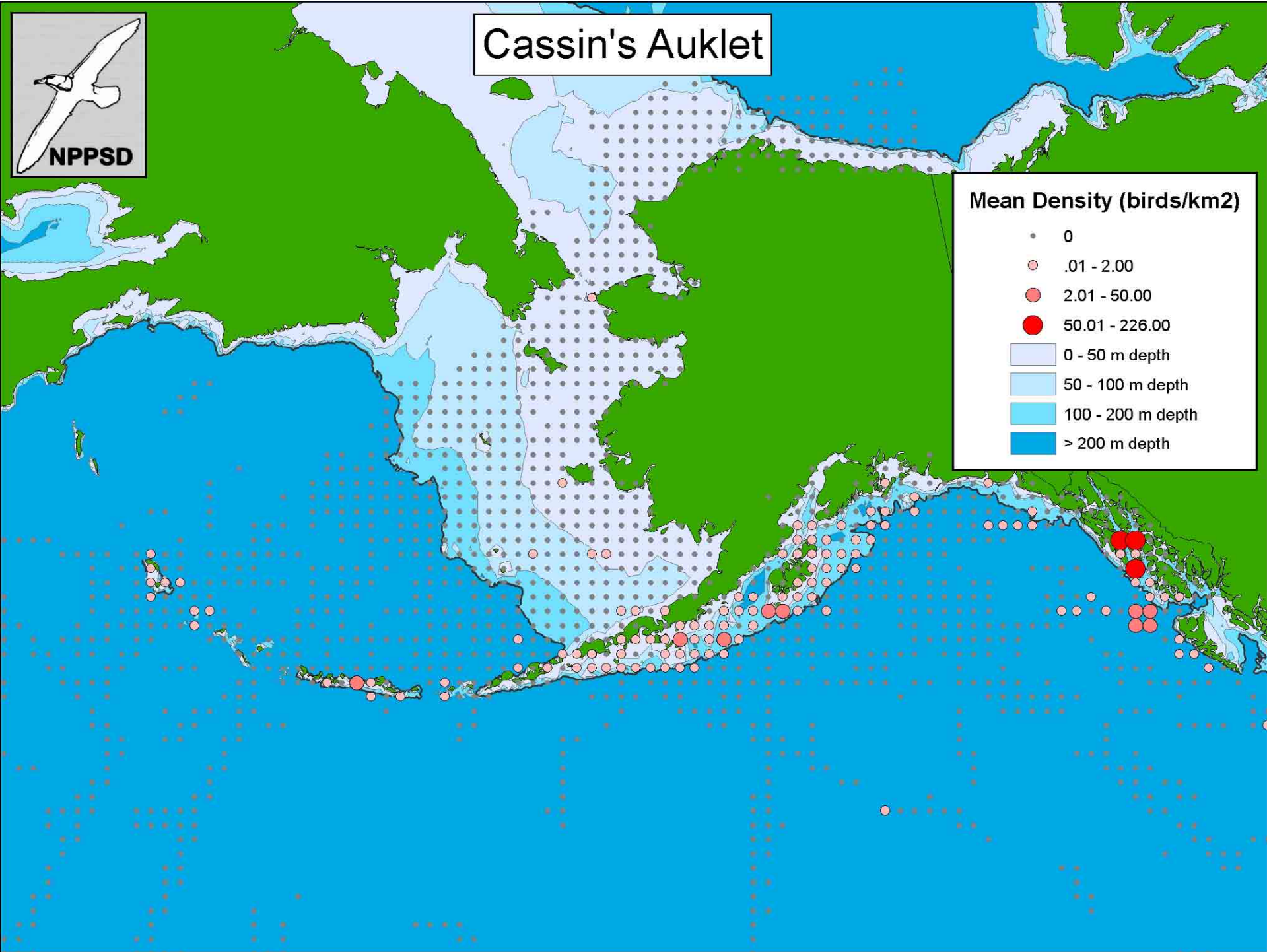


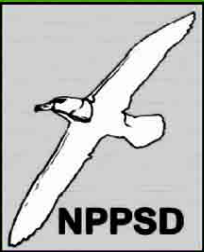
Cassin's Auklet

Mean Density (birds/km²)

