

# Arctic Region

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# 1 About

## 1.1 Overview

The Arctic is characterized by a harsh climate with extreme variation in light and temperature, short summers, extensive snow and ice cover in winter and large areas of permafrost. Its terrain varies from high mountains to flat plains, wide tundra and great expanses of sea, snow and ice. The plants and animals of the Arctic have adapted to these conditions, but this has rendered them in some cases more sensitive to increased human activities.

Historically, the harsh environment, difficulty of access to resources, and scattered nature of the population patterns has restricted rapid development and communication in the circumpolar Arctic region. In the past half-century, however, the rapid pace of technological and economic development in Arctic regions affects the culture and well-being of their human residents, including many indigenous peoples whose traditional way of life has been, until now, at least partially protected by the very nature of the remote and extreme environment in which they live.

New opportunities for Arctic circumpolar cooperation emerged in the late 1980s during the final reformist phase before the dissolution of the Soviet Union. Environmental cooperation was identified as a first step in promoting comprehensive security in the region. The eight Arctic countries, Canada, Denmark (including Greenland and Faroe Islands), Finland, Iceland, Norway, Russian Federation, Sweden and the United States, adopted an Arctic Environmental Protection Strategy (AEPS) in 1991. Five years later, in 1996, Foreign Ministers of the Arctic states agreed in the Ottawa Declaration, to form the Arctic Council with a mandate to undertake a broad programme to include all dimensions of sustainable development. The Arctic Council is a high-level intergovernmental forum that provides a mechanism to address the common concerns and challenges faced by the Arctic governments and the people of the Arctic addressing all three of the main pillars of sustainable development; the environmental, social and economic. The scientific work and policy guidance of the Arctic Council is carried out in several expert working groups and within special initiatives.

## 1.2 Key Dates

1991	The Arctic Environmental Protection Strategy established, Declaration on the Protection of the Arctic Environment
1993	The Protection of the Arctic Marine Environment (PAME) Working Group established.
1996	The Arctic Council established in Ottawa, Canada.
1998	First Ministerial Meeting of the Arctic Council, Iqaluit, Canada
2000	Second Ministerial Meeting of the Arctic Council, Barrow, Alaska
2002	Third Ministerial Meeting of the Arctic Council, Inari, Finland

## 1.3 General Information

**Region:** Arctic

**Participating States:** (8) Canada, Denmark (including Greenland and Faroe Islands), Finland, Iceland, Norway, the Russian Federation, Sweden and the United States of America.

**GIWA Regions:** Subregion 1: Arctic; Subregion 16: West Greenland Shelf; Subregion 15: East Greenland Shelf; Subregion 14: Iceland Shelf

**Large Marine Ecosystems:** 18 West Greenland Shelf; 19 East Greenland Shelf; 20 Barents Sea; 21 Norwegian Shelf; 53 West Bering Sea; 54 Chukchi Sea; 55 Beaufort Sea; 56 East Siberian Sea; 57 Laptev Sea; 58 Kara Sea; 63 Hudson Bay; 64 Arctic Ocean

## Map

### 1.3.1 Climate

The Arctic is characterized by low air temperatures because it receives, on an annual basis less solar radiation than other parts of the world. The radiation levels fluctuates depending on the season, in the winter there is a total lack of incoming radiation, whereas in the summer the Arctic receives higher solar radiation than anywhere else in the world except for the Antarctic. In addition most of the annual radiation reaching the Arctic is deflected by extensive cloud cover, snow and ice cover. This radiation imbalance produces low temperatures and results in a redistribution of heat from southern latitudes via air and ocean currents. This energy regime is the fundamental factor driving the Arctic climate. The frequency of the Pacific and Atlantic low pressure systems not only play an important role in the existence of the regional and local climates in the arctic, but also link the Arctic climatic system to the world climatic system (AMAP 1998).

For further information refer to:

AMAP 1998. AMAP Assessment Report: Arctic Pollution Issues. Chapter 2: Physical/Geographical Characteristics of the Arctic. Arctic Monitoring and Assessment Programme (AMAP), Oslo, Norway. xii+859 pp.

ACIA; the Arctic Council and IASC project to evaluate and synthesize knowledge on climate variability, climate change, and increased ultraviolet radiation and their consequences.

