

## Appendix 1. Additional details concerning survey locations

Here we describe locational details of common eider colonies surveyed in the Hudson Strait Region of the Canadian Arctic.

Nearly all of the islands that we surveyed were within study areas previously delineated and surveyed by Canadian Wildlife Service biologists (Gaston et al. 1985, Chapdelaine et al. 1986, Cooch 1986, Hipfner et al. 2002, Falardeau et al. 2003, H. G. Gilchrist and J. Akearok, Environment Canada, *unpublished data*). These historical surveys prioritized monitoring trends in abundance on islands identified as suitable habitat for nesting eiders (<2 km<sup>2</sup> in area; 0.5 -10 km from nearest mainland shore; elevation <50 m) (Robertson and Gilchrist 1998, Falardeau et al. 2003).

Site selection protocols differed among the teams initially implementing the research. In some zones, site selection was based on random

draws of islands deemed to have suitable habitat (survey zones 1-3, 7 and 9-10), while in other areas even more comprehensive sampling was undertaken wherein >80% of suitable islands within pre-defined study areas were surveyed (survey zones 4-6, 8 and 11-13).

For each survey zone, the summary information including the nearest community, the number of colonies investigated which had  $\geq 20$  nesting pairs of eiders, and the year that we visited the island are provided in Table A1.1. Survey zones in the vicinity of Cape Dorset were visited on multiple occasions as part of a long-term population monitoring program. Survey zones in the vicinity of other locations were visited on a single occasion only.

Georeferenced coordinates of outbreak sites are provided in Table A1.2 and accompany survey zone specific maps presented in Figures A1.1 to A1.13.

Table A1.1. Sampling effort summarized by survey zone. Survey zone number and name correspond to areas identified in Figure 1. Number of colonies refers to the number of Northern Common Eider colonies with  $\geq 20$  nesting pairs identified within each zone. Original source for survey locations refers to documentation by Canadian Wildlife Service of past survey effort.

Nearest community	Survey zone number and name	Number of colonies	Year(s) of survey	Original source for survey locations
Aupaluk	1 - Ikkatuk Bay	9	2011	Chapdelaine et al. 1986; Falardeau et al. 2003
Kangirsuk	2 - Payne Bay	9	2012	Chapdelaine et al. 1986; Falardeau et al. 2003
	3 - Plover Bay	9	2012	Chapdelaine et al. 1986; Falardeau et al. 2003
	4 - Joy Bay	6	2011	Not previously surveyed
Kangiqtujuaq	5 - King George Sound	9	2011	Not previously surveyed
	6 - Digges Sound	15	2012	Gaston et al. 1985, Hipfner et al. 2002
Cape Dorset	7 - Foxe Peninsula	8	2010	G. Gilchrist, Environment Canada, <i>unpubl. data</i>
	8 - West Foxe Islands	15	2010, 2011, 2012	Cooch 1986;
	9 - Chorkbak Inlet	24	2010	G. Gilchrist, Environment Canada, <i>unpubl. data</i>
	10 - Chamberlain Islands	19	2010, 2011, 2012	G. Gilchrist, Environment Canada, <i>unpubl. data</i>
Iqaluit	11 - Frobisher Bay North	1	2013	J. Akearok, Environment Canada, <i>unpubl. data</i>
	12 - Frobisher Bay	4	2013	J. Akearok, Environment Canada, <i>unpubl. data</i>

## Appendix 1. Additional details concerning survey locations

	Central 13 - Frobisher Bay	3	2013	J. Akearok, Environment Canada, <i>unpubl. data</i>
	South			
Total	All	131		

Table A1.2. Location of Avian Cholera outbreaks occurring on Northern Common Eider colonies in the Hudson Strait region of the Canadian Arctic between 2004 and 2013. Survey zone number and name correspond to areas identified in Figure 1. Outbreak identification number corresponds to mapped identification numbers provided in Figures A1.1 – A1.13. Outbreak identification numbers 13a and 13b refer to outbreaks occurring in multiple years at the same location.

