Conservation of Arctic Flora and Fauna

CIRCUMPOLAR SEABIRD GROUP
CAFF

CAFF Assessment Series Report No. 13
December 2015

# ARCTIC SEABIRDS BREEDING IN THE AFRICAN-EURASIAN WATERBIRD AGREEMENT (AEWA) AREA

## STATUS AND TRENDS 2014

ARCTIC COUNCIL

The Conservation of Arctic Flora and Fauna (CAFF) is a Working Group of the Arctic Council.

***CAFF Designated Agencies:***

- Directorate for Nature Management, Trondheim, Norway
- Environment and Climate Change Canada, Ottawa, Canada
- Faroese Museum of Natural History, Tórshavn, Faroe Islands (Kingdom of Denmark)
- Finnish Ministry of the Environment, Helsinki, Finland
- Icelandic Institute of Natural History, Reykjavik, Iceland
- Ministry of Foreign Affairs, Greenland
- Russian Federation Ministry of Natural Resources, Moscow, Russia
- Swedish Environmental Protection Agency, Stockholm, Sweden
- United States Department of the Interior, Fish and Wildlife Service, Anchorage, Alaska

***CAFF Permanent Participant Organizations:***

- Aleut International Association (AIA)
- Arctic Athabaskan Council (AAC)
- Gwich'in Council International (GCI)
- Inuit Circumpolar Council (ICC)
- Russian Indigenous Peoples of the North (RAIPON)
- Saami Council

**Author**
Per-Arvid Berglund
Jonas Hentati-Sundberg

**Layout**
Courtney Price

This publication should be cited as:
Berglund, P-A. and J. Hentati-Sundberg. 2015. Arctic Seabirds Breeding In The African-Eurasian Waterbird Agreement (AEWA) Area: Status and Trends 2014. CAFF's Circumpolar Seabird expert group (CBird), CAFF Assessment Series Report No. 13, December 2015, CAFF International Secretariat, Akureyri, Iceland. ISBN 978-9935-431-57-8.

The author would like to thank all contributors to this report: The Circumpolar Seabird Group (CBIRD),Aevar Petersen, Aili Labansen, Arnthor Gardarsson, Bergur Olsen, Bernard Cadiou, David Boertmann, David Schönberg-Alm, Hallvard Strøm, Hario Martti, Javier Franco, Jochen Dierschke, Jon Hidalgo, Leho Luigujoe, Mia Rönkä, Natalia Nikolaeva, Peter Lyngs, Ravn Merkel Flemming, Roddy Mavor, Sverrir Thorstensen, Thomas Bregnballe, Tony Gaston, Tycho Anker-Nilssen and Yuri Artukhin.

Cover photo: Incredible Arctic/Shutterstock.com
Back cover photo: Eric Issele/Shutterstock.com

For more information please contact:
*CAFF International Secretariat*
*Borgir, Nordurslod*
*600 Akureyri, Iceland*
*Phone: +354 462-3350*
*Fax: +354 462-3390*
*Email: caff@caff.is*
*Internet: http://www.caff.is*


CAFF Designated Area

WETLANDS INTERNATIONAL

AEWA

CAFF Conservation of Arctic Flora and Fauna

# Table of Contents

# 1. INTRODUCTION

This report summarizes population status and trends for 19 populations of Arctic seabirds within the AEWA area. It is a 2014 update of the 2011 CAFF report that was compiled as an input to the 2012 African-Eurasian Waterbird Agreement (AEWA) Report on the Conservation Status of Migratory Birds in the Agreement Area (abbreviated Conservation Status Report, CSR) being prepared by Wetlands International (32, 57). A yet earlier CSR report (CSR4) was published in 2008 and contained no detailed information of the status and trends of the Arctic seabird population analyzed in this report. Thus, this is a second effort to summarize status and trends of Arctic seabirds in the agreement area. The report format including the tables follow AEWA CSR conventions, i.e. population sizes are expressed in individuals and trend calculations and status categories are based on AEWA guidelines. The AEWA agreement text, Action Plan and previous CRS Reports are available at: www.unep-aewa.org (57).

Abundance estimates in this report have largely been based on counts of breeding birds or occupied nests in colonies, which is the most usually applied method when conducting a census of colonial seabirds. Compared too many other bird species, the counts of breeding colonial seabirds generally tend to be relatively close to the actual numbers, as the birds often breed in distinguished areas, and census techniques for colonial seabirds have been developed over a long historical period. The quality classifications of the population estimates for many of the species within this report thus land somewhere between the two highest quality codes listed by AEWA: ”expert opinion” (”Population estimate is based on incomplete survey and monitoring data and population size has been involved employing some expert opinion for extrapolating from this data […])” and ”census based” (”Population estimate is based on almost complete census or statistically adequate sampling”). According to previous AEWA data” the majority of the population estimates are based on counts, but extrapolated using expert opinion instead of any formal statistical procedures. Only 5% of the population estimates are based on comprehensive censuses. This group consists of either localised goose or swan populations in Northwest Europe or concerns highly localised species subject to intensive conservation efforts (e.g. Northern Bald Ibis)” (57). This report will thus use ”expert opinion” as classification for most population estimates, however the quality might sometimes be bordering to the classification code ”census based”.

As AEWA uses individuals rather than breeding pairs for population numbers, numbers originally reported as pairs or occupied nests have according to AEWA standards been multiplied with 3 to get number of individuals (57). However, to simplify the overview in this report, these numbers have also been divided back to show population estimates as breeding pairs. Trends have been calculated using published data from national monitoring programs and national censuses, as well as some previously unpublished data and direct input from national experts. For several countries, no new censuses have been conducted since the 2012 report and the population trends are largely the same as in the last report. New national censuses are for instance planned for Norway and the British Isles in the coming years. For more detailed information regarding geographical breeding ranges and some historical population changes for the different species, see the CAFF 2011 report (32). Total numbers and trends for the species in the AEWA region are to be found in the table at the appendix of this report.


Dan Landwehrle/Shutterstock.com

# 2. STATUS AND TRENDS

## 2.1 Northern Gannet *Morus bassana*

The largest population of the Northern Gannet is found in UK and Ireland with 786 000 individuals (36), followed by Iceland with 94 500 individuals (22). The species is increasing in all countries in the AEWA area except in France where the population is considered stable (55).

| Country | Pairs | Individuals | Source | Est. year |
|---|---|---|---|---|
| Faroes | 2300 | 7000 | 48 | 1995 |
| France | 19000 | 58000 | 55 | 2013 |
| Germany | 630 | 1900 | 16 | 2013 |
| Iceland | 31500 | 94500 | 22 | 2006-2008 |
| Norway mainland | 4500 | 13500 | 5 | 2005 |
| Russia | 350 | 1000 | 70 | 2012 |
| UK + Ireland | 262000 | 786000 | 36 | 1998-2002 |

Northern Gannet by Alan D. Wilson

## 2.2 Great Skua *Catharacta skua*

Also the Great Skua has its largest population in the British Isles with 29 000 individuals (36), Iceland holding the second largest population at around 16 000 individuals (42). The species is considered increasing in most countries, but probably declining in Iceland in the last decade (42).

| Country | Pairs | Individuals | Source | Est. year |
|---|---|---|---|---|
| Faroes | 500 | 1500 | 35 | 2005 |
| Iceland | 5300 | 16000 | 42 | 1984-1985 |
| Jan Mayen | 20 | 60 | 21 | 2010 |
| Norway mainland | 115 | 345 | 5 | 2005 |
| Russia | 100 | 300 | 67 | 2012 |
| Svalbard | 1000 | 3000 | 1 | 2000 |
| UK + Ireland | 9600 | 29000 | 36 | 1998-2002 |

Great Skua Photo by Psychofox, Wikipedia

## 2.3 Long-tailed Skua *Stercorarius longicaudus*

The breeding population in Scandinavia and W Russia belongs to the nominate subspecies longicaudus whereas the Long-tailed Skuas in Greenland, North America and E Russia belongs to the pallescens subspecies (14). Consequently, the AEWA area covers the whole world population of longicaudus but only parts of the world population of pallescens. This analysis covers the two subspecies jointly for the whole AEWA area. Long-tailed Skua typically fluctuates in numbers and is difficult to survey; it is thus difficult to obtain good estimates on population sizes and trends.

