ACCESS
Arctic Climate Change
Economy and Society

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ACCESS

Arctic Climate Change, Economy and Society

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GLOSSARY

Treaty: A 'treaty' is a formally concluded and ratified agreement between States[1]. The term refers generically to instruments binding at international law, concluded between international entities, for example, States or organizations.

Convention: A 'convention' is a formal agreement between States. The generic term 'convention' is synonymous with the generic term 'treaty'. Conventions are normally open for participation by the international community as a whole, or by a large number of States. Usually the instruments negotiated under the auspices of an international organization are entitled conventions[2].

Agreement: Another name for a contract between parties which includes all the elements of a legal nature.

Regulations are **binding** in their entirety - on signatories (if it is a treaty, for example), but can also be on members (if they are part of a formal organisation). They are generally and directly applicable to all member states of a signed Convention, but not to the non-signatories, even if they adopt practices from the Convention as part of their customary law. The concept of a binding instrument, furthermore, is also used to signify that the process is subject to an obligation, engagement or liability.

Non-binding or **voluntary** process is a resolution or agreement, normally a written motion, adopted by a body, and one that cannot or will not progress into a law.

Entry into Force: A treaty does not enter into force when it is adopted. The provisions of a treaty usually determine the date on which it will enter into force. Where no date is specified there is a presumption that the treaty is intended to come into force as soon as all the negotiating States have consented to be bound by the treaty. Bilateral treaties may provide for their entry into force on a particular date, upon the day of their last signature, upon exchange of the instruments of ratification or upon the exchange of notifications. In multilateral treaties, it is common to provide for a fixed number of States to express their consent for entry into force. Some treaties require that additional conditions to be satisfied, e.g. a specific category of states must be among the consenters. An additional time period may be required to elapse after the requisite number of countries have expressed their consent or the conditions have been satisfied. A treaty enters into force for those States which gave the required consent. A treaty may also provide that, dependent upon certain conditions having been met, it shall come into force provisionally[3].

[1] The Concise Oxford Dictionary, Tenth Edition, Oxford University Press, 1999

[2] http://www.unicef.org/crc/files/Definitions.pdf

[3] http://treaties.un.org/Pages/Overview.aspx?path=overview/glossary/page1_en.xml#entry

Precautionary Principle /Precautionary Approach: The precautionary principle states that: "Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation." (Principle 15 of the Rio Declaration on Environment and Development[4].)

Ecosystem approach: The ecosystem approach is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way[5].

[4] http://www.unep.org/Documents.Multilingual/Default.asp?documentid=78&articleid=1163

[5] http://www.cbd.int/ecosystem/

ACRONYMS

ABNJ	Area beyond national jurisdiction
ACAP	Arctic Contaminants Action Programme
AFS	Anti-Fouling Systems
AMSP	Arctic Marine Strategic Plan
AOR	Arctic Ocean Review
APM	Associated Protective Measures
ARHC	Arctic Regional Hydrographic Commission
BC	Black Carbon
CAFF	Conservation of Arctic Flora and Fauna
CLCS	Commission on the Limits of the Continental Shelf
DFO	Fisheries and Oceans Canada
EEA	European Economic Area
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EPA	Environmental Protection Agency
EPPR	Emergency Prevention, Preparedness and Response
FAO	Food and Agriculture Organization
FMC	Federal Maritime Commission
FPA	Fisheries Partnership Agreement
IALA	International Association of Marine Aids to Navigation and Lighthouse Authorities
ICES	International Council for the Exploration of the Sea
IICWG	International Ice Charting Working Group
IPHC	International Pacific Halibut Commission
IMO	International Maritime Organisation
GHG	Greenhouse Gas
MARPOL	International Convention for the Prevention of Pollution from Ships
MSY	Maximum Sustainable Yield
NAFO	Northwest Atlantic Fisheries Organization
NAMMCO	North Atlantic Marine Mammal Commission
NASCO	North Atlantic Salmon Conservation Organization
NEAFC	North East Atlantic Fisheries Commission
NORDREG	Northern Canada Vessel Traffic Services

NOx	Nitrogen Oxides
NPAFC	North Pacific Anadromous Fish Commission
OCS	Outer Continental Shelf
OGP	International Association of Oil and Gas Producers
PM	Particulate Matter
PSSA	Particularly Sensitive Sea Area
RCC	Rescue Coordination Centre
RFMA	Regional Fisheries Management Association
RFMO	Regional Fisheries Management Organisation
SAR	Search and Rescue
SDWG	Sustainable Development Working Group
SEA	Strategic Environmental Assessment
SOLAS	International Convention for the Safety of Life at Sea
SOx	Sulphur Oxides
TAC	Total Allowable Catch
TROOP	Transfer of Refined Oil and Oil Products
TS	Territorial Sea
UNCLOS	United Nations Convention on the Law of the Sea
UNFSA	United Nations Fish Stocks Agreement
UNEP	United Nations Environment Programme
USGS	United States Geological Survey
VTS	Vessel Traffic Services

PART 1: INTRODUCTION

This report is a deliverable for the Arctic Climate Change, Economy and Society (ACCESS) project. It has been produced within the ACCESS Work Package 5 ("Governance, Sustainable Development and Synthesis"), during the first 13 months of the four-year project. It benefits from contributions made by a wide range of relevant stakeholders, end-users and experts in Arctic governance to whom we are grateful.

The objective of deliverable D5.11 is to provide an overview of regulatory systems, legislation and agreements relevant to three key sectors of activity in the Arctic Ocean. The report therefore focuses on **maritime shipping/tourism**, **fisheries**, and **resource extraction**, listing current regulations with a view to assessing their effectiveness, shortfalls, and conflicts - and any legislatory gaps. This compilation is meant to provide a basis with which to assess the strengths and weaknesses of these systems as they might respond to climate change over a significant period (for the ACCESS project we consider a period of 30 years).

This report is divided into three parts. The **first part** provides an introduction to the legislative instruments in their general context of operation within the Arctic Ocean, including an analysis of over-arching, international 'framework' instruments such as the United Nations Convention on the Law of the Sea. The **second part** describes the parameters and limitations of international, national, regional and bilateral agreements and legislation in place for each of the three sectors of interest. The **third part** concludes with a series of observations and summary discussion of the results of the study. This main body of the report is then followed by a series of annexes and information tables which detail the agreements, provide the resource links and summarise the legislation binding on each State.

While useful for presentational purposes, we recognize that the sectoral division of the legislation delivered in this report is less than ideal, as there is considerable operational overlap between the three areas of activity under study, and therefore a significant number of current regulations will be relevant to more than one sector. For instance, marine transportation forms a key element to almost all activities in the Arctic, providing much of the infrastructure to oil and gas exploitation and the fishing industry, and therefore many of its corresponding regulations are applicable throughout our study. It is also clear that shipping and marine transportation enjoys a relatively broad range of regulations, developed by a number of multi-state organisations over a great deal of time, and the regulatory infrastructure for shipping appears in many ways in advance of the other two sectors of interest to ACCESS. While well-developed elsewhere in the world's oceans, in many respects similar systems for Arctic Ocean-based fishing and oil and gas exploitation seem to have lagged behind that for marine transportation in their level of maturity of legislation[6].

Within Part 2, each of the sector sub-sections are presented in a format to reflect the hierarchy of legislation, viz, (a) Supranational instruments, such as conventions and guidelines, are followed by; (b) regional multinational agreements; then (c) multilateral and bilateral agreements; then (d) national legislation. Finally we conclude each sector analysis by a summary of (predominantly) non-binding proclamations, miscellaneous guidelines, codes and resolutions. Compilations of each of these categories, their sources and

[6] See Sections 2.1 - 2.3 below, and the Summary Tables in Annexes 1, 2 and 3.

applicability are provided in Annexes 1, 2 and 3 at the rear of this report. Our study, in addition, acknowledges the range of influence on international and customary law of 'soft-law' instruments such as documentary products of the United Nations, as well as the wider field of agreements and guidelines developed by many intergovernmental, regional or national bodies. It is only when all of these influences have been recognized and assimilated, that the development of strategic options for 'governance' of the region can be assessed and critically reviewed. This process will be undertaken in future report deliverables of the ACCESS project (D5.21).

Any summary of developing instruments and agreements such as this report can become outdated, virtually as soon as it is completed. An ever-changing situation exists regarding regulations and their development, and while every effort has been taken to maintain as current an assessment as possible, some update may have escaped this analysis. In this respect, the authors would remind readers that this current report provides the precursor to a more substantive deliverable under the ACCESS project, scheduled for the final year of the project (ca. April 2015), in which the effects of climate change on the efficiency of current legislation will have been assessed, alternatives and amendments to existing legislation will have been evaluated, and more appropriate governance options suggested and critically reviewed. Furthermore, it is also not the intention of this report to attempt to compile an exhaustive list describing every instrument or agreement that could possibly have bearing on activities in the Arctic marine environment. For practical purposes, the authors have tried to identify the most relevant for the purpose of establishing the *status quo* of the collective Arctic Ocean regulatory system.

It is important to recognize that the international legal system for the marine environment is one which has, through its historical development, emerged from an earlier era of assertion and **'government'** of nationally-identified or sovereign areas of marine space, to the current time where the idea of care for the environment, and the sharing of responsibility for preservation and conservation pertains in a **'governance'** mode. UNCLOS is the clearest example of this in its provision of a framework of regulation within which key topics and themes are addressed, but in a relatively general sense. The specifics of implementing these ideals and provisions has fallen to bodies created by the Law of the Sea Convention and the United Nations and its specialized agencies, such as the International Maritime Organisation and programmes such as the United Nations Environment Programme (UNEP)[7].

This report acknowledges that several documents summarising governance options in the Arctic Ocean and the Arctic region have been published over the past five years[8], and where these resources have been drawn upon during the preparation of the present report, appropriate acknowledgement has made. This present report is however prepared for and has to be seen in the perspective of the ACCESS project, that is to combine the expertise and the research results of Arctic climate scientists[9] who are providing guidance and

[7] Rothwell, D. and Stephens T. 2010. The International Law of the Sea. Hart Publishing.

[8] For example: http://arctic-transform.org/download/Options.pdf

http://www.wwf.se/source.php/1223579/International%20Governance%20and%20Regulation%20of%20the%20Marine%20Arctic.pdf

www.arcticgovernance.org

[9] ACCESS Work Package 1 – "Climate Change and the Arctic Environment"

predictions for climate change effects in the Arctic over the next three decades, together with the three sectoral work packages[10], to establish an integrated understanding of the relevance of the many physical effects of climate change in the Arctic Ocean region on the governance and sustainable development of the region.

While the details of physical changes brought by climate change over a 30 year period and their effects on current activities in the Arctic Ocean have yet to be assessed, this report provides the first step in a summary of the regulations and legislation bearing on the Arctic Ocean in the understanding of how climate change will affect governance of the marine environment of the Arctic region.

A subsequent report, D5.31 – (Assessment of inputs regarding climate change effects and impacts on extant regulatory systems derived from WP1, 2, 3, 4 – and overview and review of predicted stress on these systems) will review the effects of the climate change effects on the legislation.

The context of governance for the Arctic Ocean

Numerous national and multinational institutions have direct and indirect interest in the activities and good governance of the Arctic Ocean region. Several states carry a responsibility due to their geographic position – the five Arctic coastal states, Russia, Norway, Greenland/Denmark, Canada and the United States of America and three more, Arctic by reason of position within, or adjacent to the Arctic Circle[11] - Finland, Sweden and Iceland. Together these eight make up the Arctic Council (see below). Other non-Arctic States and multinational entities have significant interest in the governance of the Arctic Ocean – either by right of access through international law to navigation ways or the resources of the water column or the seabed - or by reason of institutional purpose, such as those environmental organisations seeking to safeguard the environment and support sustainable development in the region[12].

The Arctic Council[13]

The Arctic Council is a high level intergovernmental forum established to “provide a means for promoting cooperation, coordination and interaction among the Arctic States, with the involvement of the Arctic Indigenous communities and other Arctic inhabitants on common Arctic issues, in particular issues of sustainable development and environmental protection in

[10] WP2 – “Marine Transportation and Tourism in the Arctic domain”, WP3 – “Fisheries”, WP4 – “Resource Extraction”.

[11] The line of latitude at 66° 33′ 44″ North

[12] Examples of observers to the Arctic Council include France, Germany, Netherlands, Poland, Spain and the United Kingdom, WWF and UNEP GRID-Arendal.

[13] http://www.arctic-council.org

the Arctic". It was formally established by the Ottawa Declaration of 1996[14], and maintains six working groups providing scientific and technical input to the Arctic Council's work. These include: The Arctic Contaminants Action Programme (ACAP), the Arctic Monitoring and Assessment Programme (AMAP), Conservation of Arctic Flora and Fauna (CAFF), Emergency Prevention, Preparedness and Response (EPPR), Protection of the Marine Environment (PAME) and the Sustainable Development Working Group (SDWG). As the Arctic Council states: **"**The evidence of global warming is in no place more obvious than in the Arctic region. The Arctic has warmed rapidly during the last four decades. The magnitude of temperature increase in the Arctic is twice as large as the global increase. The effect of Arctic climate change will have profound local, regional and global implications."

Ilulissat Declaration[15]

In 2008 the five Arctic coastal States issued the Ilulissat Declaration stating their commitment to the existing legal framework and to their cooperation with each other and interested parties to protect the environment and its natural resources. The Declaration also establishes that there is "no need to develop a new comprehensive international legal regime to govern the Arctic Ocean" (see Part 3 below).

Existing supranational legislation, agreements and guidelines

A number of principally supranational instruments and guidelines are in common use in all parts of the world's oceans, including the Arctic. While we will deal with the majority of these within the separate sectoral sections in Part 2, we here make an introductory short analysis of the 1982 United Nations Convention on the Law of the Sea[16].

The United Nations Convention on the Law of the Sea

The United Nations Convention on the Law of the Sea (UNCLOS) provides an over-arching governance for the marine environment and the activities within it. While general in its approach, it has thematic/geographic sections (Parts) and Articles within these, some of which have specific and direct application to polar regions, as well as to the sectoral issues of interest to this study. Four of the five coastal states of the Arctic Ocean are signatories and have ratified the Convention: Canada, Norway, Russian Federation, Denmark (Greenland). The USA remains the only non-signatory but, nonetheless, maintains that it is compliant with customary international law, including the Convention. All three of the remaining members of the Arctic Council (Sweden, Finland and Iceland) are signatories, as is the European Union.

One of the principal components of UNCLOS is to identify the rights and responsibilities of coastal states for different extents of their maritime space. An understanding of these areas in the Arctic is critical to assessing the governance options and responsibilities for the region.

[14] http://www.arctic-council.org/index.php/en/about/documents/file/13-ottawa-declaration

[15] http://www.oceanlaw.org/downloads/arctic/Ilulissat_Declaration.pdf

[16] http://www.un.org/depts/los/convention_agreements/convention_overview_convention.htm

Parts II, V, VI and VII of the Convention cover territorial sea, exclusive economic zone, continental shelf and high seas, respectively. Figure 1 shows a simplified cross-section through a continental margin illustrating the spatial relationship between these different parts of a coastal state's jurisdiction.

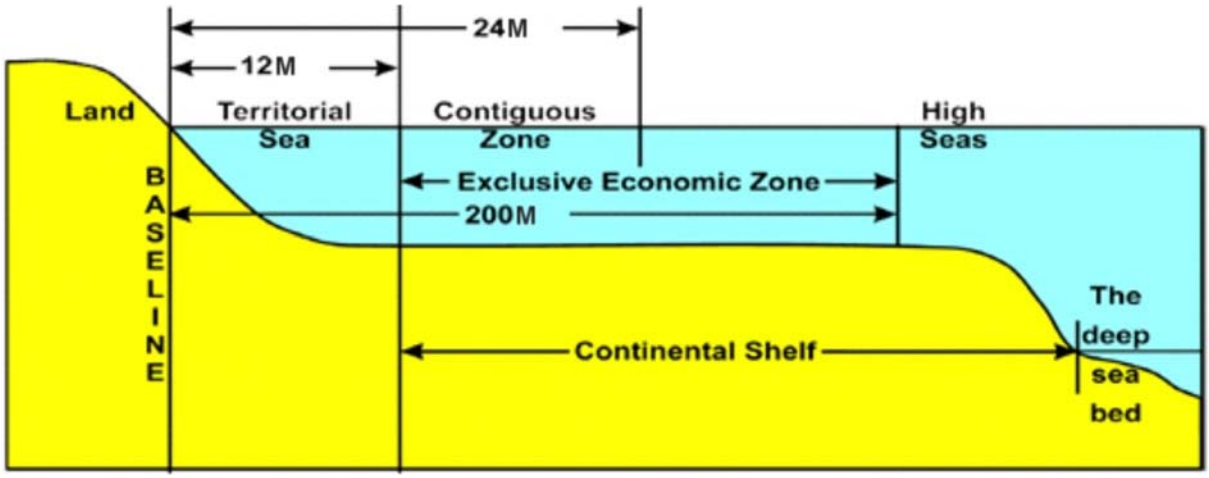

Figure 1. *Schematic cross-section through a continental margin illustrating the spatial relationship between Territorial Sea, Exclusive Economic Zone, Continental Shelf, High Seas and the Area, in accordance with UNCLOS.*

UNCLOS confirms the coastal state its sovereignty over the waters of the territorial sea (TS), its seabed and subsoil, to a limit of 12 nautical miles (12M) from the baselines drawn in accordance with the Convention[17]. Beyond the TS, the Exclusive Economic Zone (EEZ) of a coastal state is an area within which it retains "sovereign rights for the purpose of exploring and exploiting, conserving and managing the natural resources, whether living or non-living, of the waters superjacent to the seabed and of the seabed and the subsoil….". The EEZ has a maximum limit of 200 nautical miles (200M). Beyond this, particular combinations of the configuration of the seafloor and its geology may allow the coastal state to extend sovereign rights for the exploration and exploitation on the outer continental shelf of its natural resources beyond 200M. These rights, however, are restricted to those mineral and other non-living resources of the seabed and subsoil, together with living organisms belonging to the sedentary species[18].

Only the five Arctic coastal States are eligible for these components of the waters of the Arctic Ocean and the seabed thereunder. The remaining three Arctic States Iceland, Sweden, and Finland do not hold sovereign rights to exploration or exploitation of any resource, either in the water column or on the seabed or subsoil. No other State, coastal or otherwise, has rights under the Convention, to explore or exploit non-living mineral resources in the region (see Figure 2).

[17] Articles 3 and 4 of UNCLOS

[18] Article 76 and 77 of UNCLOS

The part of the deep seafloor beyond national jurisdiction is referred to under the 1982 Convention as the Area[19], and within this part all minerals and non-living resources are the common heritage of mankind, according to Article 136. Such resources of this nature that do exist are to be administered by the International Seabed Authority, one of the supranational organs set up under the Convention. Those resources of the water column, however, fall within the High Seas regime - although living resources on, or under the seafloor are outside provisions afforded by the Convention[20]. There may be at least two parts of the Arctic Ocean that will eventually be recognised as contributing to the global Area, although their exact configurations will not be known until all of the coastal states have received recommendations in respect of their continental shelf areas from the Commission on the Limits of the Continental Shelf (CLCS[21]) - by default, the Area becomes the seafloor remaining after national jurisdiction has been out in place. Given that the USA has yet to ratify the Convention and therefore establish its outer continental shelf limits, this situation could be some time away (see Figure 3).

The coexistence of legislative regimes for High Seas/Outer Continental Shelf/Area has implications worth noting. There is a long-recognised conflict which arises from implementation of the UNCLOS provisions in Parts 6 and 8 (Continental Shelf and High Seas, respectively), which results from the fact that in areas of the outer continental shelf the resources of the water column and the resources of the seabed and subsoil are under different jurisdictions. Those of the water column fall into the regime of High Seas and are thus open to any States wishing to exercise its freedom to fishing, but the natural resources of the seabed and subsoil fall with the rights of exploration and exploitation by the appurtenant coastal state. Despite best practice, it is inevitable that either fishing or oil exploitation activities is potentially able to create an impact on the other. It can be estimated that the extent of this dual-regime area could be as much as 14.5 % of the Arctic Ocean (or 72% of the Arctic Ocean beyond coastal states EEZs)[22].

Similarly, the general and specific provisions for the Area (UNCLOS Part XI) create a potential tension between exploitation of water column resources, and those which could be licenced activities in the areas beyond national jurisdiction (ABNJ)[23].

[19] Part XI of UNCLOS deals wholly with the Area.

[20] This lacuna in the UNCLOS provisions has long been recognised. The lack of governance in place for deep seafloor fauna and flora was not seen as a problem by the drafters of The Convention. However, recent significant discoveries of the biomedical and pharmaceutical potential of the biomass demand a reappraisal of it as a significant resource. (See, for example, Leary et al, 2009; Hopwood, 2007; Arico & Salpin, 2005)

[21] http://www.un.org/depts/los/clcs_new/clcs_home.htm

[22] The Arctic Ocean has an approximate area of 14,056,000 sq km, with a coastline length of 45,390 km. The combined exclusive economic zone areas of the five coastal states is around 11,256,000 sq km, and high seas total is ca. 2,800,000 sq km. Beyond national jurisdiction, the Area in the Arctic Ocean is estimated to account for approximately 760,000 sq km.

[23] Under the auspices of the International Seabed Authority, the UN organ created under Part XI of the Convention, and charged with stewardship (and exploitation licencing) of the non-living seabed resources in the ABNJ. See above and at http://www.isa.org.jm.

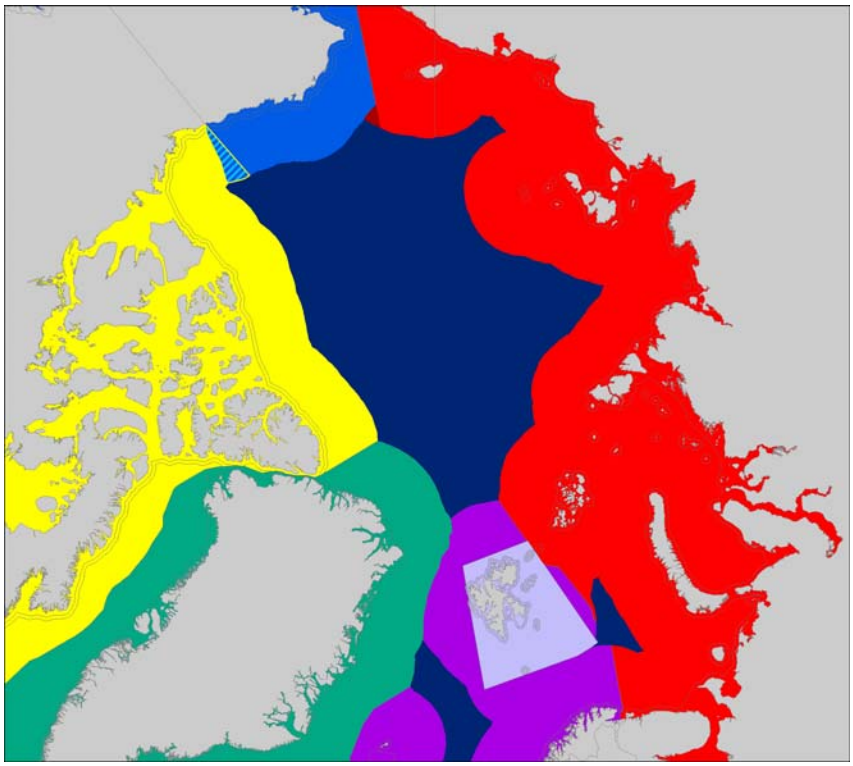

Figure 2. *Summary of Arctic coastal States EEZ regions (red – Russia, purple – Norway, green – Denmark/Greenland, yellow – Canada, mid-blue – USA), and high seas in dark blue. Dark red area denotes area subject to the 1990 agreement between USA and USSR[24], pale purple covers the area of the Treaty of Spitsbergen[25], hatched blue covers the disputed area between Canada and the USA in their Arctic EEZs.*

[24] http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/PDFFILES/TREATIES/USA-RUS1990MB.PDF

[25] See, for instance, http://www.arcticgovernance.org/the-treaty-on-the-status-of-spitsbergen-paris-9-february-1920.4642059-137746.html

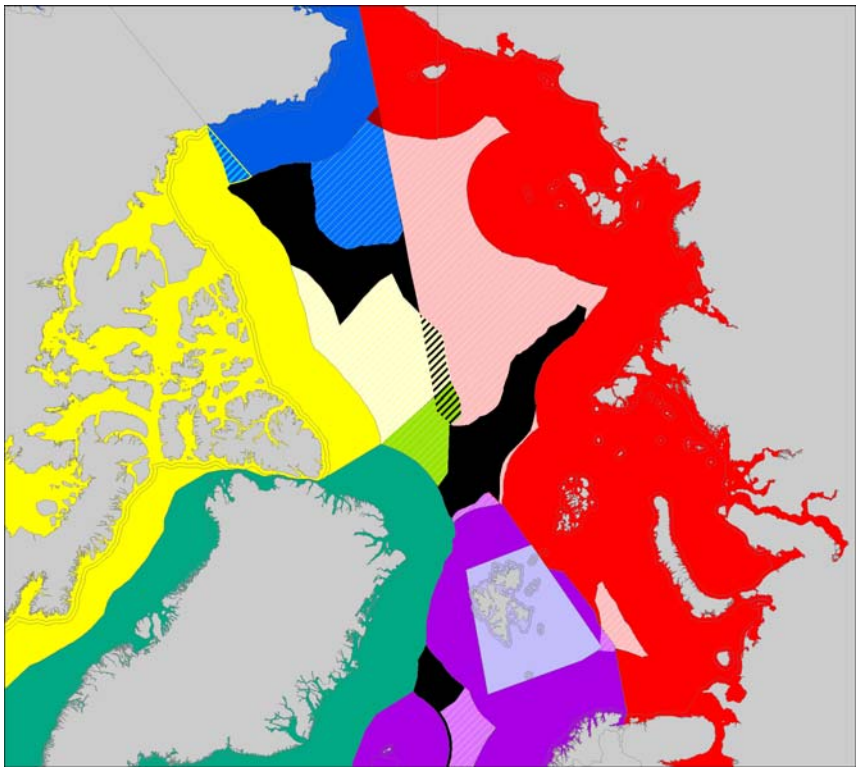

Figure 3. *Approximate distribution of outer continental shelf areas submitted or predicted for the coastal Arctic States. Legend as for Figure 2, in addition to pale colours signifying existing or predicted OCS submission areas. Only Norway has received Final Recommendations from the Commission on the Limits of the Continental Shelf*[26]*. Other states lag behind in the process (deadline for submission for Canada is 2013, Denmark/Greenland is 2014, Russia is preparing a re-submission at a date to be confirmed (although 2012 is possible) and the USA has yet to ratify the Convention. Hatched area denotes potential overlap between Russia*[27] *and predicted Canadian and Denmark/Greenland submissions, which results from different arguments and construction of OCS areas. Black – coverage of potential Area (ABNJ, ISA, UNCLOS Part XI), although unpublished analyses suggest these three areas may reduce to two, following new data* acquisition and extension of provisional OCS claims.

