

**THE PROCEEDINGS OF  
THE SYMPOSIUM ON THE STRAITS  
USED FOR INTERNATIONAL NAVIGATION**

**16 – 17 NOVEMBER 2002  
ATAKÖY MARINA  
ISTANBUL – TURKEY**

Edited by

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*To the memory of  
Captain Gündüz Aybay and Prof.Dr. Reşat Özkan,  
who dedicated their lives to the Turkish Straits ...*

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## **PREFACE**

Turkish Marine Research Foundation (TÜDAV) organized the third international symposium on the seas, “The Symposium on the Straits used for International Navigation” in Ataköy Marina, Istanbul, on 16 - 17 November 2002. When we organized the International Symposium on the Regional Seas in Istanbul in 2001, we realized that a meeting, specifically for the international straits, would be useful to understand the problems of the straits, particularly for the Turkish Straits, which are the narrowest ones in the world.

The aim of the symposium is, first of all, to exchange information between scientists, experts, and decision makers from various countries, because the international straits are vitally important for the world in terms of shipping industry and cargo, protection of marine environment, and national or regional security.

Turkey has rights and responsibilities for the safe passage through the Turkish Straits. When the Montreaux Convention was signed in 1936, the number of passing vessels was only 4,500 yearly in the Istanbul Strait, but now this number is around 50,000. The increasing number of ships passing through the Strait brings severe incidents and serious threats to the city of Istanbul, which is one of the oldest and the most crowded cities in the world, with a population of around 15 millions. Surely, there are other straits around the world, which are also narrow, under the threat of the heavy shipping traffic.

Therefore, as an NGO, we are happy to serve as a facilitator for this meeting of respected scientists and experts. We hope that this symposium can shed some light to new approaches to solve the problems of the international straits from legal, political, environmental, and military aspects.

We thank the following organizations for their kind support: Ataköy Marina and Chevron. Special thanks are also to Mr. Sedat Altunay of Ataköy Marina, Dr. İsmail Kafesçioğlu of Chevron, and Prof. Erik Franckx from Center for International Law of the Vrije University in Belgium for their support, Mr. Ahmet S. Cavus for the secretary of this meeting, and Miss. Didem Göktürk (M.Sc.) for helping the editing of this volume.

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## **LEGAL REGIME FOR STRAITS USED FOR INTERNATIONAL NAVIGATION**

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The Regime for Straits used for International Navigation was one of the most contentious issues before the Third United Nations Conference on the Law of the Sea. A successful outcome on this issue was key to the success of the Conference. Accordingly, maintenance of a regime of unimpeded passage through such straits formed a critical component of the overall “package” of the 1982 UN Convention on the Law of the Sea. The introduction of the new concept of the right of “transit passage” through straits used for international navigation, made it possible for the Conference to reach agreement on twelve nautical miles as the maximum breadth of the territorial sea and on the provisions concerning the exclusive economic zone.

The right of passage through straits has been of international concern at every conference on the law of the sea. The Preparatory Committee for the 1930 Hague Conference for the Codification of International Law addressed the subject of straits only in the context of the delimitation of the territorial sea within straits. It did not consider navigation through straits consisting entirely of the territorial sea of one or more coastal States as an issue distinct from the subject of innocent passage of foreign ships through the territorial sea generally.<sup>1</sup>

The 1930 Conference was, however, unsuccessful. It was unable to agree on the breadth of the territorial sea or on the exercise of special jurisdiction in a zone contiguous to the territorial sea. With regard to the subject of navigation through straits, the most significant aspect of the work of the Second Committee of the Conference was the provision entitled, "Passage of War Ships Through Straits", which read:

Under no pretext whatever may the passage even of warships through straits used for international navigation between two parts of the high sea be interfered with.