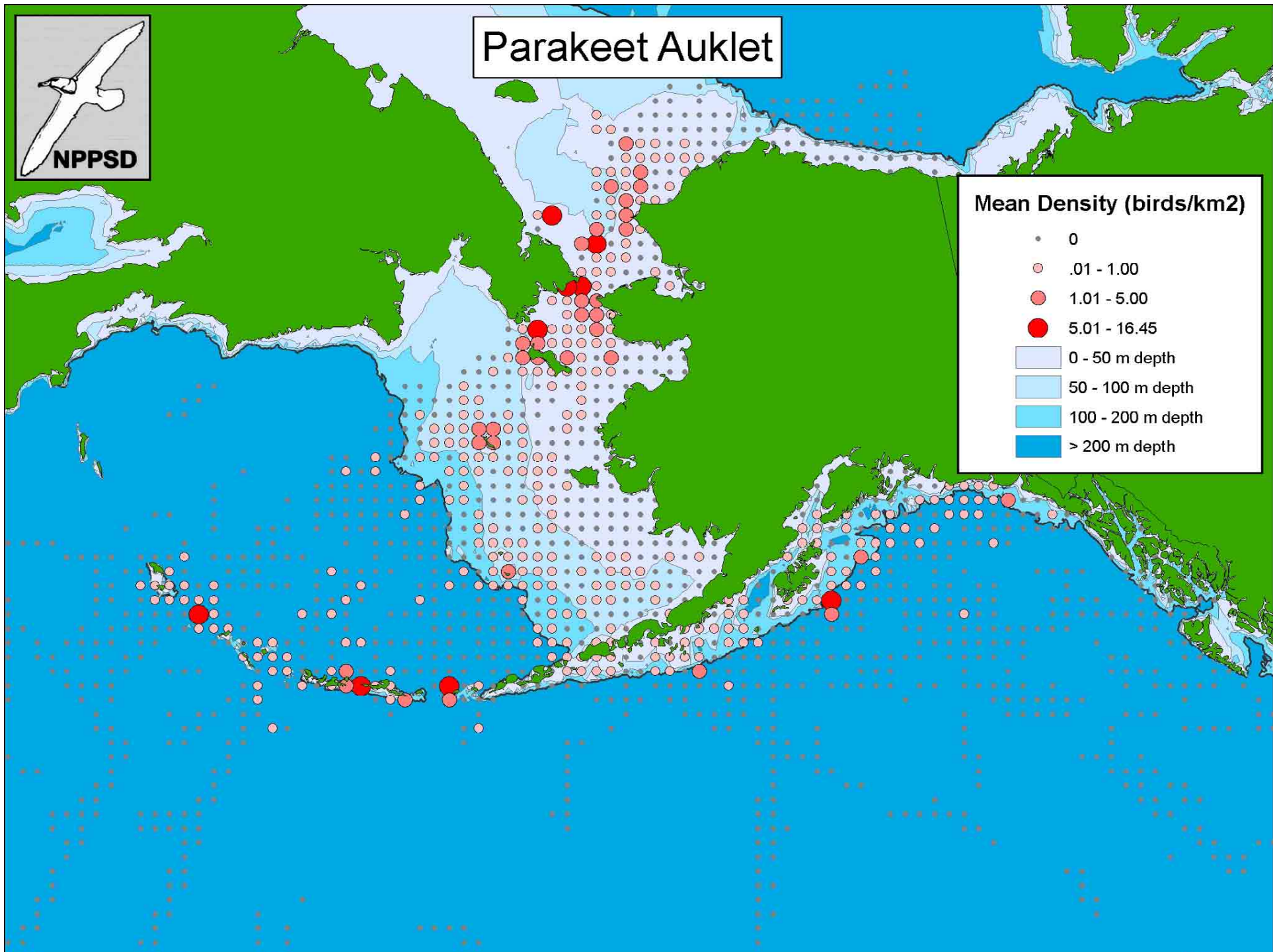
- 0
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- 2.01 - 50.00
- 50.01 - 226.00

- 0 - 50 m depth
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- 100 - 200 m depth
- > 200 m depth





