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Coastal and Marine Bird Usage of the Beaufort Sea



BREA Results Forum

Inuvik, NWT

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Canadian Wildlife Service

February 21, 2013

Overview of Presentation

- Importance of Beaufort region to birds
- BREA projects:
 1. Coastal and nearshore bird usage of the Canadian Beaufort Sea
 2. Database and atlas of offshore birds of the Canadian Beaufort Sea

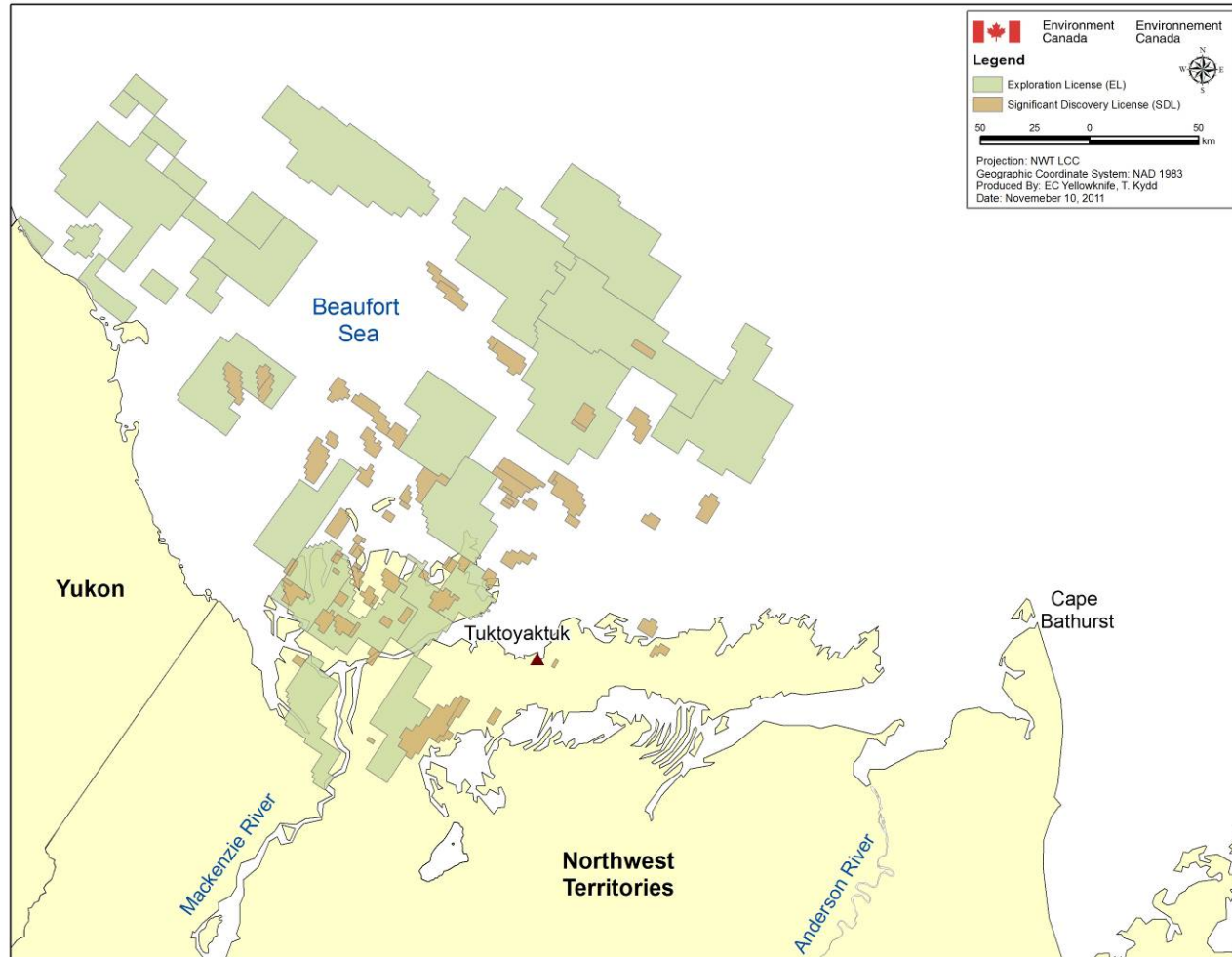


Importance of Beaufort Sea to Birds

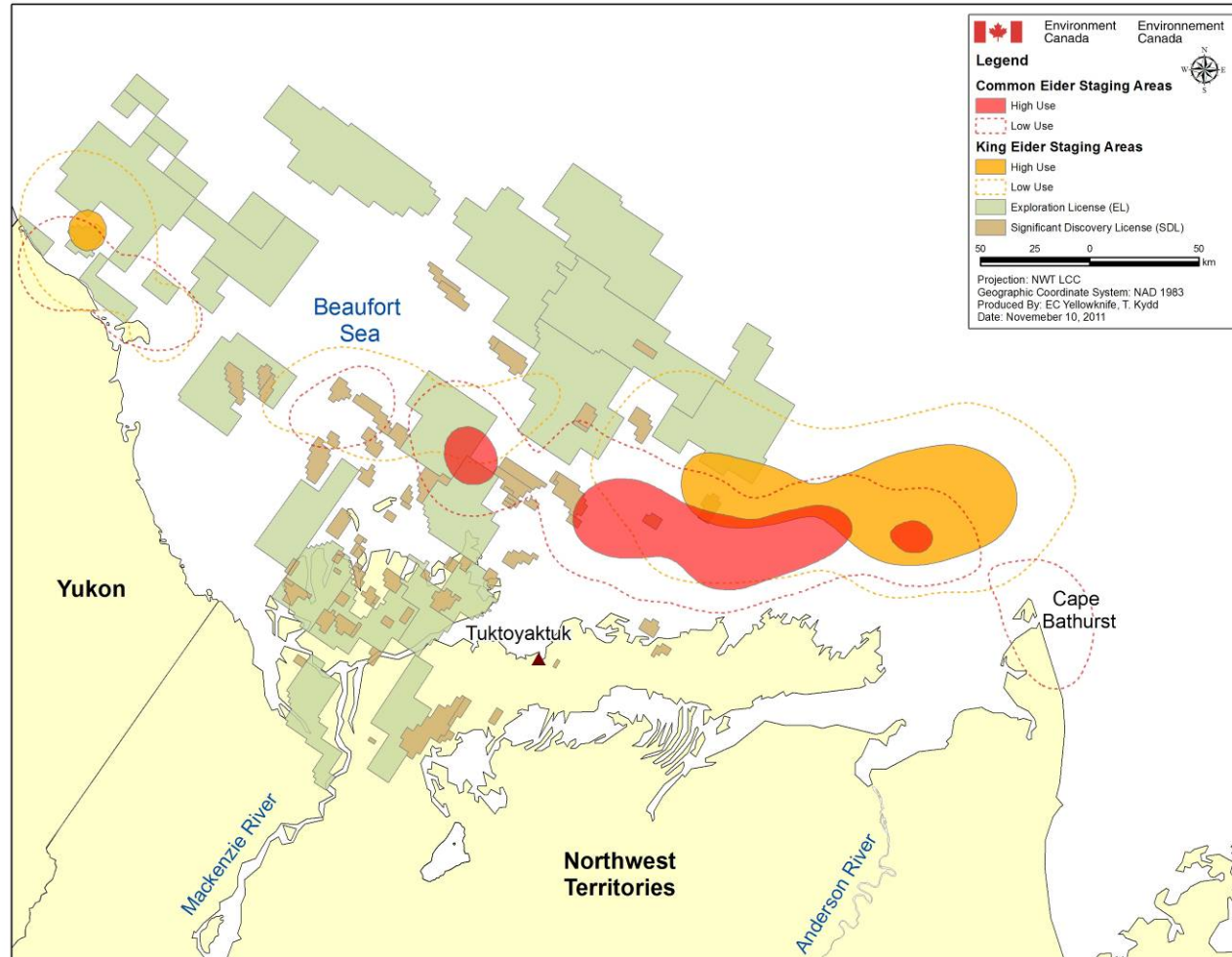
- Provides marine and coastal habitat for hundreds of thousands of migrating, breeding, and moulting birds
- Key species include eiders, scoters, Long-tailed Ducks, scaup, and Red-throated Loons
 - these species have declined in the last decades
- Many species that use the Beaufort Sea region are harvested by Inuvialuit (e.g., eiders, geese)