There are big uncertainties regarding the population sizes and trends reported from different countries. The largest populations are possibly found in the AEWA part of Russia, Greenland and mainland Norway. The population in Sweden is stable but data quality is poor (50). There is no recent trend estimates reported for Finland, Norway or Canada. In Greenland, Long-tailed Skua is decreasing after years of fluctuating numbers (8, 30).

| Country | Pairs | Individuals | Source | Est. year |
|---|---|---|---|---|
| Canada | 3300 | 10000 | 28 | 2011 |
| Finland | 100-5000 | 300-15000 | 64 | 2011 |
| Greenland | 1000-20000 | 3000-60000 | 8, 30 | 2007 |
| Iceland | 2-3 | 7 | 33 | 2013 |
| Norway mainland | 1000-5000 | 3000-15000 | 62 | 1994 |
| Russia | 10000-20000 | 30000-60000 | 72 | 2012 |
| Sweden | 13000 | 39000 | 50 | 2012 |

Long Tailed Skua by Jerzy Strzelecki

## 2.4 Black-legged Kittiwake *Rissa tridactyla*

Within the AEWA area, Black-legged Kittiwake has its biggest breeding populations in Iceland (1 800 000 individuals) (25, 54), British Isles (1 250 000 individuals) (36) and Norway mainland (1 000 000 individuals) (5). The exact numbers for Russia are unclear, and the estimation ranges from 300 000 to 1 500 000 individuals (71).

Among many of the countries with the highest population numbers, Black-legged Kittiwake is declining. This is true for Iceland (25, 54), the British Isles (36), mainland Norway (5) and the Faroe Islands (48). The Arctic Canada population is however increasing with approximately 1 % per year (44, 45), and the population in Greenland has seen a recent increase (40, 41). The total decline within the AEWA area fulfils the AEWA criteria for categorization as Significant Long-term Decline.

| Country | Pairs | Individuals | Source | Est. year |
|---|---|---|---|---|
| Canada | 109000 | 328000 | 44, 45 | 2008 |
| Denmark | 500 | 1500 | 10 | 2012 |
| Faroes | 160000 | 480000 | 48 | 1997-1999 |
| France | 5000 | 15000 | 12, 13 | 2010 |
| Germany | 6000 | 18000 | 16 | 2013 |
| Greenland | 128600 | 386000 | 40, 41 | 2011 |
| Iceland | 600000 | 1800000 | 25, 54 | 2005-2009 |
| Jan Mayen | 4300-18000 | 13000-53000 | 6 | 2010 |
| Norway mainland | 336000 | 1008000 | 5 | 2005 |
| Russia | 100000-500000 | 300000-1500000 | 71 | 2012 |
| Spain | 2 | 6 | 63 | 2013 |
| Svalbard | 270000 | 810000 | 1 | 2000 |
| Sweden | 37 | 111 | 50 | 2012 |
| UK + Ireland | 416000 | 1248000 | 36 | 1998-2002 |

Black Legged Kittiwake by Steve Hillebrand

# 2.5 Little Auk *Alle alle*

Greenland hosts the biggest population with an estimated 114 million to 130 million individuals, however these estimates are not very recent (17, 39). There are also big numbers of Little auks breeding in Svalbard (≈ 3 million individuals) (1), Russia (300 000 – 1 500 000 pairs) (66) and Jan Mayen (90 000 individuals) (1). Trends are unknown for all breeding areas. Despite the great variability in population size estimates, Little auk is without doubt the most abundant seabird in the Northern hemisphere.

| Country | Pairs | Individuals | Source | Est. year |
|---|---|---|---|---|
| Canada | 330 | 1000 | 20 | 1984 |
| Greenland | 38000000-43000000 | 114000000-129000000 | 17, 39 | 1985-1998 |
| Jan Mayen | 30000 | 90000 | 1 | 2010 |
| Russia | 100000-500000 | 300000-1500000 | 66 | 2012 |
| Svalbard | 1000000 | 3000000 | 1 | 2000 |

Little Auk by Carsten Egevang/ARC-PIC.COM

# 2.6 Common Guillemot *Uria aalge*

Five subspecies are recognized, of which three are present in the AEWA area:

## 2.6.1 ssp. *aalge*

Within the AEWA area, the highest numbers are in Scotland (2 347 000 individuals) (36), Iceland (2 070 000) (23, 34) and Faroes (300 000 individuals) (48). On the Norway mainland, the *aalge* subspecies is according to the literature distributed in Central and Southern Norway, to be replaced by hyperborea further north, although the exact distribution is not clear. According to this geographical delineation for subspecies, the number of breeding *aalge* on the Norway mainland (in the Norwegian Sea and North Sea areas) could be calculated to about 15 500 pairs (5).

In the Baltic Sea, the Common Guillemot is distributed between Sweden (58 000 individuals) (31, 50), Denmark (8 400) (43), and Finland (105-210) (64).

In the core distribution area, the North Atlantic, ssp. *aalge* is declining. The population in Iceland is declining after many previous decades of increase (23, 34), and the populations in Scotland, Norway and the Faroes are also declining (36, 5, 48). In the Baltic Sea however, Common Guillemot is increasing in Sweden (also previous estimates were probably too low) (31, 50), Finland (64) and Denmark (43). The overall decline within the AEWA area fulfils the criteria for categorization as Significant Long-term Decline.

| Country | Pairs | Individuals | Source | Est. year |
|---|---|---|---|---|
| Denmark | 2800 | 8400 | 43 | 2009 |
| Faroes | 100000 | 300000 | 48 | 1997-1999 |
| Finland | 35-70 | 105-210 | 64 | 2011 |
| Greenland | 1260 | 3800 | 46 | 2011 |
| Iceland | 690000 | 2070000 | 23, 34 | 2005-08 |
| Norway mainland | 0-5000 | 0-16000 | 5 | 2005 |
| Sweden | 20000 | 58000 | 31, 50 | 2012 |
| Scotland | 782000 | 2347000 | 36 | 1998-2002 |

### 2.6.2 ssp. *albionis*

The subspecies *albionis* has a restricted range in Britain and Ireland (not including Scotland) Helgoland, France (Brittany) and the Iberian Peninsula (14). The whole world population of *Uria aalge albionis* breed within the AEWA area. The majority of the birds are on the British Isles (787 000 individuals) (36) followed by Germany (7 700 individuals at Helgoland) (16). In the core area in the British Isles, Uria aalge albionis is increasing (36) and the German population is stable (16).

| Country | Pairs | Individuals | Source | Est. year |
|---|---|---|---|---|
| France | 300 | 950 | 12 | 2013 |
| Germany | 2600 | 7700 | 16 | 2013 |
| Portugal | 3 | 9 | 2 | 2008 |
| Spain | 2 | 6 | 49 | 2007 |
| UK + Ireland | 262000 | 787000 | 36 | 1998-2002 |

### 2.6.3 ssp. *hyperborea*

*Uria aalge hyperborea* replaces aalge N of approx. 69°N and breed in North Norway, Svalbard and W Russia. The population consists of approximately 300 000 individuals in Svalbard (1), N Norway (Barents Sea area) (< 30 000 individuals) (5), Russia (6000 – 12 000 individuals) (73) and Jan Mayen (1 500 – 3 000 individuals) (62).

