

National Petroleum Reserve-Alaska

DRAFT

Integrated Activity Plan/
Environmental Impact Statement

Volume 5 Maps

Prepared by:

U.S. Department of the Interior
Bureau of Land Management
Anchorage, Alaska

In cooperation with:

North Slope Borough
State of Alaska
U.S. Bureau of Ocean Energy Management
U.S. Fish and Wildlife Service

March 2012

How the Draft IAP/EIS is Organized

The format of this IAP/EIS follows guidance provided by the Council on Environmental Quality and the BLM NEPA Handbook H-1790-1 (USDOI BLM 2008). Below is a list of the types of information found in each volume of the IAP/EIS.

VOLUME 1

Chapter 1 – Introduction: Summarizes the purpose of and need for this IAP/EIS and decisions to be made.

Chapter 2 – Alternatives: Describes and compares proposed management alternatives.

Chapter 3 – Affected Environment: Presents existing natural and socioeconomic resources in the NPR-A and trends, including those associated with climate change.

VOLUME 2

Chapter 4 – Environmental Consequences (sections 4.1 – 4.6): Evaluates impacts of the alternatives on resources and uses in the NPR-A and the cumulative and other effects relevant to making a decision among the alternatives.

VOLUME 3

Chapter 4 – Environmental Consequences (continued: sections 4.7 – 4.12).

VOLUME 4

Chapter 5 – Consultation and Coordination: Describes public and government (including tribal) consultation undertaken for this plan and the development of alternatives and lists the plan's preparers.

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Appendix B: Federal, State, and Local Permits and/or Approvals for Oil and Gas Exploration, Development, and Production Activities

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Glossary and Bibliography

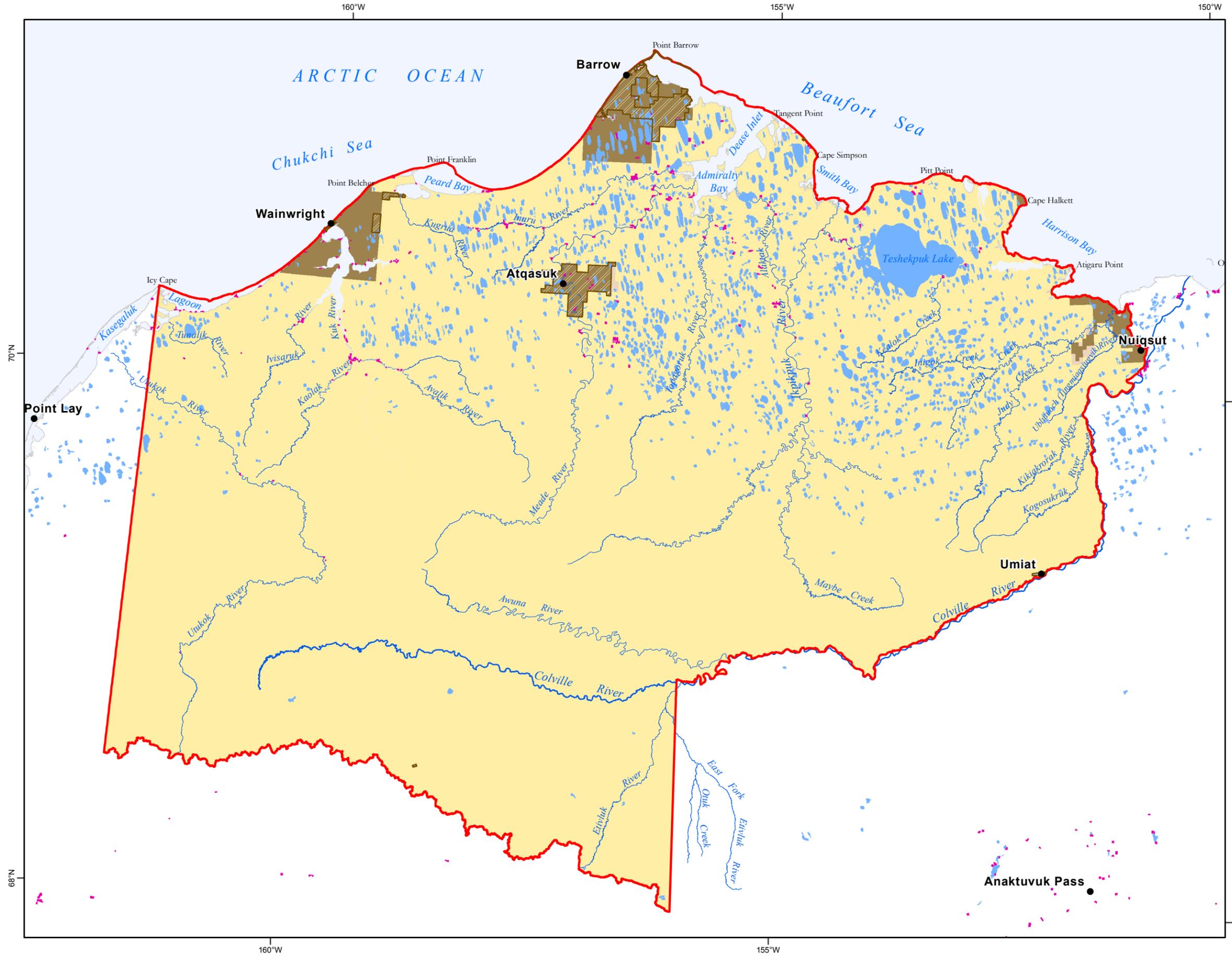
VOLUME 5

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Map 1.1 Land Status

Source: BLM, 2011

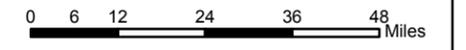
- Land Status**
- Surface
- Bureau of Land Management
 - Native Patent or IC
 - Native Selected
 - State Patent or TA (near Umiat)
 - Major Military (north of Barrow)
 - Private Land - Native Allotments

Federal Subsurface

- Federal Subsurface

Federal subsurface rights were also reserved to the US government under Native Allotments. Features too small for hatching symbol.

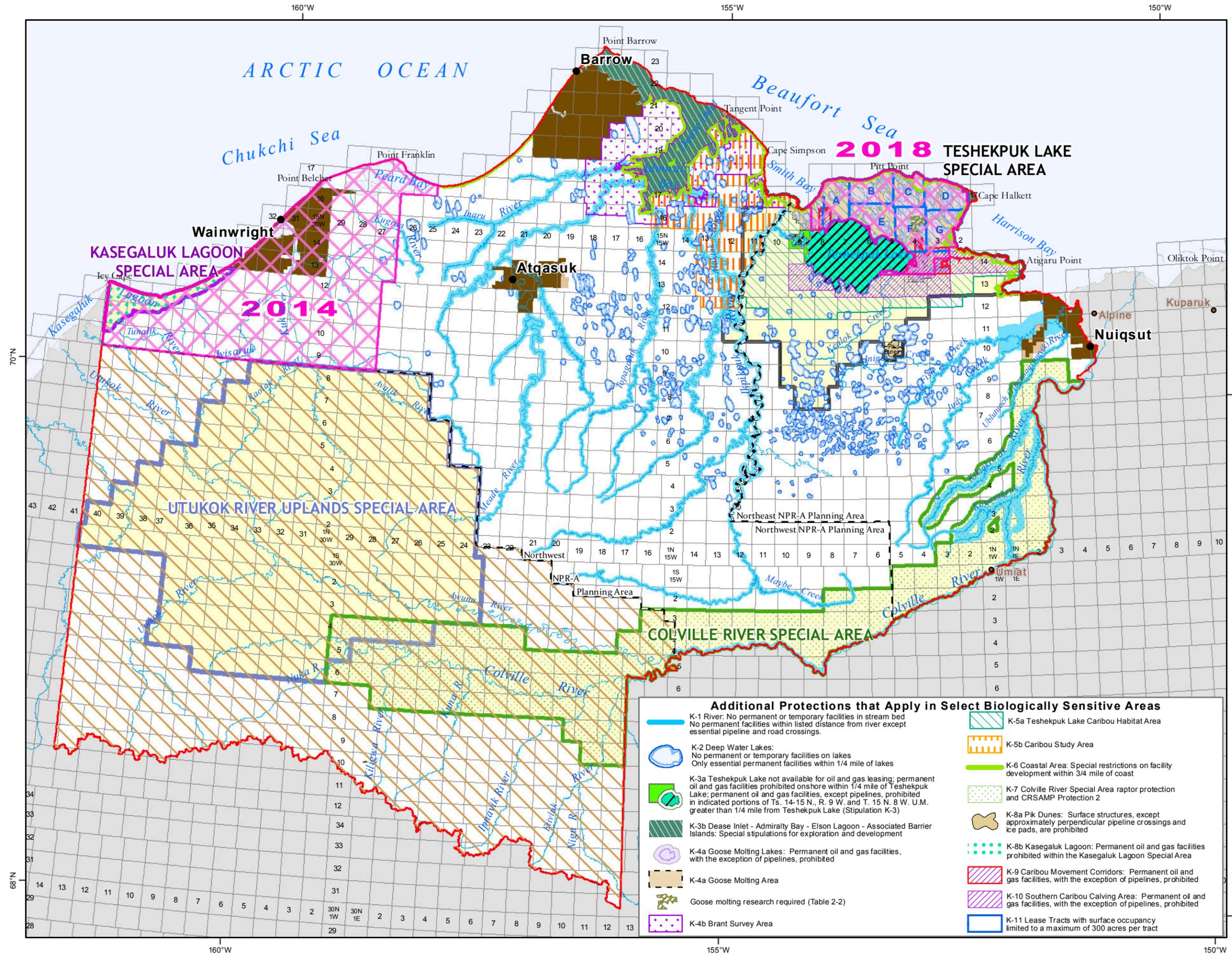
NPR-A Boundary



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Projection: Albers Conic Equal Area referencing NAD83

MAP 2-1 Alternative A



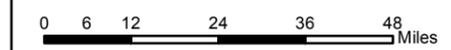
- Special Areas**
- Colville River
 - Teshekpuk Lake
 - Utukok River Uplands
 - Kasegaluk Lagoon

- Oil & Gas**
- Unavailable: 2008 ROD
 - Unavailable: unplanned
 - Deferred to stated year

All other BLM-managed subsurface would be available for leasing

Infrastructure in support of offshore development may be allowed, subject to future permitting decisions.

- Land Status**
- Native Patent or IC
 - Native Selected
 - NPR-A Boundary

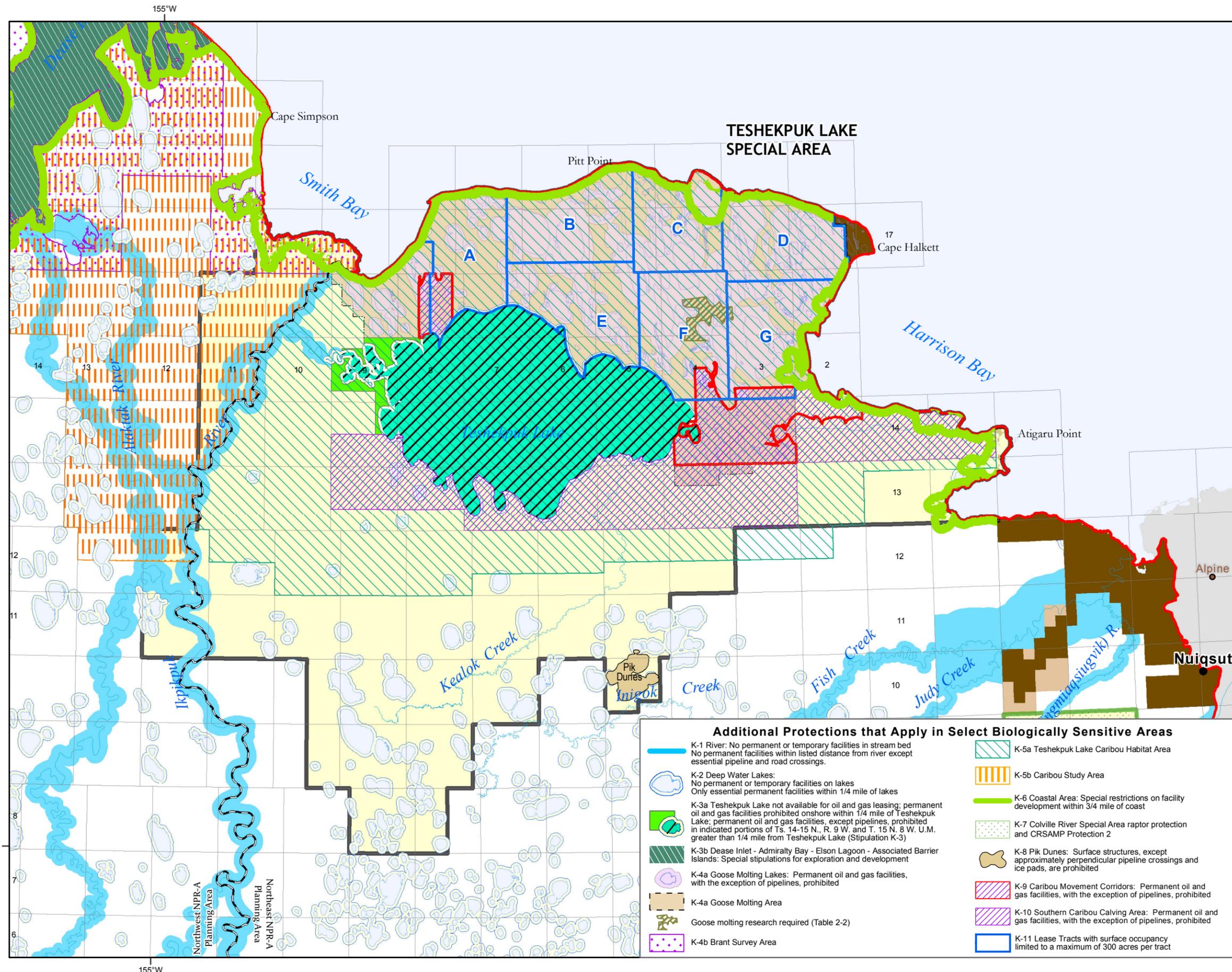


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Projection: Albers Conic Equal Area
referencing NAD83

- Additional Protections that Apply in Select Biologically Sensitive Areas**
- K-1 River: No permanent or temporary facilities in stream bed. No permanent facilities within listed distance from river except essential pipeline and road crossings.
 - K-2 Deep Water Lakes: No permanent or temporary facilities on lakes. Only essential permanent facilities within 1/4 mile of lakes.
 - K-3a Teshekpuk Lake not available for oil and gas leasing; permanent oil and gas facilities prohibited onshore within 1/4 mile of Teshekpuk Lake; permanent oil and gas facilities, except pipelines, prohibited in indicated portions of Ts. 14-15 N., R. 9 W. and T. 15 N. 8 W. U.M. greater than 1/4 mile from Teshekpuk Lake (Stipulation K-3)
 - K-3b Dease Inlet - Admiralty Bay - Elson Lagoon - Associated Barrier Islands: Special stipulations for exploration and development
 - K-4a Goose Molting Lakes: Permanent oil and gas facilities, with the exception of pipelines, prohibited
 - K-4a Goose Molting Area
 - K-4b Brant Survey Area
 - K-4b Brant Survey Area
 - K-5a Teshekpuk Lake Caribou Habitat Area
 - K-5b Caribou Study Area
 - K-6 Coastal Area: Special restrictions on facility development within 3/4 mile of coast
 - K-7 Colville River Special Area raptor protection and CRSAMP Protection 2
 - K-8a Plk Dunes: Surface structures, except approximately perpendicular pipeline crossings and ice pads, are prohibited
 - K-8b Kasegaluk Lagoon: Permanent oil and gas facilities prohibited within the Kasegaluk Lagoon Special Area
 - K-9 Caribou Movement Corridors: Permanent oil and gas facilities, with the exception of pipelines, prohibited
 - K-10 Southern Caribou Calving Area: Permanent oil and gas facilities, with the exception of pipelines, prohibited
 - K-11 Lease Tracts with surface occupancy limited to a maximum of 300 acres per tract

MAP 2-1T Alternative A



Special Areas

- Colville River
- Teshekpuk Lake

Oil & Gas

- Unavailable: 2008 ROD
- Deferred to 2018

All other BLM-managed subsurface would be available for leasing

Infrastructure in support of Chukchi Sea development may be allowed, subject to future permitting decisions.

Land Status

- Native Patent or IC
- Native Selected
- NPR-A Boundary



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referencing NAD83

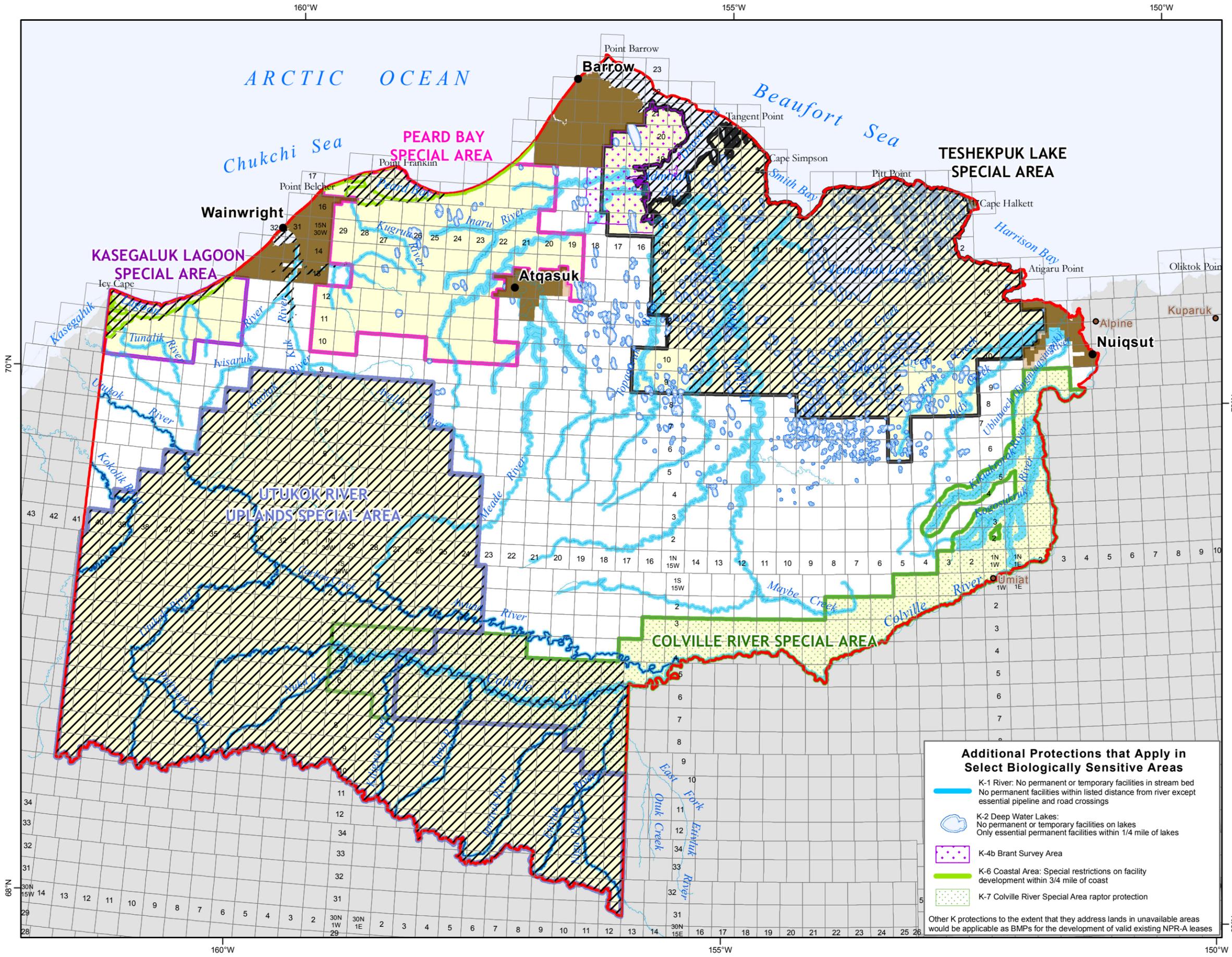


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Additional Protections that Apply in Select Biologically Sensitive Areas

- K-1 River: No permanent or temporary facilities in stream bed. No permanent facilities within listed distance from river except essential pipeline and road crossings.
- K-2 Deep Water Lakes: No permanent or temporary facilities on lakes. Only essential permanent facilities within 1/4 mile of lakes.
- K-3a Teshekpuk Lake not available for oil and gas leasing; permanent oil and gas facilities prohibited onshore within 1/4 mile of Teshekpuk Lake; permanent oil and gas facilities, except pipelines, prohibited in indicated portions of T. 14-15 N., R. 9 W. and T. 15 N., 8 W. U.M. greater than 1/4 mile from Teshekpuk Lake (Stipulation K-3)
- K-3b Dease Inlet - Admiralty Bay - Elson Lagoon - Associated Barrier Islands: Special stipulations for exploration and development
- K-4a Goose Molting Lakes: Permanent oil and gas facilities, with the exception of pipelines, prohibited
- K-4a Goose Molting Area
- Goose molting research required (Table 2-2)
- K-4b Brant Survey Area
- K-5a Teshekpuk Lake Caribou Habitat Area
- K-5b Caribou Study Area
- K-6 Coastal Area: Special restrictions on facility development within 3/4 mile of coast
- K-7 Colville River Special Area raptor protection and CRSAMP Protection 2
- K-8 Pik Dunes: Surface structures, except approximately perpendicular pipeline crossings and ice pads, are prohibited
- K-9 Caribou Movement Corridors: Permanent oil and gas facilities, with the exception of pipelines, prohibited
- K-10 Southern Caribou Calving Area: Permanent oil and gas facilities, with the exception of pipelines, prohibited
- K-11 Lease Tracts with surface occupancy limited to a maximum of 300 acres per tract

MAP 2-2 Alternative B



- Special Areas**
- Colville River
 - Teshekpuk Lake
 - Utukok River Uplands
 - Peard Bay
 - Kasegaluk Lagoon

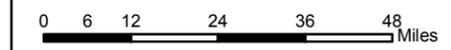
- Wild & Scenic Rivers**
- Wild & Scenic Rivers

Oil & Gas

Unavailable and no exploratory drilling or non-subsistence permanent infrastructure (including for potential Chukchi Sea development), except for valid existing NPR-A leases and Wainwright Inlet/ Kuk River subsurface pipeline; unavailable areas include the coastal waterbodies' islands and 1-mile inland from Kasegaluk Lagoon and Peard Bay

All other BLM-managed subsurface would be available for leasing, but the leasing deferral in Northwestern NPR-A until 2014 as depicted in Alternative A would be honored.

- Land Status**
- Native Patent or IC
 - Native Selected
 - Lakes
 - NPR-A Boundary



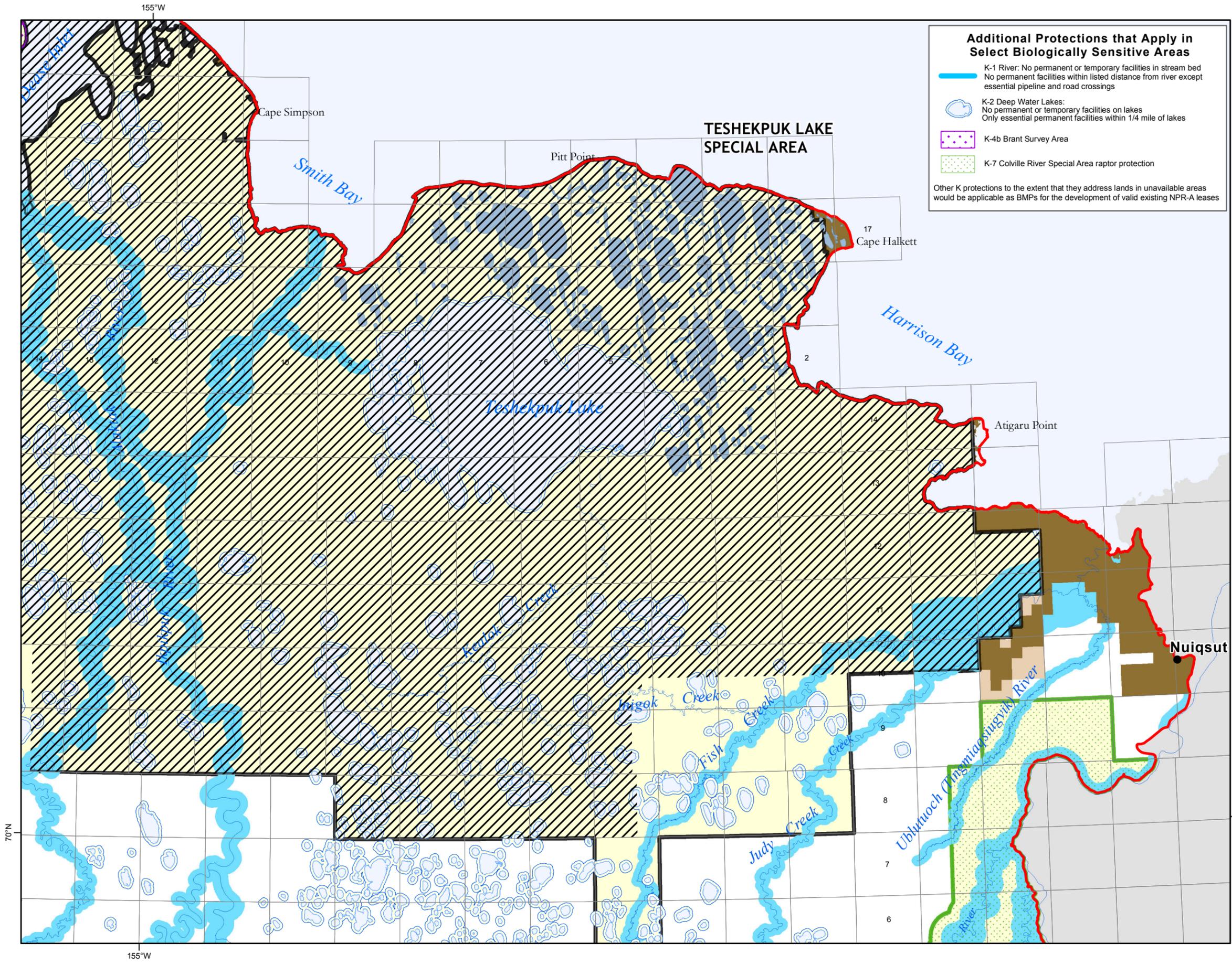
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Projection: Albers Conic Equal Area referencing NAD83



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- Additional Protections that Apply in Select Biologically Sensitive Areas**
- K-1 River: No permanent or temporary facilities in stream bed
No permanent facilities within listed distance from river except essential pipeline and road crossings
 - K-2 Deep Water Lakes: No permanent or temporary facilities on lakes
Only essential permanent facilities within 1/4 mile of lakes
 - K-4b Brant Survey Area
 - K-6 Coastal Area: Special restrictions on facility development within 3/4 mile of coast
 - K-7 Colville River Special Area raptor protection
- Other K protections to the extent that they address lands in unavailable areas would be applicable as BMPs for the development of valid existing NPR-A leases



Additional Protections that Apply in Select Biologically Sensitive Areas

- K-1 River: No permanent or temporary facilities in stream bed. No permanent facilities within listed distance from river except essential pipeline and road crossings.
- K-2 Deep Water Lakes: No permanent or temporary facilities on lakes. Only essential permanent facilities within 1/4 mile of lakes.
- K-4b Brant Survey Area
- K-7 Colville River Special Area raptor protection

Other K protections to the extent that they address lands in unavailable areas would be applicable as BMPs for the development of valid existing NPR-A leases

MAP 2-2T
Alternative B

Special Areas

- Colville River
- Teshekpuk Lake

Oil & Gas

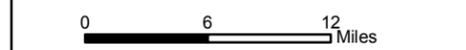
Unavailable

and no exploratory drilling or non-subsistence permanent infrastructure (including for potential Chukchi Sea development), except for valid existing NPR-A leases and Wainwright Inlet/Kuk River subsurface pipeline; unavailable areas include the coastal waterbodies' islands and 1-mile inland from Kasagaluk Lagoon and Peard Bay

All other BLM-managed subsurface would be available for leasing, but the leasing deferral in Northwestern NPR-A until 2014 as depicted in Alternative A would be honored.

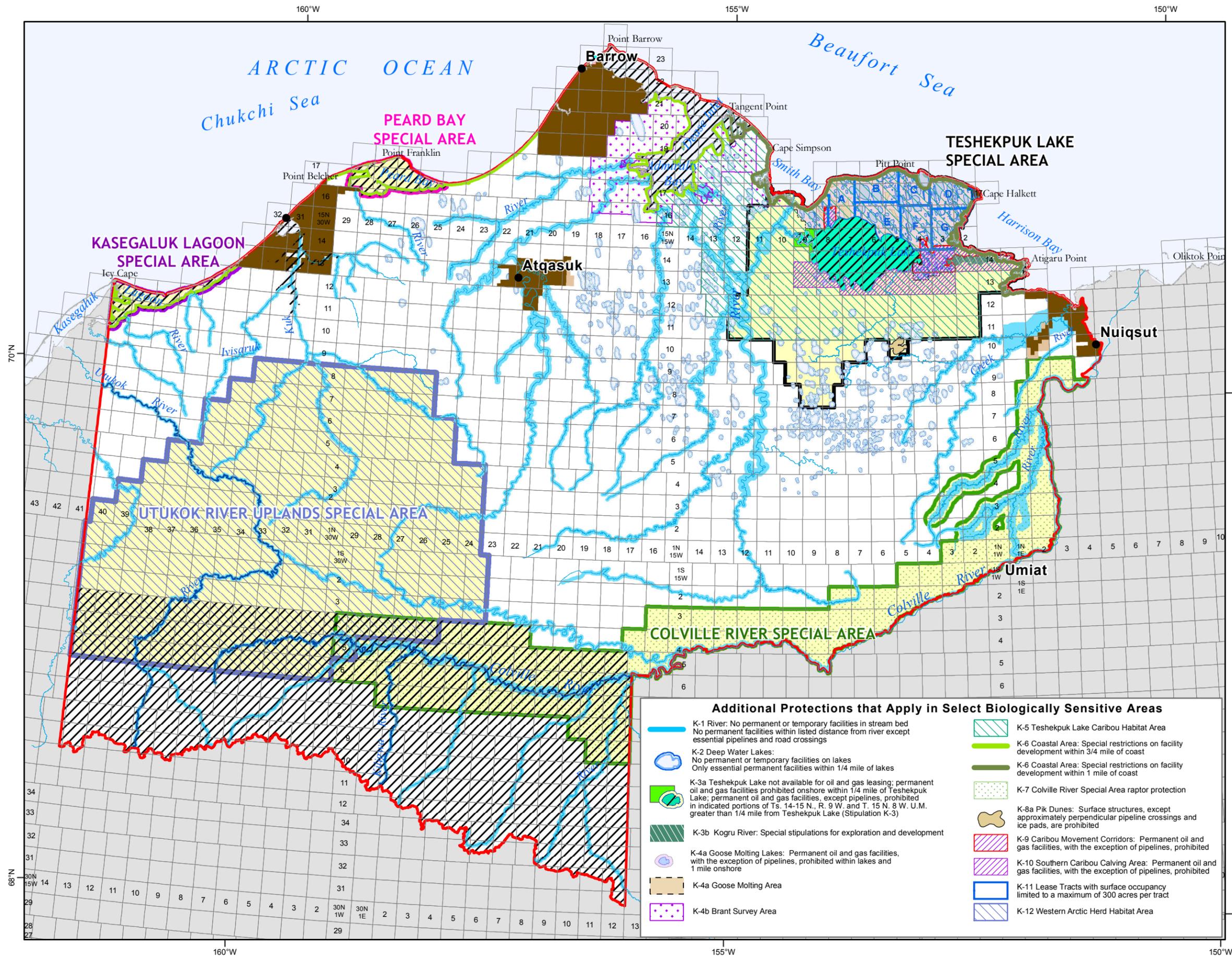
Land Status

- Native Patent or IC
- Native Selected
- Lakes
- NPR-A Boundary



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Projection: Albers Conic Equal Area referencing NAD83



MAP 2-3 Alternative C

- Special Areas**
- Colville River
 - Teshekpuk Lake
 - Utukok River Uplands
 - Peard Bay
 - Kasegaluk Lagoon

- Wild & Scenic Rivers**
- Wild & Scenic Rivers

Oil & Gas

Unavailable and no exploratory drilling or non-subsistence permanent infrastructure (including for potential Chukchi Sea development), except for valid existing NPR-A leases and Wainwright Inlet/ Kuk River subsurface pipeline; unavailable areas include the coastal waterbodies' islands and 1-mile inland from Kasegaluk Lagoon and Peard Bay

All other BLM-managed subsurface would be available for leasing, but the leasing deferrals as depicted in Alternative A would be honored.

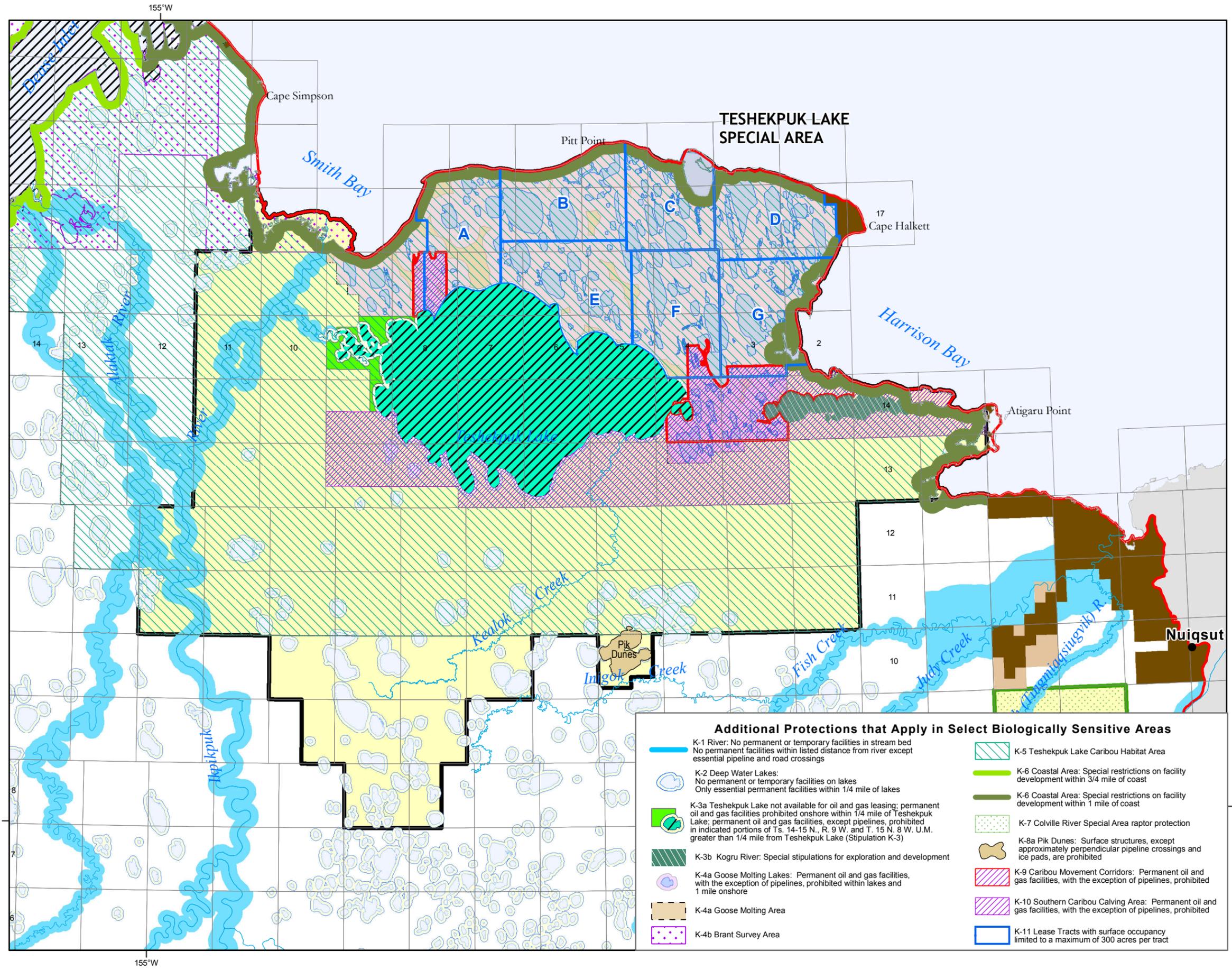
- Land Status**
- Native Patent or IC
 - Native Selected
 - NPR-A Boundary



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- Additional Protections that Apply in Select Biologically Sensitive Areas**
- K-1 River: No permanent or temporary facilities in stream bed. No permanent facilities within listed distance from river except essential pipelines and road crossings
 - K-2 Deep Water Lakes: No permanent or temporary facilities on lakes. Only essential permanent facilities within 1/4 mile of lakes
 - K-3a Teshekpuk Lake not available for oil and gas leasing; permanent oil and gas facilities prohibited onshore within 1/4 mile of Teshekpuk Lake; permanent oil and gas facilities, except pipelines, prohibited in indicated portions of T. 14-15 N., R. 9 W. and T. 15 N., 8 W., U.M. greater than 1/4 mile from Teshekpuk Lake (Stipulation K-3)
 - K-3b Kogru River: Special stipulations for exploration and development
 - K-4a Goose Molting Lakes: Permanent oil and gas facilities, with the exception of pipelines, prohibited within lakes and 1 mile onshore
 - K-4a Goose Molting Area
 - K-4b Brant Survey Area
 - K-5 Teshekpuk Lake Caribou Habitat Area
 - K-6 Coastal Area: Special restrictions on facility development within 3/4 mile of coast
 - K-6 Coastal Area: Special restrictions on facility development within 1 mile of coast
 - K-7 Colville River Special Area raptor protection
 - K-8a Pk Dunes: Surface structures, except approximately perpendicular pipeline crossings and ice pads, are prohibited
 - K-9 Caribou Movement Corridors: Permanent oil and gas facilities, with the exception of pipelines, prohibited
 - K-10 Southern Caribou Calving Area: Permanent oil and gas facilities, with the exception of pipelines, prohibited
 - K-11 Lease Tracts with surface occupancy limited to a maximum of 300 acres per tract
 - K-12 Western Arctic Herd Habitat Area

MAP 2-3T Alternative C



Special Areas

- Colville River
- Teshekpuk Lake

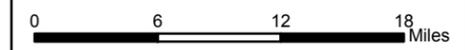
Oil & Gas

Unavailable and no exploratory drilling or non-subsistence permanent infrastructure (including for potential Chukchi Sea development), except for valid existing NPR-A leases and Wainwright Inlet/Kuk River subsurface pipeline; unavailable areas include the coastal waterbodies' islands and 1-mile inland from Kasegaluk Lagoon and Peard Bay

All other BLM-managed subsurface would be available for leasing, but the leasing deferrals as depicted in Alternative A would be honored.

Land Status

- Native Patent or IC
- Native Selected
- NPR-A Boundary



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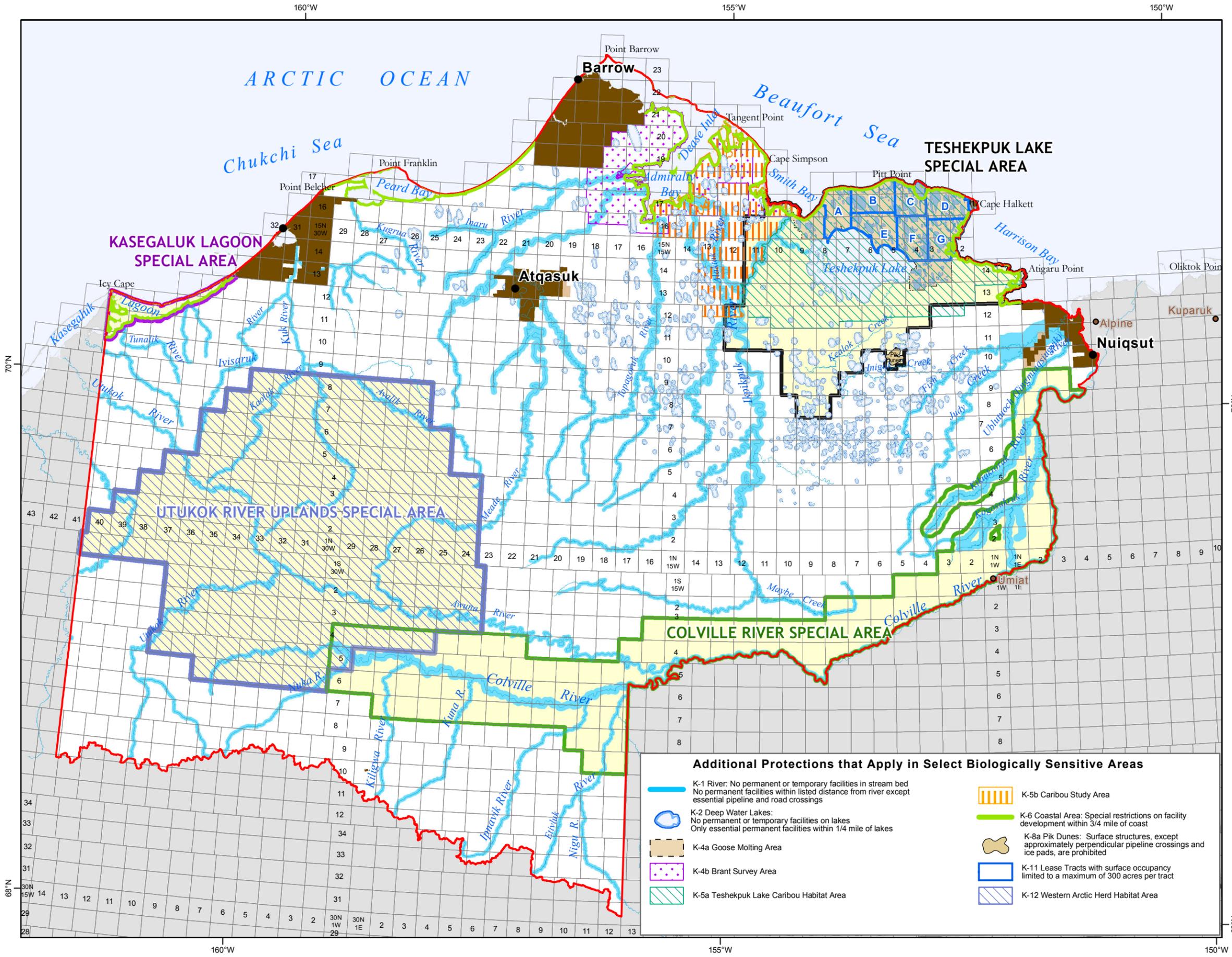
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Additional Protections that Apply in Select Biologically Sensitive Areas

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- K-2 Deep Water Lakes:** No permanent or temporary facilities on lakes. Only essential permanent facilities within 1/4 mile of lakes.
- K-3a Teshekpuk Lake:** Not available for oil and gas leasing; permanent oil and gas facilities prohibited onshore within 1/4 mile of Teshekpuk Lake; permanent oil and gas facilities, except pipelines, prohibited in indicated portions of T. 14-15 N., R. 9 W. and T. 15 N., 8 W. U.M. greater than 1/4 mile from Teshekpuk Lake (Stipulation K-3).
- K-3b Kogru River:** Special stipulations for exploration and development.
- K-4a Goose Molting Lakes:** Permanent oil and gas facilities, with the exception of pipelines, prohibited within lakes and 1 mile onshore.
- K-4a Goose Molting Area**
- K-4b Brant Survey Area**
- K-5 Teshekpuk Lake Caribou Habitat Area**
- K-6 Coastal Area:** Special restrictions on facility development within 3/4 mile of coast.
- K-6 Coastal Area:** Special restrictions on facility development within 1 mile of coast.
- K-7 Colville River Special Area raptor protection**
- K-8a Pik Dunes:** Surface structures, except approximately perpendicular pipeline crossings and ice pads, are prohibited.
- K-9 Caribou Movement Corridors:** Permanent oil and gas facilities, with the exception of pipelines, prohibited.
- K-10 Southern Caribou Calving Area:** Permanent oil and gas facilities, with the exception of pipelines, prohibited.
- K-11 Lease Tracts:** with surface occupancy limited to a maximum of 300 acres per tract.

MAP 2-4 Alternative D



Special Areas

- Colville River
- Teshekpuk Lake
- Utukok River Uplands
- Kasegaluk Lagoon

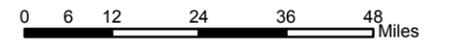
Oil & Gas

All BLM-managed subsurface would be available for leasing, but the leasing deferrals as depicted in Alternative A would be honored.

