



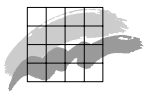
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# Seabird colonies and moulting harlequin ducks in South Greenland

Results of a survey in July 2003

*Research Notes from NERI No. 191*

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**National Environmental Research Institute**  
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**2004**

*David Boertmann*

## Data sheet

Title: Seabird colonies and moulting harlequin ducks in South Greenland  
Subtitle: Results of a survey in July 2003

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Department: Department of Arctic Environment

Serial title and no.: Research notes from NERI No. 191

Publisher: National Environmental Research Institute ©  
Ministry of the Environment  
URL: <http://www.dmu.dk>

Date of publication: January 2004

Referee: Anders Mosbech

Greenland summary: Hans Kristian Olsen

Financial support: Bureau of Minerals and Petroleum, Greenland Homerule

Please cite as: Boertmann, D. 2004: Seabird colonies and moulting harlequin ducks in South Greenland. Results of a survey in July 2003. National Environmental Research Institute, Denmark. 34 pp. - Research Notes from NERI No. 191. <http://research-notes.dmu.dk>

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Abstract: In July 2003 South Greenland was surveyed for breeding colonies of seabirds. In total 102 colonies were visited, and of these 79 had not been surveyed before. Moreover were moulting harlequin ducks mapped. The results will be included in oil spill sensitivity mapping.

Keywords: Colonial seabirds, monitoring, harlequin duck

ISSN (electronic): 1399-9346

Number of pages: 34

Internet-version: The report is available only in electronic format from NERI's homepage  
[http://www.dmu.dk/1\\_viden/2\\_Publikationer/3\\_arbejdsrapporter/rapporter/AR191.pdf](http://www.dmu.dk/1_viden/2_Publikationer/3_arbejdsrapporter/rapporter/AR191.pdf)

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# Preface

In 2000 NERI prepared an oil spill sensitivity atlas covering the coasts of West Greenland between 62° N and 68° N (Mosbech et al. 2000). In 2003 it was decided to augment this atlas both towards south and north.

This report describes the results from a survey which collected data for the new oil spill sensitivity atlas covering South Greenland.

The preparation of this atlas covering South Greenland including this survey, was financed by the Bureau of Minerals and Petroleum, Government of Greenland.

## Sammenfatning

I juli 2003 gennemførte DMU en optælling og eftersøgning af ynglekolonier for havfugle. Togtet blev gennemført samtidigt med indsamling af lokal viden omkring fiskeri af lodde, stenbider og fjeldørred. Resultaterne fra begge undersøgelser indgår i kortlægningen af kyster der er følsomme overfor oliespild.

I forvejen var, i den undersøgte region, i alt 39 ynglekolonier for havfugle registreret i DMU's database over grønlandske havfuglekolonier. Af disse blev de 29 besøgt og optalt i 2003. Dertil blev der lokaliseret 73, som ikke var registreret i forvejen. Alle de undersøgte kolonier er beskrevet i afsnit 3.

Kun for enkelte arter kan der drages sammenligninger med tidligere optællinger. For ridens vedkommende var antallet af ynglepar mere end halveret i de genbesøgte kolonier, og for hvidvinget måge kunne der konstateres flere kolonier, som var etableret siden de pågældende områder sidst blev undersøgt.

Fældende strømænder blev optalt når det var muligt. I alt ca. 200 blev observeret vest for munden af Brede Fjord. Øst herfor blev der kun set én, som ikke var i fældning. Dette bekræfter en tidligere formodning om at strømændens fældeområde i Vestgrønland afgrænses mod syd af Brede Fjord.



## Summary

During July 2003 seabird breeding colonies in South Greenland (Figure 1) were surveyed. Prior to the survey, 39 colonies were recorded from the surveyed region in the Greenland seabird colony database. Of these, 29 were revisited, and in addition 73 colonies were added to the database. Section 3 gives an account of all the studied colonies. Numbers of breeding kittiwakes have decreased in the region since the 1970s and 1980s, and Iceland gull numbers have increased.

Moulting harlequin ducks were also surveyed along the exposed coasts of the region. About 200 were observed, and all but one were located to the west of the Brede Fjord mouth. This confirms the assumption from an aerial survey in 1999, that very few harlequin ducks moult along the coasts east of Brede Fjord.

## **Eqikkaaneq**

Julimi 2003-mi DMU-p imaani timmissat piaqqiorfiinik kisitsineq ujarlernerlu ingerlappaa. Misissuineq piffinni ataasiakkaani ammassannik, nipisannik eqalunnillu aalisarnermi paasissutissanik katersuinermut peqatigitillugu ingerlanneqarpoq. Misissuinerne taakkunani marlunni paasisat sinerissami piffiit uuliaarluernerne sunnertiasut nalunaarsornerannut ilanngunneqarput.

Siusinnerusukkulli imaani timmissat piaqqiortarfii katillugit 39-it DMU-p Kalaallit Nunaanni imaani timmiaqarfinnik paasissutissaasiviani nunami immikkoortumi misissuiffiusumi nalunaarsorneqarsimapput. 2003-mi taakkunani 29-t tikkineqarsimapput kisinneqarlutillu. Tassunga atatillugu 73-t suli siornatigut nalunaarsorneqarsimanngitsut sumiiffissineqarsimapput. Timmiaqarfiit misissorneqartut tamarmik immikkoortumi 3-mi allaaserineqarput.

Timmissat assigiinngitsut ilaat kisimik siornatigut kisitsisarnernut sanilliunneqarsinnaapput. Taateraag eqqarsaatigalugu timmissat piaqqisut amerlassusaat taateraagarfinni tikeqqitani affaat sinnerlugu ikileriarsimapput, naajarnarlu eqqarsaatigalugu kingullermik tamaani misissuinerne sanilliullugu naajarnat eqimattakkuutaartut amerlanerit siumorneqarsimallutik.

Toornaviarsuit isasut periarfissaqarfiugaanngat kisinneqartarput. Toornaviarsuit 200-t pallillugit Ikersuup paavata kitaani takuneqarsimapput. Tamatuma kangiani taamaallaat ataasiinnaq isanngitsoq siumorneqarpoq. Tamatumuuna toornaviarsuit Kitaani isasarfii kujammut Ikersuaq tikillugu killeqartut siusinnerusukkut ilimagineqartoq naapertorlugu uppersarsineqarpoq.

# 1 Introduction

In the period 12 July - 1 August 2003 seabird breeding colonies were surveyed in South Greenland between Kap Farvel and the settlement Arsuk (Fig. 1). The main purpose was to provide data for oil spill sensitivity mapping as well as general background data. The survey was carried out in connection with other work related to an oil spill sensitivity mapping project presently carried out by the National Environmental Research Institute (NERI). These activities included interviews with local fishermen and hunters in all the towns and settlements of the region and public hearings about the oil spill sensitivity mapping project.

Prior to this survey the knowledge on seabird breeding colonies in the region was generally insufficient, and only for limited areas up-to-date information has been available.

## Acknowledgements

Preben Lind from Narsaq is thanked for skillful navigation of the motorboat 'Beluga'. This project is a part of an oil spill sensitivity mapping project financed by the Greenland Bureau of Mineral and Petroleum.

