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from shipping activities in the Baltic  
Sea

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# Summary

Growing Russian oil export and an overall growing trade made the Baltic Sea one of the busiest shipping areas in the world, but the marine environment has suffered greatly from this development. Although not solely responsible for this unfortunate development, the International Maritime Organization has addressed this issue by designating the Baltic as a particularly sensitive sea area (PSSA) and a sulphur emission controlled area (SECA). Though sharing the same origin these two instruments differ greatly in their legal nature. The PSSA concept is based on a resolution by the International Maritime Organization (IMO) and the SECA is a part of the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78). This unique combination of environmental instruments in force gives rise to the question of its success.

The PSSA instrument has been extended in scope and additional areas are subject to protection measures. The year 2010 brings about significant changes in the matter of allowed sulphur content in fuel, which will have an impact on the shipping industry operating in the Baltic Sea and the marine environment- to what extent remains to be seen though.

One disadvantage concerning both of the instruments though is the lack of Russia's acceptance. Although this lack differs in strength for the two instruments, it is noteworthy that there is no total consensus between the littoral states, which to a certain extent weakens and threatens the concepts and their effectiveness.

# Acknowledgement

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Finally, I would like to dedicate this thesis to my grandfather, thanks to whom I at a young age got inspired to learn and who made me believe that I could in fact achieve everything I wanted to. With this, I like to honour him, Herbert Steinky, a great Prussian mariner, whose footsteps I seem to follow by sharing his devoted love for the sea.

# Abbreviations

APM	Associated Protective Measures
CO <sub>2</sub>	Carbon Dioxide
EC	European Community
EU	European Union
ECA	Emission Control Area
EEZ	Exclusive Economic Zone
GHG	Greenhouse Gases
HELCOM	Helsinki Commission
HSFO	High-sulphur fuel oil
IHO	International Hydrographic Organization
IMO	International Maritime Organization
LSFO	Low-sulphur fuel oil
MARPOL 73/78	The International Convention for the Prevention of Pollution from Ships 1973 as modified by the Protocol of 1978 relating thereto
MEPC	Marine Environmental Protection Committee
MPA	Marine Protected Area
MSC	Maritime Safety Committee
NAV	Sub-Committee on Safety of Navigation
NGO	Non-Governmental Organization
NO <sub>x</sub>	Nitrogen Oxides
PM	Particulate Matter
OSPAR	Oslo and Paris Convention
PSSA	Particularly Sensitive Sea Area
SECA	Sulphur Emission Controlled Area
SOLAS	Convention for the Safety of Life at Sea
SO <sub>2</sub>	Sulphur Oxide
SO <sub>x</sub>	Sulphur Oxides
TSS	Traffic Separation Scheme

UNCLOS	United Nations Convention on the Law of the Sea
UNEP	United Nations Environment Programme
VOC	Volatile Organic Compound

# 1 Introduction

## 1.1 Purpose

Shipping – which transports 90 per cent of global trade – is, statistically, the least environmentally damaging mode of transport, when its productive value is taken into consideration.<sup>1</sup> With increasing discussions on how cargo is to be transported with as little impact as possible on the environment, shipping will hardly lose competitiveness even if environmental demands are increased. Although shipping activity occurs largely without drama or mishap, it is important to remember that maritime transportation does pose a threat to fragile marine ecosystems and to those who value or depend on the sea.<sup>2</sup>

Generally, it is noteworthy that due to its special characteristics the European marine environment is subject to serious pressure.<sup>3</sup> Known as one of the most polluted seas around the world<sup>4</sup>, the Baltic Sea has greatly suffered from the impact of human activities and merchant shipping. However, the riparian states have taken action. Triggered by several accidents i.e. the *Baltic Carrier* in 2001, the *Prestige* in 2002 and the *Fu Shan Hai* in 2003, the countries adjacent to the Baltic<sup>5</sup> saw a great need for action and applied the concept of Marine Protected Areas (MPA) in order to protect their common sea from potentially harmful effects of human activity. Under the IMO regime, several MPAs are available.

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<sup>1</sup> IMO, “IMO and the environment”, brochure on IMO and the environment, published on the Internet at [http://www.imo.org/includes/blastDataOnly.asp/data\\_id%3D26878/IMOandtheEnvironment2009.pdf](http://www.imo.org/includes/blastDataOnly.asp/data_id%3D26878/IMOandtheEnvironment2009.pdf), last accessed on 5 February 2010, p. 2.

<sup>2</sup> Olof Linden *et al.*, “PSSA in the Baltic Sea: present situation and future possibilities”, Monograph/Research Brief, World Maritime University Sweden, published on the Internet at [http://www.balticmaster.org/media/files/general\\_files\\_706.pdf](http://www.balticmaster.org/media/files/general_files_706.pdf), last accessed 11 February 2010, p. 5.

<sup>3</sup> Veronica Frank, *The European Community and Marine Environmental Protection in the International Law of the Sea*, Leiden 2007, p. 78.

<sup>4</sup> MDR, “Der Ostsee bleibt die Luft weg”, Mitteldeutscher Rundfunk, Newsarticle 10 February 2010, published on the Internet at <http://www.mdr.de/nachrichten/7080909.html>, last accessed on 24 February 2010.

<sup>5</sup> The expression Baltic and the Baltic Sea is interchangeably used.



Today the Baltic Sea is amongst others a PSSA and a SECA, both of which fall into the category of MPA available under the IMO regime.

As Johan Franson from the Swedish Maritime Administration commented upon the designation of the Baltic Sea as a PSSA, “We are trying to send a very clear signal to the international shipping community that everybody should take great care not to damage the Baltic”.<sup>6</sup>

In response to a greater awareness of global warming and climate change, the Baltic Sea was also designated a SECA under Annex VI of the MARPOL 73/78 regime. Currently the North Sea and the Baltic are the only seas where this combination of marine protection areas is in force.

A case study focusing solely on the implementation in the case of the Baltic Sea is conducted before an attempt is made to comment on impacts, effectiveness and legitimacy.

Due to the unique mix of those special areas, it is the purpose of this thesis to assess the outcome and utilization of this mix in terms of possible results.

## **1.2 Disposition**

The thesis starts out by introducing and examining the concepts of PSSA and SECA. Paying special attention to their origin and legal status will help not only to clarify their relationship to each other and to examine their collaboration, but also allows for a comparison. Since eight of the nine riparian States to the Baltic are members of the European Union, relevant EU regulations concerning marine protection areas and a sulphur content cap must be discussed. This disposition is chosen in order to provide thorough insight knowledge of the instruments before conducting an analysis of their implementation in the case of the Baltic Sea. The case study of the Baltic Sea starts out by introducing the Baltic Sea, its unique features and its vulnerability to shipping activities. Further, attention is given to the implementation of both the PSSA and SECA concepts and

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<sup>6</sup> Johnny Rodin, “The Baltic Sea as a Particularly Sensitive Sea Area”, Seminar presentation at the Aleksanteri Institute/ University of Helsinki, 26 March 2009, published on the Internet at [http://www.helsinki.fi/aleksanteri/english/news/events/2009/20090326energy\\_rodin.pdf](http://www.helsinki.fi/aleksanteri/english/news/events/2009/20090326energy_rodin.pdf), last accessed at 12 February 2010, p. 8.

enforcement and compliance systems in place before moving on to a comparing subchapter, where differences and similarities are summarized. Furthermore, an attempt to evaluate these concepts in case of the Baltic is made focusing on outcome and discussing possible impacts. The utilization and further developments of the concepts are discussed before the thesis ends with concluding remarks.

## **1.3 Delimitation**

This thesis focuses solely on the abovementioned special sea areas and their implementation and development in case of the Baltic Sea.

As there exists no single international organization comprehensively dealing with all matters pertaining to the oceans and their use, this thesis will only look at IMO as the recognized UN-organization for matters relating to shipping. Even though the work of other organizations is equally important, this thesis concentrates on ship-sourced pollution and environmental instruments designed to address ship-sourced pollution. The aim is to look into and to compare marine protection measures, implemented to protect the Baltic Sea from shipping activity and only briefly discussing the tools themselves.

Further, the description of the events and conferences leading to the designation of the Baltic Sea as PSSA are kept brief, since the aim of this thesis is rather to look at the utilization of the concepts and how the development can be evaluated.

Keeping in mind that the IMO has not been given the mandate to regulate Carbon Dioxide (CO<sub>2</sub>) emission yet, the discussion about a possible IMO mandate to act upon CO<sub>2</sub> emissions from ships will be kept brief. However, Annex VI of MARPOL 73/78 covers ship sourced pollution namely Sulphur Oxides (SO<sub>x</sub>), Nitrogen Oxides (NO<sub>x</sub>), Volatile Organic Compound (VOC) and Particulate Matter (PM), which address the protection of the marine environment from harmful emissions.

## **1.4 Method and Material**

The traditional legal method is peculiar to legal science coming from its nature. The legal method assists to describe, generalize, classify, and systemize the obtained knowledge by clear and definite language. This method is used when appropriate while searching through literature such as doctrine and articles for information relevant to this matter.

In order to provide sufficient background knowledge, some chapters or sub-chapters are of a descriptive nature. In the case study, when appropriate the use of legal method will help to clarify and systemize certain issues taking advantage of its definite language. Further, the analytic method will supplement where necessary in order to reach a clear conclusion.

Since very little is written about this subject, official documents such as proposals, guidelines, conventions and resolutions are of crucial importance. Statements in newspapers and secondary sources of law helped to complement the information obtained from the legal sources.

# 2 The PSSA concept

## 2.1 Historical Background

The 1972 Stockholm Conference on Human Environment was the first treaty to seriously address environmental protection. Though only covering land-based sources, it left a distinct mark on environmental conventions to come. The Conference itself does not create any legal obligations, but the Conference and the adopted documents pushed for legal initiatives and for the development of legally binding rules.<sup>7</sup> Though not clearly addressing ship-sourced pollution, the Stockholm Declaration recognizes the need to prevent pollution of the marine environment. This is seen in principle two and seven:

Principle 2 promotes a sustainable approach by stating that “*the natural resources of the earth including the air, water, land, flora and fauna and specially representative samples of natural ecosystems must be safeguarded for the benefit of present and future generations through careful planning or management as appropriate.*”<sup>8</sup>

Principle 7 further includes a precautionary approach by stating that “*all States take all possible steps to prevent pollution of the seas by substances that are liable to create hazards to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea*”<sup>9</sup>

Furthermore, principle 24 promotes that only by cooperation between all countries the environment can be improved and protected.<sup>10</sup> The most

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<sup>7</sup> Jonas Ebbesson, “Protection of the Marine Environment of the Baltic Sea: The impact of the Stockholm Declaration”, in Myron Norquist, John Norton Moore and Said Mahmoudi (eds), *The Stockholm Declaration and Law of the Marine Environment*, The Hague 2003, p. 155.

<sup>8</sup> Declaration of the United Nations Conference on the Human Environment, 21<sup>st</sup> Plenary Meeting in Stockholm, 16 June 1972, 11 International Legal Materials 1972, 1416.

<sup>9</sup> *Ibid.*

<sup>10</sup> See Principle 24 of the abovementioned Declaration. As an outcome of Stockholm the Baltic Sea Convention was adopted in 1974 in Helsinki and today replaced with the new Baltic Sea Convention of 1992 and establishes an international regional body to administer a long-term cooperation of the Baltic States- also known as HELCOM.

important result of the Declaration, however, is the addition of a new social value: safeguarding the global environment.<sup>11</sup>

Hence, this Declaration had an impact on ocean governance by drawing attention to the need of protecting the marine environment. New awareness of marine protection arose the following years and can be evidenced by the application of marine protection areas (MPA) found in the MARPOL 73/78 regime by virtue of the special areas. A central element of the MPA concept is the management of human activities and extractive uses taking place in marine areas. The concept is not clearly defined in a legal context but is in the first place based on the United Nations Convention of the Law of the Sea (UNCLOS)<sup>12</sup>; those MPAs available under the IMO regime form a *sui generis* category.<sup>13</sup> However, in relation to shipping, the regulatory regime of the IMO is not restricted to those special MPAs under MARPOL 73/78, but it includes for example the designation of a sea area as a particularly sensitive.<sup>14</sup>

The origin of the term ‘Particularly Sensitive Sea Area’ can be traced back to a Swedish proposal at the International Conference on Tanker Safety and Pollution Prevention in 1978. This proposal (TSPP/CONF/5) called for special protection for ‘areas of particular value because of their renewable natural resources or their importance for scientific purposes.’<sup>15</sup> Emphasizing that this new concept should be complementary to the existing MARPOL 73/78 regime with its special areas, the Swedish proposal requested the IMO to initiate studies to investigate potential areas, their need of protection and measures which could be taken. Resolution 9, adopted at this Conference, endorsed the proposal albeit with some changes to the original text.<sup>16</sup>

Recognizing IMO’s competence Resolution 9 states that the IMO will

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<sup>11</sup> Kiss, “The Destiny of the Principles of the Stockholm Declaration”, p. 64.

<sup>12</sup> Frank, *The European Community*, pp. 331-333.

<sup>13</sup> Frank, *The European Community*, p. 364.

<sup>14</sup> International law offers three main multilateral mechanisms for increasing control over international shipping in particularly vulnerable areas, namely: special areas in the EEZ under Article 211(6) UNCLOS, Special Areas under MARPOL and PSSA under the IMO Guidelines.

<sup>15</sup> TSPP/CONF/5, *Consideration of draft instruments on tanker safety and pollution prevention and related recommendations and resolutions*, submitted by Sweden, 13 January 1978, p. 1.

<sup>16</sup> Gerard Peet, “Particularly Sensitive Sea Areas- a documentary history”, 9 *Int’l J. Marine & Coastal Law*, 1994, p. 475.

“(i) [make] an inventory of sea areas around the world which are in special need of protection against marine pollution from ships and dumping on account of the areas’ particularly sensitivity in respect of their renewable natural resources or in respect of their importance for scientific purposes.

(ii) [asses], inasmuch as possible, the extent of need of protection, as well as the measures which might be considered appropriate, in order to achieve a reasonable degree of protection...”<sup>17</sup>

Although the operative paragraph of Resolution 9 allowed considerable actions to be undertaken, discussions in the Marine Environmental Protection Committee (MEPC) did not commence until 1986. Arguably those discussions were a reaction to the pressure from several non-governmental organizations (NGO) and new maritime catastrophes such as the *Amoco Cadiz*.<sup>18</sup>

In 1990, the Great Barrier Reef was recognized as the first PSSA at the request of Australia. Following the recognition, discussions in 1990 and 1991 resulted in the adoption of the first *Guidelines for the designation of Special Areas and the Identification of Particularly Sensitive Sea Areas* by means of the IMO Assembly Resolution A.720 (17).<sup>19</sup>

### **2.1.1 The PSSA concept**

The main idea behind the PSSA concept is to protect a certain marine area from the harmful damages of shipping activities by putting in place certain protective measures, so called Associated Protective Measures (APMs), tailored to address those damages. It is up to the IMO to decide whether a proposal meets the criteria set up in the Guidelines and to formally designate the area as particularly sensitive. Upon designation the proposing state then enforces those suggested measures that were approved. When an area has been designated as PSSA further measures can be forwarded to the

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<sup>17</sup> TSPP Resolution 9, *Protection of Particularly Sensitive Sea Areas*, adopted 16 February 1978.

<sup>18</sup> Helena Lefebvre-Chalain, “Fifteen Years of Particularly Sensitive Sea Areas: a concept in development”, 13 *Ocean and Coastal Law Journal*, 2007-2008, p. 49.

<sup>19</sup> For a more detailed history of these discussions see Peet, “PSSA-a documentary history”.

IMO by the states bordering the PSSA area.<sup>20</sup> This concept is pursued throughout every revision of the Guidelines.

The 1991 Guidelines define a PSSA as “*An area that needs special protection through action by the IMO because of its significance for ecological, socio-economic or scientific reasons and which may be vulnerable to damage by international shipping.*”<sup>21</sup>

Accordingly, in order to justify the identification of a PSSA, the Guidelines list several criteria, only one of which needs to be fulfilled: ecological; social, cultural and economic; and scientific and educational.

The 1991 Guidelines identify a number of special protective measures, APMs, for the protection of PSSAs. The list of APMs is not exhaustive but rather an indication of the broad scope of measures that may be considered as long as in the purview of the IMO.

Once an area is approved it needs sufficient protection: Metaphorically speaking a PSSA is an empty vessel, since the designation entails no automatic protective instrument.<sup>22</sup> In fact its regime resembles a management mechanism that provides for housing of all kinds of different protective measures under a single administrative roof.<sup>23</sup>

The PSSA Guidelines were designed to assist in providing guidance to IMO Member governments in the formulation and submission for designation of PSSAs and in general aim to:

- .1 *ensure that in the process, all interests [...] are thoroughly considered on the basis of relevant scientific technical economic and environmental information regarding the area at risk of damage from international shipping activities and the protective measures to minimize the risk; and*
- .2 *provide for the assessment of such applications by IMO.*<sup>24</sup>

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<sup>20</sup> BalticMaster, “Vision of PSSA 2020”, p. 3, published on the Internet at [http://www.balticmaster.org/media/files/general\\_files\\_687.pdf](http://www.balticmaster.org/media/files/general_files_687.pdf), last accessed on 12 March 2010.