Infrastructure in support of Chukchi Sea development may be allowed, subject to future permitting decisions.

Land Status

- Native Patent or IC
- Native Selected
- Lakes
- NPR-A Boundary



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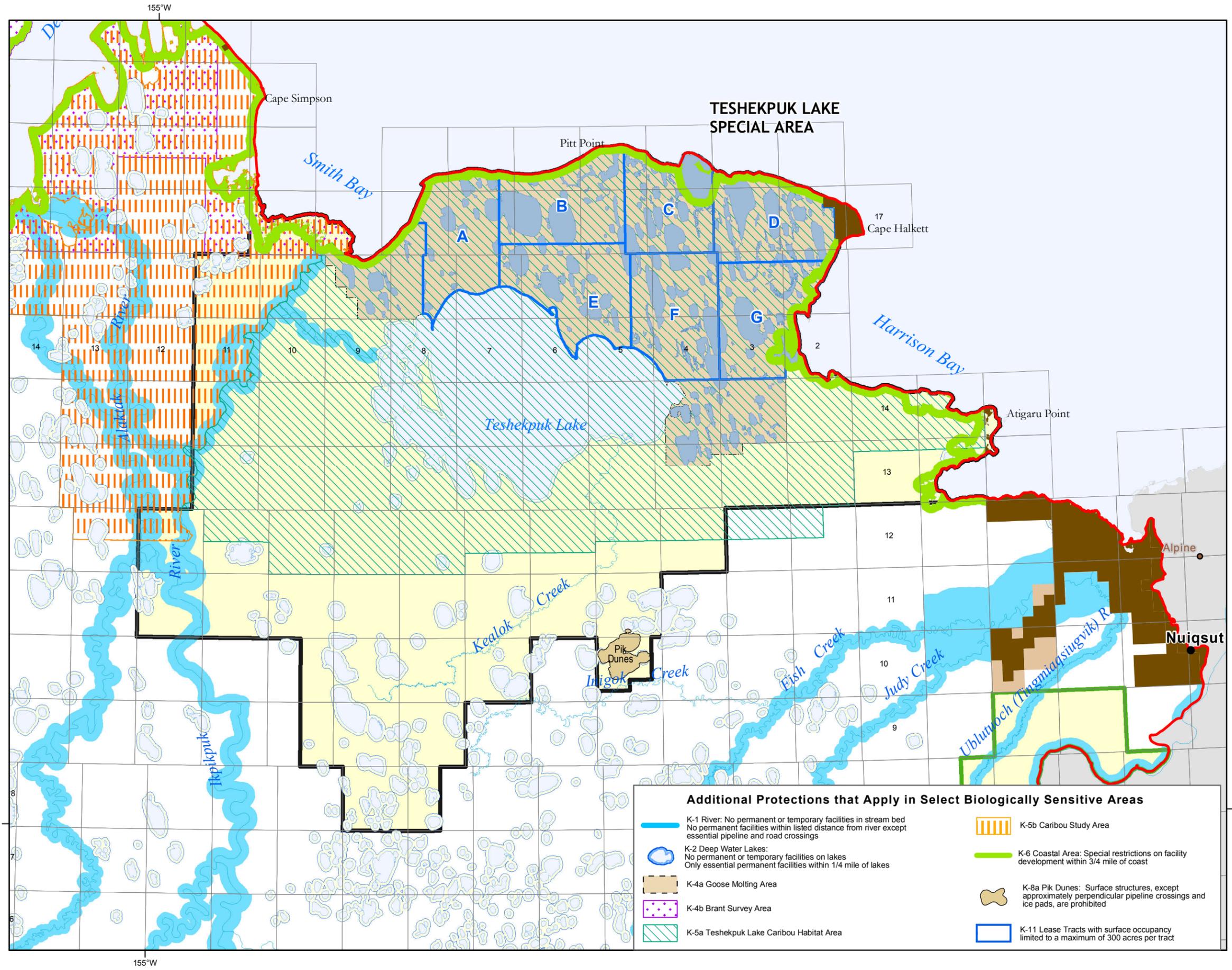


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- K-5b Caribou Study Area
- K-6 Coastal Area: Special restrictions on facility development within 3/4 mile of coast
- K-8a Pik Dunes: Surface structures, except approximately perpendicular pipeline crossings and ice pads, are prohibited
- K-11 Lease Tracts with surface occupancy limited to a maximum of 300 acres per tract
- K-12 Western Arctic Herd Habitat Area

MAP 2-4 T Alternative D



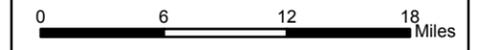
- Special Areas**
- Colville River
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 - Kasegaluk Lagoon

Oil & Gas

All BLM-managed subsurface would be available for leasing, but the leasing deferrals as depicted in Alternative A would be honored.

Infrastructure in support of Chukchi Sea development may be allowed, subject to future permitting decisions.

- Land Status**
- Native Patent or IC
 - Native Selected
 - Lakes
 - NPR-A Boundary



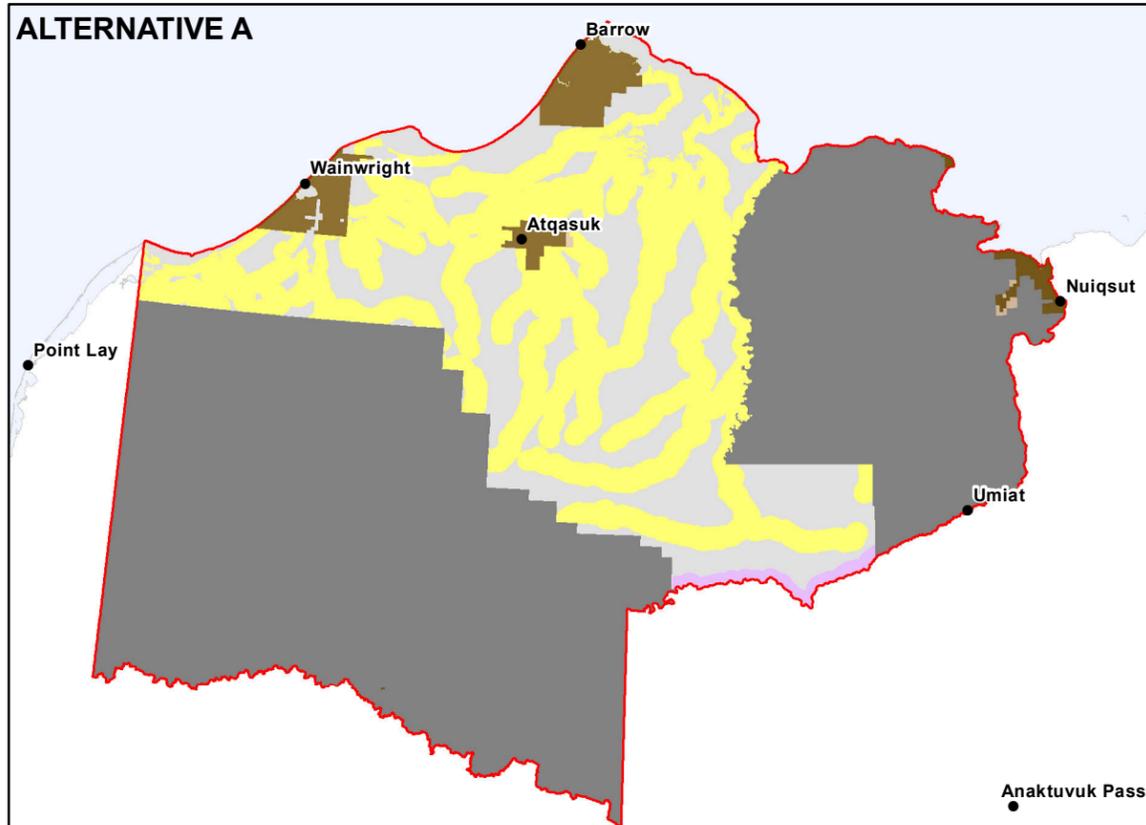
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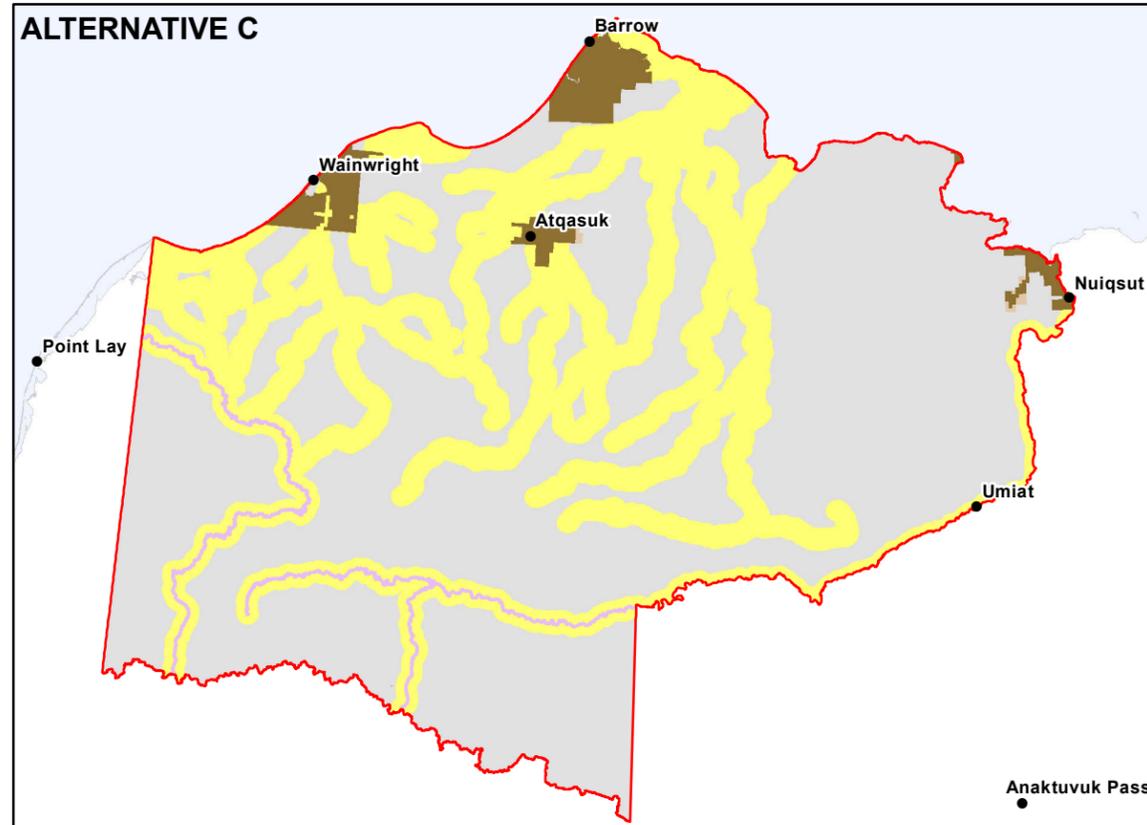
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- Additional Protections that Apply in Select Biologically Sensitive Areas**
- K-1 River: No permanent or temporary facilities in stream bed
No permanent facilities within listed distance from river except essential pipeline and road crossings
 - K-2 Deep Water Lakes: No permanent or temporary facilities on lakes
Only essential permanent facilities within 1/4 mile of lakes
 - K-4a Goose Molting Area
 - K-4b Brant Survey Area
 - K-5a Teshekpuk Lake Caribou Habitat Area
 - K-5b Caribou Study Area
 - K-6 Coastal Area: Special restrictions on facility development within 3/4 mile of coast
 - K-8a Pik Dunes: Surface structures, except approximately perpendicular pipeline crossings and ice pads, are prohibited
 - K-11 Lease Tracts with surface occupancy limited to a maximum of 300 acres per tract

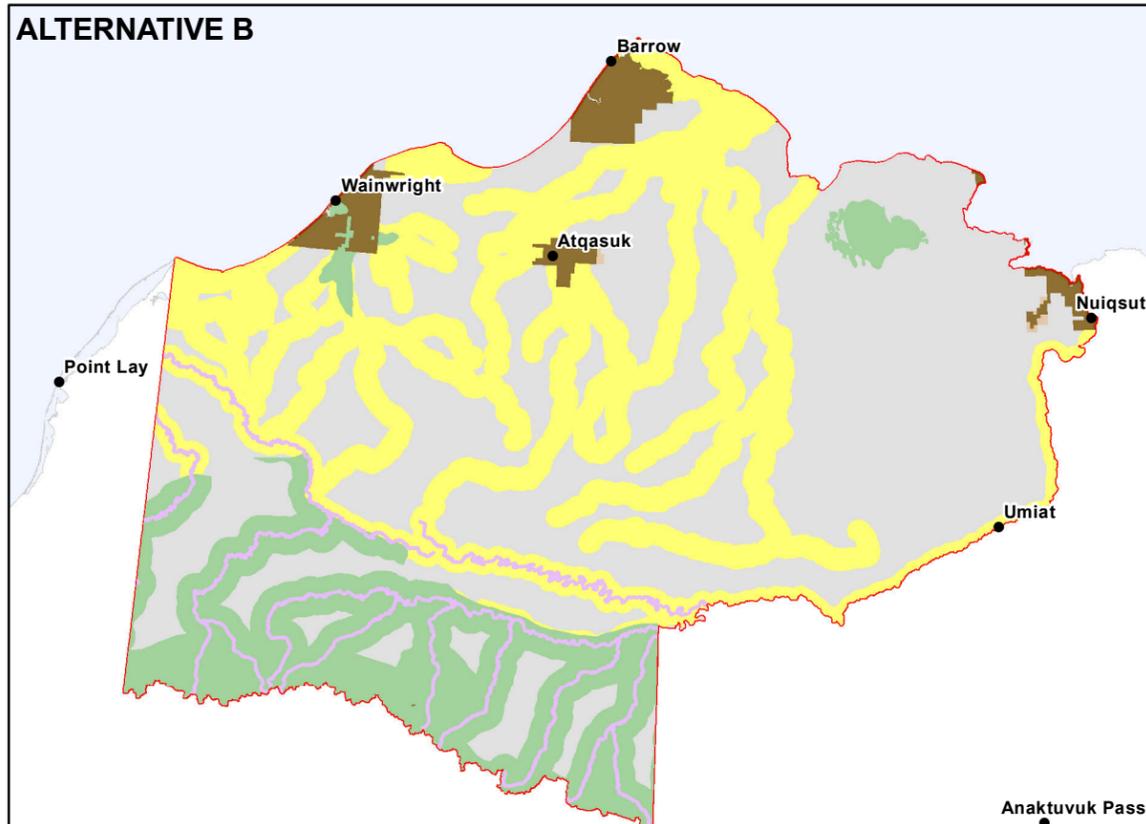
ALTERNATIVE A



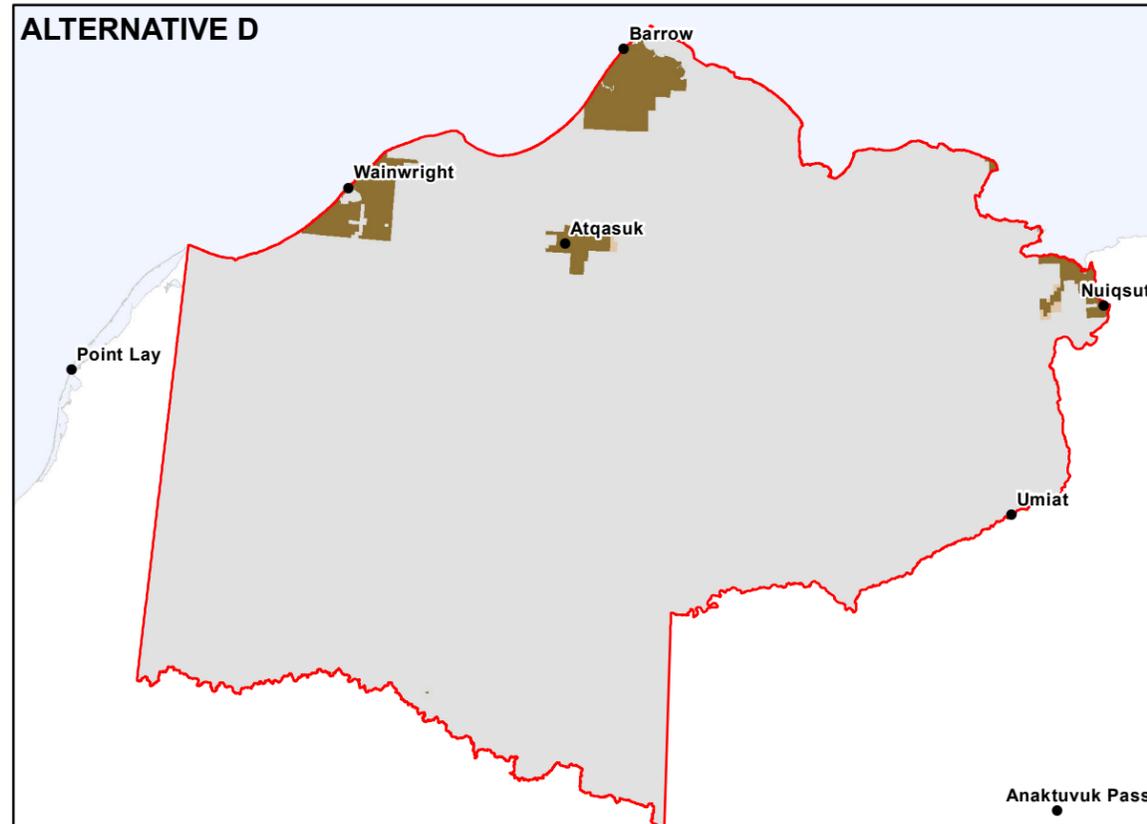
ALTERNATIVE C



ALTERNATIVE B



ALTERNATIVE D



Map 2 - 5
Visual Resource Management (VRM) - Management Classes

Source: BLM, 2011

VRM Management Class

- Class I
- Class II
- Class III
- Class IV
- No Management Classes Delineated

Land Status

- Native Patent or IC
- Native Selected

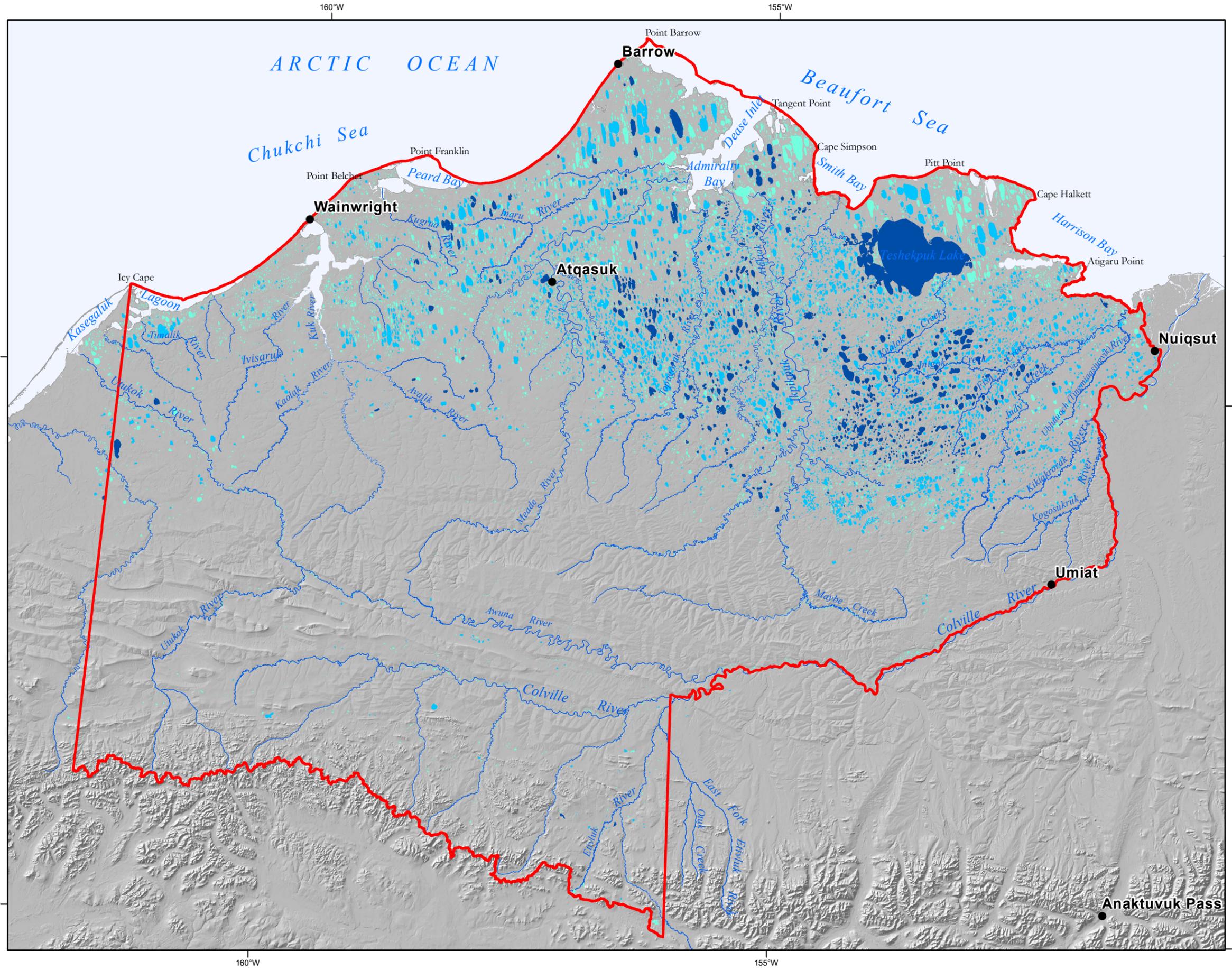
NPR-A Boundary



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Projection: Albers Conic Equal Area referencing NAD83

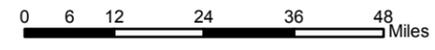
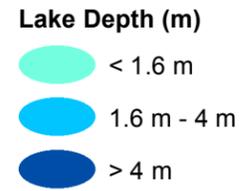




Map 3.2.10-1

Lake Depth

Sources: Mellor, 1985



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Projection: Albers Conic Equal Area referencing NAD83



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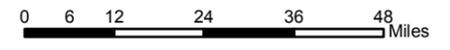
**Map 3.2.11-1
Existing Hazards**

Source:

Existing Hazard Locations

- Landfill
- Currently Used
- Formerly Used Defense Site
- Privately Owned
- Reserve Pit

 NPRA Boundary

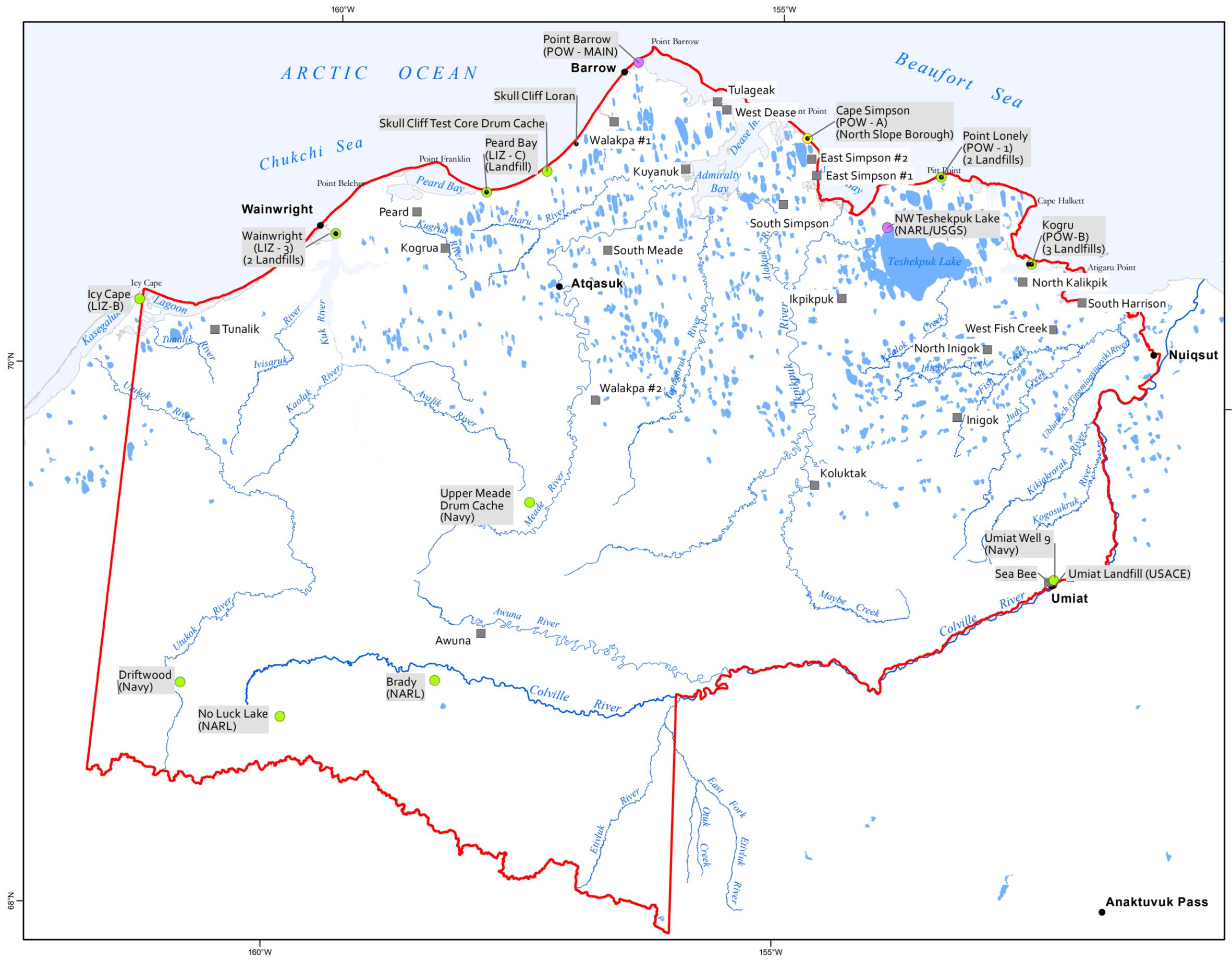


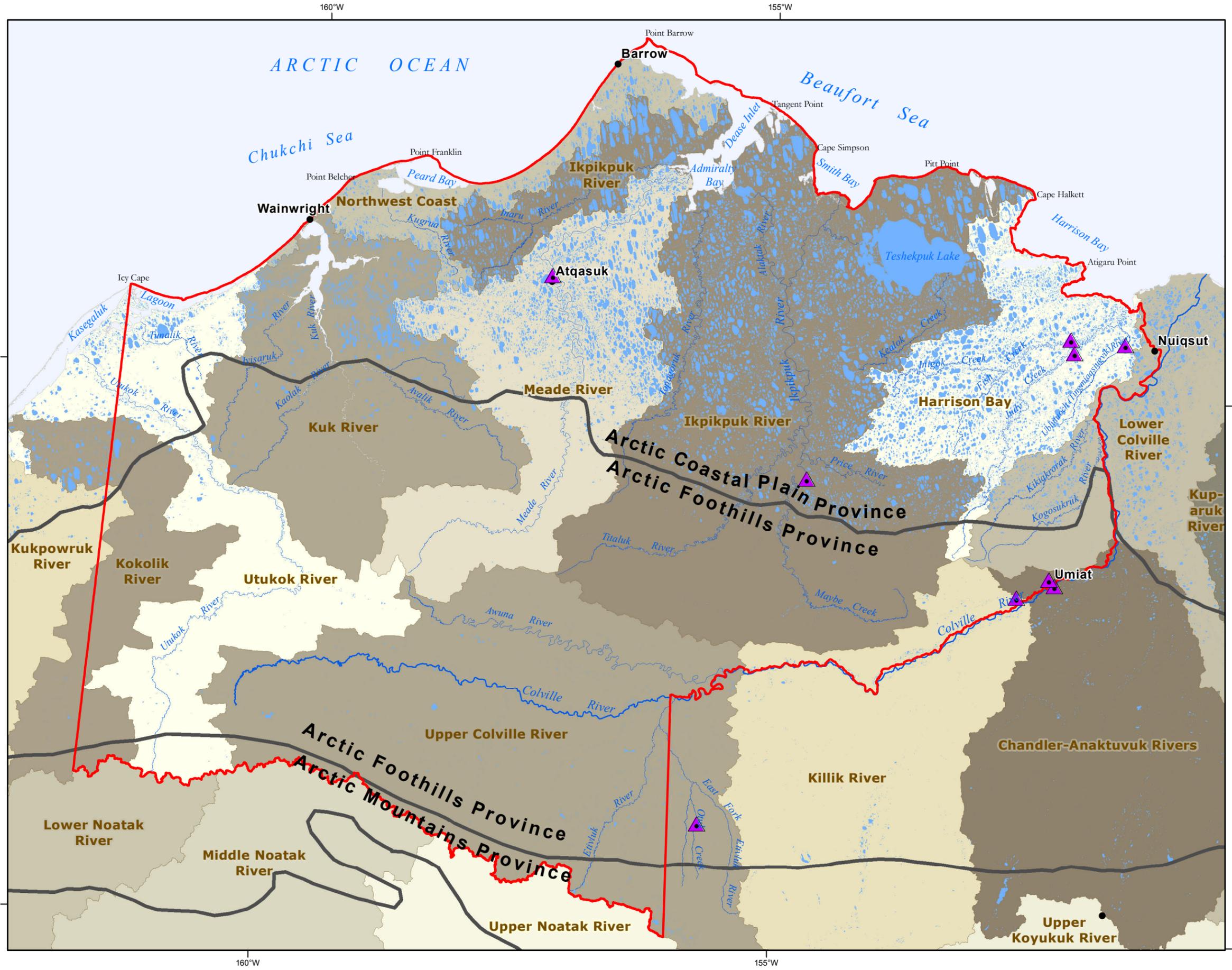
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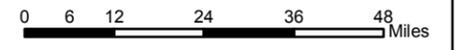




**Map 3.2.4-1
Major Rivers,
Hydrologic Units
and Physiographic
Provinces**

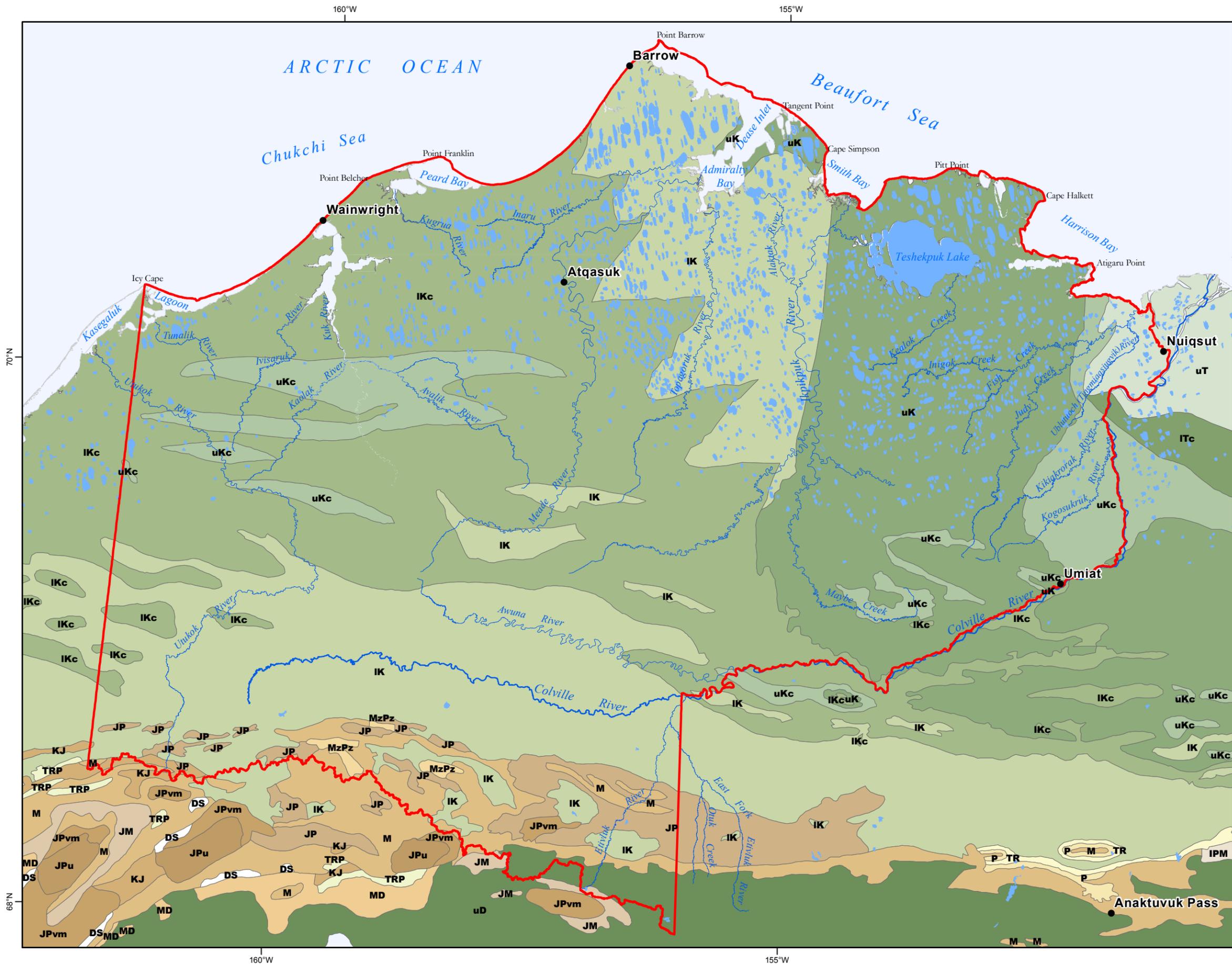
Sources: Wahrhaftig, 1965
USGS- NHD, 2010
USDOI-BLM & USGS, 2010

-  Stream Gauges
-  Physiographic Provinces
-  Watershed Boundary
4th level HUC (8-digit)
-  NPR-A Boundary



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Projection: Albers Conic Equal Area
referencing NAD83

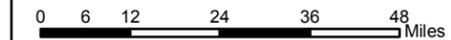


Map 3.2.5-1

Bedrock Geology

Sources: Beikman, 1980

 **Bedrock Geology Unit**

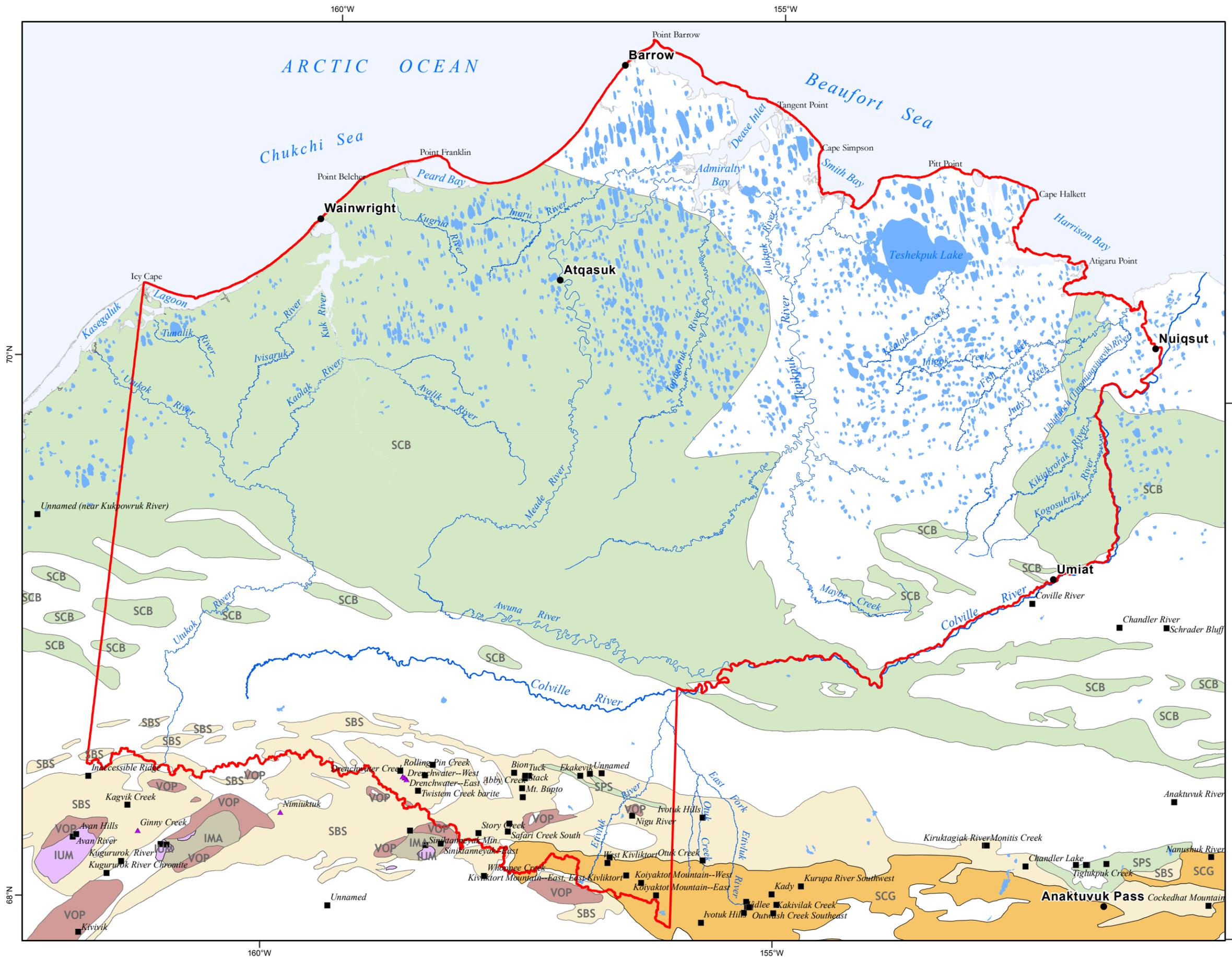


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Projection: Albers Conic Equal Area
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Map 3.2.5-2

Mineral Terranes & Alaska Resource Data File (ARDF) Locations

Sources: ARDF- USGS, 2008.
 Terranes- Resource Data Inc.,
 Alaska Earth Science, and
 US Bureau of Mines.