Outbreak identification number	Outbreak year	Survey zone number and name	Longitude, Latitude
1	2004	6 - Digges Sound	-78.185, 62.384
2	2004	6 - Digges Sound	-78.171, 62.431
3	2004	6 - Digges Sound	-78.204, 62.377
4 <sup>†</sup>	2004	Mansel Island (not surveyed)	-79.266, 62.137
5 <sup>†</sup>	2004	Nottingham Island (not surveyed)	-77.537, 63.167
6	2006	1- Ikkatuk Bay	-69.548, 59.378
7	2006	2 – Payne Bay	-69.620, 60.048
8	2006	2- Payne Bay	-69.710, 60.015
9	2006	2 – Payne Bay	-69.751, 60.036
10	2006	4 – Joy Bay	-71.440, 61.332
11	2006	4 – Joy Bay	-71.477, 61.569
12	2006	4 – Joy Bay	-71.702, 61.419
13a	2006	5 – King George Sound	-72.155, 61.847
13b	2006	5 – King George Sound	-72.155, 61.847
14 <sup>†</sup>	2008	6- Digges Sound	-78.109, 62.367
15	2011	1 – Ikkatuk Bay	-69.466, 59.155
16	2013	5 – King George Sound	-72.463, 62.132

<sup>†</sup>Locations excluded from the MAXENT species distribution model analysis because site investigation documenting avian mortality and site attributes was not undertaken by Environment Canada biologists.

## Appendix 1. Additional details concerning survey locations

Figure A1.1 Survey zone 1: Ikkatuk Bay, Western Ungava Bay

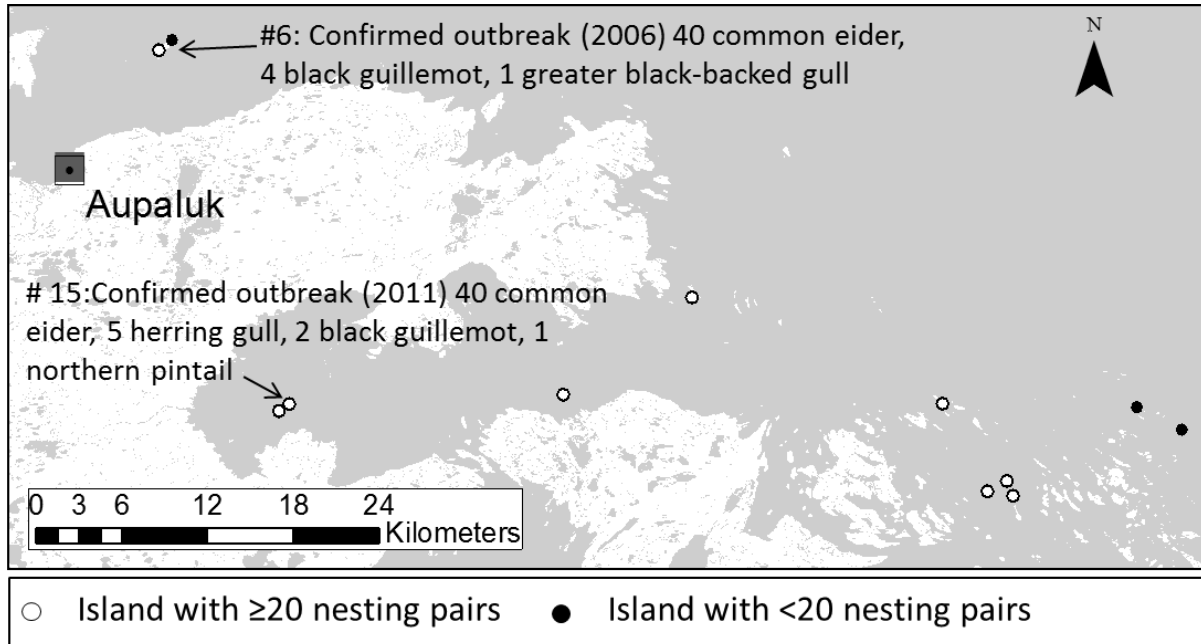
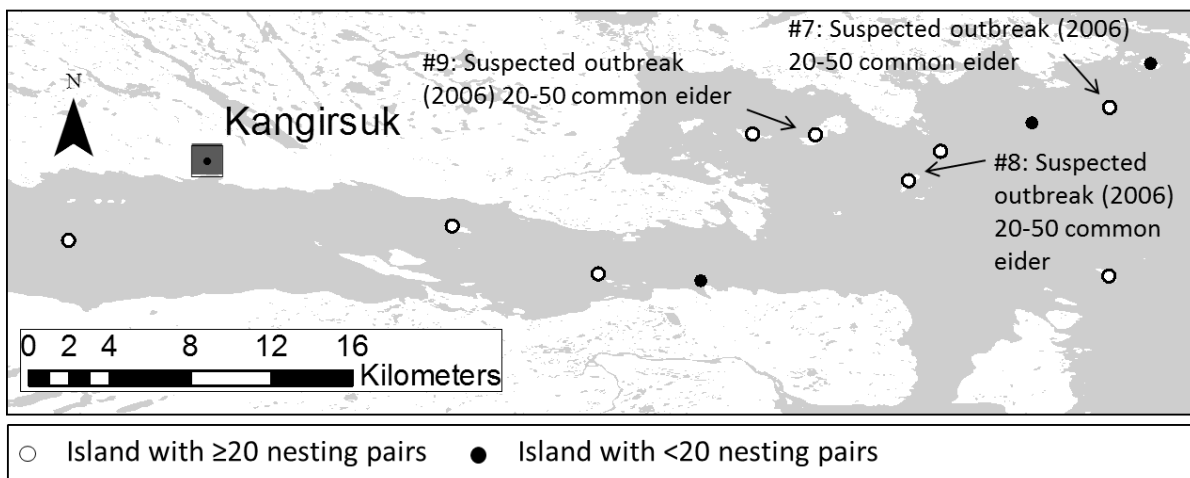


