
Appendix A

Maps

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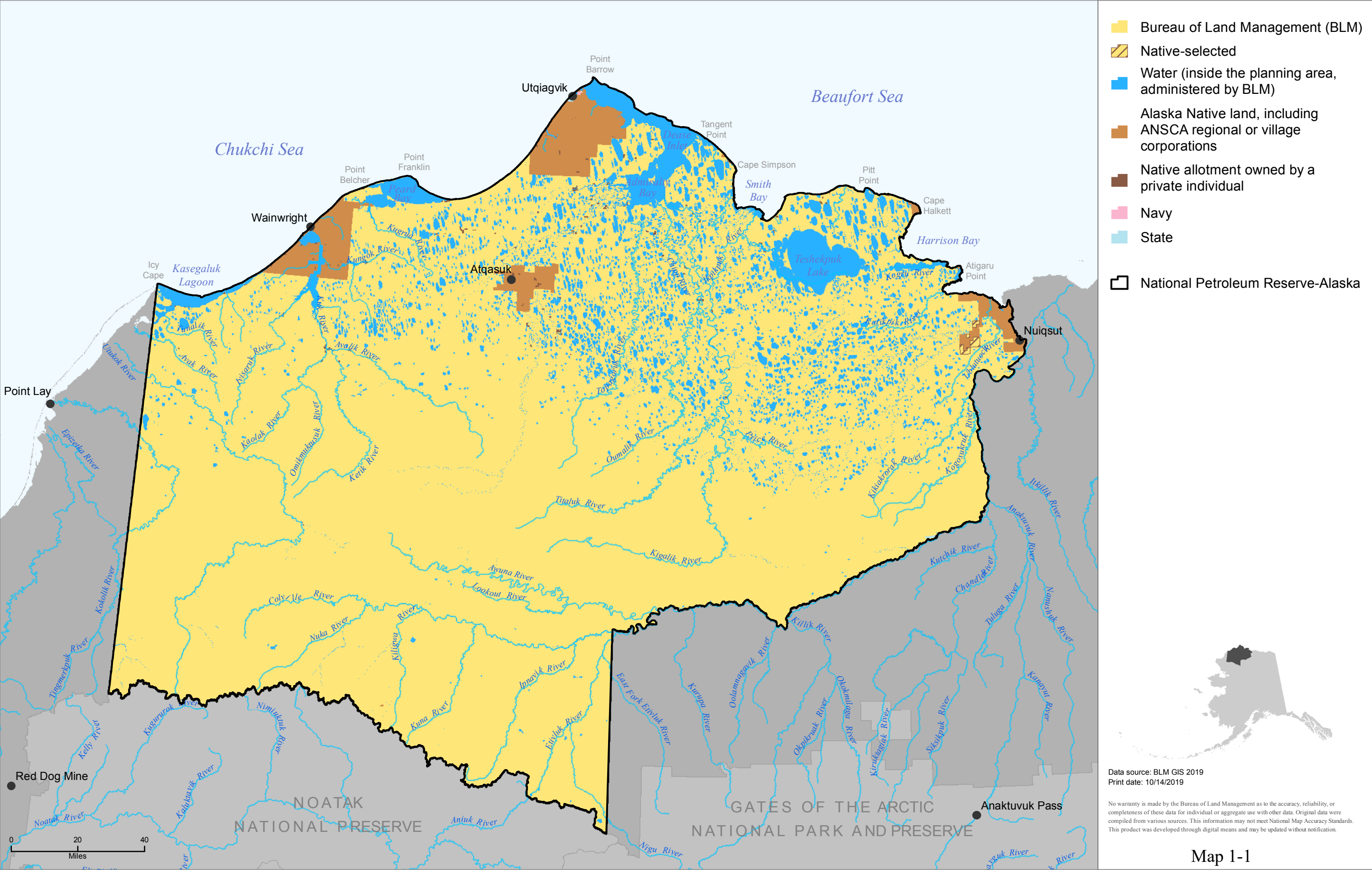
MAPS

- 1-1 Planning Area
- 1-2 Surface Decision Area
- 1-3 Subsurface Decision Area

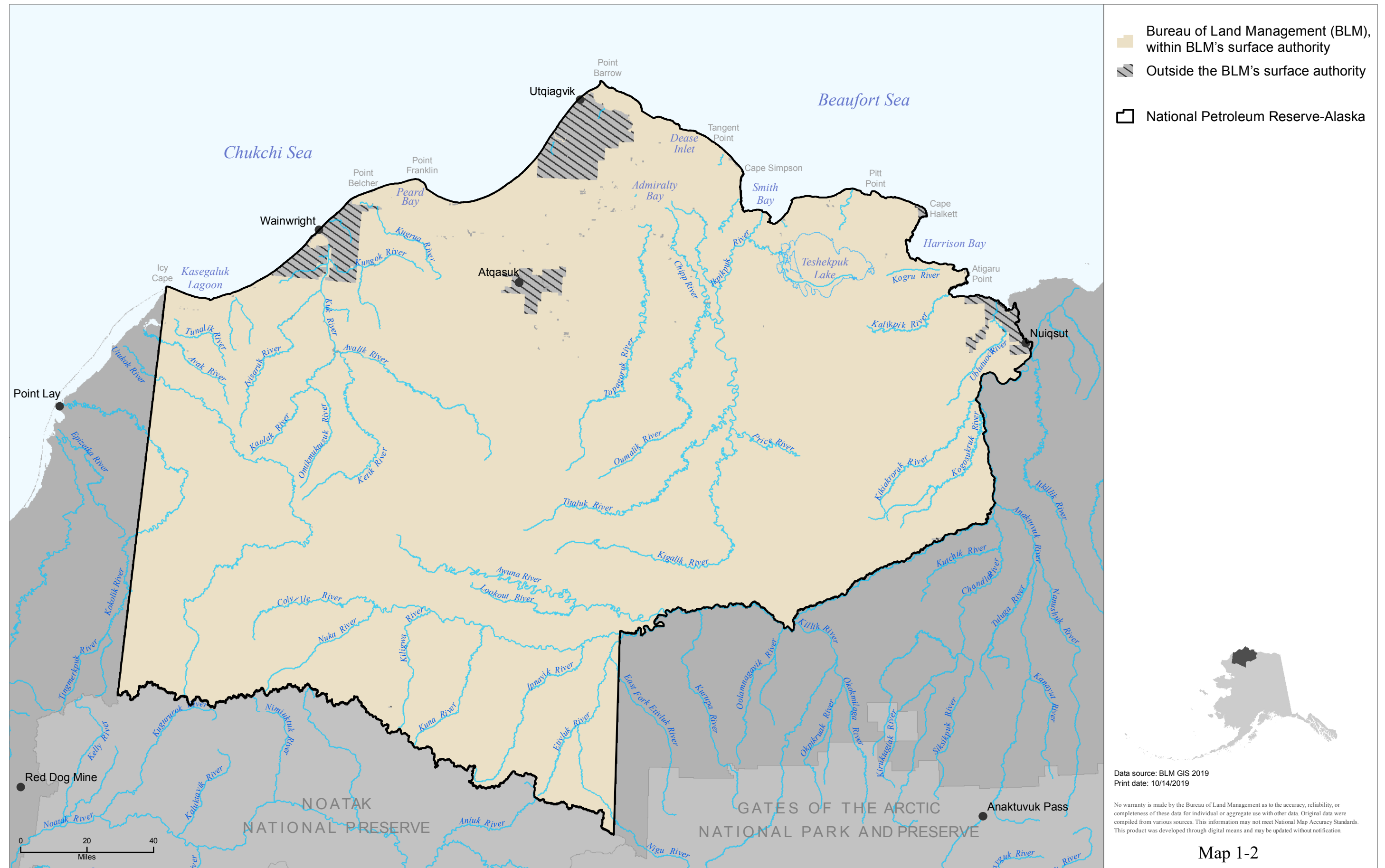
- 2-1 Alternative A: Fluid Mineral Leasing
- 2-2 Alternative A: Fluid Mineral Leasing, Individual Stipulations
- 2-3 Alternative B: Fluid Mineral Leasing
- 2-4 Alternative B: Fluid Mineral Leasing, Individual Stipulations
- 2-5 Alternative C: Fluid Mineral Leasing
- 2-6 Alternative C: Fluid Mineral Leasing, Individual Stipulations
- 2-7 Alternative D: Fluid Mineral Leasing
- 2-8 Alternative D: Fluid Mineral Leasing, Individual Stipulations
- 2-9 Alternative A: New Infrastructure
- 2-10 Alternative A: New Infrastructure, Individual Restrictions
- 2-11 Alternative B: New Infrastructure
- 2-12 Alternative B: New Infrastructure, Individual Restrictions
- 2-13 Alternative C: New Infrastructure
- 2-14 Alternative C: New Infrastructure, Individual Restrictions
- 2-15 Alternative D: New Infrastructure
- 2-16 Alternative D: New Infrastructure, Individual Restrictions
- 2-17 Alternatives B, C, and D: Sand and Gravel Mining
- 2-18 Alternative A: Special Areas
- 2-19 Alternatives B, C, and D: Special Areas
- 2-20 Alternative A: Visual Resource Management
- 2-21 Alternative B: Visual Resource Management
- 2-22 Alternative C: Visual Resource Management
- 2-23 Alternative D: Visual Resource Management
- 2-24 Alternative B: Wild and Scenic Rivers

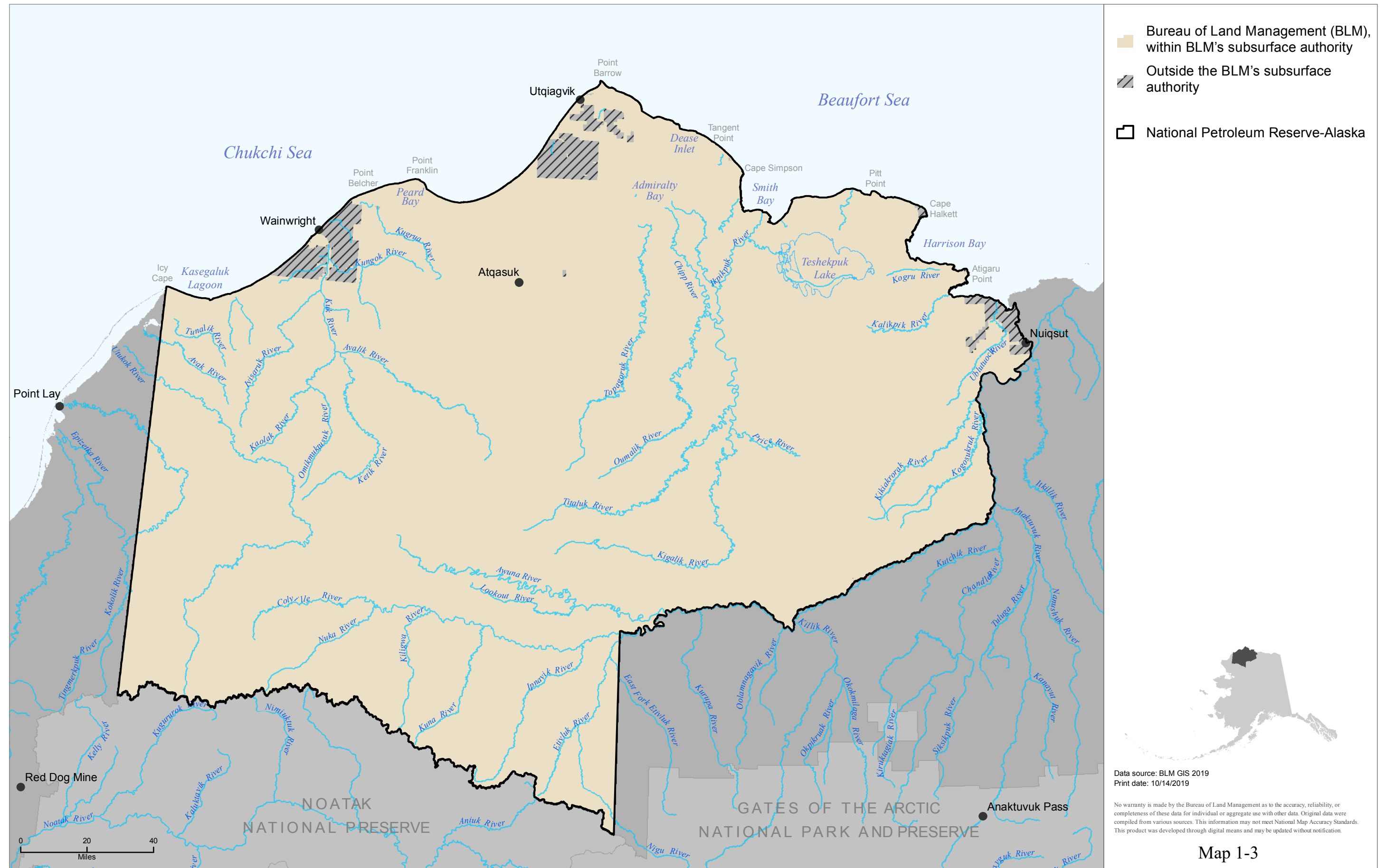
- 3-1 Physiographic Provinces
- 3-2 Paleontological Resources
- 3-3 Soil Map Units
- 3-4 Surficial Geology
- 3-5 Circumpolar Thermokarst Landscapes
- 3-6 Depth to Permafrost
- 3-7 Major Rivers and Deep-Water Lakes
- 3-8 Frozen Lakes
- 3-9 Hazardous Waste
- 3-10 Broad-scale Vegetation and Land Cover
- 3-11 Anadromous Waters Catalog Fish Habitat
- 3-12 Bird Densities from USFWS ACP Study, as Analyzed by USGS
- 3-13 Bird Densities from FWS ACP Study, as Analyzed by USGS, Black Brant
- 3-14 Bird Densities from FWS ACP Study, as Analyzed by USGS, Snow Goose
- 3-15 Steller's Eider Observations in the Barrow Triangle
- 3-16 Raptor Nests

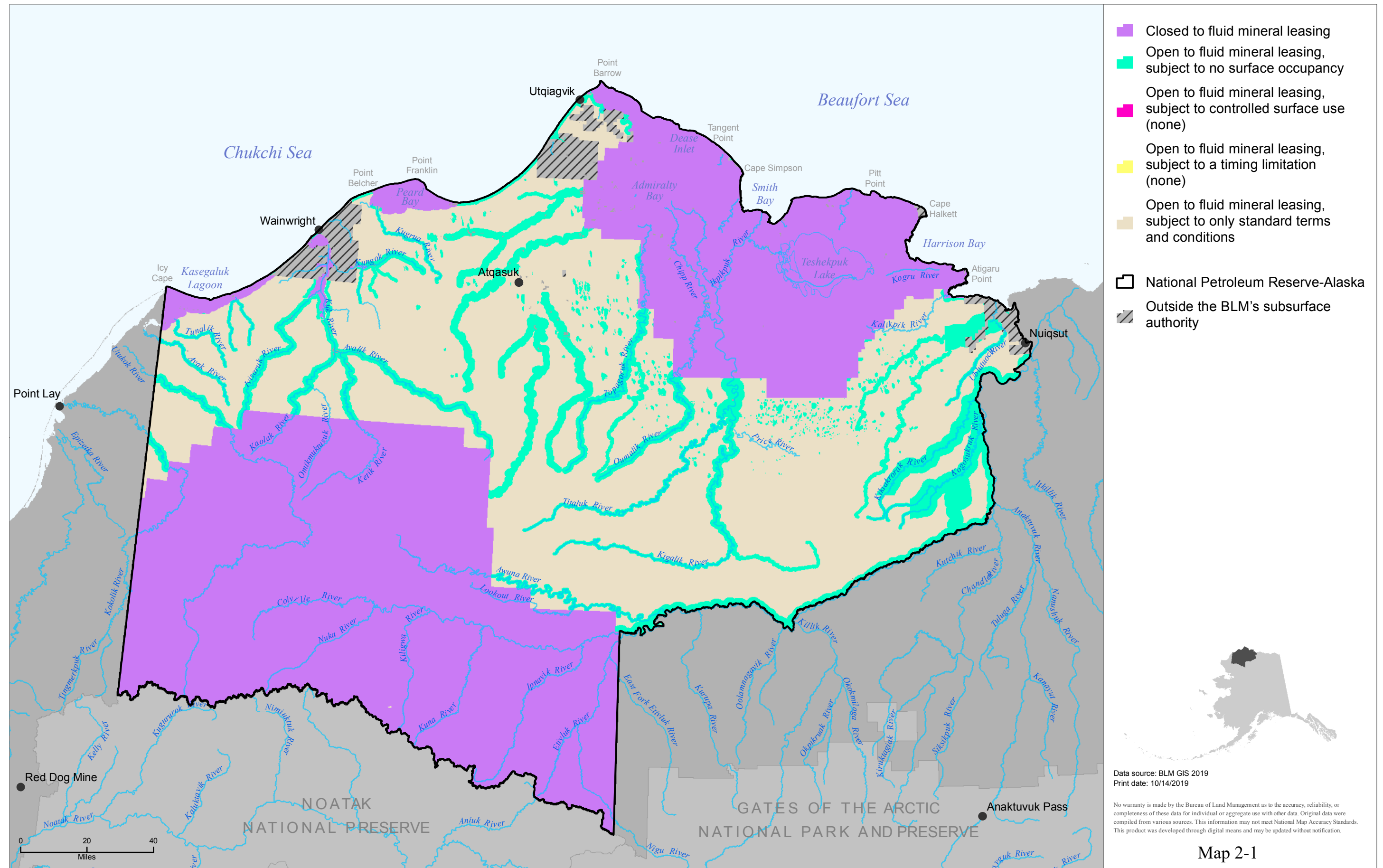
- 3-17 Black Brant Colonies
- 3-18 Important Bird Areas
- 3-19 Goose Molting Units
- 3-20 Seasonal Distribution of the Western Arctic Herd
- 3-21 Seasonal Distribution of the Teshekpuk Lake Caribou Herd
- 3-22 Seasonal Distribution of the Central Arctic Herd
- 3-23 Critical Habitat along the Potential Marine Vessel Transportation Route
- 3-24 Walrus Haul-outs
- 3-25 Polar Bear Habitat
- 3-26 Seal Sightings
- 3-27 Bowhead Whale Sightings
- 3-28 Wilderness Characteristics Inventory
- 3-29 Visual Resources Inventory

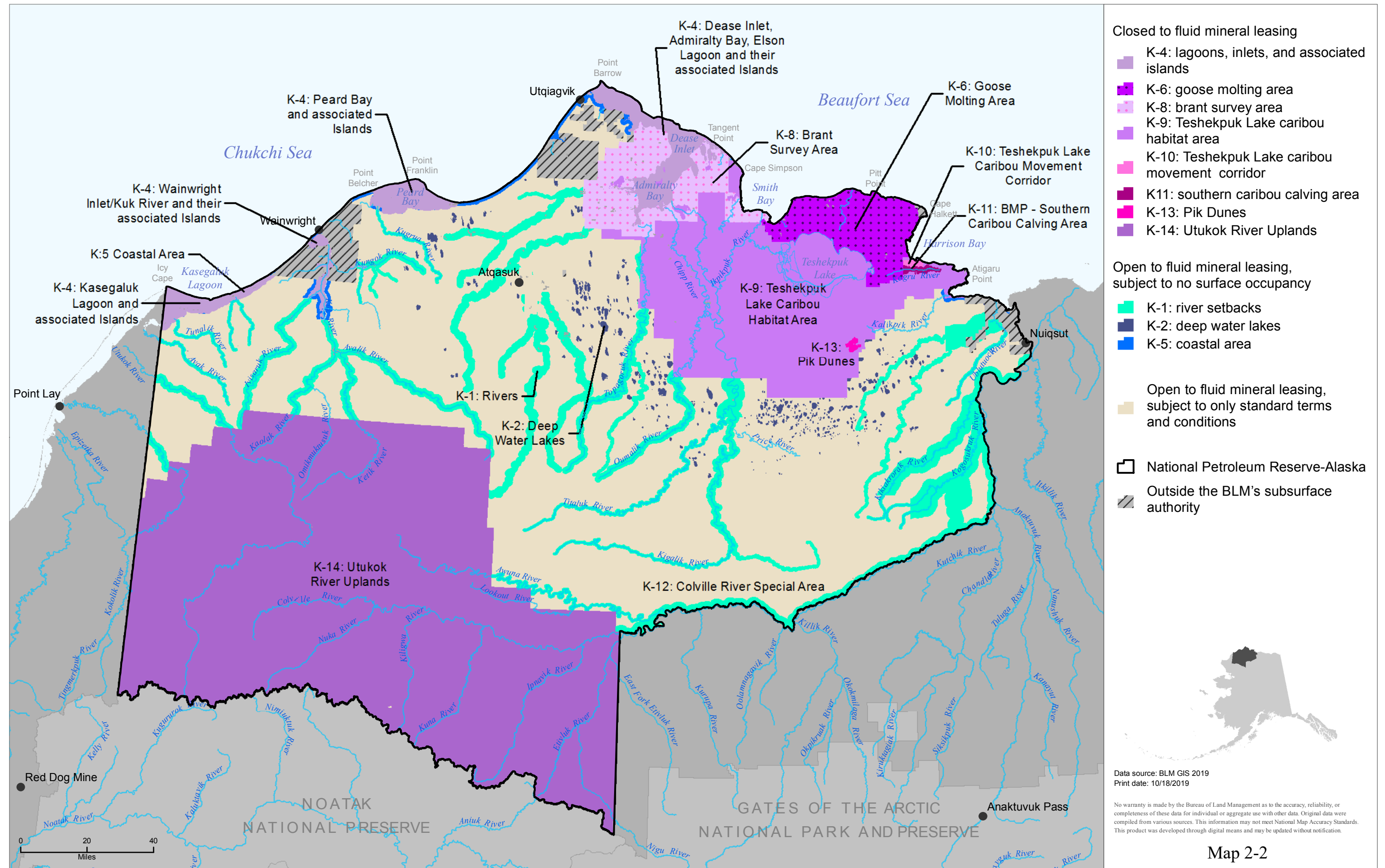


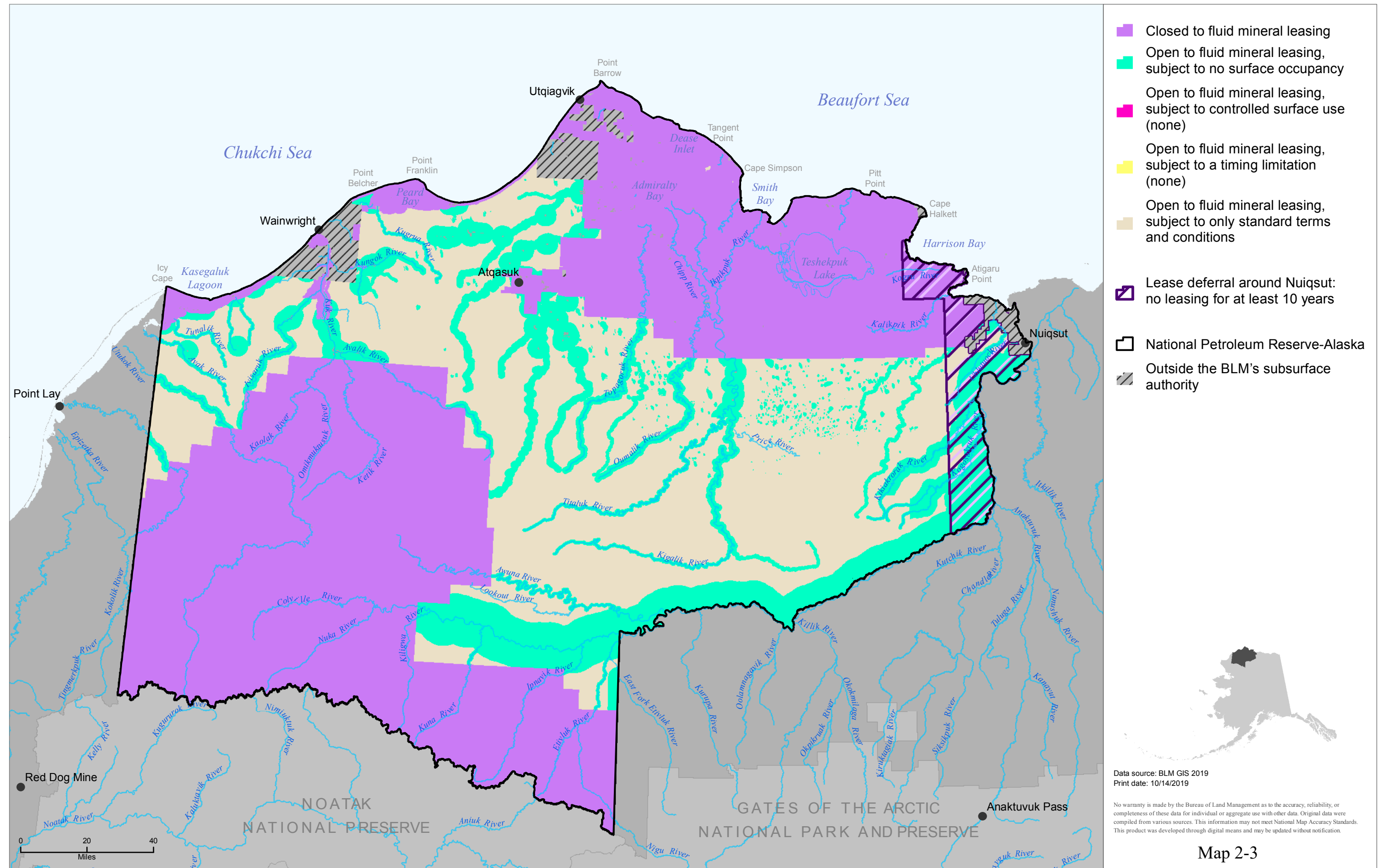
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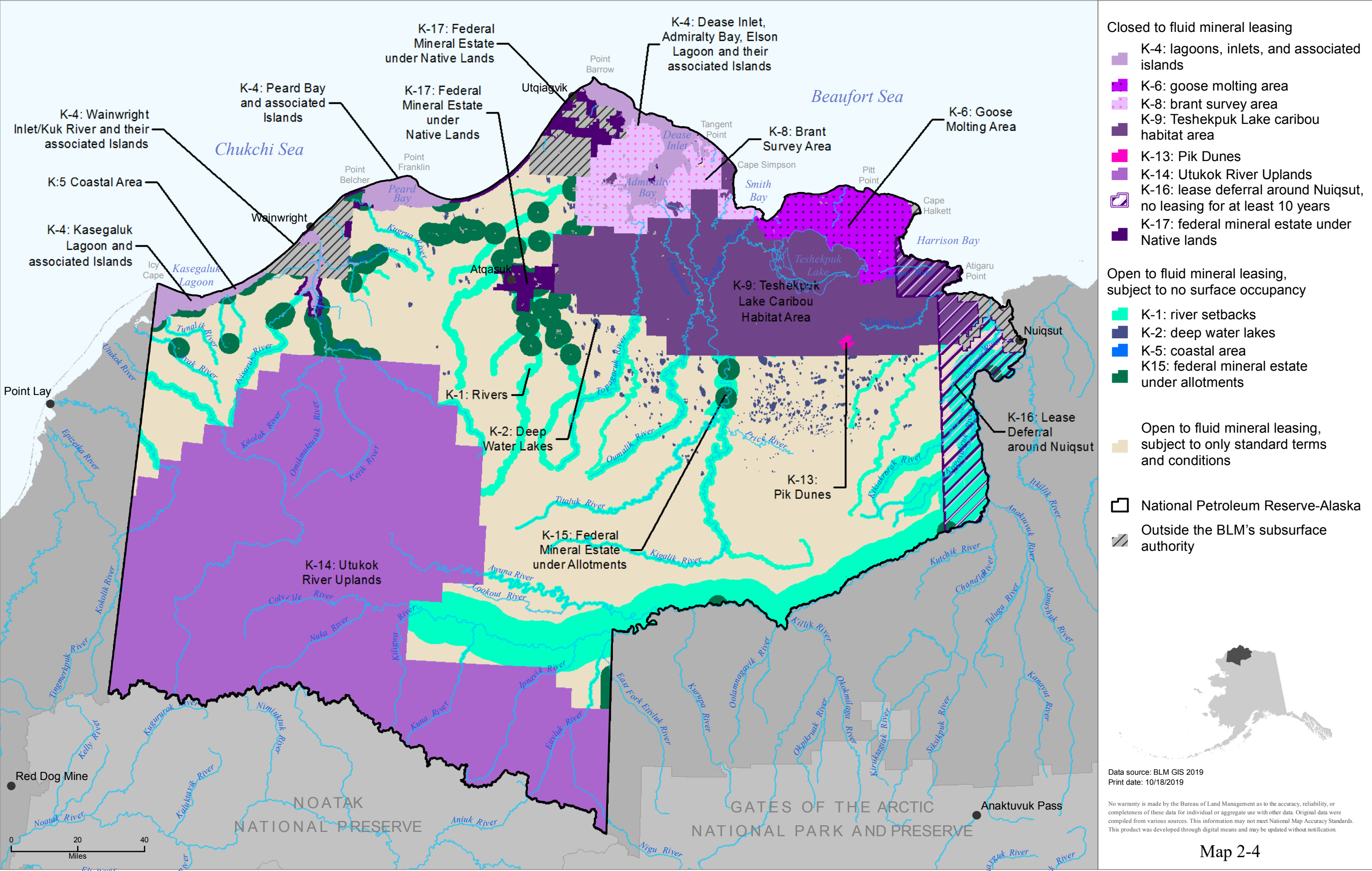