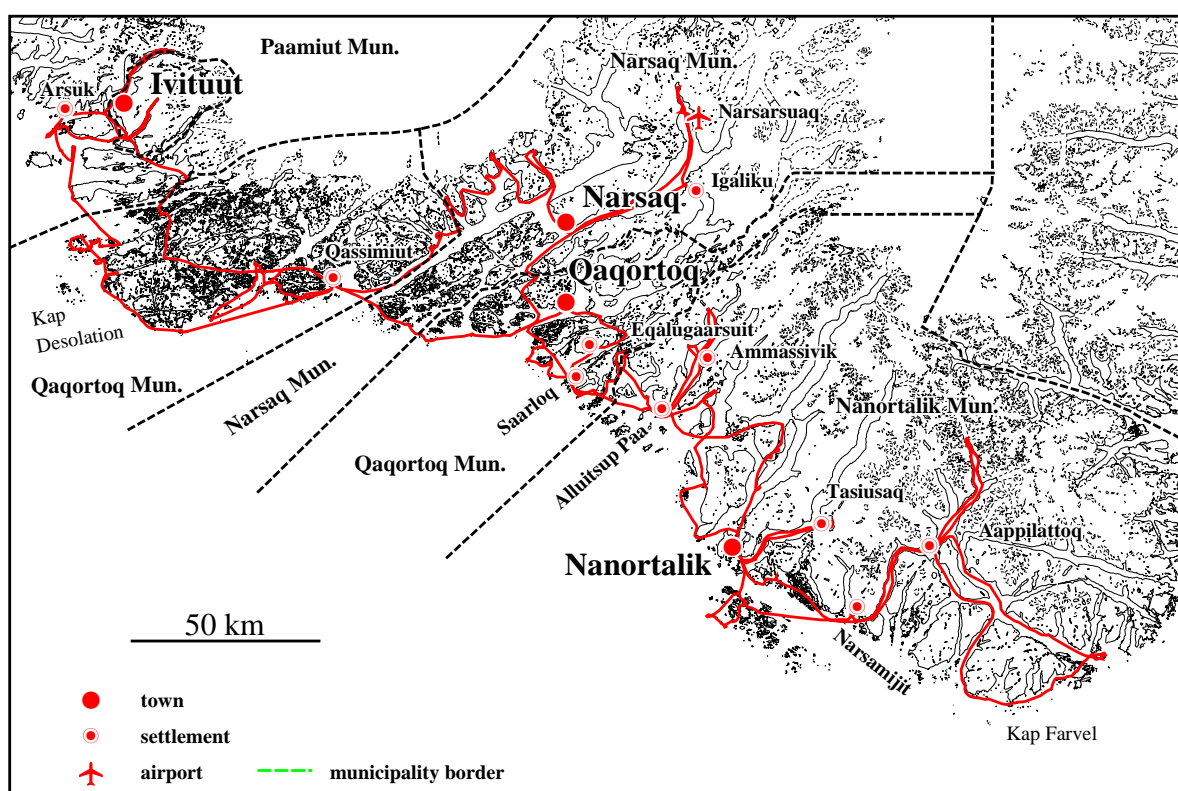


Figure 1 South Greenland with the sailed route (red) and all towns and settlements visited during the survey.

## 2 Methods

The survey was carried out from a 25 feet motor boat (Norse Boat 25), which had a cruising speed of 15 knots, and which served as basis throughout the survey. NERI maintains a database on seabird breeding colonies in Greenland. As many as possible of the colonies in the database recorded from the study region were surveyed and unrecorded colonies were searched for. In total about 1100 nautical miles were sailed (Figure 1). The weather was generally very fine with calm days and sunshine, and no non-sailing days were encountered.

Seabird colonies were surveyed from the boat because many sites are almost inaccessible and also in order to minimise disturbance at the sites. If possible pairs (P) or occupied nests (N) were counted, but for many species, such as the alcids only present individuals (I) were counted. At the colony 61002 in Arsuk Fjord Brünnich's guillemots were counted on the breeding ledges. For black guillemot, puffin and razorbill the birds present on the water or flying at the colony were counted. Lesser black-backed gull did not rest on the islands as the great black-backed gull usually do when approached by boat, why they usually were counted as individuals. In some cases colony sites were only seen brief, on far range, in high seastate or in fog. The counts from these sites are of a low quality, but included in the database, as they are the only data available from these sites. Furthermore, information on seabird breeding colonies was obtained from interviews with hunters and fishermen. Non-breeders always listed as individuals. Colony numbers refer to the code no. from the Greenland seabird colony database (Boertmann et al. 1996, NERI homepage).

Harlequin ducks moult along the exposed rocky coasts. As many as possible of the sailing routes were sailed along such coasts. Whenever possible these coasts were searched for harlequin ducks, and all flocks observed were recorded. However, such coasts were not searched systematically, why it is not possible to estimate the abundance in the searched region, but, together with information from local people, the observations give an impression of the of the distribution.

### 3 Results

Previously, 39 seabird colonies were recorded in the database from the region covered by the 2003 survey. Twenty-nine of these were re-visited in 2003, and in addition 73 un-recorded colonies were found either by ourselves or based on information from locals. Moreover was a large group of small islands (Indre Kitsissut) previously lumped as one colony, now split into 10 separate colonies. In total 301 records (counts of single species) with new information on breeding seabirds in the region were obtained and included in the database. In the following summary the colonies are listed according to the municipalities. No colonies were found in the small Ivituut Municipality.

#### 3.1 Summary of surveyed colonies

##### 3.1.1 Nanortalik Municipality (Figure 2)

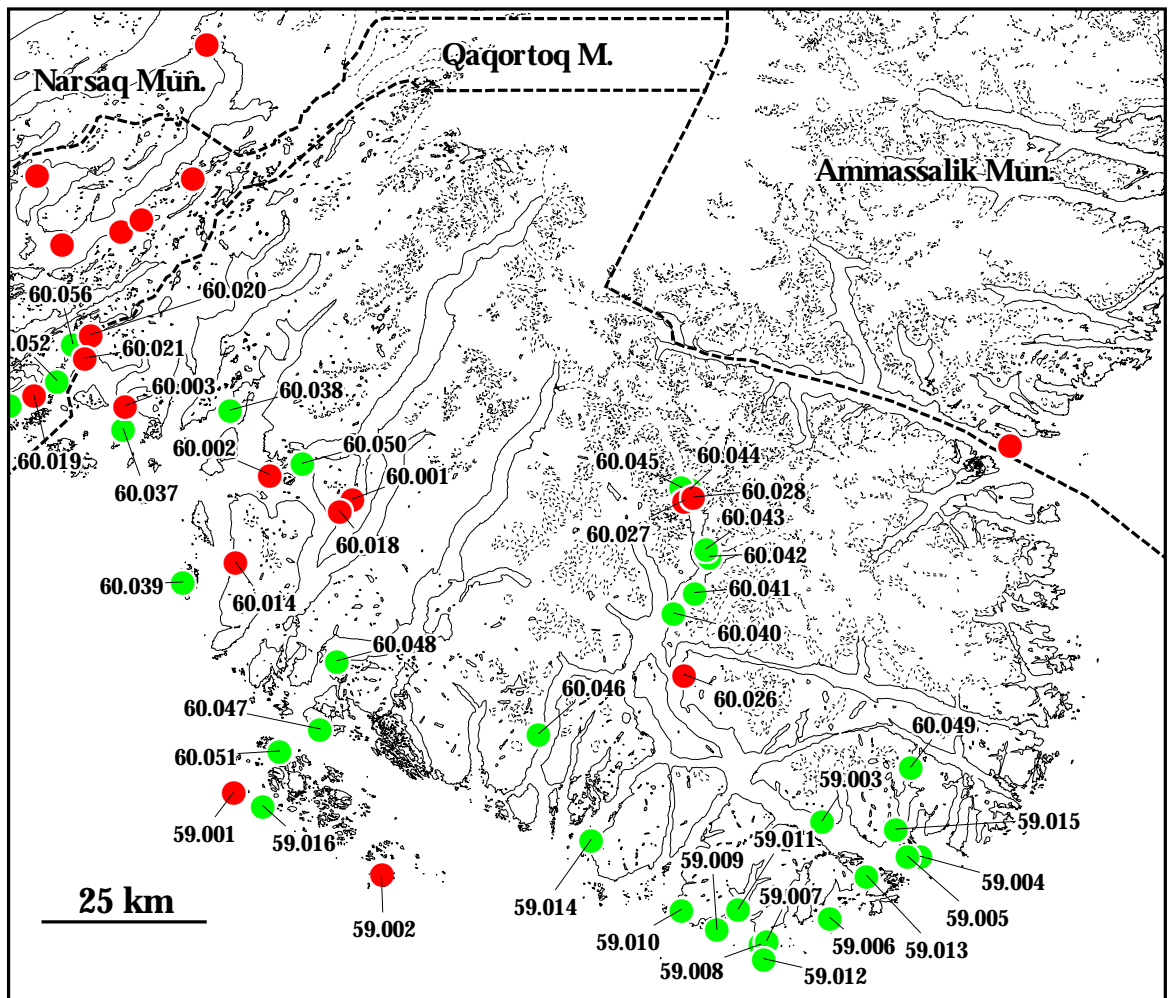


Figure 2 Seabird colonies in Nanortalik Municipality. Red (dark) dots show previously known colonies (those without code no. were not surveyed in 2003), green (pale) dots colonies located during the 2003 survey. Hatched lines are municipality borders.

**59001, Naajat in Nordlige Kitsissut**, surveyed 18 July 2003.

Small rounded island, extremely exposed to the open sea.

Breeding species recorded: glaucous gull 15 P, Great black-backed gull 2 P, black guillemot 300 I, razorbill 200 I, Brünnich's guillemot 3 I, puffin 4 I. Non-breeders: great cormorant 1.

Note: Heavy swell hampered observations. This is the outermost island in Nordlige Kitsissut off Nanortalik. And it is together with 51051 the only of the surveyed islands in the archipelago, which holds a seabird colony. Among the other islands seen, only a few black guillemots and great black-backed gulls were breeding. Previous records from the island (1949) included only some gulls, and possible breeding little auks. However, the island is not suitable for little auks, as it is made up of smooth rounded cliffs without loose boulders and rocks. The adjacent islands are similarly unsuitable to little auks. The presence of Brünnich's guillemots is remarkable. The few individuals were seen flying and resting on the water together with the razorbills, and whether they were breeding birds, prospectors or accidental visitors could not be settled. The island is very difficult to land on, as it is very exposed and has rather steep coasts.

**59003, just east of Akorna in Ikeq**, surveyed 16 July 2003, new in database.

Steep cliff with cracks facing south.

