



**International and regional regulations on vessel source pollution in  
Barents Sea and Persian Gulf**

**By Mona Bayat**

JUR - 3910

Small Master's Thesis

Masters of Laws in Law of the Sea

University of Tromsø

Faculty of Law

Fall 2014

## Table of contents

<b>Abbreviations.....</b>	<b>V</b>
<b>CHAPTER I – INTRODUCTION.....</b>	<b>1</b>
1 Objective.....	1
2 Scope delimitation and outline.....	2
3 Legal sources and method.....	4
<b>PART 1</b>	
<b>CHAPTER II – NAVIGATION IN BARENTS SEA AND PERSIAN GULF.....</b>	<b>5</b>
1 Introduction.....	5
2 Identification of this areas with a brief history.....	5
3 Navigation.....	10
3.1 Navigation in Barents Sea.....	10
3.2 Navigation in Persian Gulf.....	11
<b>CHAPTER III: VESSEL SOURCE POLLUTION.....</b>	<b>12</b>
1 Introduction.....	12
2 Definition of vessel source pollution.....	12
2.1 Operational discharges and accidental vessel source pollution.....	13
2.2 Noise and air pollution.....	15

## PART 2

### **CHAPTER IV- INTERNATIONAL REGULATIONS REGARDING THE VESSEL SOURCE POLLUTION IN BARENTS SEA AND PERSIAN GILF..... 18**

1 Introduction.....	18
2 LOSC Provisions.....	19
2.1 General provisions on protection and preservation of the marine environment.....	19
2.2 Flag State Jurisdiction and enforcement power.....	20
2.3 Port states jurisdiction and enforcement power.....	21
2.4 Coastal State Jurisdiction and enforcement power .....	22
3 IMO instruments.....	25
3.1 MARPOL 73/78.....	26
3.2 Specific regulations applicable to the Arctic - IMO Polar Shipping Guidelines.....	27
3.3 International Convention on Preparedness, Response and Cooperation for Oil Pollution (OPRS 1990).....	28

### **CHAPTER V-REGIONAL REGULATIONS REGARDING THE VESSEL SOURCE POLLUTION IN BARENTS SEA AND PERSIAN GULF..... 30**

1 Introduction.....	30
2 Regional relevant provisions.....	31
2.1 1992 OSPAR Convention .....	31
2.2 1978 Kuwait regional convention.....	33

**PART 3**

**CHAPTER VI -CHALLENGES REGARDING THE INTERNATIONAL AND NATIONAL REGULATIONS ON VESSEL SOURCE POLLUTION IN THE AREAS..... 36**

1 Introduction.....36

2 Current challenges.....37

3 IMO’s role and enforcement power..... 40

**PART4**

**CHAPTER VII..... 41**

1 Conclusion..... 41

Bibliography..... 44

## Abbreviations

AMAP	Arctic Monitoring and Assessment Programme
AEPS	Arctic Environmental Protection Strategy
AMSA	Arctic Marine Shipping Assessment
CDEM	Construction, Design, Equipment and Manning
EEZ	Exclusive Economic Zone
GAIRAS	Generally Accepted International Rules and Standards
GESAMP	UN Joint Group of Experts on the Scientific Aspects of Marine Pollution
GIWA	Global International Waters Assessment
ICJ	International Court of Justice
IMO	International Maritime Organization
LOSC/UNCLOS	1982 UN Convention on the Law of the Sea
MARPOL 73/78	International Convention for the Prevention of Pollution from Ships, London, 2 November 1973, as modified by the 1978 Protocol and the 1997 Protocol and as regularly amended
MEMAC	Maritime Emergency Mutual Aid Centre
MOU	Memorandum of Understanding on Port State Control
NEP	Northeast Passage
NSR	Northern Sea Route
OSPAR	Convention for the Protection of the Marine Environment of the North- East Atlantic
ROPME	Regional Organization for the Protection of the Marine Environment
SOLAS	International Convention for the Safety of Life at Sea, 1974
OPRS	International Convention on Oil Pollution Preparedness, Response and Co-operation
PSSAs	Particular Sensitive Sea Areas
UNEP	United Nations Environment Programme

# CHAPTER I – INTRODUCTION

## 1. Objective

The Persian Gulf and Barents Sea have particular significance as they both own huge reserves of oil and specific environmental conditions as well as rich marine living resources. Climate condition in Barents Sea as a part of Arctic Ocean (beside the remoteness of the area) is particular and has considerable impact on shipping. (Mostly ice conditions, including icebergs and sea ice, beside the cold weather, wind and other climate conditions). Therefore, special technical skills of the crew in navigational operation is required, or else it creates serious threats to the safety of ships navigating in this marine area. Although, Barents Sea is kept away from pollution in comparison with other waters of the world, the potentiality of being as polluted area as Persian Gulf is great as it is a highly productive ocean in the World regarding the living and non-living marine resources and possessing large reserves of oil.

In Persian Gulf the strategic sensitivity, economic issues, as well as the war-related matters overshadowed considerable issues such as pollution of the marine environment, and make it as one of the most polluted waters.<sup>1</sup> The fragile ecosystem as well as the growing oil industry should be taken into consideration as the two main reason of huge oil pollution in Persian Gulf.<sup>2</sup> These special circumstances in both of the areas captured attention and sort them as the most considerable sea-areas.

Furthermore, increasing the navigation opportunities, mostly due to the economic reasons as well as tourism, (and in Barents Sea the climate condition) poses considerable pressure on marine living resources and its biodiversity in these areas. So that, in case of not implementing any mechanism for monitoring and controlling the pollution, a field of destruction would be provided.

So far, international, national and regional conventions have been formulated in order to minimize the risk of pollution by implementing measures to ensure the safety of navigation and

---

<sup>1</sup> Dabiri, F.; Farshchi, P.; Shojaei, S., "Legal aspects of oil pollution in the Persian Gulf and the Sea of Oman (an international perspective)", *Journal of Environmental Science and Technology*, Vol. 10, no. 2(37), 2008, p. 76-86.

<sup>2</sup> ENVIRONMENTAL LEGAL PROTECTION AND THE Persian Gulf. Nükhet Turgut.1991-92.pp.81-82

avoid accidental vessel-source pollution. However, despite of the given attention, a great amount of pollution arrives to the areas annually and endanger the marine environment.<sup>3</sup>

Therefore, through this thesis the relevant regional and international regulations regarding the pollution from vessels in Barents Sea and Persian Gulf will be discussed. Besides, it will be examined to what extent they are being implemented and having enforcement power in the areas. Protection of marine ecosystem in these areas is a significant issue which would be discussed in the framework of principles related to navigation and environmental protection. In this Thesis, following questions would be assessed:

1. Which international and regional legislations are applicable in case of vessel pollution in Barents Sea and the Persian Gulf?

2. To what extent the coastal state can protect its marine environment based on the relevant rules and regulations?

3. Are the mentioned regulation (both in international level and regional) sufficient to protect the marine environment from the vessel-source pollution? If not what are the possible solutions?

## **2. Scope delimitation and outline**

This thesis will analyze the international regulations concerning the areas, along with regional regulations. In international level The Law of the Sea Convention 1982 (LOSC) and International Maritime Organization (IMO) play the most important role to supervise and update convention provisions and also to edit new regulations. There are many international conventions and regulations about pollution while few of them are oil-related pollution such as MARPOL Convention, convention on preparedness, fighting and cooperating against oil pollution and Convention on oil pollution compensation.

This work is mainly focus on LOSC provisions and IMO's instrument, namely MARPOL 73/78, Polar shipping guidelines<sup>4</sup> and Convention on Preparedness, Response and Cooperation for Oil Pollution (OPRC, 1990), regarding the pollution issues in international level due to the limited

---

<sup>3</sup> See GESAMP Report No. 39, The State of Marine Environment, <http://gesamp.karma.tibetserver.com/publications/publicationdisplaypages/rs39> (viewed 05.08.2014) and, inter alios, Brubaker, D., Marine Pollution and International Law: Principles and Practice, London, Belhaven Press 1993

<sup>4</sup> Polar Shipping Guidelines adopted by IMO Assembly Resolution A. 1024(26), 2 December 2009.

wordage of the work. While the Arctic Council has a key role in Arctic-related issues, it will not be discussed in this study as it has no legal powers to implement or enforce rules and legislation. Together with the international instruments, Regional Kuwait Convention and its protocols which are edited by cooperating United Nations Environmental Program (UNEP) and countries in the region, will be discussed as well as The OSPAR Regional convention regarding the protection of marine environment in Barents Sea.

Regarding the nature of marine pollution, there are numerous human-induced sources of marine pollution<sup>5</sup> which include “discharges from land-based sources, ships, atmospheric deposition, and ocean dumping and offshore oil and gas installations.”<sup>6</sup> This work is solely concerned with the vessel-source marine pollution, i.e. pollution of the sea emanating from accidental and operational discharges by ocean-going ships. (Deliberate discharge is excluded).<sup>7</sup>

This work consists of four sections according to the outline plan:

Part 1 containing chapters II and III which is presenting the main identification of these areas to open the navigational issues. Afterwards, the definitions of pollution as well as the probable type of arriving vessel-related pollution in Barents Sea and Persian Gulf will be discussed according the objectives of this Thesis.

Part 2 includes chapters IV and V and focuses on current applicable regional and international regulations related to the vessel-basis pollution in Barents Sea and the Persian Gulf.

Part 3 includes chapter VI and is based on the regulations discussed in the second part of the thesis. It will identify and discuss their shortcomings and challenges.

Lastly Part 4 containing chapter VII about conclusions.

---

<sup>5</sup> See art. 1(4), United Nations Convention on the Law of the Sea, U.N. Doc. A/CONF.62/122 (1982), 21 I.L.M. 1261 (1982) (hereinafter ‘LOSC’).

<sup>6</sup> Alan Khee-Jin Tan, *Vessel-Source Marine Pollution: The Law and Politics of International*, Cambridge University Press.

<sup>7</sup> The terms ‘vessel’ and ‘ship’ are used interchangeably, as in the LOSC. For vessel-source pollution generally, see D. W. ABECASSIS, *THE LAW AND PRACTICE RELATING TO OIL POLLUTION FROM SHIPS* (1978); D. W. ABECASSIS & R. JARASHOW, *OIL POLLUTION FROM SHIPS* (1985); G. TIMAGENIS, *II INTERNATIONAL CONTROL OF MARINE POLLUTION* (1980); and K. HAKAPA“A”, *MARINE POLLUTION IN INTERNATIONAL LAW: MATERIAL OBLIGATIONS AND JURISDICTION* (1981)

### **3. Legal sources and method**

As for the purpose of the work, the following method has been used.

The main method used to achieve the objective of the thesis is the analysis of international and national legal sources, as stipulated by the Article 38 of the Statute of the International Court of Justice (ICJ). Besides, as mentioned in Article 31 of the Vienna Convention on the Law of Treaties the method of interpretation of the treaties has been taken.<sup>8</sup>The main treaties applied in this thesis were the provisions of the 1982 UNCLOS, and the IMO's instrument along with the Regional pertinent Conventions.(Kuwait and OSPAR).This treaties are mandatory for the member states of each treaty. In other words, non-party states are not obliged to follow the treaties. However, according to the statute of the International Court of Justice, Art.38, para 1(b), "the treaties' provisions may be internationally legally binding on the States following the customary international law and State practice".

The significance of non-legally binding regulations is increasing particularly in environmental protection issues .So that, the 'soft law' instruments which are relevant of the scope of the thesis (Guideline and regulations of IMO) have been considered.

Furthermore, the special focus is given to the Article 16 of Kuwait article to Regional Organization for the Protection of the Marine Environment (ROPME) and article 3 of regional cooperation protocol for the Marine Emergency Mutual Aid Center (MEMAC).<sup>9</sup>

As the scope of the thesis on intentional vessel-source pollution and its impacts on the Barents Sea and Persian Gulf environment, living resources and biodiversity, the other supplementary sources such as natural sciences and policy documents have been considered.

---

<sup>8</sup> The 1969 Vienna Convention on the Law of Treaties, Art.31.

<sup>9</sup> ROPME publication, Regional Organization for the Protection of the Marine Environment,2002 .

## **CHAPTER II – NAVIGATION IN BARENTS SEA AND PERSIAN GULF**

### **1. Introduction**

This part of the work will be concentrated on the navigation in the Arctic region (Barents sea, as the navigation status in this area has been changed considerably through the history)<sup>10</sup> and Persian Gulf and its impact on relevant marine environment. First of all, the identification and the main features of the 2 mentioned area will be presented. Afterwards, the significant and influential navigational activity in this areas will be outlined briefly in order to have an overview of the vessels traffic mass. Supplementary, a general definition of marine pollution with specific emphasis on its operational and accidental formation will be given.