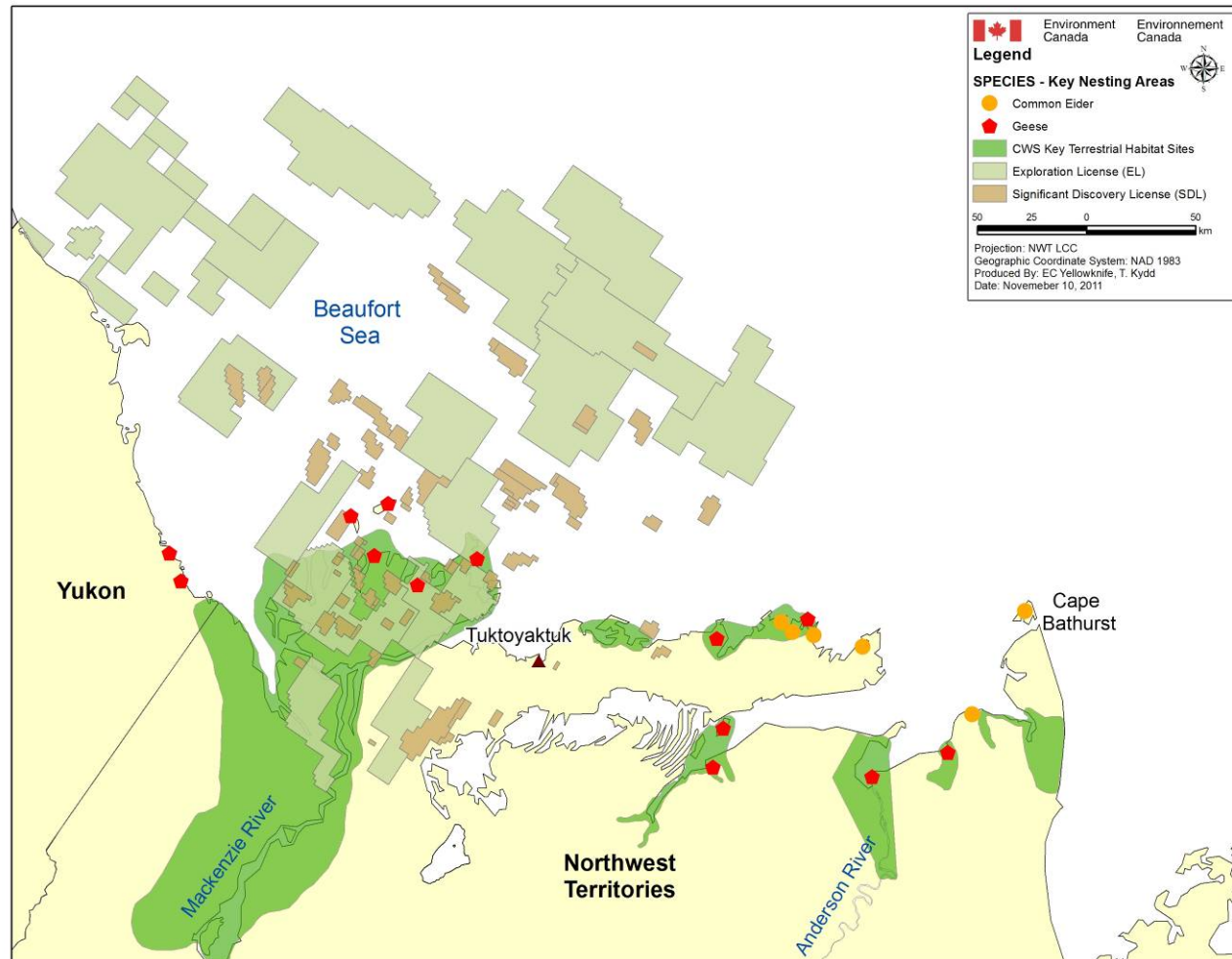
Beaufort – Oil & Gas Development



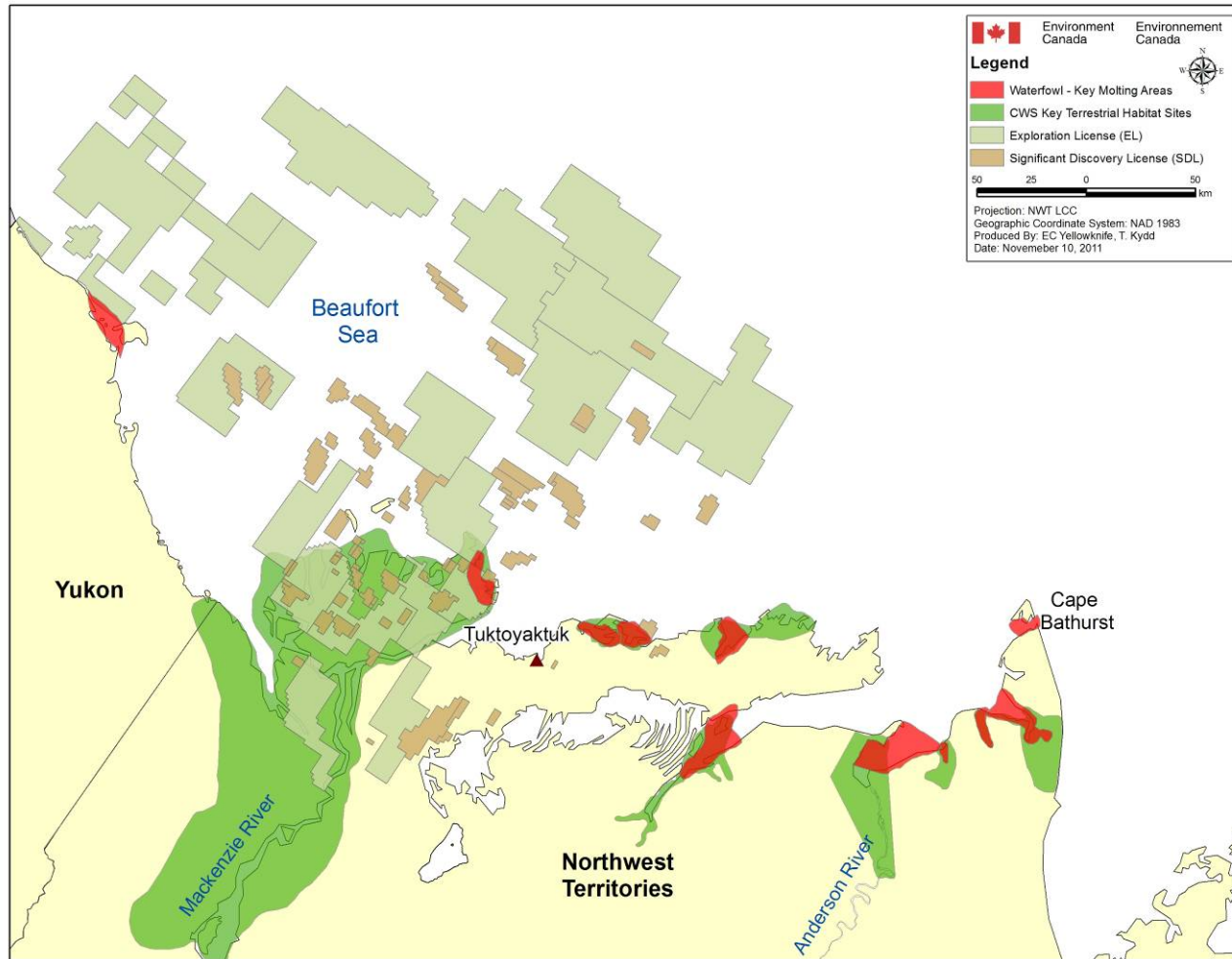
Spring Staging Areas for Eiders



Key Coastal Nesting Areas for Waterfowl



Key Waterfowl Moulting Areas



Potential Impacts from Oil & Gas

- Disturbance and habitat loss if oil & gas activities overlap with key waterfowl areas
- Attraction to offshore platforms and rigs
- Risks of accidental spills and chronic discharge of pollutants



Bird Information Needs

- Although we have bird data from the region . . .
 - Some surveys done 30 to 40 years ago
 - Some areas never systematically surveyed
- Given potential changes due to climate change, updated information on birds is required
- Current bird information needed to:
 - help developers and regulators develop mitigation measures to reduce impacts on birds
 - facilitate EA process for oil & gas development
 - ensure important bird areas are known and receive priority protection in the event of a spill