In the terms of **maritime transportation**, UNCLOS provides a basis for shipping in a general sense. UNCLOS establishes the principal rights and obligations for flag States and coastal States. The concept of the nationality of the ship and the jurisdiction of the flag State over the ship is fundamental with the flag State enforcing not only its national law but also international law.

[26] In accordance with Article 76 para 8. See http://www.un.org/depts/los/clcs_new/submissions_files/submission_nor.htm#Recommendations_

[27] http://www.un.org/depts/los/clcs_new/submissions_files/submission_rus.htm

UNCLOS Part XII provides for the protection and preservation of the marine environment in general[28] and, more specifically, in respect of pollution from vessels[29] and the introduction of new or alien species[30]. UNCLOS Part XII Section 6 covers enforcement with respect to pollution. This covers flag State's responsibilities[31], enforcement by port and coastal States[32] and measures relating to seaworthiness of vessels[33].

Further legislation concerning safety at sea, vessel source pollution and maritime traffic management is contained within other instruments and guidelines – primarily those of the International Maritime Organization (IMO), discussed later in this report. In some instances, such regulations are referred to within UNCLOS via references to "competent international organizations"[34] "generally accepted international rules or standards"[35] or "generally accepted international regulations"[36].

Detailed provisions on ship-source pollution are covered in UNCLOS Article 211 (see Part 2, below on maritime transport and tourism).

Of particular relevance to the Arctic Ocean is Article 234 allowing the application of special laws and regulations in ice-covered areas within the limits of the exclusive economic zone (but by omission, not the continental shelf beyond 200M)[37]. This article provides that coastal States may adopt and enforce more stringent measures for vessels in ice-covered areas within the EEZ provided such measures comply with the requirements set out in the Article. These measures should be non-discriminatory, should be based on best available scientific evidence and shall give due regards to navigation.

Within UNCLOS, **fisheries** are dealt with in broad, general terms. Wide discretion is afforded to coastal States which enjoy sovereignty over marine resources within their territories. UNCLOS provides that within its EEZ a coastal State has 'sovereign rights for the purpose of

[28] UNCLOS Article 192

[29] UNCLOS Article 211

[30] UNCLOS Article 196

[31] UNCLOS Article 217

[32] UNCLOS Article 218 and 220

[33] UNCLOS Article 219

[34] For example see Article 22.1(a), Article 41.4 and 41.5

[35] UNCLOS Article 21(2)

[36] UNCLOS Article 21(4)

[37] UNCLOS, Article 234: "Coastal States have the right to adopt and enforce non-discriminatory laws and regulations for the prevention, reduction and control of marine pollution from vessels in ice-covered areas within the limits of the exclusive economic zone, where particularly severe climatic conditions and the presence of ice covering such areas for most of the year create obstructions or exceptional hazards to navigation, and pollution of the marine environment could cause major harm to or irreversible disturbance of the ecological balance. Such laws and regulations shall have due regard to navigation and the protection and preservation of the marine environment based on the best available scientific evidence."

exploring and exploiting, conserving and managing' the fish stocks of the zone[38]. These rights are, however, subject to duties. The coastal State is required to establish the total allowable catch (TAC) for each fish stock within its EEZ[39].

Article 61(3) stipulates that Coastal States must take measures to ensure that fish stocks within their EEZs are not endangered by over-exploitation, that stocks are maintained or restored to "levels which can produce the maximum sustainable yield (MSY), qualified by relevant environmental and economic factors, and taking into account fishing patterns, the interdependence of stocks and any generally recommended international minimum standards, whether sub regional, regional or global"[40]. When taking such measures coastal States shall take into consideration the interdependence of stocks and effects on species associated with or dependent upon harvested species with a view to maintaining or restoring populations of such associated or dependent species above levels at which their reproduction may become seriously threatened.[41] Without prejudice to Article 61, a coastal State is also required to promote the objective of optimum utilisation of living resources within the EEZ[42].

If the same stock or stocks of associated species occur within the EEZs of two or more coastal States, the States must seek, either directly or through appropriate sub regional or regional organizations, to agree upon measures to coordinate and ensure the conservation and development of such stocks[43].

Where fishermen of the coastal State are unable to take the whole allowable catch, discretion is allowed to the coastal State when deciding which other States are to be given access to the surplus[44]. UNCLOS also enables a coastal State to take measures to ensure compliance with its laws and regulations[45].

All States have the right for their nationals to engage in fishing on the high seas subject to various obligations, rights and duties and provisions[46]. UNCLOS establishes a duty on interested States to cooperate with each other in the conservation and management of living resources in the areas of the high seas[47] and to cooperate to establish sub regional or regional fisheries organizations where States whose nationals exploit identical living resources, or different living resources in the same area[48]. States are to take into account the same criteria as those required in fisheries in the EEZ namely, best scientific evidence, interdependence of stocks and generally recommended international minimum standards, whether sub regional, regional or global[49].

[38] UNCLOS Article 56(1)

[39] UNCLOS Article 61(1)

[40] UNCLOS Article 61(3)

[41] UNCLOS Article 61(4)

[42] UNCLOS Article 62(1)

[43] UNCLOS Article 63(1)

[44] UNCLOS Article 62(2)

[45] UNCLOS Article 71

[46] UNCLOS Article 116

[47] UNCLOS Article 117

[48] UNCLOS Article 118

[49] UNCLOS Article 119

States bordering an enclosed or semi-enclosed sea are required to cooperate with each other in the exercise of their rights and in the performance of their duties under UNCLOS. To this end they must "endeavour, directly or through an appropriate regional organization:

> *(a) to coordinate the management, conservation, exploration and exploitation of the living resources of the sea;*
>
> *(b) to coordinate the implementation of their rights and duties with respect to the protection and preservation of the marine environment;*
>
> *(c) to coordinate their scientific research policies and undertake where appropriate joint programmes of scientific research in the area;*
>
> *(d) to invite, as appropriate, other interested States or international organizations to cooperate with them in furtherance of the provisions of this article"*[50].

UNCLOS confers on a coastal State the sovereign rights to **explore and exploit resources** within its EEZ[51], while also establishing jurisdiction "with regard to the establishment and use of artificial islands, installations and structures"[52]. UNCLOS also confers to coastal States sovereign rights to explore and exploit natural resources of the continental shelf[53]. Coastal States also have exclusive rights to authorise and regulate drilling on the continental shelf[54]. Although Article 77 does not mention the coastal State's jurisdiction for the purpose of conservation or the protection and preservation of the marine environment, such jurisdiction would be implied if it would be exercised in relation to offshore hydrocarbon activities (Koivurova and Molenaar, 2009).

One of the most successful components of the 1982 Convention is the development, in part from pre-existing regulations, of the section dealing with Marine Environmental Protection - Part XII – "**Protection and preservation of the marine environment**". As a result of this framework and the treaties and agreements which have flowed from it, the regime is now detailed and relatively comprehensive[55]. The limitation of accidental and operational vessel-sourced pollution is in general relatively successful. However, exceptions on a major scale do occur, such as the 1989 Exxon Valdez[56], (but see below in Part 2). The provisions within Part XII include Sections 1-3, which apply to all sources of marine pollution as well as provisions on individual sources of pollution, e.g. sources of 'pollution from seabed activities subject to national jurisdiction' (Article 208), pollution by dumping (Article 210). Article 208, one of the over-arching background provisions of Part XII, stipulates that:

[50] UNCLOS Article 123

[51] UNCLOS, Article 56(1)(a)

[52] UNCLOS, Article 56(1)(b)(i)

[53] UNCLOS, Article 77(1)

[54] UNCLOS, Article 81

[55] For a more complete analysis, see Donald Rothwell and Tim Stephens, 2010, The International Law of the Sea, Hart Publishing.

[56] See, for example, http://www.akrrt.org/Archives/Response_Reports/ExxonValdez_NRT_1989.pdf

"1. Coastal States shall adopt laws and regulations to prevent, reduce and control pollution of the marine environment arising from or in connection with seabed activities subject to their jurisdiction and from artificial islands, installations and structures under their jurisdiction, pursuant to articles 60 and 80.

2. States shall take other measures as may be necessary to prevent, reduce and control such pollution.

3. Such laws, regulations and measures shall be no less effective than international rules, standards and recommended practices and procedures.

4. States shall endeavour to harmonize their policies in this connection at the appropriate regional level.

5. States, acting especially through competent international organizations or diplomatic conference, shall establish global and regional rules, standards and recommended practices and procedures to prevent, reduce and control pollution of the marine environment referred to in paragraph 1. Such rules, standards and recommended practices and procedures shall be re-examined from time to time as necessary[57]."

A wide range of additional Articles within the 1982 Convention cover further issues of protection and preservation. Article 192 covers the obligation on all States to protect and preserve the marine environment, Article 194 details measures to prevent, reduce and control pollution of the marine environment – particularly vessel sourced pollution. Article 194(3)(b) includes "…pollution from vessels, in particular measures for preventing accidents and dealing with emergencies, ensuring the safety of operations at sea, preventing intentional and unintentional discharges, and regulating the design, construction, equipment, operation and manning of vessels". Article 194(5) establishes an obligation to "protect and preserve rare or fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life". Article 196 deals with the introduction of alien species. Cooperation between national and international bodies is highlighted in Article 197, on a global or regional basis in "formulating and elaborating international rules, standards and recommended practices and procedures consistent with this Convention ...". Article 199 outlines contingency plans against pollution, Article 204 the monitoring of risks or effects of pollution, and Article 206 the assessment of potential effects of activities.

Anthropogenic noise in the marine environment is also addressed in UNCLOS, which establishes the general duty to prevent, reduce and control pollution "from any source"[58]. "Pollution of the marine environment" is defined as "the introduction by man directly or indirectly of substances or energy ... which result or is likely to result in such deleterious effects as harm to living resources and marine life"[59].

[57] This final paragraph allows for the regional rules adopted by OSPAR Commission.

[58] UNCLOS Article 194(1)

[59] UNCLOS Article 1(4)

Section 5 of Part XII carries 6 articles (207-212) containing legislation to prevent, reduce and control pollution of the marine environment, which – among other matters - ensure that States adopt laws and regulation on a global scale, and that Coastal States adopt regulations on a regional scale for this purpose. Sections 6 and 7 (Enforcement and Safeguards) provide the structure on which organisations such as the International Maritime Organisation (IMO) continue to develop detailed regulations and guidelines for implementation.

Sector analysis

The next part of this report will provide an overview of the three sectors of principal focus for ACCESS – marine transportation and tourism, fisheries and resource extraction. This will be followed in Part 3 by a synthesis of observations and report conclusions. Annexes 1, 2 and 3 contain tables of regulation parameters and implementation information included at the rear of the main document.

Throughout the remainder of this document, a classification to each regulatory instrument, agreement or guidelines will be made by one of the letter B, NB or V these respectively indicating whether it is binding, non-binding, or voluntary.

PART 2: SECTORAL ANALYSES

2.1 SHIPPING AND TOURISM

2.1.1 Background

Current shipping activity in the central Arctic Ocean is low (AMSA, 2009). However, with the reduction of sea ice an increase in shipping activity is inevitable. Patterns to this activity are already developing. AMSA (2009) predicts that at least initially (up to 2020) this will be traffic travelling to and from Arctic harbours rather than trans-Arctic between continents. The main drivers of this activity will be the natural resource development (hydrocarbons, hard minerals and fisheries), regional trade and tourism. For trans-Arctic shipping to develop will take time – constrained initially by a lack of major ports (apart from those in northern Norway and northwest Russia) and critical infrastructure. AMSA (2009) identifies the Bering Strait region as an area likely to be heavily impacted by increased marine traffic due to hydrocarbon developments. While the Northwest Passage (Figure 4) is not expected to become a viable trans-Arctic route in the short-term, destinational shipping (i.e. conducted for community re-supply, marine tourism and moving natural resources out of the Arctic) is expected to increase (AMSA, 2009). Marine transportation of oil and gas from the Pechora Sea to Europe is considered to be technically and economically feasible. AMSA (2009) predicts the estimated volumes of maritime traffic are about 40 million tons of oil and gas per year by 2020 through the Northern Sea Route.

The principal threat to the Arctic marine environment from shipping is the intentional or accidental release of oil. A further threat is noise from increased shipping activity which is likely to have a negative impact on marine vertebrates for most of which the production, hearing and processing of sounds serve critical biological functions. The introduction of noise into the environment can adversely affect the ability of marine life to use sound in various ways resulting in altered behaviour; reduced communication ranges for social interactions, foraging, and predator avoidance; and temporary or permanent compromise of the auditory or other systems.

Further threats to marine fauna include impacts on marine mammals from disruption to migratory patterns and ship strikes. Particularly vulnerable are choke-points in the Bering Strait, Lancaster Sound and Kara Gate (Figure 4). Currently most shipping activity takes place after mammals have migrated through these choke-points but more local shipping may take place in summer/autumn feeding areas. Additionally, the reduction in sea ice may lengthen the season during which shipping can take place leading to more conflicts between migratory species and shipping.

AMSA (2009) identifies the introduction of invasive species and pathogens via ballast water, fouling of hulls, cargo operations, casualties or shipwrecks as significant threats. In particular, certain risks may be enhanced by climate change making conditions more favourable for some species.

Black carbon (soot) from shipping is also identified as having a potential significant regional impact by accelerating ice melt[60] (Arctic Council, 2011). Other emissions from shipping, including greenhouse gases (GHGs), nitrogen oxides (NOx), sulphur oxides (SOx) and

[60] Black carbon (BC) particles strongly absorb sunlight and give soot its black colour. BC remains in the atmosphere for days to weeks and warms the climate by absorbing both incoming and outgoing solar radiation and by darkening snow and ice after deposition, thereby reducing the surface albedo or reflectivity. This albedo effect is particularly prevalent in the Arctic region (Arctic Council, 2011).

particulate matter (PM) may have negative effects on the Arctic environment and are predicted to increase in the Arctic region proportionately with increased shipping activity (AMSA, 2009).

The Arctic Council states "the increased use of Arctic waters for tourism, shipping, research and resource development also increases the risk of accidents and, therefore, the need to further strengthen search and rescue capabilities and capacity around the Arctic Ocean to ensure an appropriate response from states to any accident"[61]. In terms of the number of people, geographic range and types of activity, marine-based tourism is the largest segment of the Arctic tourist industry. The number of cruise ships visiting Arctic waters has increased rapidly over recent years and is predicted to continue to do so. Vessels range from relatively small expedition-style vessels holding less than 200 people to luxury cruise liners that can hold 1,000 people or more (AMSA, 2009). Tourism is currently focussed mainly around Greenland, Iceland, Norway (including Svalbard) and Alaska but with this comes clear risks. The number of tourists already visiting Arctic waters now exceeds the emergency response capabilities of local communities (AMSA, 2009). AMSA (2009) reports that although the vast majority of vessels in the global cruise ship fleet are not constructed or designed to operate in Arctic it is possible that in the future many more will visit Arctic waters.

International regulation of shipping lies primarily with the IMO whose mandate covers maritime security and safety, covered by a range of legally binding and non-binding legislation and guidelines. UNCLOS establishes provisions on vessel source-pollution and the rights and obligations, for example of passage, within defined maritime zones.

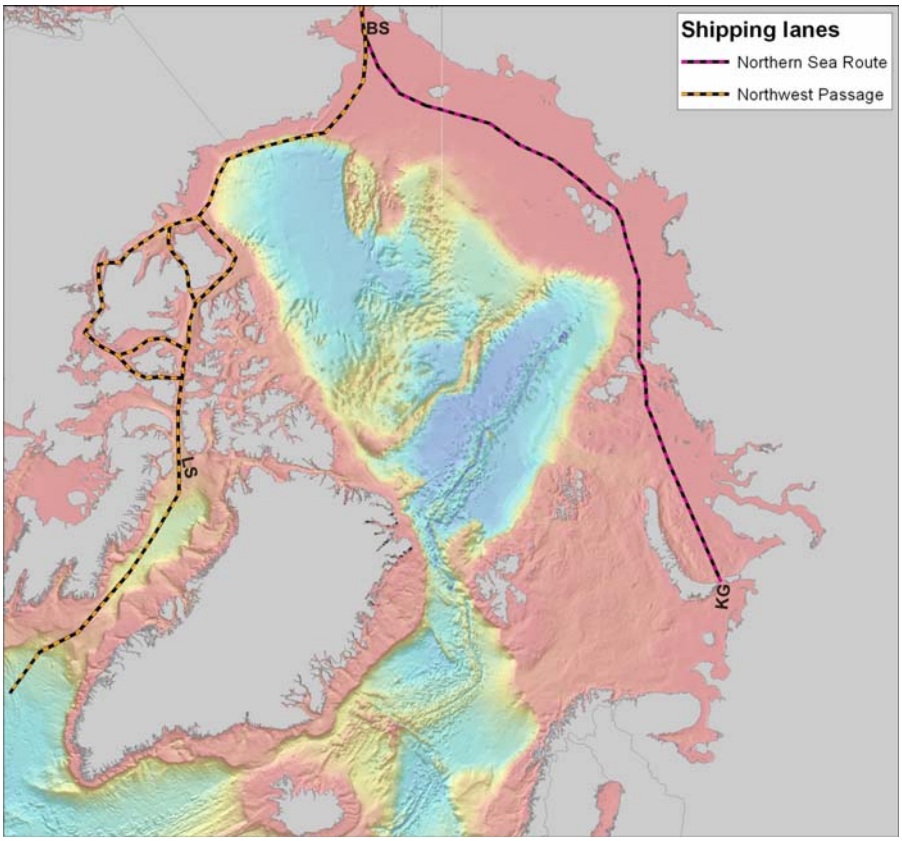

Figure 4. *Northern Sea Route and Northwest Passage. For discussion see text. (BS – Bering Strait; KG – Kara Gate; LS – Lancaster Sound)*

[61] http://www.oceanlaw.org/downloads/arctic/Ilulissat_Declaration.pdf

2.1.2 Supranational instruments, agreements and guidelines

The International Maritime Organisation (IMO) is the United Nations specialised agency with responsibility for the safety and security of shipping and the prevention of marine pollution by ships. A range of legally binding and non-binding instruments relating to maritime safety and vessel-sourced pollution has been adopted by IMO[62]. The IMO has one hundred and seventy member states and three associate member states. The European Commission has observer status. IMO-derived instruments include:

International Convention for the Prevention of Pollution from Ships, (1973), as modified by the Protocol of 1978 relating thereto (MARPOL 73/78) and 1997 Protocol (B)

This combined IMO instrument entered into force on 2 October 1983 (Annexes I and II). Annexes III and IV were added later and came into force on 1 July 1992 and 27 September 2003, respectively. Annex V came into force on 31 December 1988. In 1997 a Protocol was adopted to add a further annex, Annex VI, in force 19 May 2005. Annexes I and II currently have 151 Parties, Annex III - 136 Parties, Annex IV - 139 Parties, Annex V - 143 Parties and Annex VI – 68 Parties (at 31 January 2012). Arctic Ocean states are parties to all annexes apart from Annex V to which the USA is not a party.

The geographical range of the Convention is global. However, some areas are designated as Special Areas in which more stringent rules relating to discharges apply[63].

MARPOL 73/78, unlike UNCLOS, defines pollution only in terms of introduction of 'substance' but not ‘energy’. The objective of the Convention is to eliminate pollution of the marine environment by oil, chemicals and other harmful substances and to minimize accidental discharge of such substances. Annex VI of MARPOL, included in The 1997 Protocol, sets limits on sulphur oxide and nitrogen oxide emissions from ship exhausts and prohibits deliberate emissions of ozone-depleting substances.

The detailed technical content is contained in six Annexes to the Convention[64] covering, inter alia, certification, construction, operational standards and discharge standards, and procedures. Annexes I, II, V and IV define areas to be considered ‘Special Areas’ which require a higher level of protection due to a proven effect from international shipping on their oceanographical and ecological condition. Special criteria and procedures are developed for the designation of ‘Special Areas’. In addition, Annex VI establishes emission control areas where more stringent controls on NOx and SOx emission apply.

The 1972 Convention on the International Regulations for Preventing Collisions at Sea (COLREGs) (B)

[62] IMO: www.imo.org

[63] MARPOL 73/78 Annexes I, II and V

[64] Annex I Regulations for the Prevention of Pollution by Oil; Annex II Regulations for the Control of Pollution by Noxious Liquid Substances in Bulk; Annex III Regulations for the Prevention of Pollution by harmful Substances Carried by Sea in packaged Form, or in Freight Containers, Portable Tanks or Road and Rail Wagons; Annex IV Regulations for the Prevention of Pollution by sewage from Ships; Annex V Regulations for the Prevention of Pollution by Garbage from ships; Annex VI Regulations for the Prevention of Air Pollution from Ships

The IMO COLREGs were adopted in 1972 and entered into force on 15 July 1977. The geographical range of the Convention is global. The Convention has 154 Parties, including all Arctic Ocean coastal States.

The primary focus of the COLREG Convention is navigation. Part B establishes rules for, inter alia, look out[65], safe speed[66], risk of collision[67], narrow channels[68] and traffic separation schemes[69].

International Convention for the Safety of Life at Sea 1974 (SOLAS) (B)

The current IMO SOLAS Convention was signed in November 1974 and entered into force on 25th May 1980. The geographical range of the Convention is global and it has been ratified by all Arctic Ocean coastal States.

The primary objective of the SOLAS Convention and its Protocols[70] is to specify minimum standards for the construction, equipment and operation of ships, compatible with their safety. It is the responsibility of Flag States to ensure that ships under their flag comply with its requirements. A number of certificates are prescribed in the Convention as proof that this has been done together with rules applying to inspection, surveys and control of ships, and issuance, endorsement and duration of certificates. Parties agree to communicate to the Secretary-General of the IMO, *inter alia*, the measures they have adopted on the various matters within the scope of the Protocol.

Of particular relevance in Arctic waters is Chapter V, Safety of Navigation. Contracting Governments undertake to encourage the collection, examination, dissemination and exchange of meteorological data by ships at sea – including ice data[71]. Ships transiting the region of icebergs guarded by the Ice Patrol during the ice season are required to make use of the services provided by the Ice Patrol[72]. Masters are required to communicate to ships in the vicinity, and also to the competent authorities, information on dangers to navigation – including ice[73].

When adopted and implemented in accordance with the guidelines and criteria developed by the IMO, the SOLAS Convention, Chapter V, Regulation 10 establishes the basis for making ship's routeing systems mandatory. "The purpose of ship's routing is to improve the safety of navigation in converging areas and in areas where the density of traffic is great or where freedom of movement of shipping is inhibited by restricted sea-room, the existence of obstructions to navigation, limited depths or unfavourable meteorological conditions"[74].