### **2. Identification of Barents Sea and Persian Gulf area**

Barents Sea is the farthest westwards of the Arctic waters and according to the boundaries of GIWA region 11, the geographic borders of the Barents Sea (which stretching from north to south) are between the latitudes 82° N and 59° N and from east to west between the longitudes 68° E and 15° E (Figure 1). This area is on the continental shelf surrounding the Arctic Ocean. Moreover, it joins with the Norwegian Sea from the west and the Arctic Ocean to the north. Its contours are delimited by the continental slope between Norway and Spitsbergen on the west, the top of the continental slope towards the Arctic Ocean to the north, Novaya Zemlya archipelago to the east, and from the coasts of both Norway and Russia to the south.<sup>11</sup> while it contains those parts of the Arctic Ocean which are locating between North Cape on the Norwegian mainland, South Cape on the Spitsbergen Island of the Svalbard Archipelago, and the Russian archipelagos Novaya Zemlya and Franz Josef's Zemlya.<sup>12</sup> (Figer1&2)

---

<sup>10</sup> AMSA 2009 Report. Arctic Council, April 2009, second printing, p. 36

<sup>11</sup> Geir Hønneland, "Compliance in the Barents Sea fisheries. How fishermen account for conformity with rules", Marine Policy, vol. 24, 1 (2000), p. 11

<sup>12</sup> Geir Hønneland, "Compliance in the Barents Sea fisheries. How fishermen account for conformity with rules", Marine Policy, vol. 24, 1 (2000), p. 11.

Barents Sea is rich in terms of natural resources (the living and non-living marine resources). In other words it is the most highly productive ocean in the world. So that, there is an interest in exploring, exploiting, protection and managing natural resources in this area.

As for the definition of “Arctic” area regarding the location of Barents Sea<sup>13</sup>, there is not specific definition of that since those are different based on the context they are used in. Apart from the basic definition as: the areas lying north of the Arctic Circle at 66°33’ north latitude, there are some others that can be considered., for instance, the most generally accepted one is: areas where the average temperature in July is below 10°C, areas above the tree line which indicates the northernmost limit where trees are normally growing and the areas which fall under the scope of AMAP. However, Ice cover in the Barents Sea has been noticeably reduced through the last years mostly due to a superior heat transport from Atlantic water and it has been predicted that in 2050, summers in the Barents Sea will be mostly covered by ice that its surface temperatures is about 4°C in the previously ice-covered areas.<sup>14</sup>

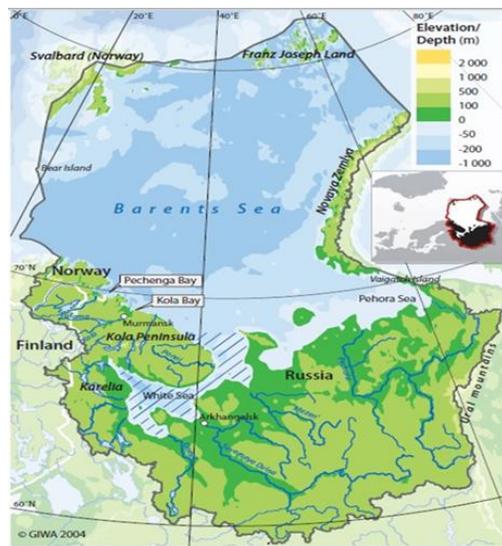


Fig. 1 The Barents Sea region<sup>15</sup>

<sup>13</sup> For further information on the status of ice in international law see Joyner, Christopher C., “The Status of Ice in International Law” in Elferink A.G. Oude and Rothwell, D.R. (eds.), *The Law of the Sea and Polar Maritime Delimitation and Jurisdiction* (Martinus Nijhoff Publishers: 2001), pp. 23-48

<sup>14</sup> Centre for Climate Dynamics c/o Geophysical Institute, University of Bergen. <http://skd.bccr.no/in-focus/the-role-of-the-barents-sea-in-the-arctic-climate/>

<sup>15</sup> - USGS (2003). GROPO30. Retrieved September 2003 from: <http://edcdaac.usgs.gov/gtopo30.asp>.



Fig.2 map of Barents Sea in the Arctic Ocean<sup>16</sup>

Navigational perspective of the “Arctic” area, IMO provides the definition of ‘Arctic waters’ in non-legally binding provision G-3.3 of the Guidelines for operating vessels in Polar Waters which is demonstrated in figure 3.<sup>17</sup> Meanwhile, in the other provision (G-3.5) “Ice-covered waters means polar waters where local ice conditions present a structural risk to a ship”.

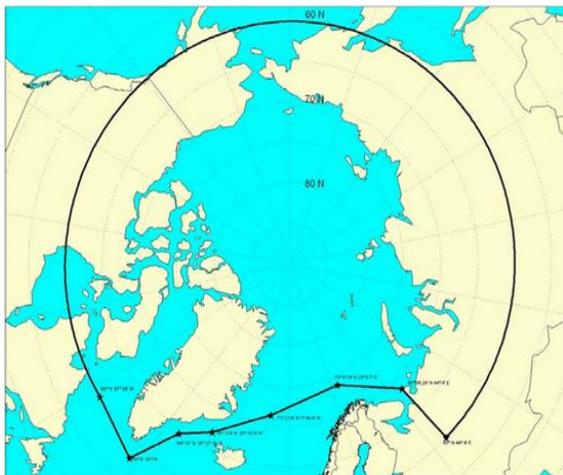


Figure 3: Maximum scope of Arctic waters application.

Article 234 LOSC gives the coastal states permission of taking stricter regulation in ice-covered waters. It has been described as “probably the most ambiguous, if not controversial, clause in the

<sup>16</sup> Fig.2 Map of Barents Sea in the Arctic Ocean – Source: World Atlas

<sup>17</sup> Polar Shipping Guidelines adopted by IMO Assembly Resolution A.1024 (26), 2 December 2009.

entire treaty”.<sup>18</sup> Legal interpretation of coastal state jurisdiction in ice-covered waters based on Article 234 has not been an easy affair under international law. Various interpretations have been offered with regard to the term ‘where’ as used in the article.<sup>19</sup> Moreover, it has been asked whether the notion of ‘due regard’ obliges the contracting parties to observe generally international standards for design, construction, manning and equipping of vessels.

Persian Gulf, on the other side, is a semi-enclosed and shallow sea between Iran and the Arabian Peninsula. It is adjoined with Oman and the United Arab Emirates on the south, Qatar, Bahrain and Saudi Arabia on the west, Kuwait and Iraq on the north and Iran along the entire coast on the east. The Gulf is extremely significant due to the massive oil production, being one of the most considerable strategic waterways in the world, being enriched with the largest hydrocarbon reserve in the world that makes it tension for scientific research. Furthermore, it reserves many oil and gas mines and is the oil transportation route of the countries like Kuwait, Saudi Arabia and the United Arab Emirates.<sup>20</sup>

Persian Gulf became one of the most polluted seas in the world mostly due to its fragile characteristics (as the amount of fresh water from rivers and rainfalls is not sufficient to compensate the evaporation losses. moreover, the temperature of the water doesn’t retard the absorption of pollutants and not let them flush out) and also the growth of the oil industry.(this area is bordered by 8 oil producing country and there is no effective regulatory framework to control the oil pollution).<sup>21</sup>

Getting to know the area, it is noteworthy to say that Persian Gulf experienced the largest oil spill of the world as a result of the war-related actions. Iraq attacked to the oil wells in Kuwait and the result was this oil spill from Iraqi-controlled oil installations on the Kuwait coast.<sup>22</sup>

---

<sup>18</sup> Lamson, Cynthia, ‘Arctic Shipping, Marine Safety and Environmental Protection’, in *Marine Policy*, Volume 11, 1987, pp. 3–4.

<sup>19</sup> See McRae, D. and Goundrey, D., ‘Environmental Jurisdiction in Arctic Waters: The Extent of Article 234’, in *University of British Columbia Law Review*, Volume 16, pp. 218–222.

<sup>20</sup> Ghahremani, et al., (1387). Persian Gulf and over region’s Powers and analyze of 3 recent War in the Persian Gulf, National Conference with Position of Persian Gulf in the changes of world strategic.

<sup>21</sup> ENVIRONMENTAL LEGAL PROTECTION AND THE Persian Gulf. Nükhet Turgut.1991-92.p.81.

<sup>22</sup> Ibid p.82.

Of all the global treaties and agreements against marine pollution, MARPOL 73/78 and its Annexes I (oil) and V (garbage) are particularly of relevance to the protection of the marine environment in the Persian Gulf. It has labeled this area as a “Special Area” linked to the stricter regulations for discharges of oil from equipment spaces of all vessels and of oil from cargo-tank areas of oil tankers. It also means that no trash, except food waste from ships' galleys, might be discharged in the Persian Gulf. Different from the Baltic and the Mediterranean and the Black Sea which are designated as Special area without any specific requirement by MARPOL 73/78, the ROPME Sea Area, as a Special Area, will be treated only when the coastal States (which are members of MARPOL Convention) have informed IMO the establishment of required facilities for dirty oil mixtures and ballast water at their oil loading terminals and repair ports., After getting proper notifications, the IMO will set a date to take effect the requirements of special areas status<sup>23</sup>. Unfortunately, only Oman (among the coastal states) has ratified MARPOL 73/78, and very few port reception facilities are currently operating as in the ROPME Sea Area.

---

<sup>23</sup> Vessel-Source Oil Pollution and Marpol 73/78: An International Success Story, Curtis, Jeff B. 1984-1985.p 681.

### 3. Navigation status in Barents Sea and Persian Gulf

#### 3.1. Navigation in Barents Sea

The Barents Sea is mostly navigable up to 75°N latitude and to 50°N eastwards longitude.<sup>24</sup> Navigational status in the area is unique in comparison with all other ship operations. As for its remoteness, and special condition any navigational mistake could be lethal, for both the operators and the marine environment. The major problem in this area is ice: almost from October to June, the Arctic Ocean remains mainly locked by ice and making the navigation impossible for all vessels (icebreakers excluded). Moreover, Special construction of ships and navigational skills is required in this area. Although summer navigation in this area is not totally safe and risk free since in some navigational routes some areas are still ice-covered or with ice-bergs, by technological improvements in ship-construction in the Arctic area, the operational seasons have been extended recently. Additionally, the possibility of navigation in ice-covered areas also depends on the nature of ice; Navigation through first-year ice is, possible for ice-ships (in normal condition), while navigation in old ice and icebergs is challenging.<sup>25</sup>

Vessels operating in Barents Sea can be categorized as: commercial vessels (including fishing vessels and tankers), vessels for tourism (cruise ship), icebreakers for re-supply, scientific research vessels, offshore exploration vessels and vessel used for import and export of products.(i.e. bulk cargo and containers). Furthermore, there are naval navigation and submarine operations which provides the shortest route Russia and North America.<sup>26</sup>

Traffic mass is mainly focused on various specific areas. Of the two key navigational routes, (NWP and NSR), the latter has registered more intense traffic per year for transportation of cargo between the ports of Murmansk, Dudinka and Vladivostok.<sup>27</sup>

---

<sup>24</sup> William Barr (1979). Review of William E. Butler, and Alphen aan den Rijn 'Northeast Arctic passage' Polar Record, 19, pp9. doi:10.1017/S0032247400002813.

<sup>25</sup> Jensen, Øystein, The IMO Guidelines for Ships Operating in Arctic Ice-Covered Waters: From Voluntary to Mandatory Tool for Navigation Safety and Environmental Protection?, The Fridtjof Nansen Institute, FNIRapport 2/2007, p.2.

<sup>26</sup> Jensen, Øystein, The IMO Guidelines for Ships Operating in Arctic Ice-Covered Waters: From Voluntary to Mandatory Tool for Navigation Safety and Environmental Protection?, The Fridtjof Nansen Institute, FNIRapport 2/2007, p.2.

<sup>27</sup> Ho, Joshua, The implications of Arctic Sea –Ice Decline on Shipping, Marine Policy 34 (2010), Elsevier, pp.713-715.

As for the prospective navigation in Barents sea, the general assumption is that navigation in the Arctic part will grow mostly for the export of petroleum and gas products, cargo transports linked to the supply and maintenance of those industries, tourism and, in association with this traffic increase, the icebreakers and tugs operations.

### **3.2 Navigation in Persian Gulf**

Achieving to social, economic and developing purposes, Persian Gulf has a vital role in the region in terms of fisheries and oil/ gas industries. During the 1930s and 1940s oil in the Gulf has been discovered. As a result, there was an enormous growth in shipping as well as a responsibility for the economic wealth and geopolitical importance of the region. According to Linden et al (1990) passage of 20 000 to 30 000 tanker through the Strait of Hormuz was estimated annually. Therefore, in the area greatest environmental threat is linked to oil/gas industries and as well as heavy traffic of oil tankers. The amount of these oil tankers is more than 14000 vessels in the year 2004.<sup>28</sup>

Examination of the British Petroleum's data specifies that more than half of the global oil marine transport, was done through the Gulf countries from 1973 to 1980 (annual average 59%). Between 1981 and 1987 the marine transport reduced considerably (annual average 42%) due to the prolonged Iran-Iraq war.<sup>29</sup>

Such a hostile environment has been also experienced commercial ships operation. The observable reason could be that 25% of the all oil trade in the world comes from Gulf countries'. Moreover, almost 17% of the daily oil consumption in West passes through the Strait of Hormuz. The Strait is a remarkable strategic chokepoint between the Persian Gulf and the Gulf of Oman and Indian Ocean.<sup>30</sup> "Any significant disruption in the flow of oil through the Strait of Hormuz, or even the

---

<sup>28</sup> M.H. Ahmed, M. El-Raey, and S.M. Nasr. SOCIOECONOMIC IMPACT OF POLLUTION ON ECOSYSTEMS OF THE ARABIAN GULF. Vol. 24.(1998).p.229.