Coastal and Nearshore Bird Usage of the Canadian Beaufort Sea

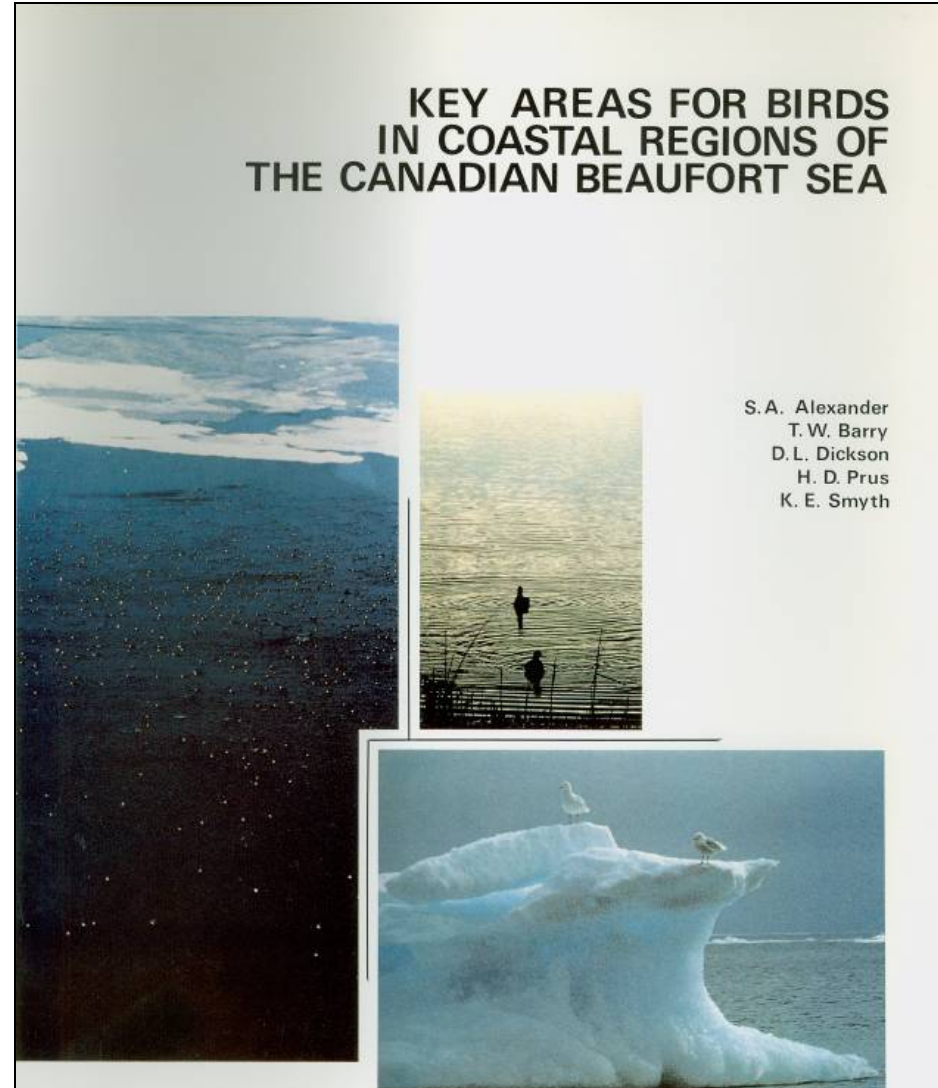
Coastal & Nearshore Bird Usage

OBJECTIVES: Compile existing coastal and nearshore bird data for the Canadian Beaufort Sea region

- Joint project done by CWS and Upun-LGL Limited
- Key players:
 - Myra Robertson (biologist, CWS)
 - Tyler Kydd (GIS specialist, CWS)
 - Ross Harris (biologist, Upun-LGL)
 - plus many other CWS and Upun-LGL staff

Coastal & Nearshore Bird Usage

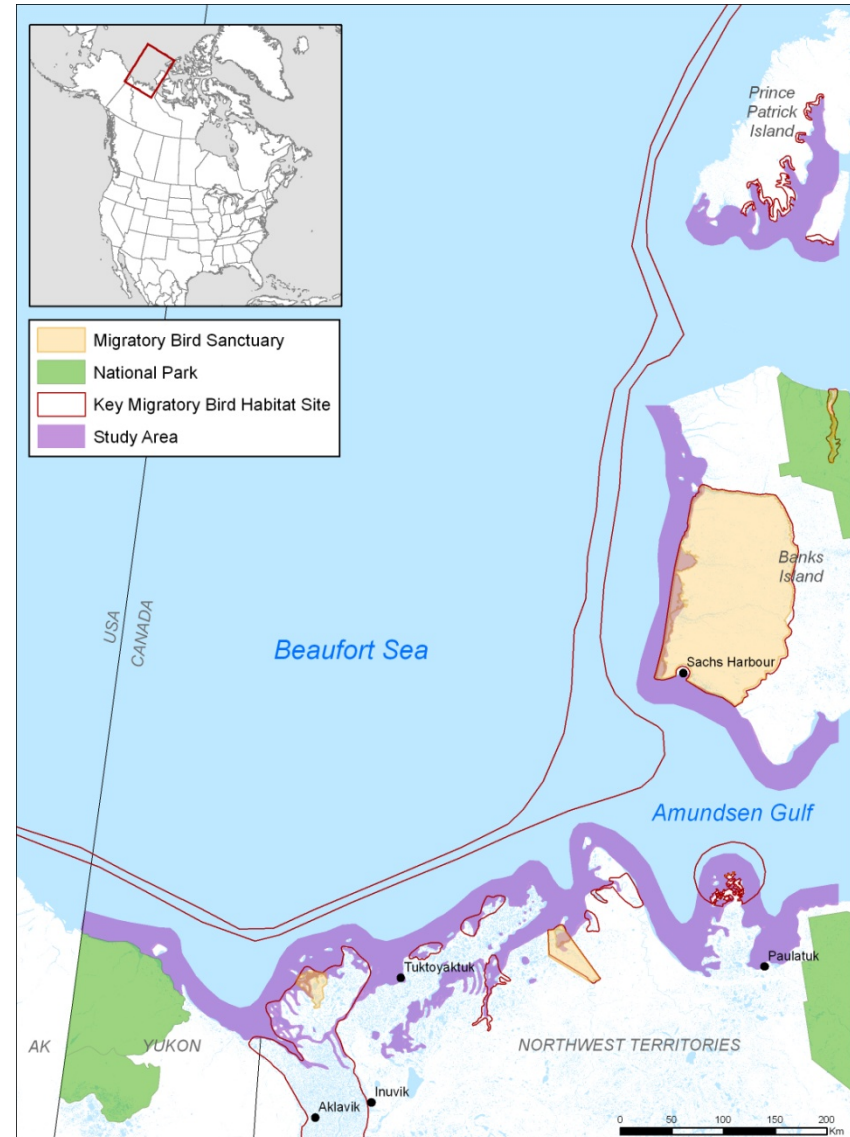
- Update of CWS report by Alexander et al. (1988)
- Project also includes some “bonus features”