Figure A1.2. Survey zone 2: Payne Bay, Western Ungava Bay



## Appendix 1. Additional details concerning survey locations

Figure A1.3. Survey zone 3: Plover Islands, Western Ungava Bay

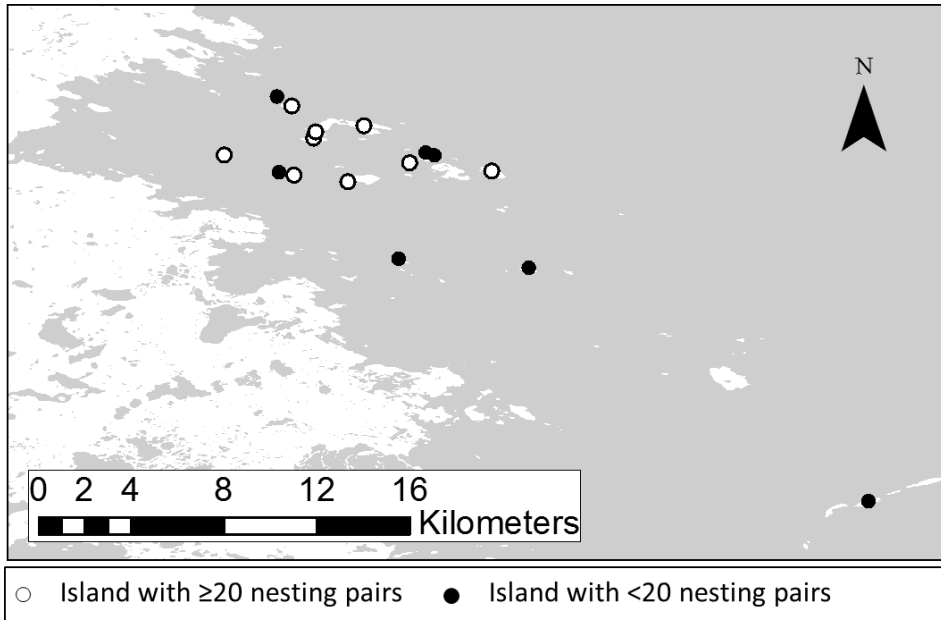
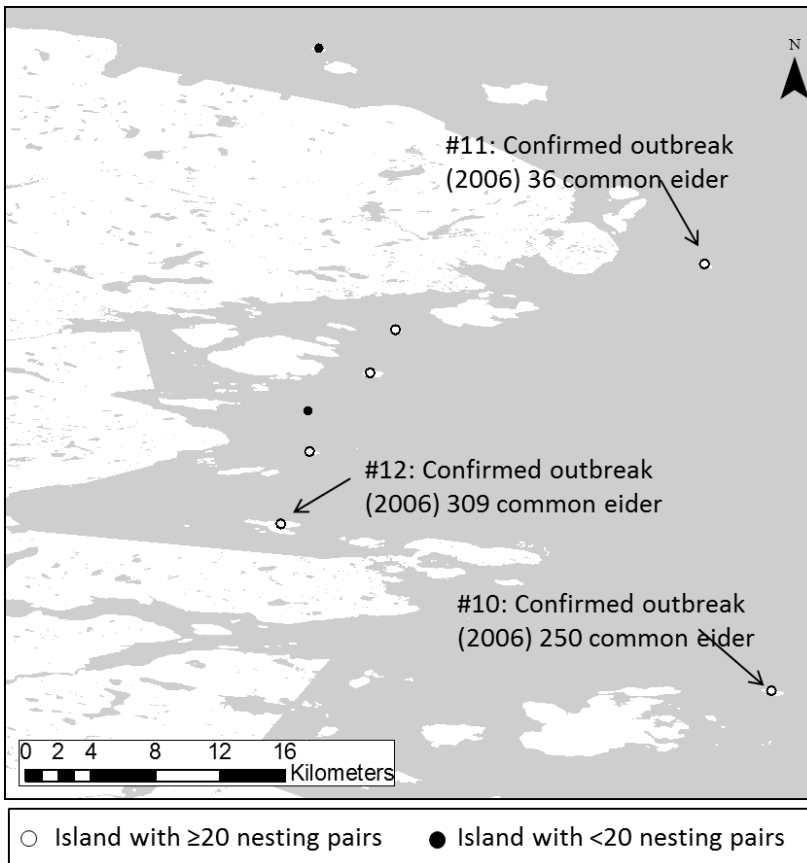