<http://www.acia.uaf.edu/>

United Nations Framework Convention on Climate Change

<http://unfccc.int/>

Climate Change Electronic Edition; a review of climate change and ozone depletion

<http://www.globalchange.org/default.htm>

### 1.3.2 Geography

The Arctic covers an area of approximately 13.4 x 10<sup>6</sup> km<sup>2</sup> and large tracks of land are covered by glacial ice. Greenland is comprised of numerous mountainous islands almost entirely covered with a permanent ice cap up to 3000 m thick and covering an area of 2,186,000 km<sup>2</sup>. The main tracks of ice-free land are in the southeast, the north and the northeast. Iceland has an area of 103,000 km<sup>2</sup> and is composed of volcanically active mountainous land. Glaciers cover 11% of this land and 50% is unvegetated. Svalbard and Franz Josef Land are archipelagos and are 90% ice covered (AMAP 1998).

A characteristic feature of the Arctic is the presence of permafrost. Groundwater is quite extensive as well. For example two thirds of the Yukon in the Canadian Arctic is underlain by aquifers. The largest groundwater aquifers occur in Iceland (AMAP 1998). Most of the large Arctic rivers begin their flow south of the Arctic such as the major rivers of Siberia (Ob, Yenisey and Lena) and the Mackenzie River in Canada. Freeze up in Arctic rivers begins in the fall as with some Arctic lakes, however. Arctic lakes are partly frozen for 9-12 months of the year (AMAP 1998).

### 1.3.3 Oceanography

The Arctic marine area includes the Arctic Ocean, the adjacent shelf seas (Beaufort, Chukchi, East Siberian, Laptev, Kara and the Barents Sea), the Nordic Seas (Greenland, Norwegian and Iceland seas), the Labrador Sea, Baffin Bay, Hudson Bay, the Canadian Arctic Archipelago and the Bering Sea. The connection with the shallow Bering Sea occurs through the narrow Bering Strait, while the main connection with the Atlantic Ocean is via the deep Fram Strait and the Nordic Seas. The Arctic Ocean is divided into two deep basins, the Eurasian and the Canadian by the transpolar Lomonosov Ridge (AMAP 1998).

Warm water currents from the Atlantic and Pacific, flow north to the Arctic and cold water currents flow out of the Arctic. Atlantic water enters the Arctic Ocean through Fram Strait and the Barents Sea, while Pacific water enters via Bering Strait. Water leaves the Arctic through the Fram Strait and the Canadian Arctic archipelago. Most of the water in the Arctic Ocean originates from the Atlantic Ocean (79%). The inflow through the Bering Strait is very modest (19%). The main water outflow is via the East Greenland Current (75%) and the outflow via the Canadian straits is relatively small (25%). Inflow from rivers is only 2% and although this is a small percentage of the total, it is a much higher than in other oceans (AMAP 1998).

Due to ice coverage the temperature of the Arctic Ocean is close to freezing point year round. Surface water salinities vary between 30-33 in the Arctic Ocean. The salinity is lower in the summer due to the input of freshwater from rivers and ice melt (AMAP 1998).

### 1.3.4 Ecosystem Diversity

#### High Arctic

The high Arctic corresponds to the northern polar desert region and is sparsely vegetated. There is approximately 360 vascular plants species and only 8 terrestrial animals. Vegetation in the high Arctic consists of cushion plants (e.g. *Dryas integrifolia*, *Saxifraga oppositifolia*), prostrate shrubs of *Salix arctica* and rosette species of *Saxifraga*, *Draba* and *Minuartia* (AMAP 1998).

#### Low Arctic

The low Arctic corresponds to the southern tundra areas and supports more than 600 vascular plants species with 80-100% coverage. Typical low Arctic plants include shrubs (e.g. *Alnus*, *Salix*, *Betula*), dwarf shrubs of heath species (e.g. *Ledum*, *Vaccinium*, *Cassiope*, *Empetrum*), sedges (e.g. *Carex*, *Eriophorum*), grasses (e.g. *Luzula*, *Poa*, *Arctagrostis*), cushion plants (e.g. *Dryas*), lichens and mosses (AMAP 1998).

#### Subarctic

The subarctic or forest tundra is the transition zone between the boreal forest and the treeless tundra and has 100% plant coverage. The subarctic contains low Arctic and boreal species (e.g. *Deschampsia flexuosa*, *Epilobium angustifolium*, *Vaccinium myrtillus*), some species of trees (*Picea glauca*, *P.mariana*, *Pinus sylvestris*, *P.pumila*) (AMAP 1998).