[65] COLREG Part B, Rule 5

[66] COLREG Part B, Rule 6

[67] COLREG Part B, Rule 7

[68] COLREG Part B, Rule 9

[69] COLREG Part B, Rule 10

[70] The Protocol of 1978 relating to the International Convention for Safety of Life at Sea of 1 November 1974 and the Protocol of 1988 relating to the International Convention for the Safety of Life at Sea, 1974

[71] SOLAS, Chapter V, Regulation 5

[72] SOLAS, Chapter V, Regulation 6

[73] SOLAS, Chapter V, Regulations 31 and 32

[74] IMO Resolution A.572(14) of 20 November 1985, General Provisions on Ships Routeing

International Convention for the Control and Management of Ship's Ballast Water and Sediments (BWMC) (B)

The IMO BWMC[75] was adopted 13th February 2004 but has yet to enter into force.

The geographical range of the Convention is global. To date (December 2011) the convention has been ratified by 30 Parties - estimated to amount to 26.44% of world tonnage[76]. Arctic Ocean coastal states that are parties to the Convention are Canada and Norway.

The objective of the Convention is to prevent the introduction of harmful aquatic organisms and pathogens to new environments via ships' ballast waters. The Convention allows that, with the permission of the IMO, Parties may apply higher standards[77]. The Annex contains, inter alia, Management and Control Requirements for Ships (stipulating that as an absolute minimum ships should not undertake ballast water exchange less than 50 nautical miles from the nearest land and in water at least 200 metres in depth)[78], Standards for Ballast Water Management[79] and Survey and Certification Requirements for Ballast Water Management[80].

International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, London, 1 December 1978 (STCW)[81] (B)

The IMO STCW came into force 28 April 1984 with 155 signatories. All Arctic Ocean coastal States are signatories. The geographical range of the Convention is global.

The aim of the STCW is to promote safety of life and property at sea and the protection of the marine environment by establishing in common agreement international standards of training, certification and watchkeeping for seafarers.

The Annex to the Convention details, inter alia, Content of certificates and form of endorsement[82], basic principles to be observed in keeping a navigational watch[83], Mandatory minimum requirements for certification of masters and chief mates of ships of 200 gross register tons or more[84] and Appendix to Regulation II/2, which details the syllabus for candidates to be examined for certification as master or chief mate of ships of 200 gross register tons or more.

[75] About the BWMC: http://www.imo.org/About/Conventions/ListOfConventions/Pages/International-Convention-for-the-Control-and-Management-of-Ships'-Ballast-Water-and-Sediments-(BWM).aspx

[76] http://www.imo.org/OurWork/Environment/BallastWaterManagement/Pages/Default.aspx#5

[77] BWMC, Annex, Section C

[78] BWMC, Annex, Section B

[79] BWMC, Annex, Section D

[80] BWMC, Annex, Section E

[81] http://www.admiraltylawguide.com/conven/stcw1978.html

[82] STWC Annex, Chapter I Regulation I/2

[83] STWC, Annex, Chapter II Regulation II/1

[84] STWC, Annex, Chapter II, Regulation II/2

The 2010 Amendments to the STCW include measures to ensure the competency of masters and officers of ships[85]. It is recommended "that government adopt measures conducive to ensuring that masters and officers of ships, which operate in polar waters, have appropriate training and experience, so that are able to: i) plan voyages to polar waters, taking into account glaciological, hydrographic, oceanographic and meteorological factors; ii) navigate safely in polar waters, in particular in restricted ice-covered areas under adverse conditions of wind and visibility; and iii) supervise and ensure compliance with the requirements deriving from intergovernmental agreements and with those relating to safety of life at sea and protection of the marine environment".

Section B-V/g provides guidance regarding training of masters and officers for ships operating in polar waters including ice characteristics, ship's performance in ice and cold climate, voyage and passage planning in ice, operating and handling a ship in ice, regulations and recommendations, equipment limitations, safety precautions and emergency procedures and environmental considerations.

The Manila amendments to the STCW Convention and Code, adopted on 25 June 2010 and set to enter into force on 1 January 2012, are a major revision of the STCW Convention and Code. The 2010 amendments aim to bring the Convention and Code up to date with developments since they were initially adopted and to enable them to address issues that are anticipated to emerge in the foreseeable future[86].

International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances at Sea, 1996 and **the 2010 HNS Protocol (2010 HNS Convention)** (B)

The IMO Convention, adopted 3 May 1996, was superseded by 2010 Protocol adopted 30 April 2010 but not yet in force. The geographical range of the 2010 HNS Convention is global. To date (March 2012) no Arctic Coastal States are signatories to the 2010 Convention.

The objective of the Convention is to establish a comprehensive regime covering pollution damage from hazardous and noxious substances carried by ships, as well as the risks of fire and explosion, including loss of life, personal injury, and loss of or damage to property. The Convention aims to ensure adequate, prompt and effective compensation for damage to persons and property, costs of clean up and reinstatement measures and economic losses resulting from the maritime transport of hazardous and noxious substances.

International Convention on the Control of Harmful Anti-fouling Systems on Ships (AFS Convention) (B)

The IMO AFS Convention, adopted 5 October 2001, entered into force 17 September 2008. The Convection currently has 55 signatories. Arctic Ocean coastal Contracting States are Canada, Denmark and Norway. The geographical range of the convention is global.

The Convention prohibits the use of anti-fouling paints containing harmful organotins on ships and establishes a mechanism to prevent the potential future use of other harmful

[85] STWC 2010, Resolution 11

[86] http://www.imo.org/About/Conventions/ListOfConventions/Pages/International-Convention-on-Standards-of-Training,-Certification-and-Watchkeeping-for-Seafarers-(STCW).aspx

substances in anti-fouling systems. Annex 1 contains a list, updated as necessary, of anti-fouling systems to be prohibited or controlled.

International Convention on Maritime Search and Rescue Convention (SAR Convention) (B)

The IMO SAR Convention was adopted on 27 April 1979 and came into force 2 June 1985. All Arctic Ocean coastal states are parties. Prior to the Convention there was no international system covering search and rescue operations. Parties are encouraged to enter into SAR agreements with neighbouring States and the establishment of SAR regions, the pooling of facilities, establishment of common procedures, training and liaison visits. Parties should take measures to expedite entry into their territorial waters of rescue units from other Parties.

The Convention establishes preparatory measures including the establishment of rescue co-ordination centres and sub-centres. It outlines operating procedures to be followed in the event of emergencies or alerts and during SAR operations including the designation of an on-scene commander and his duties. Parties are also required to establish ship reporting systems, under which ships report their position to a coast radio station so reducing the interval between the loss of contact with a vessel and the initiation of search operations. It also helps to rapidly identify which vessels which may be called upon when required.

Revised guidelines for the identification and designation of Particularly Sensitive Sea Areas (PSSAs)[87] (V)

These revised IMO guidelines, adopted on 1 December 2005, update resolution A.927 (22) Guidelines for the Designation of Special Areas under MARPOL 73/78 and Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas.

A PSSA is an area that needs special protection through action by IMO because of its significance for recognized ecological, socio-economic, or scientific attributes where such attributes may be vulnerable to damage by international shipping activities[88]. At the time of designation of a PSSA, one or more Associated Protective Measures (APM), which meets the requirements of the appropriate legal instrument establishing such measure, must have been approved or adopted by IMO to prevent, reduce, or eliminate the threat or identified vulnerability.

Identification and designation of any PSSA and the adoption of APM(s) requires consideration of three integral components: the particular attributes of the proposed area, the vulnerability of such an area to damage by international shipping activities, and the availability of APM(s) within the competence of IMO to prevent, reduce, or eliminate risks from these shipping activities.

International Code on Intact Stability 2008 (2008 IS Code) (V)

Part A, mandatory and Part B, recommendatory. The Code, which came into effect on 1 July 2010, contains provisions concerning intact stability of all types of ships covered by IMO instruments. Part B, Icing Considerations, includes provisions for ships operating in areas

[87] Text of guidelines: http://www.gc.noaa.gov/documents/982-1.pdf

[88] Revised guidelines for the identification and designation of PSSAs, Annex, 1.2

where ice accretion which adversely affects a ship's stability is likely to occur. Icing allowances that should be included in the analysis of conditions of loading are provided.

Guidelines for Ships Operating in Polar Waters[89] (V)

The IMO had previously had a set of Guidelines for ships operating in Arctic ice-covered waters (MSC/Circ. 1956 - MEPC/Circ. 399[90]). These were modified in 2009 to make them applicable in both Arctic and Antarctic waters and irrespective of ice coverage. The Guidelines are intended to address those additional provisions deemed necessary for consideration beyond existing requirements of the SOLAS Convention, in order to take into account the climatic conditions of Polar waters and to meet appropriate standards of maritime safety and pollution prevention. The Guidelines, which aim to promote the safety of navigation and to prevent pollution from ship operations in Polar waters cover:

Part A: Construction Provisions

Part B: Equipment

Part C: Operational

Part D: Environmental Protection and Damage Control

The IMO is currently developing a mandatory 'Polar Code' for adoption during 2012-2013 (although some doubts exist as to whether this timescale is feasible)(see section 2.1.5). The purpose of the new code is to supplement existing conventions and codes for ships operating in polar waters in order to assess and address risks specific to polar waters. In addition the new code will assess and address the possible environmental impacts of shipping operations. The Polar Code is discussed in greater detail below.

Enhanced contingency planning for passenger ships operating in areas remote from Search and Rescue (SAR) facilities (MSC.1/Circ.1184) (N-B)

The guidance covers enhanced planning arrangements for ships operating in remote areas and includes additional/enhanced life-saving resources, close cooperation and liaison with relevant SAR services and Rescue Coordination Centres (RCCs).

Guidelines on voyage planning for passenger ships operating in remote areas (IMO Resolution A.999(25))[91] (N-B)

These IMO Guidelines recommend additions to voyage and passage plans to include details on ice and ice formations, environmental conditions, operational limitations due to ice, safe distance to icebergs and carriage of special or enhanced equipment.

2.1.3 Regional legislation, agreements and guidelines

Convention for the Protection of the Marine Environment of the North East Atlantic (OSPAR)[92] (B)

[89] http://www.tc.gc.ca/media/documents/marinesafety/IMO_Polar_Guidelines.pdf

[90] http://www.gc.noaa.gov/documents/gcil_1056-MEPC-Circ399.pdf

[91] http://www.imo.org/blast/blastDataHelper.asp?data_id=29939&filename=A999(25).pdf

The OSPAR Convention is the legal instrument guiding international cooperation on the protection of the marine environment of the North-East Atlantic. Work under the Convention is managed by the OSPAR Commission, made up of representatives of the Governments of 15 Contracting Parties and the European Commission, representing the European Union.

Where the OSPAR Commission considers that action "is desirable in relation to a question concerning maritime transport, it shall draw that question to the attention of the IMO. The Contracting Parties who are members of the IMO shall endeavour to cooperate within that Organisation in order to achieve an appropriate response ...."[93]. This includes the IMO's agreement to regional or local action, taking account of IMO guidelines designating special areas, identification of PSSAs or other matters.

General Guidance on the Voluntary Interim Application of D1 Ballast Water Exchange Standard[94] (V)

These OSPAR guidelines recommend that vessels entering OSPAR or HELCOM waters are to exchange ballast waters at least 200M from the nearest land in water at least 200 m water deep.

The Agreement on Cooperation on Aeronautical and Maritime Search and Rescue (SAR) in the Arctic (Arctic Search and Rescue Agreement)[95] (B)

The Agreement, signed on May 12, 2011, represents the Arctic Council's first legally binding international agreement. The Agreement aims to strengthen cooperation and coordination in the Arctic in aeronautical and maritime search and rescue operations carried out within the territory of the Parties.

Paris Memorandum of Understanding on Port State Control (Paris MoU)[96] (V)

The geographical range of the Paris MOU, a voluntary organisation consisting of 27 maritime administrations, covers the European coastal States and the coastal States of the North Atlantic basin from North America to Europe including the west coast of Canada. Arctic Ocean coastal states that are signatories are Canada, Denmark (Greenland), Russian Federation and Norway.

The objective of the Paris MoU is to eliminate the operation of sub-standard ships through a harmonized system of port State control. More than 24,000 inspections take place on board foreign ships annually in the Paris MoU ports to ensure that international safety, security and environmental standards are met and that crew members have adequate living and working conditions.

[92] http://www.ospar.org/

[93] OSPAR Convention, Annex V, Article 4(2)

[94] http://www.ospar.org/html_documents/ospar/html/ospar_helcom_guidance_ballast_water.pdf

[95] http://www.arctic-council.org/index.php/en/about/documents/category/20-main-documents-from-nuuk

[96] http://www.parismou.org/

Memorandum of Understanding on Port State Control in the Asia-Pacific Region (Tokyo MoU)[97] (V)

The Tokyo MOU is a non-binding, voluntary inter-governmental co-operative organisation on port State control in the Asia-Pacific region. Arctic Ocean coastal States that are signatories to the MoU are Canada, Russian Federation, while the USA holds observer status.

The objective of the MoU is to establish and maintain effective systems of port State control within member States with a view to ensuring that, without discrimination, foreign merchant ships calling at a port of its Authority, or anchored off such a port comply with the standards laid down in the relevant instruments as defined in Section of the MoU text.

2.1.4 National legislation

Canada

Arctic Waters Pollution Prevention Act (R.S, 1985) c A-12[98]

The provisions of this legally binding act include:

- Deposit of waste
- Plans and Specifications of Works
- Shipping Safety Control Zones
- Enforcement
- Offence and Punishment
- Seizure and Forfeiture
- Delegation
- Disposition of Fines

Canada Shipping Act 2001[99]

The provisions of this binding legislation cover inter alia:

- Registration, Listing and Recording
- Personnel
- Safety
- Navigation Services
- Incidents, Accidents and Casualties
- Wreck
- Pollution Prevention and Response

[97] http://www.tokyo-mou.org/memoran.htm

[98] http://laws-lois.justice.gc.ca/eng/acts/A-12/

[99] http://laws.justice.gc.ca/PDF/C-10.15.pdf

- Pleasure Craft
- Enforcement

Canada Marine Act (1988, c10) updated 2011.10.29[100]

The provisions of this legally binding act cover inter alia:

- Aboriginal rights
- Canada Port Authorities
- Public Ports
- Seaway
- Regulations and Enforcement
- Human Resources
- Amendments to the Pilotage Act

Northern Canada Vessel Traffic Service Zone Regulations[101] (B)

The Regulations, which came into force 1 July 2010, implement the requirements for vessels to report information prior to entering, while operating within and upon exiting Canada's northern waters. The Regulations replace the informal Northern Canada Vessel Traffic Services (NORDREG) Zone (i.e. Arctic Canada VTS zone) and the voluntary reporting system that has existed in Canada's northern waters. The purpose of the Regulations is to promote safe and efficient navigation as well as environmental protection. The Regulations, which apply to Canadian and foreign vessels intending to enter and navigating within the VTS zone, establish the NORDREG Zone, prescribe the classes of vessels required to obtain clearance for the NORDTEG Zone and set out the reporting requirements for the NORDREG Zone.

Russian Federation

The current legal regime relating to Arctic marine shipping in the Russian Federation is based on the 1990 Regulations (Franckx, 2009). Three further texts, adopted in 1996, regulate the regime in the Russian Arctic, namely i) the 1996 Guide to Navigating through the Northern Sea Route (Figure 4), ii) the 1996 Regulations for Icebreaker and Pilot Guiding of Vessels through the Northern Sea Route and iii) Requirements for the 1996 Design, Equipment and Supplies if Vessels Navigating the Northern Sea Route (Franckx, 2009).

The 1990 Regulations provide a legal framework the aim of which is to allow navigation on a non-discriminatory basis for vessels of all States while giving careful consideration to environmental concerns (Franckx, 2009). Special requirements have to be met by the vessel and the master of the ship. State pilots are assigned where masters lack the required experience. *En route* inspections may be undertaken in certain circumstances.

[100] http://laws-lois.justice.gc.ca/eng/acts/C-6.7/

[101] http://laws-lois.justice.gc.ca/eng/regulations/SOR-2010-127/

1996 Guide to Navigating through the Northern Sea Route

The section on detailed navigational descriptions applies to Kara, Laptev, East Siberian and Chuckchi Sea with their straits and islands. This legislation was passed by the Duma during the final days of the USSR and, despite several proposals, has not been changed. Reference is made to mandatory icebreaker escort in selected straits. The final section of the Guide addresses the practice of ice navigation under differing conditions - with or without icebreakers and salvage, rescue support and illustrated guide to navigation aids, straits, islands and ice manoeuvres (Franckx, 2009).

1996 Regulations for Icebreaker and Pilot Guiding of Vessels through the Northern Sea Route

All ships intending to use the Northern Sea Route must submit a request to the Administration of the Northern Sea Route at least four months in advance. Requests should include information on the vessel, possible deviations for the 1996 Requirements, certification of insurance of liability for possible pollution damage and approximate date and purpose of voyage. Following a positive response an inspection takes place at the expense of the ship owner. Ships failing to satisfy the 1999 Requirements, as well as floating structures, and, for an additional fee, can be guided through the Northern Sea Route. Upon entering the Northern Sea Route at least two pilots must be taken on board and the vessel brought under the control of the West or East Marine Operations Headquarters for icebreaking support and organisation. Vessels not complying can be expelled from the route, forced back into a convoy or receive delayed assistance. In all cases expenses will be incurred by the master of the vessel. All ships are required to have the latest nautical charts and navigational publications on board to report at least twice a day to Marine Operations Headquarters.

1996 Requirements for the Design, Equipment and Supplies of Vessels Navigating the Northern Sea Route

These detailed requirements, adopted to ensure the safety of navigation and the protection of the marine environment from pollution, must be fulfilled before undertaking the Northern Sea Route. The Requirements apply to vessels of gross registered tonnage of 300 tonnes and greater.

Minimum ice classes are set (equivalent approximately to Lloyd's Register 1A, 1AS and AC1 ice classes). Hulls must be double-bottomed and the machinery, plant and propeller blades must fulfil specified requirements. Waste water and bilge water treatment and storage capacity for a thirty day navigation period are required. Requirements relating to stability of the vessel under ice conditions must be fulfilled and minimum navigation and communications equipment criteria must be met. Specific provisions for and emergency facilities, such as a double store of fuel and lubricants for thirty days, spare parts and welding equipment, are required. The number of crew must be sufficient to allow for a three-shift watch and the master should have at least fifteen days experience steering vessels under ice conditions along the Northern Sea Route (Franckx, 2009).

Franckx (2009) notes, that in some respects, Russian vessel-source pollution standards for the Northern Sea Route are stricter than MARPOL 73/78 requirements. Although the Russian 1996 Requirements permit discharges of bilge water if the petroleum content is less than fifteen parts per million other petroleum contaminated discharges, such as ballast water, are prohibited as is garbage disposal at sea.

The fees paid by foreign ships for services provided by the Russian Federation are dependent upon the cargo with a separate set of fees for ships not intended for cargo transportation, for example ships in ballast and research vessels (Franckx, 2009).

Amendments to Certain Legislative Acts of the Russian Federation Concerning the State Regulation of Commercial Navigation Along the Routes Lying in the Water Areas of the Northern Sea Route (The Northern Sea Route Bill) (in preparation) (will be B)

This instrument is in under discussion in the Russian Parliament. Progress will be reported as and when available.

Merchant Shipping Code of the Russian Federation 1999[102]

The Merchant Shipping Code includes articles covering inter alia:

- Compensation for damages caused by collision of vessels[103]
- Liability for damage of oil pollution from vessels[104]
- Liability for damage in connection with the carriage hazardous and noxious substances by sea[105].

Norway

The Norwegian Maritime Code (24 June 1994 no. 39 with later amendments up to and including Act 26 March 2010 no. 10)

The provisions of the Code cover inter alia:

- Registration of ships
- Mortgages on Ships
- Arrest of Ships
- Shipping Partnerships
- The Master
- Alcohol Influence, Dutiful Temperance, etc
- Liability
- Collision
- Limitation of Liability
- Liability for Damage from Oil Pollution
- Liability and Damages According to the Rules of the 1992 Liability Convention and the 1992 Fund Convention etc.

[102] http://www.arbitratus.ru/english/rf_codes/m_ship.shtml

[103] Merchant Shipping Code of the Russian Federation 1999, Chapter XVII

[104] Merchant Shipping Code of the Russian Federation 1999, Chapter XVIII

[105] Merchant Shipping Code of the Russian Federation 1999, Chapter XIX

- Limitation Funds and Limitation Proceedings
- Carriage of General Cargo
- Chartering of Ships
- Carriage of Passengers and their Luggage
- Salvage
- General Average
- Maritime Inquiries of Maritime Accidents, Maritime Law Assessment
- Statutory Limitation
- Mobile Platform

Regulation of 7 July 2009 No. 992 concerning the prevention of transfer of alien organisms via ballast water and sediments from ships (the Ballast Water Regulation)[106] (B)

The Norwegian Ballast Water Management Regulation entered into force 1 July 2010.

The Regulation is legally binding and applies in Norwegian territorial waters, including the territorial waters surrounding Svalbard and Jan Mayen, and in the Norwegian economic zone for all ships constructed to carry ballast water, including submersible vessels and mobile offshore units under transport.

Norwegian passenger and cargo ship legislation:

Acts[107]*:*

Act of 12 June 1987 No. 48 relating to a Norwegian International Ship Register

Act of 16 February 2007 No. 9 relating to Ship Safety and Security (The Ship Safety and Security Act)

Act of 17 December 1982 No. 84 relating to Safe Containers

Norwegian Maritime Code of 24 June 2994 No. 39

Regulations[108]*:*

General Regulations for ships including regulations relating to containers and navigation.

[106]Translation: http://old.sjofartsdir.no/upload/19470/Regulation%20of%207%20July%202009%20No.%20992%20concerning%20the%20prevention%20of%20transfer%20of%20alien%20organisms%20via%20ballast%20water%20and%20sediments%20from%20ships%20(the%20Ballast%20Water%20Regulation).pdf

[107]Translations: http://old.sjofartsdir.no/en/Legislation_and_International_Relations/Translated_Norwegian_legislation/GULBOKA/Acts/

[108] Translations: http://old.sjofartsdir.no/en/Legislation_and_International_Relations/Translated_Norwegian_legislation/GULBOKA/Regulations/

Regulations for cargo ships and passenger ships including regulations relating to life-saving appliances, surveying, construction and equipment of passenger ships engaged on domestic voyages.

Regulations for seafarers including regulations relating to health and on-board safety and qualifications.

USA

The Federal Maritime Commission (FMC[109]) is the agency responsible for the regulation of ocean-borne transportation in the foreign commerce of the USA. The principal statutes or statutory provisions administered by the Commission are: the Shipping Act of 1984 (now replaced by The Shipping Reform Act of 1998[110], in force 1 May 1999), the Foreign Shipping Practices Act of 1988, section 19 of the Merchant Marine Act, 1920, and Public Law 89-777. These instruments deal predominantly with commercial aspects of shipping.

US navigation rules are available on the web pages of The Department of Homeland Security /US Coastguard[111]. Although there are currently no specific laws and regulations for marine navigation in the US Arctic waters when a mandatory IMO Polar Code is adopted, the US Coast Guard will initiate implementation of the new code into US domestic law.

Clean Air Act[112]

The Clean Air Act is the law that defines the US Environmental Protection Agency (EPA) responsibilities for protecting and improving air quality in the USA. The Act and its amendments cover inter alia emissions from vessels.

Denmark (Greenland)

Danish Maritime Authority[113] list of technical regulations includes regulations relating to, inter alia:

Technical regulation on ship's logs in connection with pollution prevention No. 3 of 28 June 2007.

Technical regulation on the securing of fuel oil pipes in certain ships No. 8 of 21 November 2006.

Technical regulation on enhancing the security of ships engaged on domestic voyages No. 6 of 13 September 2006.

Technical regulation on Port State Control of shipping No. 7 of 15 July 2004 as amended by technical regulation no. 2 of 18 November 2008.

Technical regulation on administration of the Regulation of the European Parliament and of the Council on enhancing ship and port facility security No. 6 of 7 June 2004 Annex.

[109] http://www.fmc.gov/

[110] http://www.admiraltylawguide.com/documents/osra98.pdf

[111] http://www.navcen.uscg.gov/?pageName=navRulesContent

[112] http://www.gpo.gov/fdsys/pkg/USCODE-2008-title42/pdf/USCODE-2008-title42-chap85.pdf

[113] http://www.dma.dk/Sider/Home.aspx

Technical regulation on the administration of the Regulation of the European Parliament and of the Council on single-hull oil tankers No. 4 of 27 January 2004.

2.1.5 Other organisations and miscellaneous instruments relating to shipping in the Arctic Ocean

The Polar Code (B - intended)

The IMO is currently working with States and other interested stakeholders such as non-governmental organisations (NGOs) to develop a mandatory Code for ships operating in Polar waters (the Polar Code). The aim of the Code is to ensure the suitability of vessels that will operate in these waters. The Code is intended to function in conjunction with existing IMO conventions, such as SOLAS, MARPOL and STCW. Recognizing the increased environmental sensitivity of polar waters, one of the objectives of the Code is to supplement, where deemed appropriate, existing environmental protection."