<sup>21</sup> IMO Resolution A. 720(17), *Guidelines for the Designation of Special Areas and the Identification of Particularly Sensitive Sea Areas*, adopted 6 November 1991.

<sup>22</sup> Kachel, *Particularly Sensitive Sea Areas*, p. 156.

<sup>23</sup> *Ibid.*

<sup>24</sup> IMO, *PSSA- Particularly Sensitive Sea Areas- Compilation of official guidance documents and PSSAs adopted since 1990*, London 2007, p. 1.

It was further decided that the only way a marine area could become recognized as a PSSA was by an IMO recommendation since it considerably imposed on the right of free passage. International support for the PSSA concept followed shortly thereafter. However, due to the arduous and complex structure of the Guidelines, the archipelago of Sabana-Camagüey was the only area to be recognized as a PSSA on the basis of Resolution 720(17) after a Cuban proposal in 1997.<sup>25</sup>

## 2.1.2 Development of the concept

As originally envisioned, IMO resolutions were to be regularly revised<sup>26</sup>: As was the case of the PSSA concept. The unwillingness to utilize the Guidelines resulted in several meetings of experts.

The first revisions to the identification and determination measures for PSSAs began in 1999 with the amendments to Res. 720(17) that were embodied in Resolution 885(21). They provided tailored protection to PSSA and removed the basic concern that the mere designation of an area worthy of protection could lead to mere encroachment on navigational rights.<sup>27</sup>

However, in 2000 no additional proposal had been submitted to the IMO, and concerns about the usability remained putting pressure on delegates to finish the review process. Finally, in November the Assembly adopted new Guidelines in Resolution 927(22) and revoked both previous resolutions. The 2001 Guidelines divided MARPOL special areas and PSSAs into two separate sections. A detailed procedure for identification of such marine areas and for the application of appropriate protective measures tailored to the threat was now in place. It also articulated a legal basis for the APMs to be adopted.

It was hoped for that this updated instrument would lead to an increasing number of applications, which it did. Within the following four years and reacting to the *Prestige* incident in 2002, nine additional PSSAs were

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<sup>25</sup> Lefebvre-Chalain, “Fifteen Years of PSSA”, p. 50.

<sup>26</sup> *Ibid.*

<sup>27</sup> Ashley Roach, “Particularly Sensitive Sea Areas: Current Developments”, in Myron Norquist, John Norton Moore and Said Mahmoudi (eds), *The Stockholm Declaration and Law of the Marine Environment*, The Hague 2003, p. 313.



designated.<sup>28</sup> This increasing submission trend prompted a strong reaction by maritime States and the industry worrying about the negative repercussion of these initiatives on the traditional freedom of navigation.<sup>29</sup>

In 2004, the Russian Federation, Liberia and Panama supported by the shipping industry called for a revision of the Guidelines arguing that amongst others the existing Guidelines were easily misused due to its broad and vague wording and open to different and excessively liberal interpretations.<sup>30</sup> One other major criticism was the two step approach, meaning that an area could be designated in principle and APM proposals could be handed in within a two year timeframe leaving a certain degree of uncertainty.

The objective of the revision was to clarify and when appropriate strengthen certain aspects and procedures for the identification and designation of a PSSA and the adoption of APMs therein. Although a number of delegations expressed their disappointment with the outcome of the review<sup>31</sup>, a final text was subsequently agreed upon and forwarded to the Assembly in December 2005, when Resolution 982(24) was formally adopted. It is important to note that the concept as such did not change and the later discussed consequences of a designation remain the same for both the 2001 and 2005 Guidelines.

### **2.1.3 Content**

Resolution 982(24) can be regarded as a revision of Appendix II of Resolution 927(22). The 2005 Guidelines attempt to clarify the PSSA concept, by shortening the text when appropriate and changing the wording in several places. It depicts the identification and designation of PSSA exclusively and is thereof no longer coupled with guidelines establishing the

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<sup>28</sup> For a list of all designated PSSA, APMs and the relevant MEPC resolution see Appendix 1.

<sup>29</sup> Frank, *The European Community*, p. 370.

<sup>30</sup> MEPC 51/8/3, *Identification and Protection of special areas and Particularly Sensitive Sea Areas*, submitted by Liberia, Panama and the Russian Federation, 23 January 2004 and MEPC 51/8/4, *Identification and Protection of special areas and Particularly Sensitive Sea Areas*, submitted by BIMCO, ICS, INTERCARGO, INTERTANKO, OICF and IPTA, 4 February 2004.

<sup>31</sup> For an in depth discussion, see Kachel, *PSSA*, pp. 161-163.

designation of special areas under MARPOL 73/78. It explicitly states though, that a PSSA may be identified within a MARPOL 73/78 Special Area and vice versa.<sup>32</sup>

According to 1.2 of the Annex a PSSA is now defined as ‘*an area that needs special protections through action by IMO because of its significance for recognized ecological, socio-economic or scientific attributes where such attributes may be vulnerable to damage by international shipping activities*’<sup>33</sup>.

It continues to explain, that ‘*at time of designation of a PSSA, an associated protective measure, which meets the requirements of the appropriate legal instrument establishing such measure, must be approved or adopted by IMO to prevent, reduce or eliminate the threat or identified vulnerability*’.

To be designated as a PSSA, an area first of all has to meet certain criteria that render it particularly sensitive. A list of 17 criteria<sup>34</sup> is incorporated in the Guidelines and at least one of them needs to be fulfilled. Those 17 characteristics can further be divided into three sub-categories, namely ecological criteria, socio economic criteria and scientific criteria.<sup>35</sup> The objective behind these numerous criteria is to adopt a broad definition applicable to many special characteristics of as many maritime zones as possible.

An area may be designated with the PSSA status “within and beyond limits of the territorial sea”. Hereby the Guidelines explicitly do not impose restriction on the size of an area.<sup>36</sup>

The Guidelines identify three main elements of a PSSA, which are inextricably linked: attributes to the areas, vulnerability of the area to international shipping and APMs available to address identified threats. It follows that an area must be vulnerable to threats posed by international

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<sup>32</sup> IMO Resolution A. 982(24), *Revised Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas*, adopted 1 December 2005, para. 4.5.

<sup>33</sup> IMO Resolution A. 982(24), *Revised Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas*, adopted 1 December 2005.

<sup>34</sup> See para. 4.4.1-4.4.17.

<sup>35</sup> *Ibid.*

<sup>36</sup> According to para 4.5 a PSSA may be identified within a Special Area under MARPOL 73/78 and „vice-versa“. Since special areas may include entire regional seas (e.g. the Baltic or the Mediterranean), it follows that a PSSA may also have rather extended dimension. See Frank, *The European Community*, p. 371.

shipping. In order to assess the impact of shipping, the Guidelines also include both vessel traffic characteristics and natural factors that should be taken into account.<sup>37</sup> The risk from international shipping is amplified by seven factors which should be taken into consideration when determining the area's vulnerability.<sup>38</sup>

An application needs to identify the legal basis for the desired APM and clarifies under 7.5.2 where this legal basis is to be found: The measures associated with a potential designation may vary, but must have been or must be accepted by either the IMO or by the Maritime Safety Committee (MSC). The choice of other possible measures is restricted in so far as they have to be measures envisaged by existing IMO instruments or measures that aim to protect maritime zones against damage caused by shipping, provided they have an identifiable legal basis. Any proposed measure is assessed by the competent IMO committee taking into account all interests involved. The adoption requires consent in the international community through the approval by the MEPC and the Assembly, as the designation is formulated in an Assembly Resolution.

In order to maintain flexibility, the Resolution allows for different levels of restrictions<sup>39</sup>: particular AMPs may be combined in different ways in order to guarantee that the measures chosen target the potential risk specific to the area in question. It is also important to mention that measures can be modified, supplemented or removed as long as the IMO agrees to the relevant changes.<sup>40</sup> Proponent states must submit at least one suggestion within two years. If none are suggested, the state must however demonstrate how existing IMO measures protect the area already.<sup>41</sup>

The Guidelines further provide for detailed guidance for the submission of PSSA proposals in Annex II, which a state or several states need to follow, if they wish to have a special zone recognized as a PSSA.

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<sup>37</sup> Markus Kachel, *Particularly Sensitive Sea Areas- The IMO's Role in Protecting Vulnerable Marine Areas*, Berlin 2008, pp. 155-156.

<sup>38</sup> See para. 5.1.1-5.1.7.

<sup>39</sup> Lefebvre-Chalain, "Fifteen Years of PSSA", p. 55.

<sup>40</sup> Ecuador for example was able to submit a request for revision to the IMO. See para. 7.3.

<sup>41</sup> Linden *et al.*, "PSSA in the Baltic Sea", p. 10.

## 2.1.4 Benefits

In compliance with paragraph 9 upon successful designation, all APMs should be identified on charts in accordance with the symbols and methods of the International Hydrographic Organization (IHO). As a necessity mariners need to be aware of new PSSAs. The call for identification of APMs on charts meets that need in as much as carrying “adequate and up to date charts” to assist in navigation as required under Regulation V/20 of the Convention for the Safety of life at Sea (SOLAS).

Notwithstanding the protection that can be provided by the application of specific APMs to address an identified vulnerability, global recognition of the special significance through charts is a surplus not only in respect to SOLAS compliance: It furthermore adds an intrinsic value in its own right<sup>42</sup> by informing mariners of the importance of taking extra care when navigating through a PSSA. In the long run it could even be possible that courts will come to expect a higher standard of conduct in such areas.<sup>43</sup>

In the case of the designation of the Great Barrier Reef it was reported, that the identification as a PSSA had served as a symbol for environmental sensitivity of the area and that it had considerably assisted the enforcement of related protected measures.<sup>44</sup> A feasibility study for the Wadden Sea PSSA confirmed that one major effect was the increase of public awareness on marine environmental issues. Due to the designation, all stakeholders were identified and communication between these otherwise not always on daily basis co-operating institutions and authorities were improved.<sup>45</sup> This indicates that PSSAs can further provide for better cooperation and information sharing among stakeholders.<sup>46</sup>

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<sup>42</sup> Roberts, *Marine Environment*, p. 185.

<sup>43</sup> Kristina Gjerde, Jamie Storrie and Billy Causey, “Particularly Sensitive Sea Areas: Using a Comprehensive Planning Tool to Protect Habitats from Shipping”, 3 *International News and Analyses on Marine Protected Areas* 8, 2002, p. 2.

<sup>44</sup> Lynda Warren and Mark Wallace, “The Donaldson Inquiry and its Relevance to Particularly Sensitive Sea Areas”, 9 *Int’l J. Marine & Coastal Law*, 1994, p. 528.

<sup>45</sup> Linden *et al.*, “PSSA in the Baltic Sea”, p. 19.

<sup>46</sup> Linden *et al.*, “PSSA in the Baltic Sea”, p. 21.

However, IHO standards were not available at the time the PSSA instrument was introduced. It has taken IHO a long time to elaborate adequate charting standards and has only recently finalized new standards.<sup>47</sup>

Further according to the Resolution, proposing states are encouraged to ‘ensure that any APM is implemented in accordance with international law as reflected in UNCLOS’.<sup>48</sup> All other Member States on the other hand ‘should take all appropriate steps to ensure that vessels flying their flag comply with the APMs protecting the designated PSSA’.<sup>49</sup>

Furthermore, with this concept Coastal States are given the opportunity to adopt special protective measures that best address the particular risk associated with international shipping in the area.<sup>50</sup> The concept provides further for a suitable framework when wishing to assess possible tailored environmental protection from shipping activities in an area.

The establishment of a PSSA could also justify the adoption of measures that have not received general acceptance and which are not regulated in any IMO Convention. In principle, there is no limit to the kind of measures that the IMO may approve or adopt on the PSSA as long as they have a clear legal basis in UNCLOS or other IMO instruments and enter within the competence of the organization.<sup>51</sup> Once approved, APMs have to be implemented in accordance with international law as reflected in UNCLOS and are legally binding. The Coastal State may therefore enforce them consistently with the Convention vis-à-vis all ships transiting the area.

Although, there is much to gain from the designation for example the intrinsic value, public awareness, a better cooperation between authorities and a clear marking on charts, criticism has been raised as to the lengthy designation process.

State practice shows that states have unfortunately been hesitant to make use of this tool since until today only 11 areas have PSSA status. Both New Zealand and the USA for example have opted to adopt protective routeing

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<sup>47</sup> Kachel, *Particularly Sensitive Sea Areas*, p. 176.

<sup>48</sup> Para. 9.2.

<sup>49</sup> Para. 9.3.

<sup>50</sup> Kristina Gjerde, “Protection Particularly Sensitive Sea Areas from Shipping: A Review of IMO’s New PSSA Guidelines”, 43 *Bundesamt für Naturschutz*, 2001, p. 123.

<sup>51</sup> Frank, *The European Community*, p. 373.

measures instead of utilizing the PSSA concept.<sup>52</sup> This seems like an unfortunate development and should be of concern to the IMO. It calls for further highlighting of the benefits to be gained and a revision of the designation process. After all there is no sense of having a tool that is not utilized properly due to procedural hazards.

## 2.2 The legality of the PSSA concept

Being a resolution the designation of an area as a PSSA lacks legal significance and is not legally binding. The concept is not set forth in any convention and remains an IMO Assembly resolution of recommendatory nature. As Peet notes:

*'Identification as a PSSA is nothing more (and nothing less) than a qualification and a basis on which protective measures may be taken through IMO measures.'*<sup>53</sup>

Clearly, resolutions are not law in the sense used in Art 38 of the International Court of Justice Statute, but they do not lack all authority. Preceding the final resolution are negotiated and drafted statements, intended to have some normative significance. As Birnie argues 'there is at least an element of good faith commitment, an expectation that [the resolution ] will be adhered to and in many cases a desire to influence the development of state practice[...]'.<sup>54</sup>

Further, as Efthimios Mitropoulos elaborates 'decisions within the organization are taken by consensus. [...] thus, the agreement by consensus means that all countries have a stake in those measures and a genuine desire to exercise the responsibility that comes with a sense of ownership'.<sup>55</sup>

Consensus and transparency were applied in the PSSA concept<sup>56</sup> and even

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<sup>52</sup> Julian Roberts, "Protecting Sensitive Marine Environments: The Role and Application of Ships' Routing Measures", 20 *International Journal of Marine & Coastal Law*, 2005, pp. 151-153.

<sup>53</sup> Peet, "PSSA- documentary history", pp. 469-470.

<sup>54</sup> Patricia Birnie, Alan Boyle/ Catherine Redgwell, *International Law & the Environment*, Oxford 2009, p. 34.

<sup>55</sup> Efthimios Mitropoulos, "United we stand, focused and relevant we remain", *Lloyds List*, 29 January 2008, published on the Internet at [http://www.imo.org/includes/blastDataOnly.asp/data\\_id%3D20979/Unitedwestand.pdf](http://www.imo.org/includes/blastDataOnly.asp/data_id%3D20979/Unitedwestand.pdf), last accessed on 9 March 2010.

<sup>56</sup> Anna Peterson, "PSSA- Naturresevat till havs?", Promemoria in environmental Law at the university of Lund, unpublished, used in consent with the author, p. 5.

though it might not be legally binding in a stricter sense, the Resolution has significance and relies on good faith commitment.

The question now arises whether the concept has a legal basis. A lack thereof would lead to a weakness of the concept in terms of enforceability.

In case of the PSSA resolution, the concept can be viewed as fulfilling general obligations under UNCLOS and a number of other treaties designed to protect the marine environment.<sup>57</sup>

Art 192 states:

*'States have the obligation to protect and preserve the marine environment.'*

Art 194 further enlists the measures that states shall use in order to prevent, reduce and control the pollution of marine environments. Art 194 (5) for example places an obligation on parties to take measures necessary to protect and preserve rare and fragile ecosystems.<sup>58</sup>

Thus, since the PSSA concept fulfills the obligations hereunder Art 192 and 194 provide a legal basis. Additionally, the designation of a PSSA may also be considered to be giving effect to the obligation under Art 211(1). It states that:

*'States, acting through the competent international organization or general diplomatic conference, shall establish international rules and standards to prevent, reduce and control pollution of the marine environment from vessels and promote the adoption, in the same manner, wherever appropriate, of routing systems designed to minimize the threat of accidents.'*

The PSSA Guidelines are aimed to protect a certain area from marine pollution and dumping. By implementing APMs the marine environment is to a certain extent protected from pollution by creating safer navigation patterns.

There has been extensive discussion whether or not Art 211(6) provides for a legal basis for the PSSA concept as well.<sup>59</sup> It reads:

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<sup>57</sup> These other Conventions outside the auspice of IMO include the Convention on Biological Diversity 1992, Convention concerning the Protection of the World Cultural and Natural Heritage 1972, and Ramsar Convention on the Protection of Wetlands of International Importance 1971.

