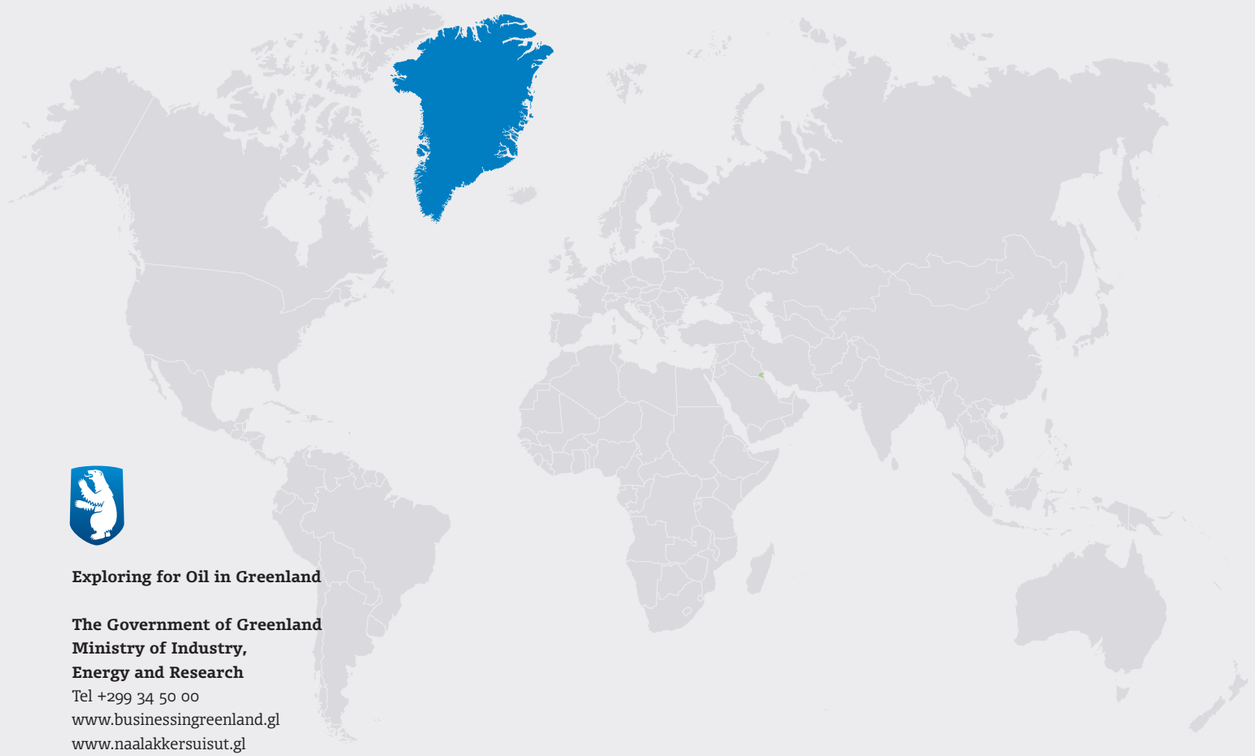
NAALAKKERSUISUT
GOVERNMENT OF GREENLAND

EXPLORING FOR OIL IN GREENLAND

OIL AND GAS



Exploring for Oil in Greenland

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Introduction to Greenland

Since 2009, Greenland has enjoyed self-government in accordance with the provisions of the Act on Greenland Self-Government. The Greenland Self-Government authorities consists of a democratically elected assembly – Inatsisartut (Greenland Parliament) – as well as an administration led by Naalakkersuisut (Greenland Government). With the exception of foreign policy and defence, which falls within the responsibility of Denmark, Greenland has assumed legislative and executive responsibility for most areas of governance.

Greenland is an overseas country and territory (OCT) in relation to the EU under the Treaty on the Functioning of the EU (TFEU) and has a cooperation agreement with the EU. The Greenlandic parliament is called Inatsisartut and consists of 31 members that are elected for a 4-year term.

