

# Risk Assessment Study as an integral part of the Impact Assessment in support of a CISE for the EU maritime domain



A study by



Vice Admirals Fernando Del Pozo, Anthony Dymock, Lutz Feldt,  
Patrick Hebrard, Ferdinando Sanfelice di Monteforte

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# Assessment of Risk in the Maritime Domain

## Introduction

1. This study provides an assessment of the situations and events that may negatively affect the EU maritime domain in the forthcoming 15 years, in order to inform the on-going study to develop an EU-wide Common Information Sharing Environment (CISE).
2. For the purpose of analysis these kinds of situations and events can be divided into challenges, risks, threats and vulnerabilities. Unfortunately loose usage of these terms hinders the provision of the correct response. For clarity, these terms have been used in the following way:
  - Challenges: Tasks or situations that test existing abilities. In the security context, challenges relate to internal or structural factors that must be overcome by adopting the right approach or changing the present mind-set<sup>1</sup>.
  - Risks: Situations likely to result in danger or an unwelcome outcome if certain events turn out in undesired ways.
  - Threats. Actors intent on coercing or directly causing danger or damage. They are inherently man-made and deliberate.
  - Vulnerabilities. Susceptibilities to harm, either from natural causes, accidental, or man-made. While they may pose no immediate harm in the normal course of events, they must nevertheless be minimised in order to prevent an opponent from exploiting them.

## Challenges

3. For the future, the primary challenge will be to protect all elements of the maritime domain in order to ensure safe and secure use of the sea while allowing the development of a sustainable maritime economy that takes account of natural resources, biology, minerals, energy and water. This implies convincing other countries of the strength of EU intent in implementing the Integrated Maritime Policy<sup>2</sup> mandate.
4. However, this is more easily said than done, because of other fundamental challenges for Europe, which are mostly internal to the EU, namely:
  - The difficulty of creating and sustaining political momentum: defining which entity should undertake a given task is a political decision, which cannot always be taken on an ad hoc or case-by-case basis, as it must be capable of enduring beyond the electoral cycle;

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<sup>1</sup>Current political and journalistic usage tends to use challenges as a synonym for risks or threats, in order to provide a positive context, emphasising the potential to overcome them. This is a perennial source of confusion.

<sup>2</sup> The document “An Integrated Maritime Policy for the European Union” (the “Blue Book”) was issued on 10 Oct 2007, and has since spawned two progress reports (latest dated 11 Sep 2012) and two work programmes.

- Lack of clarity in the chain of command: maritime activities encompass an array of tasks not explicitly assigned to a specific stakeholder. In order to engender the necessary comprehensive approach, it needs to be made clear *ab initio*, whether a given operation – or indeed any routine activity - is to be civilian-led and supported by navies or whether it is to be military-led, but with civilian agencies in support;
- Friction created by different agencies, both at EU and national levels, that makes it difficult to create and implement an open exchange of information, such as the CISE, for various reasons, some legitimate, such as the protection of police covert sources, some less defensible, such as preserving a particular agency's competences or interests;
- The absence of a set of political guidelines covering both civilian and military operational units in conflict situations when crisis management procedures might be required;
- The lack of consensus among European stakeholders regarding basic definitions relating to the maritime domain, an essential common understanding being an absolute pre-condition for effective regulation;
- Misunderstandings stemming from linguistic and governance issues. While in English there is a clear distinction between *safety* and *security* (although in practice they are often confused), and in French between the respective translations *sécurité* and *sûreté*, most other European languages use the same word for both concepts. Also, *Maritime Security* as defined by the International Convention for the Safety of Life at Sea (SOLAS) only embraces preventive measures, with no mention of corrective ones, which is understandable in a purely SOLAS context, but unacceptable in the wider security context. That is why clear, separate and comprehensive descriptions<sup>3</sup> of both concepts are necessary:
  - Maritime Security: *The combination of preventive and responsive measures to protect the maritime domain against threats and intentional unlawful acts.*
  - Maritime Safety: *The combination of preventive and responsive measures intended to protect the maritime domain against, and limit the effect of, accidental or natural dangers, personal harm, environmental damage, risk or loss*<sup>4</sup>.
- Lack of coordination at international or interregional level of certain commercial activities that potentially affect the environment or other

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<sup>3</sup> In order to avoid contention with those different official documents that employ formal definitions for these concepts, those used in this study are called *descriptions*, although they adopt the form of a definition and comply with ISO standard 704. Where an existing definition (EU, UNCLOS, IMO, etc.) is proposed to be adopted it will be so indicated.

<sup>4</sup> Annex A contains a compendium of these and other relevant descriptions with supporting rationale.

commercial sectors, such as tourism, industry, aquaculture and wind farms.

5. All these challenges can be summarised as a general difficulty in achieving as free as possible exchange of information at EU level, and between agencies with differing maritime responsibilities at a national level.

## Threats

6. The man-made activities which pose threats to the EU and its population can be classified as:
  - Directly affecting European territory and citizens from the sea:
    - Terrorism using the sea as either a base or a conduit for attacks ashore, through infiltration of terrorists or the use of explosives or Weapons of Mass Destruction (WMD). Enough evidence exists to confirm that the sea has also been used by terrorism as a *line of communication* to infiltrate operatives and explosives/weapons into target countries, taking advantage of the implicit covertness and large cargo capacity of ships. The limited protection of major EU ports from an attack by sea makes the prospect of a ship exploding inside a harbour perhaps the most worrying threat;
    - Illegal immigration, including human trafficking that endangers the internal stability of EU countries. This tends to be concentrated in the European continent and islands that face African coasts, as the kinds of transport used are often precarious and therefore of short endurance;
    - Narcotics and arms trafficking, which can de-stabilise foreign countries and, in turn, create damaging effects in Europe. Ships provide an ideal conduit for this, as the bigger cargoes can be transferred to a number of smaller vessels at sea and disembarked on beaches or at makeshift facilities;
  - Those that affect European maritime interests, such as threats to the flow of energy and other strategically important commodities along major trade routes<sup>5</sup>, especially at geographical chokepoints:
    - Piracy, which not only affects trade routes, but also fishing activities in certain fishing grounds;
    - Local wars or terrorism in the vicinity of chokepoints.
    - Smuggling of goods and contraband. Besides the direct damage to state finances and legitimate business, an established network can launder money and engage in more profitable drug or weapon smuggling,;

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<sup>5</sup> The major trade route affecting EU interests connects the European harbours with Asia. It traverses choke points in the Straits of Malacca (or one of the Indonesian Straits), the Gulf of Aden and the Strait of Gibraltar. It is vulnerable to attacks at any point. Other vital trade routes connect Europe with the Americas and follow the West African coastline.

- TTW or EEZ claims by other states that conflict with those of EUMSs.
- Disputes between coastal states and regional powers over maritime borders, trade interests and EEZs or for regional supremacy, that have the potential to disrupt international maritime trade.
- Those that affect Europe's own maritime resources , such as fisheries and oil or mineral deposits within MSs' EEZs, wind farms, tidal or wave power hubs, including longer-term factors such as:
  - Environmental degradation (e.g. the dumping of toxic waste at sea);
  - Illegal, unreported, and unregulated fishing (IUU);
  - Illegal discharge of tank washing and oily bilge water on the high seas adjoining EU coasts;
  - Importation of alien species on dirty hulls or in polluted ballast water
  - The quest for archaeological artefacts and treasure on the seabed adjoining the EU.

## Risks

### 7. Risks of unintended accidents or natural catastrophes are:

- Directly affecting European territory and citizens from the sea:
  - Susceptibility to tsunamis. Besides the well-known Lisbon earthquake of 1755 (the epicentre was at sea, 120Nm from the coast, which provoked a tsunami), which devastated Lisbon and parts of the SW coasts of Portugal and Spain, Azores and Madeira Is, there have been a number of tsunamis in the Mediterranean, most of them with epicentres in the Ionian Sea, and some of them creating waves of up to 20m, despite the short fetch. Some French Overseas Territories also lie in areas with high probability of tsunamis.
  - The North Sea is an area with high tidal ranges. This can combine with low pressure weather pressure during North Sea weather depressions to produce exceptional *storm surges* which can flood extensive areas of low coast, with similar effects to a tsunami.
- Those that affect European maritime interests, such as threats to the flow of energy and other strategically important commodities along major trade routes, most notably in geographical chokepoints:
  - Underwater pipelines and cables, susceptible to damage from anchors, fishing gear, or other cable or pipes being laid. In the case of energy the potential effects are obvious, but with

nearly 90% of internet traffic carried by submarine cables there are other potentially drastic effects.

- Those that affect Europe's own resources at sea, such as fisheries, oil or mineral deposits within MSS' EEZs, wind farms, tidal or wave power hubs, including longer-term factors such as:
  - Risks to biodiversity (e.g. the importation of alien species or diseases);
  - Marine accidents (collisions, groundings, wrecks), which pose continuous risks to EU ships, harbours and coasts.
  - Poor safety regulation of wind, wave and tidal energy farms, in which the limited experience to date may render them prone to particularly serious accidents.

## Combination of Risks and Threats

8. All these risks and threats, as well as other criminal or unlawful activities at sea, affect not only Europe, but also other countries across the globe. For example, illegal immigration and narcotics trafficking from overseas today constitute significant internal threats to the EU. IUU fishing, toxic waste dumping and illegal oil bunkering severely undermine the economic viability and internal stability of African coastal states, while also providing an alibi for piracy and armed robbery. The inability of weak or failed states to control their maritime areas is a contributory factor in destabilization (e.g., Guinea Bissau, Somalia and small island states in the Caribbean). The impact of illegal narcotics in West Africa could also lead to the overthrow of governments and possibly widespread destabilization in the near to medium term. Natural disasters, in addition to their initial destructive effects, can often create conditions in which these risks and threats can emerge and thrive.