<sup>29</sup> State of Oil Pollution in the Northern Arabian Sea after the 1991 Gulf Oil Spill R. SEN GUPTA, S. P. FONDEKAR and R. ALAGARSAMY National Institute of Oceanography, Dona Paula, Goa 403 004, India. Marine Pollution Bulletin, Volume 27, pp. 85-91, 1993.

<sup>30</sup> United States: Secretary of Defense Report (Weinberger Report) to the Congress on Security Arrangements in the Persian Gulf, reprinted in 26 I.L.M. 1433, 1444 (1987) [hereinafter Weinberger Report].

threat of a disruption, would drastically raise global oil prices and could result in a major worldwide recession”.<sup>31</sup>

On the other hand, there were lots of naval vessels operating in the Persian Gulf during the Iran-Iraq War. (Due to the war-related reasons) and still they are navigating in the area. The reason is probably the existence of 8 countries as coastal states and their tendency to protect their territory as well as their oil-container ships.

## **CHAPTER III: VESSEL SOURCE POLLUTION**

### **1-introduction**

Barents Sea and the Persian Gulf have vulnerable and unique ecosystem which are influenced easily by pollution. The pollution with the origin of the vessels has irreversible effects on the ecosystem and concerned local and international societies. In this chapter the definition of vessel pollution would be discussed along with that of marine pollution. Moreover the effects of the pollution on marine environment will be studied.

### **2. Definition of vessel source pollution**

In order to get the definition of vessel source pollution, it is appropriate to declare the definition of marine pollution beforehand. A commonly accepted definition of ‘marine pollution’ or ‘pollution of the marine environment’ is ‘

“... the introduction by man, directly or indirectly of substances or energy into the marine environment, including estuaries, which results or is likely to result in such deleterious effects as harm to living resources and marine life, hazards to human health, hindrance to marine activities, including fishing and other legitimate uses of the sea, impairment of quality of use of sea and water and reduction of amenities”.

<sup>32</sup>

This definition is also adopted by the Joint Group of Experts on Scientific Aspects of Marine Environmental Protection (GESAMP)<sup>33</sup>, Established in 1969.

---

<sup>31</sup> . U.S. Dep't of State, Special Report No. 166.

<sup>32</sup> Article 1(4) of the LOSC 1982.

<sup>33</sup> See GESAMP Report No. 50, *Impact of oil and related chemicals and wastes on the marine environment*.

Marine pollution can be classified to four major causes in total: vessel- source pollution, atmospheric pollution, land-based pollution, and ocean dumping. Land-based pollution particularly involves leakages of organic and industrial pollution into rivers and oceans. However, vessel-source pollution arises from operational and accidental leakages of oil and other harmful substances from ships into the sea. Atmospheric pollution involves mainly deposition of pollutants originating on land. Therefore it is a part of land-based pollution. Dumping needs loading wastes from land on board ships for deliberate disposal at sea. Therefore it is distinguished from vessel-source pollution, which does not involve disposal of land wastes.<sup>34</sup>

Regarding the earlier definition of marine pollution, there are three main considerable factors: Human factor, type of pollutants and consequences.

In order to identify the vessel-origin pollution, the above mentioned provision, especially different types of pollutants, known as energy and substances, have prominent roles.

## **2.1 Operational discharges and accidental vessel-source pollution**

The operational vessel-based pollution happens when substances are discharged from the normal or accidental working of the ship.<sup>35</sup> The type of the pollution is different regarding the type of vessel and the cargo it transports. While, discharge of bilge water, fuel oil sludge, and oily ballast water from fuel tanks are the examples of oil-discharge in the waters, release of tank-washing residues and oily ballast water are considered as Cargo-related operational discharges.

Before the international regulations presented legislations to prevent vessel-oil pollution, oil tankers, for example, normally washed out their cargo tanks with water and then disposed the follow-on oily substances into the sea. Also, other vessels pump out the oily wasted from the vessel's engine and cause terrible amount of oil in the marine environment.<sup>36</sup>

---

<sup>34</sup> Vessel-source pollution is distinguished from dumping in that the latter is understood to exclude the disposal of wastes incidental to, or derived from the routine or normal operation Of vessels. This definition of "dumping" is found in the primary global convention on ocean dumping, the 1972 London Convention on the Prevention of Marine Pollution by Dumping Of Wastes and Other Matter, 26 UST 2403, TIAS No 8165. Thus, dumping is understood to mean the deliberate disposal into the sea from ships or aircraft of waste loaded on board for this purpose, and excludes the operational discharge of oil and oily mixture through deballasting and cargo tank washings.

<sup>35</sup> Rothwell, D. R. and T. Stephens. *The International Law of the Sea*, Hart Publishing Ltd, 2010.P.347.

<sup>36</sup> Birnie, Patricia; Boyle, Alan E.; Redgwell, Catherine, *International Law & the Environment*, Oxford University Press, 3rd. ed., 2009, p. 399-401.

The elements of discharge is stipulated in Article 1(4) of the LOSC and within Article 2(3) (a) of MARPOL 73/78 that more comprehensive definition can be found. According to the later ‘discharge’ related to harmful substances and effluents means “...any release howsoever caused from a ship and includes any escape, disposal, spilling, leaking, pumping, emitting or emptying.”

Barents Sea as a part of Arctic Ocean has fragile marine environment and its ecosystem is vulnerable to get effected by pollution. The main effects of operational vessel pollution on this area is on the unique sea bird colonies, including one of the world’s largest puffin colonies, huge reefs, including the biggest cold water reef in the word and populations of seals and whales. Besides, Barents Sea is also one of European’s cleanest area and is an intact marine environments, but the possibility of rapid industrial development and other threats in this region is high. For instance, overfishing, and oil and gas exploration. Furthermore, the effect of pollution on the food chain affects not only animals but also humans.<sup>37 38</sup>

The more dramatic type of marine pollution comes from the vessel-accidental events. Sinking of large oil tankers such as *Prestige*<sup>39</sup> or *Torrey Canyon*<sup>40</sup> can be considered as the example of these type of pollution in marine environment. The seriousness of these accidents depends mostly on the amount of oil (or other pollutants) released in one area. In the Arctic waters such as Barents Sea it is harder dealing with this kind of pollution due to the climate conditions. Also it intensifies the future side-effects.

Persian Gulf on the other hand, has been suffering from oil pollution more than any other marine environment in the world due to the accidents caused by substandard ships or oil smugglers. There are some reason for that accidents but the most common of which is the military actions associated with regional wars. The most considerable accidents started in 1980 with the eruption of the Gulf war and reached to its peak in 1991 during the Kuwait invasion.<sup>41</sup>

---

<sup>37</sup> For further information on operational discharges and impacts see AMSA 2009 Report. Arctic Council, April 2009, second printing, pp. 134-141 and inter alios Churchill, R.R. and Lowe, A.V., *The Law of the Sea*, 3rd ed., Manchester University Press, 1999, pp. 328-339 and Brubaker, D., *Marine Pollution and International Law: Principles and Practice*, London, Belhaven Press 1993, pp. 12-29, 34.

<sup>38</sup> Koivurova, T. and E. J. Molenaar, “*International Governance and Regulation of the Marine Arctic*”, WWF International Arctic Programme, 2009.

<sup>39</sup> XUNTA DE GALÍCIA – CENTRO DE CONTROL DO MEDIO MARIÑO (CCMM)– Información sobre o vertido provocado polo petroleiro “Prestige”. <http://www.ccmm-prestige.cesga.es/Cabecera.htm>

<sup>40</sup> [http://www.encyclopedia.com/topic/Torrey\\_Canyon.aspx](http://www.encyclopedia.com/topic/Torrey_Canyon.aspx).

<sup>41</sup> Arabian Coast 2005 Keynote Address, Prof. Elshorbaghy: Overview of marine pollution in the Arabian Gulf with emphasis on pollutant transport modeling.p.5

While operational discharges account for most vessel-source pollution, pollution spilling is still a big concern. Among other ones, oil tanker and ships carrying noxious chemicals are attracting more attention due to the probability of causing damage to the environment in case of shipwrecking.<sup>42</sup>

Reducing the risks of accidental vessel-source pollution, the law of the sea has regulated them in three areas. First, there are laws and regulations in MARPOL Convention which relates to constructions of the vessel and their certification. Second there are some regulations which are mostly related to safety of navigation beyond the construction standards and the primary source of these rules is SOLAS. And finally, some customary and conventional rules which dealing with the rights and duties of flag and coastal states in case of pollution emergencies at sea.<sup>43</sup>

## **2.2 Noise and air pollution**

Before managing any harmful effects of noise pollution on marine environment, the definition of sound and noise is necessary to be clarified. In physics sound can be described as “a flow of acoustic energy” and noise as an unwanted or harmful sound.<sup>44</sup>

In Article 1(4) of the LOSC the definition of what can be considered as ‘pollution of the marine environment’ can be found which includes a fundamental expression of the present discussion, which is the term “energy”. Although the aim of this provision was not to draft intentionally to include noise pollution, but according to the mentioned definition of sound and the generally acceptance of doctrine in this certain area, currently, that is acceptable to interpret “energy” as including noise in accordance with Article 31 of 1969 Vienna Convention on the Law of the Treaties.<sup>45</sup>

The three most significant sources of ocean noise pollution are: ship noise, oil and gas exploration and military sonar.<sup>46</sup>

### **Ship noise**

Shipping is an important reason of harmful air pollution in Europe and by 2020 shipping emissions of SO<sub>2</sub> and NO<sub>x</sub> may exceed the emissions of these pollutants from all other sources in the EU.

---

<sup>42</sup> Rothwell, *supra* note 35, p.359.

<sup>43</sup> Churchill, R.R and Lowe, A.V, *The Law of the sea*, 3<sup>rd</sup> ed., Manchester University Press,1999,P.P 328-339

<sup>44</sup> Scott, Karen N., “International Regulation of Undersea Noise”, ICLQ vol. 53, April 2004, pp. 287-324.

<sup>45</sup> Vienna Convention on the Law of the Treaties of 23 May 1969.

<sup>46</sup> International Fund for Animal Welfare, *Understanding the sources of ocean noise pollution*.

This type of pollution must be reduced reasonably to protect health and the environment. It also can make shipping a more sustainable and ecological-friendly form of transport . Large cargo vessels and tankers and cruise ships are constantly producing noises from their engines, generators and bearings. The problem of this noise is that it dominates the frequency ranges of 20-300Hz which is the same range used by many species of whale. This makes it tough for them to communicate and, more, to distinguish ship noise from natural sounds. The consequence of this is accidental collisions. In case of constant ship noise some whales may abandon their habitat. The problem is greatest in coastal areas and around busy ports.<sup>42</sup>

### **Noise from Oil and Gas Exploration and Mining**

Operating seismic-survey, the oil and gas industry generates loud and continuous sounds of Operations, pipeline and platform construction and removal and drilling. Persian Gulf has been dealing with this problem more than other waters<sup>47</sup>

- **Exploration noise**

“Detecting for oil or natural gas beneath the seafloor makes extremely loud sound pulses directed at geological constructions. These are some of the loudest man-made noises in the oceans. Blasted every 10-60 seconds for days or months at a time, these extreme bursts of sound can drive whales away from the area”.<sup>48</sup>

- **Noise from drilling and extraction**

The noise generated by drilling and extraction may not be as loud as that of in exploitation, but they last much longer. Over time, exposure to these noises can disturb the ecosystem and habitats of species.( whales and other marine species to abandon their habitats).

- **Military sonar**

Scientific data on the impacts of sonar use by military vessels on hydrographic and scientific surveys is, widely recognized, especially in connection with stranding and injuring of marine mammals. For instance The IWC Scientific Committee considered that there was concrete

---

<sup>47</sup>Ibid.

<sup>48</sup> Ibid.

evidence that military sonar has direct impact on marine mammals and in more dangerous cases, animals' wellbeing<sup>49</sup>

In Arctic sea areas there is a specific occupation with significant noise that icebreakers are producing while carrying out their operations and with increasing the noise of ongoing shipping activities as navigational routes overlap with migration of marine mammal corridors and respective feeding areas.<sup>50</sup>

### . Air pollution

Vessel-air pollution has certainly damaging impact on marine and atmospheric environment, worldwide climate change and human and animals' well-being. The definition of "discharge" is stipulated in article 2(3)(a) of MARPOL 73/78 where the definition of vessel emissions is falling under the scope of mentioned provision. "The most important pollutant emissions resulting from ships combustion of fuels and operation are carbon dioxide (CO<sub>2</sub>), carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>) and particles"<sup>51</sup>.