<sup>58</sup> See Art 194 (5) UNCLOS.

<sup>59</sup> For detailed summary of these discussions see Roberts, *Marine Environment*, pp. 99-102.

*‘Where the international rules and standards ... are inadequate to meet special circumstances and coastal States have reasonable grounds for believing that a particular, clearly defined area of their respective exclusive economic zones is an area where the adoption of special mandatory measures for the prevention of pollution from vessels is required ... coastal States may, for that area, adopt laws and regulations for the prevention, reduction and control of pollution from vessels...’*

Some argue, as the wording implicates, this provision concerns truly exceptional situations justifying an even more far reaching regulatory intervention<sup>60</sup>, rendering this article not applicable to the concept.

In past discussions within the IMO Art 211 (6) was generally considered a potentially useful tool to develop protection mechanisms for certain but not all PSSA within the Exclusive Economic Zone (EEZ).<sup>61</sup> The latter argumentation convinces: Art 211(6) relates firstly to areas within the EEZ whereas the PSSA concept has no clear size regulation and secondly it also only refers to oceanographic and ecological criteria. The PSSA concept on the other hand extends its scope by including socio-economic and scientific criteria. Hence, Art 211(6) seems to be a weak legal basis for the concept as a whole since it is only applicable in context of certain PSSA. But it fits very well as a legal basis for APMs. As others debated in the discussion about Art 211(6), it does provide one of several legal foundations for the adoption of APMs that are established to provide protection to the PSSA.<sup>62</sup> The APMs will result in changes on ship operation and hence, they must have a legal basis which is emphasized in paragraph 7<sup>63</sup> and Art 211(6) provides just such a legal basis. Kachel even argues, that those APMs that do not have a legal basis in existing multilateral treaties can become binding insofar as they constitute “generally accepted international rules and standards”, a term which is used by UNCLOS in so-called rules of reference.<sup>64</sup>

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<sup>60</sup> Linden *et al.*, “PSSA in the Baltic Sea”, p. 12.

<sup>61</sup> MEPC 36/21/4, *Report of the third international meeting of legal experts on particularly sensitive sea areas*, submitted by the IMO Secretariat, 4 August 1994, para. 5.2.2.

<sup>62</sup> Roberts, *Marine Environment*, p. 102.

<sup>63</sup> See para.7.5.2.3.

<sup>64</sup> Kachel, *Particularly Sensitive Sea Areas*, p. 282.



UNCLOS furthermore creates an overall structure in part XII for the protection and preservation of the marine environment and a general obligation for States to implement and elaborate upon this structure through both global conventions addressing particular forms of pollution and regional agreements tailored to the requirements of discrete sea areas.<sup>65</sup>

Despite a series of discussions and a clear lack of understanding over the legal issues associated with the designation of a PSSA, the IMO has not yet adopted guidelines to clarify these insecurities.

In conclusion as a Resolution this instrument is not legally binding on its own but fulfills general obligations stated in UNCLOS, which strengthens the concept in terms of enforceability. The PSSA status confers no regulatory benefits by itself<sup>66</sup>, but achieves that through the APMs.

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<sup>65</sup> Australian Maritime Safety Authority, "Particularly Sensitive Sea Areas", ACT Australia, June 2008, p. 1, published on the Internet at [http://www.amsa.gov.au/publications/Fact\\_sheets/PSA\\_fact.pdf](http://www.amsa.gov.au/publications/Fact_sheets/PSA_fact.pdf), last accessed on 28 March 2010.

<sup>66</sup> Julian Roberts, "Protecting Sensitive Marine Environments", p. 142.

# 3 The SECA concept under MARPOL 73/78 Annex VI

## 3.1 Introductory remarks

Before taking a closer look at the concept of SECAs, it seems important to give some background information on the context of those areas. Therefore, after briefly describing the problems arising of ship sourced emissions, Annex VI is introduced.

### 3.1.1 Climate change and shipping industry

Exhaust emission from marine diesel engines not only contain the Greenhouse Gas CO<sub>2</sub> but it also comprises nitrogen, oxygen and water vapor, with smaller quantities of carbon monoxide, SO<sub>x</sub>, NO<sub>x</sub>, partly-reacted and non-combusted hydrocarbon and PM.<sup>67</sup> Pollutants such as NO<sub>x</sub>, SO<sub>x</sub> and PM have been linked to a variety of adverse public health outcomes, including increased risk of premature death from heart and pulmonary diseases and worsened respiratory disease.<sup>68</sup> Marine emission sources are therefore responsible for a growing share of public health impacts of exposure to air pollution in many regions, especially port areas and countries with extensive coast lines.

When SO<sub>x</sub> and NO<sub>x</sub> dissolve in water they create acid rain and contribute to the problem of ocean acidification and eutrophication, which disturb the marine ecosystem by leading to oxygen depletion.

CO<sub>2</sub>, SO<sub>x</sub> and NO<sub>x</sub> are all released when burning fossil fuels. Oceangoing ships generally use bunker fuel, a fuel that contains a high level of contaminants: the average fuel contains for example 27,000 ppm of

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<sup>67</sup> Nestor Perez, *Impact of the New Annex VI of MARPOL and its Entry into Force*, Diss. Msc WMU, Malmoe 1999, p. 11.

<sup>68</sup> International Council on Clean Transportation, "Air Pollution and Greenhouse Gas Emissions from Ocean-going Ships", Executive Summary, 2007, published on the Internet at [www.theicct.org/documents/MarineES\\_Final\\_Web.pdf](http://www.theicct.org/documents/MarineES_Final_Web.pdf), last accessed on 20 March 2010.

sulphur<sup>69</sup>, which is almost 2,000 times as much as would be allowed in trucks operating on road.

Despite environmental changes in the sea, climate change has also an impact on the navigation. One assumption, not yet proven though, is that an increase of temperature results in more frequent and severe storms affecting the ports and planning of routes.<sup>70</sup> In an extreme scenario it could even be necessary to revise certain routes in an economic unfavourable way.

Possible effects of climate change are warmer seas, increasing the risk of invasive species transported in the ballast water and putting a crucial role on anti-fouling systems, unpredictable weather patterns and a rise of sea level<sup>71</sup>, all of which are challenging the shipping industry.

One has to bear in mind that the overall levels of Greenhouse Gases (GHG) and other emissions from shipping are not governed by shipping itself but mainly by the global demand for ship borne trade and its unique position in the transport sector as indicated above; Without shipping, it would simply not be possible to conduct intercontinental trade, the bulk transport of raw material or the import and export of affordable food and manufactured good.<sup>72</sup>

As shown, not only CO<sub>2</sub>, but also NO<sub>x</sub>, SO<sub>x</sub> and PM emissions are the villains in this drama. Inevitably, it all comes down to the fact that our modern society depends on a transport system, which heavily relies on fossil fuel based energy that keeps ports and ships running.

### **3.1.2 IMO's mandate to regulate emissions**

The shipping sector and climate change share 'globality' as a common characteristic. This implies that this problem demands a global solution.

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<sup>69</sup> James McCarthy, "Air Pollution and Greenhouse Gas Emissions from Ships", Congressional Research Service, 2009, p. 1, published on the Internet at [http://assets.opencrs.com/rpts/RL34548\\_20090224.pdf](http://assets.opencrs.com/rpts/RL34548_20090224.pdf), last accessed on 20 March 2010.

<sup>70</sup> Peter Ehlers, "Effects of Climate Change on Maritime Transportation", in Bellefontaine/Linden (eds), *Impacts of Climate Change on the Maritime Industry*, Malmö 2008, p. 50-51.

<sup>71</sup> For further information see the presentation given by INTERTANKO, "Possible Effects of climate Change on the Shipping Industry", WMU Climate Change Workshop, Malmö, June 2007.

<sup>72</sup> Efthimos Mitropolous, "A global Problem need a Global Solution", in Bellefontaine/Linden (eds), *Impacts of Climate Change on the Maritime Industry*, Malmö 2008, p. 12.

This approach is widely accepted by experts around the world. Looking at it from a legal perspective though, there has been a discussion on whether the IMO has the competence to act upon air pollution from ships. When it comes to NO<sub>x</sub> and SO<sub>x</sub> gases there is no doubt concerning the mandate of the IMO. Through ship's emission, those gases move upwards into the atmosphere, but they eventually come down in form of acid rain entering the sea and harmfully disrupting the marine environment. It has been argued though, that GHG like CO<sub>2</sub> for instance emitted by ships solely harm the atmosphere and therefore do not fall within the scope of IMO's mandate.<sup>73</sup>

Even though GHG emissions do not directly harm the marine environment, climate change does have an impact on the marine environment. If remotely or not can be argued, but it cannot be denied that the exhaust emission from ships lead to an increase of CO<sub>2</sub> and therefore contribute to climate change. In the interest of preserving the human environment in general it is thus desirable for IMO to legislate through MARPOL 73/78 Annex VI CO<sub>2</sub> and other emissions from ships.<sup>74</sup>

The contribution to a global problem should naturally come with the responsibility to act upon it. This responsibility is recognized in Art 2.2 of the Kyoto Protocol<sup>75</sup>, which states

*“The Parties included in Annex I shall pursue limitation or reduction of emissions of greenhouse gases not controlled by the Montreal Protocol from aviation and marine bunker fuels, working through the International Civil Aviation Organization and the International Maritime Organization, respectively.”*

Therefore, as the prevailing opinion also agrees, tackling even GHG emission should fall within the mandate of the IMO. The much desired consensus on whether or not the IMO should be in charge of regulating CO<sub>2</sub>

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<sup>73</sup> For a detailed discussion on this matter see Mukherjee, Proshanto and Xu, Jingjing, “The Legal Framework of Exhaust Emissions from Ships: A Selective Examination from a Law and Economics Perspective”, in Bellefontaine/Linden (eds), *Impacts of Climate Change on the Maritime Industry*, Malmoe 2008, pp. 77-79.

<sup>74</sup> Mukherjee/Xu, p. 79.

<sup>75</sup> The Kyoto Protocol establishes legally binding commitments for the reduction of four greenhouse gases and two other groups of gases produced by "Annex I" (industrialized) nations, as well as general commitments for all member countries. As of January 2009, 183 parties have ratified the protocol, which was initially adopted on 11 December 1997 in Kyoto, Japan and which entered into force on 16 February 2005.

emissions could not be reached at United Nations Framework Convention on Climate Change in Copenhagen. The Copenhagen Accord<sup>76</sup> does not mention shipping, meaning that the official regulatory responsibility for GHG like CO<sub>2</sub> emitted by international marine bunker fuels has not been given to the IMO-yet.

### **3.1.3 Background information on Annex VI**

The initiative of sulphur emission reduction dates back to the Stockholm Convention where an effort was made to address acidification through international cooperation. Finally in 1988, it entered the IMO agenda. Due to a submission by Norway, which already had been experiencing pollution effects like acid rain, work on the control of airborne emissions from shipping activities began and lead to the adoption of Annex VI to the MARPOL 73/78 Convention in 1997. This new voluntary Annex deals with the prevention of air pollution from ships. It entered into force on 19 May 2005 with the ratification of 25 States representing 50 % of the world tonnage. As of today, Annex VI has been adopted by 59 countries, representing approximately 84.23 % of the gross tonnage of the world's merchant shipping fleet.<sup>77</sup> Once in force in each country, the Annex VI standards are retroactive to January 1, 2000. At its 58<sup>th</sup> session MEPC though decided to adopt amendments to the Annex to further reduce harmful emissions from ships. The revised Annex VI will enter into force on 1 July 2010, under the tacit acceptance amendment procedure.

### **3.1.4 MARPOL Annex VI – The Regulations**

This Annex consists of three chapters and five appendices and is a very technical Annex, which interacts with the NO<sub>x</sub> Technical Code. It is applicable virtually to all ships in both domestic and international trade,

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<sup>76</sup> The agreement reached at this Conference is called the Copenhagen Accord and is published on the Internet at <http://www.denmark.dk/en/menu/Climate-Energy/COP15-Copenhagen-2009/Selected-COP15-news/A+Copenhagen-Accord-it-is.htm>, last accessed at 10 June 2010.

<sup>77</sup> IMO, "Status of Convention", as of 28 February 2010, published on the Internet at [http://www.imo.org/conventions/mainframe.asp?topic\\_id=247](http://www.imo.org/conventions/mainframe.asp?topic_id=247), last accessed on 15 June 2010.

except where expressly provided otherwise, setting limits on SO<sub>x</sub> and NO<sub>x</sub> emissions from ships exhaust and prohibiting deliberate emission of ozone depleting substances. It is also applicable to fixed and floating drilling rigs and other platforms.

Regulation 14 requires that no fuel oil on ships shall exceed 4.5 % of SO<sub>x</sub>. A bunker delivery note and a representative sample from each bunkering are mandatory to document the sulphur content in the fuel. Further, SECAs are introduced in context of regulation 14. Here the sulfur content in fuel shall not exceed 1.5 %. These regulations are necessary, since SO<sub>x</sub> will react with the moisture in the air causing acid rain. Regulation 14 also sets out the Baltic Sea as a SECA meaning that with the entry into force of Annex VI, the Baltic Sea automatically was designated as a SECA. This was a result of a request made by the Baltic countries under the auspice of the Helsinki Commission (HELCOM).

Chapter III sets out specific requirements for the prevention of air pollution from ships. According to Regulation 13 for instance, the operation of a diesel engine is prohibited, except when the emission of NO<sub>x</sub> from the engine falls within certain limits based on the total weighted emission of NO<sub>2</sub>. NO<sub>x</sub> is a very harmful substance when combined with air: It oxidizes in the air, reacts with the moisture and turns into very corrosive acid rain. In this same reaction NH<sub>3</sub> is formed, which is a fertilizer. Further, under the influence of sunlight volatile substances and NO<sub>x</sub> form a low level of ozone, which is dangerous to the lungs if inhaled, is reactive with the flora and to substances that are sensitive for oxidation.<sup>78</sup> This regulation though addresses mainly the design of an engine rather than “end of stack” emission rates.<sup>79</sup>

Chapter III further regulates the fuel oil quality (Reg. 18), pollution from ozone depleting substances (Reg. 12), volatile organic compounds (Reg. 15), incineration (Reg. 16) and reception facilities for ozone depleting

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<sup>78</sup> Taken from a presentation given by Jan-Åke Jönsson, lecture on MARPOL Annex VI, 15 May 2009, p. 4.

<sup>79</sup> American Bureau of Shipping (ABS), “Guide to Ship- owners – Understanding MARPOL Annex VI”, p. 6, published on the Internet at [www.eagle.org/eagleExternalPortalWEB/ShowProperty/BEA%20Repository](http://www.eagle.org/eagleExternalPortalWEB/ShowProperty/BEA%20Repository), last accessed on 21 May 2009.

substances (Reg.17). Compliance can be controlled by initial, intermediate or periodical surveys by a Port State. Special certificates will be issued to confirm compliance. In case of non-compliance Annex VI allows for legal actions, which is a significant feature of this Annex. In Germany a fee up to 50,000 € can be issued for example.

### 3.1.5 The revised Annex VI

In July 2005 the Marine Environment Protection Committee instructed the Sub-Committee on Bulk Liquids and Gases to review Annex VI. This reaction was driven by many proposals by governments, the industry and NGO's. At that time it was widely acknowledged by marine engine manufacturers that different technological improvements now exist that would enable significant improvement over the existing standards found in Annex VI.<sup>80</sup> Encouraged by these developments and taking into account the adverse effect of marine diesel engine emission, the Committee was asked to initiate a discussion to explore what reductions may be feasible in light of developments since 1997.<sup>81</sup> At its 58<sup>th</sup> session in October 2008 MEPC adopted a revised Annex VI, which will enter into force on 1 July 2010. The main changes include:<sup>82</sup>

- A progressive reduction in SO<sub>x</sub> emissions from ships, with the global sulphur cap reduced initially to 3.5 % (from the current 4.5 %), effective from 1 January 2012; then progressively decreasing to 0.5 %, effective from 1 January 2020, subject to a feasibility review to be completed no later than 2018. Due to this significant reduction of the sulphur content in fuel oil new provisions have been included which require parties to take all reasonable steps to promote the availability of compliant fuel oils

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<sup>80</sup> MEPC 53/4/4, *MARPOL Annex VI - Proposal to initiate a revision process*, submitted by Finland, Germany, Italy, the Netherlands, Norway, Sweden and the United Kingdom, 15 April 2005.