## Vulnerabilities

9. Apart from the challenges, risks and threats considered above, Europe also has significant vulnerabilities in the maritime environment. The most serious is that all EUMSs, even the landlocked ones, depend on the sea, as they all benefit from maritime trade through European ports and from the supply of minerals, foodstuffs, seafood and energy. As these essential commodities are carried along trade routes connecting different continents, most notably Asia, the Americas and Africa, they are exposed to attacks in any stage, even at points remote from Europe. Any interruption in these supplies could have a significant impact on the quality of life of the people of the EU.
10. A further European vulnerability lies in the large number of Europeans living and working overseas in international trade, working for European industries and commercial enterprises operating abroad or as members of Non-Governmental Organisations (NGO). Tourists are similarly vulnerable, as they are increasingly attracted by adventure and eco-tourism involving exciting and exotic destinations where risk is an inherent part of the



attraction. They represent potential hostages for states or armed factions willing to blackmail EUMSs or their citizens or to exact revenge, or they can suffer accidents far from search and rescue resources, such as the Arctic and Antarctic waters.

11. Emergency non-combatant mass evacuations have been carried out recently by some MSs, whose air and naval units have also extricated other Europeans from the affected areas either on their own initiative or on the recommendation of local diplomatic authorities. Some MSs maintain a permanent naval presence in certain conflict areas in order to be able to react rapidly in case of necessity. The *Solidarity Clause*<sup>6</sup> could lead the EU, through the offices of EEAS, to establish a more permanent set of mutual arrangements and contingency plans in this regard.
12. EU ports tend to be less secure than airports handling large numbers of containers and people using cruise ships or ferries. Securing them from seaborne attack by ships carrying explosives or WMD is another cause for concern, especially in harbours frequented by cruise ships with thousands of passengers and crew. Cruise ships discharging passengers are also a potentially highly effective conduit for spreading infectious diseases.
13. The seas around Europe form a number of different basins, which are mostly enclosed and separated from each other by narrow straits. This creates another more traditional geographic vulnerability, in allowing non-EU countries easy access to Europe's heartland, while complicating EU stakeholders' global freedom of action and strategic access to key regions overseas, sea lines of communication and the global commons.
14. The complexity of the EU's internal organisation and the different ways in which the EUMSs have divided maritime responsibilities has produced an enormous number of maritime safety and security stakeholders<sup>7</sup>, which increases the EU's vulnerability to man-made and natural risks, by creating difficulties in the exchange of information, and making preventive and corrective action more difficult.
15. All these vulnerabilities open the way for risks and threats, whether independent or in combination, while increasing the effects of an attack, accident or natural catastrophe by reducing structural resilience.

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<sup>6</sup> Articles 24.2, 42.7, 222.1 and 222.2 of the consolidated Treaty on European Union.

<sup>7</sup> The BlueMassMed Project revealed the surprising fact that 7 EU Mediterranean MS, some with only small populations and short coastlines had over fifty maritime agencies, ministries, or other stakeholders. This is replicated in other EU regions.



Affecting:	Territory and citizens	Maritime interests	Maritime resources
<b>Challenges</b>	<ul style="list-style-type: none"> <li>To establish an EU-wide CISE</li> <li>To promote collaboration between constabulary organisations, both at national and international level.</li> </ul>	<ul style="list-style-type: none"> <li>To establish an EU-wide CISE</li> <li>To promote bilateral discussions on sovereignty issues</li> </ul>	<ul style="list-style-type: none"> <li>To establish an EU-wide CISE</li> <li>To promote collaboration between national coast guards and SAR organisations.</li> </ul>
<b>Threats</b>	<ul style="list-style-type: none"> <li><b>Terrorism at sea or using the sea as conduit</b></li> <li><b>Use of vessels with explosives or WMD against port facilities</b></li> <li>Irregular immigration and related border crime/human trafficking.</li> <li>Narcotics trafficking</li> <li>Arms trafficking</li> </ul>	<ul style="list-style-type: none"> <li><b>Piracy</b></li> <li><b>Local wars in the vicinity of chokepoints</b></li> <li>Smuggling</li> <li>Non-EU claims disputing EU's TTW/EEZ borders</li> <li>Disputes between regional powers affecting trade</li> </ul>	<ul style="list-style-type: none"> <li>Environmental degradation.</li> <li>IUU fishing.</li> <li>Illegal discharge of oily bilge and ballast water.</li> <li>Quest for archaeological artefacts and treasure.</li> </ul>
<b>Risks</b>	<ul style="list-style-type: none"> <li><b>Tsunamis and storm surges</b></li> </ul>	<ul style="list-style-type: none"> <li><b>Damage to underwater pipelines and communications cables</b></li> </ul>	<ul style="list-style-type: none"> <li><b>Collisions, groundings, wrecks, cargo fires or explosions</b></li> <li>Risks to biodiversity</li> <li>Accidents in offshore oil and gas platforms, and wind, wave and tidal energy farms.</li> </ul>
<b>Vulnerabilities</b>	<ul style="list-style-type: none"> <li>Easy access from the coast to the heartland</li> <li>High number of tourists and expatriates</li> <li>Low lands openness to weather and rising sea level</li> </ul>	<ul style="list-style-type: none"> <li>Critical dependence on maritime commerce</li> </ul>	<ul style="list-style-type: none"> <li>High dependence on fishing</li> <li>Large number of vulnerable offshore oil, gas platforms and wind, wave and tidal infrastructure (with limited experience in the last group)</li> </ul>

Table 1. (High impact/Low probability events in **bold**)

## High probability/Low impact versus Low probability/High Impact events

16. A further aspect that must be taken into consideration in evaluating the prospect of adverse events is the difference in public perception, since this in turn drives political responses. Familiarity or frequent false alarms can create a feeling of complacency, whereas the novel or rare event tends to grab the headlines.
17. Popular perception of risk can be very different from scientifically or statistically analysed risk. People fear the unfamiliar aircraft hijack much more than the familiar but far more probable road accident. Politicians may react to popular concern by spending disproportionate resources on preventing an apparent but low-probability risk, when much better value for money could be found in improving organisation and surveillance with e.g. perimeter security fences, cameras and other sensors.
18. At sea, for instance, IUU fishing and illegal immigration are typically high probability/low impact events, while the *Costa Concordia* grounding or the Mumbai terrorist attack represent low probability/high impact events. The disruption of maritime trade, due to disputes between regional powers, as

in the Persian Gulf in 1980-88, or a disaster occurring in an EU harbour due to a ship with explosives or WMD are low-probability but potentially high impact events requiring appropriate preventive measures. CISE should take this distinction into consideration in order to implement a cost-effective response to both kinds of events, taking into account immediate popular concerns, but also recognising the serious negative effects of recurrent low impact events over a long period.

## **Regional differences**

19. In trying to evaluate the relative importance of different negative events regional perceptions and requirements will vary markedly between regions and sea basins. Prominent Mediterranean risks and threats such as illegal immigration could be rare on Europe's Atlantic coast, whereas pollution from a dense network of oil platforms such as in the North Sea would be of less concern in the Western Mediterranean.

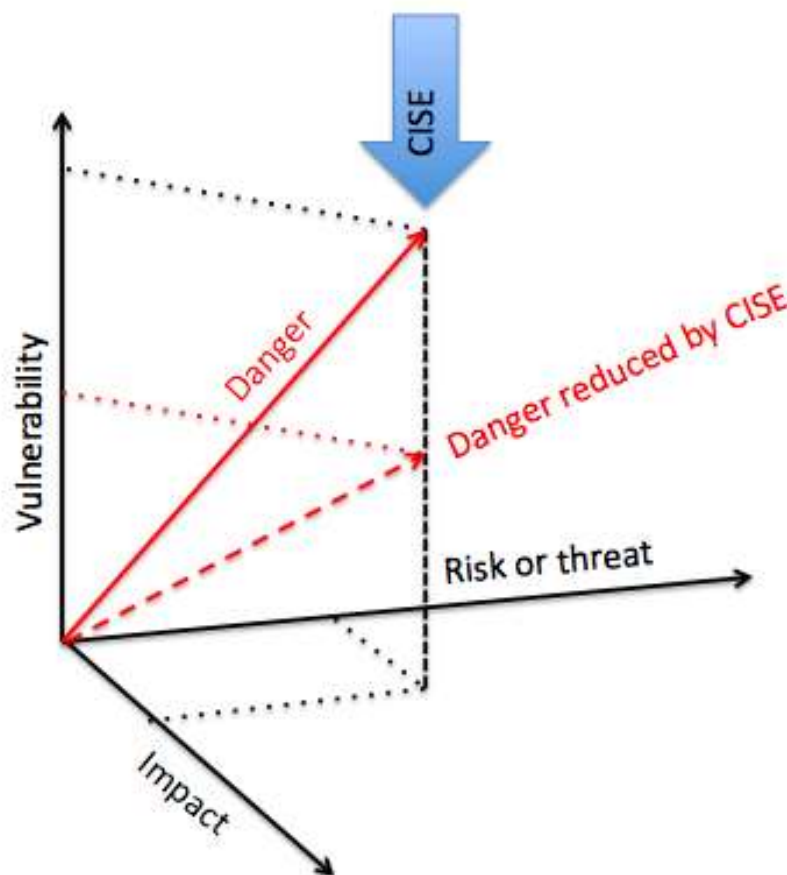
## **Answers to Challenges and Vulnerabilities**

20. The answer to the individual challenges listed in the table is the CISE process itself and other measures at the political level to promote cooperation between MSs in each sea basin, and between LEAs both within national borders and across them. Failure to succeed in this would mean that maritime safety and security would continue to be dominated by the current stove-piped approach, both towards information sharing and at the operational level where action is taken. This is an inherent weakness the EU cannot afford.
21. Vulnerabilities should in principle be minimised to reduce the risk of their being exploited for malicious purposes or exacerbating accidents or natural disasters. However, Europe's maritime vulnerabilities are hard to reduce, except in the cases of safety and security of off-shore oil and gas facilities and wind, wave and tidal electrical generation plants, where safety can often be improved by appropriate legislation and where security can be improved by surveillance and other protective measures.
22. There is, however, one important vulnerability that needs to be overcome, namely the organisational complexity of the EU's maritime agencies, services, etc., that hinders essential information exchange, unless a high degree of coordination is achieved. The overriding aim of the CISE should be the removal or reduction of these obstacles. This will be an important measure, along with the risks and threats and their relative importance, in evaluating the positive impact of the CISE.