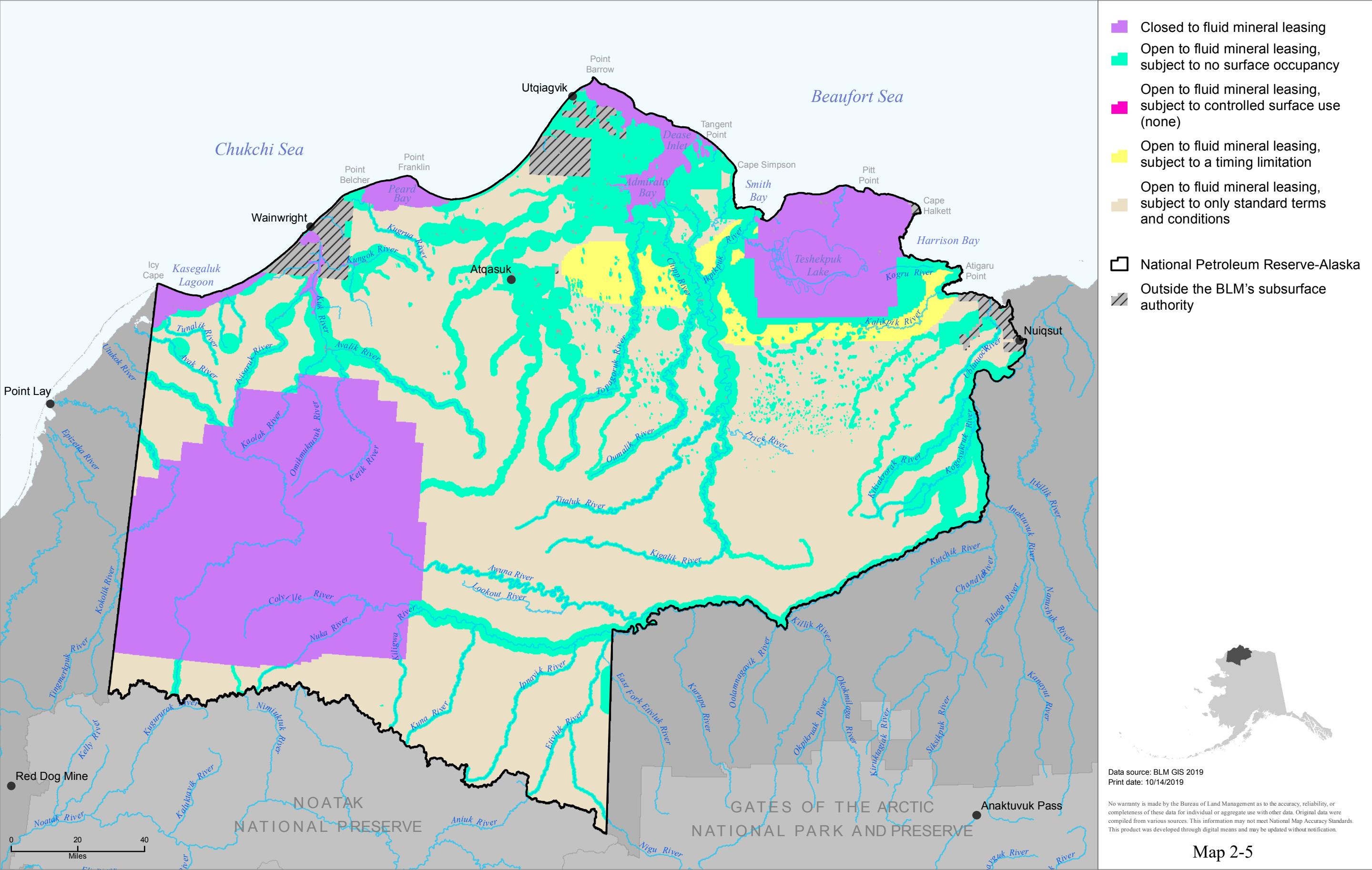


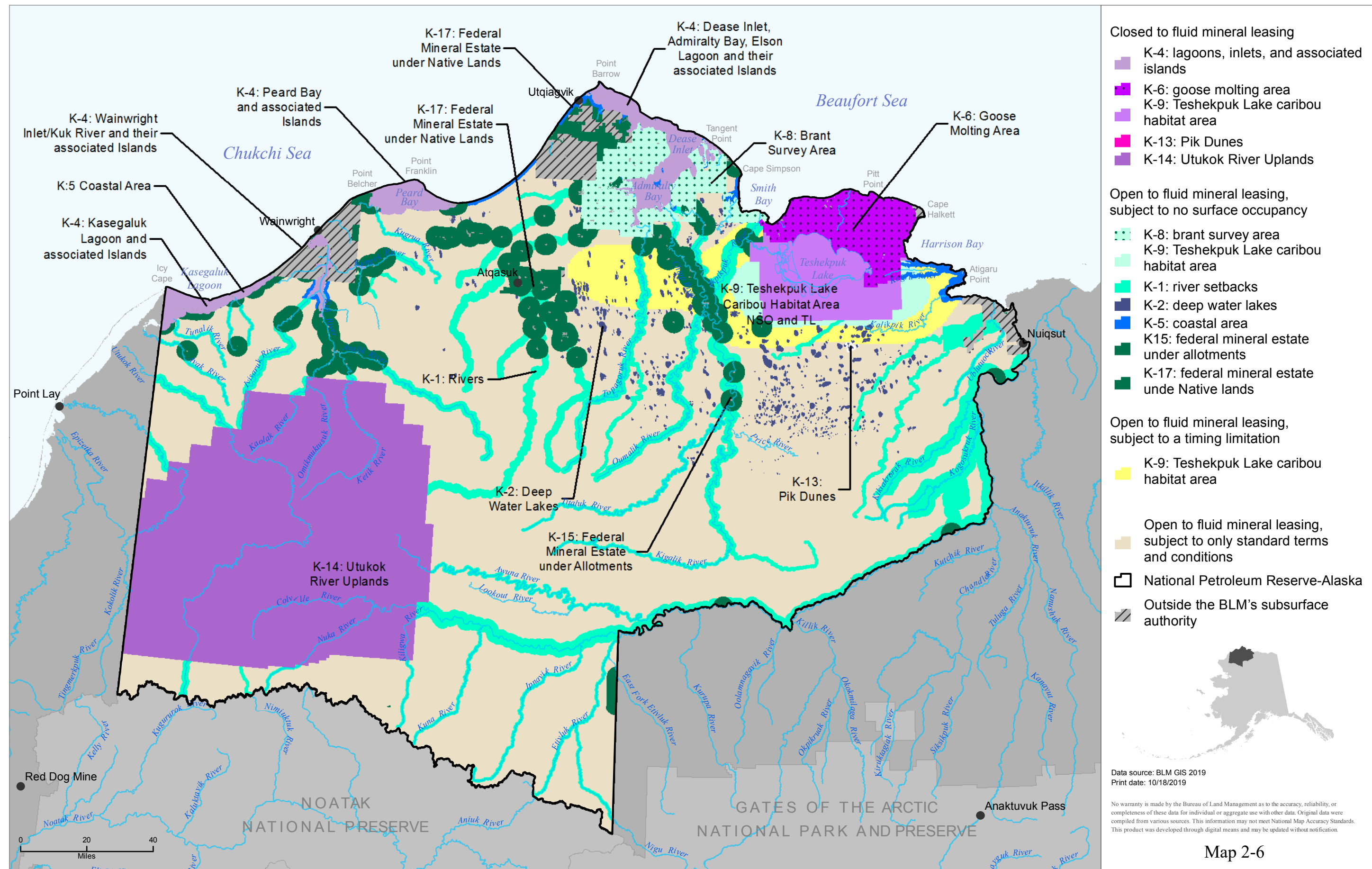


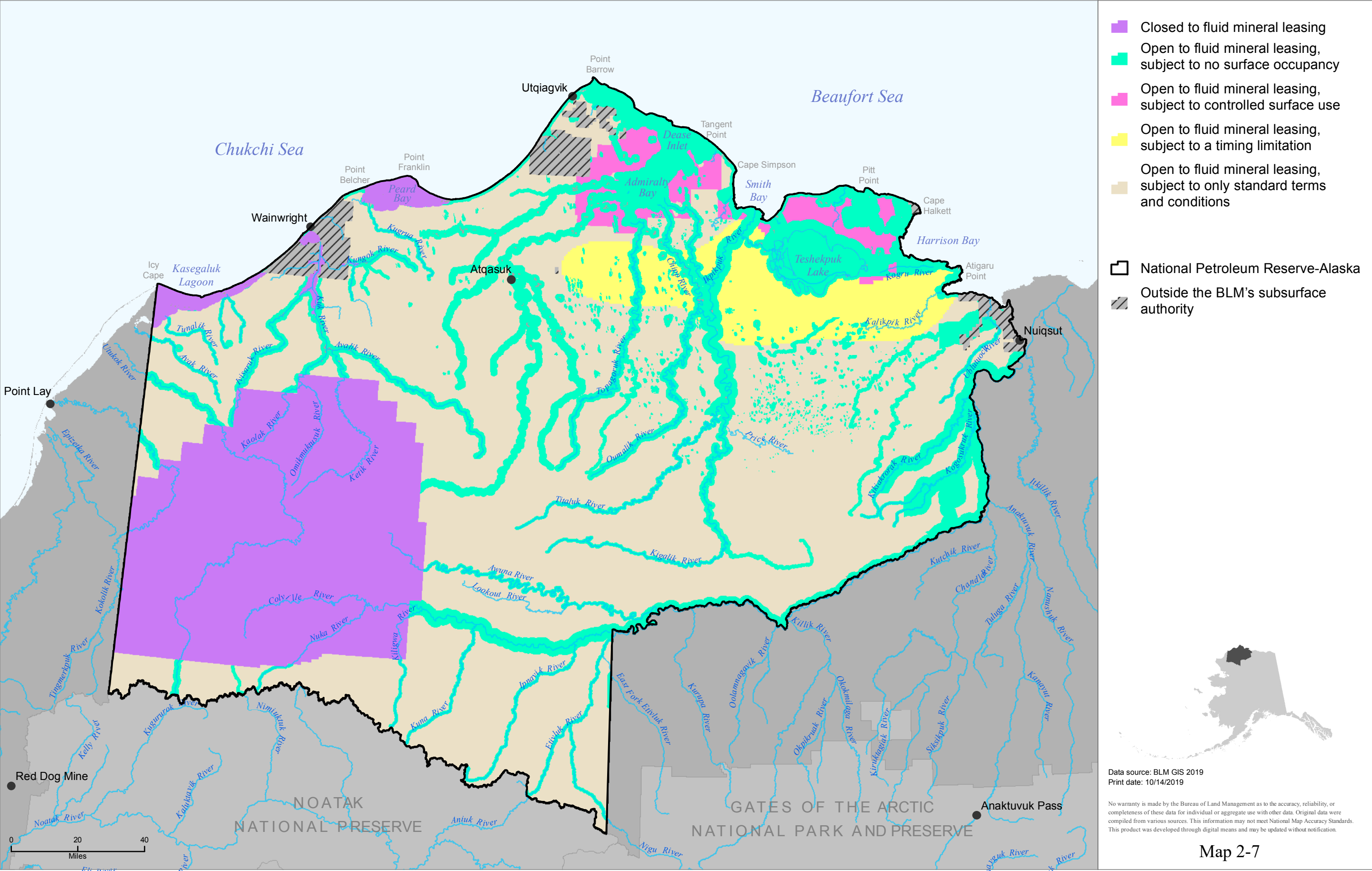


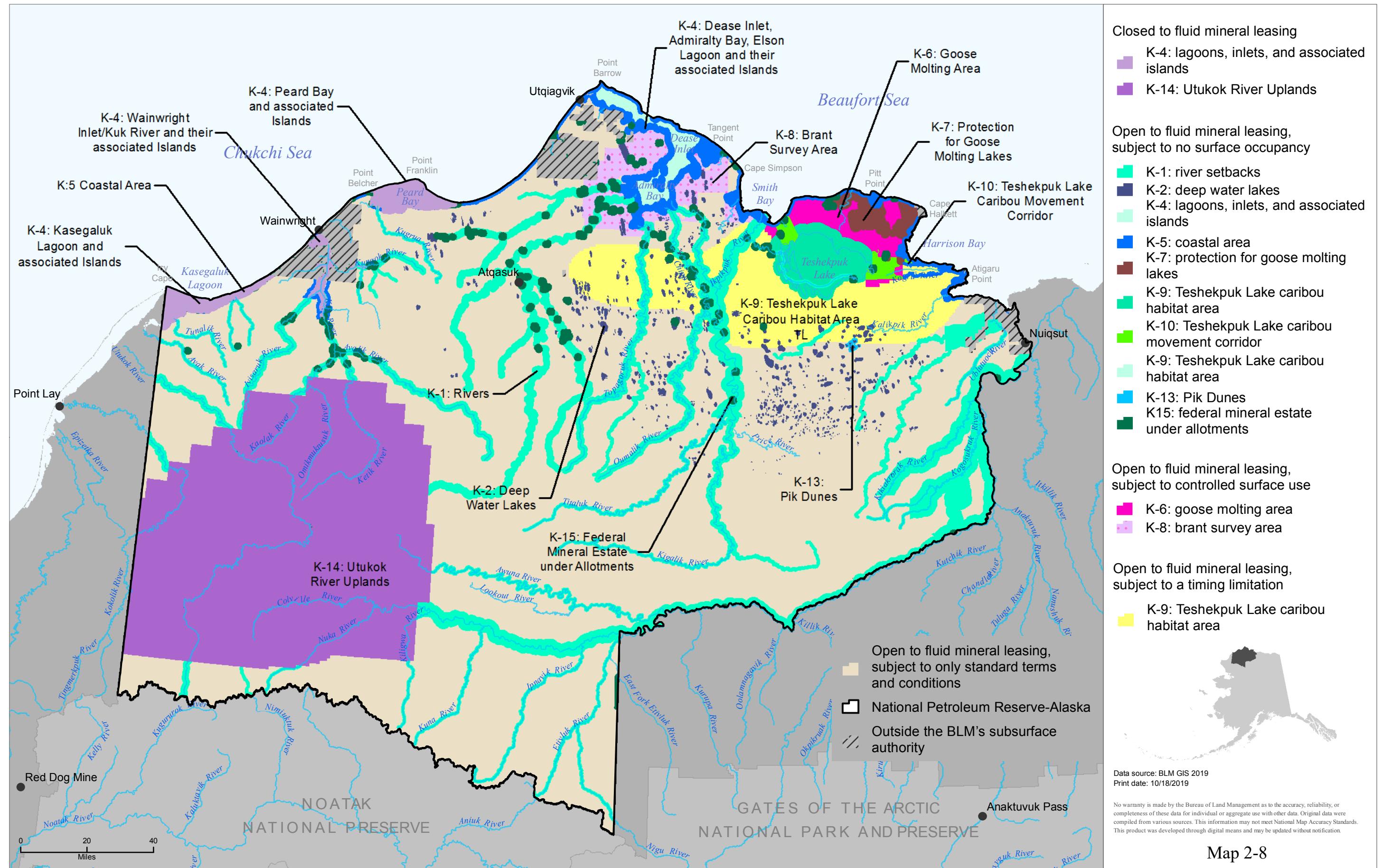


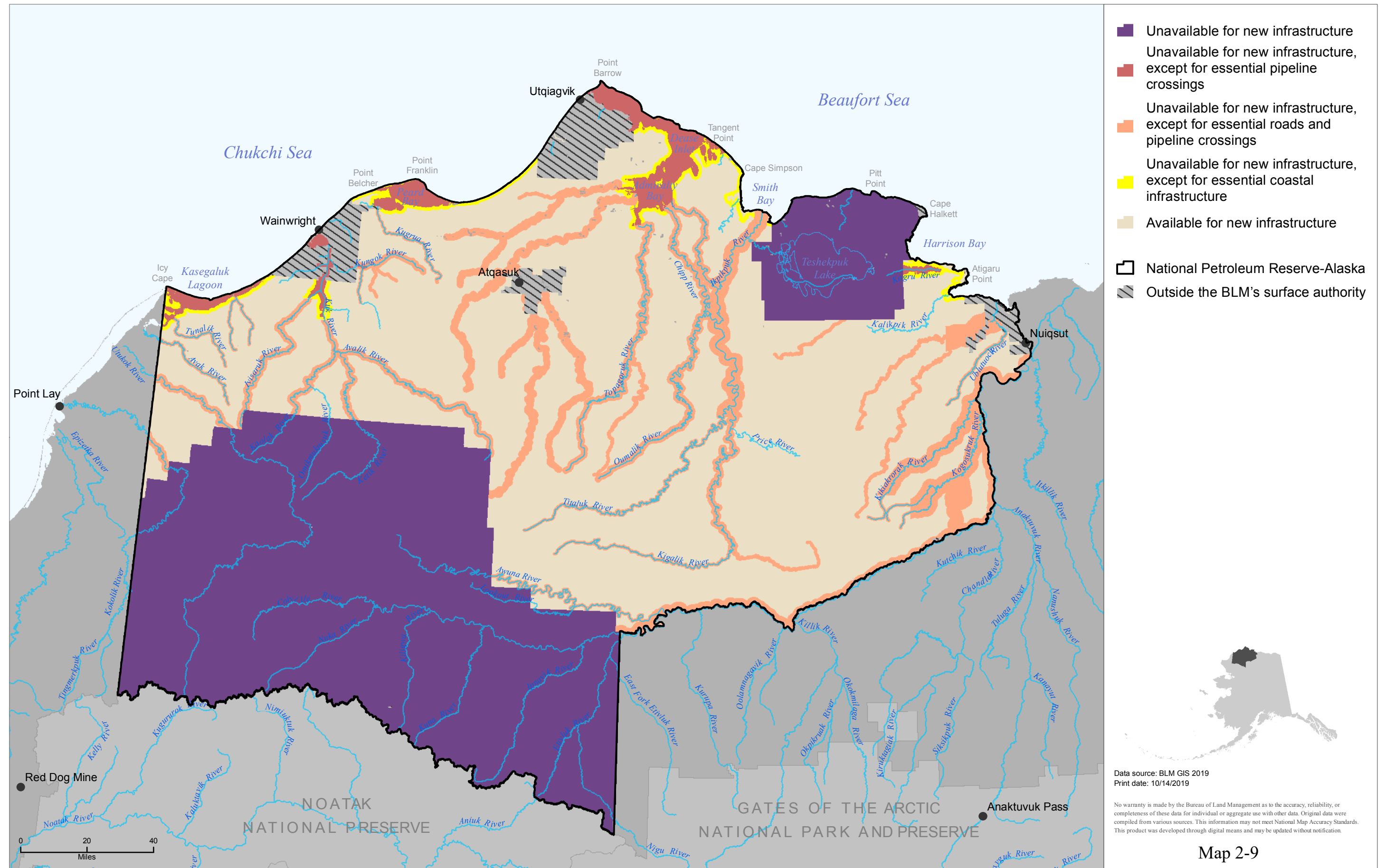


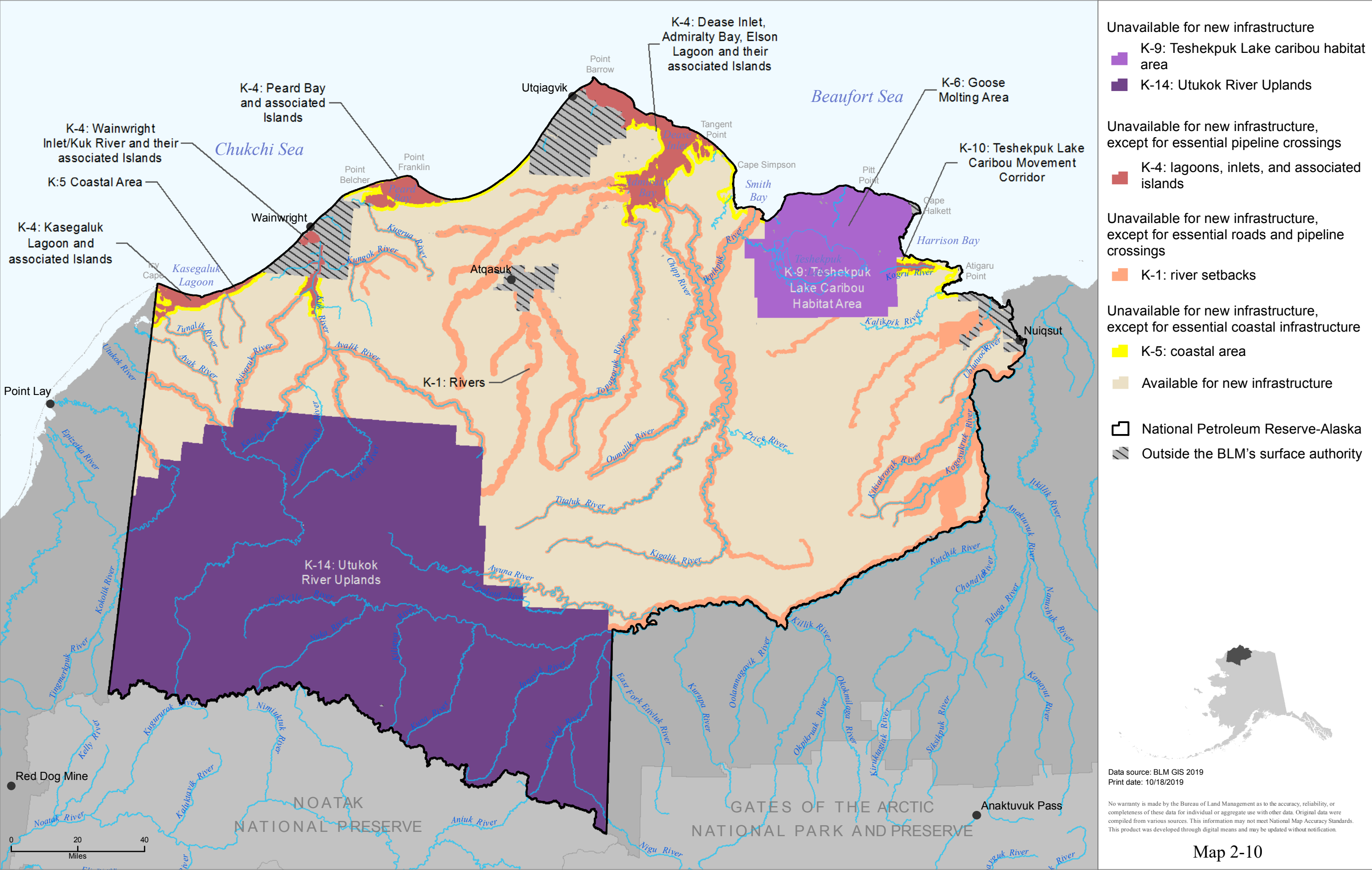


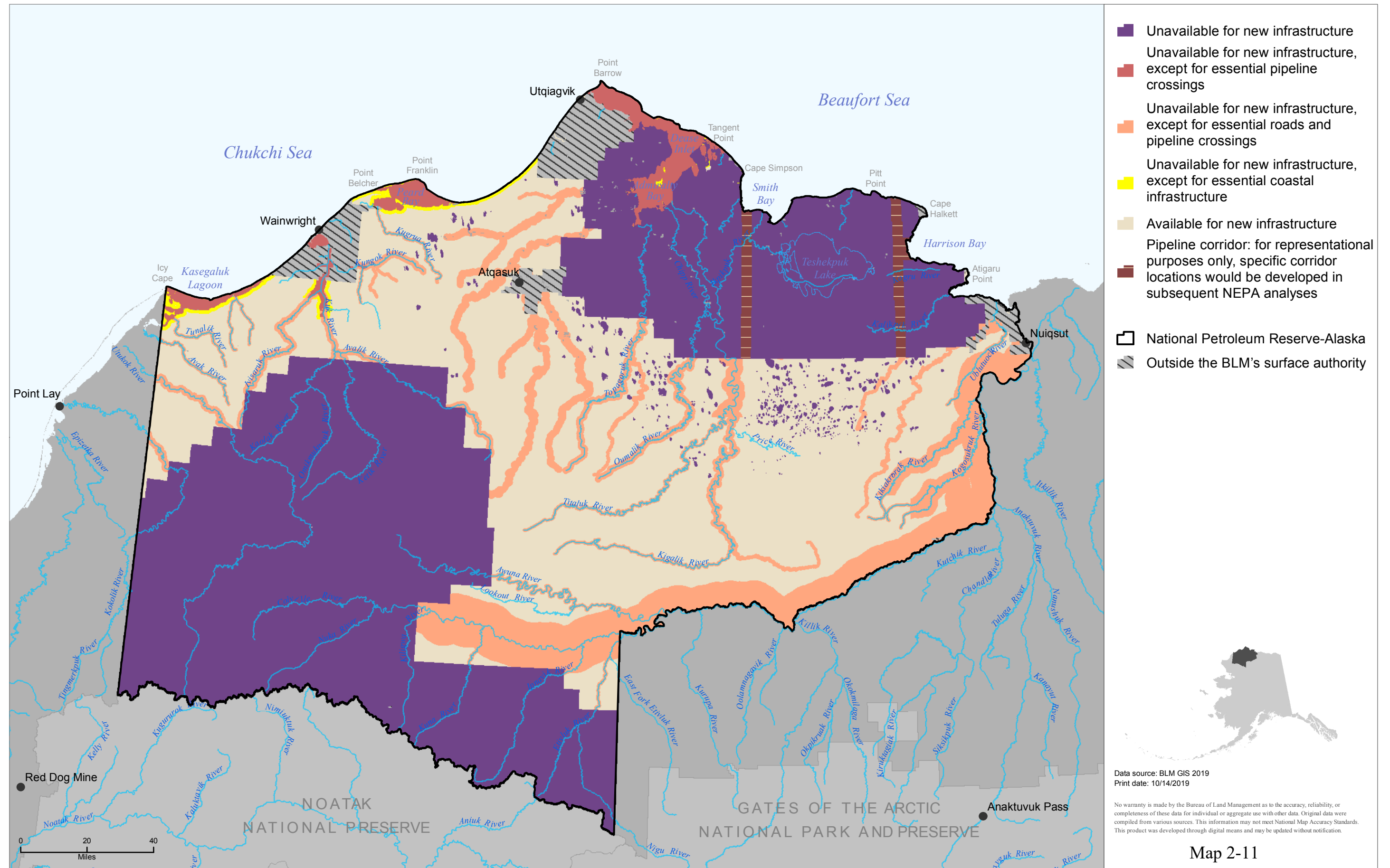


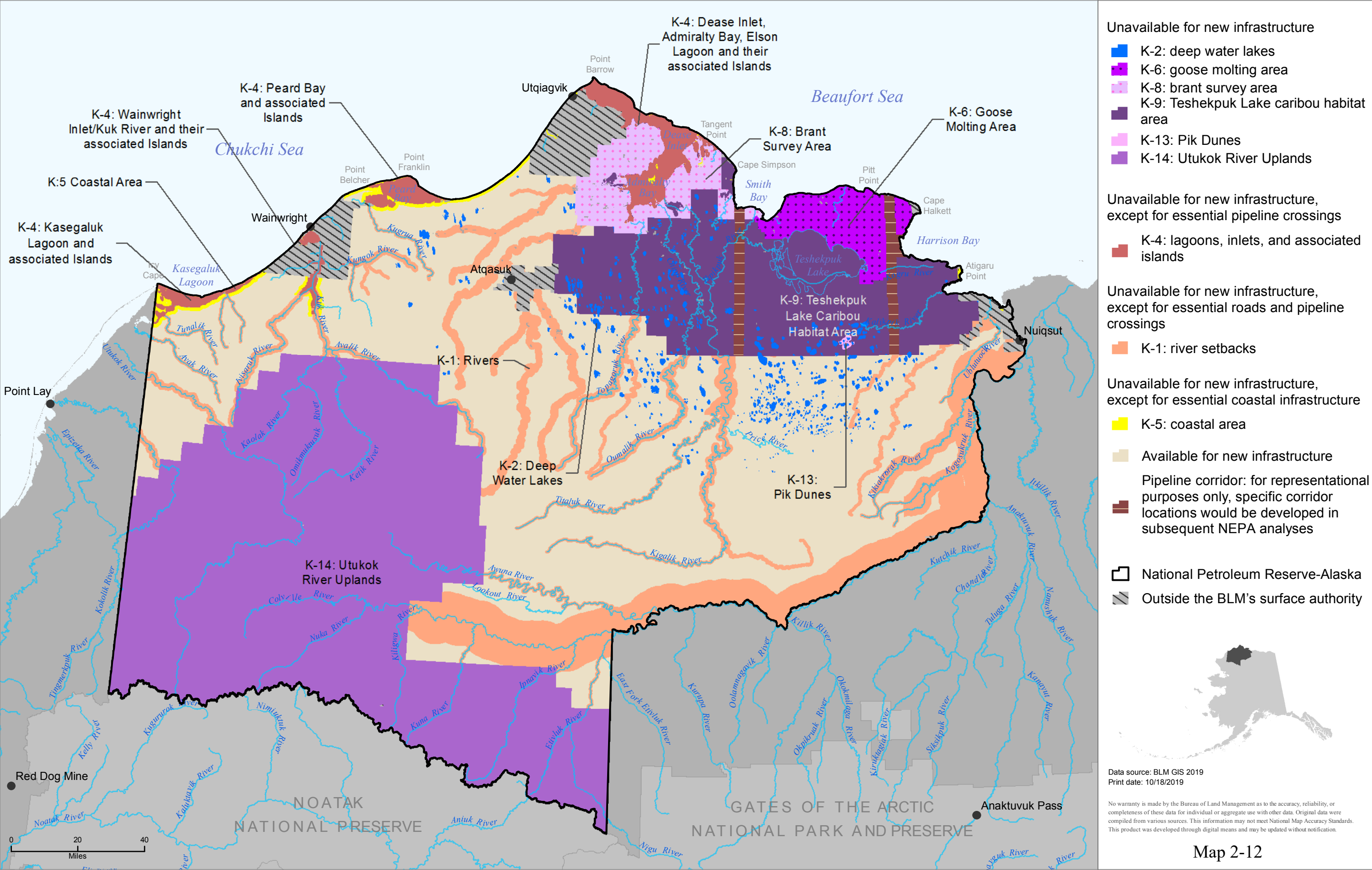


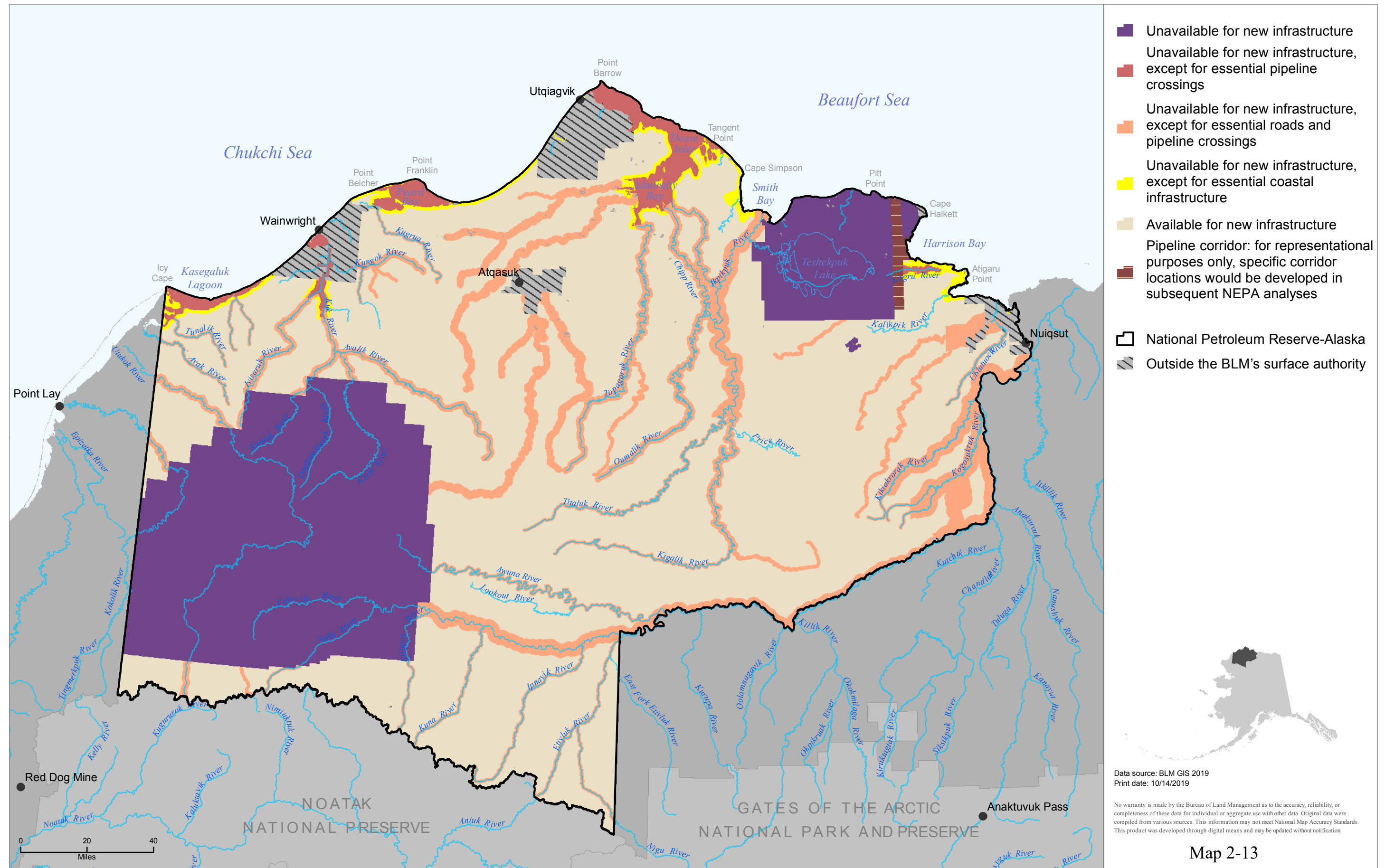


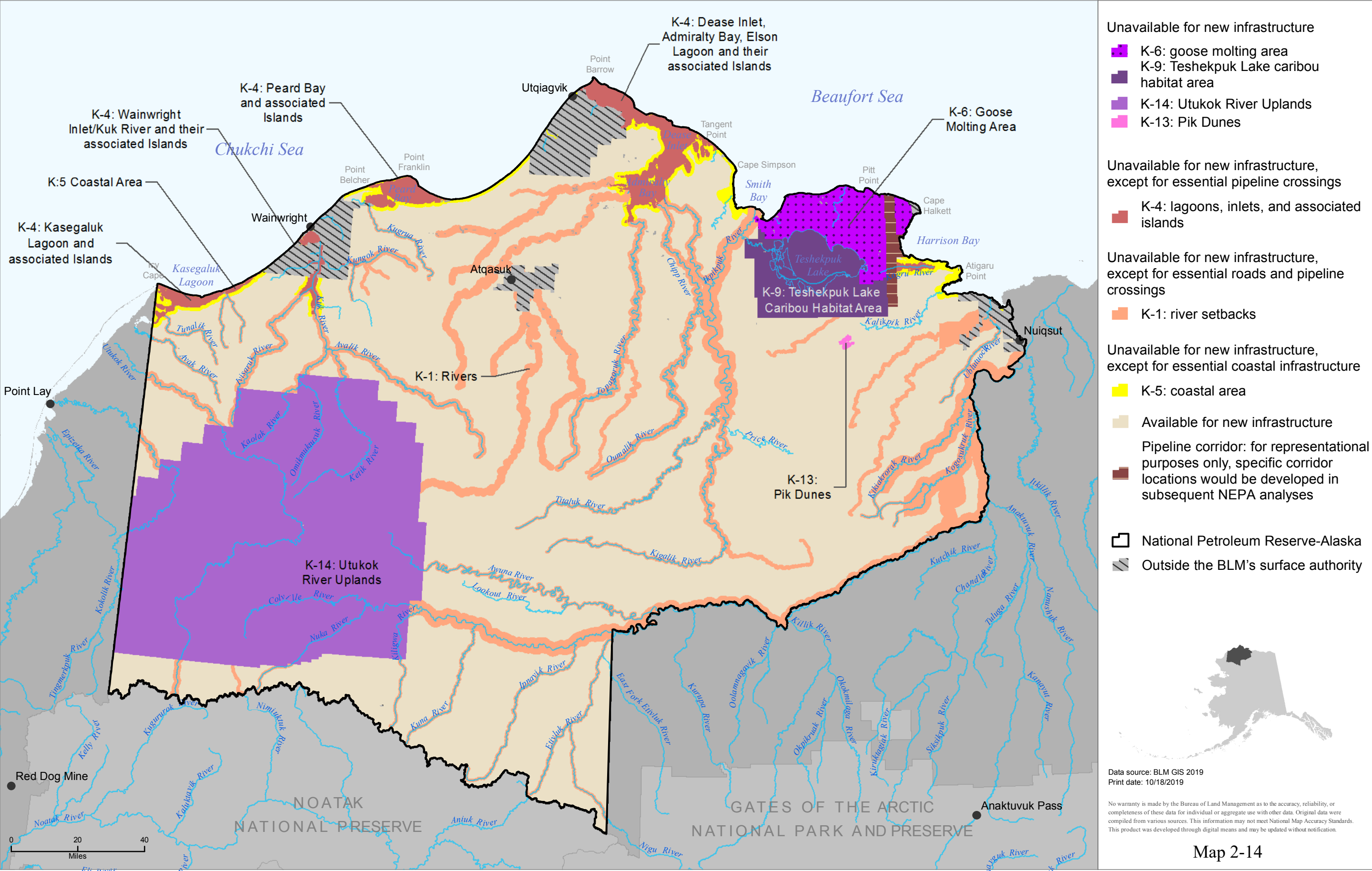