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## OBSERVATIONS

According to the previous Article the waters of straits which do not form part of the high sea constitute territorial sea. It is essential to ensure in all circumstances the passage of merchant vessels and warships through straits between two parts of the high sea and forming ordinary routes of international navigation.<sup>2</sup>

The next significant development relating to straits used for international navigation is to be found in the decision of the International Court of Justice (ICJ) in the Corfu Channel Case in 1949. In this case between the United Kingdom and Albania the ICJ laid two important principles regarding navigation through straits used for international navigation.<sup>3</sup> In reference to Albania's contention that the United Kingdom had violated Albanian sovereignty by sending warships through the North Corfu Strait without prior authorization, the Court noted:

It is, in the opinion of the Court, generally recognized and in accordance with international custom that States in time of peace have a right to send their warships through straits used for international navigation between two parts of the high seas without the previous authorization of a coastal State, provided that the passage is *innocent*. Unless otherwise prescribed in an international convention, there is no right for a coastal State to prohibit such passage through straits in time of peace.<sup>4</sup>

Addressing Albania's contention that the North Corfu Channel was only of secondary importance and was used almost exclusively for local traffic, the Court made a statement of principle regarding the functional criterion. It wrote:

It may be asked whether the test is to be found in the volume of traffic passing through the Strait or in its greater or lesser importance for international navigation. But in the opinion of the Court the decisive criterion is rather its geographical situation as connecting two parts of the high seas and the fact of its being used for international navigation. Nor can it be decisive that this Strait is not a necessary route between two parts of the high seas, but only an alternative passage between the Aegean and the Adriatic Seas. It has nevertheless been a useful route for international maritime traffic.<sup>5</sup>

Drawing upon the decision of the ICJ in the Corfu Channel Case, in its draft articles on the law of the sea prepared in 1956, the International Law Commission (ILC) adopted as article 17, paragraph 4, the following text:



4. There must be no suspension of the innocent passage of foreign ships through straits normally used for international navigation between two parts of the high seas.<sup>6</sup>

At the First United Nations Conference (UNCLOS I), negotiations on the regime of the territorial sea centered on the issue of a maximum breadth of three nautical miles measured from the baselines. The topic of straits used for international navigation was treated in the context of innocent passage through the territorial sea (following the *Corfu Channel* case), together with the concept of nonsuspendable innocent passage through those straits (as formulated by the International Law Commission). The ILC's proposal was modified after difficult debate; in particular, there was objection to the word "normally" on the ground that it did not conform to the language used by the ICJ in the *Corfu Channel* case.<sup>7</sup> In its final form, article 16, paragraph 4, of the 1958 Convention on the Territorial Sea and the Contiguous Zone reads:

“There shall be no suspension of the innocent passage of foreign ships through straits which are used for international navigation between one part of the high seas and another part of the high seas or the territorial sea of a foreign State.”

That text applies a rule of nonsuspendable innocent passage to straits connecting two parts of the high seas, and to straits connecting the high seas with the territorial sea "of a foreign State."

Following UNCLOS I, the question of passage through straits assumed greater importance for the maritime States. With the breadth of the territorial sea left unresolved by UNCLOS I and UNCLOS II, an increasing number of States adopted territorial seas of 12 nautical miles or more. As a result, the waters in many of these straits became part of the claimed territorial seas of States bordering them. This gave rise to great concern amongst maritime States (and particularly those with major naval forces) that the regime of nonsuspendable innocent passage, as expressed in article 16, paragraph 4, of the 1958 Convention, would not be adequate to protect vital lines of communication through such straits.

A further issue which remained of concern with the 1958 Convention was the possibility of subjective interpretation by "straits States" of what constitutes "innocent" passage under the ambiguous definition contained in article 14 of that Convention. In addition, the fact that submarines were required to navigate on the surface, and that aircraft enjoyed no general right of overflight comparable to the right of innocent passage for ships, were also matters of major concern. Accordingly, the United States of America and the Soviet Union initiated informal consultations about the possibility of a new international agreement fixing the maximum permissible breadth of the territorial sea at 12 nautical miles and providing for freedom of transit through and over straits. Discussions were held

with a number of other governments on the possibilities of such an arrangement.<sup>8</sup> The formal policy of the United States of America was announced in 1970, when President Nixon, in a major address on oceans policy, called for a new law of the sea treaty that "would establish a 12-mile limit for territorial seas and provide for free transit through international straits."<sup>9</sup> In a parallel development, the Soviet Union, in connection with the discussion in the United Nations General Assembly pointed out that if the territorial sea were generally extended to 12 nautical miles pursuant to an international agreement, "the number of straits consisting wholly of territorial sea might be significantly increased, and it would thus become necessary to ensure the freedom of transit through straits used for international navigation."<sup>10</sup> Subsequently, General Assembly resolution 2750 C (XXV) of 17 December 1970 included "the question of international straits" among the issues to be examined at the Third United Nations Conference on the Law of the Sea (UNCLOS III).<sup>11</sup>