Alaska Resources Data File

- Occurrence
- ▲ Prospect
- Mineral Terrane
- NPR-A Boundary

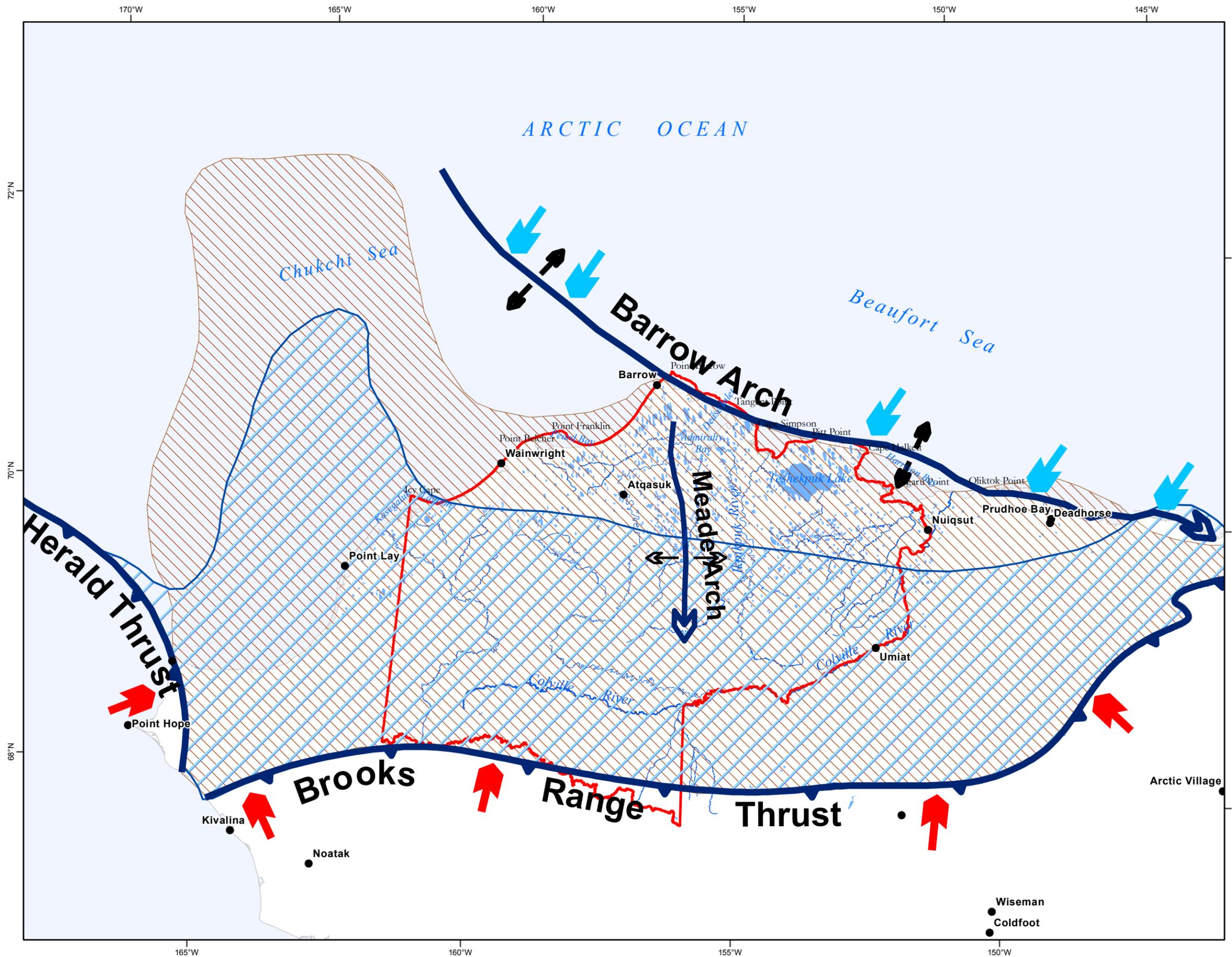


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Projection: Albers Conic Equal Area
 referencing NAD83

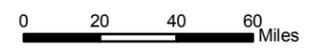


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Map 3.2.6-1
Major Sedimentary Basins
and Tectonic Features

- Sources:
- Arctic Alaska Basin (Ellesmerian Strata, Devonian-Jurassic)
 - Colville Basin [>3 km] (Brookian Strata, Cretaceous)
 - Geologic Arch
 - Thrust Fault System
 - Arctic Alaska Basin Sediment Supply
 - Colville Basin Sediment Supply
 - NPRA Boundary

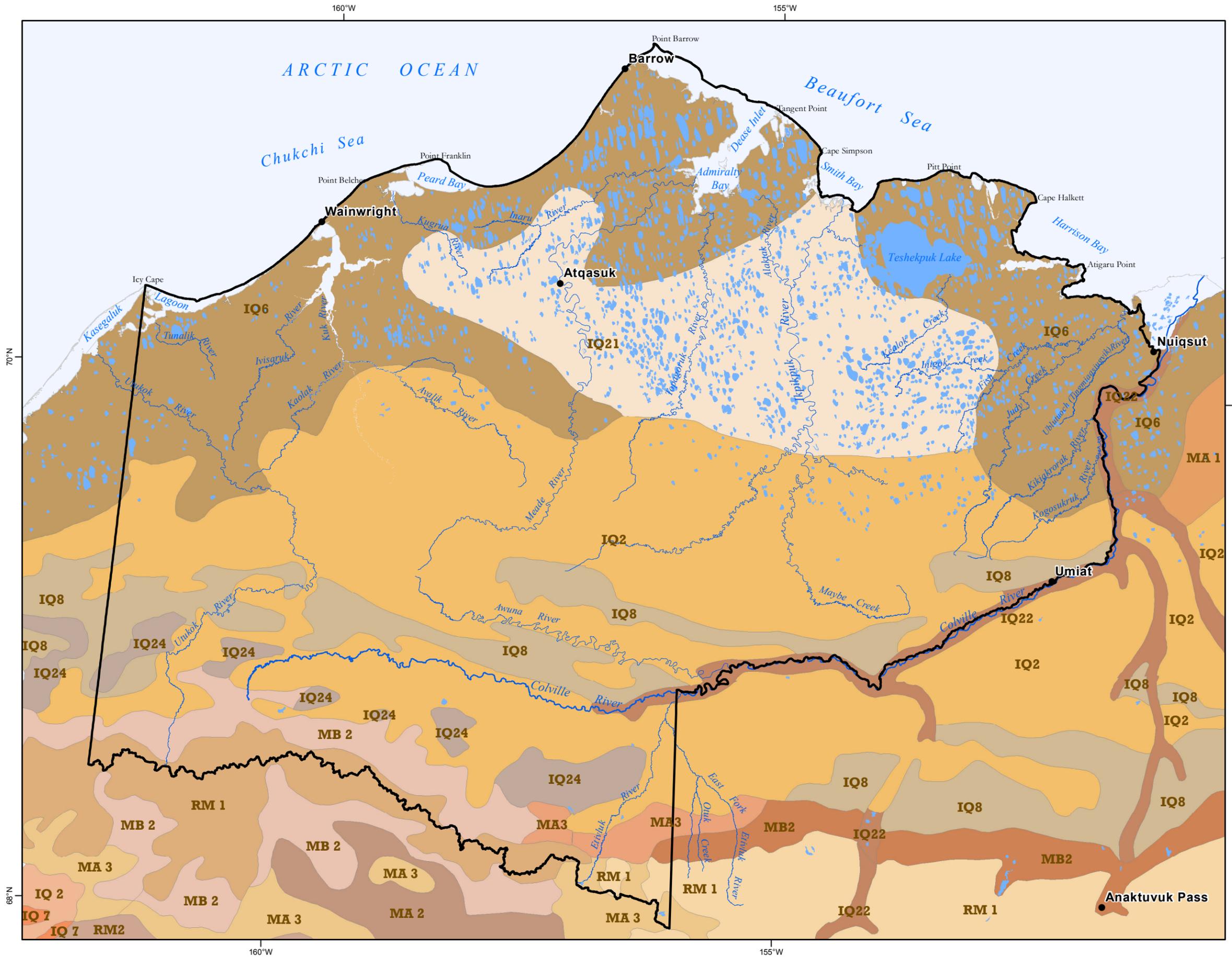


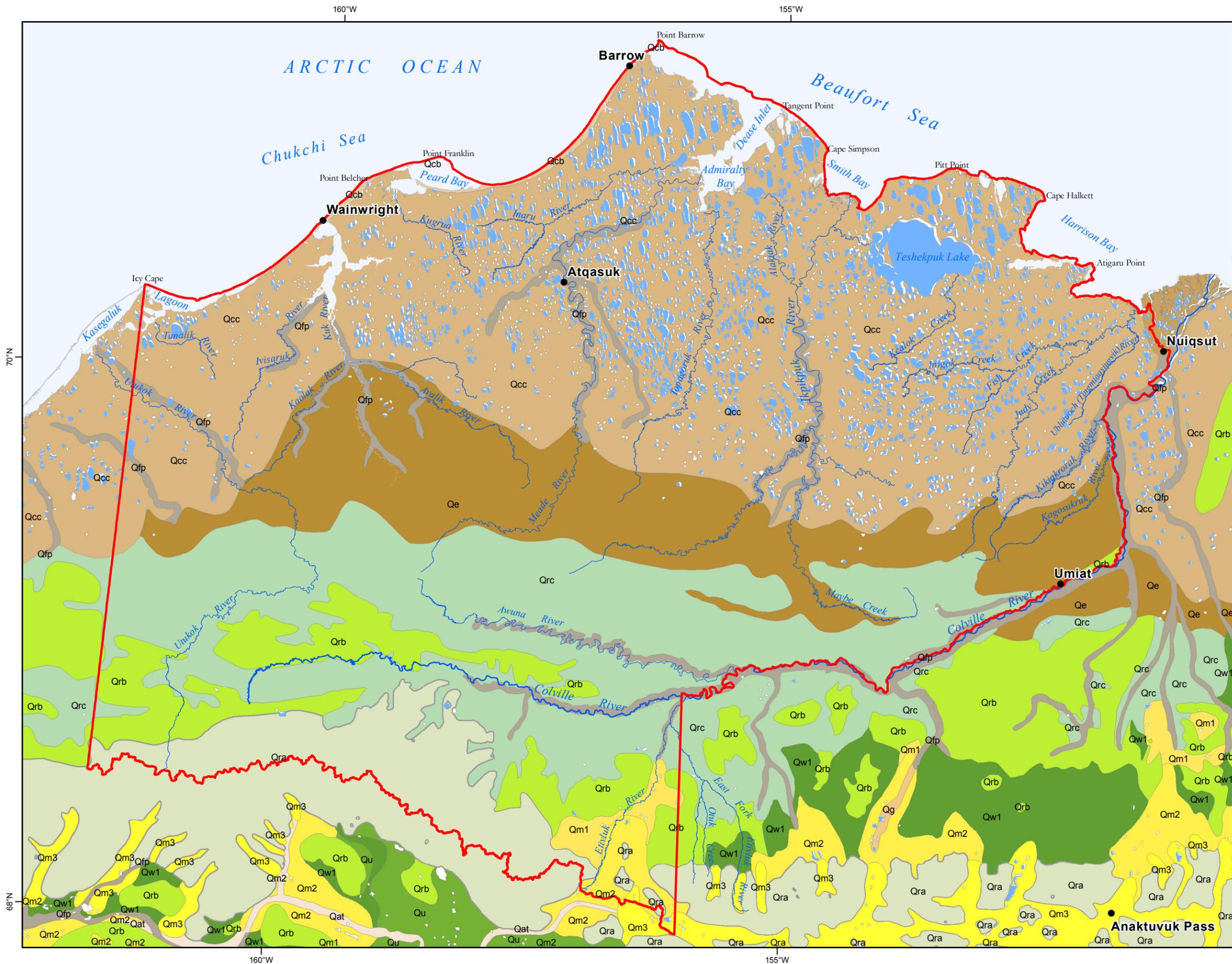
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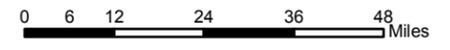




Map 3.2.9-1
Surficial Geology

Sources: Karlstrom 1964

-  Surficial Geology Unit
-  NPR-A Boundary

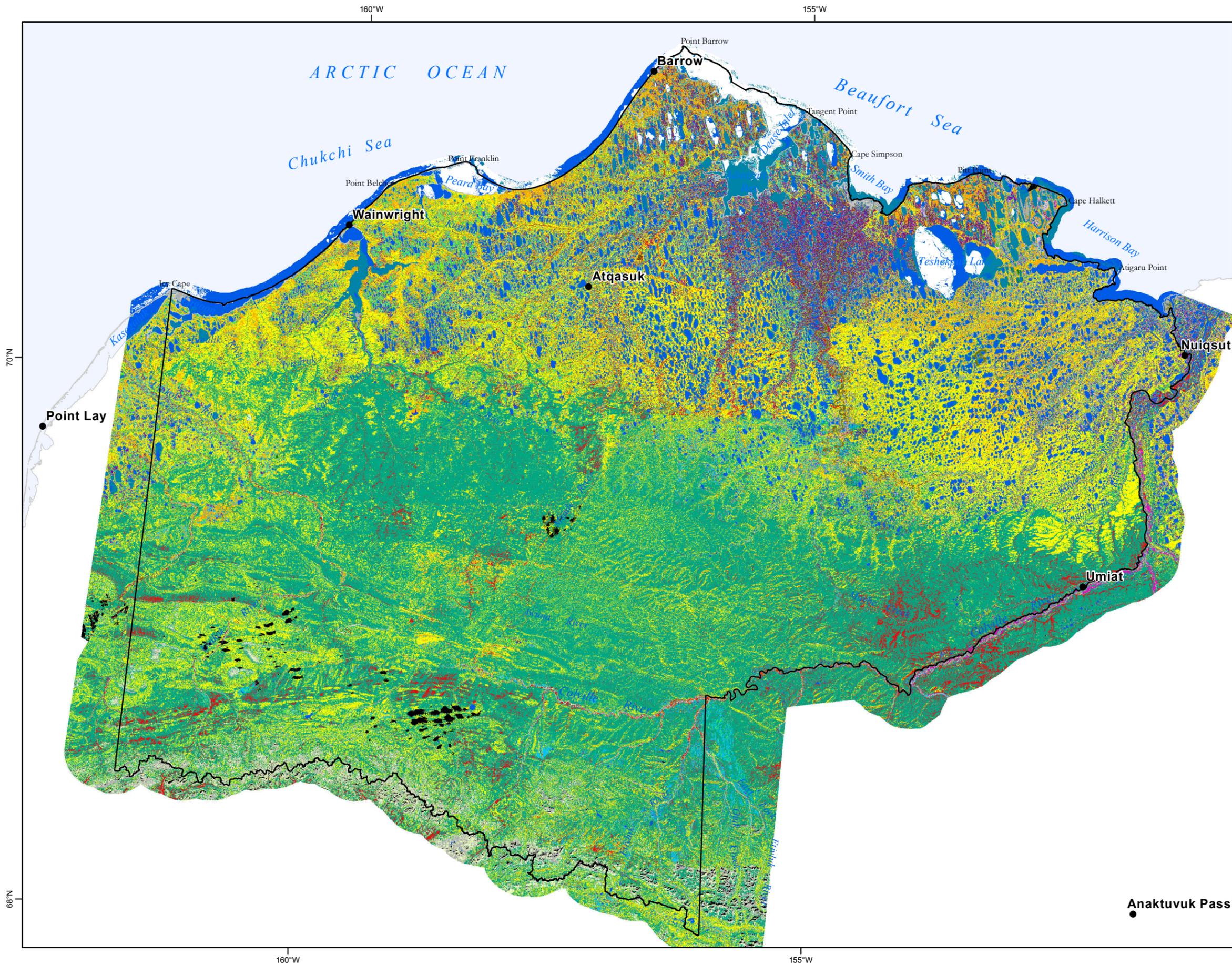


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Projection: Albers Conic Equal Area
referencing NAD83



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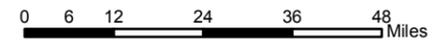
**Map 3.3.1-1
Vegetation**

Source: USDOI BLM - 2002

VEGETATION OVERVIEW
From National Petroleum Reserve
- Alaska Earth Cover Classification

- Clear Water
- Turbid Water
- Ice
- Arctophila fulva*
- Carex aquatilis*
- Flooded Tundra - LCP
- Flooded Tundra - Nonpattern
- Wet Tundra
- Sedge/Grass Meadow
- Tussock Tundra
- Moss/Lichen
- Dwarf Shrub
- Low Shrub
- Tall Shrub
- Sparsely Vegetated
- Dunes/Dry Sand
- Barren Ground Other
- Clouds, Shadows, Bad Pixels

NPR Boundary

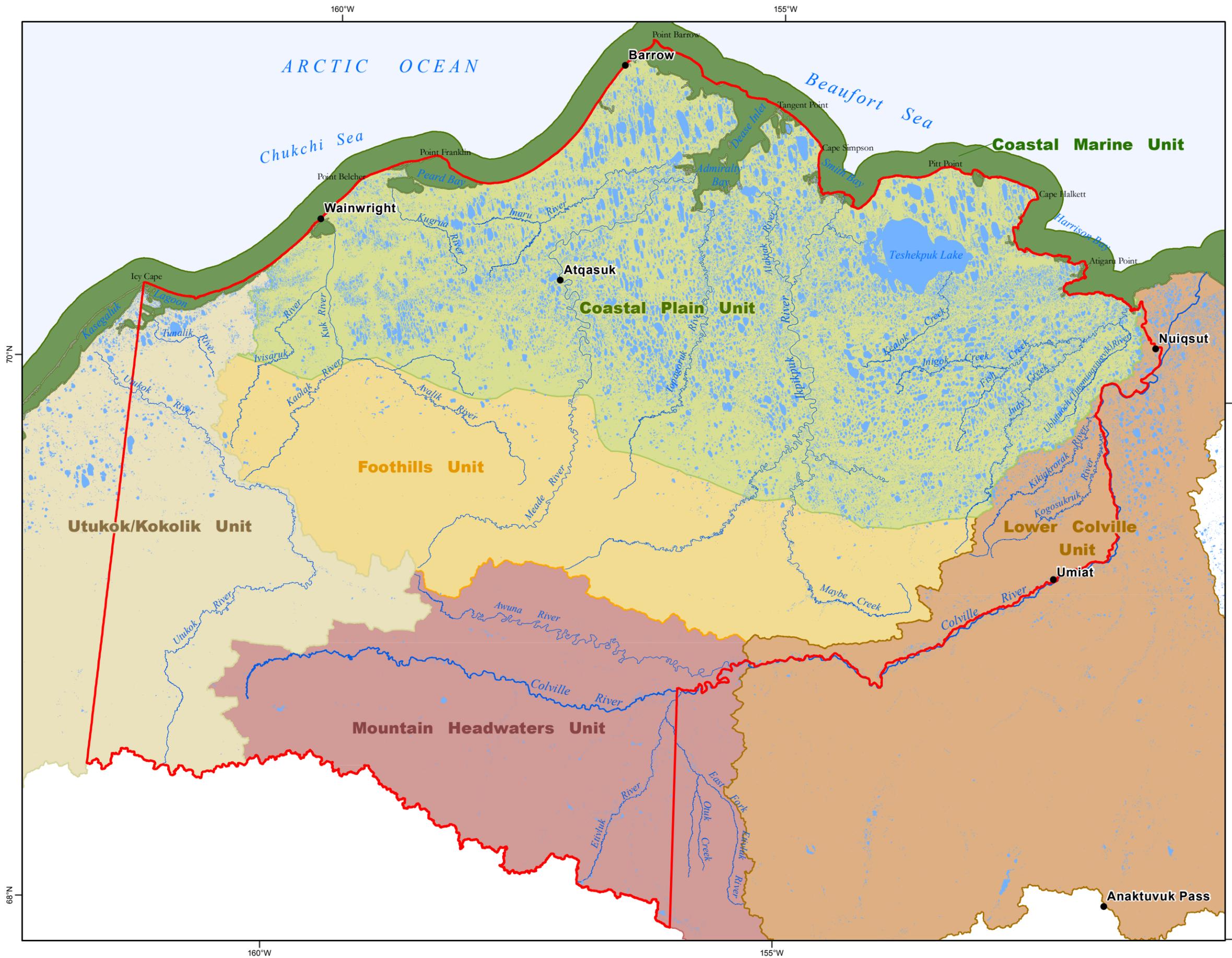


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referencing NAD83



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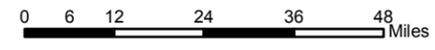


Map 3.3.4-1

Fisheries Habitat Units

Sources:

-  Fisheries Habitat Unit

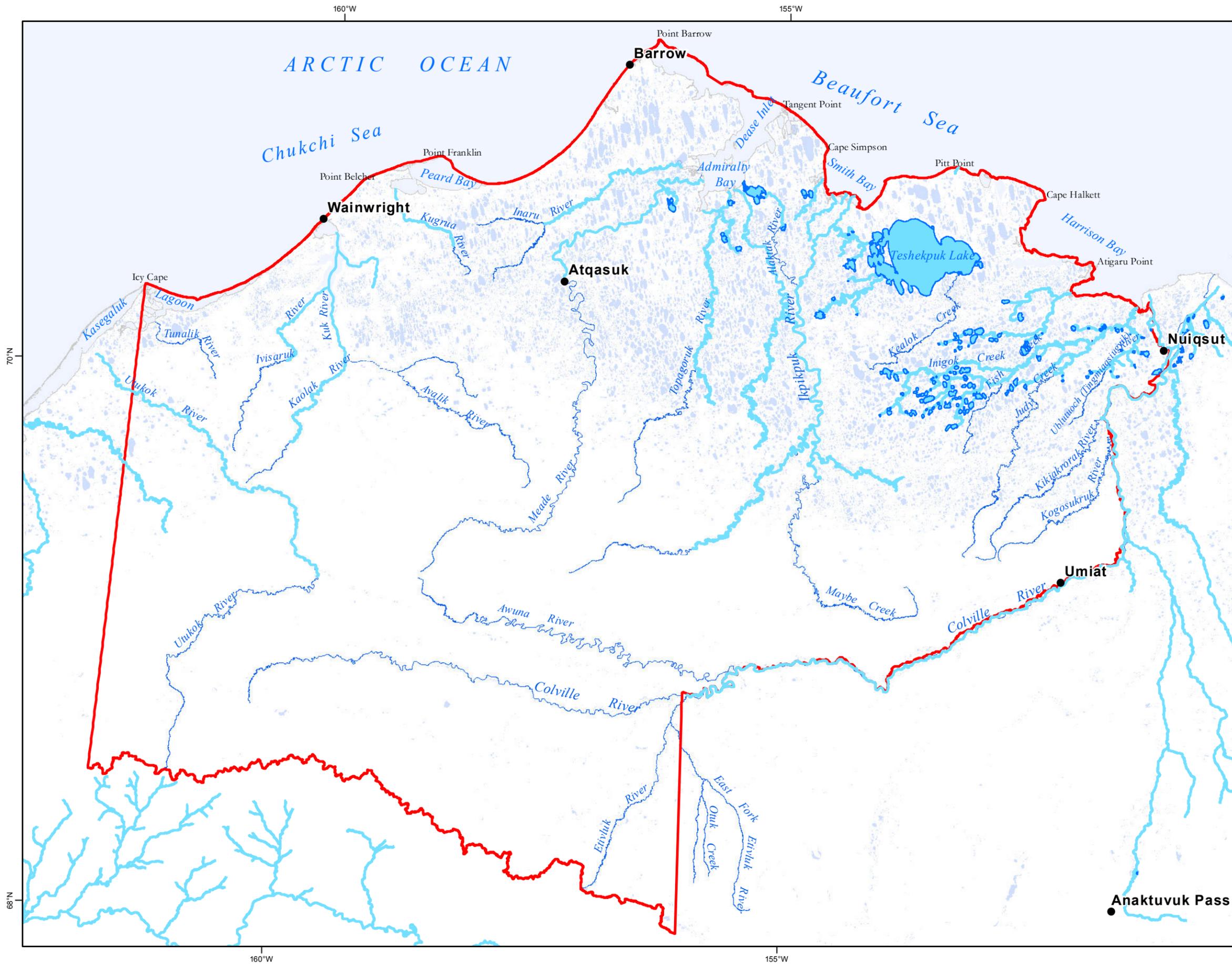


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Map 3.3.4-2

Anadromous Waters

Sources: ADF&G, 2011.

-  Anadromous Waters
-  Rivers
-  Lakes with anadromous fish present
-  Lakes

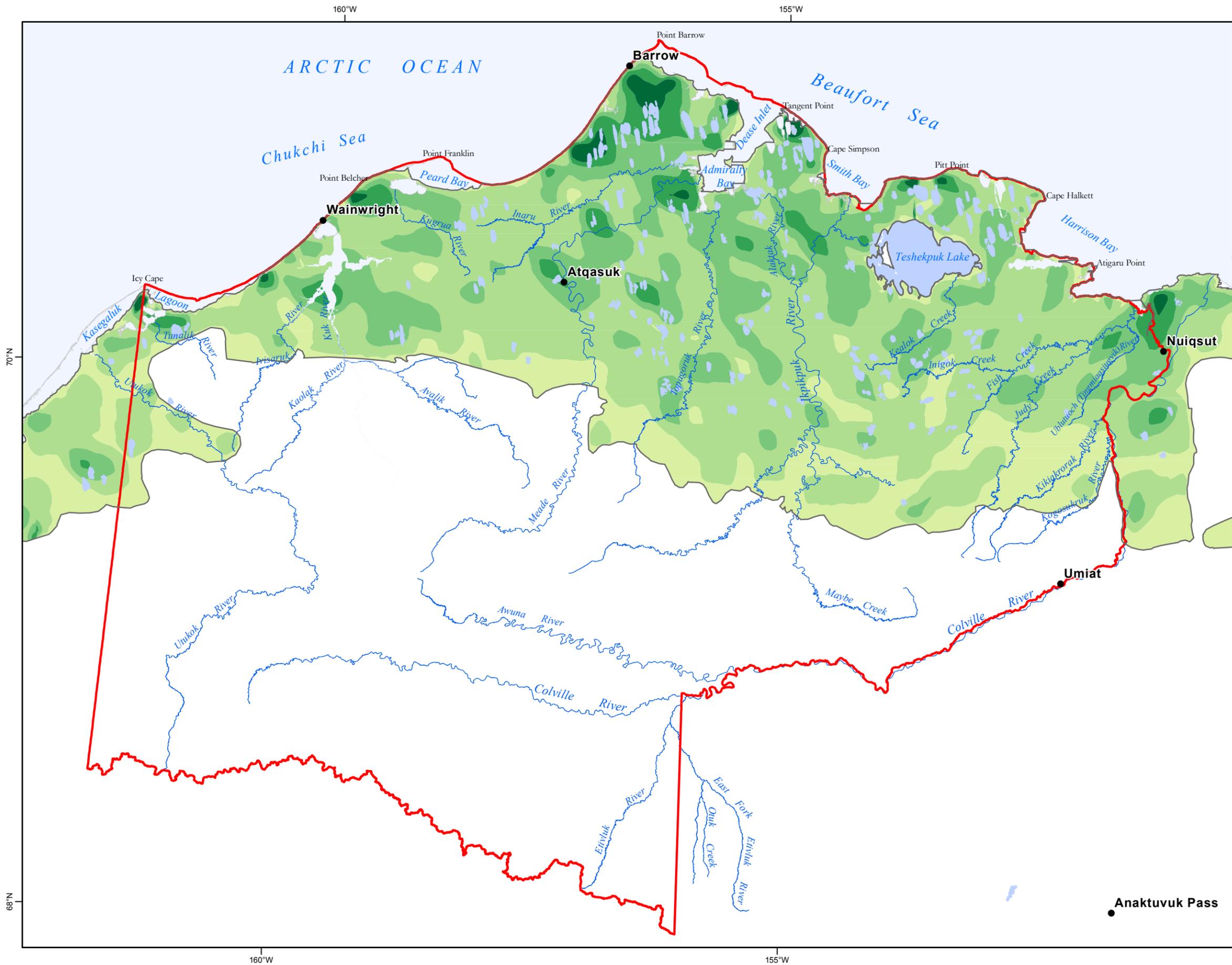


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Projection: Albers Conic Equal Area
referencing NAD83



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**Map 3.3.5-1
Glaucous gull
Onshore Density**

Sources: USFWS - Migratory Bird Management, 2010.

Estimated Relative Onshore Density (2007-2010)

Birds per Square Kilometer

- 1.992 - 4.033
- 0.980 - 1.991
- 0.420 - 0.980
- 0.052 - 0.419
- 0.000 - 0.051

Survey Area Boundary

NPR Boundary

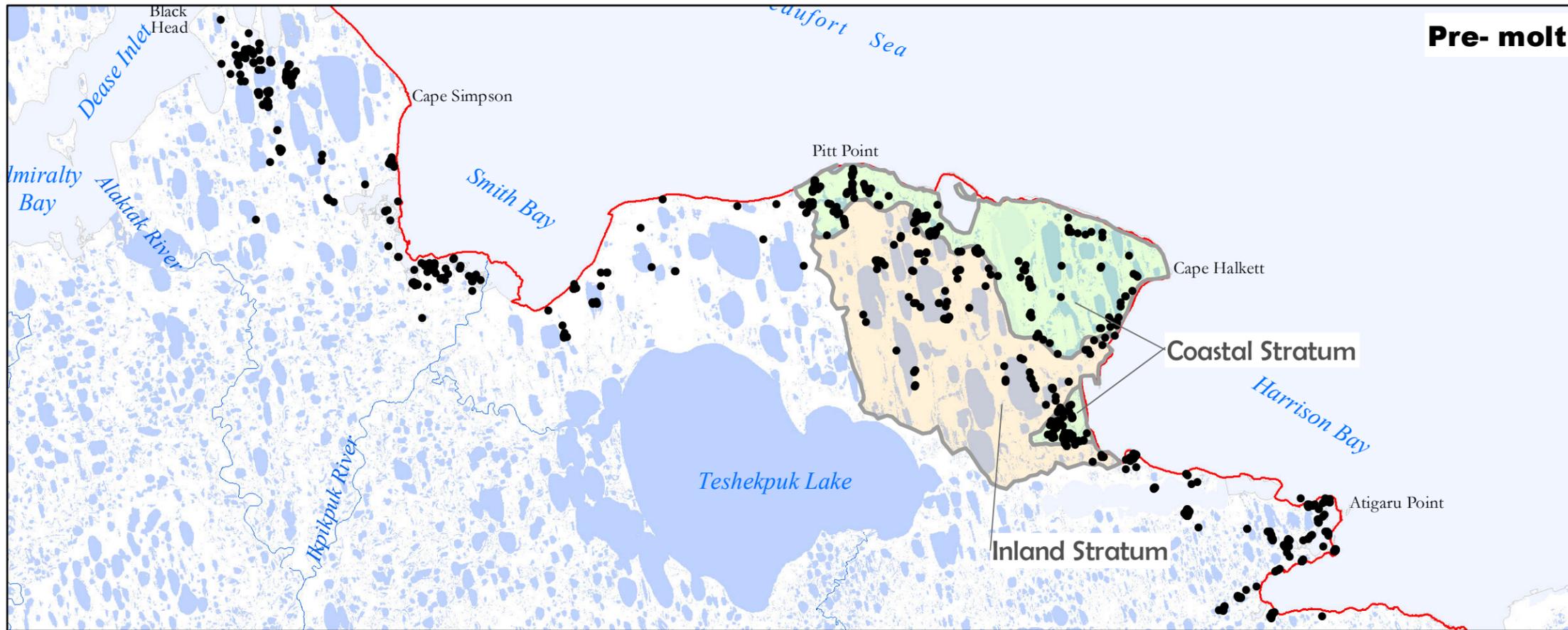
0 12 24 36 Miles

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Projection: Albers Conic Equal Area
referencing NAD83



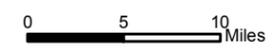
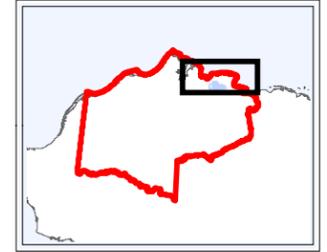
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Map 3.3.5-10
Black Brant Locations
Pre-Molt and Molt

Source: USGS, 2010

- BLACK BRANT**
- Locations from GPS
 - Transmitter-marked brant Summers 2007 & 2008
 - Stratum Boundary
 - ▭ NPRA Boundary

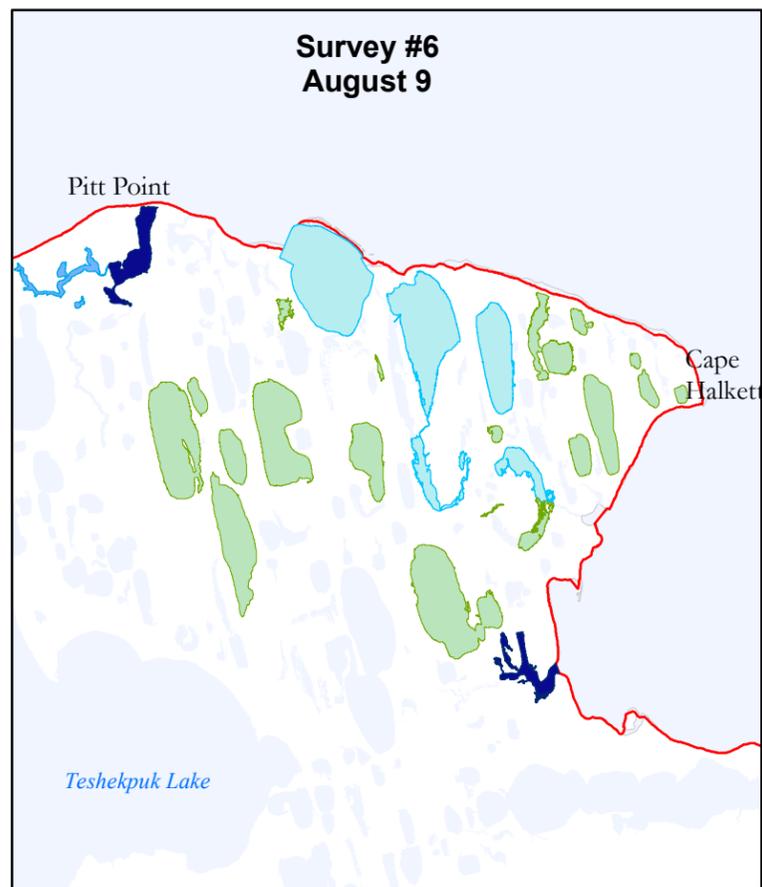
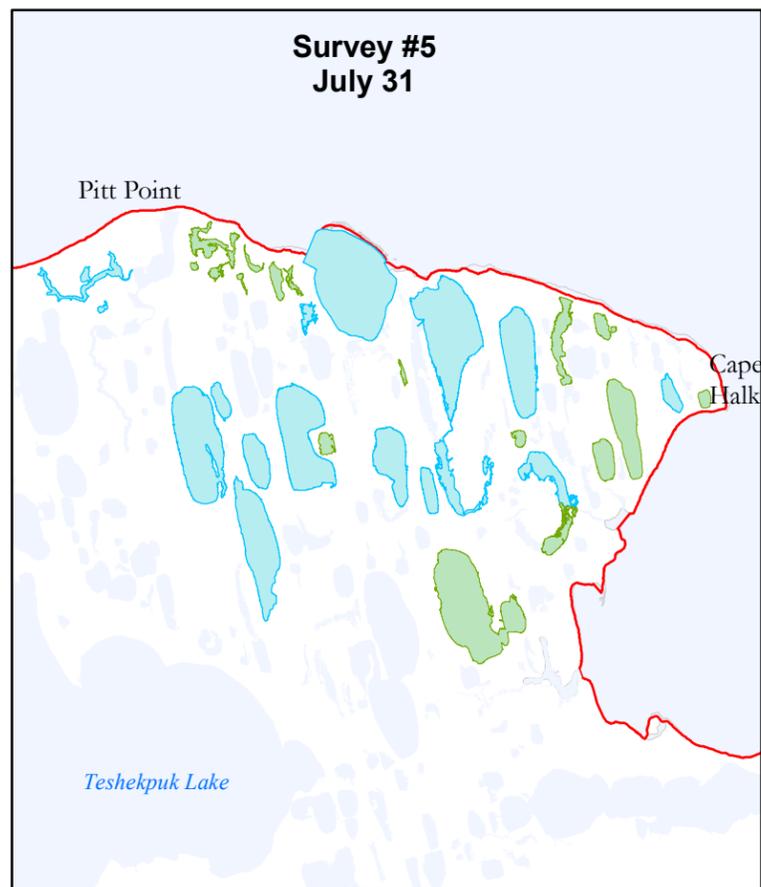
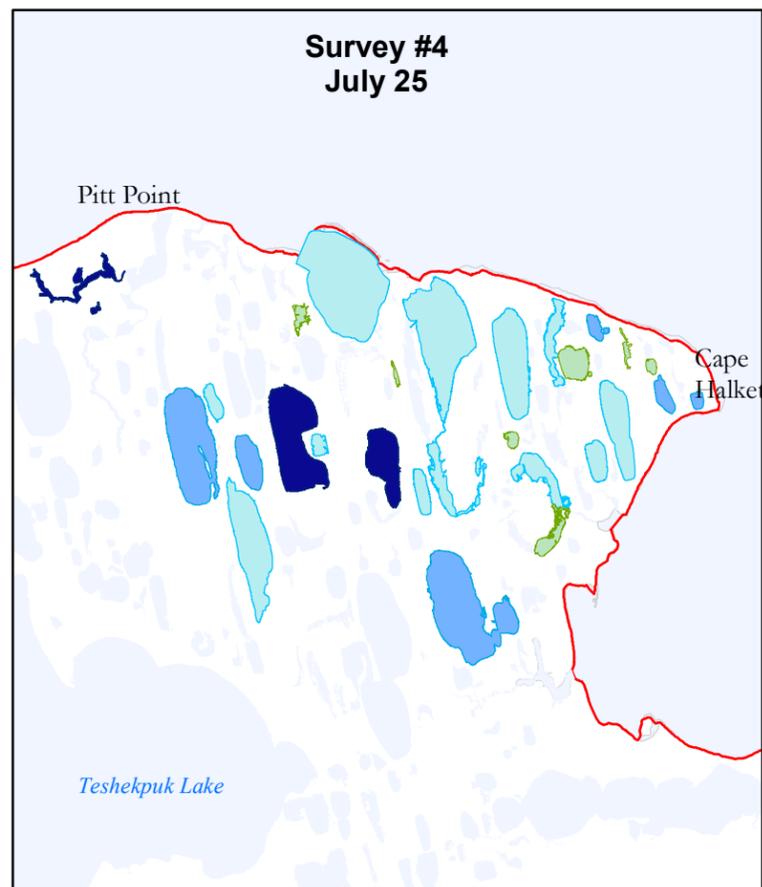
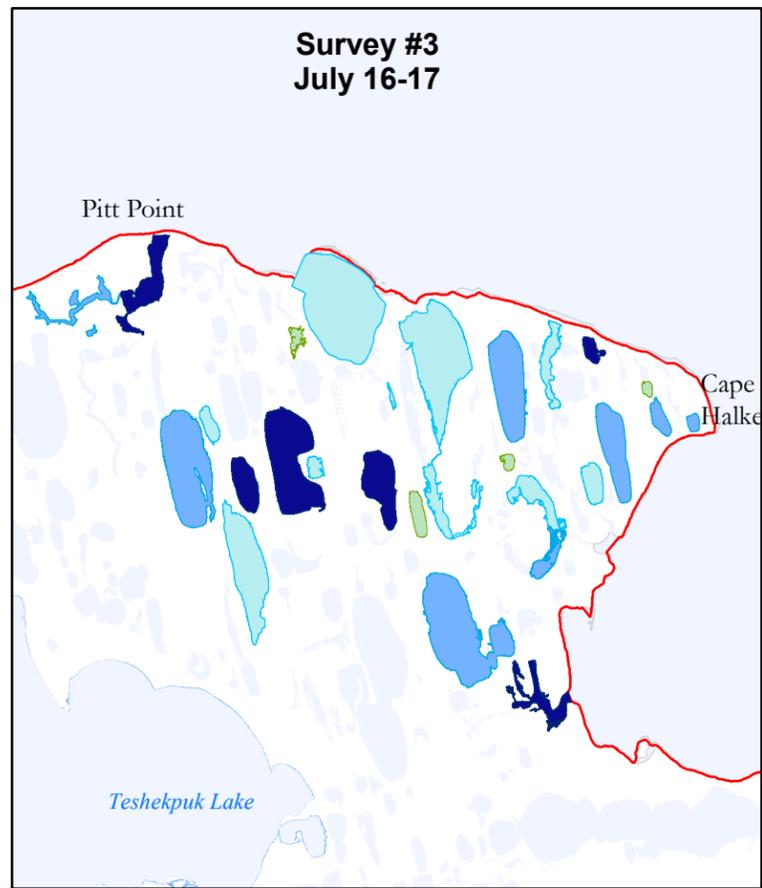
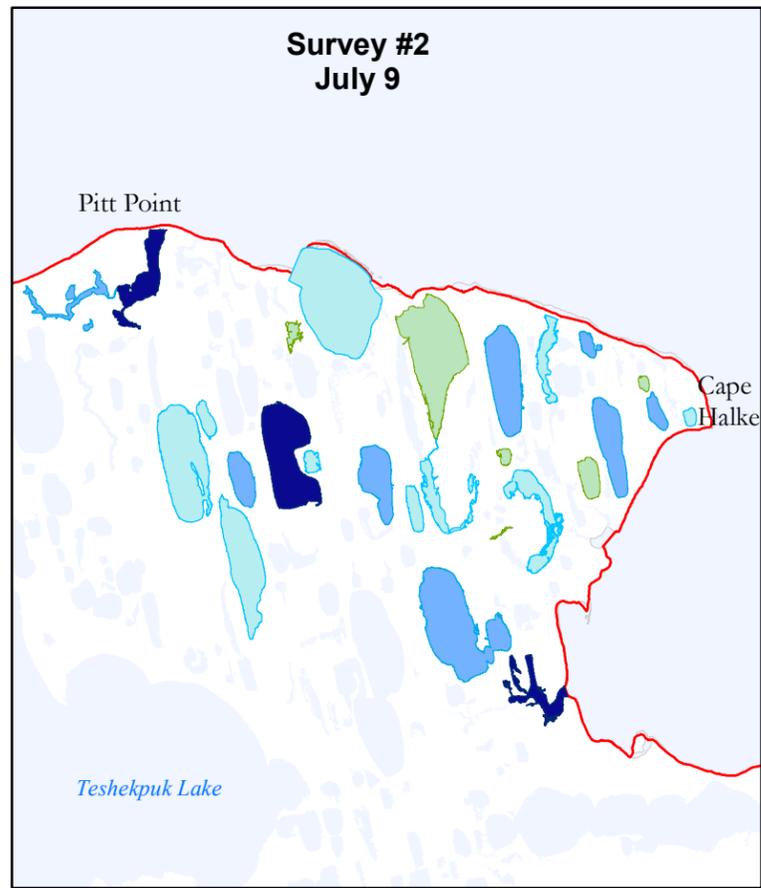
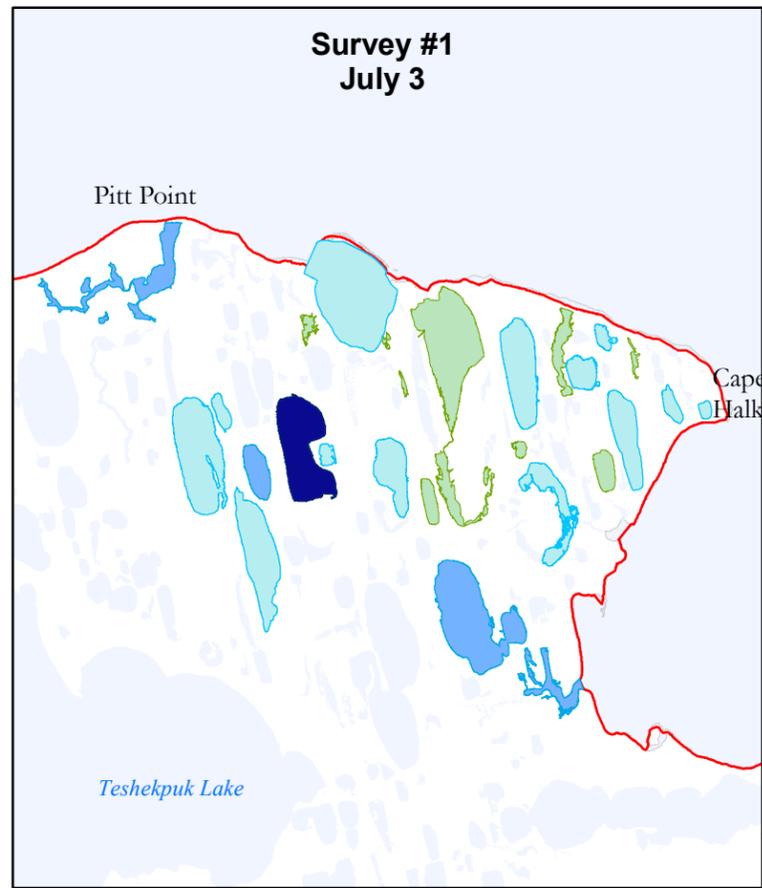


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Map 3.3.5-11
Brant Distribution in Surveyed Lakes - 2007