Coastal & Nearshore Bird Usage

Geographic Scope

- All coastal/nearshore areas along mainland
- Extends into western Amundsen Gulf
- Includes southwest Banks Island
- Includes southern Prince Patrick and Eglinton islands



Coastal & Nearshore Bird Usage

- Current literature review focused mostly on data collected in 1988 or later
- Sources of information included:
 - CWS surveys and field studies
 - Other government surveys (e.g., USFWS, territorial government)
 - Industry studies (e.g., Devon Canada, LGL)
 - Harvest studies and traditional knowledge

Coastal & Nearshore Bird Usage

Challenges:

- Ideal data would be . . .
 - comprehensive surveys of all coasts
 - one survey method

- The reality is . . .
 - some areas and/or time periods incompletely surveyed
 - more coverage of coastal land than marine nearshore
 - mix of survey methods



Coastal & Nearshore Bird Usage

Consequences of multiple data types:

- Working with many sources of data was more complicated than anticipated
- Professional judgment had to be used where data coverage was incomplete
- Some delays with completing project due to the complexity of combining different data types

Coastal & Nearshore Bird Usage

The project has 4 products:

1. Geospatial database with coastal and nearshore bird data
2. Hard-copy report with updated information on species, numbers, and distributions of birds in Beaufort Region at specific times of the year
3. On-line mapping system that outlines important bird areas
4. Prioritized list of future bird survey needs

Coastal & Nearshore Bird Usage

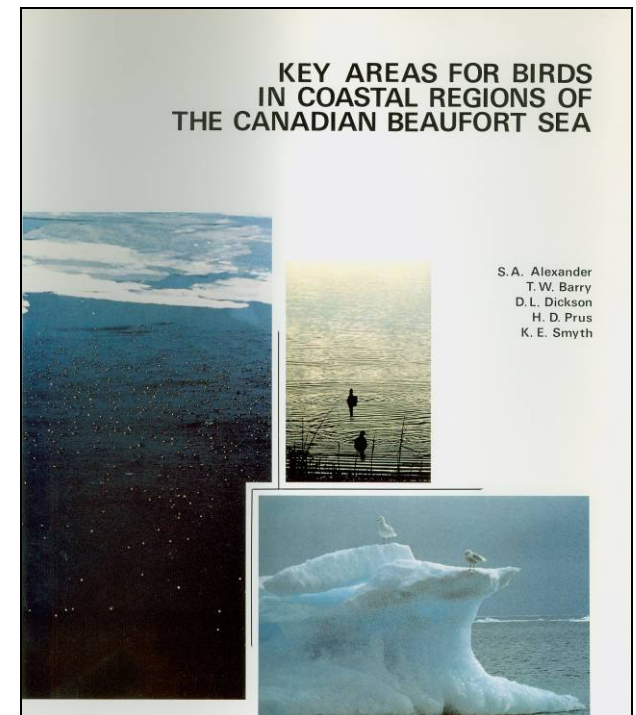
Product #1: Geospatial Database (completed)

- Database includes species, date, location, numbers, survey type, data source
- Includes Alexander et al. data and new data
- >29,000 records of individual species at specific areas
- Database will be updated as new information is available

Coastal & Nearshore Bird Usage

Product #2: Hard-copy report (in progress)

- An update of Alexander et al. 1988
- Maps summarizing levels of bird importance of different coastal areas by season
- Detailed text for each map with more information and reference list



Coastal & Nearshore Bird Usage

- Time periods
 - spring migration (May to early June) **
 - arrival and nesting (early June to mid July)
 - brood-rearing and moulting (mid July to mid August)
 - fall migration (mid August to late September)

**Limited data for May

- Focus on birds that primarily use aquatic or coastal habitats (waterfowl, seabirds, other waterbirds, shorebirds)