In later discussions, including those at UNCLOS III, maritime States made it clear that maintaining a regime of unrestricted passage through straits for ships and submarines, and of overflight for aircraft, was essential to obtaining agreement not only on the extension of the maximum permissible breadth of the territorial sea to 12 nautical miles, but also for other related issues including the adoption of the concept of an exclusive economic zone. At UNCLOS III, the negotiations regarding passage through straits were conducted on the basis of a 12-mile territorial sea, and a regime governing passage through and over straits used for international navigation emerged as a separate part of the Convention.<sup>12</sup>

With a territorial sea of three nautical miles, only a few straits used for international navigation were within the territorial sea of coastal States and accordingly were subject to the right of nonsuspendable innocent passage. Extension of the maximum breadth of the territorial sea to 12 nautical miles meant that straits up to 24 nautical miles in width could fall entirely within the territorial sea of coastal States. Waters in straits which were previously subject to the freedom of the high seas would become subjected to the regime of nonsuspendable innocent passage as set out in the 1958 Convention. It has been estimated that approximately 126 sea routes through straits used for international navigation would come within the territorial sea of coastal States with a uniform increase in claims from 3 to 12 nautical miles.<sup>13</sup>

Maintenance of the freedoms of navigation and of overflight through and over straits used for international navigation was not only a matter of interest to maritime States. It was also of concern to many States whose international sea-borne trade has to pass through such straits, to flag States with large merchant marines, to States bordering enclosed or semi-enclosed seas, and to large island States in both the Atlantic and the Pacific oceans. Many of these States both bordered straits and were important user States. The major maritime States considered that their economic well-being and security - particularly in relation to the deployment, and pursuit, of submarines carrying strategic nuclear missiles - depend upon continuing guarantees of passage through international straits such as Dover, Gibraltar, Hormuz, Bab el Mandeb and Malacca.

States bordering these straits, however, were concerned that a regime which gave recognition to freedom of navigation through "their" straits should not ignore their legitimate interests in protecting their maritime and coastal environments, their fiscal and economic integrity, their national security and other legitimate interests. While these claims are not inconsistent with the preservation of rights of passage through international straits, they signal a growing reluctance to regard passing foreign ships as beyond the jurisdictional reach of coastal States whose security, environmental or economic interests those ships might adversely affect.

Given the strongly held positions of the two sides on this critical issue, right from the preparatory phase of the Third UN Conference on the Law of the Sea, it was apparent that a compromise between the two extremes had to be found. This compromise was reached in 1975 through the work of a private group of moderate states, under the joint chairmanship of Fiji and the UK delegations, based on the establishment of a new legal regime on the right of "transit passage" through straits used for international navigation.<sup>14</sup> The right of transit passages does not allow the same coastal State control over passing ships as does the innocent passage regime. On the other hand, it falls short of granting the same freedom of navigation as would have existed had the waters of the straits constituted high seas.

The regime of transit passage applies to straits which are used for international navigation between one part of the high seas or an exclusive economic zone and another part of the high seas or an exclusive economic zone (art. 37). However, this regime does not apply to certain straits. First, cases where a high-seas route or a route through an exclusive economic zone of similar convenience with respect to navigational and hydrographical characteristics exists through the strait (art.36); and, secondly, cases where the strait is formed by an island bordering the strait and its mainland and a route of similar navigational and hydrographical characteristics exists through the exclusive economic zone or high seas seaward of the island (art. 38(1): the Corfu Channel and the Pemba Strait are examples of this.

In the first of these cases, which applies to "Broad Straits" that are more than twenty-four miles wide, there exists freedom of navigation through the economic zone or high seas route, and the right of innocent passage through the bands of territorial seas which lie on either side of it. In the second case, there exists a non-suspendable right of innocent passage between the island and the mainland. This is also the case in the third situation where a strait connects an area of the high seas or an exclusive economic zone with the territorial sea of a third State, as in the Straits of Tiran (art. 45). There is a fourth exception which is the case of international straits that are regulated in whole or in part by long standing international Conventions such as the Montreux Convention, which regulates the Dardanelles and Bosphorus and the regime of non-suspendable innocent passage applied in the narrow straits of the Baltic under the 1857 Treaty of Copenhagen (art. 35(c)). Apart from the above mentioned exceptions, under the provisions of part III of the 1982 Convention, transit passage applies in all other straits used for international navigation.