In 2010, the Government of Greenland assumed the legislative and executive responsibility for mineral resource, including hydrocarbons. Hence, the management of subsoil resources is within the purview of the Government of Greenland. Exploration and exploitation for mineral resources including oil and gas is governed by legislation adopted by the Greenlandic Parliament (in Greenlandic Inatsisartut) and licenses are issued by the Government of Greenland, and the Government of Greenland has the exclusive authority to levy taxes, royalty etc. from exploited resources, including hydrocarbons and minerals.

Figure 1. Map of Greenland.

Greenland facts

Area: 2,166,000 km²

Capital: Nuuk

Population: Approx. 56,000 where 18,000 lives in the capital.

Language: Greenlandic (Kalaallisut) is the official language, but Danish is also widely used.

Main profession: Fishing

Climate: Arctic/subarctic

Oil and gas potential

Greenland is one of the last frontiers of oil discovery. The Geological Survey of United States (USGS) has estimated a mean potential of more than 50 BBOE (billions barrels of oil equivalents) of undiscovered oil and gas in the waters around Greenland, north of the Arctic Circle. USGS has estimated that the Northeast Greenland shelf holds a potential of around 31 BBOE of undiscovered oil and gas, and Baffin Bay holds a potential of around 17 BBOE of undiscovered oil and gas.[1]

While most of the undiscovered oil and gas are likely to be found offshore, it should be pointed out that onshore areas in both West and East Greenland also holds promising potentials for petroleum systems.

1 Geological Survey of United States. (2008). Circum-Arctic Resource Appraisal: Estimate of Undiscovered Oil and Gas North of the Arctic Circle. https://pubs.usgs.gov/fs/2008/3049/fs2008-3049.pdf.

Seismic surveys and wells in Greenland

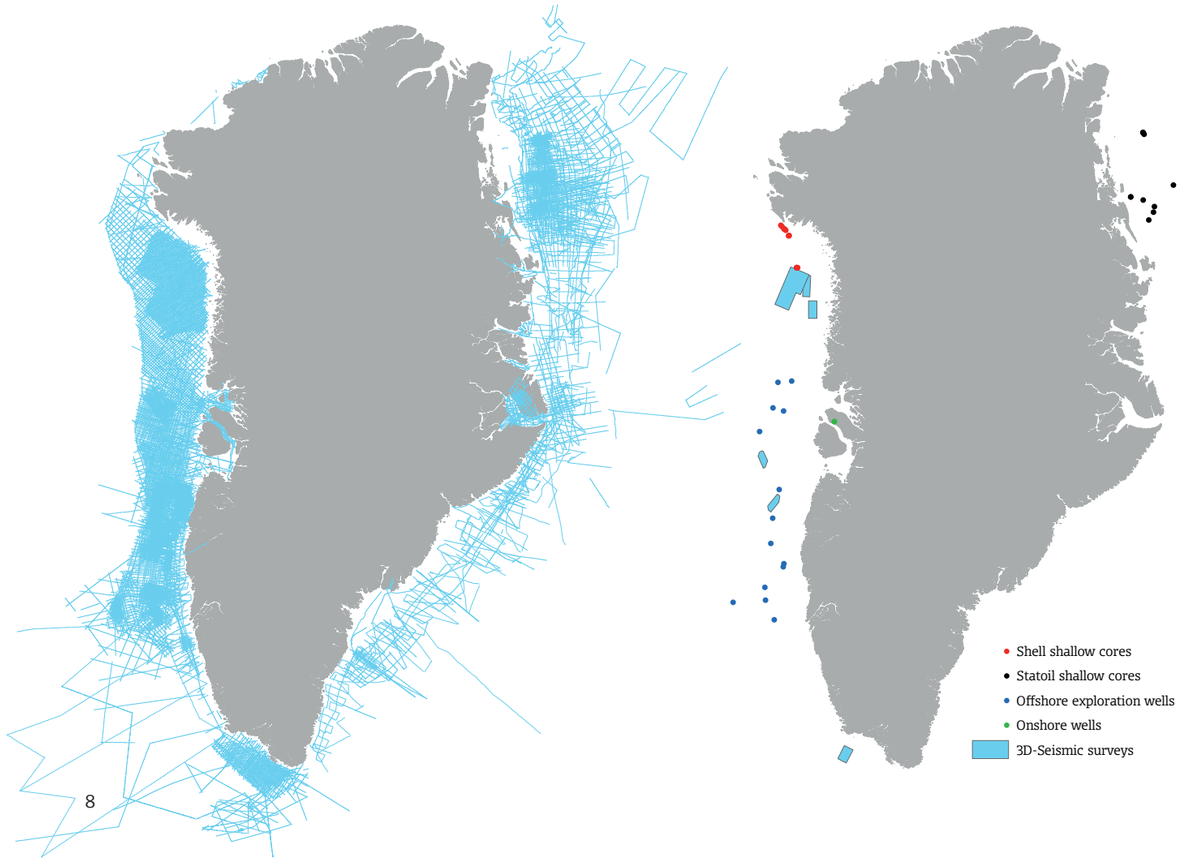
More than 17,000 km² 3D-seismic data and 350,000 km² of 2D-seismic data have been acquired, with the majority of the data having been acquired after 2002 (Figure 2).