<sup>81</sup> *Ibid.*

<sup>82</sup> The following four major changes are more or less directly taken from the IMO homepage at [http://www.imo.org/environment/mainframe.asp?topic\\_id=233](http://www.imo.org/environment/mainframe.asp?topic_id=233), last accessed on 13 March 2010.

in its ports and terminals. Parties are obligated to inform IMO of that availability.<sup>83</sup>

- The limits applicable in SECAs will be reduced to 1.0 %, beginning on 1 July 2010 (from the current 1.5 %); being further reduced to 0.1 %, effective from 1 January 2015. In non-SECA zones, beginning in 2020, vessels will be required to use fuel with at most 5000 ppm sulphur pending a fuel availability review in 2018.<sup>84</sup> Despite a number of submissions proposing a relaxation of the criteria for designation of SECAs, many of them suggesting a world-wide SECA, the Committee concluded that the criteria should not be revised.<sup>85</sup>
- The SECA concept is further expanded in this revised Annex and besides SECAs now Emission Control Areas (ECA) are available as an instrument. Emission Control Areas can be designated for SO<sub>x</sub>, particulate matter, or NO<sub>x</sub>, or all three types of emissions from ships, subject to a proposal from a Party or Parties to the Annex, which would be considered for adoption by the Organization, if supported by a demonstrated need to prevent, reduce and control one or all three of those emissions from ships.

Though drastic, this was a much desirable revision according to Mr. Johan Franson, retired Director of Maritime Safety of the Swedish Maritime Administration.<sup>86</sup>

## 3.2 A closer look at the SECA concept

According to the original Annex VI the objective of SECAs is to prevent, reduce and control air pollution from SO<sub>x</sub> emission from ships and their attendant adverse impacts on land and sea areas. Those impacts are more

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<sup>83</sup> American Bureau of Shipping, “International Regulation News Update”, November 2008, p. 3, published on the Internet at [www.eagle.org](http://www.eagle.org), last accessed on 22 March 2010.

<sup>84</sup> Eric Rothenberg/ Robert Nicksin, “Latest Developments in International Maritime Environmental Regulation”, 33 Tul. Mar. L.J. 137, 2008, pp. 145-146.

<sup>85</sup> American Bureau of Shipping, 2008, p. 2.

<sup>86</sup> Presentation given by Johan Franson, “Current Advancements in Marine Environmental Protection at the IMO”, World Maritime University, Malmoe, May 2009.



detailed elaborated on in the revised Annex: Impacts from NO<sub>x</sub>, SO<sub>x</sub> and PM from ocean going ships contribute to ambient concentrations of air pollution<sup>87</sup> affecting public health in various ways and contributing to acidification and eutrophication. The emission of SO<sub>x</sub> is amongst others a major contributor to acidification since 1972. Furthermore, SO<sub>x</sub> emissions from ships were the largest pollutant in 2000.<sup>88</sup>

One party or joint parties submit the proposal for a desired SECA designation to MEPC. It should include compliance of six or, according to the revised Annex, eight criteria. The criteria cover the geographical area of SO<sub>x</sub> emission control, a description of SO<sub>x</sub> impact on land and sea, an assessment of SO<sub>x</sub> contribution to air pollution, meteorological condition description and ship traffic density and control measures to be taken by the proposing parties.<sup>89</sup> A SECA will only be considered for adoption “if supported by a demonstrated need to prevent, reduce, and control air pollution from SO<sub>x</sub> emissions from ships.”<sup>90</sup> In the process of assessing a SECA proposal, the MEPC must not only take the proposal documents into account but also the “relative cost reducing sulphur depositions from ships when compared with land-based controls.”<sup>91</sup> Furthermore, the “economic impacts on shipping engaged in international trade should also be considered.”<sup>92</sup>

Shipping through a SECA a vessel must fulfil one of three conditions:

Either the sulphur content in fuel oil used onboard cannot exceed 1.5% m/m or an exhaust gas cleaning system reducing the total SO<sub>x</sub> emissions to 6.0g SO<sub>x</sub>/kWh approved by the Administration is in place; or any other technology method that is verifiable and enforceable to limit the SO<sub>x</sub> emission to a level equivalent to 6.0g SO<sub>x</sub>/kWh.

The regulations require, that details of the change from operating with high sulphur fuel to low sulphur fuel when entering a SECA are to be recorded in

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<sup>87</sup> Appendix III, 1.2 of the Revised MARPOL Annex VI.

<sup>88</sup> Fajar Nugraha, *Effective Implementation of Emission Control Area towards cleaner shipping operations: focusing on Sulphur oxides Emission Reduction*, Diss. Msc, WMU, 2009, p. 38.

<sup>89</sup> Appendix III, 2.2.1- 2.2.6 of the MARPOL Annex VI.

<sup>90</sup> Appendix III, 1.2 of the MARPOL Annex VI.

<sup>91</sup> Appendix III, 3.3 of the MARPOL Annex VI.

<sup>92</sup> *Ibid.*

a log book. Also when changing over to high sulphur fuel again when leaving a SECA for an uncontrolled area, this needs to be recorded.<sup>93</sup> This ensures that all fuels exceeding the 1.5% sulphur limit are flushed out of the fuel system prior to entering a SECA.

With the entry into force of the revised Annex though these options will be reduced. According to Regulation 14 (4), the sulphur content of fuel oil used shall not exceed 1.5% m/m prior to 1 July 2010, 1.00% m/m on and after 1 July 2010 and 0.1% m/m on and after 1 January 2015.<sup>94</sup>

As indicated above, the new Annex includes the possibility to include NO<sub>x</sub> and PM into the concept. For that reason, these designated areas are now called Emission control Area.

According to Appendix III 3.2 or Appendix III 4.3 of the revised Annex, an ECA is designated by means of an amendment to this Annex adopted and brought into force in accordance with Art 16 of the MARPOL 73/78 Convention.

### 3.3 Consequences

The major consequence of an area being designated a SECA is the lower sulphur content in fuel oil. A different approach can be seen in the alternatives. Whereas the first option targets the fuel itself, the other two alternatives approach the propulsion and auxiliary engines.

As of 1 July 2010 though, the only option is lower sulphur fuel oil. The amended regulation 18 introduces provisions regarding the appropriate actions that should be taken by parties if ships are unable to comply with the lower fuel standard due to lack of availability. In the two SECAs- the Baltic and the North Sea<sup>95</sup>- the coming cap of 1.5% m/m is easily complied with

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<sup>93</sup> INTERTANKO, "Sulphur Emission Control Area", published on the Internet at [www.intertanko.com/upload/15673/SECA-entry-guide.doc](http://www.intertanko.com/upload/15673/SECA-entry-guide.doc), last accessed on 24 March 2010.

<sup>94</sup> Regulation 14, 4 of Revised MARPOL Annex VI.

<sup>95</sup> At the 60<sup>th</sup> MEPC meeting IMO adopted a proposal to create an Emission Control Area 200nm around the USA and Canada, including SO<sub>x</sub>, NO<sub>x</sub> and PM, being the first ECA to be adopted under the revised Annex VI. It is scheduled to enter into force on 1 August 2011. See American Bureau of Shipping, "Preliminary Report from the 60th Session of the IMO's Marine Environment Protection Committee", published on the Internet at <http://www.eagle.org/eagleExternalPortalWEB/ShowProperty/BEA%20Repository/References/Regulatory/2010/MEPC60Summary>, last accessed on 27 March 2010.

due to sufficient availability of that kind of fuel. Without anticipating the later evaluation it can be said that considerable skepticism though is in place regarding the cap of 0.1% m/m in 2015 when it comes to availability and costs.<sup>96</sup>

### 3.4 SECAs and other special areas

In Annex I *Prevention of pollution by oil*, II *Control of pollution by noxious liquid substances* and V *Prevention of pollution by garbage from ships*, MARPOL 73/78 defines certain sea areas as "special areas". While each Annex has a slightly different wording, the definition in Annex I reflect the general intention of a special area is:

*A sea area where, for recognized technical reasons in relation to its oceanographic and ecological condition and to the particular character of its traffic, the adoption of special mandatory methods for the prevention of sea pollution by oil is required.*<sup>97</sup>

These areas though differ from the SECA or ECA concept in Annex VI.

Contrary to special areas, the SECA concept entails a more holistic approach,<sup>98</sup> because impacts on the terrestrial part need to be considered as well. Further in contrast to special areas, in the process of assessing a SECA proposal cost-effectiveness of pollution control needs to be taken into consideration by means of Appendix III 3.3: The relative cost from reducing emissions from ships as well as economic impacts are to be taken into account by the MEPC. From a legal point of view it remains highly questionable why cost-effectiveness as a constraint is considered in the assessment of a SECA proposal, whereas in the case of hazardous substances, the subject matter of Annex II, it is not.

Though both share the intent of protecting from harmful substances, the guidelines to designate a special area are laid down in Resolution 927(22) from 2001. This Resolution from 2001 as early in chapter two explained contains guidelines at one hand for the designation of special areas under

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<sup>96</sup> Nugraha, *Effective implementation of Emission Control Area*, p. 41.

<sup>97</sup> Regulation 1, 10 of MARPOL 73/78 Annex I.

<sup>98</sup> Kachel, *Particular Sensitive Sea Areas*, p. 102.

MARPOL 73/78 and on the other hand for the identification and designation of PSSA. The SECA designation though is outlined in Appendix III of Annex VI. Also all MARPOL 73/78 special areas require an area to meet a set of criteria cumulative, whereas under the PSSA concept only one needs to be met.<sup>99</sup>

All special areas under MARPOL 73/78 specifically name certain waters and new ones are added through formally amending the Annex in question to ensure full participation of all potentially affected states.

In chapter three, Art 211(6) UNCLOS<sup>100</sup> was touched upon in context of the discussion for a legal basis for the PSSA concept. Art 211(6) also speaks of a ‘particular, clearly defined area’ in need for protection of pollution.

This ‘special area’ though differs from the MARPOL 73/78 concept in some substantial matters:

Art 211 (6) simply provides for the conditions and procedures for establishing such areas without defining them, whereas special areas under MARPOL are named. Special areas are also limited in their scope to control discharge of specific substances.

Second, encompassed areas under MARPOL 73/78 straddle different jurisdictions<sup>101</sup> and areas under Art 211(6) on the other hand are restricted to the EEZ. Thirdly, MARPOL 73/78 does not grant coastal States any rights with regard to control over foreign ships beyond their territorial sea, under UNCLOS though provisions for such rights can be made subject to approval by the IMO.<sup>102</sup> However, Art 220(8) UNCLOS makes it clear that the special status does not alter the enforcement jurisdiction of Coastal States in the EEZ. However, so far no Coastal State has applied for special areas under Art 211(6).<sup>103</sup>

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<sup>99</sup> Kachel, *Particularly Sensitive Sea Areas*, pp. 204-205.

<sup>100</sup> ‘Where the international rules and standards ... are inadequate to meet special circumstances and coastal States have reasonable grounds for believing that a particular, clearly defined area of their respective exclusive economic zones is an area where the adoption of special mandatory measures for the prevention of pollution from vessels is required ... coastal States may, for that area, adopt laws and regulations for the prevention, reduction and control of pollution from vessels...’

<sup>101</sup> Roberts, *Marine Environment Protection*, p. 118.

<sup>102</sup> *Ibid.*

<sup>103</sup> Frank, *The European Community*, p. 366.

## 4 Relevant EU regulations

The protection of the marine environment has traditionally played a secondary role within European Community (EC) law. A couple of remarks can be made when taking a closer look at the work of the EC in general.

Since oceans and marine resources play a vital role in the life of economy of most of the EC member States, they have opposed any direct involvement of the Community in marine environmental issues, which strongly affect their national interest and impinge on their sovereignty. With regard to marine issues there is a strong institutional fragmentation within the EU body complicating and contributing to the difficulties of a common marine policy or legislation. The principle of regional differentiation as endorsed in Art 174 (2) and (3) EC Treaty and strongly supported by the European Court of Justice, requires different strategies for different regional seas according to their peculiarities and their capacity to absorb pollution.<sup>104</sup> Accordingly, marine degradation appears more as a regional or international concern which should be tackled most effectively on a regional or global basis rather than on Community level.<sup>105</sup> On an international level though the European Community has enhanced its role in the main international bodies responsible for marine environmental issues. It urges Member States to adopt and implement existing international conventions and when possible accedes to them itself as in the case of UNCLOS. It further attaches great importance to ensuring consistency between international and EC regimes in order to protect European competitiveness and the correct function of international market.<sup>106</sup>

Several actions, some of them recently taken by the EU, are though noteworthy and might indicate stronger commitment to the protection of the marine environment.<sup>107</sup>

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<sup>104</sup> Frank, *The European Community*, p. 83.

<sup>105</sup> *Ibid.*

<sup>106</sup> Frank, *The European Community*, p. 106.

<sup>107</sup> The examples that follow either include marine protection areas as instruments or address the sulphur content of fuel. This overview is given in order to show what actions are taken to protect the Baltic on an EU level.

## 4.1 Habitat Directive

As a response to the Berne Convention the European Union adopted the Habitats Directive<sup>108</sup>. The main objective of this Directive was to establish a comprehensive network of protected areas aimed to ensure and maintain threatened species and habitats by the year 2000. A central element is the establishment of a coherent network of protected areas called Natura 2000 mainly addressing nature on land and dedicating little attention to marine biodiversity.<sup>109</sup> Around the Baltic Sea marine habitats are found along its shores, inland waters, mires, forests, rocky areas, arctic fells and meadows.<sup>110</sup> Marine Natura 2000 areas are protected by innovative conservation measures to ensure they are not over-fished, or affected by pollutants from sewage or shipping traffic.<sup>111</sup> Member States are responsible for ensuring that all Natura 2000 sites are appropriately managed by conservation authorities in each country.<sup>112</sup>

## 4.2 Marine Strategy Framework Directive

The aforementioned regional approach is further promoted in the Marine Strategy Framework Directive.<sup>113</sup> Aiming to achieve good environmental status of EU marine waters by 2020, each Member State is required to develop strategies for their marine waters. This will be accomplished by establishing marine regions and sub-regions, which will be managed by Member States based on established environmental criteria.<sup>114</sup>

Rather than imposing the same rules on every Member State each state must provide a comprehensive assessment of the state of the environment,

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<sup>108</sup> European Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora, adopted on 21 May 1992.

<sup>109</sup> Frank, *The European Community*, p. 367.

<sup>110</sup> See European Commission Environment, “Natura 2000 Barometer”, published on the Internet at [http://ec.europa.eu/environment/nature/natura2000/barometer/index\\_en.htm](http://ec.europa.eu/environment/nature/natura2000/barometer/index_en.htm), last accessed on 20 April 2010.

<sup>111</sup> Natura 2000 Network Programme, “Natura 2000”, published on the Internet at <http://www.natura.org/about.html>, last accessed on 21 April 2010.

<sup>112</sup> *Ibid.*

<sup>113</sup> European Council Directive 2008/56/EC establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive), adopted on 17 June 2008.

<sup>114</sup> Rothenberg/Nicksin, “Recent Developments”, p. 157.

identifying the main pressures on their respective marine regions, and defining targets and monitoring instruments by 2012.<sup>115</sup>

Amongst others, spatial protection measures such as special areas of conservation, special protection areas or MPAs are promoted instruments in order to achieve the objective of this Directive.<sup>116</sup> This assessment must also include cost-effective measures. Prior to any new measure an impact assessment which contains a detailed cost benefit analysis of the proposed measures is required. The goal of this Directive is to be ecological sound by 2015.<sup>117</sup>

### 4.3 Maritime Policy

The Maritime Policy consists of an Action Plan launched in 2007, which includes new working methods, cross-cutting tools and a wide range of specific actions that aimed to benefit the maritime economy, protect the marine environment, strengthen research and innovation, foster development in coastal and outermost regions, address international maritime affairs, and raise the visibility of Europe's maritime dimension. The matter of marine protection areas was also mentioned in this Action Plan. According to it the Commission obliges to put forward a strategy to designate marine protected areas for the protection of high seas biodiversity.<sup>118</sup> According to the Progress Report out of 65 actions in the Action Plan, 56 have been completed or launched, some with only minor delays.<sup>119</sup>

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<sup>115</sup> European Commission Environment, "Marine Ecosystems under the weather", p. 2, published on the Internet at <http://ec.europa.eu/environment/water/marine/pdf/leaflet091117.pdf>, last accessed on 20 April 2010.

<sup>116</sup> See Art 21 and 4 of Directive 2008/56/EC.

<sup>117</sup> European Commission Environment, "A marine strategy directive to save Europe's seas and oceans", published on the Internet at [http://ec.europa.eu/environment/water/marine/index\\_en.htm](http://ec.europa.eu/environment/water/marine/index_en.htm), last accessed on 20 April 2010.

<sup>118</sup> European Council Communication COM(2007) 574 final, *An Integrated Maritime Policy for the European Union*, 10 October 2007, p. 31, published on the Internet at [http://ec.europa.eu/maritimeaffairs/pdf/ActionPaper/action\\_plan\\_en.pdf](http://ec.europa.eu/maritimeaffairs/pdf/ActionPaper/action_plan_en.pdf), last accessed on 10 April 2010.

<sup>119</sup> European Commission Maritime Affairs, "Maritime Policy Actions", published on the Internet at [http://ec.europa.eu/maritimeaffairs/subpage\\_mpa\\_en.html](http://ec.europa.eu/maritimeaffairs/subpage_mpa_en.html), last accessed on 20 April 2010.