“Transit passage”, as defined in the 1982 Convention, is the exercise of freedom of navigation and overflight solely for the continuous and expeditious transit of the strait between one part of high seas or exclusive economic zone and another part of the high seas or an exclusive economic zone, it does not preclude the entering or leaving of a State bordering the strait (art. 38(2)). Although there is no criterion of 'innocence' prescribed in the concept of transit passage, ships and aircraft exercising right of transit passage have the duty to refrain from the threat or use of force against States bordering straits or act in any other manner which violates the principles of international law embodied in the UN Charter (art. 39(1)(b)). Furthermore, there is a duty to refrain from any activities other than those incidental to their normal modes of continuous and expeditious transit unless rendered necessary by *force majeure* or distress (art. 39(1)(c)). It is important to note that any activity which is not an exercise of the right of transit passage remains subject to the 'other applicable provisions' of the Convention (art. 38(3)). It is implicit therefore, that any activity threatening a coastal State would bring the ship or aircraft under the general regime of innocent passage and enable that State to require the vessel to leave the area expeditiously (art. 30) presumably, in the direction it was travelling, since transit passage cannot be suspended for any reason (art. 44) - including threats to security.

Ships in transit are required to comply with generally accepted international regulations, procedures and practices for safety at sea and for the prevention of pollution from ships (art. 39(2)). This would include the standards in, for example, SOLAS conventions and the IMO pollution conventions which would be applicable to ships in the strait even if their flag States were not parties to those conventions. Aircrafts in transit passage are also required to observe international Rules of the Air for Civil Aircraft whilst exercising their right of overflight (art. 39(3)). State air crafts also should normally comply with such safety measures and give due regard for the safety of navigation (art.39 (3)). These requirements are designed to protect the interest of the strait State without imposing unreasonable obligations on passing ships and aircraft. The Convention provides that a strait State may adopt laws and regulations with respect to safety at sea and pollution from ships. In which case the rules and regulations adopted must conform to internationally agreed standards (art. 42(1)). The requirement of internationally agreed standards is to ensure that ships are not subjected to differing, and possibly inconsistent, regulations as they sail around the world. Similarly, strait States may prescribe sea lanes and traffic separation schemes in the strait. These, however, must first have been adopted by the competent international organization (art. 41), which would normally be the International Maritime Organization. For ships and aircraft in transit passage the duty to comply with international safety and pollution standards is independent of strait States legislation; for strait States the advantage in adopting such international standards in national legislation is that they then become directly enforceable by their authorities and not by the flag State alone. Under art.40, there is a specific duty to refrain from research and

survey activities during passage unless prior authorisation of the States bordering the strait is obtained.

In addition to the legislation to implement international safety and pollution standards, strait States may adopt rules and regulations for passing vessels only in respect of fishing and the loading and unloading of any commodity, currency or person in violation of local customs, fiscal, immigration or sanitary laws and regulations (art. 42 (1)(c) and (d)). Since article 44 provides that the States bordering straits shall not hamper or suspend transit passage the only means of enforcing international standards or national laws and regulations against passing ships is through the flag State unless the ship voluntarily enters the port of the strait State. However, art. 233 of the Convention provides an exception to the general rule in the specific case of a violation of laws and regulations causing or threatening major damage to the marine environment of the strait. The States bordering the strait may take appropriate enforcement measures as provided in that article. Article 42 is very specific on the types of laws and regulations that may be adopted by States bordering a strait to apply to passing ships. It also provides that such laws and regulations shall not discriminate among foreign ships or have the effect of hampering or impairing transit passage. On the other hand, there is a general duty on part of passing ships to comply with all laws and regulations adopted by the strait State in conformity with the provisions of this part of the Convention. (art.42)

The regime of transit passage described above applies to all ships and aircraft, both military and commercial. The common practice of submarines transiting some international straits while submerged is recognised in the provision that passing vessels refrain from any activities other than those 'incident to their *normal mode* of continuous and expeditious transit' (art. 39(1)(c)).