#### Boreal Forest

Boreal forests are located in the northern regions of Europe, Siberia and North America. Boreal forests largely consist of coniferous trees, especially spruces (*Picea spp.*), pines (*Pinus spp.*) and firs (*Abies spp.*). Deciduous trees are present in the

early developmental stages of boreal forests, birch (*Betula spp.*), cottonwoods (*Populus spp.*), alder (*Alnus spp.*) (AMAP 1998).

### **Permafrost and Soils**

Permafrost may reach depths of 600-1000 m in the coldest areas of the Arctic. The distribution of permafrost is broadly determined by climate (air temperature), land elevation, soil composition, soil moisture, ground aspect, extent and type of plant cover and colour of the ground surface. In general Arctic soils are either poorly drained and underlain by solid ice rich permafrost or well drained and situated over dry permafrost. During the summer, the upper layer of soil in the Arctic thaws and is termed the active layer. Its depth varies due to temperature, soil type and moisture content. Soil forming processes are restricted to the active layer, which is unstable due to frost action during repeated freezing and thawing. Frost action results in characteristic features such as frost scars, stone circles, mud circles, solifluction lobes and stone stripes (AMAP 1998).

### **Wetlands**

Wetlands are sparsely distributed throughout the Arctic but tend to have significant concentrations. They are more common in the Low Arctic due to higher levels of rainfall. Arctic wetlands are distinct in that they are underlain by permafrost. A number of different types of wetlands exist these include lowland polygon bogs, peat mound bogs, snow patch fens, tundra pool shallow waters, floodplain marshes and swamps. Wetlands cover approximately 3-5% of the Canadian Arctic, 0.9% in Norway, 21% in Sweden and 15% in Finland. In the Russian Arctic large areas are dominated by bogs and marshes including the Kola Peninsula, West Siberia, the Yamal Peninsula, Yana, Idigirka and Kolyma River Basins (AMAP 1998).

### **Ice**

Ice edges and associated water column are key areas of elevated productivity. Melting ice leads to an increase in the stability of the water column, which allows phytoplankton to be retained in a defined active photosynthetic layer and the margin of the ice. In many areas a phytoplankton bloom extending up to 50 km follows the retreating ice. Zooplankton spawn during the phytoplankton bloom and are in turn preyed upon by fish (AMAP 1998).

### **Fjords and Polynyas**

Semi enclosed water bodies of the Arctic Basin include Fjords, bays, straits and Polynyas. The coasts of Greenland, Norway, Iceland and many of the islands fringing the Arctic Basin are characterized by fjords. Polynyas occupy a small proportion of the area of the Arctic Ocean Basin, but in general are highly productive relative to ice covered Arctic seas (AMAP 1998).

## **1.3.5 Species Diversity**

The Arctic has low species diversity and is associated with opportunistic and invading species that are adapted to survive successfully under a range of conditions.

### **Phytoplankton and Zooplankton**

Blue-green algae (cyanobacteria) occur both in the water column and in sediments of the Lomonosov and Gakel Ridges of the Arctic Basin. Phytoplankton blooms can be associated with melting ice and can occur in some areas of retreating ice extending up to 50 km. Herbivorous zooplankton are an important link between phytoplankton

and higher trophic levels in the region of the Arctic ice pack. Copepods constitute the majority of the biomass, with *Calanus* being the most important single genus. Other groups include hydromedusans, decapods, chaetognaths, predaceous amphipods (e.g. *Themisto libellula*, *Themisto spp.*) and larvaceans. In some areas large copepods *Calanus galealis* and *C. hyperboreus* are associated with the colder water masses, whereas *C. finmarchicus* is associated with warmer waters of Atlantic origin (AMAP 1998).

### **Seabirds**

The Arctic supports some of the largest seabird populations in the world. Several million little auks (*Alle alle*) nest along the coast of northwest Greenland in summer. Key seabird nesting areas in the Arctic include the Bering, Beaufort, Okhotsk and Chukchi Seas and the islands of eastern Canadian archipelago, Hudson Strait, Iceland, Svalbard, Franz Josef Land, north coast of Norway and the west coast of Novaya Zemlya. Many seabirds remain in the Arctic in the winter at areas of open water such as polynyas. Common eiders (*Somateria mollissima*), black guillemots (*Cepphus grille*), thick-billed murres (*Uria lomvia*) and little auks winter in Greenland (AMAP 1998).