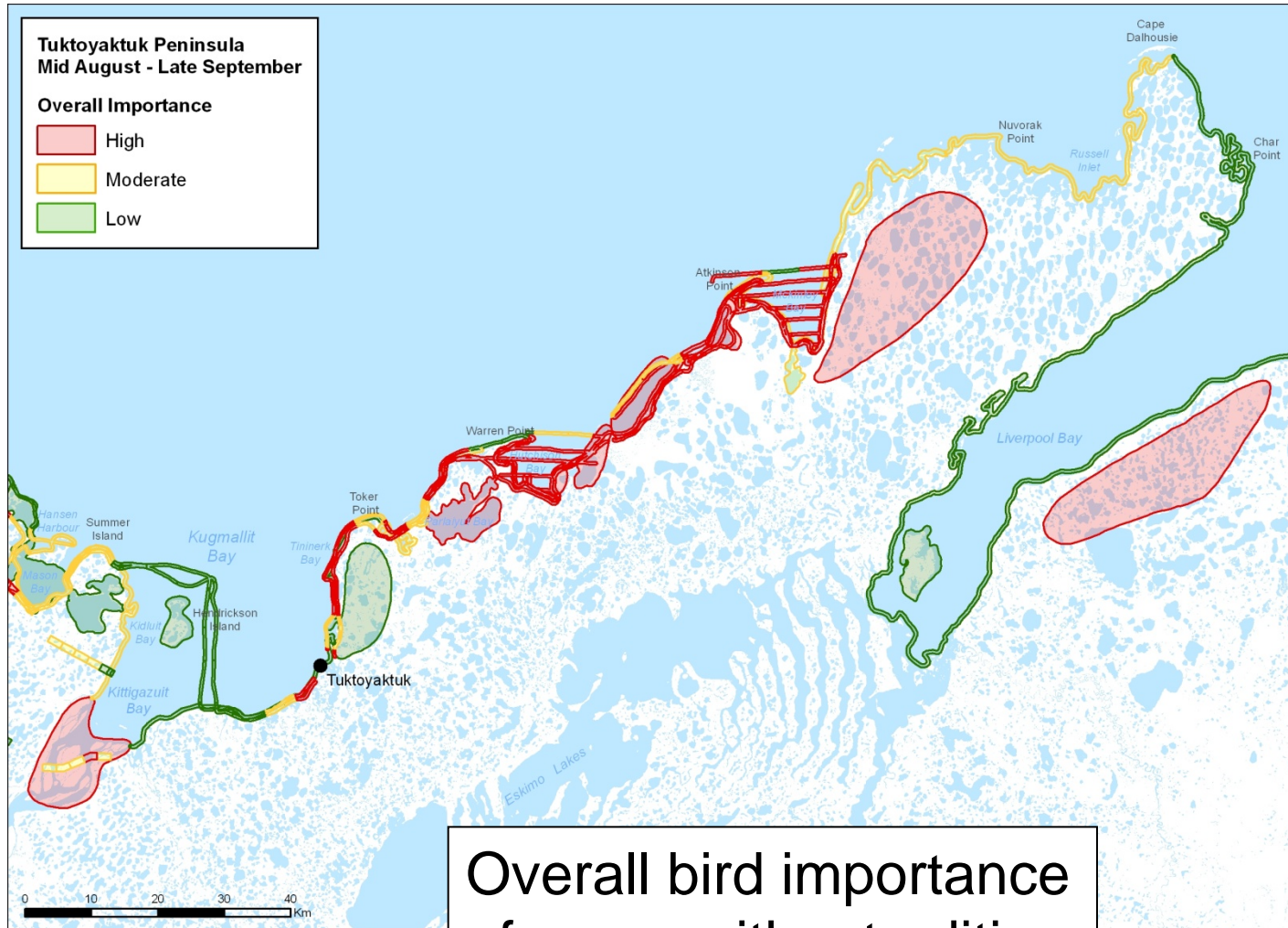
Coastal & Nearshore Bird Usage

- Relative importance of specific areas determined for each species or species group, based on densities and/or traditional knowledge
 - High: upper 20%
 - Moderate: 20-80%
 - Low: lower 20%
- Species groups were geese, dabbling ducks, diving ducks, sea ducks, loons, shorebirds, gulls/terns
- Data prior to 1988 only used if no newer data

Coastal & Nearshore Bird Usage

- Overall bird importance of specific areas determined using species rankings
 - High: ≥ 1 species or species group ranked high
 - Moderate: ≥ 3 species or ≥ 1 species group ranked moderate
 - Low: not ranked as either high or moderate
- All nesting colonies ranked moderate or high