Breeding species recorded: glaucous gull 1 P, black guillemot 15 I.

**59004, Qeqertat**, eastern part; surveyed 16 July 2003; new in database.

Small archipelago of small barren islands and islets, smooth cliffs, and almost no vegetation. Extremely exposed.

Breeding species recorded: common eider minimum 200 females on the islands, many males on the water nearby, glaucous gull at least 1 P, great black-backed gull at least 2 P.

Notes: Dense fog during survey. Hans Levinsen from Aappilattoq told us that these islands hold many breeding eiders, and particularly many were present this year. Although the fog prevented thorough investigations, it was clear that these islands hold a significant breeding colony of breeding eiders, perhaps one of the largest in West Greenland.

**59005, Qeqertat**, western part; surveyed 16 July 2003; new in database.

Small archipelago of small barren islands and islets, smooth cliffs, and almost no vegetation.

Breeding species recorded: common eider only 5 females were seen on and at the islands.

Notes: Dense fog during survey. According to Hans Levinsen from Aappilattoq, eiders also breed here. Our observation confirms this, although the eiders seem to be present in much lower numbers than on 59004.

**59006, Pamialluusaq**, surveyed 16 July 2003; new in database.

Low barren island, extremely exposed.

Breeding species recorded: common eider, at least 10 females on and at the island, also some males around.

Note: According to Hans Levinsen from Aappilattoq, eiders breed here, and our observation confirms this.

**59007 small islands east of Kap Farvel**, surveyed 16 July 2003.  
Small barren and low island with steep sides, extremely exposed.  
Breeding species recorded: black guillemot 30 I, razorbill 6 I.

**59008, small islands south of Kap Farvel**, surveyed 16 July 2003; new in database.

Small and barren islands, extremely exposed.

Breeding species recorded: common eider 30 I, black guillemot 75 I.

Note: According Hans Levinsen from Aappilattoq, eiders breed here.

**59009, in the mouth of Kangia and just east of Kap Christian**, surveyed 16 July 2003; new in database.

Group of small and barren islands, seen on some distance.

Breeding species recorded: common eider 2 females on the islands, 35 (males and females) on the water around, black guillemot 2 I.

Note: According to the locals in Aappilattoq, eiders breed here, and our observations seem to confirm this.

**59010, Kap Christian**, surveyed 16 July 2003; new in database.

Steep and very high (500 m) cliff, 0.8 km facing south, 3.5 km facing west.

Breeding species recorded: northern fulmar 500 - 1000 P, Iceland gull 15 P, black guillemot 16 I.

Notes: the fulmars were breeding very high on the cliff and almost throughout the entire cliff described above. In the central part, among the Iceland gulls, some fulmars also nest close to the water. The gull colony is situated in the centre of the colony, and low on the cliff. The geographical position of the (combined) colony indicated in the database is from the gull colony. For many years, it has been rumoured that Brün-nich's guillemots were breeding here at Kap Christian. These rumours could not be confirmed, and there were no signs at all of any breeding alcids except a few black guillemots.

**59011, island in Kangia**, not surveyed; new in database.

One island.

Species: common eider.

Note: According to Hans Levinsen from Aappilattoq, eiders breed here.

**59012, islands south of Kap Farvel**, not surveyed; new in database.

A rather large island and at least one small.

Species: common eider.

Note: According to Hans Levinsen from Aappilattoq, eiders breed here.

**59013, Uummanaq**, not surveyed; new in database.

Species: Iceland/glaucous gulls breed here, and great cormorants occur (probably as non-breeders).

Note: According to Hans Levinsen from Aappilattoq. The position indicated in the database is not precise.

**59014, Qeqertaa**, not surveyed; new in database.

Three islands

Species: common eider.

Note: According to Hans Levinsen from Aappilattoq, eiders breed here.

**59015, Pilike**, not surveyed; new in database.

A large and a small island.

Species: common eider

Note: According to Hans Levinsen from Aappilattoq, eiders breed here.

**59016, Appaliarsuit Kujallit**, surveyed 18 July 2003; new in database.

A small barren island, extremely exposed.

Breeding species recorded: black guillemot 80.

This island looks like 59001 unsuitable to little auks, because it is made up from smooth rounded cliffs without loose boulders and rocks.

**60001, Portussoq**, surveyed 18 July 2003.

Low island, with a steep side towards north-west. In a protected narrow and shallow strait.

Breeding species recorded: great black-backed gull 44 I, glaucous gull 2 P, Iceland gull 181 P, kittiwake 5 N, black guillemot 152 I.

Notes: Iceland gulls were breeding on the steep side (146 P) and on the plateau (35 P), the other large gulls only on the plateau, and the kittiwakes on the steep side. Black guillemots along all the shores. Kittiwake numbers were strongly reduced since previous count in 1994, when 600-700 nest were recorded.

**60002, small island between Sallia and Kanajormiut**, surveyed 18 July 2003.

Low island in protected waters.

Breeding species recorded: great black-backed gull 2 P, black guillemot 27 I.

**60003, Serfatuutsiaq**, surveyed 20 July 2003.

Low island in protected water

Breeding species recorded: Lesser black-backed gull 17 I, great black-backed gull 15 I, black guillemot 600 I.

**60014, Niaqornaq** on Sermersoq, surveyed 13 July 2003.

Species recorded: Iceland/glaucous gull seen flying to and from the colony.

Note: Low clouds covered the colony, which is situated in high altitude on a steep cliff face.

**60018, island in the strait of Akorna**, surveyed 18 July.

Low island in protected strait.

Breeding species recorded: lesser black-backed gull 11 I, great black-backed gull 26 I, glaucous gull 2 I, black guillemot 75 I.

**60020, Torsukattak (Qaarsup Kangia)**, surveyed 20 July.

Two low islands among other small islands.

Breeding species recorded: lesser black-backed gull 14 I, great black-backed gull 33 P.

Notes: Most great black-backs on the eastern island, most lesser black-backs on the western.

**60021, Qingaatsiaq**, surveyed 20 July 2003.

Three small and low islands in protected waters.

Breeding species recorded: lesser black-backed gull 14 I, great black-backed gull 45 I.

**60026, Nuugaatsiaq**, surveyed 16 July 2003.

Steep cliff facing west.



Breeding species recorded: No birds seen.

Note: 10 to 12 pairs of black guillemot were recorded here in 1970.

**60027, Kangersuneq Qingorleq**, surveyed 16 July 2003.

Steep cliff facing to the east.

Breeding species recorded: Iceland gull 95 P, glaucous gull 1 P, kittiwake 25 P, black guillemot 15 I.

Note: Previously surveyed in 1970, when no kittiwakes were present.

Hans Levinsen from Aappilattoq told that Brünnich's guillemots occasionally occurred on the water below this colony and 60038 during the summer.

**60028, Kangersuneq Qingorleq**, surveyed 16 July 2003.

Steep cliff facing to the west and south-west; gull colony rather extended (between 60° 22,146' and 60° 22,620' N).

Breeding species recorded: great black-backed gull 1 P, Iceland gull 180 P, glaucous gull 3 P, kittiwake 3 P, black guillemot 55 I.

Note: previously surveyed in 1970, when no kittiwakes and only 25-30 pairs of Iceland gulls were present.

**60037, Ujarattarfik**, surveyed 12 July 2003; new in database.

Steep cliff facing north-north-west, on island.

Breeding species recorded: black guillemot 130 I.

**60038, Ippik** on Uunartoq, surveyed 12 July 2003; new in database.

Steep cliff, facing north-west.

Breeding species recorded: great black-backed gull 1 P, black guillemot 18 I.

**60039, Sallit**, surveyed 13 July 2003; new in database.

Large archipelago with numerous low islets and islands. Very exposed and generally very barren.

Breeding species recorded: great black-backed gull 7 P, black guillemot 275 I.

Note: only superficially surveyed, but the archipelago apparently only holds low numbers of seabirds.

**60040, Narsarsuaq** in Nuup Kangerlua, surveyed 16 July 2003; new in database.

Steep cliff facing to the north-west.

Breeding species recorded: black guillemot 64 I.

**60041, Niarqornaarsuk** in Nuup Kangerlua, surveyed 16 July 2003; new in database.

Steep cliff facing to the west.

Breeding species recorded: great black-backed gull 1 P, black guillemot 38 I.

**60042, Akuliaruseq** in Kangersuneq Qingorleq, surveyed 16 July 2003; new in database.

Steep cliff facing west.

Breeding species recorded: Iceland gull 40 P, glaucous gull 10 P, black guillemot 5 I.

**60043 Kangersuneq Qingorleq**, east side of fjord, surveyed 16 July 2003; new in database.

Steep cliff facing west.

Breeding species recorded: glaucous gull 2 P, black guillemot 17 I. Non-breeders: great cormorant 2.

**60044, Kangersuneq Qingorleq**, east side near head of fjord, surveyed 16 July 2003; new in database.

Steep cliff facing west.

