



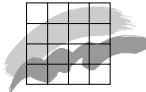
National Environmental Research Institute
Ministry of the Environment

Natural resources in the Nanortalik district

An interview study on fishing, hunting and tourism in
the area around the Nalunaq gold project

NERI Technical Report No. 384





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Department of Arctic Environment

Data sheet

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Abstract:	The interview study was performed in the Nanortalik municipality, South Greenland, during March-April 2001. It is a part of an environmental baseline study done in relation to the Nalunaq gold project. 23 fishermen, hunters and others gave information on 11 fish species, Snow crab, Deep-sea prawn, five seal species, Polar bear, Minke whale and two bird species; moreover on gathering of mussels, seaweed etc., sheep farms, tourist localities and areas for recreation. Arctic char, Snow crab, Capelin and two sea bird species are important in the vicinity of the mine site.	
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Preface

This interview study was prepared for and financed by Nalunaq I/S, owned by Crew Development Corporation (82%) and NunaMinerals (18%). The interview study is a part of an environmental baseline study in the Nanortalik municipality in relation to the Nalunaq gold project. The purpose of the interview study was to describe the year round local use of the Nanortalik area for fishing, hunting, sheep rearing, tourism and recreation. Thereby possible conflicts of interest between local users and the mining activities can be addressed and mitigated.



The Kirkespir Valley with the Saqqaa Fjord in front left.

I wish to thank all 23 persons who most kindly let me and Tanja Nielsen, environmental co-ordinator, Nalunaq I/S, interview them and who gave us valuable information on fishing, hunting, tourism etc. from 1960s and until today. Tanja Nielsen did an excellent job as interpreter and her very friendly appearance made it easy for us to establish good contacts to the persons interviewed. Erik Hammeken, head of the department of labour market in Nanortalik municipality, was very helpful and provided us with names of fishermen and hunters in Nanortalik municipality, labour statistics and livestock; Pavia Andreassen from the same department kindly commented on quotas for different species, protected Arctic char areas and other questions on fishing and hunting. Jens Ole Hvenegård, manager of Kujalleq Seafood, and Russell Jacob, Orion Seafood, kindly gave me access to their February-March 2001 Snow crab stock assessment in the Nanortalik area. Karen Motzfeldt, former employee in Statistics Greenland, was most helpful with information on and interpretation of the data on the Statistics Greenland's website. Kim Mathiasen, Greenland Home Rule, Dept. of Fishery, Hunting and Settlements,

provided me on short notice with recent hunting data for seals, Polar bear, Minke whale, Eider and Brünnich's guillemot from the Nanortalik district. H. C. Petersen is thanked for his unreserved permission to use his unpublished report on natural resources in Greenland. The crew on the research vessel Adolf Jensen is thanked for their flexibility, patience and good humour while they should both sail the interviewers to the different towns and settlements, and carry out environmental baseline studies.



Looking down at the mine camp and the Kirkespir River from the Nalunaq gold deposit. The site is situated 8 km from the Saqqaa Fjord.

Summary

Persons interviewed

The interview study was performed in Nanortalik municipality during 29 March – 3 April 2001. A total of 23 persons, mainly fishermen and hunters, were interviewed in Nanortalik, and in the settlements of Tasiusaq, Alluitsup Paa and Ammassivik.

Nalunaq gold deposit

The interview study is a part of the environmental baseline study, which since 1998 has been performed in relation to the Nalunaq gold project. The gold deposit in the Kirkespir Valley is situated eight km from the coast of the Saqqaa Fjord. The valley is placed about 40 km Northeast of Nanortalik. The deposit was discovered in 1992 and since then extensive geological investigations have been carried out.

Fish species in the Nanortalik district

A total of 11 fish species, Snow crab and Deep-sea prawn are described in detail in the report. Of major importance to the municipality is the Greenland cod with an average of 300 ton traded annually. The catch of high quality Snow crabs is new but with an expected annual demand exceeding 3,000 ton it is considered to be important to the municipality in near future. Atlantic salmon, Spotted wolffish, Greenland halibut and Atlantic cod were more numerous in 1970s and 1980s, and the amount traded today is annually between one and 30 ton for each species. The amount of Arctic char traded is about four ton per year, but Arctic char is sold also at the local market place ("Brædtet") and is important for tourism and recreation. The district holds 36 rivers each with a considerable Arctic char population.

Fish species in the Saqqaa area

Three important char rivers run to the Saqqaa Fjord, and the two fjord areas (i.e. Kangikitsoq and Kirkespir Bay) opposite these rivers are protected until 2003 from pound net fishing. The Snow crab catch in the Saqqaa Fjord is probably medium sized with an indication of high quality. Atlantic cod is in Saqqaa primarily caught in the northern deep sea channel, and Greenland halibut and Spotted wolffish were in the 1970s and 1980s caught also in that area; today, these two species are caught here in very few numbers. Capelin is caught mainly in the two bay areas Kangikitsoq and Kirkespir River.

Marine mammals and birds in the Nanortalik district

Five seal species, Polar bear, Minke whale and two bird species are described more thoroughly in this report. Most important is probably the Harp and Ringed seal hunt with 2-3,000 skins traded annually for each species. Also meat and blubber from these two species are sold locally and used for the hunter's own consumption. About 100 to 200 skins of each of Hooded and Bearded seals are traded annually, and meat and blubber from about 1,500 Hooded seals and c. 350 Bearded seals are important for the hunters own consumption. Minke whales, Eiders and guillemots are sold locally and used by the hunters in considerable amounts, with annual average catches during 1995-99 of 13 Minke whales, 5,700 Eiders and 22,000 guillemots. An average of seven Polar bears was shot annually during 1995-99.

Mammals and birds in the Saqqaa area

The northern part of the Saqqaa Fjord including southern Sdr. Sermilik Fjord and northern Akorna Sound is an important wintering ground for Eiders, and the whole of Saqqaa Fjord, Qoornoq Fjord and

Gathering in the Nanortalik district

the Akorna Sound is important for wintering Brünnich's guillemots. The Saqqaa Fjord can serve as a good hunting ground for Harp seals during periods where the Polar ice closes the access to open sea.

Gathering in the Saqqaa area

As a supplement to the daily household many families gather Blue mussels, seaweed, sea urchins, Blue and Crowberries, and herbs like Angelica. Most is gather rather close to people's homes even though some persons have favourite places. Seaweed is sold locally at "Brædtet" during winter.

Sheep farms in the Nanortalik district

Clams were until 1980s fished commercially in Akorna Sound, the fjord west of Saqqaa Fjord, but today they are fished only for own consumption. One fisherman and hunter plans to grow potatoes and turnips in the Kangikitsoq valley in the northern part of Saqqaa Fjord.

Tourism in the Nanortalik district

Nanortalik municipality holds today (i.e. 1997) eight sheep farms, while four sheep farms were abandoned after 1990. The total number of sheep in the Nanortalik district was late 2000 about 2,500 with about 80% mother sheep. The sheep farms are today concentrated in two areas of the district: 1) The northern part along the western coastline of the Aluitsoq Fjord (five farms), and 2) in the southwestern part between the settlement of Tasiusaq and Lake Tasersuaq (three farms). Thus, no sheep farms are placed in the Saqqaa area.

Tourism in the Saqqaa area (in italics)

The South Greenland region (Nanortalik, Qaqortoq, Narsaq, and Ivittuut) was during 2000 visited by c. 20% of all Greenland visitors. Nanortalik was visited by 9%, which made it the third most visited place in Greenland. In 2000, four cruise liners called Nanortalik, one of the liners with c. 900 passengers. Normally, cruise liners do not enter into the fjords, but their dinghies can e.g. sail to Tasiusaq. During 2000 about 150 hikers visited the Nanortalik district. Most hikers use the Lake Tasersuaq area, some continue to Aappilattoq.

Recreation in the Nanortalik district

Tours for anglers and hunters are arranged by the Nanortalik Tourist Service, and interesting angling localities are e.g., the river running from Lake Tasersuaq, the Kussuatsiaq river running to the Tasermiut Fjord and the *Kirkespir river* in the Saqqaa Fjord area. Tours are arranged to Uunartoq Island (hot springs), *Amitsoq Island* (abandoned graphite mine), *Nalunaq* (explored gold deposit) and Narsaq Kujalleq (Norse farm).

Disturbances

Tasermiut Fjord and especially the Lake Tasersuaq area are the places in the district most visited by the local people. The Karra Island was visited during summer by locals from the Alluitsup area.

Conclusion

Ringed and Bearded seals breeding at the heads of Sdr. Sermilik and Uunartoq Fjords should not be disturbed by e.g., skidoo and motorcycle driving on the ice.

None of the populations in the Saqqaa area seems to be unique compared to the whole Nanortalik district; yet, two fjords in the area are protected from pound net fishing of Arctic char. The char population in the Kirkespir River is probably the most vulnerable animal population in the Saqqaa area because of its proximity to the mine site. Areas further from the mine site can potentially be affected.

Eqikkaaneq

Inuit apersorneqartut

Una apersuilluni missuineq Nanortaliup Kommuniani martsip 29-nit aprilip 3-at 2001 tikillugu ingerlanneqarsimavoq. Nalunaq I/S-ip avatangiisit pillugit ataqatigiissaarisua Tanja Nielsen nutserisoralugu nalunaarusiortumit inuit katillugit 23-t apersorneqarsimapput. Inuit apersorneqartut tassaanerupput aalisartut piniartullu. Apersuinerit Nanortalimmi, Tasiusami, Alluitsup Paani Ammassivimmilu ingerlanneqarput.

Kuulteqarfik Nalunaq

Apersuilluni misissuineq 1998-mili tunngaviusumik uumasunik misissuinerit Nalunami kuultisiornermut atatillugu ingerlanneqarsi-masut ilagaat. Kuulteqarfik Napasorsuuup qooruani 8 km-rit missilorlugit ilorpasitsigisumiippoq Nanortalimmiillu avannamut kangimut 40 km-rit missilorlugu ungasitsigisumi inissismalluni. Kuulteqarfik 1992-mi nassaarineqarpoq 2001-llu naalernera tikillugu annertuumik misissuisoqarsimalluni, soorlu qaarusuliornerit qillerin-erillu meterinik tusintinik arlalinnik takissuseqartut ingerlanneqar-simallutik.

Nanortaliup kommuniani aalisakkat assigiinngitsut

Nalunaarusiammi aalisakkat assigiinngitsut aqqanillit sukumiisumik allaaserineqarput, taakkulu saniatigut aamma saattuat kinguppaallu allaaserineqarlutik. Uukkanik aalisarneq kommunimut annertuumik pingaaruteqarpoq agguaqatigiissillugulu ukiumut 300 tonsit missaat tunineqartarlutik. 2001-ip aallartinnerani saattuanik tunisassiorneq misiliutaasumik aallartinneqarpoq ukiumullu 3.000 tonsit sinnerlugit kaaviliaartitsisarnissaq tunisassorfimmit "Kujalleq Seafood"-mit kommunimut annertuumik pingaruteqarnissaq naatsorsuutigineqarpoq. 1970-kunni 1980-kunnillu kapisilinnik, qeeqyanik, qalerainnik saarullinnillu pisarisartakkat ullumikkornit annertunerungaartarsi-mapput, taakkulu aalisakkat ataasiakkaat ullumikkut tonsip ataatsip 30-llu akornanni tunineqartarlutik. Ukiumut eqaluit 4 tonsit misaanni tunineqartarput taassumalu saniatigut kalaalimineerniarfimmi eqaluit tunineqartarlutik. Kommunimi eqaloqarfiiit 36-t nalunaarsorneqarsimapput taakkunani arlallit takornarianut kommunimilu innuttaasunut pingaaruteqarput.

Saqqaata eqqaani aalisakkat assigiinngitsut

Saqqaata kangerlua kuuqarpoq eqaloqarfinnik pingasunik pingaar-tunik kangerlummilu kuuqarfiiit kommunimi maleruagassat malil-lugit 2003 tikillugu aningaasarsiutigalugu aalisarfigeqqusaangillat. Saqqaata kangerluani saattuarniarneq pitsaalluinnartunik sua-lunngitsumikpisaqarfiusarpoq. Saqqaata kangerluani saarullinnik aalisartoqartarpoq ingammik kangerluup avannaatungaani ikermi itisumi, aamma tamatuma nalaani 1970-kunni 1980-kunnillu ingammik qalerainnik qeeqyanillu aalisarfiusarsimavoq. Aalisakkat kingulliit marluk taaneqartut ullumikkut taamaallaat annikitsumik aalisarneqartarput. Ammassaat Kangikitsup kangerliumargata Napa-sorsuullu kuuata nalaanni ingammik majimi junimilu aalisarne-qartarput.

Nanortaliup kommuniani imaani uumasut miluumasut timmissallu

Puisit assigiinngitsut tallimat, nanoq, tikaagullik, miteq appalu nalunaarusiammi allaasereqqissaarneqarput. Puisit akornanni pingaarute-

*Saqqaata eqqaani imaani
uumasut miluumasut
timmissallu*

*Nanortaliup kommuniani
uilunik, qeqqussanik
allanillu katersuisarneq*

*Saqqaata eqqaani
katersuineq*

Savaateqarneq

*Nanortaliup kommuniani
takornariaqarneq*

qarnerpaat tassaagunarput aataaq natserlu, taakkulu ukiumut tamarmik immikkut amii 2-3.000-nik amerlassuseqartut tunineqartarput. Puisit taakku marluk neqaat orsuallu tuniniarneqartarput piniartumilluunniit nammineq atorneqartarlutik. Natsersuup ussuullu amii ukiumut tamarmik immikkut 100-t 200-ullu akornanni amerlassuseqartut tunineqartarput, natsersuillu 1500-t missaanik ussuillu 350-t missaanik amerlassuseqartut neqaat orsuallu ingammik nammineq atorneqartarlutik. Tikaagullik, miteq appalu kalaalimi-neerniarfimmi tuniniarneqartarput piniartunillu nammineq atorneqartarlutik, 1995-99-llu akornanni ukiumut agguaqatigiissillugu tikaagullit 13-nit, mitit 5.700-t appallu 22.000-t pisarineqarsimapput. 1995-99-llu akornanni ukiumut agguaqatigiissillugu nannut arfineq marluk pisarineqarsimapput.

Saqqaata kangerluata avannaatungaa, Sdr. Sermiliup kangerluata kujataatungaa Akornatalu ikerasaan mitit ukiisarfiaattut pingaaruteqarput. Saqqaata Qoornullu kangerlui appat ukiisarfiaattut pingaaruteqarput. Sikorsuit imarnersamut matusigaangata Saqqaata kangerlua natsersuarnik piniarfiusinnaasarloq.

Ilaqtariippassuit uilunik, qeqquasanik, eqqusnik, kigutaarnanik paarnanillu kiisalu kuanninik ulluinnarni nerisamik saniatigut katersisarput. Tamakku annersaat najugarisamit ungasinngitsumit ketersorneqartarput, allalli namminneq katersuiffinnaaqarlutik. Qeqqussat ilaat ukiuunerani kalaalimineerniarfimmi tuniniarneqartarput.

Uiluiit Akornata kangerluani nammineq pissatut ketersorneqartarput, 1980-kulli tikillugit uiluiit Nanortalimmut tuniniarneqartarsi-mapput. Aalisartoq ataaseq piniartorlu ataaseq piffissaq qaninnerusoq eqqarsaatigalugu Saqqaata kangerluata avannaatungaani Kangikitsup qooruani naatsiianik ruuanillu naatitsisalernissartit pilersaarutigaat.

Ullumikkut (1997 nalunaarsuineq naapertorlugu) kommunimi arfineq pingasunik savaateqarfeqarpoq, 1990-illi kingorna savaateqarfiit sisamat taamaatissimapput. Ukiup 2000-ip naalernerani kommunip iluani savat 2.500 missaaniissimapput, taakkulu 80%-ii arnaviasimapput. Savaateqarfiit amerlanersaat ullumikkut kommunip avannaatungaani Alluitsup kangerluata kitaatungaani (5) kujammullu kitaatungaani Tasiusap Tasersuullu akornanni (3) inissisimapput. Saqqaata eqqaani savaateqarfeqanngilaq.

Kujataa, tassa kommuneqarfiit Nanortalik, Qaqortoq, Narsaq Ivittuullu ukioq 2000-mi Kalaallit Nunaanni takornariat 20%-iisa missaannit tikeraarneqarpoq. Nanortalik tikeraarneqarnerpaat pingajuattut inissisimavoq takornariat 9%-iinit tikeraarneqarsimalluni, taamaallaat Ilulissanit (34%) aammalu Kangerlussuarmiit (16%) annikinnerullu. Ukioq 2000-mi Nanortaliup illoqarfia takornariat umiarsuaannit sisamanit tикинneqarpoq, taakkulu ilaat 900 missaannik ilaaqosqarsimavoq. Umiarsuit tamakku nalinginnaq kangerlunnut pulaneq ajorput, kisianni gummibådii takornarianik soorlu Tasiusamukaassisinnaapput. Ukioq 2000-mi kommuni pisuinnaq takornarianik tikeraarneqarpoq, taakkulu ilarpassui Tasersuup eqqaanut an-

gallammik ingerlanneqartarput; tassanngaaniillu ilai Appilattumut ingerlaqqitarlutik.

Saqqaata eqqaani takornariaqarneq (sivingasunik naqinnillit)

Nanortalip kommuniani sunngiffimmi najortakkat

Akornusersuinerit

Naggasiineq

Nanortalip takornarianut allaffeqarfia takornarianik nuannariin-narlugu aalisarlutik eqalunniartartunik takornarianillu nuannariin-narlugu piniajartunik angalatitsisarpoq, aalisarfigissallugillu orniginartinneqarnerusut tassaapput Tasermiuni Tasersuup kuussua, Tasiusami Allermi Kuussuatsiaq kiisalu *Itillersuup kuuia*. Takornariarttisoqartarpoq Uunartumut, *Amitsumi aqerluusassarsiorfiusimasumut, Itillersuullu qooruani kuulteqarfimmut Nalunamut* kiisalu Narsaq Kujalermi qallunaatsiaaqarfimmut Ikigaanut (Herlufsnæs).

Kommuneqarfip iluani sunngiffimmi ornigarneqarnerpaajugunarpoq Tasermiut kangerluata Tasersuullu akornata eqqaa. Alluitsup Paamiunit Karraata qeqertaa sunngiffimmi ornigarneqartartutut aamma taaneqarsimavoq.

Qamuteralannik motorcykkilinillu sisamanik assakaasulinnik Sdr. Sermiliup Uunartullu kangerluisa qinnguani sikukkut angalasarneq natsernut ussunnullu piaqqortunut akornutaasinnaasutut upuarneqarsimavoq.

Saqqaata eqqaani uumasut assigiinngitsut Nanortalip kommuniaita sinnerani uumasunut allanut naleqqiullugit immikkooruteqaruanngillat, kangerluilli marluk qassusersorluni eqalunniarfigeqquaannngillat. Saqqaata eqqaani Napasorsuup kuuata equalui, aatsitassiorfimmut qanittumiinnertik pissutigalugu mianarnerpaajugunarput. Piffiillu avinngarusimanerusumiittut sunnerneqarsinnaanerat ilimanaateqarpoq.



Nanortalik mid May. Looking southwest.

Resumé

Interviewede personer

Nalunaq guldforekomsten

Denne interviewundersøgelse blev gennemført i Nanortalik kommune fra 29. marts til 3. april 2001. I alt blev 23 personer interviewet af miljøkoordinator for Nalunaq I/S, Tanja Nielsen, der fungerede som tolk, og af forfatteren. De interviewede personer var især fiskere og fangere fra Nanortalik, Tasiusaq, Alluitsup Paa og Ammassivik.

Fiskearter i Nanortalik kommune

Interviewundersøgelsen er en del af de biologiske baggrundundersøgelser der siden 1998 er blevet udført i forbindelse med guldefterforskningen ved Nalunaq. Guldforekomsten ligger ca. 8 km inde i Kirkespirdalen og ca. 40 km nordøst for Nanortalik. Guldforekomsten blev opdaget i 1992 og frem til slutningen af 2001 er der udført omfattende geologiske undersøgelser der bl.a. har omfattet borer af tunneller og mange tusind meter kerneboringer.

Fiskearter i Saqqaa området

Rapporten beskriver i detaljer 11 fiskearter, stor grønlandsk krabbe og dybvandsreje. Fiskeriet efter fjordtorsk (Uvak) er af stor betydning for kommunen og i gennemsnit indhandles der ca. 300 tons om året. I begyndelsen af 2001 startede en forsøgsproduktion af stor grønlandsk krabbe og med en årlig omsætning på mere end 3.000 tons forventes krabbefabrikken "Kujalleq Seafood" at blive af stor betydning for kommunen. I 1970erne og 1980erne var fangsten af laks, plettet havkat, hellefisk og alm. torsk betydelig større end i dag, hvor der årligt indhandles mellem én og 30 tons af hver fiskeart. Der indhandles årligt ca. 4 tons fjeldørreder og desuden sælges fjeldørred på "Brædtet". Der er i kommunen optegnet 37 vigtige ørredelv og flere af disse er af betydning for turister og lokalbefolkningen.

Havpattedyr og fugle i Nanortalik kommune

Tre vigtige fjeldørredelv munder ud i Saqqaa fjord og fjordområderne ud for elvene er i følge en kommunalvedtægt beskyttet mod kommersIELT fiskeri frem til 2003. Det hidtidige fiskeri efter stor grønlandsk krabbe i Saqqaa fjord tyder på en moderat fangst af krabber af høj kvalitet. Alm. torsk fiskes i Saqqaa fjord især i en dyb rende i fjordens nordlige del, og det var også her, at der især blev fisket hellefisk og plettet havkat i 1970erne og 1980erne. Disse to arter fiskes i dag kun fåtalligt i dette område. Lodde (Ammassat) fiskes især i maj og juni i bugterne ud for Kangikitsoq og Kirkespir elvene.

Havpattedyr og fugle i Saqqaa området

Fem sælarter, isbjørn, vågehval (sildepisker), ederfugl og polarlomvie (alk) beskrives nøjere i rapporten. De vigtigste arter er formodentlig grønlandssæl og ringsæl, hvoraf der årligt indhandles 2-3.000 skind pr. art. Kød og spæk fra de to arter sælges lokalt eller anvendes til fangernes eget forbrug. Skind fra klapmyds og remmesæl indhandles årligt med 100 til 200 skind pr. art, mens kød og spæk fra ca. 1.500 klapmyds og ca. 350 remmesæler især anvendes til eget forbrug. Vågehval, samt ederfugl og polarlomvie, sælges både på Brædtet og anvendes af fangerne, og de gennemsnitlige årlige fangster fra 1995-99 var på 13 vågehvaler, 5.700 ederfugle og 22.000 lomvier. I gennemsnit blev der i perioden 1995-99 skudt syv isbjørne om året.

Området mellem den nordlige del af Saqqaa fjord, den sydlige Sdr. Sermilik fjord og det nordlige Akorna sund er vigtigt for overvin-

trende ederfugle. Polarlomvie har vigtige overvintringsområder i Saqqaa og Qoornoq fjorde, samt i Akorna sund. Der kan være gode muligheder for jagt på grønlandssæl i Saqqaa fjord når Storisen lukker for adgangen til havet.

Indsamling af muslinger, tang m.v. i Nanortalik kommune

Mange familier samler blåmuslinger, tang, søpindsvin, blå- og sorte bær, samt kvan, som supplement til den daglige husholdning. De fleste samler ind ret tæt på hjemmet, men nogle har særlige foretrukne steder. Arter af sukkertang sælges om vinteren på Brædtet.

Indsamling i Saqqaa området

Kammuslinger skrabes i dag til eget forbrug i Akorna sund, men indtil 1980erne blev kammuslinger indhandlet i Nanortalik. En fisker og fanger planlægger i nær fremtid at dyrke kartofler og majroer i Kangikitsoq dalen i den nordlige del af Saqqaa fjord.

Fåreavl

Der er i dag (opgjort i 1997) otte aktive fåreholdersteder i kommunen, mens fire steder stoppede med fåreavl efter 1990. I slutningen af år 2000 var der ca. 2.500 får i kommunen, heraf udgjorde moderfårene ca. 80%. Fåreholderstederne koncentrerer sig i dag i den nordlige del af kommunen langs vestsiden af Alluitsoq fjord (5 steder) og i den sydvestlige del mellem Tasiusaq og søen Tasersuaq (3 steder). Der findes således ikke fåreholdersteder i Saqqaa området.

Turisme i Nanortalik kommune

Sydgrønland, bestående af kommunerne Nanortalik, Qaqertoq, Nar-saq og Ivittuut, blev i år 2000 besøgt af ca. 20% af alle turister i Grønland. Nanortalik var den tredje mest besøgte by med 9% af alle turister, kun overgået af Ilulissat (34%) og Kangerlussuaq (Sdr. Strømfjord, 16%). Nanortalik by blev i 2000 besøgt af fire krydstogtskibe, hvor det ene havde ca. 900 passagerer. Disse skibe går normalt ikke ind i fjordene, men deres gummibåde kan sejle turisterne ind til f.eks. Tasiusaq. Kommunen blev i 2000 besøgt af ca. 150 vandreturister, hvoraf mange bliver sejlet til Tasersuaq området; herfra går nogle videre til Aappilattoq.

Turisme i Saqqaa området (i kursiv)

Nanortalik turistkontor arrangerer ture for lystfiskere og jægere, og særligt interessante lystfiskerelwe er bl.a. elven der løber fra Tasersuaq sø til Tasermiut fjord, Kussuatsiaq der løber til Tasiusaq fjord, samt Kirkespir elv. Turistture arrangeres til de varme kilder på Uunartoq, den forladte grafitmine på Amitsoq ø, guldforekomsten ved Nalunaq i Kirkespirdalen og nordbogården på Herlufsnæs ved Narsaq Kujalleq.

Rekreative områder i Nanortalik kommune

Det mest besøgte fritidsområde i kommunen er formodentlig området mellem Tasermiut fjord og søen Tasersuaq. Karra ø er også nævnt som et fritidsområde for beboerne i Alluitsup Paa området.