In addition, 15 exploration wells have been drilled in Greenland, of which 14 have been drilled offshore and 1 onshore. Furthermore, 2 shallow core programs have been conducted (Figure 1).

Even so, large parts off Greenland must be considered as underexplored or unexplored, leaving a significant scope for making discoveries.

Geophysical data from Greenland is available for purchase at the Greenland National Petroleum Data Repository (GNPDR) portal, and can be found at www.greenpetrodata.gl.

Figure 2. Left: 2D seismic surveys in Greenland. Right. 3D seismic surveys and wells in Greenland.



Regulatory framework

Greenland has a proven and well-established regulatory framework.

The application procedure is based on a one-stop-shop approach with the Ministry of Industry, Energy and Research as a single point of contact for applicants (Figure 4).

The authorities aim to complete the application procedure within 3 months of having received a complete application.

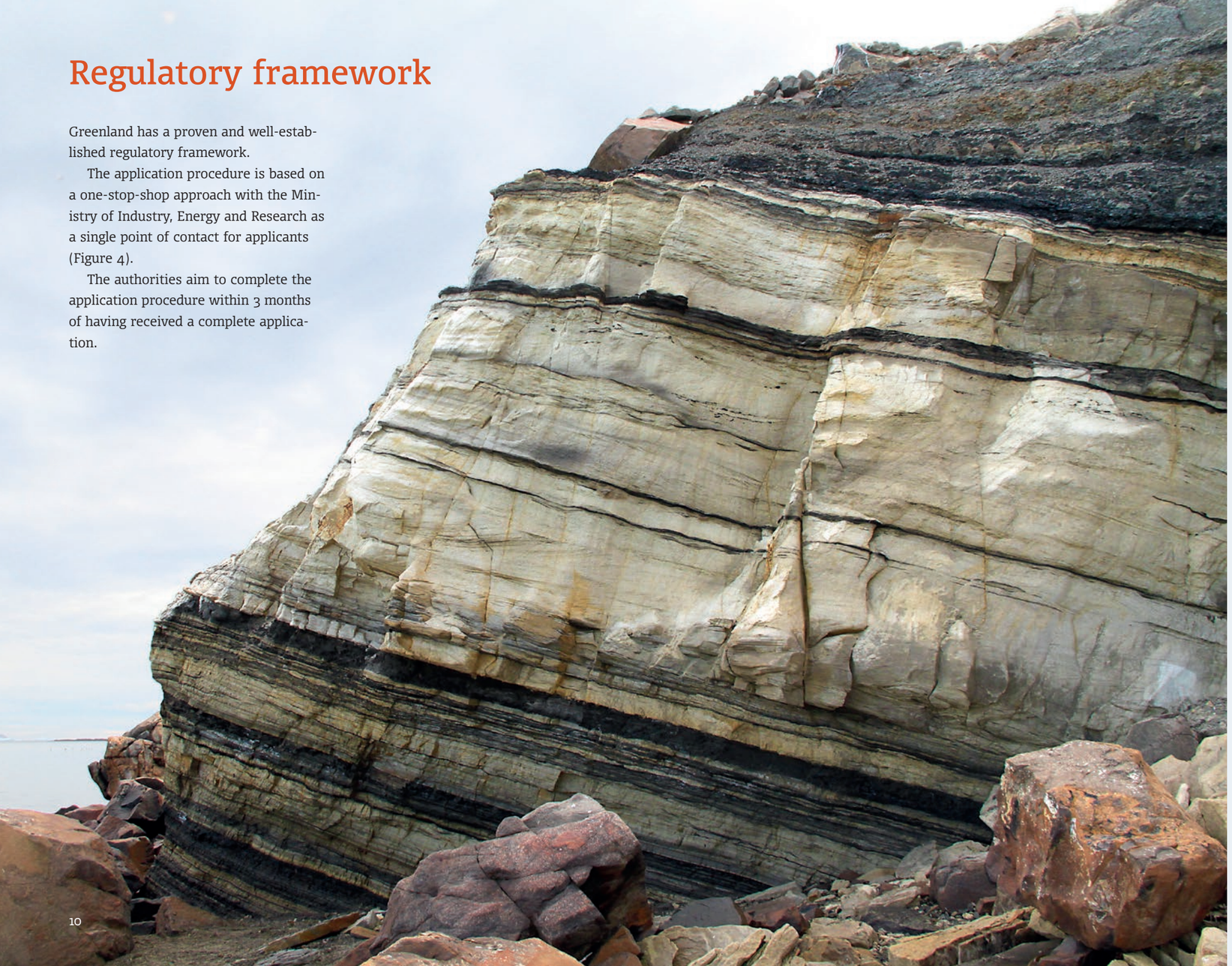


Figure 3.
Pyramid of regulations leading to approval

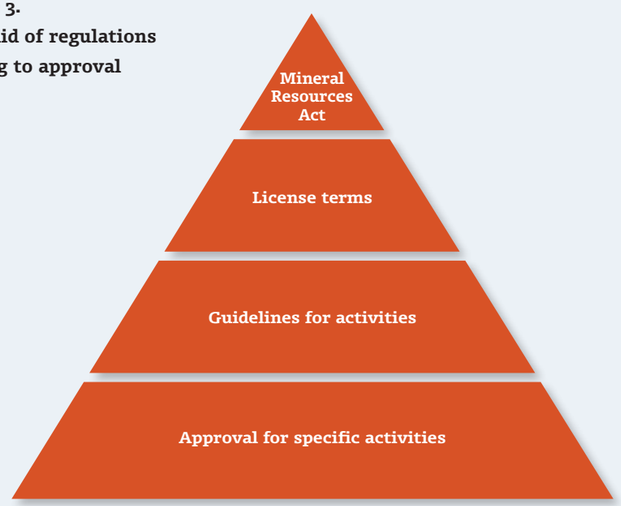
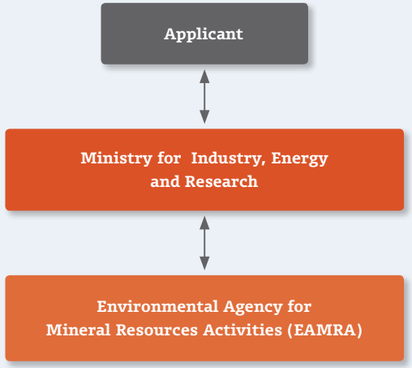


Figure 4.
Overview of regulatory agencies.



Application procedures and submission

Licensing rounds

- A license may be granted following a special public invitation to apply for licenses.
- The deadline for submitting applications is 90 days after publication of the notice.
- Applications are processed simultaneously, and granted on the basis of a competitive evaluation of the applications, which have been submitted.