Approximately 40 species breed in Arctic waters, whilst others breed elsewhere and spend summer in the Arctic. Auks are amongst the most abundant species (*Uria lomvia*, *U.aalge*, *Alle alle*, *Aethia pusilla* and the Atlantic puffin *Fratercula arctica*). Gull species include Arctic, black-legged, glaucous gull (*Larus hyperboreas*), ivory gull (*Pagophila eburnea*) and kittiwake (*Rissa tridactyla*). Also common are the fulmar (*Fulmaris glacialis*) and parasitic jaeger (*Stercorarius parasiticus*) (AMAP 1998).

### **Fish**

Over 150 species of fish inhabit Arctic and subarctic marine waters, however, most are present in low numbers. Species include Arctic cod (*Boreogadus saida*), Atlantic cod (*Gadus morhua*), Greenland cod (*Gadus ogac*), Greenland halibut (*Reinhardtius hippoglossoides*), Capelin (*Mallotus villosus*), Redfish (*Sebastes spp.*), Long rough dab (*Hippoglossoides platesoides*) and herring (*Clupea harengus*) (AMAP 1998).

### **Marine Mammals**

The ringed seal (*Phoca hispida*) is by far the most abundant and widely distributed resident Arctic pinniped with a widespread circumpolar distribution. Others include Harp seal (*P. groenlandica*), hooded seal (*Cystophora cristata*), harbour seal (*P. vitulina*), grey seal (*Halichoerus grypus*), spotted (*P.largha*), ribbon (*P. fasciata*) and fur seal (*Calorhinus ursinus*). The bowhead whale (*Balaena mysticetus*) is the only baleen whale which spends its entire life in and around the Arctic waters. Other baleen species that occur around the Arctic include blue whale (*Balaenoptera musculus*), fin whale (*B. physalus*), minke whale (*B. acutorostrata*), humpback (*megaptera novaengliae*) and occasionally sei whales (*B. borealis*). Of the toothed whales the white whale (*Delphinapterus leucas*), Narwhal (*Monodon monoecros*), Killer (*Orcinus orca*), white beaked dolphin (*Lagenorhynchus albirostris*) and the harbour porpoise (*Phocoena phocoena*) are found within the Arctic region. The Polar bear (*Ursus maritimus*) is another marine mammal that inhabits the Arctic (AMAP 1998).

### 1.3.6 Information on Member States

#### Canada

**Total Population:** 31,362,000 (World Bank 2002)

**GDP (current US\$):** 714,327,300,000 (World Bank 2002)

**Maritime Claims:**

Territorial sea: 12 NM

Continental shelf: 200 NM or to the edge of the continental margin

Contiguous zone: 24 NM

Exclusive economic zone: 200 NM (CIA 2004)

**Length of Coastline:** 202,080 km (CIA 2004)

**Marine Protected Areas**

There is one national park in Canada within the Arctic region, Ellesmere Island National Park. This park has a relatively large marine component (1,031 miles<sup>2</sup> or 2,686 km<sup>2</sup>),

#### Denmark

**Total Population:** 5,374,000 (World Bank 2002)

**GDP (current US\$):** 172,927,900,000 (World Bank 2002)

**Maritime Claims:**

Territorial sea: 12 NM

Exclusive economic zone: 200 NM

Continental shelf: 200-m depth or to the depth of exploitation (CIA 2004)

**Length of Coastline:** 7,314 km (CIA 2004)

**Marine Protected Areas**

- Bornholm
- Adler Grund
- Smålandsfarvandet
- Waters around Saltholm
- Stavns Fjord
- Hesselö
- Store Middlegrund
- Randers Fjord
- Laesö
- Hirsholmene
- Laesö Trindel/Tønnerberg Banke/Kummelbanke
- Herthas Flak

(Esping and Grönqvist 1995).

#### Finland

**Total Population:** 5,199,000 (World Bank 2002)

**GDP (current US\$):** 131,508,166,656 (World Bank 2002)

**Maritime Claims:**

Territorial sea: 12 NM

Exclusive economic zone: 200 NM

Continental shelf: 200-m depth or to the depth of exploitation (CIA 2004)

**Length of Coastline:** 2,389 km (CIA 2004)

**Marine Protected Areas**

- Bothnian Bay National Park
- Outer Bothnian Threshold Archipelago
- Southern Archipelago Sea
- Tammisaari Archipelago/Hankoniemi/Pojo Bay

- Eastern Gulf of Finland

**Proposed new MPAs:**

- Oura Archipelago
- Uusikaupunki Archipelago
- Åland Sea

(Esping and Grönqvist 1995).