Source: USGS, 2010

Number of Brant per Lake

- 1 - 100
- 101 - 500
- 501 - 1,000
- 1,001 - 2,946

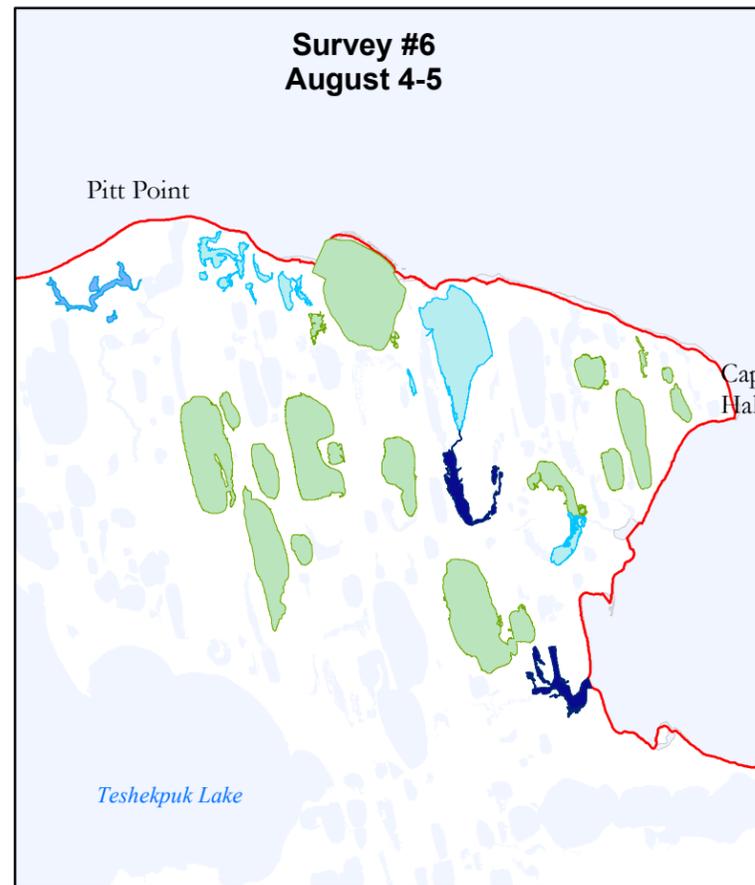
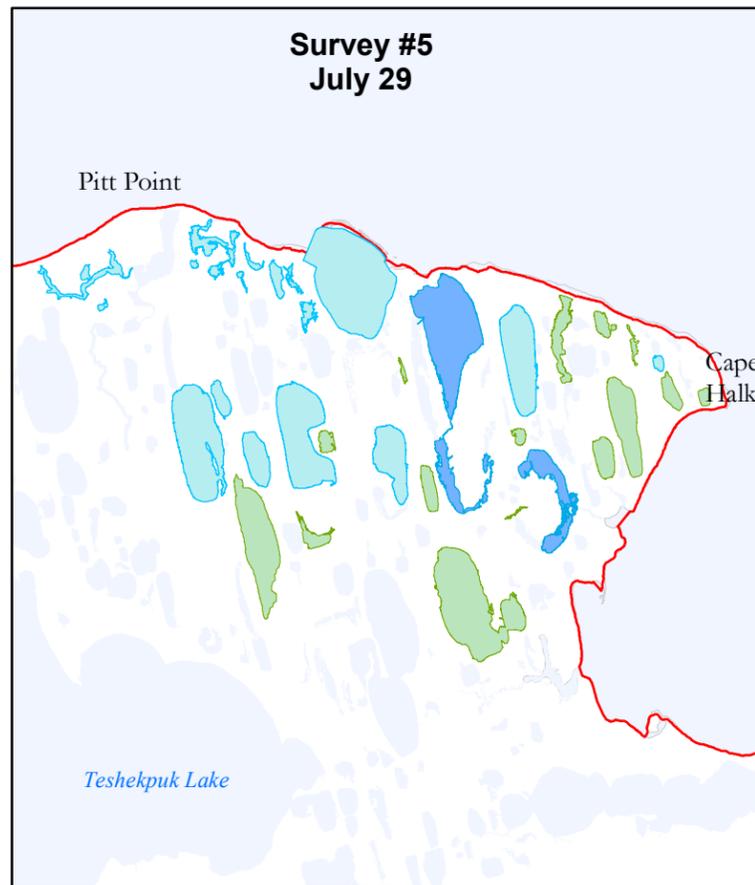
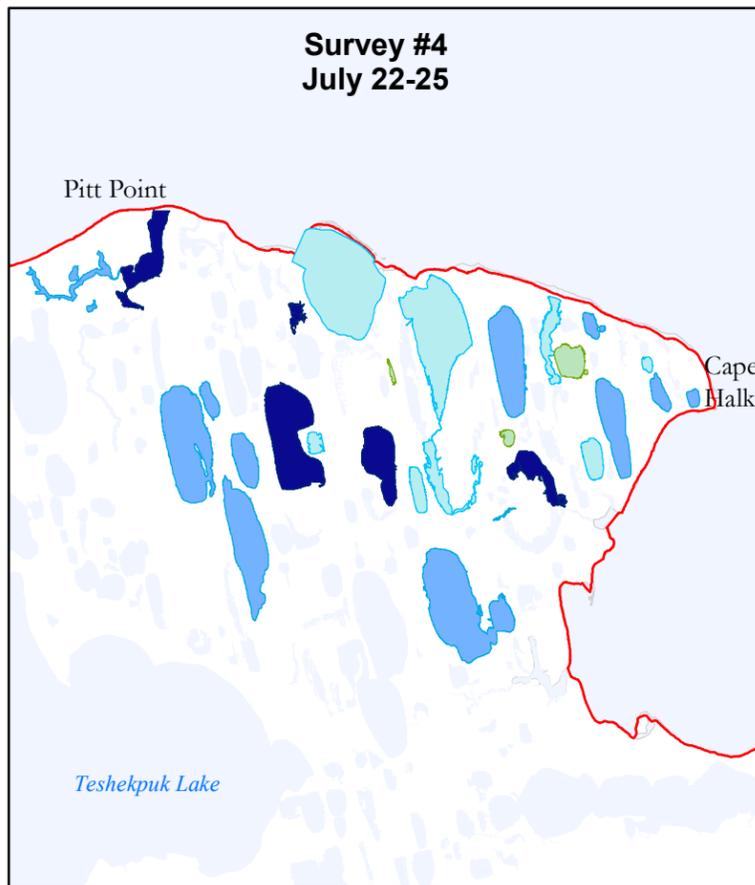
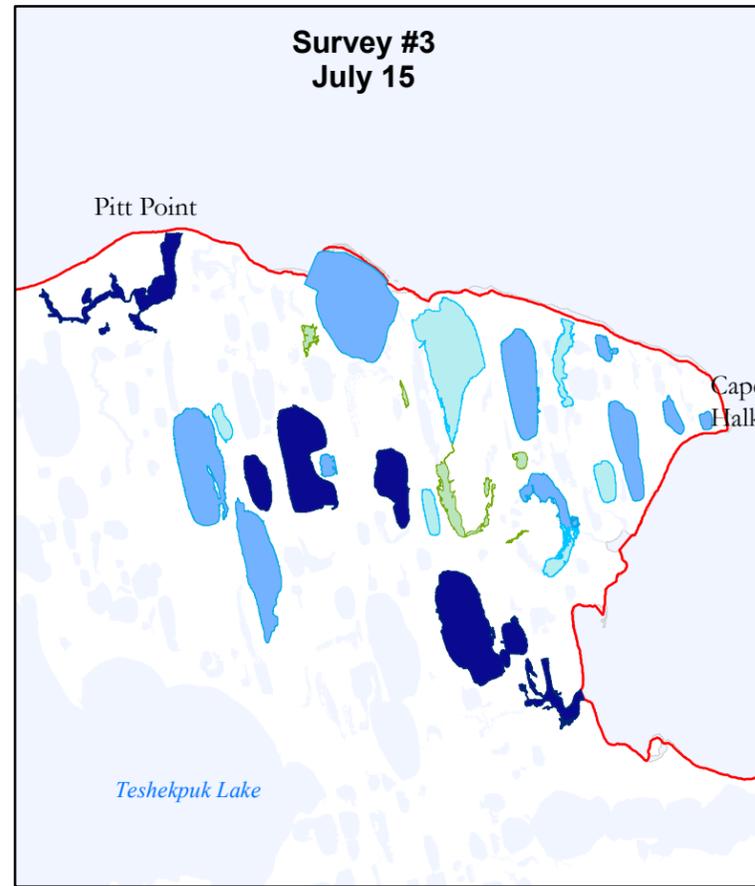
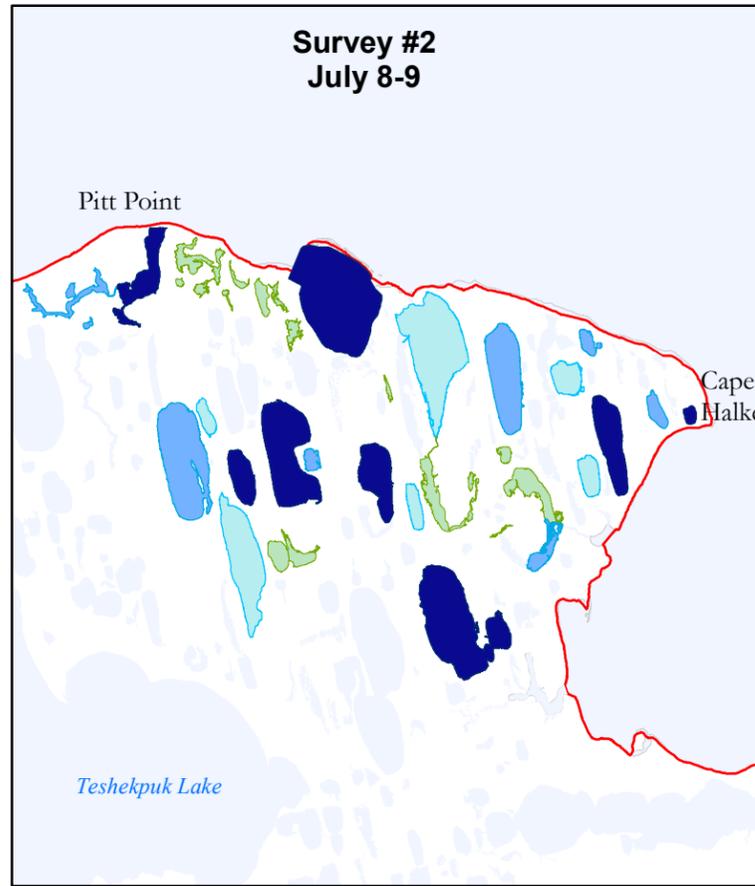
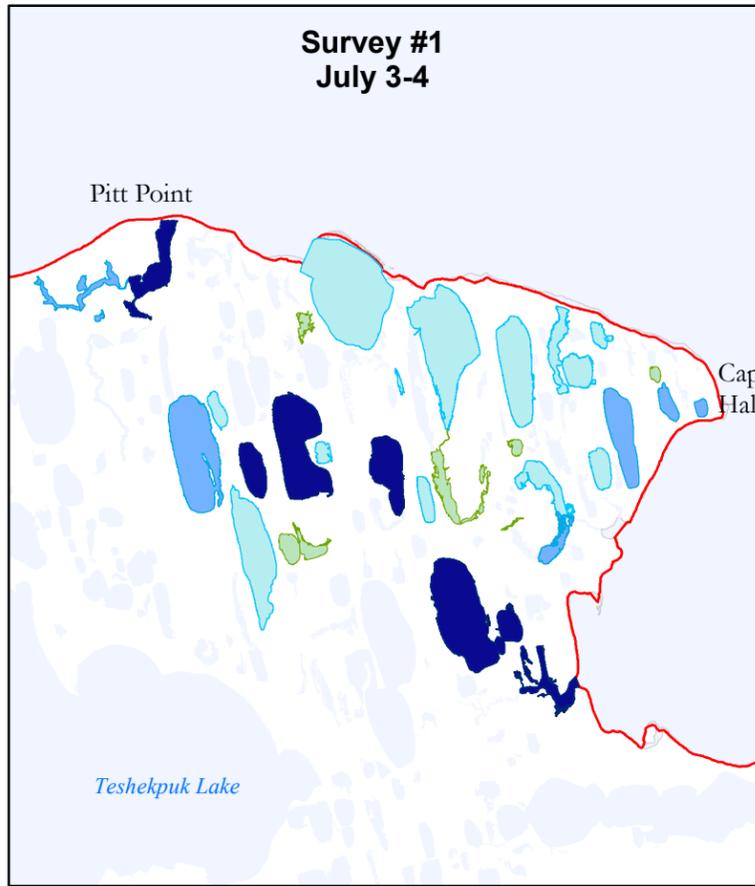
NPRA Boundary

0 5 10 Miles

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Map 3.3.5-12
Brant Distribution in Surveyed Lakes - 2008

Source: USGS, 2010

Number of Brant per Lake

- 1 - 100
- 101 - 500
- 501 - 1,000
- 1,001 - 2,946

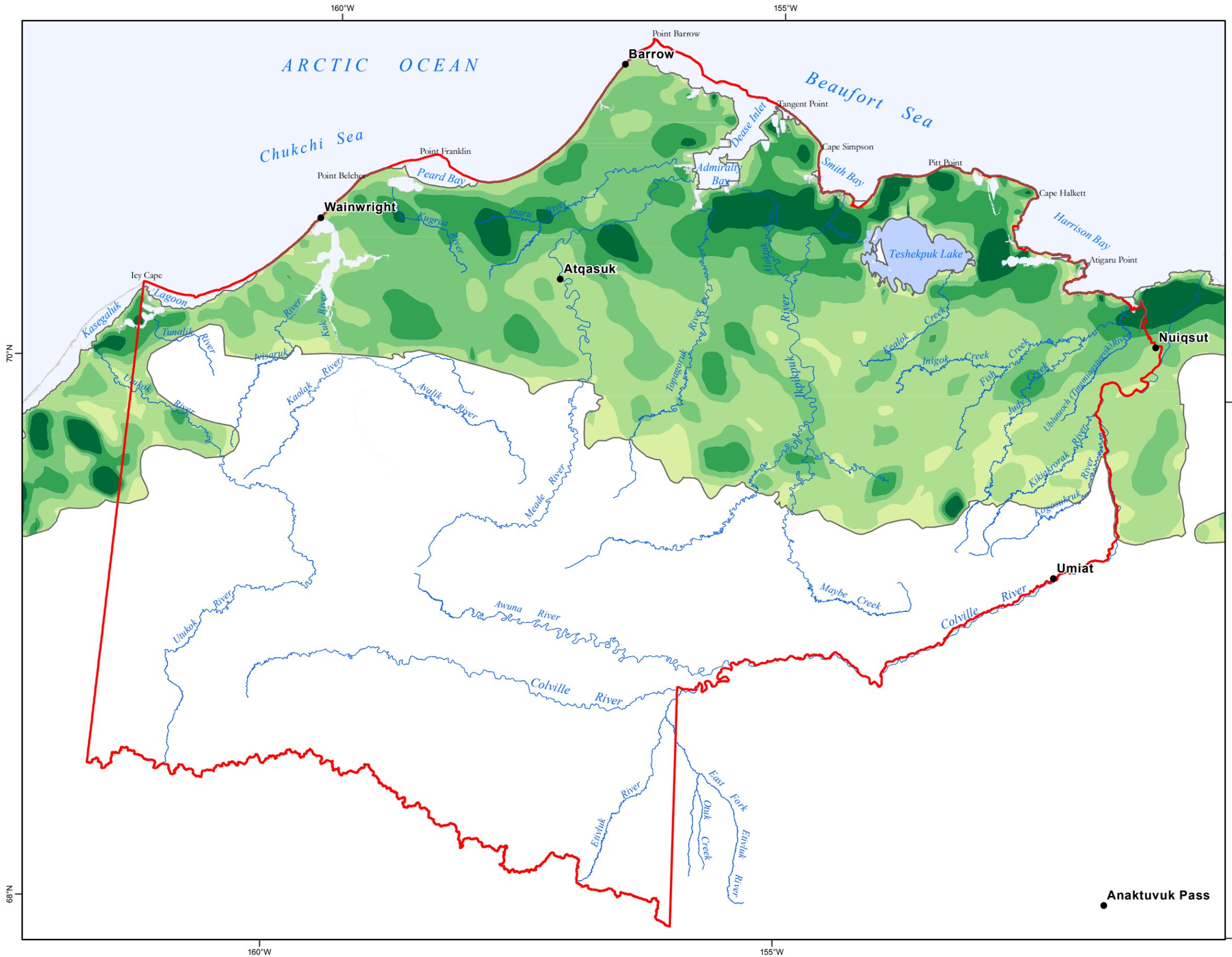
▭ NPRA Boundary

0 5 10 Miles

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Projection: Albers Conic Equal Area referencing NAD83

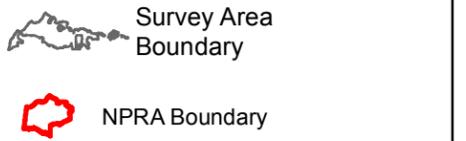
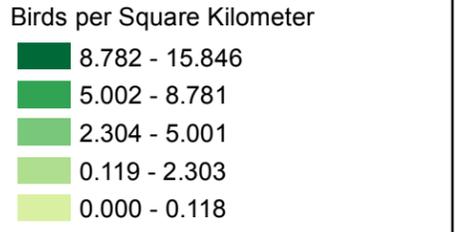
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Map 3.3.5-13
Greater White-fronted Goose Onshore Density

Source: USFWS - Migratory Bird Management, 2010.

GREATER WHITE-FRONTED GOOSE
Estimated Relative Onshore Density (2007-2010)



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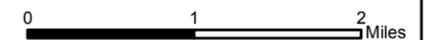
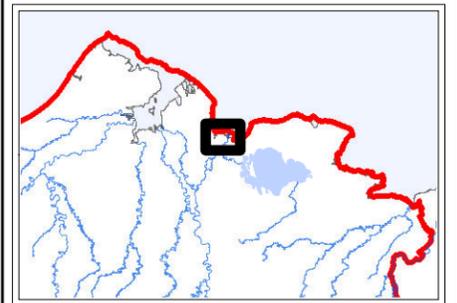
Projection: Albers Conic Equal Area referencing NAD83



Map 3.3.5-14
Ikpikpuk River Delta
Lesser Snow Goose
Colony

Sources: ABR, 2007.
 Imagery Source: USGS, 2002-2007.

NPR-A Boundary

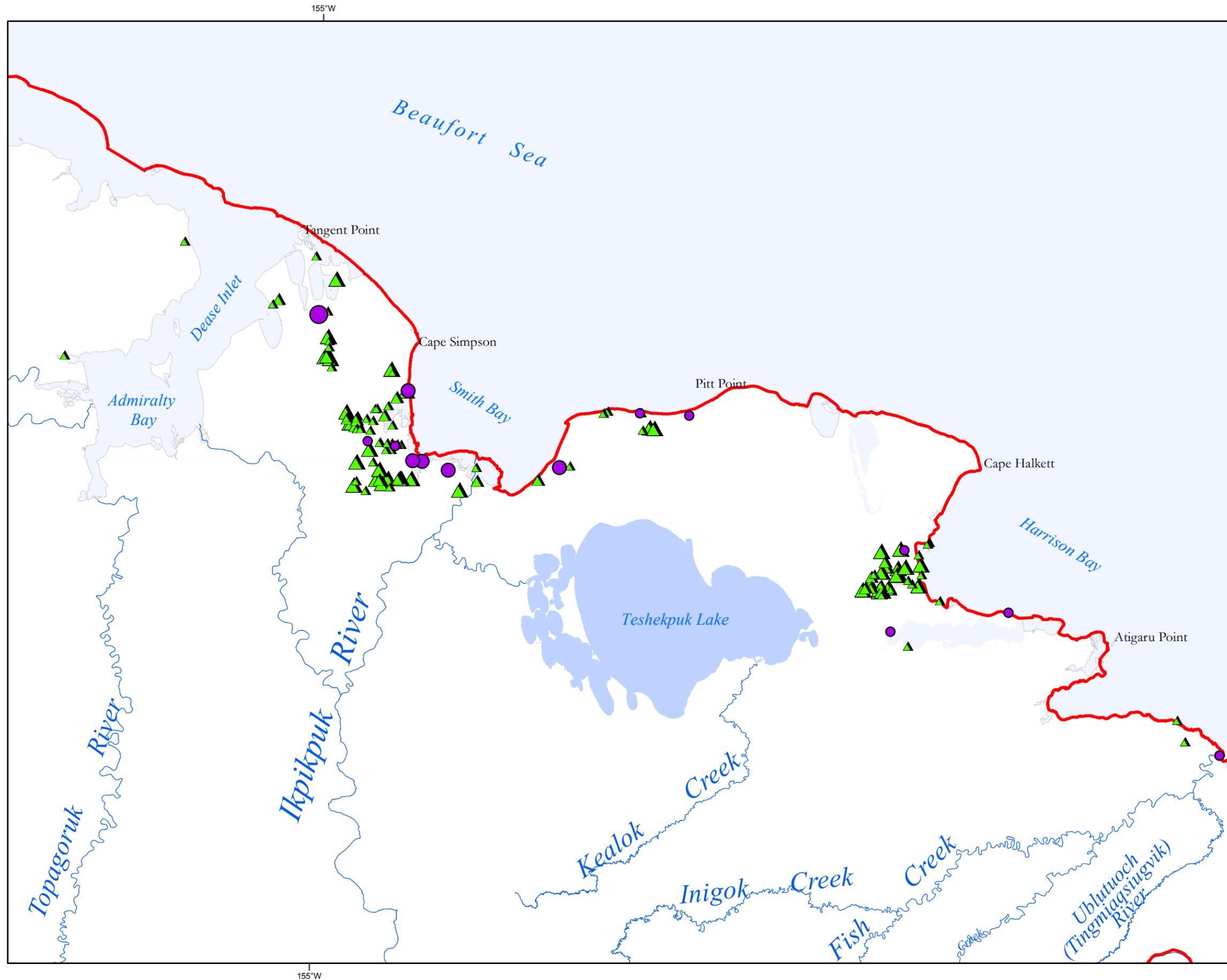


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 referencing NAD83



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Map 3.3.5-15
Lesser Snow Goose
Brood-rearing Survey

Source: Ritchie et al., 2010

LESSER SNOW GOOSE
Brood-rearing Survey
Locations 2010

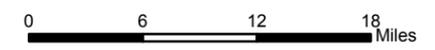
Groups With Young

- 1 - 50
- 51 - 100
- >100

Groups Without Young

- ▲ 1 - 50
- ▲ 50 - 100
- ▲ >100

NPRA Boundary

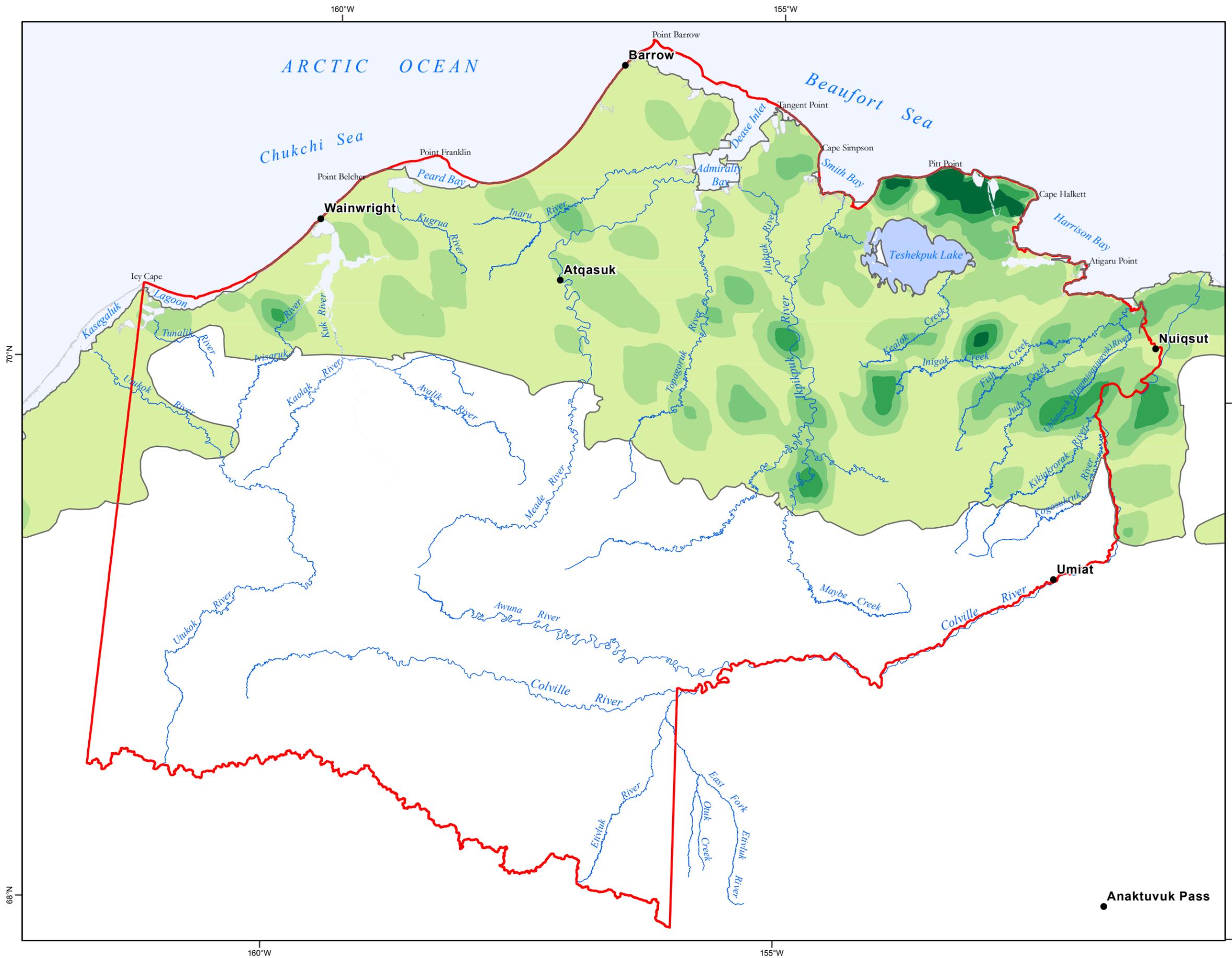


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Map 3.3.5-16
Canada Goose
Onshore Density

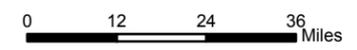
Source: USFWS - Migratory Bird Management, 2010.

CANADA GOOSE
Estimated Relative Onshore Density
(2007-2010)

Birds per Square Kilometer

- 2.973 - 8.104
- 1.294 - 2.972
- 0.460 - 1.293
- 0.030 - 0.460
- 0.000 - 0.029

- Survey Area Boundary
- NPRA Boundary

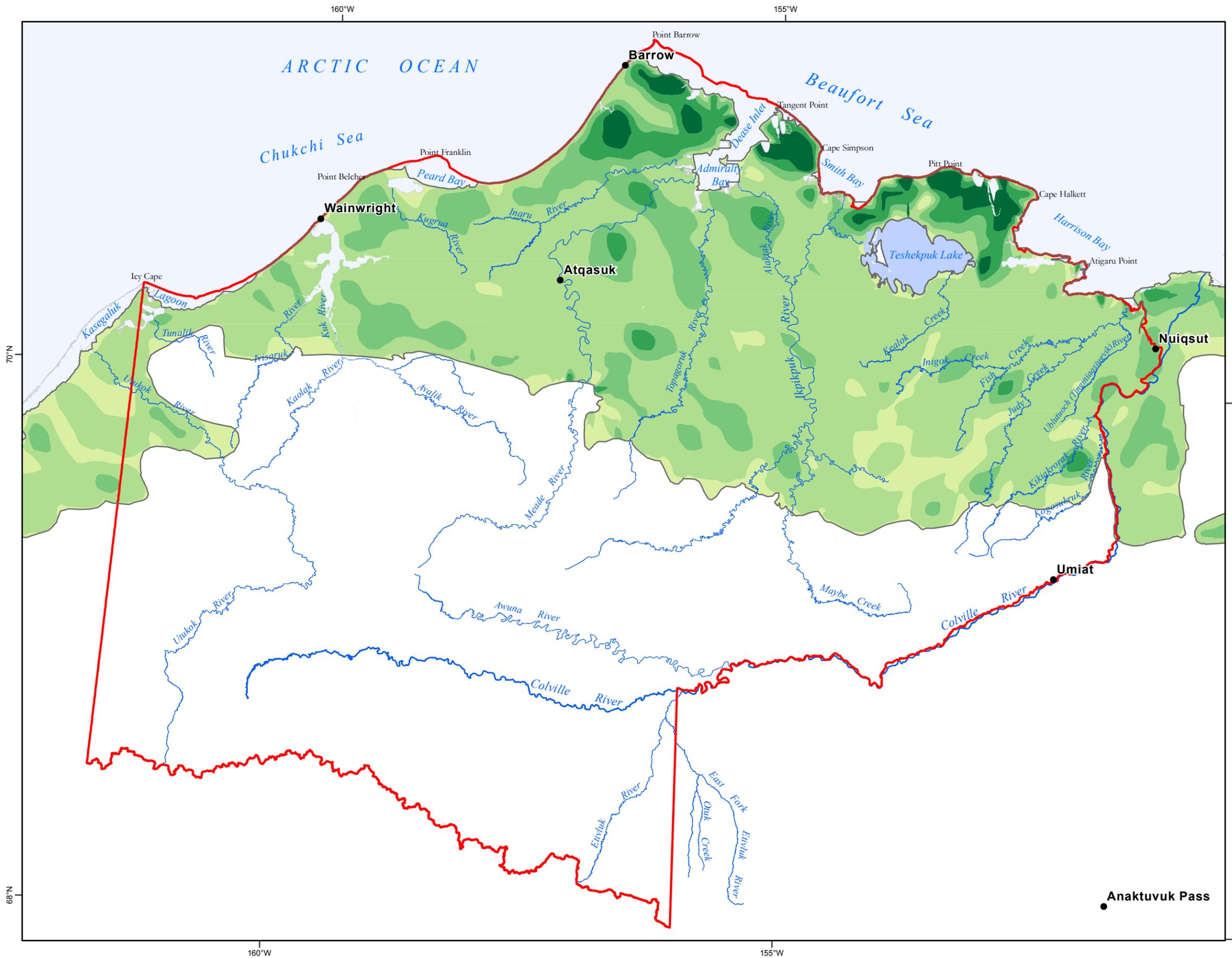


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Map 3.3.5-17
Northern Pintail
Onshore Density

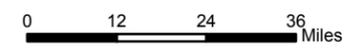
Source: USFWS - Migratory Bird Management, 2010.

NORTHERN PINTAIL
Estimated Relative Onshore Density
(2007-2010)

Birds per Square Kilometer

- 3.918 - 7.284
- 2.029 - 3.918
- 0.844 - 2.028
- 0.029 - 0.844
- 0.000 - 0.028

- Survey Area Boundary
- NPRa Boundary

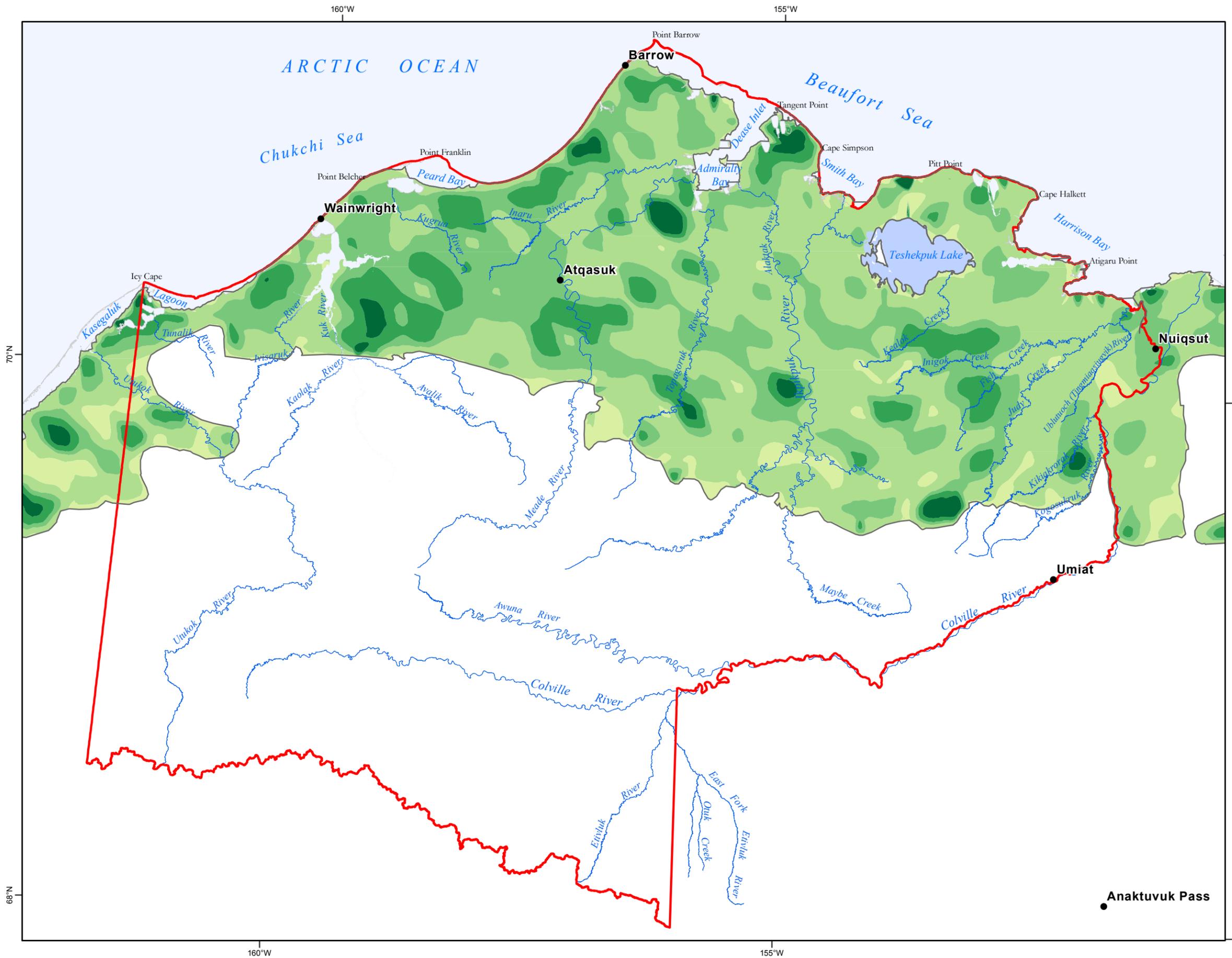


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Projection: Albers Conic Equal Area
referencing NAD83



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Map 3.3.5-18

**Long-tailed Duck
Onshore Density**

Source: USFWS - Migratory Bird Management, 2010.

**LONG-TAILED DUCK
Estimated Relative Onshore Density
(2007-2010)**

Birds per Square Kilometer

- 2.070 - 4.346
- 1.156 - 2.070
- 0.608 - 1.155
- 0.029 - 0.607
- 0.000 - 0.028

- Survey Area Boundary
- NPPRA Boundary

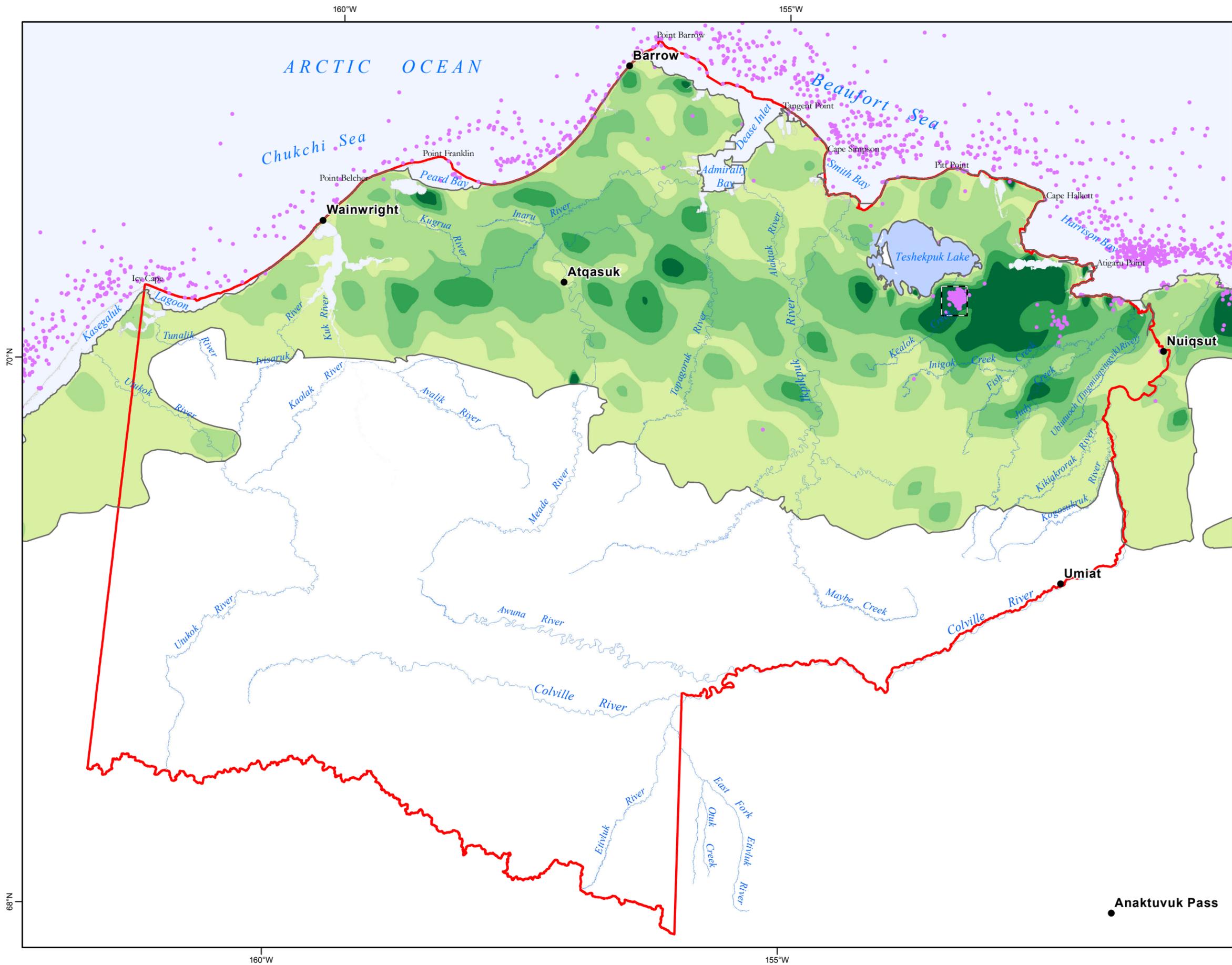


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Projection: Albers Conic Equal Area
referencing NAD83



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Map 3.3.5-19
King Eider Onshore
Density and Selected
Locations of Satellite
Transmitter Equipped
Individuals

Source: USFWS - Migratory Bird Management, 2010 & Minerals Management Service

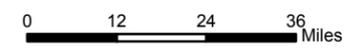
KING EIDERS
Estimated Relative Onshore Density
(2007-2010)

- Birds per Square Kilometer
- 1.311 - 2.367
 - 0.728 - 1.310
 - 0.338 - 0.728
 - 0.033 - 0.337
 - 0.000 - 0.032

Survey Area Boundary

Sample of Satellite Transmitter Locations (2002 - 2007)

- Location of King Eider Individual on Specific Date
- King Eider Satellite Capture Area
- NPRA Boundary

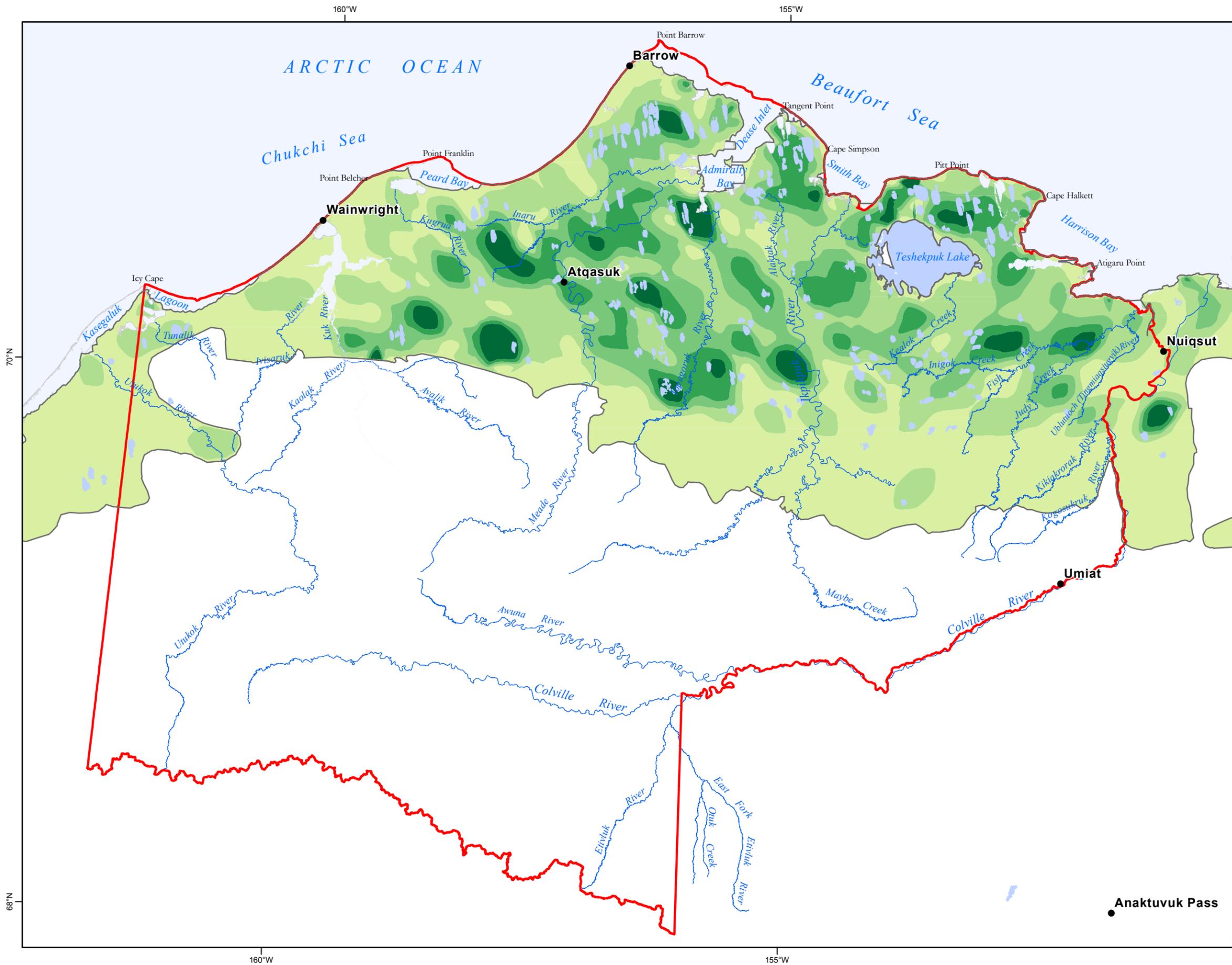


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Projection: Albers Conic Equal Area referencing NAD83



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Map 3.3.5-2
Sabine's gull
Onshore Density

Sources: USFWS - Migratory Bird Management, 2010.

Estimated Relative Onshore Density (2007-2010)

Birds per Square Kilometer

- 1.311 - 2.926
- 0.665 - 1.310
- 0.310 - 0.664
- 0.031 - 0.309
- 0.000 - 0.030

Survey Area Boundary

NPRA Boundary

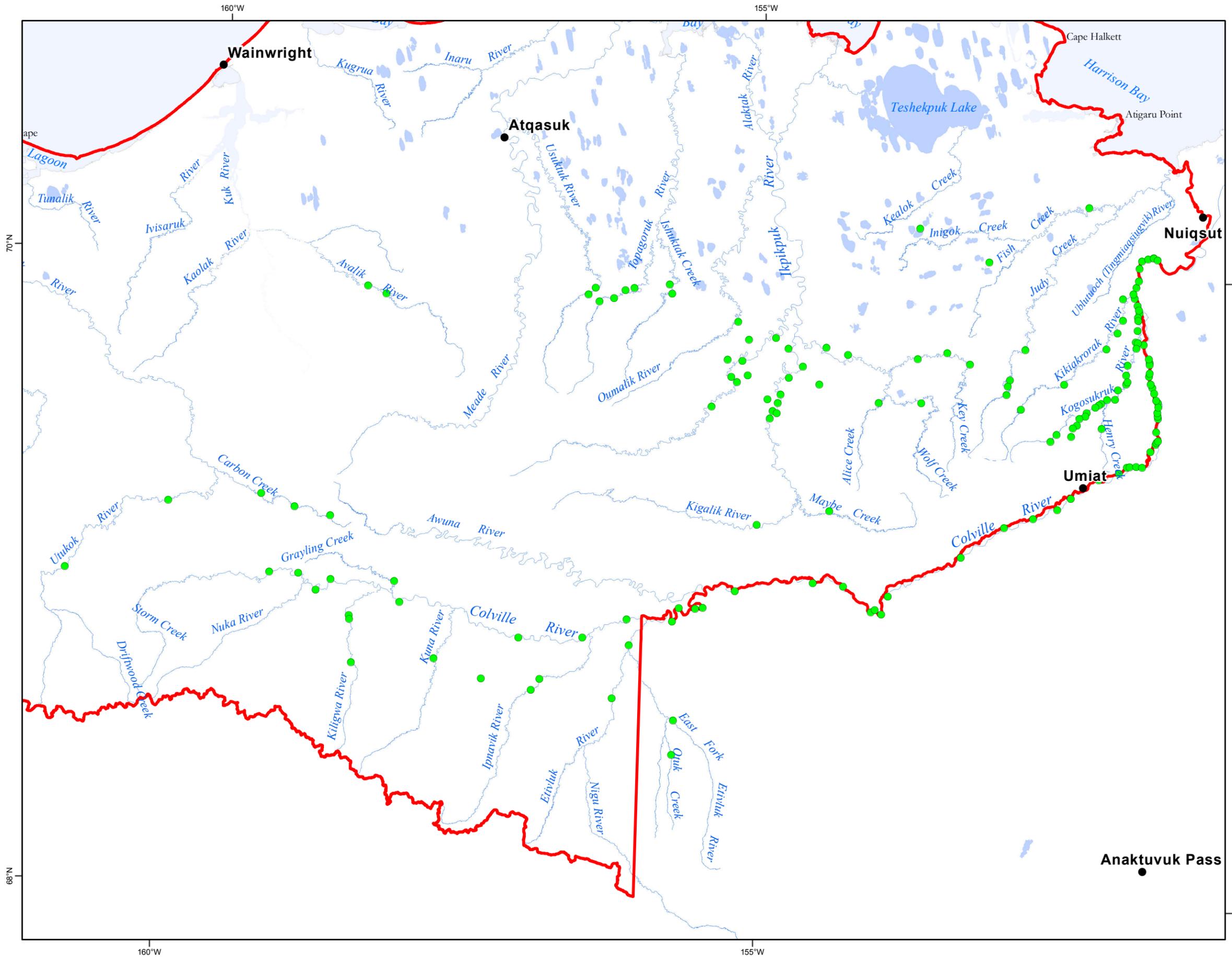


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Projection: Albers Conic Equal Area
referencing NAD83



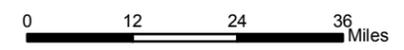
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Map 3.3.5-20
Peregrine Falcon
Nesting/ Activity Sites

Source: BLM, 2006

- Peregrine Falcon Locations
- ⬮ NPRA Boundary

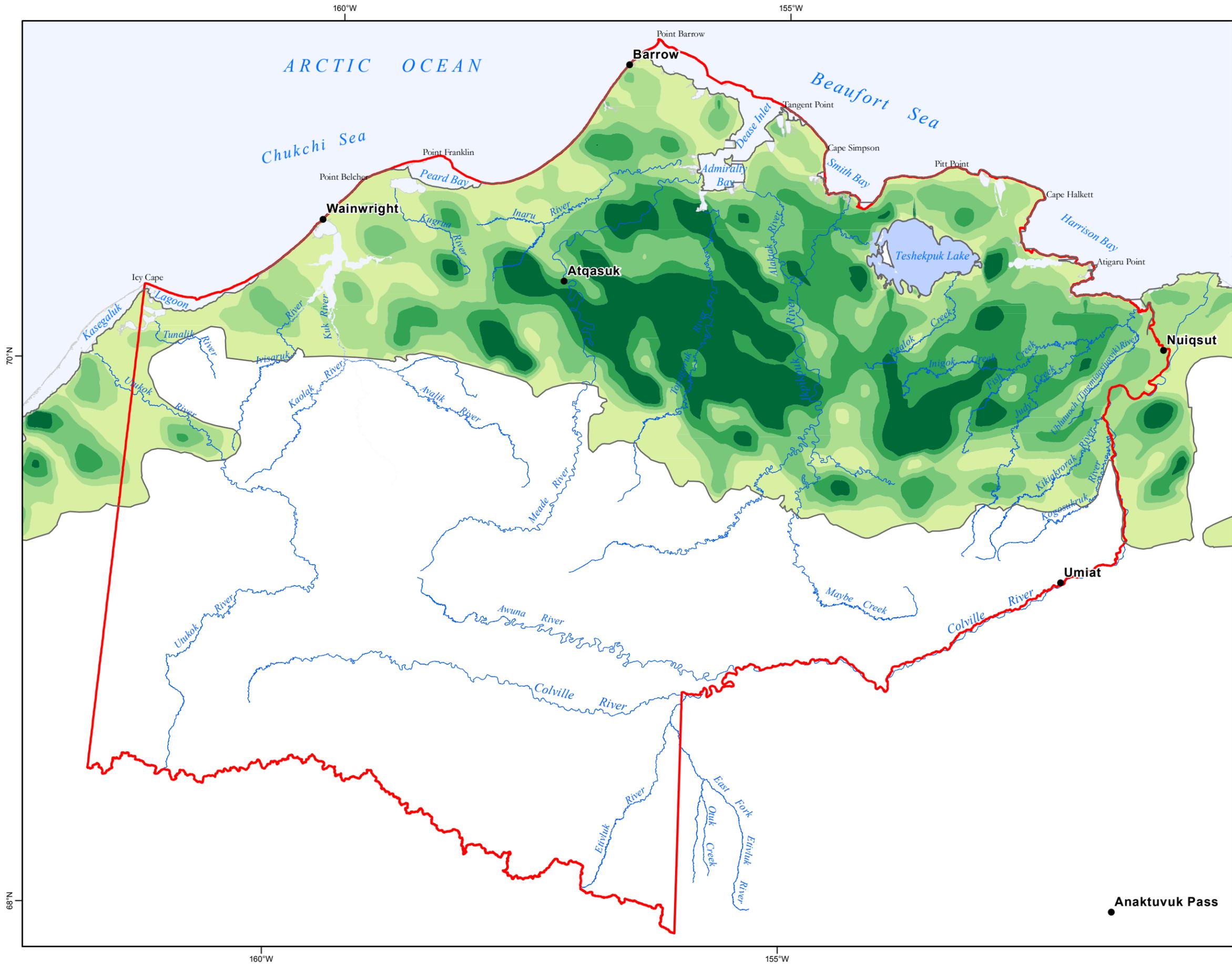


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Projection: Albers Conic Equal Area
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Map 3.3.5-3

**Arctic Tern
Onshore Density**

Source: USFWS - Migratory Bird Management, 2010.