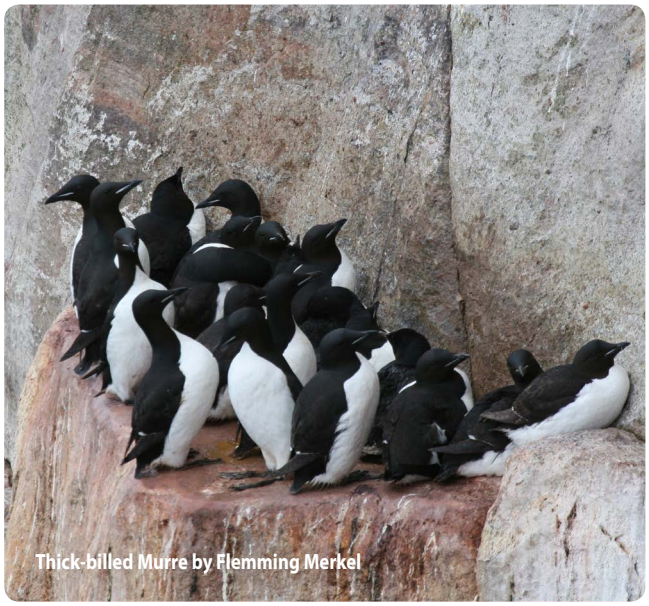
Subspecies *hyperborea* has been increasing in Svalbard (1) and is recently fluctuating in Russia (73). The population in mainland Norway is declining according to the most recent data from 2005 (5).

| Country | Pairs | Individuals | Source | Est. year |
|---|---|---|---|---|
| Jan Mayen | 500-1000 | 1500-3000 | 62 | 1998 |
| Norway mainland | 0-10000 | 0-30000 | 5 | 2005 |
| Russia | 2000-4000 | 6000-12000 | 73 | 2012 |
| Svalbard | 100000 | 300000 | 1 | 2000 |

## 2.7 Brünnich's Guillemot *Uria lomvia*

The countries with the biggest population in the AEWA area are Svalbard (2 550 000 individuals) (1) and Arctic Canada (2 040 000) (27, 28). Monitoring of Brünnich's Guillemot indicate declines in most of its range in the AEWA region, though an increase have been seen in Canada with approximately 1 % per year (27, 28). Overall, on the whole population scale, the population show a significant long-term decline according to the AEWA criteria.

| Country | Pairs | Individuals | Source | Est. year |
|---|---|---|---|---|
| Canada | 680000 | 2040000 | 27, 28 | 2010 |
| Greenland | 342000 | 1026000 | 46 | 2011 |
| Iceland | 325000 | 975000 | 23, 34 | 2005-2008 |
| Jan Mayen | 74000-147000 | 222000-441000 | 6 | 1986 |
| Norway mainland | 1500 | 4500 | 5 | 2005 |
| Russia | 166666-333333 | 500000-1000000 | 74 | 2012 |
| Svalbard | 850000 | 2550000 | 1 | 2000 |



Thick-billed Murre by Flemming Merkel

# 2.8 Razorbill *Alca torda*

Two subspecies are recognized, both having their complete distribution within the AEWA area.

## 2.8.1 ssp. *torda*

The strongholds for ssp. *torda* are the Norway mainland (76 000 individuals) (5) and Greenland (9000-18 000) (52). Recent trend information for those countries is lacking. The torda subspecies also has a strongly increasing population in the Baltic Sea, with 78 000 individuals distributed along the coasts of Sweden (50), and 21 000-25 500 individuals in Finland (64).

| Country | Pairs | Individuals | Source | Est. year |
|---|---|---|---|---|
| Canada | 680000 | 2040000 | 27, 28 | 2010 |
| Canada | 330 | 1000 | 28 | 2010 |
| Denmark | 1200 | 3600 | 3, 43 | 2009 |
| Estonia | 1-10 | 3-30 | 18 | 2013 |
| Finland | 7000-8500 | 21000-25500 | 64 | 2011 |
| Greenland | 3000-6000 | 9000-18000 | 52 | 2004 |
| Jan Mayen | 100 | 300 | 62 | 1998 |
| Norway mainland | 25000 | 76000 | 5 | 2005 |
| Russia | 830-3300 | 2500-10000 | 65 | 2012 |
| Svalbard | 100 | 300 | 1 | 2000 |
| Sweden | 26000 | 78000 | 50 | 2012 |

## 2.8.2 ssp. *islandica*

The subspecies *islandica* has its core breeding area in Iceland (930 000 individuals) (23, 34) and on the British Isles (434 000) (36). *Alca torda islandica* is decreasing in numbers in Iceland after many years of increase (23, 34). In the British Isles the population is classified as stable, it is increasing in France, and increasing or at least stable in Germany (36, 12, and 16). In the Faroes no new numbers since 1987 are available (29).

| Country | Pairs | Individuals | Source | Est. year |
|---|---|---|---|---|
| Faroes | 4500 | 13500 | 29 | 1987 |
| France | 51 | 153 | 12 | 2013 |
| Germany | 57 | 171 | 16 | 2013 |
| Iceland | 310000 | 930000 | 23, 34 | 2005-2008 |
| UK + Ireland | 144000 | 434000 | 36 | 1998-2002 |

Razorbill by GSD97JKS, Wikipedia

# 2.9 Black Guillemot *Cepphus grylle*

Black Guillemot has a circumpolar distribution. This species breed less concentrated than the other alcid species and is thus more difficult to monitor. Population status and trend data is reported here is relatively uncertain. Five subspecies are recognized, and all of them occur within the AEWA area.

## 2.9.1 *ssp. grylle*

The nominate subspecies breeds in the Baltic Sea, with 51 000-60 000 individuals in Finland (64), 26 000 individuals in Sweden (50) and 30-60 individuals in Estonia (18). The population is declining in Sweden, and stable in Finland and Estonia. The population within the AEWA region is the whole world population of this subspecies.

| Country | Pairs | Individuals | Source | Est. year |
|---|---|---|---|---|
| Estonia | 10-20 | 30-60 | 18 | 2013 |
| Finland | 17000-20000 | 51000-60000 | 64 | 2011 |
| Sweden | 8700 | 26000 | 50 | 2012 |

## 2.9.2 *ssp. mandtii*

The highest numbers are in Arctic Canada with an estimated number of 250 000 individuals (26, 28). Large numbers do also breed in Svalbard (60 000 individuals) (1), Greenland (30 000 – 60 000) (9) and Russia (27 000-33 000) (60). Proper trend information is lacking from the breeding areas.

| Country | Pairs | Individuals | Source | Est. year |
|---|---|---|---|---|
| Greenland | 10000-20000 | 30000-60000 | 9 | 2010 |
| Canada | 83000 | 250000 | 26, 28 | 1996 |
| Jan Mayen | 100 | 300 | 19 | 1984 |
| Russia | 9000-11000 | 27000-33000 | 60 | 2009 |
| Svalbard | 20000 | 60000 | 1 | 2013 |

### 2.9.3 ssp. *arcticus*

The delineation between mandtii and arcticus in Greenland is not completely clear (7). Most *Cepphus grylle arcticus* breed in S Greenland (540 000–570 000 individuals) (9) and on the Norway mainland (106 000) (5). Good trend data is lacking for some of the countries having the largest breeding populations. In Greenland, Black guillemot is probably stable (9) and it is stable also in the British Isles (36). The trend is not known for the Norwegian mainland population. The Danish population is increasing (3, 4) and the Swedish West coast population is probably stable (50), although Swedish long-term monitoring data is lacking.

| Country | Pairs | Individuals | Source | Est. year |
|---|---|---|---|---|
| Denmark | 1300-1400 | 3800-4300 | 3, 4 | 2012 |
| Greenland | 180000-190000 | 540000-570000 | 9 | 2010 |
| Norway mainland | 35000 | 106000 | 5 | 2005 |
| Russia | 1000-20000 | 3000-60000 | 68 | 2012 |
| Sweden | 1300 | 3900 | 50 | 2010 |
| UK + Ireland | 21000 | 64000 | 36 | 1998-2002 |

### 2.9.4 ssp. *islandicus*

This subspecies does only breed in Iceland, the estimated population size is 30 000-45 000 individuals, and the population has exhibited a significant long-term decline (37, 38, 53, 54).

| Country | Pairs | Individuals | Source | Est. year |
|---|---|---|---|---|
| Iceland | 10000-15000 | 30000-45000 | 37, 38, 53, 54 | 2013 |

### 2.9.5 ssp. *faeroeensis*

This subspecies breed on the Faroes only, and data from the late 1980s suggest a total population of about 10 500 individuals (29). No recent data on numbers or the trend of this population is available.

| Country | Pairs | Individuals | Source | Est. year |
|---|---|---|---|---|
| Faroes | 3500 | 10500 | 29 | 1987 |


Black Gullemot by Henrik Thorburn

# 2.10 Atlantic Puffin *Fratercula arctica*

There is doubt whether Atlantic Puffin has true subspecies - the morphometric variation observed does indicate a clinal variation rather than discrete populations. Many authors, including recommendations from the British Trust for Ornithology, have suggested treating Atlantic Puffin as monotypic (58). A publication from the British Seabird 2000 census treats ssp. *grabae* and *arctica* jointly and naumanni as a separate subspecies (47).