Figure A1.4. Survey zone 4: Joy Bay, Central Ungava Peninsula



## Appendix 1. Additional details concerning survey locations

Figure A1.5. Survey zone 5: King George Sound, Central Ungava Peninsula

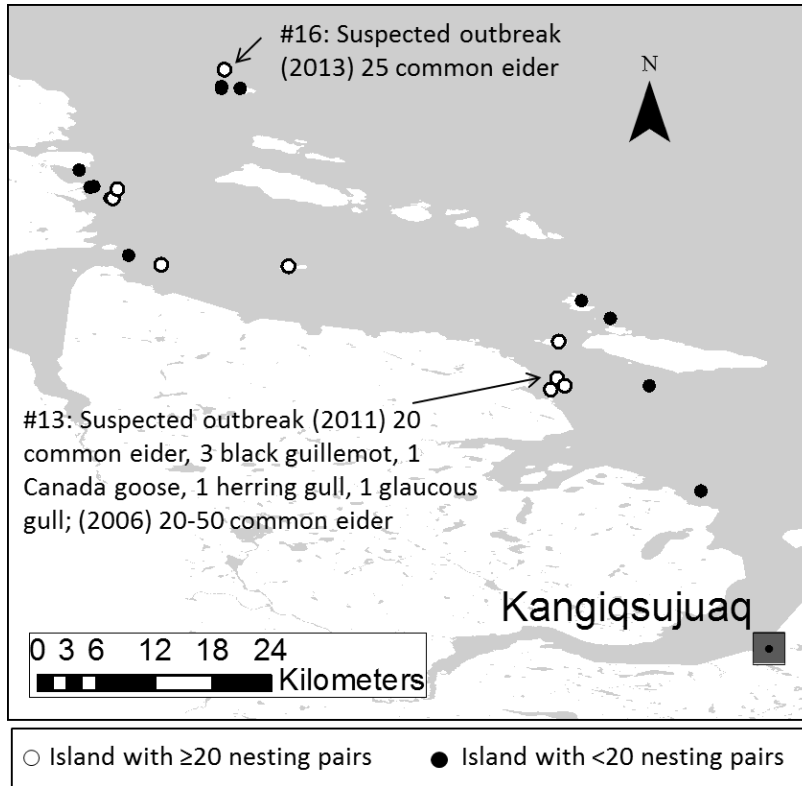
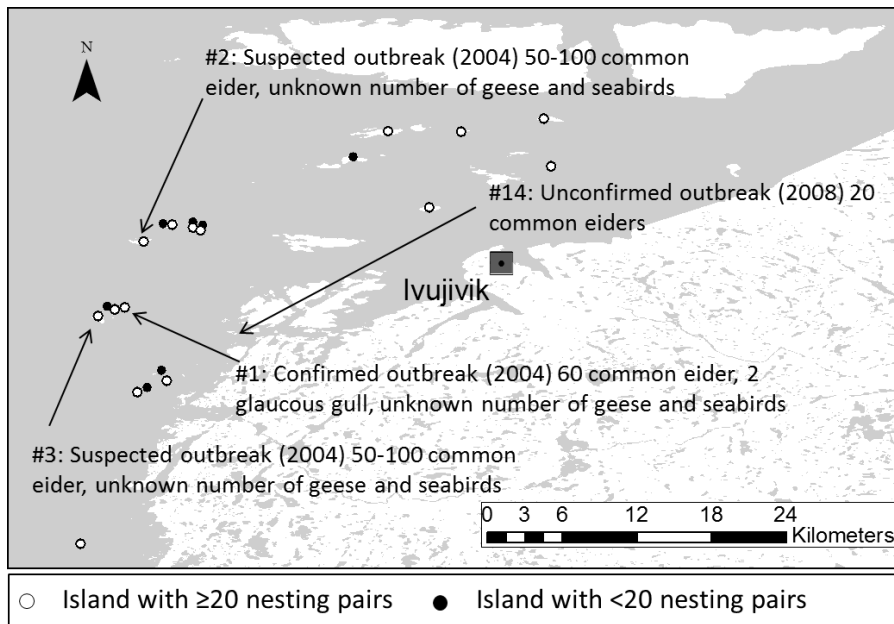