**ARCTIC TERN
Estimated Relative Onshore Density
(2007-2010)**

Birds per Square Kilometer

- 0.980 - 1.639
- 0.594 - 0.980
- 0.277 - 0.594
- 0.047 - 0.276
- 0.000 - 0.046

Survey Area Boundary

NPRA Boundary

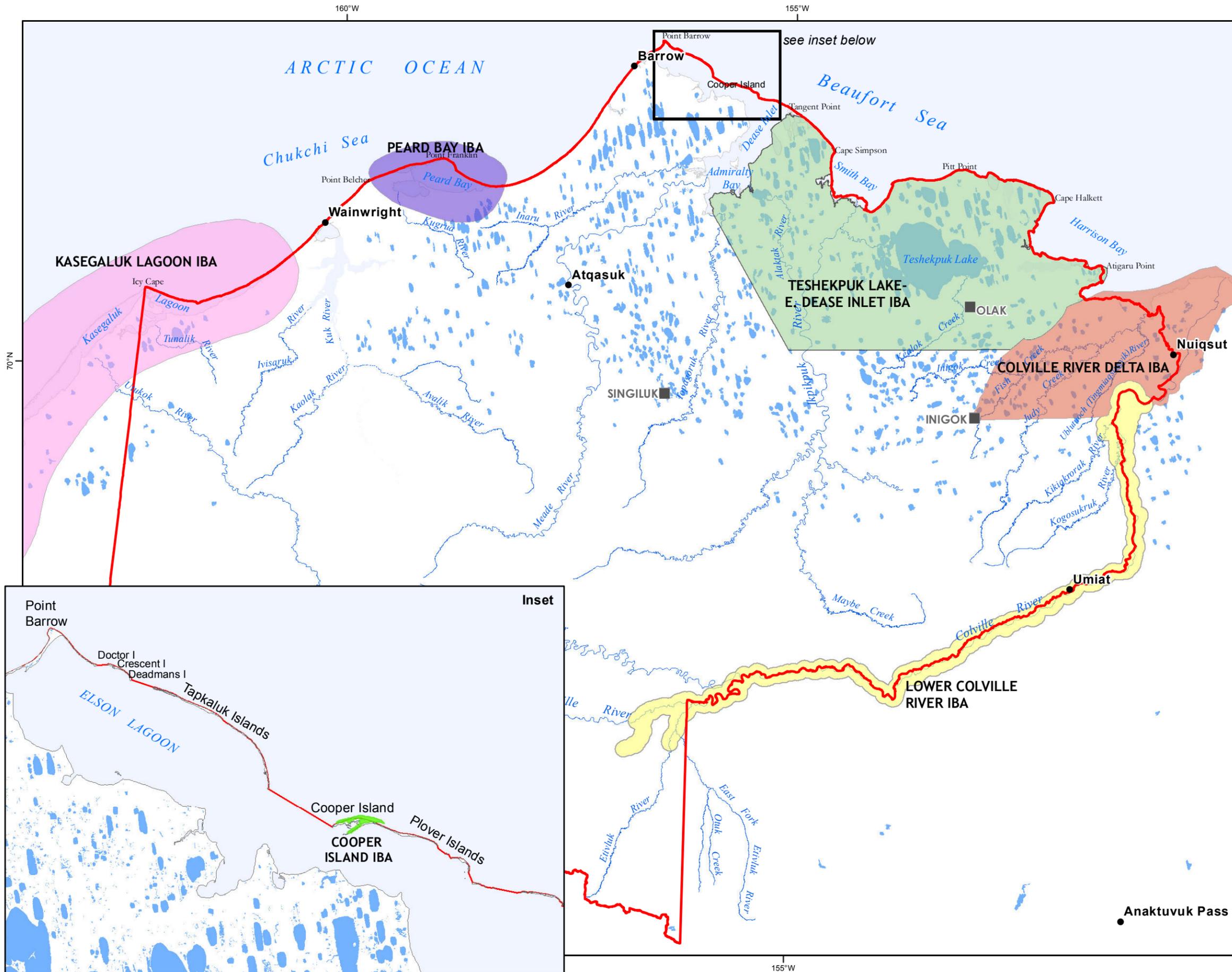
0 12 24 36 Miles

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Map 3.3.5-4

Important Bird Areas

Source: National Audubon Society, 2011.

-  Important Bird Areas (IBA)
-  Camp Locations
-  NPRA Boundary

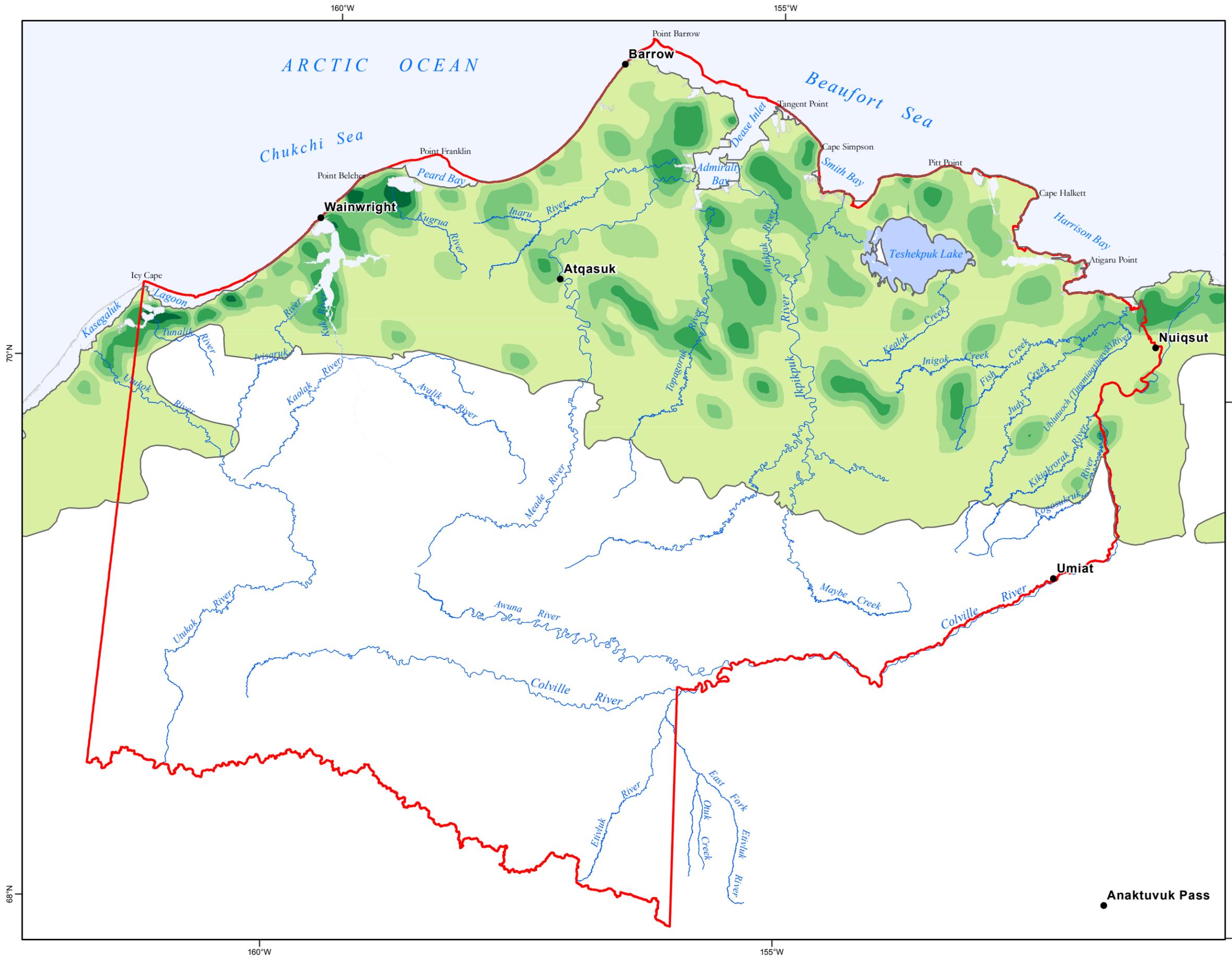


No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. For official land status information refer to Cadastral Survey plats, Master Title Plats and land status case-files.

Projection: Albers Conic Equal Area referencing NAD83



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Map 3.3.5-5

**Red-throated Loon
Onshore Density**

Source: USFWS - Migratory Bird Management, 2010.

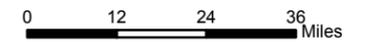
**RED-THROATED LOON
Estimated Relative Onshore Density
(2007-2010)**

Birds per Square Kilometer

- 0.451 - 1.037
- 0.234 - 0.450
- 0.111 - 0.233
- 0.029 - 0.110
- 0.000 - 0.029

Survey Area Boundary

NPRA Boundary

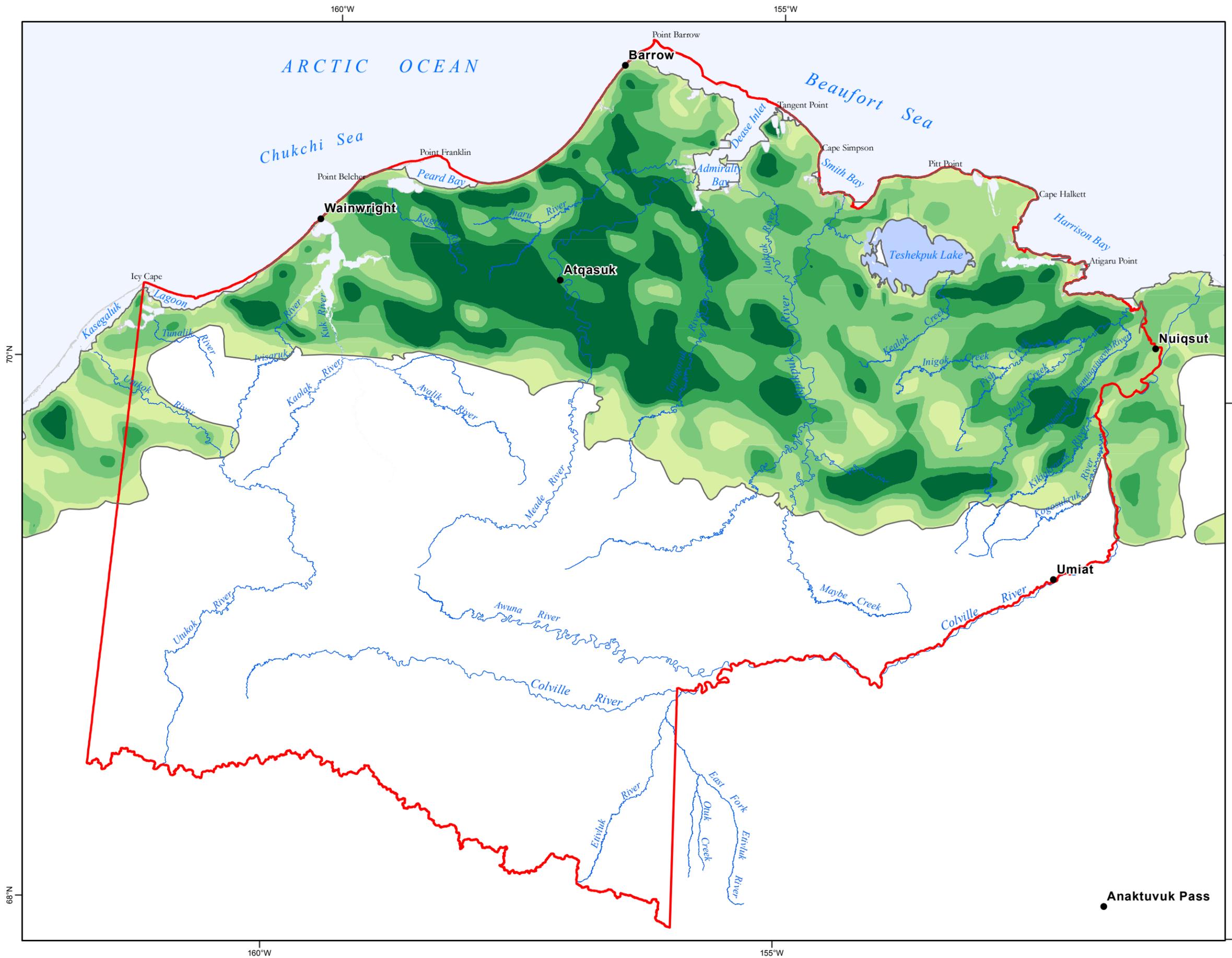


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Map 3.3.5-6
Pacific Loon
Onshore Density

Source: USFWS - Migratory Bird Management, 2010.

PACIFIC LOON
Estimated Relative Onshore Density
(2007-2010)

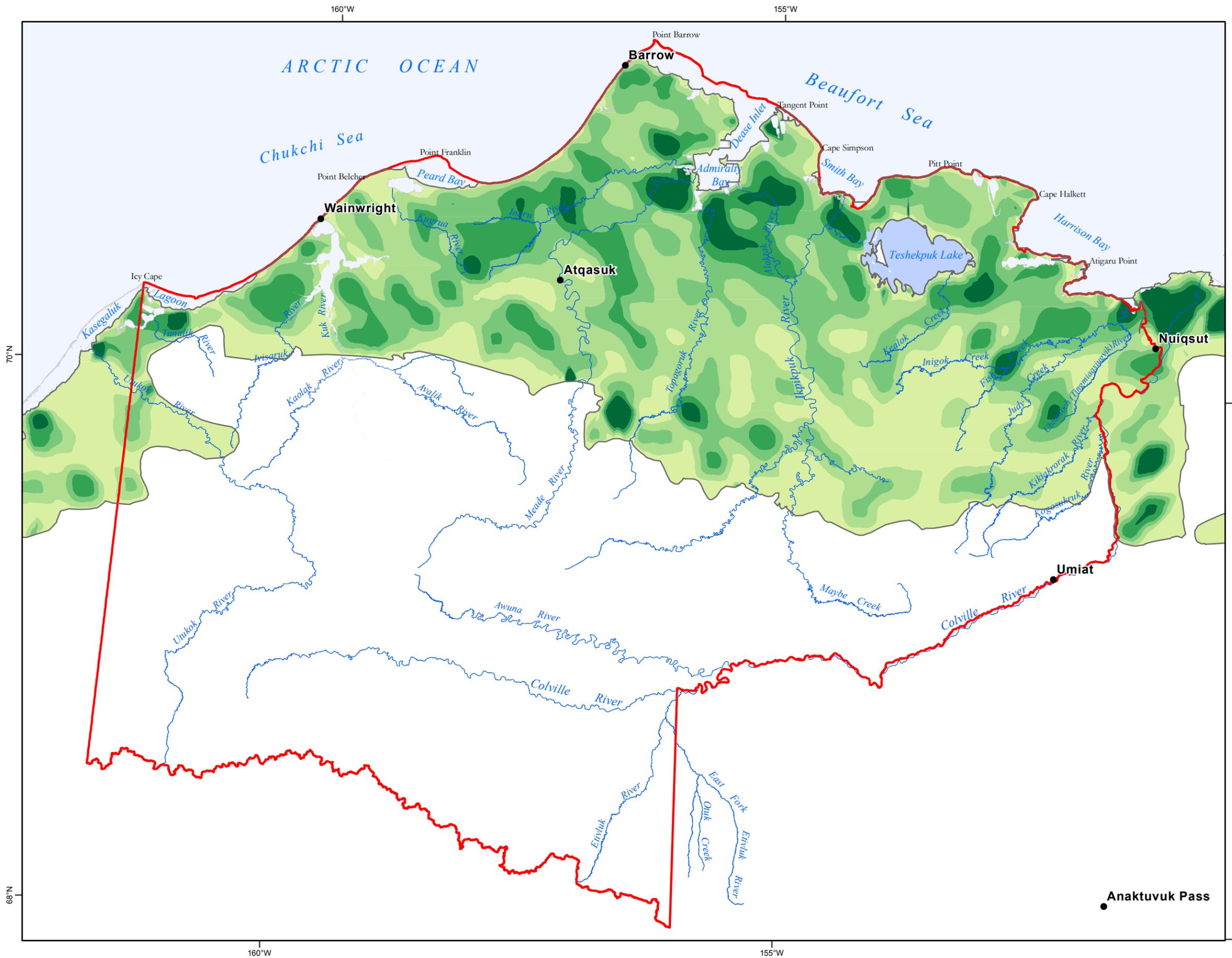
- Birds per Square Kilometer
- 1.098 - 1.671
 - 0.712 - 1.097
 - 0.390 - 0.711
 - 0.061 - 0.389
 - 0.000 - 0.060

- Survey Area Boundary
- NPPRA Boundary



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Projection: Albers Conic Equal Area
referencing NAD83



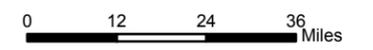
Map 3.3.5-7
Tundra Swan
Onshore Density

Source: USFWS - Migratory Bird Management, 2010.

TUNDRA SWAN
Estimated Relative Onshore Density
(2007-2010)

- Birds per Square Kilometer
- 0.705 - 1.777
 - 0.418 - 0.705
 - 0.217 - 0.417
 - 0.051 - 0.216
 - 0.000 - 0.050

- Survey Area Boundary
- NPPRA Boundary

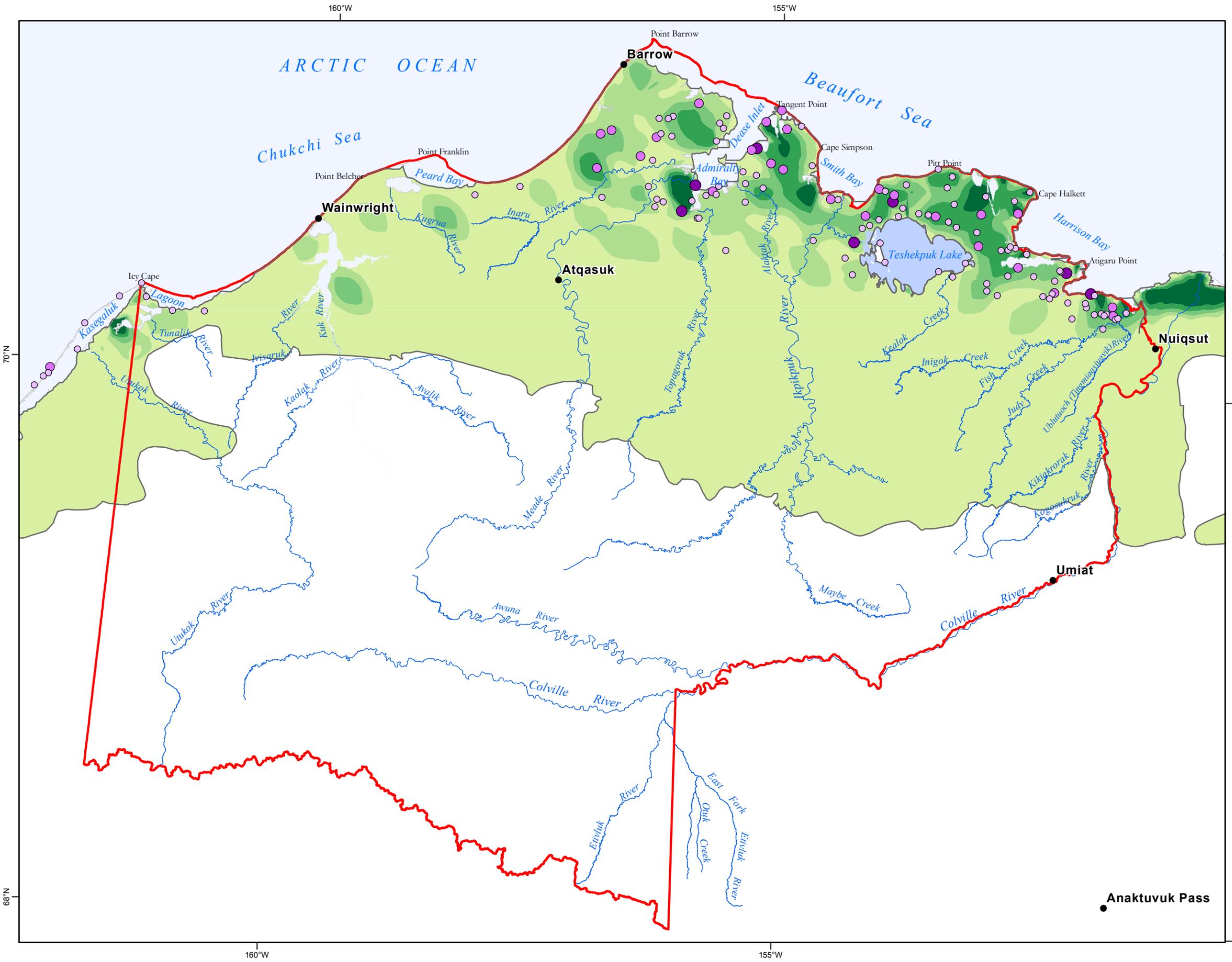


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Projection: Albers Conic Equal Area
referencing NAD83



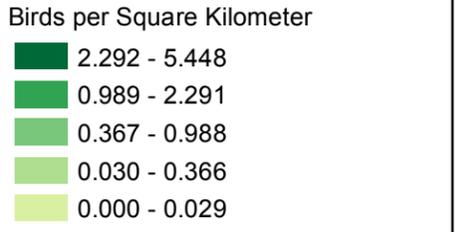
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Map 3.3.5-8
Brant Onshore Density and Colonies

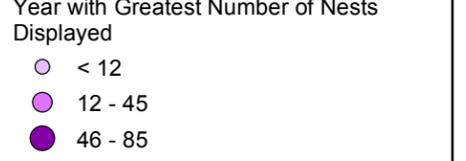
Sources: USFWS - Migratory Bird Management, 2010 & ABR, 2007.

Estimated Relative Onshore Density (2007-2010)

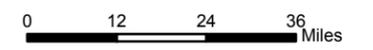


Survey Area Boundary

Brant Colonies (1995 - 2006)



NPRA Boundary

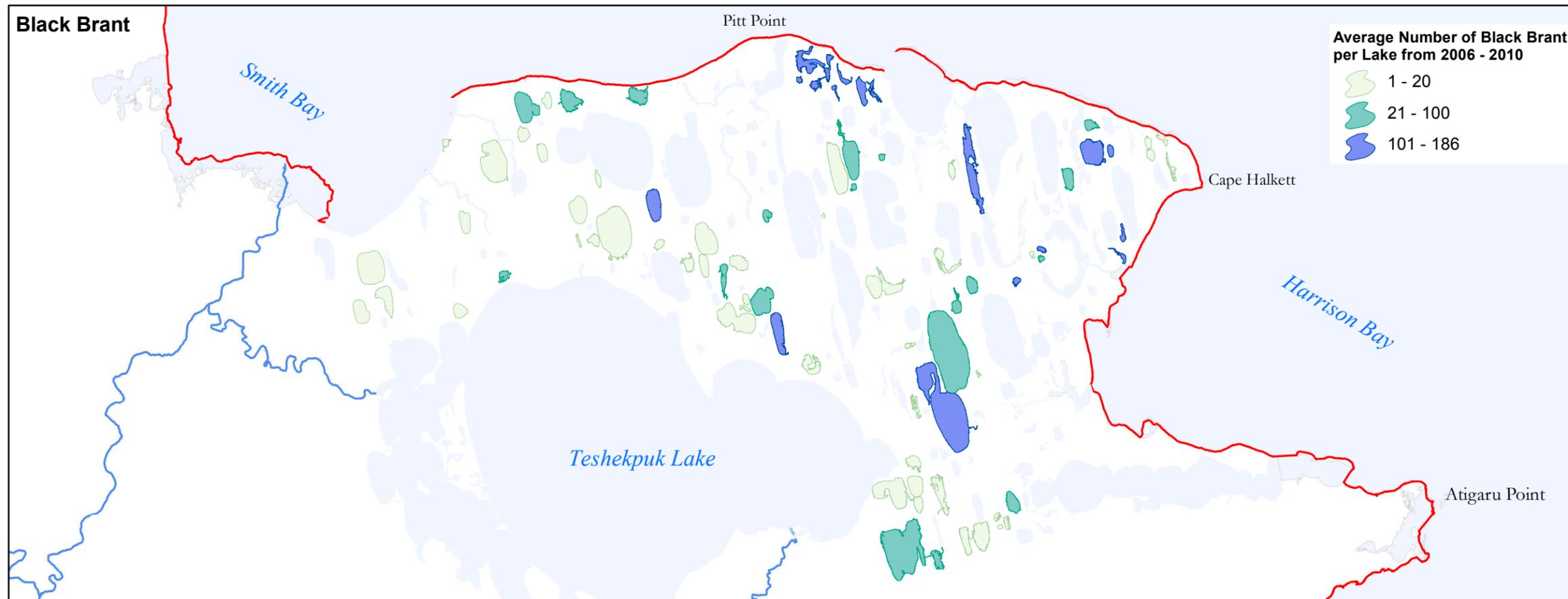
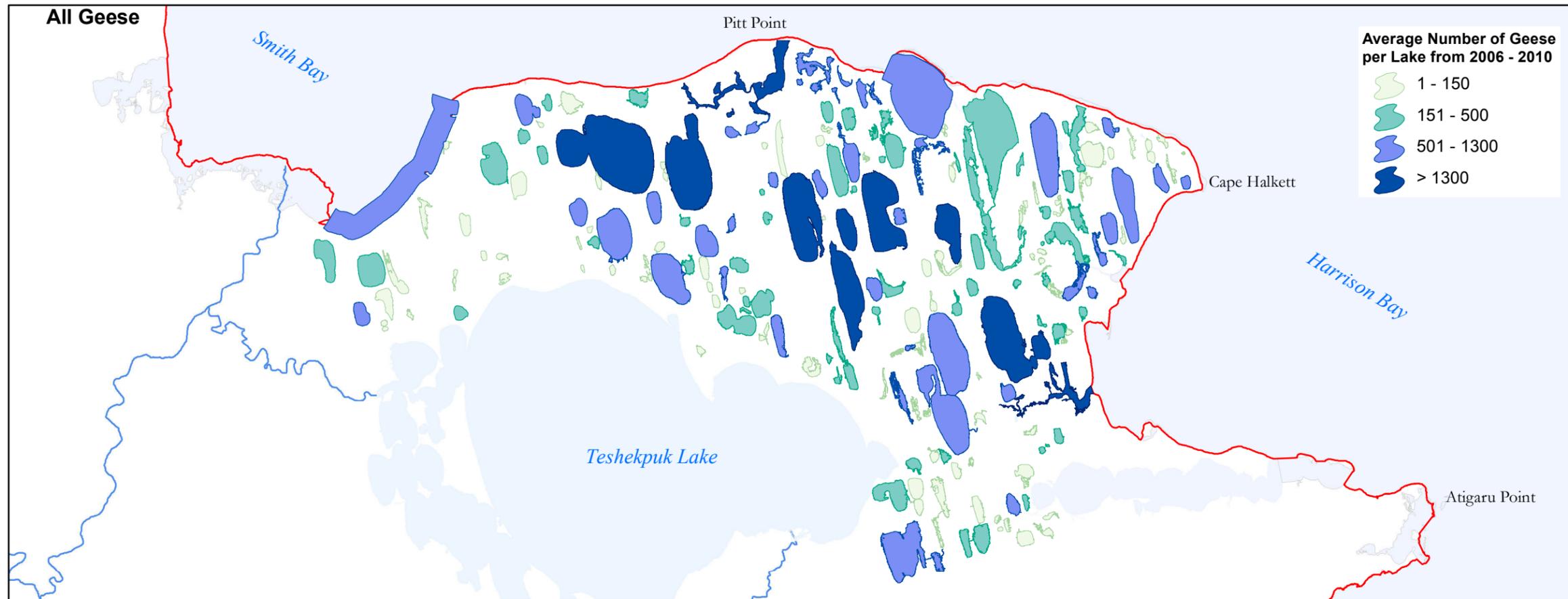


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Projection: Albers Conic Equal Area referencing NAD83



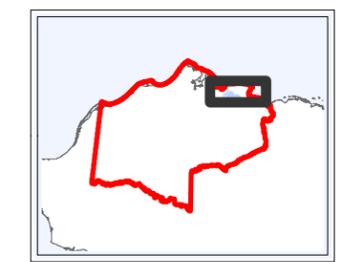
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Map 3.3.5-9
Goose and Black Brant
Distribution in Surveyed
Lakes
2006 - 2010

Source: USFWS - Migratory
 Bird Management, 2010

NPRA Boundary



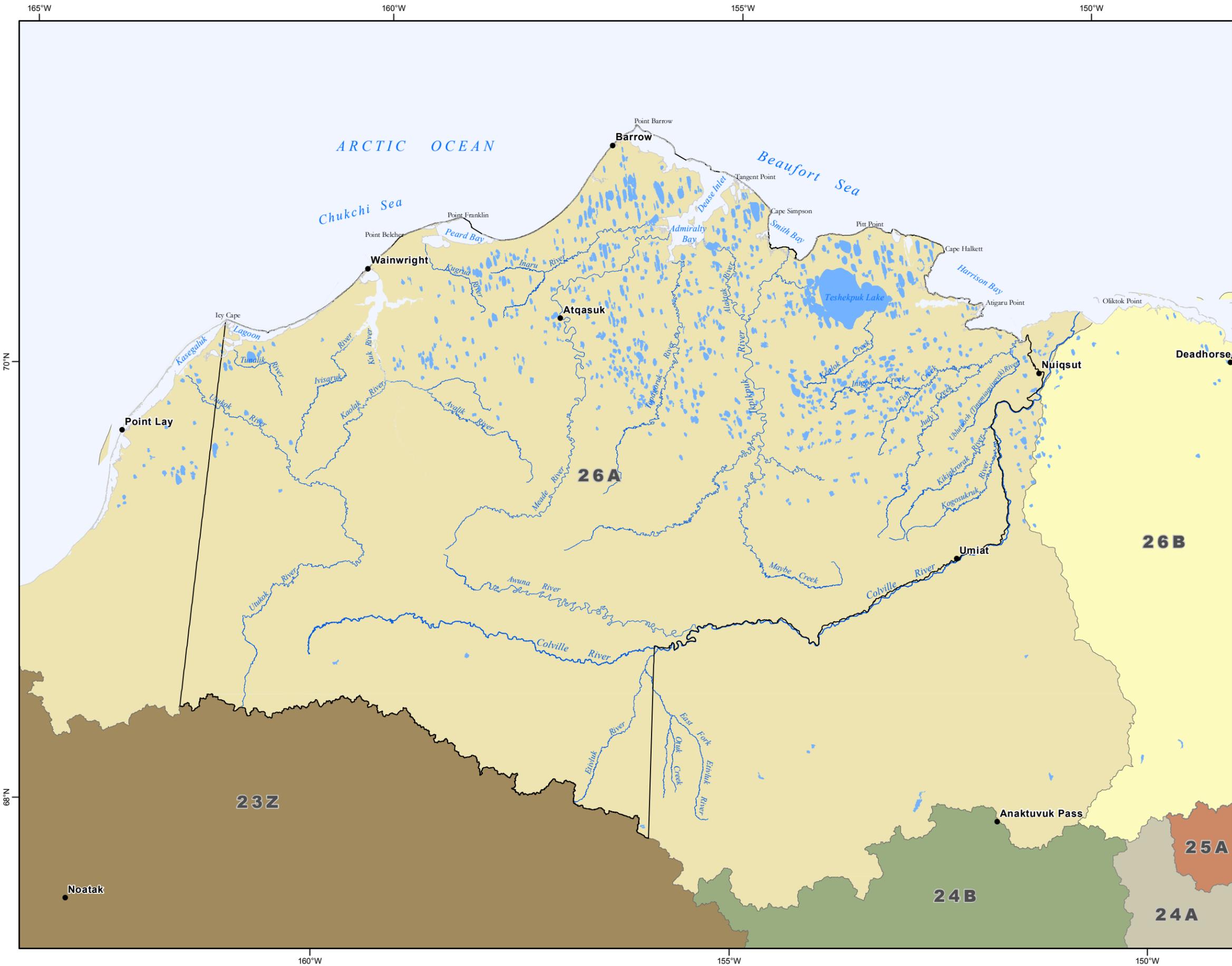
0 5 10 Miles

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Projection: Albers Conic Equal Area
 referencing NAD83



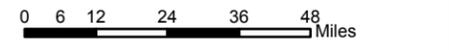
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Map 3.3.6-1 Game Management Units

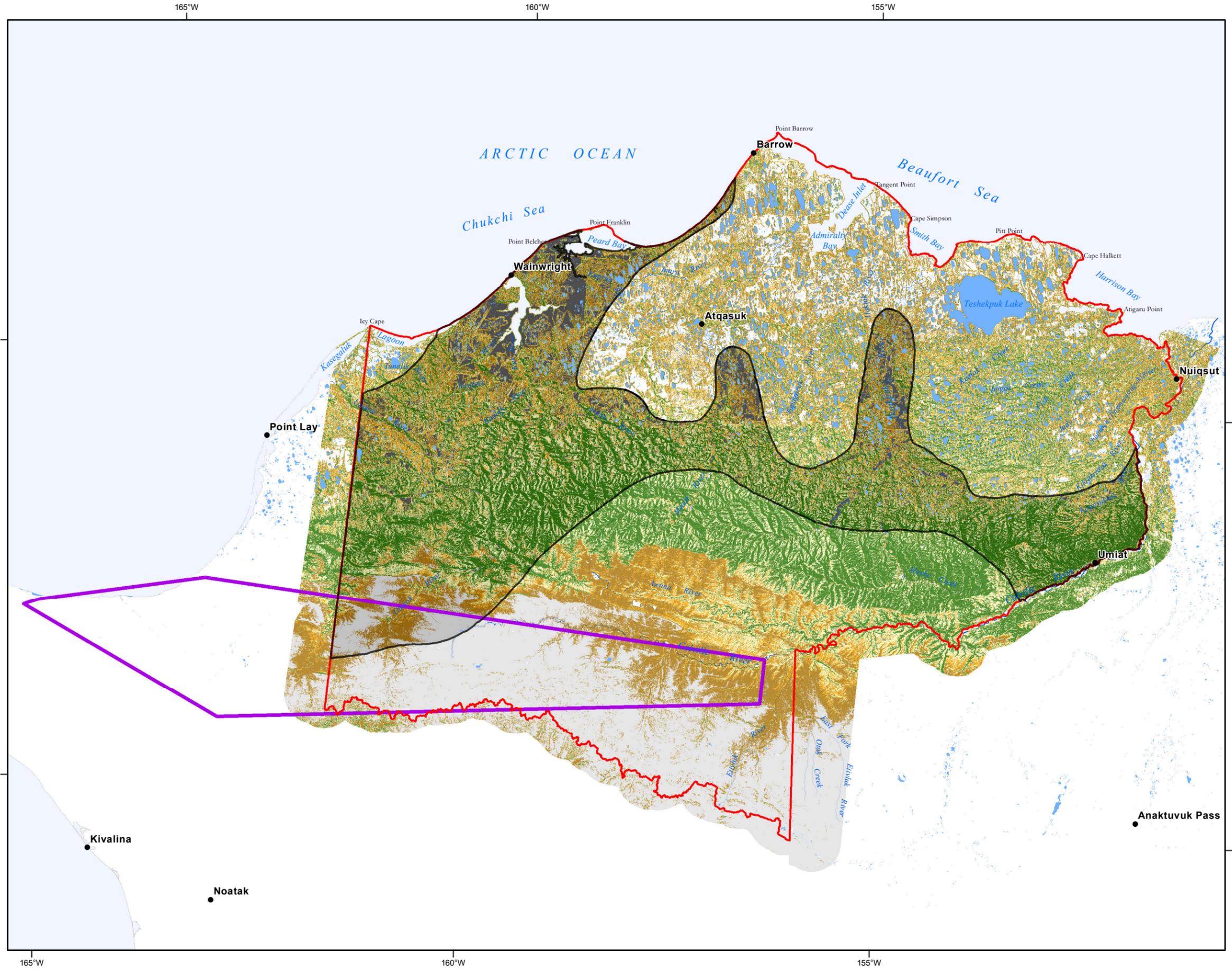
Source: ADF&G - 2010

-  Game Management Unit
-  NPRA Boundary



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Map 3.3.6-10

Muskox Predicted Winter Habitat

Sources: USDOI BLM -1978
Danks, Fiona - 2000
ADF&G - 2010

Best Potential Year-Round Muskox Habitat (USDOI BLM 1978)

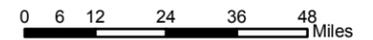


Muskox Potential Winter Habitat (Danks, 2000)

- Low
- Medium
- High

Muskox Sightings, 2008-2010

NPRA Boundary

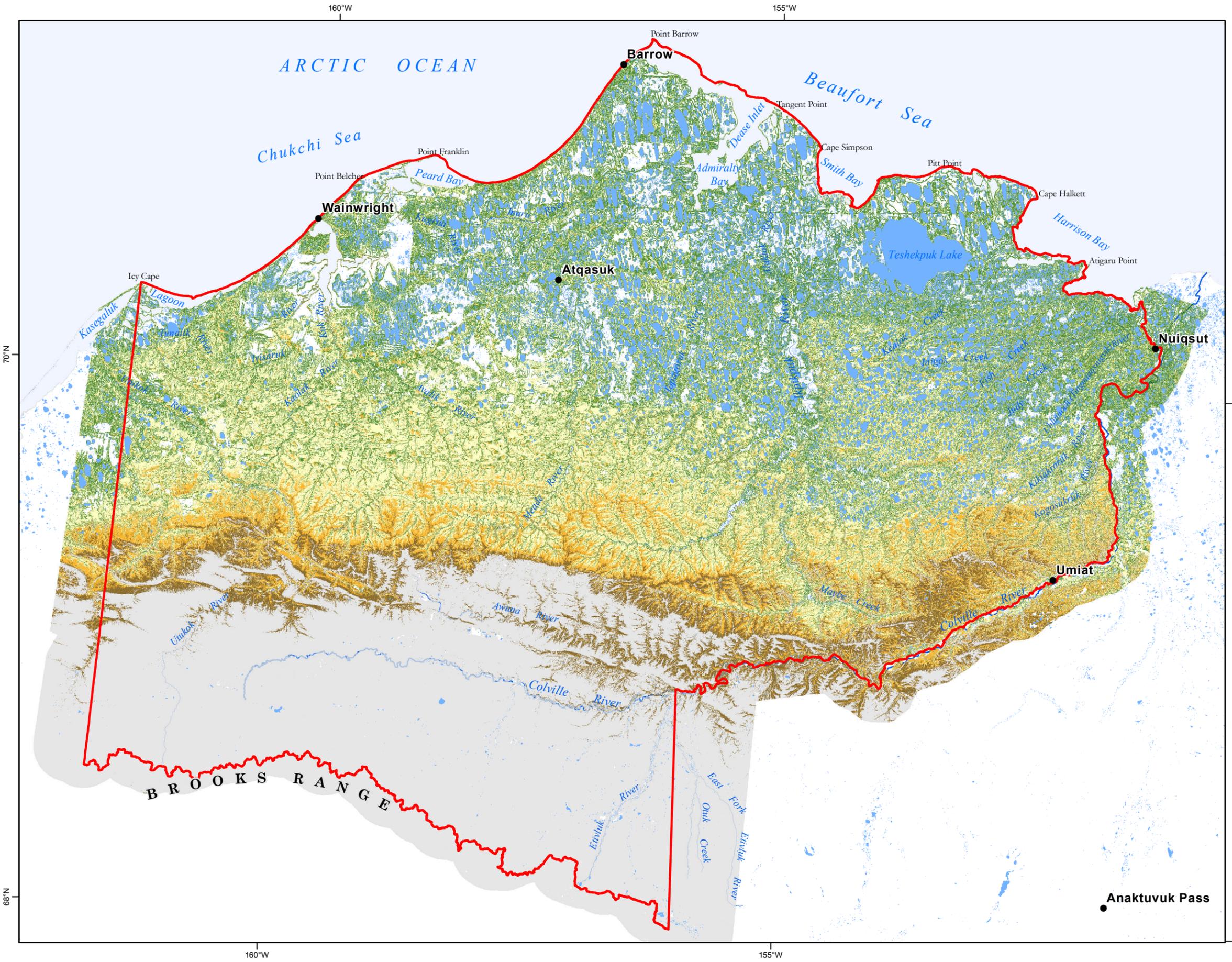


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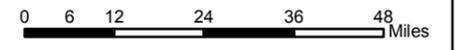
Map 3.3.6-11
Muskox Predicted Summer Habitat

Sources: Danks, Fiona 2000

Muskox Potential Summer Habitat (Danks, 2000)

- Low
- Medium
- High
- Very High

⬮ NPR-A Boundary

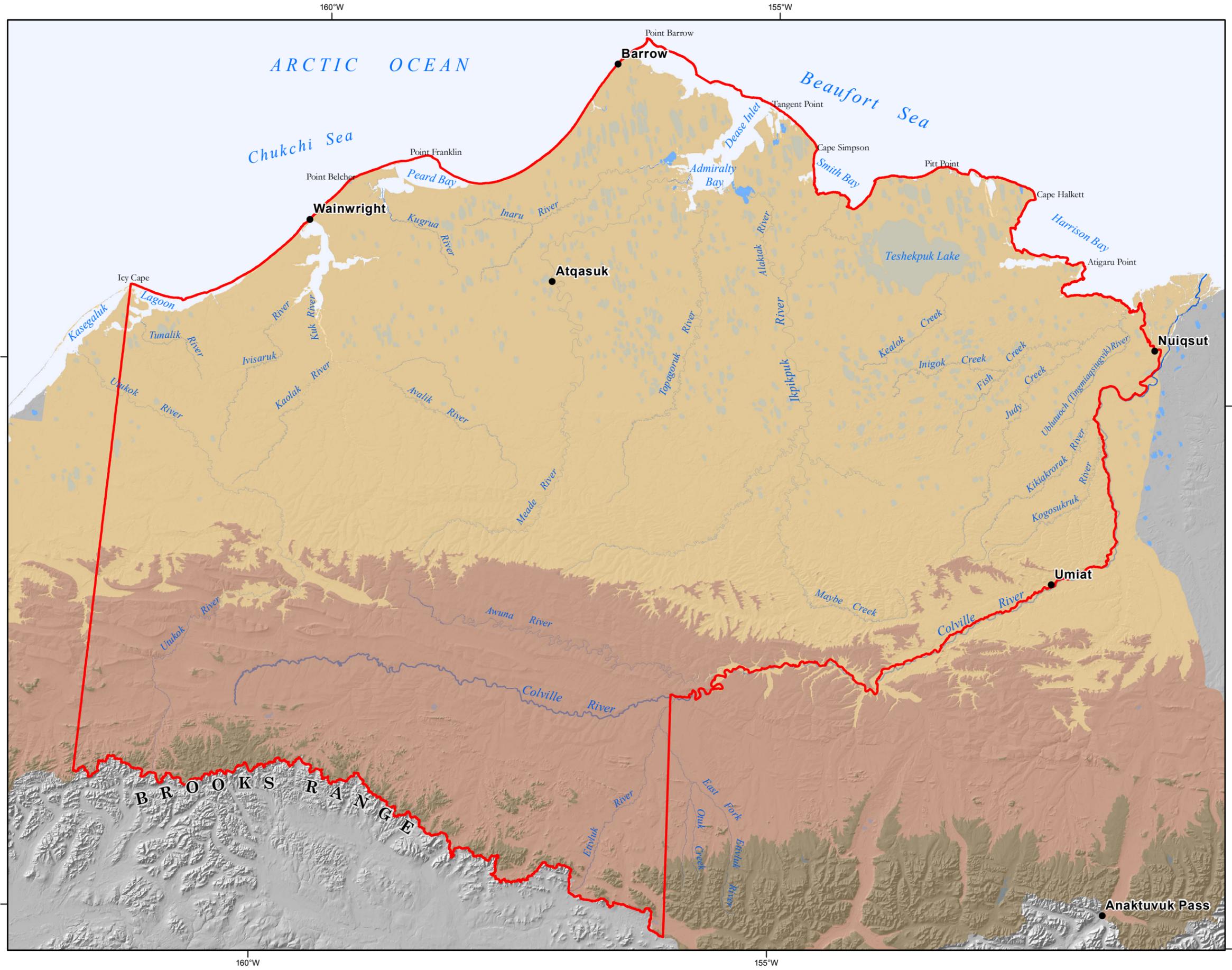


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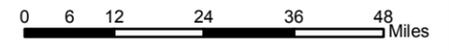


Map 3.3.6-13
Estimated Grizzly Bear Density
(based on elevation range)

Source: Carroll, G.M. 1998a.