Forstyrrelser

Kørsel med snescooter og firhjulede motorcykler på isen i bunden af fjordene Sdr. Sermilik og Uunartoq blev nævnt som en aktivitet der kan forstyrre ynglende ring- og remmesæler.

Konklusion

Ingen populationer i Saqqaa området er formodentlig specielle sammenlignet med resten af Nanortalik kommune, men to fjorde i området er beskyttede mod garnfiskeri af Fjeldørreder. Ørred bestanden i Kirkespir elven er formodentlig den mest sårbar af populationerne i Saqqaa området p.g.a. nærheden til mineområdet. Også områder fjernere fra minen har en potentiel mulighed for at blive påvirket.

1 Introduction

Study period and persons interviewed

This interview study was performed in Nanortalik municipality during the period 29 March – 3 April 2001. A total of 23 persons, mainly fishermen and hunters, were interviewed in the course of that period. The distribution of the persons was the following: Tasiusaq 2, Nanortalik 11, Alluitsup Paa 6 and Ammassivik 4.

Nalunaq gold project

The interview study is a part of the environmental baseline study, which since 1998 has been performed in relation to the Nalunaq gold project. The gold deposit is situated 8 km from the coast in the Kirkespir Valley, which lies 40 km Northeast of Nanortalik. The deposit was discovered in 1992 and since then extensive geological investigations have been carried out. In 1998 a 299 m long tunnel was driven along the gold ore, and more than 1000 m of tunnels and raises have been driven in 2000 and 2001. Diamond drilling of several thousands metres has been performed throughout the period and in 2000 a large bulk sample was crushed at the mine site.

Purpose of the interview study

The purpose of the interview study was to describe the year round local use of the Nanortalik area for fishing, hunting, sheep farming, tourism and recreation. The local knowledge on these subjects can be used to assess the more important natural resource areas around the possible Nalunaq gold mine. Thereby possible conflicts of interest between local users and the gold mine activities can be addressed and perhaps avoided or minimised. Local knowledge is useful because it provides information not only on the present day situation but also on the situation in the past.

Content of the report

This report describes in detail the following subjects which were focused on in the interview study: Fast ice and pack ice, fishery, hunting, gathering of mussels, berries etc., sheep rearing, tourism and recreation. Fishing and hunting statistics, as well as other literature sources are included in the relevant chapters. The method used is described in a separate chapter and the questionnaire used during the interviews is found in appendix 2 and 3. The description in the chapters 3-9 is a summary of the interviews except for *introduction, biology, Petersen (1993), Greenland statistics (2001) and hunting data*.

Fjords and Rivers close to Nalunaq

The geographical places closest to the Nalunaq gold deposit can be seen from Figure 1. In connection with the description of fishery and hunting in chapter 3 and 4 the relevant places are Saqqaa Fjord, Kirkespir Valley (Bay and River), Kangikitsoq (Bay and River), the southern part of Sdr. Sermilik Fjord and the northern part of the Qoornoq Fjord.

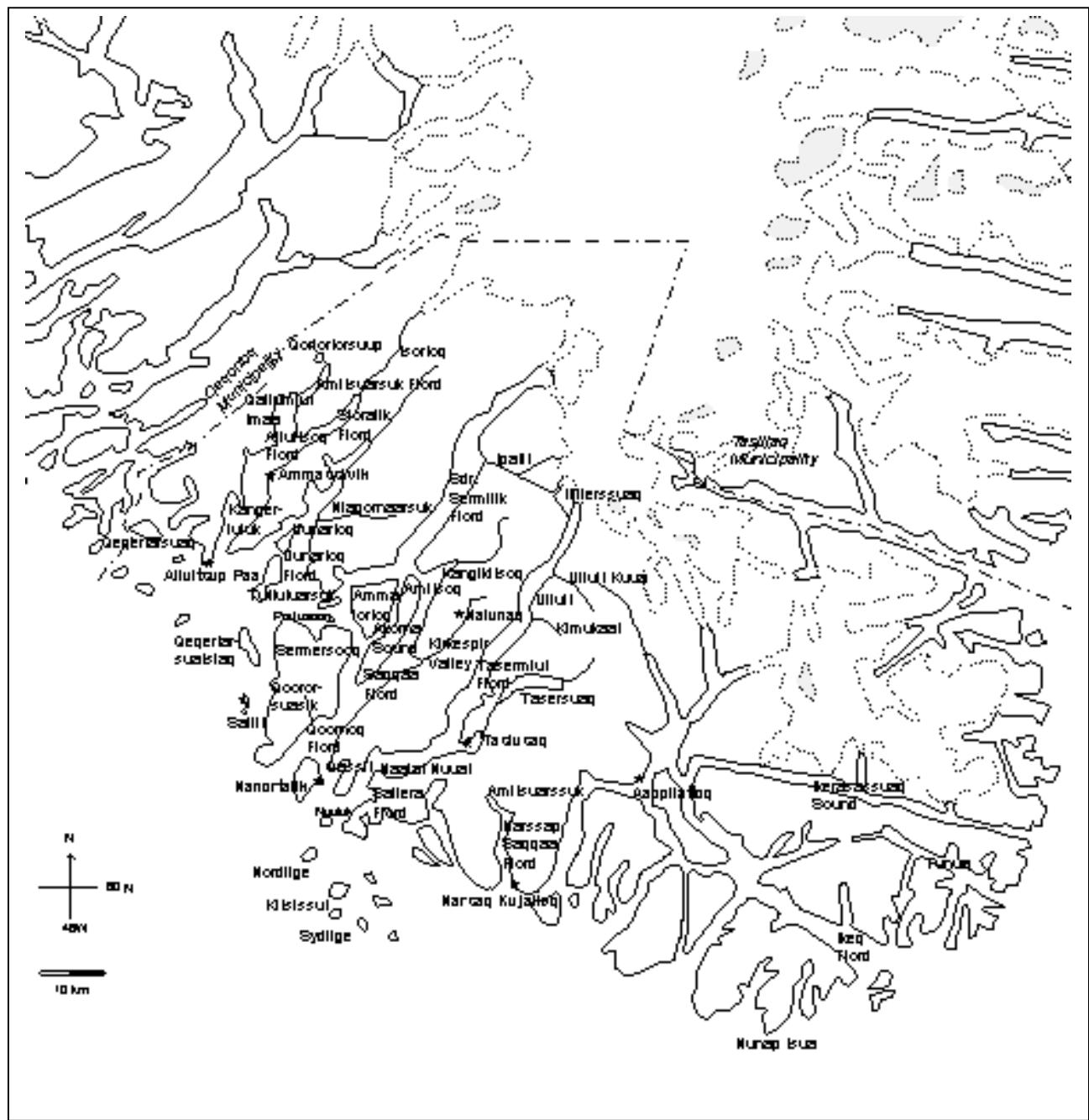


Figure 1. The Nanortalik municipality with names mentioned in the text of Nanortalik town, settlements and the gold deposit Nalunaq (*), fjords, rivers, islands and points.

2. Methods

Towns and settlements visited

During the interview study performed early 2001, the 23 persons were interviewed in the following towns and settlements: Tasiusaq ($60^{\circ}12'N$; $44^{\circ}49'W$) – 2 persons, Nanortalik ($60^{\circ}08'N$; $45^{\circ}15'W$) – 11 persons, Alluitsup Paa ($60^{\circ}28'N$; $45^{\circ}34'W$) – 6 persons and Ammas-sivik ($60^{\circ}36'N$; $45^{\circ}23'W$) – 4 persons (Fig. 1).

Transportation in the area

We used the survey vessel Adolf Jensen from the Greenland Institute of Natural Resources for our transportation to Nanortalik and the three settlements. The settlements were visited early in the morning, the two interviewers disembarked and the survey vessel performed the Nalunaq environmental baseline study during the day. Late in the afternoon the vessel returned to pick up the interviewers. In Nanortalik the interviewers stayed for a period of three days.

The interview form

The Nanortalik municipality was, prior to the interview study period, informed that such a study would be performed during 2001, but no persons were contacted beforehand. First, Erik Hammeken, head of the department of labour market in Nanortalik municipality, was contacted, and he provided us with names and addresses of fishermen and hunters in Nanortalik municipality. The persons were then contacted by phone or directly at their home addresses. An interview lasted in most cases one to two hours. The interviewed person was questioned according to a questionnaire prepared in advance (Appendix 1 & 2). In addition, a copy of a topographic map (1:250,000, KMS 1979) was presented to the interviewed person so that information could be filled in immediately. Most interviews were carried out in Greenlandic; questions were mainly asked in Danish by the author (CMG), questions and answers were interpreted in Greenlandic by Tanja Nielsen, Nalunaq I/S, and finally written down by CMG. A final version of each interview was written out within one week after the interview, following the format of the questionnaire. The filled in maps were attached to each written out interview.

In most cases only one person was interviewed at a time, but in two cases two and three persons participated in the interview. We experienced that the best results were obtained when only one person was interviewed.

Employment of persons interviewed

Nineteen of the persons interviewed were fishermen and hunters; most of these persons worked as both fishermen and hunters, but at least three persons worked primarily as fishermen. Two of the fishermen and hunters were heads of the local fisherman's and hunters union. The fishermen and hunters interviewed were between 30 and 74 years old. Of the remaining four persons, one worked as a clerk in the municipality, one as manager of the crab factory "Kujalleq Seafood", one as manager of the Tourist Bureau, and one was a retired grocer. All interviewed persons were men, with a few of them assisted by their wives. No sheep farmers were interviewed, and the reason was that no farms are situated on the "peninsula" holding the Nalunaq gold deposit. The sheep farms closest to the deposit are situated north of Tasiusaq.

Table 1. Number of fishermen, hunters and sheep farmers in four towns and settlements in Nanortalik municipality and percentage interviewed persons at these places. Numbers are from 1997 (E. Hammeken, in litt. 2001).

Town and settlements	Fisher-man (F)	Hunter (H)	F + H	F + H interviewed	% interviewed	Sheep farmer	Sheep farmer only
Nanortalik	30	29	30	8	27	0	0
Tasiusaq	6	6	6	1	17	3	3
Alluitsup Paa	27	24	27	6	22	3	1
Ammassivik	16	8	16	4	25	7	0
All	78	67	79	19	24	13	4

Two settlements not included directly

The settlements of Narsaq Kujalleq ($60^{\circ}00'N$; $44^{\circ}40'W$) and Aappilattoq ($60^{\circ}09'N$; $44^{\circ}17'W$) were not included in the interview study because they were thought to be situated outside any influence from the possible Nalunaq gold mine. Yet, information on fishing, hunting and tourism in the areas around the two settlements was gathered in the course of the interview study and presented in the present report.



Johannes and Katrine Nielsen interviewed in Nanortalik by Tanja Nielsen.

3. Physical environment and population

Area and population

Nanortalik municipality is situated in South Greenland around 60°N and 45°W (Fig. 1). It covers a total area of 15,000 km², of which 8,000 km² are ice-free land (Bertelsen et al. 1990). The total population is c. 2,600 persons, with c. 1,500 living in Nanortalik and the remainder in settlements and sheep farms (Anon. 1999). The total labour force of Nanortalik municipality, i.e. persons between 15 and 62 years of age, was 1,620 persons on February 2001 (E. Hammeken, in litt. 2001). The distribution in towns and settlements was the following: Nanortalik 977 persons, Tasiusaq 66, Alluitsup Paa 333, Ammassivik 68, Narsaq Kujalleq 69 and Aappilattoq 107.

Climate

The climate in the region is so called sub-arctic, which means that the warmest mean monthly temperature is below 10°C, but the climate is mild enough to allow trees to grow (Salomonsen 1990). In Nanortalik May – November have positive mean temperatures between 1 and 5 °C, while December – April have negative mean temperatures between 1 and 5. The average yearly precipitation sum is 858 mm at Qaqortoq (60°43'N; 46°03'W), the Weather Station closest to Nanortalik with normal precipitation data (Asiaq 2001).

Polar ice

The Polar ice occurs in South Greenland in normal years from January to July but there can be considerable variation from this norm (Bertelsen et al. 1990). The Polar ice is carried from East Greenland by the East Greenland Current.

3.1 Fast ice

Fast ice at the heads of the fjords

During winter, fast ice is formed only at the heads of the large fjords Tasermiut, Sdr. Sermilik and Uunartoq. The remainder parts of these fjords are in general ice-free during winter. Smaller fjords like Tasiusaq Fjord are ice-covered from approximately October to April. In severe winters the fast ice can cover Tasermiut Fjord to the peninsula Naajat Nuuat some nine kilometres from the mouth of the fjord.

Climate change?

In former days, i.e. before the 1980s, the Tasermiut Fjord and Sdr. Sermilik Fjord were almost entirely ice-covered from October or December to April.

3.2 Polar ice

Periods and problems in the fjords

In some years the Polar ice will arrive in the Nanortalik district in January or February and it can stay until August or even September. The drift ice will then fill up the mouths of the larger fjords during March or April. In Tasermiut Fjord the drift ice normally reaches no further than Naajat Nuuat, but more rarely it can reach past Tasiusaq about 25 km from the mouth of the fjord. Therefore, navigation in and out of the fjord can be difficult, whereas sailing on the fjord causes no problems. The outer fjord, Qoornoq, is normally filled up with drift ice so that the entrances to Saqqaa Fjord and Sermersuup

Saqqaa Fjord are closed. Navigation to and from Nanortalik is in most cases not difficult.

Hunters and cruise liners

Hunters who catch Hooded seals *Cystophora cristata* at the islands south of Nanortalik, Nordlige Kitsissut (centre approximately 60°00'N'; 45°15'W) are often stuck on the island for weeks by the Polar ice. The Nanortalik Tourist Services warn cruise liners calling for Nanortalik against the Polar ice. Such ships visit Nanortalik either late in the summer or abandon the district.

Wind dependence

The distribution of the drift ice is highly dependent of wind direction and speed. Wind from the north will e.g. move the drift ice away from the coast and out at sea. In the last few years the drift ice has stayed along the coastline without really entering the fjords.

3.3 Earth-quakes

In October 1998 a minor earthquake, lasting for about two minutes, was experienced in Tasiusaq. The person noted no other earthquakes in the area. Four other persons who reflected on this question had never remarked any earthquakes in the Nanortalik district. The question was asked because information on earth-quakes are relevant when planning and constructing the infrastructure at the Nalunaq site.



Tasiusaq and Tasermiut Fjord. Looking west.

4. Fishery

Introduction

Most of the fishermen who participated in this interview study fished alone in their own dinghy, using fishing tackle like pound nets, long-lines and jigs. Snow crabs are caught in traps or pots from smaller cutters, and until today only few people take part in this fishery. Deep-sea prawn is trawled from cutters in a few fjords in the northern Nanortalik district.

Each chapter contains a brief biological introduction mainly derived from Salomonsen (1990), followed by the responses from the interviewed fishermen. On average, information on each caught species is based on 13.6 persons, varying from 4 to 21 persons (Appendix 4). Then information from the study on natural resource use in Greenland by Petersen (1993) is presented, and finally fishing statistics from Nanortalik municipality is presented. For most species a graph of the amount traded during the period 1995-1998/99 is shown in Appendix 1, Figs. 24-28 (Greenland Statistics 2001a). Relatively important fishing grounds for each species are shown on maps, refer to Figs. 2-11.

4.1 Atlantic salmon *Salmo salar*

Biology

The majority of Atlantic salmon in Greenland are hatched in North America (35-50%) and Europe (50-60%) and only about 1% stem from the Kapisillit River at the head of Nuuk Fjord. Salmon are found along the Greenland coast from Svartenhuk (72°N) on the West coast to Ammassalik (66°N) on the East coast. Most visiting Salmon arrive in Greenland during summer and depart for their native rivers from autumn until December. The Salmon return to the Kapisillit River from late June onwards and they spawn during October-November. The surviving adults either winter in the river or float back into the Nuuk Fjord. Eggs hatch in May. Atlantic salmon from either Kapisillit, Norway or Canada have been introduced to other greenlandic rivers but without any success. During 1995-97 the annual catch was 58-92 tons, while a total stop was recommended (Anon. 1998b).

Trading and fishing season

Atlantic salmon is caught in the Nanortalik district mainly for the fisherman's own consumption. There is an annual salmon quota for the whole of Greenland of 20 tons, but no quota is in force in Nanortalik because it is not possible to trade Salmon here. A smaller amount of Salmon is traded in Qaqortoq. Most salmon are caught from about August to September–October, but also during winter and from March onwards salmon are caught. Salmon should, after a decline, again be more common in the area.

Main fishing areas

Salmon are caught in Tasermiut fjord near Tasiusaq, in Saqqaa Fjord, e.g. in the bay outside the Kirkespir River, in the head of Alluitsoq (Lichtenau) Fjord where the fjords Sioralik and Qallumiut Imaa enter Alluitsoq Fjord, and round Alluitsup Paa (Fig. 2).



Figure 2. Atlantic salmon *Salmo salar*. Main fishing areas in the Nanortalik district.

Two potential spawning sites

Salmon probably do not spawn in the Nanortalik district, but some information indicates the possibility of two potential spawning sites. Salmon should migrate up into the lake Tasersuaq through the about 500 m long river connecting the lake with Tasermiut Fjord. No spawning fish nor any juveniles (parr fish, i.e. fish less than about 15 cm with 8-11 blue-grey “fingerprints” and small red dots along each side (Salomonsen 1990)) have been reported from the lake or the river. At the head of the narrow Amitsuarssuk Fjord small salmon are observed, but it was not reported whether the fish were juveniles. At an electro fishery in the Qorlortorsuaq river early September 2001 no juveniles or larger salmon were caught, but the local farmer often catch large Salmon in the Amitsuarssuk Fjord (B. Persson, Niros, pers. comm.).

Disturbances

One fisherman claims that salmon have become less frequent in the bay outside the Kirkespir River because of more activity in the area during the last few years.

Petersen (1993)

Salmon is caught along the coast south to Narsaq Kujalleq, and in some fjords like Narssap Saqqaa, Qoornoq, Uunartoq and Alluitsoq (Fig. 2). No spawning rivers were registered. During 1989-1991 2.8, 83.3 and 69.4 tons were traded the three years at Alluitsup Paa according to the Greenland Statistics.

Greenland Statistics (2001a)

During the period 1995-99 Salmon was traded only in 1996 (0.9 tons) and 1997 (1.8 tons) with 80-95% traded in Alluitsup Paa. Salmon was landed during August – October.

4.2 Arctic char *Salvelinus alpinus*

Biology

Arctic char is distributed throughout the Arctic region, in Scotland, Ireland and in the Alps. In Greenland it is widely distributed and breeds in most large rivers and lakes. It occurs in a stationary and in a migratory form. In rivers the stationary form never reaches the size of the form that migrates to the sea in May-June. Here food is more abundant than in the river and the char grows rapidly. The Arctic char does not move further than 30 km away from its native river and during late summer it returns to the river. Spawning takes place from late August to early October. Most chars migrate at an age of 3-6 years. The majority of chars caught are 10-15 years of age.

Trade

Arctic char is traded in Tasiusaq, and probably also the crab factory, Kujalleq Seafood, will trade arctic chars. The quota is 2-3 tons per year at Tasiusaq. Arctic char is also sold at the local market place "Brædtet". Many of the fishermen catch arctic chars for their own consumption.



Arctic char fished while migrating up the Kirkespir river during August.

Temporarily protected areas

Arctic char is caught mainly in pound nets which are set in the fjords often in the vicinity of the important char rivers. A few fishermen jig arctic char in the mouth of the rivers. There is a general rule which prohibits pound net fishing closer than 150 m from the mouth of the rivers. Beside of this general rule, the Nanortalik municipality has, according to the departmental order on arctic char (Anon. 1997), banned pound net fishing in the bay areas of Kangikitsoq and outside the Kirkespir river (both in the Saqqaq Fjord) and the bay outside lake Tasersuaq in Tasermiut Fjord (Anon. 1998c). The reason for this moratorium of a five years period (valid until 15 June 2003) is a wish to protect the char populations in these rivers from overfishing. It is not prohibited in these areas to angle for arctic chars, and more and bigger arctic chars again appear in some of these areas.

Fishing areas

Most fjords throughout the Nanortalik district serve as fishing grounds for Arctic char: Tasermiut Fjord, e.g. in the head of fjord outside the Uiluit Kuua and Itillersuaq rivers, and in Tasiusaq Fjord;

Sdr. Sermilik Fjord, e.g. at the head of the fjord and outside the Ipatit River; Saqqaa Fjord, e.g. outside the Kangikitsoq and Kirkespir rivers in former days (refer to "temporarily protected areas" above); Uunartoq Fjord near the bigger rivers running to the fjord, e.g. outside the Niaqornaarsuk river; Alluitsoq Fjord, e.g. outside Ammasivik, and at the heads of the smaller fjords Amitsuarsuk and Sioralik. One fisherman sail south to Aappilattoq, Toornaarsuk and Nunap Isua (Kap Farvel) to catch Arctic char during autumn (Fig. 3).

Important arctic char rivers

The most important arctic char rivers are Itillerssuaq, Uiluit Kuua, Tasersuaq River and lake, Ipatit, Kangikitsup Kuua, Kirkespir River, Niaqornaarsuk River, Isortoq and Qorlortorsuup River. In some areas of West Greenland fishing privileges to arctic char rivers are associated to certain families or groups (Nielsen et. al 2000). Such time-honoured customs not fixed by law are not known in the Nanortalik district. A semi quantitative electrofishing study in the Kirkespir River in October 1988 described the population as normal with a density of 0.1 Arctic char per m² (Boje 1989).

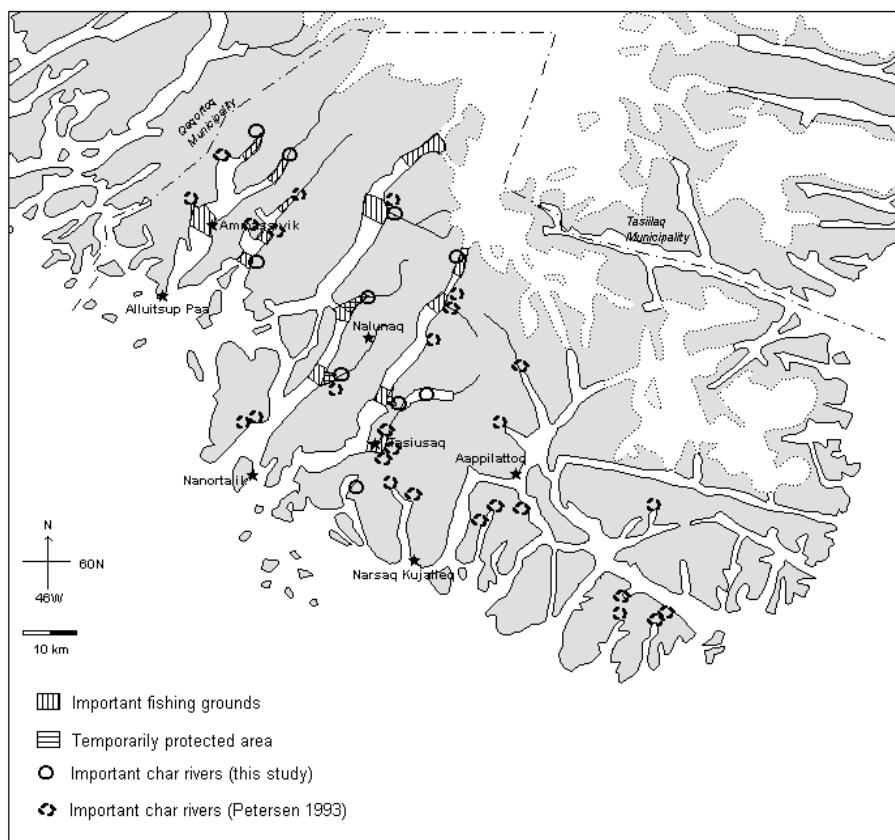


Figure 3. Arctic char *Salvelinus alpinus*. Important fishing grounds, protected areas and important char rivers in the Nanortalik district.

Catching period

The main period for catching arctic char in the fjords is May-August. One fisherman prolongs the catching season by sailing south to the Nunap Isua area. The main catching period is identical to the period when the migrating part of the population feed in the fjords outside of their native rivers.

Differences in taste quality

According to one fisherman, the different Arctic char populations differ in taste. The tastiest chars are caught in Tasiusaq Fjord, but also the chars from Saqqaa outside the Kirkespir River are tasty. The latter area is abandoned by the fisherman because of the increasing activities here during the last few years.

Petersen (1993)

A total of 34 rivers holding Arctic char in the Nanortalik municipality were registered and they are shown on Fig. 3. No "family-owned" char rivers are known in the municipality. During 1989-1991 7.5, 7.7 and 6.5 tons were traded the three years according to the Greenland Statistics.

Greenland Statistics (2001a)

During the period 1995-99 an average of 3.8 tons of Arctic char were traded annually in Nanortalik, Aappilattoq, Narsaq Kujalleq, Tasiusaq, Ammassivik and Alluitsup Paa. Arctic char was landed during June-August. From about 2.0 tons in 1995 the amount landed increased to 7.7 tons in 1997 following a decrease to 1.4 tons in 1999. From a share of about 20% of the total catch traded in the municipality in the beginning of the period, Tasiusaq increased its share to about 90% in 1999 (Appendix 1, Fig. 24).

4.3 Capelin *Mallotus villosus*

Biology

Capelin is distributed over most of the Arctic region and reaches further south to Japan, southern Norway and Nova Scotia. In Greenland it is distributed from Uummannaq (71°N) in West Greenland to Ammassalik (66°N) on the East coast. During warmer periods it has reached further north to the Melville bay (76°N) and Ittoqqortoormiit (72°N). Between May and July spawning takes place in shallow waters along coastlines rich in gravel. The females leave the grounds shortly after spawning while most males die. The rest of the year shoals of Capelin stay along the coast at water depths of up to 200 m. Capelin is important in the ecological food-chain where it serves as food for a large range of fish species, seals, whales and seabirds, as well as humans.

Own consumption

Capelin is probably not traded any more in the Nanortalik municipality. Some Capelin is sold privately either fresh or dried, and some are used for own consumption.