Content of the Present Version of the Polar Code (Nov.11. 2012)

Annex 1, Part A:
1. Polar Water Operational Manual
2. Ship Structural Integrity
3. Stability and Sub-division
4. Watertight and Watertight Integrity
5. Machinery
6. Habitability and Emergency Escape Measures
7. Fire Safety Protection
8. Life-saving Appliances and Arrangements
9. Navigation
10. Communications
11. Alternative Design
12. Operational Requirements
13. Crewing Qualification and Training
14. Emergency Control
15. Environmental Protection

Guidelines for Expedition Cruise Operations in the Arctic[114] (V)

The Association of Arctic Expedition Cruise Operators (AECO[115]) guidelines are tools for the organisation of respectable, environmentally friendly and safe expedition cruising in the Arctic by its members. The Guidelines are also intended to support the protection of the environment and respect for benefits to local communities.

Guidelines for Visitors to the Arctic[116] (V)

[114] http://www.aeco.no/guidelines.htm

[115] http://www.aeco.no/

[116] http://www.aeco.no/documents/AECO_ENGbrosjyrekorr.pdf

The AECO is an international organisation, founded in 2003, for expedition cruise operators. Its aim is to encourage environmentally-friendly and safe expeditions in the Arctic. AECO-members are obliged to operate in accordance with national and international laws and regulations and agreed upon AECO by-laws and guidelines. The first set of guidelines covers, inter alia, planning and preparation, viewing wildlife, environmental and safety considerations, cultural and social considerations. The second set of guidelines covers environmental and cultural responsibilities and safety.

The Arctic Oil Spill Task Force was initiated following the May 2011 Arctic Council Ministerial Meeting. Senior Arctic Officials recommend that the Ministers mandate a task force to develop an international instrument on Arctic marine oil pollution preparedness and response. It was further recommended that the Emergency Prevention, Preparedness and Response (EPPR) working group in close collaboration with other relevant working groups develop recommendations and/or best practices in the prevention of marine oil pollution with the preliminary or final results to be presented at the next Ministerial meeting in 2013.

The Arctic Council also continues to address the impacts of black carbon in the Arctic[117], the use of heavy fuels[118] and through the Sustainable Development Working Group[119] to improve Arctic marine infrastructure. The meeting of Senior Officials held in May 2011 also recommended that minister convene an ecosystem-based management (EBM) expert group to consider developing a common understanding of EBM, consider its principles for marine and terrestrial areas, and consider developing Arctic-specific guidelines for applying the ecosystem-based approach to all relevant areas of work in the Arctic Council.

International Hydrographic Organization (IHO)

The IHO has established the Arctic Regional Hydrographic Commission[120] (ARHC) focussing on charting and hydrography of the Arctic Ocean.

International Ice Charting Working Group (IICWG) [121]

The IICWG was formed in October 1999 to promote cooperation between the world's ice centres on all matters concerning sea ice and icebergs. The group is an essential component of the Arctic marine safety and environmental protection system.

International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA)[122]

At a meeting with the IALA in February 2010 the five countries (Canada, Denmark, Norway, Russian Federation and the USA) responsible for marking Arctic shipping routes adopted a

[117] http://www.arctic-council.org/index.php/en/environment-a-climate/90-climatechange/172-slcf

[118] http://www.pame.is/images/stories/PAME_Work_Plan_2011-2013.pdf

[119] http://www.arctic-council.org/index.php/en/sdwg

[120] http://www.iho.int/srv1/index.php?option=com_content&view=article&id=435:arctic-hc-arhc&catid=64:4ircc&Itemid=690

[121] http://nsidc.org/noaa/iicwg/

[122] http://www.iala-aism.org/iala/index.php

resolution envisioning the establishment of a common Arctic ship reporting and data sharing system; the develop a common approach to marine traffic awareness and monitoring; a move towards a single, harmonised system of marine aids to navigation and that counties should anticipate and mitigate risk to maritime traffic and the marine environment.

2.2 FISHERIES

2.2.1 Background

The Arctic Ocean has few if any commercial fisheries. However, the subarctic seas of both the North Atlantic and North Pacific have globally important fisheries for a range of species (Arctic Council, 2001). Existing fisheries take place in waters under the jurisdiction of coastal States and so are managed by those States. Nevertheless fish stocks are frequently trans-boundary and bilateral and regional fisheries arrangements are very important (Arctic Council, 2011). Barents Sea is the most important fishing area within the European Arctic area while aquaculture in the Arctic is carried primarily along the northern Norwegian coast.

In the Arctic Ocean, changes in sea ice, water temperature, freshwater input, and wind stress will affect the rate of nutrient supply through their effect on vertical mixing and upwelling (Loeng et al., 2005). Changes in vertical mixing and upwelling will affect the timing, location, and species composition of phytoplankton blooms, which will in turn affect the zooplankton community and the productivity of fish (Vilhjalmsson et al., 2005).

As the dynamics of many Arctic ecosystems are currently not well understood, attempts to predict the response of individual species and stocks to climate change are at best uncertain. However, despite the inherent uncertainties a moderate warming is predicted to improve the conditions for some of the most important commercial fish stocks. Reduced sea-ice cover resulting in increased primary production and more extensive habitat will potentially be beneficial for sub-arctic species such as cod and herring although the changing environmental conditions are likely to be detrimental to other species. As a consequence, relative population sizes, fish growth rates and spatial distributions of fish stocks are likely to change. Adjustments in fisheries legislation will be necessary to reflect these changes (Vilhjalmsson et al., 2005). However, unless there is a major climatic change over a very short period, these adjustments are likely to be relatively minor and are unlikely to entail significant economic and social costs (Vilhjalmsson et al., 2005).

The total effect of climate change on fish stocks is likely to be of less importance than the effects of fisheries policies and their enforcement (Vilhjalmsson et al., 2005). It is predicted that the significant factor in determining the future of fisheries will be sound resource management practices, which depend largely upon the properties and effectiveness of resource management regimes. Efforts are currently being made by all arctic states to implement management strategies based on precautionary approaches with an increasing emphasis on ecosystem characteristics, effects of climate changes, and which include risk and uncertainty analyses in decision-making. Ongoing adjustments to these management regimes are likely to enhance the ability of societies to adapt to the effects of climate change (Vilhjalmsson et al., 2005).

In matters relating to fisheries management the EU has competence to enter into international agreements. However Greenland (and the Faroe Islands) are not included in Denmark's membership of the EU.

2.2.2. Supranational legislation, agreements and guidelines

The principal supranational instruments governing fisheries are UNCLOS, the FAO Compliance Agreement, the FAO Code of Conduct for Responsible Fisheries, its Technical Guidelines, international plans of action and UNGA Resolutions.

Agreement for the Implementation of the provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (UNFSA)[123] (B)

UNFSA, a legally-binding implementing agreement of UNCLOS, was adopted in 1995 and entered into force in 11 December 2001. The 78 parties to the Agreement include all the Arctic Ocean coastal States. The European Union is also a signatory.

UNFSA applies to the conservation and management of straddling fish stocks and highly migratory fish stocks beyond areas under national jurisdiction but also, in some circumstances, to the conservation and management of such stocks within areas under national jurisdiction in relation to application of the precautionary approach and compatibility of conservation and management measures[124].

UNFSA is one of the two implementing agreements to UNCLOS, the other is the 1994 Part XI Agreement dealing with deep sea bed mining. The objective of the Agreement is "to ensure the long-term conservation and sustainable use of straddling fish stocks and highly migratory fish stocks through effective implementation of the relevant provisions of the Convention"[125].

The Agreement urges the wide application of the precautionary approach[126] and reaffirms the needs to take into account the interdependence of species[127]. States are also required to cooperate in the conservation and management of straddling fish stocks and highly migratory fish stocks either directly or through appropriate sub-regional or regional fisheries management organizations or arrangements[128]. Where a sub-regional or regional fisheries management organization or arrangement exists States should become members[129] and where no such organisation or arrangements exists States should cooperate to establish one[130].

A State whose vessels fish on the high seas has a duty to take measures to ensure that vessels flying its flag comply with sub-regional and regional conservation and management measures and that such vessels do not engage in any activity which undermines the effectiveness of such measures[131]. States shall cooperate, either directly or through sub-regional, regional or global organizations to ensure effective monitoring, control and surveillance[132].

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123 http://www.un.org/depts/los/convention_agreements/texts/fish_stocks_agreement/CONF164_37.htm

124 UNFSA Article 3

125 UNFSA Article 2

126 UNFSA Article 6

127 UNFSA Article 5

128 UNFSA Article 8(1)

129 UNFSA Article 8(3)

130 UNFSA Article 8(5)

131 UNFSA Article 18 and 19

132 UNFSA Article 18

Agreement to promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas (FAO Compliance Agreement)[133] (B)

The FAO Compliance Agreement, a legally-binding agreement, was adopted in 1993 and entered into force on 24 April 2003. The Arctic Ocean states that are parties to the Agreement are Norway, Canada and the USA. The EU is also a party. The geographical range of the Agreement is global.

The objective of the Compliance Agreement is to promote compliance with international conservation measures on the high seas and applies to all vessels that are used or are intended for fishing on the high seas (except that a party may exempt fishing vessels of less than 24 metres in length, unless the exemption would undermine the object and purpose of the Agreement)[134].

The Agreement establishes that Flag States shall take such measures as may be necessary to ensure that fishing vessels entitled to fly its flag do not engage in any activity that undermines the effectiveness of international conservation and management measures[135]. Vessels must be authorized by flag States before engaging in fishing on the high seas[136] and no vessel can be authorized unless the flag State is able to exercise effectively its responsibilities under the Agreement in respect of that vessel[137]. Flag States are required to take enforcement measures in respect of fishing vessels entitled to fly its flag which act in contravention of the Agreement and, where appropriate, make the contravention an offence under national legislation. Flag States are also required to apply sanctions in respect of such contraventions that should be of sufficient gravity to ensure compliance and to deprive offenders of the benefits accruing from their illegal activities[138]. States are to cooperate on enforcement and exchange information on vessels engaged in activities undermining international conservation measures[139].

The further obligation is for Parties to establish a record of fishing vessels and to provide to the FAO the information required under the Agreement with respect to those vessels[140].

Agreement on port state measures to prevent, deter and eliminate illegal, unreported and unregulated fishing (FAO Port State Agreement) [141] (B)

The Agreement was approved by the FAO Conference on 22 November 2009. The legally-binding Agreement will enter into force thirty days after the date of the deposit of the twenty-fifth instrument of ratification, acceptance, approval or accession. Of the total of 23 States the Arctic Ocean coastal States that are signatories are Canada, Norway, the Russian Federation and the USA. The European Union is also a signatory.

[133] http://www.fao.org/legal/treaties/012t-e.htm

[134] FAO Compliance Agreement Article II

[135] FAO Compliance Agreement Article III.1(a)

[136] FAO Compliance Agreement Article III.2

[137] FAO Compliance Agreement Article III.3

[138] FAO Compliance Agreement Article III.8

[139] FAO Compliance Agreement Article V

[140] FAO Compliance Agreement Article VI

[141] http://www.fao.org/Legal/treaties/037t-e.pdf

The objective of the Agreement is to prevent, deter and eliminate IUU fishing through the implementation of effective port State measures, and thereby to ensure the long-term conservation and sustainable use of living marine resources and marine ecosystems[142].

The Agreement aims to prevent illegally caught fish from entering international markets through ports. Foreign vessels are required to provide advance notice and request permission for entry into designated ports[143], States are required to conduct regular inspections in accordance with universal minimum standards[144,] offending vessels will be denied use of port or certain port services[145] and information sharing networks are to be established[146].

The 1995, International Convention on Standards of Training, Certification and Watchkeeping for Fishing Vessel Personnel (STCW-F) (B)

The IMO STCW-F was adopted 7 July 1995 and is set to enter into force on 29 September 2012. The Arctic Ocean States that are signatories are Canada, Denmark, Norway and the Russian Federation.

The STCW-F Convention will apply to crew onboard seagoing fishing vessels of 24 metres in length and above. It sets the regulatory framework for the training and certification of personnel employed on board fishing vessels with a view to improve the safety of life and property at sea in the fishing industry. This is the first attempt to establish international mandatory training standards for crew manning and operating fishing vessels and we all hope that it will indeed have the desired impact and effect.

The 1977 Torremolinos International Convention for the Safety of Fishing Vessels and **The 1993 Torremolinos Protocol** (B)

The 1977 Convention contained safety requirements for the construction and equipment of new, decked, seagoing fishing vessels of 24 metres in length and over, including those vessels also processing their catch. Existing vessels were covered only in respect of radio requirements. However, during the 1980s, it became clear that the 1977 Convention was unlikely to enter into force, largely for technical reasons and the Convention was replaced with a Protocol which updates, amends and absorbs the parent Convention.

The Torremolinos Protocol, adopted in April 1993, will enter into force one year after ratification by 15 States with at least an aggregate fleet of 14,000 vessels of 24 metres in length and over. The geographical range of the Protocol is global. Arctic Ocean coastal states that are currently signatories to the Protocol are Norway and Denmark. The IMO's Sub-Committee on Stability and Load Lines and on Fishing Vessels' Safety (SLF) is currently reviewing options to address the lack of sufficient ratifications to the Protocol in order to bring the treaty on into force.

[142] FAO Port State Agreement, Article 2

[143] FAO Port State Agreement, Articles 7 and 8

[144] FAO Port State Agreement, Article 12, 13 and 14

[145] FAO Port State Agreement, Article 11

[146] FAO Port State Agreement, Articles 6 and 16

Of particular relevance to Arctic waters is Regulation III/8 which relates to ice accretion and includes icing allowances for stability calculations, ship design to minimize ice accretion and means for removing ice.

Convention on Biological Diversity (CBD)[147] (B)

The CBD, which entered into force on 29 December 1993, is an intergovernmental treaty concluded under the aegis of the United Nations Environment Programme. The geographical range of the Convention is global. All Arctic Ocean coastal states are parties to the Convention. The European Union is also a party.

The three main objectives of the Convention are:

- the conservation of biological diversity
- the sustainable use of the components of biological diversity
- the fair and equitable sharing of the benefits arising out of the utilization of genetic resources.

Paragraph 13(g) of the decision adopted by the Conference of the Parties to the Convention on Biological Diversity at its Tenth Meeting: X/29[148]. Marine and coastal biodiversity (Nagoya, 2010) endorses the need for further efforts, in collaboration with the FAO and relevant international and regional organizations "to ensure the sustainability of fisheries, by managing the impacts of fisheries on species and the wider ecosystem ... through implementing the ecosystem approach; eliminating IUU fishing; minimizing the detrimental impacts of fishing practices; mitigating and managing by-catches sustainably and reducing discards, in order to attain a sustainable exploitation level of marine fishery resources and thereby contributing to a good environmental status in marine and coastal waters".

Convention on the Conservation of Migratory Species of Wild Animals (CMS or Bonn Convention)[149] (B)

The CMS, adopted in 1979 and in force in 1985, is an intergovernmental treaty concluded under the aegis of the United Nations Environment Programme. The geographical range of the Convention is global. Arctic Ocean coastal states that are signatories are Norway and Denmark. The European Union is also a signatory. The Agreements established within the framework of the CMS may range from legally binding treaties (called Agreements) to less formal instruments, such as Memoranda of Understanding, and can be adapted to the requirements of particular regions. The aim of the Convention is to conserve terrestrial, aquatic and avian migratory species throughout their range.

International Convention for the Regulation of Whaling[150] (B)

The Convention, adopted in 1946 and entered into force in 1948 establishes the International Whaling Commission. The Arctic Ocean states which are members are Denmark, Norway,

[147] http://www.cbd.int/convention/about.shtml

[148] http://www.cbd.int/decision/cop/?id=12295

[149] http://www.cms.int/documents/convtxt/cms_convtxt.htm

[150] http://www.iwcoffice.org/commission/convention.htm

the Russian Federation, and the USA. The European Commission has observer status. IWC regulations are binding on state parties unless a party objects within the time limit provided for in the Convention.

The objective of the Convention is to provide for the proper conservation of whale stocks and so make possible the orderly development of the whaling industry. Main duty of the IW Commission is to review and revise measures (laid down in the Schedule to the Convention), that, among other things, provides for the complete protection of certain species; designate specified areas as whale sanctuaries; set limits on the numbers and size of whales which may be taken; prescribe open and closed seasons and areas for whaling; and prohibit the capture of suckling calves and female whales accompanied by calves.

Under current IWC regulations, aboriginal subsistence whaling is permitted for Denmark (Greenland, fin and minke whales), the Russian Federation (Siberia, gray and bowhead whales), St Vincent and The Grenadines (Bequia, humpback whales) and the USA (Alaska, bowhead and gray whales). It is the responsibility of national governments to provide the Commission with evidence of the cultural and subsistence needs of their people. The Scientific Committee provides scientific advice on safe catch limits for such stocks. Management procedures for Aboriginal Subsistence Whaling are in the process of being revised.

The FAO Code of Conduct for Responsible Fisheries (The FAO Code of Conduct) [151] (V)

The Code, adopted in 1995 by the FAO Conference, covers fisheries and aquaculture. While voluntary certain parts of the Code are based on relevant rules of international law, including those reflected in UNCLOS. The Code also contains provisions that may be or have already been given binding effect by means of other obligatory legal instruments amongst the Parties, such as the FAO Compliance Agreement which, forms an integral part of the Code[152]. The geographical scope of the Code is global.

The objectives of the Code[153] are, in essence, to promote long-term sustainable fisheries. The key principles contained within the Code, include application of the precautionary approach[154], ecosystem-based management[155] and international cooperation.

The FAO has developed a series of technical guidelines to support implementation of the Code[156].

The Code is implemented through a number of international plans of action:

International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (IPOA-IUU)(2001)[157]

[151] ftp://ftp.fao.org/docrep/fao/005/v9878e/v9878e00.pdf

[152] FAO Code of Conduct, paragraph 1.1

[153] FAO Code of Conduct, Article 2

[154] FAO Code of Conduct, Article 7.5

[155] FAO Code of Conduct, Article 7

[156] http://www.fao.org/fishery/code/publications/guidelines/en

[157] http://www.fao.org/docrep/003/y1224e/y1224e00.htm

International Plan of Action for reducing incidental catch of seabirds in longline fisheries (IPOA-SEABIRDS)(1999)[158]

International Plan of Action for the conservation of sharks (IPOA-SHARKS) (1999)[159]

International Plan of Action for the management of fishing capacity (IPOA-CAPACITY)(1999)[160]

International Guidelines for the Management of Deep-Sea Fisheries in the High Seas[161] (V)

Developed through the FAO and adopted in 2008 the Guidelines provide countries and regional fisheries management organizations (RFMOs) with a voluntary tool through which to better manage these fisheries for sustainable use and to protect vulnerable marine ecosystems (VMEs). The establishment of area-based measures is one of the potential management tools for preventing impacts on such ecosystems from fishing.

International Guidelines on Bycatch Management and Reduction of Discards[162] (V)

The Guidelines, adopted in 2011, the purpose of which is to assist States and RFMO/As in implementing the Code and an ecosystem approach to fisheries through effective management of bycatch and reduction of discards.

2.2.3 Regional legislation, agreements and guidelines

International Convention for the Conservation of Atlantic Tunas (ICCAT Convention)[163] (B)

The Convention, which came into force on 21 March 1969, established the International Commission for the Conservation of Atlantic Tunas. Arctic Ocean coastal states that are signatories to the Convention are USA, Norway, Russia and Canada. The European Union is also a contracting party. The geographical range of the Convention is the Atlantic Ocean and adjacent seas.

ICCAT undertakes work related to the study and management of tunas and tuna-like fishes in the Atlantic. Such studies include research on biometry, ecology, and oceanography, with a principal focus on the effects of fishing on stock abundance. The Commission can adopt recommendations and resolutions aimed at maintaining the populations of ICCAT species at levels which will permit maximum sustainable catch.

[158] http://www.fao.org/docrep/006/x3170e/x3170e02.htm

[159] http://www.fao.org/fishery/ipoa-seabirds/legal-text/en

[160] http://www.fao.org/DOCREP/006/X3170E/x3170e04.htm

[161] http://www.fao.org/docrep/011/i0816t/i0816t00.htm

[162] http://www.ofdc.org.tw/organization/01/fao/13_e.pdf

[163] http://www.iccat.es/Documents/Commission/BasicTexts.pdf

Convention on Future Multilateral Cooperation in North East Atlantic Fisheries[164] (B)

The Convention, which entered into force on 17 March 1982, established the North East Atlantic Fisheries Commission (NEAFC) - a Regional Fisheries Management Organisation (RFMO). Arctic Ocean coastal states that are Contracting Parties are Denmark (in respect of Greenland), Norway and the Russian Federation. The European Union is also a Contracting Party.

The Convention applies to high seas within the Regulatory Area which comprises those parts of the Atlantic and Arctic Oceans and their dependent seas which lie north of 36° north latitude and between 42° west longitude and 51° east longitude, but excluding certain areas[165].

The function of NEAFC Commission is to provide a forum for consultation and exchange of information on the state of fisheries resources in the North East Atlantic and on related management polices to ensure conservation and optimum utilization of such resources; and to recommend conservation measures in waters outside national jurisdiction. The Commission is the competent organisation, to make recommendations, by a qualified majority, concerning fisheries in areas beyond the jurisdiction of the Contracting Parties. The 'new' Convention[166] incorporates the precautionary approach and ecosystem-based management. The NEAFC Scheme of Control and Enforcement[167], updated annually, applies, unless stated otherwise, to any vessel used or intended for use for the purposes of the commercial exploitation of fisheries resources, including fish processing vessels and vessels engaged in trans-shipment[168]. The Scheme covers, inter alia, control measures, monitoring, inspection at sea, port state measures, infringements and measures to promote compliance.

The range of NEAFC measures[169] currently in force relate to individual stocks (e.g. herring, redfish, blue whiting, orange roughy, deep sea species), bottom fishing, gill nets, vulnerable marine ecosystems, discards, new and existing fishing areas.

Convention on Future Multilateral Cooperation in the Northwest Atlantic Fisheries[170] (B)

The Convention, which entered into force on 1 January 1979, established the Northwest Atlantic Fisheries Organization (NAFO) – an RFMO. Arctic Ocean coastal States that are members of NAFO are Denmark (in respect of Greenland), Norway, the USA and the Russian Federation. The European Union is also a member.

The Convention area comprises the waters of the Northwest Atlantic Ocean north of 35°00' north latitude and west of a line extending due north from 35°00' north latitude and 42°00' west longitude to 59°00' north latitude, thence due west to 44°00' west longitude, and thence

[164] http://www.neafc.org/basictexts

[165] NEAFC Convention Article 8

[166] http://www.neafc.org/system/files/london-declarlation_and_new_convention.pdf

[167] http://www.neafc.org/scheme

[168] http://www.neafc.org/scheme/chapter1/article1

[169] http://www.neafc.org/current-measures-list

[170] http://www.nafo.int/about/frames/about.html

due north to the coast of Greenland, and the waters of the Gulf of St. Lawrence, Davis Strait and Baffin Bay south of 78°10' north latitude[171].

The prime objective of NAFO is to contribute through consultation and cooperation to the optimum utilization, rational management and conservation of the fishery resources of the Convention Area. NAFO promotes contemporary ideas for international collaboration in the high seas based on the scientific research fundamentals.

NAFO Conservation and Enforcement Measures[172], revised annually, unless otherwise provided, apply to all fishing vessels used or intended for use for the purposes of commercial fishing activities conducted on fisheries resources in the Regulatory Area. Included in the measures are, inter alia, provisions relating to conservation and management, bottom fisheries, control and monitoring, the joint inspection and surveillance scheme, port state control, measures to promote compliance, electronic recording, satellite tracking and observers. Of particular significance is the joint inspection scheme which authorizes inspectors to examine fishing vessels of other NAFO Contracting Parties. Inspectors are authorised to inspect all relevant areas, decks and rooms of the fishing vessels, processed and unprocessed catches, nets or other gear, equipment, and any relevant documents which inspectors deem necessary to verify compliance[173]. The Measures also establish provisions for landings and transhipments[174], data collection[175,] establishment of an IUU list[176] and follow-up to infringements[177].

Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (WCPF Convention)[178] (B)

The WCPF Convention, in force on 19 June 2004, established the Western Central Pacific Fisheries Commission. Canada and the USA are the only Arctic Ocean coastal states that are members of the Commission. The European Union also a member.