Three subspecies are still considered in the Howard and Moore Checklist of the Birds of the World (15): *naumanni*, *arctica* and *grabae*, which all have their main breeding areas within the AEWA region:

## 2.10.1 ssp. *naumanni*

Breeding in larger numbers occur in Svalbard (30 000 individuals) (1), Jan Mayen (3 000 individuals) (62), and Arctic Canada (< 1 000 individuals) (28). The trends are basically unknown for all areas.

| Country | Pairs | Individuals | Source | Est. year |
|---|---|---|---|---|
| Canada | 300 | 1000 | 28 | 2010 |
| Greenland | 100-200 | 300-600 | 9 | 2010 |
| Jan Mayen | 1000 | 3000 | 62 | 1998 |
| Russia | 100 | 300 | 60 | 2009 |
| Svalbard | 10000 | 30000 | 1 | 2000 |
| UK + Ireland | 21000 | 64000 | 36 | 1998-2002 |

## 2.10.2 ssp. *arctica*

Subspecies arctica is distributed between the Northern area of ssp. naumanni and the southern areas of ssp. grabae. The main breeding areas are in Iceland (7-10 million individuals) (11, 24) and the Norwegian mainland (5 100 000) (5).

The trends for arctica are different between regions, with decline in Iceland (11, 24) and Greenland (9), fluctuations in Russia (69), and trends being unknown for Norway mainland and Bear Island.

| Country | Pairs | Individuals | Source | Est. year |
|---|---|---|---|---|
| Bear Island | 200 | 600 | 59 | 2006 |
| Greenland | 3000-5000 | 9000-15000 | 9 | 2010 |
| Iceland | 2333000-3333000 | 7000000-10000000 | 11, 24 | 2013 |
| Norway mainland | 1700000 | 5100000 | 5 | 2005 |
| Russia | 1500-6000 | 4500-18000 | 69 | 2012 |

## 2.10.3 ssp. *grabae*

Subspecies *grabae* is the southernmost distributed Atlantic Puffin subspecies with the largest colonies in the British Isles (1 800 000 individuals) (36) and the Faroes (1 650 000) (29).

The trend for the British Isles population is unknown, but it is possibly declining. There is also no recent trend information available for the Faroes population, and the trends for the other countries are not clear.

| Country | Pairs | Individuals | Source | Est. year |
|---|---|---|---|---|
| Faroes | 550000 | 1650000 | 29 | 1987 |
| France | 178 | 534 | 55 | 2013 |
| Norway mainland | 14000 | 42000 | 5 | 2005 |
| UK + Ireland | 600000 | 1800000 | 36 | 1998-2002 |

Atlantic Puffin by Mark Marissink

# 3. TABLES

# *Table 1: Status and trends of Arctic seabird populations*

| Population Name | N | Years | Quality of population estimates | Population estimate 2014 | Ref population estimates | N | Years | Quality of trend estimates | Trend | Ref trend estimates | Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Morus bassanus* | x | 1995-2013 | Expert opinion | 962,000 | 5, 16, 22, 36, 48, 55, 70 | | 2003-2013 | Reasonable | Increase | 5, 16, 22, 36, 48, 55, 70 | Population estimates mainly based on means or in some areas more or less exact counts |
| *Catharacta skua* | x | 1985-2012 | Expert opinion | 50,000 | 1, 5, 21, 35, 36, 42, 67 | | 2002-2012 | Reasonable | (Increasing) | 1, 5, 21, 35, 36, 42, 67 | Probably declining in Iceland. Population estimates mainly based on means or in some areas more or less exact counts |
| *Stercorarius longicaudus* | x | 1994-2013 | Best guess | 85 000 - 194 000 | 8, 28, 30, 33, 50, 56, 62, 64, 72 | x | - | No idea | Unknown | 8, 28, 30, 33, 50, 56, 62, 64, 72 | Lack of good data |
| *Rissa tridactyla* | x | 1997-2013 | Expert opinion | 6 400 000 - 7 600 000 | 1, 5, 6, 10, 12, 13, 16, 25, 36, 40, 41, 44, 45, 48, 50, 54, 63, 71 | | 2003-2013 | Reasonable | (Decline) | 1, 5, 6, 10, 12, 13, 16, 25, 36, 40, 41, 44, 45, 48, 50, 54, 63, 71 | Sign of decline. Recent increase in Greenland |
| *Alle alle* | | 1985-2012 | Expert opinion | 117 000 000 - 133 000 000 | 1, 17, 20, 39, 66 | | - | No idea | Unknown | 1, 17, 20, 39, 66 | Little new data |
| *Uria aalge aalge* | x | 1997-2014 | Expert opinion | 4 800 000 | 5, 23, 31, 34, 36, 43, 46, 48, 50, 64 | | 2004-2014 | Reasonable | Decline | 5, 23, 31, 34, 36, 43, 46, 48, 50, 64 | Sign lt decline. Increase Baltic Sea, decline elsewhere. Population estimates mainly based on means or in some areas more or less exact counts |
| *Uria aalge albionis* | | 2002-2013 | Expert opinion | 800,000 | 2, 12, 16, 36, 49 | | 2003-2013 | Reasonable | Increasing | 2, 12, 16, 36, 49 | Increase in British Isles, big population. Population estimates mainly based on means or in some areas more or less exact counts |
| *Uria aalge hyperborea* | x | 1998-2012 | Expert opinion | 300 000 - 345 000 | 1, 5, 62, 73 | x | 2002-2012 | Poor | Unknown | 1, 5, 62, 73 | Mix of unknown, increase, decline and fluctuating |
| *Uria lomvia* | x | 1986-2012 | Expert opinion | 7 300 000 - 8 000 000 | 1, 5, 6, 23, 27, 28, 34, 46, 74 | | 2002-2012 | Reasonable | Decline | 1, 5, 6, 23, 27, 28, 34, 46, 74 | Sign lt decline |

| Population Name | N | Years | Quality of population estimates | Population estimate 2014 | Ref population estimates | N | Years | Quality of trend estimates | Trend | Ref trend estimates | Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Alca torda torda* | x | 1998-2013 | Expert opinion | 192 000 - 209 000 | 1, 3, 5, 18, 28, 29, 43, 50, 52, 64, 65 | | 2003-2013 | Poor | (Increasing) | 1, 3, 5, 18, 28, 29, 43, 50, 52, 64, 65 | Increasing/stable in most areas, but unknown for prominent areas like Norway and Greenland |
| *Alca torda islandica* | | 1987-2013 | Expert opinion | 1,380,000 | 12, 16, 23, 29, 34, 36 | x | 2003-2013 | Reasonable | (Stable) | 12, 16, 23, 29, 34, 36 | Stable UK/Ireland, smaller decline on Iceland & possibly Faroes. Population estimates mainly based on means or in some areas more or less exact counts |
| *Cepphus grylle grylle* | x | 2010-2013 | Expert opinion | 66 000-80 000 | 18, 50, 64 | x | 2003-2013 | Reasonable | Declining | 18, 50, 64 | Stable in Finland. Population estimates mainly based on means or in some areas more or less exact counts |
| *Cepphus grylle mandtii* | x | 1984-2013 | Expert opinion | 367 000 - 400 000 | 1, 9, 19, 26, 28, 60 | | - | No idea | Unknown | 1, 9, 19, 26, 28, 60 | Trend unknown for most areas |
| *Cepphus grylle arcticus* | x | 2002-2012 | Expert opinion | 720 000 - 810 000 | 3, 5, 9, 38, 50, 68 | | 2002-2012 | Reasonable | (Stable) | 3, 5, 9, 38, 50, 68 | Mix of unknown, increase, stable |
| *Cepphus grylle islandicus* | | 2000-2013 | Expert opinion | 30 000 - 45 000 | 37, 38, 53, 54 | | 2003-2013 | Reasonable | Declining | 37, 38, 53, 54 | Sign lt decline. |
| *Cepphus grylle faeroeensis* | | 1987 | Expert opinion | 10 000 | 29 | | - | Poor | Unknown | 29 | No new data. Population estimates based on means |
| *Fratercula arctica arctica* | x | 2005-2013 | Expert opinion | 12 000 000 - 15 000 000 | 5, 9, 11, 24, 59, 69 | | 2003-2013 | Reasonable | (Decline) | 5, 9, 11, 24, 59, 69 | Fluctuating in Russia, unknown in Norway & Bear Island |
| *Fratercula arctica naumanni* | | 1998-2010 | Expert opinion | 35 000 | 1, 9, 28, 60, 62 | | - | No idea | Unknown | 1, 9, 28, 60, 62 | No new data. Population estimates mainly based on means or in some areas more or less exact counts |
| *Fratercula arctica grabae* | | 1987-2013 | Expert opinion | 3,500,000 | 5, 29, 36, 55 | x | - | No idea | Unknown | 5, 29, 36, 55 | Not enough new data. Population estimates mainly based on means or in some areas more or less exact counts |