Important fishing grounds

Even though Capelin is found in most fjords throughout the Nanortalik district, and that Capelin are even found close to Nanortalik, some fjords are mentioned as more important fishing grounds: Tasermiut Fjord from Tasiusaq to the head of the fjord, especially on the East coast; Saqqaa, especially in Kangikitsoq; Uunartoq Fjord; Alluitsoq Fjord, especially around Ammassivik and in the two smaller fjords of Siortalik and Qallumiut Imaa (Fig. 4).

Fishing period

Capelin is caught from late April to August and most Capelin is caught during May – June when shoals of Capelin approach the coastlines to spawn. The general impression from fishermen in Tasiusaq and Ammassivik is that numbers have increased during the last few years. One fisherman situated in Alluitsup Paa found that Capelin numbers decreased, but this decrease was probably not a result of overfishing since Capelin is not traded.



Figure 4. Capelin *Mallotus villosus*. Important fishing grounds in the Nanortalik district.

Sizes

Some of the fishermen find that the Capelin in the western part of the Nanortalik district has become smaller in size, compared to the Capelin stocks around Aappilattoq. Here they are bigger and fatter as the Capelin in East Greenland. Yet, male Capelin is found to be rather big in Kangikitsoq.

Petersen (1993)

Fishing grounds were registered and they are shown on Fig. 4. Among these places are the head of Narsap Saqqaa, the head and mouth of Tasermiut Fjord, Kirkespir Bay, Kangikitsoq, Puiatukulooq in Uunartoq Fjord and around Ammassivik.

Greenland Statistics (2001a)

During the period 1995-99 no Capelin was traded in Nanortalik municipality according to Greenland Statistics.

4.4 Atlantic cod *Gadus morhua*

Biology

The Atlantic cod is distributed in the northern Atlantic Ocean from USA and Spain northwards to Baffin Island, Greenland, Svalbard and Novaya Zemlya. In Greenland it can appear north to Uummannaq (71°N) in West Greenland and to Ammassalik (66°N) in East Greenland. The number and distribution of Atlantic cod in Greenland fluctuates over the decades and the sea water temperature is probably the key parameter behind these fluctuations. The Atlantic cod prefers temperatures of $2\text{-}10^{\circ}\text{C}$. In Greenland, the Atlantic cod consists of both local populations inside the fjords and of offshore populations. It spawns during early spring, and cod from South Greenland have been shown to migrate to spawning grounds off the coasts of East Greenland and Southwest Iceland during winter. In cold climatic

periods it is mainly the more slow growing populations in the fjords that survive. The Atlantic cod became numerous in Greenland from the 1920s after a period of low numbers since the late 1840s. It reached a maximum in the 1960s and crashed in 1968 (Anon. 1998b, CAFF 2001). In 1997 a total of 904 tons were caught inshore West Greenland, and there are indications that this population is still decreasing. It is recommended that no fishery takes place on this population (Anon. 1998b).

Own consumption

Because Atlantic cod these days is a very scarce fish species in the Greenlandic waters, cod is caught only for the fishermen's own consumption.

Local cod populations

A few local populations are found in the Nanortalik district, e.g. in the Tasiusaq bay and in the Sallera Fjord, East of Nanortalik, which enters the Tasermiut Fjord. In Tasiusaq bay only the locals exploit this population. The cod spawn in these areas, and the fish can grow to considerable sizes. The spawning period in Tasiusaq bay is March-April and during May-June the larvae hatch.

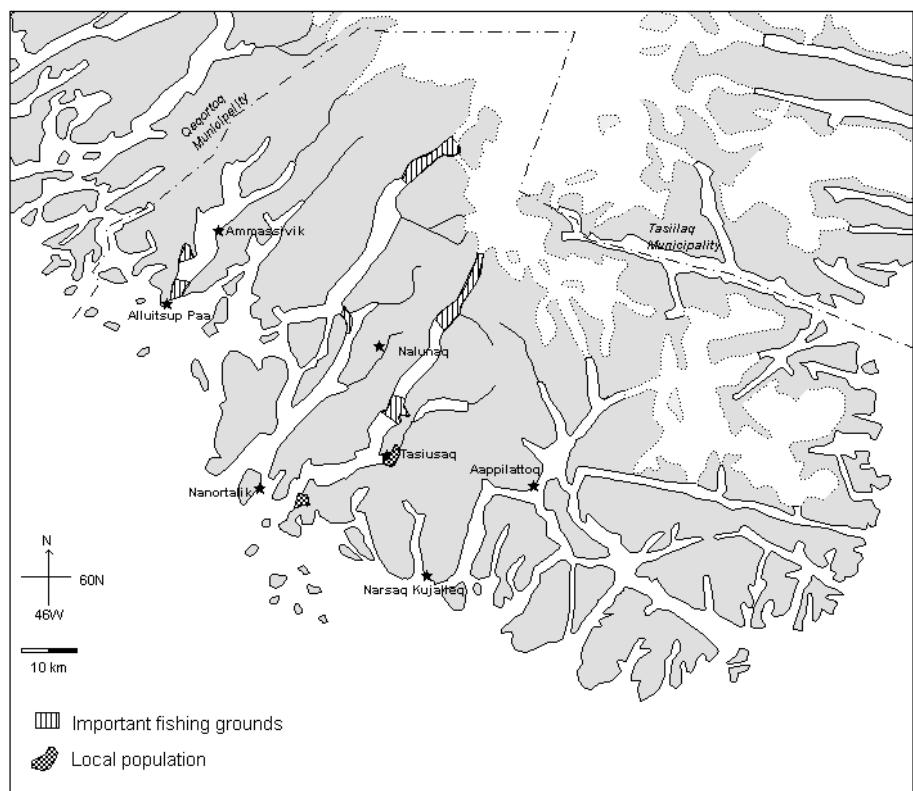


Figure 5. Atlantic cod *Gadus morhua*. Important fishing grounds and local populations in the Nanortalik district.

Everywhere until 1970s

In former days Atlantic cod was caught almost everywhere and all year round. Some fishermen combined the fishery for cod and the catch of hooded seals (refer to 5.6) during spring and summer in the area west of the Sermersooq island.

Important catching grounds

Today Atlantic cod is caught almost year round in limited numbers in Tasiusaq bay, in Tasermiut Fjord outside lake Tasersuaq and at the head of the fjord, and in the small Sallera Fjord at the mouth of Tasermiut Fjord; at the head of Sdr. Sermilik Fjord and in the north-

ern part of Saqqaa fjord in a deep sea channel; in the mouth of Alluitsoq Fjord and the Kangerluluk bay (Fig. 5).

Return of the cod?

In the 1960s and 1970s Atlantic cod was a very important fish species for the Greenland economy, but during the 1980s the cod disappeared from Greenland. Most of the fishermen interviewed find that the cod seems to return, and during summer it is caught more often in the nets set for Greenland cod.

Petersen (1993)

During 1980-1990 Atlantic cod was caught in pound nets from May to September-October. Nets were set in most of the fjords from Narsaq Kujalleq and northwards e.g. the inner parts of Tasermiut, in Saqqaa, Uunartoq, Alluitsoq, and north and west of Alluitsup Paa. The total catch traded in the municipality during 1989-1991 was 2,870, 2,031 and 1,171 tons in the three years. Of this catch 80-87% were traded in Nanortalik and Alluitsup Paa.

Greenland Statistics (2001a)

During the period 1995-98 an average of about 30 tons of Atlantic Cod was traded annually in Nanortalik, Tasiusaq, Ammassivik and Alluitsup Paa. The amount landed varied between 8 and 60 tons, annually. Most cod was traded in Nanortalik and Ammassivik. Atlantic cod was traded in highest numbers during May -August (Appendix 1, Fig. 25).

4.5 Greenland cod *Gadus ogac*

Biology

The Greenland cod is distributed along the coast of Arctic Canada and the West coast of Greenland. In West Greenland it is common from Upernivik (73°N) south to Nunap Isua (Kap Farvel, 60°N). The Greenland cod is found mainly in the fjords and along the coast; after the decline of the Atlantic cod the Greenland cod has become rather common on the fishing banks offshore Greenland. From 1920s to 1950s the Greenland cod became less common in South Greenland but expanded its range to the north. Today it is as common as it was before 1920s. The reason for these population fluctuations over more than 50 years can be either competition from the Atlantic cod or warmer sea water. The spawning period starts in February and lasts until May.

Traded in many places

This important fish species is caught almost everywhere throughout the Nanortalik district. Greenland cod is traded in Tasiusaq, in Nanortalik at the crab factory "Kujalleq Seafood", in Alluitsup Paa and in Ammassivik. One fisherman sells filleted and boned Greenland Cod directly to institutions in Nanortalik. The cod surplus is dried and used for own consumption.

Important fishing grounds

As noted above Greenland cod is common and numerous in the entire district, and the following areas can be regarded as more important catching areas. Greenland cod is caught in the Tasermiut Fjord, e.g. Southwest and North of Tasiusaq, and in Sallera Fjord in the mouth of Tasermiut Fjord; in the Qassit bay North of Nanortalik; in the southern part of Saqqaa Fjord and in Kangikitsoq; inside Sdr. Sermilik, in Uunartoq Fjord and in the sea area between these two fjords; west of the island Tuttutuarsuk and around Qeqertarsuaq

Northwest of Alluitsup Paa; in the two small fjords Sioralik and Amitsuarsuk at the head of Alluitsoq Fjord (Fig. 6).

Fishing and spawning periods

Greenland cod is caught from January to April, and again from late summer, through autumn and during winter. Around Ammassivik Greenland cod is caught in May as well. The catching period and fishing grounds are dependent of the behaviour of the species: During late winter or early spring the Greenland cod migrates from deeper seawater into the fjords. Here they spawn in April and May, and during this period their meat are not suitable for consumption. When winter comes Greenland cod again migrates out into deeper waters.

Population changes

During 1980s and 1990s Greenland cod decreased in number and one fisherman ascribes this to an increase in the number of seals, probably the Harp seal. Today the Greenland cod again increase their numbers. Yet, another fisherman from the same area claims that Greenland cod are decreasing in numbers and that they decrease in size.



Figure 6. Greenland cod *Gadus ogac*. Important fishing grounds in the Nanortalik district.

Petersen (1993)

Most Greenland cod is caught during March and April, but the cod species is found year round in the municipality. During 1989-1991 a total of 61.5, 52.2 and 261.0 tons were traded the three years, with 70-80% traded in Alluitsup Paa.

Greenland Statistics (2001a)

During the period 1995-98 an average of about 300 tons of Greenland cod was traded annually in Nanortalik, Aappilattoq, Narsaq Kujalleq, Tasiilaq, Ammassivik and Alluitsup Paa. The amount landed varied between 90 and 600 tons, annually. Most cod was traded in Nanortalik and Alluitsup Paa. Greenland cod was traded year round with

highest numbers in March (- May) and July-August (Appendix 1, Fig. 26).

4.6 Spotted wolffish *Anarhichas minor*

Biology

Spotted wolffish is distributed from Nova Scotia north to Newfoundland, in Greenland, Iceland, along the Norwegian coast to Svalbard and Barents Sea. In Greenland it is common but patchily distributed from Upernivik (73°N) on the West coast to Ammassalik (66°N) on the East coast. The Spotted wolffish is living at the bottom at water depths between 0 and 500 m, but most common at 200-300m. The wolffish prefers temperatures between -1 and $+9^{\circ}\text{C}$. Spawning takes place during winter and early spring. The Spotted wolffish seems to be rather stationary and its growth is relatively slow. In 1980s the total West Greenland catch of wolffish was about 4,000 tons per year constantly declining to less than 30 tons annually in late 1990s. It is recommended that no fishery takes place in West Greenland (Anon. 1998b).

Sold at the local market

Spotted wolffish is caught and traded only in small numbers in the Nanortalik municipality. Some fishermen sell wolffish at the local market place "Brædtet" in Nanortalik and Qaqortoq.



Spotted wolffish caught on long-line in Saqqaa Fjord.

Important fishing grounds

No fishing grounds in the district holds wolffish in significant numbers, but a few areas are mentioned as relatively important: Tasermiut Fjord from west of Tasiusaq to the mouth of the fjord; Qoornoq fjord; the area between Sermersooq and Tuttutuarsuk; Unartoq Fjord; Alluitsoq Fjord; the area around Aappilattoq (Fig. 7). At three environmental baseline studies performed in Saqqaa Fjord during September 2000 (Asmund 2000), March/April 2001 (Asmund 2001) and September/October 2001 (DMU unpubl. data) only a total of 14 Spotted wolffish was caught despite intensive long-line fishing.



Figure 7. Spotted wolffish *Anarhichas minor*. Important fishing grounds in the Nanortalik district.

More common before 1980s

During a period from 1960s to mid 1980s Spotted wolffish was commonly caught in the Nanortalik district. During 1960s and 1970s many Spotted wolffish were caught between Nanortalik and Nordlige Kitsissut islands. Until mid 1980s wolffish, together with e.g. Redfish *Sebastes* sp and Blue whiting *Micromesistius poutassou*, were caught in pound nets in Saqqaa Fjord. Around Alluitsup Paa wolffish was caught in fair numbers.

Numbers slightly increasing

In the 1990s Spotted wolffish became scarce in the Nanortalik district and the fish caught were in general small in size. During the last few years there seems to have been a slight increase in numbers of the Spotted wolffish in the whole of the district. Spotted wolffish was and is caught all year round.

Petersen (1993)

Spotted wolffish are caught during autumn almost everywhere in the municipality except in the interior of the fjords of Sdr. Sermilik, Uunartoq and Alluitsoq. The catch decreased during 1980s and a slight increase was observed in the early 1990s. During 1989-1991 a total of 84.6, 47.1 and 29.2 tons were traded the three years according to the Greenland Statistics.

Greenland Statistics (2001a)

During the period 1995-99 an average of 1.7 tons of wolffish was traded annually in Nanortalik, Aappilattoq, Ammassivik and Alluitsup Paa. The amount landed varied between 0.3 and 4.4 tons, annually. Most wolffish was traded during July-November, in 1999 with October-November as the most important period (Appendix 1, Fig. 27).

4.7 Greenland halibut *Reinhardtius hippoglossoides*

Biology

The Greenland halibut is distributed in two separate populations. The north Atlantic population is found from Nova Scotia north to Newfoundland, Greenland, Iceland, along the Norwegian coast to Svalbard and Barents Sea. The north Pacific population is found from Victoria Island to Bering Sea, Kamchatka and northern Japan. In Greenland it is distributed along the entire West coast and on the East coast to Ittoqqortoormiit (72°N). Greenland halibut lives at the bottom at depths of 200-1,000 m and at temperatures between -1.5 and +4.5°C. It is not a strict bottom dweller but can be pelagic as well. The Greenland halibut decreased in number during 1920s-1940s while the Atlantic cod increased in number. In South Greenland less halibut were caught from 1920s onwards and this decrease in profitability could be caused by warmer water, a higher interest in the cod fishery and the trawling for prawn which killed high numbers of young halibut. The Greenland halibut spawns in the southern Davis Strait during winter and early spring, and adults from the greenlandic fjords do probably not spawn in the fjords, but migrate out to sea during autumn. Some adults from the fjords migrate to spawning grounds west of Iceland (Anon. 1998b). Young halibut are relatively stationary in the fjords where they grow up, and after spawning they normally return to that fjord.

Trading and own consumption

Today, Greenland halibut is traded only in significant numbers in Alluitsup Paa. Because Greenland halibut has become scarce in the western part of the Nanortalik municipality most fish caught in this

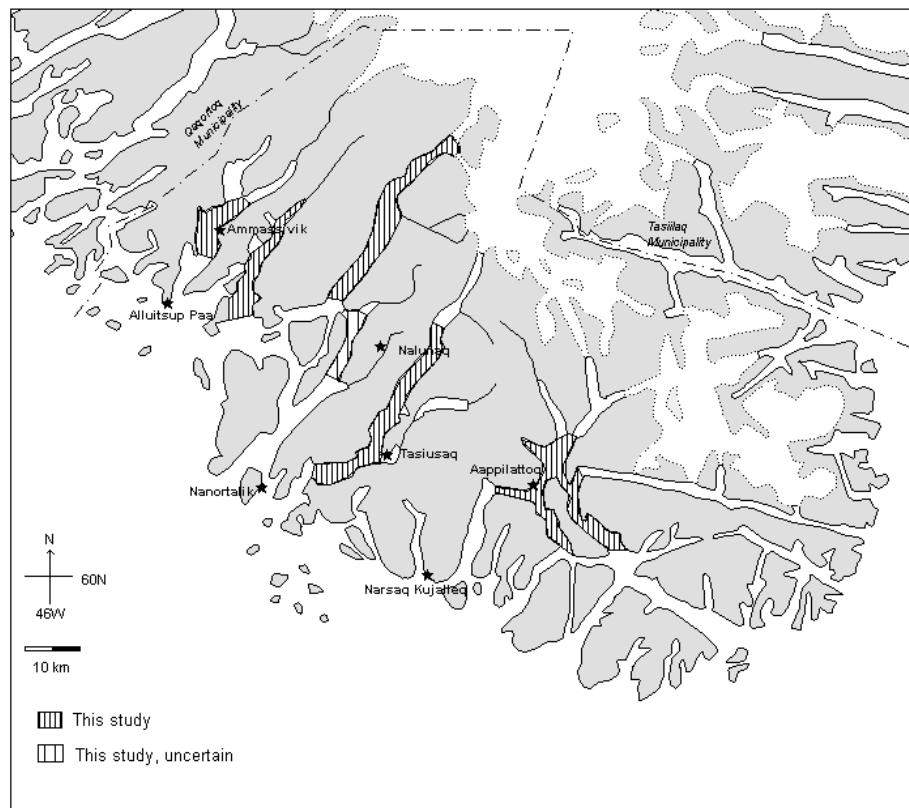


Figure 8. Greenland halibut *Reinhardtius hippoglossoides*. Important fishing grounds in the Nanortalik district. The catching possibilities in the northern part of Saqqaa Fjord is uncertain.

area are kept for the fishermen's own consumption. Until late 1980s halibut was traded also in Nanortalik at "Nanfisk" and in Ammassivik.

Important fishing grounds today

The most important fishing grounds in the Nanortalik municipality are situated around Aappilattoq. Fish caught here can weigh up to 15 kg. In the rest of the district halibut are small and few in numbers. Fishing grounds with some importance are Tasermiut Fjord between Naajat Nuuat at the mouth of the fjord and Uiluit some 15 km from the head of the fjord; the northern part of Saqqaa Fjord; Sdr. Sermilik; Uunartoq Fjord; Alluitsoq Fjord, e.g. around Ammassivik where halibut should be larger than in the rest of the western district (Fig. 8). At three environmental baseline studies performed in Saqqaa Fjord during September 2000 (Asmund 2000), March/April 2001 (Asmund 2001a) and September/October 2001 (DMU unpubl. data) no Greenland Halibut was caught despite intensive long-line fishing.

Important fishing grounds 1960-1980

From 1960s, when the Greenland halibut fishery was commenced in the district, to 1980s, the species was common in the district, and it was not unusual to catch 2-3,000 kg per day in 1980s e.g., in Tasermiut Fjord and in Saqqaa Fjord. Important fishing grounds during that period were Tasermiut Fjord, not only in the inner part but also in the mouth of the fjord from Naajat Nuuat to Nuuluk; Saqqaa, e.g. Kangikitsoq, and Sdr. Sermilik fjords during 1960s and 1970s where halibut in the southern part of Sdr. Sermilik were especially large; Uunartoq and Alluitsoq fjords having large and fat Halibut at that time. In general, Greenland halibut disappeared from the Nanortalik district in 1980s where also the Atlantic cod withdrew from West Greenland. In Alluitsoq Fjord the disappearance of the halibut is ascribed to trawling for prawns during a period of at least six years. During the last few years the Greenland halibut seems to increase in number.

Catching period and fishing tackle

Greenland halibut is caught in pound nets and on long lines. In 1960-1980 the halibut was fished year round, but today it is mainly fished for during winter. In the fjords around Aappilattoq pound nets are set in January at depths of 500 m and in March at 300-400 m.

Petersen (1993)

The Greenland halibut is caught in most of the fjords, except in the inner Tasermiut, around the Ammalortoq island and in Uunartoq. Halibut is caught on long lines mainly during autumn and winter. Trawling for prawn at the head of Tasermiut and around Alluitsup Paa has had a negative influence on size and number of Halibut. During 1989-1991 a total of 15.2, 7.6 and 10.0 tons were traded the three years according to the Greenland Statistics; 75-86% was traded in Ammassivik.

Greenland Statistics (2001a)

During the period 1995-99 there has been a steady decline (from 37 to 0.7 tons annually) in Greenland halibut traded in the municipality. In 1995 most halibut was traded in Ammassivik (27 tons) and Alluitsup Paa (7 tons), while in 1999 halibut was landed only in Alluitsup Paa. Most halibut was traded during January-February and October-December (Appendix 1, Fig. 28).

4.8 Atlantic halibut *Hippoglossus hippoglossus*

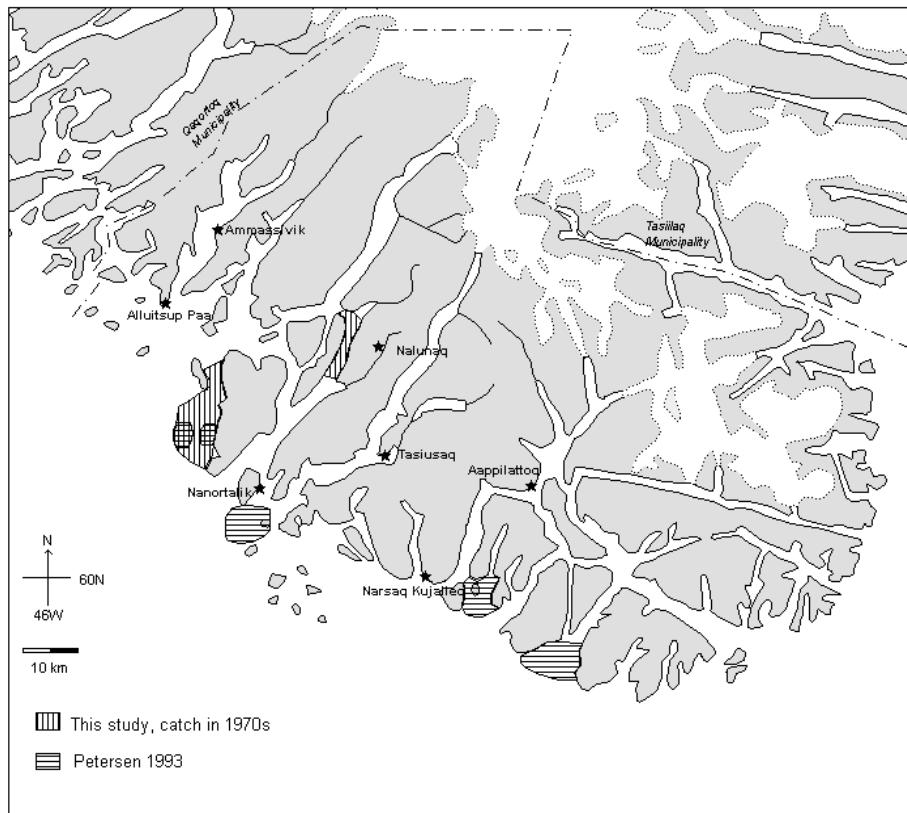


Figure 9. Atlantic halibut *Hippoglossus hippoglossus*. Important fishing grounds in the Nanortalik district.

Biology

The distribution of the Atlantic halibut is nearly identical to that of the Greenland halibut (see 4.7 Biology). In Greenland it goes north to Upernivik (73°N) on the West coast and to Ammassalik (66°N) on the East coast. Atlantic halibut lives at the bottom on depths of 100-1,500 m and at temperatures of 3-7°C. Winter and early spring is spent in Davis Strait and during summer it appears along the coast and at the mouths of the fjords. During the period 1930-1997 the West Greenland catch decreased from c. 7,000 tons to 22 tons (Anon. 1998b).

Few Atlantic halibut

Today only few and rather small Atlantic halibut are caught in the Nanortalik municipality. In 1970s halibut was caught in the northern part of Saqqaa Fjord, and at approximately the same period halibut was caught west of Sermersooq and the Sallit islands (Fig. 9).

Petersen (1993)

The best fishing grounds for Atlantic halibut are found along the coast between Nunap Isua and Narsaq Kujalleq, south of Nanortalik and west of Sermersooq. During 1989-1991 between 0.1 and 2.2 tons were traded.

Greenland Statistics (2001a)

During the period 1995-99 no Atlantic halibut was traded in the Nanortalik municipality according to Greenland Statistics.

4.9 Snow crab *Chionoecetes opilio*

Biology

The Snow crab is distributed in the Pacific Ocean from Japan to Bering Sea and further north to the Beaufort Sea; and in the Atlantic ocean from northern USA to West Greenland. The Snow crab lives at bottoms of clay, sand and stones at temperatures below 3-4°C. Crabs of commercial interest are caught at depths of 150-600 m. Breeding takes place from January to May, with older female crabs breeding April-May. The about one year old larvae are released from the female immediately before copulation. The larvae are pelagic until September-October where they settle at the bottom. The crabs mature in 6-9 years after 10-20 moults where the exoskeleton is shed. Following moult the exoskeleton is soft for 3-6 months and the cavity between shell and body is filled with water. Females can aggregate prior to mating and males can undertake migrations to the places where female aggregate. The West Greenland catch has increased during 1995-97 from c. 1,000 to c. 3,200 tons annually. Recommended quotas are based on the conservation of 50-65% of the biomass of large crabs (>90 mm, minimum size limit). The above description is based on Anon. (1998b) and Jadamec et al. (1999).



Snow crab male fished in the Saqqaa Fjord during April.

Catch of crabs of recent origin in Nanortalik

The fishery for Snow crabs in the Nanortalik municipality is of recent origin. On behalf of "Kujalleq Seafood" crabs were caught on an experimental basis in the district during February and March 2001. Another test fishery is to be performed late 2001. Also, one fisherman recently performed an experimental fishery for Snow crabs in the district. Therefore, most of the information in this chapter is derived from the winter test fishery, from the manager of the factory and from the fisherman. Also, information from the Nalunaq environmental baseline studies performed by DMU in September 2000 (Asmund 2000), March/April 2001 (Asmund 2001a) and September/October 2001 (Asmund 2001b) are included in this chapter.