## **Assessing Risks, Threats and Vulnerabilities**

23. Risks and Threats can be viewed similarly whether the event being studied is natural/accidental or man-made. They can be studied individually, and the consequences of incorrect information exchange or action taken in each case isolated, quantified and ranked and regional differences and their status relative to the impact/probability dichotomy taken into account.

24. Risks or Threats, Vulnerabilities and Impact (or consequence) can be plotted in a 3 dimensional diagram (risks and threats sharing the same axis). *Danger* is plotted as the combination of the three components. While CISE acts mostly by reducing the vulnerabilities, it follows that a consequence of it is the reduction of the overall danger (see figure). This is, however, a conceptual diagram, where the relations between the plotted elements do not have to follow the mathematical relations implied by the geometry.



## The Geography Factor

25. For the purposes of this study, the European Maritime Domain is divided into the following maritime areas:
- Baltic Sea
  - North Sea
  - Celtic Sea and English Channel
  - Bay of Biscay and Iberian Coast and Islands
  - Black Sea
  - Mediterranean
  - Arctic Ocean
  - Overseas regions

- External waters (i.e., the high seas and areas far from Europe).

Generically, these zones are also referred to as *sea basins*<sup>8</sup>. This departs slightly from the European Atlas of the Seas *sea basins* in ascribing the Azores, Madeira and Canary Islands to the Iberian Coast, rather than with the “Outermost Regions”. For statistical purposes, the Portuguese and Spanish Atlantic Islands are better treated this way than together with the French Overseas Territories.<sup>9</sup>

## Table Structure

26. Annex B contains the tables resulting from the limited Delphi process. They are split in five pages for easy consultation.
27. The columns “risk or threat” and “impact” in every table represent an assessment of the importance of the phenomenon in each basin, and of its impact on Europe’s safety and security. Likewise, “contribution by CISE” represents a judgement on the palliative affects on the vulnerability, and hence to the overall danger, in each specific case if a CISE is achieved. All these values have been achieved by a limited Delphi process using in the first round the Wise Pens members’ expertise, and in a second round the additional contributions of relevant EU Agencies.
28. The column “danger” is a quantity akin to the mathematical *expected value* of a random success, i.e., the composition of *risk/threat* and *consequence* (assuming a standard vulnerability and reducing the result to a homogeneous scale). The column “danger reduced by CISE” is the result of diminishing the “danger” in proportion to the reduction of vulnerability due to the contribution of CISE, and again reducing it to the homogeneous scale. All this follows the mathematical logic of the vectors shown in the previous figure. It is important to note that absolute values have no meaning, the only purpose being to provide a graphical representation of the relative judgements.

## Conclusions

29. Some useful conclusions can be drawn from the tables. However, taking an average of the danger results in order to give a global figure should be avoided or at least treated with great caution, because figures representing the different risks/threats have completely different meanings (piracy, risks to biodiversity, local wars, IUU, etc., are heterogeneous events and so the corresponding numbers cannot be summed, compared or averaged). The questions these tables are meant to address are: For a particular risk, which basin is most affected? Where is CISE most effective? Does CISE help

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<sup>8</sup> See the European Atlas of the Seas, [http://ec.europa.eu/maritimeaffairs/atlas/seabasins/index\\_en.htm](http://ec.europa.eu/maritimeaffairs/atlas/seabasins/index_en.htm)

<sup>9</sup> The list of French Overseas Departments and Regions quoted in the European Atlas of the Seas omits Mayotte, as well as a number of French Overseas Territories and Dependencies, which are nevertheless relevant for any maritime purpose, irrespective of their individual political status, as they generate extensive EEZs for which France retains responsibility.

to solve the problem, or at least to reduce it to a level comparable with other basins'? The following paragraphs try to answer those questions.

30. The most obvious deduction is the considerable reduction – in the experts' opinion – that CISE produces in the *expected value* of risk ("danger" in the table's nomenclature) generally, apparent by comparing the 3<sup>rd</sup> and 5<sup>th</sup> columns (the overall reduction is 30%, even if such a figure depends on the construction parameters used in the table and is therefore unrelated to any actual magnitude, as explained above).
31. The second deduction is that the effect is not absolutely uniform: environmental degradation of the Arctic, for instance, stands out as high risk, with major consequences, and a relatively low mitigating contribution by CISE. Also, it is clear that the seas of Northern Europe enjoy generally lower danger levels than the other maritime areas, while at the same time CISE is deemed to be more effective. There are, however, some exceptions, such as environmental degradation and the associated discharge of oily bilge water, a high risk in the enclosed North European seas, where the effect of even a highly efficient CISE is insufficient to produce a significantly lower value.
32. The column "danger" appears as more uniform than the columns "risk" or "impact" considered alone, which in turn makes "danger reduced by CISE" also more uniform than it would be expected. This is at least in part due to the fact that, in some cases, where "risk" is high, its impact tends to be "low", and vice versa: risk of local wars in Northern European straits, for example, is very low, and in part because of this, its impact - if it happened - would be immense. Contrariwise, the risk of discharges of oily bilge water on the High Seas is clearly very high, but its impact is much lower than in enclosed seas, where it would be more damaging and noticeable; this is why unscrupulous shipmasters tend to discharge oily bilges and ballast while on the high seas.
33. Overseas dangers, even when the vulnerabilities are reduced by CISE, still rank consistently higher than domestic ones, especially the man-made ones, such as terrorism, arms trafficking or piracy. At the same time, the contribution of CISE to reducing them is deemed lower than in the seas adjacent to Europe, although with today's access to worldwide traffic data, in particular with MSSIS, web-distributed AIS and SatAIS, this should not be a problem<sup>10</sup>. This is a wake-up call to all those agencies involved in preventing risks and threats to pay greater attention to those areas. Unfortunately, the insidious effect of legislation and common usage, when related to maritime risks and threats, tends to drive consideration of them only on the seas around Europe, and sometimes even just TTW.

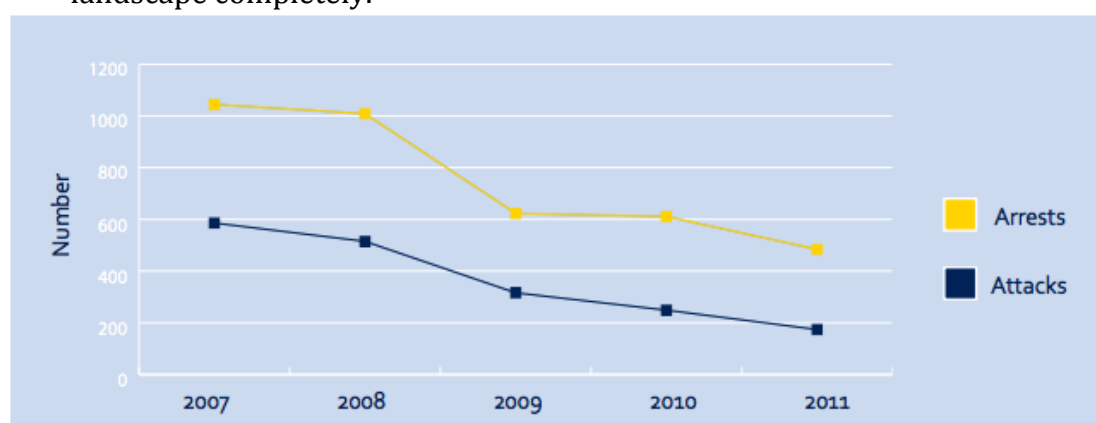
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<sup>10</sup> CISE does not possess an associated enforcement capability *per se*. However, the perception that Law Enforcement Agencies in the vicinity of Europe may somehow act on information compiled through CISE, whereas they cannot do likewise overseas or on the high seas, may have influenced the experts' judgement.

34. Environmental degradation is an area where CISE is deemed to make the greatest contribution, even if in some especially sensitive areas, it is insufficient to reduce the problem to manageable levels. This could facilitate a *soft* approach in persuading the agencies involved to share information, as early, positive results in this field would be popular and encourage politicians to extend cooperation to other more parochial and more politically sensitive fields.
35. The danger from tsunamis and storm surges is considered far higher overseas than elsewhere. This is possibly a consequence of the high media profile of recent tsunamis affecting Japan and coasts of the Indian Ocean, but historical records of similar catastrophic events in the Mediterranean and SW coasts of Europe show that probability there is similar (see below). Storm surges are a regular phenomenon characteristic of the North Sea. Early warning of these events from sensors networks distributed through a CISE would be very important not least in limiting the cost in human lives.