- Estimated Grizzly Bear Density**
 Bears per 1,000 square kilometers
- 10-20 (>2,500 ft. elevation)
 - 10-30 (800 - 2,500 ft. elevation)
 - 0.5-2 (<800 ft. elevation)

NPR-A Boundary



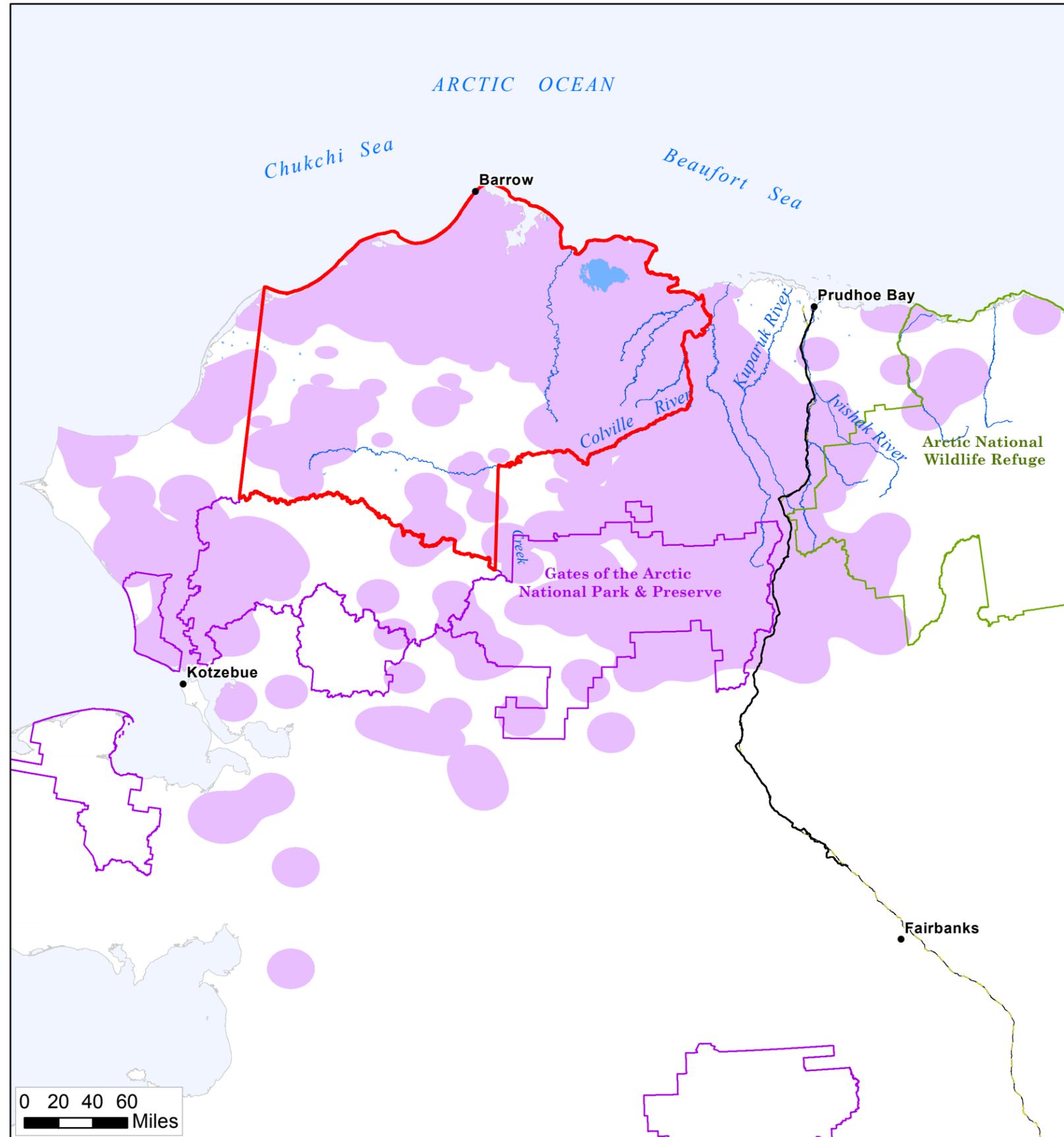
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Projection: Albers Conic Equal Area
 referencing NAD83

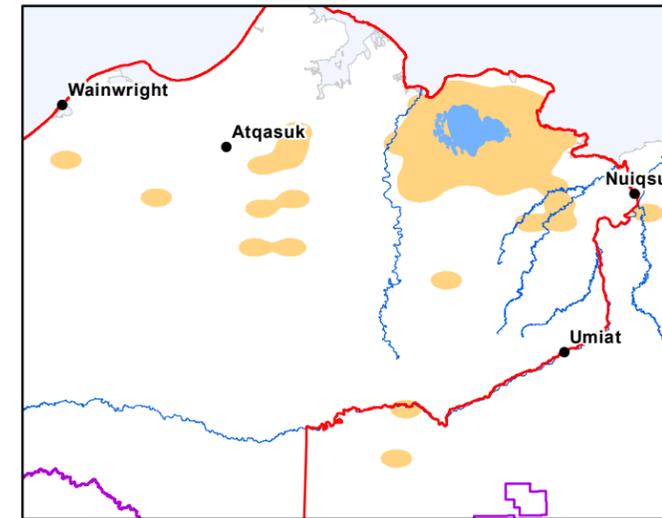


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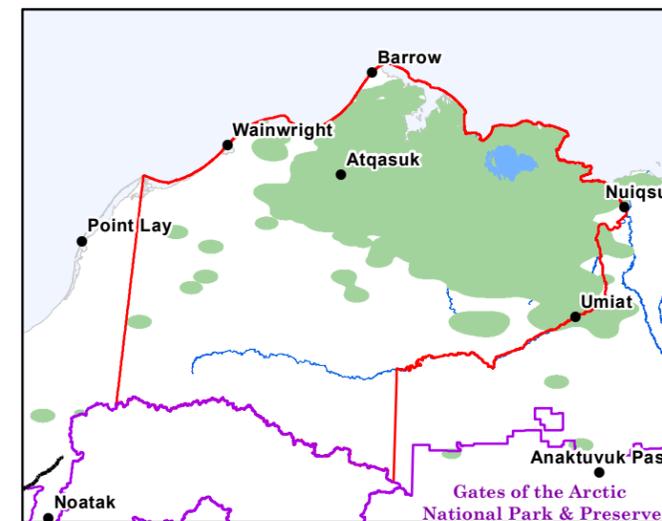
ANNUAL



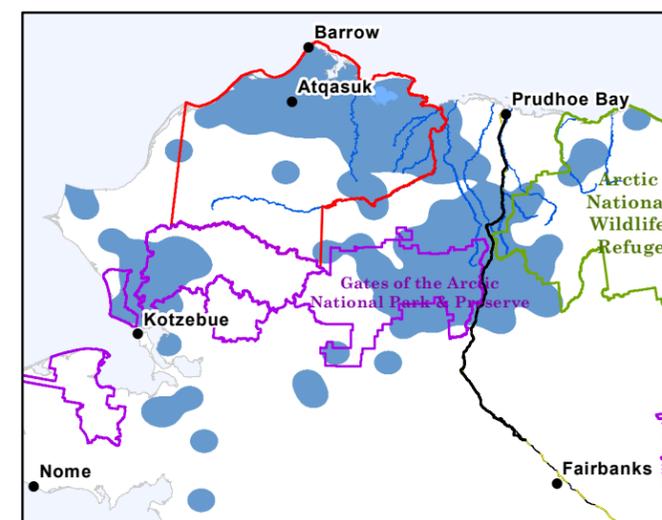
CALVING 1-15 June



SUMMER 1 June - 15 September



WINTER 1 December - 15 April



Map 3.3.6-2

Teshekpuk Lake Caribou Herd - Seasonal Range

Source: ADF&G, NSB, BLM, CPAI, and ABR

Teshekpuk Lake Caribou Seasonal Areas
Fixed Kernel Probability
95% Utilization Distribution
(1990 - 2010 Satellite Telemetry Data)

Season

- Annual
- Calving
- Summer
- Winter

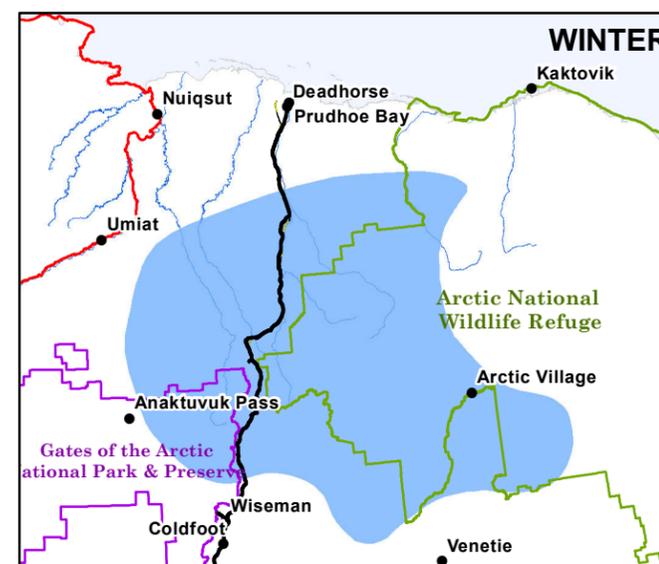
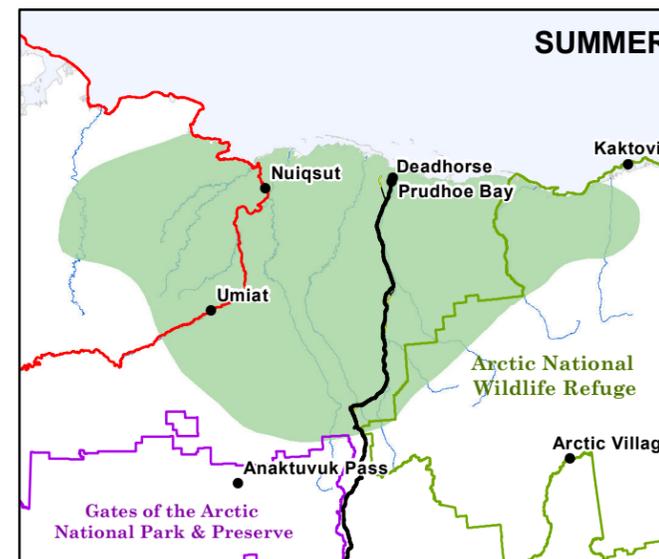
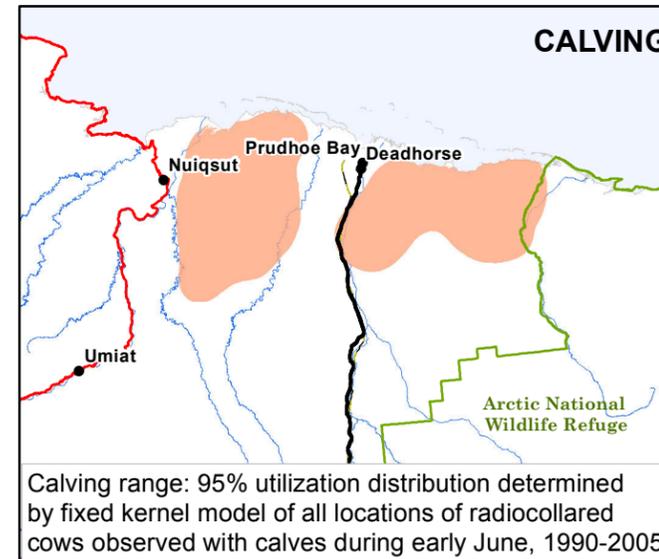
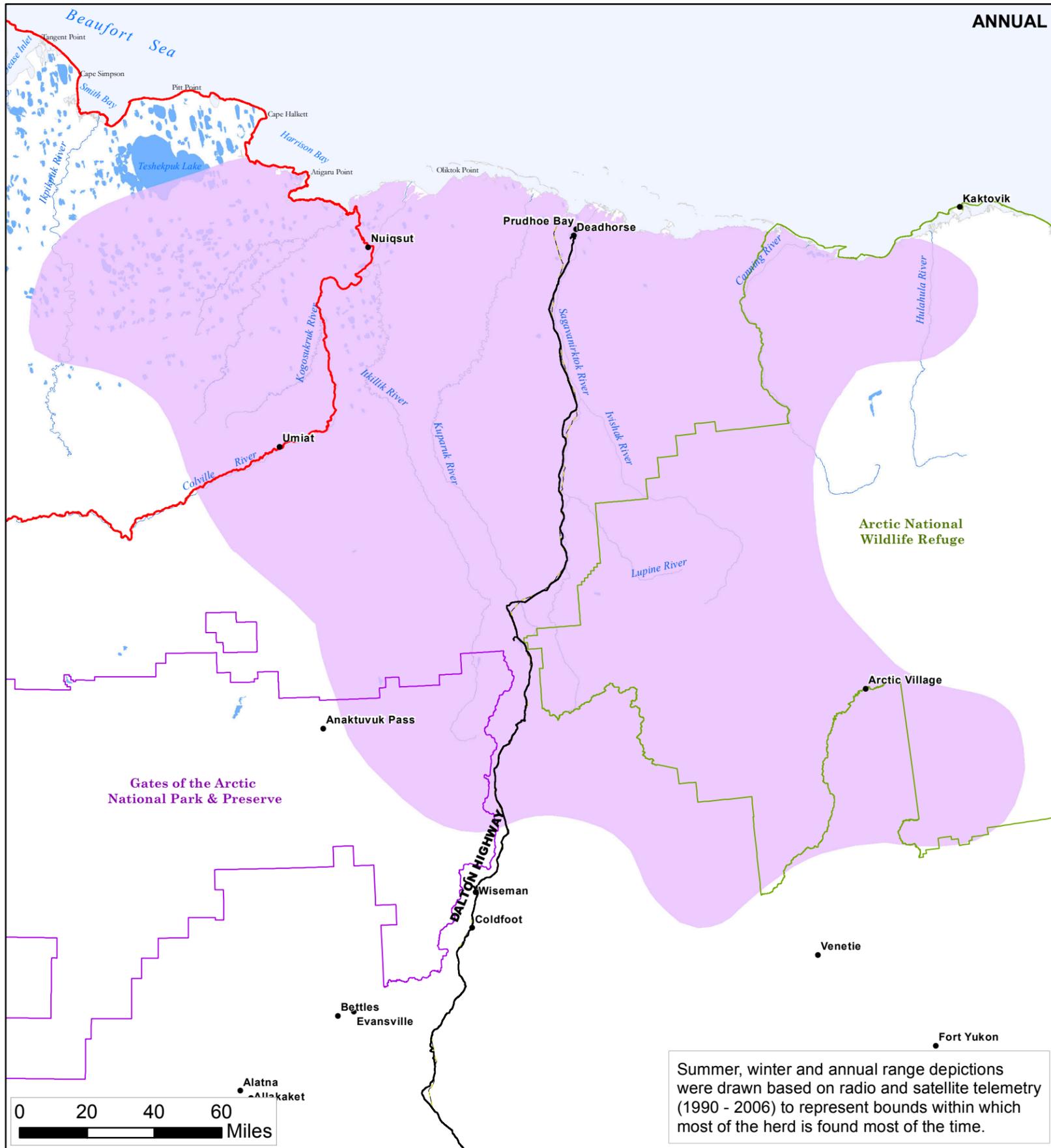
- Dalton Highway
- Trans-Alaska Pipeline
- NPRA Boundary

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**Map 3.3.6-3
Central Arctic Caribou
Seasonal Ranges**

Source: ADF&G - 2010

**CENTRAL ARCTIC CARIBOU
SEASONAL RANGE**

-  Calving
-  Summer
-  Winter
-  Annual

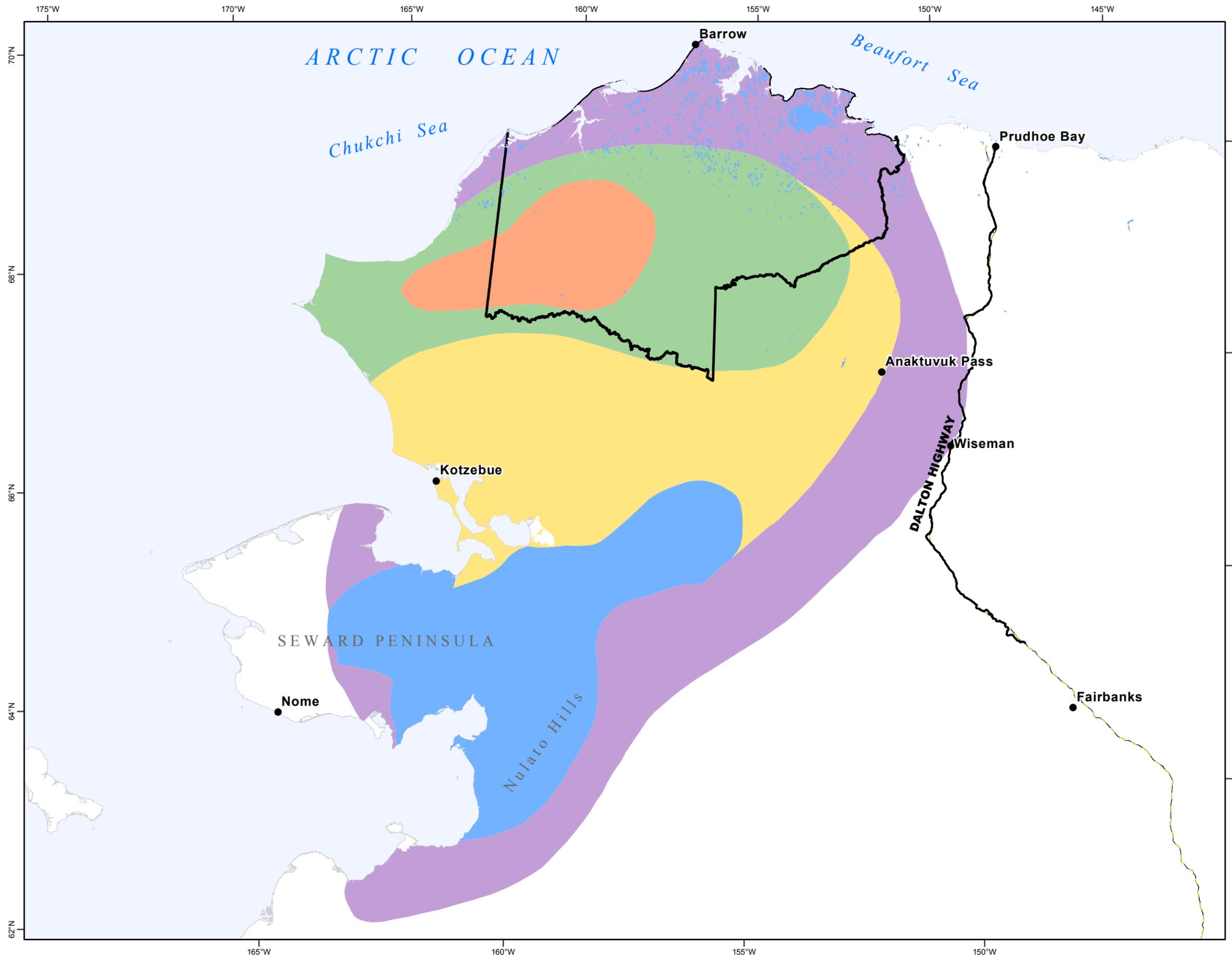
-  Dalton Highway
-  Trans-Alaska Pipeline
-  NPRA Boundary

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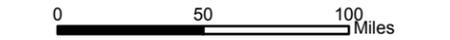


Map 3.3.6-4
Western Arctic Caribou Herd Range

Source: ADF&G - 2010

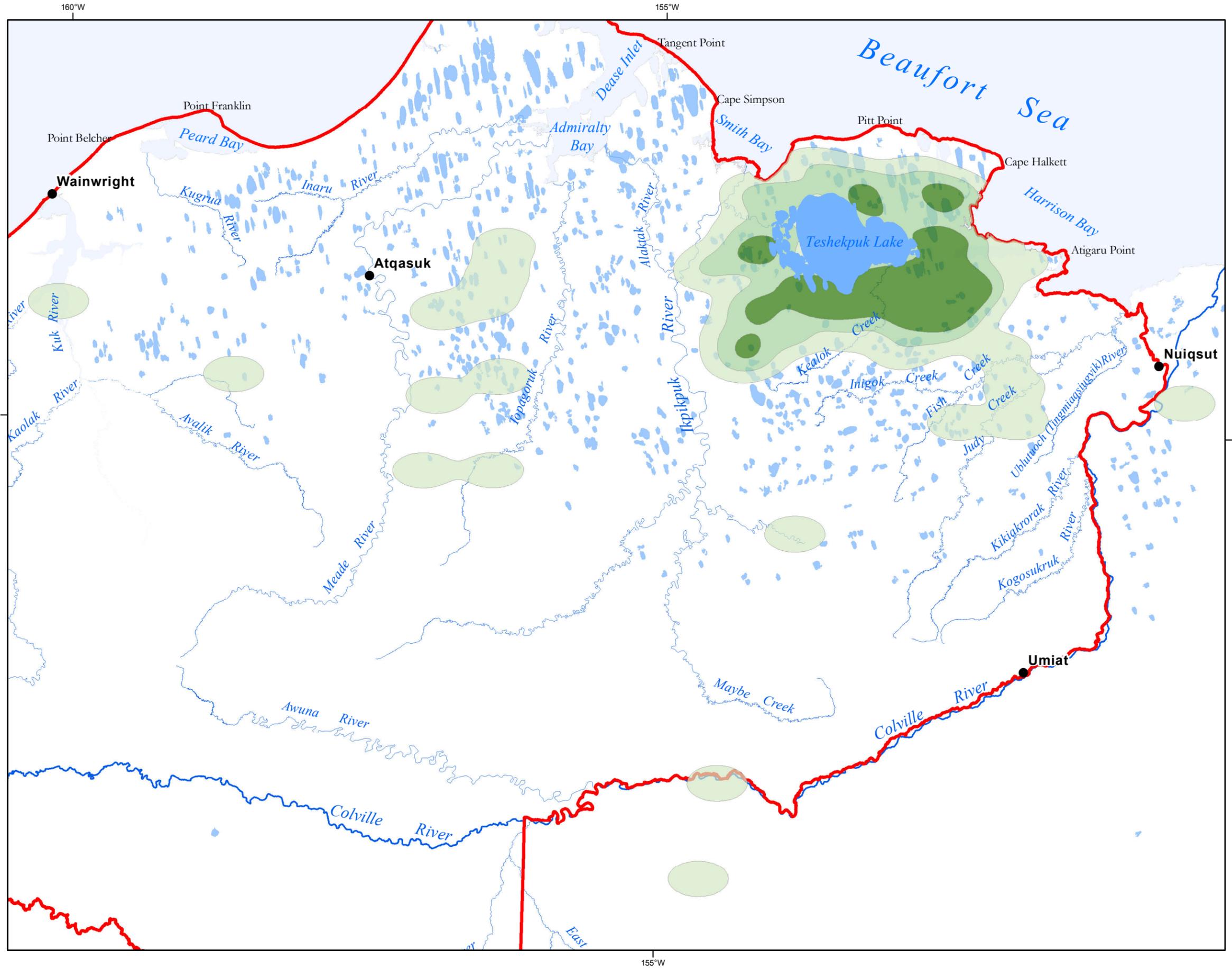
- Western Arctic Caribou Herd Range**
- Calving Grounds
 - Migratory Area
 - Outer Range
 - Summer Range
 - Winter Range

- Dalton Highway
- Trans-Alaska Pipeline
- NPRA Boundary



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Projection: Albers Conic Equal Area
referencing NAD83

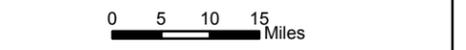


Map 3.3.6-5
Teshekpuk Lake
Caribou Herd -
Calving Areas

Source: ADF&G, NSB, BLM, CPAI, and ABR

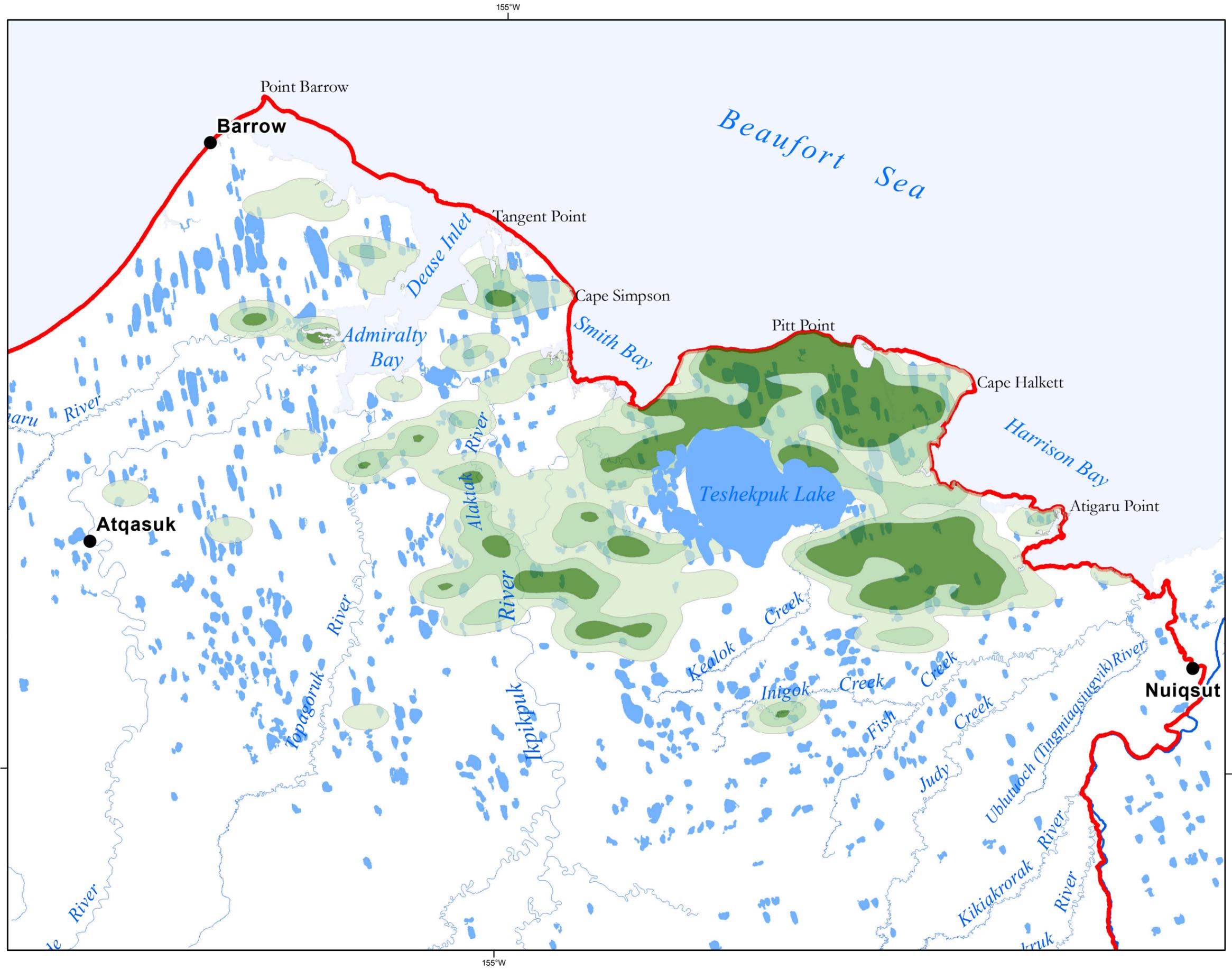
Teshekpuk Lake Caribou Herd Calving Area - 1 -15 June Successful Females Only Kernel Density Analysis (1990 - 2010 Satellite Telemetry Data)

- Density Contour**
- 50 %
 - 75 %
 - 95 %
- NPRA Boundary



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Projection: Albers Conic Equal Area referencing NAD83

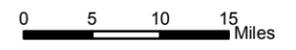


Map 3.3.6-6
Teshekpuk Lake
Caribou Herd -
Mosquito Relief Areas

Source: ADF&G, NSB, BLM, CPAI, and ABR

Teshekpuk Lake Caribou Herd
Mosquito Relief Area-
1-15 July
Kernel Density Analysis
(1990 - 2010 Satellite
Telemetry Data)

- Density Contour**
- 50 %
 - 75 %
 - 95 %
- NPRA Boundary

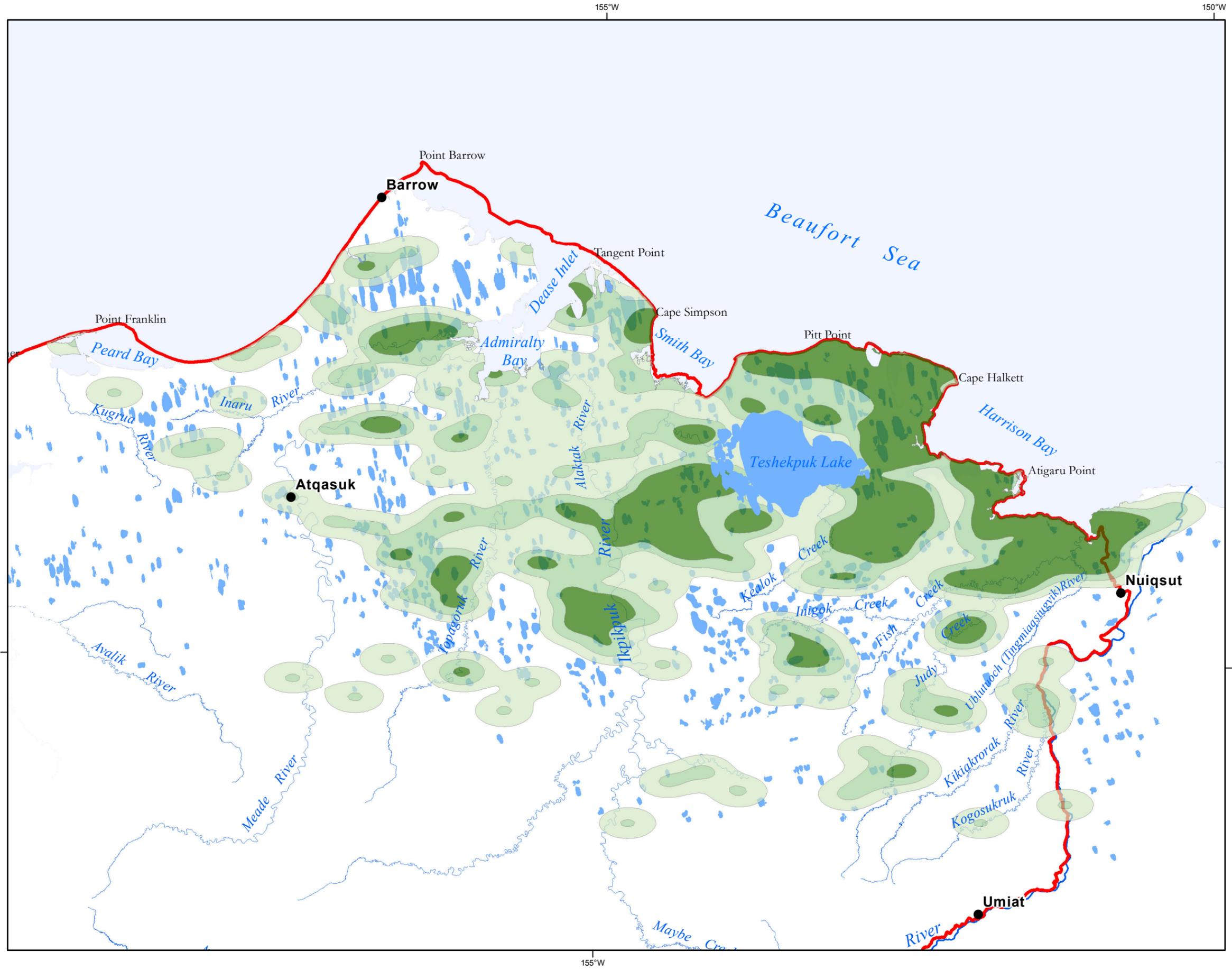


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Projection: Albers Conic Equal Area
referencing NAD83



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Map 3.3.6-7
Teshekpuk Lake Caribou Herd - Fly Relief Areas

Source: ADF&G, NSB, BLM, CPAI, and ABR

Teshekpuk Lake Caribou Herd Oestrid Fly Relief Area- 16 July - 7 August Kernel Density Analysis (1990 - 2010 Satellite Telemetry Data)

Density Contour

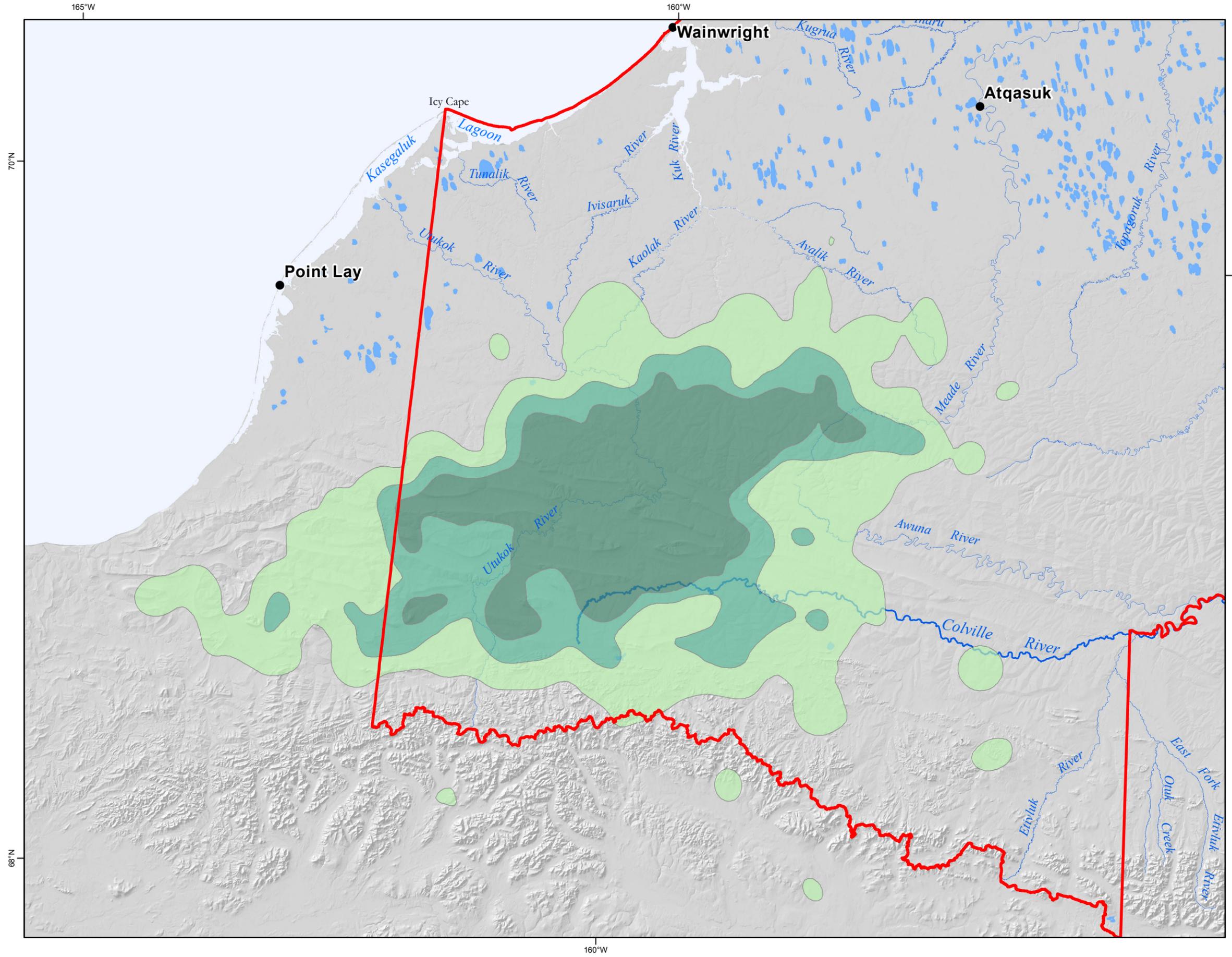
- 50 %
- 75 %
- 95 %

NPRA Boundary



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Projection: Albers Conic Equal Area referencing NAD83



Map 3.3.6-8
Western Arctic
Caribou Herd -
Calving Ground

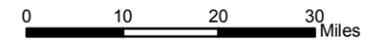
Source: ADF&G - 2010

Calving Grounds
Kernel Density Analysis
(1987 - 2010, excluding 1990-1991)

Density Contour

- 50%
- 75%
- 95%

NPRA Boundary



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Projection: Albers Conic Equal Area
referencing NAD83



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70°N

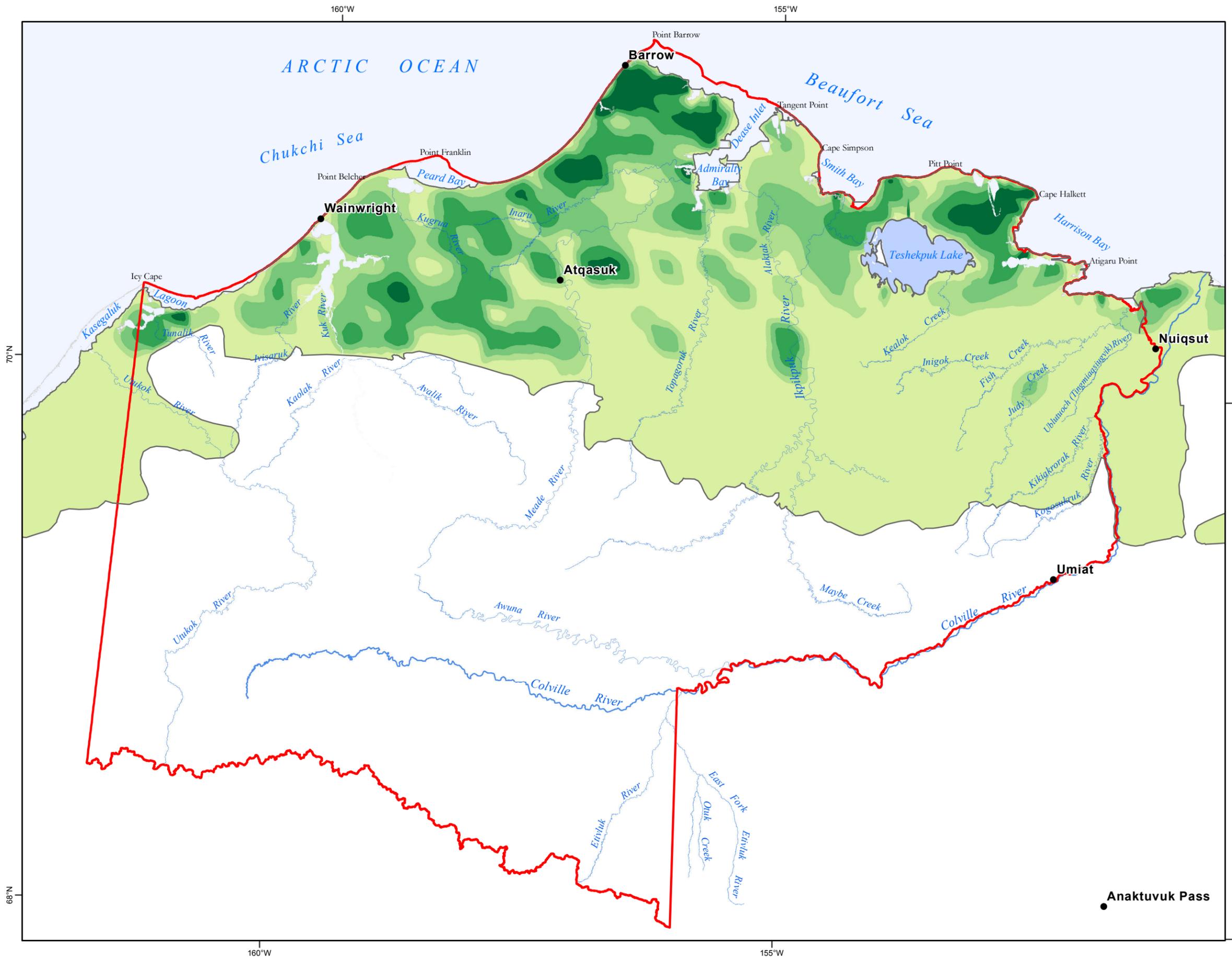
68°N

70°N

165°W

160°W

160°W



Map 3.3.8-1

**Spectacled Eider
Onshore Density**

Source: USFWS - Migratory Bird Management, 2010.