**Iceland**

**Total Population:** 284,000 (World Bank 2002)

**GDP (current US\$):** 8,448,658,432 (World Bank 2002)

**Maritime Claims:**

territorial sea: 12 NM

exclusive economic zone: 200 NM

continental shelf: 200 NM or to the edge of the continental margin (CIA 2004)

**Length of Coastline:** 4,988 km (CIA 2004)

**Norway**

**Total Population:** 4,538,000 (World Bank 2002)

**GDP (current US\$):** 190,476,713,984 (World Bank 2002)

**Maritime Claims:**

territorial sea: 12 NM

continental shelf: 200 NM

contiguous zone: 10 NM

exclusive economic zone: 200 NM (CIA 2004)

**Length of Coastline:** 21,925 km (includes mainland 3,419 km, large islands 2,413 km, long fjords, numerous small islands, and minor indentations 16,093 km) (CIA 2004)

**Marine Protected Areas:**

- Nötterøy Tjøme

(Esping and Grönqvist 1995)

**Russian Federation**

**Total Population:** 144,071,008 (World Bank 2002)

**GDP (current US\$):** 346,519,928,832 (World Bank 2002)

**Maritime Claims:**

Territorial sea: 12 NM

Exclusive economic zone: 200 NM

Continental shelf: 200-m depth or to the depth of exploitation (CIA 2004)

**Length of Coastline:** total coastline as well as the coastline of the Baltic Sea is 37,653 km (CIA 2004)

**Marine Protected Areas:**

- Curonian Spit State Environmental National Park
- Vistula Spit Landscape Park

**Proposed new MPAs:**

- Finskiy Zaliy and associated islands

(Esping and Grönqvist 1995).

**Sweden**

**Total Population:** 8,924,000 (World Bank 2002)

**GDP (current US\$):** 240,312,729,600 (World Bank 2002)

**Maritime Claims:**

**Length of Coastline:**

Territorial sea: 12 NM

Exclusive economic zone: agreed boundaries or midlines  
Continental shelf: 200-m depth or to the depth of exploitation (CIA 2004)

**Marine Protected Areas:** 3,218 km (CIA 2004)

- Haparanda Archipelago
- Holmö Islands
- Kopparstenarna/Gotska Sandön/Salvo Rev
- Falsterbo Peninsula with Måkläppen
- Kullaberg
- Gullmar Fjord

**Proposed new MPAs:**

- Bjuröklubb Area
- Trysunda/Ulvöarna/Ullånger/Ulvö Deep
- Gräsö/Singö-Archipelago
- St. Bockö/St. Nassa/Sv. Högarna/Sv. Björn
- Landsort/Hartsö/Askö/Landsort Deep
- St. Anna/Missjö Archipelago
- Torhamn Archipelago
- Nidingen/Sönerbergen/Mönster
- Koster Archipelago/Koster Channel/Tjärnö Archipelago/Väderöarna

(Esping and Grönqvist 1995).

### **United States of America**

**Total population:** 290 million (CIA, 2004)

**GDP per capita (PPP US\$), 2001:** 34,320 (HDR, 2003)

**Total sea area** contiguous zone: 24 n miles, continental shelf: not specified, exclusive economic zone: 200 n miles, territorial sea: 12 n miles

**Length of coastline:** 19,924 km

**Marine Protected Areas:** 6 MPA's and 4 other coastal areas (Stanley 2003)

## ***1.4 Institutional Structure***

### **1.4.1 The Arctic Council**

The Arctic Council is an intergovernmental forum for addressing many of the common concerns and challenges faced by the Arctic states; Canada, Denmark (including Greenland and the Faroe Islands), Finland, Iceland, Norway, the Russian Federation, Sweden and the United States.

The Council is a unique forum for co-operation between national governments and indigenous peoples. Six international organizations representing many Arctic indigenous communities have the status of Permanent Participants of the Arctic Council and are involved in the work of the Council in full consultation with governments. Observers to the Arctic Council include European non-arctic countries, international organizations and NGOs.

Decisions within the Arctic Council are taken at meetings of Foreign Ministers or their designates of the member states and the political leaders of the Permanent Participants. Ministerial meetings are held every two years. The chairmanship of the Council and accompanying Secretariat rotates among member states. Between the ministerial meetings, the operation of the Council is administered by the Committee of Senior Arctic Officials, composed of representatives of foreign ministries of the member states and representatives of indigenous peoples as Permanent Participants' of the Arctic Council. Its meetings are prepared by the Arctic Council Chair and normally take place in the country of the Chair.