Breeding species recorded: great black-backed gull 1 P, Iceland gull 85 P, glaucous gull 3 P, kittiwake 32 N, black guillemot 4 I.

Note: great black-backed gulls, glaucous gulls and black guillemots were breeding in a small subcolony a little further north than Icelands gulls and kittiwakes. Many chicks seen: most about 7 to 10 days old, a few perhaps 14 days.

**60045, Kangersuneq Qingorleq**, west side of fjord near head, surveyed 16 July 2003; new in database.

Steep cliff facing east.

Breeding species recorded: great black-backed gull 2 P, Iceland gull 15 P, glaucous gull 2 P.

Note: glaucous gulls and great black-backed gulls a little to the south of the Iceland gulls. Compared to the reference map K&M 60 V.2 the glacier front in the head of the fjord has withdrawn about 3.5 km. This colony and 60044 are situated on coasts, which were covered by ice when the map was surveyed in 1962/63.

**60046, Torsukattak**, west shore, surveyed 17 July 2003; new in database.

Steep cliff, facing east.

Breeding species recorded: black guillemot 14 I.

**60047, Taateraakasik**, in Kitsissut Tunuat, surveyed 17 July 2003; new in database.

Steep cliff, facing south.

Breeding species recorded: black guillemot 20 I.

**60048, Naajat Nuuat**, in Tasermiut, surveyed 17 July 2003; new in database.

Steep cliff, facing south-west.

Breeding species recorded: great black-backed gull, black guillemot 18 I.

**60049, Qernertup Kangia**, northern end, not surveyed; new in database.

Two or more small islands.

Species: common eider.

Note: According to Hans Levinsen from Aappilattoq, eiders breed here.

**60050, Ikerassarsuk**, eastern end, surveyed 18 July 2003; new in database.

Steep north facing cliff on island.

Breeding species: black guillemot 6 I.

**60051, Nordlige Kitsissut**, northern part, surveyed 18 July 2003; new in database.

Small islet with steep sides and many cracks.

Breeding species recorded: great black-backed gull 2 P, black guillemot 35 I, razorbill 58 I.

**60052, Qussassat Tunua**, surveyed 20 July 2003; new in database.  
Two low islands.  
Breeding species recorded: great black-backed gull 12 pairs, black guillemot 33 I.

**60056, Qerrujuut and Eqalussuortalik** in Qaarsup Kangia, surveyed 20 July 2003; new in database.  
Four small and low islands and some skerries.  
Breeding species recorded: herring gull 2 P, great black-backed gull 12 P, lesser black-backed gull 21 P.  
Notes: herring gulls seen feeding chicks.

### 3.1.2 Qaqortoq Municipality (Figs 3 and 4)

**60008, Akuliaruseq**, surveyed 28 July 2003.  
Three low islands.  
Breeding species recorded: herring gull 2 P, lesser black-backed gull 150 P, great black backed gull 5 P, Iceland gull 15 P, black guillemot 115 I.  
Notes: many fledged juveniles of lesser black-back and Iceland gulls.

**60009, Portusoorsannguaq**, surveyed 25 July 2003.  
Small island.  
Species: No birds seen.  
Note: Arctic terns bred here in 1985.

**60010, Ikerasassuaq**, eastern end, surveyed 25 July 2003.  
One low island and some skerries.  
Breeding species recorded: common eider 6 females, great black-backed gull 1 P.  
Notes: Arctic terns bred here in 1986. The eiders behaved like breeders.

**60011, Qiooqit**, surveyed 24 July 2003.  
High island with steep sides, very exposed.  
Breeding species recorded: great black-backed gull 1 P, black guillemot 15 I, razorbill 8 I. Non-breeders: great cormorant 14, harlequin duck 20.  
Notes: Heavy swell during observations. Brünnich's guillemot breed here in 1949, but has not been observed here at least since 1981.

**60016, Qalerallit Imaa**, surveyed 28 July 2003.  
Steep cliff facing east-north-east.  
Breeding species recorded: Iceland gull 9 P, glaucous gull 4 P, kittiwake 95 N, black guillemot 45 I.  
Notes: Large, almost full grown chicks in kittiwake nests. Previously surveyed in 1949 when 11 pairs of Iceland gulls and 329 P of kittiwakes nested.

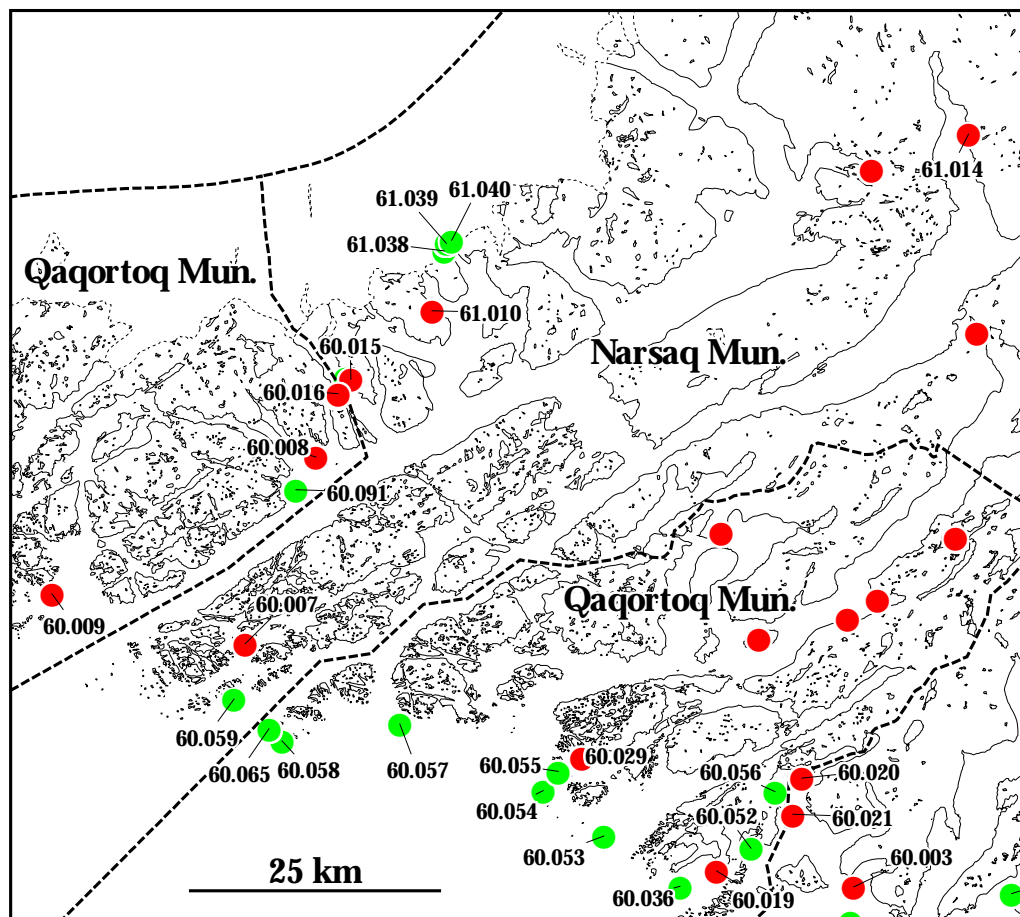


Figure 3 Seabird colonies in Qaqortoq (eastern part) and Narsaq Municipalities. Red (dark) dots show previously known colonies (those without code no. were not surveyed in 2003), green dots (pale) are colonies located during the 2003 survey. Hatched lines are municipality borders.

**60017, Saatut, surveyed 24 July 2003.**

Three small islands, one with a navigation mark.

Breeding species recorded: great black-backed gull 3 P, glaucous gull 6 P, black guillemot 35 I. Non-breeders: great cormorant 45.

Notes: The gulls nested on the large island with navigation mark.

**60019, Qeqertaq, surveyed 12 July 2003.**

Small and low island.

Breeding species recorded: great black-backed gull 1 P, black guillemot 77 I.

**60023, Qarsussat, surveyed 25 July 2003.**

Small, low island with navigation mark.

Breeding species and numbers: black guillemot 38 I.

Note: Arctic terns were recorded on this island in 1992 and 1999, but no terns were seen in 2003.