The Convention Area comprises all waters of the Pacific Ocean bounded to the south and to the east by a line drawn from the south coast of Australia due south along the 141° meridian of east longitude to its intersection with the 55° parallel of south latitude; thence due east along the 55° parallel of south latitude to its intersection with the 150° meridian of east longitude; thence due south along the 150° meridian of east longitude to its intersection with the 60° parallel of south latitude; thence due east along the 60° parallel of south latitude to its intersection with the 130° meridian of west longitude; thence due north along the 130° meridian of west longitude to its intersection with the 4° parallel of south latitude; thence due

[171] NAFO Convention Article I

[172] http://www.nafo.int/fisheries/frames/regs-cem.html

[173] NAFO Conservation and Enforcement Measures, Article 33.5

[174] NAFO Conservation and Enforcement Measures, Chapter 5

[175] NAFO Conservation and Enforcement Measures, Article 63

[176] NAFO Conservation and Enforcement Measures, Article 57

[177] NAFO Conservation and Enforcement Measures, Article 39

[178] http://www.wcpfc.int/doc/convention-conservation-and-management-highly-migratory-fish-stocks-western-and-central-pacific-

west along the 4° parallel of south latitude to its intersection with the 150° meridian of west longitude; thence due north along the 150° meridian of west longitude[179].

The objective of the Convention is to ensure, through effective management, the long-term conservation and sustainable use of highly migratory fish stocks in the western and central Pacific Ocean in accordance with the UNCLOS and the 1995 UN Fish Stocks Agreement.

The Convention applies to all species of highly migratory fish stocks (defined as all fish stocks of the species listed in Annex I of the 1982 Convention occurring in the Convention Area and such other species of fish as the Commission may determine) within the Convention Area, except sauries. Conservation and management measures under the Convention are to be applied throughout the range of the stocks, or to specific areas within the Convention Area, as determined by the Commission.

Agreement on Cooperation in Research, Conservation and Management of Marine Mammals in the North Atlantic (NAMMCO Agreement) [180] (B)

The NAMMCO Agreement, into force 8 July 1992, established the North Atlantic Marine Mammal Commission (NAMMCO). Arctic Ocean states that are signatories to the Agreement are Norway and Greenland.

Through regional cooperation NAMMCO provides a mechanism for cooperation on conservation and management for all species of cetaceans and pinnipeds within the region. The Commission also provides a forum for the exchange of information among member countries on matters related to marine mammal conservation and management, such as hunting methods and environmental questions.

In response to requests from the Council the Scientific Committee provides scientific advice. The Committee on Hunting Methods provides advice on hunting methods and NAMMCO has implemented the Joint Control Scheme for the Hunting of Marine Mammals which includes international observation of sealing and whaling activities in NAMMCO member countries. This aspect is monitored by the Committee on Inspection and Observation.

Convention on the Conservation and Management of Pollock Resources in the Central Bering Sea (The Donut Hole Agreement)[181] (B)

The Convention was signed on 16 June 1994. Arctic Ocean states that are parties the Russian Federation and the United States.

The objectives of the Agreement are:

- to establish an international regime for conservation, management, and optimum utilization of pollock resources in the Convention Area (the high seas area of the Bering Sea beyond the U.S. and the Russian Federation 200- mile jurisdictions);
- to restore and maintain pollock resources in the Bering Sea at levels which will permit their maximum sustainable yield;
- to cooperate in the gathering and examining of factual information concerning pollock and other living marine resources in the Bering Sea; and

[179] WCPFC Article 3

[180] http://www.nammco.no/

[181] http://www.nmfs.noaa.gov/ia/intlagree/docs/Pollock_in_Bering_Sea.pdf

- to provide, if the Parties agree, a forum in which to consider the establishment of necessary conservation and management measures for other living marine resources in the Convention Area as may be required in the future[182].

Although not providing for a Commission the Convention establishes long-term measures for the conservation, management, and optimum utilization of the Aleutian Basin Pollock stock in the Central Bering Sea. Its major principles include: no fishing permitted in the Convention area unless the biomass of the Aleutian Basin stock exceeds a threshold of 1.67 million; allocation procedures; 100 percent observer and satellite transmitter coverage; and prior notification of entry into the Convention area and of trans-shipment activities. It also requires that any vessels fishing in the area consent to boarding and inspection for compliance with the Convention by enforcement officials of the member states.

Convention for the Conservation of Anadromous Stocks in the North Pacific Ocean[183] (B)

The Convention, which entered into force on 16 February 1993, provides the basic instrument for the North Pacific Anadromous Fish Commission – NPAFC. Arctic Ocean States that are parties to the Convention are Canada, the Russian Federation and the United States. The Convention area comprises the waters of the North Pacific Ocean and its adjacent seas, north of 33°N beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured.

The NPAFC serves as a forum for promoting the conservation of anadromous stocks and ecologically-related species, including marine mammals, sea birds, and non-anadromous fish, in the high seas area of the North Pacific Ocean. In addition, the Commission serves as the venue for coordinating the collection, exchange, and analysis of scientific data regarding the above species within Convention waters. It also coordinates high seas fishery enforcement activities by member countries (the Convention prohibits directed fishing for salmonids and includes provisions to minimize the incidental take of salmonids in other fisheries in the Convention area).

Convention for the Conservation of Salmon in the North Atlantic Ocean[184] (B)

The Convention, which entered into force on 3 October 1983, established the North Atlantic Salmon Conservation Organization (NASCO). Arctic Ocean coastal states that are parties to the Convention are Canada, Denmark (in respect of Greenland), Norway, the Russian Federation and the United States. The Convention applies to the salmon stocks which migrate beyond areas of fisheries jurisdiction of coastal states of the Atlantic Ocean north of 36° N latitude throughout their migratory range.

NASCO's objective is to conserve, restore, enhance and rationally manage wild Atlantic salmon through international cooperation taking account of the best available scientific information. The organization promotes the acquisition, analysis, and dissemination of scientific information pertaining to salmon stocks in the North Atlantic Ocean, and to promote the conservation, restoration, enhancement, and rational management of salmon stocks in the North Atlantic Ocean through international cooperation.

[182] The Donut Hole Agreement, Article II

[183] http://www.nmfs.noaa.gov/ia/intlagree/docs/NPAFC_IA_BOOK.pdf

[184] http://www.nasco.int/convention.html

The Convention created a large protected zone, free of targeted fisheries for Atlantic salmon in most areas beyond 12 nautical miles from the coast. An immediate effect was the cessation of the salmon fishery in the Northern Norwegian Sea which at its peak in 1970 harvested almost 1,000 tonnes of salmon.

Since its inception NASCO has broadened its scope and now addresses a wide range of issues including management of salmon fisheries by States of Origin, habitat protection and restoration and aquaculture and related activities.

2.2.4 Multilateral and bilateral agreements

The EU, Faroe Islands, Iceland, Norway and Russia long term management plan for spring-spawning herring (B)

Agreed in 1999, the management plan aims to constrain harvesting within safe biological limits and is designed to provide sustainable fisheries in the long term. ICES has evaluated the plan and concluded that it is consistent with the precautionary approach.

Agreed record of fishery consultations on the management of the Norwegian spring-spawning (Atlanto-Scandian) herring stock in the North East Atlantic for 1997 (Including Supplementary Agreements) between the EC, the Faroe Islands, Iceland, Norway and the Russian Federation (14.12.1996) (B)

Text not available at the time of writing. Referenced from Alder et al (2001)[185].

Relates to the management of herring stocks, fished primarily in the Norwegian Sea.

Agreement on mutual fishery relations. Joint Faroese-Russian Fisheries Commission 27.11.1977 (B)

Text of the Agreement not available at the time of writing.

Agreement concerning mutual fishery relations between Greenland and the Russian Federation[186] (B)

The Agreement, signed on 7 March 1992, provides that each Party shall, in accordance with the provisions of the Agreement, give the fishing vessels of the other Party access to fishing in the area under its fisheries jurisdiction[187]. The Agreement requires that parties:

- Establish the quota of total permissible catch for particular stocks or groups of stocks, taking account of the available objective scientific data, the interdependence of stocks, the recommendations of the competent international organizations and other relevant factors;

[185] http://www.seaaroundus.org/report/impactpolicy/alder.pdf

[186] http://www.arcticgovernance.org/agreement-between-the-government-of-the-kingdom-of-denmark-and-the-local-government-of-greenland-on-the-one-hand-and-the-government-of-the-russian-federation-on-the-other-hand-concerning-mutual-fishery-relations-between.4653808-137746.html

[187] Agreement concerning mutual fishery relations between Greenland and the Russian Federation, Article 2

- Establish, after appropriate consultations between the Parties, the quotas of catch for the fishing vessels of the other Party and the areas and conditions in which such quotas may be caught.

Each Party must take such other measures as it deems necessary with a view to the rational management, conservation and regulation of fisheries within its fisheries jurisdiction. Any such measures shall be formulated in such a way as to avoid creating any obstacle to the application of the quotas provided for in this Agreement[188].

A new agreement , negotiated in 2010, the Fishery Agreement between Greenland and Russia for 2011, provides that Greenland will fish for cod and haddock in the Barents Sea, while Russia will fish redfish and Greenland halibut in East Greenland and Greenland halibut in West Greenland.

Agreement between the Government of Iceland, the Government of Norway and the Government on the Russian Federation Concerning Certain Aspects of Co-operation in the Area of Fisheries and associated Protocols[189] (B)

The objective of the Agreement, which entered into force on 15 July 1999, is to ensure, through cooperation of the Parties, the long-term conservation and sustainable utilization of the fish stocks concerned in the entire area of distribution, and committed to the principle of responsible fishing. The Parties commit to the principle of responsible fishing and pledge to promote and conduct marine scientific research and to base management measures for relevant stocks on the best scientific advice. Parties may agree on reciprocal basis to exchange annual quotas in the respective EEZ's and ensure compliance with conservation and management measures by vessels flying their flag. Steps shall also be undertakes to prevent activities undermining the effectiveness of the present Agreement by nationals of one of the Parties who register fishing vessels under the flag of another State and to prevent landing in their ports of catches taken in a manner that undermines the Agreement.

Convention for the Preservation of the Halibut Fishery[190] (B)

The Convention, signed on 2 March 1923, established the International Pacific Halibut Commission (IPHC). A new Convention between Canada and the United States of America for the Preservation of the Halibut Fishery of the Northern Pacific Ocean and Bering Sea was signed on 2 March 1953 and entered into force on 28 October 1953. When the two countries extended their fishery jurisdictions, a Protocol Amending the Convention was signed on 29 March 1979 and entered into force on 15 October 1980.

The Commission's mandate is research on and management of the stocks of Pacific halibut within the Convention waters of both nations. The IPHC consists of three government-appointed commissioners for each country who serve their terms at the pleasure of the President of the United States and the Canadian government respectively.

[188] Agreement concerning mutual fishery relations between Greenland and the Russian Federation, Article 3

[189] http://www.ecolex.org/ecolex/ledge/view/RecordDetails?id=TRE-001817&index=treaties

[190] http://www.iphc.int/home.html

Agreement on fishing between the European Community and the Kingdom of Norway[191] (B)

The bilateral fishery agreement between Norway and the EU, in force since 1981, covers the whole of the North Sea and the Norwegian Sea allows vessels of the other state to take their quotas in the other parties' jurisdictional area. The Agreement promotes cooperation on the protection and management of marine resources.

The Fisheries Partnership Agreement (FPA) between the European Community and Greenland[192] (B)

The Agreement, covering the period 1 January 2007 – 31 December 2012, allows Community vessels mainly from Germany, Denmark, UK, Spain, Portugal to fish in Greenland) waters and is the only FPA concluded with a non-ACP States. The first Fisheries Agreement concluded between the Community and Greenland dates back to 1985. It was concluded for an initial period of ten years and has subsequently been extended for additional six-year periods until it was replaced by the Fisheries Partnership Agreements. The first Fisheries Agreement was implemented by successive protocols. A new protocol for the period 2013-2016 has been agreed[193].

The Joint Norwegian-Russian Fisheries Commission[194] (B)

The Agreement of 11 April 1975, established the Joint Norwegian-Russian Fisheries Commission. The annual meeting of the Commission sets the TACs and their sharing between Norway, Russia and third countries. The Commission also establishes reciprocal access to fisheries in national zones and quota exchanges for joint as well as national stocks. The TACs established by the Commission are based on recommendations on catch levels by the ICES. The quotas for all joint stocks - Northeast Arctic cod, haddock and capelin - are determined on the basis of agreed, sustainable management strategies.

The seal stocks in the East Ice are also managed by the Commission.

2.2.5 National legislation

Norway

Legislation relating to Norwegian fisheries is listed on the FAO web pages[195].

Marine Resources Act[196]

The Marine Resources Act of 6 June 2008 no. 37 relates to the management of wild living resources. The purpose of the Act, which applies to all harvesting and other utilisation of

191 http://ec.europa.eu/world/agreements/prepareCreateTreatiesWorkspace/treatiesGeneralData.do?step=0&redirect=true&treatyId=38

192 http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2007:172:0001:0003:EN:PDF

193 http://ec.europa.eu/fisheries/news_and_events/press_releases/2012/20120206/index_en.htm

194 http://www.jointfish.com/eng

195 http://www.fao.org/fishery/countrysector/FI-CP_NO/5/en

196 http://www.fiskeridir.no/english/fisheries/regulations/acts/the-marine-resources-act

wild living marine resources and genetic material derived from them, is to ensure sustainable and economically profitable management of wild living marine resources and genetic material derived from them, and to promote employment and settlement in coastal communities. Under the Marine Resources Act, the Norwegian fisheries authorities have adopted regulations for protecting cold-water coral reefs from destructive fishing.

The range of national fisheries regulations[197] covers, inter alia:

- management of specific stocks (e.g. cod, Greenland halibut, spring-spawning herring,
- place-based management measures (e.g within the FPZ and territorial waters around Svalbard, the fisheries zone around Jan Meyen),
- vessels from other States (e.g. EU, Iceland, Russia, Canada, Faroe Islands),
- measures relating to gear (e.g. sorting systems, mesh sizes), bycatch and discards.

Other Norwegian legislation of possible relevance to fisheries:

Nature Conservation Act (Act No. 63 of 1970)[198]

Wildlife Act[199]

Decree No. 1653 of 2004 to protect vulnerable habitats in international navigable waters[200]

USA

All legislation relating to fisheries in the USA are listed on the FAO web pages[201]. The National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NOAA Fisheries)[202] is the federal agency responsible for the stewardship of US living marine resources and their habitat. NOAA's National Marine Fisheries Service is responsible for the management, conservation and protection of living marine resources within the United EEZ. Using the tools provided by the Magnuson-Stevens Act, NOAA's National Marine Fisheries Service assesses and predicts the status of fish stocks, ensures compliance with fisheries regulations and works to reduce wasteful fishing practices.

Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006[203] (B)

[197] http://www.fiskeridir.no/english/fisheries/regulations

[198] http://faolex.fao.org/cgi-bin/faolex.exe?rec_id=002316&database=FAOLEX&search_type=link&table=result&lang=eng&format_name=@ERALL

[199] http://eelink.net/~asilwildlife/norway.html

[200] http://faolex.fao.org/cgi-bin/faolex.exe?rec_id=041909&database=FAOLEX&search_type=link&table=result&lang=eng&format_name=@ERALL

[201] http://www.fao.org/fishery/countrysector/FI-CP_US/5/en

[202] http://www.noaa.gov/fisheries.html

[203] http://www.nmfs.noaa.gov/sfa/magact/MSA_Amended_2007%20.pdf

The Magnuson-Stevens Act is the principal act governing fishing activities in the USA. The Act promotes improved monitoring and compliance for high seas fisheries, or fisheries governed by international fishery management agreements. The Act covers, inter alia:

- Foreign fishing and international fishery agreements
- Conservation and management
- Fishery management plans
- Fishery Monitoring and Research
- Information and Research

Other Fisheries Statutes:

US Marine Mammal Protection Act 1972 as amended 2007[204] (B)

The Act covers, inter alia, moratorium and exceptions, prohibition, regulations, commercial fisheries gear development, dolphin protection, strandings, conservation plans, permits.

US Endangered Species Act 1973 (ESA)[205] (B)

The Act, signed on December 28, 1973, provides for the conservation of species that are endangered or threatened throughout all or a significant portion of their range, and the conservation of the ecosystems on which they depend. A "species" is considered endangered if it is in danger of extinction throughout all or a significant portion of its range. A species is considered threatened if it is likely to become an endangered species within the foreseeable future.

S.J. Res. No. 17 A joint resolution directing the United States to initiate international discussions and take necessary steps with other Nations to negotiate an agreement for managing migratory and transboundary fish stocks in the Arctic Ocean[206] (B)

The Resolution became Public Law No: 110-2433 in June 2008.

Canada

The Government department responsible for marine fisheries is the Fisheries and Oceans Canada (DFO)[207]. All legislation relating to fisheries and aquaculture in Canada is listed on the FAO web pages[208].

Fisheries Act [209] (B)

[204] http://www.nmfs.noaa.gov/pr/pdfs/laws/mmpa.pdf

[205] http://www.nmfs.noaa.gov/pr/pdfs/laws/esa.pdf

[206] http://www.govtrack.us/congress/billtext.xpd?bill=sj110-17

[207] http://www.dfo-mpo.gc.ca/index-eng.htm

[208] http://www.fao.org/fishery/countrysector/FI-CP_CA/5/en

[209] http://laws.justice.gc.ca/eng/acts/F-14/

The Act covers, inter alia leases and licensing, prohibition, habitat protection and pollution prevention, powers of fishery officers, culture of fish, obstruction and false information, offence and punishment. The Fisheries Act is the enabling act for the following regulations which may be of relevance to Arctic Ocean governance:

- Aboriginal Communal Fishing Licences Regulations
- Fish Health Protection Regulations
- Fish Toxicant Regulations
- Fishery (General) Regulations
- Foreign Vessel Fishing Regulations
- Management of Contaminated Fisheries Regulations
- Marine Mammal Regulations
- Metal Mining Effluent Regulations
- Northwest Territories Fishery Regulations
- Regulations, 2007
- Pulp and Paper Effluent Regulations
- Yukon Territory Fishery Regulations

Oceans Act[210]

The Oceans Act is the enabling act for marine protected areas (MPAs). Currently none of these lie within Arctic Ocean waters.

Russian Federation

All legislation relating to Russian Federation fisheries is listed on the FAO web pages[211].

Federal Law No. 166-FZ on fisheries and conservation of aquatic biological resources of December 2004[212]

The Law comprises of 7 Chapters subdivided into 53 articles. Chapter 1 establishes general provisions. Chapter 2 establishes the right to aquatic biological diversity. Chapter 3 provides classification of the types of fisheries. Chapter 4 relates to fishing authorization, establishes the modalities of distribution of quotas through tenders and determines the modalities of the right of use of a fishing area in accordance with contract. Chapter 5 relates to state monitoring of aquatic biological diversity and state control in the sphere of fisheries and protection of aquatic biological diversity. Chapter 6 relates to conservation of aquatic biological diversity and its natural habitats. Dispute settlement, liability for the infringement of the legislation on fisheries and conservation of aquatic biological diversity are covered in chapter 7. The Federal Law is applicable to internal sea, territorial sea, continental shelf and

[210] http://laws-lois.justice.gc.ca/eng/acts/O-2.4/index.html

[211] http://www.fao.org/fishery/countrysector/FI-CP_RU/5/en

[212] http://faolex.fao.org/cgi-bin/faolex.exe?rec_id=041882&database=FAOLEX&search_type=link&table=result&lang=eng&format_name=@ERALL

EEZ of the Russian Federation, fishing vessels flying the flag of the Russian Federation and navigating outside the boundaries of the Russian Federation and plots of land pertaining to the national territory used for fisheries and conservation of aquatic biological resources.

Greenland
All Greenland fisheries legislation is listed on the FAO web pages[213].

In Greenland the Ministry of Fisheries, Hunting and Agriculture Greenland[214] is responsible for legislation and administration on national and international fisheries policy, including conservation and exploitation.

A range of legislation governs fishing in Greenland including decrees, orders and recommendations , covering, inter alia, halibut, salmon, whales and shrimp as well more general legislation covering for example, reporting, VMS, demersal species, deep-sea species, quotas and conservation measures.

2.2.6 Aquaculture in the Arctic

Norway
Most aquaculture in the Arctic is located in Norway.

The development of commercial aquaculture in Norway began around 1970, since that time aquaculture has developed into a major industry in coastal areas. Intensive farming of Atlantic salmon is by far the most important activity, accounting for more than 80 percent of the total Norwegian aquaculture production. Rainbow trout is also important and several marine finfish (cod, halibut) and shellfish species (blue mussel, oysters) are in the process of becoming commercialised[215].

The main agency vested with responsibility for public management of the aquaculture industry is the Directorate of Fisheries, which is an executive administrative body within the Ministry of Fisheries and Coastal Affairs.

The Aquaculture Act of 2005[216]

The Act, in force 1 January 2006, is the main piece of legislation regulating the management, control and development of fish farming in freshwater, brackish water and marine water. The purpose of the act is to promote the profitability and competitiveness of the aquaculture industry within the framework of a sustainable development and contribute to the creation of value on the coast. The Act covers the management control and development of inland and marine waters as well as land-based aquaculture and establishes a licensing system.

Other Acts of relevance to aquaculture in Norway:

The Act Relative to Food Production and Food Safety Act (The Food Safety Act 2003)[217] (B)

[213] http://www.fao.org/fishery/countrysector/FI-CP_GL/5/en

[214] http://uk.nanoq.gl/Emner/Government/Departments/ministry_of_fisheries.aspx

[215] http://www.fao.org/fishery/legalframework/nalo_norway/en#tcNB0019

[216] http://www.regjeringen.no/upload/kilde/fkd/reg/2005/0001/ddd/pdfv/255327-l-0525_akvakulturloveneng.pdf

The Act, which entered to force on 1 January 2004, is the main act regulating animal health and food safety and quality, and addresses the production, processing and distribution of foodstuffs, including aquaculture production and fish processing.

The Act Relative to Prevention of Cruelty to Animals (1974, as amended in 2003) (B)

The Act relates to animal welfare.

The Agreement on the European Economic Area[218] (B)

The Agreement, which entered into force on 1 January 1994, imposes several obligations on Norwegian legislation. Of particular interest here is the implementation of EC legislation on veterinary inspection, aquatic animal health and food hygiene.

The Regulation relative to Sea Ranching (2003)[219] (B)

The Regulation, adopted under the Aquaculture Act (2005), defines sea ranching as the aquaculture of crustaceans, molluscs and echinoderms through the conduct of bottom culture without keeping the animals in captivity.)

Russian Federation

According to the FAO[220], Russia does not have systematic aquaculture legislation. At present there is no general fishery and aquaculture law but a draft of a federal law which includes fish farming. Until the adoption of the law, aquaculture is regulated by regional laws and federal and regional special programmes.

Fish farming requires a licence from the Federal Fisheries Committee or its territorial branches. Licenses are given for a period of not less than three years.

Canada

The aquaculture industry in Canada is overseen by a combination of federal, provincial and local authorities. The federal government has jurisdiction over the regulation of fish products marketed in export and inter-provincial trade, the conservation and protection of wild fish stocks and fish habitat and research and development. Regulation of the aquaculture industry is shared between 17 departments and agencies, with the Department of Fisheries and Oceans Canada (DFO).

217

http://www.ecolex.org/ecolex/ledge/view/RecordDetails;DIDPFDSIjsessionid=8DAC4FB94645917D864CDA40D5022188?id=LEX-FAOC066883&index=documents

218

http://ec.europa.eu/world/agreements/prepareCreateTreatiesWorkspace/treatiesGeneralData.do?step=0&redirect=true&treatyId=1

219 http://www.fao.org/fishery/shared/faolextrans.jsp?xp_FAOLEX=LEX-FAOC066462&xp_faoLexLang=E&xp_lang=en

220 http://www.fao.org/fishery/legalframework/nalo_russia/en

Fisheries Act (1985)[221] (B)

Under the Fisheries Act the DFO is responsible for issuing licences for the importation into Canada and movement between provinces of live fish (salmonids), eggs, and dead, un-eviscerated fish.

Navigable Waters Protection Act (1985)[222] (B)

Under this Act, Transport Canada grants authorizations for aquaculture facility plans affecting navigation. DFO or Transport Canada manages the environmental assessment process in coordination with Environment Canada and the Canadian Environmental Assessment Agency under the Canadian Environmental Assessment Act (1992).

Other important departments and agencies for aquaculture include:

Fish Inspection Act (1985)

The Feeds Act (1985)

The Food and Drugs Act (1985)

The Pest Control Products Act (2002)

Fish Health Protection Regulations

2.2.7 Other organisations and miscellaneous instruments relating to fisheries in the Arctic Ocean

United Nations General Assembly (UNGA) Resolutions (N-B)

Although not legally binding UNGA resolutions provide a focus for important issues, generate international cooperation and, in some cases, decisions can lead to legally binding treaties and conventions. Various UNGA decisions and resolutions relate to fisheries[223], in particular to destructive fishing practices and sustainable fisheries, for example resolutions 61/105 (2006)[224] and 64/72 (2009)[225] and 65/38 (2010)[226].