## Data

36. These subjective, but scientifically processed factors, must be underpinned by actual figures. The following paragraphs contain those that have been located or the links to the relevant sources.
37. Terrorism at sea or using the sea as conduit: See figure below. For a more complete analysis consult [EUROPOL statistics](#). They are comprehensive, therefore terrorism *at sea* or *using the sea* are included but not separately. The general statistic trend would also be applicable to the sea related actions. However, the contingent nature of terrorism makes predictions extremely risky, as changing political circumstances may change the landscape completely.



Number of failed, foiled or completed attacks; number of arrested suspects, 2007 to 2011

38. Use of vessels with explosives or WMD against port facilities: No specific data for this form of terrorism have been found. There have been no recent incidents recorded,<sup>11</sup> but it is not known whether there have been other

<sup>11</sup> Apart from the failed attack on USS *The Sullivans* (2000), and the partially successful one on USS *Cole* (2002), while in Aden, Yemen, that didn't affect the harbour facilities.



failed attempts. As another variation of terrorism, it follows that the pattern of occurrence would be similar.

39. Illegal immigration/human trafficking: See figure below. A significant overall decrease of 67% in 2012 over the previous year's figures has been noted throughout the Mediterranean, where by far the largest illegal immigration into Europe by sea occurs. Whether this is an indicator of even more favourable statistics in the future, or just a consequence of the current economic situation, to be reversed when circumstances improve, remains to be seen.

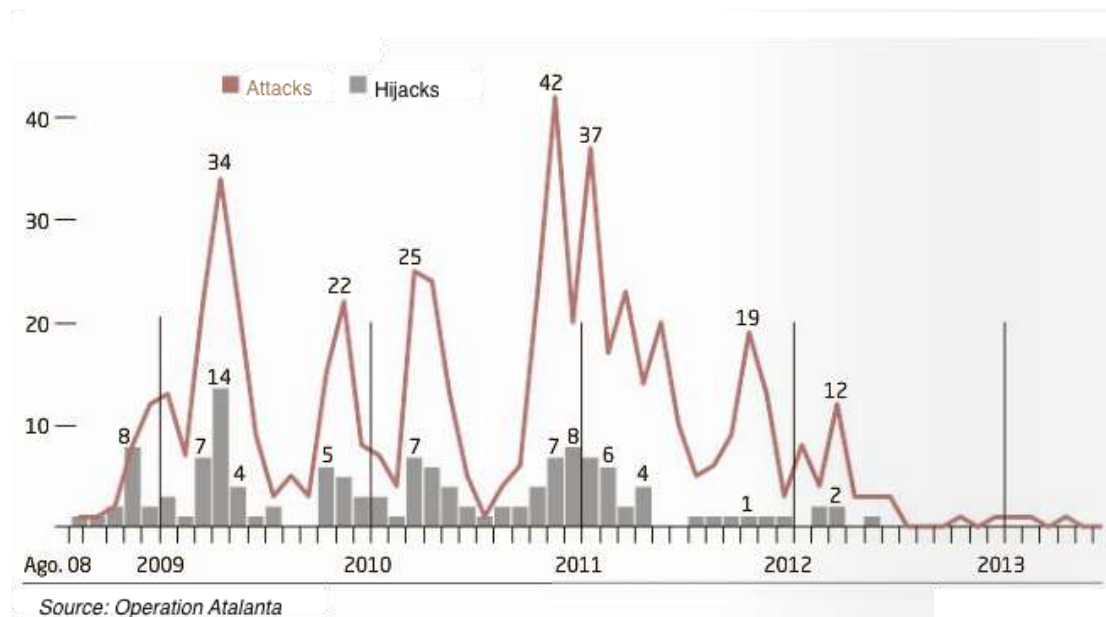


40. Narcotics trafficking: See [Evolution of narcotics traffic in Europe \(UNODC\)](#). While figures in this comprehensive study are provided in such a way that makes it impossible to produce an analysis based on the means of transport (essential for a maritime security study) it is evident that overall narcotics traffic in Europe remains stable. Some narcotics, such as synthetic drugs, seem to be slightly in the ascendant, but this is counterbalanced by a reduction in the consumption of other, more traditional drugs, such as cocaine. Cannabis remains by far the most commonly consumed drug in Europe, an estimated 37,113 Kg in 2012.
41. Arms trafficking spans a range of illegal activity from low-level small arms smuggling for criminal purposes to shipping weapons in sufficient bulk or of sufficient sophistication to conduct a terror campaign or to destabilise a regime. Although the potential utility of CISE is obvious, the range of effects and paucity of recorded data prevents meaning quantitative analysis here.
42. Piracy: See accompanying figure for Somalia, which shows a clear downward trend in both the number of attacks and in their relative success (i.e., completed hijacks). But the optimism these figures suggest must be tempered by the observed increase in piracy incidents in the Gulf of Guinea, mostly off the coasts of Nigeria, Benin and Togo, which, according to the



IMB, have already surpassed those off the coast of Somalia this year. The IMB figures updated on 15 July 2013 for the current year are<sup>12</sup>:

- Worldwide Incidents 2013: 143 reported incidents including 7 hijackings.
- Somali related incidents 2013: 9 reported incidents including 2 hijackings.
- Currently held by Somali pirates: 68 hostages/ 4 vessels.
- Nigeria related incidents 2013: 22 reported incidents including one hijacking.



43. Local wars in the vicinity of chokepoints: The trade routes that link Europe to the key commercial areas of the East are punctuated by chokepoints, several of which have been in the past, and may potentially be in the future, affected by local wars that, while perhaps not directly affecting European political interests, have nevertheless caused the closure of or traffic restrictions in the chokepoint. The entire Europe-Asia trade route is thus affected, and with it European economic interests, requiring expensive diversions and even the construction of new classes of ships. The fact that the potential risks are political makes these events highly unpredictable. These sensitive chokepoints are:

- The Strait of Malacca, located between Indonesia, Malaysia and Singapore linking the Pacific with the Indian Ocean and the South China Sea. Apart from the permanent navigational hazards, risks and

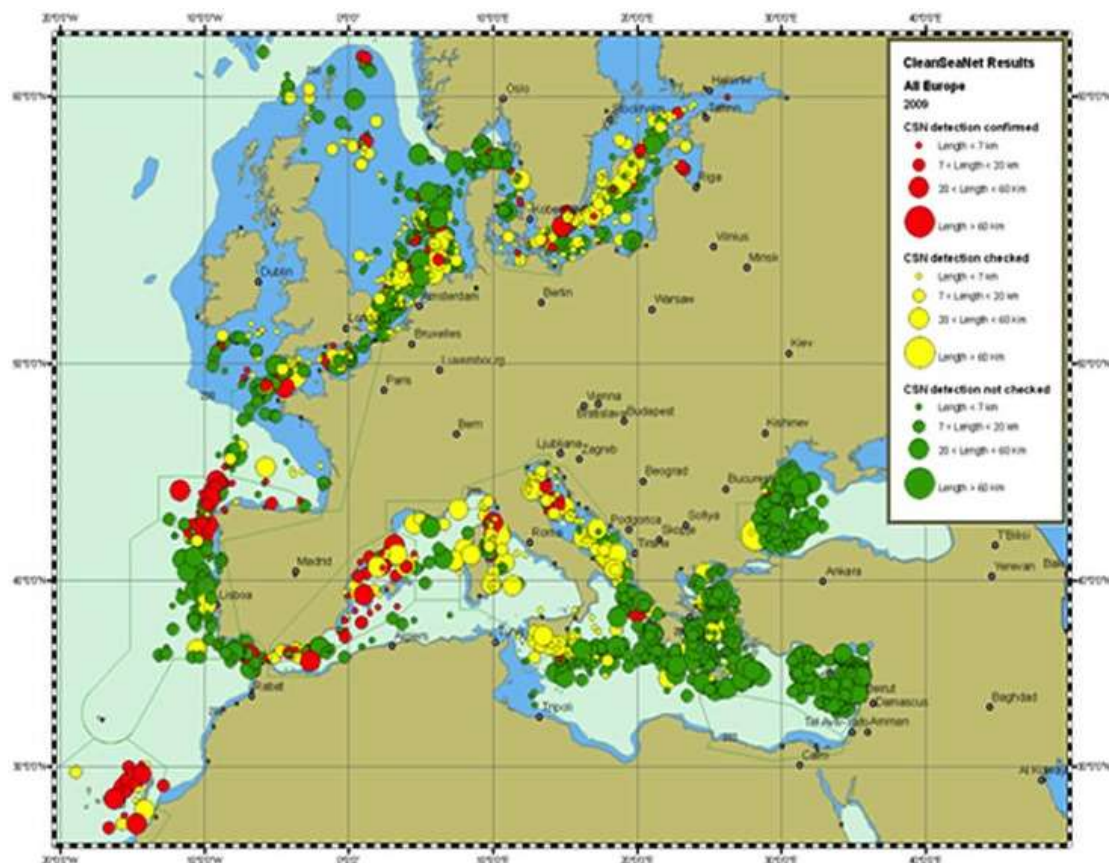
<sup>12</sup> The discrepancy in the figures provided by the IMB and Operation Atalanta HQ for Somalia can in part be explained by the different definitions used: IMB counts any report of suspicious behaviour as an *incident*, while Atalanta HQ only counts actual attacks. Nevertheless, IMB statistics are very useful to appreciate the relative weight of the Somali piracy against the rest of the world, as the criteria are homogeneous, even if no trend is indicated.

threats from piracy and armed robbery, disputed borders render it a potential area for interstate conflict.