Different factors would affect the vessel source emissions such as : vessel and the fuel type, size of the vessel, the power of the engine and speed. Regarding the vessel fuels, "economic gain maximization of ship-owners still inclines to dominate environmental concerns. Heavy oil and high fuel which are commonly used, contain higher level of substances prone to originate significant amounts of the above mentioned pollutants as well as black smoke."<sup>52</sup>

However the impacts of air pollution in Barents sea is even more significant as it is rich in fisheries industry, biodiversity and oil and gas resources. Climate change at the Barents Sea (by IPCC scenario) predicts ice-free winters by the year 2020. The future of the Barents Sea is uncertain due to the predicted increase of shipping by international and local transit

---

<sup>49</sup> IWC Scientific Committee, Report of the Scientific Committee, IWC56, 12.2.5 (2004), available at [http://iwcoffice.org/\\_documents/sci\\_com/SCRepFiles2004/56SCrep.pdf](http://iwcoffice.org/_documents/sci_com/SCRepFiles2004/56SCrep.pdf) (viewed on 08.10.2010)

<sup>50</sup> Erbe, Christine and Farmer, David M., "Zones of impact around icebreakers affecting beluga whales in the Beauford sea", *Acoustical Society of America*, 108 (3), Pt.1 September 2000, pp. 1332-1340

<sup>51</sup> Volker, Matthias et al., "The contribution of ship emissions to air pollution in the North Sea regions", *Environmental Pollution* 158 (2010), pp. 2241-2250

<sup>52</sup> Lin, Bin and Lin, Cheng-Yuan, "Compliance with international emission regulations: Reducing the air pollution from merchant vessels", *Marine Policy* 30 (2006), pp. 220-225.

transport routes.<sup>53</sup>

As for the Persian Gulf, there are different impacts of the marine and air pollution. Some of them are the immediate threat to ecosystem while other may be dangerous only in the long term. The significant point is that the enormous majority of the oil will remain in the environment, (either in the air by evaporation or burning in the water or on the coastline).

The Kuwaiti oil fields have been emitting toxic leftover (not only carbon monoxide but also other lethal chemicals) into the air which are dangerous to human life. There are some thoughtful examples such as blindness of children. Or large groups of species got intoxicated and others abandoned their habitat.<sup>54</sup>

## **PART2:**

### **CHAPTER IV: – INTERNATIONAL REGULATION OF VESSEL SOURCE POLLUTION IN BARENTS SEA AND PERSIAN GULF AREAS**

#### **1. Introduction**

The aim of this Chapter is to analyze the main international regulations regarding the vessel-source pollution and to describe the relevant provisions which are applicable in Barents Sea and Persian Gulf areas. Regarding that, a special focus is therefore granted to the LOSC provisions including the jurisdictional framework 48 regarding the protection of the marine environment from vessel-source pollution and, to MARPOL 73/78 jurisdictional framework and discharge/emission standards and briefly IMO 2009 Polar Shipping Guidelines.

---

<sup>53</sup> Climate Change, *International Convention for the Prevention of Pollution from Ships (MARPOL) (Norwegian and Russian ocean-going cargo ships) and modelling of atmospheric pollution in Barents sea region*, Amstel, A.; Berglen, T. F.; Berntsen, T.; Davaasuren, N.

<sup>54</sup> Nükhet, Turgut, "Environmental Legal Protection and the Persian Gulf", Ankara Üniversitesi Hukuk Fakültesi Dergisi, 1991 - 1992, Volume 42, Issue 1-4, p. 81-82.

Furthermore, other considerable international regulations regarding the vessel-pollution such as OPRC 1990 will be presented. The actual performing of the mentioned regulations will be discussed in chapter VI.

All in all, flag states, coastal states, port states, and international organizations and commissions each have important roles, powers, and responsibilities, which in certain respects lead to produce one of the more successful examples of international environmental cooperation.<sup>55</sup>

## **2. LOSC Convention:**

More than other aspects of the LOSC, part XII has being prioritized to deal with the issue of marine pollution where the rights and obligations of states (coastal, flag and port states) regarding the preservation of marine areas is stipulated<sup>56</sup>. While previously states were pretty free to decide how and to what extend they desire to regulate the marine pollution,<sup>57</sup>LOSC established a flexible balance between the navigational right and the environmental safety and between coastal and flag state's power.

Together with that, regarding the protection of marine environment, rights and duties of coastal states in T.S, CZ and EEZ zone has been regulated.

Although the applicability of LOSC to Arctic Oceans has been in doubt in the past (This area has been shown as an isolated area with lack of any international regulations)<sup>58</sup>, it is accepted by legal doctrine that the Arctic Ocean and marine activities there, are under the scope of the LOSC. In fact, not only the wording of the preamble of the LOSC confirms its global scope by including all

---

<sup>55</sup> Birnie and Boyle, *International Law and the Environment*, (1992), p 253.

<sup>56</sup> LOSC, part XII.

<sup>57</sup> Brubaker, Douglas R., *"Straits in the Russian Arctic"*, *Ocean Development & International Law*, 2001, vol. 32, p. 263-287.

<sup>58</sup>Funk, McKenzie, *"Arctic Landgrab"*, *National Geographic*, Vol. 215, No. 5, May 2009 and Graff, James, *"Fight for the Top of the World"*, *Time Magazine*, Vol. 170, No. 13, October 2007.

oceans without any negative discrimination, but also Article 234, containing specific regulation for ice-covered waters, points in that direction. Moreover, five Arctic States have acknowledged the applicability of the LOSC to the Arctic Ocean in the Ilulissat Declaration<sup>51</sup> even though it does not refer to the LOSC expressly but to “law of the sea”<sup>52</sup> instead.<sup>59</sup>

## **2.1 General LOSC Provisions on the protection and preservation of marine environment**

The 1982 UNCLOS demonstrates a great advance over the earlier Geneva Convention<sup>60</sup> by stipulating the obligation of the states to preserve and protect the marine environment in terms which are applicable to all type of marine pollution.

The first provision of the first section reads as follows “States have the obligation to protect and preserve the marine environment”<sup>61</sup>, which is stipulated in the Article 192. This is a general obligation for all the States.<sup>62</sup> In Art.194 states obligation of taking appropriate measures to prevent, reduce and control pollution has been regulated as well as the responsibility of them for protection and preservation of marine areas under Art 235 and in number (5) of the Article a particular attention to fragile ecosystems and habitat of endangered species is specified.

Particularly, the key provisions regarding vessel-source pollution in the LOS Convention are regulated in Part XII and devoted to the Protection and Preservation of the Marine Environment. While in Article 194 (3), “[t]he measures taken pursuant to this Part shall deal with all sources of pollution of the marine environment”. However, for the objectives of the thesis, only the pollutions from vessels will be discussed.

---

<sup>59</sup> Ilulissat Declaration, adopted at the Arctic Ocean Conference, Ilulissat, Greenland, 28 May 2008, available at [http://www.oceanlaw.org/downloads/arctic/Ilulissat\\_Declaration.pdf](http://www.oceanlaw.org/downloads/arctic/Ilulissat_Declaration.pdf) (viewed 10.08.2014).

<sup>60</sup> Vienna Convention on the Law of Treaties, 23 May 1969.

<sup>61</sup> United Nations Convention on the Law of the Sea (LOSC), Montego Bay, 10 December 1982.

<sup>62</sup> Verheyen R., “*Climate Change Damage and International Law: Prevention Duties and State Responsibility (Developments in International Law)*”, Leiden: Martinus Nijhoff publishers, 2005.

## 2.2 Flag State Jurisdiction and enforcement power

The flag state has always enjoyed the capacity to pass the regulations to control the pollution of their vessels. Nevertheless, LOSC does seek to regulate the flag state jurisdiction over their vessels. As in article 211(2) adoption of laws and regulations is required in order to prevent marine pollution. That should at least have the same effect as that of generally accepted international rules and standards (IMO) which have been established through competent international organization or general diplomatic conference.<sup>63</sup>

Article 212, also imposes the obligation on the Flag State to adopt laws and regulations applicable to the vessels with their registry or flag to protect the marine environment from pollution through the atmosphere which encompass emissions from vessels.

In relation to enforcement jurisdiction, what is important, is that the LOSC stipulated obligations for flag state according to the articles 214 (2)(4). That means if a vessel violates the international pollution standards, then the flag state shall provide the investigations right away (or follow up the suspected violation) irrespective of where the violation occurred or where the pollution happened as a result of that violation.<sup>64</sup> Moreover, flag states are compelled to take appropriate measures to ensure that the vessels flying their vessels are proceed to sea in compliance with international pollution control standards or they are prohibited from sailing. (Article 217(2)). The standard provisions about certificates issued by flag states under the terms of many international conventions, going back to SOLAS 1924. The rule is that certificates are to be accepted by correspond substantially with the particulars of the certificates<sup>65</sup> Further, they are to ensure that the vessel carry on the required certificate and are regularly subject to inspection. (Article 217(3)). Finally, Article 222 also obliged the flag state to take the necessary enforcement measures and implement the pursuant international regulations concerning the protection of the marine environment from pollution.

---

<sup>63</sup> Rothwell, D. R. and T. Stephens, *The International Law of the Sea*, Hart Publishing Ltd, 2010.

<sup>64</sup> Ibid.

<sup>65</sup> Ibid.

### **2.3 Port state jurisdiction and enforcement power**

The prescriptive jurisdiction of port state is stipulated in Articles 2(1), 25(2) and 211(3) in which the sovereignty rights of the State are fully acknowledged. A Port State can therefore legislate conditions for the prevention, reduction and control of pollution (from the vessels) in marine environment to enter to their ports or internal waters.(Article 211(3)) and communicate about these conditions with IMO.<sup>66</sup>

AS for the enforcement jurisdiction, the only one in the LOSC that explicitly refers to port State, is Article 218 which grants the Port State the right to institute legal proceedings against delinquent vessel .Earlier, the port states were confined to take action if the vessel was violating the port state's regulation within its port or the internal waters, T.S or EEZ of the port state. While LOSC extends the capacity of port states to take measures against vessels which are breaching international pollution standards where these breaches have taken place.(Article 218).However, no regulations should be taken regarding the discharge violation in the internal waters, T.S, E.E.Z of another state.

### **2.4 Coastal state jurisdiction and enforcement power**

The most prominent jurisdictional regime regarding the control of marine pollution established by LOSC were for the coastal state<sup>67</sup> in which the interest of both shipping and coastal state is considered. The latter has rights to regulate laws and standards regarding the vessel source pollution which are different in various maritime zones. By implementing that measure as well as other states "unless there are clear grounds for believing that the condition of the vessel does not Limiting the absolute freedom of navigation and flag state's jurisdiction, the LOSC ensure to establish more efficient vessel-pollution control and prevention.

---

<sup>66</sup> Rothwell, D. R. and T. Stephens, *The International Law of the Sea*, Hart Publishing Ltd, 2010.

<sup>67</sup> Erik Jap Molenaar, *Coastal State Jurisdiction Over Vessel Source Pollution*(The Hague,Kluwer,1998).

In internal waters the Coastal State has prescription jurisdiction which is limited only by the obligation of giving due publicity to said laws and regulations and “without prejudice to the continued exercise by a vessel of its right of innocent passage”<sup>68</sup> (Articles 2(1) and 211(3))

In the territorial sea, coastal state may adopt measures in order to control pollution by foreign vessels. However, such laws and regulations must not apply to the construction, design, equipment and manning (CDEM) standards of vessels unless they are giving effect to GAIRAS.(Article 21(2)). So the coastal State enjoys its prescriptive jurisdictions towards these vessels. But at the same time the LOSC does not provide any example of the generally accepted standards which have to be followed .So that, it can be interpreted that it gives the coastal State freedom to apply more stringent measures to the vessels navigating in its territorial sea.<sup>69</sup> The limitations LOSC imposed to coastal state in its territorial waters are that the taken rules and standards should not hamper the exercise of innocent passage, giving due publicity and not being discriminatory. (Article 21 and 211(4)).

Concerning the transit passage of the vessels in the straits, the Coastal State’s prescriptive jurisdiction is not as much as it is in the innocent passage regime. According to the Article 42(1) Coastal State’s prescriptive jurisdiction has been restricted for adoption of laws and rules regarding discharge of oil, oily wastes and other noxious substances.(Article 42(1)(b)).However this restrictions is aside from the obligations of not hampering innocent passage of foreign vessels, not applying discriminatory rules and giving due publicity to said rules.

For the Exclusive Economic Zone (EEZ) the coastal State’s jurisdiction has been stipulated in LOSC Article (1)(b)(iii) regarding the protection and preservation of the marine environment. Coastal state may legislate regulations to prevent, reduce, and control pollution from vessels in the EEZ. According to the Article 211(5), such laws and regulations must be in accordance with GAIRAS established through the IMO. However there are two exceptions regarding the general requirement of coastal state to follow the international standards. First, according to the article 211(6) coastal state may pass additional regulations (additional to what is mentioned in Art. 211(1)) when the later regulations are insufficient regarding the vessel-source pollution in ecologically sensitive sea areas. However in terms of CDEM they may not take stricter measures

---

<sup>68</sup> UNCLOS Art. 211(3).

<sup>69</sup> Molenaar, *supra* note 67

than generally accepted international rules.(Article 211(6)). The basis of this provisions for coastal state is to implement Associated Protective Measures in Particularly Sensitive Sea Area (PSSA's) which is designated by IMO.<sup>70</sup> As PSSA areas are defined as vulnerable areas to damage by international shipping activities.<sup>71</sup>

The second exception is mentioned in Article 234 LOSC in the ice-covered area which are within a coastal state's EEZ. The coastal state may adopt pollution control regulations which are stricter than the international standards in arctic marine areas for the most part of the year. While according to Art 234 such rules and regulations should not be discriminatory. The basis for this legislation is that the pollution may cause 'major harm to or irreversible disturbance of the ecological balance'<sup>72</sup>.

All in all, in all cases, coastal state laws must be in accordance with IMO rules. They should not be less demanding than international standards but should not be stricter either<sup>73</sup>.

Enforcement jurisdiction of the coastal State is also depend on the maritime zones where the violation of the law has been committed.