[221] http://laws-lois.justice.gc.ca/eng/acts/F-14/

[222] http://laws-lois.justice.gc.ca/eng/acts/N-22/

[223] http://www.un.org/depts/los/general_assembly/general_assembly_resolutions.htm

[224] http://www.un.org/depts/los/general_assembly/general_assembly_resolutions.htm

[225] http://www.un.org/depts/los/general_assembly/general_assembly_resolutions.htm

[226] http://www.un.org/depts/los/general_assembly/general_assembly_resolutions.htm

2.3 RESOURCE (OIL AND GAS) EXTRACTION

2.3.1 Background

The development of oil and gas resources poses the most significant challenges to balancing resources, socio-cultural effects and environmental protection in the Arctic over the next few decades (AMAP, 2008). However, the industry view differs and considers shipping and transportation issues also significantly underpin governance challenges for the region[227].

While extensive oil and gas activity has already occurred in the Arctic this has been predominantly terrestrial rather than marine. However, despite the dominance of terrestrial activity, in North America alone 53 wells have been drilled by floating drilling units in pack ice conditions in the Chukchi Sea (5 sites) and both the US (9 sites) and Canadian Beaufort Sea (39 sites) (Figure 5). The Arctic currently produces about one tenth of the world's oil and a quarter of its gas with 80% and 99% respectively originating in Arctic Russia (AMAP, 2008). More than five percent of known oil reserves and over 20 percent of known gas reserves are in the Arctic. Russia is predicted to be the dominant producer of hydrocarbons in the Arctic with 75% of known oil reserves and 90% of known gas lying within its territory (AMAP, 2008). The 2008 modelled assessment by the United States Geographical Survey (USGS)[228] estimates that 90 billion barrels of oil, 1,669 trillion cubic feet of natural gas, and 44 billion barrels of natural gas liquids may remain to be found in the Arctic, of which approximately 84 percent is expected to occur in offshore areas.

Current offshore hydrocarbon activity began with Canadian exploration in the Mackenzie Delta during 1970s (Figure 5). During the intervening years technologies and processes have progressed. Norwegian exploration activities began in the Norwegian and Barents Seas during the 1980s. Production of gas from the Snøhvit field commenced during 2007. Offshore production in Alaska began during 2001 from wells in the Chukchi Sea (Figure 5). Exploration in the Russian offshore has identified large potential resources but these have not yet been developed (AMAP, 2008). Plans are in place to develop fields off the Lofoten Islands. Exploration is also planned for the east and west coasts of Greenland and the Arctic continental shelves of Russia and Canada. However, while increased activity is predicted for the next two decades projections any further into the future become increasingly speculative as many factors dictate the pace of activity. These include economic conditions, societal considerations, regulatory processes and technological advances. Furthermore, additional unforeseen factors may be introduced by global climate change (AMAP, 2008).

Oil spills are considered to be the largest threat to the marine environment. In contrast to terrestrial spills large marine spills are difficult to contain and have the potential to spread over hundreds and possibly thousands of kilometres. Owing to the region's remoteness and harsh conditions, limited experience in offshore drilling in the deepwater areas and only a limited understanding of the marine ecosystem in some Arctic regions, oil extraction in Arctic waters is accompanied by immense risks (Short and Murray, 2011). A recent report by the US oil-spill commission, Deep Water: The Gulf Oil Disaster and the Future of Offshore Drilling[229], states that for activities to proceed in the Arctic there should be containment and response plans at every stage, the US Coast Guard and oil companies should be able to

[227] During the lifetime of the ACCESS Project we will taking into account views of both industry and the research community in order to establish a balanced analysis.

[228] http://pubs.usgs.gov/fs/2008/3049/fs2008-3049.pdf

[229] http://www.gpoaccess.gov/deepwater/deepwater.pdf

deal with an accident, and Congress should provide the resources to ensure that the Coast Guard has sufficient presence. However, Short and Murray (2011) point out that literal adherence to the principles set out in the report would halt offshore oil development immediately and indefinitely.

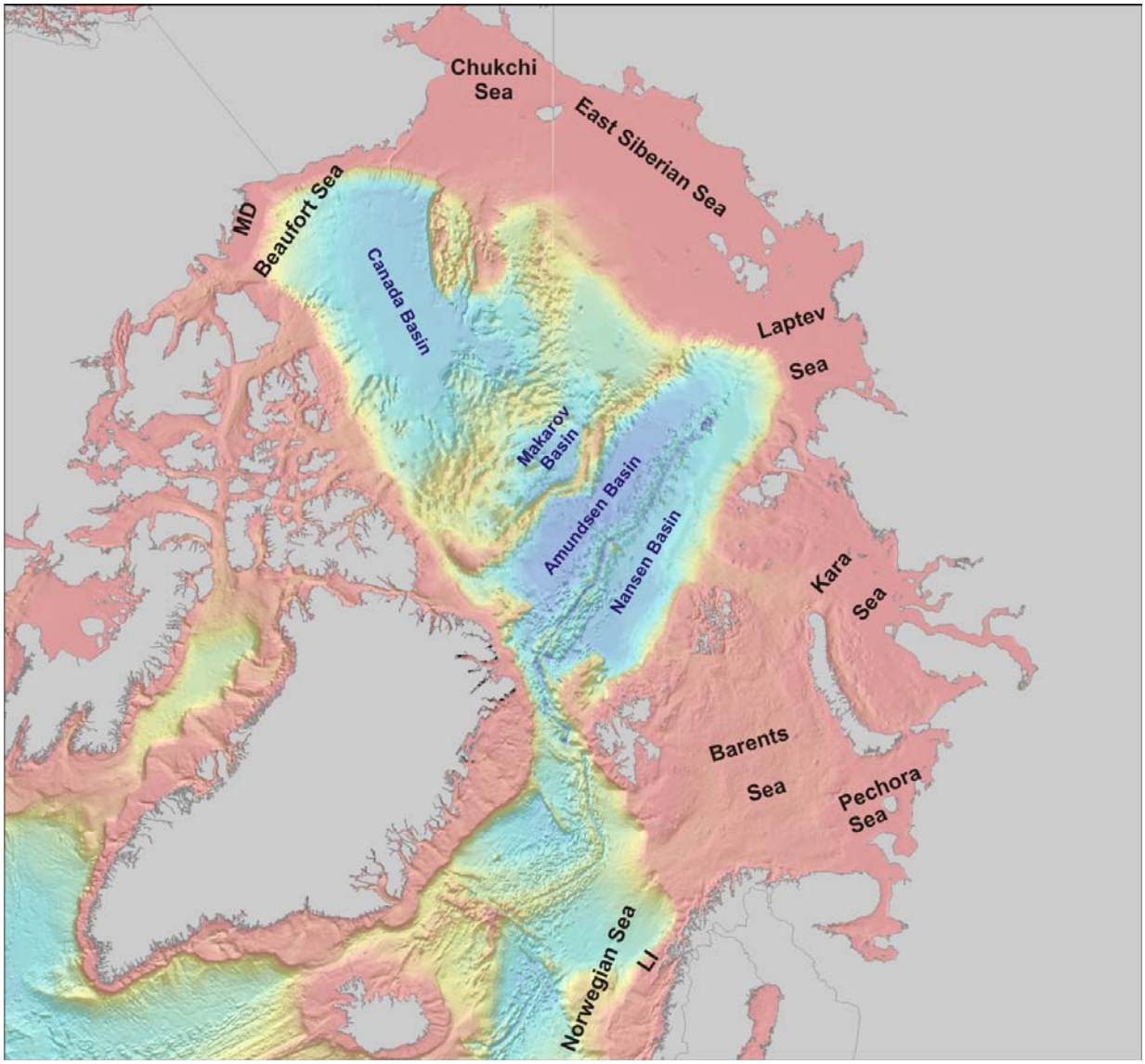

Figure 5. *Principal locations for hydrocarbon activities in the Arctic Ocean. (MD - Mackenzie Delta; LI - Lofoten Islands)*

No example of oil spills in a polar environment is more relevant to the debate than that of the Exxon Valdez in 1989[230].

There is currently no legally-binding global instrument for regulation of offshore hydrocarbon activities and no single global regulatory or governance body. However, UNCLOS,

[230] "A report to the President": www.akrrt.org/Archives/Response_Reports/ExxonValdez_NRT_1989.pdf

MARPOL, OSPAR and the International Regulators' Forum to greater or lesser extents all touch on offshore hydrocarbon activities. A number of non-binding guidelines have been developed including those of the Arctic Council[231], Arctic Offshore Oil and Gas Guidelines[232] and various guidelines issued by the International Association of Oil and Gas Producers[233] (OGP). The Inuit Circumpolar Council issued a declaration during 2011 on resource development in the Arctic[234].

2.3.2 Supranational legislation, agreements and guidelines

International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) (B)

For a description of the IMO MARPOL Convention, the objective of which is to eliminate pollution of the marine environment by oil, chemicals and other harmful substances and to minimize accidental discharge of such substances, see section 2.1.2.

In addition to the relevance of MARPOL to shipping involved with the oil and gas industry such as tankers and service vessels, the Convention is also relevant to hydrocarbon activities, 'fixed or floating platforms' are included in the definition of a 'ship'[235].

Of particular relevance to hydrocarbon activities are Annex I, Regulations for the Prevention of Pollution by Oil. This annex covers in Chapter I, *inter alia*, surveys and inspections[236] and certification[237]. Chapter II concerns control of discharge of oil[238], requirements for control of operational pollution, including in special areas[239] and special requirements for drilling rigs and other platforms[240]. Chapter III sets out the requirements for minimizing oil pollution from oil tankers due to side and bottom damage and Chapter IV contains regulations relating to the prevention of pollution arising from an oil pollution incident. However, certain provisions within MARPOL and the London Dumping Convention exclude exploration, exploitation and processing activities (AOR, 2011).

The Convention on the Prevention of Marine Pollution by Dumping of Wastes and other Matter, London, 1972 (The London Convention)[241] and The 1996 Protocol to the Convention (London Protocol)[242] (B)

[231] http://www.arctic-council.org

[232] http://www.arcticgovernance.org/arctic-offshore-oil-and-gas-guidelines-2009.4632216-137743.html

[233] http://www.ogp.org.uk/

[234] http://inuitcircumpolar.com/files/uploads/icc-files/Declaration_on_Resource_Development_A3_FINAL.pdf

[235] MARPOL 73/78, Article 2

[236] MARPOL 73/78, Regulation 4

[237] MARPOL 73/78, Regulations 5-8

[238] MARPOL, 73/78, Regulation 9

[239] MARPOL 73/78, Regulation 10

[240] MARPOL 73/78, Regulation 21

[241] http://www.admiraltylawguide.com/conven/dumping1972.html

[242] http://www.admiraltylawguide.com/conven/protodumping1996.html

The IMO London Convention came into force 30 August 1975 and the 1996 Protocol to the Convention (the London Protocol) came into force 24 March 2006. There are currently 87 parties to the London Convention and 41 parties to the Protocol. All Arctic Ocean Coastal States are party to the Convention and Canada, Denmark and Norway are party to the Protocol. The geographical range of the London Convention is global.

The Convention defines dumping as "(a) deliberate disposal at sea of wastes or other matter from vessels, aircraft, platforms and other man-made structures at sea; (b) any deliberate disposal at sea of vessels, aircraft, platforms or other man-made structures ...". Its objective is to promote the effective control of all sources of marine pollution and to take all practicable steps to prevent pollution of the sea by dumping of wastes and other matter.

The London Protocol codifies the "polluter pays principle" and the "precautionary approach". It also introduces the "reverse list" whereby the dumping of all waste, other than that listed in Annex 1 (the reverse list) is banned. The list includes, inter alia, vessels and platforms; inert, inorganic geological material (e.g., mining wastes); bulky items primarily comprising iron, steel and concrete.

International Convention on Oil Pollution Preparedness, Response, and Co-operation (OPRC) 1990 and the **Protocol on Preparedness, Response and Co-operation to Pollution Incidents by Hazardous and Noxious Substances 2000 (HNS Protocol)** (B)

The IMO OPCR Convention was adopted 30 November 1990 and entered into force 13 May 1995. Its geographical range is global. All the Arctic Ocean coastal states are parties to the Convention. The 2000 Protocol entered into force 14 June 2007.

The Convention requires states to take national or co-operative measures to prepare for and respond to an oil pollution incident which involves ships, offshore units, sea-ports and oil handling facilities[243].

The only Arctic Ocean State party to the HNS Protocol is Denmark. The aim of the HNS Protocol, like the Convention, is to provide a global framework for international co-operation for combating major incidents or threats of marine pollution. The HNS Protocol requires that parties establish measures for dealing with pollution incidents, either nationally or in co-operation with other countries. Ships are required to carry a shipboard pollution emergency plan specifically to address incidents involving hazardous and noxious substances.

UNEP Environmental Law Guidelines and Principles: Offshore Mining and Drilling (V)

There is currently no global treaty to regulate operational pollution from off-shore installations. However, these non-binding Guidelines, endorsed for State practice by the UNEP governing Council and the UN General Assembly in 1982, provide recommendations on issues such as environmental impact assessments and monitoring (Churchill and Lowe, 1999).

2.3.3 Regional legislation, agreements and guidelines

[243] OPRC Convention, Article 2

The Convention for the Protection of the Marine Environment in the North East Atlantic (OSPAR Convention)[244] (B)

The OSPAR Convention not only covers all sources of marine pollution but also covers all human activities, with the exception of fishing[245]. The Convention provides that Contracting Parties are under a general obligation to "take all possible steps to prevent and eliminate pollution and shall take the necessary measures to protect the maritime area against the adverse effects of human activities"[246]. Further articles and annexes build on this general obligation and include, inter alia, pollution by dumping or incineration[247], pollution from offshore sources[248], assessment of the marine environment[249], pollution from other sources[250] and obligations to protect and conserve the ecosystems and the biological diversity of the maritime area[251].

The offshore oil and gas industry is one of the five OSPAR thematic strategies and a number of legally binding Decisions and non-legally binding Recommendations further develop the Convention in relation to offshore oil and gas activities[252]. The objective of the Offshore Oil and Gas Industry Strategy[253] is "to prevent and eliminate pollution and take the necessary measures to protect the OSPAR maritime area against the adverse effects of offshore activities by setting environmental goals and improving management mechanisms, so as to safeguard human health and to conserve marine ecosystems and, when practicable, restore marine areas which have been adversely affected".

At the 2010 OSPAR ministerial meeting deep concern was expressed about the Deepwater Horizon accident. Therefore, as a precaution, Contracting Parties are "reviewing existing frameworks, including the permitting of drilling activities in extreme conditions, taking extra care to implement all relevant learning from the Deepwater Horizon accident, and continuing to evaluate activities on a case by case basis"[254].

Arctic Offshore Oil and Gas Guidelines 2009[255] (V)

These voluntary guidelines produced by the Arctic Council and adopted by the Arctic Environmental Ministers in 1997, were revised in 2002 and 2009 by PAME.

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[244] http://www.ospar.org/content/content.asp?menu=01481200000000_000000_000000

[245] The OSPAR Convention, Preamble

[246] The OSPAR Convention, Article 2.1(a)

[247] The OSPAR Convention, Article 4 and Annex II

[248] The OSPAR Convention, Article 5 and Annex III

[249] The OSPAR Convention, Article 6 and Annex IV

[250] The OSPAR Convention, Article 7

[251] The OSPAR Convention, Annex V

[252] OSPAR, offshore oil and gas industry measures: http://www.ospar.org/v_measures/browse.asp?menu=01110305610124_000001_000000

[253] OSPAR Offshore Oil and Gas Industry Strategy: http://www.ospar.org/html_documents/ospar/html/10-03e_nea_environment_strategy.pdf#OIC

[254] OSPAR, Bergen Statement, paragraph 18: http://www.ospar.org/html_documents/ospar/news/ospar_2010_bergen_statement.pdf

[255] http://www.arcticgovernance.org/arctic-offshore-oil-and-gas-guidelines-2009.4632216-137743.html

The purpose of the Guidelines, which cover planning, exploration, development, production and decommissioning, is to establish, within the Arctic states, common policies and practices. The stated intention of the Guidelines is to define a set of recommended practices and outline strategic actions for consideration by those responsible for regulation of offshore oil and gas activities (including transportation and related onshore activities) in the Arctic.

The Guidelines set broad goals for environmental protection based on the precautionary approach, polluter pays principle, continuous improvement and sustainable development.

Other Arctic Council documents of relevance to oil and gas activities:

Arctic Marine Strategic Plan (2004)[256]

Arctic Oil and Gas 2007[257]

The Arctic Environmental Protection Strategy, (1991)[258]

In 2000 the Arctic Council Emergency Prevention, Preparedness and Response (EPPR) programme undertook a gap analysis for international agreements of relevance to oil and gas activities. International regimes relating to oil and hazardous and noxious substances (HNS) in international waters are currently under review. EPPR documents of relevance to oil and gas activities include:

Guidelines for the Transfer of Refined Oil and Oil Products in the Arctic (TROOP)(2004)[259]

Arctic Shoreline Clean-up Assessment Technique (SCAT) Manual (2004)

Field Guide for Oil Spill Response in Arctic Water (1998)[260]

EPPR Guidelines for oily waste management (2009)[261]

The Arctic Guide to National emergency response arrangements and contacts

(The Arctic Council is currently preparing an SAR-type set of binding regulations for hydrocarbon spillage.)

Petroleum and natural gas industries - Arctic offshore structures: Standard ISO 19906:2010 (V)

This Standard has been prepared during the last eight years by experts from 15 countries with support by the oil industry. The objective of this document is to ensure that offshore structures in Arctic and Cold Regions provide an appropriate level of reliability with respect to personnel safety, environmental protection and asset value to the society. For this purpose the following topics are addressed:

[256] http://www.pame.is/index.php/arctic-marine-strategic-plan

[257] http://www.amap.no/oga/

[258] http://library.arcticportal.org/1542/1/artic_environment.pdf

[259] http://arcticportal.org/images/stories/pdf/TROOP_-_English_2.pdf

[260] http://eppr.arctic-council.org/content/fldguide/fldguide.pdf

[261] http://www.arctic-council.org/index.php/en/about/documents/category/61-eppr#

- Relevant ice conditions specified for the different areas in Arctic and Cold Regions
- Reliability functions
- Ice actions and action effects
- Various types of structures
- Topsides
- Subsea production systems
- Ice management
- Escape and rescue procedures

The Standard specifies requirements and provides recommendations and guidance for the design, construction, transportation, installation and removal of offshore structures, related to the activities of the petroleum and natural gas industries in arctic and cold regions. Arctic and cold regions in ISO 19906:2010 considered to include both the Arctic and other cold regions that are subject to similar sea ice, iceberg and icing conditions.

ISO 19906:2010 does not contain requirements for the operation, maintenance, service-life inspection or repair of arctic and cold region offshore structures, except where the design strategy imposes specific requirements. While ISO 19906:2010 does not apply specifically to mobile offshore drilling units (see ISO 19905-1), the procedures relating to ice actions and ice management are applicable to the assessment of such units. ISO 19906:2010 also does not apply to mechanical, process and electrical equipment or any specialized process equipment associated with arctic and cold region offshore operations except in so far as it is necessary for the structure to sustain safely the actions imposed by the installation, housing and operation of such equipment.

2.3.4 Multilateral and bilateral agreements

The Agreement between Denmark, Finland, Iceland, Norway and Sweden Concerning Cooperation in Measures to deal with Pollution of the Sea by Oil or other Harmful Substances[262] (V)

This voluntary agreement, signed in 1993 and in force 16 January 1998, covers the internal waters, territorial and other waters within the boundaries of the Parties' respective fishing grounds, continental shelf and exclusive economic zone. The Agreement specifies measures for monitoring and dealing with oil spills and similar events occurring within the waters covered by the Agreement. Obligations include monitoring, investigation, reporting, production of evidence, abatement assistance and exchange of information.

The bilateral agreement between Denmark and Canada for cooperation relating to the marine environment[263] (V)

The geographical scope of this voluntary agreement, signed in 1983, covers the Arctic marine areas between Canada and Greenland (Denmark). The Agreement relates to the

[262] http://www.ust.is/kph/engelsk.pdf

[263] http://www.dipublico.com.ar/english/canada-denmark-agreement-for-co-operation-relating-to-the-marine-environment/

prevention, reduction and control of pollution of the marine environment resulting from activities within the area defined. The objectives are to ensure that suitable measures are taken regarding installations for exploration and exploitation of natural resources of the seabed and subsoil.

Agreement between the Governments of the Kingdom of Norway and the Russian Federation on Cooperation in Environmental Matters, Oslo, 3 September 1992

It is under the auspices of this Agreement that the Joint Norwegian-Russian Federation Commission on Environmental Protection operates. Given the expected increase in petroleum activities in the Barents Sea, a focus of the marine environmental group is on projects concerning e.g. comparison of Norwegian and Russian legislation and practices for petroleum-related activities in the Arctic, exchange of experience relating to supervision and control and harmonization of methods for environmental monitoring[264].

Agreement between Norway and the Russian Federation Concerning Cooperation on the Combating of Oil Pollution in the Barents Sea, Moscow, 28 April 1994

Referenced at Koivurova and Molenaar (2009) but text of Agreement not available at time of writing.

Treaty between the Kingdom of Norway and the Russian Federation concerning Maritime Delimitation and Cooperation in the Barents Sea and the Arctic Ocean[265]

Includes an annex on trans-boundary hydrocarbon deposits.

Joint Contingency Plan of the United States and the Russian Federation on Combating Pollution in the Bering and Chukchi Seas[266] (B)

The Plan, signed 11 May 1989, is maintained by the Department of Homeland Security, the United States Coast Guard and the Russian Federation. The plan and its operational appendixes provide for coordinated and combined responses to pollution incidents in the Bering and Chukchi Seas. It augments pertinent national, State, republic, regional, and local plans of the two Nations. The plan was updated and signed in March 2001.

Canada-United States Joint Marine Pollution Contingency Plan (2003) (B)

The purpose of the Plan, signed on 22 May 2003, is to provide a coordinated system for planning, preparedness and responding to harmful substance incidents in the contiguous waters. The geographical scope of the plan covers the contiguous Canadian-US waters.

This plan is supported by five geographic annexes which supplement the plan and provide the basic information necessary to execute an efficient and effective response in the contiguous waters[267].

[264] http://www.regjeringen.no/en/dep/md/Selected-topics/svalbard_og_polaromradene/Norwegian-Russian-environmental-cooperation.html?id=451246

[265] http://www.regjeringen.no/upload/ud/vedlegg/folkerett/avtale_engelsk.pdf

[266] http://dec.alaska.gov/spar/perp/plans/uc/mou/Kp-US_USSR_89.pdf

2.3.5 National legislation

Canada

The Canada Oil and Gas Operations Act (1985)[268] (B)

Regulatory responsibilities for oil and gas exploration and activities on frontier lands not otherwise regulated under joint federal or provincial accords fall to The National Energy Board (NEB). This includes the Arctic offshore. The Act covers, inter alia, prohibitions, licences and authorisations, transmission of oil and gas and regulation of operations.

The Canada Petroleum Resources Act (1985)[269] (B)

The purpose of the CPRA is to regulate interests in petroleum in relation to frontier lands, to amend the Oil and Gas Production and Conservation Act and to repeal the Canada Oil and Gas Act. The Act, which is administrative rather than operational, encompasses, inter alia, rights, permits, discoveries, insurance, licencing and royalties.

Canada Oil and Gas Drilling and Production Regulations (SOR/2009-315) (as amended 31.12.2009) (COGDP)[270] (B)

The Regulations, which are operational rather administrative, establish the requirements for procedures and standards. Part 4 covers equipment and operations including wells, installations, specific equipment (e.g. risers, drilling fluid system), facilities and support craft.

Canada Oil and Gas Installations Regulations (COGI)(SOR/96-118)[271] (B)

The COGI Regulations, which are operational, relate to oil and gas installations in areas of Canada under the Canada Oil and Gas Operations Act. Purpose of the Act is to ensure the safety of an installation and no operator is permitted to use an installation unless the equipment on the installation is arranged in accordance with the Regulations re:

- safety of personnel
- minimize damage to the environment
- enable easy access to the equipment.

Part I, Section 4 Lists standards for design and construction of installations. Part 1, Sections 7 and 8 covers atmospheric emissions. Section 14 covers 'winterization', Section 20 offshore impacts. Part II, Sections 37- 62 cover design of offshore installations while Part III covers offshore construction and installation. Part IV, Operations and Maintenance Offshore covers, inter alia, (Section 64) the amount of snow and ice that may be allowed to accumulate on the installation, the amount of marine growth that may be allowed to accumulate on the installation, and for a mobile offshore platform, any operating limits imposed by environmental conditions and the effect of wind, sea, snow, ice and marine growth on the

[267] http://www.usda.gov/documents/NRPallpages.pdf

[268] http://laws-lois.justice.gc.ca/eng/acts/O-7/

[269] http://laws-lois.justice.gc.ca/eng/acts/C-8.5/

[270] http://laws.justice.gc.ca/eng/regulations/SOR-2009-315/

[271] http://laws.justice.gc.ca/eng/regulations/SOR-96-118/page-4.html

strength, stability and seaworthiness of the platform while in transit, in the operating condition or in the survival condition; for a fixed offshore platform, the characteristics of the platform foundation, bottom penetration and the maximum permitted amount of scour or other changing seabed conditions.