- The Strait of Bab-el-Mandeb between Djibouti, Yemen and Eritrea, linking the Indian Ocean with the Red Sea. This is an area of enduring local conflicts between Yemen and Eritrea over maritime borders, as well as an area renowned for piracy.
  - The Suez Canal, located in Egypt, linking the Red Sea with the Mediterranean Sea. This chokepoint is permanently at risk due to domestic unrest and territorial disputes in the region.
  - The Straits of Hormuz, located between the United Arab Emirates, Oman and Iran, linking the Persian Gulf with the Arabian Sea. The straits experience continual tensions due to sovereignty disputes over several islands and the aggressive attitude of Iran towards neighbouring states.
  - The Taiwan Strait, separating China and Taiwan, linking the South China Sea with the East China Sea. Political tensions and risks persist, principally due to political differences and but also disputes about demarcation of maritime boundaries. Three major crises have occurred in the past between China and Taiwan due to China's "one China policy". China's ambitions to become the dominant power in the region pose a potential risk.
  - The Korea Strait, located between South Korea and the Japanese islands of Kyushi and Shikodo, linking the East China Sea with the Sea of Japan. Despite long-standing disputes between South Korea and Japan, no significant change to is expected to current peaceful development.
44. Smuggling is widespread and is facilitated by the use of containers. This entails mostly counterfeit goods imported from Asia in increasing quantities, to be sold on the roadsides of our cities by illegal immigrants. Even though most EU nations and many other countries are attempting to deal with this threat, the degree of success is still low, as enforcement takes place mostly ashore, after the goods have been imported, when it is too late.
45. Non-EU claims disputing EU's TTW/EEZ borders apply mostly in the Mediterranean, where various disputes are still ongoing (notorious examples, but by no means the only ones, are the differences between Turkey and Greece or Cyprus).
46. Disputes between regional powers affecting trade are still at a potential level. It should not be forgotten, for instance, that India has militarized the Andaman and Nicobar Islands, facing the Straits of Malacca, and a dispute with China might affect EU trade in the area.
47. IUU fishing: [See "The Global Extent of Illegal Fishing", by MRAG](#). At the 2013 Managing Our Nation's Fisheries Conference in Washington, D.C, the NGO Oceana released a new report finding that IUU fishing accounts for 20

% of the global catch and contributes to economic losses of \$10-23 billion, while also threatening 260 million jobs that depend on marine fisheries around the world.

48. Illegal discharge of oily bilge and ballast water and other environmental degradations. The figure provided by EMSA gives an indication of the size of the problem, although it does not give trend information. Despite the accuracy and promptness of the data EMSA provides, the low level of enforcement by nations suggests that the trend is probably negative or stable. During the period 16 April 2007–31 December 2009, 7193 possible spills were detected by EMSA's CleanSeaNet, of which 1997 were verified on site by MSs and 542 were confirmed as being mineral oil. However, even these figures are just the visible part of the problem, as CleanSeaNet cannot detect many other cases of comparatively minor waste dumping that add up to considerable environmental degradation



49. The Quest for archaeological artefacts and treasure: While plundering of the ocean's riches recently achieved prominence during the protracted and high profile legal battle between the Government of Spain and the US company Odyssey, the judgement against Odyssey has discouraged further exploration by them and other freelance companies without the previous agreement of governments claiming to own the wreck. Odyssey, the most prominent, has since reached agreement with the UK on the exploration of several wrecks. They have also diversified their activities to include

exploring for potential seabed mining locations. All this seems to point to a decline in uncontrolled exploitation of archaeological artefacts and treasures, although the capability of divers to reach depths of 50 metres or more is a major cause for concern. Relevant figures are, however, unavailable.

50. Tsunamis and Storm Surges: See [Tsunamis in the Mediterranean](#), [in the Atlantic](#) and [in the Pacific](#). These references provide historical data, but, since tsunamis are intrinsically unpredictable, they are of no help in forecasting, beyond showing where the tsunami prone areas are situated.
51. Damage to underwater pipelines and communications cables: Whether for reasons of security or otherwise, it is extremely difficult to obtain reliable accurate data for submarine cables and underwater pipeline. The submarine cable map<sup>13</sup> offers some insight into the different cable densities. See also this link<sup>14</sup> which provides indication of their vulnerability.
52. Of the nine sea basins considered here, the Celtic Sea, the Mediterranean Sea and the High Seas have complex networks of cables part of a global network with considerable autonomy. Disruptions to internet connectivity can result from damage to cables by human or natural activities. The submarine cable map illustrates that similar chokepoints exist as for marine traffic with very similar risks and threats.
53. There are no global maps available for underwater pipelines, but they are subject to similar risks but with much more serious results: damage may have an impact on marine resources with a local and a regional reach. The links<sup>15</sup> suggest how risks might be minimised by software and technical means. Pipeline protection is a big but discreet business and so facts and figures are not readily available.
54. Collisions, groundings, wrecks, cargo fires or explosions: The numbers of these events are likewise very difficult to assess. One important criterion is to measure the intensity of maritime traffic, another is the level of qualification of the ships' crews. There are regional and global maps with current and projected numbers of ships operating in one or more of the sea basins, but very little data about the training standards globally and how to compare them. Most data are not available from open sources. One source for facts and figures could be the ship insurers such as Lloyds of London who also have considerable expertise in ports, container terminals, pipelines and oil platforms. Two major dangers are apparent, the danger to ships' crews or personnel working on maritime infrastructure, and the danger to the wider maritime environment.

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<sup>13</sup> <http://submarine-cable-map-2013.telegeography.com/>

<sup>14</sup> <http://www.wired.co.uk/news/archive/2013-04/3/vulnerable-undersea-cables>

<sup>15</sup> [http://www.dnv.com/resources/publications/dnv\\_forum/2005/no\\_2/theworldslargestunderwaterpipelinesystemprovidingriskstatus.asp](http://www.dnv.com/resources/publications/dnv_forum/2005/no_2/theworldslargestunderwaterpipelinesystemprovidingriskstatus.asp).  
<http://www.industrytap.com/worlds-longest-under-water-gas-pipeline-1166km-giant-serpent/339>

55. The links<sup>16</sup> to the “World Disaster Map” give an impression, but not reliable facts. The Pasta Mare Project of the European Union dealing with ship density and the consequences shows very clearly the problem with the numbers: it is a combination of collected data and assumptions. CISE is clearly the right tool to reduce all risks and threats mentioned here, and the prognosis of increasing maritime traffic in European sea basins is the strongest argument for CISE and its implementation.
56. Risks to biodiversity: An assessment of these risks and threats can only be based on very general assumptions about many different factors, the major ones are climate change, ecosystem loss or long-term damage and alteration and the invasion of alien species. For further investigation it seems appropriate to study the “Canadian Biodiversity Strategy”, to follow the United Nations Convention on Biological Diversity and to pay attention to the European Commission’s “Alarm” project, which means “Assessing large-scale environmental risks of biodiversity with tested methods”. This study is the best available source for this very complex risk. The complicated nature of the problem and the very different solutions required, demand a broader view and the unrestricted exchange of information between all maritime actors. See the links for additional information<sup>17</sup>.
57. Accidents in off-shore oil and gas platforms, and wind, wave and tidal energy farms: See <http://www.ogp.org.uk/pubs/434-17.pdf>

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<sup>16</sup> <http://www.ogp.org.uk/pubs/434-17.pdf>.  
<http://mapreport.com/subtopics/d/n.html>.  
<https://webgate.ec.europa.eu/maritimeforum/content/1603>.  
[https://webgate.ec.europa.eu/maritimeforum/system/files/AIS\\_Issue3\\_AllShip\\_densityMap\\_0.pdf](https://webgate.ec.europa.eu/maritimeforum/system/files/AIS_Issue3_AllShip_densityMap_0.pdf)

<sup>17</sup> <http://online.wsj.com/ad/article/execdigest-biodiversity>  
<http://www.biodiversitybc.org/EN/main/why/110.html>  
[https://www.ufz.de/export/data/global/30752\\_Spangenberg-et-al\\_Scenarios\\_GEB-2012.pdf](https://www.ufz.de/export/data/global/30752_Spangenberg-et-al_Scenarios_GEB-2012.pdf)



## Annex A. Descriptions of the concepts used.

### Introduction

1. In the maritime world difficulties and misinterpretations occur in attributing responsibilities between agencies, whether military or civilian, as well as amongst the many different national and EU civilian agencies. In part this stems from the variety of definitions of the terms “security” and “safety” and their application in the maritime domain. The terms are often used imprecisely, inconsistently, tautologically or by cross-referring to each other, in contravention of several rules of ISO standard 704<sup>18</sup>. Further problems can occur in translation to and from other languages, where the terms can have similar, different, mixed, or overlapping meanings.
2. When the distinction is made as in English, the consensus seems to be that “security” applies to man-made risks and hostile acts, while “safety” applies to accidental, dangerous or potentially dangerous events. This difference is crucial as it affects the structure, organisation and responsibilities of the agencies involved, so it should be clearly delineated and understood from the outset.<sup>19</sup>
3. Another source of confusion is due to the terms being interpreted in different ways, sometimes as an activity, at other times as an aim or a condition, thereby making it difficult to delineate the fields and separate the responsibilities. In particular, the military tend to consider “security” as a *condition*, rather than an *activity*, implying that no action is required unless the condition or status quo has been disrupted - by inference through hostile action. On the other hand, if “security” is defined as an activity, as is consistent with the EU Regulation 725/2004 (below), it requires constant attention and effort, not just in the face of hostile action, but when confronted by all types of illegal, illicit, and criminal actions, which occur continually in peacetime. In some cases attempts have been made to bridge this distinction by talking of an *on-going condition* (q.v. the NATO definition quoted above) or *continued condition*. In the context of this study, which aims is to achieve synergy among the agencies involved, all but one civilian, it would seem more appropriate to adopt the *activity*

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<sup>18</sup> Just as token examples of cross-reference, cf. NATO’s definitions proposed by the SCs in doc SH/J5/2009 - 207387 3000 TC-538/TT-4427/Ser: NC0027, 21 July, New Alliance Maritime Security Operations Concept: *Maritime Security is the ongoing condition in the maritime environment where international and national laws are adhered to, the right of navigation is preserved, and citizens, vessels and resources are safe.* Also, cf. The EU Maritime Surveillance and Mission Tasks, 22/03/2006: *Security missions are conducted to monitor vessel and cargo movements for reasons of maritime safety, [...].*

As for tautology, see in the same document: *Maritime safety: To continuously maintain and enhance safety in shipping and the protection of life, [...] It concerns: safety of the ship, its crew and its passengers and/or cargo, safety of navigation, environmental safety [...],* and the near-identical text in the EU Green Book, defying the rule according to which the defined object must not be part of the definition.