Figure A1.6. Survey zone 6: Digges Sound



## Appendix 1. Additional details concerning survey locations

Figure A1.7. Survey zone 7: Foxe Peninsula, Southern Baffin Island

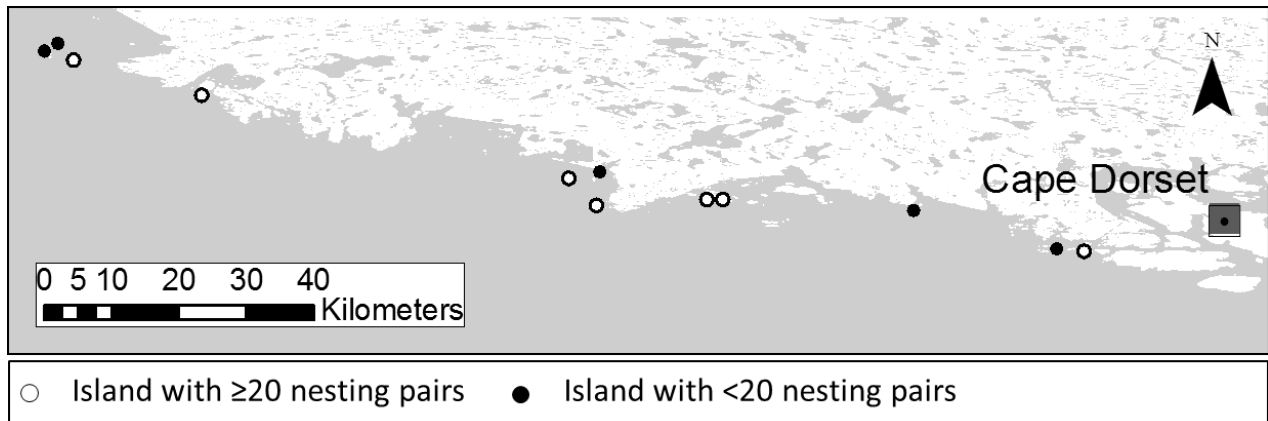
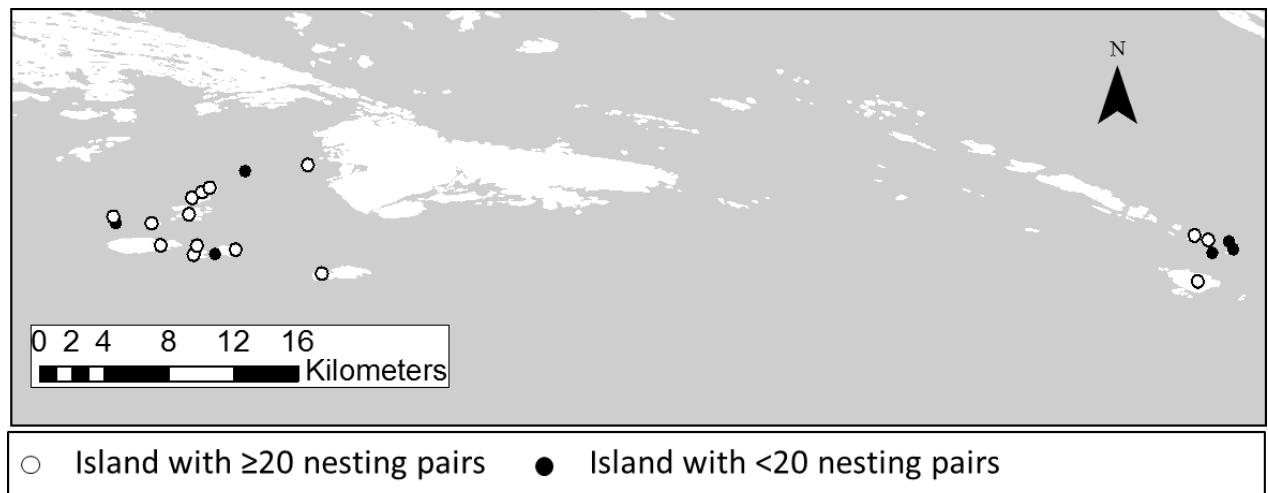