Regarding the territorial sea according to the Article 220 (2) LOSC the coastal State is allowed to take physical inspection, institution of proceedings and detention of the vessel when the vessel broke the pollution laws and regulations. However there should be a "clear grounds" that the vessel did violate such laws. In other words, the proof of violation commitment should be given, which is not always easy and available to get. Adoption of such enforcement measures, the coastal state must meet the limitations imposed by Part II section 3 and Part XII section 7. Moreover, Article 222 LOSC also prescribed obligation to the Coastal State to take the necessary measures and implement the international regulations concerning the protection of the marine environment from pollution through the atmosphere.

According to Article 233 LOSC in the Straits, Coastal states are allowed to take appropriate measures against foreign vessels only when they meet the requirement of the mentioned article. That is to say when a vessel has violated the pollution rules and regulations and such violation causes a major damage to the Straits marine environment.

---

<sup>70</sup> Julian Roberts et al, 'The Western European PSSA Proposal: A "Politically Sensitive Sea Area" (2005) 29 Marine Policy 431,438-39

<sup>71</sup> IMO Assembly Resolution A.927 (22), Annex 2,[1.2].

<sup>72</sup> LOSC , art 234.see further Donald R Rothwell, The polar regions and the Development of International Law (Cambridge, Cambridge University Press,1996)294-95.

<sup>73</sup> Rothwell, *supra* note 66.

The anti-pollution provisions of LOS Convention regarding the EEZ has been formulated in Article 220 (3)-(7) and are even more limiting than that in territorial sea. According to Article 220(6) coastal state may arrest and prosecute the vessel when there is a “clear objective evidence” in case of major damage or threat of major international damage. While in case of violation that had caused or threatened to cause significant pollution to the marine environment the coastal state can take physical inspection of a vessel where there is a “clear grounds to believe” that a particular vessel has committed the violation. In case of lesser violation level where there is no discharge causing major damage nor the threat of significant pollution, then coastal state can only ask for the information of the vessel regarding its identity or its port of registry or the last and the next port of call.(Art.220(3)).

In conclusion, of the all mentioned legal pretexts, it can be understood that implementing enforcement measures are depend on the seriousness of a discharge violation.

### **3. IMO instruments**

IMO portrays the United Nations' specialized agency and take the responsibility of safety and security of shipping and prevention of marine pollution by vessels. So far, the main regulation of the marine vessel-source pollution on the international level, is mainly done within the International Maritime Organization (IMO).<sup>74</sup>

The IMO’s task for the period from 2010 to 2015 is: “...to promote safe, secure, environmentally sound, efficient and sustainable shipping through cooperation. This will be accomplished by adopting the highest practicable standards of maritime safety and security, efficiency of navigation and prevention and control of pollution from ships, as well as through consideration of the related legal matters and effective implementation of IMO’s instruments with a view to their universal and uniform application.”<sup>75</sup>

Among IMO’s instruments MARPOL is the most significant, but not the only one,(among them is the 1974 SOLAS Convention which addressing matters such as the stowage, packing, marketing, labelling and documentation for dangerous goods), Which designed to reduce pollution from ships.

---

<sup>74</sup> Introduction to IMO. <http://www.imo.org/About/Pages/Default.aspx>. Viewed on 01.06.2012.

<sup>75</sup> Ibid.

Moreover, according to the wordage of this paper, regarding the Barents Sea, Polar Shipping Guidelines is considerable as well as regional OSPAR convention. However, polar shipping guideline is not applicable to the whole Barents Sea from mainland coast of Norway, and the waters adjacent to the Kola Peninsula in Russia.<sup>76</sup>

### 3.1 MARPOL 73/78

Of all the measures against pollution the International Convention for the Prevention of Pollution from Ships MARPOL 73/78 is the most significant one. It applies to the discharge of all harmful substances (from accidental and operational oil pollution to the pollution by chemicals, goods in packaged form, sewage, garbage and air pollution) except the dumping ones, seabed exploitation and legitimate scientific research for reduction of pollution.<sup>77</sup>

MARPOL is almost compact convention, which has the provisions dealing with national laws, certificate, inspections and enforcement of standards within six detailed annexes: : Annex I contains 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, 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. Also in particular areas, MARPOL 73/78 provides the possibility to establish ‘special areas’ and ‘Sox emission control areas’ since more restrictive discharge and emission standards are applicable due to their sensitivity. (Annexes I, II and V).The wide ratification of MARPOL Convention by Arctic countries<sup>78</sup>and Persian Gulf’s coastal states demonstrates their tendency and

---

<sup>76</sup> Jensen, Øystein, The IMO Guidelines for Ships Operatinf in Arctic Ice-Covered Waters: From Voluntary to Mandatory Tool for Navigation Safety and Environmental Protection?, The Fritjof Nansen Institute, FNIrapport 2/2007, p.1.

<sup>77</sup> MARPOL Article 2(3)(b).

<sup>78</sup> Canada, Denmark and Norway have ratified all annexes, United States has ratified all but annex IV and Russian Federation has ratified all but annex VI. As for other shipping tonnage representative countries, Panama, China, Greece and Liberia have adhered to all Annexes. Status of Conventions available at [http://www.imo.org/Conventions/mainframe.asp?topic\\_id=248](http://www.imo.org/Conventions/mainframe.asp?topic_id=248). 69 See note 11 and Chapter II.

awareness to marine protection.(Iran, Kuwait and Saudi Arabia ratified all annexes. While Iraq didn't ratify any .Oman, Qatar and UAE ratified all but not VI and Bahrain just ratified annex I, II and V).

However, Canada and Russia have excluded MARPOL 73/78 application to the spatial scope (the Arctic north of 60° N).They are applying stricter regulation regarding this area under the terms of Article 234 LOSC which gives the arctic-coastal states more sovereignty over protecting their ice-covered area due to their particular conditions.

In spite of its objectives mentioned in the preamble, MARPOL couldn't cover all types of ship pollution as in annex VI; it does not address the greenhouse gas pollution from ships and nor the noise pollution even through its CDEM standards.<sup>79</sup>This gaps and challenges will be discussed more through the 3<sup>rd</sup> part.

## **3.2 Specific regulations applicable to the Arctic - IMO Polar Shipping Guidelines**

The IMO 'Guidelines for Ships' Operating in Arctic Ice-Covered Waters'(which are not mandatory and have merely recommendatory character)<sup>80</sup> were only designed in arctic conditions and set out construction, equipment, operational and environmental provisions with special regards to navigation risks in ice-covered waters. According to the guidelines, the Arctic is recognized as a significant area for international shipping due to its particular condition and demands specific attention to human factors such as training and operational procedures.<sup>81</sup>

So that the main purpose of the IMO Arctic Shipping Guidelines was to provide additional requirements than MARPOL and SOLAS Conventions. Thus, due to the special climatic conditions, remote location and the fact that ships are more vulnerable of having accidents than in the other marine areas, these guidelines have been sat to declare the special requirements and demands for the ships' CDEM standards operating in the Arctic waters. However, they didn't set

---

<sup>79</sup> Churchill, *supra* note 37.

<sup>80</sup> Polar Shipping Guidelines Preamble Section 1.3.

<sup>81</sup> Jensen, *supra* note 76, p. 9.

regulations regarding the discharge, emission, navigation or contingency standards; several CDEM standards have a clear aim to prevent or control vessel-source pollution.<sup>82</sup>

Moreover, these guidelines do not establish any obligations (as for their non-legally binding nature) for the States regarding to the operations of their vessels and only perform as an addition and supplement to the current applicable international and national rules and regulations.

There are also some other shortcomings. As mentioned before it is a “soft law” instrument and has recommendatory nature. So that its actual effectiveness depends on the decisions of the States, ship owners and vessels crews. But, there is no procedure that could monitor and assess the compliance with these guidelines. Likely, the application can be observed only when the states take the guidelines and apply them via their costal state practice.

And finally, none of the Arctic States “has implemented the regulations through binding legislation: they remain international recommendatory provisions only. In that respect, their effect stands untested”<sup>83</sup>So that since it has not being implemented by states and is not a “widespread” by states, can be considered not qualified as GAIAS.

### **3.3 International Convention on Preparedness, Response and Cooperation for Oil Pollution (OPRC, 1990)**

Water pollution has caused concern among people and governments, regarding that states shall cooperate nationally and internationally to manage this problematic issue. Degradation of marine and surface water systems can lead to irreparable damage to the environment. Due to the high variability and rapid discharge of pollutants to the sea, marine ecosystems self-purification has been reduced and they hardly can neutralize the arrival of these material.

So that, International Convention on Preparedness, Response and Cooperation for Oil Pollution (OPRC) was coined in the Alaskan coast following the tragedy of the tanker "Exxon- Valdez". The International Maritime Organization was adopted it in 1990 and entered into force in 1995.

---

<sup>82</sup> Polar Shipping Guidelines adopted by IMO Assembly Resolution A.1024 (26), 2 December 2009. Part D 16.3.

<sup>83</sup> Jensen, *supra* note 76, p.17.

The main emphasis of the convention is to act quickly and effectively in case of oil pollution incident to prevent irreparable damage to ships, offshore and ports. Moreover its attempt is to provide the international cooperation for managing and controlling accidents caused by oil pollution.

Of the main objectives of the Convention are:

- Report the pollution accident to the nearest coastal state by ships, aircraft and naval units, ports and utilities, and in case of necessity to report the accident to neighboring countries that are endangered by this accident.
- Provide technical assistance and equipment to member states
- Provide a national plan to deal with oil pollution in collaboration with all relevant organizations<sup>84</sup>

Iran's government acceded to the Convention on 29 July 1376 and has made its goal to provide national preparedness and coordination of all governmental and non-governmental organizations and people to meet and collaborate in carrying out the forces and capabilities in support of national duty of protecting and preserving the marine environment. The area covered by the national plan includes all coasts and waters under the sovereignty of the Iran in Persian Gulf.<sup>85</sup>

---

<sup>84</sup> For more information see <http://www.persiangulfstudies.com/fa/index.asp?p=pages&id=603>. And [http://www.imo.org/About/Conventions/ListOfConventions/Pages/International-Convention-on-Oil-Pollution-Preparedness,-Response-and-Co-operation-\(OPRC\).aspx](http://www.imo.org/About/Conventions/ListOfConventions/Pages/International-Convention-on-Oil-Pollution-Preparedness,-Response-and-Co-operation-(OPRC).aspx).

<sup>85</sup> Persian Gulf Studies Center, Institute of Historical, Geographical, Geopolitical and Strategic Studies of the Persian Gulf. (available at <http://www.persiangulfstudies.com/en/index.asp?p=pages&id=75>).

## **CHAPTER V-REGIONAL REGULATIONS REGARDING THE VESSEL SOURCE POLLUTION IN BARENTS SEA AND PERSIAN GULF**

### **1. Introduction**

Achieving an effective and harmonious framework to prevent marine pollution by vessels, it is important that the provisions of LOSC and IMO are adequately implemented as a principle rules. However the LOSC, in various points, refers to regional rules, programs and mostly regional cooperation. Therefore, this indicates that there is not necessarily one single globally legal method to manage the difficulties, but there is one principle (the LOSC) which allows the significant regional rules to be taken where necessary. Generally speaking, LOSC and IMO's measures are in general covered the surface of sea-related legal issues, however, when it comes to the more specific issues in specific region, the relevant regional legislations play important role in supporting substantive regulations and enhancing their implementation.<sup>86</sup>

Article 237 LOSC can be considered as an example which preserve the freedom of the states to make agreement regarding the preservation of marine environment. Nevertheless these regional agreements should be in consistent with the general principles of the LOSC.<sup>87</sup>

Regarding the regional level of regulations in Barents Sea there is no particular legislation combating the pollution from shipping in addition to IMO'S instruments. However 1992 OSPAR Convention tries to address the marine environmental issues generally in a designated areas. The more appropriate parts of the Convention which are of relevance to the scope of this thesis is tried to be considered and analyzed. On the other side, Murmansk treaty which is the agreement between the two coastal states In Barents Sea is mostly addressed the delimitation and fisheries matters. Therefore it is excluded regarding the scope of the current paper.

Regarding the Persian Gulf, the legally binding regional 1978 Kuwait Convection will be presented whose purpose is to monitor activities to protect the marine environment.

---

<sup>86</sup> Stokke, Olav S., "Environmental security in the Arctic", *International Journal*, 2005, p.835.

<sup>87</sup> Birnie, Patricia; Boyle, Alan E.; Redgwell, Catherine, *International Law & the Environment*, Oxford University Press, 3rd. ed., 2009, p. 390-393.

## 2 Regional relevant regulations

### 2.1 1992 OSPAR Convention

In 1992, the Oslo Convention of 15 February 1972 and the Paris Convention of June 4, merged and revised. These two conventions were addressing the dumping-source marine pollution from ships and aircraft as well as marine pollution of land- emissions as a core work. After revision, they merged into a new Convention, namely OSPAR. The new Convention shall protect the marine environment from pollution and other harmful effects in the spacial scope of the North-East Atlantic (which Barents Sea is part of that), including the North Sea and the Kattegat<sup>88</sup>.(Figure 1)The Convention consists of a main part and four appendixes. The main part contains general provisions and the four annexes governing the pollutions as land-based sources, dumping and incineration, offshore activities and monitoring of the marine environment. A new annex was added to the agreement in 1998, (Annex V) which is about the protection and conservation of the ecosystems and biological diversity of the maritime area.<sup>89</sup>

The scope of the Convention consists of the States internal waters, territorial seas and exclusive economic zones<sup>90</sup>; the maritime area of the OSPAR includes both areas within and beyond national jurisdiction<sup>91</sup>.