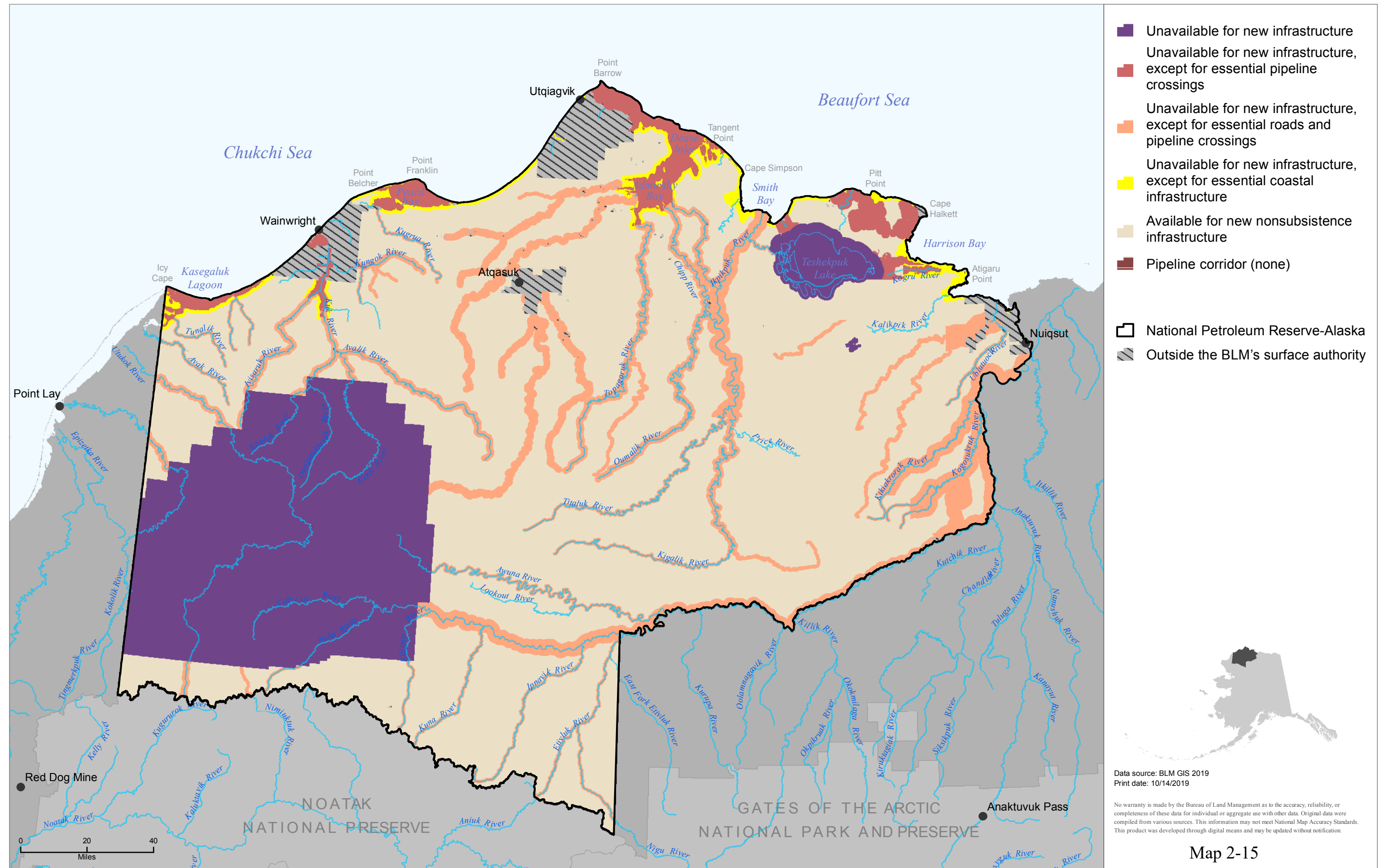


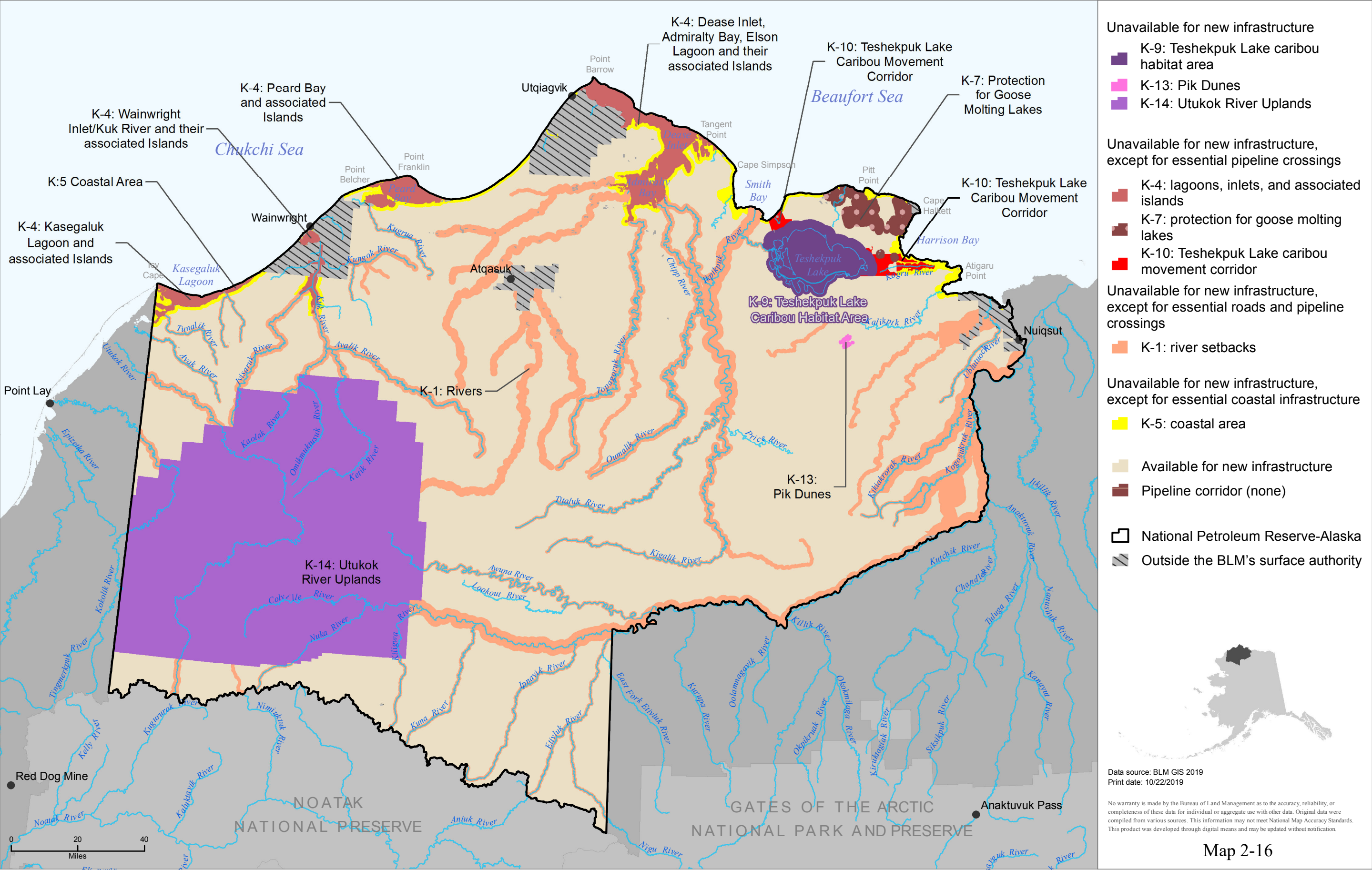


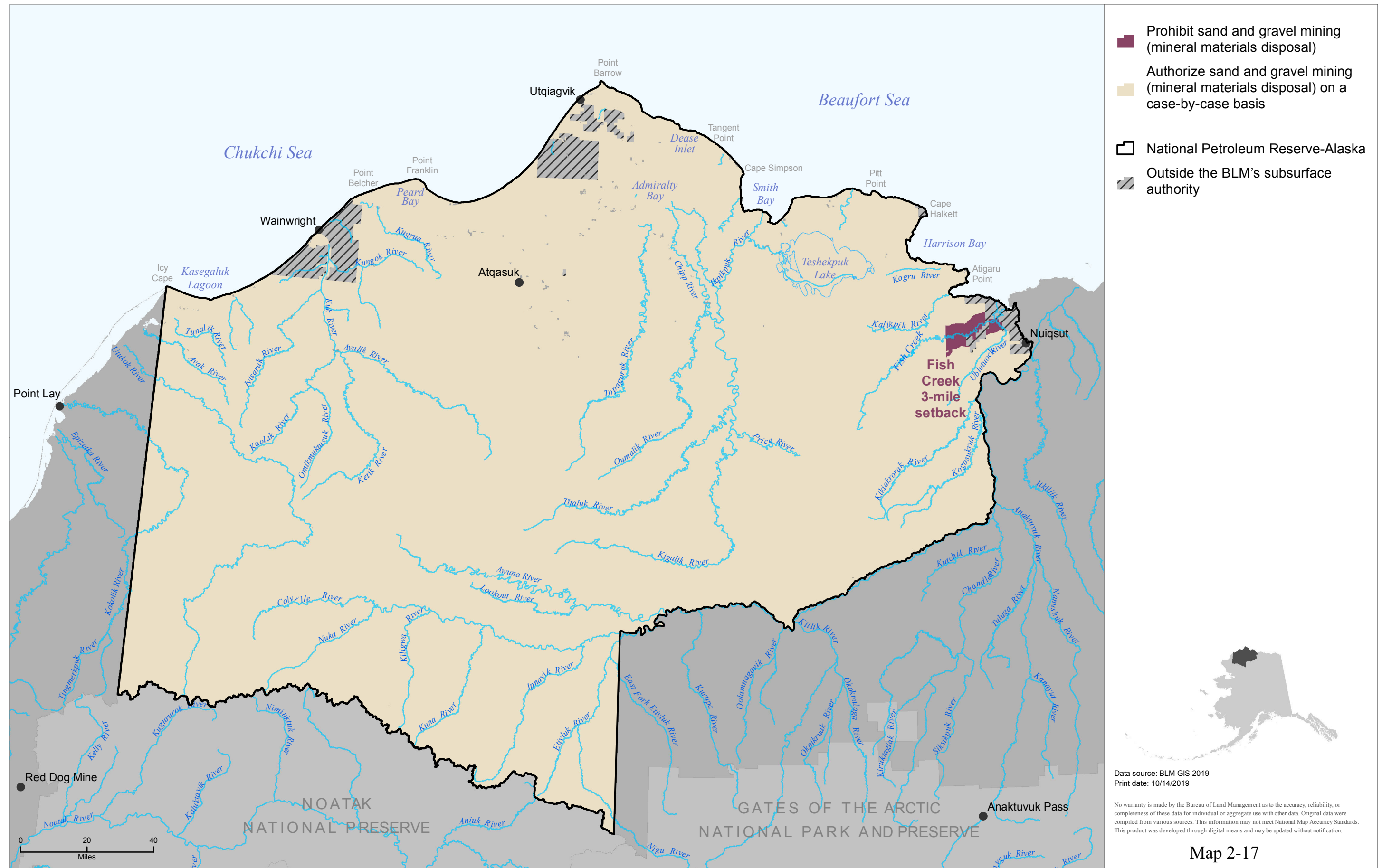


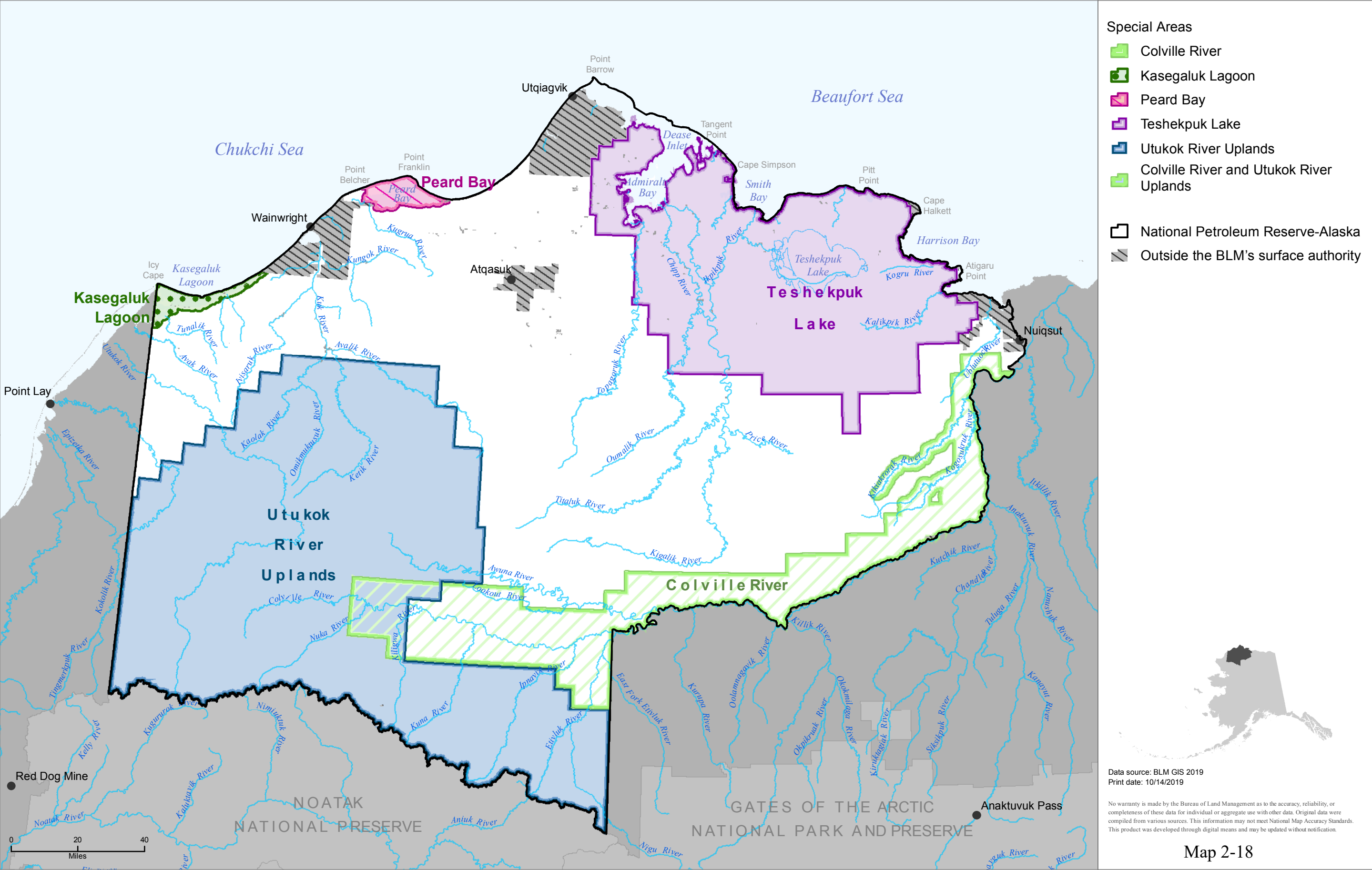


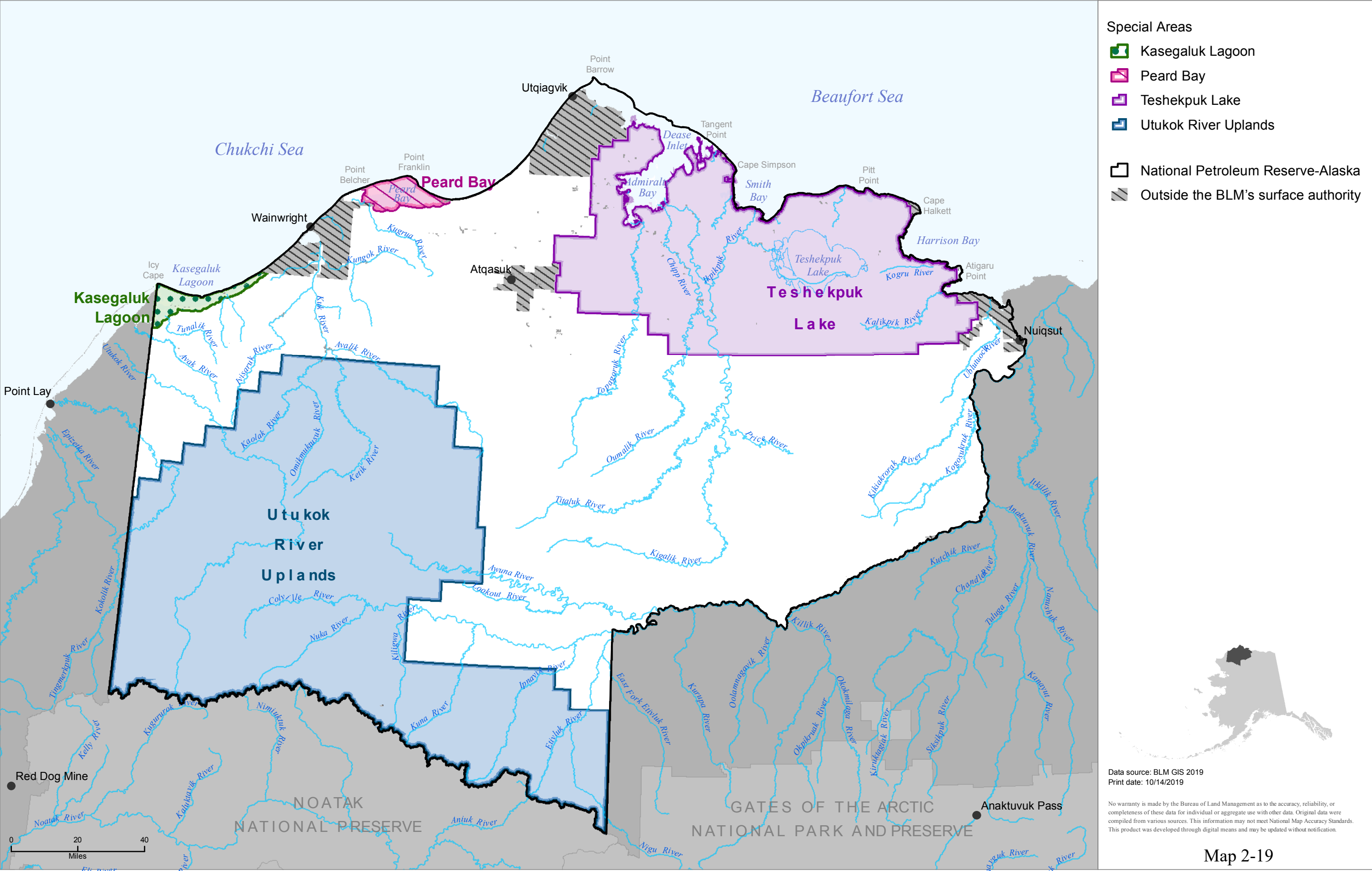


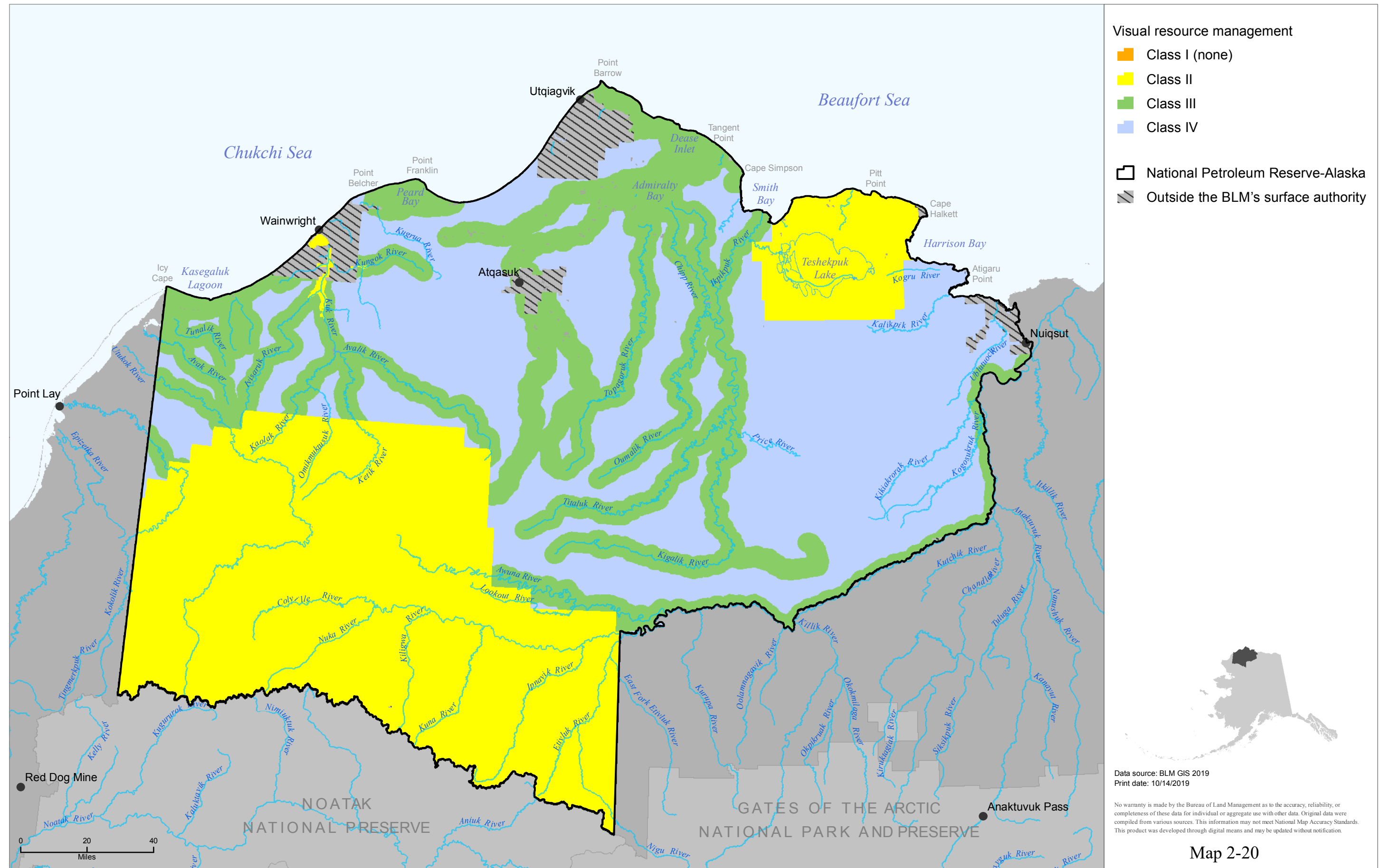


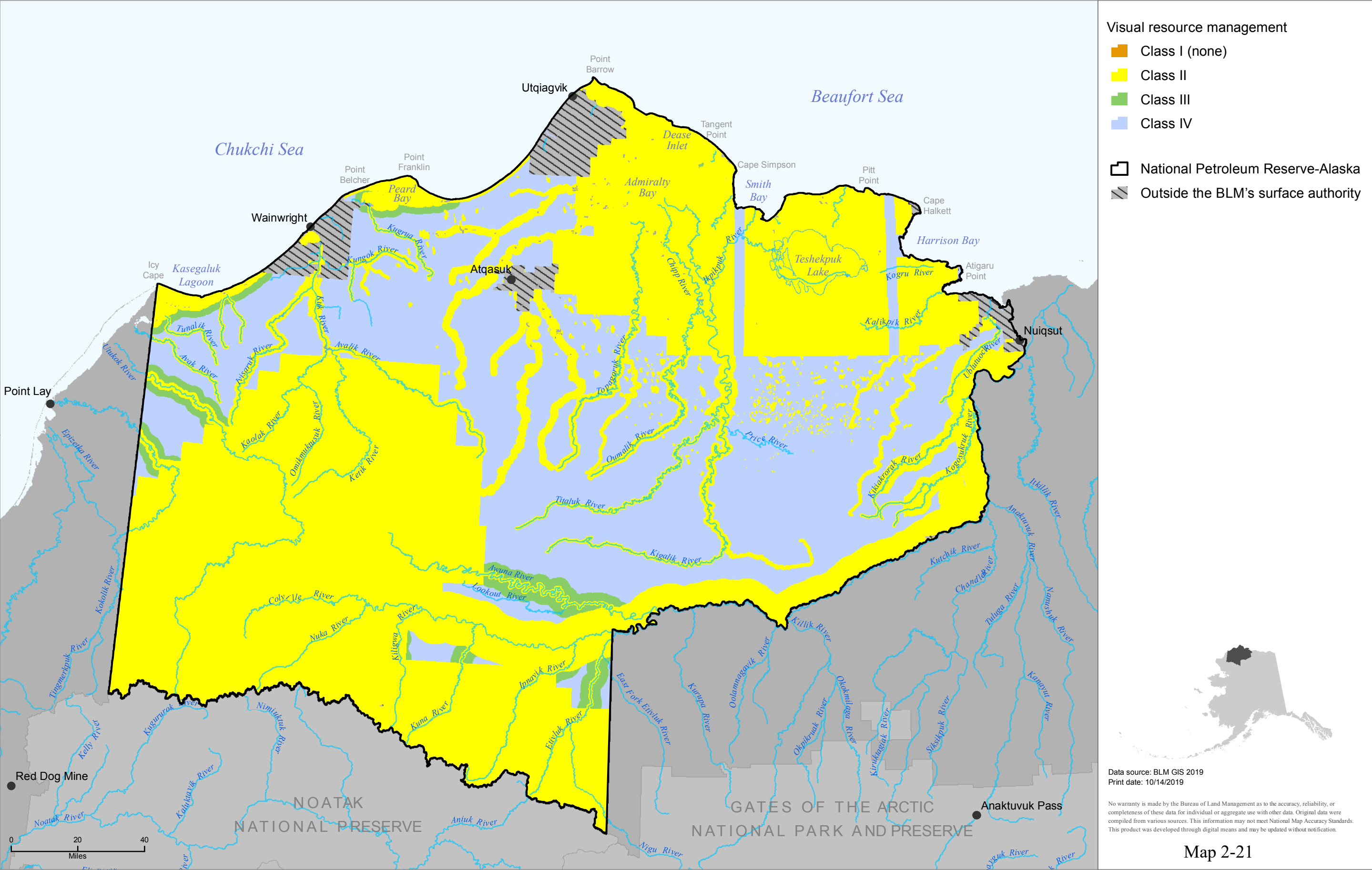


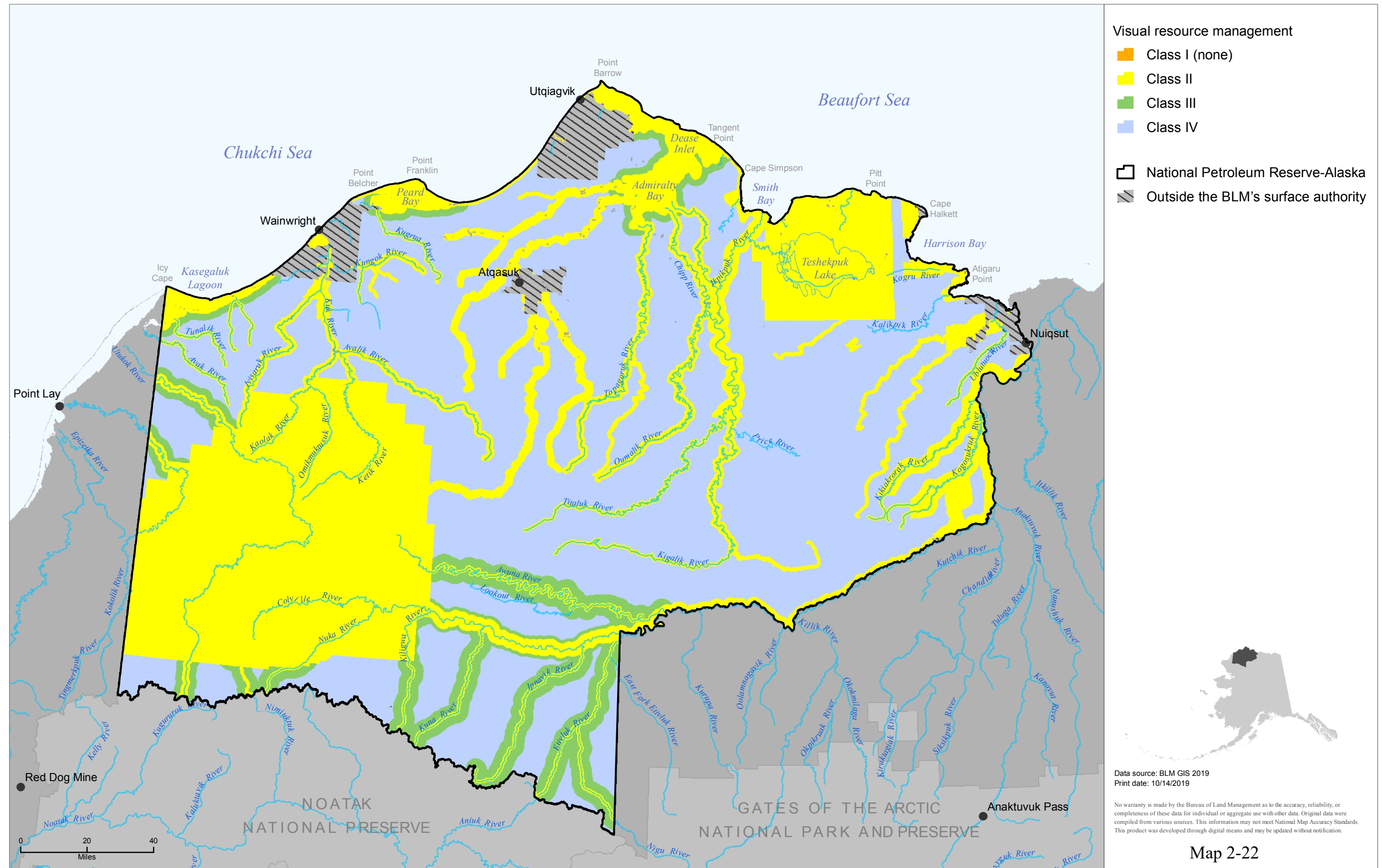


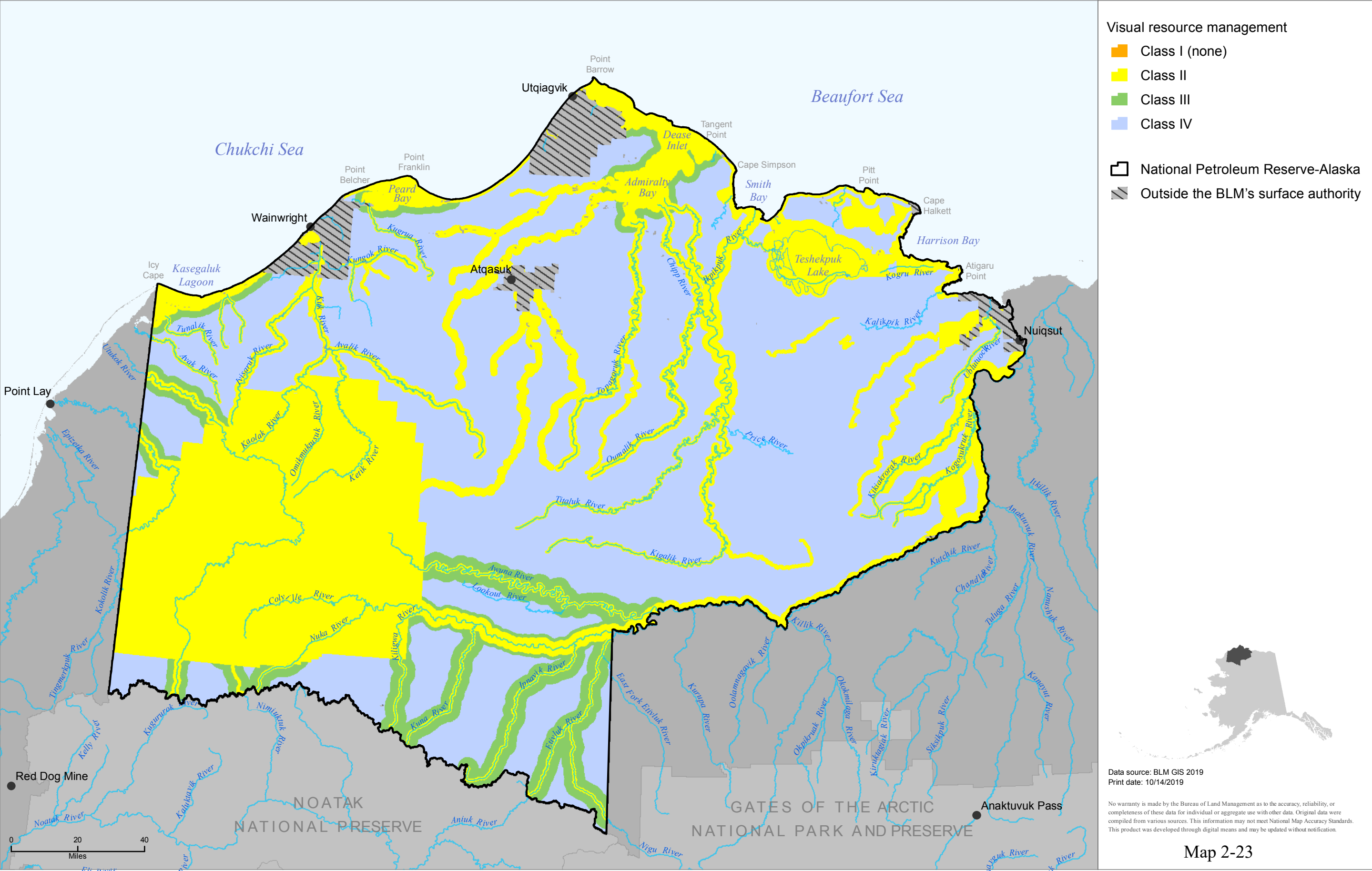