Figure A.8. Survey zone 8: West Foxe Islands, Southern Baffin Island



## Appendix 1. Additional details concerning survey locations

Figure A1.9. Survey zone 9: Chorkbak Inlet, Southern Baffin Island

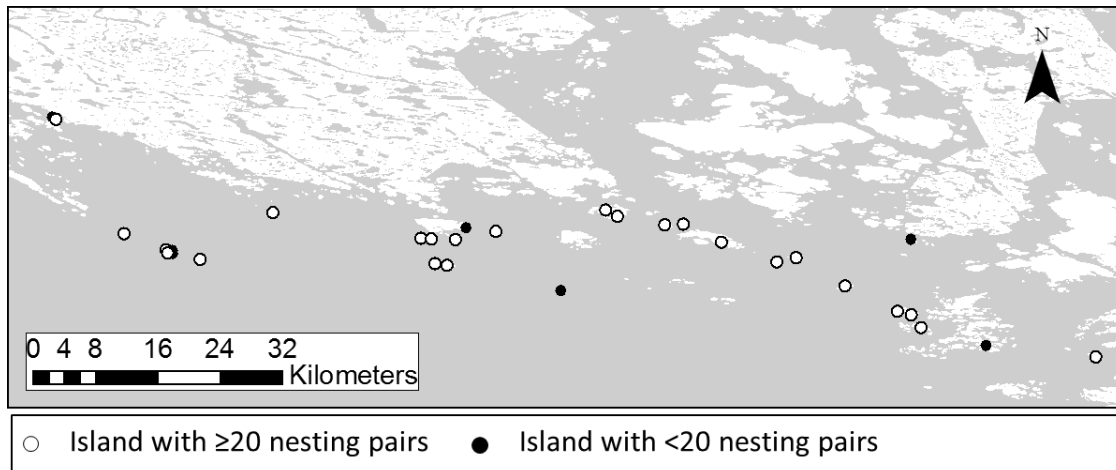
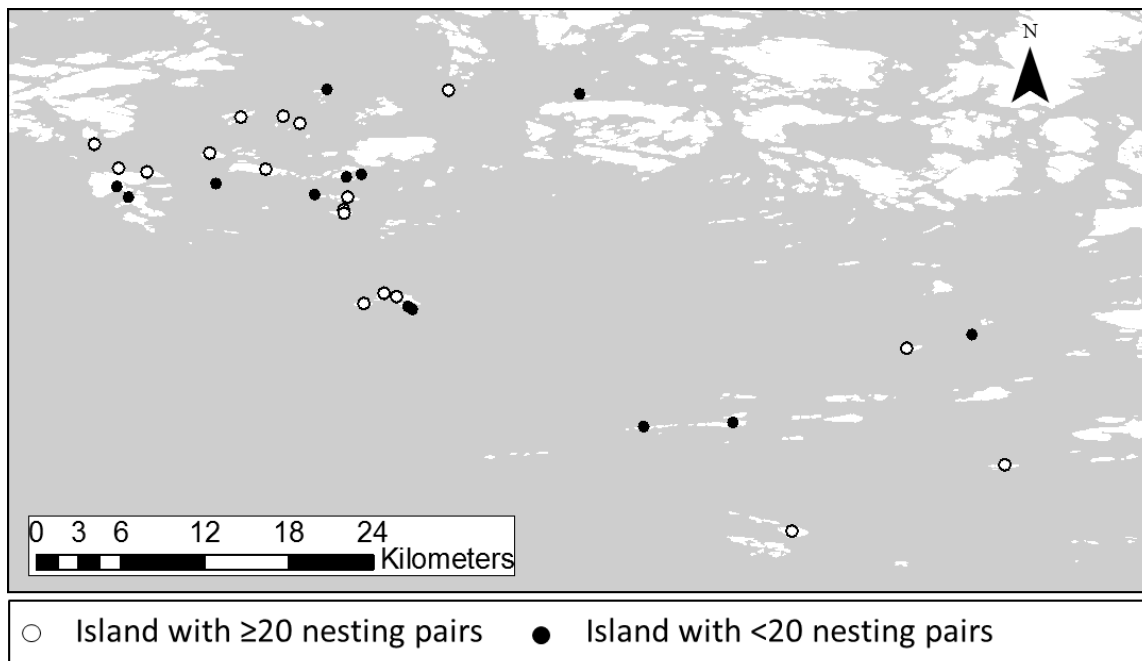