Canada Oil and Gas Geophysical Operations Regulations (SOR/96-117)[272] (B)

The Regulations relate to geophysical operations in relation to exploration for oil and gas in any area to which the Canada Oil and Gas Operations Act Applies. Part II of the Regulations applies specifically to Offshore Geophysical Operations, including airguns, gas exploders, electrical seismic energy sources and helicopter support.

Arctic Waters Pollution Prevention Act (AWPPA)(R.S.C., 1985, c. A-12) [273] (B)

The AWPPA aims to prevent pollution in Canadian Arctic waters. It is a 'zero discharge' act, which states, "no person or ship shall deposit or permit the deposit of waste of any type in the Arctic waters." The AWPPA describes offences and punishments; and outlines the powers that may be given to Pollution Prevention Officers so that they may enforce the Act.

Arctic Water Pollution Prevention Regulations (C.R.C., c. 354)[274] (B

The Regulations apply to the deposit of waste in the arctic waters or in any place on the mainland or islands of the Canadian arctic under any conditions where such waste or any other waste that results from the deposit of such waste may enter the arctic waters but does not apply to the deposit of waste by a ship.

Norway

Lists of acts[275], royal decrees and regulations[276] relating to oil and gas activities are published on the Norwegian Petroleum Directorate website.

Act 29 November 1996 No. 72 relating to petroleum activities[277] (B)

(Last amended by Act 19 June 2009 No 104)

The Act establishes the principles that the Norwegian state owns all subsea petroleum within national borders, has the exclusive right to manage these resources, and is alone authorized to award licenses for petroleum activities.

[272] http://laws.justice.gc.ca/eng/regulations/SOR-96-117/index.html

[273] http://laws.justice.gc.ca/eng/acts/A-12/

[274] http://laws.justice.gc.ca/eng/regulations/C.R.C.,_c._354/index.html

[275] http://www.npd.no/en/Regulations/Acts/

[276] http://www.npd.no/en/Regulations/Regulations/

[277] http://www.npd.no/en/Regulations/Acts/Petroleum-activities-act/

The Act covers licensing, mortgages, production and cessation of activities, liability for pollution damage and outlines general requirements for safety and emergency preparedness.

Regulations to Act relating to petroleum activities[278] (B)

The Regulations cover, inter alia, exploration licences, impact assessments relating to opening of new areas for petroleum activities, production licences, production of petroleum, decommissioning, information and documentation.

Guidelines for plan for development and operation of a petroleum deposit (PDO) and plan for installation and operation of facilities for transport and utilisation of petroleum (PIO) 4 February 2010[279] (V)

The document provides guidance on documentation, impact assessment, development and installation and other decision criteria to safeguard health and safety.

USA

Responsibility for oil and gas exploration and production falls within the auspices of the Bureau of Ocean Energy Management (BOEM), the Bureau of Safety and Environmental Enforcement (BSEE) and the Office of Natural Resources Revenue. The Alaska Region office has responsibility for regulating offshore oil and gas activity in the US Arctic.

Outer Continental Shelf Lands Act (OCSLA) (67 Stat. 462)[280] (B)

The 1953 Act defines the OCS as all submerged lands lying seaward of state coastal waters (3 miles offshore) which are under U.S. jurisdiction. The OCSLA provides a mechanism for the federal government to establish ownership of and jurisdiction over the subsoil and seabed of the Outer Continental Shelf. Under the OCSLA, the Secretary of the Interior is responsible for the administration of mineral exploration and development of the OCS. The Act empowers the Secretary to grant leases to the highest qualified responsible bidder on the basis of sealed competitive bids and to formulate regulations as necessary to carry out the provisions of the Act. The Act, as amended, provides guidelines for implementing an OCS oil and gas exploration and development program.

Oil Pollution Act of 1990 (As Amended Through P.L. 106–580, Dec. 29, 2000)[281] (B)

The objective of the Act is to prevent and respond to oil spills by establishing provisions that expand the federal government's ability. The Act provides money and resources necessary to respond to oil spills. The OPA also created the national Oil Spill Liability Trust Fund, which is available to provide up to one billion dollars per spill incident. The Act also provides new requirements for contingency planning both by government and industry.

[278] http://www.npd.no/en/Regulations/Regulations/Petroleum-activities/

[279] http://www.npd.no/Global/Engelsk/5-Rules-and-regulations/Guidelines/PDO-PIO-guidelines_2010.pdf

[280] http://epw.senate.gov/ocsla.pdf

[281] http://epw.senate.gov/opa90.pdf

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP)[282] (B)

The NCP is the federal government's blueprint for responding to both oil spills and hazardous substance releases. The Plan is the result of efforts to develop a national response capability and promote overall coordination among the hierarchy of responders and contingency plans.

It is a three-tiered approach requiring the Federal government to direct all public and private response efforts for certain types of spill events; Area Committees, composed of federal, state, and local government officials are required to develop detailed, location-specific Area Contingency Plans; and owners or operators of vessels and certain facilities that pose a serious threat to the environment must prepare their own Facility Response Plans.

Additional US laws and regulations relating to oil and gas activities:

Resource Conservation Recovery Act (RCRA)[283] (B)

Federal law grants limited exemption from this Act for disposal of wastes produced during initial oil and gas downhole drilling operations which can be disposed of by injecting into injection wells or encapsulating into well bores of wells that about to be abandoned. Permits are required. However, apart from this exception, the Act applies to handling and disposal of characteristic or listed hazardous wastes generated during operations (Baker et al. 2010).

The Clean Air Act [284] (B)

The Act addresses, inter alia, air emissions in the Outer Continental Shelf. It falls under the jurisdiction of Environmental Protection Agency. Flaring or venting of oil well gas cannot occur for more than 48 continuous hours or 144 cumulative hours per month with regulatory approval (Baker et al. 2010).

Russian Federation

Federal Law on the Continental Shelf of the Russian Federation (adopted 25 October 1995)[285]

This Law defines the status of the continental shelf of the Russian Federation, the sovereign rights and jurisdiction of the Russian Federation over its continental shelf and their exercise in accordance with the Constitution of the Russian Federation, the generally recognized principles and rules of international law and the international treaties of the Russian Federation. Matters relating to the continental shelf of the Russian Federation and activities thereon not provided for in this Federal Law are regulated by other federal laws applicable to the continental shelf of the Russian Federation.
The Law covers, inter alia, regulation of the regional geological study of the continental shelf and the prospecting exploration and exploration of mineral resources[286], artificial islands,

[282] http://www.epa.gov/osweroe1/content/lawsregs/ncpover.htm

[283] http://epw.senate.gov/rcra.pdf

[284] http://www.gpo.gov/fdsys/pkg/USCODE-2008-title42/pdf/USCODE-2008-title42-chap85.pdf

[285] http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/PDFFILES/RUS_1995_Law.pdf

[286] Federal Law on the Continental Shelf of the Russian Federation, Article 8

installations and structures[287], laying of submarine cables and pipelines[288], dumping of waste[289] and accidents at sea, including accidents during the exploration, exploitation or transportation of mineral recourses[290].

Law "On Subsoil", dated 21 February 1992, as amended, (the "Subsoil Law") and the regulations issued pursuant to it (the "Subsoil Regulations") (B)

The Subsoil Law provides the framework for access to Russia's hydrocarbon resources.

Federal Law "On Gas Supply in the Russian Federation," No. 69-FZ (Mar. 31, 1999 (The Gas Supply Law) (B)

Covers, *inter alia*, the regulation of strategic natural gas reserves; supervision and control over industrial and environmental safety of sites and facilities within the natural gas supply system. Referenced from Morozova, (2008) however text of the law is not available at the time of writing the current report.

Environmental Standards for Operations of Oil and Gas Companies Acting in Russia, on its Continental Shelf, and within it Exclusive Economic Zone developed by Russian Non-governmental Nature Conservation Organizations[291] (V)

A set of standards encompassing:

- Environmental Policy
- Law Compliance
- Territories and Marine Zones of High Value
- Environmental Impact Assessment (EIA) and Ecological Expertise
- Transparency of Ecological Information
- Compensation for Damages and Losses
- Prevention and Response for Oil Spills and Spills of Oil Products
- Prevention and Mitigation of Negative Impacts on the Environment
- Environment-Oriented Initiatives
- Greenhouse Gas Emissions

Greenland

In Greenland the Bureau of Minerals and Petroleum[292], established in 1998, is responsible for tasks linked to the production and transportation of minerals and petroleum.

[287] Federal Law on the Continental Shelf of the Russian Federation, Articles 16-21

[288] Federal Law on the Continental Shelf of the Russian Federation, Article 22

[289] Federal Law on the Continental Shelf of the Russian Federation, Articles 34-38

[290] Federal Law on the Continental Shelf of the Russian Federation, Article 39

[291] http://www.arcticgovernance.org/environmental-standards-for-operations-of-oil-and-gas-companies.4640793-142902.html

[292] http://www.bmp.gl/

Greenland Parliament Act of 7 December 2009 on mineral resources and mineral resource activities (the Mineral Resources Act)[293] (B)

The aims of the Act are to ensure "appropriate exploitation of mineral resources and use of the subsoil for storage or purposes relating to mineral resource activities as well as regulation of matters of importance to mineral resource activities and subsoil activities". The Act further aims "to ensure that activities under the Act are performed in a sound manner as regards safety, health, the environment, resource exploitation and social sustainability and appropriately and according to acknowledged best international practices under similar conditions"[294].

Guidelines for applications, execution and reporting of offshore hydrocarbon exploration activities (excluding drilling) in Greenland[295] (V)

The Guidelines require that offshore hydrocarbon exploration activities are to be carried out according to acknowledged best international standards - NORSOK standards[296]. The Guidelines also require that all national and international rules, laws and regulations re ships, equipment, crew, and navigation are followed and that 'best available technology' and 'best available practice' to be applied (as per OSPAR definitions). In addition the BMP may require that two biological observers and a fishery liaison officer be included in operations.

Greenland Bureau of Minerals and Petroleum Drilling Guidelines[297] *(V)*

This contains detailed technical guidelines on exploration through to final abandonment of a well.

Other guidelines produced by The Bureau of Minerals and Petroleum include:

Guidelines for Preparing an Environmental Impact Assessment Report [298] *(V)*

Guidelines for preparing a Social Impact Assessments[299] *(V)*

293 http://dk.nanoq.gl/Emner/Landsstyre/Departementer/R%C3%A5stofdirektoratet/Inatsiseqarnermut%20tunngasut/~/media/F06119ABC58D41DEBD52A06081D93058.ashx

294 The Mineral Resources Act, Part 1.1

295 http://www.bmp.gl/images/stories/petroleum/Guidelines_offshore_HC3_uk_May%202011.pdf

296 NORSOK standards, developed by the Norwegian petroleum industry, to ensure adequate safety, value adding and cost effectiveness for petroleum industry developments and operations. NORSOK standards are, as far as possible, intended to replace oil company specifications and serve as references in the authorities' regulations

297 http://www.bmp.gl/images/stories/petroleum/110502_Drilling_Guidelines.pdf

298 http://ada.edu.az/uploads/file/Guidelines%20for%20preparing%20an%20Environmental%20Impact%20Assessment.pdf

299 http://www.bmp.gl/images/stories/minerals/sia_guideline/sia_guidelines.pdf

2.3.6 Other guidelines and organisations relating to oil and gas activities in the Arctic Ocean

NERI Guidelines to environmental impact assessment of seismic activities in Greenland waters[300]

Produced by the National Environmental Research Institute, Aarhus University in Denmark, the Guidelines, are based on 'best practice' for companies preparing environmental impact assessments of seismic activities in ice free Greenland waters.

OGP HSE Guidelines for Metocean and Arctic Surveys[301]

These guidelines, produced in 2011, cover, inter alia, HSE capability assessment, tender preparation, evaluation and award, pre-mobilisation, mobilisation and execution. Annexes include minimum metocean HSE vessel standard, competence record, metocean project HSE plan, metocean emergency response plan – checklist, near-miss, incident and unsafe working practice report and on-ice survival plan.

The International Regulators' Forum[302]

The International Regulators' Forum (IRF) comprises a group of regulators of health and safety in the offshore upstream oil and gas industry. It promotes global offshore safety by aiming to raise health and safety standards in the sector through collaboration in joint programmes, and through sharing information. Of the ten member countries the Arctic Ocean coastal States represented are Norway, the USA, Canada and Denmark.

The objectives of the IRF are:

- To promote best sustainable safety performance globally and the concept that it is inseparable from and interdependent with best sustainable economic performance.
- To enable an exchange of information among regulators on:
- Offshore health and safety trends;
- Industry health and safety performance;
- Lessons from incidents;
- Industry best practice;
- Regulatory practice; and
- Measuring the effectiveness of regulatory activities.
- To provide a network of offshore petroleum health and safety regulators for mutual support and advise when required.

300 http://www.bmp.gl/images/stories/petroleum/environmental_reports/NERI_report_785_sec_ed_2010.pdf

301 http://www.ogp.org.uk/pubs/447.pdf

302 http://www.irfoffshoresafety.com/

Part 3: OBSERVATIONS AND SUMMARY OF RESULTS

NB There has been some difficulty in collecting information about certain legislation particularly - but not always - at the national level. With further exposure of this report, it is hoped that this information will be sourced elsewhere and added at a future date.

The collection of regulations and legislation provided by this report is valuable in illustrating the complexity of instruments and agreements that exist for the marine area of the Arctic Ocean. It is equally valuable in that it allows the identification of those areas which remain uncovered, or insufficiently covered by regulation.

Such insufficiency in legislation is in some important instances already being addressed – the development of the Polar Code is one clear example of work in progress – but at a pace which often seems to be slower than desirable. And if the finalisation of such regulations is slower than is necessary, then the physical changes to the environment as a results of decades of climate change and the corresponding changes in man's activities and operational behaviour in the Arctic brings even more uncertainty. An estimate of what those changes will be, along with what options there may be for confronting, or mitigating those changes within regulations or their amendment, will be the subject of future reports in this project[303] .

The effects of climate change on the regulatory systems for each of the sectors will be varied. Inevitably some parts will be severely stressed, but others may be less affected. Because the effects will be progressive over the 30-year period considered, this will influence further, the expected impacts. The following study (D 5. 31) will seek to understand the different rates that each of the sectors will be affected by climate change.

General observations

Not all Arctic Ocean coastal States are parties to all instruments/regulations pertaining to the Arctic Ocean, for example the IMO BWM Convention and the STCW-F.

Different legal regimes prevail for different parts of the same ocean space – High Seas vs. OCS, and High Seas vs. the Area, for instance and this will inevitably create conflict of interest and overlap of exploitation effects.

There are still areas of existing maritime disputes (US Russia/ US Canada), and conflict may arise at these sites. Potential overlap of OCS areas is also likely, especially with deadlines for submission by Canada and Denmark in 2013 and 2014 respectively. ACCESS will monitor developments in this field during the project period.

Maritime space delimitation between coastal states remains incomplete within 200M. Areas of national jurisdiction beyond these will overlap and disputes will arise if they have not already done so.

The Area (that seafloor beyond national jurisdiction) remains undefined and is likely to do so for some time (at least 15 years).

The USA is not signatory to the 1982 UNCLOS, and will therefore lag behind other coastal states in the region in establishing its maritime space, although there is likely to be most contentious in the highest latitudes (greater then 75°N), and these will be last areas to be ice-

[303] "Production of current governance options for ACCESS sectors/themes" (D5.21, due June 2012)) and Assessment of inputs regarding climate change effects and impacts on extant regulatory systems (D5.31, due October 2012)

free in the Arctic Ocean summer months. The USA considers its marine policies to follow customary international law – although interpretations of this can vary.

There is no comprehensive manner in which compliance can be effectively monitored, nor sanctions enforced.

The legislation relating to the various sectors covered in this report have differing degrees of maturity. Shipping and maritime space has a relatively well-developed set of systems – but these are sorely lacking when it comes down to tourism, for instance – oil and gas is relatively less developed than the others.

Fisheries

No RFMO currently covers the Arctic Ocean fisheries areas. For fishing there is a complex, and bewildering array of bilateral and multilateral agreements.

Aquaculture in the Arctic is relatively scarce and the legislation appears to be under the control of regional bodies. Consequently, it is unlikely to be comprehensive and detailed but on a more ad-hoc basis.

As the aquaculture industry in Norway has been in existence since the early 1970s the regulations are relatively detailed and are relatively mature and there do not appear to be significant lacunae. However, in the face of climate change, a potential issue for consideration is the application of stringent geographical restrictions to licences.

Oil and gas

For oil and gas, there is generally a lack of global and regional legislation. It is recognised however in the industry that it is the shipping and transportation aspects of oil and gas extraction, as well as pollution prevention measures, which need to be addressed as an urgent priority.

Like fisheries, oil and gas sector legislation relies heavily on marine transportation and so much of this sector's regulation is embedded within shipping legislation.

There is no full coverage by global or regional bodies in oil and gas – some consortia exist, but it has been hard to break into these in our search for stakeholders.

Oil and gas legislation is fragmented – there are gaps in geographical coverage in contingency and preparedness plans for vessel- and rig-sourced pollution issues,

There is a lack of legally binding regional and bilateral legislation.

There are no global rules on EIA or SEA in ABNJ.

Marine transportation

Revised Guidelines for Ships Operating in Arctic Ice-covered Waters only refers to MARPOL pollutants – which does not include energy (noise).

The marine transportation legislation and regulatory system, despite being in advance of oil and gas and fisheries for the Arctic, remains somewhat fragmented.

A further underlying problem relating to shipping in the Arctic is the lack of a broad definition encompassing all ships, beyond just container ships and tankers, to include tug-barges, cruise and tourism vessels, large fishing vessels, bulk carriers, scientific research vessels,

icebreakers etc. all of which have potential for discharges and emissions in the Arctic marine environment.

The existing voluntary guidelines are not sufficiently stringent. A mandatory Polar Code, appropriately enforced by Arctic Coastal States, would limit voyages of sub-standard ships in polar waters and provide international rules and regulations for Arctic shipping in general.

It is recognized that IMO intends to establish regulations under the Polar Code. However, the Polar Code is slow to develop, due to its exhaustive and comprehensive oversight of all aspects of ice-affected waters. Nonetheless, gaps still exist - for instance it does not include yet black carbon or fisheries aspects. Furthermore the Polar Code (currently in draft mode) has yet to consider long-term effects of climate change.

ACCESS-Work Package 5, which deals with Governance, Sustainable Development and Synthesis of Maritime Activities in Arctic regions, intends to develop a dialogue and exchange results and views with the IMO-Polar Code panelists, as well as ACCESS Stakeholders, in order to optimize the deliverables for the project.

As the IMO has become a more effective UN organisation in recent decades it has also become more effective for protecting the global oceans. Furthermore some, but not all flag States, have become more effective at enforcing standards. However, not all the policy instruments contain Arctic-specific language or focus. Moreover, existing conventions and regulations are not adequate to address the many changes arising from climate change and the subsequent natural resource development in the Arctic.

A key issue relating to Arctic shipping is the question of how does the global marine tourism industry fit with regulatory developments to the indigenous Arctic peoples and the environment.

The existing lack of marine infrastructure in the Arctic means that there are currently no adequate safety provisions for large cruise ships and shipping and maritime activities in general.

Further reports in this series will include:

5.21 “Summary of governance options over ACCESS time period (ca 30 years)”, Publication due April 2012 (month 14).

5.31 “Assessment of inputs regarding climate change effects and impacts on extant regulatory systems –derived from WP1, 2, 3, 4 – and overview and review of predicted stress on these systems”. Publication due
August 2012 (month 18).

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ANNEX 1. SHIPPING AND TOURISM SUMMARY TABLE

Instrument/Agreement	Organisation (where applicable)	Geographical Range	Binding/ Non-binding/ Voluntary	Date in Force	Arctic Ocean States that are signatories or parties	Link
Supranational						
International Convention for the Prevention of Marine Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78)	IMO[304]	Global	Binding	MARPOL 1973 is not in force – absorbed by the later Protocol Annexes I and II – 2.10.1983 Annex III – 1.7.1992 Annex IV - 27.9.2003 Annex V – 31.12.1988 Annex VI – 19.5. 2005	Canada, Denmark (Greenland), Norway, Russian Federation, USA	A link to the text was not available at the time of writing
The 1972 Convention on the International Regulations for Preventing Collisions at Sea (COLREGs)	IMO	Global	Binding	15.7.1977	Canada, Norway, Russian Federation, Denmark (Greenland), EU	A link to the text was not available at the time of writing
International Convention for the Safety of Life at Sea 1974 (SOLAS) Protocol of 1978 relating to the International Convention	IMO	Global Global	Binding Binding	25.5.1980 1.5.1981	Canada, Norway, Russian Federation, USA, Denmark (Greenland) Canada, Denmark, Norway, Russian Federation, USA	Links to the texts were not available at the time of writing

[304] The IMO does not provide the text of instruments in an on-line version. Where available, links to texts of IMO documents from alternative sources have been included.

for Safety of Life at Sea of 1 November 1974 SOLAS, Protocol of 1988 relating to the International Convention for the Safety of life at Sea, 1974		Global	Binding	3.2.2000	Canada, Denmark, Norway, Russian Federation, USA	
International Convention for the Control and Management of Ship's Ballast Water and Sediments 2004 (BWM Convention)	IMO	Global	Binding	Adopted 13.2.2004 but not yet in force	Canada, Norway	A link to the text was not available at the time of writing
International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, London, 1 December 1978 (STCW) As amended and modified by the 1995 Protocol Manila Amendments	IMO	Global	Binding	28.4.1984 1.2.1997 1.1.2012	Canada, Denmark, Norway, Russian Federation, USA, Canada, Denmark, Norway, Russian Federation ?	http://www.admiraltylawguide.com/conven/stcw1978.html
International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances at Sea, 1996 superseded by 2010 HNS Protocol (2010 HNS Convention)	IMO	Global	Binding	Adopted 3.5.1996 Not in force Adopted 30.4.2010 Not yet in force	Russian Federation No Arctic Ocean coastal States are Parties	A link to the text was not available at the time of writing
International Convention on the Control of Harmful Anti-Fouling Systems on Ships, 2001 (AFS2001)	IMO	Global	Binding	17.9.2008	Canada, Denmark(Greenland), Norway	A link to the text not available at the time of writing
International Convention on Maritime Search and Rescue	IMO	Global	Binding	2.6.1985	Canada, Denmark, Norway, Russian Federation, USA	A link to the text was not available at the time of writing

Revised guidelines for the identification and designation of Particularly Sensitive Sea Areas (PSSAs)	IMO	Global	Voluntary	Adopted 1.12.2005		http://www.gc.noaa.gov/documents/982-1.pdf
International Code on Intact Stability 2008 (2008 IS Code)	IMO	Global	Part A: Mandatory Part B: Recommendatory	In effect from 1.7.2010		A link to the text was not available at the time of writing
Guidelines for Ships operating in Polar Waters	IMO		Voluntary			http://www.tc.gc.ca/media/documents/marinesafety/IMO_Polar_Guidelines.pdf
Enhanced contingency planning for passenger ships operating in areas remote from Search and Rescue (SAR) facilities (MSC.1/Circ.1184)	IMO		Voluntary (but intended to be binding?)	31.5.2006 (Date of Circular)		A link to the text was not available at the time of writing
Guidelines on voyage planning for passenger ships operating in remote areas (IMO Resolution A.999)	IMO		Voluntary	3.1.2008 (Date of Resolution)		http://www.imo.org/blast/blastDataHelper.asp?data_id=29939&filename=A999(25).pdf
Regional						
OSPAR Convention	OSPAR	North Atlantic	Binding	25.3.1998	Denmark	http://www.ospar.org/
General Guidance on the Voluntary Interim Application of D1 Ballast Water Exchange Standard	OSPAR	North Atlantic	Voluntary	1.4.2008	Agreed by all 20 OSPAR contracting parties (which includes Denmark)and the European Community	http://www.ospar.org/html_documents/ospar/html/ospar_helcom_guidance_ballast_water.pdf
The Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic	Arctic Council	Arctic	Binding	Signed 12.5.2011	Canada, Norway, Denmark, Russian Federation, USA	http://www.arctic-council.org/index.php/en/about/documents/category/20-main-documents-from-nuuk
Paris Memorandum of Understanding on Port State Control (Paris MoU)		The waters of the European coastal States and the North Atlantic basin from North America to Europe	Voluntary (?)	1.71982	Canada, Denmark, Norway, Russian Federation	http://www.parismou.org/