Given that the transit passage regime for straits used for international navigation has been widely accepted and used in State practice it would be fair to conclude that the delicate compromise that was forged at the Conference and reflected in Part III of the 1982 Convention on the Law of the Sea has been highly successful. There does not appear to be any major disputes arising from the exercise of the right of transit passage. However, there are some management problems that have arisen from the responsibilities of strait States imposed by the regime. These responsibilities are becoming increasingly burdensome for some strait States which border busy international sea routes.

The impact of ever increasing traffic density<sup>15</sup> on the marine environment and the potential for disastrous accidents in the narrow waters of straits pose serious economic and social consequences for coastal communities. Straits States are legitimately concerned with the financial burdens they have to bear for establishing and managing traffic separation schemes, for installing and maintaining navigational aids, and by the pollution they must endure, without receiving any corresponding benefits, since many ships transit straits en route to ports in other States.

This issue has been festering for sometime. While the problem was known at the Third United Nations Conference on the Law of the Sea and addressed in a

perfunctory manner in article 43 of the Convention, which exhorts user States to cooperate through agreements to assist strait States, the fact is that apart from the exceptional case of Japan's cooperation in respect of the Malacca and Singapore Straits, such cooperation has not materialized. On the other hand, international law does not permit straits States to take unilateral measures to seek compensation for their expenses except in the case of specific services rendered to a vessel. The issue has been raised with the International Maritime Organization. In September 1997, the British Government submitted an information paper to the IMO entitled *Developing Principles for Charging Users the Cost of Maritime Infrastructure*. The paper noted that the increasing cost of navigational aids and related facilities could overstretch the ability of coastal States to provide such services. It was suggested that the IMO should develop some fair principles to govern the establishment of charging systems. Such systems would have to be consistent with the Convention and would have to be applied on a non-discriminatory basis. Charges would be linked to the recovery of costs, including capital investment and improvements, but there would be no element of profit since that would amount to tax on traffic. This issue was referred to the Legal Committee of the IMO.<sup>16</sup> The matter remains unresolved. If the experience of the Law of the Sea Conference is any guide, a meaningful global solution would be difficult to achieve. In any case the issue has to be addressed individually in respect of each strait taking into account, *inter alia*, the practical needs of such strait, its special characteristics, as well the volume and nature of the traffic and the user States concerned. Account also has to be taken of the sensitivity of the straits States to any diminution in the exercise of sovereignty over the strait.

The dilemma for strait States is how to compensate themselves for the costs that they incur in maintaining and managing these straits. International law prohibits them from charging a toll or other fee merely for passage through straits (article 26). A coastal State may, however, without discrimination, levy a charge upon foreign ship exercising its right of innocent passage in the territorial sea, but only 'for specific services rendered to the ship' (article 26 (2)). There is nothing in the Convention which prohibits charges for similar services in straits which are part of the territorial sea. While the Convention imposes on straits States the duty to facilitate safe passage through the straits used for international navigation and provides that user States should cooperate in assisting the straits States for this purpose, it does not make such assistance a condition for passage. Equity demands that this problem be addressed and resolved and the burden is shared by all those who benefit from safe passage through such straits. The issue cannot be left just for straits States and flag States to resolve, for many flag States, as it is well known, are mere flags of convenience with little or no capacity to assist. The term "user States" in art. 43 must therefore include States other than flag States, whose nationals benefit from safe passage. For the purpose of burden sharing, therefore, "user States" must include flag States, exporting States, receiving States, and States of

ship-owners, insurers of ships and cargoes and major oil corporations whose global trade is facilitated.

The other major problem that confronts a number of states bordering international straits is piracy. Ships of all sizes are vulnerable to attacks by pirates particularly in the narrow waters of the straits. The number of such attacks have consistently grown over the years. Again, the burden largely falls on the straits States on whom flag States, ship and cargo owners rely for secure passage. Here, too, international cooperation is urgently needed. IMO has made considerable effort to deal with this matter but the problem, especially in the Malacca Strait, persists.

## REFERENCES

<sup>1</sup> See Bases of Discussion Drawn Up by the Preparatory Committee, part II, Territorial Waters, Points VII and IX-XIII, League Of Nations doc. C.74.M.39.1929.V. Reprinted in 24 Am. J. Int'l L. Supp. 35, 38 (193). Reproduced in Shabtai. Rosenne (ed.), 2 *League of Nations Conference for the Codification of International Law* [1930], at 273, 283-309 (1975).

<sup>2</sup> Report of the Second Committee, *supra* note 3, 24 Am. J. Int'l L. Supp. 253; Rosenne, *supra* note 2, Vol. 3, at 836.