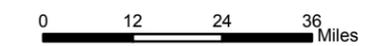
**SPECTACLED EIDER
Estimated Relative Onshore Density
(2007-2010)**

Birds per Square Kilometer

- 0.425 - 0.817
- 0.236 - 0.425
- 0.112 - 0.236
- 0.028 - 0.111
- 0.000 - 0.028

Survey Area Boundary

NPRA Boundary

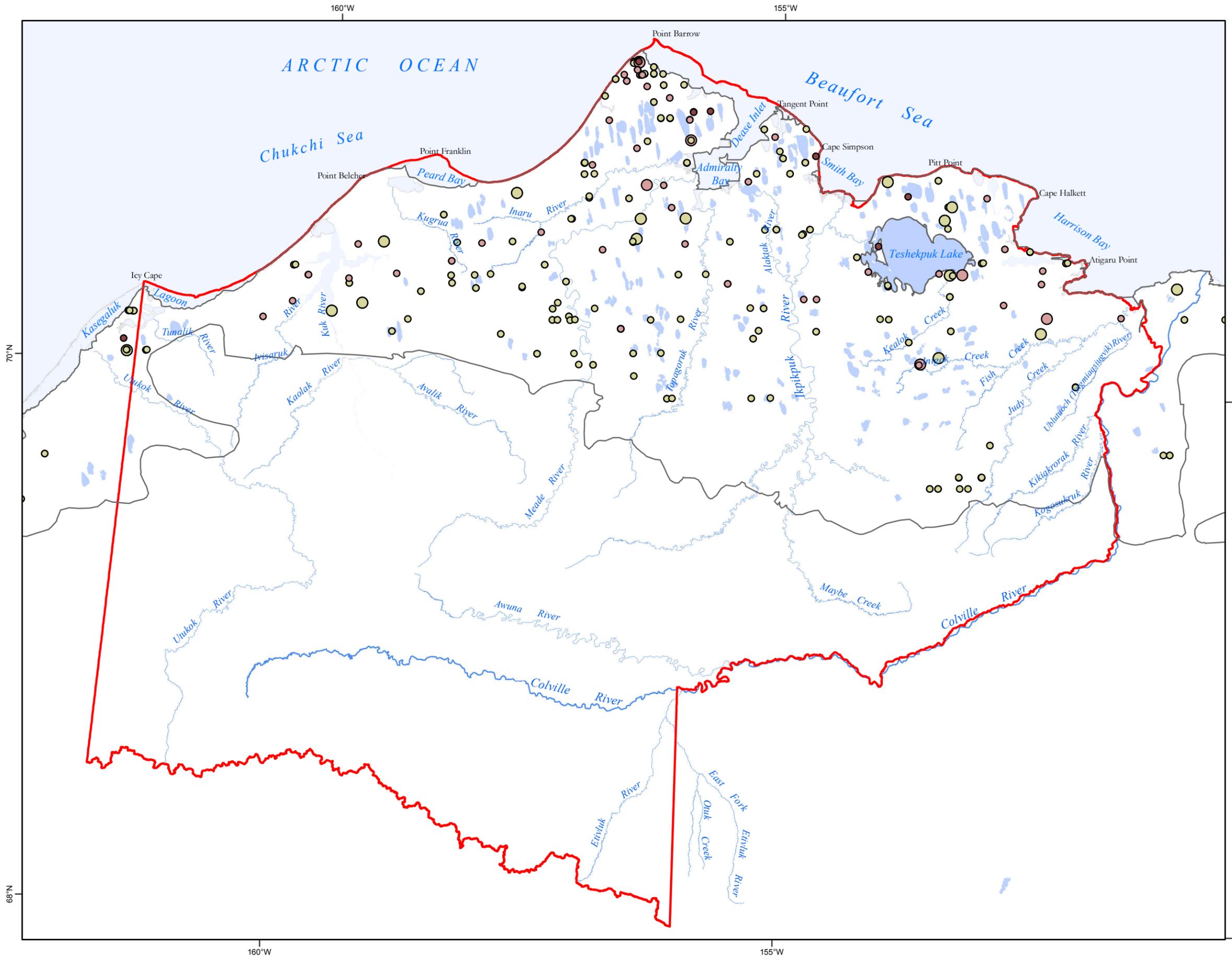


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Projection: Albers Conic Equal Area
referencing NAD83



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Map 3.3.8-2

**Steller's Eider
Onshore Locations**

Source: USFWS - Migratory Bird Management, 2010

**STELLER'S EIDER
Locations of Steller's Eider Groups
(1989-2009)**

1989-1996

- 1-2 Groups
- 4-5 Groups
(seen only in 1993 & 1994)

1997-2006

- 1-2 Groups
- 3-7 Groups

2007-2010

- 1-2 Groups
(No birds seen in 2010)

Survey Area Boundary

NPRA Boundary

0 12 24 36 Miles

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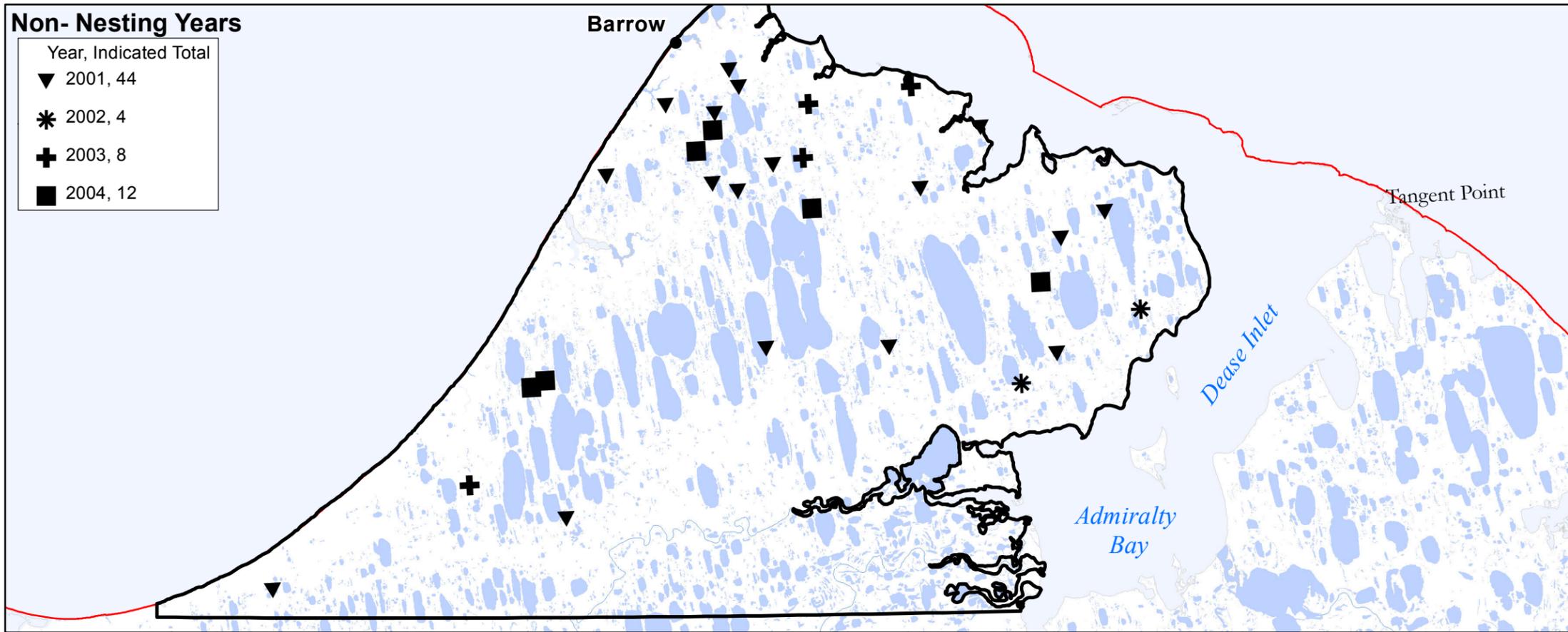
Projection: Albers Conic Equal Area
referencing NAD83



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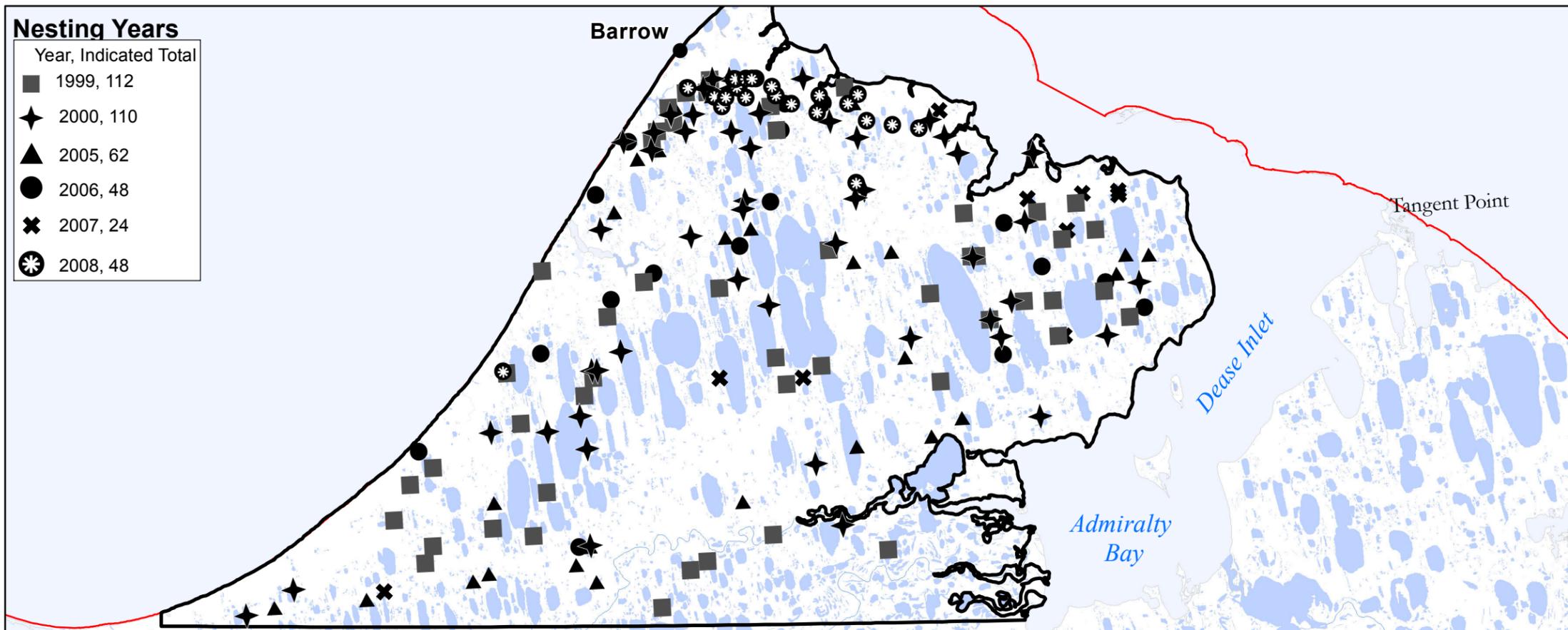
Non- Nesting Years

Year, Indicated Total
▼ 2001, 44
* 2002, 4
+ 2003, 8
■ 2004, 12



Nesting Years

Year, Indicated Total
■ 1999, 112
◆ 2000, 110
▲ 2005, 62
● 2006, 48
✕ 2007, 24
⊗ 2008, 48

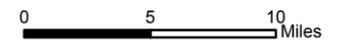
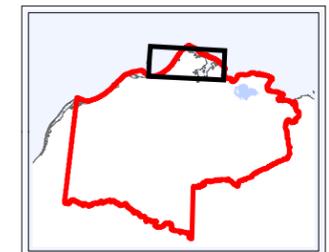


Map 3.3.8-3

Steller's Eider Location Within the Barrow Triangle Survey Area

Source: ABR Inc., 2010

-  Barrow Triangle
-  NPRA Boundary

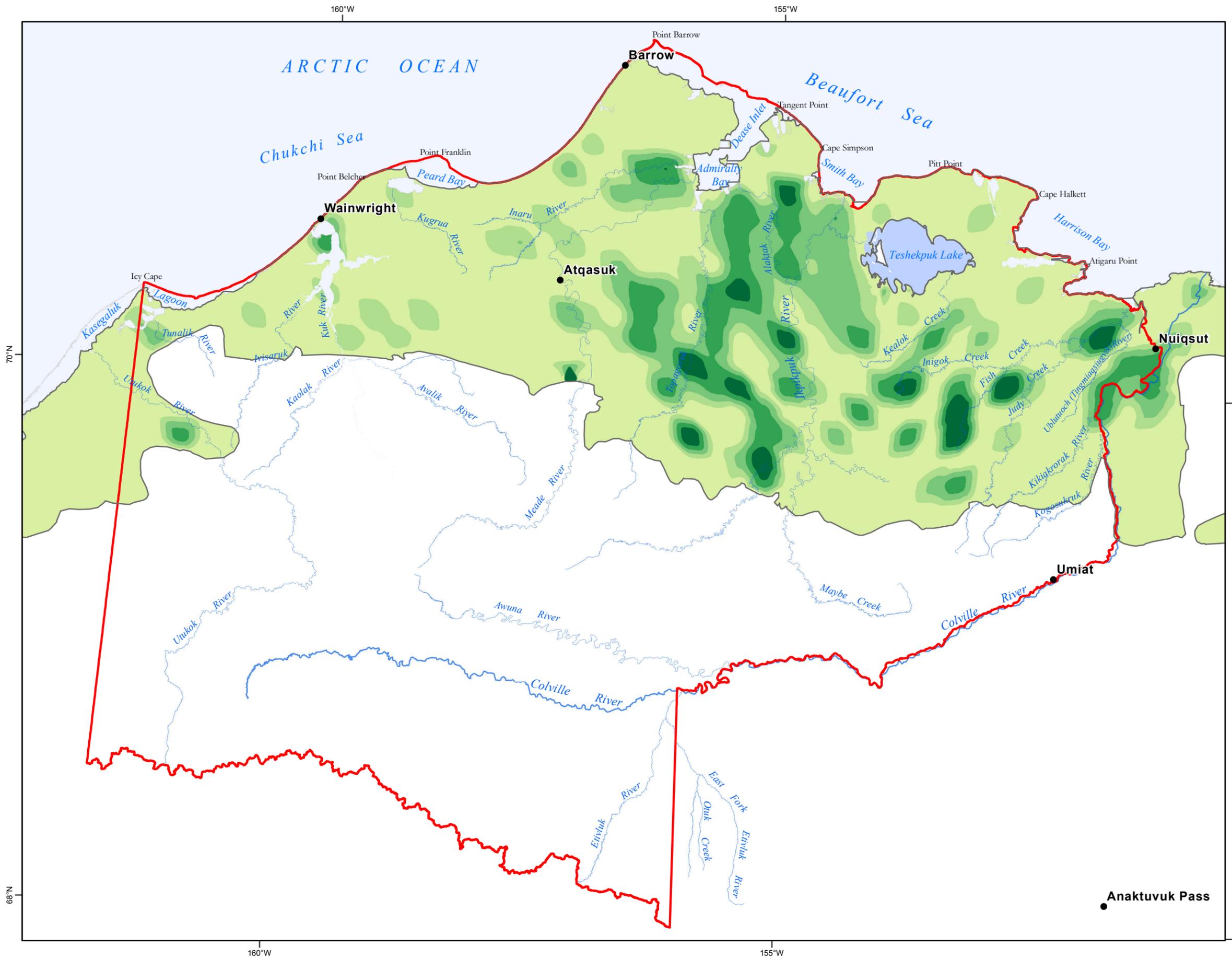


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Projection: Albers Conic Equal Area referencing NAD83



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Map 3.3.8-4

**Yellow-billed Loon
Onshore Density**

Source: USFWS - Migratory Bird Management, 2010.

**YELLOW-BILLED LOON
Estimated Relative Onshore Density
(2007-2010)**

Birds per Square Kilometer

- 0.322 - 0.516
- 0.204 - 0.321
- 0.103 - 0.203
- 0.031 - 0.102
- 0.000 - 0.030

Survey Area Boundary

NPRA Boundary

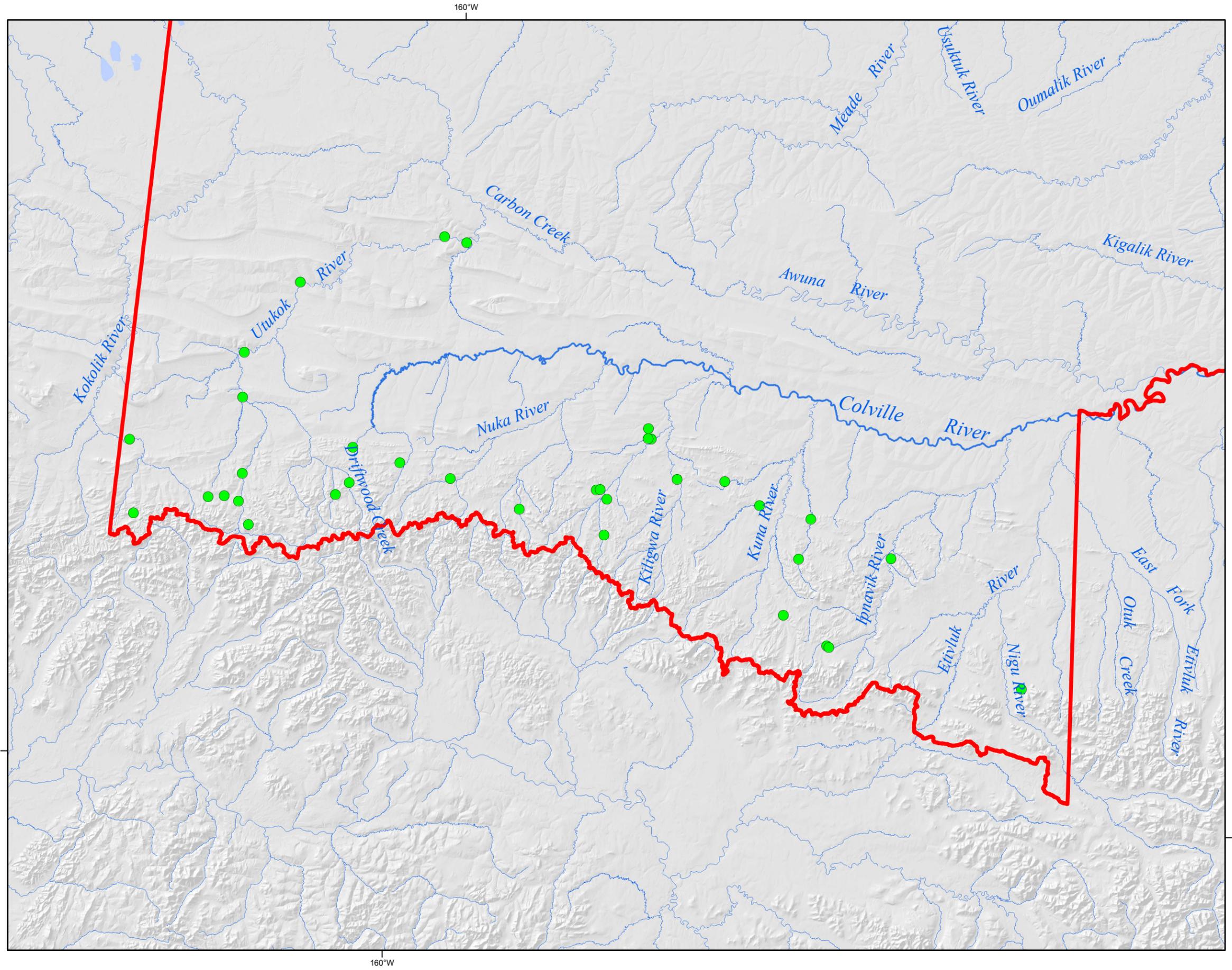
0 12 24 36 Miles

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Projection: Albers Conic Equal Area
referencing NAD83



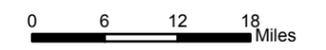
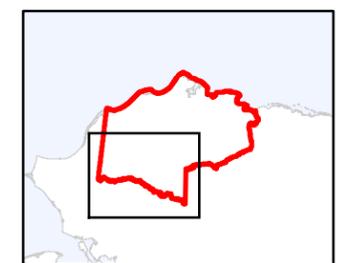
Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska
Draft IAP/EIS



Map 3.3.8-5
Golden Eagle
Nesting/ Activity Sites

Source: BLM, 2006

- Golden Eagle Locations
- ⬮ NPRA Boundary

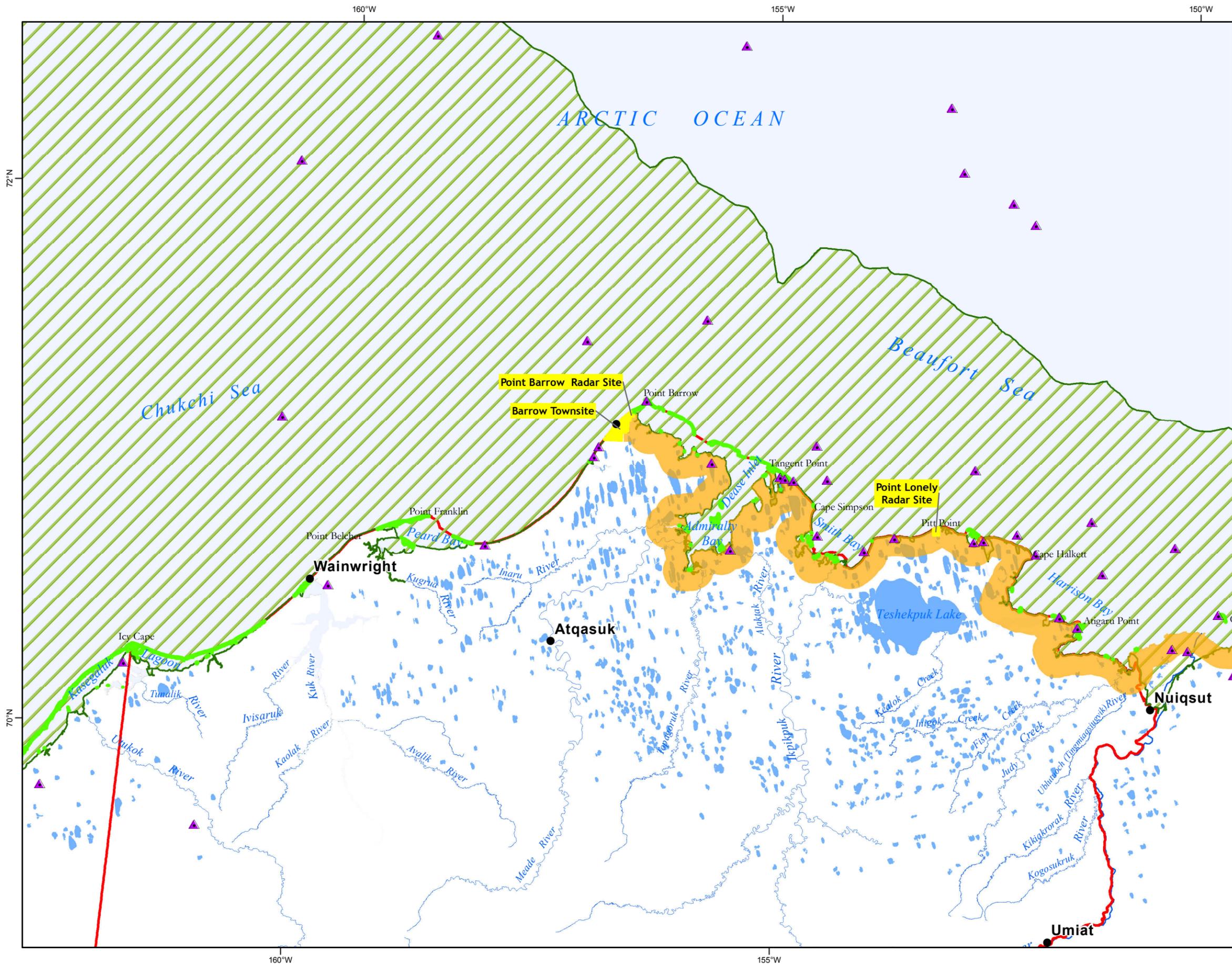


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Projection: Albers Conic Equal Area
referencing NAD83



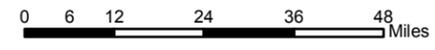
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National Petroleum Reserve - Alaska
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Map 3.3.8-6
Polar Bear -
Critical Habitat &
Confirmed Dens

Source: USFWS, 2011
 USGS, 2007

-  Confirmed Polar Bear Den Locations (1972 - 2007)
- Polar Bear Critical Habitat**
-  Critical Habitat Exclusion Areas
-  Barrier Islands Critical Habitat (outline enlarged in order to be visible at this scale)
-  Denning Critical Habitat
-  Feeding Critical Habitat
-  NPRA Boundary

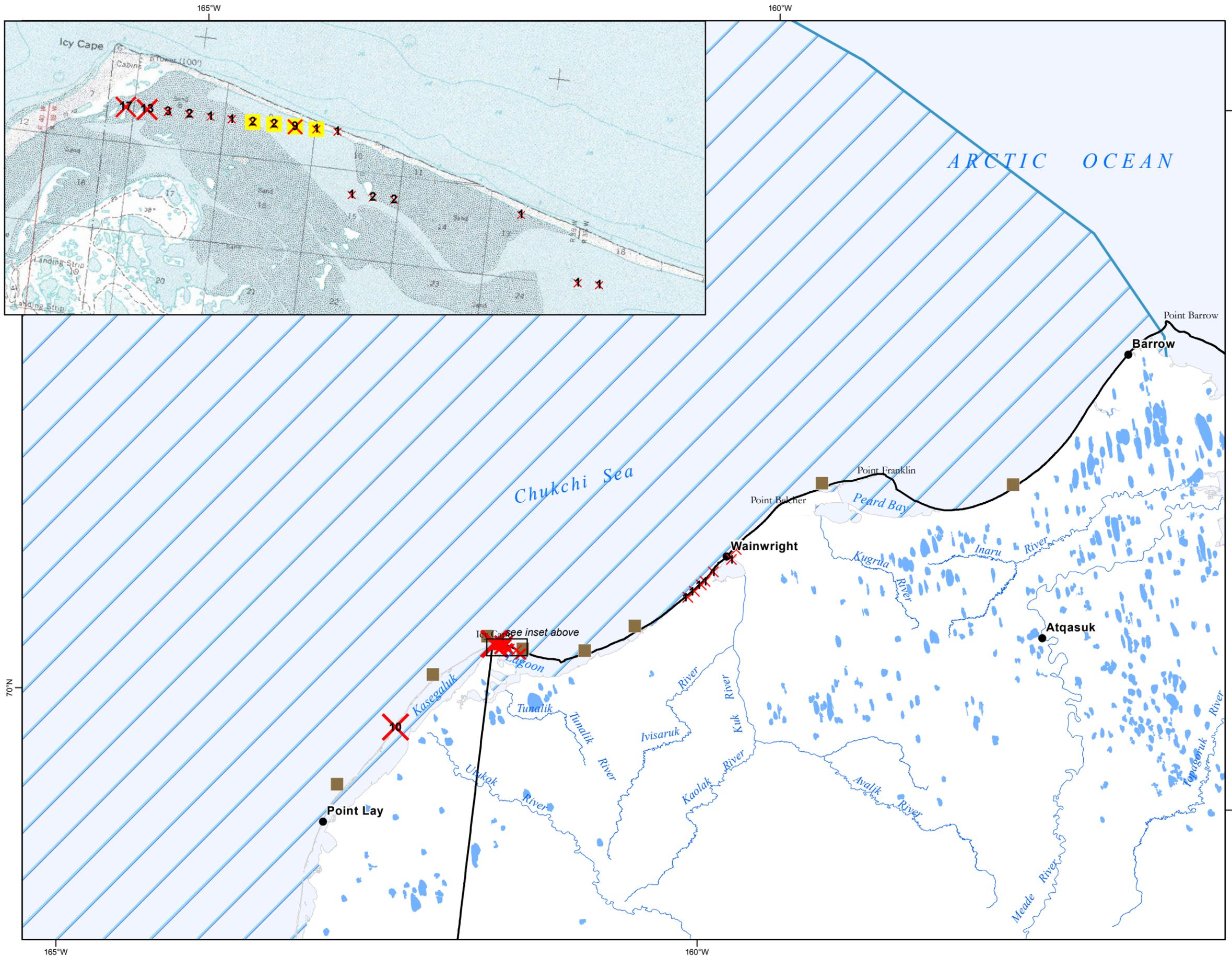


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 referencing NAD83



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Map 3.3.8-7 Pacific Walrus Summer Range, Haulout & Carcass Locations

Source: USGS, 2009
USFWS, 2011

Walrus Carcass Locations (14-19 September, 2009)

- 1-4
- 5-9
- 10-17

Labeled with maximum number of carcasses counted at location.

2009 Recent Haulouts

Pacific Walrus Haulouts

Pacific Walrus Summer Range

NPRA Boundary

0 12 Miles

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Projection: Albers Conic Equal Area
referencing NAD83



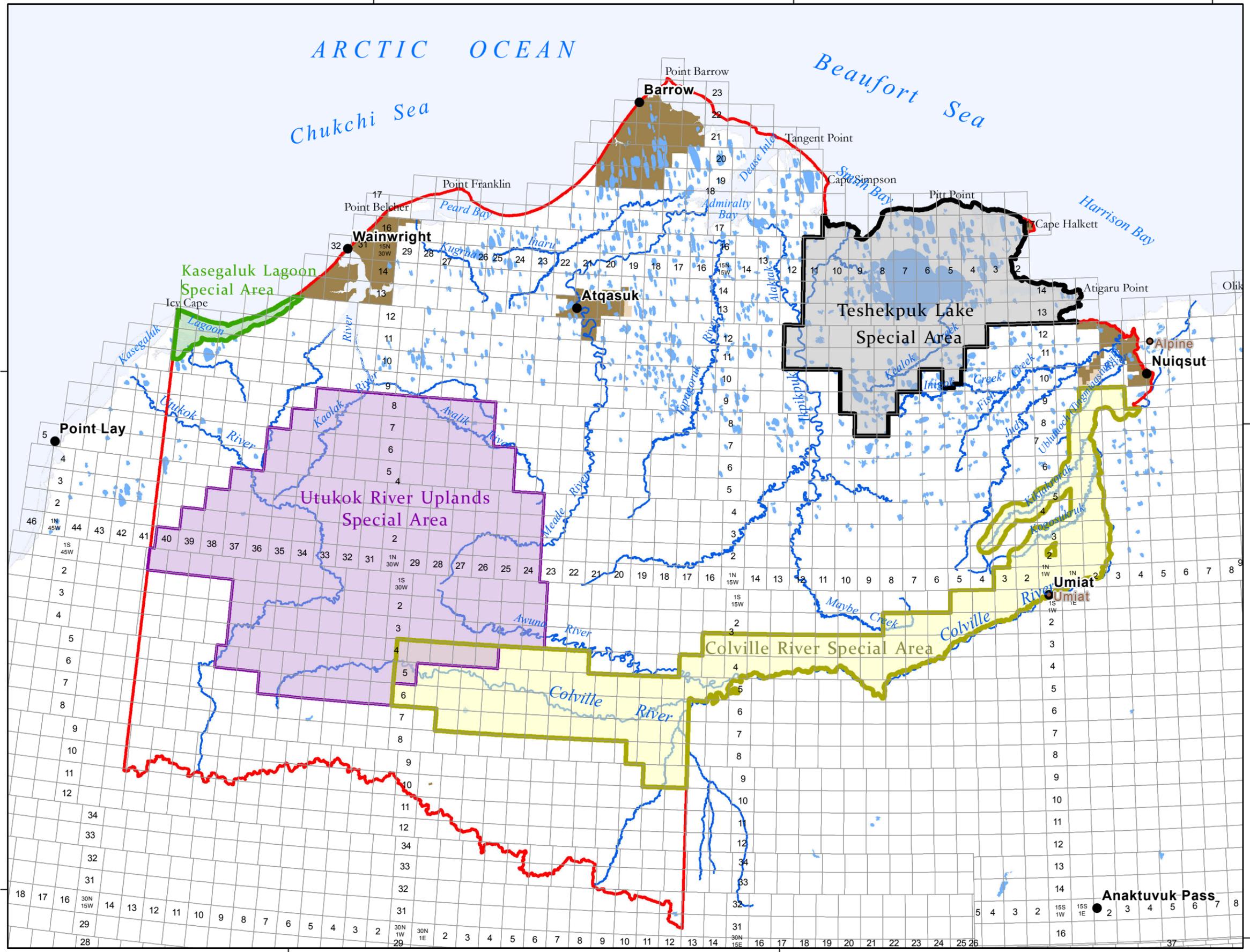
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160°W 155°W 150°W

ARCTIC OCEAN

Chukchi Sea

Beaufort Sea



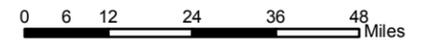
Map 3.3.9-1
Special Areas

Sources: USDOI BLM, 2004 & 2009

Special Area

Land Status
 Native Patent or IC
 Native Selected

NPR-A Boundary



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Projection: Albers Conic Equal Area
referencing NAD83



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70°N

70°N

68°N

66°N

160°W

155°W

160°W 155°W 150°W

ARCTIC OCEAN

Chukchi Sea

Beaufort Sea

Harrison Bay

Point Barrow

Barrow

Atkasuk

Teshkepuk Lake Special Area

Nuiqsut

Kasegaluk Lagoon Special Area

Point Lay

Utukok River Special Area

Colville River Special Area

70°N

70°N

68°N

68°N

160°W

155°W

Map 3.4.1-1 Areas Currently Under Permit

Sources: USDOI BLM, 2004 & 2009 & 2011

- Permits**
-  Special Recreation Permits (SRPs)
 -  Rights-of-Way (ROWs)
 -  All other permits
- Land Status**
-  Native Patent or IC
 -  Native Selected
 -  Special Area
 -  NPR-A Boundary

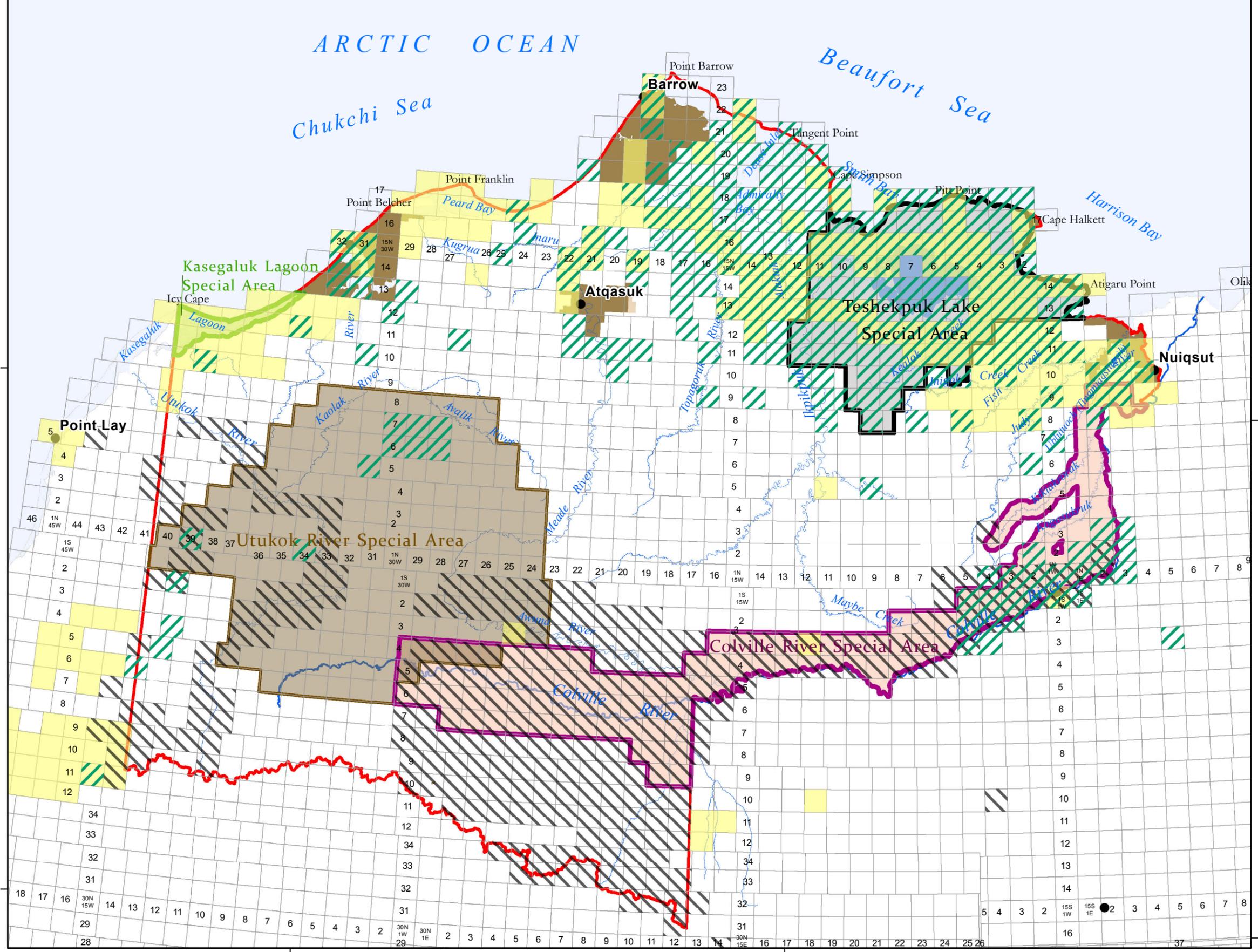


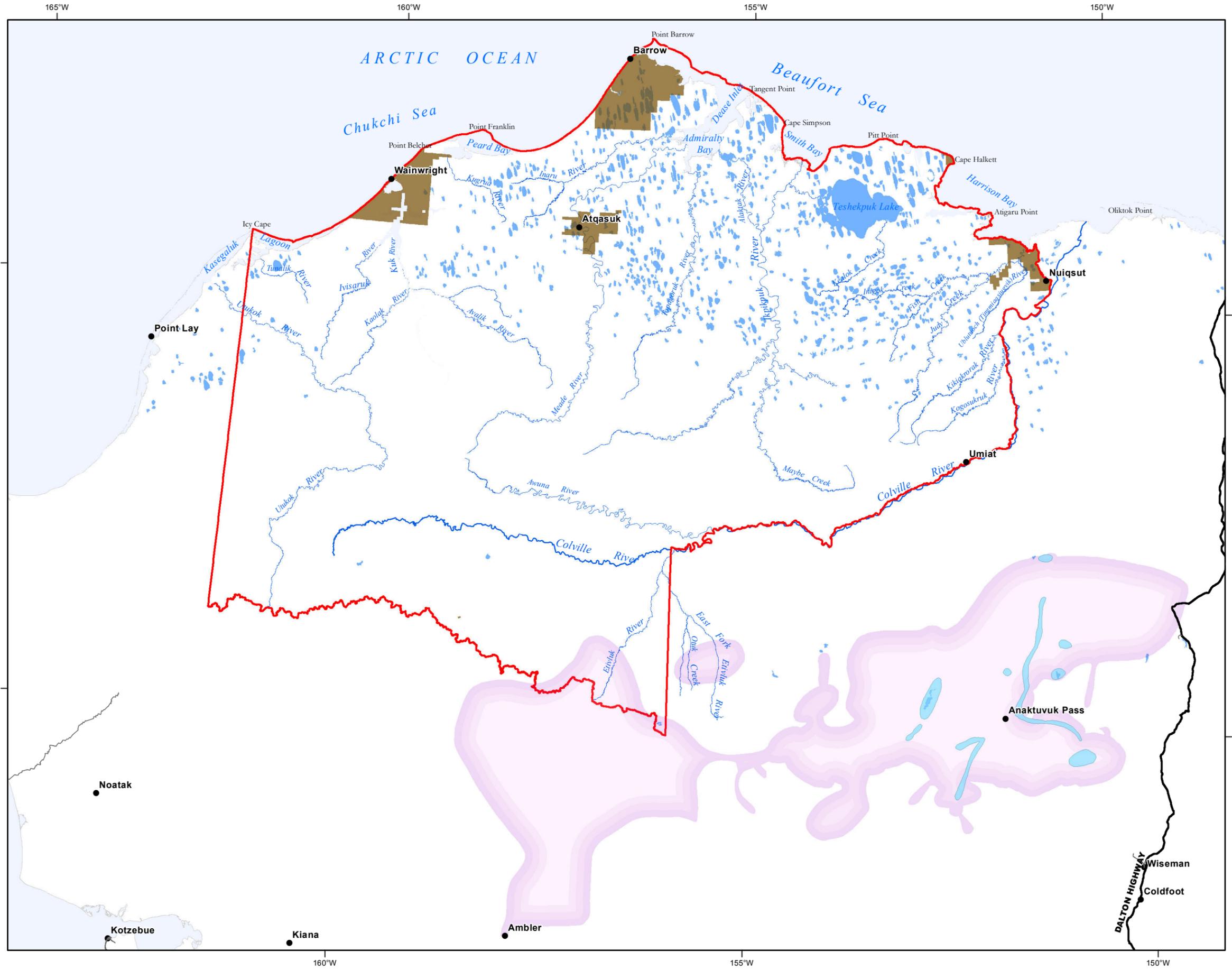
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**Map 3.4.3-1
Anaktuvuk Pass
Subsistence Use Area**

Sources: Pedersen 1979

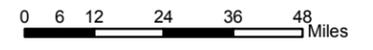
Subsistence Resource

Fish

Anaktuvuk Pass
Community Use Area

Resource use areas change through time
are not fixed entities. Land outside these
areas should not be assumed to be less
important to community residents.

Native Patent or IC within NPR-A
NPR-A Boundary

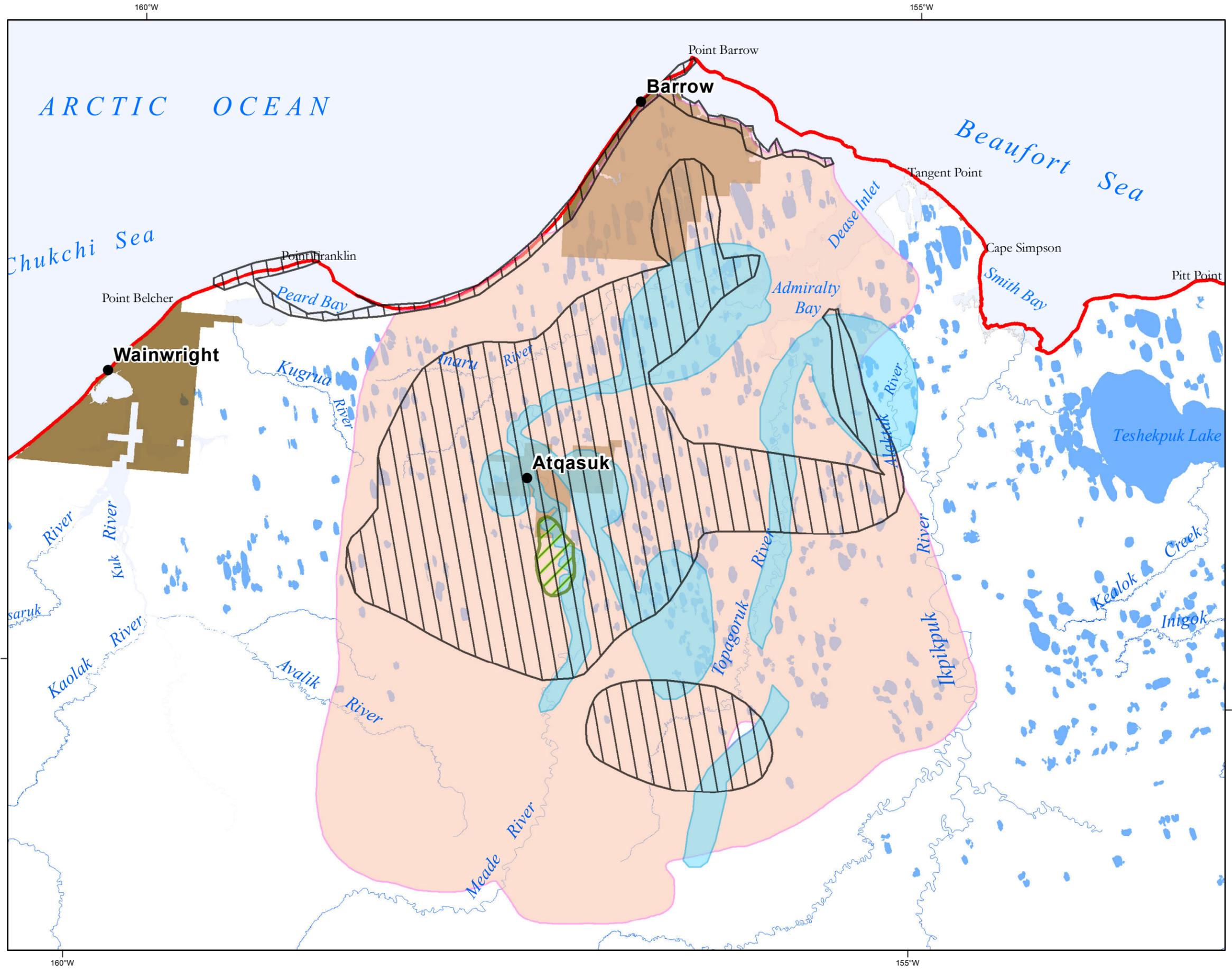


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Projection: Albers Conic Equal Area
referencing NAD83



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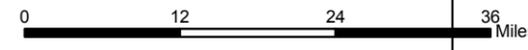
Map 3.4.3-2
Subsistence Use
Areas - Atqasuk

Sources: Pedersen 1979.