Figure A1.10. Survey zone 10: Chamberlain Islands, Southern Baffin Island



## Appendix 1. Additional details concerning survey locations

Figure A1.11. Survey zone 11: Northern Frobisher Bay, Frobisher Bay

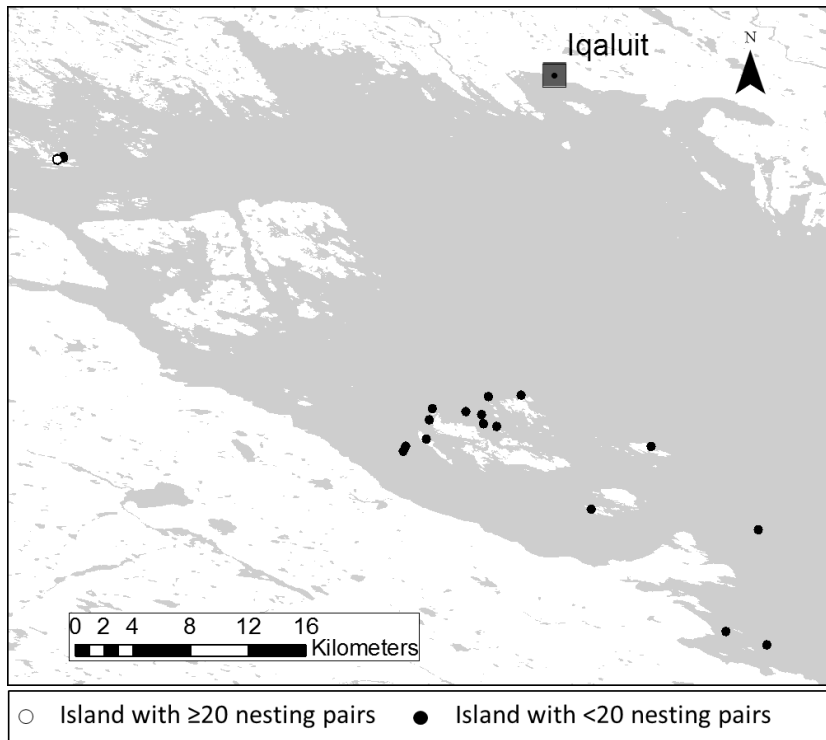
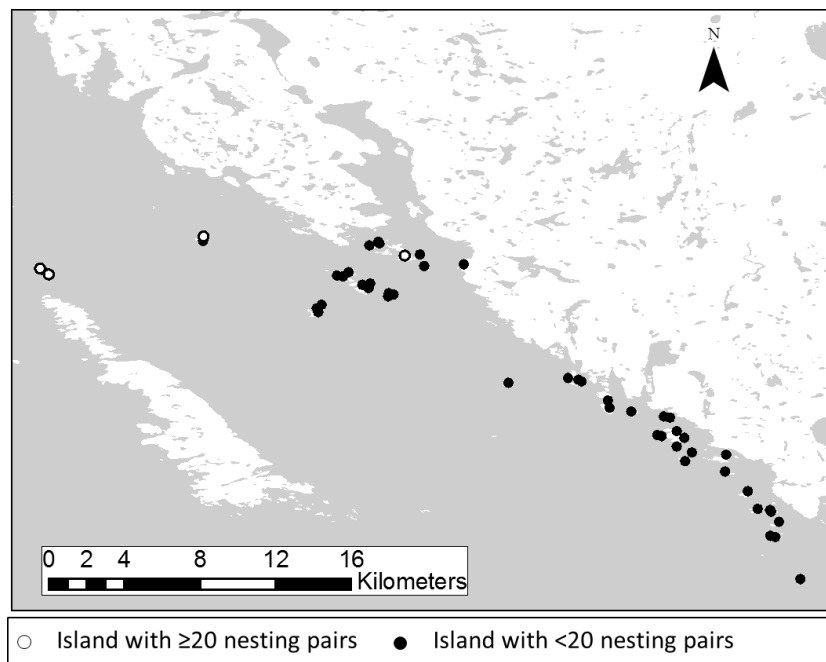