OSPAR Convention is ratified and joined totally by 15 States and the European Union. However, Russia (as a Barents Sea coastal state) and its territorial waters in the northeast Atlantic, has not joined the OSPAR Convention.<sup>92</sup>Therefore, OSPAR provisions are not applicable to the Russian part of the Barents Sea. For that part of the Barents Sea Russia consider the Murmansk treaty as a legal base.

As mentioned earlier, one of the OSPAR's objective is to conserve and protect the North- East Atlantic's ecosystems and its biological diversity .Shipping is one of the human activities under the scope of OSPAR maritime area which may harmfully disturb the marine environment. So that,

---

<sup>88</sup> Nordisk Ministerråd, *En rikere framtid 13 konvensjoner om natur og kulturmiljø*.

<sup>89</sup> Norwegian Ministry of Trade, Industry and Fisheries, *NOU 2005: 14, På rett kjøp Ny, skipssikkerhetslovgivning*.

<sup>90</sup> Norwegian water resources and energy directorate (NVE), *Lover og internasjonale konvensjoner Fagrapport til strategisk konsekvensutredning av fornybar energiproduksjon til havs*.

<sup>91</sup> OSPAR Convention Article 1(a).

<sup>92</sup> OSPAR Commission, *About OSPAR*

its impacts are therefore considered under the OSPAR Biodiversity and Ecosystems Strategy<sup>93</sup>. OSPAR is taking the ecosystem approach and looks at human activities (including shipping) from an integrated ecosystem perspective.

Protecting the marine environment from shipping, there are efficiently regulated measures at the global level by IMO. As a result, OSPAR has an inclination to draw the issues of environmental protection and the actions which are required to the attention of the IMO. An agreement of cooperation between OSPAR and IMO will strengthen purpose of protection. However, there is a scope for OSPAR actions to address impacts of shipping.

On the other side, incidents of the ships which are carrying oil and other noxious or hazardous substances can dramatically affect the marine ecosystem. These effects may be resulted in a short- or long-term dependent on the climatic and environmental conditions as well as the sensitivity of the area at the time of the spill. So that these pollutions may be released as a result of incidental discharges of oil and other hazardous or noxious substances that are carried as a vessels cargo. These type of pollutions is addressed under the scope of OSPAR Hazardous Substances Strategy.<sup>94</sup>

According to the status of OSPAR Commission the objectives of the OSPAR Hazardous Substances Strategy is:

Prevention of the pollution from discharges, emissions and losses of hazardous substances and to make effort to move towards the target of termination of their releases by the year 2020 (the “cessation target”) and finally, to achieve concentrations in the marine environment for naturally occurring substances and reduce the man-made synthetic substances.<sup>95</sup>

All in all, as can be seen, the matter of vessel source pollution is not addressed particularly (the same as that in MARPOL) in The OSPAR convention. However it is implied in OSPAR Commissions strategies such as the OSPAR Biodiversity and Ecosystems Strategy and the mentioned Hazardous Substances Strategy. Moreover, the cooperation of OSPAR and IMO will reinforce their strength. As so is the cooperation of the OSPAR member’s coastal states (under the scope of this work Norway in a Norwegian part of Barents Sea) with IMO.

---

<sup>93</sup> Assessment of the impacts of shipping on the marine environment, OSPAR Commission, 2009. (available at [http://qsr2010.ospar.org/media/assessments/p00440\\_Shipping\\_Assessment.pdf](http://qsr2010.ospar.org/media/assessments/p00440_Shipping_Assessment.pdf))

<sup>94</sup> OSPAR Commission [http://www.ospar.org/content/content.asp?menu=00200304000000\\_000000\\_000000](http://www.ospar.org/content/content.asp?menu=00200304000000_000000_000000)

<sup>95</sup> Status and trend of marine chemical pollution OSPAR Commission 2009.P.7.



Fig.1 OSPAR maritime area.<sup>96</sup>

## 2.2 1978 Kuwait Convention

This Convention is a fundamental and legally binding instrument for the eight states in the Persian Gulf region, the purpose of the convention is to coordinate their activities to protect the marine environment. The Convention has a total of thirty articles. The member states, according to the Convention, are responsible to protect and preserve the marine environment. The marine environment in the Persian Gulf is under a continuing threat of pollution from shipping, offshore and land-based activities<sup>97</sup>.

The Convention aims to ensure the marine environment, so that it is not damaged by development and other human activities. At the same time, it should prevent its living resources from being threatened, and prevent danger to human health. Another objective is to develop a coherent and sustainable approach of the use of coastal areas and the marine environment. The achievement of environmental and development goals must be done in a harmonious way. For this to be achieved, it is of interest to have cooperation and coordination of actions at the regional level. The aim of

<sup>96</sup> Map of North-East Atlantic – Source: the OSPAR website – [http://www.ospar.org/content/regions.asp?menu=00020200000000\\_000000\\_000000](http://www.ospar.org/content/regions.asp?menu=00020200000000_000000_000000). (viewed: 31.10.2014).

<sup>97</sup> Kuwait Convention, *Ports & Maritime Organizations* (viewed 26.10.14, available at <http://maritimesafety.pmo.ir/en/marineenvironmentprotection/regionaltreaties/kuwaitconvention>).

this cooperation and coordination is to protect the marine environment and through that the coastal areas in this way, present and future generations will benefit. The Convention was signed on 24th April 1978 and became effective July 1, 1979.<sup>98</sup>

Article XVI of the Kuwait Convention defines the Regional Organization for the Protection of the Marine Environment (ROPME). The July 1, 1979, the organization was established, with the purpose to implement the Kuwait Action Plan and the Kuwait Regional Convention with Protocols. The waters which fall under the scope of ROPME, consists of the Persian Gulf, the Gulf of Oman and southeastern coastal areas of Oman.<sup>99</sup>

With the purpose of strengthening governance in the Gulf region, ROPME has developed protocols relating to environmental management. Similar protocols were developed by the Kuwait Regional Convention for Cooperation on the Protection of the Marine Environment from Pollution. Regarding the objectives of ROPME the following protocols resulted:<sup>100</sup>

1. Protocol concerning Regional Cooperation in Combating Pollution by Oil and Other Harmful Substances in Cases of Emergency (1978)
2. Protocol concerning Marine Pollution resulting from Exploration and Exploitation of the Continental Shelf (1989)
3. Protocol for the Protection of the Marine Environment against Pollution from Land-Based Sources (1990)
4. Protocol on the Control of Marine Trans-boundary Movements and Disposal of Hazardous Wastes and Other Wastes (1998)
5. Protocol concerning the conservation of biological diversity and the establishment of protected areas.

The Persian Gulf is the world's busiest waterway for oil tankers as well as commercial traffic and cargo vessels also, there is a significant military presence in the Persian Gulf. The density of military vessels is rarely high in these waters. There is therefore a high risk of vessel-related accidents. Accidents involving tankers in particular can cause fatal consequences for the marine

---

<sup>98</sup> Koivurova, T. and E. J. Molenaar, *"International Governance and Regulation of the Marine Arctic"*, WWF International Arctic Programme, 2009.

<sup>99</sup> Ibid.

<sup>100</sup> Bagtzoglou, A. C.; Iranmahboob, J.; Nadim, F., "Coastal management in the Persian Gulf region within the framework of the ROPME programme of action", *Ocean & Coastal Management*, Vol.51, Issue 7, 2008, p. 556-565.

environment. The problematic issue is that hundreds of tank vessels operating in international waters, are constructed with single hulls. IMO has worked for the phasing out of single hull tankers. Another problem is the dumping of ballast water; this can spread marine organisms from one biotope to another.<sup>101</sup>

Regarding the vessel source pollution and accidents involving tankers and other type of ships, the Persian Gulf is protected through the Kuwait Convention in Article IV.<sup>102</sup> According to that:

“The Contracting States shall take all appropriate measures in conformity with the Present Convention and the applicable rules of international law to prevent, abate and combat pollution in the sea area by intentional or accidental discharges from ships, and shall ensure effective compliance in the Sea Area with applicable international rules relating to control of this type pollution, including load-on-top, segregated ballast and crude oil washing procedures for tankers.”<sup>103</sup>

Regarding the Article III of the Protocol about Regional Co-operation against Pollution by Oil and other Harmful Substances in Case of Emergency, the Marine Emergency Mutual Aid Centre (MEMAC) was established in 1982. The main objectives of MEMAC are:” to strengthen the capacities of the Contracting States and to facilitate co-operation among them in order to combat pollution by oil and other harmful substances in cases of marine emergencies; and to assist Contracting States, which so request, in the development of their own national capabilities to combat pollution by oil and other harmful substances and to co-ordinate and facilitate information exchange, technological co-operation and training. The permanent headquarters of MEMAC are located in the Kingdom of Bahrain”<sup>104</sup>.

---

<sup>101</sup> Ibid.

<sup>102</sup> Ibid.

<sup>103</sup> Kuwait Convention, Art. IV.

<sup>104</sup> Marine Emergency Mutual Aid Centre.(MEMAC),available at <http://www.memac-rsa.org/>.

## PART 3

### CHAPTER VI – SHORTCOMINGS AND CHALLENGES REGARDING INTERNATIONAL AND NATIONAL REGULATION OF INTENTIONAL VESSEL-SOURCE POLLUTION IN ARCTIC ICE-COVERED AREAS

#### 1. Introduction

The shipping traffic in sea-areas has been increased recently. As a result, a field of considerable pollution risk in the marine environment is provided. The two main applicable instruments in combating marine pollution is the UNLOSC 1982 and IMO's MARPOL 73/78 Convention. However, regarding the protection of marine environment from shipping activities, it has been mentioned frequently that this regulations are not sufficient and leave some significant gaps (especially in sensitive areas such as Arctic area and extremely polluted waters). Looking at paragraph 4.2 of the AEPS, this position is explicitly adopted, which urged that the Arctic states implement stricter standards than the IMO.<sup>105</sup>

In Barents Sea as a part of the Arctic Ocean, special measures should be taken to prevent or reduce the risk of contamination. The five Arctic coastal states, Canada, Denmark, Norway, Russia and the United States, indicated the huge demand for taking an action in the Ilulissat Declaration that can prevent or reduce the risk of vessel source pollution. In that respect the environment in this area will be subjected to the same severe framework that applies to the Arctic Ocean.

In Persian Gulf, however, the coastal states extremely demand not only the prevention measures but also the removing measures of the current pollution. one of the appropriate measure that can prevent the large oil spill into the area is application of double-hull tankers for transport of oil and other hazardous material in the Persian Gulf.<sup>106</sup>

---

<sup>105</sup> Arctic Environmental Protection Strategy, 14 of June 1991, p. 24..

<sup>106</sup> Bagtzoglou, *supra* note 100, p.p. 559-560.

Although, in recent decades there have been serious attempts to effectively regulate pollution from vessels, currently there is no compact framework to provide the basis for protecting the marine arctic environments in the partly ice-covered areas or reducing the pollution in extremely polluted seas. Focusing on the LOSC, the Convention provides sufficient legal powers to coastal states and port states in marine environment. Moreover, MARPOL 73/78 establishes stricter emission/discharges standards requirements in vulnerable areas and its annexes cover most pollutants. Most of seafaring nations adhered to these attachments; countries such as Panama, China, Greece, Liberia, Singapore, Japan and the UK follow all attachments, while countries like the United States and Bahamas adhered all attachments except Annex IV.

Noting about current legislation, which provides a solid foundation for the protection of marine areas where vessels are source of pollution, does not mean that it is faultless. There are some considerable challenges that must be overcome. For instance, although MARPOL73 /78 provides special emission/discharges standards in certain areas (as mentioned in the former chapter), no part of Arctic area is under the scope of mentioned provision. In other words, it doesn't count the Arctic area as "certain areas" and nor is created any PSSA in the Arctic. Furthermore, the legislation framework (MARPOL) does not consider noise pollution and its impact on the marine ecosystem and life in marine areas or there is also no effective regulation covering sewage and waste discharges from cruise ships. Or, regarding the single-hull tankers, although IMO has mandated to phase-out their navigation in Persian Gulf, hundreds of them still sail through the waters.

The constitution of current regulation is not a big deal, the implementation and enforcement of such laws and regulations can be regarded as one of the main problems which can be considered as a substantial challenge in law discussions.

In this work, there is a limited space for what can be included. Thus this chapter will only point at the surface of issues and problems regarding the states' implementation and enforcement of laws and IMO's enforcement power and providing possible solution or suggestions.

## **2. Current Challenges**

Generally speaking, when a state ratifies a treaty in a normal condition the true intend is following the mandates. Although the government intends to meet its obligations, the implementation and enforcement tasks, for many reasons, could be challenging. There are many examples of cases that

may frustrate the implementation and enforcement, ranging from lack of administrative capacity, economic factors to the fact that the IMO does not have provisions to monitor and ensure that states comply with their obligations.