# Table 2: Current status of Arctic seabird populations according to AEWA criteria and status judgement from the previous assessment (2011)

| Population | Status 2011 | Status 2014 |
|---|---|---|
| *Morus bassanus* | C1 | C1 |
| *Catharacta skua* | B1 | B1 |
| *Stercorarius longicaudatus* | C1 | C1 |
| *Rissa tridachtyla* | B2c | B2c |
| *Alle alle* | C1 | C1 |
| *Uria aalge aalge* | B2c | B2c |
| *Uria aalge albionis* | C1 | C1 |
| *Uria aalge hyperborea* | C1 | C1 |
| *Uria lomvia* | B2c | B2c |
| *Alca torda torda* | C1 | C1 |
| *Alca torda islandicus* | C1 | C1 |
| *Cepphus grylle grylle* | B1 | B1 |
| *Cepphus grylle mandtii* | C1 | C1 |
| *Cepphus grylle arcticus* | C1 | C1 |
| *Cepphus grylle islandicus* | A3c | A3c |
| *Cepphus grylle faeroeensis* | A1c | A1c |
| *Fratercula arctica arctica* | C1 | C1 |
| *Fratercula arctica naumanni* | A3a | A3a |
| *Fratercula arctica grabae* | C1 | C1 |

# 4. LITERATURE CITED

1. Anker-Nilssen T., Bakken V., Strom H., Golovkin A. N., Bianki V. V. & Tatarinkova I. P. (Eds) (2000). The status of marine birds breeding in the Barents Sea region. Norsk Polarinstitutt 2000.
2. Araújo, M. B. (2008). Biogeografia e conservação das aves nidificantes em Portugal continental. In Atlas das Aves Nidificantes em Portugal (1999-2005) (eds. Equipa Atlas). Pp. 57-66. Instituto da Conservação da Natureza e da Biodiversidade, Sociedade Portuguesa para o Estudo das Aves, Parque Natural da Madeira e Secretaria Regional do Ambiente e do Mar. Assírio & Alvim. Lisboa.
3. Asbirk, S. (2013). Tejst. – In: Lange, P. (ed.): Fugleåret 2012. – Dansk Ornitologisk Forening, p. 78.
4. Asbirk, S. & Bregnballe, T. Unpubl.
5. Barrett R. T., Lorentsen S-H., Anker-Nilssen T. (2006). The status of Breeding Seabirds in mainland Norway. Atlantic Seabirds 8: 97-126.
6. BirdLife International (2010) Important Bird Areas factsheet: Jan Mayen island. Downloaded from http:// www.birdlife.org on 08/12/2010.
7. Boertmann D. & Mosbech A. 1998. Distribution of Little Auk Alle alle breeding colonies in the Thule district, northwest Greenland. Polar Biology 19. 206 - 210.
8. Boertmann, D. (2008). Grønlands Rødliste 2007. – Grønlands Hjemmestyre og Danmarks Miljøundersøgelser, 152 p.
9. Boertmann, D., Mosbech, A., Bjerrum, M., Labansen, A. L., Merkel, F. (2010). The Greenland seabird colony register. – Poster ved 1st Seabird World Conference, Victoria 7-11 Sept. 2010.
10. Bregnballe, T. Unpubl.
11. Burfield, I. & van Bommel, F. (2004). Birds in Europe (Population estimates, trends and conservations status). BirdLife Int., BirdLife Conserv. Ser. no. 12. i-xxiv+374 pp.
12. Cadiou, B. / Bretagne Vivante - Seabird monitoring programme in Brittany.
13. de Seynes et les coordinateurs espèces (2010). Les oiseaux nicheurs rares et menacés en France en 2009. Ornithos 17: 137-168.
14. del Hoyo J., Elliott A., Sargatal J. & Christie D. A. (Eds) 1996. Handbook of The birds of the World, Vol. 3: Hoatzin to Auks. Lynx Edicions.821 pp.
15. Dickinson E. C. (Eds) (2003). The Howard and Moore Complete Checklist of the Birds of the World: Third Edition. Christopher Helm, London, 1040 pp.
16. Dierschke, J., Dierschke, V., Hüppop, K., Hüppop, O., Jachmann, K.F. (2011). Die Vogelwelt der Insel Helgoland. OAG Helgoland, Helgoland.
17. Egevang, C., Boertmann, D., Mosbech, A., Tamstorf, M. P. (2003). Estimating colony area and population size of little auks Alle alle at Northumberland Island using aerial images. Polar Biol 26:8–13.
18. Elts, J., Leito, A., Leivits, A., Luigujoe, L., Mägi, E., Nellis, R., Nellis, R., Ots, M., Pehlak, H. (2013). Status and numbers of Estonian birds, 2008–2012. Hirundo 26(2): 80-112 (in Estonian, with English summary).
19. Evans, P. G. H. (1984). Status and Conservation of seabirds breeding in Northwest Europe (excluding Norway and U.S.S.R). In: Croxall J. P., Evans P. G. H. & Schreiber R. W. (Eds) Status and Conservation of the World's seabirds. International Council for bird Preservation Tech. Publ. 2, Cambridge.
20. Finley, K. J., Evans C. R. (1984). 1st Canadian Breeding Record Of The Dovekie (Alle alle). Arctic 37: 288-289.
21. Gabrielsen, G. W., Brekke, B., Alsos, I. G. & Hansen, J. R. (Eds) (1997). Natur- og kulturmiljoet på Jan Mayen. Norwegian Polar Institute, Tromso.
22. Gardarsson, A. (2009). [Counts of Gannets 2005-2008.] Bliki 29: 19-22 (Icel., Engl. summ.)
23. Gardarsson, A. (2010). [Cliff-nesting seabirds in Iceland.] Talk at Marine Research Institute 24.09.2010.
24. Gardarsson, A. Pers. comm.
25. Gardarsson, A., Gudmundsson, G. A. & Lilliendahl, K. (2013). [Numbers of Kittiwakes in Iceland in 2005-2009 and recent changes.] Bliki 32: 1-10 (Icel., Engl. summ.).
26. Gaston, A. J. & Jones, I. L. (1998). Bird Families of the World The Auks: Alcidae. Oxford University Press, Oxford.
27. Gaston, A.J. (2002). Studies of High Latitude Seabirds. 5. Monitoring Thick-billed Murres in the Eastern Canadian arctic, 1976-2000. Can Wildl. Serv. Occas. Pap. 106: 1-52.
28. Gaston, A.J. Unpubl. (Submitted to Hentati-Sundberg (2011))
29. Grimmett, R. F. A. & Jones, T. A. (1989). Important Bird Areas in Europe. ICBP Technical Publication No.9.
30. Hansen, J., Hansen, L. H., Christensen, M. U., Michelsen, A., Schmidt, N. M. (2009). 4 Zackenberg Basic. The BioBasic programme, pp. 40-65 in Jensen, L. M. & Rasch, M. (eds). ZERO 14th annual report (2008). - National Envirionmental Research Centre, Aarhus University.
31. Hentati-Sundberg, J. & Berglund, P. A. Unpublished data.
32. Hentati-Sundberg, J. (2011). Arctic Seabirds Breeding In The African-Eurasian Waterbird Agreement (AEWA)Area. CAFFs Circumpolar Seabird expert group (CBird), CAFF Assessment Series Report No. 1, March 2011, CAFF International Secretariat, Akureyri, Iceland. ISBN Number 978-9935-431-03-5
33. Hjartarson, G. pers. comm.
34. ICES 2004. Report of the Working Group on Seabird Ecology (WGSE). ICES CM 2004/C:05. 53 p.
35. Jensen, J-K., Bloch, D. and Olsen, B. (2005). List of Birds seen in the Faroe Islands. Føroya Náttúrugripasavn. Tórshavn.
36. JNCC (2013) Seabird Population Trends and Causes of Change: 1986-2012 Report (http://www.jncc.defra.gov.uk/ page-3201). Joint Nature Conservation Committee. Updated July 2013.
37. Jóhannsson, J.H. & Guðjónsdóttir, B. (2006). [Changes in the breeding distribution and population size of the Black Guillemot Cepphus grylle in Strandasýsla, NW-Iceland.] Náttúrufræðingurinn 74(3-4): 69-80 (Icel., Engl. summ.).
38. Jóhannsson, J.H. & Guðjónsdóttir, B. (2007). [The effect of mink-predation on six monitored Black Guillemot colonies in Strandasýsla, NW-Iceland.] Náttúrufræðingurinn 76(1-2): 29-36 (Icel., Engl. summ.).
39. Kampp, K., Meltofte, H., Mortensen, C. E. (1987). Population size of little auk Alle alle in East Greenland. Dansk Ornitologisk Forenings Tidsskrift 81: 129-136.
40. Labansen, A. (2014). Unpublished data.
41. Labansen, A., Merkel, F. R., Boertmann, D., Nyeland, J. (2010). Status of the black-legged kittiwake (Rissa tridactyla) breeding population in Greenland, 2008. Polar Research 29:391-403.
42. Lund-Hansen, L. C. & Lange, P. (1991). The numbers and distribution of the Great Skua Stercorarius skua breeding in Iceland 1984-