## 4.4 Sulphur Content Directive

The EC limited the allowed sulphur content in fuels used for navigating vessels in the Baltic Sea to 1.5% as of 11 August 2006, three month later than Annex VI, by means of EU Directive 2005/33.<sup>120</sup> According to the EU, final enforcement dates for SECAs between IMO and Directive 2005/33 could not be precisely aligned because of the nature and timing of different legislative processes.<sup>121</sup> The Directive is also applicable to passenger vessels on regular service from and to European ports. It further sets a limit to the sulphur content of fuels to 0.1% used by ships at berth for a minimum duration of two hours effective from 1 January 2010. Every year, Member States must send the Commission a report on the sulphur content of the fuels used in their territory and covered by this Directive.<sup>122</sup> By 31 December 2010, the EU Commission must send the European Parliament and the Council a report on implementation of the Directive, together with any proposals for amending it. Neither NO<sub>x</sub> nor PM is so far addressed by EU standards. Noteworthy is though, that the EU standards are more strict than MARPOL 73/78 Annex VI by regulating the sulphur content for ships at berth.

## 4.5 Concluding remarks on EU policy

As seen the European Union is not a stranger to the concept of MPAs and has used this instrument in several strategies and legislation with the aim of protecting biodiversity and conservation of habitats. The Sulphur Content Directive may not address the SECA status directly but imposes more stringent rules on EU ports. This affirms the aforementioned reliance on international and regional regimes to cope with marine environmental protection following the opinion that a regional or international approach is the most suitable.

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<sup>120</sup> European Commission Directive 2005/33/EC, amending the Directive 1999/32/EC as to regards the sulphur content, adopted on 6 July 2005.

<sup>121</sup> Nugraha, *Effective implementation of Emission Control Area*, p. 31.

<sup>122</sup> Art 7 Directive 2005/33/EC.



# 5 Analysis of the Baltic Sea case

## 5.1 The Baltic Sea

Before looking at the implementation of the two concepts, a short introduction to the Baltic Sea and its characteristics as well its vulnerability to the shipping activities seems in order.

The Baltic Sea is one of the most intensely trafficked marine areas in the world. Both the numbers and the sizes of ships have grown in recent years, especially oil tankers, and this trend is expected to continue.<sup>123</sup> However, this trend comes with a negative impact: The environmental situation in the Baltic Sea has drastically changed over recent decades. The Baltic Sea has become to be known as one of the most polluted seas in the world as indicated above. Nine countries border the sea: Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland, Russia and Sweden. Human activities both on the sea and throughout its catchment area are placing rapidly increasing pressure on the marine ecosystem.

### 5.1.1 Oceanographic characteristics

The Baltic Sea is a semi-enclosed basin with a total area covering 415,000 km<sup>2</sup>, a water volume of 21,700 km<sup>3</sup><sup>124</sup> and an average depth of just 50m. Its catchment area of 1.7 million km<sup>2</sup> extends over an area about four times as large as the sea itself.<sup>125</sup> The Baltic Sea drains into the Kattegat by way of the Sound, the Great Belt and Little Belt. The Kattegat continues through the Skagerrak into the North Sea and the Atlantic Ocean.<sup>126</sup>

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<sup>123</sup> HELCOM, "Summary of the four main segments of the HELCOM Baltic Sea Action Plan", published on the Internet at [http://www.helcom.fi/BSAP/ActionPlan/en\\_GB/SegmentSummary/#maritime](http://www.helcom.fi/BSAP/ActionPlan/en_GB/SegmentSummary/#maritime), last accessed on 24 February 2010.

<sup>124</sup> Hans von Storch, Anders Omstedt, "Introduction and Summary", in The BACC Author Team (eds), *Assessment of Climate Change for the Baltic Sea Basin*, Berlin 2008, pp. 3-4.

<sup>125</sup> HELCOM, "Baltic facts and figures", published on the Internet at [http://www.helcom.fi/environment2/nature/en\\_GB/facts/](http://www.helcom.fi/environment2/nature/en_GB/facts/), last accessed on 14 February 2010.

<sup>126</sup> Linden *et al.*, "PSSA in the Baltic Sea", p. 6.

It is also one of the largest brackish seas in the world and due to its narrow entrance area the water exchange is very restricted<sup>127</sup> meaning that the same water can remain in the Baltic for up to 30 years – along with all the organic and inorganic matter it contains.

The brackish water of the Baltic Sea is a mixture of sea water from the North Sea and fresh water mainly from rivers and rainfall. This brackish water might limit the biodiversity in comparison to other aquatic ecosystems, but it contributes also to a unique mix of marine and freshwater species and even other species specially adapted to the brackish condition.

There are no tides in the Baltic leaving the Baltic proper stratified the year around with brackish surface water and more saline oxygen rich deep water. The boundary between those two levels is called halocline and limits vertical mixing.<sup>128</sup>

The temperature of the Baltic Sea varies between 0 and 24 degrees C in the surface waters and a more or less constant deep water temperature of 4 degrees C.<sup>129</sup> The 8,000 km partially heavily populated coastline is especially important for seabirds and waterfowl, which spend time in the Baltic during the winter, spring and autumn migration. The Baltic Sea is overall an important migratory route for black guillemot, waterfowl, geese and waders, and provides valuable habitat for marine mammals such as grey seals, Baltic ringed seals and harbour porpoises.<sup>130</sup>

### **5.1.2 The vulnerability of the Baltic Sea to shipping**

Around 2,000 sizeable ships are normally at sea at any time in the Baltic, including large oil tankers, ships carrying dangerous and potentially polluting cargoes, and many large passenger ferries.<sup>131</sup> More than 3,500 ships monthly operate in the Baltic Sea which accounts for 15% of the

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<sup>127</sup> Storch/ Omstedt, p. 3.

<sup>128</sup> Linden *et al.*, “PSSA in the Baltic Sea”, p. 6.

<sup>129</sup> *Ibid.*

<sup>130</sup> WWF, “Sensitive Baltic Sea Areas are now protected from shipping activities”, published on the Internet at [http://www.helcom.fi/press\\_office/news\\_baltic/en\\_GB/BalticNews595242/](http://www.helcom.fi/press_office/news_baltic/en_GB/BalticNews595242/), last accessed on 15 April 2010.

<sup>131</sup> HELCOM, “Baltic facts and figures”.

world's cargo transportation.<sup>132</sup> The Baltic Sea has also some of the busiest shipping routes in the world carrying more than 500 million tones of cargo. The maritime traffic is estimated to double by 2017.<sup>133</sup> This increase in volume naturally increases the probability of shipping accidents. The narrow straits and shallow waters, many of which are covered by ice for prolonged periods in winter, make navigation very challenging, thus contributing to the risk of shipping accidents. With the rapidly increasing Russian crude oil export the risk for oil spills also increases.

Due to the restricted water exchange and the absence of ties the Baltic cannot recover easily from oils spills through natural dispersion and emulsification processes. Oil spills contaminate the surface water, smothering marine plants and animals. Many chemicals in oil spills are toxic, and can have serious cumulative effects as they build up in ecosystems. Spills can also have severe repercussions for tourism and fisheries, while the necessary clean-up operations may themselves unavoidably harm marine life and coastal habitats<sup>134</sup> and have serious consequences for the often rich biodiversity in these littoral environments. The extensive archipelagos in the west and north of the Baltic furthermore complicate potential clean-up operations in case of an oil spill.

Based on data on accidents in the Baltic Sea, three high-risk areas have been identified – the Gulf of Finland; the South-western part of the Baltic, including the Danish Straits; and the entrances to harbours. These areas are all characterized by limited space for maneuvering, high ship densities and a high risk of grounding due to varying water depths.<sup>135</sup>

The continuing eutrophication is one of the most serious challenges to be dealt with. Agricultural run-off of fertilizers causes oxygen depletion in the deep waters over large areas of the Baltic. Shipping adds to this problem

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<sup>132</sup> HELCOM, “Activities 2007 Overview”, Baltic Sea Environment Proceedings No.114, 2008, p. 69, published on the Internet at <http://www.helcom.fi/stc/files/Publications/Proceedings/bsep114.pdf>, last accessed on 10 March 2010.

<sup>133</sup> Linden *et al.*, “PSSA in the Baltic Sea”, p. 7.

<sup>134</sup> United Nations Environment Programme, “The Baltic Sea Region”, published on the Internet at [http://www.unep.org/regionalseas/programmes/independent/baltic/instruments/r\\_profile\\_baltic.pdf](http://www.unep.org/regionalseas/programmes/independent/baltic/instruments/r_profile_baltic.pdf), last accessed at 11 April 2010.

<sup>135</sup> *Ibid.*

with its nutrient inputs from sewage discharges and nitrogen oxides emissions.<sup>136</sup> As a result algal blooms, dead sea beds and depletion of fish stocks are clear indicators of the vanishing biodiversity in the Baltic. Further as mentioned above SO<sub>x</sub> and NO<sub>x</sub> by way of acid rain contribute to the problem of ocean acidification and eutrophication, which disturbs the marine ecosystem by leading to oxygen depletion.

In conclusion, environmental effects of shipping include air pollution, illegal deliberate and accidental discharges of oil, hazardous substances and other wastes, and the unintentional introduction of invasive alien organisms via ships' ballast water or hulls.<sup>137</sup> The shipping industry has addressed all of these effects in various conventions but considering the poor recovery ability of the Baltic, it is in desperate need for special attention. It can be concluded that an ecosystem already as sensitive and a stressed as found in the Baltic may be at high risk in case of additional impacts for example from an oil spill.

## 5.2 The Baltic PSSA

Following the Ministerial meetings within the framework of HELCOM in Copenhagen 2001 and in Bremen 2003 all Baltic States with the exception of the Russian Federation agreed to submit an application to the IMO for the designation of the Baltic as a PSSA at the 51<sup>st</sup> MEPC session in December 2003. Hence, the submitting States drafted their proposal according to the 2001 Guidelines. In developing the PSSA proposal the proposing States undertook a detailed analysis of both the vulnerability of the area to the impacts of international shipping and an analysis of the most effective management measures to address the identified vulnerabilities.<sup>138</sup> They, however, did not propose new APMs but referred to an already existing HELCOM and Oslo and Paris Convention (OSPAR) work program closely linked to the European Union network NATURA 2000. In that context 62

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<sup>136</sup> HELCOM, "Summary of four main segments".

<sup>137</sup> HELCOM, "Introduction to the HELCOM Baltic Sea Action Plan", published on the Internet at [http://www.helcom.fi/BSAP/ActionPlan/en\\_GB/SegmentSummary/\\_print/](http://www.helcom.fi/BSAP/ActionPlan/en_GB/SegmentSummary/_print/), last accessed on 1 March 2010.

<sup>138</sup> Roberts, *Marine Environment Protection*, p. 160.

areas in the Baltic were already designated Baltic Sea Protected Areas. They also noted that the area was already subject to a number of IMO protective measures and that they would submit proposals for new APMs within two years from the submission date of the original PSSA proposal.

The proposed PSSA included the entire Baltic Sea area with the exception of Russian sovereign waters, and was primarily aimed to protect the sensitive marine environment of the Baltic Sea from impacts caused by shipping<sup>139</sup> and to raise awareness of the sensitivity of the Baltic Sea area.<sup>140</sup>

They emphasized further, that despite the existing comprehensive navigational safety regime, there still was evidence of damage arising from the discharge of oil and other harmful substances. Furthermore, they referred to studies conducted by HELCOM which stated that 700 illegal discharges occur annually in Baltic waters.<sup>141</sup>

On the basis that the PSSA status had been approved in principle and that several new APMs had been approved by the Sub-committee on Safety of Navigation (NAV), the final designation of the Baltic Sea as a PSSA was approved in July 2005 by way of a Resolution MEPC 136(53). According to the Resolution the PSSA Baltic Sea Area comprises the Baltic Sea proper, the Gulf of Bothnia, the Gulf of Finland, and the entrance to the Baltic bounded by the parallel of the Skaw in the Skagerrak, as defined in Annex I MARPOL 73/78, excluding Russian waters.<sup>142</sup> It recognizes the global importance of the coastal area as breeding grounds, nurseries, shelters and food sources as well as its unique mix of marine, freshwater and a few true brackish water species. The Resolution further emphasized on the fact that many aquatic and terrestrial species around the area are threatened and the disappearance of one species could seriously impede the functioning of the whole system.<sup>143</sup>

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<sup>139</sup> *Ibid*, para. 5.1.

<sup>140</sup> MEPC 51/8/1, para. 1.4.

<sup>141</sup> *Ibid*, para. 4.20.

<sup>142</sup> See Appendix 2 of this thesis.

<sup>143</sup> Resolution MEPC. 136(53), *Designation of the Baltic Sea Area as a Particularly Sensitive Sea Area*, adopted on 22 July 2005, para 2.1.

Concluding the Resolution identifies the Baltic as a sensitive area vulnerable especially to pollution from the increasing maritime transport of oil or other harmful substances.

In conclusion, it can be said that the Baltic is adequately marked on charts, the adopted APMs show for a collaboration of the stakeholders involved and the extensive work of the HELCOM helps to raise public awareness. Thereby advantage of the concepts' benefits is taken.

### 5.2.1 Opposing arguments

While the Russian Federation had been invited to participate in several discussions<sup>144</sup> on the possible designation of the Baltic Sea, Russia clearly articulated its opposition. Liberia, Panama and the Russian Federation had already raised concerns in the earlier case of designating Western European Waters as PSSA. This opposition was supported by a submission from the Baltic and International Maritime Council, the International Chamber of Shipping, International Association of Dry Cargo Shipowners, International Association of Independent Tanker Owners, Oil Companies International Marine Forum and the International Parcel Tankers Association.<sup>145</sup>

Since some of those concerns were of a general nature, they were also raised in the case of the Baltic. The Russian Federation argued against the PSSA designation indicating their fear of proliferation for several reasons.<sup>146</sup>

Firstly, in their view a PSSA was confined to geographically limited areas with unique ecosystems and did not include the wide geographic scope of the proposed Baltic.<sup>147</sup> This argumentation is hard to understand though; in the opposing document the Russian Federation recognizes the vast cover of Special Areas under MARPOL 73/78. The 2001 Guidelines clearly state in paragraph 4.5, that a PSSA in many cases may be identified within a special

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<sup>144</sup> For example Russia did not attend the HELCOM MARITIME 1/2003, where the PSSA designation was discussed.

<sup>145</sup> MEPC 51/8/4.

<sup>146</sup> MEPC 51/22 Annex 8, *Statements by the Russian Federation concerning the designation of the Baltic as a PSSA*, 22 April 2004.

<sup>147</sup> As a matter of fact several states raised concern as to the consistency with UNCLOS on case of a designation that includes an entire EEZ. See Linden *et al.*, "PSSA in the Baltic Sea", p. 21.

area and vice versa. The Guidelines therefore do not limit the size of a PSSA.

In absence of new proposed APM's Russia secondly argued that there was already sufficient protection measures in force under the HELCOM regime and concluded that a PSSA designation would not offer additional advantages. In the official statements it says "On the basis of the foregoing, the Russian Federation fails to understand what practical purpose is served by according PSSA status to the Baltic Sea".<sup>148</sup>

MEPC accepted the arguments put forth by Russia, but designated the area in principal and noted that the countries concerned would submit proposals for new APMs to the NAV- Sub-Committee in 2005.<sup>149</sup> The Russian Delegation stated that this decision not only violated the PSSA Guidelines in Resolution A.927 (22) and but it also was contrary to the spirit and practice of IMO<sup>150</sup>: the basic principles of decision-making in the IMO openness, transparency and, above all, consensus were infringed in their view. Russia contended further that all littoral states to the Baltic Sea should sponsor the proposal following paragraph 3.1 of the 2001 Guidelines, which state that '*Where two or more Governments have a common interest in a particular area, they should formulate a coordinated proposal...*'. The MEPC ignored this remark, allegedly embracing the view that the wording is of a recommendatory nature and does not imply an obligation to cooperate, which is affirmed by UNCLOS, which fails to stipulate a requirement for regional consensus though urging or requiring regional cooperation.

How the opposition to the designation of the Baltic as a PSSA impacts the concept in case of the Baltic will be assessed in a later chapter.

## 5.2.2 APMs in the Baltic

As earlier already indicated at time of submission of the PSSA proposal, the proposing States did not identify new APM's but submitted several new and

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<sup>148</sup> *Ibid.*

<sup>149</sup> MEPC 51/22, *Report of the Marine Environment Protection Committee on its Fifty-First session*, 22 April 2004, para. 8.53.