<sup>19</sup> One of the very few documents where this distinction is clearly delineated is in the excellent CHENs “Maritime Security Best Practice Guidelines”, 24 Nov 2008.

interpretation. This would not be incompatible with simultaneously using the *condition* interpretation in purely defence-related documents.

4. This study's proposed description of *maritime security*, the cornerstone on which all the others rest, has been adapted from Regulation (EC) No 725/2004 of the European Parliament and of the Council of 31 March 2004 on enhancing ship and port facility security<sup>20</sup>, which suits the particular circumstances of the transportation community, which lacks coercive powers to enforce security rules. The changes introduced to the original are intended to cover the needs of other actors, in particular law enforcement agencies, without diminishing or contradicting the old one, and to allow for new concerns that have emerged in the maritime world since that definition was approved. *Maritime safety* has been described following the same structure as *maritime security*, in order to highlight the differences.
5. For other related concepts we propose adopting descriptions consistent with the *safety* and *security* distinction above, adapted where necessary from authoritative dictionaries or existing references.
6. Significantly, the set of descriptions proposed for this study, as explained for *maritime security* above, differs from the various existing formal and informal definitions in that it has not been designed to suit a specific responsibility, agency, or need, on the contrary, it is intended to have a more universal applicability, without in any way detracting from, or limiting existing responsibilities. This non-binding proposal is submitted in the hope of general acceptance across all the EU maritime-oriented communities.
7. Descriptions have also been provided for other less contentious terms, but for which we have detected a variety of interpretations that make agreement on specific subjects difficult.
8. The *EU Glossary of Acronyms and Definitions* (11362/3/09 Rev 3, dtd 24 Jun 2010 COSDP 549) has been consulted as an authoritative source of definitions and descriptions of the concepts under discussion. However, the results are disappointing, both because it fails even to mention many, and because those in fact covered are treated narrowly, clearly for the purposes of a specific application. These cases are referred to and commented upon where applicable in the text.
9. Where the EU Glossary's or other authority's definition has been used, the source has been quoted. In all cases the proposed description or definition appears in *italics*.

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<sup>20</sup> *Maritime Security means the combination of preventive measures intended to protect shipping and port facilities against threats of intentional unlawful acts.*



## Descriptions and Comments

- 10. Challenges:** *Tasks or situations that test existing abilities. In the security context, challenges relate to internal or structural factors that must be overcome by adopting the right approach or changing the present mind-set.*

Comment: Current political and journalistic usage tends to use challenges as a synonym for risks or threats, in order to provide a positive context, emphasising the potential to overcome them. This is a perennial source of confusion. An example of a challenge for the EU in the maritime arena would be, precisely, to overcome the ingrained resistance to the establishment of a CISE across the EU.

- 11. EU Maritime Domain:** *That part of the maritime domain [see below] encompassed by the EU Member States' Territorial Waters, Exclusive Economic Zone, Continental Shelf, and Search and Rescue Areas, as defined by UNCLOS/SOLAS, together with all cargo and vessels flagged, beneficially owned by, or bound to the EU, as well as any Area of Operations outside the above that has been declared for an EU Maritime Operation.*

Comment: Given the multi-agency involvement, the EU maritime domain has to include the logical addition of areas defined or declared for different purposes, namely TTW (and implicitly the Contiguous Zone) for jurisdictional matters, EEZ, Continental Shelf and Extended Continental Shelf for exploitation of resources, and SAR for protection of human life. Also, given the complexity of the legal responsibilities for ships and cargoes, it has been considered necessary to provide an extensive list of the ways in which EU nations could maintain an interest in the welfare of cargoes, ships and crews, or on safety and security of the EU itself on arrival of non-EU ships bound for EU ports. All these different areas are taken to include metropolitan territories as well as to overseas territories.

- 12. Integrated Maritime Surveillance:** *Maritime Surveillance to which different agencies contribute in a cooperative manner, in order to achieve synergistic exploitation of enhanced understanding for the benefit of the decision-making processes in each contributing agency.*

Comment: Conceptually, Integrated Maritime Surveillance does not differ from Maritime Surveillance by itself, but it has been considered necessary to include this concept in order to illustrate the need for a cooperative approach to the compilation of information in this field. The accumulated information, however, does not lead directly to a hypothetical "integrated maritime situational awareness". On the contrary, and as noted in the comments on MDA, each sectoral agency or other party involved must build its own sectoral or regional situational awareness in order to support its own decision-making.

- 13. Illegal Immigration:** *The immigration of a person to a new place of residence using irregular or illegal means, without valid documents or carrying false documents.*

Comment: The influx of large numbers of people, driven from their homes by wars or poverty, seeking a better life in more affluent Europe, is a phenomenon that uses a variety of means, certainly including the land and air borders, but it is particularly acute in the maritime realm, because each attempt tends to involve large numbers taking advantage of the high capacity that ships provide, and because using beaches or isolated stretches of coast makes it easier to sidestep border controls.

**14. IUU Fishing:** It is the accumulation, for the sake of simplicity, of three different crimes related to fishing. According to the UN FAO (International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing, Rome 2001) the three components are:

- *Illegal fishing refers to activities:*
  - *Conducted by national or foreign vessels in waters under the jurisdiction of a State, without the permission of that State, or in contravention of its laws and regulations;*
  - *Conducted by vessels flying the flag of States that are parties to a relevant regional fisheries management organization but operate in contravention of the conservation and management measures adopted by that organization and by which the States are bound, or relevant provisions of the applicable international law; or*
  - *In violation of national laws or international obligations, including those undertaken by cooperating States to a relevant regional fisheries management organization.*
- *Unreported fishing refers to fishing activities:*
  - *Which have not been reported, or have been misreported, to the relevant national authority, in contravention of national laws and regulations; or*
  - *Undertaken in the area of competence of a relevant regional fisheries management organization which have not been reported or have been misreported, in contravention of the reporting procedures of that organization.*
- *Unregulated fishing refers to fishing activities:*
  - *In the area of application of a relevant regional fisheries management organization that are conducted by vessels without nationality, or by those flying the flag of a State not party to that organization, or by a fishing entity, in a manner that is not consistent with or contravenes the conservation and management measures of that organization; or*
  - *In areas or for fish stocks in relation to which there are no applicable conservation or management measures and where such fishing activities are conducted in a manner inconsistent with State responsibilities for the conservation of living marine resources under international law.*

Comment: It is believed that only 25% of vessels blacklisted for illegal fishing activities by international organizations are intercepted in port, which illustrates the weakness of IUU enforcement. It is also estimated that IUU fishing accounts for 20% (11 to 25M Tm) of the global catch.<sup>21</sup>

- 15. Maritime Domain:** *All areas and things of, under, relating to, adjacent to, or bordering on a sea, or ocean including all maritime-related activities, infrastructure, people, cargo and vessels and other conveyances.*

Comment: The deliberate choice of the term “domain” as opposed to more traditional expressions such as “area” or “zone” is intended to provide a less rigid and more all-embracing description of the realm where maritime interests lie, so as not to exclude the air above, used by maritime patrol aircraft, or harbours and other coastal facilities whose economic life depends on both the safety and the security of maritime traffic. Restricting security or safety concerns to “shipping and port facilities” as does the EC Regulation quoted above would impose an undue limitation in the execution of responsibilities by many agencies.

- 16. Maritime Domain Awareness:** *The effective understanding of anything associated with the maritime domain that could impact upon the security, safety, economy, or environment* (IMO. Amendments to the International Aeronautical and Maritime Search and Rescue [IAMSAR] Manual, 24 May 2010).

Comment: The overall aim of MDA is to understand, prevent wherever applicable and manage in a comprehensive way all the events and actions related to the maritime domain, together with their environment, which could impact the areas of maritime safety and security, including law enforcement, defence, border control, protection of the marine environment, fisheries control, trade and economic interests of the EU. It follows that, even if the underlying information is shared or common, there are as many MDAs as areas where decision-making may be independently applied.

- 17. Maritime Safety:** *The combination of preventive and responsive measures intended to protect the maritime domain against, and limit the effect of, accidental or natural danger, harm, damage to environment, risk or loss.*

Comment: The crucial distinction between man-made (security) and unintentional (safety) risks and dangers is highlighted by using a text that parallels the description of “security”. Maritime Safety, by the use of the inclusive term “maritime domain”, is understood to refer to dangers to the ship, its crew and its passengers, and/or cargo, and to navigation; it also covers the prevention of pollution from ships, and includes sanctioning illicit pollution and intervention to limit damage of incidents; finally,

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<sup>21</sup> *Stolen Seafood*, Oceana, 2013, quoting Agnew D.J., J. Pearce, G. Pramod, T. Peatman, R. Watson, et al. Estimating the Worldwide Extent of Illegal Fishing. PLoS ONE 4(2): e4570. Joint Statement between the EU Commission and the US Government on Efforts to Combat IUU Fishing. 7 Sept. 2011

liability and compensation for damage incurred by ships are also part of Safety. For completeness and coherence, damage to the environment is included under Safety even if there are occurrences when it is not unintended or accidental, therefore requiring constabulary action, as the actions required to restore the environment to its previous state are the same whatever the origin of the damage. The number of agencies with responsibility for Maritime Safety is extensive: constabulary, traffic control, fishery protection, customs, environmental protection, search and rescue, are but a few with direct responsibility in one or several aspects of Safety and stewardship of marine resources. The Defence Department, despite its extensive capabilities, should normally be seen as having supporting or subsidiary responsibility, rather than primary responsibility in the field of safety.