1985. Acta Nat. Isl. 34. 16 pp.
43. Lyngs, P. (2014). Pers. comm.
44. Mallory, M. L., & Fontaine, A. J. (2004). Key marine habitat sites for migratory birds in Nunavut and the Northwest Territories. Can Wildl. Serv. Occas. Pap. 109: 1-92.
45. Mallory, M. L., Akearok, J. A., Gaston, A. J. (2009) Status of High Arctic Black-Legged Kittiwake (Rissa tridactyla) Colonies in Barrow Strait, Nunavut, Canada. Arctic 62: 96-101.
46. Merkel et al. In review. Declining trends in the majority of Greenland's thick-billed murre (Uria lomvia) colonies 1981-2011. Polar Biology.
47. Mitchell P. I., Newton S. F., Ratcliffe N. & Dunn T. E. (Eds) (2004). Seabird Populations of Britain and Ireland. Results of the Seabird 2000 Census (1998-2002). T & AD Poyser Ltd (A & C Black). 511 pp.
48. Olsen, B. Unpublished.
49. OSPAR Commission: Background Document for Iberian guillemot (Uria aalge) 2013.
50. Ottosson, U. & Ottvall, R. (2012). Fåglarna i Sverige - antal och förekomst. SOF, Halmstad.
51. Ottvall R., Edenius L., Elmberg J., Engström H., Green M., Holmqvist N., Lindström Å., Pärt T. & Tjernberg M. 2009. Population trends for Swedish Breeding Birds. Ornis Svecica 19: 117-192.
52. Petersen A., Irons D., Anker-Nilssen T., Artukhin Y., Barrett R., Boertmann D., Egevang C., Gavrilo M. V., Gilchrist G., Hario M., Mallory M., Mosbech A., Olsen B., Osterblom H., Robertson G. & Strøm H. (2008). Framework for a Circumpolar Arctic Seabird Monitoring Network. CAFF CBMP Report No.15. CAFF International Secretariat, Akureyri, Iceland.
53. Petersen, A. (2000). [Monitoring of Icelandic seabirds.] Natturufraedingurinn 69(3–4): 189–200. (Icel., Engl. summ.).
54. Petersen, A. Pers. comm.
55. Provost, P. / LPO 7 Isles National Nature Reserve.
56. 56.Rassi, P., Hyvärinen, E., Juslén, A., Mannerkoski, I. (eds.) (2010). The 2010 Red List of Finnish Species. Ympäristöministeriö & Suomen ympäristökeskus, Helsinki. 685 p.
57. Report on the Conservation Status of Migratory Waterbirds in the Agreement area: "CSR5" (2012). To be found at: http://www.unep-aewa.org/en/document/report-conservation-status-migratory-waterbirds-agreement-area-fifth-edition
58. Sangster G., Collinson J. M., Helbig A. J., Know A. G. & Parkin D. T. (2005). Taxonomic Recommendation for British Birds: third report. Ibis 147: 821–826.
59. Strøm, H., Gavrilo, M.V., Krasnov, J.V. & Systad, G.H. 4.3.7 Seabirds Joint Norwegian-Russian Environmental Status 2008. Report on the Barents Sea Ecosystem. Part II – Complete report. IMR/PINRO Joint Report Series, 2009. (3). P. 219–222.
60. Strøm, H., Norwegian Polar Institute, Pers. comm.
61. Wader W. 1994. Fjelljo Stercorarius longicaudus. In: Gjershaug, J. O., Thingstad, P. G., Eldøy, S. & Byrkjeland, S. (Eds) Norsk fugleatlas. Norsk Ornitologisk Forening, Klæbu. (In Norwegian).
62. van Franeker, J. A., Camhuysen, K. J. & Mehlum, F. (1998). The Birds of Jan Mayen. Circumpolar Journal 13: 28-43.
63. Velando, A. & Munilla, I. (2013). Gaviota tridáctila (Rissa tridactyla), noticiario ornitológico. Ardeola 60 (2): 529.
64. Väisänen, R. A., Hario, M. & Saurola, P. (2011). Population estimates of Finnish birds. In: Valkama, J., Vepsäläinen, V. & Lehikoinen, A. (2011) The Third Finnish Breeding Bird Atlas. – Finnish Museum of Natural History and Ministry of Environment. <http://atlas3.lintuatlas.fi/english> (cited [2015-08-20]) ISBN 978-952-10-7145-4.
65. Бианки В.В., Коханов В.Д., Корякин А.С., Краснов Ю.В., Панева Т.Д., Татаринкова И.П., Чемякин Р.Г., Шкляревич Ф.Н., Шутова Е.В. Птицы Кольско-Беломорского региона// Рус. орнитол. журн. 1993, 2(4): 491-586. Краснов Ю.В. 1995. Экология и поведение морских птиц на современном этапе эксплуатации ресурсов Баренцева моря: Дис. ... док. биол. наук. М.: Изд-во МГУ. 369 с. Краснов Ю.В., Матишов Г.Г., Галактионов К.В., Савинова Т.Н. 1995. Морские колониальные птицы Мурмана. Санкт-Петербург: изд-во Наука, 226 с. (Krasnov, Yu.V., Matishov, G.G., Galaktionov, K.V. & Savinova, T.N. 1995. The colonial seabirds of Murman. St. Petersburg: Nauka Publishers, 224 pp. (In Russian)). Краснов Ю.В., Николаева Н.Г. 1998а. Итоги комплексного изучения биологии моевки в Баренцевом море// В кн. Биология и океанография Карского и Баренцева морей (по трассе Севморпути). Апатиты: 180-260. (Krasnov Yu.V., Nikolaeva N.G. 1998. Some results of the multidisciplinary study of the kittiwake in the Barents Sea. In: Biology and oceanography of the Kara and Barents Seas (along the Northern marina route). Apatity: publ. KSC RAS, 180-260 (in Russian)).
66. Гаврило М.В. 2011. Фауна и население птиц некоторых высокоширотных островов Западной Арктики. По материалам исследований в ходе Международного полярного года 2007/08 // Матишов Г.Г., Тишков А.А. (Ред.) Наземные и морские экосистемы / Российский вклад в МПГ 2007/2008. М.: Европейские издания. Paulsen. С. 344 – 364. Гаврило М.В. Орнитофауна и ее изменения за исторический период//В печати. Коллективная монография Мурманского морского билогического института по Земле Франца-Иосифа. Anker-Nilssen, T., Bakken, V., Strøm, H., Golovkin, A.N., Bianki, V.V. & Tatarinkova, I.P. (eds.) 2000. The status of marine birds breeding in the Barents Sea region. Norsk Polarinstitutt, Rapport nr. 113. Bakken, V. (ed.) 2000: Seabird Colony Databases of the Barents Sea Region and the Kara Sea. Norsk Polarinstitutt Rapportserie Nr 115.
67. Гаврило М.В. 2013. Современный статус большого поморника Catharacta skua на северо-востоке Баренцева моря// Русский орнитологический журнал. Том 22, Экспресс-выпуск 894: 1779-1784. Краснов Ю.В., Горяев Ю.И., Ежов А.В., Иваненко Н.Ю. 2011. Изменения ареалов чайковых птиц в регионе Кольского полуострова// Глобальные климатические процессы и их влияние на экосистемы арктических и субарктических регионов. Тез. докл. Междунар. науч. конф. (г. Мурманск, 9-11 ноября 2011 г.), Мурман. мор. биол. ин-т Кольского науч. центра РАН. – Апатиты: Изд-во Кольского научного центра РАН. С. 99-101. Краснов Ю.В. Орнитофауна западного прибрежья о. Вайгач и прилегающих островов. (Рукопись неопубл.).
68. Бианки В.В., Коханов В.Д., Корякин А.С., Краснов Ю.В., Панева Т.Д., Татаринкова И.П., Чемякин Р.Г., Шкляревич Ф.Н., Шутова Е.В. Птицы Кольско-Беломорского региона// Рус. орнитол. журн. 1993, 2(4): 491-586. Гаврило М.В. 2011. Фауна и население птиц некоторых высокоширотных островов Западной Арктики. По материалам исследований в ходе Международного полярного года 2007/08 // Матишов Г.Г., Тишков А.А. (Ред.) Наземные и морские экосистемы / Российский вклад в МПГ 2007/2008. М.: Европейские издания. Paulsen. С. 344 – 364. Гаврило М.В. Орнитофауна и ее изменения за исторический период//В печати. Коллективная монография Мурманского морского билогического института по Земле Франца-Иосифа. Краснов Ю.В. 1995а. Экология и поведение морских птиц на современном этапе эксплуатации ресурсов Баренцева моря: Дис. ... док. биол. наук. М.: Изд-во МГУ. 369 с. Краснов Ю.В., Матишов Г.Г., Галактионов К.В., Савинова Т.Н. 1995. Морские колониальные птицы Мурмана. Санкт-Петербург: изд-во Наука, 226 с. (Krasnov, Yu.V., Matishov, G.G., Galaktionov, K.V. & Savinova, T.N. 1995. The colonial