Crab production

A few cutters, e.g., from Alluitsup Paa, are trading Snow crabs at the "Kujalleq Seafood" crab factory in Nanortalik. The factory started production on an experimental basis in early 2001 and the plan is to

start full-scale production late 2002. The demand in the initial phase is about 10 tons of crabs per day with a daily output of 6-7 tons of saleable crabs. To remove the intestinals the crabs are split in two halves. These are boiled and frozen, and packages are prepared mainly for USA and Japan.

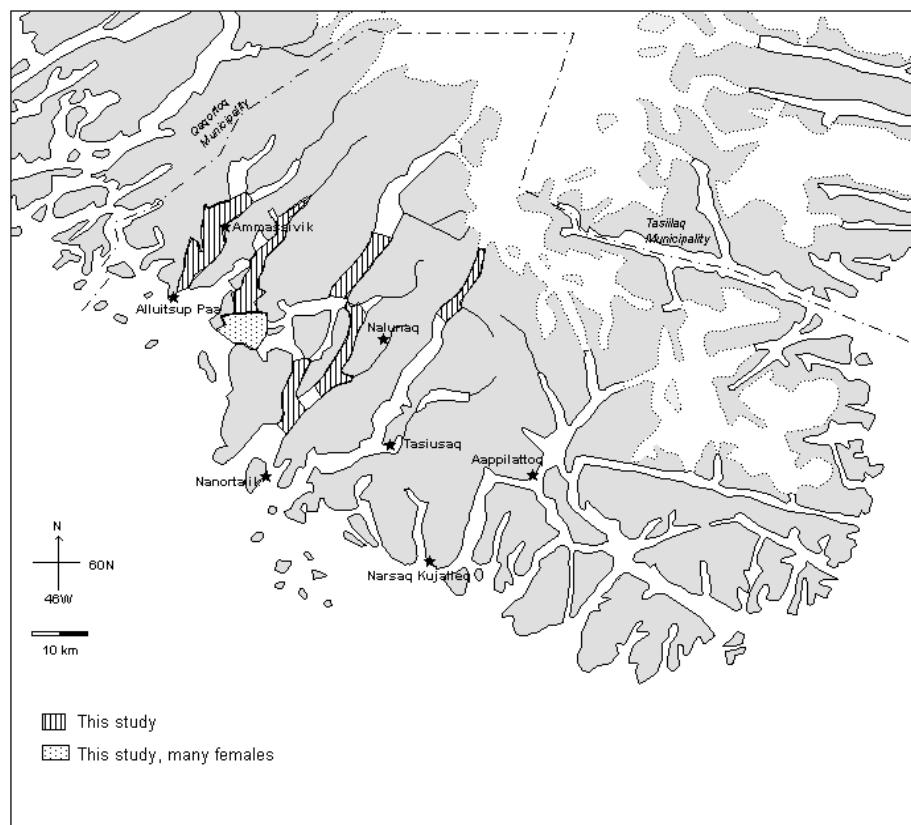


Figure 10. Snow crab *Chionoecetes opilio*. Important fishing grounds in the Nanortalik district.

Important fishing grounds

Important fishing grounds for crabs in the Nanortalik district have been identified in Tasermiut Fjord, with good quality crabs, i.e. big males with a hard shell, at the head of the fjord; in Saqqaa Fjord, with good quality crabs in the central and northern part of the fjord, and in the Kirkespir bay. Crabs with a soft shell have been encountered in the southern and northern part of Saqqaa Fjord as well; in Sermersuup Saqqaa Fjord, which contains good quality crabs, but perhaps in small numbers; in Sdr. Sermilik with good quality crabs in the southern part of the fjord. At the head of the fjord no crabs have been found; in Uunartoq Fjord which should contain good quality crabs, but also many female crabs. At the experimental fishery an average of 14 females and 4 males per trap were caught in Uunartoq Fjord; in Alluitsoq Fjord good quality crabs in high numbers were caught. The area between Sermersooq and Tuttutuarsuk should hold many female crabs (Fig. 10).

Interest in crab fishery

Between 9 and 11 of the 19 interviewed fishermen were interested in joining the Snow crab fishery. Yet, many of the fishermen are fishing from dinghies, which are too small to contain e.g., the voluminous traps (pots). Some of the fishermen speculate or have taken initiative to fish jointly in cutters, e.g. the so-called Q21.

Experimental fisheries

At the experimental fishery, 150 traps were set overnight at depths of 260-270 m. An average catch in these traps was about 1,500 kg of crabs. A fishing ground containing above 3-4 male crabs per trap was considered good. At the experimental fishery performed during February and March 2001, Sermersuup Saqqaa (the sound east of the Sermersooq Island) contained good quality Snow crabs, while the number was rather low, varying between 0.3 and 2.2 crab per trap. The mouth of Alluitsoq Fjord had about 10 good quality crabs per trap, corresponding to about 14 kg per trap. No Snow crabs were found in different areas south and East of Aappilattoq, and this could be either caused by stormy weather or many Greenland halibut and Spotted wolffish in the area.

Nalunaq baseline study

The average weight of a male crab was about 1 kg and crabs caught at depths of 200-300 m were heavier than those caught at 70-190 m (Asmund 2001a, b). It should be noted that at depths of 200-300 m crabs were living on a muddy bottom whereas the bottom was sandy or stony at 70-190 m. In Saqqaa Fjord catches at 15 different places were on average 2.7 kg (March/April 2001) and 1.3 kg (September/October 2001) per trap, respectively. At the mouth of Uunartoq Fjord catches at 2 different places were on average 2.3 kg (March/April 2001) and 1.6 kg (September/October 2001) per trap, respectively.

Possible mine disturbances

A mine activity at Nalunaq in the Kirkespir valley could affect negatively the Snow crab fishery in the Saqqaa fjord, both because of an increase in disturbances from ships, dinghies etc. and especially if tailings is deposited at the bottom of the fjord.

Greenland Statistics (2001a)

During the period 1995-99 no Snow crabs were traded in Nanortalik municipality according to Greenland Statistics.

4.10 Deep sea prawn *Pandalus borealis*

Biology

In Greenland the Deep-sea prawn is distributed from Upernivik (73°N) on the West coast to Ittoqqortoormiit (72°N) on the East coast. The prawn crosses both the Davis Strait to Baffin Island and the Denmark Strait to Iceland (Bertelsen et al. 1990). The Deep-sea prawn is found both offshore and in the fjords at depths of 100-600 m and at temperatures between 0 and 4°C (Horsted & Smith 1956). The prawn spawn during July-September, and the following March-May the larvae are released at relatively shallow waters (Carlsson & Smith 1978). The total West Greenland catch and biomass of prawns have decreased since 1993 and the 1998 quota was therefore reduced from 60,000 to 55,000 tons annually (Anon. 1998b).

Few prawn in the district

Deep-sea prawn is today not traded in the Nanortalik municipality. Until 1980s prawn were traded in Nanortalik at "Nanfisk". During 1970s cutters trawled for prawns in Tasermiut Fjord west of Tasiusaq, but this stock was overfished and is not fished today. Saqqaa Fjord had in former days a prawn stock, but today prawns in that fjord and in Sdr. Sermilik Fjord are small in size. Today prawns are trawled in Uunartoq Fjord from Uunartoq island to the west coast of Sermersooq, and in Alluitsoq Fjord (Fig. 11).

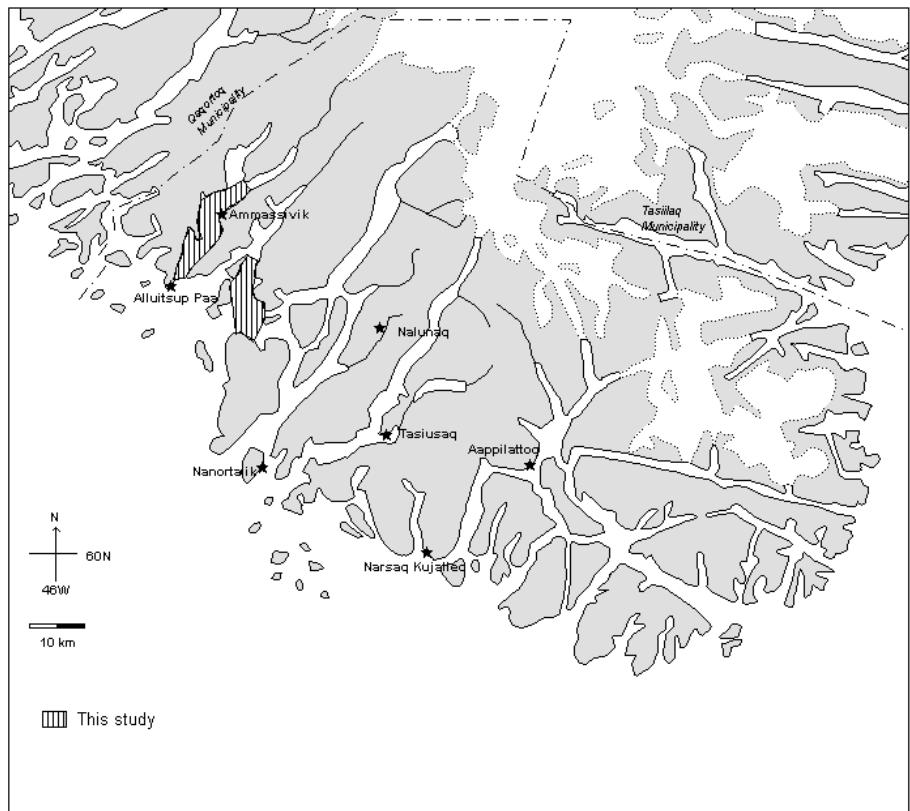


Figure 11. Deep sea prawn *Pandalus borealis*. Areas where prawns are trawled in the Nanortalik district.

Greenland Statistics (2001a)

During the period 1995-99 prawn was traded only in Alluitsup Paa in 1999 with 3.5 tons in February.

4.11 Other fish species

Redfish (Sebastes sp)

Today, Redfish are caught in Alluitsoq Fjord and these fish are traded. Until mid 1980s Redfish were caught in pound nets in Saqqaa Fjord.

*Blue whiting
(Micromesistius poutassou)*

Until mid 1980s Blue whiting were caught in pound nets in Saqqaa Fjord.

Pink salmon (Oncorhynchus gorbuscha)

One specimen was caught in Alluitsoq Fjord. This species normally lives in the northern Pacific Ocean, but is introduced in Newfoundland in 1960s.

5. Hunting

Introduction

Most of the hunters interviewed in the present study hunt either by themselves in their own dinghy or in small parties. According to the Greenland Home Rule regulations (Anon. 1998a) Minke whales must be hunted by no less than five dinghies in a joint hunt.

Each chapter contains a brief biological introduction followed by the information given by the interviewed hunters. On average, 12.0 persons, varying from 2 to 18 persons, gave information on each hunted animal species (Appendix 4). Then information from the study on natural resource use in Greenland by Petersen (1993) is presented, and finally hunting statistics from Nanortalik municipality is presented. For most species a graph of the amount traded during the period 1995-1998/99 is shown in Appendix 1, Figs. 29-34 (Greenland Statistics 2001a). Also, hunting data for the period 1995-99 are presented. These data are derived from the hunters' reports by the Greenland Home Rule, Dept. of Fishery, Hunting and Settlements, Kim Mathiasen. Relatively important hunting grounds for each species are finally shown on maps, refer to Figs. 12-19.

5.1 Polar bear *Ursus maritimus*

Biology

The Polar bear is found mainly to the pack ice areas in the whole of the Arctic region. In Greenland it is found along and off the entire East Greenland coast, with highest numbers from Ammassalik northwards. In West Greenland highest numbers are encountered from Upernivik northwards. The West Greenland population is shared with the eastern Canadian high Arctic, while the East Greenland population seems to be relatively isolated from the Svalbard-Franz Joseph Land population (Born 1995). Most Polar bears encountered in the Nanortalik municipality probably origin from the East Greenland population, yet two bears ear-tagged around Svalbard were shot in the municipality in 1968/69 and 1983 (Born 1995). The Polar bear mate in April-May and the female appear from the den with normally two cubs in March-April the following year. The cubs stay with their mother for 2½ year. The annual East Greenland Polar bear catch (which include the catch in Southwest Greenland) was during 1993-95 on average 46 bears, while during 1970-87 it was 72 bears (Born et al. 1998).

Regular visitor

Polar bears are regular visitors to the Nanortalik municipality, where bears or their footprints are seen most often during April and May. At this time of the year the Polar bears are transported to the district with the Polar ice. In this study the hunters have been given information on about 15 bears shot or seen during the last 30-40 years. Some hunters sail early spring and in November to Southeast Greenland around Prins Christian Sound to hunt Polar bears. At a few of these hunting trips 10-15 Polar bears have been shot; these numbers are not included in the c. 15 bears mentioned above.

Localities with shot and observed bears

In the Nanortalik municipality Polar bears have been seen or shot around Prins Christian Sound (10-15 bears shot); at Narsaq Kujalleq (3 bears shot); at the head of Tasermiut Fjord and inside the Itiller-suaq valley (footprints seen) and at Niaqornaq east of Nanortalik near the mouth of Tasermiut Fjord (1 bear shot on 18 April 2000); near Nanortalik (1 bear seen); at the small island in the Kanajormiut Ikerasaat sound North of Sermersooq (1 female with two c. 2-years old cubs shot in 1978); around Alluitsup Paa; around Ammassivik where prints during 1971-1972 were seen and possibly this bear was shot near Igaliq (60°59'N; 45°25'W) one day later (Fig. 12).

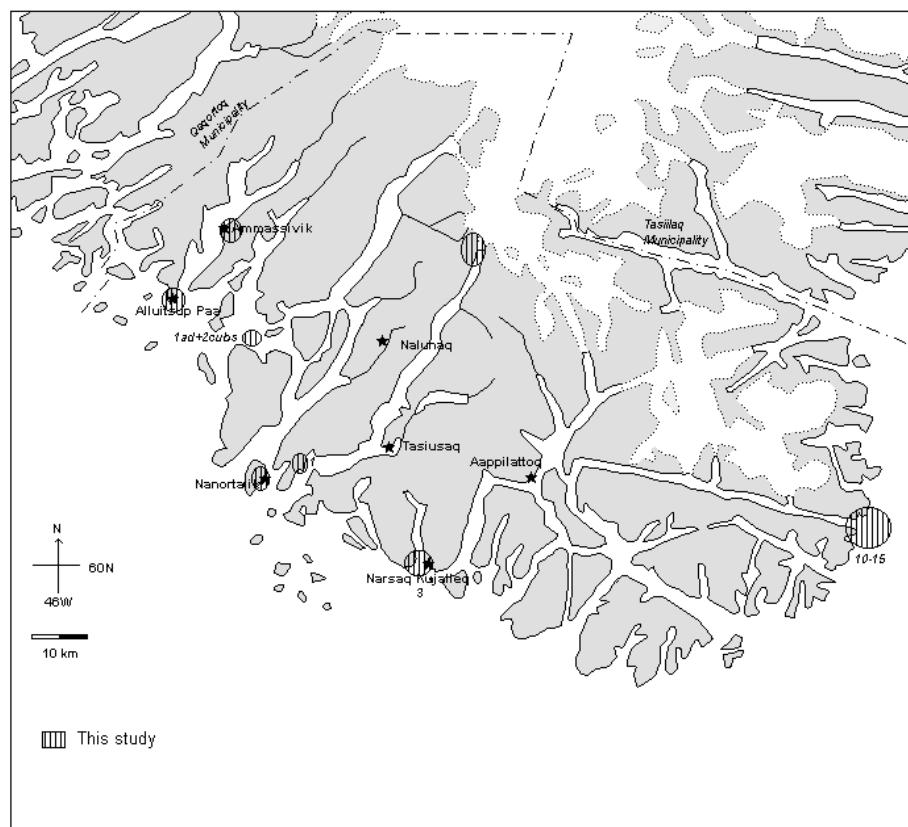


Figure 12. Polar bear *Ursus maritimus*. Localities in the Nanortalik district with shot and observed bears. Numbers shot are shown in bold italics.

Polar bear dens?

It was mentioned that Polar bear dens might be found at the head of Tasermiut Fjord.

Petersen (1993)

According to the municipality's catching lists a total of 109 bears were shot during 1954-1982.

Greenland Statistics (2001a) and hunting data

During the period 1995-99 no Polar bears were traded in Nanortalik municipality according to Greenland Statistics. During the same period 6, 3, 6, 9 and 11 Polar bears were shot annually according to the Greenland Home Rule hunting data (K. Mathiasen, in litt. 2001).

5.2 Harbour seal *Phoca vitulina*

Biology

The Harbour seal is widely distributed along the coasts of the northern oceans of the Atlantic and the Pacific. The main distribution in

Greenland of this non-abundant species is the West coast from Nunap Isua (60°N) to Sisimiut (67°N). It is the only seal species in Greenland that hauls out on land, and here it breeds and moults during May to August . During 1940-1990 the number of hunted Harbour seals has decreased in the main area except in the Nanortalik municipality where it has increased from 5 to 40 shot seals, annually (Teilmann & Dietz 1994).

Most Harbour seals to the Southeast

Harbour seals are rare in the Nanortalik municipality. They are encountered on the islands Nordlige Kitsissut and in the mouth of Tasermiut Fjord West of Tasiusaq. Harbour seals should breed East of Nunap Isua (Kap Farvel) and further up the East coast of Greenland (Fig 13).

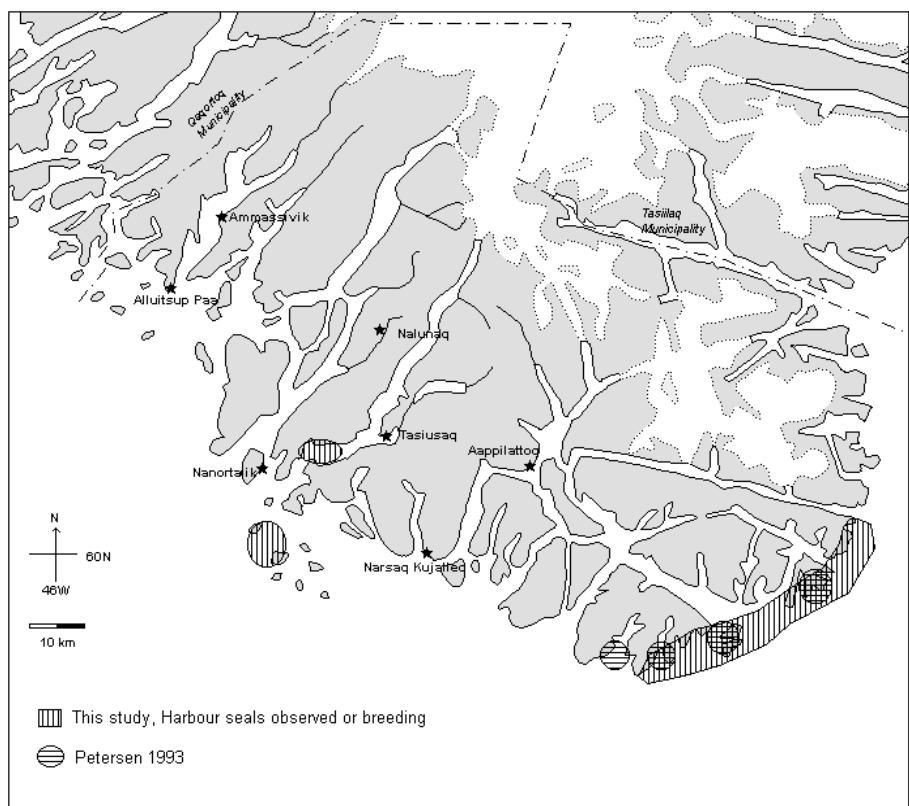


Figure 13. Harbour seal *Phoca vitulina*. Localities where Harbour seals are observed, or are breeding (only in southwestern part of the Nanortalik district).

Petersen (1993)

The four known breeding areas in the Nanortalik municipality are situated around and East of Nunap Isua (Fig 13). In 1990 a maximum of 10 Harbour seals could be caught on a hunting trip.

Greenland Statistics (2001a)
and hunting data

During the period 1995-99 an average of 26 Harbour seal skins were traded annually in the municipality. Between 76 and 97% were traded in Aappilattoq. Most were traded during July-December (Appendix 1, Fig. 29). During the period 1995-99 an average of 39 Harbour seals ($SD = 8.7$, $n = 5$) were shot annually according to the Greenland Home Rule hunting data (K. Mathiasen, in litt. 2001).

5.3 Ringed seal *Phoca hispida*

Biology

The Ringed seal is distributed in the North Atlantic area from Newfoundland, Greenland, and Svalbard to the Kara Sea. In Greenland it is widely distributed, but few in number along the southwestern coastline and in North Greenland. It is common in glacier fjords and in the drift ice. Mating takes place in April-May and the one pup is born in March-April the following year in a breeding lair in fast ice areas. The average annual catch in West Greenland was during 1954-94 c. 47,000 seals, and the recent catch is considered sustainable (Born et al. 1998).

Few skins traded

In the Nanortalik municipality fewer Ringed seal skins are traded today compared to skins from the Harp seal. During 1970s more Ringed seal skins were traded compared to today.

Hunting grounds

Ringed seals are found throughout the municipality but not in any large numbers. They are hunted at the heads of the fjords of Tasermiut and Sdr. Sermilik where they should be rather numerous. Also it is hunted southeast of Nanortalik and in Uunartoq Fjord, where it should have been more common during 1960s. Ringed seal is said to be tastier than Harp seal.

Breeding grounds

Breeding grounds are found at the head of the fjords Sdr. Sermilik and Uunartoq (Fig 14). Here fast ice is formed during winter. Fast ice also builds up at the head of Tasermiut Fjord, but Ringed seals probably do not breed there.

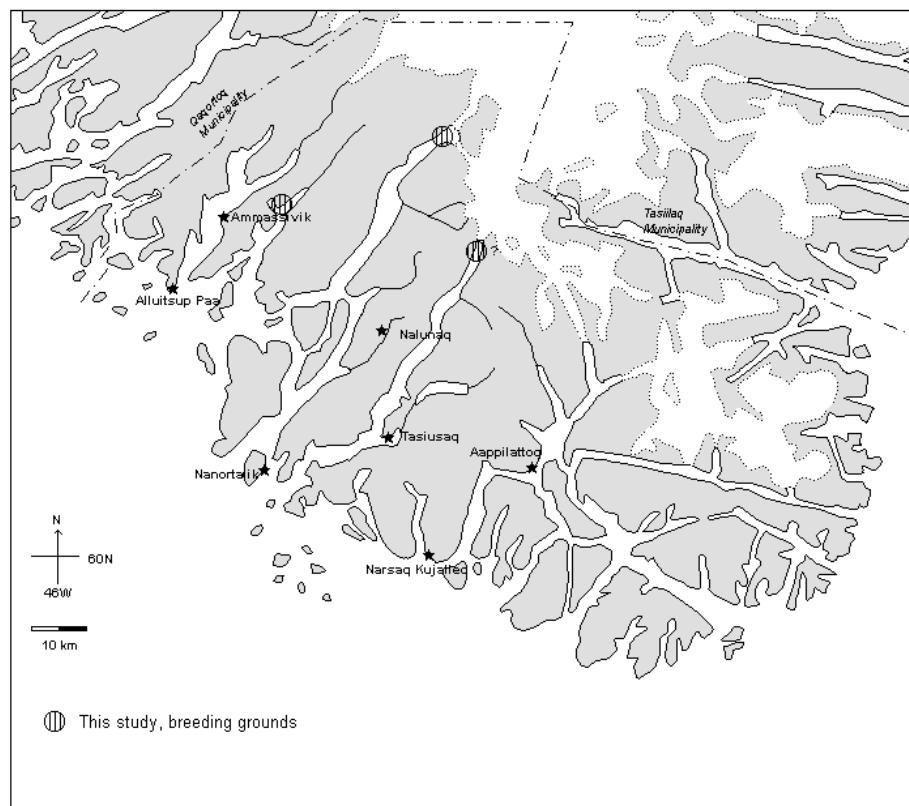


Figure 14. Ringed seal *Phoca hispida*. Breeding grounds in the Nanortalik district.

Hunting period

Ringed seals are hunted during April and May where numbers should be highest, but hunting takes place also during winter.

No disturbances near the breeding grounds

It was mentioned by some of the hunters that there should be no disturbances during winter at the heads of the fjords Sdr. Sermilik and Uunartoq. The reason is that these places serve as breeding grounds for the Ringed and the Bearded seals. Disturbances can be generated by e.g., skidoos and 4WD motorcycles driving either on the ice or along the coastline.

Petersen (1993)

In the western part of the municipality Ringed seals are found in the fjords of Tasermiut (North of Tasiusaq), Sdr. Sermilik, Uunartoq and Alluitsoq, plus the area north of Alluitsup Paa. Ringed seals should breed also in the Polar ice. During 1976-1980 the total annual catch varied between 700 and 1,600; about half of the seals were shot around Aappilattoq.

Greenland Statistics (2001a) and hunting data

During the period 1995-99 the number of skins traded have increased from c. 1,400 annually in 1995 and 96 to c. 2,300 annually during the last three years. Between 71 and 90% were traded in Aappilattoq showing a slightly decreasing trend over the period. Less than ten Ringed seal skins were traded in Narsaq Kujalleq and Tasiusaq, respectively. Ringed seal skins were traded year round in the municipality (Appendix 1, Fig. 30). During the period 1995-99 an average of 2,394 Ringed seals ($SD = 355$, $n = 5$) were shot annually according to the Greenland Home Rule hunting data (K. Mathiasen, in litt. 2001).



Ammassivik early April.