Open Door procedure

- The Government of Greenland may determine that for a specified period a specified area will be open for the successive granting of licenses.
- Applications for licenses under the open door procedure must be submitted 90 days after the publication of the notice at the earliest.
- Applications are processed on a first-come, first-served basis.

Overview of the application procedure

1) Submission of application

2) Document review

3) Assessment of the application

4) Negotiation of work-program

5) The Government of Greenland approves the granting of a license

6) The license is signed by all parties

The application has to document the following:

- Geological assessment and evaluation of the area of interest.
- Systems and procedures for dealing with health, safety issues and environmental (including emergency) issues.
- Financial capabilities (sufficient to fulfill and comply with the work program).
- Corporate social responsibility (CSR) issues.

Content and structure of a standard license for exploration and exploitation

Exploration

- Licenses are granted for an exploration period of up to 10 years.
- Work program has to be agreed upon before the License is granted.
- The exploration phase is divided into sub-periods (usually 3 sub-periods).
- Licensee may decide to surrender the license after each sub-period.
- It is possible apply for an extension of the exploration phase (beyond 10 years).

Exploitation

- Licensee has a right to a 30-year extension for areas where exploitation is intended.
- It is possible to apply for an extension of the exploitation phase up to a maximum of 50 years.

Example of a work programme

Sub-period 1 (year 1-3)

- Reprocessing of seismic data
- Acquisition of seismic data

Sub-period 2 (year 3-7)

- Drilling of exploration well

Sub-period 3 (year 7-10) (drop of drill)

- Delineation well

NB: A license may be surrendered after the end of each sub-period.

Current fiscal regime

The main principles of the Government take terms are as follows:

- Corporate income tax (including withholding tax) is levied pursuant to Greenlandic tax law and tax rates applicable from time to time (as of April 2019 the effective corporate tax rate, including withholding tax, is 36 %).
- Any other taxation (royalties) will be published in a formal invitation letter (whether a licensing round or open door procedure).

General license fees, rentals and reimbursements as of April 2019

The following fees, rentals and reimbursements shall be paid and made:

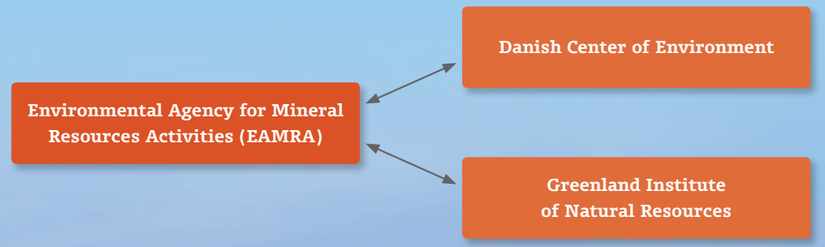
- A fee of DKK 50,000 is to be paid on submission of the application.
- An additional fee of DKK 200,000 is to be paid by the licensee upon the granting of an exploration license.
- A fee of DKK 200,000 is to be paid by the licensee upon the granting of each extension of a license for the purpose of exploitation.
- An annual rental of DKK 1,000,000 is to be paid by the licensee for each exploitation license.
- The licensee shall reimburse all costs and expenses relating to case processing, supervision and other administrative work in connection with a license and activities under a license incurred by the Greenland Government, the Ministry of Industry, Energy and Research and other authorities in Greenland in accordance with section 86 (5) of the Mineral Resources Act.

Environmental regulation of oil and gas activities

When applying for a license or an activity in Greenland, environmental, nature and climate matters regarding Mineral Resource Activities are assessed by the Environmental Agency for Mineral Resource Activities (EAMRA).

EAMRA cooperates closely with the Danish Center for Environment and Energy (DCE) and with the Greenland Institute of Natural Resources (GN).

The cooperation implements the provisions of the Mineral Resource Act stating that assessments and decisions of the Mineral Resources Authority regarding environmental issues must be based on assessments and proposals for decisions from one or more scientific and independent environmental institutions.