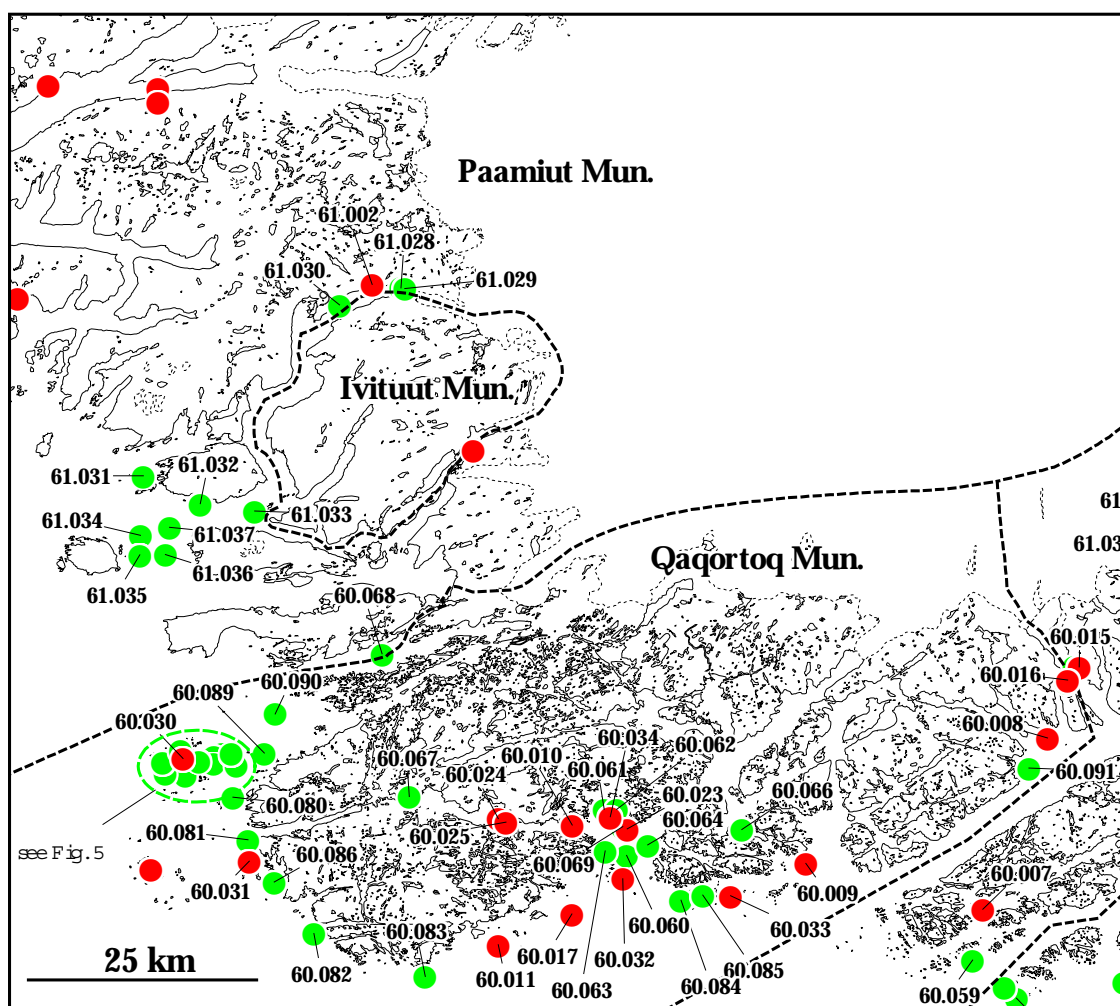


Figure 4 Seabird colonies in western Qaqortoq Municipality and Paamiut Municipality. Red (dark) dots show previously known colonies (those without code no. were not surveyed in 2003), green dots (pale) are colonies located during the 2003 survey. Hatched lines are municipality borders. No colonies are known from the small Ivituut Municipality.

**60024, Ikerasassuaq, central part, surveyed 25 July 2003.**

Low island in protected strait.

Breeding species recorded: black guillemot 37 I. Non-breeders: common eider 20.

**60025, Ikerasassuaq, central part, surveyed 25 July 2003.**

Low island in protected strait.

Breeding species recorded: black guillemot 2 I.

**60029, Pinguarneq, surveyed 12 and 21 July 2003.**

Low island with navigation mark.

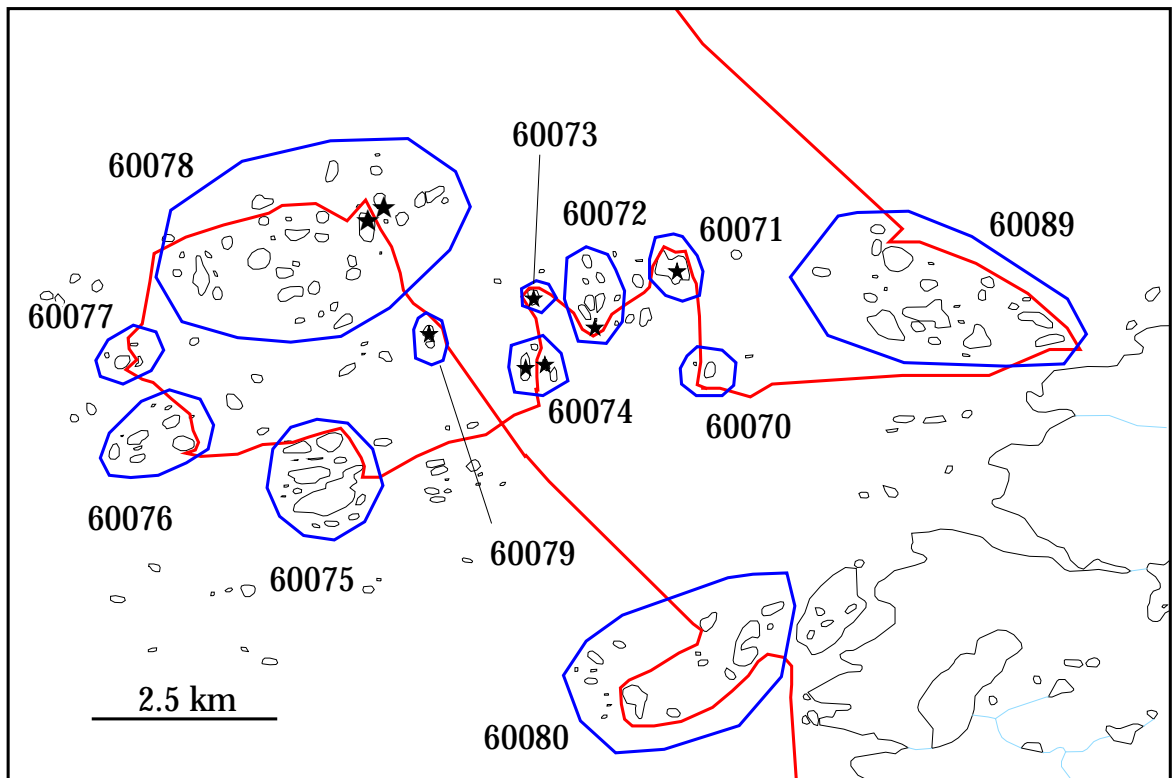
Breeding species recorded: lesser black-backed gull 1 P, great black-backed gull 1 P, Arctic tern 55 I, black guillemot 55 I.

**60030, Indre Kitsissut, surveyed 27 July 2003.**

Extensive archipelago, now subdivided into 60070-60079 (Figure 5).

Breeding birds recorded: See 60070 to 60079.

Note: Indre Kitsissut has only been surveyed once before: on 30 July 1999 when the archipelago was observed from aircraft and treated as an entity. In 2003 the archipelago was surveyed from boat and was subdivided in more operational subgroups (Figure 5). However, some of these can probably be divided further. In 1999, razorbills were recorded on 8 different islands, in 2003 also on 8. Nevertheless, more thorough studies are needed to get an overview of the bird life in this remarkably rich archipelago.



*Figure 5* The subdivision of Indre Kitsissut (60030) and delimitation of adjacent colonies (60089 and 60080) indicated with blue lines. Asterisks show position of Razorbill colonies. Sailing route is red.

**60032, Pukkitsut**, surveyed 24 July 2003.

Archipelago with many low islets and skerries.

Breeding species recorded: lesser black-backed gull 1 P, great black-backed gull 3 P, Arctic tern 10 I, black guillemot 85 I. Non-breeders: great cormorant 2, common eider 5, harlequin duck 15.

Notes: The terns were recorded on the eastern of the two islands south-south-east of 60060. About 60 terns were recorded in 1999. However, this observation was done from aircraft, and confusion with 60060 may have taken place.

**60033, Itissaalik**, surveyed 24 and 27 July 2003.

Archipelago with many small islands, islets and skerries.

Breeding species recorded: common eider, 2 females with chicks + 3 females, Arctic skua 1 P, great black-backed gull 4 P, Arctic tern 1 I, black guillemot 95 I. Non-breeders: harlequin duck 2.

Note: In 1999 about 170 Arctic terns were recorded here.

**60034, Inusuarmiut**, surveyed 24 July 2003.

Small skerry west of the main island.

Note: This skerry is unsuitable to breeding birds, and the identification in 1999 must be a mistake. It was probably one of the islands in 60062 that was recorded.

**60036, Tukungassoq**, surveyed 12 July 2003; new in database.

Rather steep cliff facing east, on island.

Breeding species recorded: black guillemot 70 I.

**60057, Qioqe**, surveyed 23 July 2003; new in database.

Low barren island to the south of Hollænderø; very exposed.