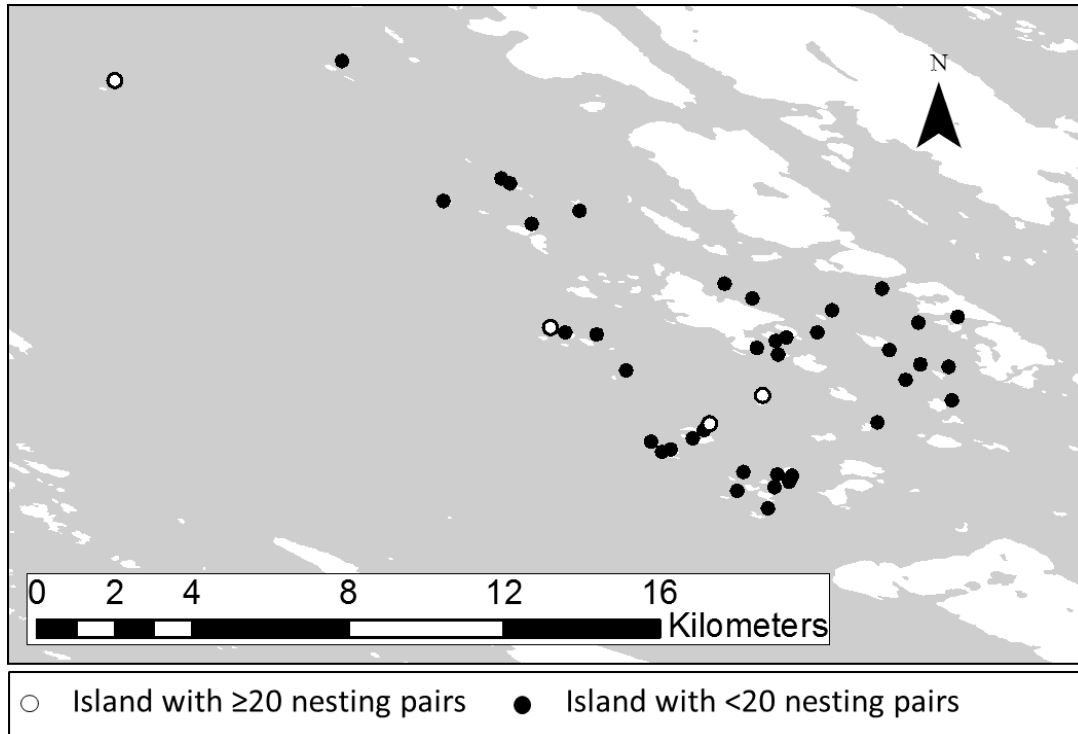
Figure A2.12. Survey zone 12: Central Frobisher Bay, Frobisher Bay





## Appendix 1. Additional details concerning survey locations

Figure A1.13. Survey zone 13: Southern Frobisher Bay, Frobisher Bay



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