The main problem in sea-studies (vessel pollution part) is the flag states and especially those who sail under flags of convenience. They take no particular obligation, capacity or incentives<sup>107</sup> to implement what they legally have to, against the vessels flying their flag and violating existing agreements. The main reason is the ship owner's awareness of no sanction in case of violation by their flag states. Vessels sailing under their flag generate significant tax revenue for the flag state; these revenues constitute the main reason for the financial gain precedence over environmental concerns.<sup>108</sup>

The problem mentioned above demonstrates a substantial need for taking an appropriate mechanism that can modify the behavior of flag states to force them to carry out their enforcement obligations such as monitoring the genuine link and compliance of the vessels sailing under their flag, or passing deterrent laws against the 'convenient-countries' and against the flag states navigating under their flag to threaten them not to sail under the flag of these certain states.<sup>109</sup>

Report to IMO should be continued to be the most important instrument over these "flag states" events. Such reports may move flag States into a positive direction to be a "member in good standings of the international system".<sup>110</sup>

However, looking at the result of the mandatory reporting of emissions to the IMO, as required under the terms of MARPOL 73/78 (according to the Section 4.4 of the report to the Maritime Safety Committee and the Marine Environment Committee, the amount of reporting for the year 2007, was only 22.1%)<sup>111</sup> the above theory can indeed seem optimistic. This shows that further measures should be taken in addition to reporting. These measures can either be a regime of

---

<sup>107</sup> Alan Khee-Jin, *Vessel-Source Marine Pollution: The Law and Politics of International Regulation*, Cambridge University Press, 2006, p. 203.

<sup>108</sup> Becker, Rebecca, "MARPOL 73/78: An Overview of International Environmental Enforcement", *The Georgetown International Environmental Law Review*, Vol. 10:625, 1998, p. 632

<sup>109</sup> On different concepts of sanction: Downs, S.G., "Enforcement and the Evolution of Cooperation", in Mich. J. Int'l. 19 (1998) p. 319, cited in Brunnée, Jutta see note 106.

<sup>110</sup> Chayes, A. And Chayes, A. Handler, *The New Sovereignty: Compliance with International Regulatory Agreements*, (1995), p. 28, cited in Brunnée, Jutta, *Enforcement Mechanisms in International Law and International Environmental Law*, in *Ensuring Compliance with Multilateral Environmental Agreements: A Dialogue between Practitioners and Academy*, Edited by Beyerlin, U., Stoll, P.T. and Wolfrum, R., Koninklijke Brill NV, 2006, p.11.

<sup>111</sup> IMO Document, FSI 17/20 24 April 2009.

additional incentives based on already existing incentives from IMO, or a regime which used concrete sanctions in a world.

While Article 234 LOSC imposes further obligation for Arctic states to take protection measures in Arctic marine environment, by the process of reduction of ice in this area the basis for the states in terms of compliance with this provision will also decrease. So that it seems extremely important to implement measures to establish marine Arctic area the same as Persian Gulf as “special area” under the scope of MARPOL 73/78.

Cooperation of the coastal states in special and sensitive marine areas in order to approach to appropriate port state control is significant as mentioned in IMO’s Assemble Resolution A.682(17) of)that states are encouraged to enter into regional agreements in order to perform appropriate port state control measures.<sup>112</sup> For instance, regarding the IMO’S project in GloBallast water management in Persian Gulf( which was supposed to control the ship’s ballast waters and sediments),there is a need for cooperative regional approach as no individual port is able to address this problem alone.<sup>113</sup>

Currently, there is no Memorandum of understanding on Port State Control in the Arctic areas nor in Persian Gulf. The states have a great opportunity to create a new MOU, where measures can be improved regarding the MOU, the same as what was established in Paris or Tokyo. The states can benefit from each other's monitoring capabilities and establish incentives for vessels with a proper records. These incentives may be a reduction in the number of inspections (these take time and will therefore be significant savings for vessels and shipping companies) and / or a reduction of port charges.<sup>114</sup>.

A number of studies (regarding financial punishment) from the early 1980s until the late 1990s have been analyzed by US researchers, these analyzes have shown that the use of fines as a deterrent is fruitful only in case of small operating discharge. This is due to the fact that the issues of fines under \$ 10,000, only require a limited amount of resources and these cases have also taken not so much time. While, in case of large spills (the same as what happened in Persian Gulf) this

---

<sup>112</sup> IMO Assembly Resolution A.682(17).

<sup>113</sup> Global Ballast Water Management Programme, *GloBallast Project Independent Mid Term Evaluation (MTE): Final Report*, 2003.

<sup>114</sup> As already implemented by the EU in article 7 of the Directive 2000/59/EC, of 27 November 2000 (OJ

can only happen in the light of significant resources and longer and more official judicial process.  
115

As a conclusion, Actions should not be implemented by forced obligation but by improvement of knowledge and education about the issues and the problems that arise as of it. This knowledge will result in a willingness to be part of the solution rather than part of the problem. Establishment of MARPOL as an international regime voluntarily adopted by maritime states suggests that the force behind acceptance should be viewed as an improved understanding of the issue of vessel-source oil pollution, and the impact of discharges on coastal states.<sup>116</sup>

### **3. IMO's role and enforcement powers**

When it comes to the overall regulations at the international level regarding vessel source pollution, the regulation being formulated mainly in the International Maritime Organization. IMO is a specialized agency under the United Nations, which is responsible for the safety and security when it comes to shipping on the high seas. IMO will also prevent pollution committed by vessels in the marine environment.<sup>117</sup>

For the years 2010-2015, the IMO has the following mission statement:

“...to promote safe, secure, environmentally sound, efficient and sustainable shipping through cooperation. This will be accomplished by adopting the highest practicable standards of maritime safety and security, efficiency of navigation and prevention and control of pollution from ships, as well as through consideration of the related legal matters and effective implementation of IMO’s instruments with a view to their universal and uniform application.”<sup>118</sup>

IMO is the only agency with a mandate from the United Nations granted the authority to adopt conventions, agreements and other instruments. The aim of IMO is to ensure that there is a global standard for the safe and secure shipping and to protect the marine environment. In spite of this,

---

<sup>115</sup> The University of Manchester’s School of Law Student Journal, University of Manchester Student Law Review, Vol. 2, 2013, p.91.

<sup>116</sup> Ibid p.118.

<sup>117</sup> Introduction to IMO. <http://www.imo.org/About/Pages/Default.aspx>. Viewed on 09.08.2014.

<sup>118</sup> IMO Assembly Resolution A.1060 (28)

the IMO does not have enforcement power in case of violations of the Law of the Sea and other agreements. This enforcement relies almost exclusively on the individual state.

One of the greatest challenges of today, is precisely this lack of implementation and compliance with IMO's standards and regulations of the flag States' side. They ask questions about IMO efficiency and seek to undermine its role. As a consequence of the IMO's inability to enforce the law, as well as growing concerns about the implementation of measures to protect the marine environment, States entered into unilateral agreements after accident of Exxon Valdez and Prestige.<sup>119</sup> Such unilateral agreements are also helping to undermine the role of IMO and thus threaten the stability and uniformity required by the shipping industry. Using a worldwide international requirements, are envisioned hope of a conflict-free interaction between flag, coastal and port State jurisdiction.

There has been a radical proposal to amend the IMO in the direction of a law enforcement agency. This transformation would result IMO police powers to ensure enforcement of the law in all ports, it would also have been developed a central register of vessels.<sup>120</sup> This solution is unrealistic in the sense that the states are not willing to give up sovereignty and it simply is not structurally feasible.

## **Part 4**

### **1 Conclusion**

This thesis delivered the analysis of the current appropriate international and regional regulations of operational and accidental vessel source pollution regarding the marine environment in the Barents Sea and Persian Gulf. Besides, the environmental protective measures applicable to the vessels navigating in Barents Sea and Persian Gulf maritime zones were considered as the example of the Regional legislation. Along with that, the thesis sought to examine the three raised question

---

<sup>119</sup> See Articles 1 and 2 of Convention on the International Maritime Organization, adopted by the United Nations Maritime Conference in Geneva on 6 March 1948 and as subsequently amended., available at [http://www.imo.org/conventions/mainframe.asp?topic\\_id=771](http://www.imo.org/conventions/mainframe.asp?topic_id=771). 113 See note 104, p. 347

<sup>120</sup> Becker, Rebecca, "MARPOL 73/78: An Overview of International Environmental Enforcement", *The Georgetown International Environmental Law Review*, Vol. 10:625, 1998, p. 639.

as: i) what international and national regulations are applicable in case of vessel pollution in the mentioned sea-areas ii) How can coastal state take action against vessel source pollution under the principles of legal framework and iii) if the current legislations are adequate to protect the marine environment and its resources and biodiversity against pollution.

Today, the Arctic vulnerable marine environment extremely required careful protection, as the number of different vessels (such as fishing, research or cruise ships) navigating in the Arctic area is increasing annually and creating risks of operational and accidental pollution. Persian Gulf, however, is among the most polluted seas in the world generally due to its fragile characteristics (as the amount of fresh water from rivers and rainfalls is not sufficient to compensate the evaporation losses. moreover, the temperature of the water doesn't impede the absorption of pollutants and not let them flush out) and also the growth of the oil industry.(this area is bordered by 8 oil producing country and there is no effective regulatory framework to control the oil pollution).

Currently, the foremost applicable international regulations regarding the protection of marine environment against operational and accidental vessel pollution is the 1982 UN Convention on Law of the Sea and IMO which are applicable to Barents Sea and Persian Gulf. The LOSC established a satisfactory regime for protection and preservation of the marine environment. Together with that, it imposed general obligations to all States to protect and preserve the marine environment by the Articles 192 and 194. Regarding the coastal States jurisdiction, the LOSC has certain provisions for prevention of the marine pollution from vessels (e.g. Articles 21, 211...) in which the States shall adopt laws and regulations to protect the marine environment in their maritime zones. Implementation of such laws and regulations, coastal states shall take into consideration the restrictions specified *inter alia* the rights of innocent passage in the territorial sea and the freedom of navigation in EEZ of the coastal State. Therefore, these restrictions limited the absolute sovereignty of coastal states over their territory. However, the main mandatory provision of the maritime ship safety along with the pollution prevention is IMO's instrument, namely MARPOL 73/78. (In addition to IMO's non-legally binding instruments such as Polar Shipping Guideline and OPRC). Regarding the regional legislation in Barents Sea there is no particular treaty to address the ship-pollution in that area. However, the strategies of OSPAR Commission imply the guidelines for prevention of the pollution from navigational operation. In Persian Gulf, however the matter of vessel-source pollution is addressed in Article IV in which the

obligation of the states is stipulated. States shall take the appropriate measure in a compliance manner with LOSC regulation. Nevertheless, there are inconsistencies and gaps in the analyzed international and regional legal framework. For instance, MARPOL designated Antarctic and Persian Gulf as Special Areas which are protected from considerable amount of dangerous waste discharges but not the Arctic areas and nor designated any PSSA regarding the latter one and due to the strict restriction for Special Areas requirement, that particular provision is hardly extendable to the Arctic areas. Moreover, the two main types of pollutants are not covered by that treaty (sewage and noise pollution) that require further regulation since they affect some marine species. Regarding the latter one, further regulatory measures should be taken as there is not sufficient and certain data on the matter. Moreover, IMO's project (GloBallast project) regarding the prevention of discharge of Ballast water in the Persian Gulf, has not implemented yet and needs the multi-lateral cooperation of states and ports.

As for the last question regarding the sufficiency of the current legal framework to ensure the protection of the marine environment, the answer is subjected to the matters of implementation, enforcement and compliance. These matters are not limited to the particular sea-area. Even with a high regulations of pollution standards by the IMO and LOSC there is always the concern of existence of adequate implementation, compliance and enforcement especially regarding the States that are flags of convenience. The international legal framework, initiated mechanisms for the resolution of this problem namely Port State Control. However, there is still no regional cooperation system with regards to this matter which would ensure an improved monitoring capability, the application of uniform standards and stand-in the compliance by vessels.

## **Bibliography**

### **Books**

Birnie, Patricia; Boyle, Alan E.; Redgwell, Catherine, *International Law & the Environment*, Oxford University Press, 3<sup>rd</sup>. ed., 2009.

Brubaker, D., *Marine Pollution and International Law: Principles and Practice*, London, Belhaven Press 1993.

Churchill, R.R. and Lowe, A.V., *The Law of the Sea*, 3<sup>rd</sup> ed., Manchester University Press, 1999.

Molenaar, E.J., *Coastal State Jurisdiction over Vessel-Source Pollution*, The Hague/Boston/London, Kluwer Law International 1998.

Rothwell, D. R. and T. Stephens, *The International Law of the Sea*, Hart Publishing Ltd, 2010.

Tan, Alan Khee-Jin, *Vessel-Source Marine Pollution: The Law and Politics of International Regulation*, Cambridge University Press, 2006.

Verheyen R., *Climate Change Damage and International Law: Prevention Duties and State Responsibility (Developments in International Law)*, Leiden: Martinus Nijhoff publishers, 2005.

## Chapters in Books

Chayes, A. And Chayes, A. Handler, “The New Sovereignty: Compliance with International Regulatory Agreements”, (1995), p. 28, *cited in* Brunnée, Jutta, *Enforcement Mechanisms in International Law and International Environmental Law*, in *Ensuring Compliance with Multilateral Environmental Agreements: A Dialogue between Practitioners and Academy*, Edited by Beyerlin, U., Stoll, P.T. and Wolfrum, R., Koninklijke Brill NV, 2006.