1992 Memorandum of Understanding on Port State Control in the Asia-Pacific Region (Tokyo MoU) Amendments adopted:		Asia and the Pacific Region	Voluntary (?)	1994 18.112008 19.7.2009	Canada, Russian Federation (USA – observer status)	http://www.tokyo-mou.org/memoran.htm
National						
Canada						
Arctic Waters Pollution Prevention Act (R.S, 1985) c A-12			Binding			http://laws-lois.justice.gc.ca/eng/acts/A-12/
Canada Shipping Act 2001			Binding			http://laws.justice.gc.ca/PDF/C-10.15.pdf
Canada Marine Act (1988, c10) updated 2011.10.29			Binding			http://laws-lois.justice.gc.ca/eng/acts/C-6.7/
Northern Canada Vessel Traffic Service Zone Regulations			Binding			http://laws-lois.justice.gc.ca/eng/regulations/SOR-2010-127/
Russian Federation						
1996 Guide to navigating through the Northern Sea Route			Voluntary			A link to the text was not available at the time of writing
1996 Regulations for Icebreaker and Pilot Guiding of Vessels through the Northern Sea Route			Binding			A link to the text was not available at the time of writing
1996 Requirements for the Design, Equipment and Supplies of Vessels Navigating the Northern Sea Route			Binding			A link to the text was not available at the time of writing
Merchant Shipping Code of the Russian Federation 1999			Binding	Adopted by State Duma 31.3.1999		http://www.arbitratus.ru/english/rf_codes/m_ship.shtml
Norway						
The Norwegian Maritime			Binding	24.6.1994		http://folk.uio.no/erikro/WWW/NMC.pdf

Code						(unofficial student edition)
Regulation of 7 July 2009 No. 992 concerning the prevention of transfer of alien organisms via ballast water and sediments from ships (the Ballast Water Regulation)			Binding	1.7.2010		http://old.sjofartsdir.no/upload/19470/Regulation%20of%207%20July%202009%20No.%20992%20concerning%20the%20prevention%20of%20transfer%20of%20alien%20organisms%20via%20ballast%20water%20and%20sediments%20from%20ships%20(the%20Ballast%20Water%20Regulation).pdf
Norwegian Passenger and Cargo Ship Legislation: Acts Regulations			Binding			http://old.sjofartsdir.no/en/Legislation_and_International_Relations/Translated_Norwegian_legislation/GULBOKA/Acts/ http://old.sjofartsdir.no/en/Legislation_and_International_Relations/Translated_Norwegian_legislation/GULBOKA/Regulations/
USA						
The Shipping Reform Act of 1998			Binding	In force 1.5.1999		http://www.admiraltylawguide.com/documents/osra98.pdf
The Foreign Shipping Practices Act of 1988			Binding			http://www.fmc.gov/assets/1/Page/Foreign%20Shipping%20Practices%20Act%20of%201988.pdf
The Merchant Marine Act			Binding			
Public law 89-777			Binding			http://www.fmc.gov/about/public_law_89777.aspx
Navigation Rules			Binding			http://www.navcen.uscg.gov/?pageName=navRulesContent
Clean Air Act			Binding	Signed 31.12.1970		http://www.gpo.gov/fdsys/pkg/USCODE-2008-title42/pdf/USCODE-2008-title42-chap85.pdf
Denmark (Greenland)						
Danish Maritime Authority						http://www.dma.dk/Sider/Home.aspx
Miscellaneous Instruments, agreements and						

organisations						
Polar Code	IMO	Arctic and Antarctic	Will be mandatory			http://www.imo.org/mediacentre/hottopics/polar/Pages/default.aspx
Guidelines for Expedition Cruise Operations in the Arctic	AECO	Arctic	Voluntary			http://www.aeco.no/guidelines.htm
Guidelines for Visitors to the Arctic	AECO	Arctic	Voluntary			http://www.aeco.no/documents/AECO_ENGbrosjyrekorr.pdf

ANNEX 2. FISHERIES SUMMARY TABLE

Instrument/Agreement	Organisation (where applicable)	Geographical Range	Legally Binding/ Non-binding	Date in Force	Arctic Ocean States that are signatories or parties	Link
Supranational						
Agreement for the Implementation of the provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (UNFSA)	UN	Global	Binding	11.12.2001	Canada, Denmark, Norway, USA, Russian Federation	http://www.un.org/depts/los/convention_agreements/texts/fish_stocks_agreement/CONF164_37.htm
Agreement to promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas (FAO Compliance Agreement)	UNFAO	Global	Binding	24.4.2003	Norway, Canada, USA (also European Community)	http://www.fao.org/legal/treaties/012t-e.htm
Agreement on port state measures to prevent, deter and eliminate illegal, unreported and unregulated fishing (FAO Port State Agreement)	UNFAO	Global	Binding	Approved by FAO Conference 22.11.2009 but not yet in force	Canada, Norway, Russian Federation, USA (also European Community)	http://www.fao.org/Legal/treaties/037t-e.pdf
The 1995, International Convention on Standards of Training, Certification and Watchkeeping for Fishing Vessel Personnel (STCW-F)	IMO	Global	Binding	Will enter into force 29.9.2012	Canada, Denmark, Norway and the Russian Federation	A link to the text was not available at the time of writing
The 1977 Torremolinos International Convention for the Safety of Fishing Vessels	IMO	Global	Binding	Not in force – replaced by the 1993 Protocol Adopted in April	?	A link to the text was not available at the time of writing A link to the text was not available at the

The1993 Torremolinos Protocol				1993, will enter into force one year after ratification by 15 States with at least an aggregate fleet of 14,000 vessels of 24 metres in length and over	?	time of writing
Convention on Biological Diversity (CBD)	UNEP		Binding	29.12.1993	Canada, Denmark, Norway, Russian Federation, USA	http://www.cbd.int/convention/about.shtml
Convention on the Conservation of Migratory Species of Wild Animals (CMS or Bonn Convention)	UNEP	Global	Binding	1.11.1983	Denmark, Norway	http://www.cms.int/documents/convtxt/cms_convtxt.htm
International Convention for the Regulation of Whaling	IWC	Global	Binding	10.11.1948	Denmark, Norway, Russian Federation, USA	http://www.iwcoffice.org/commission/convention.htm
The FAO Code of Conduct for Responsible Fisheries (FAO Code of Conduct)	UNFAO	Global	Voluntary	Adopted in 1995		ftp://ftp.fao.org/docrep/fao/005/v9878e/v9878e00.pdf
International Guidelines for the Management of Deep-Sea Fisheries in the High Seas	UNFAO	Global	Voluntary	Adopted in 2008		http://www.fao.org/docrep/011/i0816t/i0816t00.htm
International Guidelines on Bycatch Management and Reduction of Discards	UNFAO	Global	Voluntary	Adopted in 2011		http://www.ofdc.org.tw/organization/01/fao/13_e.pdf
Regional						
International Convention for the Conservation of Atlantic Tunas (ICCAT Convention)	ICCAT	Atlantic	Binding	21.3.1969	USA, Norway, Russia, Canada	http://www.iccat.es/Documents/Commission/BasicTexts.pdf
Convention on Future Multilateral Cooperation in North East Atlantic Fisheries (NEAFC)	NEAFC	North East Atlantic	Binding	17.3.1982	Denmark (in respect of Greenland), Norway, Russian Federation	http://www.neafc.org/basictexts
Convention on Future Multilateral Cooperation in the Northwest Atlantic	NAFO	North West Atlantic	Binding	1.1.1979	Denmark (in respect of Greenland), Norway, USA, Russian Federation	http://www.nafo.int/about/frames/about.html

Fisheries (NAFO)						
Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (WCPF Convention)	WCPFC	Western Central Pacific	Binding	19.6.2004	Canada, USA	http://www.wcpfc.int/doc/convention-conservation-and-management-highly-migratory-fish-stocks-western-and-central-pacific-
Agreement on Cooperation in Research, Conservation and management of marine Mammals in the North Atlantic (NAMMCO Agreement)	NAMMCO	North Atlantic	Binding	8.7.1992	Norway, Greenland	http://www.nammco.no/
Convention on the Conservation and Management of Pollock Resources in the Central Bering Sea (The Donut Hole Agreement)		Central Bering Sea	Binding	16.6.1994	Russian Federation, USA	http://www.nmfs.noaa.gov/ia/intlagree/docs/Pollock_in_Bering_Sea.pdf
Convention for the Conservation of Anadromous Stocks in the North Pacific Ocean	NPAFC	North Pacific Ocean	Binding	16.2.1993	Canada, Russian Federation, United States	http://www.npafc.org/new/index.html
Convention for the Conservation of Salmon in the North Atlantic Ocean (NASCO)	NASCO	North Atlantic	Binding	3.10.1983	Canada, Denmark (in respect of Greenland), Norway, Russian Federation, United States.	http://www.nasco.int/convention.html
Multilateral/ Bilateral Agreements						
The EU, Faroe Islands, Iceland, Norway and Russia long term management plan for spring-spawning herring			Binding	1999	Norway, Russia	A link to the text was not available at the time of writing
Agreed record fishery consultations on the management of the Norwegian spring-spawning (Atlanto-		North East Atlantic	Binding	Signed and agreed 14.12.1996	Norway, Russian Federation	A link to the text was not available at the time of writing

Scandian) herring stock in the North East Atlantic for 1997 (Including Supplementary Agreements) between the EC, the Faroe Islands, Iceland, Norway and the Russian Federation						
Agreement on mutual fishery relations. Joint Faroese-Russian Fisheries Commission			Binding	27.11.1977	Russian Federation	A link to the text was not available at the time of writing
Agreement concerning mutual fishery relations between Greenland and the Russian Federation			Binding	Signed 7.3.1992	Denmark (also on behalf of Greenland), Russian Federation	http://untreaty.un.org/unts/60001_120000/30/21/00059047.pdf
Agreement between the Government of Iceland, the Government of Norway and the Government on the Russian Federation Concerning Certain Aspects of Co-operation in the Area of Fisheries and associated Protocols	Norwegian and Barents Seas		Binding	15.7.1999	Norway, Russian Federation	http://www.ecolex.org/ecolex/ledge/view/RecordDetails?id=TRE-001817&index=treaties
Convention for the Preservation of the Halibut Fishery New Convention between Canada and the United States of America for the Preservation of the Halibut Fishery of the Northern Pacific Ocean and Bering Sea Protocol Amending the Convention	IPHC	North Pacific	Binding	Signed 2.3.1923 28.10.1953 15.10.1980	Canada, USA	http://www.iphc.int/home.html
Agreement on fishing between the European Community and the		200M from the baselines from which the	Binding	1980	Norway	http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:1980:226:0048:0050:EN:PDF

Kingdom of Norway		territorial seas of each party are measured				
The Fisheries Partnership Agreement(FPA) between the European Community and Greenland		Greenland EEZ	Binding	Covers the period 1.1.2007 – 31.12.2012	Greenland	http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2007:172:0001:0003:EN:PDF
The Joint Norwegian-Russian Fisheries Commission		Norwegian, Russian waters	Binding	Established 11.4.1975	Norway, Russian Federation	http://www.jointfish.com/eng
National						
Norway						
FAO web pages of Norwegian fisheries legislation						http://www.fao.org/fishery/countrysector/FI-CP_NO/5/en
Marine Resources Act			Binding	6.7.2008		http://www.fiskeridir.no/english/fisheries/regulations/acts/the-marine-resources-act
Nature Conservation Act			Binding	29.6.1970		http://faolex.fao.org/cgi-bin/faolex.exe?rec_id=002316&database=FAOLEX&search_type=link&table=result&lang=eng&format_name=@ERALL
Wildlife Act				29.5.1981		http://eelink.net/~asilwildlife/norway.html
Decree No. 1653 of 2004 to protect vulnerable habitats in international navigable waters			?	Date of original text 14.12.2004		http://faolex.fao.org/cgi-bin/faolex.exe?rec_id=041909&database=FAOLEX&search_type=link&table=result&lang=eng&format_name=@ERALL
USA						
FAO web pages of USA fisheries legislation						http://www.fao.org/fishery/countrysector/FI-CP_US/5/en
Magnuson- Stevens Fishery Conservation and Management Reauthorization Act of 2006			Binding	Signed 12.1.2007		http://www.nmfs.noaa.gov/sfa/magact/MSA_Amended_2007%20.pdf
US Marine Mammal Protection Act 1972 as			Binding			http://www.nmfs.noaa.gov/pr/pdfs/laws/mmpa.pdf

amended 2007						
US Endangered Species Act 1973			Binding			http://www.nmfs.noaa.gov/pr/pdfs/laws/esa.pdf
S.J. Res. No. 17 A joint resolution directing the United States to initiate international discussions and take necessary steps with other Nations to negotiate an agreement for managing migratory and transboundary fish stocks in the Arctic Ocean			?	Date of Resolution: 3.1.2008		http://www.govtrack.us/congress/billtext.xpd?bill=sj110-17
Canada						
FAO web pages of Canada fisheries legislation						http://www.fao.org/fishery/countrysector/FI-CP_CA/5/en
Fisheries Act (R.S.C., 1985, c. F-14)			Binding	1985		http://laws.justice.gc.ca/eng/acts/F-14/
Oceans Act (S.C. 1996, c. 31)			Binding	1996		http://laws-lois.justice.gc.ca/eng/acts/O-2.4/index.html
Russian Federation						
FAO web pages of Russian Federation fisheries legislation			Binding			http://www.fao.org/fishery/countrysector/FI-CP_RU/5/en
Federal Law No. 166-FZ on fisheries and conservation of aquatic biological resources of December 2004			Binding	3.1.2005		http://faolex.fao.org/cgi-bin/faolex.exe?rec_id=041882&database=FAOLEX&search_type=link&table=result&lang=eng&format_name=@ERALL
Greenland						
FAO webpage of fisheries Greenland legislation						http://www.fao.org/fishery/countrysector/FI-CP_GL/5/en
Aquaculture						
Norway						
The Aquaculture Act of			Binding	1.1.2006		http://www.regjeringen.no/upload/kilde/fk

2005						d/reg/2005/0001/ddd/pdfv/255327-l-0525_akvakulturloveneng.pdf
The Act Relative to Food Production and Food Safety Act 2003			Binding			http://www.fao.org/fishery/shared/faolextrans.jsp?xp_FAOLEX=LEX-FAOC066883&xp_faoLexLang=E&xp_lang=en
The Act Relative to Prevention of Cruelty to Animals (1974, as amended in 2003)			Binding			A link to the text was not available at the time of writing
The Agreement on the European Economic Area			Binding	1.1.1994		http://ec.europa.eu/world/agreements/prepareCreateTreatiesWorkspace/treatiesGeneralData.do?step=0&redirect=true&treatyId=1
The Regulation relative to Sea Ranching (2003)			Binding	28.8.2003		http://www.fao.org/fishery/shared/faolextrans.jsp?xp_FAOLEX=LEX-FAOC066462&xp_faoLexLang=E&xp_lang=en
Canada						
In addition to Fisheries Act (above):						
Navigable Waters Protection Act			Binding			http://laws-lois.justice.gc.ca/eng/acts/N-22/
Fish Inspection Act (1985)			Binding			http://laws-lois.justice.gc.ca/eng/acts/f-12/
The Feeds Act (1985)			Binding			http://laws-lois.justice.gc.ca/eng/acts/F-9/
The Food and Drugs Act (1985)			Binding			http://laws-lois.justice.gc.ca/eng/acts/F-27/
The Pest Control Products Act (2002)			Binding			http://laws-lois.justice.gc.ca/eng/acts/P-9.01/
Fish Health Protection Regulations			Binding			http://laws-lois.justice.gc.ca/eng/regulations/C.R.C.,_c._812/index.html

ANNEX 3. RESOURCE (OIL AND GAS) EXTRACTION SUMMARY TABLE

Instrument/Agreement	Organisation	Geographical Range	Binding/ Non-binding	Date in Force	Arctic Ocean States that are signatories or parties	Link
Supranational						
International Convention for the Prevention of Marine Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78) Protocol	IMO	Global	Binding	MARPOL 1973 is not in force Annexes I and II – 2.10.1983 Annex III – 1.7.1992 Annex IV - 27.9.2003 Annex V – 31.12.1988 Annex VI – 19.5. 2005	Denmark (Greenland), Norway, Russian Federation, USA	Text not accessible online
The Convention on the Prevention of Marine Pollution by Dumping of Wastes and other Matter, London, 1972 (The London Convention) 1996 Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter of 29 December 1972	IMO	Global	Binding	30.8.1975 24.3.2006	Canada, Norway, Denmark, Russian Federation, USA Canada, Norway, Denmark	http://www.admiraltylawguide.com/conven/dumping1972.html http://www.admiraltylawguide.com/conven/protodumping1996.html
International Convention on	IMO	Global	Binding	13.5.1995	Canada, Norway, Denmark,	

Oil Pollution Preparedness, Response, and Co-operation (OPRC) 1990 The Protocol on Preparedness, Response and Co-operation to Pollution Incidents by Hazardous and Noxious Substances 2000 (HNS Protocol)				14.6.2007	Russian Federation, USA Denmark	
UNEP Environmental Law Guidelines and Principles: Offshore Mining and Drilling	UNEP	Global	Voluntary			Text not accessible online
Regional						
OSPAR Convention	OSPAR	North Atlantic			Denmark	http://www.ospar.org/
Arctic Offshore Oil and Gas Guidelines 2009	Arctic Council	Arctic	Voluntary			http://www.pame.is/offshore-oil-and-gas/77-arctic-offshore-oil-and-gas-guidelines-2009
Arctic Marine Strategic Plan (2004)	Arctic Council	Arctic	Non-binding			http://www.pame.is/arctic-marine-strategic-plan
Arctic Oil and Gas 2007	Arctic Council	Arctic	Non-binding			
The Arctic Environmental Protection Strategy, (1991)	Arctic Council	Arctic	Non-binding			http://library.arcticportal.org/1542/1/artic_environment.pdf
Guidelines for the Transfer of Refined Oil and Oil Products in the Arctic (TROOP)(2004)	Arctic Council	Arctic	Non-binding			http://arcticportal.org/images/stories/pdf/TROOP_-_English_2.pdf
Arctic Shoreline Clean-up Assessment Technique (SCAT) Manual (2004)	Arctic Council	Arctic	Non-binding			
Field Guide for Oil Spill Response in Arctic Water (1998)	Arctic Council	Arctic	Non-binding			http://eppr.arctic-council.org/content/fldguide/fldguide.pdf
EPPR Guidelines for oily waste management (2009)	Arctic Council	Arctic	Non-binding			http://www.arctic-council.org/index.php/en/about/documents/category/61-eppr#
The Arctic Guide to National	Arctic Council	Arctic	Non-binding			http://eppr.arctic-council.org/

emergency response arrangements and contacts						
Petroleum and natural gas industries - Arctic offshore structures: Standard ISO 19906:2010	ISO	Arctic				http://www.iso.org/iso/catalogue_detail.htm?csnumber=33690
Multilateral and bilateral						
The Agreement between Denmark, Finland, Iceland, Norway and Sweden Concerning Cooperation in Measures to deal with Pollution of the Sea by Oil or other Harmful Substances		Coastal waters, territorial waters and other waters within the respective fishing zones, the continental shelf and economic zonal boundaries of the Parties		16.1.1998	Denmark, Norway	http://www.ust.is/kph/engelsk.pdf
The bilateral agreement between Denmark and Canada for cooperation relating to the marine environment		The Arctic marine areas between Canada and Greenland (Denmark).			Denmark, Canada	Text not accessible online
Agreement between the Governments of the Kingdom of Norway and the Russian Federation on Cooperation in Environmental Matters, Oslo, 3 September 1992				3.9.1992	Norway, Russian Federation	Text not accessible online
Agreement between Norway and the Russian Federation Concerning Cooperation on the Combating of Oil Pollution in the Barents Sea, Moscow, 28 April 1994		Barents Sea		28.4.1994	Norway, Russian Federation	Text not accessible online
Treaty between the Kingdom of Norway and the Russian Federation concerning Maritime Delimitation and		Barents Sea and Arctic Ocean			Norway and Russian Federation	http://www.regjeringen.no/upload/ud/vedlegg/folkerett/avtale_engelsk.pdf

Cooperation in the Barents Sea and the Arctic Ocean						
Joint Contingency Plan of the United States and the Russian Federation on Combating Pollution in the Bering and Chukchi Seas		Bering and Chukchi Seas		Signed originally 11.5.1989 Updated and signed in March 2001	Russian Federation, USA	
Canada-United States Joint Marine Pollution Contingency Plan (2003)				Signed 22.5.2003	Canada, USA	
National						
Canada						
The Canada Oil and Gas Operations Act (1985)			Binding			http://laws-lois.justice.gc.ca/eng/acts/O-7/
The Canada Petroleum Resources Act (1985			Binding			http://laws-lois.justice.gc.ca/eng/acts/C-8.5/
Canada Oil and Gas Drilling and Production Regulations (SOR/2009-315) as amended 31.12.2009) (COGDP)			Binding			http://laws.justice.gc.ca/eng/regulations/SOR-2009-315/
Canada Oil and Gas Installations Regulations (SOR/96-118)			Binding			http://laws.justice.gc.ca/eng/regulations/SOR-96-118/page-4.html
Canada Oil and Gas Geophysical Operations Regulations (SOR/96-117)			Binding			http://laws.justice.gc.ca/eng/regulations/SOR-96-117/index.html
Arctic Waters Pollution Prevention Act (R.S.C., 1985, c. A-12)			Binding			http://laws.justice.gc.ca/eng/acts/A-12/
Arctic Water Pollution Prevention Regulations (C.R.C., c. 354)			Binding			http://laws.justice.gc.ca/eng/regulations/C.R.C._c._354/index.html
Norway						
Norwegian Petroleum Directorate list of all:						

Acts Decrees and Regulations						http://www.npd.no/en/Regulations/Acts/ http://www.npd.no/en/Regulations/Regulations/
Act 29 November 1996 No. 72 relating to petroleum activities			Binding			http://www.npd.no/en/Regulations/Acts/Petroleum-activities-act/
Regulations to Act relating to petroleum activities			Binding			http://www.npd.no/en/Regulations/Regulations/Petroleum-activities/
Guidelines for plan for development and operation of a petroleum deposit (PDO) and plan for installation and operation of facilities for transport and utilisation of petroleum (PIO) 4 February 2010			Voluntary			http://www.npd.no/Global/Engelsk/5-Rules-and-regulations/Guidelines/PDO-PIO-guidelines_2010.pdf
USA						
Outer Continental Shelf Lands Act			Binding			http://epw.senate.gov/ocsla.pdf
Oil Pollution Act of 1990			Binding			http://epw.senate.gov/opa90.pdf
The National Oil and Hazardous Substances Pollution Contingency Plan						http://www.epa.gov/osweroe1/content/lawsregs/ncpover.htm
Resource Conservation Recovery Act			Binding			http://epw.senate.gov/rcra.pdf
The Clean Air Act			Binding			http://www.gpo.gov/fdsys/pkg/USCODE-2008-title42/pdf/USCODE-2008-title42-chap85.pdf
Russian Federation						
Federal Law on the Continental Shelf of the Russian Federation			Binding			http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/PDFFILES/RUS_1995_Law.pdf

Subsoil Law			Binding			
The Gas Supply Law			Binding			
Environmental Standards for Operations of Oil and Gas Companies Acting in Russia, on its Continental Shelf, and within it Exclusive Economic Zone developed by Russian Non-governmental Nature Conservation Organizations			Voluntary			http://www.arcticgovernance.org/environmental-standards-for-operations-of-oil-and-gas-companies.4640793-142902.html
Greenland						
Greenland Parliament Act of 7 December 2009 on mineral resources and mineral resource activities (the Mineral Resources Act)			Binding			http://dk.nanoq.gl/Emner/Landsstyre/Departementer/R%C3%A5stofdirektoratet/Inatsiseqarnermut%20tunngasut/~/media/F06119ABC58D41DEBD52A06081D93058.ashx
Guidelines for Preparing an Environmental Impact Assessment Report			Voluntary			http://ada.edu.az/uploads/file/Guidelines%20for%20preparing%20an%20Environmental%20Impact%20Assessment.pdf
Guidelines for Social Impact Assessments			Voluntary			http://www.bmp.gl/images/stories/minerals/sia_guideline/sia_guidelines.pdf
Guidelines for applications, execution and reporting of offshore hydrocarbon exploration activities (excluding drilling) in Greenland			Voluntary			http://www.bmp.gl/images/stories/petroleum/Guidelines_offshore_HC3_uk_May%202011.pdf
Greenland Bureau of Minerals and Petroleum Drilling Guidelines			Voluntary			http://www.bmp.gl/images/stories/petroleum/110502_Drilling_Guidelines.pdf
NERI Guidelines to environmental impact assessment of seismic activities in Greenland waters			Voluntary			http://www.bmp.gl/images/stories/petroleum/environmental_reports/NERI_report_785_sec_ed_2010.pdf
Miscellaneous guidelines and organisations						

OGP HSE Guidelines for Metocean and Arctic Surveys			Voluntary	Produced in 2011		http://www.ogp.org.uk/pubs/447.pdf
International Regulators Forum						http://www.irfoffshoresafety.com/