- 18. Maritime Safety Operations:** *Operations carried out by an agency with responsibility in the realm of safety, with or without the support of Security or Defence agencies, in order to police the maritime domain against risks to safety or the environment, due to the failure to observe internationally accepted safety rules.*

Comment: Similar to the above, Maritime Safety Operations may be conducted by more than one agency, and therefore the supporting/supported scheme should also be applied. Usually the Defence Department would have a supporting role.

- 19. Maritime Security:** *The combination of preventive and responsive measures to protect the maritime domain against threats and intentional unlawful acts.*

Comment: The proposed description, by including both preventive and responsive measures, aims to cover both law enforcement (civilian and military) and defence operations. Also, the term “maritime domain” (defined below) is more inclusive than just “shipping and port facilities” (which appears to exclude crews and other personnel), which were the items to be protected according to the EU Parliament and Council approved text. The enhanced description, by concentrating on the unlawful use of the maritime domain, makes Maritime Security an international and interagency, civil and military, on-going activity to mitigate the risks and counter the threat of illegal or threatening activities in the maritime domain, so that they may be acted upon in order to enforce the law and protect citizens and safeguard national and international interests. Both constabulary and defence agencies have distinct and direct responsibilities in Maritime Security.

The definition provided for *security* by the EU Glossary is: “Security is achieved, when designated information, materiel, personnel, activities and installations are protected against espionage, sabotage, subversion and terrorism, as well as against loss or unauthorised disclosure”. Formally speaking this is not a definition, just a description of the status achieved when security is applied. Also, it seems to be conceived for the field of communications. It is evident that such a definition does not accept the

qualifying adjective “maritime”, therefore it is not deemed useful for this purpose.

- 20. Maritime Security Operations:** *Operations carried out by a Security or Defence agency with the aim of achieving or restoring freedom from threat or intentional unlawful acts in the maritime domain.*

Comment: Maritime Security Operations are not restricted to the actions of a single agency. It is perfectly feasible for a police force to have primary responsibility for, say, a counter-narcotics operation, while receiving support from a naval force. Conversely, a naval force in action against piracy may receive support in the form of police sea-riders” in order to comply with certain legal requirements involving evidence and arrests. The twin roles “supporting/supported” should be clearly expressed and accepted in operation orders.

- 21. Maritime Situational Awareness:** This is a US and NATO term closely related with *Maritime Domain Awareness*, although somewhat more focused on the technical and data related aspects. In practice, however, MSA and MDA can be interchangeable.

- 22. Maritime Surveillance:** *The systematic and continuous observation of the maritime domain to achieve effective situational awareness.*

Comment: The key words are *systematic* and *continuous*, consistent with the interpretation of Maritime Security and Maritime Safety as *activities*. The proposed description does not limit the types of means of observation, be it radar, AIS, satellite imagery, or any other system.

- 23. Piracy:** According to the United Nations Conference of the Law of the Sea (UNCLOS), Art 101, piracy consists of any of the following acts:

- *Any illegal acts of violence or detention, or any act of depredation, committed for private ends by the crew or the passengers of a private ship or a private aircraft, and directed:*
  - *On the high seas, against another ship or aircraft, or against persons or property on board such ship or aircraft;*
  - *Against a ship, aircraft, persons or property in a place outside the jurisdiction of any State.*
- *Any act of voluntary participation in the operation of a ship or of an aircraft with knowledge of facts making it a pirate ship or aircraft;*
- *Any act of inciting or of intentionally facilitating an act described in [the previous] subparagraph[s].*

The International Maritime Bureau (IMB) also provides a definition of piracy<sup>22</sup>, and because of the IMB’s heavy involvement in piracy issues, in particular through its sponsorship of the Piracy Reporting Centre of Kuala

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<sup>22</sup> *The act of boarding any vessel with an intent to commit theft or any other crime, and with an intent or capacity to use force in furtherance of that act.*

Lumpur, Malaysia, it has gained wide currency. However, this apparently elegant and succinct definition, at least as compared with the extensive UNCLOS one, suffers from one grave defect, which is that it does not consider any difference between the TTW and the High Seas. But the very essence of *piracy* is that it can only happen where no state exerts jurisdiction, which is what makes piracy a subject of international as opposed to domestic law. The same criminal action, if taken in TTW (i.e., under the full jurisdiction of a state) constitutes armed robbery, and it is the responsibility of the law and law enforcement agencies of the state in question to suppress it. It is, therefore, recommended that only the UNCLOS definition be used.

- 24. Recognised Maritime Picture:** *A graphical representation, and related textual data, of the Maritime Domain Awareness.*

Comment: As a picture, it is merely an instrument, and does not imply the *understanding*, which is central to MDA.

- 25. Risks:** *Situations likely to result in danger or an unwelcome outcome if certain events turn out in undesired ways.*

Comment: Results of a risk can be damaging either to safety or security. For instance, a submarine gas pipeline represents a risk that can materialise as unintended damage to the pipe by an anchor in prohibited area, or in an undesirable exploration of territorial waters by a foreign power with the purpose of acquiring intelligence useful in a future conflict.

- 26. Smuggling:** *The breach of the revenue laws either by the importation or exportation of prohibited goods or by the evasion of customs duties on goods liable to duty (Encyclopædia Britannica).*

- 27. Surveillance:** *The systematic observation of aerospace, surface or sub-surface forces, areas, places, lines of communication, persons or things by visual, aural, electronic, photographic or other means in order to detect, identify and to follow activities or situations of interest. Operating for a longer period of time, surveillance is able to reveal changes in a given situation. It contributes significantly to early warning, monitoring missions and force protection. (EU Glossary of Acronyms and Definitions 11362/3/09 Rev 3, dtd 24 Jun 2010 COSDP 549).*

- 28. Threats:** *Actors intent on coercing or directly causing danger or damage.*

Comment: Threats are always, therefore, man-made and deliberate. The EU Glossary's definition is: "A potential accident or deliberate compromise of security, both resulting in possible losses in confidentiality, integrity or availability". This definition seems to be narrowly conceived for communications. In the field of maritime security a much wider definition is needed.

- 29. Vulnerabilities:** *Susceptibilities to harm, either from natural causes, accidental, or man-made.*

Comment: While they pose no immediate harm in the normal course of events, vulnerabilities must nevertheless be minimised in order to prevent an opponent from exploiting them. Most pertinent for this study is the vulnerability posed by the inability to freely exchange information relevant to maritime security and safety in the EU across national borders, and especially across sectoral borders (i.e., fisheries, police, coast guard, navies, etc.) owing to a number of cultural and organisational barriers. This vulnerability should be reduced by the intended Common Information Sharing Environment (CISE).

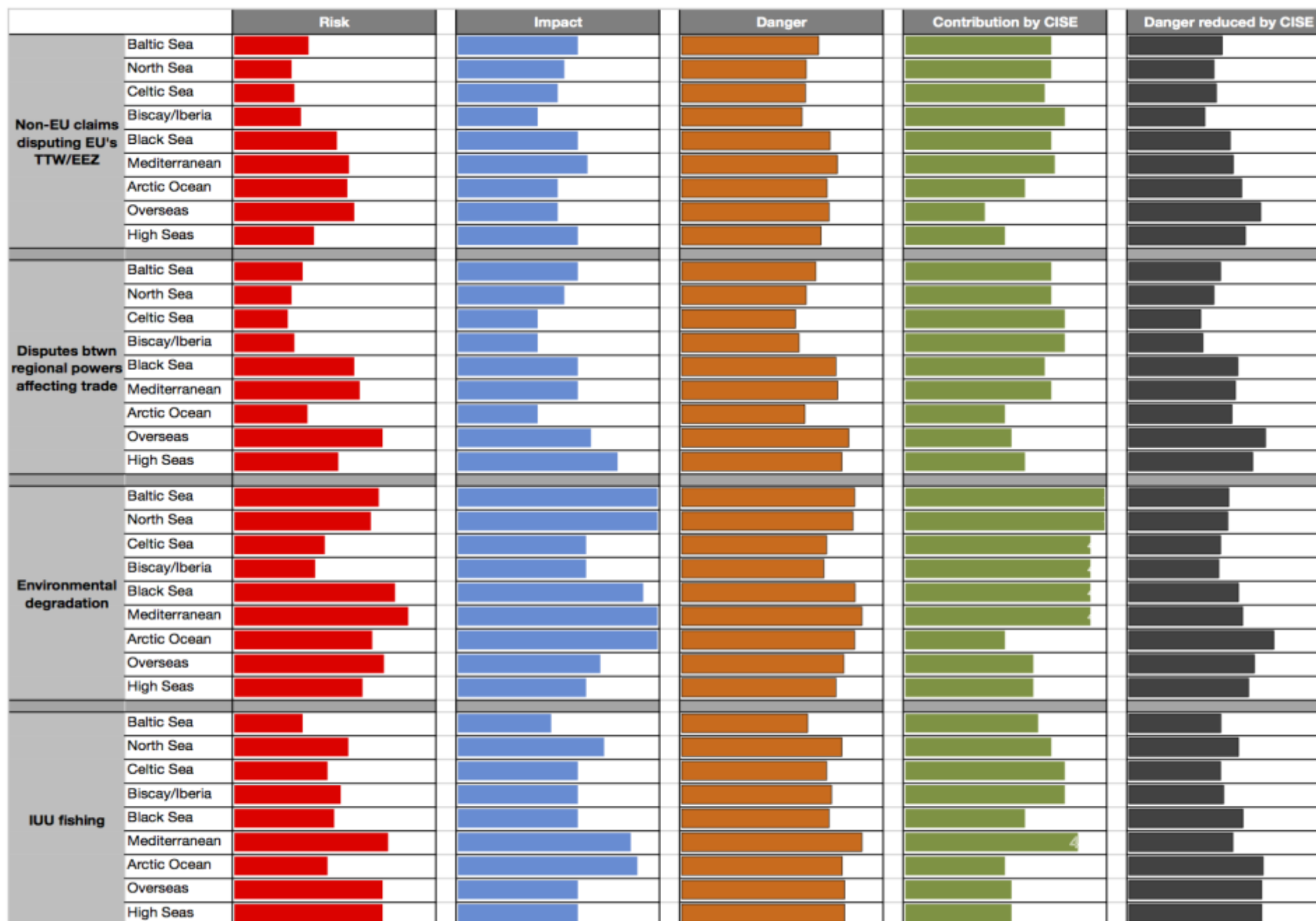
The EU Glossary's definition for this term is: "A weakness or lack of controls that would facilitate or allow a threat to act against a specific system". This would only consider those vulnerabilities that lead to man-made threats, disregarding those that facilitate the occurrence and effects of accidents or natural catastrophes. An example of such vulnerability would be a low-lying coast more susceptible to the damaging effects of storms or tsunamis than would otherwise be the case.