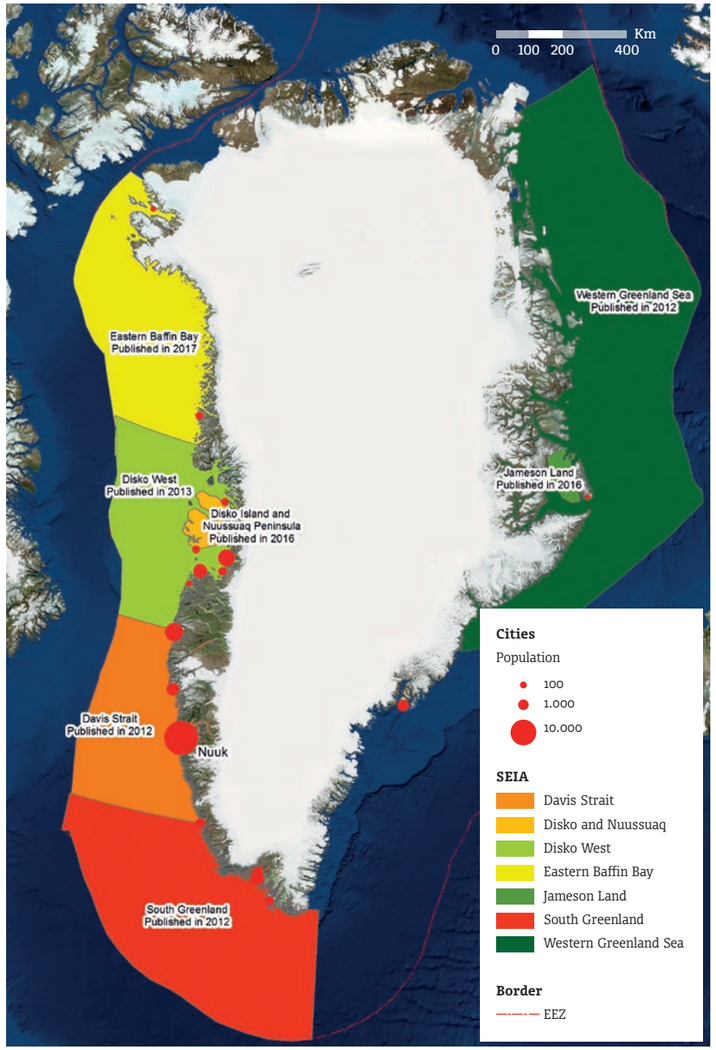
Strategic Environmental Impact Assessment (SEIA) of hydrocarbon activities in Greenland

Prior to opening up new areas for hydrocarbon exploration and exploitation licensing rounds, a Strategic Environmental Impact Assessments (SEIA) for the region is completed. The SEIA assesses several key areas, e.g. fish fauna, marine mammals, benthic flora and fauna, productivity, food chain relations and oil spill sensitivity.

SEIAs have been completed to cover activities related to exploration, development and exploitation of hydrocarbons in the following areas (Figure 5):

- Davis Strait (2012)
- South Greenland (2012)
- Disko West (2013)
- Disko Island and Nuussuaq Peninsula (2016)
- Jameson Land (2016)
- Eastern Baffin Bay (2017)
- Western Greenland Sea (2018)

Figure 5. Map showing the areas where SEIAs have been completed.



Environmental publications and data regarding oil and gas activities in Greenland

- **Strategic Environmental Impact Assessments** covering both offshore and onshore areas provide background information on the environmental baseline for companies interested in oil and gas exploration in Greenland. https://www.govmin.gl/environment/strategic-environmental-impact-assessment-seia

- **Guidelines for environmental impact assessments** are available for offshore seismic activities, stratigraphic drilling and exploration drilling.

- **Field rules for onshore exploration work** containing information on sensitive areas are also available.

- **Environmental data** are available for offshore and onshore areas, pleasecontact the EAMRA for more information.

- **Environmental Oil Spill Sensitivity Atlases** are available, pleasecontact EAMRA for more information.

- **A number of research publications** carried out in Greenland on topics such as oil spill response, ecotoxicological effects of oil activities and noise modelling are available, pleasecontact EAMRA for more information.