Breeding species recorded: lesser black-backed gull 10 I, great black-backed gull 1 P, glaucous gull 1 P, Arctic tern 40 I, black guillemot 3 I.

Non-breeders: great cormorant 11.

**60058, Angissit**, surveyed 23 July 2003; new in database.

Low barren island, very exposed; with navigation mark.

Breeding birds recorded: common eider 2 females, lesser black backed gull 2 P, great black-backed gull 8 P, glaucous gull 3 P, black guillemot 80 I.

Note: the common eiders behaved like breeders.

**60060, Qenertut**, surveyed 24 July 2003; new in database.

Two low islands.

Breeding birds recorded: Arctic skua 1 P, Arctic tern 500-1000 I, black guillemot 50 I.

Note: Difficult to survey due to high seastate.

**60061, Qimatulivia**, surveyed 24 July 2003; new in database.

Two low islets south-west of Qimatulivia.

Breeding birds recorded: great black-backed gull 1 P, black guillemot 26 I.

**60062, Tasiusaq**, surveyed 24 July 2003; new in database.

Two small and low islands in mouth of Tasiusaq; seen on far range.

Breeding birds recorded: Arctic tern at least 15 I.

Note: One of these islands may be identical to 60034?

**60063, Umiissaaq**, surveyed 24 July 2003; new in database.

Steep cliff facing north-west, on small island just south of Umiissaaq.

Breeding birds recorded: common eider 3 females with chicks, great black-backed gull 1 P, black guillemot 50 I. Non-breeders: harlequin duck 16.

**60064, Pingulik**, surveyed 24 July 2003; new in database.

Small and low island just east of Pingulik.

Breeding birds recorded: great black-backed gull 1 P, black guillemot 50 I.

**60065, Uiguleriit**, surveyed 23 July 2003; new in database.  
Small and low island, strongly exposed.  
Breeding birds recorded: common eider 2 females, lesser black-backed gull 3 P, great black-backed gull 3 P, Arctic tern 60 I, black guillemot 20 I.

**60066, Pinguarneq**, Nordlige Mågeløb, surveyed 25 July 2003; new in database.  
Steep cliff facing north-east.  
Breeding birds recorded: black guillemot 13 I.

**60067, Ikerassasuaq**, north of Bangs Havn, surveyed 25 July 2003; new in database.  
Steep cliff facing south.  
Breeding birds recorded: black guillemot 18 I.

**60069, Issorissoq**, surveyed 25 July 2003; new in database.  
Group of four islands and some skerries.  
Breeding birds recorded: Arctic tern 5 I.

**60070, Indre Kitsissut** eastern part, subdivision of 60030 surveyed 27 July 2003 (Figure 5).  
Two islands.  
Breeding birds recorded: common eider 1 female, black guillemot 125 I.  
Note: the eider female behaved like a breeder.

**60071, Indre Kitsissut**, Oqaatsortalik, subdivision of 60030 surveyed 27 July 2003.  
Larger island with navigation mark and some skerries. Steep cliff on south side.  
Breeding birds recorded: great black backed gull 1 P, black guillemot 410 I, razorbill 4 I.

**60072, Indre Kitsissut**, central east part, subdivision of 60030 surveyed 27 July 2003.  
About 6 small island and some islets and skerries.  
Breeding birds recorded: great black-backed gull 1 P, black guillemot 50 I. Non-breeders: harlequin duck 8.  
Note: Observations hampered by fog.

**60073, Indre Kitsissut**, central south-east part, subdivision of 60030 surveyed 27 July 2003.  
Low island with many cracks.  
Breeding birds recorded: great black-backed gull 1 P, black guillemot 55, razorbill 13 I.  
Note: Observations hampered by fog.

**60074, Indre Kitsissut**, central east part, subdivision of 60030 surveyed 27 July 2003.  
Four islands and some skerries.  
Breeding birds recorded: common eider 4 females, great black-backed gull 1 P, black guillemot 500 I, razorbill 300 I, atlantic puffin 5 I. Non-breeders: peregrine falcon 1 ad.  
Note: Observations hampered by fog. The westernmost island held most of the birds, also some razorbills on the island just east of that.



**60075, Indre Kitsissut**, Tulugartalik, subdivision of 60030 surveyed 27 July 2003.

Four larger island, many islets and skerries.

Breeding birds recorded: common eider 2 females with chicks + 6 females, great black-backed gull 1 P, black guillemot 500 I. Non-breeders: red-throated diver 2, gyr falcon 1.

Observations strongly hampered by fog.

**60076, Indre Kitsissut**, south-west part, subdivision of 60030 surveyed 27 July 2003.

Five island and some islets and skerries

Breeding birds recorded: great black-backed gull 2 P, glaucous gull 1 P, black guillemot 200 I. Non-breeders: common eider 30 (males and females), peregrine falcon 1 ad.

**60077, Indre Kitsissut**, western part, subdivision of 60030 surveyed 27 July 2003.

One island, some islets and skerries.

Breeding birds recorded: Iceland gull 16 P, black guillemot 300 I. Non-breeders: king eider 1 male, harlequin duck 1.

Note: the gulls were breeding on the largest island on a steep cliff facing south-east.

**60078, Indre Kitsissut**, north-west part, subdivision of 60030 surveyed 27 July 2003.

Many rather scattered islands.

Breeding birds: common eider 5 females, great black-backed gull 2 P, glaucous gull 19 P, Iceland/glaucous gull 6 P, black guillemot 750 I, razorbill 120. Non-breeders: harlequin duck 4.

Notes: small colonies of glaucous gull on many islands, some probably overlooked, razorbills on two adjacent islands no. 3 and 4 in group counted from east (Figure 5).

**60079, Indre Kitsissut**, central west part, subdivision of 60030 surveyed 27 July 2003.

Two islands, seen on some distance.

Breeding birds recorded: black guillemot 150 I, razorbill 45 I.

**60080, Qaatit**, surveyed 27 July 2003; new in database.

Archipelago with very barren islands.

Breeding birds recorded: great black-backed gull 2 P, black guillemot 245 I. Non-breeders: harlequin duck 15 in 4 flocks.

Note: Fog during survey.

**60081, mouth of Torsukattak**, north of Qilluarissoq, surveyed 27 July 2003; new in database.

Two barren and smooth islands.

Breeding birds observed: Black guillemot 200 I. Non-breeders: harlequin duck 17 in four flocks.

Note: Fog during survey.

**60082, Naajat Avannallit**, surveyed 27 July 2003; new in database.

Two high islands and some skerries, seen on distance and in high seastate.

Breeding birds observed: Iceland/glaucous gull 30 P, black guillemot 100 I, razorbill 50 I.

Note: the high seastate did not allow a closer approach, and only the eastern sides of the islands were seen. Southern island seemed to be the most interesting. Possible two puffins were seen flying towards the islands, but identification not sure.

**60083, Naajat Kujallit**, surveyed 27 July 2003; new in database.  
Two rather high islands and some islets seen in high seastate.  
Breeding birds recorded: black guillemot 150 I. Non-breeders: common eiders 70 (males and females), harlequin duck 85 in four flocks.  
Note: observations hampered by high seastate, and only the northern side of the north islands seen.

**60084, Qunnilik**, surveyed 27 July 2003; new in database.  
A low island.  
Breeding birds observed: lesser black-backed gull 6 P, great black-backed gull 4 P, glaucous gull 3 P.  
Note: several almost full grown chicks seen.

**60085, Muussuut**, surveyed 27 July 2003; new in database.  
Two low islands and some islets.  
Breeding birds recorded: Black guillemot 100 I.  
Note: seen on some distance.

**60086, Kap Desolation**, surveyed 27 July 2003; new in database.  
Four barren islands and some islets, north of Kap Desolation.  
Breeding birds observed: Black guillemot very numerous (min. 200), but not possible to get any firm figures.  
Note: Observations hampered by high seastate and long distance.

**60087, Qalerallit Imaa**, surveyed 28 July 2003; new in database.  
Steep cliff facing east-north-east.  
Breeding birds observed: Iceland gull 37 P, glaucous gull 2 P, kittiwake 81 N.  
Note: Large almost flying chicks in Larus-nests; very few chicks in the kittiwake nests, although adult birds sat on the nests.

**60089, Uummannuaq**, surveyed 27 July 2003; new in database.  
About seven low islands and many islets.  
Breeding birds observed: common eider 12 females with chicks, white-tailed eagle 1 P, great black-backed gull 2 P, black guillemot 770 I. Non-breeders: harlequin duck 13.  
Note: The eagles were not breeding, but stayed very close to their nest. They were also observed in 1999, from aircraft, and that year also with an empty nest.

**60090, Ikermiut**, new colony not surveyed; new in database.  
Group of small and low islands.  
Breeding birds: common eider.  
Note: a common eider breeding site according to Hanseeraq Karlsen in Narsaq.

**60091, Qeqertat** in Bredefjord, surveyed 28 July 2003; new in database.  
Three low islands and some islets. Two steep sides on largest island facing north and north-east.