5.4 Harp seal *Phagophilus groenlandicus*

Biology

The Harp seal is distributed in the North Atlantic drift ice areas from Newfoundland, northeastern Canada, Greenland, Iceland, and to the Kara Sea. It is not found in North Greenland. The Harp seal is a common summer visitor to Greenland arriving to Greenland from May onwards from the breeding grounds at Newfoundland. The northward migration peaks in June, dies out in Southwest Greenland but continues to Northwest Greenland. During October-February the Harp seals return to the breeding grounds. Other breeding grounds are situated around Jan Mayen and in the White Sea. Harp seals from Jan Mayen migrate during summer to East Greenland, Iceland and Svalbard. The pups, "white coats" are in Canada born February-March. The annual catch in Greenland is today about 60,000 seals, and this catch has increased steadily since 1970s. The Newfoundland population was in 1994 estimated at c. 5 million seals, and it is expected this population will stabilise around that figure considering the recent catch in Canada and Greenland (Born et al. 1998).

Skins are traded

Harp seal is the most common seal species in the Nanortalik municipality. Skins of Harp seals are traded in Nanortalik and Alluitsup Paa and then directed to the tannery "Great Greenland" in Qaqortoq. Some hunters sell their skins directly to "Great Greenland". Due to the quality criterias one hunter could trade only about 20% of his sealskins. The number of skins traded per hunter varies between 5 and 100 per year.

Seal skin qualities

During autumn Harp seals are in general rather short-haired and many seals born in year 2000 were very short-haired and had bald spots on their bags and sides. Some skins are greenish which could be the result of seals rubbing their body against cliffs overgrown with green algae. All these types of sealskins were poor in quality and were not traded.

Seal meat sold at "Brædtet"

Many hunters sold seal meat to the seal sausage factory "Puisi A/S" in Nanortalik before it was closed down a few years ago. Seal meat is sold at the local market place "Brædtet" or it is used for the hunter's own consumption.

Hunting grounds

Harp seals are in general hunted everywhere in the Nanortalik district both off the coast and in the fjords. Yet, some places are pointed out as important hunting grounds: Off the coast around the islands Karra, Arnaarqat, Qeqertarsuatsiaq and Salliit, and west of the islands Uunartoq and Tuttutuarsuk. In Tasermiut Fjord all year round; Sdr. Sermilik Fjord; Saqqaa and Sermersup Saqqaa fjords are good hunting grounds when the Polar ice closes the access to open sea; Uunartoq Fjord; Alluitsoq Fjord (Fig 15).

Hunting period

Harp seal is hunted year round. During May-July, Harp seals should be smaller in size, and during summer there should be plenty of Harp seals.

High numbers Harp seals

Many hunters claim that the Harp seal is more numerous today than in the 1960s and 1970s. The number is so large that the seals disturb the fishery e.g. by damaging the nets. On a good hunting day one

hunter can shoot about 20 Harp seal, and his annual catch varies from 50 to 400 Harp seals.

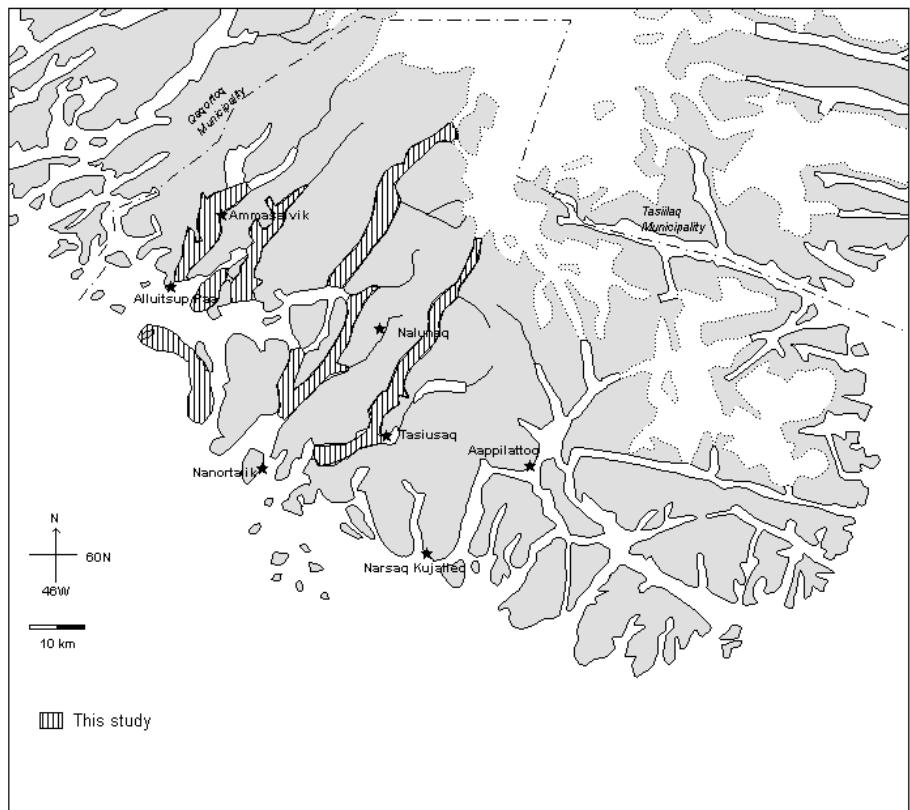


Figure 15. Harp seal *Phagophilus groenlandicus*. Important hunting grounds in the Nanortalik district.

Petersen (1993)

Since 1980, Harp seal was found year round except during the Polar ice period.

Greenland Statistics (2001a)
and hunting data

During the period 1995-99 the number of seal skins traded in Nanortalik municipality have increased from 800-1,000 the first three years to c. 1,900 in 1998 and 2,700 in 1999. Most skins have been traded in Aappilattoq, with Nanortalik and Alluitsup Paa being increasingly more important during the last few years. Adult Harp seals ("Buksesæl") are traded separately, in numbers between 50 and 250 annually. Harp seals are traded year round but the most important period is April-September/October (Appendix 1, Fig. 31). During the period 1995-99 an average of 3,394 Harp seals ($SD = 1014$, $n = 5$) were shot annually according to the Greenland Home Rule hunting data; an increase was observed during the last two years of the period with 3,893 and 4,905 seals shot in 1998 and 1999, respectively (K. Mathiasen, in litt. 2001).

5.5 Bearded seal *Erignathus barbatus*

Biology

Bearded seal is distributed sparsely in all Arctic oceans along the coast and in the drift ice. Most often single individuals are seen. Bearded seals mate in May and pups are born on the ice during April-May the following year. The total annual catch in Greenland

Common but little hunted

during 1993-95 was about 1,800 seals, while in 1954-85 between 500-1,000 seals were caught annually (Born et al. 1998).

Bearded seal should be common in the Nanortalik district, and numbers seem to have increased during the last few years. A hunter catches on average two to five Bearded seals each year. The skins are used for e.g. soles for kamiks (skin boots) and for straps. Bearded seals are breeding at the heads of Sdr. Sermilik Fjord and Uunartoq Fjord, and they are also hunted here (Fig. 16).

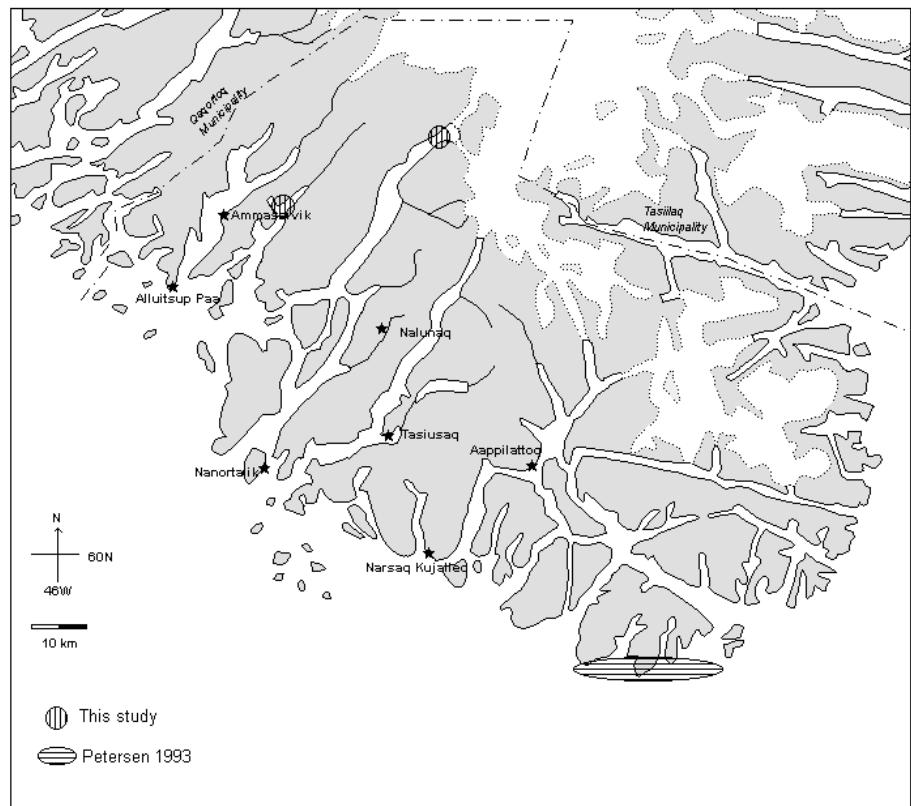


Figure 16. Bearded seal *Erignathus barbatus*. Hunting and breeding areas in the Nanortalik district.

Petersen (1993)

During 1973-1982 a total of 681 Bearded seals were caught in the municipality. Most seals were found around Nunap Isua (Fig. 16).

Greenland Statistics (2001a)
and hunting data

During the period 1996-99 an average of 70 Bearded sealskins were traded with highest numbers in Nanortalik (1998 and 99) and Aappilattoq. Most skins were traded during August-December (Appendix 1, Fig. 32). During the period 1995-99 an average of 337 Bearded seals ($SD = 74$, $n = 5$) were shot annually according to the Greenland Home Rule hunting data (K. Mathiasen, in litt. 2001).

5.6 Hooded seal *Cystophora cristata*

Biology

The Hooded seal is found in the North Atlantic Sea from Newfoundland to Baffin Island, Greenland, Iceland and Svalbard. In Greenland it is missing only in the North. The Hooded seals aggregate during March-April at whelping grounds on the ice in St. Lawrence Gulf and off Newfoundland, in the drift ice in Davis Strait and north of Jan

Mayen. After mating the seals from the Canadian breeding grounds migrate north and east to South and West Greenland, the so-called "fat" migration. The seals continue slowly to the moulting grounds in Denmark Strait and perhaps also in the Baffin Bay. Following the moulting period in June-July the seals from Denmark Strait migrate south round Nunap Isua and north along West Greenland during July-September, the so called "lean" migration. The above description is based on Berthelsen (1990), Salomonsen (1990) and Mosbech et al. (1998). The total annual catch of Hooded seals in Greenland has been increasing from c. 1,200 in 1960 to c. 7,500 during 1993-95. Most seals are caught in Southwest Greenland. The total population of the Hooded seal is probably increasing (Born et al. 1998).

Meat and blubber for own consumption

Since most Hooded seals are caught off shore in the drift ice it is difficult for the hunter to prepare the seal skins in due time for trading. The meat is dried or salted on the hunting grounds, and meat and blubber are mainly used for the hunters' own consumption.

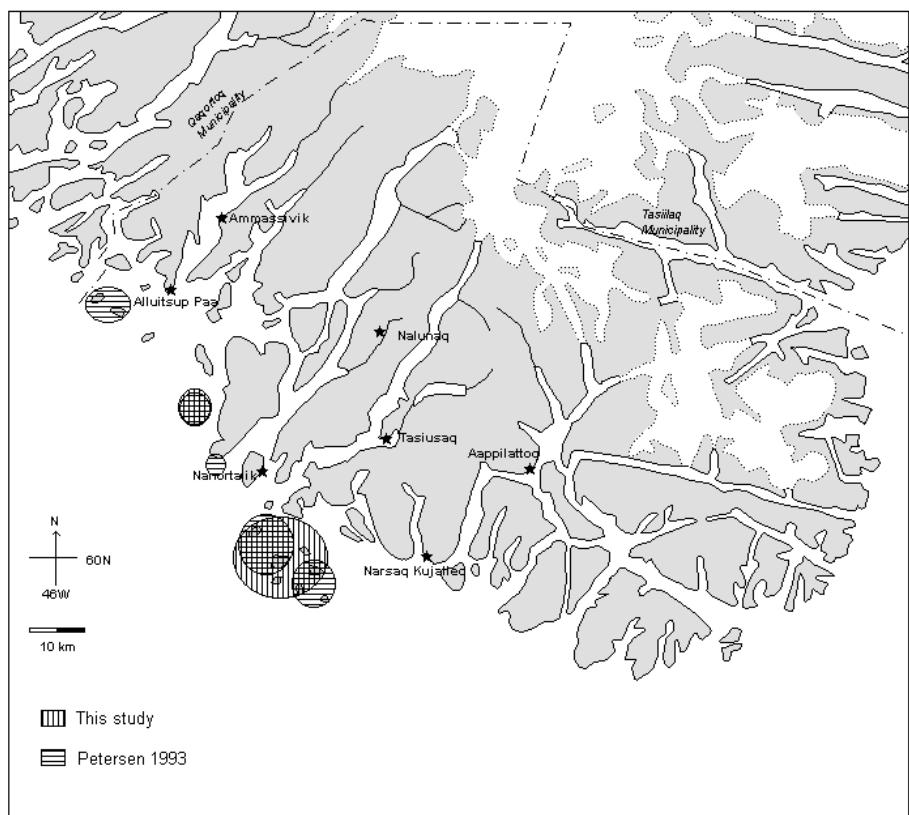


Figure 17. Hooded seal *Cystophora cristata*. Most important hunting areas in the Nanortalik district.

Most seals hunted in the Polar ice

The Hooded seals are caught in the Polar ice from the islands Nordlige Kitsissut, but also Sydlige Kitsissut and the Sallit islands west of Sermersooq serves as bases for the Hooded seal hunt. Few Hooded seals are caught in the fjords as well (Fig. 17).

Hunting period

Most hunters go Hooded seal hunting during April-June, where the hunters stay for about one month on the Kitsissut islands. In February, one hunter caught a possible pregnant female, and in July, the seals caught are rather lean. Each hunter catches 10-30 Hooded seals annually.

Petersen (1993)

The most important hunting grounds are situated on the following offshore islands: Sydlige and Nordlige Kitsissut, Kangeq (South of Sermersooq), Sallit, and Sydlige and Nordlige Uumanartuut (Fig. 17). During 1955-1960 the total annual catch was 200-400 seals, while during 1976-1980 between 900 and 1700 were shot annually. This change should be due mainly to a reduced hunting pressure at the breeding and moulting grounds.

Greenland Statistics (2001a)
and hunting data

During the period 1995-99 between 50 and 225 Hooded seals were traded annually. Blue backs (young seals) constituted 45-70%. Most adults were traded May-June, while the Blue backs were traded April-July and October-January (Appendix 1, Fig. 33). During the period 1995-99 an average of 1,452 Hooded seals ($SD = 568$, $n = 5$) were shot annually according to the Greenland Home Rule hunting data; a high variation was apparent in the first two years of the period where 814 were shot in 1995 and 2,295 in 1996 (K. Mathiasen, in litt. 2001).

5.7 Minke whale *Balaenoptera acutorostrata*

Biology

The Minke whale is widely distributed in both the Atlantic and the Pacific Ocean. It is found in West and East Greenland along the coast, in fjords and bay areas up to about 72°N. The stay in Greenlandic waters lasts from April to November-December. Mating can take place twice a year so mating can occur during summer in Greenland. The annual quota for West Greenland is 175 Minke whales for the period 1998-2002. A catch of that size is with some reservations thought sustainable (Born et al. 1998).

Hunting trips

A part of each of the caught whales is sold to cover the hunting expenses while the remainder part is divided equally among the hunters. Between 14 and 16 of the interviewed hunters take part in the two annual Minke whale hunting trips, where at least 5-10 dinghies participates in each hunt. Nanortalik municipality has an annual quota of nine Minke whales. This quota is distributed with two to Nanortalik, two to each of Alluitsup Paa and Ammassivik, and one to each of the settlements of Tasiusaq, Narsaq Kujalleq and Aappilattoq. In the municipality only one cutter is equipped with a harpoon cannon. One of the hunters claimed that more Minke whales are seen in the district during the last few years.

Petersen (1993)

Minke whales should be numerous around Nunap Isua. During 1976-1981 between 9 and 45 were caught annually according to the catching lists.

Greenland Statistics (2001a)
and hunting data

During the period 1995-99 no Minke whales were traded in Nanortalik municipality according to Greenland Statistics. During the period 1995-99 an average of 13 Minke whales ($SD = 1.3$, $n = 5$) were shot annually according to the Greenland Home Rule hunting data (K. Mathiasen, in litt. 2001). The reason for the difference in number of shot whales (c. 13/year) and the annual quota of nine Minke whales is due to the sharing of unused West Greenland quotas (K. Mathiasen, pers. comm., 2001).

5.8 Other mammal species

Sperm whale (*Physeter macrocephalus*)

One Sperm whale was observed in Qoornoq Fjord, while Sperm whales were not observed in Tasermiut Fjord during 1960-1965.

White whale
(*Delphinapterus leucas*)

This relatively small whale species is not common in the Nanortalik district. During 1960-1965 no White whales were seen in the Tasermiut Fjord. One hunter from Alluitsup Paa had not seen White whales in the area while another caught two white whales in early 1960s, one in 1970s and he observed two dark White whales (Narwhals?) in September 2000.

Narwhal (*Monodon monoceros*)

One Narwhal was observed at the head of the Siortalik Fjord in September or October 2000. Perhaps two possible narwhals (or dark White whales) were observed in September 2000 in the Alluitsup area (se above).

Humpback whales
(*Megaptera novaeangliae*)

Humpback whales are becoming more common in the Nanortalik district and are observed in many of the fjords.

Muskoxen (*Ovibos moschatus*)

The Nanortalik municipality rejected early 1990s an application to introduce Muskoxen to the area between the fjords Saqqaa and Tasermiut. The reason for the rejection is not known. Another application on the introduction of Muskoxen in the Nunap Isua area is considered in the municipality for the moment.

5.9 Eider *Somateria mollissima*

Biology

The Eider is distributed along the coastline of most of the Arctic region as well as areas south of the Arctic such as Nova Scotia, Scotland and southern Scandinavia. In Greenland it is breeding along most of the west coast, and it is more scarce on the East coast to 77°N. Eiders from North and West Greenland and birds from high arctic East Canada migrate to wintering grounds in the open water areas in West Greenland north to Aasiaat (69°N), and in East Greenland north to 74°N; many winters around Iceland (Boertmann 1994). The Eider starts breeding late May and the normal clutch size is 3-5 eggs. The breeding population has been dramatically reduced in recent years (Boertmann et al. 1996, Born et al. 1998). Hunting is allowed from 1 October to 31 May (Anon. 2000). During 1993-95 between 68,000 and 82,000 Eider were shot annually (Born et al. 1998).

Used for own consumption
and sold at "Brædtet"

Most of the Eiders shot are used for own consumption, but some Eiders are sold at the local market place "Brædtet"; one hunter sell Eiders directly to institutions in Nanortalik.

Hunting grounds

In the Nanortalik district Eiders are known to breed at the islands of Nordlige Kitsissut. During the hunting season 1 October-31 May (Anon. 2000) Eiders are hunted in nearly all fjords of the district. Of more specific hunting grounds are mentioned: the Ilunga bay Southeast of Nanortalik and the area around Alluitsup Paa (Fig. 18). During this interview study Eiders were observed in the following areas with numbers in brackets: Qoornoq (c. 500), Saqqaa, northern part (1,100), North of Sermersooq (5-600), Uunartoq Fjord (2-300) and Alluitsoq Fjord (850).

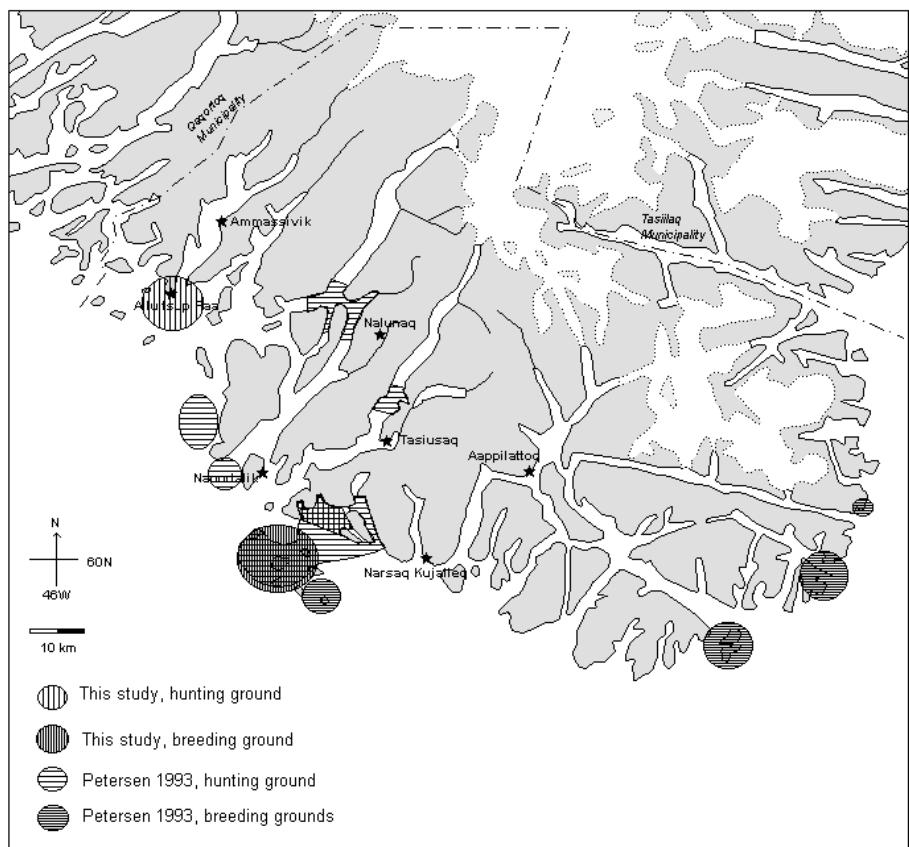


Figure 18. Eider *Somateria mollissima*. Most important hunting and breeding grounds in the Nanortalik district.

Hunting bags

The hunters and fishermen find that Eiders are becoming more numerous and that they often destroy the fishing nets. Each hunter shoots 100-600 Eiders each year.

Taste differs with feeding ground

The taste of the Eiders varies with the area where they are shot. This indicates that Eiders to some extend are site faithful during the hunting season. Some hunters find Eiders shot at the heads of the fjords the tastiest, others Eiders shot along the coast.

Petersen (1993)

Important hunting grounds are found in the northern Saqqaa Fjord, southern Sdr. Sermilik Fjord, in Tasermiut Fjord opposite Tasersuaq Lake, around Sallit and Nordlige Kitsissut. Four breeding grounds are listed in the district: Sydlige Kitsissut and three areas along the coast between Nunap Isua and Prins Christian Sund (Fig. 18).

Greenland Statistics (2001a) and hunting data

During the period 1995-99 no Eiders were traded in Nanortalik municipality according to Greenland Statistics. During the period 1995-99 an average of 5,695 Eiders ($SD = 223$, $n = 5$) were shot annually according to the Greenland Home Rule hunting data (K. Mathiasen, in litt. 2001).

5.10 Brünnich's guillemot *Uria lomvia*

Biology

Brünnich's guillemot is distributed in the whole Arctic region with wintering grounds in low Arctic seas. In West Greenland breeding colonies are distributed from Qaanaaq (78°N) to Ivittuut (61°N), in

East Greenland only close to Ittoqqortoormiit (70°N) (Boertmann et al. 1996). The total greenlandic population size was estimated at 535,000 birds early 1990s (Kampp et al. 1994). Birds from West Greenland and Canada winter in Southwest Greenland or Newfoundland while the East Greenland birds together with Svalbard and Russian birds winter in Southwest Greenland. Breeding takes place from late June to August, and only one egg is produced per pair. Over the last 50 years a serious decline of perhaps 50% of the population has been observed (Kampp et al. 1994, Boertmann et al. 1996). Hunting is allowed from 16 October to 14 March (Anon. 2000). During 1993-95 about 200,000 guillemots were shot annually (Born et al. 1998).

Hunting periods

Brünnich's guillemot is shot for own consumption and is sold at "Brædtet". In Nanortalik municipality first arrival of guillemots are in October and the birds disappear normally during January or February. In year 2000 the guillemots had gone already late December.

Some hunting grounds

Uunartoq Fjord and the area around Alluitsup Paa are mentioned as good hunting grounds (Fig. 19). During bad weather the birds come closer to the coast while in bright weather the stay far off the coast.

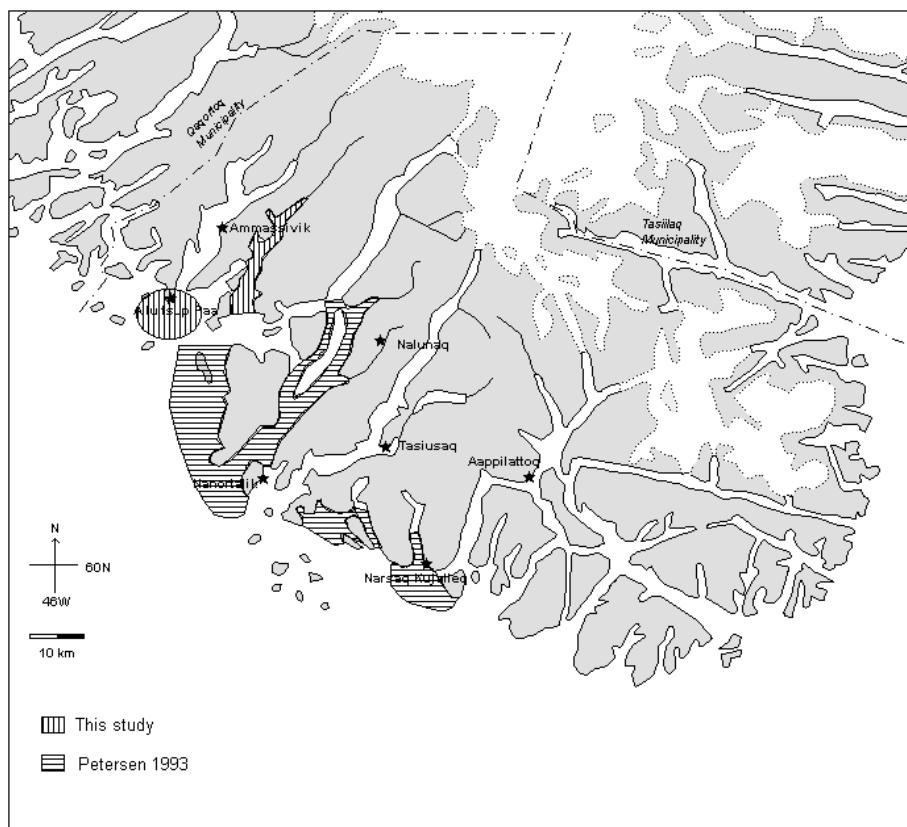


Figure 19. Brünnich's guillemot *Uria lomvia*. Hunting grounds in the Nanortalik district.