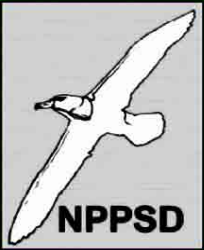
Parakeet Auklet



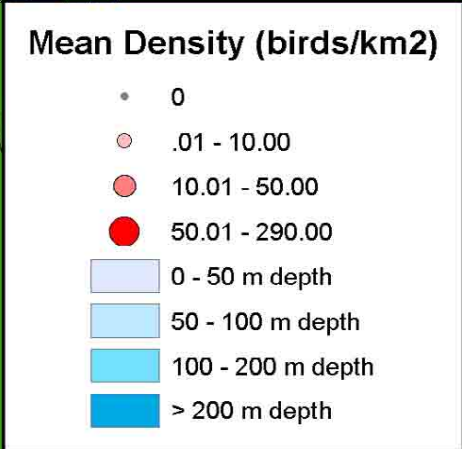
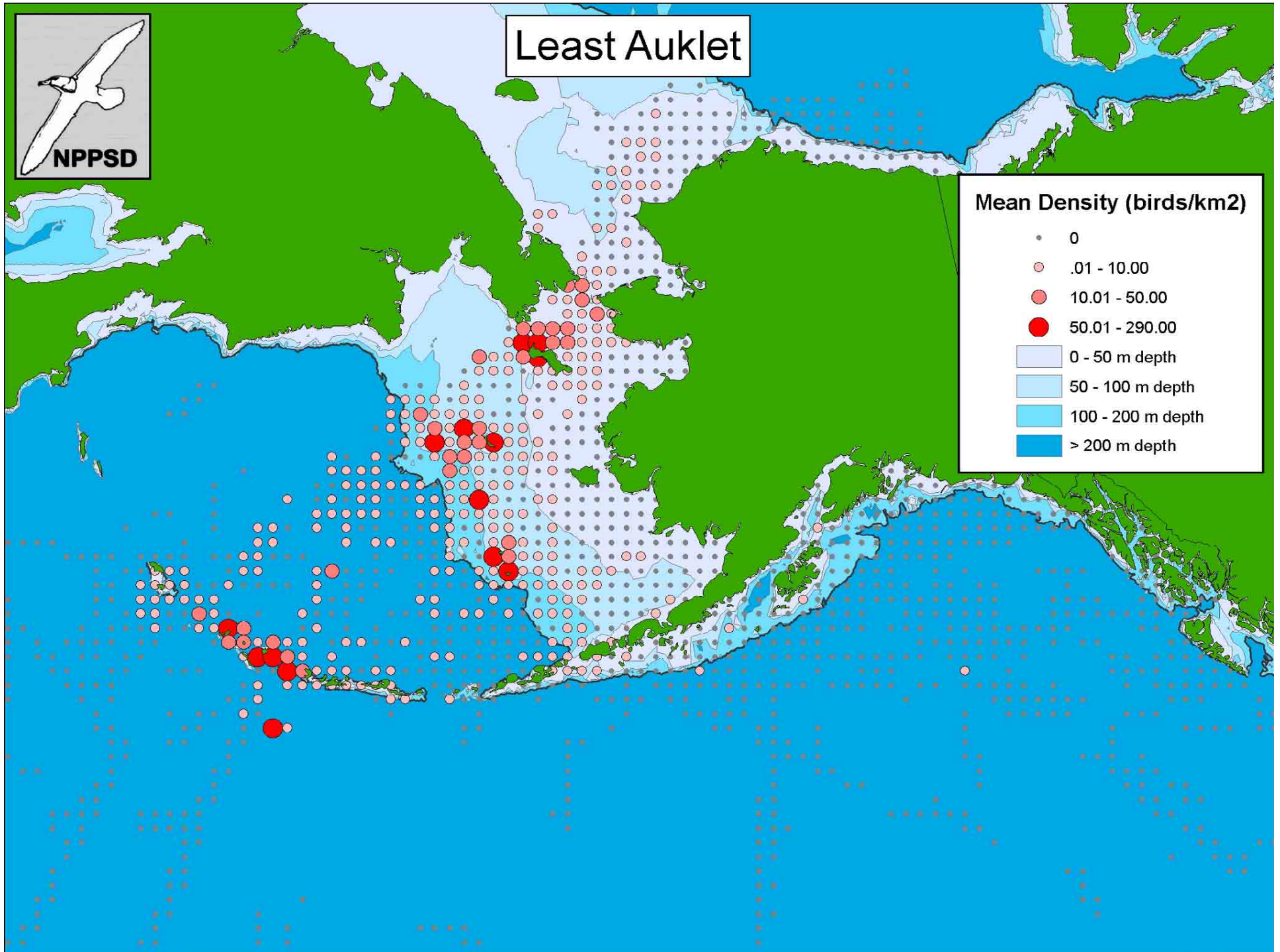
Mean Density (birds/km²)