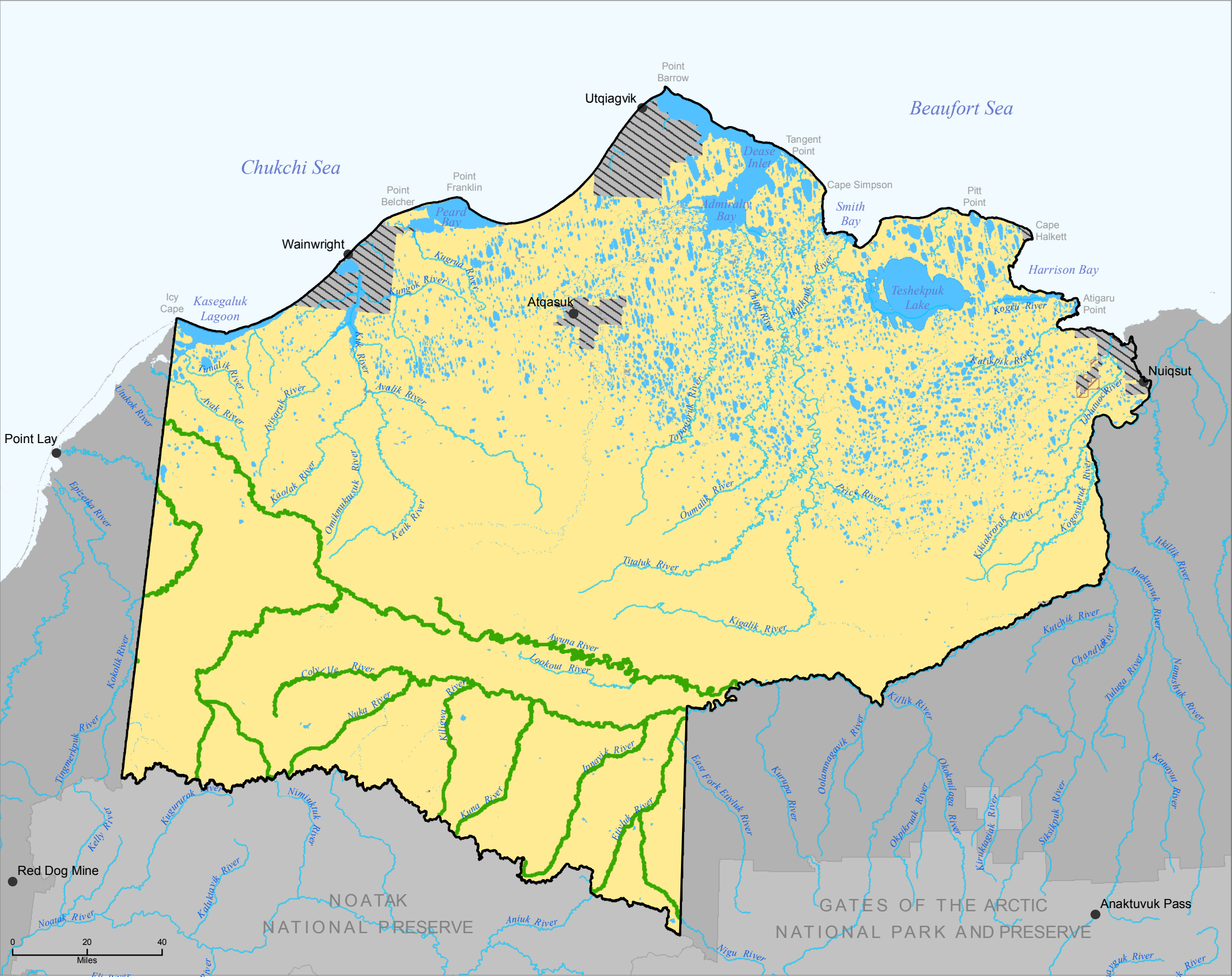










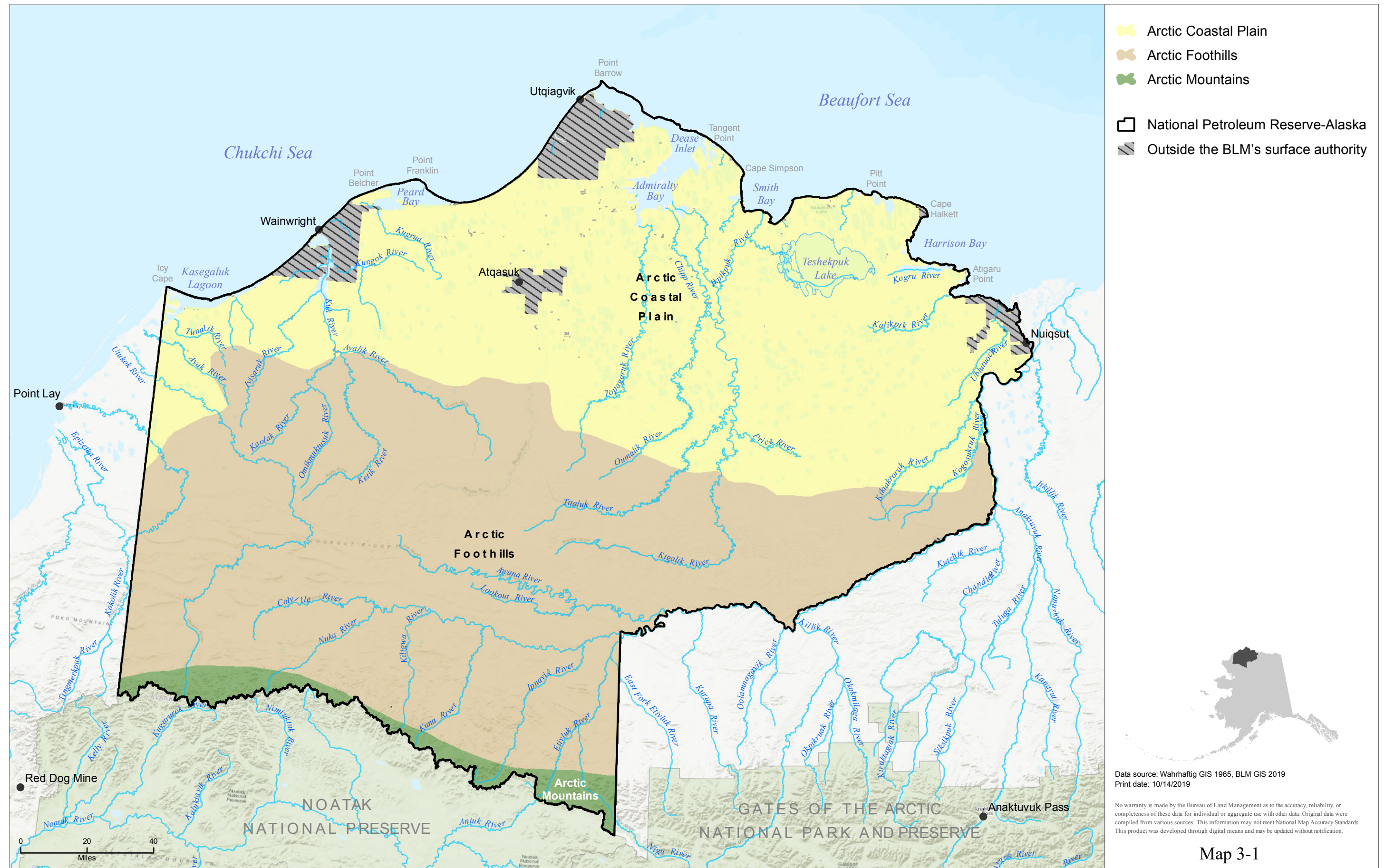


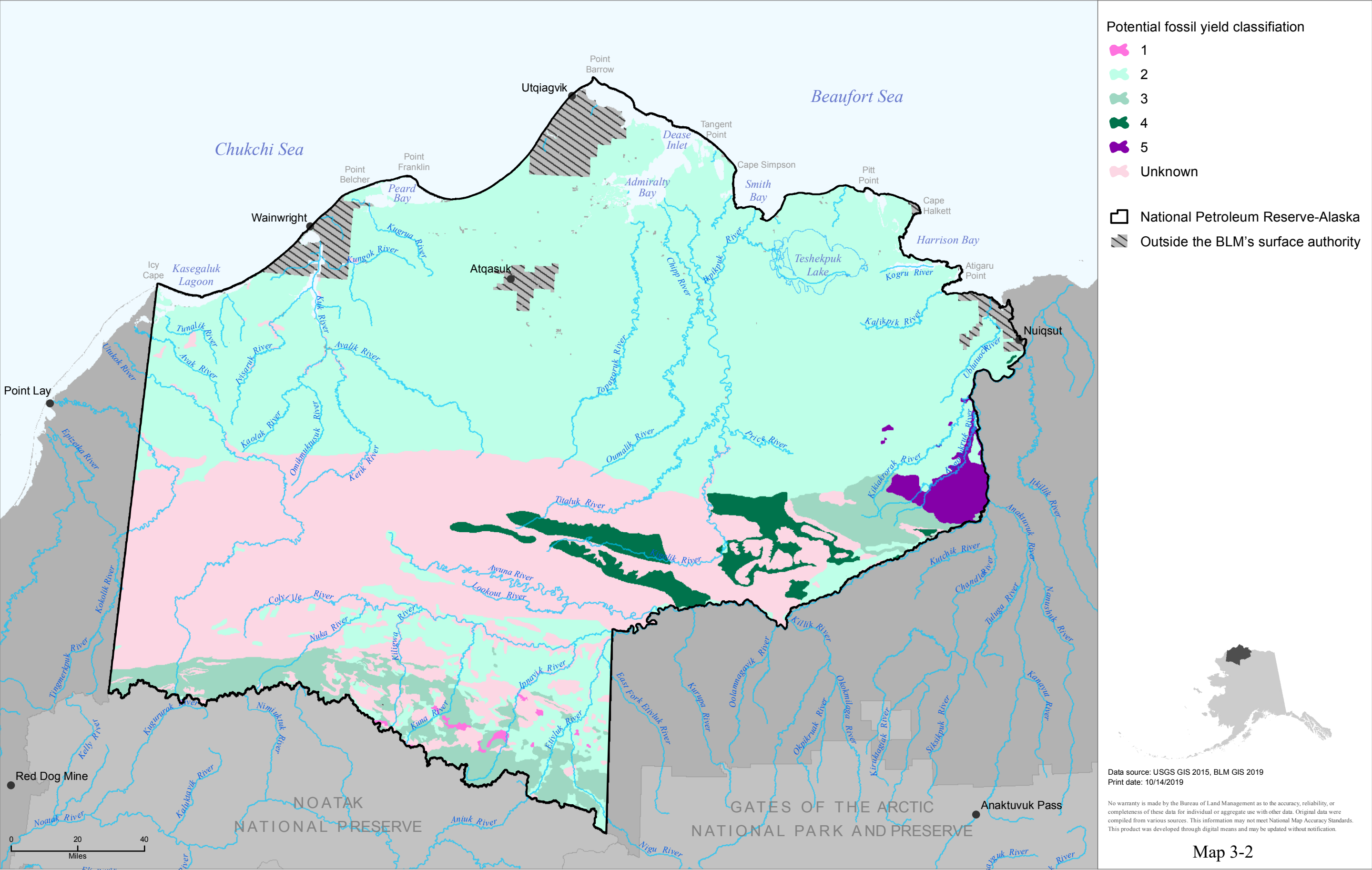
- Suitable wild and scenic river segments recommended for designation
- Suitable wild and scenic river segments are not recommended for designation in Alternatives A, C, and D
- Bureau of Land Management (BLM)
- Native-selected
- Water (inside the planning area, administered by BLM)