seabirds of Murman. St. Petersburg: Nauka Publishers, 224 pp. (In Russian)). Семашко В.Ю., Черенков А.Е., Тертицкий Г.М. 2012. Современная гнездовая численность морских и околоводных птиц на островах Онежского залива Белого моря и тенденции ее изменения// Экология морских птиц Белого моря. Апатиты: Изд-во КНЦ РАН. С. 140-168.

69. Иваненко Н.Ю. 2013. Орнитофауна Западного Мурмана на примере губы Печенга и Айновых островов // Птицы северных и южных морей России: фауна, экология/ Мурман.мор.биол.ин-т КНЦ РАН.- Апатиты: Изд-во КНЦ РАН. С.64-102. Краснов Ю.В. 1995а. Экология и поведение морских птиц на современном этапе эксплуатации ресурсов Баренцева моря: Дис. ... док. биол. наук. М.: Изд-во МГУ. 369 с. Краснов Ю.В., Матишов Г.Г., Галактионов К.В., Савинова Т.Н. 1995. Морские колониальные птицы Мурмана. Санкт-Петербург: изд-во Наука, 226 с. (Krasnov, Yu.V., Matishov, G.G., Galaktionov, K.V. & Savinova, T.N. 1995. The colonial seabirds of Murman. St. Petersburg: Nauka Publishers, 224 pp. (In Russian)). Летопись природы Кандалакшского заповедника за 1998 год (ежегодный отчет). 1999. Летопись природы Кандалакшского заповедника. Кандалакша. Кн. 44. Т. 1. 493 с. (Компакт-диск; Архив Кандалакшского заповедника). Летопись природы Кандалакшского заповедника за 1998 год (ежегодный отчет). 1999. Летопись природы Кандалакшского заповедника. Кандалакша. Кн. 44. Т. 2. 276 с. (Компакт-диск; Архив Кандалакшского заповедника). Bakken, V. (ed.) 2000: Seabird Colony Databases of the Barents Sea Region and the Kara Sea. Norsk Polarinstitutt Rapportserie Nr 115.
70. Краснов Ю.В., Барретт Р.Т., Николаева Н.Г. 2000. Современные тенденции развития баренцевоморских популяций северной олуши Sula bassana и большого поморника Catharacta skua и факторы их определяющие// Виды-вселенцы в европейских морях России. Тез. докл. науч. семинара (г. Мурманск, 27-28 января 2000 г.). Мурманск: 49-51. Краснов Ю.В. 2011а. Северная олуша Morus bassanus (Linnaeus, 1758) // Птицы России и сопредельных регионов. Пеликанообразные, Аистообразные, Фламингообразные. М., Товарищество научных изданий КМК. С.39-46. Мельников М.В. 2006. Состояние гнездовой популяции северной олуши на Восточном Мурмане// Орнитологические исследования в Северной Евразии. Ставрополь. С. 351-352. Мельников М.В., Осадчий А.В. 2008. Сообщения с мест: Архипелаг Семь островов, Баренцево море, Россия// Птицы Арктики, No 10. С. 4-5. Anker-Nilssen, T., Bakken, V., Strøm, H., Golovkin, A.N., Bianki, V.V. & Tatarinkova, I.P. (eds.) 2000. The status of marine birds breeding in the Barents Sea region. Norsk Polarinstitutt, Rapport nr. 113. Bakken, V. (ed.) 2000: Seabird Colony Databases of the Barents Sea Region and the Kara Sea. Norsk Polarinstitutt Rapportserie Nr 115.
71. Гаврило М.В., Тертицкий Г.М., Покровская И.В., Головкин А.Н. 1993. Орнитофауна архипелага// В кн: Матишов Г.Г., Галактионов К.В., Денисов В.В., Дробышева С.С., Чинарина А.Д., Тимофеева С.В. (ред.) Среда обитания и экосистемы Земли Франца-Иосифа. Архипелаг и шельф. Апатиты: изд-во КНЦ, С. 81-93. (Gavrilo M.V., Tertitski G.M., Pokrovskaya I.V., Golovkin A.N. 1993. The archipelago ornithofauna. In Matishov G.G., Galaktionov K.V., Denisov V.V., Drobysheva S.S., Chinarina A.D., Timofeeva S.V. The environment and ecosystems of the Frans Josef Land (archipelago and shelf)). Apatity: Kola Scientific Center RAS, 81 93. (In Russian)). Гаврило М.В. 2011. Фауна и население птиц некоторых высокоширотных островов Западной Арктики. По материалам исследований в ходе Международного полярного года 2007/08 // Матишов Г.Г., Тишков А.А. (Ред.) Наземные и морские экосистемы / Российский вклад в МПГ 2007/2008. М.: Европейские издания. Paulsen. С. 344 – 364. Гаврило М.В. Орнитофауна и ее изменения за исторический период//В печати. Коллективная монография Мурманского морского билогического института по Земле Франца-Иосифа. Краснов Ю.В. 1995. Морские птицы (ретроспективный анализ развития популяций)// Среда обитания и экосистемы Новой Земли. Архипелаг и шельф. Апатиты: изд-во КНЦ, С. 138-147. (Krasnov Yu.V. 1995. Seabirds (retrospective analysis of population development). - The environment and ecosystems of Novaya Zemlya (archipelago and shelf)). Apatity: Kola Scientific Center RAS, 138 147. (In Russian)). Краснов Ю.В. 1995а. Экология и поведение морских птиц на современном этапе эксплуатации ресурсов Баренцева моря: Дис. ... док. биол. наук. М.: Изд-во МГУ. 369 с. Краснов Ю.В., Матишов Г.Г., Галактионов К.В., Савинова Т.Н. 1995. Морские колониальные птицы Мурмана. Санкт-Петербург: изд-во Наука, 226 с. (Krasnov, Yu.V., Matishov, G.G., Galaktionov, K.V. & Savinova, T.N. 1995. The colonial seabirds of Murman. St. Petersburg: Nauka Publishers, 224 pp. (In Russian)). Краснов Ю.В., Николаева Н.Г. 1998а. Итоги комплексного изучения биологии моевки в Баренцевом море// В кн. Биология и океанография Карского и Баренцева морей (по трассе Севморпути). Апатиты: 180-260. (Krasnov Yu.V., Nikolaeva N.G. 1998a. Some results of the multidisciplinary study of the kittiwake in the Barents Sea. In: Biology and oceanography of the Kara and Barents Seas (along the Northern marina route). Apatity: publ. KSC RAS, 180-260 (in Russian)). Краснов Ю.