The scientific work of the Arctic Council is carried out in 5 expert working groups focusing on such issues as monitoring, assessing and preventing pollution in the Arctic, climate change, biodiversity conservation and sustainable use, emergency preparedness and prevention in addition to the living conditions of the Arctic residents.

Special Initiatives of the Arctic Council are on identifying actions and projects to eliminate pollution in the Arctic and an Arctic Climate Impact Assessment.

For further information on Arctic Council activities: <http://www.arctic-council.org>

## **1.4.2 Working Groups**

### **Protection of the Arctic Marine Environment (PAME)**

The Arctic marine environment is of great importance to the states of the Arctic region and the world as a whole. It holds some of the most important seas for commercial fisheries in the world, has unique socio-cultural aspects, economic potential and an integral role in climatic processes. Climatic and developmental pressures on the Arctic marine environment from shipping, dumping, offshore oil and gas development and land-based activities are increasing.

PAME addresses policy and non-emergency pollution prevention and control measures related to the protection of the Arctic marine environment from land and sea-based activities, including marine shipping, offshore oil and gas development, land-based activities and ocean disposal.

In recognition that existing and emerging activities in the Arctic warrant a more coordinated and integrated strategic approach to address the challenges of Arctic coastal marine environments, the Arctic Council Ministers requested the PAME Working Group to lead the development of an **Arctic Marine Strategic Plan (AMSP)**, due to be completed in the autumn of 2004. The purpose of the AMSP is to guide Arctic Council activities related to the protection of the Arctic seas. One of the aims of this plan is to build on the internationally recognized need to manage human activities within the context of entire ecosystems, applying them to achieve the sustainable development of the Arctic marine environment.

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**Website:** <http://www.pame.is>

## **Arctic Monitoring and Assessment Program (AMAP)**

AMAP was established in 1991 to implement components of the Arctic Environmental Protection Strategy (AEPS). Significant monitoring and assessment of pollution in the Arctic is performed under the auspices of the Arctic Council. This work is important in identifying pollution risks and their impact on Arctic ecosystems and in assessing the effectiveness of international agreements on pollution control, such as the Stockholm Convention on Persistent Organic Pollutants (POPs)

Over the past 10 years, the Working Group has conducted two major assessments of the state of pollution in the Arctic, the second of which; Arctic Pollution 2002, was issued in October 2002. The reports document the sources, levels and trends, as well as the effects of a wide range of contaminants, including, persistent organic pollutants (POPs), heavy metals and radionuclides.

### **Contacts:**

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**Website:** <http://www.amap.no>

## **Conservation of Arctic Flora and Fauna (CAFF)**

The CAFF working group was established in 1992. CAFF aims at promoting the conservation of biodiversity and the sustainable use of living resources. Effective conservation of many circumpolar species and other natural resources requires close cooperation with non-arctic states. There is a need for enhanced monitoring of biodiversity at the circumpolar level, fully utilizing traditional knowledge, to detect the impacts of global change on biodiversity and to enable Arctic communities to effectively respond and adapt to those changes. The Working Group has published a substantive overview report on biodiversity and conservation in the Arctic, including marine areas, titled Conservation of Arctic Flora and Fauna.

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**Website:** <http://www.caff.is/>

### **Emergency, Prevention, Preparedness and Response**

The EPPR working group exchanges information on best practices for preventing spills, preparing to respond to spills should they occur, and practical response measures for use in the event of a spill. EPPR is not a response agency. The work is focused mainly on oil and gas transportation and extraction, and on radiological and other hazards.

#### **Contacts:**

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**Website:** <http://eppr.arctic-council.org/>.

### **Sustainable Development Working Group (SDWG)**

The Arctic Council Ministerial Meeting in Barrow, Alaska in 2000, approved a strategic framework document on sustainable development. With this foundation for further cooperation, the SDWG started developing the economic, social and cultural aspects of sustainable development. The objective of the SDWG is to protect and enhance the economies, culture and health of the inhabitants of the Arctic, in an environmentally sustainable manner. Currently the Sustainable Development Working Group is involved in projects in the areas of children and youth, health, telemedicine, resource management, cultural and ecological tourism, and living conditions in the Arctic.