- National Petroleum Reserve-Alaska
- Outside the BLM's surface authority

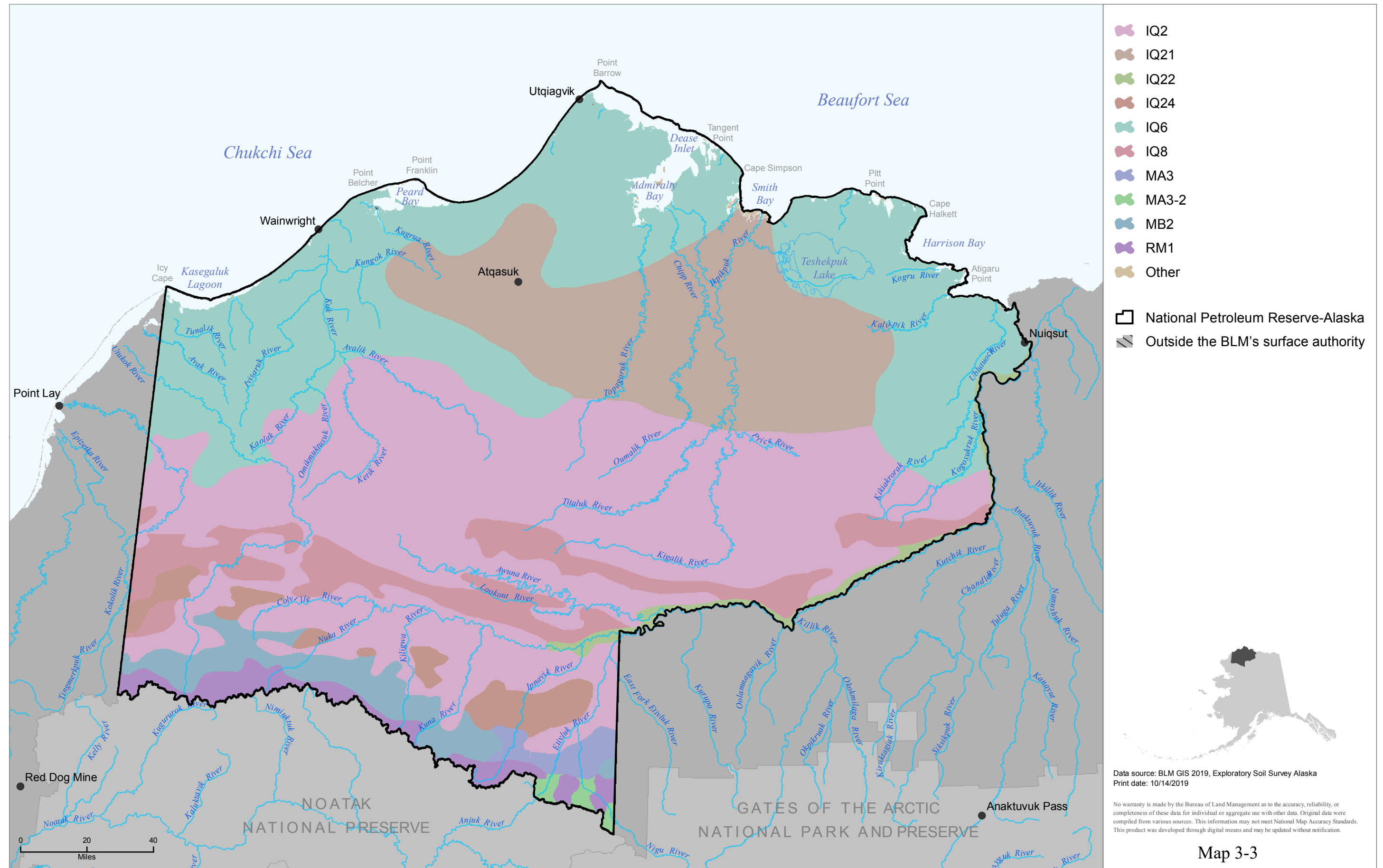
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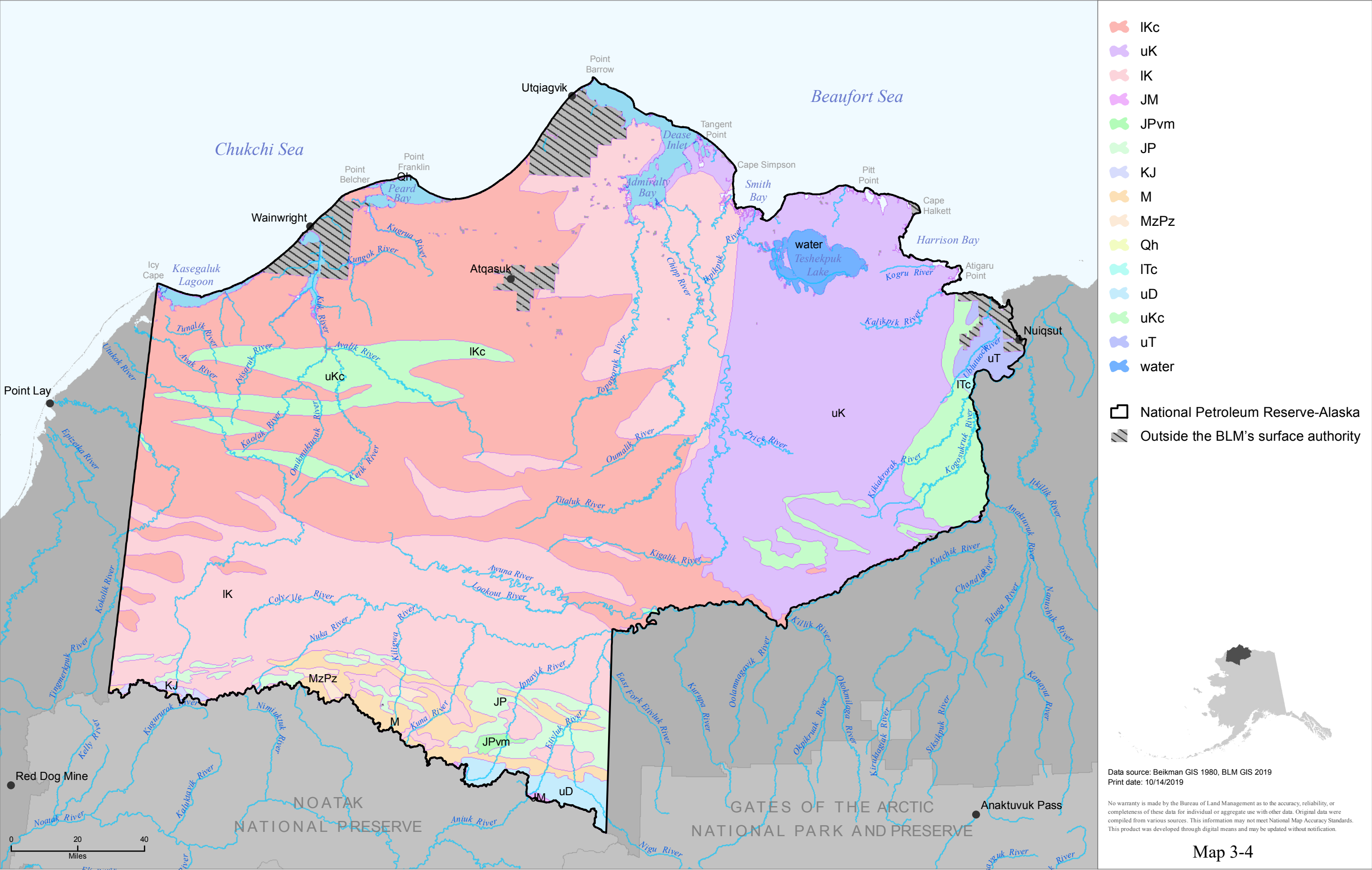
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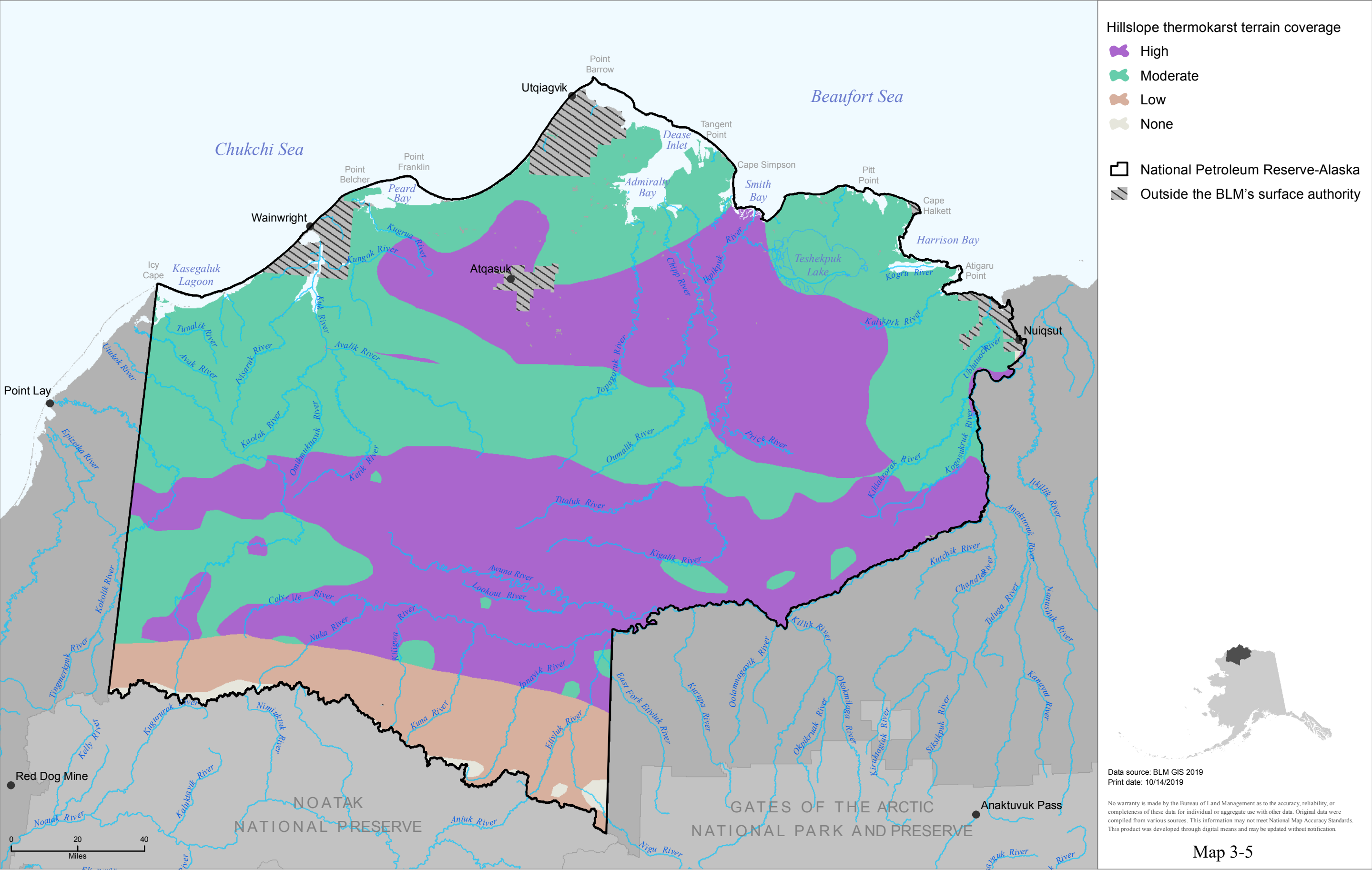
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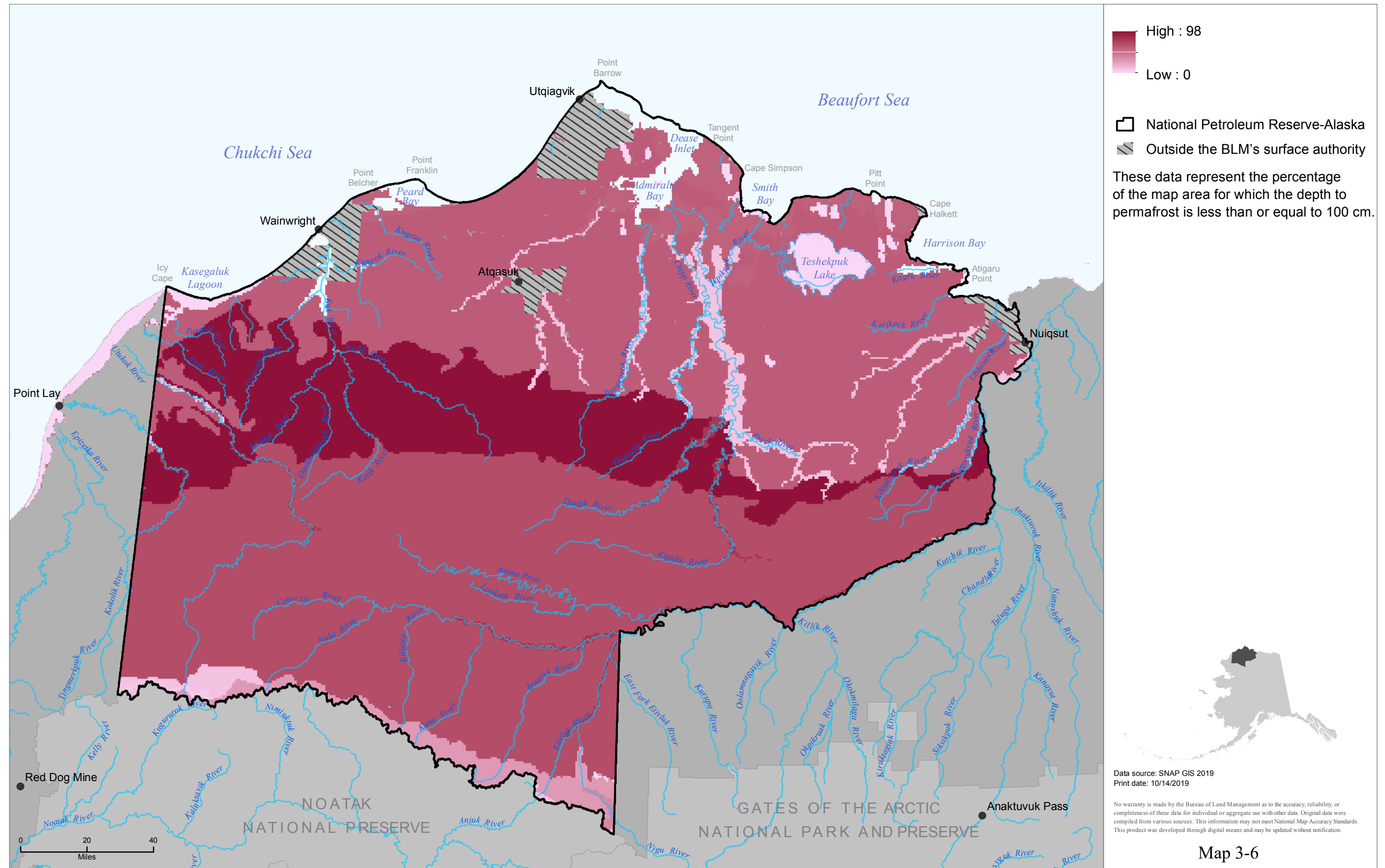