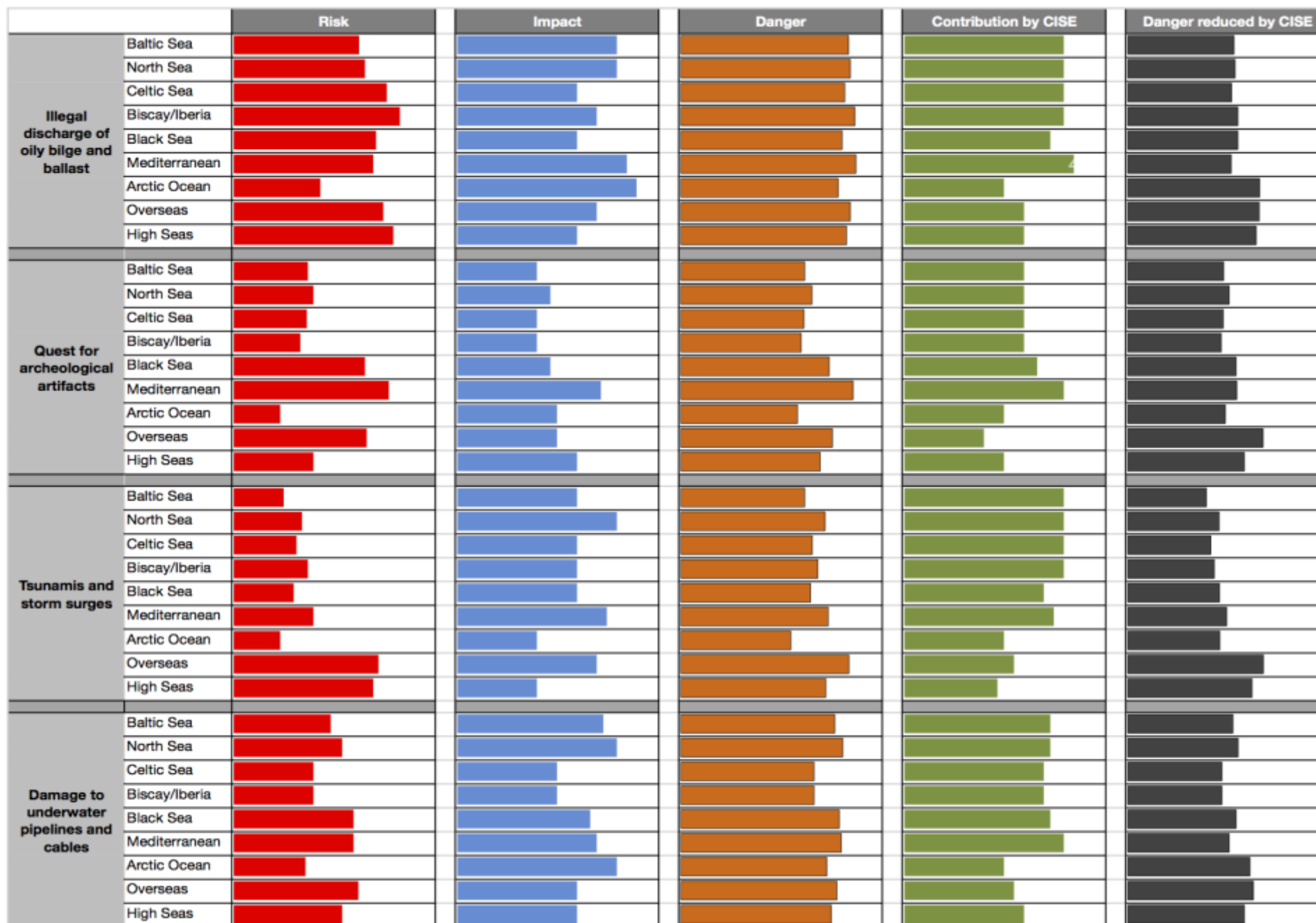


## **Annex B. Tables.**

		Risk	Impact	Danger	Contribution by CISE	Danger reduced by CISE
Terrorism from the sea	Baltic Sea					
	North Sea					
	Celtic Sea					
	Biscay/Iberia					
	Black Sea					
	Mediterranean					
	Arctic Ocean					
	Overseas					
	High Seas					
Use of vessels with explosives against port facilities	Baltic Sea					
	North Sea					
	Celtic Sea					
	Biscay/Iberia					
	Black Sea					
	Mediterranean					
	Arctic Ocean					
	Overseas					
	High Seas					
Illegal immigration & human trafficking	Baltic Sea					
	North Sea					
	Celtic Sea					
	Biscay/Iberia					
	Black Sea					
	Mediterranean					
	Arctic Ocean					
	Overseas					
	High Seas					
Narcotics trafficking	Baltic Sea					
	North Sea					
	Celtic Sea					
	Biscay/Iberia					
	Black Sea					
	Mediterranean					
	Arctic Ocean					
	Overseas					
	High Seas					

		Risk	Impact	Danger	Contribution by CISE	Danger reduced by CISE
Arms trafficking	Baltic Sea					
	North Sea					
	Celtic Sea					
	Biscay/Iberia					
	Black Sea					
	Mediterranean					
	Arctic Ocean					
	Overseas					
	High Seas					
Piracy	Baltic Sea					
	North Sea					
	Celtic Sea					
	Biscay/Iberia					
	Black Sea					
	Mediterranean					
	Arctic Ocean					
	Overseas					
	High Seas					
Local wars ivo chokepoints	Baltic Sea					
	North Sea					
	Celtic Sea					
	Biscay/Iberia					
	Black Sea					
	Mediterranean					
	Arctic Ocean					
	Overseas					
	High Seas					
Smuggling	Baltic Sea					
	North Sea					
	Celtic Sea					
	Biscay/Iberia					
	Black Sea					
	Mediterranean					
	Arctic Ocean					
	Overseas					
	High Seas					





		Risk	Impact	Danger	Contribution by CISE	Danger reduced by CISE
Collisions, groundings, wrecks, cargo fires, explosions	Baltic Sea					
	North Sea					
	Celtic Sea					
	Biscay/Iberia					
	Black Sea					
	Mediterranean					
	Arctic Ocean					
	Overseas					
	High Seas					
Risks to biodiversity	Baltic Sea					
	North Sea					
	Celtic Sea					
	Biscay/Iberia					
	Black Sea					
	Mediterranean					
	Arctic Ocean					
	Overseas					
	High Seas					
Accidents in offshore oil & gas platforms and energy farms	Baltic Sea					
	North Sea					
	Celtic Sea					
	Biscay/Iberia					
	Black Sea					
	Mediterranean					
	Arctic Ocean					
	Overseas					
	High Seas					

## Annex C. Acronyms

AIS	Automatic Information System
CHEN	Chiefs of European Navies
CISE	Common Information Sharing Environment
EEAS	European External Action Service
EEZ	Exclusive Economic Zone
EUMS	European Union Member State
FAO	(United Nations) Food and Agriculture Organisation
IMB	International Maritime Bureau
IMO	International Maritime Organisation
ISO	International Standards Organisation
IUU	Illegal, Unreported or Unregulated (Fishing)
LEA	Law Enforcement Agency
MDA	Maritime Domain Awareness
MS	(EU) Member State
MSA	Maritime Situational Awareness
MSSIS	Maritime Safety and Security Information System
NATO	North Atlantic Treaty Organisation
NGO	Non-Governmental Organisation
RMP	Recognised Maritime Picture
SAR	Search and Rescue
SatAIS	Satellite-based AIS
SOLAS	(International Convention for the) Safety of Life at Sea
TTW	Territorial Waters
UNCLOS	United Nations Convention on the Law of the Sea
WMD	Weapons of Mass Destruction