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**Website:** <http://www.arctic-council.org/sdwg.asp>

## **1.4.3 Special Initiatives**

### **Arctic Council Action Plan to Eliminate Pollution of the Arctic (ACAP):**

The Arctic states have declared their readiness to cooperate to reduce pollution in the Arctic. As a direct follow-up of the AMAP monitoring and assessment work, the ACAP was set up to address the sources identified by AMAP. The Plan involves several priority projects to reduce pollution in the Arctic, including projects on cleaner production and control of PCBs, obsolete pesticides and dioxins, all of which are priority pollutants under the Stockholm Convention on Persistent Organic Pollutants

(POPs). New chemicals are making their way into the Arctic food chain, such as brominated flame retardants. The ACAP working group has recently begun to develop recommendations with regard to these contaminants.

**Contact:**

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**Website:** <http://www.arctic-council.org/f2000-acap.html>

**The Arctic Climate Impact Assessment (ACIA):**

Climate variability and change is high on the Arctic Council's agenda. The Arctic States note with concern the ongoing warming of most of the Arctic and recognize that the impacts of global climate change can have major consequences in the Arctic. The Arctic Council's project on the assessment of the consequences of climate variability and change, the Arctic Climate Impact Assessment (ACIA), examines present status and possible future impacts of climate change and variability and UV radiation on the environment and its living resources; on human health, and social and economic activities, as well as possible adaptations and responses. The assessment and related policy recommendations will be presented to Ministers in 2004.

**Contact:**

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University of Alaska Fairbanks  
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Email: [patricia@iarc.uaf.edu](mailto:patricia@iarc.uaf.edu)

**Website:** <http://www.acia.uaf.edu/>

## ***1.5 Financial Arrangements***

The basic responsibility for the implementation of regional policies lies with the states and their sub-regional administrations. Co-operation within the Arctic Council establishes a common knowledge base, spreads information on best practices and lessons learned and has an important role in the development of policy recommendations for national, regional and local leaders. Financial arrangements of the Arctic Council, its subsidiary bodies and specific projects are based on voluntary contributions by its member countries and are in some cases implemented in cooperation with regional and international organizations

## **1.6 Partners**

The Arctic Council is a unique forum for co-operation between national governments and indigenous peoples. Six international organizations representing many Arctic indigenous communities have the status of Permanent Participants of the Arctic Council and are involved in the work of the Council in full consultation with governments. The indigenous populations in the Arctic are represented by:

Aleut International Association

Arctic Athabaskan Council

Gwich'in Council International

Inuit Circumpolar Conference

Russian Association of Indigenous Peoples of the North

Saami Council

The Indigenous Peoples Secretariat of the Arctic Council helps Arctic indigenous organizations to work together through the Arctic Council. Observers to the Arctic Council include European non-arctic countries, international organizations and NGOs.

Further information on these organizations can be found on the Arctic Council homepage: <http://www.arctic-council.org>

## **2 Our Work**

The Arctic Council cooperates with international organisations. One example is the United Nations Environment Programme (UNEP), where the Arctic Council had a role in placing the problem of mercury pollution on the agenda. The Arctic Council has contributed to the development of the new European Union's Second Northern Dimension Action Plan, and has, among other things, encouraged the EU to work with the Council in an effort to combat long-range transboundary pollution. The Council also participates actively in the regional implementation of the 2002 Johannesburg Plan of Implementation adopted at the World Summit on Sustainable Development.

### **2.1 Convention**

There is no Convention for this region as of yet. Co-operation within the Arctic Council establishes a common knowledge base, spreads information on best practices and lessons learned and has an important role in the development of policy recommendations for national, regional and local leaders. The basic responsibility for the implementation of regional policies lies with the states and their sub-regional administrations.

### **2.2 Issues and Threats**

The environmental, economic and socio-cultural changes occurring in the Arctic today are primarily driven by two key factors: Climate change and increasing economic activity. Scientific findings (e.g. IPCC and ACIA) have estimated that warming of the Arctic with longer ice-free season will lengthen the navigation season followed by increased access to Arctic resources. Activities such as development of

hydrocarbon and mineral resources, cruise ship tourism and commercial fishing are expected to expand with improved access and the opening of a northern east-west corridor linking Europe and Asia.

Increased accessibility and marine transportation in the Arctic will require greater support and pose increased environmental risks to the Arctic marine environment and its ecological processes.