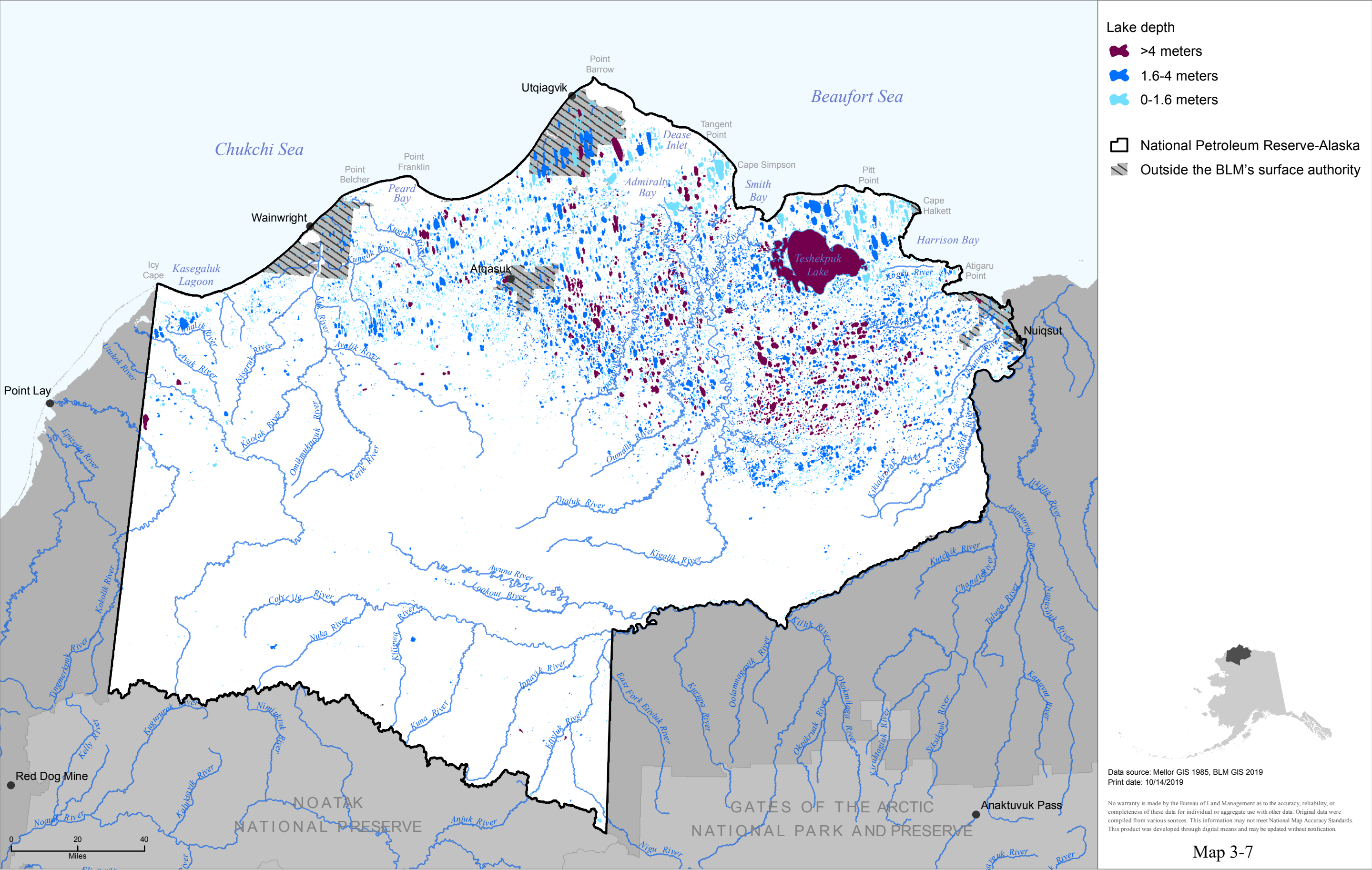


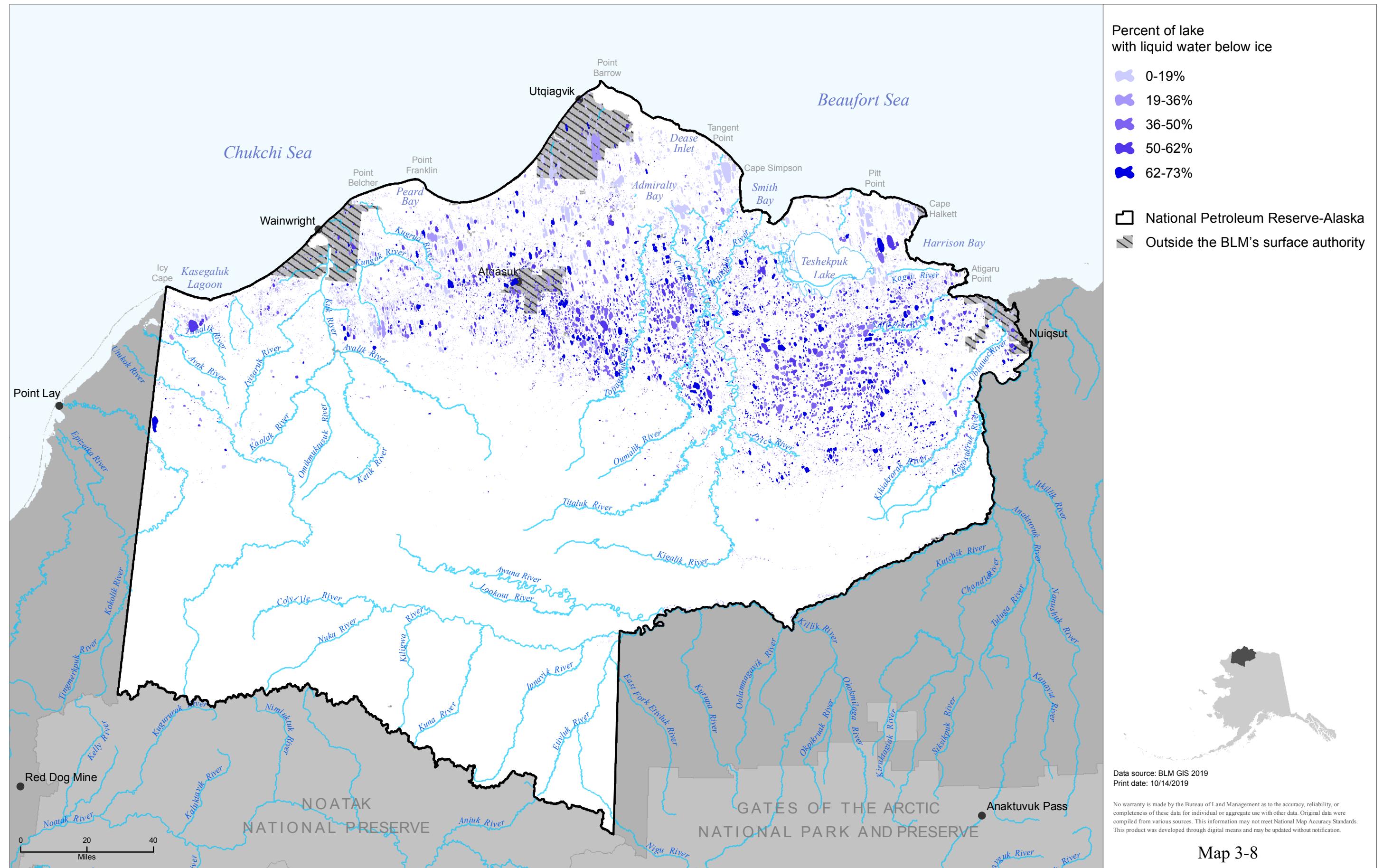


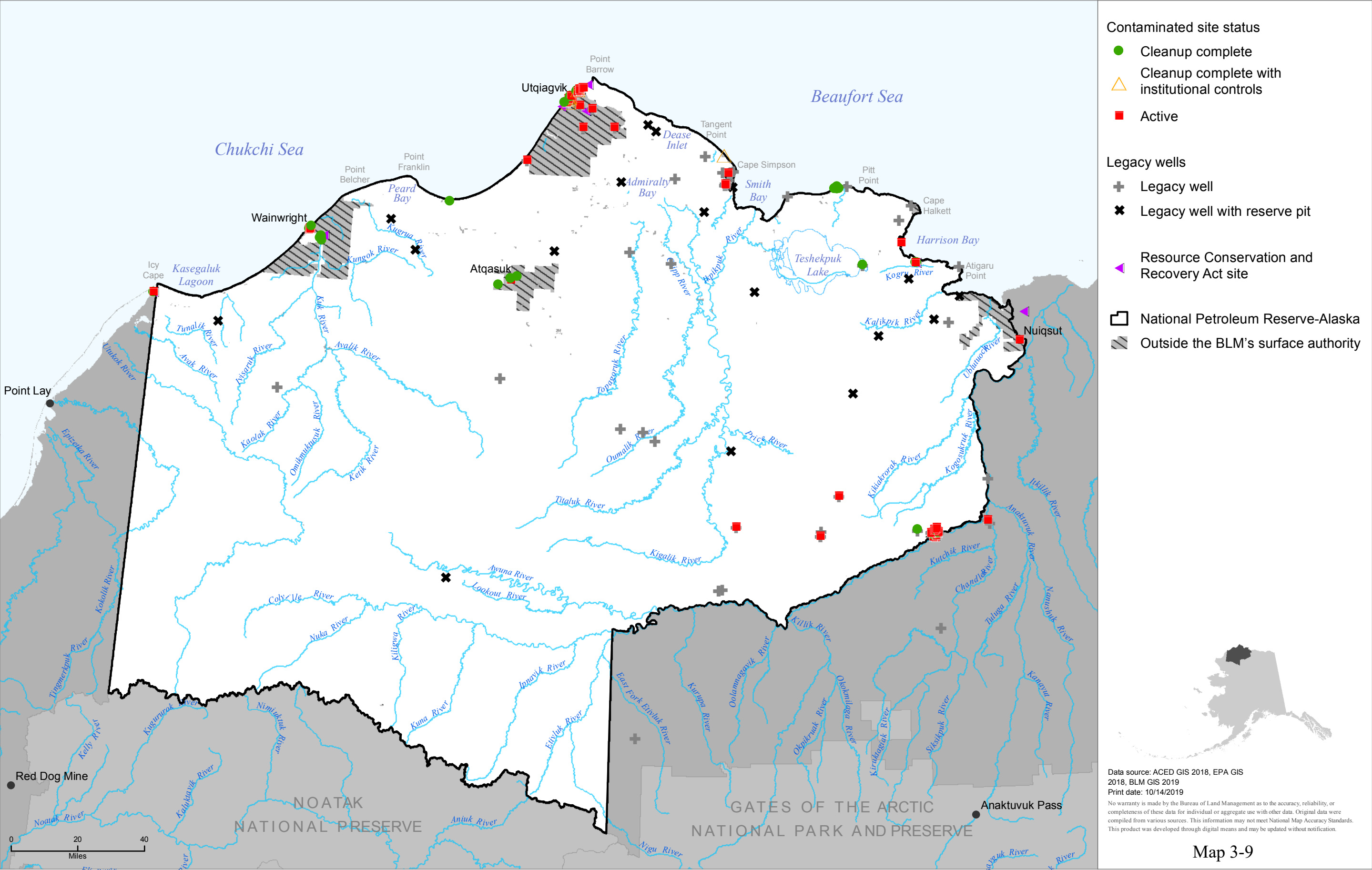


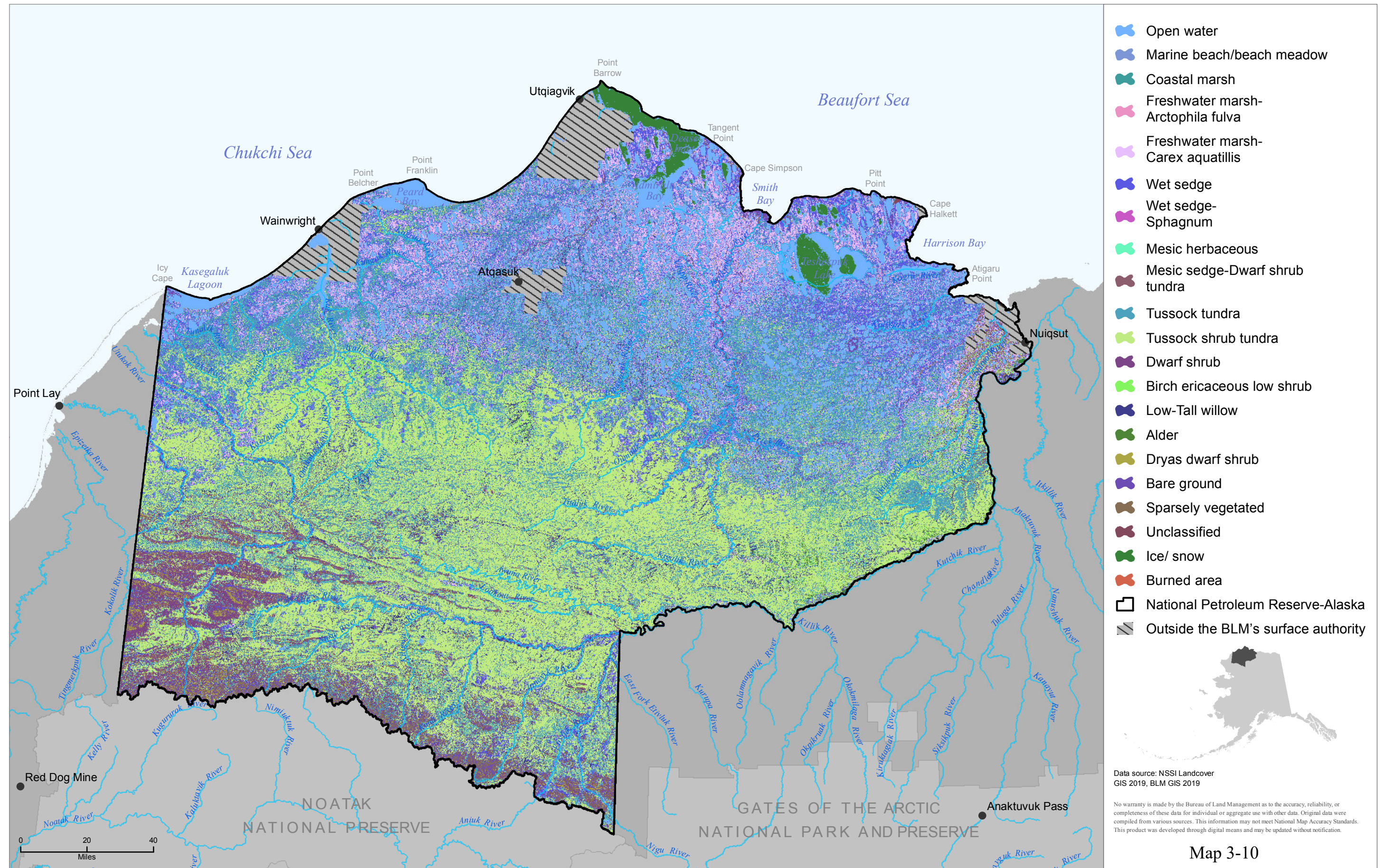


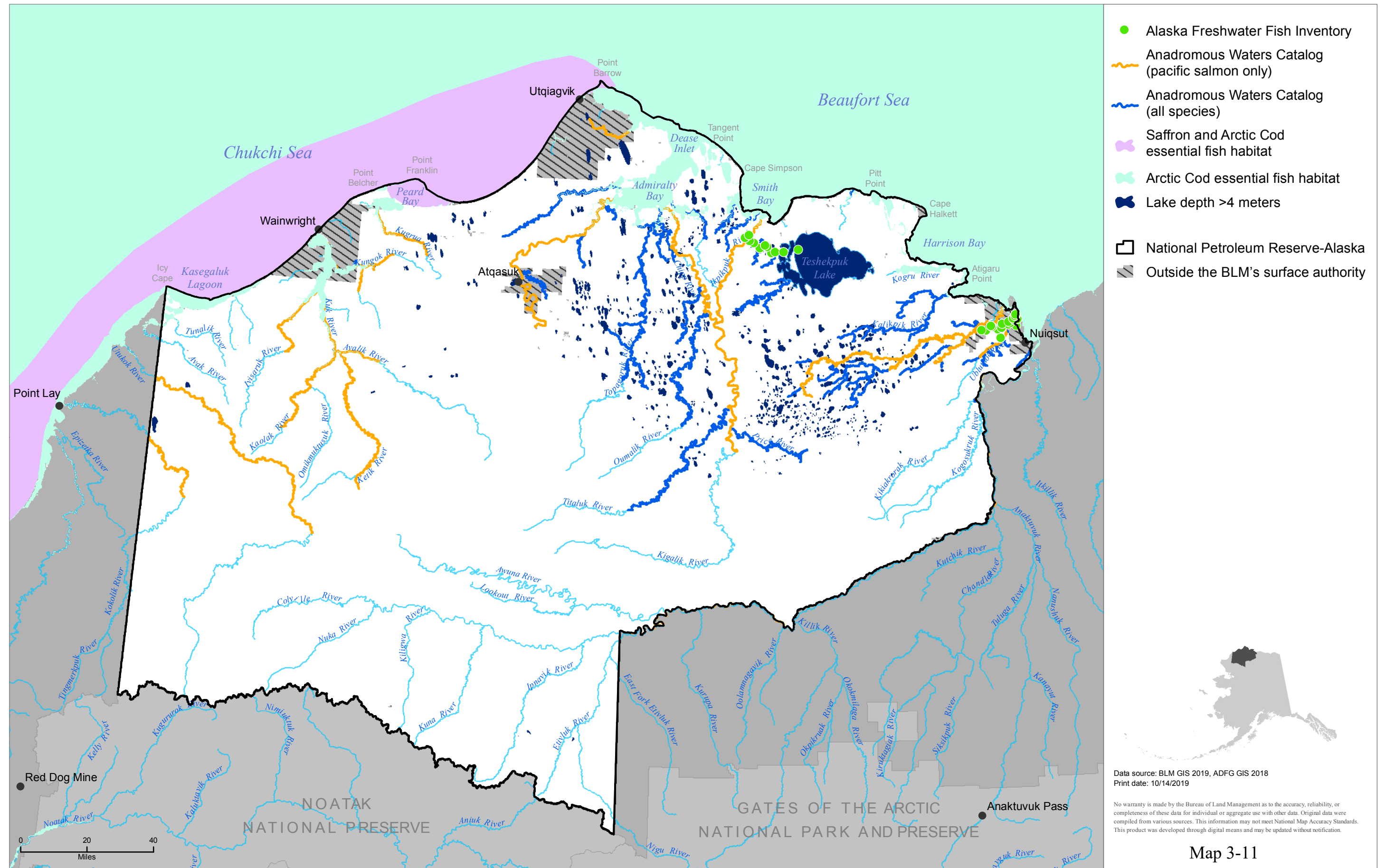


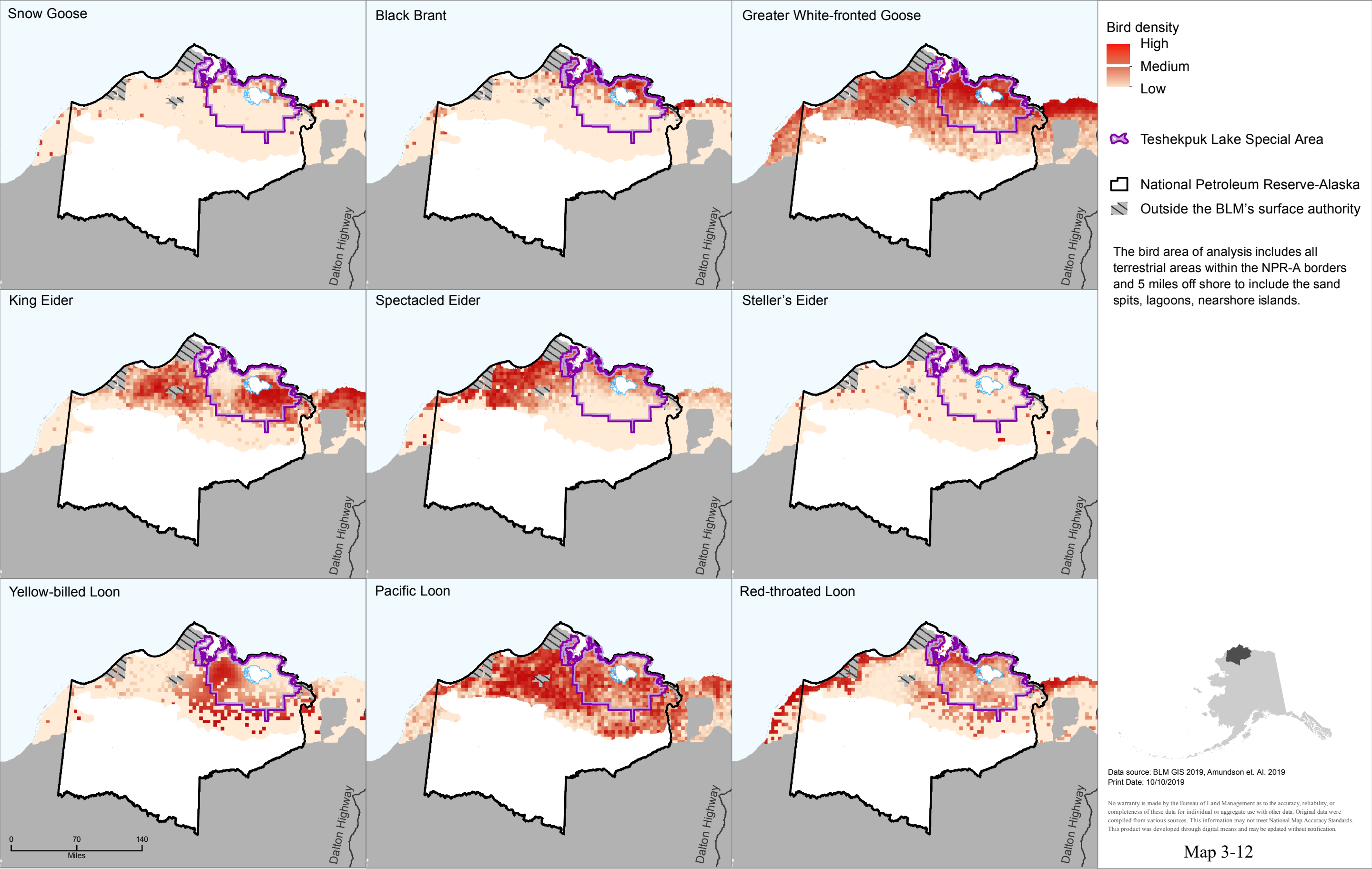


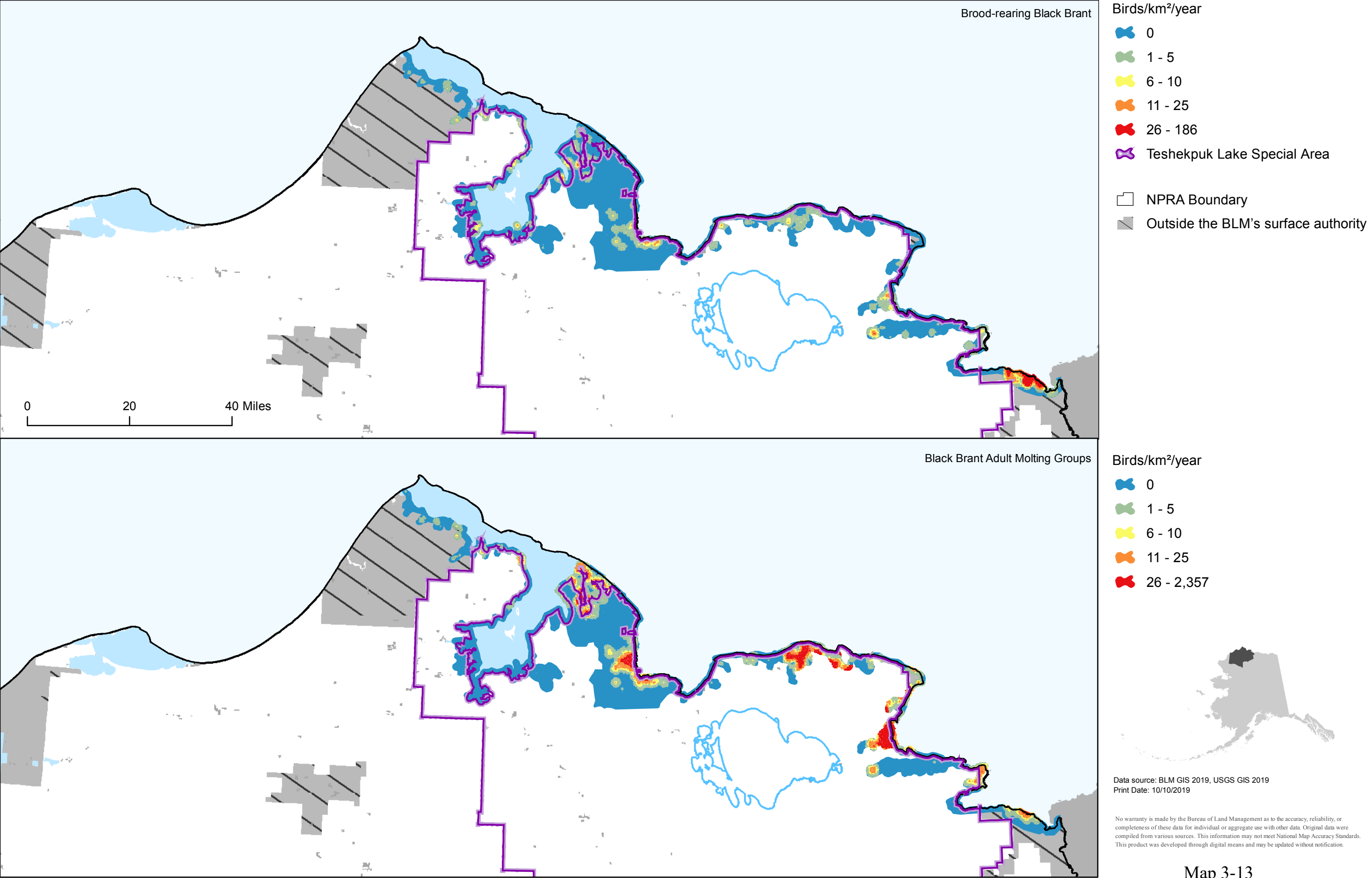




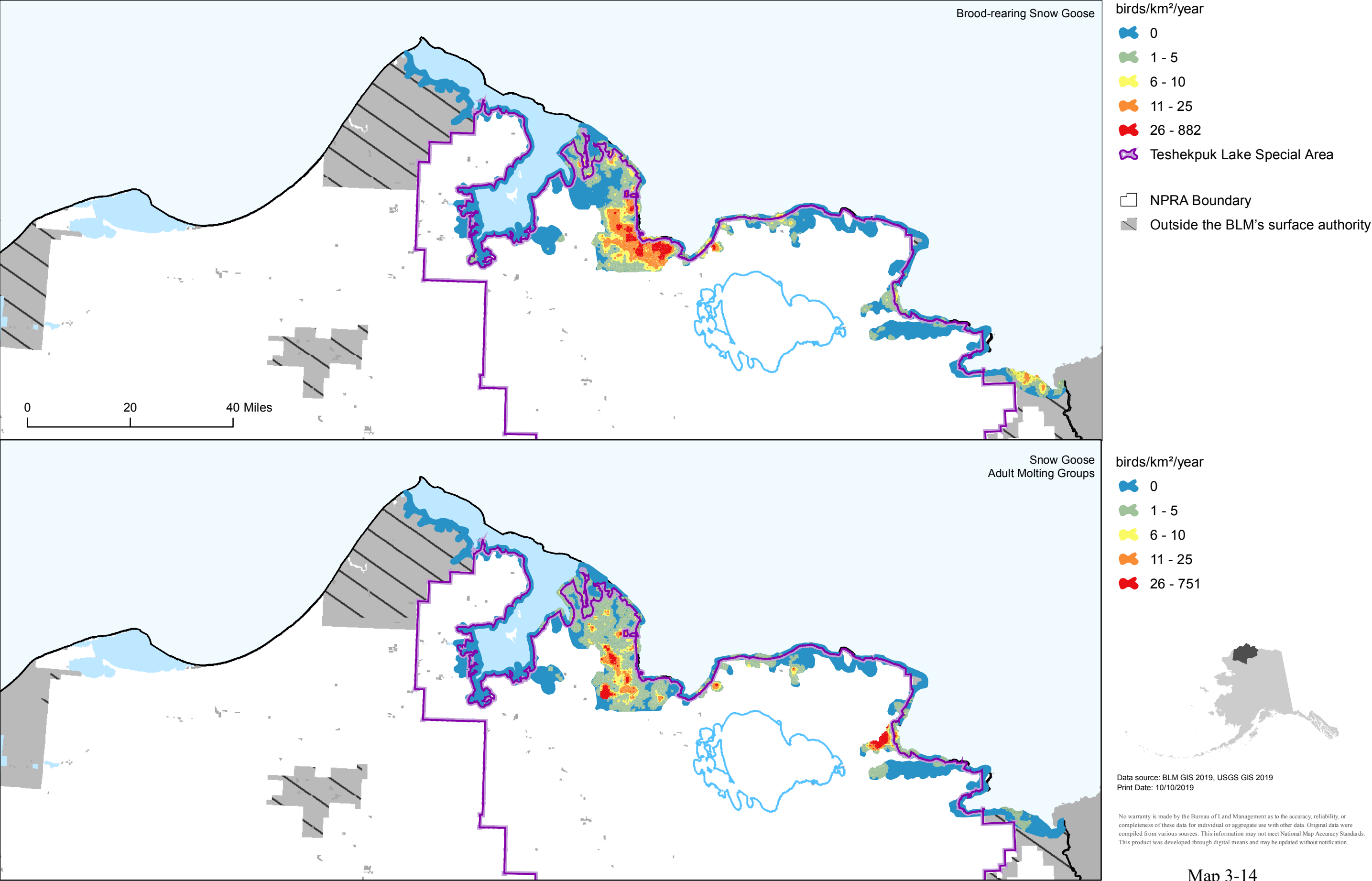




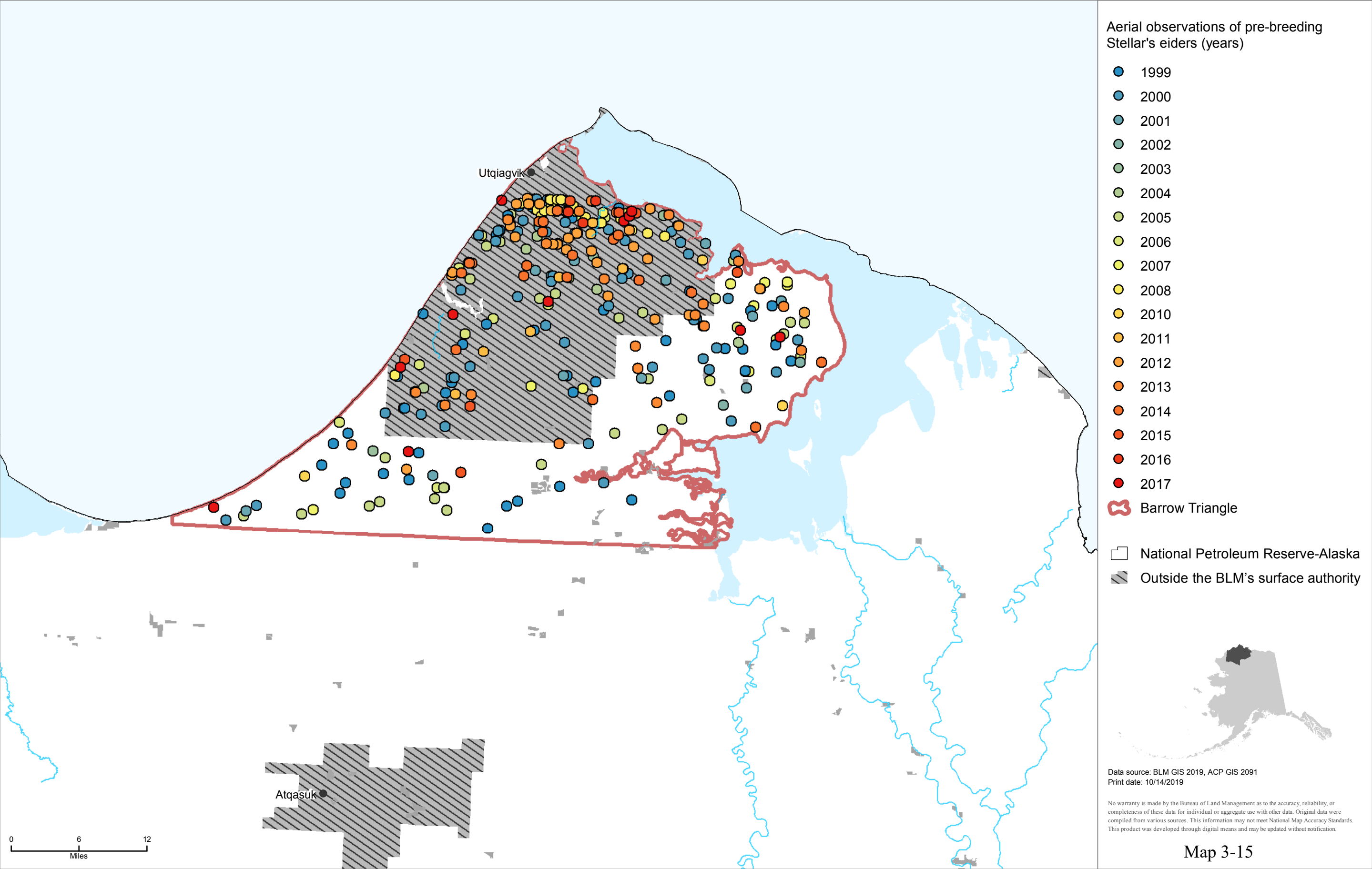


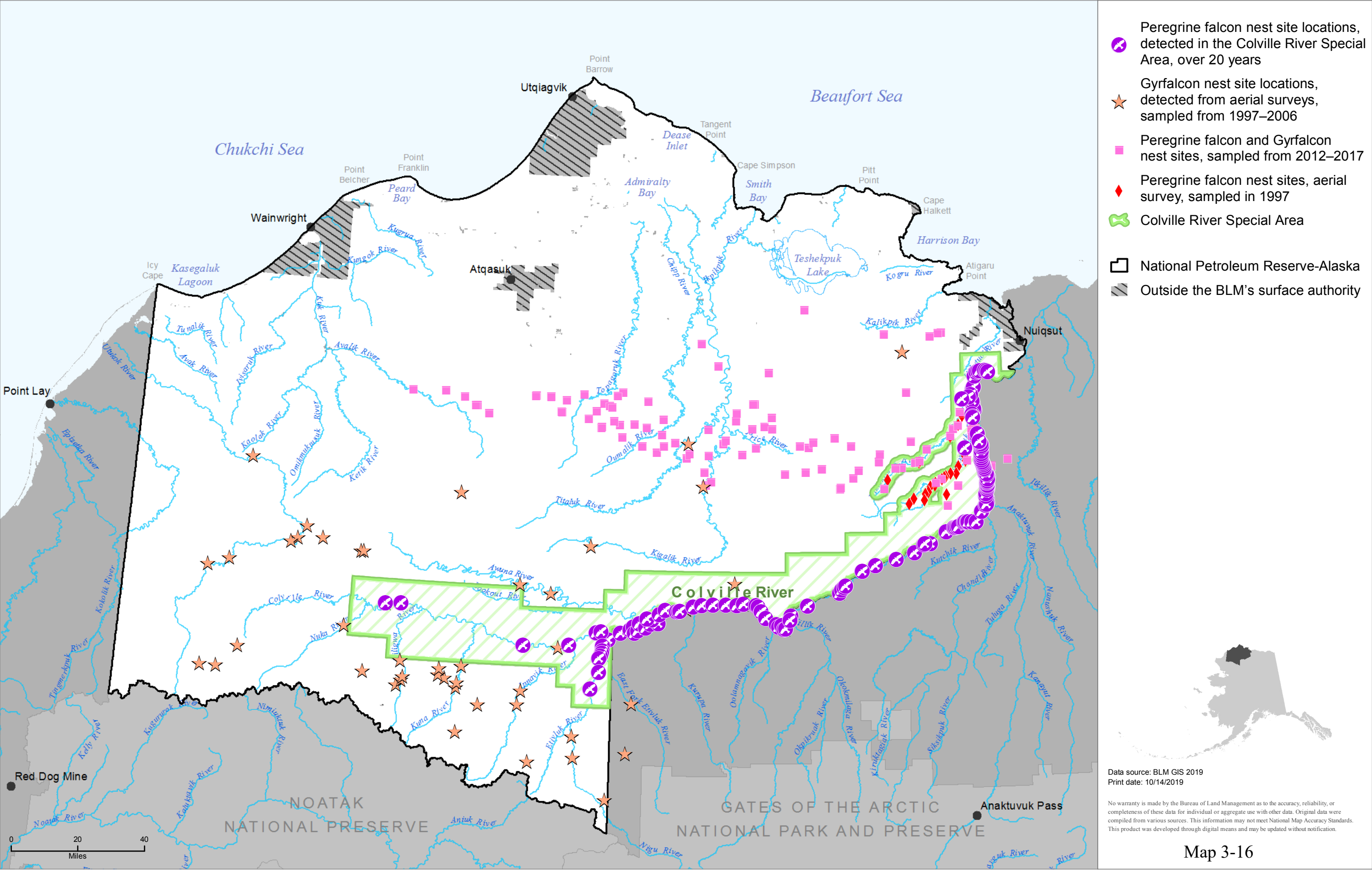


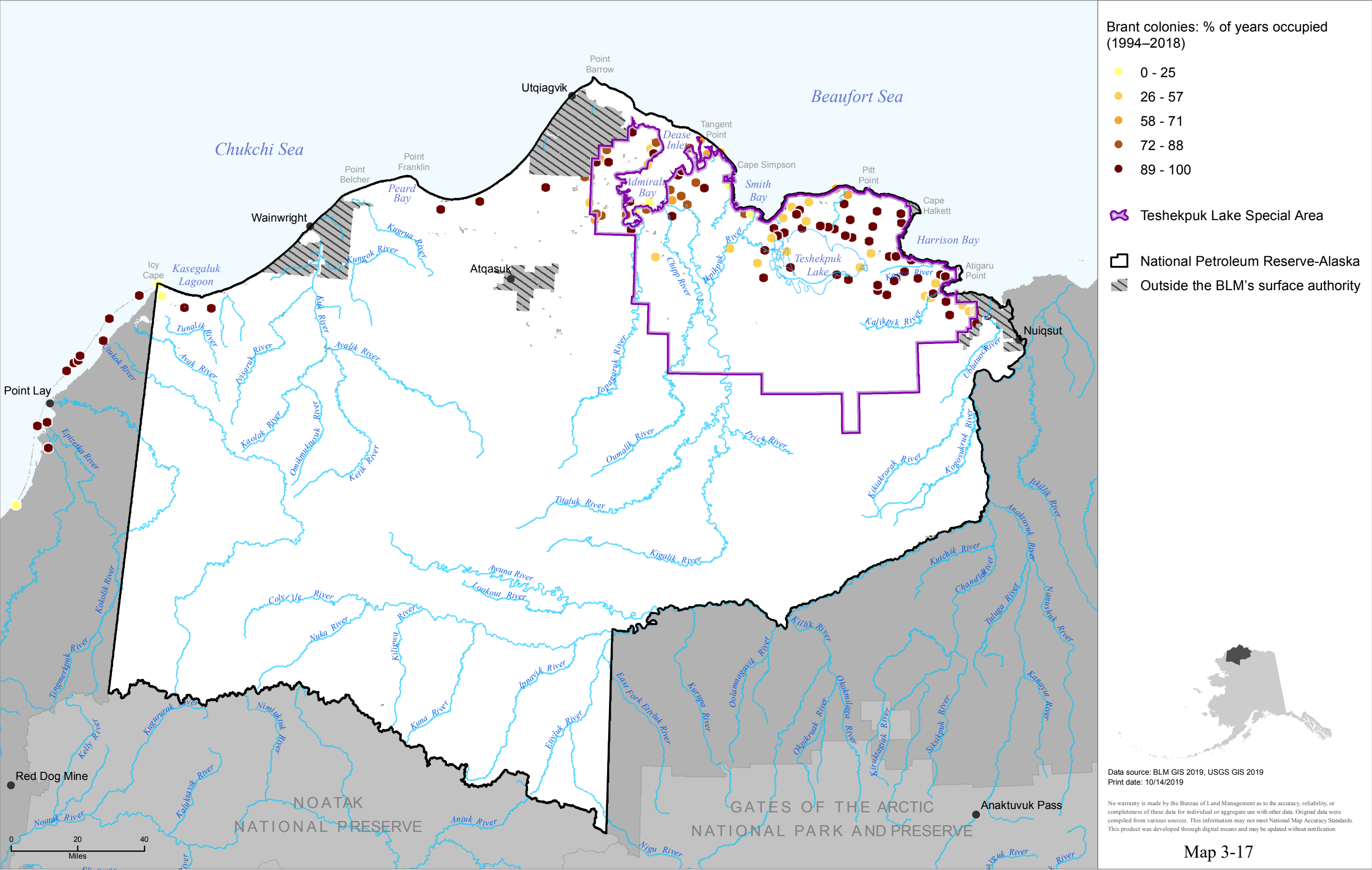
Map 3-13

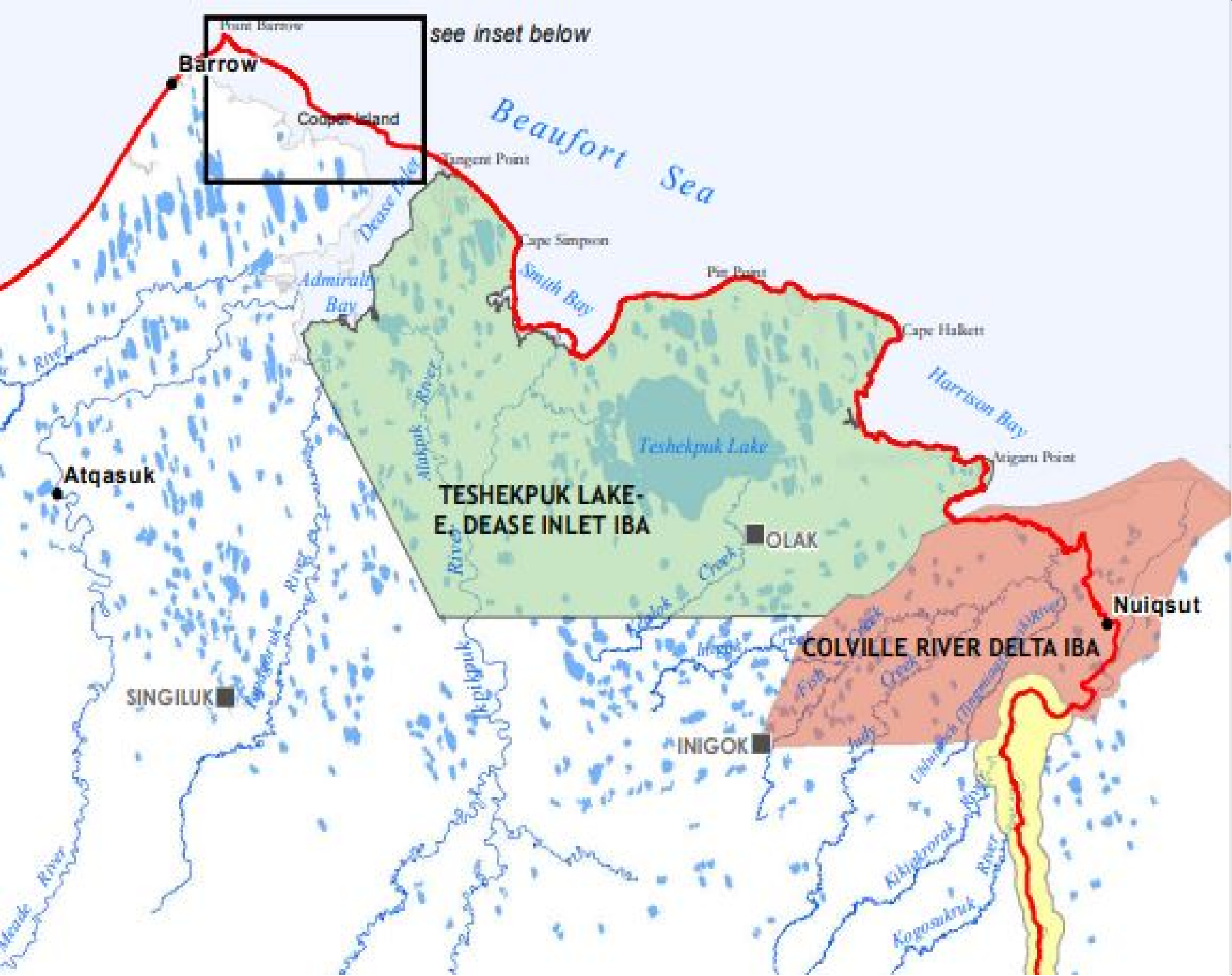


Map 3-14

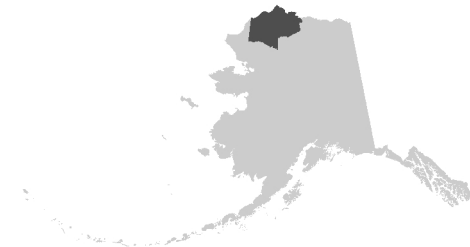








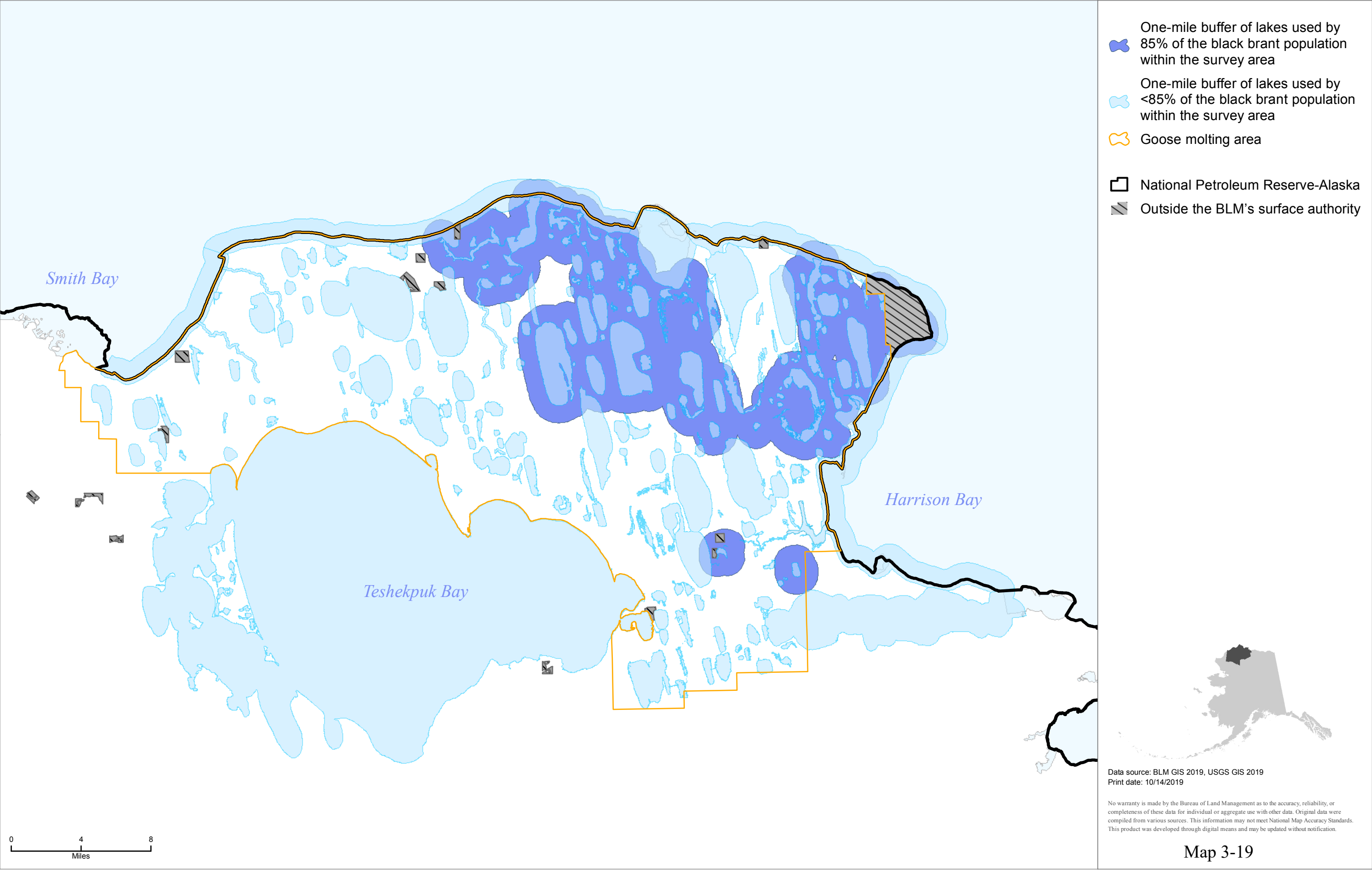
- Important Bird Areas (IBA)
- Camp locations
- National Petroleum Reserve-Alaska
- Outside the BLM's surface authority

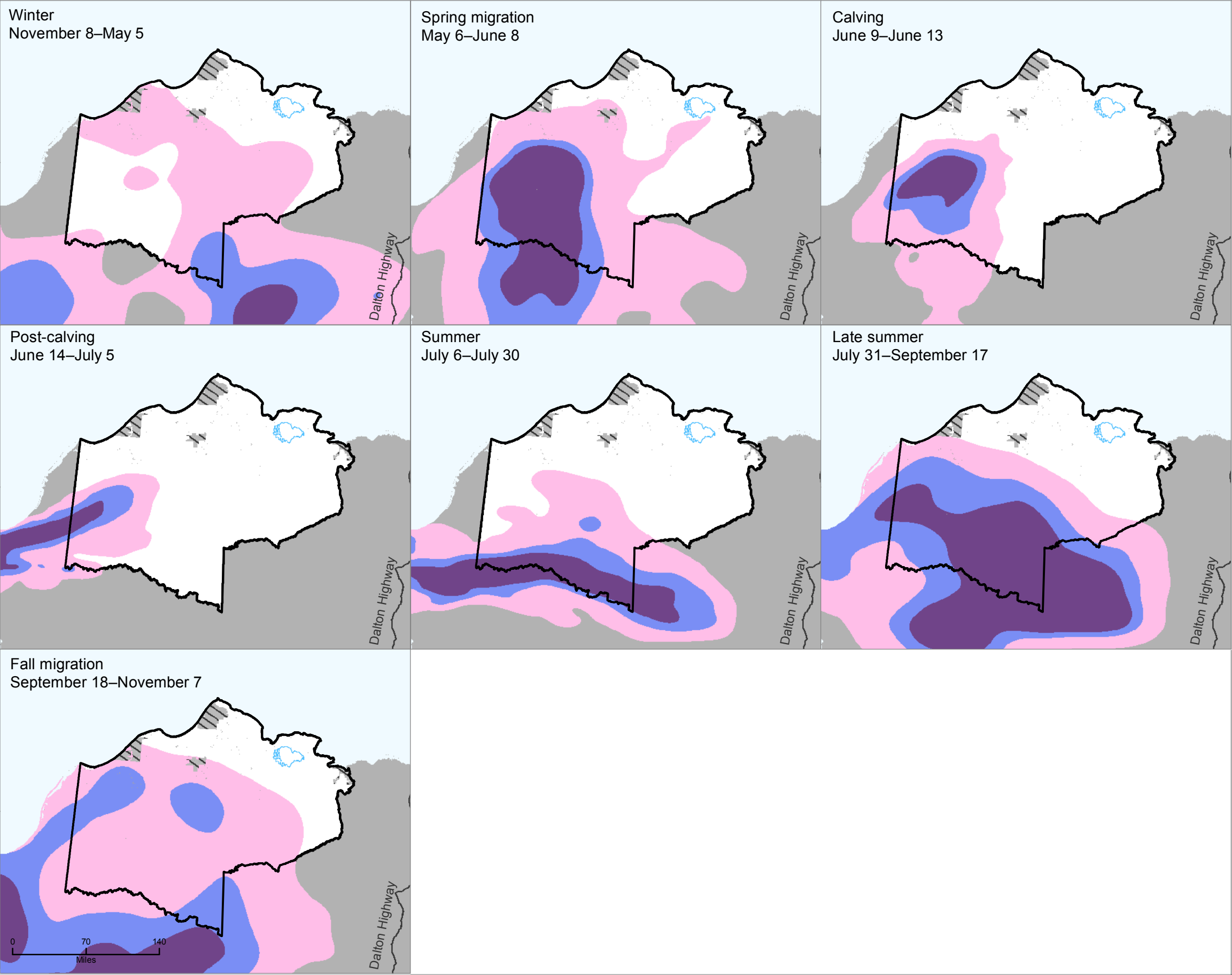


Data source: National Audubon Society 2011
Print date: 10/14/2019

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Map 3-18