<sup>3</sup> This was the first time the issue had been addressed in major international litigation and was the first of the ICJ's pronouncements on the law of the sea, which have had such an important influence on the reconstruction of the law accomplished in the three United Nations Conferences on the Law of the Sea.

<sup>4</sup> *Corfu Channel* case (merits) (United Kingdom v. Albania), 1949 ICJ Reports 4,28.

<sup>5</sup> *Ibid.*

<sup>6</sup> Report of the International Law Commission covering the work of its eighth session (A/3159), II YB ILC 1956, at 253, 273.

<sup>7</sup> See, e.g., A/CONF.13/C.1/L.39 (1958), para. 4, comment (b), UNCLOS I, III Off. Rec. 220 (U.S.A.).

<sup>8</sup> A.L. Hollick, *U.S. Foreign Policy and the Law of the Sea* 174 (1981).

<sup>9</sup> President's Statement on United States Ocean Policy, 6 *Weekly compilation of Presidential Documents* 677, at 678 (23 May 1970).

<sup>10</sup> A/8047 and Add.1,3 and 4 (1970, mimeo.), "Explanatory memorandum" attached to the letter of 15 August 1970 requesting the inclusion of a supplementary item in the agenda of the 25th session of the General Assembly (Bulgaria, Czechoslovakia, Hungary, Iraq, Syria and USSR). See 25 GAOR, Annexes, agenda item 25, at 6. See also the statement by the representative of the USSR at the 1777th meeting of the First Committee (A/C.1/PV.1777), para. 63 GAOR, First Committee.

<sup>11</sup> See Introduction paras 4 and 5, Satya N. Nandan and Shabtai Rosenne, 1982 United Nations Convention on the Law of the Sea – A Commentary. Vol. II – Nordquist, (ed) Martinus Nijhoff Publishers.

<sup>12</sup> See UN Office for Ocean Affairs and the Law of the Sea, *Straits Used for International Navigation: Legislative History of Part III of the United Nations Convention on the Law of the Sea*, Volume I (UN Sates No. E.91.V.14 (1992)).

<sup>13</sup> See, e.g. U.S. Dept. of State, Office of the Geographer, "World Straits Affected by a 12 Mile Territorial Sea," Chart # 510376 (1971).

<sup>14</sup> For a full discussion of the regime for transit passage see S.N. Nandan and D.H. Anderson: Straits used for International Navigation: A Commentary on Part III of the United Nations Convention on the Law of the Sea, 1982: - British Yearbook of International Law, 60, 1989. See also S. Nandan and Shabtai Rosenne, *Supra*. Pp 279 - 396.



<sup>15</sup> As an example, the traffic volume in the Straits of Malacca and Singapore has been increased remarkably. It is estimated that approximately 100,000 vessels per year navigate in the Straits, at a rate of some 200 to 300 vessels per day, but accurate figures are not available. An indication of the increase in traffic density may be observed from the data on vessel arrivals in Singapore which increased from 21, 999 in 1976 to 130,333 in 1997. The gross tonnage for the same period increased from 177,544,000 in 1976 to 808,305,000 in 1997.

<sup>16</sup> See D. Anderson, Traffic Regulation and Cost-Sharing in Straits and Archipelagos; Strait of Dover Model. 1998 Proceedings of the Law of the Sea Institute, University of Miami.







## **THE LEGAL REGIME OF THE DANISH STRAITS**

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### **INTRODUCTION: THE CONCEPT OF INTERNATIONAL STRAIT**

1. It follows from the geographical definition of a strait that it is an integral part of the seas and the oceans. Consequently, one can ask why it is necessary to develop specific legal rules for straits separately. Why is it not possible to apply in the different maritime areas the corresponding legal regimes? It is clear that navigation will experience strong disadvantages of a variable regime applicable to the passage of straits. Such a variable legal regime would indeed enter into force whenever the corresponding regimes for the different maritime areas would be applied. This could ultimately lead to as much as three different legal regimes for one and the same strait. From the practice of navigation it occurs obviously that it would not be reasonable to identify international straits with the rest of the sea. It is therefore acceptable to declare that straits come under a separate legal regime, which can be identified as a legal regime “*sui iuris*”.