No breeding guillemots in the Nanortalik municipality

One hunter indicated that there might be breeding Brünnich's guillemots at the head of Sdr. Sermilik Fjord and on the island Portusooq in the Akorna sound. According to Boertmann et al. (1996) no colonies are present in the Nanortalik municipality.

Petersen (1993)

Important hunting grounds are the coastline from Narsaq Kujalleq northwards to northern Sermersooq and Qeqertarsuatsiaq, and the fjords of Qoornoq and Saqqaq and the Akorna Sound (Fig. 19).

Greenland Statistics (2001a)
and hunting data

During the period 1995-99 Brünnich's guillemots were traded only in Nanortalik and Alluitsup Paa during December and January. The number varied considerably between 1,000 and 13,000, annually (Appendix 1, Fig. 34). During the period 1995-99 an average of 22,298 Brünnich's guillemots ($SD = 3,590$, $n = 5$) were shot annually according to the Greenland Home Rule hunting data (K. Mathiasen, in litt. 2001).

5.11 Other bird species

Mallard (*Anas platyrhynchos*)

Mallard are numerous in the district and they are shot in the fjords, along the coast Southeast of Nanortalik and around the islands Nordlige Kitsissut.

Long-tailed duck (*Clangula hyemalis*)

Long-tailed ducks are numerous in the fjord area North of Sermersooq. During this interview study 650 Long-tailed ducks were observed east and North of Sermersooq, and 1,900 in Alluitsoq Fjord between Alluitsup Paa and Ammassivik. Only few are said to be shot because they are wary and fast.

Kittiwake (*Rissa tridactyla*)
and Iceland gull (*Larus glaucopterus*)

Some hunters mentioned that thousands of Kittiwakes are breeding on the Portusooq Island. According to the latest quantitative count in 1994 (Boertmann et al. 1996) the colony consisted of 600-700 pairs of Kittiwakes and c. 600 individuals of Iceland gull.



Alluitsup Paa early April

6. Gathering

Introduction

Gathering of mussels, seaweed, sea urchins, berries, herbs etc. is still a supplement to the daily household in many families. 13 and 7 persons provided information on gathering of mussels and seaweed, respectively, while 1-3 persons gave information on the remainder items (Appendix 4).

*Blue mussel (*Mytilus edulis*) and clam*

Blue mussel is very common in the tidal zone, in West Greenland approximately north to Qaanaaq/Thule (c. 77°N), in East Greenland to about Ammassalik (c. 66°N). Blue mussels are gathered for the person's own consumption and normally close to their homes. Some persons prefer places further away, e.g. at Niaqornaq Northeast of Nanortalik, on the islands south of Alluitsup Paa, and in Tasermiut Fjord south of Tasiusaq.

Clams were until 1980s fished commercially in Akorna Sound, but trading stopped in Nanortalik and clams are today fished only for own consumption.

*Seaweed (*Laminaria sp*)*

There are different brown seaweed species, which are found commonly in Greenland. Seaweed, growing below the tidal zone, is sampled from a dinghy with a boathook. Seaweed is gathered for the person's own consumption and normally close to their homes. Seaweed is also gathered at places further away, e.g. to the south of Nanortalik and on the islands south of Alluitsup Paa. Normally seaweed is sold at "Brædtet" during winter. Seaweed is consumed fresh since it should not be possible to freeze it.

Sea urchin

Sea urchins are gathered at the sea floor with a dredge and they are used for the person's own consumption.

*Arctic blueberry (*Vaccinium uliginosum*)*

One person gathered many blueberries in the vicinity of Nanortalik. Together with Crowberry (*Empetrum hermaphroditum*) it is the most common dwarf-shrub carrying berries in Greenland. Blueberry grows in heaths and hummocky fens.

*Angelica (*Angelica archangelica*)*

Angelica is gathered among other places in the northern part of Ammalortoq Island. This herb is the tallest herb in Greenland growing to a height of 1-2 m. It is common in southern Greenland along brooks and in willow copses.

*Potato (*Solanum tuberosum*) & Early garden turnip (*Brassica rapa*)*

One of the fishermen and hunters are for the moment planning to grow Potatoes and Early garden turnips in the Kangikitsoq valley in the northern part of the Saqqaa Fjord.

7. Sheep rearing

Introduction

Nanortalik municipality holds today (i.e. 1997) eight sheep farms with 13 farmers. Of these nine supplement their income by fishing and hunting (E. Hammeken, in litt. 2001). Four sheep farms in the district were abandoned after 1990. Information on this subject was



Sheep in the Tasiusaq area late March.

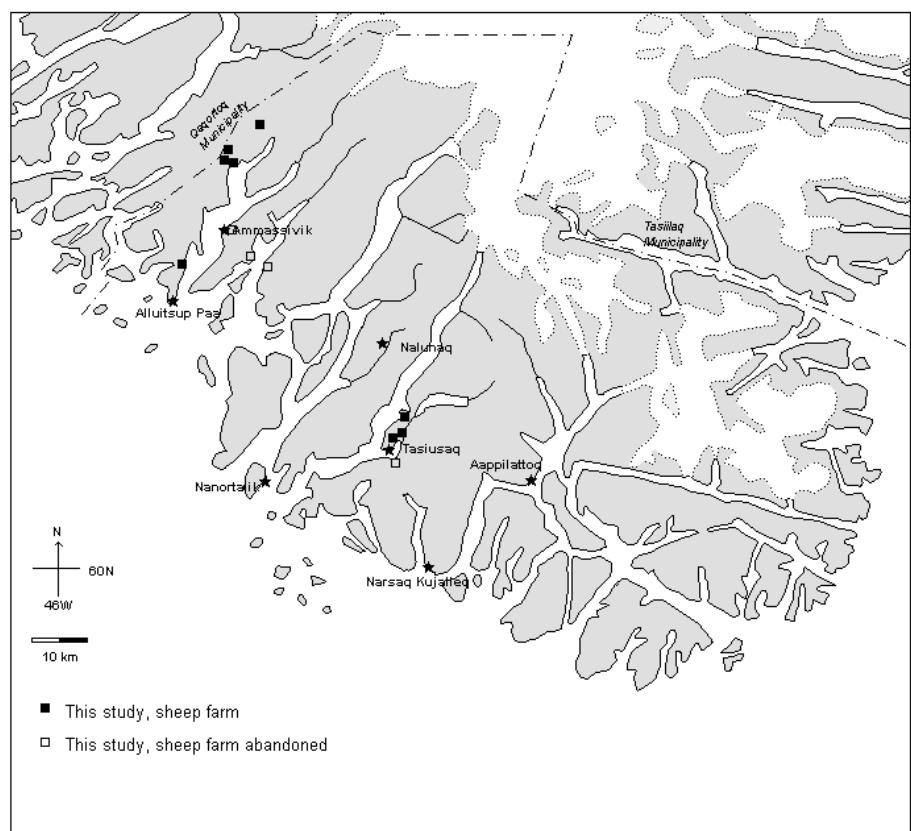


Figure 20. Sheep farms, recent and abandoned, in the Nanortalik district.

Two sheep farms areas in Nanortalik district

given by E. Hammeken, Nanortalik municipality. Southern Greenland, the most important sheep rearing area in Greenland, includes today about 300 persons most of whom live in the northeastern part of the area. The district contains about 20,000 mother sheep and an equivalent number of lambs are slaughtered each year (Jakobsen et. al (eds) 2000). The municipalities of Paamiut and Nuuk hold a total of about 300 sheep (E. Hammeken, domestic animal census of 31 December 2000, in litt.).

Today, sheep farms are concentrated in two areas of the Nanortalik municipality: 1) The northern part along the western coastline of the Aluitsoq Fjord (five farms), and 2) in the southwestern part between the settlement of Tasiusaq and Lake Tasersuaq (three farms) (Fig. 20). Thus, no sheep farms are placed on the large peninsula, confined by the fjords of Sdr. Sermilik and Saqqaa, and Tasermiut Fjord, where the Nalunaq gold deposit is situated. The total number of sheep in the Nanortalik district was 2,500 according to the domestic animal census of 31 December 2000 (E. Hammeken, in litt.), and at that time of the year mother sheep constitute 80% of the total sheep stock.



Sheep west of Tasiusaq late March.

8. Tourism

Introduction

The policy of the Greenland Homerule Government is to develop the following four branches of trade: 1. The natural resources, 2. Minerals, 3. Tourism, and 4. Production, service, construction etc. The tourism branch is rather small with 1.4% of the labour force and 2% of the annual turnover compared to branch 4. (54.5% and 71%) and branch 1. (43.7% and 25%); the percentages refer to 1996 (Anon. 1999). During 1990s the Greenland Homerule Government has put a lot of effort and capital into the tourism branch to develop it from mainly a spring and summer activity to a year round industry.

Tourists in the South Greenland region

No specific statistics is available for the Nanortalik municipality, but the district is included in the South Greenland region, which includes also Qaqortoq, Narsaq and Ivittuut (Greenland Statistics 2001b). South Greenland was during 2000 visited by c. 20% of all Greenland visitors. Nanortalik was visited by 9% of all visitors to Greenland which made Nanortalik the third most visited place after Ilulissat (34%) and Kangerlussuaq (16%) (Greenland Statistics 2001b). The number of overnight stays at hotels in South Greenland was 12.8% of all such stays in Greenland in 2000, and this was a decrease compared to 1999 with 14.3% overnight stays. The use intensity in 2000 for South Greenland hotel rooms was 27% compared to 38% for Greenland as a whole; these 27% was a slight decrease compared to 1999 (Greenland Statistics 2001b). The number of overnight stays in Nanortalik increased during 1999-2001 from 144 to 657 (T. Nielsen, pers. comm. 2001).

Air traffic

In 2001 it has been difficult to attract tourists because the weekly flights to Nanortalik have been cut down from three to two. To compensate for this the Nanortalik Tourist Service has taken the initiative to build a fast ship for transportation of passengers from Narsarsuaq airport to Nanortalik. During winter there is one weekly flight between Narsarsuaq and Nanortalik.

Cruise liners

During 2000 and 2001 four and five cruise liners called Nanortalik, respectively. Each of the two years one liner had c. 900 passengers who all visited the town on a one-day event. The remainder cruise liners had 45-190 passengers. Cruise liners are reluctant to visit Nanortalik during spring and early summer because of the Polar ice. Normally no cruise liners enter into Tasermiut Fjord because of too poor charts; instead their dinghies sail into the fjord to e.g. Tasiusaq.

In the whole of Greenland the number of calls have increased from 38 in 1995 to 66 in 1998 (in 1998 from 16 cruise liners with 50 – 1200 passengers) (Greenland Statistics 2001b).

Hiking

During 2000 a total of approximately 150 hikers visited the Nanortalik district. They were mainly either mountaineers or hikers. Most hikers are sailed by locals to the Lake Tasersuaq area, some stay in that area while others continue north to Uiluit Kuua and East to Aappilattoq. Some visit an area south of Aappilattoq (Fig 21).

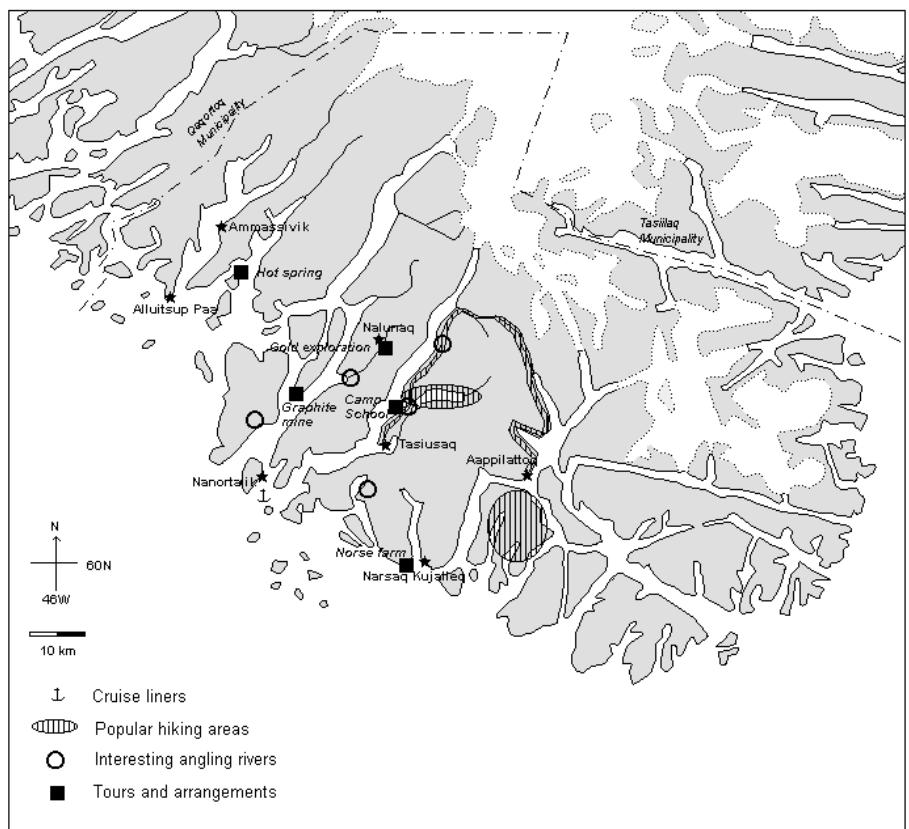


Figure 21. Tourism. Important localities for cruise liners, hikers, anglers and tourists in general in the Nanortalik district.

Angling and hunting

The Nanortalik Tourist Service has arranged tours for anglers and hunters in recent years. Interesting angling localities are the following rivers in the Tasermiut Fjord area: the river running from Lake Tasersuaq and the Kimukaat River; in the Tasiusaq Fjord area: Kussuatsiaq River; in the Saqqaa Fjord area: Kirkespir River; on Sermersooq Island: Qoororsuasik (Fig. 21).

Different tours and arrangements

Nanortalik Tourist Service arranges tours to different areas like Uunartoq Island (hot springs), Amitsoq Island (graphite mine abandoned in 1925), Nalunaq (explored gold deposit), Lake Tasersuaq area (a camp school at Nuugaarsuk) and Narsaq Kujalleq (Norse farm at Herlufsnæs) (Fig. 21).

9. Recreation and disturbances

Recreation

Of the four persons who responded on which areas were used for recreational purposes (Appendix 4) three of them visited Tasermiut Fjord and especially Lake Tasersuaq. People from Aappilattoq, Nanortalik and elsewhere from South Greenland visit the Lake Tasersuaq area during summer e.g., to fish for chars. When Arctic char during spring and summer is fished at the head of Tasermiut Fjord or in Tasiusaq Fjord (South of Tasermiut) the whole family participates and camps for at shorter or longer period. One person from the Alluitsup area has visited Karra Island during summer (Fig. 22).

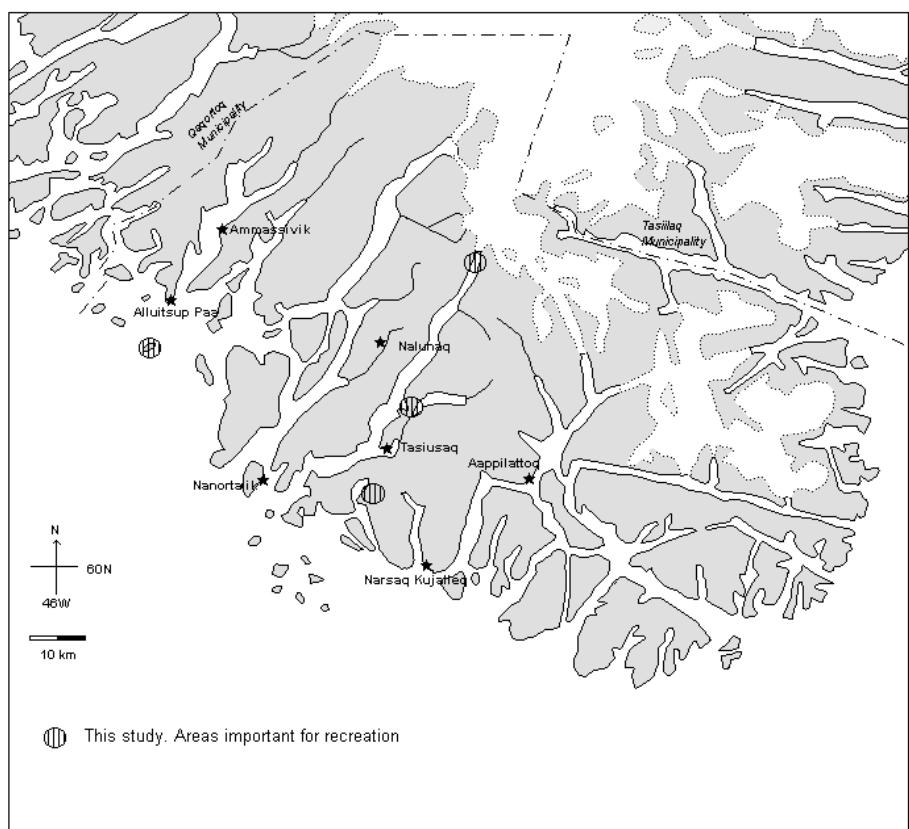


Figure 22. Recreation. Areas important for recreation in the Nanortalik district.

Disturbances

A total of five persons responded on activities that disturb or could potentially disturb fishery and hunting (Appendix 4). Two persons had no examples on such disturbances. One person commented on the road in the Kirkespir Valley running from the coast to the Nalunaq gold deposit; he was content that the road was placed high in the terrain far away from the river. Two persons claimed that there should be no skidoo or motorcycle driving on the ice at the heads of Sdr. Sermilik and Uunartoq Fjords, because this could disturb breeding Ringed and Bearded seals.

10. Conclusion

Impact on the environment

An active gold mine in the Nalunaq area can impact negatively on the environment and the natural resource use. Such an impact can be both physically, e.g. transportation to and in the area, crushing of ore and spreading of particles, and chemically, e.g. elevated concentrations of contaminants. The physical impacts can disturb animals so that they stay out of the area, and the chemical impacts can be toxic to plants and animals and contaminate food.

Local knowledge

The purpose of this interview study, making use of local knowledge, was to assess the natural resource use of especially the area in the vicinity of the Nalunaq mine site and in general of the use of the whole Nanortalik district. Thereby possible conflicts of interest can be addressed and mitigated.

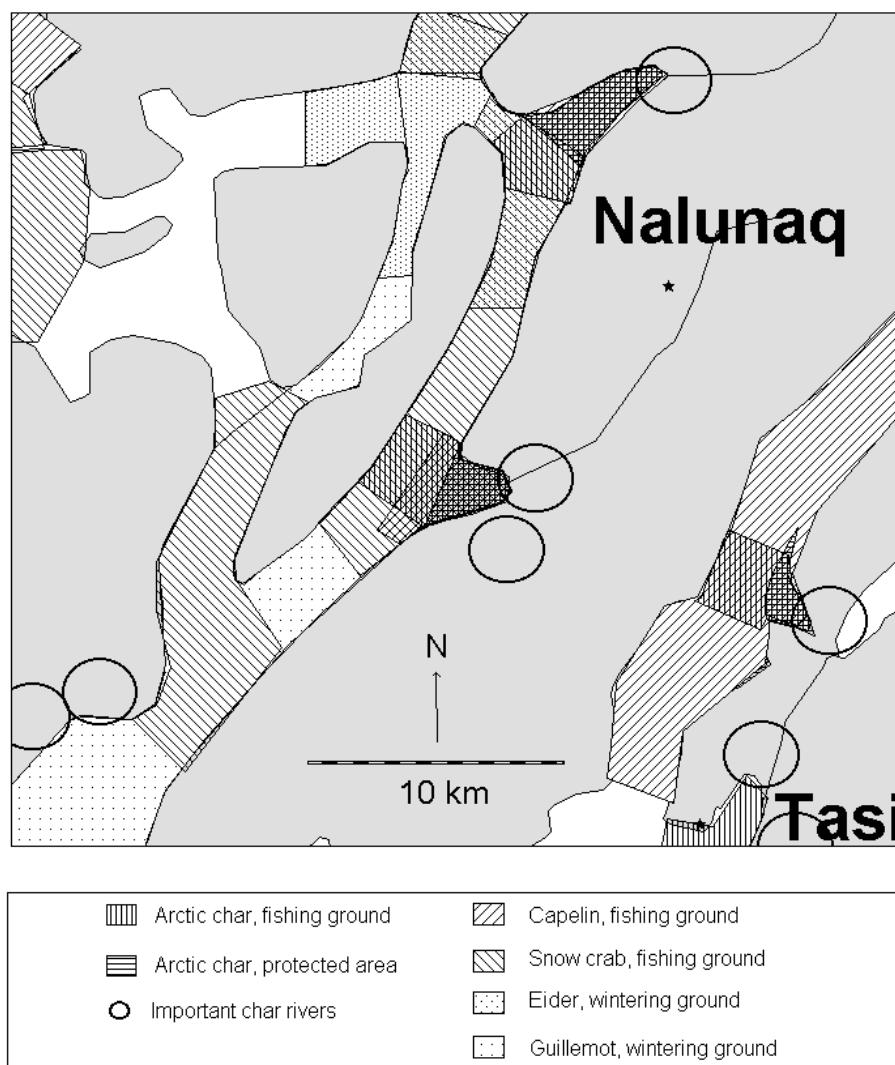


Figure 23. Important natural resources in the Saqqaa area.

Information gathered

Information was obtained for 11 fish species, Snow crab, Deep-sea prawn, five seal species, Polar bear, Minke whale and two bird spe-

cies; moreover on gathering of mussels, seaweed etc., sheep farms, tourist localities and areas for recreation.

Important natural resources in the Saqqaa area

The most important natural resources in the vicinity of the Nalunaq mine site, the Saqqaa area, was the following: The Arctic char populations living in the three rivers running to the Saqqaa Fjord and in the two fjord areas (i.e. Kirkespir Bay and Kangikitsoq) which are protected until 2003 from pound net fishing; the Snow crab population in the Saqqaa Fjord, possibly with a reasonable size and with a good quality; the spawning Capelin populations in the two bay areas of Kirkespir and Kangikitsoq rivers; flocks of Eiders and Brünnich's guillemots wintering in Saqqaa and adjacent fjords.

Important fishery in 1970s and 1980s

In 1970s and 1980s Atlantic cod, Spotted wolffish and Greenland halibut were fished in fair numbers in Saqqaa Fjord, especially the northern deep-sea channel and in Kangikitsoq.

Arctic char in Kirkespir River

None of the above mentioned species or their populations in the Saqqaa area seems to be unique to the Nanortalik district. Only three fjord areas in the Nanortalik district have been protected from pound net fishing, and the two of these are situated in the Saqqaa area. The Arctic char population in the Kirkespir River and Bay is probably the most vulnerable animal population in the Saqqaa area because of its proximity to the mine site.

Areas further from the mine can be affected

A mine in the Nalunaq area can affect other areas further away, e.g. the Tasiusaq area important to e.g. Arctic char, sheep rearing, tourists and recreation.



Male Arctic char electrofished in the Kirkespir River in October during the spawning season.

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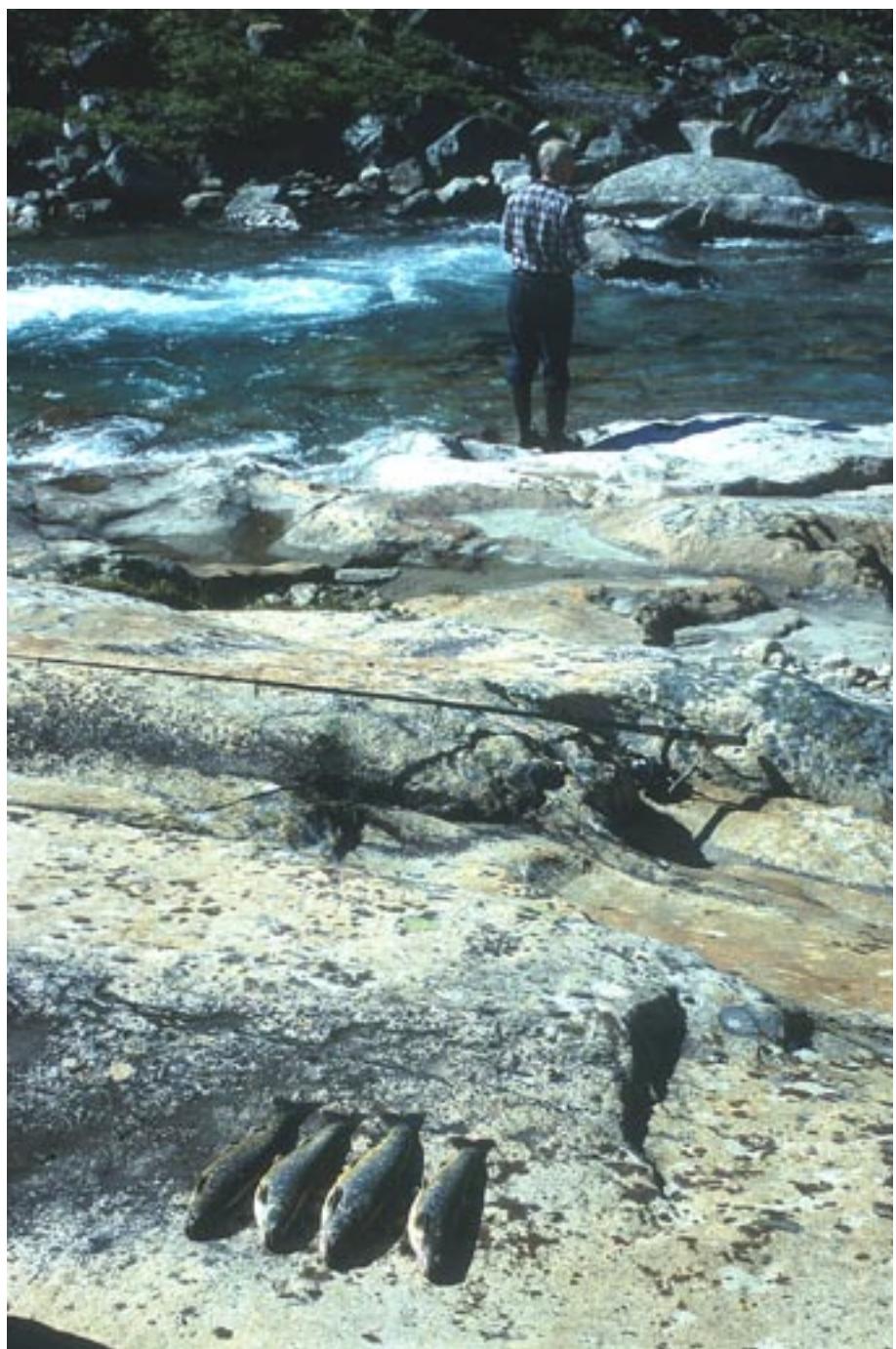
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Stationary Arctic char sampled in the Kirkespir river near the waterfall.