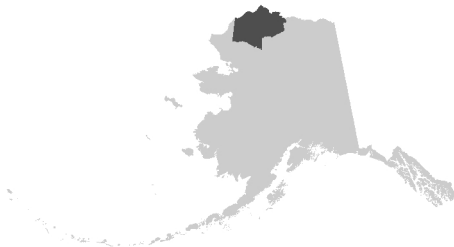




- Kernel density isopleth
- 50% (high density)
 - 75% (medium density)
 - 95% (low density)
- National Petroleum Reserve-Alaska
- Outside the BLM’s surface authority

Utilization distribution contours for the Western Arctic Herd were calculated using fixed-kernel density estimation analysis of locations of radio-collared female caribou (telemetry database from ADFG). Contours enclose stated percentages of all collar locations. High-, medium-, and low-density areas are the 50%, 75%, and 95% utilization distribution contours, respectively. Bandwidth calculated using the plug-in method. Final seasonal kernels were calculated as the average of kernels calculated for every 2-day period during the season to account for intra-season movements.

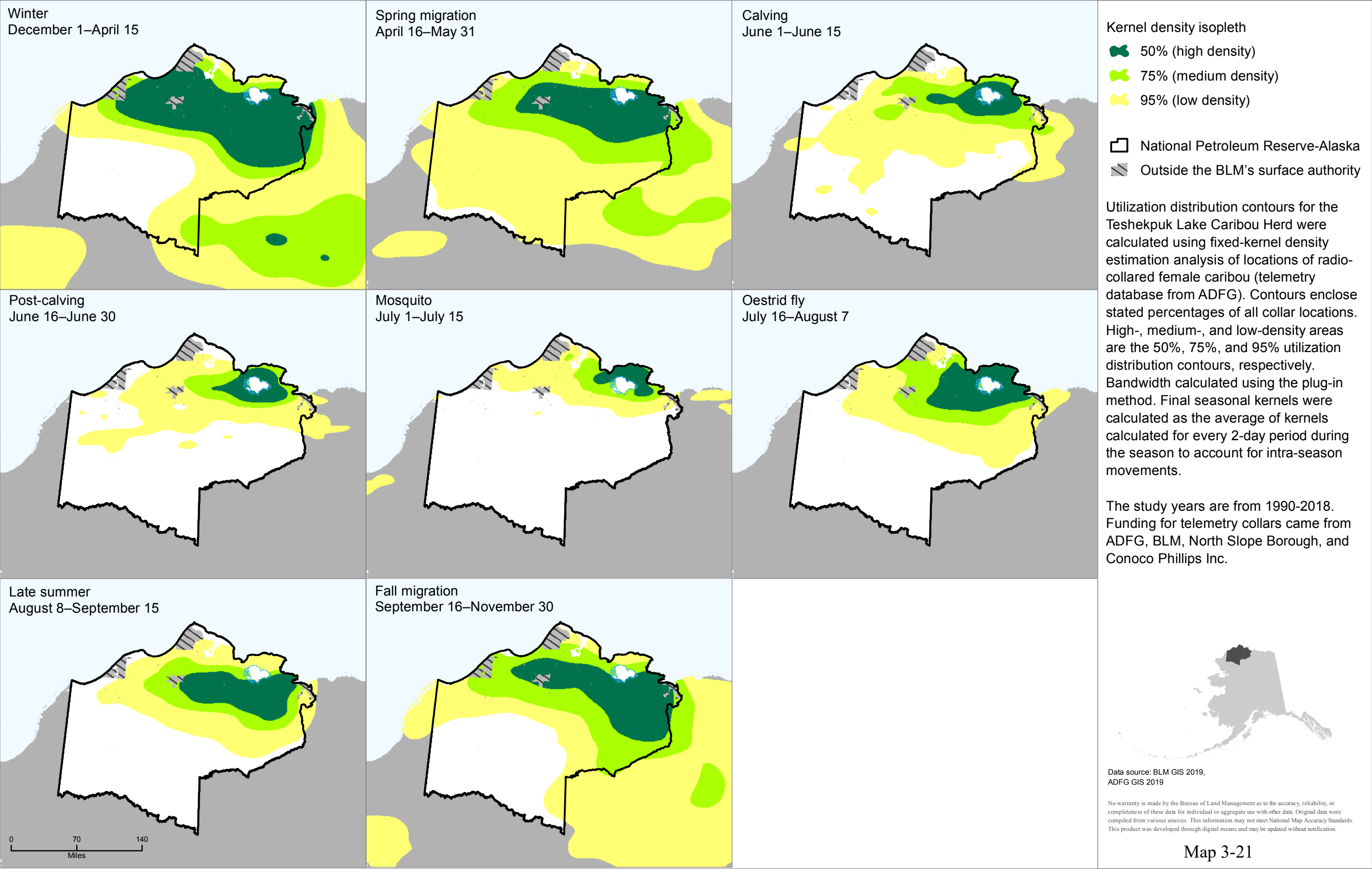
The study years are from 2001-2018. Funding for telemetry collars came from ADFG and the National Park Service.