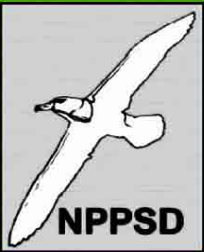
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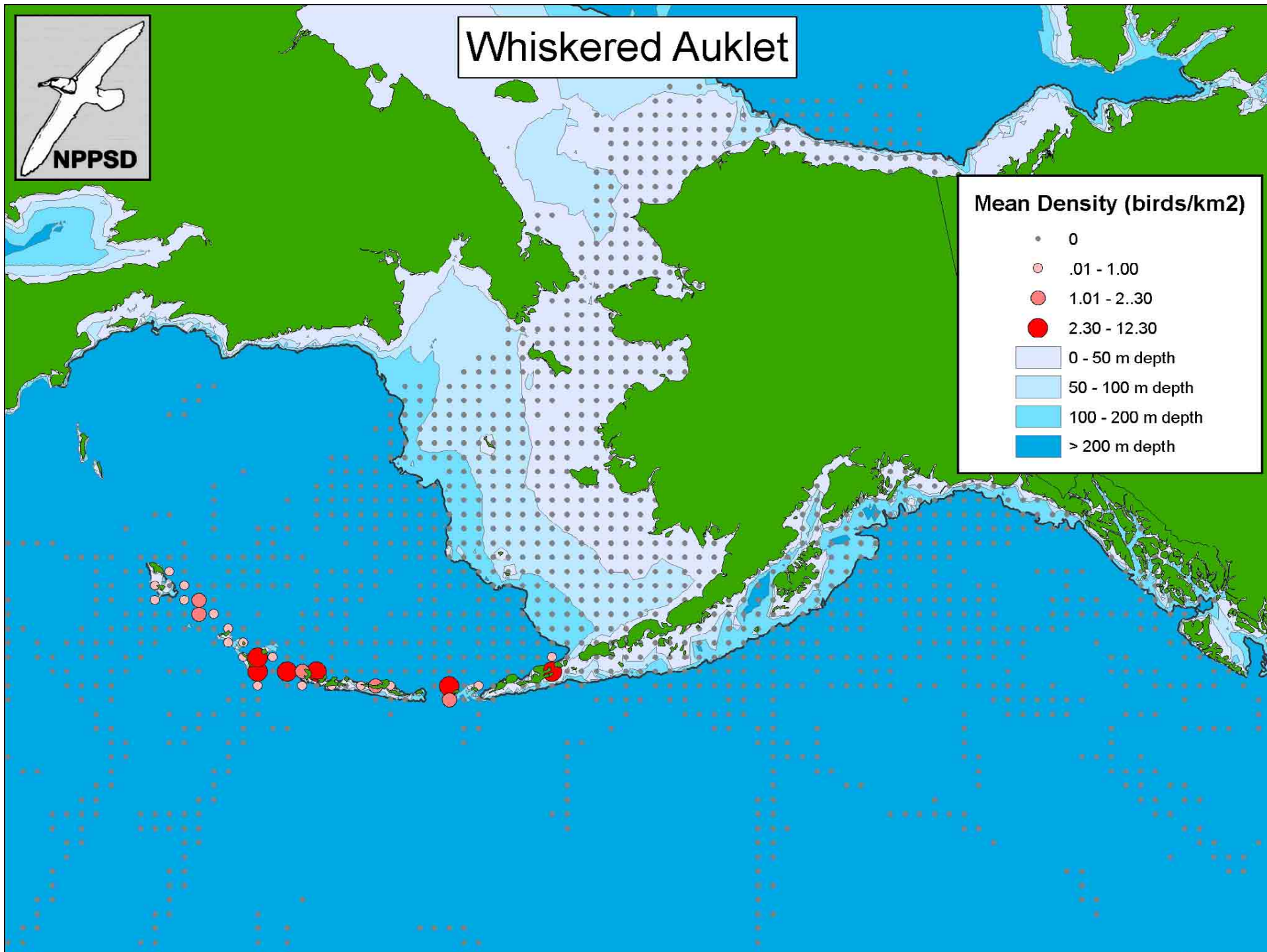