Coastal & Nearshore Bird Usage



Overall bird importance
of areas without editing

Draft version

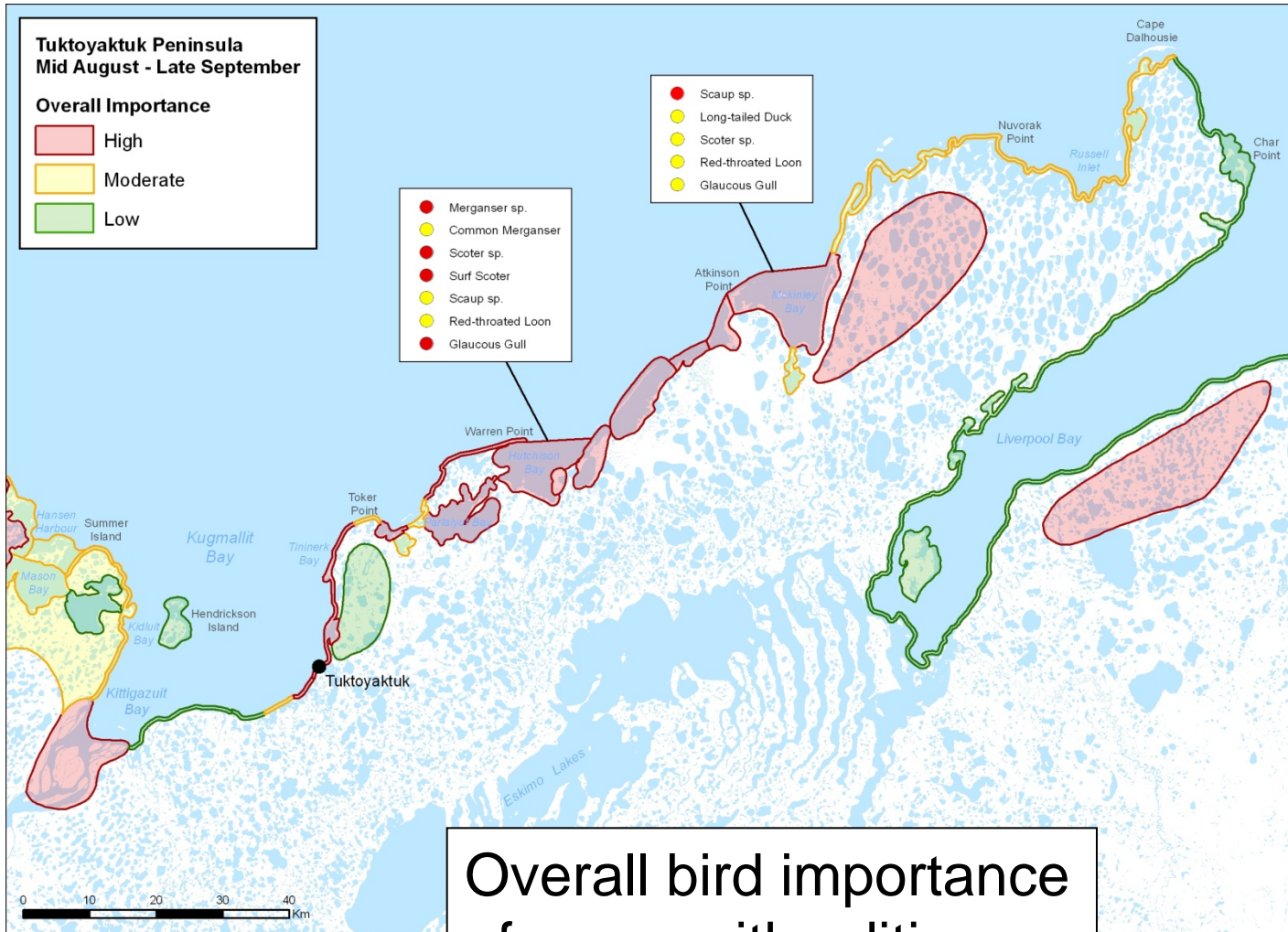


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Coastal & Nearshore Bird Usage

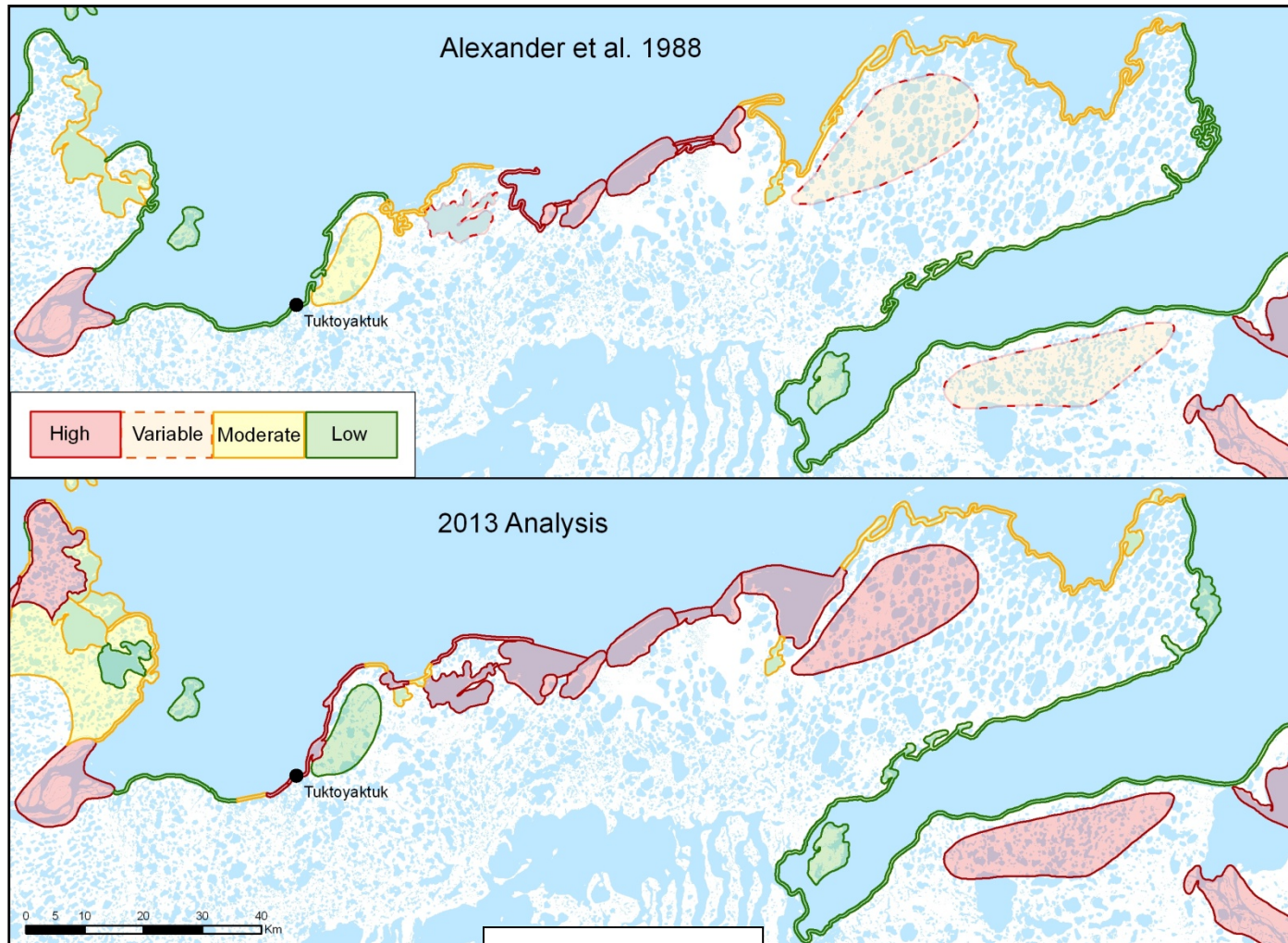


Overall bird importance
of areas with editing

Draft version



Coastal & Nearshore Bird Usage



Draft version



Coastal & Nearshore Bird Usage

Product #3: Online mapping system (in progress)

- Results will be on publically-accessible online mapping tool (Regional Environmental Toolkit)
- Layers on online map will show high/moderate/low rankings of coastal/nearshore areas to birds
 - organized by time period
 - choose overall bird importance or importance by species or species group
- Pop-up boxes will provide more information about birds in specific areas