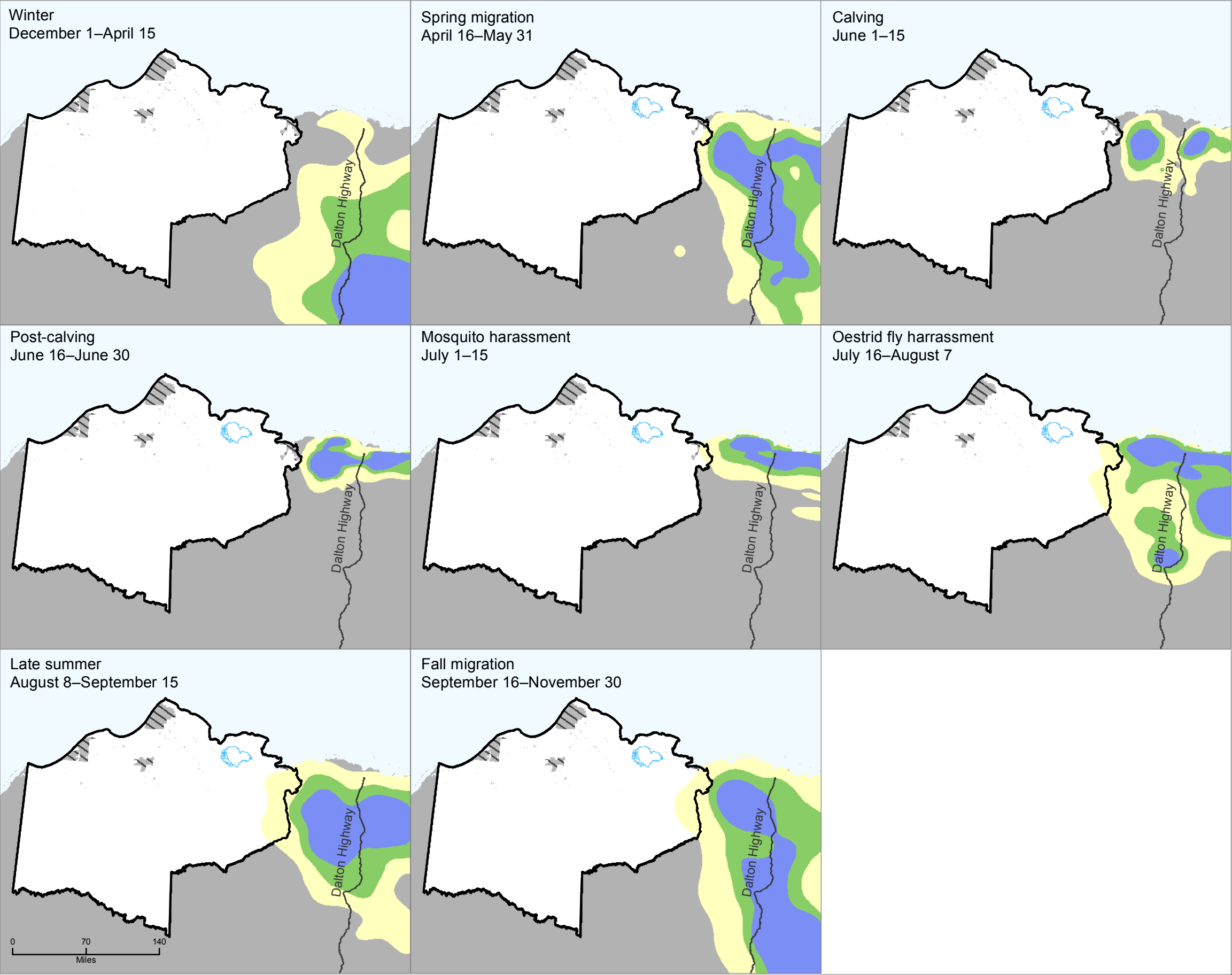


Data source: BLM GIS 2019, ADFG GIS 2019
Print Date: 10/14/2019

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Map 3-20





Kernel density isopleth

- 50% (high density)
- 75% (medium density)
- 95% (low density)

National Petroleum Reserve-Alaska

Outside the BLM’s surface authority

Utilization distribution contours for the Central Arctic Herd were calculated using fixed-kernel density estimation analysis of locations of radio-collared female caribou (telemetry database from ADFG). Contours enclose stated percentages of all collar locations. High-, medium-, and low-density areas are the 50%, 75%, and 95% utilization distribution contours, respectively. Bandwidth calculated using the plug-in method. Final seasonal kernels were calculated as the average of kernels calculated for every 2-day period during the season to account for intra-season movements.

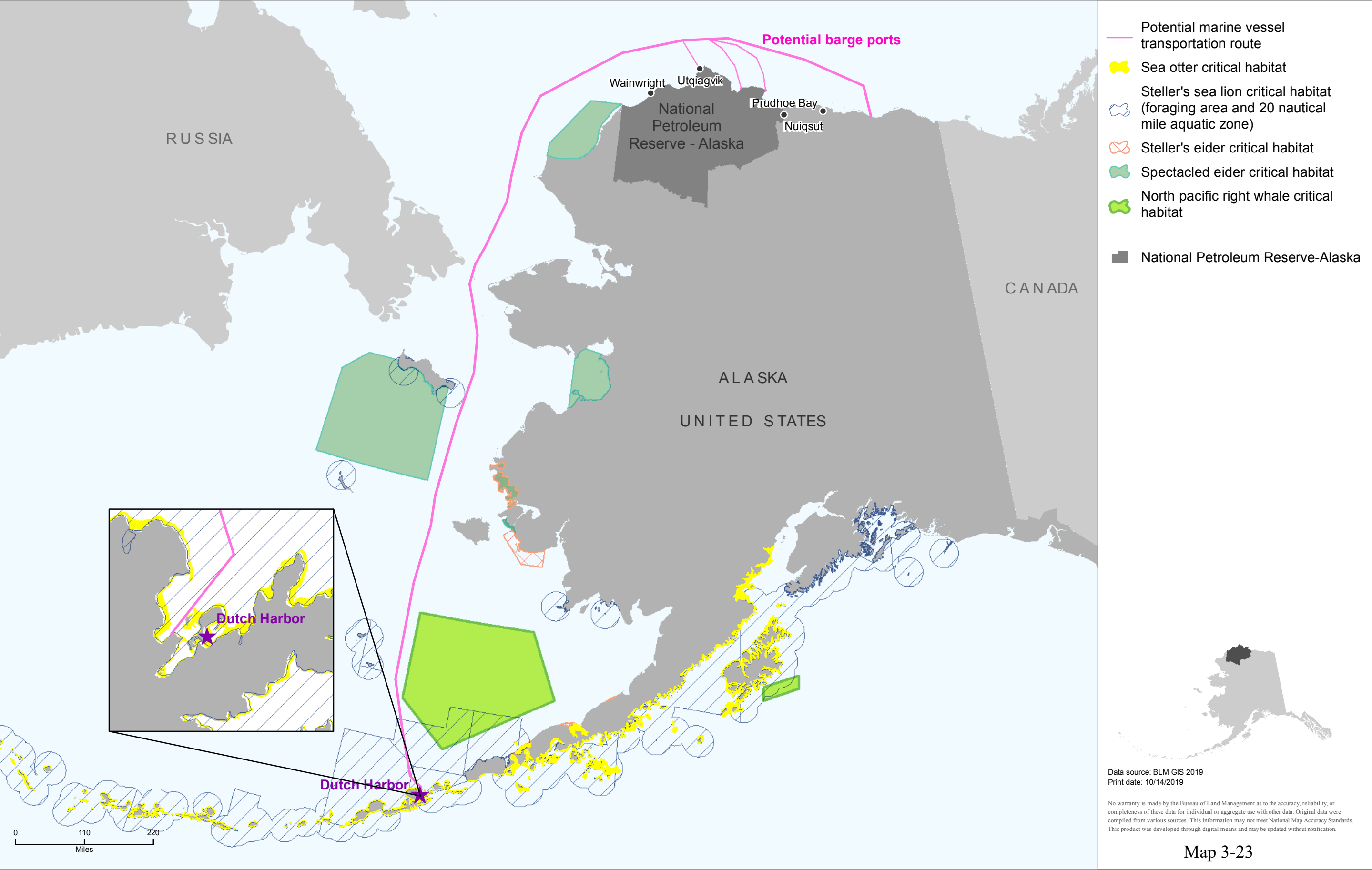
The study years are from 2001-2018. Funding for telemetry collars came from ADFG and Conoco Phillips Inc.

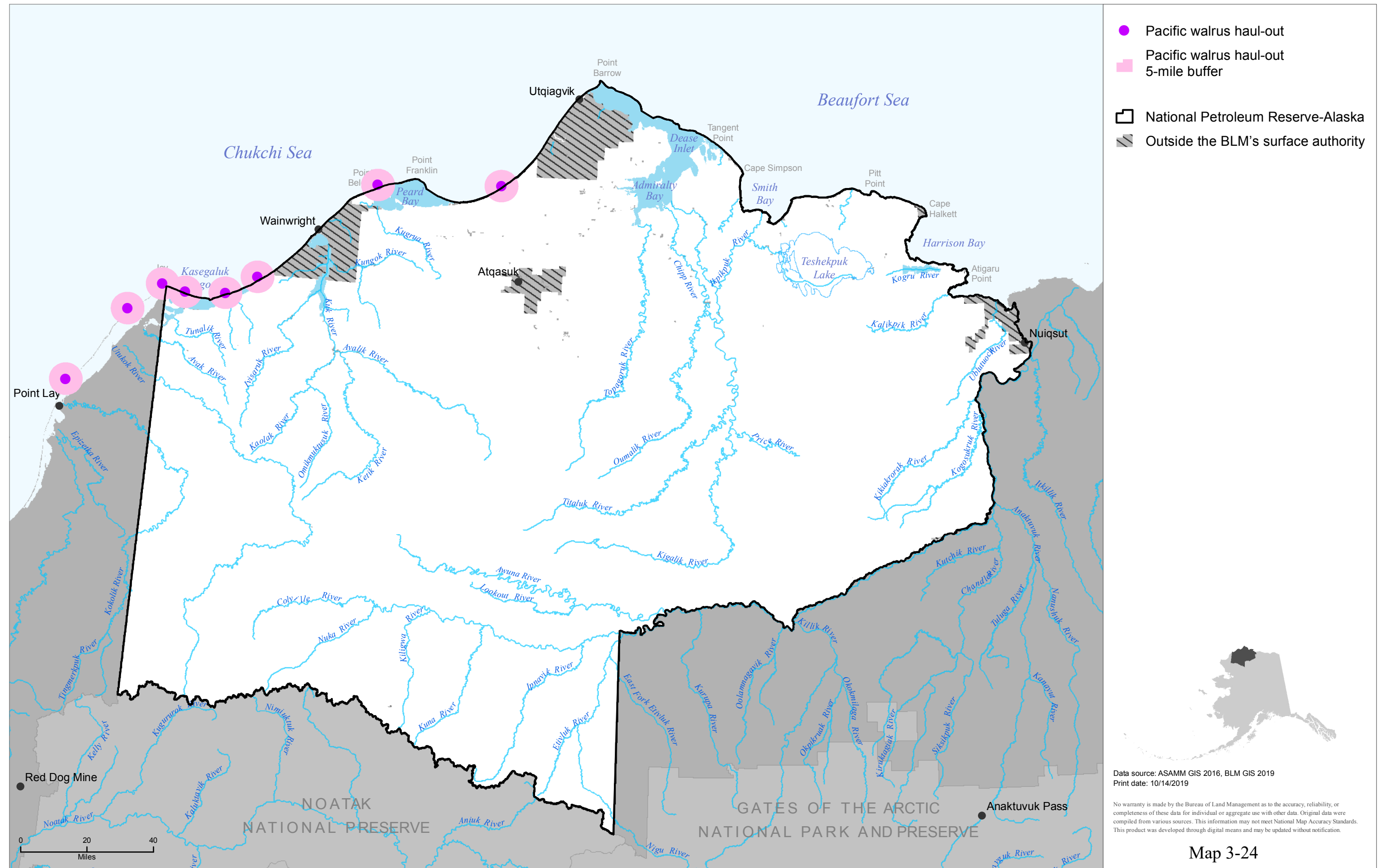


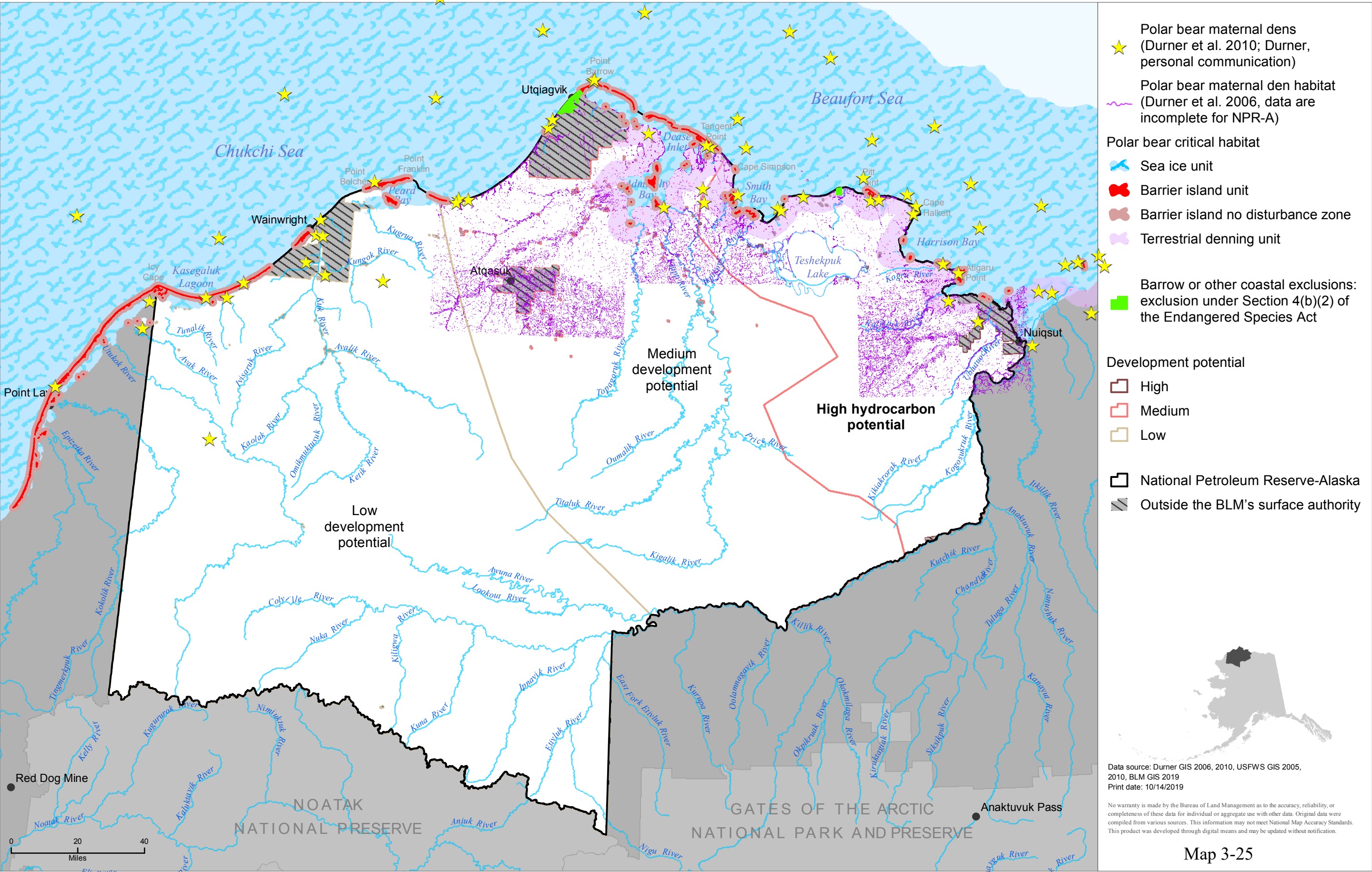
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Print Date: 10/14/2019

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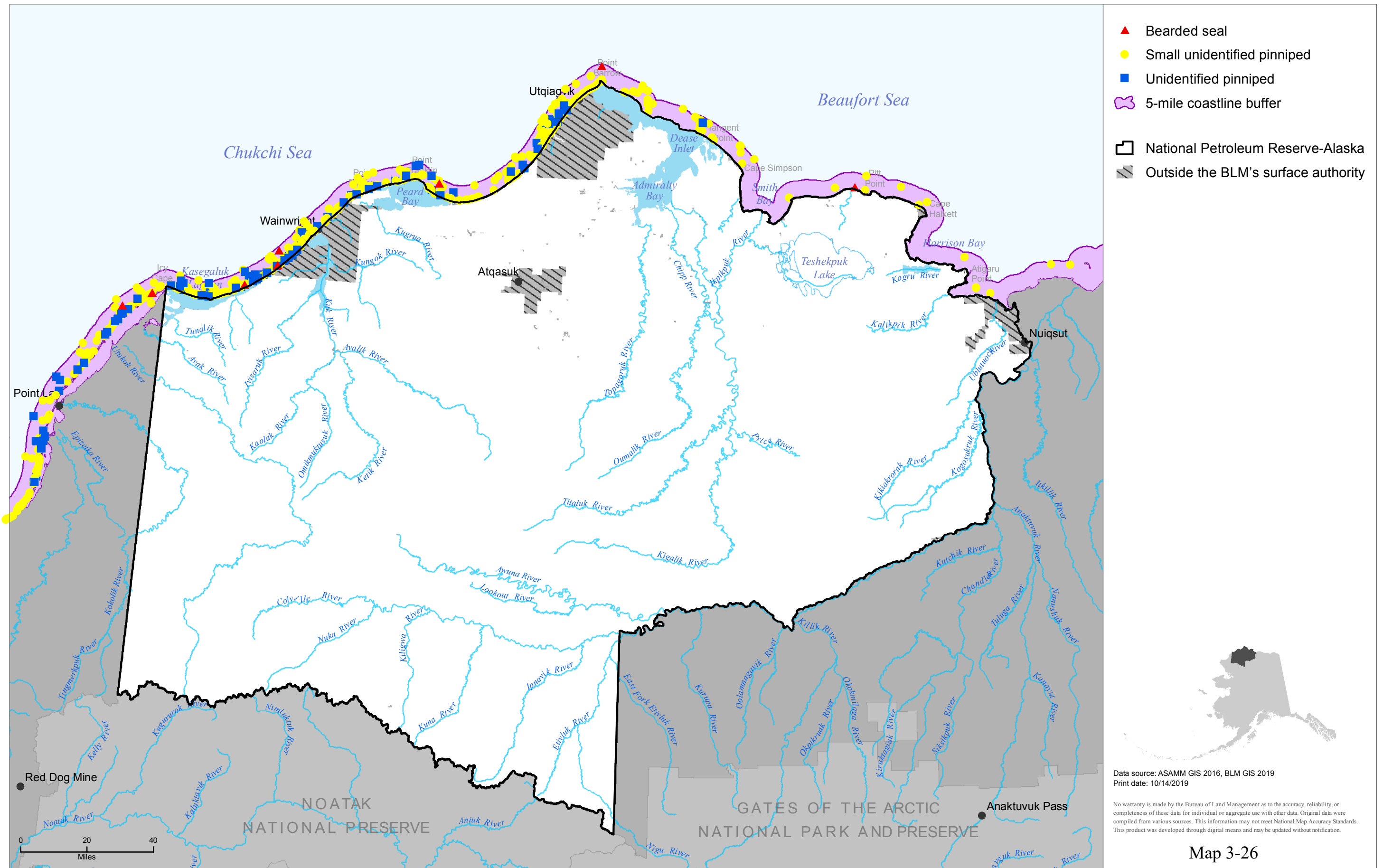
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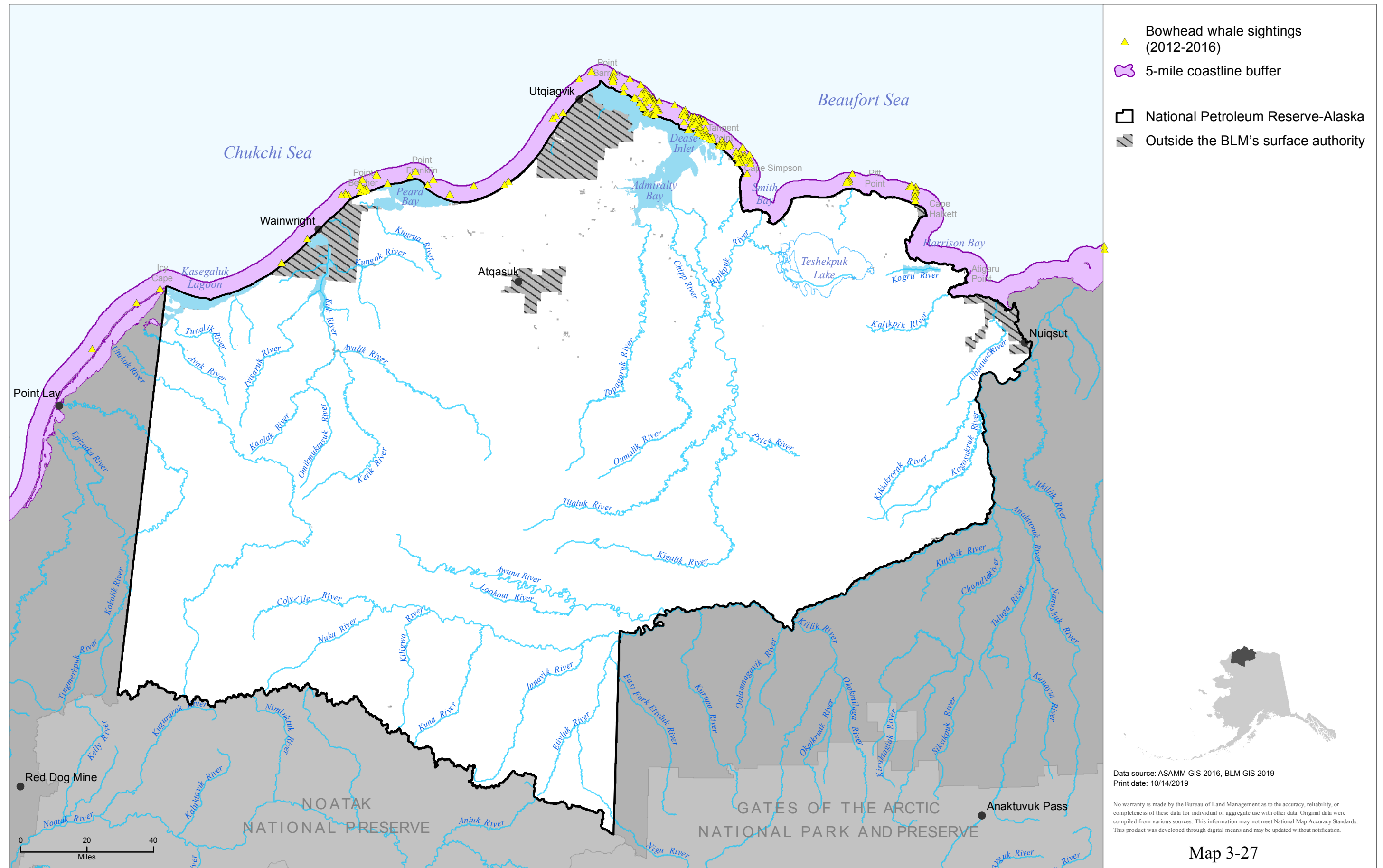


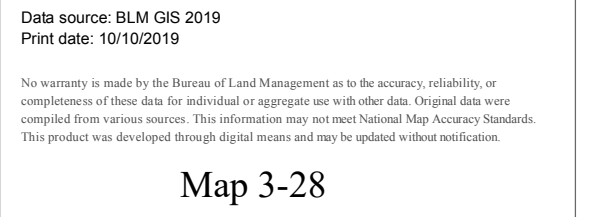


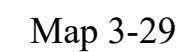


Map 3-25









REFERENCES

- ACP GIS. 2019. Stellar's Eider Observations in the Barrow Triangle 1999-2017. Data provided by Alaska Fish and Wildlife Service to be used in the NPR-A AIP EIS alternatives, affected environment, and impact analysis.
- ADEC GIS (Alaska Department of Environmental Conservation Geographic Information System). 2018. State of Alaska Department of Environmental Concern, Division of Spill Prevention and Contaminated Sites. Available from the State of Alaska: <https://dec.alaska.gov/spar/csp.aspx>
- ADFG GIS (Alaska Department of Fish and Game Geographic Information System). 2018. Western Arctic caribou herd increases after years of decline. State of Alaska press release, Department of Fish and Game, Division of Wildlife Conservation (Northwest), Fairbanks. January 10, 2018. http://www.adfg.alaska.gov/index.cfm?adfg=pressreleases.pr&release=2018_01_10
- _____. 2019. Anadromous Waters Catalog Streams. Alaska Department of Fish and Game. Available from: <https://www.adfg.alaska.gov/sf/SARR/AWC/>
- ASAMM GIS. 2016. Marine Mammal Aerial Surveys in the Bering, Chukchi and Beaufort Seas, 1979-2016. Available from Alaska Fisheries Science Center: <https://www.afsc.noaa.gov/nmml/software/bwasp-comida.php>
- Beikman GIS. 1980. Geologic map of Alaska: U.S. Geological Survey, 1 sheet, scale 1:2,500,000.
- BLM GIS (U.S. Bureau of Land Management Geographical Information System). 2019. GIS data used in the NPR-A AIP EIS alternatives, affected environment, and impact analysis.
- Durner GIS. 2006, 2010. USGS Alaska Science Center. Available from: https://www.usgs.gov/centers/asc/science/polar-bear-maternal-denning?qt-science_center_objects=0#qt-science_center_objects
- EPA GIS (U.S. Environmental Protection Agency Geographic Information System). 2018. Environmental Protection Agency. Available from EnviroMapper for Envirofacts: <https://geopub.epa.gov/myem/efmap/index.html?ve=15,44.279221,-88.315926&pText=513%20Grand%20Ave,%20Little%20Chute,%20WI%2054140-1707>
- Mellor GIS. 1985. A Statistical Analysis and Summary of Radar-Interpreted Arctic Lake Depths. Bureau of Land Management Alaska Technical Report 11. US Department of the Interior, Bureau of Land Management, Anchorage, Alaska.
- NSSI Landcover GIS. 2019. North Slope Science Initiative. NSSI Landcover GIS Data: Landcover/Vegetation Mapping for North Slope of Alaska. Available from NSSI Catalog: <http://catalog.northslopescience.org/catalog/entries/8309-nssi-landcover-gis-data-landcover-vegetation>
- SNAP GIS (Scenarios Network for Alaska and Arctic Planning Geographic Information System). 2019. Depth to Permafrost - Alaska LandCarbon Project. Available from SNAP's GeoNetwork Datasets: <http://data.snap.uaf.edu/data/Base/Other/LandCarbon/Permafrost/>

USGS GIS (U.S. Geological Survey Geographical Information System). 2015. GIS data used in the NPR-A AIP EIS alternatives, affected environment, and impact analysis.

_____. 2019. Bird densities provided by the United States Geological Study to be used in the NPR-A AIP EIS alternatives, affected environment, and impact analysis.

USFWS GIS (U.S. Fish and Wildlife Service Geographical Information System). 2005, 2010. Polar Bear critical habitat. Data provided by Alaska Fish and Wildlife Service to be used in the NPR-A AIP EIS alternatives, affected environment, and impact analysis.

Wahrhaftig GIS. 1965. Physiographic divisions of Alaska. 482, Professional Paper. Washington, DC: U.S. Geological Survey.