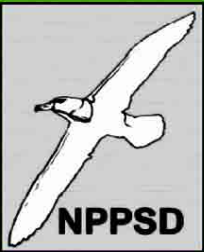
Least Auklet



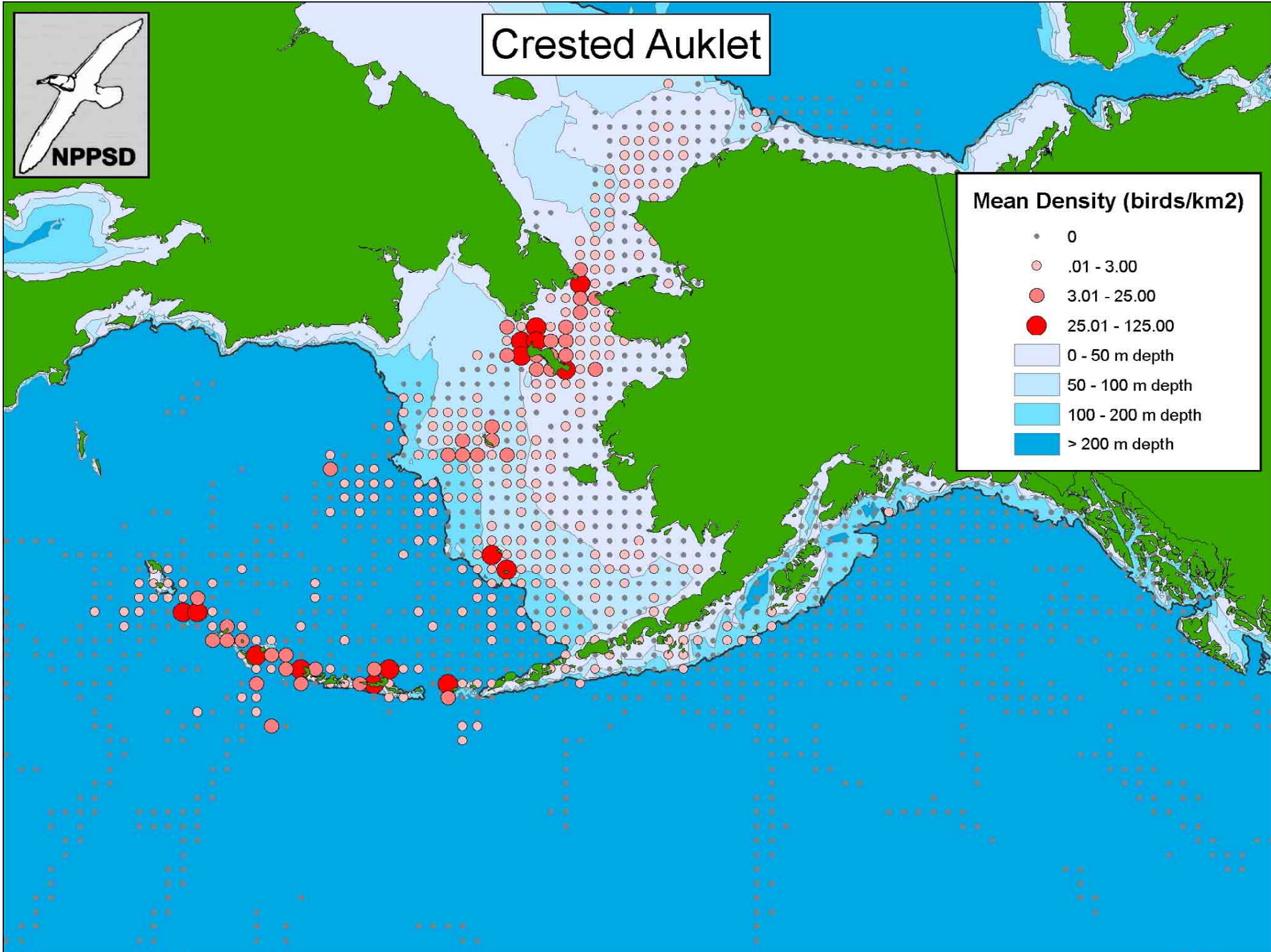


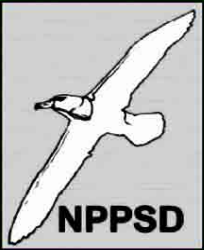
Whiskered Auklet