2. However not all narrow maritime passages coming under the geographical concept of a strait need to fall under the separate legal regime of straits. In principle it will be the specific function of a strait which will justify the existence of a separate legal regime. Those straits that fall under this separate legal regime are **international straits**.

3. The criteria to determine whether a geographical strait will come under the international legal concept have to be looked for in the functional sphere. It is therefore necessary to pay attention to the importance of a particular strait with respect to international navigation. The substantial meaning of the word “international” is that it gives an indication that the use of these straits is of some importance for the world community and not only for the coastal states. Moreover it assumes that the legal regime in general and passage in particular escapes certain aspects of the coastal states’ national jurisdiction.

4. International straits enjoy an exceptional legal regime within the context of international law. As a result, it is of the utmost importance to decide clearly what constitutes this category of international straits. This implies that within international law an acceptable definition is given. Several developments can be indicated with respect to the acceptance of the concept of international straits as a legal concept. In customary law the concept has been subjected to a specific evolution. Together with other legal concepts it developed as a consequence of changing circumstances and has been influenced by ever changing philosophical ideas.

5. The first international law author paying any attention to the problems of international straits was Pufendorf. The explanation for this can be found in his position as an adviser to the Swedish diplomat Coyet, who after the peace of Roskilde in 1648 started negotiations in Copenhagen. Following this Pufendorf came into contact with the political and legal problems of the Baltic straits. His ideas with respect to the straits in general have no doubt been inspired by the problems concerning the Sound<sup>1</sup>.

6. In the international legal doctrine little attention is being paid to the problems connected with straits until the middle of the 18th century. It was Vattel who first gave a definition of a strait in the legal sense, i.e. a strait forming the connection between two parts of the open seas. For these straits a separate legal regime is provided within the meaning of a right of passage that cannot be refused whenever it is innocent and without danger for the coastal states. For other straits such a right is not upheld<sup>2</sup>. His criterion for the legal concept of an international strait, i.e. the nature of the connected waters, will remain the decisive qualification element until the first world war, accompanied after some time by the width of the strait as an additional criterion. Gradually it is agreed that straits can only be subject to an exceptional legal regime whenever navigation has to make use of territorial waters for passing through.

7. Schuecking is introducing a fundamental innovation. He claims that straits connecting two parts of the open seas, will only have an international importance whenever they represent a certain value for international navigation, i.e. when international navigation uses them<sup>3</sup>. This idea of the actual importance of a given strait for international navigation has been widely accepted after the first world war and was clearly described by Eric Bruel<sup>4</sup>.

8. The analysis of the concept of an international strait from a customary legal point of view allows us to put forward the following definition elements :

1. the geographical element;
2. the nature of the connected waters;
3. the width of the strait;
4. the functional element : an international strait is used for international navigation and represents a certain value for it. International navigation must make use of it at least in a minimal manner.

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<sup>1</sup> Cf. Simons, W., Introduction to the de jure naturae et gentium; Phillipson, C., Samuel Pufendorf, Journal of comparative legislation and international law 1911, 233; Nussbaum, A., A Concise History of the Law of Nations, New York, The Mac Millan co, 1947, 117.

<sup>2</sup> De Vattel, E., Le droit des gens, ou principes de la loi naturelle appliqués à la conduite et aux affaires des nations et des souverains, 1758, in Classics of International law, 1916, 247 –248.

<sup>3</sup> Whenever navigation in practice does not need to pass through a strait in the area covered by the territorial sea, there is no need for a separate legal regime, Schuecking, W., Die Verwendung von Minen im Seekrieg, Niemeyers Zeitschrift für internationales Recht 1906, 121.

<sup>4</sup> Bruel, E., International Straits: A Treatise on International Law, London, Sweet and Maxwell, 1947.

9. After the Second World War the International Court of Justice unnecessarily broadened the concept of international straits by not maintaining the importance of the functional element in the definition. Indeed, in the Corfu Channel Case the Court stated that the sole criterion used to distinguish an international strait from a strait not enjoying the exceptional legal regime under international law, lies with the nature of the connected waters and with the fact that it is being used for international navigation<sup>5</sup>.