Appendix 1

Traded species of fish, mammals and birds in the Nanortalik municipality (Nanortalik, Aappilattoq, Narsaq Kujalleq, Tasiusaq, Ammassivik and Alluitsup Paa) during 1995-1999 (Greenland Statistics 2001a). Columns are accumulated amounts/numbers per months and shadings are of no significance.

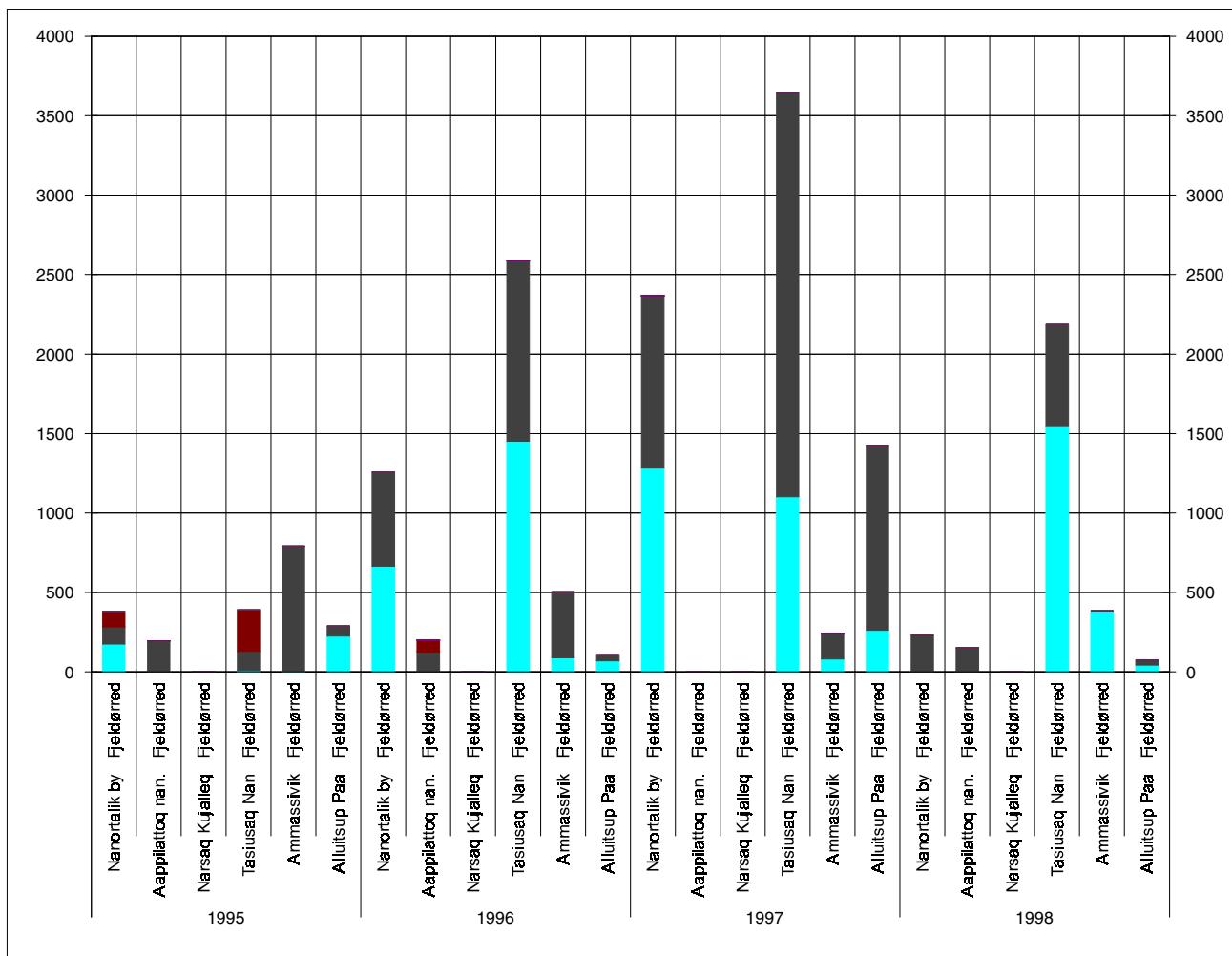


Figure 24. Arctic char. Amount in kg per town/settlement per year.

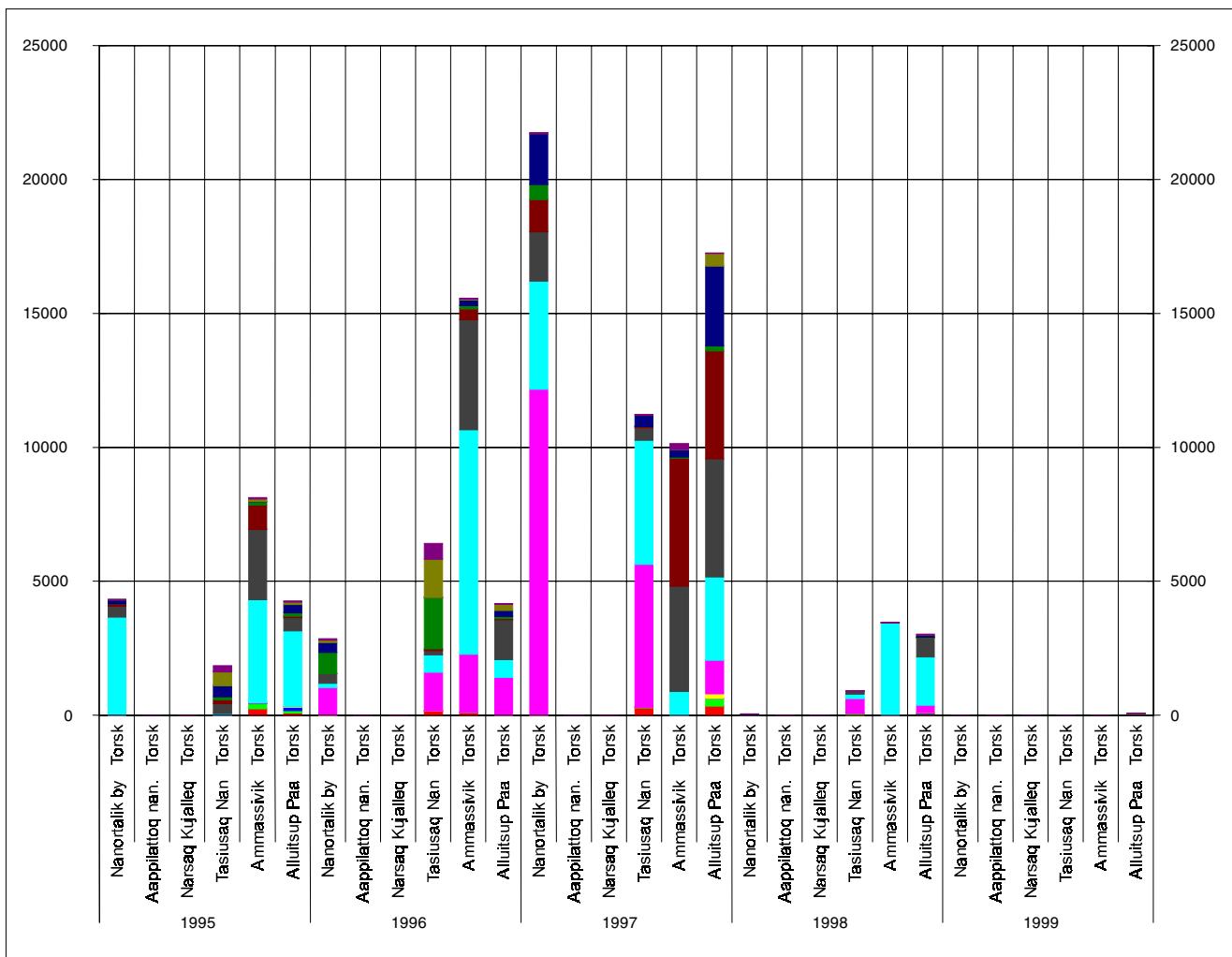


Figure 25. Atlantic cod. Amount in kg per town/settlement per year.

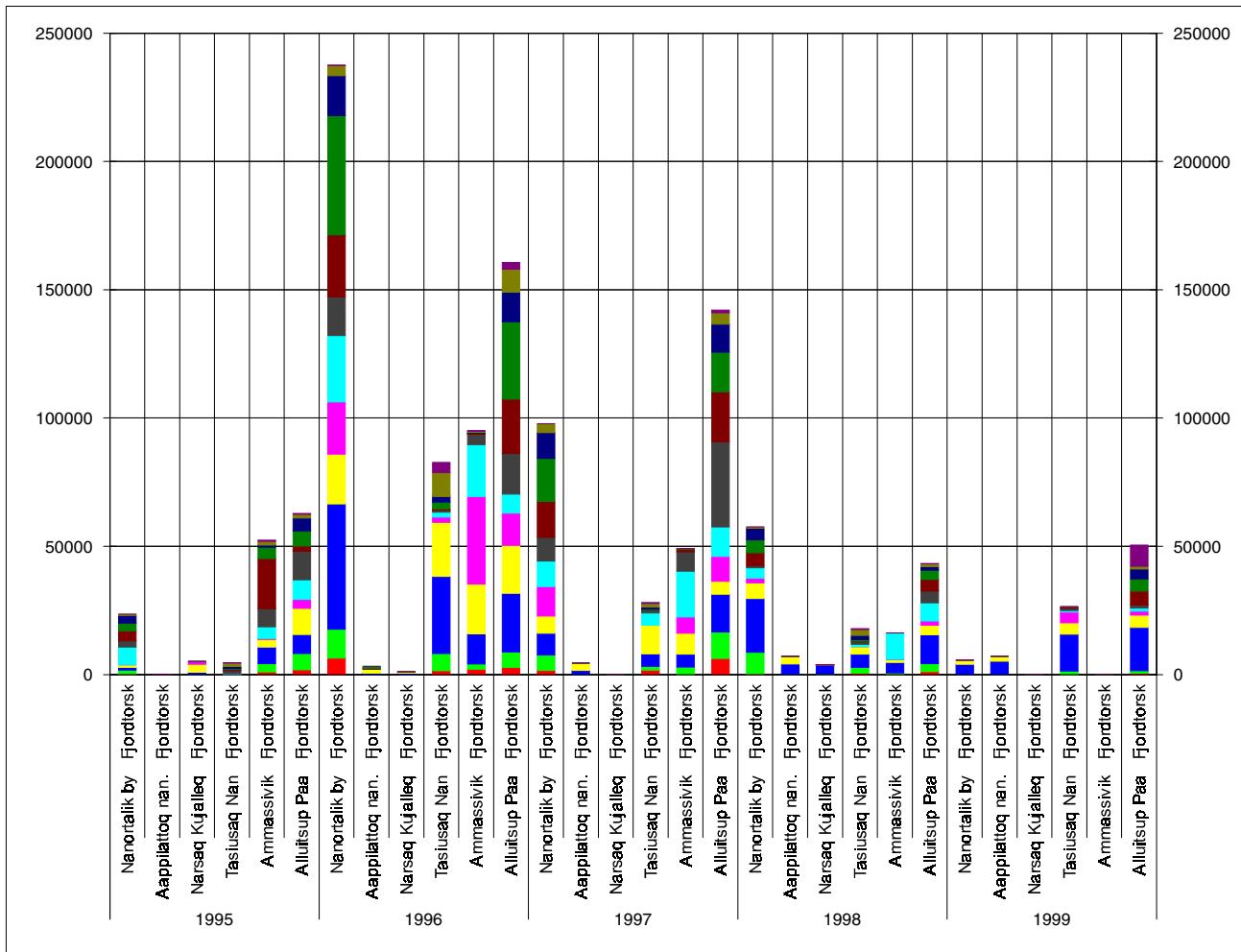


Figure 26. Greenland cod. Amount in kg per town/settlement per year.

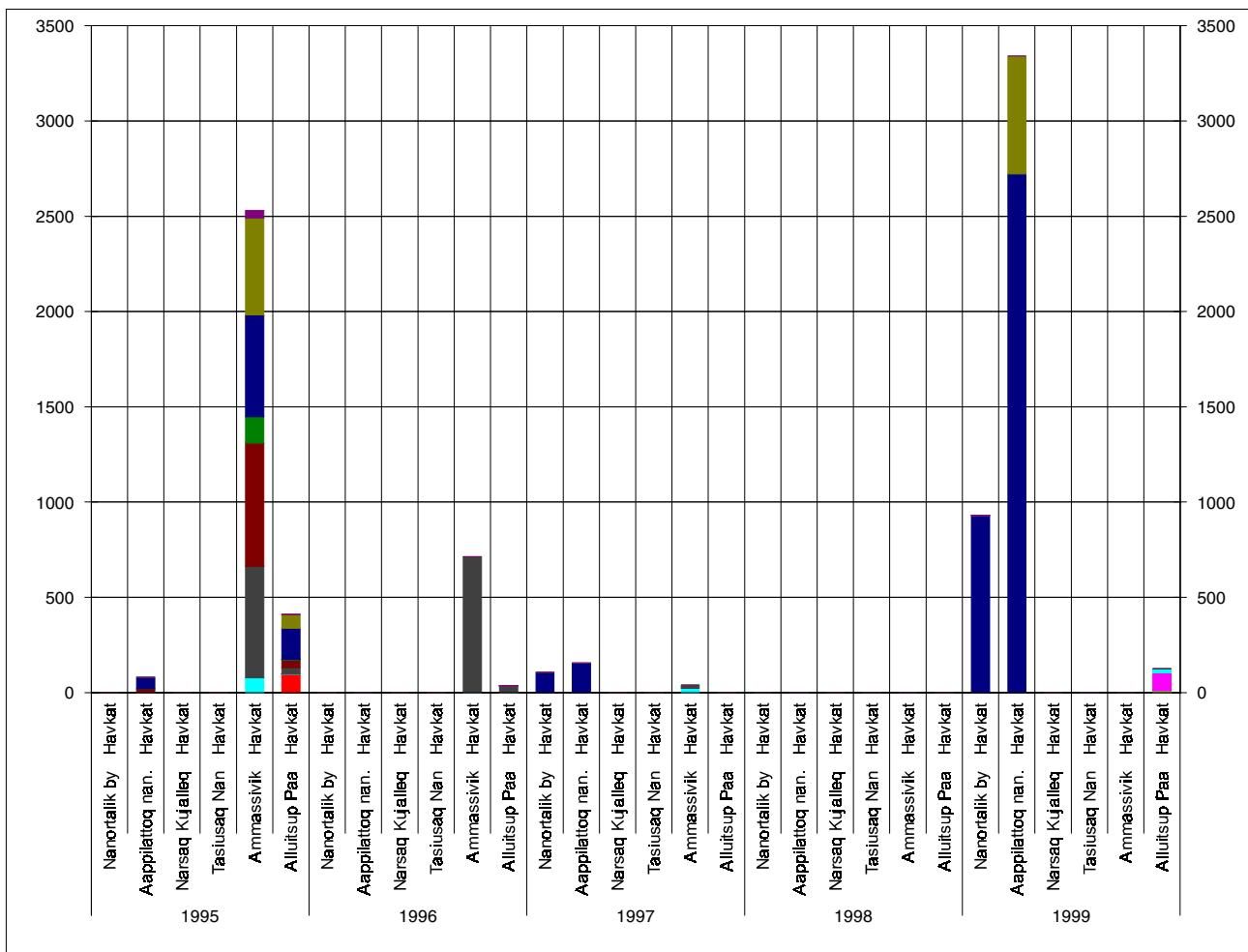


Figure 27. Spotted wolffish. Amount in kg per town/settlement per year.

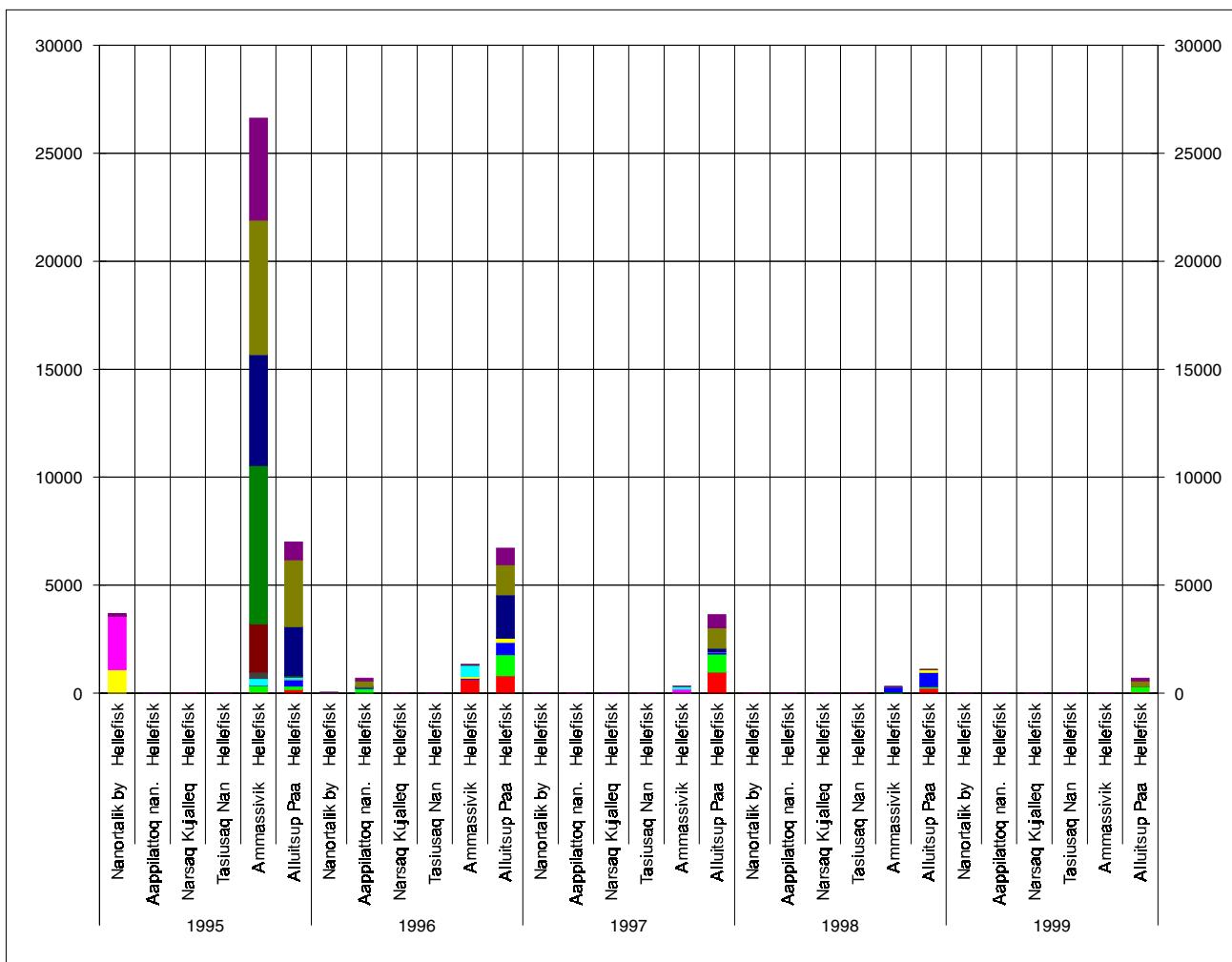


Figure 28. Greenland halibut. Amount in kg per town/settlement per year.

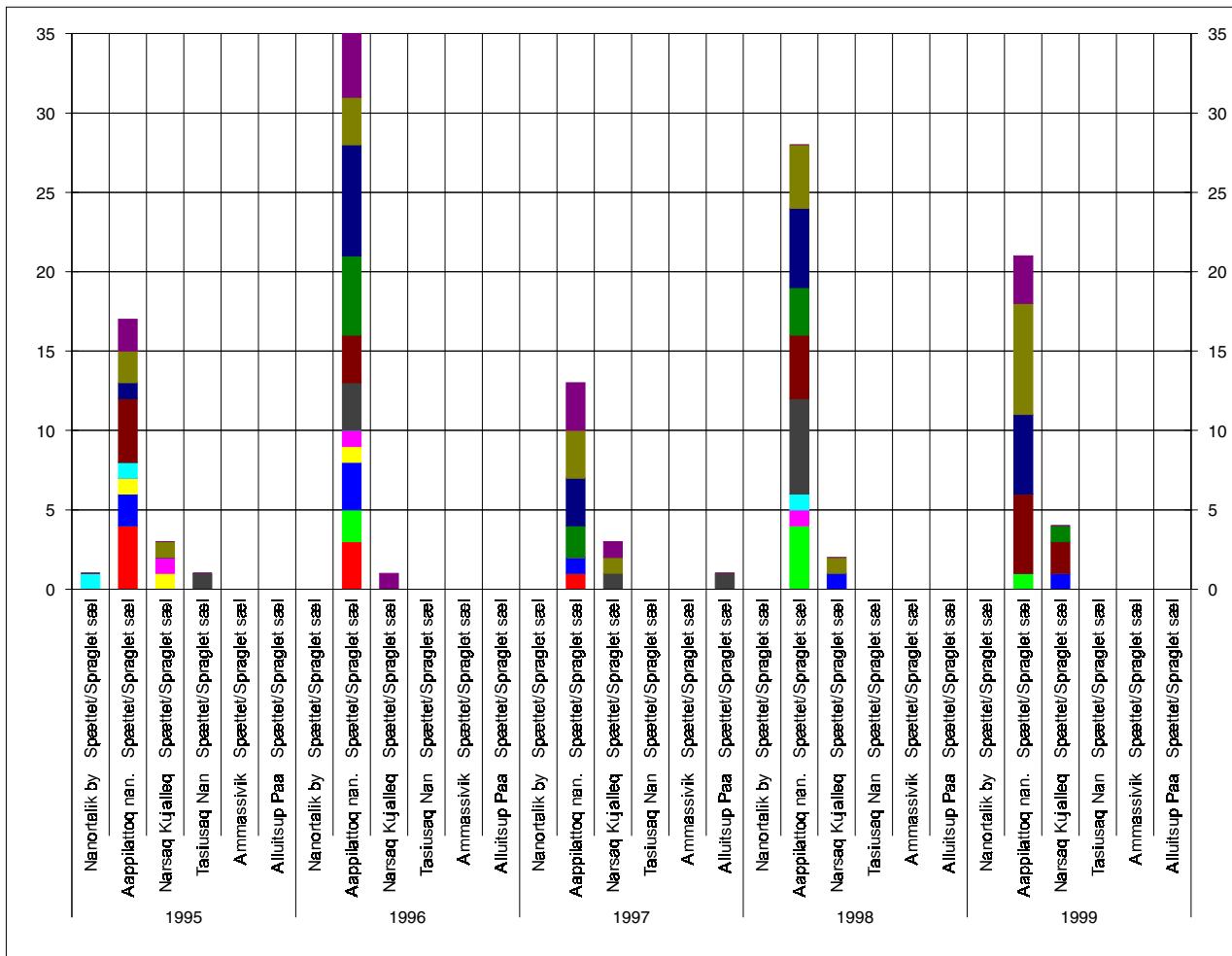


Figure 29. Harbour seal. Number of skins per town/settlement per year.