<sup>150</sup> MEPC 51/22, para. 8.54.

amended APMs within the two year timeframe. The submitting States though referred to existing protection measures already in place for example the designation as special area pursuant to Annex I, II, V, and VI of MARPOL, mandatory ship reporting systems in some parts<sup>151</sup>, several routeing systems and localized compulsory pilotage schemes.<sup>152</sup> The designation as a SECA for example could constitute a new APM according to paragraph 6.1.1 of the 2001 Guidelines, but in the case of the Baltic the SECA designation was executed detached from the PSSA process. Within the two year time frame several new APMs with their legal basis in SOLAS chapter 5/10 were proposed and are briefly introduced in the following:

#### **5.2.2.1 New and amended traffic separation schemes**

According to Resolution MEPC 136(53), new separation schemes were put in place at ‘Bornholmsgat’ and ‘North of Rügen’. Amended schemes are introduced in the area ‘Off Gotland Island’ and ‘South of Gedser New Inshore’.

Regarding these new and amended routeing systems, the delegation of the Russian Federation informed the NAV Sub- Committee, that they supported them. Similar to systems already in place in the eastern part of the Baltic Sea, they argued that those measures would enhance maritime safety and protect the marine environment and should therefore as such be supported.<sup>153</sup>

#### **5.2.2.2 Deepwater route**

‘Off Gotland Island’ a new deepwater route is in place connecting the traffic separation scheme ‘Off Köpu Peninsula’ and the proposed traffic separation scheme between ‘Bornholmsgat’, ‘South of Hoburgs Bank’ and ‘Norra Midsjöbanken’ situated south of the Island of Gotland. Ships with a draught exceeding 12 m are recommended to use this deep water route.

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<sup>151</sup> For instance, SRS “In the Great Belt Traffic Area”, recently amended by Res. A. 978(24), *Amendments to the Existing Mandatory Ship reporting Systems in the Great Belt Traffic Area*, adopted on 1 December 2005.

<sup>152</sup> For an overview see MEPC 51/8/1 Annex II.

<sup>153</sup> MEPC 53/8/5, *Outcome of NAV 51 on PSSA*, 28 June 2005, para. 18.



### 5.2.2.3 Areas to be avoided

The areas to be avoided located at ‘Hoburgs Bank’ and ‘Norra Midsjöbanken’ in the southern Baltic Sea were intended to be mandatory but were not accepted as such by the NAV Sub-Committee at its 51<sup>st</sup> session. The Committee was of the opinion that the proposal did not justify the establishment of mandatory areas, but instead approved them as recommended areas to be avoided.<sup>154</sup> Given that SOLAS provides for the establishment of mandatory routing measures to protect the environment, subject to satisfactorily demonstrating the need for such a mandatory status, it must be assumed that the Baltic States did not provide sufficiently strong arguments to support the adoption of such measures.<sup>155</sup> Since these areas lie within the Swedish EEZ, Sweden was especially disappointed with the NAV decision. However, Sweden did not formulate a new proposal at the next NAV session.

### 5.2.2.4 Criticism

Criticism has been raised by arguing that the identified threat of shipping activities in the initial proposal being unreported and unlawful discharges is not addressed by the new APM's.<sup>156</sup> Instead they focus entirely on the risk of collisions and groundings. A measure that would avoid traffic in total is the measure “area to be avoided”, which is a traffic free zone. No ship traffic is allowed to pass through this area and hence, discharges intentional or operational cannot harm the environment. The first mandatory area to be avoided was around New Zealand's Poor Knights Islands marine reserve since the ability to do so pursuant to amendments to SOLAS Regulation V78 became available in 1997.<sup>157</sup>

The initial proposal sought after a mandatory status in case of the Baltic for ‘Hoburgs Bank’ and ‘Norra Midsjöbanken’<sup>158</sup>, but was only granted a recommendatory nature. ‘Hoburg Banks’ and ‘Norra Midsjöbanken’ are known as being valuable habitats for many seabirds and according to WWF

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<sup>154</sup> MEPC Res. 136(53), Annex II, part C.

<sup>155</sup> Roberts, *Marine Environment Protection*, p. 183.

<sup>156</sup> Roberts, *Marine Environment Protection*, p. 186.

<sup>157</sup> Julian Roberts, “Protecting Sensitive Marine Environments”, pp. 149-150.

<sup>158</sup> MEPC 53/8/5, para. 15.

100000 birds die annually from oil discharges.<sup>159</sup> Most likely the banning of all traffic in those particular areas was desired to protect amongst others those birds from discharges. Though failing in the execution, this APM was intended to address the problem of unreported and unlawful discharges and its impact on the marine and coastal environment. Looking at it from a more remote angle, it becomes clear that those separation schemes were intended to channel the traffic to avoid collisions and groundings which in their turn can have devastating impacts on the marine environment.

Another aspect of crucial importance is an assessment of the actual traffic situation at hand. Not in all cases a mandatory prohibition is a desired development even for the environment. For example, a redirection of the traffic lane in the case of ‘Hoburgs Bank’ to another existing lane would not only increase the distance by 17nm<sup>160</sup> but would also translate into a higher density of that traffic line, which in its turn would translate into more emissions and a higher risk of collisions. According to the Swedish Maritime Administration the traffic around ‘Hoburgs Bank’ and ‘Norra Midsjöbanken’ has notably reduced as a result of the recommendatory nature of this instrument<sup>161</sup>, rendering it as an effective measure to relieve traffic patterns to protect the environment.

### **5.2.3 HELCOM’s role and contributions**

In Russia’s Statement concerning the designation of the Baltic, they rightly point at HELCOM’s work. Indeed, in 2002 HELCOM had the position that additional benefit was only to be gained from designating certain areas as opposed to the entire Baltic.<sup>162</sup> At the HELCOM Heads of Delegation meeting in November 2003 it was decided in principle to proceed with an

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<sup>159</sup> Världsnaturfonden, “Hoburgs Bank- utsjöbank i östersjön“, published on the Internet at <http://www.wwf.se/v/hav-kust/problem/fiske/1133355-hoburgs-bank-utsjobank-i-ostersjon>, last accessed on 30 March 2010.

<sup>160</sup> Sverker Evans, “Östersjön- ett särskilt känsligt havsområde”, Hav i Balans, 2005, published on the Internet at <http://www.smf.su.se/nyfiken/ostersjo/arsrapp/Ostersjo2005/O2005pssa.pdf>, last accessed on 12 April 2010.

<sup>161</sup> E-mail Interview with Pernilla Bergstedt and Ulf Lejderbrink, Swedish Maritime Administration, 24 May 2010.

<sup>162</sup> Extensive research by HELCOM HABITAT, HELCOM MARITIME and HELCOM RESPONSE on that matter can be found at [www.helcom.fi](http://www.helcom.fi).

application to IMO proposing the designation of the Baltic Sea area or parts thereof as a PSSA.<sup>163</sup> The issue of the scope of the Baltic Sea PSSA was ambiguous and undecided within HELCOM. Initiatives in favour of the designation were from the very beginning met with strong opposition from the Russian Federation partly supported by Poland.<sup>164</sup> Therefore, the sponsoring States Sweden, Finland and Lithuania continued the work on other areas outside of HELCOM's framework.<sup>165</sup> Discussions in within the EU and other forums followed and under the leadership of Sweden an ad hoc working group was established to discuss APM building, which rooted in the HELCOM expert group on Transit Routing. Those APMs were submitted to the NAV 51<sup>st</sup> session.

So far, HELCOM has dealt with different aspects of the safety of navigation such as routing measures for certain parts of the Baltic, enhanced use of pilotage or escort towing, reporting systems and vessel traffic monitoring systems. All the measures generally implement IMO standards and have been strongly influenced by European Community maritime safety legislation, which in many cases, represents maximum standards for most HELCOM contracting parties.<sup>166</sup>

The Baltic Ministers agreed to support new joint initiatives in IMO directed at improving existing routing measures and enhancing the use of pilot services in densely trafficked areas.<sup>167</sup> They further adopted an additional package of measures to increase the safety of navigation in the Baltic Sea e.g. compulsory application of Annex I-V MARPOL 73/78, phasing out of single hull tankers, the use of Automatic Identification Systems and place of

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<sup>163</sup> HELCOM, *Agenda Item 9 Implementation of HELCOM Recommendations and HELCOM Copenhagen Declaration*, HOD meeting 11/2003 on 14 February 2003, p.2, published on the Internet at [http://meeting.helcom.fi/c/document\\_library/get\\_file?p\\_1\\_id=18985&folderId=74320&name=DLFE-29866.pdf](http://meeting.helcom.fi/c/document_library/get_file?p_1_id=18985&folderId=74320&name=DLFE-29866.pdf), last accessed on 16 May 2010.

<sup>164</sup> See Johnny Rodin, "Regime Formation, Legitimacy, and the Effectiveness of International Environmental Regulation- the Case of the Baltic Sea PSSA", unpublished manuscript, cited with the author's permission, p. 14.

<sup>165</sup> Frank, *The European Community*, p. 217.

<sup>166</sup> Frank, *The European Community*, p. 218.

<sup>167</sup> HELCOM, *Declaration on the Safety of Navigation and Emergency Capacity in the Baltic Sea Area (HELCOM Copenhagen Declaration)*, adopted on 10 September 2001, para. I and II.

refuge. These measures were incorporated in the 1992 Helsinki Convention and are thus legally binding.

Noteworthy in this context is the HELCOM Baltic Sea Action Plan, adopted in Krakow Poland, 2007, where the Ministers agreed to take certain actions to achieve a Baltic Sea in good environmental status by 2021.<sup>168</sup> This Action Plan is divided into four segments: eutrophication, hazardous substances, biodiversity and nature conservation and maritime activities.

The management objectives of the maritime activities include amongst others the enforcement of international regulations concerning illegal discharges, safe maritime traffic without accidental pollution and minimum air pollution from ships. Those objectives indicate the main areas of concern as to human activity at sea and its possible impacts. It is further stated that actions to reduce air emissions from shipping and measures addressing oil accidents and illegal discharges will contribute to the decreased concentration of nutrients and hazardous substances in sea water. To measure progress indicators are in place for each of the management objectives.<sup>169</sup>

It can be summarized that HELCOM has an important and decisive role as a regional platform for the protection of the Baltic Sea. Within HELCOM not only is compliance with international standards set out by the IMO via conventions or recommendations highly promoted but also regional actions are agreed upon with the goal to achieve an environmentally good status for the common Baltic Sea. Most importantly, in HELCOM the Russian Federation is represented and to some extent bound by the agreed commitments.

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<sup>168</sup> HELCOM Ministerial Meeting, *HELCOM Baltic Sea Action Plan*, adopted on 15 November 2007, Krakow, Poland.

<sup>169</sup> The Action Plan though has been heavily criticized by WWF by arguing that the true failure of this plan can be directly traced to the lack of political will and leadership on behalf of contracting parties. Participation in the 'Ministerial' meeting did not even include Environmental Ministers from Denmark, Germany and Latvia, which may indicate the low importance of this process for these contracting states. See WWF, "Position Statement on the HELCOM Baltic Sea Action Plan 2007", published on the Internet at [http://assets.panda.org/downloads/final\\_wwf\\_position\\_on\\_the\\_bsap\\_15\\_november\\_2007.pdf](http://assets.panda.org/downloads/final_wwf_position_on_the_bsap_15_november_2007.pdf), last accessed on 7 May 2010.

## 5.3 The Baltic SECA

Due to its vulnerability to pollution induced by shipping activities, the Baltic Sea is declared as a special area under Annex I, II, V and VI of the MARPOL 73/78 Convention. All these Annexes share the same delineation of the Baltic Sea including the Baltic Sea proper with the Gulf of Bothnia, the Gulf of Finland and the entrance to the Baltic Sea bounded by the parallel of the Skaw in the Skagerrak at 53°44.8'N.<sup>170</sup>

The Baltic was designated as the first SECA in the MARPOL Protocol 1997 Annex VI prohibiting the use of residual fuel oil with sulphur contents exceeding 1.5% from 19 May 2006. As of July 2010 this cap will be further reduced to 1.0%. Due to the EU-Directive the sulphur content of fuels is further limited to 0.1% used by ships at berth for a minimum duration of two hours effective from 1 January 2010.

In 2008 emissions from ships had decreased steadily despite growing traffic. HELCOM reported in the 2008 study for emissions from shipping that both NO<sub>x</sub> and SO<sub>x</sub> emissions peak during the summer months but the overall trend for SO<sub>x</sub> is decreasing.<sup>171</sup> In a study from 1999 the IMO had assessed that reduction of SO<sub>2</sub> in ship emissions is relatively cheaper than the reduction of land based emissions<sup>172</sup> and HELCOMs Recommendation 28E/13 provides further guidance on how governments can give economic incentives to further reduce emission from ships including SO<sub>x</sub> and NO<sub>x</sub>.<sup>173</sup> Nonetheless, in case of the Baltic it can be noted that the Russian Federation is not a party to it. In a formal HELCOM document though, Russia ensured that ships flying the Russian flag are not excluded from compliance.

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<sup>170</sup> MARPOL 73/78 Annex I, Regulation 10 1(b).

<sup>171</sup> Jukka-Pekka Jalkanen and Tapani Stipa, "Emissions from Baltic Sea Shipping in 2008", HELCOM Indicator Fact Sheets 2009, published on Internet at [http://www.helcom.fi/environment2/ifs/en\\_GB/cover/](http://www.helcom.fi/environment2/ifs/en_GB/cover/), last accessed on 4 April 2010.

<sup>172</sup> MEPC 44/11/4, Designation of the North Sea area as a SO<sub>x</sub> Emission Control Area, submitted by Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, United Kingdom and the European Commission, 3 December 1999.

<sup>173</sup> For detailed information see HELCOMs Recommendation 28E/13, *Introducing economic incentives as a complement to existing regulations to reduce emissions from ships*, adopted on 15 November 2007.

Technical supervision after design, building and maintenance of ships in accordance with requirements of Annex VI is provided by the Russian Maritime Register of Shipping.<sup>174</sup> With regards to the SECA restrictions in force in the Baltic Sea area the Federal Agency of Maritime and River Transport has issued a directive to the maritime ports and terminals of Russia regarding delivery of bunker notes to ships in full compliance with requirements of MARPOL Annex VI. The following measures were undertaken regarding enforcement of SO<sub>x</sub> emission reduction from ship engines:<sup>175</sup>

- Strict control after bunker notes, providing information on sulphur content and
- Survey of SO<sub>x</sub>-emission reduction devices.

This again might weaken the SECA concept.<sup>176</sup> Considering the increasing oil export of Russia it can only be hoped for that those tankers are actually in full compliance with the regulations of Annex VI.

Noteworthy is that passenger ferries between Sweden and Finland consume fuel oil with a sulphur content around 0.5% and even less, which is significantly lower than the SECA requirement in force right now.<sup>177</sup> Only time and studies will tell how the cap of 0.1% at berth of the EU-Directive has an impact on those ferries considering the fact that they are usually at berth for a longer time.

## 5.4 Enforcement and compliance

Since the two concepts have obviously different legal statuses their enforceability and compliance mechanisms differ as well. It can be noted though that non-compliance usually is largely driven by economic

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<sup>174</sup> HELCOM Commission Maritime Group, “Information of the Russian Federation concerning reduction of emissions from ships”, HELCOM MARITIME 5<sup>th</sup> Meeting, Tallinn, 23 October 2006, p. 1.

<sup>175</sup> *Ibid.*

<sup>176</sup> In a later chapter, Russia’s opposing position will be further discussed in terms of the legitimacy.

<sup>177</sup> Nugraha, *Effective implementation of Emission Control Area*, p. 32.

motivation<sup>178</sup>: often an environmental-friendly solution is combined with higher costs that ship-owners are keen to avoid.

#### **5.4.1 In case of the PSSA concept**

Both 2001 and 2005 Guidelines place an obligation on all IMO Member Governments to ensure that ships flying their flag comply with the APMs adopted to protect the designated PSSA. Due to its legal basis in UNCLOS the PSSA concept relies on Flag State jurisdiction and responsibilities hereunder when it comes to compliance and enforcement.

In several provisions UNCLOS refers to ‘international rules and standards’ set by the competent international organization. By designating an area as particularly sensitive and putting APM’s in place, the IMO as the generally accepted competent organization sets new rules and standards for that area. Subsequently UNCLOS provides in for example Art 94(5), 211 (1, 2) and 217(1) that Flag States shall ensure compliance with those rules and standards. Thus, UNCLOS acknowledges that not only the primary responsibility for the regulation of vessel-sourced pollution lies by the Flag State but also that non- compliance mechanisms are in place to punish those violating APMs through their authorities.

However, the main problem is that Flag States are usually not directly affected by pollution and they have little incentive to adopt anti-pollution standards.<sup>179</sup>

The Guidelines emphasize that proposing governments need to give careful consideration to strategies for ensuring compliance by international shipping in their proposal. The Baltic States, except Russia, referred in their proposal to several compulsory reporting and traffic surveillance systems already in place.<sup>180</sup>

Hence it can be summarized that responsibility for enforcement lies with both the Coastal State and the Flag State. UNCLOS provides the

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<sup>178</sup> Kachel, *Particularly Sensitive Sea Areas*, p. 32.

<sup>179</sup> Frank, *The European Community*, p. 195.