Downs, S.G., “Enforcement and the Evolution of Cooperation”, in *Mich. J. Int’l.* 19 (1998) p. 319, *cited in* Brunnée, Jutta, *Enforcement Mechanisms in International Law and International Environmental Law*, in *Ensuring Compliance with Multilateral Environmental Agreements: A Dialogue between Practitioners and Academy*, Edited by Beyerlin, U., Stoll, P.T. and Wolfrum, R., Koninklijke Brill NV, 2006.

Joyner, Christopher C., “The Status of Ice in International Law” in Elferink A.G. Oude and Rothwell, D.R. (eds.), *The Law of the Sea and Polar Maritime Delimitation and Jurisdiction* (Martinus Nijhoff Publishers: 2001).

## Articles

Ahmed M.H.; EI-Raey M.; Nasr S.M; Frihy O.E., ”Socioeconomic Impact of Pollution of the Arabian Gulf”, *Environment International*, Vol.24, Issue 1-2, 1998, p. 229.

Bagtzoglou, A. C.; Iranmahboob, J.; Nadim, F., “Coastal management in the Persian Gulf region within the framework of the ROPME programme of action”, *Ocean & Coastal Management*, Vol.51, Issue 7, 2008, p. 556-565.

Becker, Rebecca, "MARPOL 73/78: An Overview of International Environmental Enforcement", *The Georgetown International Environmental Law Review*, Vol. 10:625, 1998, p. 632- 639.

Brubaker, Douglas R., "Straits in the Russian Arctic", *Ocean Development & International Law*, 2001, vol. 32, p. 263-287.

Curtis, Jeff B., "Vessel-Source Oil Pollution and Marpol 73/78: An International Success Story", *Lewis & Clark Law School*, 1984-1985, p 681.

Dabiri, F.; Farshchi, P.; Shojaei, S., "Legal aspects of oil pollution in the Persian Gulf and the Sea of Oman (an international perspective)", *Journal of Environmental Science and Technology*, Vol. 10, no.2(37), 2008, p. 76-86.

Elshorbagy, Walid, "Overview of marine pollution in the Arabian Gulf with emphasis on pollutant transport modeling", *Arabian Coast*, 2005, p.5.

Erbe, Christine and Farmer, David M., "Zones of impact around icebreakers affecting beluga whales in the Beauford sea", *Acoustical Society of America*, 108 (3), Pt.1 September 2000, p. 1332-1340.

Funk, McKenzie, "Arctic Landgrab", *National Geographic*, Vol. 215, No. 5, May 2009.

Graff, James, "Fight for the Top of the World", *Time Magazine*, Vol. 170, No. 13, October 2007

Gupta, R.S.; Fondekar, S.P.; Alagarsamy R. "State of oil pollution in the northern Arabian Sea after the 1991 Gulf oil spill." *Marine Pollution Bulletin*, 1993, vol. 27, p. 85-91

Ho, Joshua, "The implications of Arctic Sea –Ice Decline on Shipping", *Marine Policy* 34 (2010), p.713-715.

Hønneland, Geir, "Compliance in the Barents Sea fisheries. How fishermen account for conformity with rules", *Marine Policy*, vol. 24, 1 (2000), p. 11.

Jensen, Øystein, "The IMO Guidelines for Ships Operating in Arctic Ice-Covered Waters: From Voluntary to Mandatory Tool for Navigation Safety and Environmental Protection?", *The Fridtjof Nansen Institute*, FNI-rapport 2/2007.

Lamson, Cynthia, "Arctic Shipping, Marine Safety and Environmental Protection", *Marine Policy*, Vol.11, 1987, p.3.

Lin, Bin and Lin, Cherng-Yuan, "Compliance with international emission regulations: Reducing the air pollution from merchant vessels", *Marine Policy* 30 (2006), p. 220-225.

Roberts J. P.; Tsamenyi B. M.; Workman T.; Johnson L., "The Western European PSSA Proposal: A 'Politically Sensitive Sea Area'" *Faculty of Law - Papers (Archive)*, 2005, p. 438-439.

Scott, Karen N., "International Regulation of Undersea Noise", *ICLQ* vol. 53, April 2004, pp. 287-324.

McRae, D.M. and Goundrey, D.J., "Environmental Jurisdiction in arctic waters: the extent of article 234", *University of British Columbia Law Review*, Vol. 16:2, 1982.

Nükhet, Turgut, “Environmental Legal Protection and the Persian Gulf”, *Ankara Üniversitesi Hukuk Fakültesi Dergisi*, 1991 - 1992, Volume 42, Issue 1-4, p. 81-82

Scott, Karen N., “International Regulation of Undersea Noise”, *ICLQ* vol. 53, April 2004, p. 287-324.

Stokke, Olav S., “Environmental security in the Arctic”, *International Journal*, 2005, p.835.

Volker, Matthias et al., “The contribution of ship emissions to air pollution in the North Sea regions”, *Environmental Pollution* 158 (2010), p. 2241-2250.

William Barr (1979). Review of William E. Butler, and Alphen aan den Rijn “Northeast Arctic passage” *Polar Record*, 19, p 627-628. doi:10.1017/S0032247400002813.

## **International Convention and Guidelines**

International Convention for the Protection of Pollution from Ships, London, 2 November 1973, as modified by the 1978 Protocol and the 1997 Protocol and as regularly amended.

International Convention on Oil Pollution Preparedness, Response and Co-operation (OPRC), 30 November 1990.

Kuwait Convention, 24 April 1978.

OSPAR Convention, 25 March 1998.

Polar Shipping Guidelines adopted by IMO Assembly Resolution A.1024(26), 2 December 2009.

ROPME, Regional Organization for the Protection of the Marine Environment, 1 July 1979 .

United Nations Convention on the Law of the Sea, Montego Bay, 10 December 1982.

Vienna Convention on the Law of Treaties, 23 May 1969.

## **Reports, declarations, letters and other instruments**

Arctic Council, *AMSA 2009 Report*, April 2009, second printing, (available at [http://www.pame.is/images/stories/PDF\\_Files/AMSA\\_2009\\_Report\\_2nd\\_print.pdf](http://www.pame.is/images/stories/PDF_Files/AMSA_2009_Report_2nd_print.pdf))

*Arctic Environmental Protection Strategy*, 14 of June 1991, p. 24, (available at [http://arctic-council.org/filearchive/artic\\_environment.pdf](http://arctic-council.org/filearchive/artic_environment.pdf))

Arctic Ocean Conference, *Ilulissat Declaration*, Greenland, May 28, 2008.  
(available at [http://arctic-council.org/filearchive/the\\_ilulissat\\_declaration](http://arctic-council.org/filearchive/the_ilulissat_declaration))

Climate Change, *International Convention for the Prevention of Pollution from Ships (MARPOL) (Norwegian and Russian ocean-going cargo ships) and modelling of atmospheric pollution in Barents sea region*, Amstel, A.; Berglen, T. F.; Berntsen, T.; Davaasuren, N. (viewed 15.10.14, available at [http://www.geiacenter.org/sites/default/files/site/community/geia-conferences/2009/presentations/GEIA\\_2009\\_Anthropogenic\\_Presentations/Davasuren\\_Poster.pdf](http://www.geiacenter.org/sites/default/files/site/community/geia-conferences/2009/presentations/GEIA_2009_Anthropogenic_Presentations/Davasuren_Poster.pdf))

Centre for Climate Dynamics, *The role of the Barents Sea in the Arctic Climate*, (available at <http://skd.bccr.no/in-focus/the-role-of-the-barents-sea-in-the-arctic-climate/>)

Directive 2000/59/EC, of 27 November 2000 (OJ 2000 L 332/81), (available at [http://eurlex.europa.eu/LexUriServ/site/en/oj/2000/l\\_332/l\\_33220001228en00810089.pdf](http://eurlex.europa.eu/LexUriServ/site/en/oj/2000/l_332/l_33220001228en00810089.pdf))

Nordisk Ministerråd, *En rikere framtid 13 konvensjoner om natur og kulturmiljø*, (available at [http://www.regjeringen.no/upload/KD/Vedlegg/Internasjonalt/Nordisk/Rapport\\_rikere\\_framtid.pdf](http://www.regjeringen.no/upload/KD/Vedlegg/Internasjonalt/Nordisk/Rapport_rikere_framtid.pdf))

GESAMP Report No. 39, *The State of Marine Environment*, (available at <http://gesamp.karma.tibetserver.com/publications/publicationdisplaypages/rs39>)

GESAMP Report No. 50, *Impact of oil and related chemicals and wastes on the marine environment*, (available at <http://www.gesamp.org/publications/publicationdisplaypages/rs50>)

Global Ballast Water Management Programme, *GloBallast Project Independent Mid Term Evaluation (MTE): Final Report*, 2003. (available at <http://globallast.imo.org/MTE%20report.pdf>)

IMO Assembly Resolution A.682 (17), (available at [http://www.imo.org/includes/blastDataOnly.asp/data\\_id%3D24510/A682%2817%29.pdf](http://www.imo.org/includes/blastDataOnly.asp/data_id%3D24510/A682%2817%29.pdf))

IMO Assembly Resolution A.927 (22), (available at [http://www.imo.org/blast/blastDataHelper.asp?data\\_id=10469&filename=927.pdf](http://www.imo.org/blast/blastDataHelper.asp?data_id=10469&filename=927.pdf))

IMO Assembly Resolution A.1060 (28) (available at <http://www.imo.org/About/strategy/Documents/1060.pdf>)

IMO Document, FSI 17/20 24 April 2009, (available at <http://www.uscg.mil/imo/fsi/docs/fsi17-report.pdf>)

International Fund for Animal Welfare, *Understanding the sources of ocean noise pollution*, (viewed 28.10.14, available at <http://www.ifaw.org/canada/our-work/whales/understanding-sources-ocean-noise-pollution>)

Introduction to IMO, (available at <http://www.imo.org/About/Pages/Default.aspx>)

IWC Scientific Committee, *Report of the Scientific Committee, IWC56*, 12.2.5 (2004), (available at [http://iwcoffice.org/\\_documents/sci\\_com/SCRepFiles2004/56SCrep.pdf](http://iwcoffice.org/_documents/sci_com/SCRepFiles2004/56SCrep.pdf))

Koivurova, T. and E. J. Molenaar, “*International Governance and Regulation of the Marine Arctic*”, WWF International Arctic Programme, 2009. (available at <http://www.wwf.se/source.php/1223579/International%20Governance%20and%20Regulation%20of%20the%20Marine%20Arctic.pdf>)

Kuwait Convention, *Ports & Maritime Organizations* (viewed 26.10.14, available at <http://maritimesafety.pmo.ir/en/marineenvironmentprotection/regionaltreaties/kuwaitconvention>)

Norwegian Ministry of Trade, Industry and Fisheries, *NOU 2005: 14, På rett kjøp Ny, skipssikkerhetslovgivning*, (available at <http://www.regjeringen.no/Rpub/NOU/20052005/014/PDFS/NOU200520050014000DDDPDFS.pdf>)

Norwegian water resources and energy directorate (NVE), *Lover og internasjonale konvensjoner Fagrapport til strategisk konsekvensutredning av fornybar energiproduksjon til havs*, (available at [http://webby.nve.no/publikasjoner/rapport/2012/rapport2012\\_55.pdf](http://webby.nve.no/publikasjoner/rapport/2012/rapport2012_55.pdf))

OSPAR Commission, *About OSPAR*, (available at [http://www.ospar.org/content/content.asp?\\_00010100000000\\_000000\\_000000](http://www.ospar.org/content/content.asp?_00010100000000_000000_000000))

OSPAR Commission, *Assessment of the impacts of shipping on the marine environment*, 2009. (available at [http://qsr2010.ospar.org/media/assessments/p00440\\_Shipping\\_Assessment.pdf](http://qsr2010.ospar.org/media/assessments/p00440_Shipping_Assessment.pdf))

Persian Gulf Studies Center, Institute of Historical, Geographical, Geopolitical and Strategic *Studies of the Persian Gulf*. (available at <http://www.persiangulfstudies.com/en/index.asp?p=pages&id=75>)

United States Dep't of State, *Special Report No. 166, supra note 1, at 2.*

United States: *Secretary of Defense Report (Weinberger Report) to the Congress on Security Arrangements in the Persian Gulf*, reprinted in 26 I.L.M. 1433, 1444 (1987) (available at [http://www.dod.gov/pubs/foi/operation\\_and\\_plans/PersianGulfWar/72.pdf](http://www.dod.gov/pubs/foi/operation_and_plans/PersianGulfWar/72.pdf))

The University of Manchester's School of Law Student Journal, *University of Manchester Student Law Review*, Vol. 2, 2013.

## **Figures and Table**

Figure 1 – Map of the Barents Sea – Source: [edcdaac.usgs.gov](http://edcdaac.usgs.gov) –

<http://edcdaac.usgs.gov/gtopo30.asp> (viewed: 30.10.2014)

Figure 2 – Map of Barents Sea in the Arctic Ocean – Source: World Atlas –

<http://www.worldatlas.com/aatlas/infopage/barentssea.htm> (viewed: 30.10.2014)

Figure 3 - Maximum extent of Arctic waters application – Source: IMO Arctic Shipping Guidelines 2009.

Figure 4 – Map of North-East Atlantic – Source: the OSPAR website –

<http://www.ospar.org/content/regions.asp?menu=00020200000000 000000 000000> (viewed: 31.10.2014)