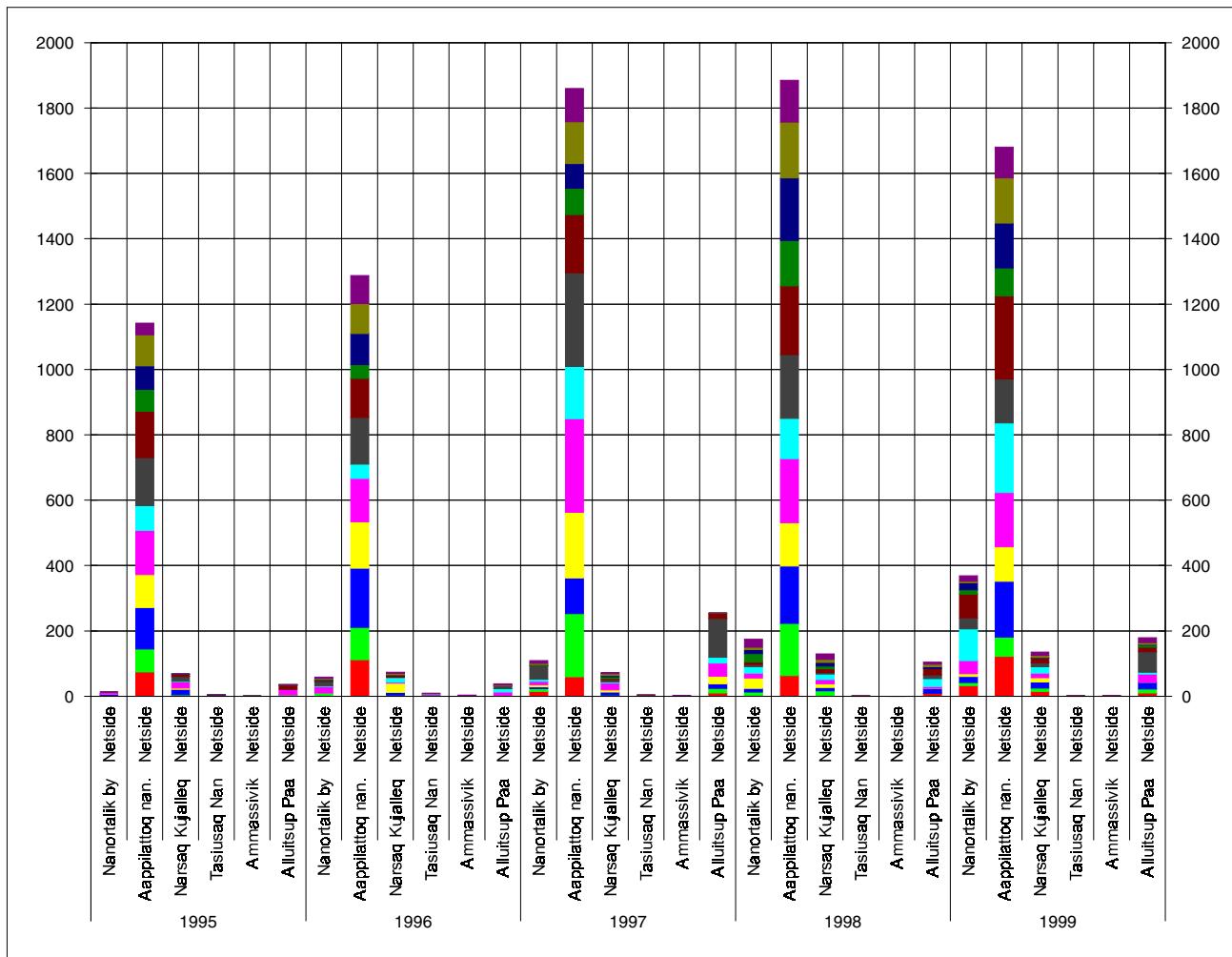


Figure 30. Ringed seal. Number of skins per town/settlement per year.

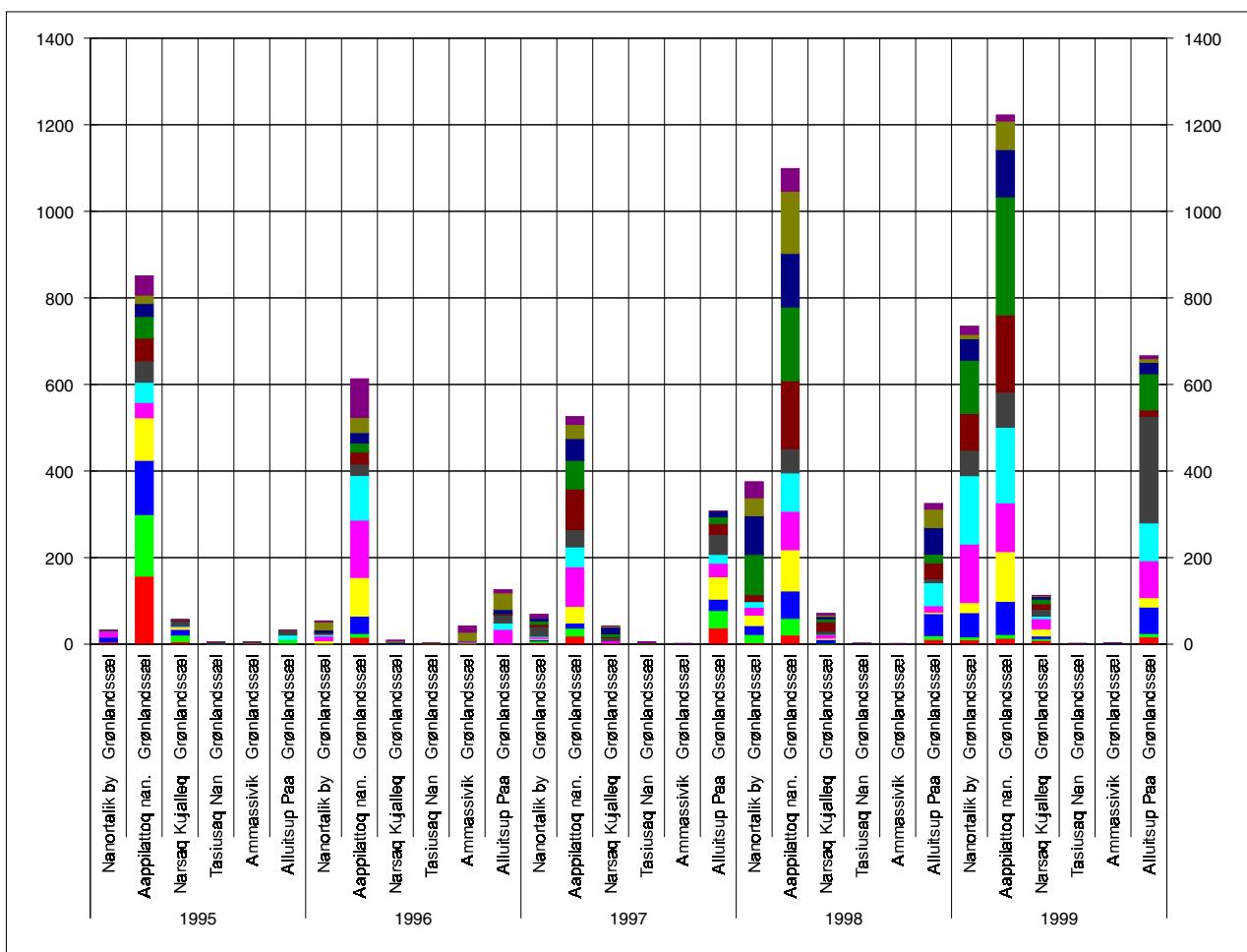


Figure 31. Harp seal. Number of skins per town/settlement per year.

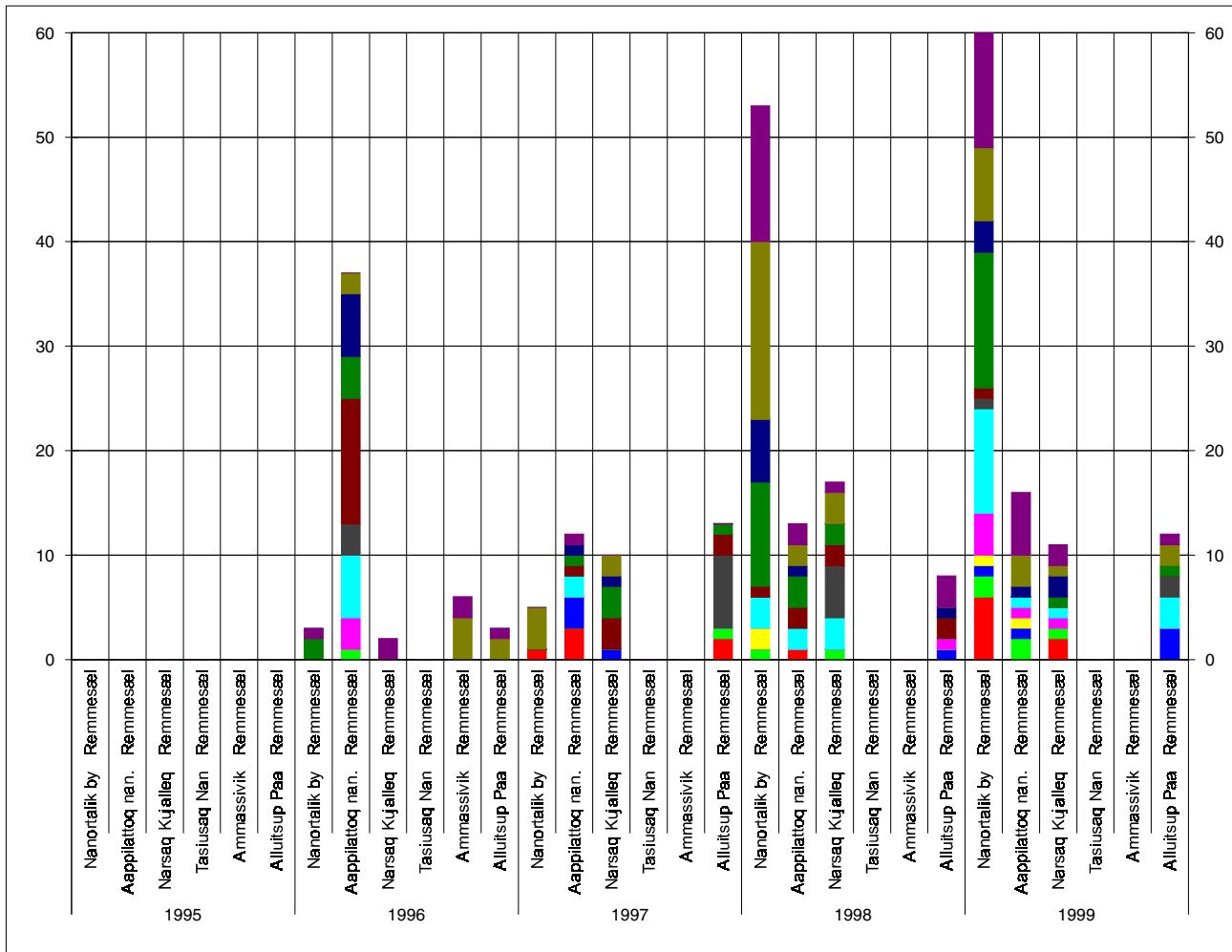


Figure 32. Bearded seal. Number of skins per town/settlement per year.

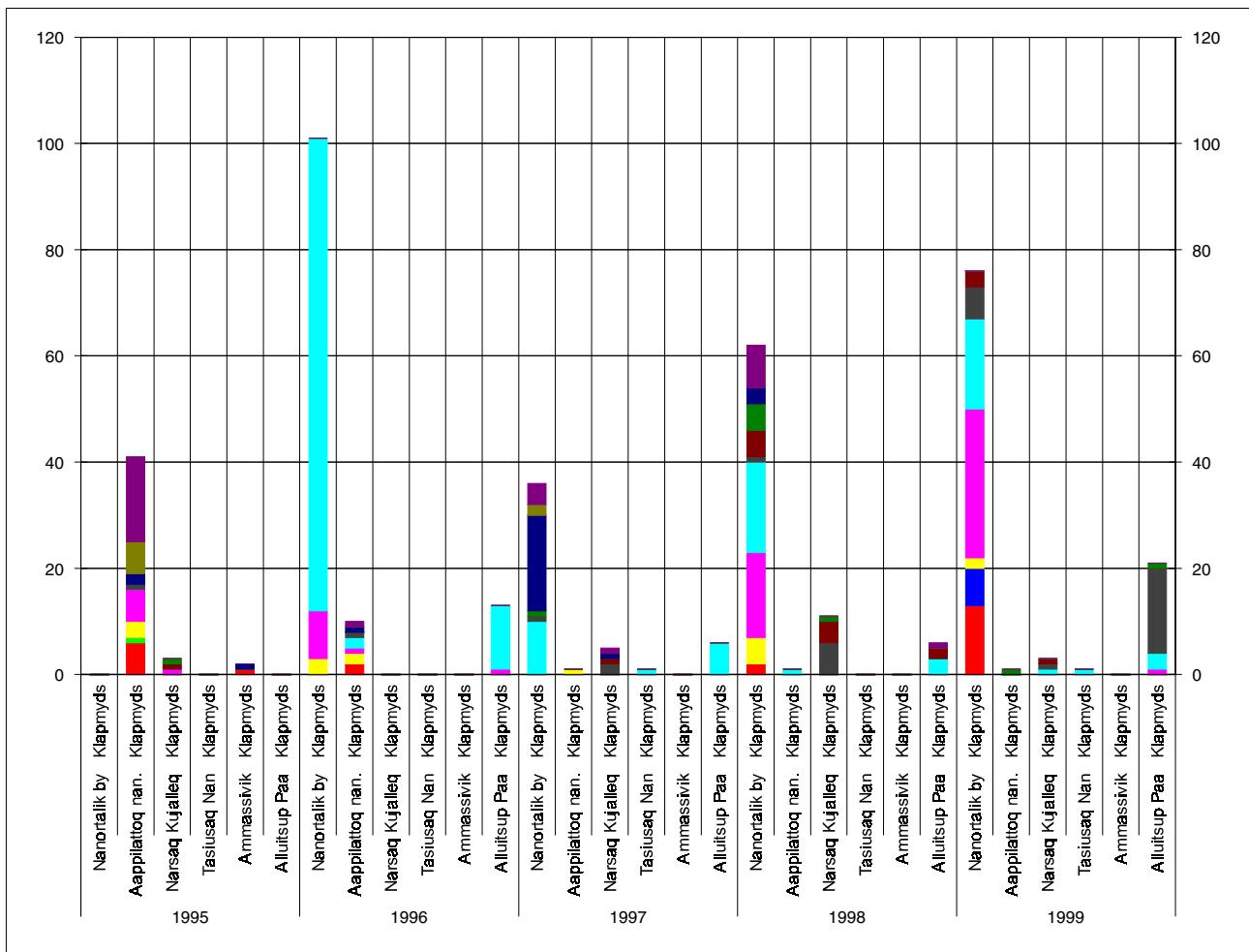


Figure 33. Hooded seal. Number of skins per town/settlement per year.

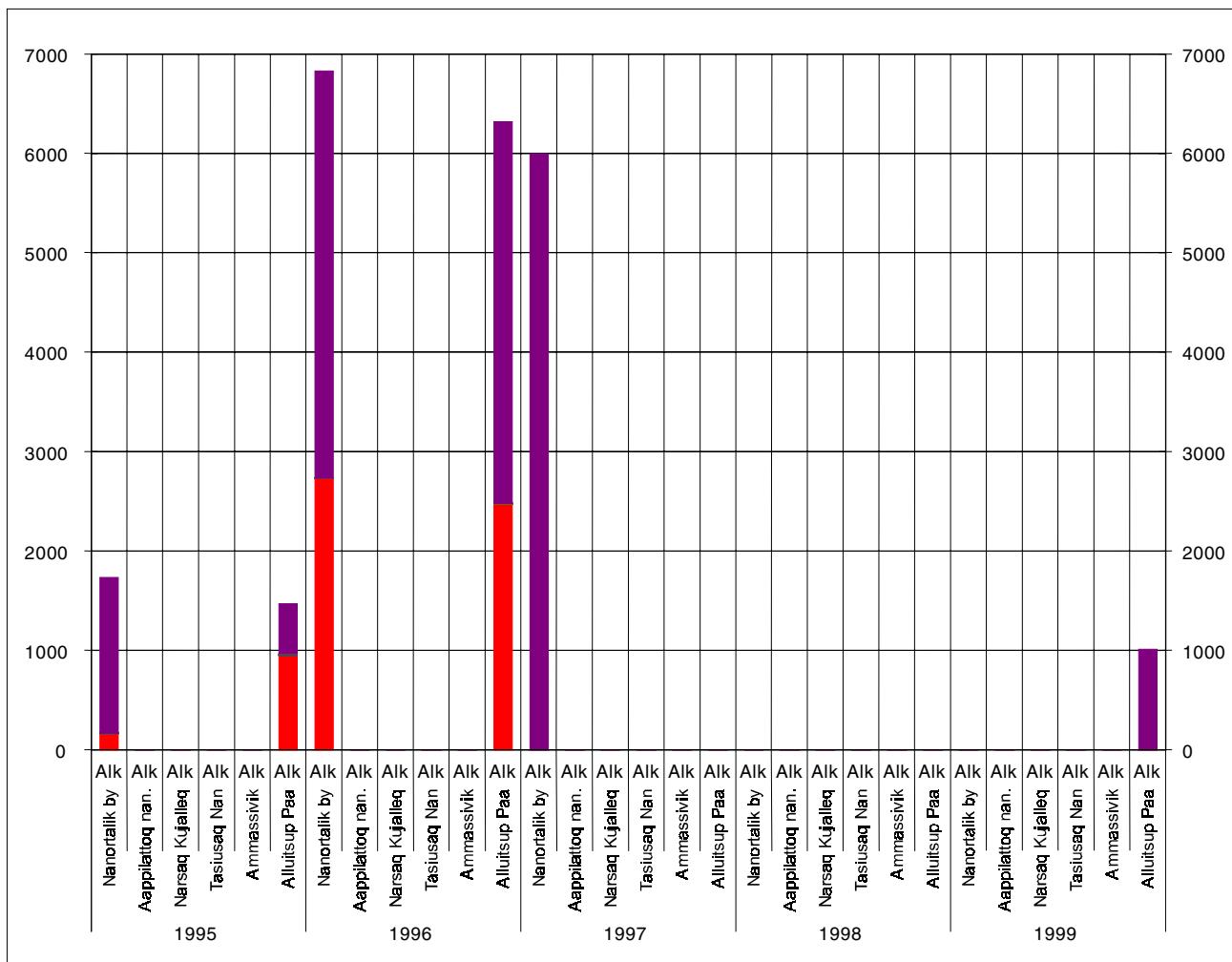


Figure 34. Brünnich's guillemot. Number of birds per town/settlement per year.

Appendix 2

Questionnaire

1. Personal information

Name

Address

Telephone no.

Occupation

2. Physical environment

1. Fast ice, where (map)

which months (e.g. November-March: 11-03)

2. Polar ice, problem areas (map)

which months (f. eks. March-May: 03-05)

3. Earth-quakes when

3. Fishery

1. Which important species: Atlantic cod, Greenland cod, Greenland halibut, Atlantic halibut, Spotted wolffish, Atlantic salmon, Arctic char, Capelin, Snow crab, Deep sea prawn

2. Which species are caught where (map)

3. How important is the area:

a) Most important (used by many fishermen each year /"owned" by a family)

b) Important (used most years)

c) Of no importance (used rarely)

4. When is the area used – indicate months (e.g. January-March: 01-03)

5. Equipment: boat type

Fishing tackle

6. What happen to the fish: a) traded

b) Sold at the local market place "Brædtet"

c) Own consumption

7. Capelin spawning grounds (map) – indicate period (e.g. 05-06)

4. Hunting

1. Which important species: Ringed seal, Harp seal, Harbour seal, Minke whale, Polar bear, Brünnich's guillemot, Eider

2. Which species are hunted where (map)

3. How important is the area:

- a) Most important (used by many hunters each year)
- b) Important (used most years)
- c) Of no importance (used rarely)

4. When is the area used– indicate months (e.g. January-March: 01-03)

5. Equipment: Nets, riffle, harpoon canon, other

6. What happen to the catching?

- a) Traded (hide)
- b) Sold at the local market place "Brædtet"
- c) Own consumption

5. Gathering

1. What is gathered: berries, herbs, hay, mussels, precious stones, and soapstone

2. Where are the above items gathered (map)

3. When are the above items gathered? Indicate months (e.g. June-September: 06-09)

6. Tourism

1. Which kind of tourists: on cruise liner, hiker, angler, hunter, other

2. Which areas are used (map) by the different kind of tourists

3. How important is the area:

- a) Most important (used by many tourists each year)
- b) Important (used by some tourists each year)
- c) Of no importance (used rarely)

4. Access to the area by: foot, dinghy, ship, helicopter, fixed winged aeroplane, seaplane

5. When is the area used? Indicate months (e.g. July-August: 07-08)

7. Recreation

1. Which areas are used by the locals (map)

2. How important is the area:

- a) Most important (used by many locals each year)
- b) Important (used by some locals each year)
- c) Of no importance (used rarely)

3. Have huts, houses, etc. been built in area (map) and approximately how many

4. Access to the area by: foot, dinghy, ship
5. When is the area used? Indicate months (e.g. July-August: 07-08)

8. Disturbances

1. Are there any disturbances in the area you use?
2. Which kind of disturbances
3. How often do the disturbances occur?

9. Information on other persons relevant to this study

1. Do you know of any persons who are able to give information on one or more of the issues above?

Appendix 3

Spørgeskema

1. Personlige oplysninger

Navn

Adresse

Telefon

Beskæftigelse

2. Fysiske forhold

1. Fastis hvor (kort)

hvilke måneder (f. eks. november-marts: 11-03)

2. Storis områder med problemer (kort)

hvilke måneder (f. eks. marts-maj: 03-05)

3. Jordskælv hvornår

3. Fiskeri

1. Hvilke arter af betydning: torsk (to), uvak (uv), hellefisk (hf), helleflynder (hy), havkat (ha), laks (la), fjeldørred (ør), ammassat (am), krabbe (kr), reje (re)

2. Hvor fanges hvilke arter (kort) – angiv artskode (se punkt 3.1)

3. Er området: a) meget vigtigt (benyttes af flere fiskere hvert

år/”ejes” af familie)

b) vigtigt (stedet benyttes de fleste år)

c) ikke vigtigt (stedet benyttes sjældent)

4. Hvornår benyttes området – angiv måneder (f. eks. januar-marts: 01-03)

5. Udstyr: bådtype

Grej

6. Hvordan bruges fisken: a) indhandles

b) sælges på ”Brædtet”

c) eget forbrug

7. Gydeområder for ammassat (kort) – angiv (amgy) samt periode (f. eks. 05-06)

4. Fangst

1. Hvilke arter af betydning: ringsæl (ri), grønlandssæl (gr), spættet sæl (sp), vågehval (vå), isbjørn (is), lomvie (alk) (al), ederfugl (ed)
2. Hvor fanges hvilke arter (kort) – angiv artskode (se punkt 4.1)
3. Er området: a) meget vigtigt (benyttes af flere fangere hvert år)
b) vigtigt (stedet benyttes de fleste år)
c) ikke vigtigt (stedet benyttes sjældent)
4. Hvornår benyttes området – angiv måneder (f. eks. januar-marts: 01-03)
5. Udstyr: Garn, riffel, harpukanon, andet
6. Hvordan bruges fangsten: a) indhandles (skind)
b) sælges på "Brædtet"
c) eget forbrug

5. Indsamling

1. Hvad samles der: bær (bær), urter (ur), hø (hø), muslinger (mu), smykkesten (smy), fedtsten (fe)
2. Hvor samles dette (kort) Angiv artskode (se punkt 5.1)
3. Hvornår samles der. Angiv måneder (f. eks. juni-september: 06-09)

6. Turisme

1. Hvilken type turist: krydstogt (kr), vandre (va), lystfisker (ly), jagt (ja), andet ()
2. Hvilke områder benyttes (kort) af hvilke turisttyper - angiv type (se punkt 3.1)
3. Er området: a) meget vigtigt (benyttes af mange turister hvert år)
b) vigtigt (benyttes af nogle turister hvert år)
c) lidt vigtigt (benyttes af få turister hvert år)
4. Adgang til områder: vandre (Tva), jolle (Tjo), skib (Tsk), helikopter (The), fastvinget fly (Tff), vandfly (Tvf)
5. Hvornår benyttes områderne. Angiv måneder (f. eks. juli-august: 07-08)

7. Rekreation

1. Hvilke områder benyttes af lokalbefolkningen (kort)
2. Er området: a) meget vigtigt (benyttes af mange personer hvert år)
b) vigtigt (benyttes af nogle personer hvert år)
c) lidt vigtigt (benyttes af få personer hvert år)
3. Er der opført hytter, huse m.v. i området (kort – angiv hyt) og ca. hvor mange
4. Adgang til områder: vandre (Rva), jolle (Rjo), skib (Rsk)
5. Hvornår benyttes områderne. Angiv måneder (f. eks. juli-august: 07-08)

8. Forstyrrelser

1. Er der forstyrrelser i det område du anvender.
2. Hvilke forstyrrelser
3. Hvor ofte forekommer de

9. Oplysning om andre relevante personer

1. Kender du personer der kan oplyse om ét eller flere af ovenstående emner

Appendix 4

Number of responses per chapter in sections 4 - 8

Chapter	Interviewed persons (no.)
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4.1 Atlantic salmon	14
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4.2 Arctic char	21
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4.3 Capelin	16
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4.4 Atlantic cod	15
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4.5 Greenland cod	16
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4.6 Spotted wolffish	14
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4.7 Greenland halibut	20
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4.8 Atlantic halibut	4
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4.9 Snow crab	18
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4.10 Deep sea prawn	6
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4.11 Other fish species	6
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5.1 Polar bear	16
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5.2 Harbour seal	2
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5.3 Ringed seal	17
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5.4 Harp seal	18
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5.5 Bearded seal	7
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5.6 Hooded seal	16
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5.7 Minke whale	17
-----------------	----

5.8 Other mammal species	9
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5.9 Eider	15
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5.10 Brünnich's guillemot	13
---------------------------	----

5.11 Other bird species	2
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6. Mussels	13
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6. Sea weed	7
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6. Precious stones and soap stones	0
6. Berries	1
6. Herbs	3
6. Hay	0
6. Root crops	1
6. Sea urchin	3
7. Sheep rearing	1
8 Cruise liners	2
8 Hikers	4
8 Anglers	1
8 Other tourist activities	2
9. Recreation	4
9. Disturbances	5

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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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Department of Arctic Environment
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Department of Coastal Zone Ecology

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The interview study was performed in the Nanortalik municipality, South Greenland, during March-April 2001. It is a part of an environmental baseline study done in relation to the Nalunaq gold project. 23 fishermen, hunters and others gave information on 11 fish species, Snow crab, Deep-sea prawn, five seal species, Polar bear, Minke whale and two bird species; moreover on gathering of mussels, seaweed etc., sheep farms, tourist localities and areas for recreation. Arctic char, Snow crab, Capelin and two sea bird species are important in the vicinity of the mine site.

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