The publications and further information can obtained by contacting EAMRA eamra@nanoq.gl or www.businessingreenland.gl

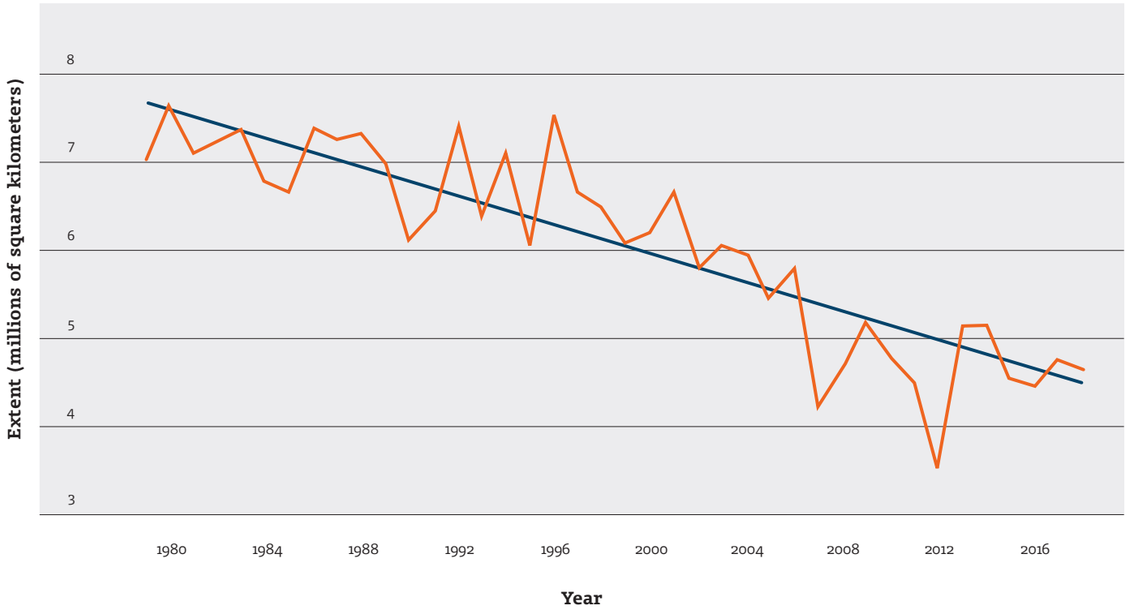
Physical conditions

Greenland is situated on the boundary between the Atlantic Ocean marine climate and the continental climate across North America and the Arctic Ocean.

Change in sea ice over time

When looking at the extent of the sea ice over time, the trend shows that the number of ice-free days has increased (Figure 6). If ship and aircraft records from before the satellite era are taken into account, sea ice may have decreased by as much as 50 percent from the 1950s.

Figure 6. Graph showing the average monthly arctic sea ice extent *(Source: National Snow And Ice Data Centre, Boulder Colorado)*



To find out more

- **Government of Greenland (Naalakkersuisut)**
  https://naalakkersuisut.gl
  The official website of the Government of Greenland.

- **Ministry of Industry, Energy**
  https://naalakkersuisut.gl/en/Naalakkersuisut/Departments/Erhverv-og-Energi
  Contact information: isiin@nanoq.gl

- **Environmental Agency for Mineral Resource Activities (EAMRA)**
  https://naalakkersuisut.gl/en/Naalakkersuisut/Departments/ Natur-Miljoe/Miljoestyrelsen-for-Raastofomraadet
  Contact information: www.eamra.gl

- **Greenland National Petroleum Data Repository (GNPDR)**
  https://www.greenpetrodata.gl/
  Database with geophysical data and well data related to oil and gas.

- **Business in Greenland**
  https://www.businessingreenland.gl/en/Erhverv
  Information about business in Greenland and legislation.

  https://www.businessingreenland.gl/en/Erhverv/Oil-and-Gas
  Information about oil and gas licensing in Greenland.