Breeding birds recorded: herring gull 5 P, lesser black-backed gull 350 P, great black-backed gull 16 P, Iceland gull 73 P, glaucous gull 3 P, black guillemot 385 I.

Note: Gulls (except Iceland) very difficult to count, and figures are merely educated estimates. Iceland gulls are breeding on the steep sides. On northernmost island only great black-backed gulls and black guillemots breed.

### 3.1.3 Narsaq Municipality (Figure 3)

**60015, Qalerallit Imaa**, surveyed 28 July 2003.

Steep cliff facing west.

Breeding birds recorded: Iceland gull 45 P, glaucous gull 1 P, kittiwake 134 N.

Note: Previously surveyed in 1949, when 391 pairs of kittiwakes and 8 pairs of Iceland gulls nested.

**60059, Serfatussut**, surveyed 23 July 2003; new in database.

Island with a steep cliff facing west.

Breeding species recorded: common eider 4 females, herring gull 1 I, lesser black-backed gull 10 P, great black-backed gull 10 P, Iceland gull 150 P, glaucous gull 10 P, black guillemot 77 I.

Note: Iceland gulls breed on the steep cliff, the other gull species on island plateau. A few gulls are breeding on adjacent islands. The herring gull behaved like a breeding bird.

**60088, Qalerallit Imaa**, surveyed 28 July 2003; new in database.

Steep cliff facing west-south-west.

Breeding birds recorded: Iceland gull 14 P.

Note: many juveniles had fledged, why actual numbers of breeding pairs may be somewhat higher.

**61010, Nuulussuaq**, surveyed 28 July 2003.

Breeding birds recorded: black guillemot 6 I.

Note: A large kittiwake colony (2500 pairs) was recorded here in 1949. But no birds recorded during visits in 1983 and later. Precise location could not be found in 2003, and whether the black guillemots were at the old colony site is not known.

**61014, Narsarsuaq**, surveyed 1 August 2003.

Low gravel island in large river delta.

Breeding birds: none.

Note: breeding black-headed gulls (20 indivs) were recorded in 1989.

**61038, Akullit Nunaat** west, surveyed 28 July 2003; new in database.

Steep cliff, facing south-east in head of the fjord.

Breeding birds recorded: Iceland gull app. 150 P, kittiwake 110 N.

Note: many Iceland gull juveniles were fledged, why breeding numbers may have been higher. A few kittiwake juveniles were also fledged, but not yet flying properly.

**61039, Akullit Nunaat** central, surveyed 28 July 2003; new in database.

Steep cliff facing south, in head of the fjord.

Breeding birds recorded: Iceland gull app. 205 P, kittiwake 22 N, black guillemot 2 I.

Note: colony extended between the two glaciers. Many Iceland gull juveniles recently fledged, and breeding numbers may be higher.

**61040 Akullit Nunaat** east, surveyed 28 July 2003; new in database. Steep cliff facing south-west, in the head of the fjord.

Breeding birds recorded: Iceland gull app. 100 P, glaucous gull 1 P, kittiwake 33 N.

Note: colony extended between the eastern glacier and the waterfall. The kittiwakes were nesting close to the water fall.

### 3.1.4 Paamiut Municipality

**60068, Sannerutip Imaa**, surveyed 25 July 2003; new in database.

Low island, seen on distance in rough weather.

Breeding bird recorded: Lesser and great black-backed gull 10 P.

Note. Both species identified, but due to observation conditions numbers of each species could not be recorded.

**61002, Fox Faldet** in Arsuk Fjord, surveyed 26 July 2003.

Steep cliff, facing south-south-east (Figure 6).

Breeding birds recorded: Iceland gull 207 P, kittiwake 2120 N, Brünnich's guillemot 765 on the ledges, ca. 1500 in large rafts in the fjord.

Notes: Very low numbers of both kittiwakes and Brünnich's guillemots give reason to concern. Many empty nests of kittiwakes were recorded, and many guillemots ledges were completely without birds. Perhaps guillemot chicks have left the ledges, as the peak departure occurs in the last days of July and the first days of August (cf. Falk & Kampp 1997). However, no families on swimming migration out of the fjord were recorded during several trips.

**61028, Arsuk Fjord**, head, surveyed 26 July 2003; new in database.

Steep cliff facing south.

Breeding species: kittiwake 25 abandoned nests. No birds around.

Note: Nests emptied earlier in breeding season?

**61029, Arsuk Fjord**, head, surveyed 26 July 2003; new in database.

Steep cliff with cracks facing south.

Breeding birds recorded: Iceland gull 10 P, glaucous gull 1 P, black guillemot 22 I.

**61030, Taateraarunnerit**, surveyed 26 July 2003; new in database.

Steep cliff with cracks facing south.

Breeding birds recorded: black guillemot 18 I.



*Figure 6* The most significant colony surveyed in 2003: Fox Faldet in Arsurk Fjord (61002). Framed areas (with white) show the different counting areas/subunits. **I**: Iceland gull 62 P, kittiwake 100N; **II**: Iceland gull 15 P, kittiwake 11 N, Brünnich's guillemot 9 I; **III**: kittiwake 97, Brünnich's guillemot 94 I; **IV**: Iceland gull 24 P, kittiwake 3 N, Brünnich's guillemot 535 I; **V**: Iceland gull 6 P, Brünnich's guillemot 127 I; **VI**: Iceland gull 6 P, kittiwake 24 N; **VII**: Iceland gull 6 P, kittiwake 1800 N; **VIII**: Iceland gull 10 P, kittiwake 85 N; **IX** (not visible, but situated further to the west of VIII): Iceland gull 60 P.

**61031, Milluufik**, surveyed 26 July 2003; new in database.  
Small and low island south of Milluufik.  
Breeding birds recorded: black guillemot 110 I.

**61032, Qeqertarsussuk**, surveyed 26 July 2003; new in database.  
Small and low island.  
Breeding birds recorded: common eider 1 female with chicks + 4 females, Arctic skua 1 P, lesser black-backed gull 8 P, great black-backed gull 9 P, black guillemot 16 I.

**61033 Napassut**, surveyed 26 July 2003; new in database.  
Two low islands and an islet.  
Breeding birds recorded: common eider 1 female with chicks + 7 females, Arctic skua 1 P, lesser black-backed gull 3 P, great black-backed gull 26 P, glaucous gull 1 P, black guillemot 77 I.  
Note: Most birds were breeding on the small westernmost island.

**61034, Portusoq**, surveyed 27 July 2003; new in database.  
Low island.  
Breeding birds recorded: Arctic skua 2 P, great black-backed gull 1 P, black guillemot 28 I.

**61035, Inussuttuut**, surveyed 27 July 2003; new in database.  
Low island, the northernmost in the archipelago.  
Breeding birds recorded: Arctic skua 1 P, black guillemot 50 I.  
Note: Seen of long range.

**61036, Qenertut**, surveyed 27 July 2003; new in database.  
Two low islands.  
Breeding birds recorded: common eider 2 females, great black-backed gull 2 P, black guillemot 35 I. Non-breeders: harlequin duck 27 in two flocks.

**61037, Eqqitsut**, surveyed 27 July 2003; new in database.  
Low island.  
Breeding birds recorded: common eider 9 females, Arctic skua 1 P, lesser black-backed gull 1 P, great black-backed gull 15 P, black guillemot 72.

## 4 Conclusions on colony survey

Before this survey 39 colonies from the surveyed region were included in the database. The figure is now 122 colonies, and the present survey provided valuable information to the oil spill sensitivity mapping project.

Eleven occupied colonies of kittiwakes were visited. Four of these had been surveyed before, and the numbers in all of these were lower than recorded previously (Table 1). However, three of the kittiwake colonies not recorded before, most likely are newly established, as the sites have been visited previously without recording any kittiwakes (Table 1). Nevertheless, numbers have more than halved since the 1970s-1980s.

Table 1 Development in colonies of kittiwake visited before 2003.

Colony no.	previous count		2003 count
	year	minimum	
60001	1974:	600 N	5 N
60015	1974:	200 P	134 N
60016	1949:	329 P	95 N
60027	1970:	0	25 N
60028	1970:	0	3 N
60087	1949:	0	81 N
61002	1986:	5000 P	2120 N

During interviews with local hunters and fishermen the issue of gulls (*Larus spp.*) was often discussed. The general impression was that the numbers of these species were increasing. People experienced that gulls often stole fish laid out for drying, and some even said that they had given up drying capelin because the gulls took all the fish before they had dried up.

In 1970, the fjord Kangersuneq Qingorleq in Nanortalik Municipality held two colonies of gulls (60027 and 60028) with in total 125-130 pairs of Iceland/glaucous gulls (Nørrevang 1973). The survey then was carried out in mid-August, and most of juveniles were fledged, why the numbers were estimated from the nest-sites on the cliff. In 2003 the fjord housed six gull colonies (60027, 60028, 60042-60045) totalling 504 pairs of Iceland/glaucous gulls. Also in the fjord Qalerallit Imaa in Narsaq Municipality there were more gulls and colonies than recorded before. Previously two colonies (60015, 60016) with about 20 pairs (not counted the same year) were known, now four colonies with 102 pairs were recorded. At least in these two fjords, the local information can be confirmed.