- Subsistence Resource**
-  Birds
 -  Moose
 -  Fishing
 -  Caribou

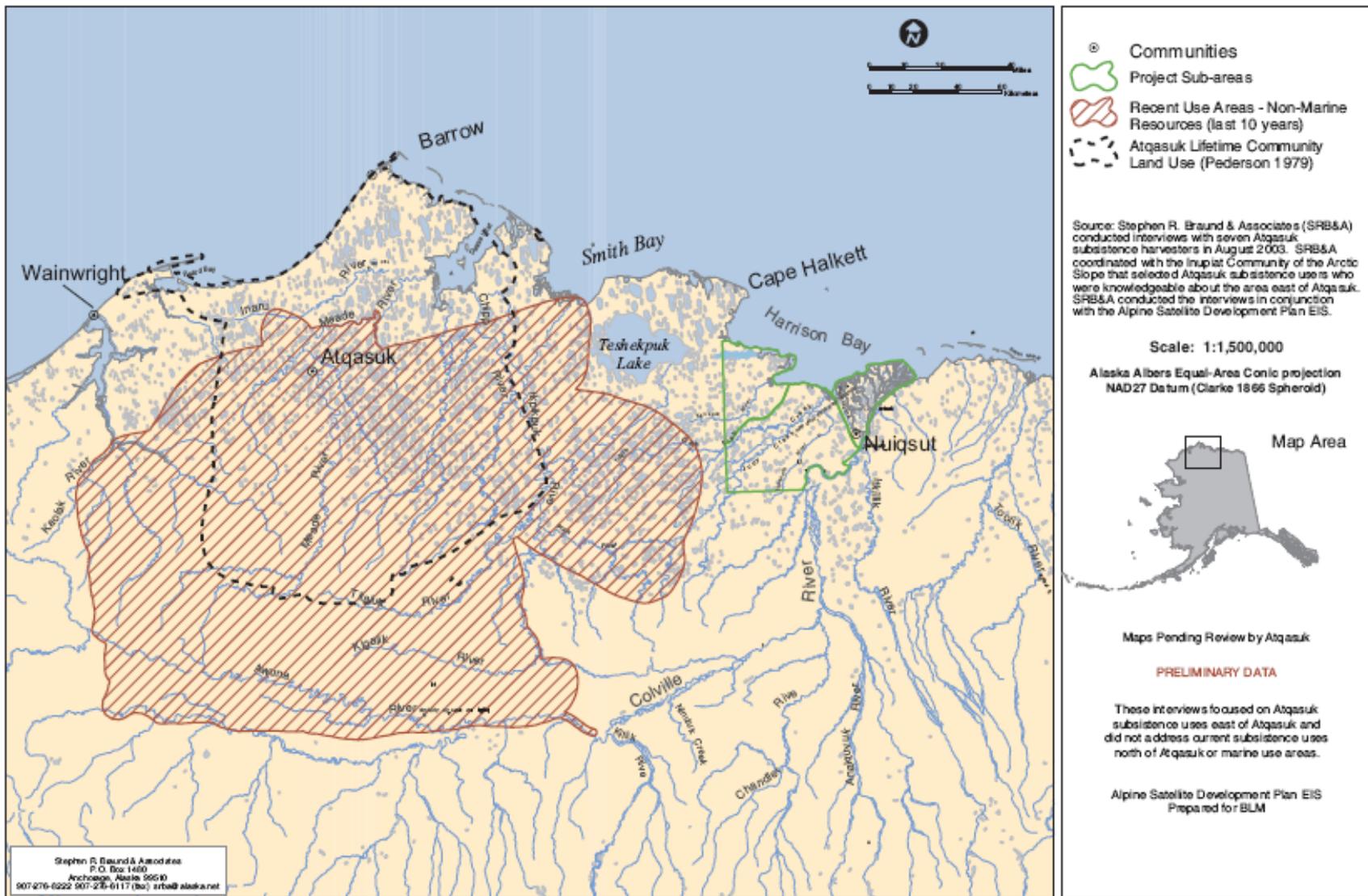
Resource use areas change through time are not fixed entities. Land outside these areas should not be assumed to be less important to community residents.

-  Native Patent or IC
-  NPRA Boundary

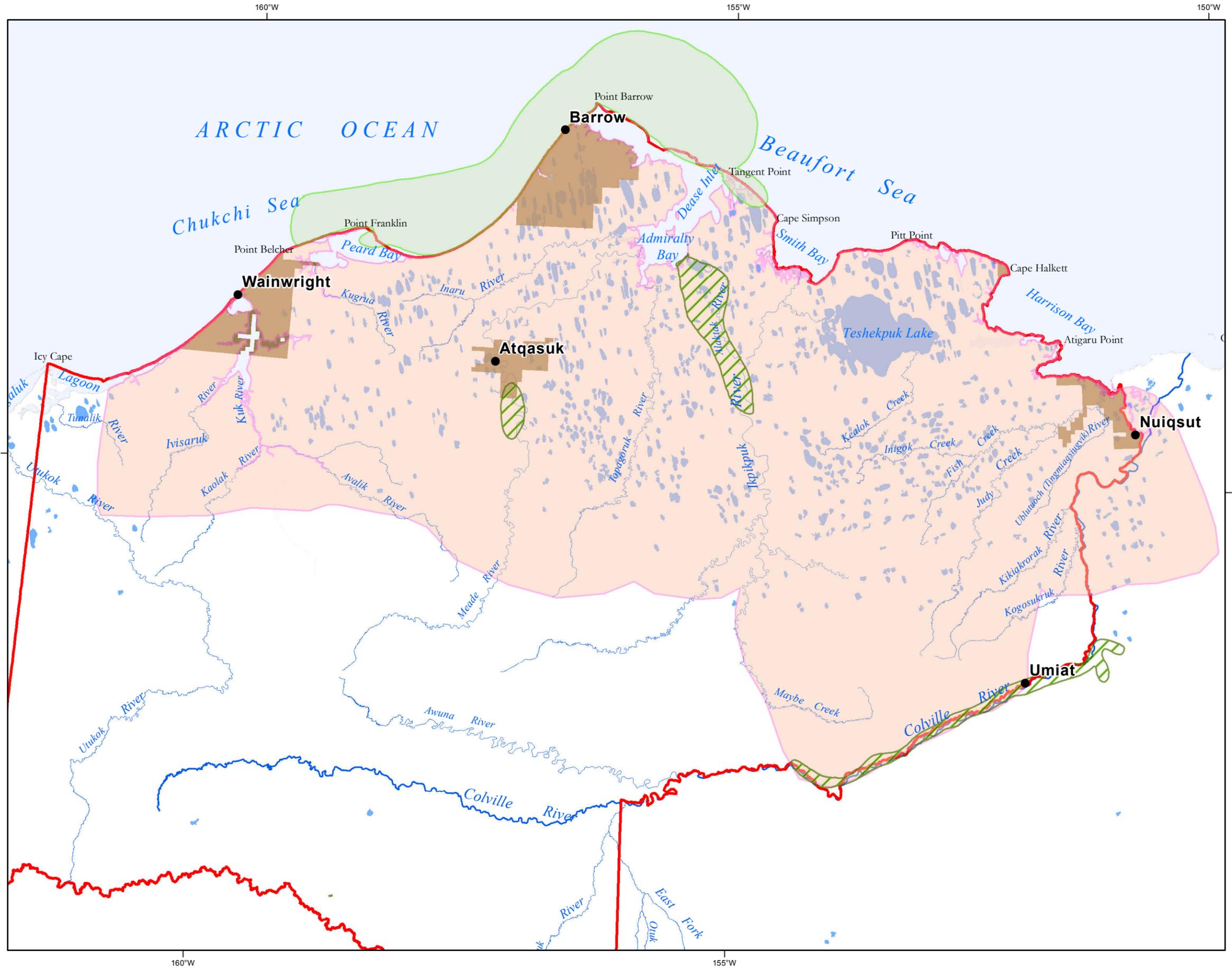


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Projection: Albers Conic Equal Area
referencing NAD83



Map3.4.3-3 Atqasuk Partial Subsistence-Use Areas for Non-Marine Resources, 2003.



Map 3.4.3-4
Barrow Subistence Use
Areas for Whale, Moose
and Caribou

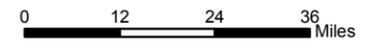
Sources: Pedersen, 1979.

Subsistence Resource

- Whales
- Moose
- Caribou

Resource use areas change through time are not fixed entities. Land outside these areas should not be assumed to be less important to community residents.

- Native Patent or IC within NPR-A
- NPRA Boundary

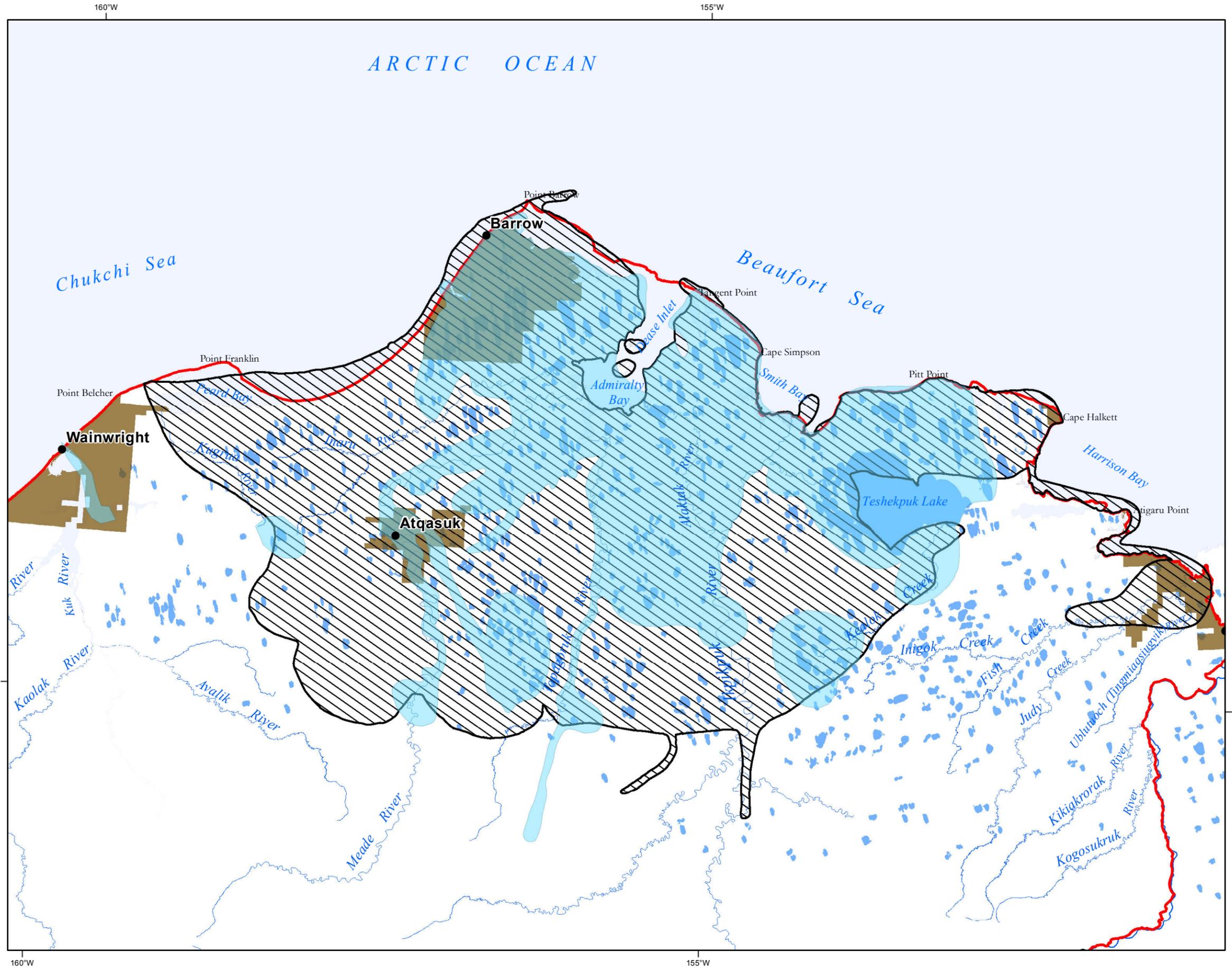


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referencing NAD83



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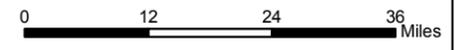
Map 3.4.3-5
Barrow Subsistence Use
Areas for Fish and Birds

Source: Pedersen 1979.

- Subsistence Resource**
-  Birds
 -  Fish

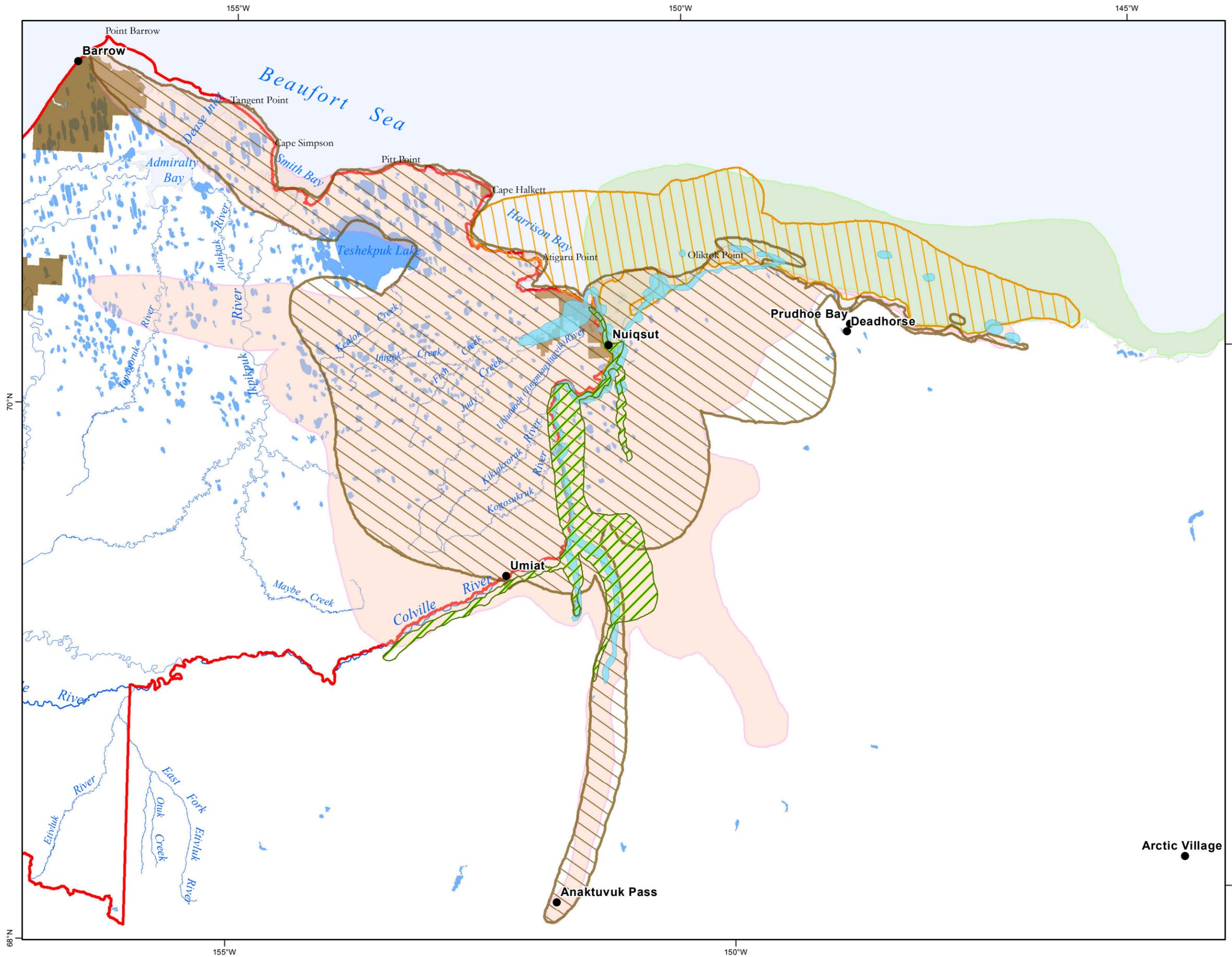
Resource use areas change through time are not fixed entities. Land outside these areas should not be assumed to be less important to community residents.

-  Native Patent or IC within NPR-A
-  NPR-A Boundary



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Projection: Albers Conic Equal Area referencing NAD83



Map 3.4.3-6 Nuiqsut Subsistence Use Area

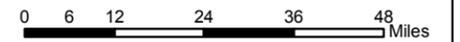
Sources: Pedersen 1979; Hoffman, Libbey and Spearman 1988

Subsistence Resource

-  Moose
-  Caribou
-  Seal
-  Furbearer- Hunting
-  Fish
-  Whaling

Resource use areas change through time are not fixed entities. Land outside these areas should not be assumed to be less important to community residents.

-  Native Patent or IC within NPR-A
-  NPR-A Boundary

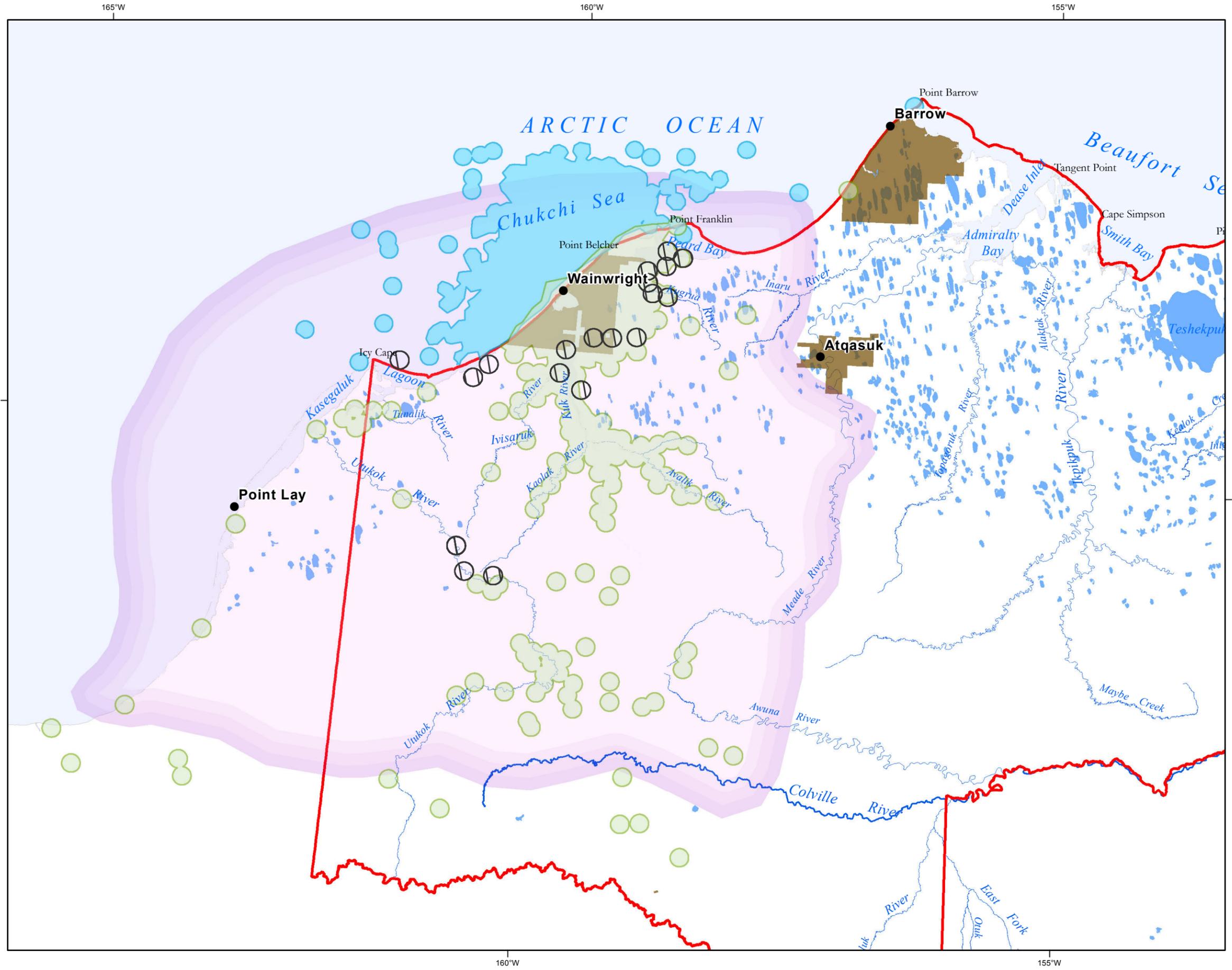


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Projection: Albers Conic Equal Area
referencing NAD83



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Map 3.4.3-7

Subsistence Use Areas - Wainwright

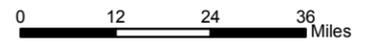
Sources: MMS/NSB, 1993.

Subsistence Resource

-  Fish
-  Terrestrial Mammals
-  Marine Mammals
-  Traditional Use Area

Resource use areas change through time are not fixed entities. Land outside these areas should not be assumed to be less important to community residents.

-  Native Patent or IC within NPR-A
-  NPRA Boundary

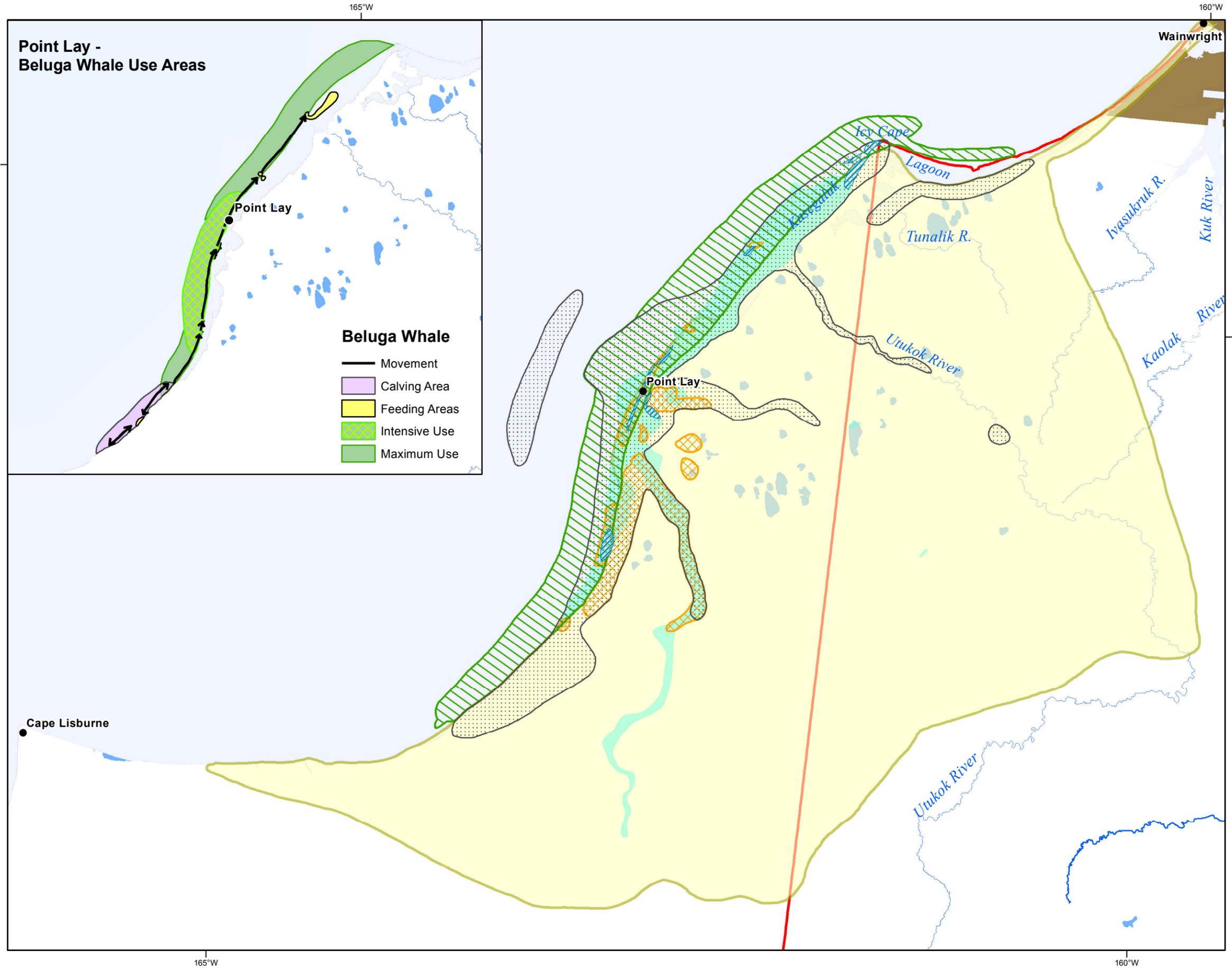


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Projection: Albers Conic Equal Area referencing NAD83



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Point Lay - Beluga Whale Use Areas

- Beluga Whale**
- Movement
 - Calving Area
 - Feeding Areas
 - Intensive Use
 - Maximum Use

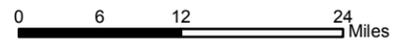
Map 3.4.3-8 Point Lay Subsistence Use Area

Sources: Pedersen 1979

- Subsistence Resource**
- Fish- Intensive Use
 - Waterfowl
 - Marine Mammals
 - Gathering
 - Fish
 - Mammals

Resource use areas change through time are not fixed entities. Land outside these areas should not be assumed to be less important to community residents.

- NPR-A Boundary
- Native Patent or IC within NPR-A

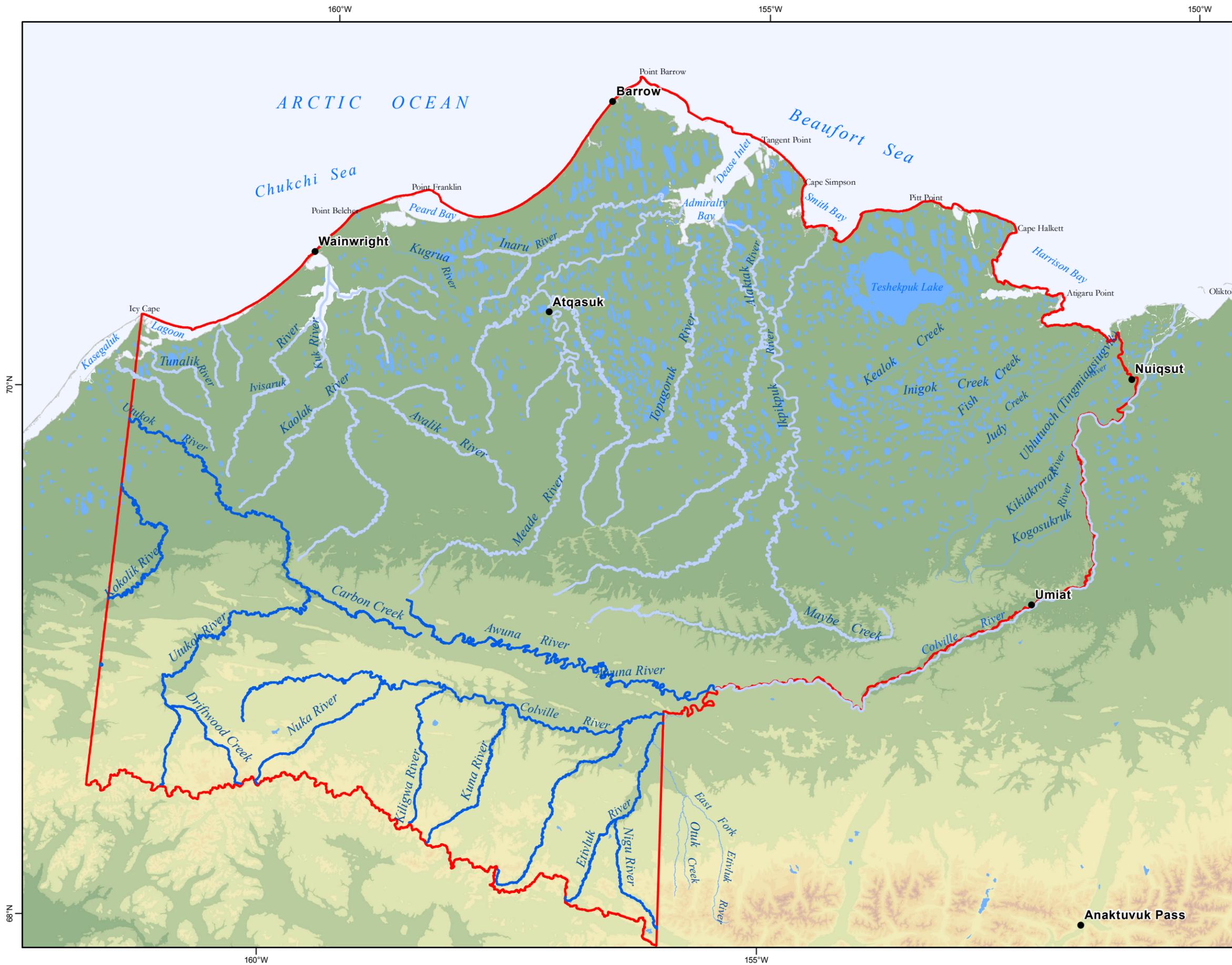


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Projection: Albers Conic Equal Area referencing NAD83



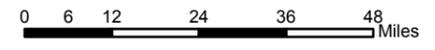
Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska
Draft IAP/EIS



Map 3.4.7-1
Eligible Wild & Scenic Rivers

Sources: USGS NHD 2010
 BLM 2008

- Eligible Wild & Scenic Rivers Considered for Suitability
- Eligible Wild & Scenic Rivers Determined Not Suitable in Past Planning

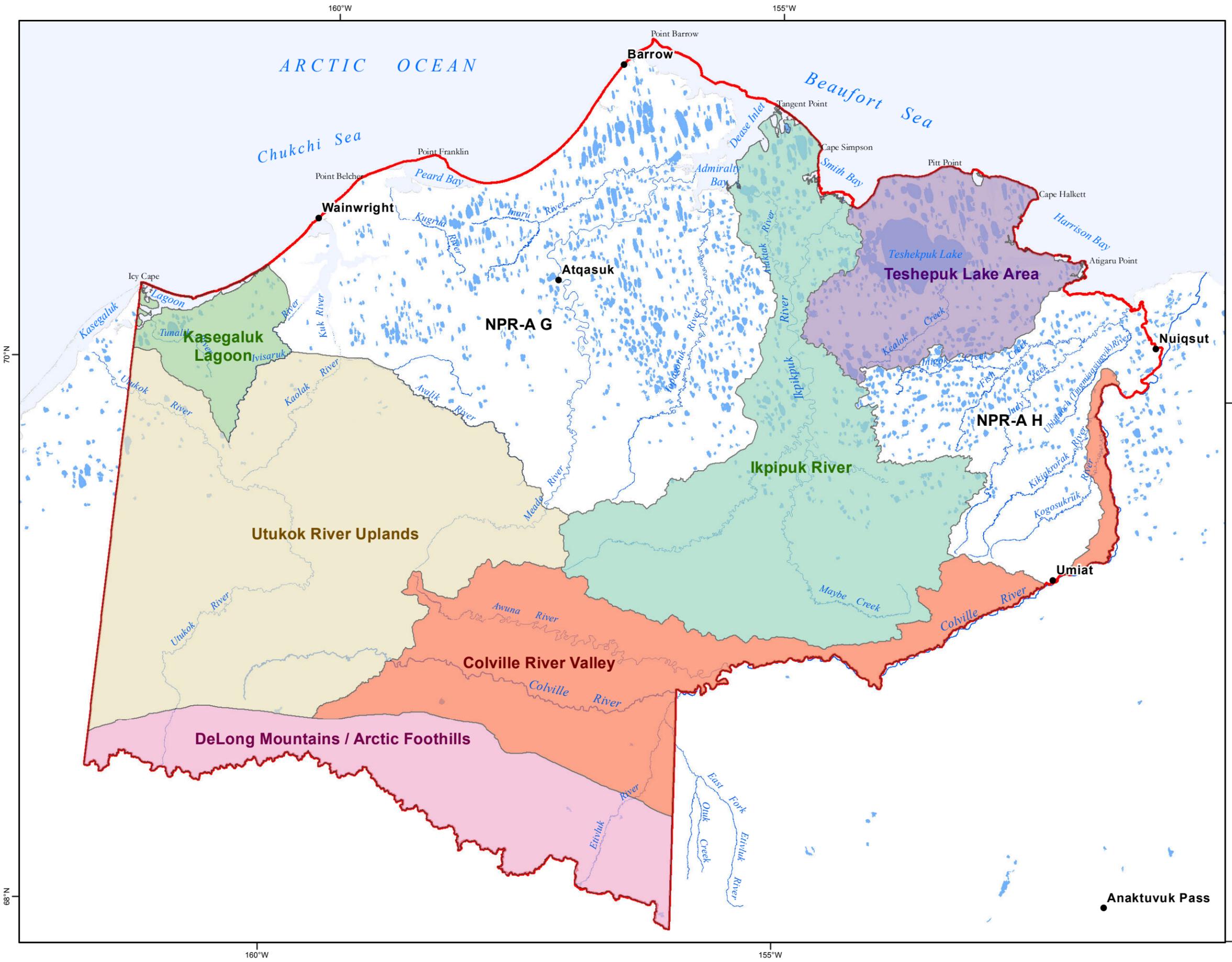


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Projection: Albers Conic Equal Area
 referencing NAD83



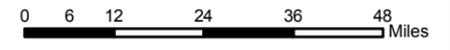
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**Map 3.4.8-1
Wilderness Areas**

Source: BLM 1979

-  Wilderness Unit
-  NPR-A Boundary

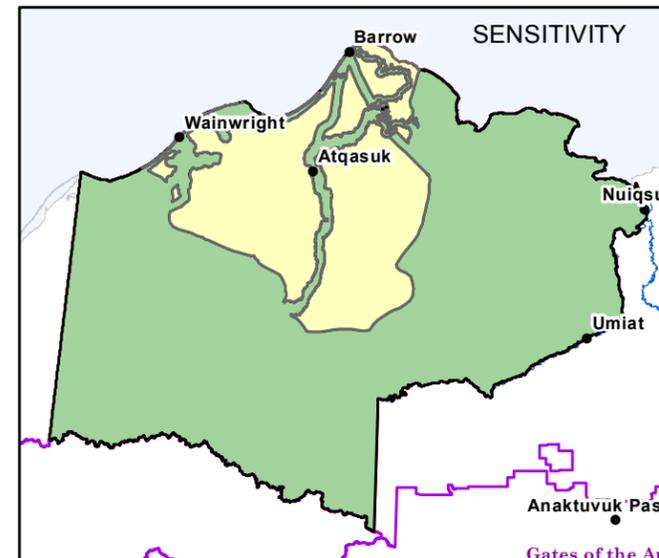
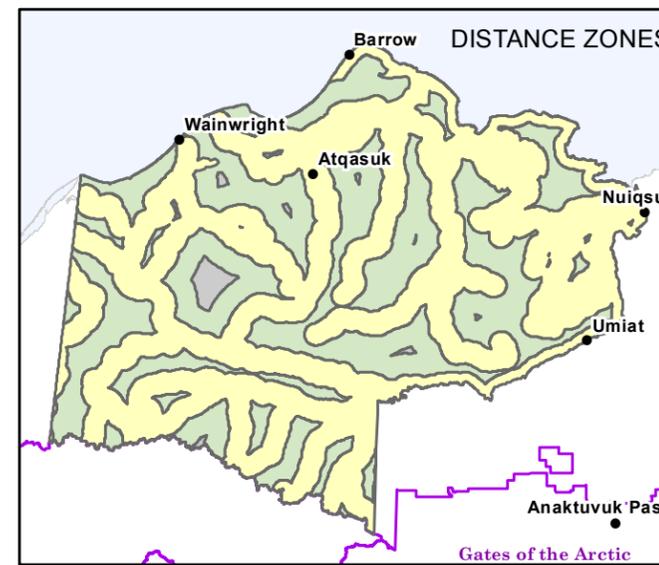
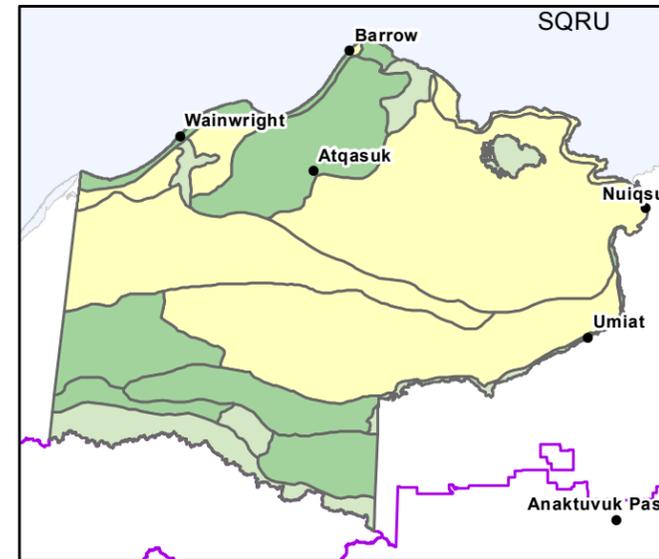
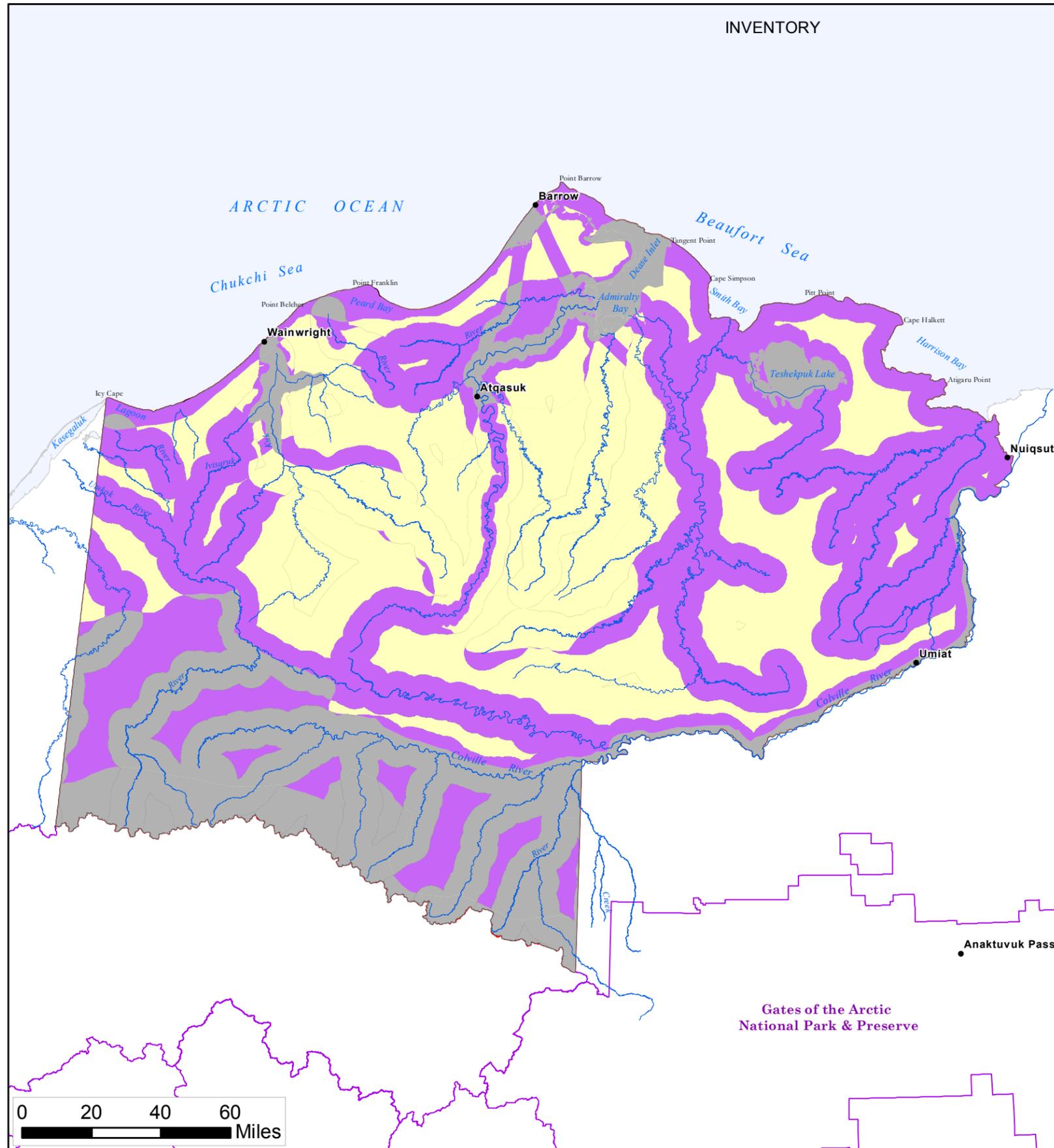


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Map 3.4.9-1 Visual Resource Management (VRM)

Source: BLM 2011

VRM Inventory Classes

- Class II
- Class III
- Class IV

Distance Zone

- Background
- Foreground
- Seldom Seen

Sensitivity

- High
- Medium

Scenic Quality Rating (SQRU)

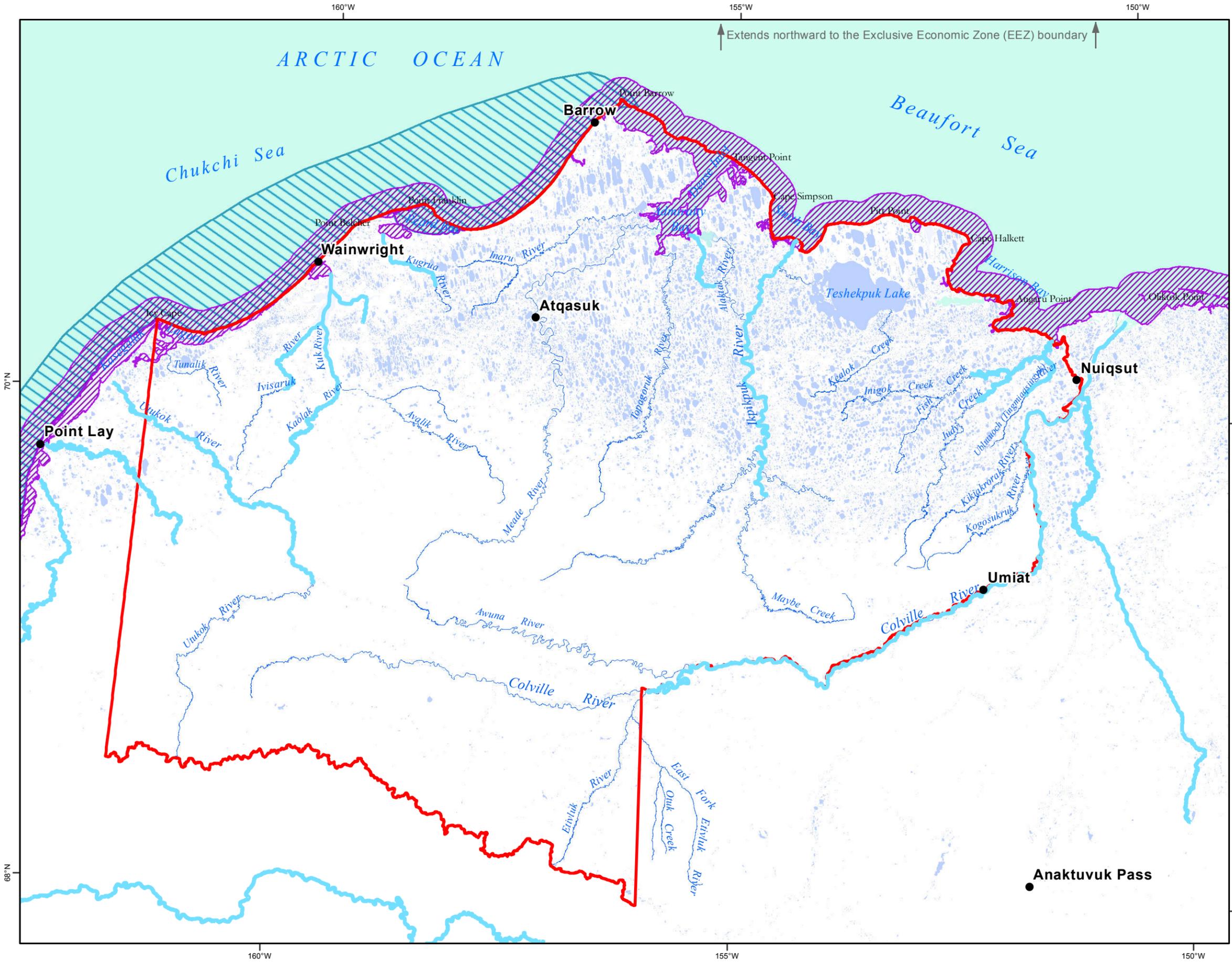
- a
- b
- c

⬮ NPR-A Boundary

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Map D-1
Essential Fish Habitat

Sources: NPFMC 2006, 2009;
ADF&G 2011a

-  Pacific salmon freshwater
-  Pacific salmon estuarine
-  Pacific salmon marine & Arctic cod
This area extends north to the Exclusive Economic Zone (EEZ) boundary, 200 nautical miles from State waters.
-  Saffron cod
-  Rivers
-  Lakes
-  NPRA_Boundary



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referencing NAD83