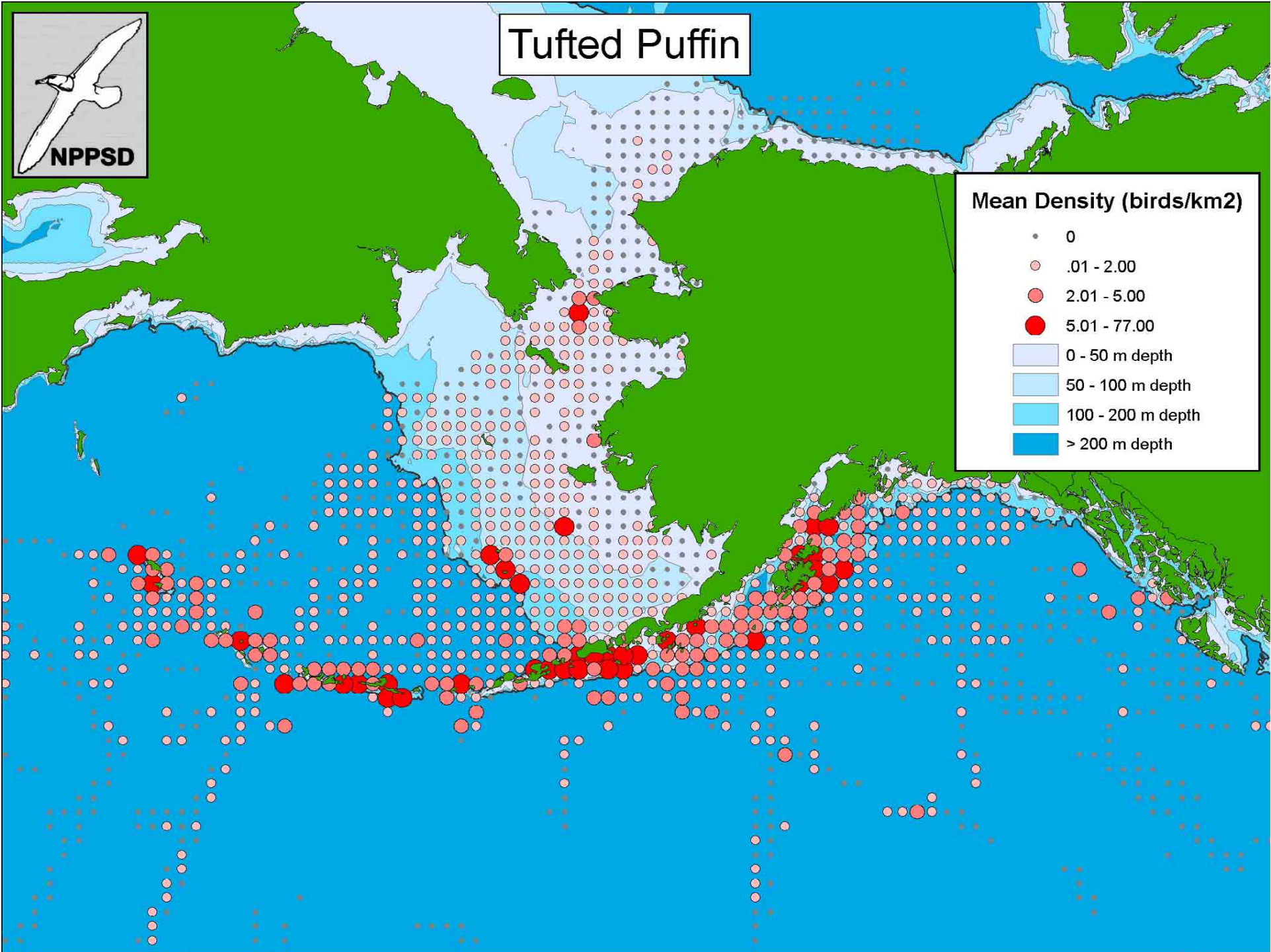
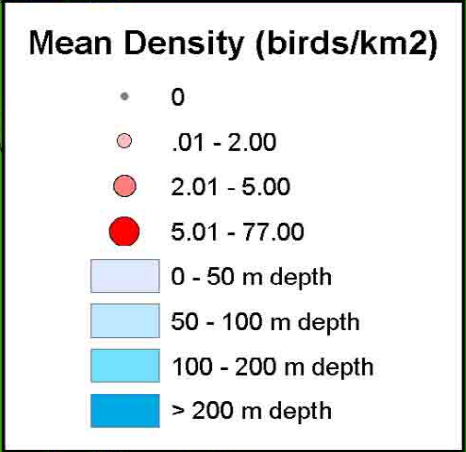


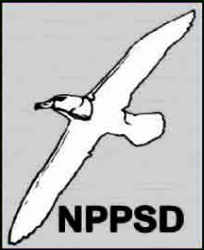
Crested Auklet





Tufted Puffin





Horned Puffin