*Table 2* Development in previously surveyed colonies of Iceland gull and glaucous gull.

Colony no.	previous count		2003 count
	year	minimun	
60001 Iceland	1994:	570 I	181 P
60001 glaucous	1983:	1-2 P	2 P
60015 Iceland	1994:	10 P	45 P
60016 Iceland	1949:	11 P	9 P
60017 glaucous	1997:	25 I	6 P
60018 glaucous	1994:	5 P	2 I
60027 unsp.	1970:	100 P	95 P Iceland 1 P glaucous
60028 unsp.	1970:	25-30 P	180 P Iceland 3 P glaucous
60042	1970:	0	40 P Iceland 10 P glaucous
60043	1970:	0	85 P Iceland 2 P glaucous
60044	1970:	0	85 P Iceland 3 P glaucous
60045	1970:	0	15 P Iceland 2 P glaucous
60087	1949:	0	32 P Iceland 2 P glaucous
60088 Iceland	1974:	0	14 P
61002 Iceland	1999:	450 I	207 P

The three colonies in the glacier fjord at Akullit Nunaat (no name of the fjord) in Narsaq municipality, holding in total 456 pairs (mainly Icelanders) had never been surveyed before. According to our skipper, the colonies had been there at least for 10 years. They were situated on cliffs, where lack of vegetation and lichens indicate a rather recent deglaciation. The map from Kort & Matrikelstyrelsen covering the fjord show that the cliffs were not ice covered in 1948.

#### **4.1 Significant observations**

The most interesting new observations were

- a large colony with northern fulmar at Kap Christian.
- large colonies of common eider east of Kap Farvel.
- several colonies of razorbill.
- perhaps breeding Brünnich's guillemots at Nordlige Kitsissut in Nanortalik municipality.
- Atlantic puffins in at least three sites.
- lesser black-backed gulls were recorded breeding in 20 different colonies and occasionally in large numbers
- confirmation of Indre Kitsissut as a very important breeding site for seabirds.
- low numbers of Brünnich's guillemots and kittiwakes on Fox Faldet in Arsuk Fjord give reason to concern.



## 5 Moulting harlequin ducks

In July 1998, NERI surveyed the West Greenland coast for moulting harlequin ducks (Boertmann & Mosbech 2002). The survey included the coast between the mouth of Brede Fjord in Qaqortoq Municipality and Kangaatsiaq, excluding the coast from Brede Fjord southwards to Cape Farewell. In 1998 moulting harlequin ducks were observed in the southernmost segment of the region (close to the Brede Fjord mouth), indicating that moulting harlequins may occur even further south.

During the 2003 survey for seabird colonies, much effort was put along the outermost coasts and archipelagos. A constant look-out for harlequin ducks was kept, and all observations are shown on Figure 7.

It is remarkable that only one bird was observed south of Brede Fjord, and this was a female flying far from the coast, and apparently not a moulting bird. To the west and north of Brede Fjord, males were dominating, however, some females were observed as well. Most of the males were still in breeding plumage or had clear remnants of this plumage.

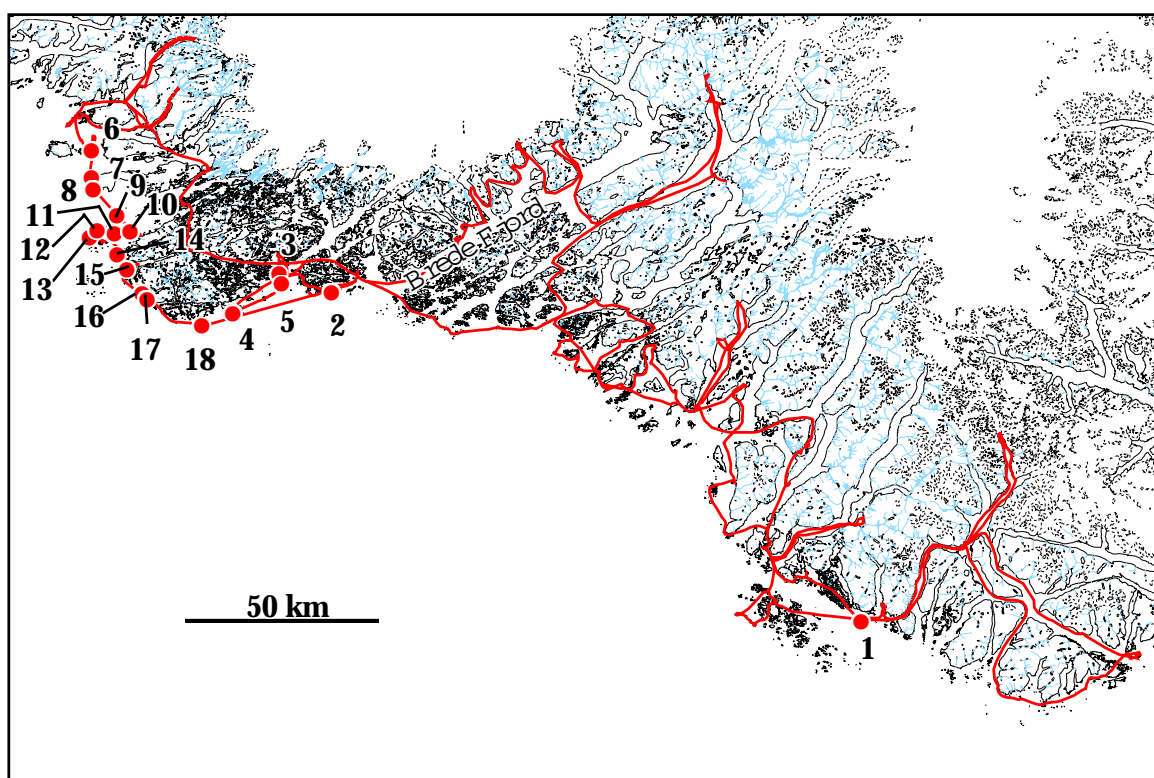


Figure 7 Harlequin ducks observed during the July 2003 survey. Figures on the observation sites refer to observation no. in Table 3.

*Table 3* Observations of harlequin ducks in July 2003. Many flocks were seen during conditions when it was not possible to sex the birds or to judge whether they were able to fly or not.

Observation no.	date in July	no of birds	sex	behaviour
1	14	1	f	flying
2	24	2	m	stayed on shore
3	24	16	m	majority were flying
4	24	20	m	not able to fly
5	24	15	?	
6	27	25,12	?	not able to fly
7	27	15	m	swimming
8	27	2	?	flying
9	27	13	8 m, 5 f	11 flying, 2 not able to fly
10	27	8	?	swimming
11	27	1	m	flying
12	27	4		3 flying 1 not able to fly
13	27	2,8,1,4	m	2 flying, 13 not able to fly
14	27	5,5	m	swimming
15	27	6	2 m, 4f	flying
16	27	10	m	resting on land
17	27	20		swimming
18	27	30,15,20,20		swimming
<b>Total</b>		<b>280</b>		

Local people in Nanortalik Municipality told us that harlequin ducks generally are rare, and usually seen in pairs in the fjordlands. In the settlement Narsamijit, harlequin ducks occurred at the exposed islands in winter. In eastern Qaqortoq Municipality people occasionally see harlequin ducks, but mainly in winter and early spring. When the 'Storis' (the drift ice from the east coast of Greenland) blocks the coasts in spring, harlequin ducks are sometimes seen at sites where they usually do not occur, e.g. near the harbour of Qaqortoq town.

In 1998 it was not possible to delimit the moulting range towards south. The observations this summer combined with local knowledge indicate that moulting harlequin ducks are rare south of Brede Fjord. This finding combined with the results of the 1998 survey indicate that the key areas for moulting harlequin ducks are the coasts between Brede Fjord (60° 45' N, 47° 00' W) and Godthåb Fjord (64° 15' N, 52° 15' W).

As the harlequin ducks were surveyed on an ad hoc basis, it is not possible to give any estimates on the abundance of moulting males in the surveyed region. In total 280 birds were observed, and probably these represent only a small fraction of the total numbers present. On July 30 1999, 607 moulting harlequin ducks were observed from airplane in the same region.

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# National Environmental Research Institute

The National Environmental Research Institute, NERI, is a research institute of the Ministry of the Environment. In Danish, NERI is called *Danmarks Miljøundersøgelser (DMU)*. NERI's tasks are primarily to conduct research, collect data, and give advice on problems related to the environment and nature.

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## Publications:

NERI publishes professional reports, technical instructions, and the annual report. A R&D projects' catalogue is available in an electronic version on the World Wide Web. Included in the annual report is a list of the publications from the current year.