Coastal & Nearshore Bird Usage

Product #4: List of future bird needs (in progress)

- Analysis on data gaps has been done
 - Most data is from June to mid July, limited data from May and late summer/fall
 - Yukon Coast, Mackenzie Delta and Tuktoyaktuk Peninsula most extensively surveyed
 - Limited data from northern Beaufort region
 - Limited data from western Amundsen Gulf area
 - Most data on waterfowl, limited data on shorebirds
 - Concerns from Inuvialuit with possible declines in Brant
 - Systematic surveys of the entire coastal area would be useful
- Recommendations will be included in hard-copy report



**OFFSHORE BIRDS
OF THE
CANADIAN BEAUFORT SEA**
Database and Atlas

Offshore Birds - Database and Atlas

- A concurrent BREA-funded study conducted by Upun-LGL Limited
- **Project lead:** Ross Harris (biologist, Upun-LGL)
- **Purpose:** to assemble and organize data on birds of the offshore Beaufort
- **Products:** geospatial database and report
- Database and report completed by March 2013
- Results will be on publically-accessible online mapping tool (Regional Environmental Toolkit)

Offshore Birds - Contributors of Data

- 2002: Devon Canada, DFO
- 2006: GXT
- 2007: GXT, ArcticNet,
- 2008: GXT, ArcticNet, Imperial
- 2009: BP, Imperial
- 2010: Arcticnet, BP, GXT, NRCAN
- 2011: BP, Imperial, NRCan
- 2012: Chevron

TOTAL = >25 SETS OF DATA



Offshore Birds - Survey Coverage

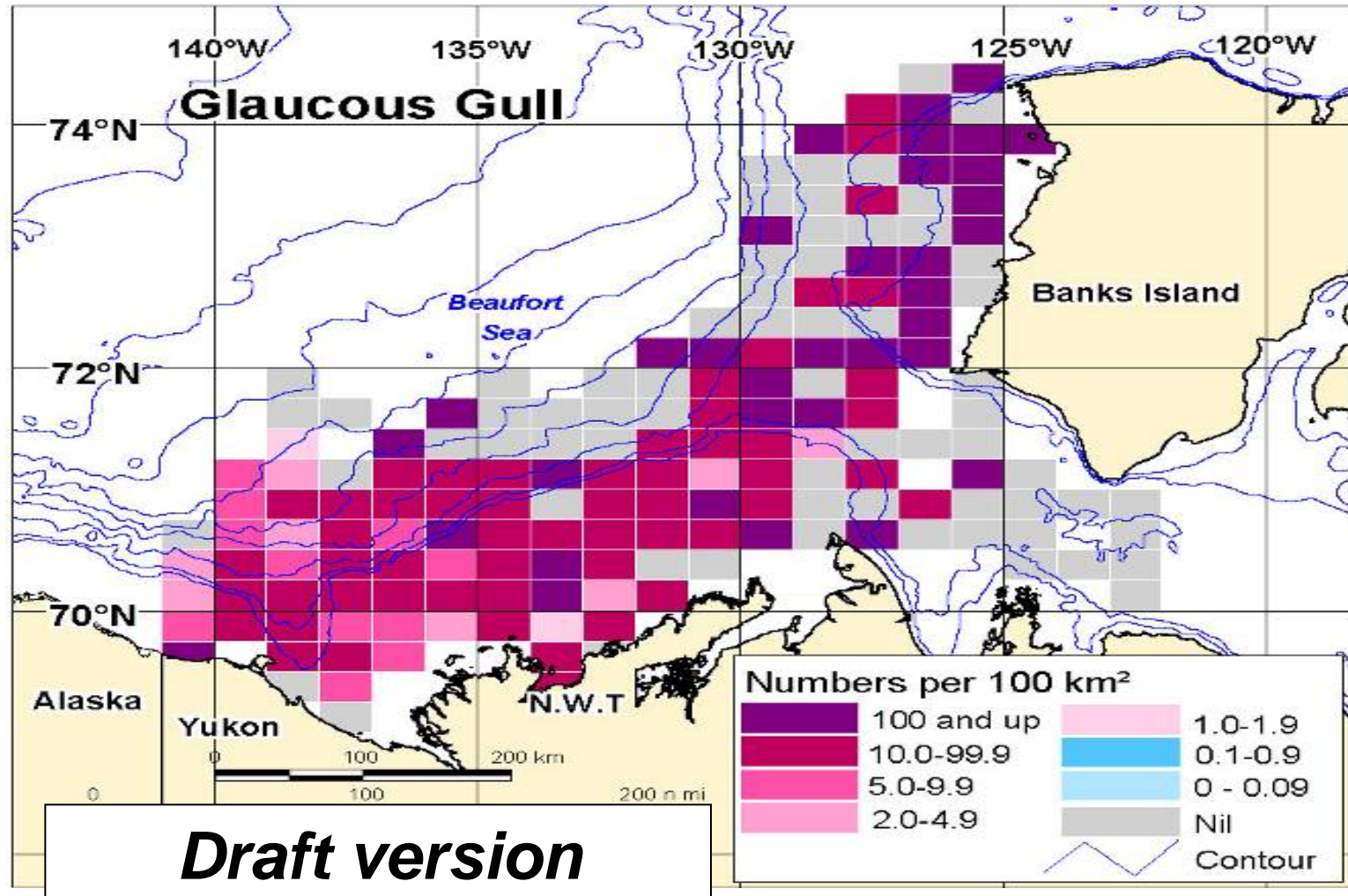
Best coverage:

- August and September
- Offshore lease areas (Ajurak, Pokak, Sirluaq)
- Ice-free waters

Least coverage:

- Spring migration in offshore leads
- June and July, October to May
- In and near the pack ice

Offshore Birds – Sample Map



Questions?