В., Николаева Н.Г., Горяев Ю.И., Ежов А.В. 2007. Современное состояние колоний и тенденции изменения численности моевок и кайр на Кольском полуострове// Орнитология, Москва. Изд-во Московского университета. Вып. 34 (1). С. 65-75. Краснов Ю.В., Горяев Ю.И., Ежов А.В., Иваненко Н.Ю. 2011. Изменения ареалов чайковых птиц в регионе Кольского полуострова// Глобальные климатические процессы и их влияние на экосистемы арктических и субарктических регионов. Тез. докл. Междунар. науч. конф. (г. Мурманск, 9-11 ноября 2011 г.), Мурман. мор. биол. ин-т Кольского науч. центра РАН. – Апатиты: Изд-во Кольского научного центра РАН. С. 99-101. Strøm, H., Øien, I.J., Opheim, J., Kuznetsov, E.A. & Khakhin, G.V. 1994. Seabird Censuses on Novaya Zemlya 1994. Norwegian Ornithological Society Report No.2-1994. Strøm, H., Øien, I.J., Opheim, J., Khakhin, G.V., Cheltsov, S.N. & Kuklin, V. 1995. Seabird Censuses on Novaya Zemlya 1995. Norwegian Ornithological Society Report No.1-1995. Strøm, H., Øien, I.J., Opheim, J., Khakhin, G.V., Cheltsov, S.N. & Kuklin, V. 1997. Seabird Censuses on Novaya Zemlya 1996. Norwegian Ornithological Society Report No.1-1997
72. Бианки В.В., Коханов В.Д., Корякин А.С., Краснов Ю.В., Панева Т.Д., Татаринкова И.П., Чемякин Р.Г., Шкляревич Ф.Н., Шутова Е.В. Птицы Кольско-Беломорского региона// Рус. орнитол. журн. 1993, 2(4): 491-586. Краснов Ю.В. Орнитофауна западного прибрежья о. Вайгач и прилегающих островов. (Рукопись неопубл.). Anker-Nilssen, T., Bakken, V., Strøm, H., Golovkin, A.N., Bianki, V.V. & Tatarinkova, I.P. (eds.) 2000. The status of marine birds breeding in the Barents Sea region. Norsk Polarinstitutt, Rapport nr. 113. Bakken, V. (ed.) 2000: Seabird Colony Databases of the Barents Sea Region and the Kara Sea. Norsk Polarinstitutt Rapportserie Nr 115.
73. Краснов Ю.В. 1995а. Экология и поведение морских птиц на современном этапе эксплуатации ресурсов Баренцева моря: Дис. ... док. биол. наук. М.: Изд-во МГУ. 369 с. Краснов Ю.В., Матишов Г.Г., Галактионов К.В., Савинова Т.Н. 1995. Морские колониальные птицы Мурмана. Санкт-Петербург: изд-во Наука, 226 с. (Krasnov, Yu.V., Matishov, G.G., Galaktionov, K.V. & Savinova, T.N. 1995. The colonial seabirds of Murman. St. Petersburg: Nauka Publishers, 224 pp. (In Russian)). Краснов Ю.В., Николаева Н.Г., Горяев Ю.И., Ежов А.В. 2007. Современное состояние колоний и тенденции изменения численности моевок и кайр на Кольском полуострове// Орнитология, Москва. Изд-во Московского университета. Вып. 34 (1). С. 65-75.
74. Гаврило М.В., Тертицкий Г.М., Покровская И.В., Головкин А.Н. 1993. Орнитофауна архипелага// В кн: Матишов Г.Г., Галактионов К.В., Денисов В.В., Дробышева С.С., Чинарина А.Д., Тимофеева С.В. (ред.) Среда обитания и экосистемы Земли Франца-Иосифа. Архипелаг и шельф. Апатиты: изд-во КНЦ, С. 81-93. (Gavrilo M.V., Tertitski G.M., Pokrovskaya I.V., Golovkin A.N. 1993. The archipelago

ornithofauna. In Matishov G.G., Galaktionov K.V., Denisov V.V., Drobysheva S.S., Chinarina A.D., Timofeeva S.V. The environment and ecosystems of the Frans Josef Land (archipelago and shelf)). Apatity: Kola Scientific Center RAS, 81 93. (In Russian)). Гаврило М.В. 2011. Фауна и население птиц некоторых высокоширотных островов Западной Арктики. По материалам исследований в ходе Международного полярного года 2007/08 // Матишов Г.Г., Тишков А.А. (Ред.) Наземные и морские экосистемы / Российский вклад в МПГ 2007/2008. М.: Европейские издания. Paulsen. С. 344 – 364. Гаврило М.В. Орнитофауна и ее изменения за исторический период//В печати. Коллективная монография Мурманского морского билогического института по Земле Франца-Иосифа. Краснов Ю.В. 1995. Морские птицы (ретроспективный анализ развития популяций)// Среда обитания и экосистемы Новой Земли. Архипелаг и шельф. Апатиты: изд-во КНЦ, С. 138-147. (Krasnov Yu.V. 1995. Seabirds (retrospective analysis of population development). - The environment and ecosystems of Novaya Zemlya (archipelago and shelf)). Apatity: Kola Scientific Center RAS, 138 147. (In Russian)). Краснов Ю.В. 1995а. Экология и поведение морских птиц на современном этапе эксплуатации ресурсов Баренцева моря: Дис. ... док. биол. наук. М.: Изд-во МГУ. 369 с. Краснов Ю.В., Матишов Г.Г., Галактионов К.В., Савинова Т.Н. 1995. Морские колониальные птицы Мурмана. Санкт-Петербург: изд-во Наука, 226 с. (Krasnov, Yu.V., Matishov, G.G., Galaktionov, K.V. & Savinova, T.N. 1995. The colonial seabirds of Murman. St. Petersburg: Nauka Publishers, 224 pp. (In Russian)). Краснов Ю.В., Николаева Н.Г., Горяев Ю.И., Ежов А.В. 2007. Современное состояние колоний и тенденции изменения численности моевок и кайр на Кольском полуострове// Орнитология, Москва. Изд-во Московского университета. Вып. 34 (1). С. 65-75.

*CAFF International Secretariat*
*Borgir, Nordurslod*
*600 Akureyri, Iceland*
*Phone: +354 462-3350*
*Fax: +354 462-3390*
*caff@caff.is*
*www.caff.is*