<sup>180</sup> MEPC 51/8/1, *Designation of the Baltic Sea area as a particularly sensitive sea area*, submitted by Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland and Sweden, 19 December 2003, p. 16.

enforcement framework for IMO instruments by establishing the degree to which Coastal States may legitimately interfere with foreign ships in order to ensure compliance with IMO rules and standards.<sup>181</sup> Competence is determined by recourse to respective UNCLOS provision on enforcement.<sup>182</sup>

Generally it can be said, that the Coastal State may legislate in its EEZ for the regulation of pollution from foreign vessels, but only to the extent that its laws conform and give effect to “generally accepted international rules and standards”.<sup>183</sup> In the territorial sea the Coastal State may where there are “clear grounds” for believing that a foreign vessel has violated either national laws or international rules and standards for pollution prevention and control, undertake physical inspection and, if the evidence warrants, initiate proceedings against the vessel (including detention), without violating the right of innocent passage.<sup>184</sup>

There is however, another enforcement system in place. The marine classification and insurance industry help to maintain standards for amongst others safety and healthy environment. Once a rule is mandatory as an IMO regulation, it must be taken into account by the insurance industry either as a technical gateway criterion for vessels or as a criterion of good conduct in the shipping business.<sup>185</sup> This though invisible to the public eye puts pressure on ship-owners to comply with existing rules and standards.

## **5.4.2 In case of the SECA concept**

The SECA concept in respect to enforcement and compliance is a bit stricter and clearer than the PSSA concept in the sense that it falls under the MARPOL 73/78 regime. Under Art 4 of the Convention Parties are required to prohibit violations and to provide sanctions under their law and take

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<sup>181</sup> Roberts, “Protecting Sensitive Marine Environments”, p. 141.

<sup>182</sup> For an in depth analysis, see Kachel, *Particularly Sensitive Sea Areas*, chapter 10.

<sup>183</sup> Art 211 (5) UNCLOS.

<sup>184</sup> Charlotte Breide and Phillip Saunders, Challenges to the UNCLOS regime: National Legislation which is incompatible with International Law, session paper, p. 3, published on the Internet at <http://www.gmat.unsw.edu.au/ablos/ABLOS08Folder/Session5-Paper2-Breide.pdf>, last accessed on 21 April 2010.

<sup>185</sup> Olav Knudsen, “Transport interests and environmental regimes: The Baltic Sea transit of Russian oil exports”, 1 Energy Policy, 2010, p. 153.



procedures against offenders.<sup>186</sup> Parties are further required to apply these to their own flag ships and take proceedings against their own flag and other flag ships. The penalties shall be adequate in severity to discourage violation.<sup>187</sup>

The Annex itself ensures compliance by regular surveys that are to be carried out according to Regulation 5 and Port State Control according to Regulation 10. All Baltic States are further members of the Paris Memorandum of Understanding, which ensures a harmonized system of Port State Control.

## 5.5 Conventional vs. resolution tool

As discussed above the PSSA Guidelines lack a binding legal nature. Though there is a strong link to UNLCOS, which the concept can benefit from, this lack is even its major criticism. On the other hand though, one could argue that there is no surplus to gain from a legally binding instrument in an environmental protection context from a practical point of view.

Firstly, this soft law instrument, allowed states to tackle marine environmental protection collectively with a precautionary approach. It is doubtful that consensus could have been reached for a treaty, since environmental protection never ranks high on government's agendas and the right of free navigation is affected. Looking back at almost 20 years of the PSSA concept, it has though acted as a safeguard to exceptional sites by providing a satisfactory level of protection for the sea areas. The provisions are broadly accepted as they benefit both from the international legitimacy of the IMO on international maritime transport and form widespread identification through charts used onboard ships.<sup>188</sup>

Another benefit arising out of the characteristics of a soft law instrument is its implementation on national and local level, which is easier since lengthy and time consuming ratification processes can be avoided. Most importantly though this soft law tool is more adaptable to changing technology, which is

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<sup>186</sup> See IMO, *MARPOL- How to do it*, 2002 edition, London 2003, p. 11.

<sup>187</sup> *Ibid.*

<sup>188</sup> Lefebvre-Chalain, "Fifteen years of PSSA", p. 61.

a very important feature for environmental protection. Environmental problems tend to require flexible solutions to allow for changing scientific evidence, new technology etc. Therefore environmental treaties tend to lay down only general principles relegating the detailed standards to easily amended annexes or soft law.<sup>189</sup>

Secondly, looking at the content of the resolution, it provides guidance as to the application for Coastal States when wishing to identify an area as a PSSA. It seems that the important issue is the legal basis for the APMs, since they will effectively make the difference and therefore need legal anchoring. This is expressively provided for in the guidelines.

In conclusion, Resolution 982(24) has to rely on UNCLOS in terms of enforceability and compliance, being a soft law tool as it is. It benefits from the pros of being a soft law instrument mainly its ability to adopt more easily, rendering it an effective tool to tackle marine environmental protection.

A totally different approach is seen in the MARPOL 73/78 special areas. Though both of the instruments share their roots in the 1991 Guidelines and despite the fact that Annex VI was not even thought of at that time, the concepts though developed in different directions.

Annex VI benefits from its connection to the very established and accepted MARPOL 73/78 regime not the least in terms of enforceability as seen above. The language is undoubtedly clearer, which is supported by the fact that conventional language words as “shall” is chosen, indicating the obligation to comply with the regulations set forth. MARPOL 73/78 is further supported by a sanctioning system. Naturally this renders Annex VI as much more powerful.

Obviously, the downside of a conventional instrument is the very lengthy process of coming into being. The Annex VI took approximately 15 years to decide on including the preparation of the text, the adoption and the necessary ratifications for entering into force.<sup>190</sup> Amendments to the Annexes of MARPOL 73/78 can be adopted using the "tacit acceptance"

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<sup>189</sup> Birnie/Boyle/ Regdwell, *International Law and the environment*, p. 11.

<sup>190</sup> Mark Major, “Reducing GHG Emissions from maritime transport”, presentation given on 8 December 2009, UNFCCC COP 15, EU Side Event.

procedure, whereby the amendments enter into force on a specified date unless an agreed number of States Parties object by an agreed date.<sup>191</sup>

Considering the aforementioned, one comes to the conclusion, that Annex VI is clearer language wise, maybe a bit more time consuming but with a sanctioning system in place. All those attributes advertise its strength.

But one major difference has to be pointed out when comparing those two tools: the scope. Annex VI addresses a fairly restricted amount of emissions. The PSSA concept though is intended to cover a much wider scope. Therefore, the language suffers in clearness, relying on general obligations under UNCLOS, and being a soft law tool as it is, it lacks a legal basis but much more important a sanctioning system. The concept though has over the years tried to overcome for example the much criticized language problem. There is a remarkable change to be noticed when reading the 2001 Guidelines and the 2005 Guidelines.

In summary, it can be said that the scope and intention seems to be decisive. When only intending to address a limited pollution source, a conventional tool although it's lengthy process might be the right way to go. When wanting to address vulnerable marine ecosystems, which by nature are special and in need of a case-to-case assessment of possible protection tools, a conventional tool would most likely already fail in a first stage of agreeing to the text. Therefore, guidelines can offer not only a quicker consensus-finding process but also the ability to adapt to changes. States can submit new proposals to the IMO in order to reinforce or increase the effectiveness of APMs governing their PSSA. A prominent example for this is the widening of the Great Barrier Reef to the Strait of Torres in 2005 and in the case of the Galapagos Islands when an obligatory reporting system was introduced.<sup>192</sup>

Both tools share and depend on the awareness and the need for marine protection. Without those insights neither a conventional nor a resolution

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<sup>191</sup> IMO, "International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL)", published on the Internet at <http://www.imo.org/Conventions/contents.asp?>, last accessed on 25 April 2010.

<sup>192</sup> Lefebvre-Chalain, "Fifteen years of PSSA", p. 63.

tool can enter into force. In the case of the Baltic much thanks to the work of HELCOM, awareness was raised and acted upon.

## **5.6 Collaboration of the concepts**

In terms of collaboration of the concepts the Baltic States have chosen to integrate the special area concept provided for in MARPOL 73/78 into the PSSA designation by referring to it as APMs already in place in their proposal. In doing so, the narrower scope of delimitating emissions through the SECA concept, is applied as part of a regime. Ship sourced emissions are targeted and with the EU direction, the Baltic Sea has one of the most stringent regimes in the world in place when combating ship sourced emission. Further by applying the PSSA concept, it acts like an umbrella framework and actions beyond the Annex VI regime can be taken and combined with those emission restrictions. By using the PSSA concept as an umbrella, the scope can even in the future easily be expanded by simply adding or adjusting APMs and thereby taking advantage of the soft law tool.

## **5.7 Legitimacy**

As seen in the case of the SECA the other Baltic States rely on Russia's compliance and promises. When attempting to evaluate those concepts, the opposition of the Russian Federation could have affected the legitimacy of the concepts in force.

It becomes evident, when taking a closer look at incidents and discussion leading to the proposal to designate the Baltic Sea as a PSSA, that political motivation was involved.

Most certainly, the countries' interests vary due to both the actual risk of being affected by oil- spills, the strength of environmental discourse in the respective country, the importance of shipping for their respective economy, and their respective international interests, such as the involvement with the EU (members or accession states) and the degree of dependency on Russian oil and gas.<sup>193</sup>

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<sup>193</sup> Rodin, "Regime Formation", pp. 6-7.

As earlier described the Russian Federation did heavily oppose to the designation of the Baltic as PSSA. Not only was the geographic scope criticized but also the procedure. From a Russian perspective the unpredictability of this process reduced transparency as there was no way of knowing exactly what kind of regulation in terms of APMs the process would lead to.<sup>194</sup> Further, it was argued that there was no added value to be gained from the designation, since the measures that were ultimately taken within its framework could have been applied anyway through the IMO and international conventions. In terms of legitimacy this opposition by the Russian Federation might weaken the concept.

The arena shifting by the sponsor states, mainly Sweden and Finland, from HELCOM and IMO to EU, Nordic council etc<sup>195</sup> was further seen from the Russian Federation as infested with political goals aimed at crucial Russian interests.<sup>196</sup> From a political science perspective arena-shifting not only reduces participation and inclusiveness, but also transparency, all bad for trust and intersubjective understanding.<sup>197</sup>

Though it might be unfortunate that through these circumstances consensus involving all states concerned was not reached, in a final outcome the Russian Federation continued working with the other states to further improve traffic separation schemes.<sup>198</sup> On the other hand, the Russian Federation neither ratified MARPOL Annex VI nor accepted the PSSA concept. Politically seen, it would perhaps been wiser to have reached consensus with the Russian Federation, most likely by compromising on limited size of the geographic scope with accepted APMs and strengthening existing other environmental legislation in those agreed area.<sup>199</sup> Even though today the Russian Federation is participating in the elaboration of new routeing measures, who knows what the opposition can cause in the future.

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<sup>194</sup> Rodin, "Regime Formation", p. 21.

<sup>195</sup> This was already implied earlier.

<sup>196</sup> *Ibid.*

<sup>197</sup> Rodin, "Regime Formation", p. 22.

<sup>198</sup> See NAV 55/3/11.

<sup>199</sup> This conclusion is also reached by Rodin.

## 5.8 Further advancements

Since the designation more APMs have been proposed and are awaiting adoption during NAV 87 in spring this year.

One of the APMs proposed was submitted by Estonia, Finland and the Russian Federation. This proposal includes amendments to existing traffic separation schemes “Off Hankoniemi Peninsula” and “Off Porkkala Lighthouse” and a new precautionary area “Off the Kalbådgrund Lighthouse”.<sup>200</sup>

Sweden and Finland submitted a new traffic separation scheme and deep water route for the ‘Åland Sea’. As the north-southbound traffic crosses the east-west bound traffic in this area, the risk of collision between different types of vessels and the environmental damage due to subsequent oil spills have been of major concern.<sup>201</sup> Sweden further submitted a proposal for new traffic separation schemes and two-way route in the waters surrounding Gotland Island.<sup>202</sup> The waters off the island are not very shallow, except the northern and southern parts, but environmentally very sensitive. As vessels carrying dangerous goods or oil are increasing, the risk for oil spills increases as well. An oil spill resulting from grounding or collision in the area would have disastrous effects on this unique and ecologically vulnerable area. The proposed routing measures would reduce the probability of such accidents.<sup>203</sup>

Another proposal was submitted jointly by Denmark, Germany and Poland concerning a new traffic separation scheme “Adlergrund” and “Slupska Bank”.<sup>204</sup> The proposal is based on a study conducted by HELCOM that show an increasing number of all types of accidents in the Baltic Sea region between 2000 and 2007. Accordingly, Germany and Poland suggested two traffic separation schemes in the southern part of the Baltic Sea for the

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<sup>200</sup> NAV 55/3/11, *Routeing of vessel, ships reporting and related matters*, submitted by Estonia, Finland and the Russian Federation, 24 April 2009.

<sup>201</sup> NAV 54/3/7, *Routeing of ships, ships reporting and related matters*, submitted by Finland and Sweden, 25 April 2008, para. 13.

<sup>202</sup> NAV 55/3/4, *Routeing of ships, ships reporting and related matters*, submitted by Sweden, 21 April 2009.

<sup>203</sup> NAV 55/3/4, para. 10.

<sup>204</sup> NAV 55/3/3, *Routeing of ships, ships reporting and related matters*, submitted by Germany, Poland and Denmark, 16 April 2009.

purposes of separating opposing streams of traffic, better managing the flow of traffic in the vicinity of shallow water areas. The schemes are at a safe distance from environmentally sensitive areas and thus enhancing the safety of navigation and the protection of the marine environment.<sup>205</sup>

It is not surprising though that states with the largest coastline Sweden, Finland, Germany and Poland took the initiative to propose more APMs.

Since Sweden has the longest national coast line on the Baltic Sea, it is obvious that Sweden has a strong environmental interest. Finland with quite an extensive coast line is also the nearest neighbor to the growing port of Primorsk where the numbers of oil shipments increase. As seen, Sweden along with Finland initiated and strongly supported the designation PSSA process. In the Swedish proposition for a future marine policy it is stated that according to a Swedish assessment the new measures have helped to avoid accidents and destructive impacts on the marine environment.<sup>206</sup> As vessel traffic increases though, it is further noted, that work on additional TSS will continue and debated with the other countries. It is the goal to reach “quality”-shipping, meaning a high standard of safety and environment.

In the case of Germany only two of the 16 states border to the Baltic, namely Mecklenburg West-Pomerania and Schleswig Holstein. The coast line is famous for its recreational use and thus makes for a strong environmental interest as well. This interest is though accompanied with a strong commercial interest in shipbuilding, ship repair and oil refining.<sup>207</sup>

Poland as well has a long coastline and is therefore vulnerable to environmental damage. It is therefore not surprising that the states with strong environmental interests due to large exposed coastlines took further actions considering the growing oil export of the Russian Federation in the region.

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<sup>205</sup> *Ibid.*

<sup>206</sup> Regeringens Proposition 2008/09:170, *En sammanhallen svensk havspolitik*, Stockholm, 5 March 2009, p. 105.

<sup>207</sup> Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit, “National Strategie für die nachhaltige Nutzung und den Schutz der Meere”, September 2008, p. 32-33, published on the Internet at [http://www.bmu.de/files/pdfs/allgemein/application/pdf/broschuere\\_meeresstrategie\\_bf.pdf](http://www.bmu.de/files/pdfs/allgemein/application/pdf/broschuere_meeresstrategie_bf.pdf), last accessed 8 May 2010.

## 5.9 Outcome and impacts

Even though the considerable young age of Baltic Sea as a PSSA and SECA, an attempt is made in the following two subchapters to comment outcomes and impacts of each of the special area.

### 5.9.1 SECA

In terms of assessing the outcome from a SECA designation it can first of all be noted that the use of 0.5% sulphur content fuel causes a Sulphur Oxide reduction almost twice from current standards.<sup>208</sup> Further, the switch of fuel to 1.5 % as demanded in SECAs will reduce SO<sub>2</sub> by 44% and PM by 18%.<sup>209</sup> Consequently, the use of lower sulphur fuel oil has a decreasing effect on acid rain and hence improves the quality of the environment and human health. Hence, the application of lower sulphur fuel has a meaningful effect on SO<sub>2</sub> and PM emission reduction.

According to the IMO emissions of SO<sub>x</sub> from shipping in SECA has been reduced by about 42% corresponding to 700 kilotonnes in 2008, when both then existing SECAs- the Baltic and the North Sea were in force throughout the year.<sup>210</sup> Globally, that equated to a 3.4% reduction in SO<sub>2</sub> from shipping compared to the hypothetical unregulated scenario without any SECA sulphur limits in place.<sup>211</sup>

There have been mixed industry opinions about compliance with the two European SECAs, but judging by the volume of low-sulphur fuel oil (LSFO) compared to high-sulphur fuel oil (HSFO) sales in many North European ports, compliance with the Baltic SECA appeared to be quite good from the start.<sup>212</sup> On the evidence of LSFO demand and what they hear on the market, suppliers operating the region tell Bunkerworld they still think this is the case. Currently, this kind of distillate fuel is about 50% more expensive than heavy fuel oil or employment of scrubbing technology.