For further information refer to:

Arctic Climate Impact Assessment - <http://www.acia.uaf.edu> <http://www.arctic-council.org>

United Nations Framework Convention on Climate Change - <http://unfccc.int/>

Arctic Marine Strategic Plan - <http://www.pame.is>

Biodiversity and Ecosystem Integrity - <http://www.caff.is>

Pollution Prevention - <http://www.amap.no>

Northern Sea Route - <http://www.fni.no/insrop>

## **3 Publications**

### **3.1 Regional Seas Reports and Studies**

Link to the Regional Seas Reports and Studies

### **3.2 Reports**

For a full list of technical reports, meeting reports and other publications refer to:

- Arctic marine related policy and non-emergency pollution prevention measures - <http://www.pame.is>
- Identification and assessment of problems in the Arctic – <http://www.amap.no>
- Habitat protection and biodiversity in the Arctic – <http://www.caff.is>
- Emergency, prevention, preparedness and response to pollution prevention and control - <http://eppr.arctic-council.org>
- Sustainable development and environmental protection - <http://www.arctic-council.org/sdwg.asp>
- Projects focusing on eliminating pollution of the Arctic - <http://www.arctic-council.org/f2000-acap.html>
- Arctic Climate Impact Assessment - <http://www.acia.uaf.edu/>
- Senior Arctic Officials and Ministerial reports – <http://www.arctic-council.org>

### **3.3 Other Website Links**

International Arctic Science Committee (IASC) <http://www.iasc.no/>

University of the Arctic (UArctic) <http://www.uarctic.org/>

ICES International Council for the Exploration of the Sea <http://www.ices.dk/>

NAMMCO The North Atlantic Marine Mammal Commission <http://www.nammco.no/>

NEAFC North East Atlantic Fisheries Commission <http://www.neafc.org/>

Arctic Ecosystems UN Atlas of Oceans

<http://www.oceansatlas.org/servlet/CDSServlet?status=ND02MzY3OSY3PWVwJjYxPSomNjU9a29z>

## 4 References

- AMAP (1997) Arctic Pollution Issues: A State of the Arctic Environment Report. Arctic monitoring and Assessment Programme (AMAP), Oslo, Norway. xii+188 pp.
- AMAP (1998). AMAP Assessment Report: Arctic Pollution Issues. Arctic Monitoring and Assessment Programme (AMAP), Oslo, Norway.
- UNEP (2001) Ecosystem-based Management of Fisheries. Opportunities and challenges for coordination between marine Regional Fishery Bodies and Regional Seas Conventions. UNEP Regional Seas Reports and Studies No.175.
- PAME (2000) PAME – Snapshot Analysis of maritime activities in the Arctic. Norwegian Maritime Directorate. Report No. 2000-3220 (Accessed 23/07/04) [http://www.pame.is/sidur/uploads/Norwegian\\_maritime\\_directorate.PDF](http://www.pame.is/sidur/uploads/Norwegian_maritime_directorate.PDF)
- PAME (2004) Protection of the Arctic Marine Environment. PAME Website. [www.pame.is](http://www.pame.is) (Accessed 02/07/04)
- CIA (2004) Central Intelligence Agency. World Fact Book (Accessed 11/06/04) <http://www.cia.gov/cia/publications/factbook/>. (Updated 11/08/04)
- GIWA (2004) Global International Waters Assessment, GIWA Website (last Updated 27/12/2001) <http://www.giwa.net/areas/area50.phtml> (Accessed 05/08/2004)
- Esping, L. and Grönqvist, G. (1995) A Global Representative System of Marine Protected Areas. Region 6: Baltic. <http://www.deh.gov.au/coasts/mpa/nrsmmpa/global/volume2/chapter6.html>. (Accessed 29/03/03)
- World Bank (2002) World Bank Data Query. (Accessed 19/4/04) <http://devdata.worldbank.org/data-query/>.
- CIA (2004) CIA World Fact Book (last updated 11/05/04) <http://www.cia.gov/cia/publications/factbook/geos/da.html>. (Accessed 24/06/04)
- HDR (2003) Human Development Reports. Human Development Indicators 2003. <http://www.undp.org/hdr2003/indicator>. [Accessed 2/2/04]
- Stanley, S. (2003) Marine Region 7, The Wider Caribbean, A Global Representative System of Marine Protected Areas, <http://www.deh.gov.au/coasts/mpa/nrsmmpa/global/volume2/chapter7.html>. (Accessed 11/12/03)