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<sup>208</sup> Nugraha, *Effective implementation of Emission Control Area*, p. 44.

<sup>209</sup> *Ibid.*

<sup>210</sup> IMO, *Second IMO Greenhouse Gas Study 2009*, IMO, London 2009, p. 42.

<sup>211</sup> *Ibid.*

<sup>212</sup> Unni Einemo, "Sulphur limits bring results", Bunkerworld July/August 2009, published on the Internet at <http://origin.pmcndn.net/p/bw/magazine/2009/07/2009-07-Sulphur-limits.pdf>, last accessed on 5 April 2010.



As a spokesman from the International Chamber of Shipping told Seatrade Asia Online 'Ship-owners won't appreciate the higher costs involved but one positive aspect of today's development is that it gives a signal to the refining industry that there is going to be a considerable demand for distillate from the shipping industry, and that they had better start preparing. It's going to be massive task.'<sup>213</sup> Hence, the regulation of the sulphur content has further a positive effect by sending out a strong signal to the refining industry. The regulation therefore is an incentive to provide more environmental friendly fuel and in the end demand will regulate the supply.

Until then though, it can be noted that these changes will have drastic financial implications for the ship owners. Not knowing the fuel prize and availability in the future and the certainty that the cost for running a ship will increase will result in an economic burden on the shoulders of the owners. Furthermore, the sulphur cap within SECAs creates an economic disadvantage. Ship owners must comply with more stringent regulations which are not applicable to their competitors in other parts around the world, increasing their voyage costs. Ships only transiting through a SECA, entering form inland waters, might be faced with additional cost due to different restrictions in different areas. As there are currently only two SECAs in force and another one entering in 2011 the cap can be seen as a disadvantage for trade competition of the Baltic States. Adding to that are the more stringent rules set forth by the Sulphur Content Directive. But on the other hand, the Directive also balances this disadvantage out to the extent that it includes all European vessels. It for example requires with effect from 1 January 2010, that all Member States shall ensure that marine gas oils are not placed on the market in their territory if the sulphur content of those marine gas oils exceeds 0.1 % by mass.<sup>214</sup> The European Union hereby sets a more stringent rule than the international community, which the Baltic Sea will gain from, from an environmental perspective.

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<sup>213</sup> Seatrade Asia Online – maritime news, “IMO adopts Emission Control Area around North America”, published on the Internet at <http://www.seatradeasia-online.com/News/5408.html>, last accessed on 27 March 2010.

<sup>214</sup> Art 4b (3) Directive 2005/33/EC.

Overall though, the cap on sulphur content is a clear signal from the international community towards a more environmental friendly approach to shipping and signals awareness of the heavy effects of ship fuel on the marine environment.

### **5.9.2 PSSA**

In contrast to the SECA tool, possible outcomes or impacts are not as easily assessed. Whereas in the case of a sulphur reduction one can rely on availability of fuels and implications arising out of that or scientific assessments of the impacts of a lower sulphur content in the fuel, a similar assessment of a PSSA designation is much harder: it is almost impossible to predict if accidents would have happened without the additional APMs. Also one needs to keep in mind that the designation is fairly young and the full outcome will most likely take more years to become evident. This limits the following assessment to an analysis based on effectiveness.

Though there are in political science numerous definitions of the term<sup>215</sup>, effectiveness in this context will be defined by the outcome, meaning that if the objectives are achieved and the targeted problems are resolved. The question now arises whether the PSSA instrument has fulfilled its purpose and provided for more environmentally friendly shipping activities. According to analyzed data from the Automatic Identification System onboard, a big part of the ships trafficking through the Baltic Sea has adjusted to the new traffic separation schemes.<sup>216</sup>

Even though this is a positive result, naturally those few APMs in force can only provide protection of the Baltic from shipping activities to a certain extent. One needs to keep in mind that the objective of the PSSA concept was to provide for an umbrella framework enabling to tailor measures that will target the need of the area in question. The APMs in force though are not able to make the Baltic less vulnerable to shipping in total. Without new and specially designed APMs, the idea of the PSSA across the Baltic area has no sense and will be only the next extra form of marine protection in

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<sup>215</sup> See Rodin, "Regime Formation", p. 3.

<sup>216</sup> Prop. 2008/09:170, *En sammanhållen svensk havspolitik*, p. 105.

absence of real practice.<sup>217</sup> Thus, the PSSA framework needs to be filled with more APMs in order to be empowered and fully utilized.

Therefore another criterion could be seen in the use of the instrument. If the Baltic States have chosen to make use of the instrument and develop it further, this can be seen as pointing towards effectiveness in the sense of resolving the targeted problems use. As indicated, when an area has been designated as a PSSA area further APMs can be forwarded to the IMO by the states bordering the PSSA area.<sup>218</sup>

The fact that new proposals have been submitted and will most likely be adopted on MSC 87 this spring shows that the littoral States utilize this instrument. The proposals for the new APMs included even the Russian Federation, which shows an improvement in cooperation. In the joint proposal, environmental needs and the risk for collisions are recognized.

Though acknowledging this positive development, it must be noted that the most effective tool available to protect an area from shipping activities, from an environmental point of view, is the tool “areas to be avoided”. As mentioned above though there is a balance to be struck. It might be the most effective tool, but maybe not the most realistic and enforceable tool at the same time. As argued above, a prohibition of traffic in one area can lead to a much higher risk in another area.

It is therefore up to each Baltic State to thoroughly assess their marine environment and take reasonable actions in accordance to those needs. It seems though that the framework is used and utilized up till now. Doubts might arise to the extent of the utilization and further developments must be awaited. The APMs in force and the new ones point toward effectiveness of the tool.

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<sup>217</sup> BalticMaster, Vision of PSSA 2020, p. 5, published on the Internet at [http://www.balticmaster.org/media/files/general\\_files\\_687.pdf](http://www.balticmaster.org/media/files/general_files_687.pdf), last accessed on 12 March 2010.

<sup>218</sup> BalticMaster, “Vision of PSSA 2020”, p. 3, published on the Internet at [http://www.balticmaster.org/media/files/general\\_files\\_687.pdf](http://www.balticmaster.org/media/files/general_files_687.pdf), last accessed on 12 March 2010.

## 6 Conclusion

The Baltic Sea is one of the most protected seas and still at the same time one of the most polluted as well. The riparian States have though made efforts to protect the Baltic from the harmful influence caused by vessel traffic. The designation of the Baltic Sea as a PSSA provides for an umbrella framework, eligible to incorporate all kinds of measures. With the designation as a SECA as such a possible measure, the Baltic States have further reacted to the challenges of ship sourced emissions. Being a conventional tool the SECA concept is supported by the MARPOL 73/78 enforcement and compliance rules. In this respect the SECA tool though being a possible APM in the PSSA scheme, is independent from the PSSA concept.

The mix of the concepts though is utilized almost to its full extent and sends a strong signal to ship owners and mariners. The new and hopefully soon to be adopted APMs and more stringent sulphur caps supported by EU regulations point into a rather positive direction from an environmental perspective leaving the cooperation between the two concepts successful by reaching a higher standard of environmental protection from ship sourced pollution. However, it remains to be seen how this will affect the competitiveness of the Baltic Sea, Baltic Administrations and ship-owners. Ultimately, only compliance can contribute to the protection of the Baltic Sea.

In the fear of having to restrict growing oil exports the Russian Federation neither fully supports the PSSA nor SECA designation, which signifies one large downside to both concepts. Cooperation between all Baltic States is fundamental for the survival and usage of PSSA<sup>219</sup> and SECA effectiveness. Here, as discussed, HELCOM is a regional platform, where those differences can be addressed and possibly solved in the future.

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<sup>219</sup> BalticMaster, "Vision of PSSA 2020", p. 10.

It becomes evident, when studying environmental instruments like the PSSA and the SECA which impose more stringent rules on shipping, that economic interest will be a decisive factor as to their utilization.

Thus, the situation in case of the Baltic Sea resembles a compromise between economic and environmental interests. It needs to be kept in mind, that ship-sourced pollution, though a source of potentially disastrous impacts, is not the only contributing factor causing the miserable shape of the Baltic Sea. The maritime transportation sector though, has accepted its responsibility and has most definitely taken a step in the right direction and that in its turn is more than what other sectors have done!

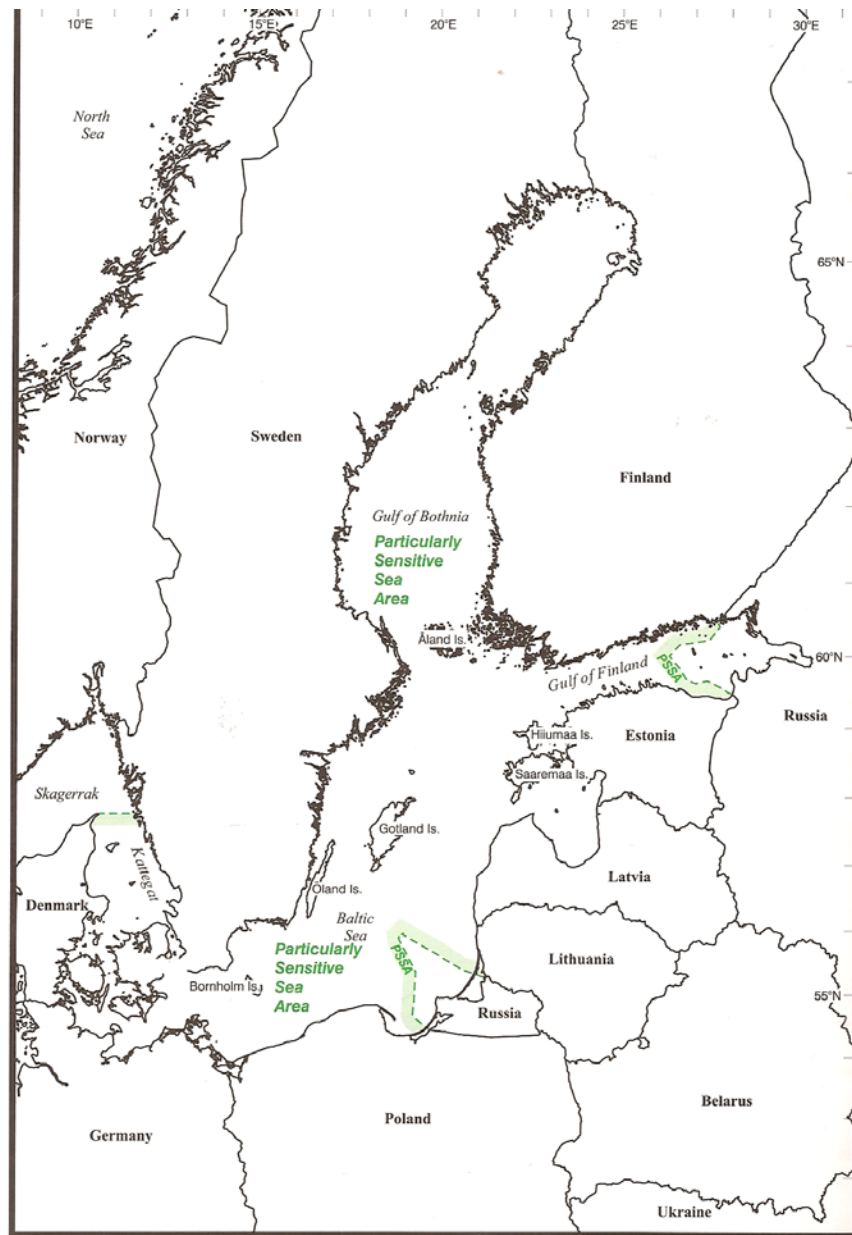
# Appendix 1

Area	Associated Protective Measures (APMs)	Date of final MEPC designation	MEPC resolution containing full description of PSSA
<b>Great Barrier Reef and Torres Strait-</b> Australia	IMO recommended compliance with Australian system of pilotage; mandatory ship reporting (GBR), two way route (Torres Strait)	MEPC 30, September 1990 (Torres Strait added at MEPC 53, July 2005) MEPC. 74 (40) MEPC. 133(53)	MEPC. 44(30) MEPC. 133(53)
<b>Archipelago of Sabana-Camaguey-</b> Cuba	Area to be avoided	MEPC 40, September 1997	MEPC. 74(40)
<b>Sea around Malpelo Island-</b> Columbia	Area to be avoided	MEPC 47, March 2002	MEPC. 97(47)
<b>Marine Area around Florida Keys-</b> USA	Areas to be avoided, mandatory no anchoring areas	MEPC 47, March 2002	MEPC. 98(47)
<b>Wadden Sea-</b> Netherlands, Denmark, Germany	Mandatory deep water route	MEPC 48, October 2002	MEPC. 101(48)
<b>Paracas National Reserve-</b> Peru	Area to be avoided (for ships > 200 gt carrying hydrocarbons and hazardous liquids in bulk)	MEPC 49, July 2003	MEPC. 106(49)
<b>Western European Waters-</b> Belgium, France, Ireland, Portugal, Spain, United Kingdom	Mandatory reporting for single hull tankers carrying heavy grades of fuel oil	MEPC 52, October 2004	MEPC. 121(52)
<b>Canary Islands-</b> Spain	Areas to be avoided, recommended routes, mandatory ship reporting system	MEPC 53, July 2005	MEPC. 134(53)
<b>Baltic Sea Area-</b> Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland, Sweden	Traffic separation, deep water route, areas to be avoided, mandatory ship reporting system, MARPOL Special Area, SO <sub>x</sub> Emission Controlled Area	MEPC 53, July 2005	MEPC. 136(53)
<b>Galapagos Archipelago-</b> Ecuador	Area to be avoided, mandatory ship reporting system, recommended tracks	MEPC 53, July 2005	MEPC. 135(53)
<b>Papahanamokuakea Marine National Monument-</b> USA	Areas to be avoided; recommended/mandatory ship reporting system	MEPC 57, March 2008	MEPC. 171(57)

*Designated PSSAs June 2008<sup>220</sup>*

<sup>220</sup> Australian Maritime Safety Authority, "Particularly Sensitive Sea Areas", p. 2.

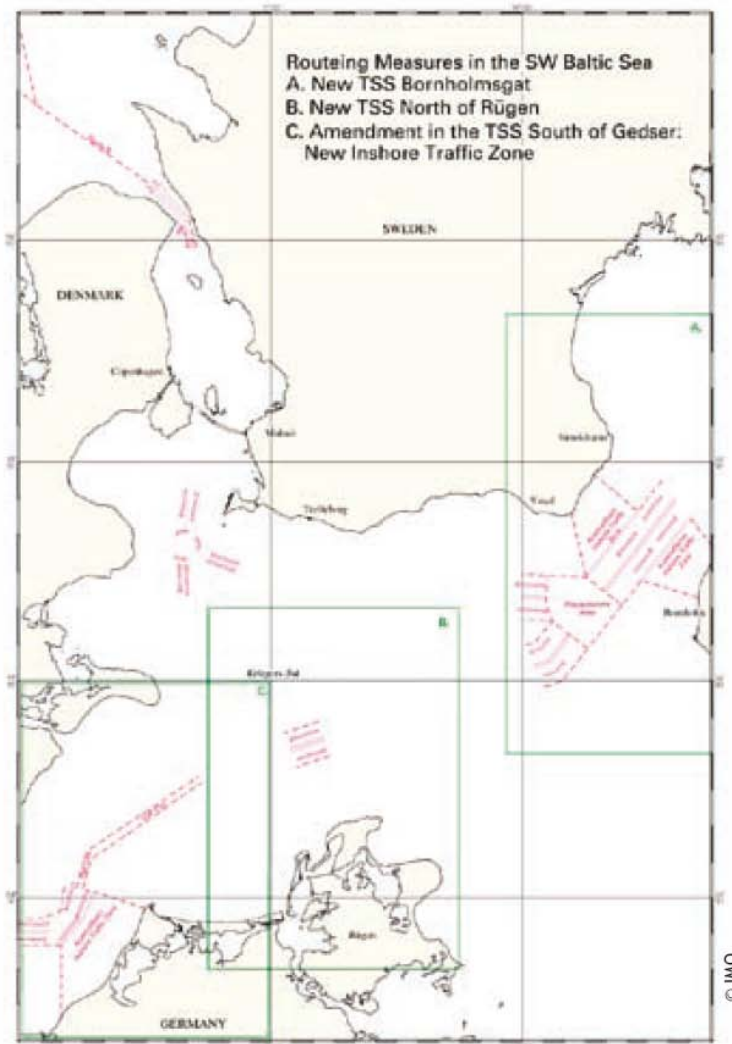
## Appendix 2



*The Baltic Sea as a PSSA*<sup>221</sup>

<sup>221</sup> MEPC 136(53).

## Appendix 3



*Traffic Separation Schemes in the Baltic Sea<sup>222</sup>*

<sup>222</sup> Linden et al., "PSSA in the Baltic", p.14.



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