It seems clear that the Court is diverting from the accepted customary law definition that emerged from the legal doctrine and *inter alia* also from the work of several scientific legal institutions. It is unfortunate that the Court did not accept the importance of a given strait for international navigation to be one of the decisive elements<sup>6</sup>. It is particularly unfortunate because of the fact that the first United Nations Conference on the Law of the Sea in 1958 basically followed the dictum of the Court<sup>7</sup>. During the discussions on the draft prepared by the Special Rapporteur, Prof. François, the ILC however decided to restrict the broad definition by the ICJ. On the basis of the intervention of Profs. Zourek and Scelle, the final draft convention as agreed upon in 1956 attributed some (minor) importance to the functional element by specifying that international straits are “straits **normally** used for international navigation”<sup>8</sup>. During the negotiations at the 1958 Geneva Conference and in particular in the First Committee the geographical scope of international straits was enlarged by adding straits between high seas and the territorial sea of a foreign State<sup>9</sup>. Unfortunately the word “normally” was at the same time removed from the text apparently because it did not figure in the judgment of the ICJ in the Corfu Channel Case<sup>10</sup>. In the 1958 Geneva Convention on the territorial sea and the contiguous zone

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<sup>5</sup> C.I.J. Recueil 1949, Affaire du détroit de Corfou, Arrêt du 9 avril 1949. Prof. Cot, counsel for Albania nevertheless touched upon the correct conceptual elements in stating : « Le droit international ne peut courber tous les détroits sous la même règle...Il y a au moins deux sortes de détroits :ceux qui constituent un passage nécessaire, au moins naturel, entre deux parties de la mer libre, qui intéressent la communauté tout entière pour les besoins du commerce international, puis les détroits dont la traversée n'est pas indispensable à la communauté internationale » ICJ, Pleadings, 347.

<sup>6</sup> See the dissenting opinion of Judge Azevedo, CIJ Recueil 1949, 106-107 and to a lesser degree the dissenting opinion of Judge Krylov, CIJ Recueil 1949, 74. Although the Court did not deal explicitly with the concept of an international strait in the Anglo-Norwegian Fisheries Case interesting remarks on it were made by Prof. Bourquin, counsel for Norway. He held that functional and economic criteria are of an essential importance for the definition of an international strait. Remarkably the British position in this came very close to what Prof. Bourquin maintained, thus decisively diverting from their earlier reasoning in the Corfu Channel Case. ICJ, Anglo-Norwegian Fisheries Case, Pleadings, Oral Arguments, Documents, IV, 291-292 and ibidem, II, 555

<sup>7</sup> The ILC Special Rapporteur, Prof. François based his draft concept for an international strait entirely on the judgment of the ICJ in the Corfu Channel Case “...in view of the very clear terms in which the Court had laid down the international law on the subject”, Yearbook ILC 1955, I, 150.

<sup>8</sup> Ibidem, 260, par. 80. Also see: Moser, M.B., A Survey of the Definition of International Straits and the Issue of “Status Mixtus”, The Israel Law Review 1968, 55.

<sup>9</sup> A/Conf.13/39, Official Records, III, 96 and 259. This addition can be considered as accommodating the specific situation of the Strait of Tiran giving access to the Gulf of Aqaba and the port of Eilat.

<sup>10</sup> The final proposal in the First Committee was accepted with the smallest majority possible, i.e. 31 votes in favour with 30 votes against and 10 abstentions. Thus the majority of the States voting in the First Committee was clearly not supporting this proposal and this due to a certain extent to the fact that the (minor) importance attributed to the functional element in the definition (“normally”) was removed from the text.

international straits are therefore still fairly broadly described as: "...straits which are used for international navigation between one part of the high seas and another part of the high seas or the territorial sea of a foreign State" (art. 16 par.4).<sup>11</sup>

10. By maintaining this (too) broad concept of an international strait the objective in law to provide for an exceptional legal regime as compared to the legal regime applicable in the respective maritime area through which the strait runs through, is not longer respected. The balance between the sovereignty of the coastal state and the necessity for international navigation of a passage without obstacles, is clearly lost. Exceptions on the sovereign status of States should not be allowed unless absolutely necessary and there is no doubt that by introducing a broad concept of international strait this element of necessity is overlooked or even put aside.

11. During the negotiations at UNCLOS III more and more States were convinced of the need to evaluate the functional criterion in deciding to attribute the status of what an international strait is or is not. Accordingly in part III of the LOSC 1982 distinctions are made between varying sorts of international straits based on their functional importance for international navigation. The importance of the function itself however is still not a decisive element.

12. The legal regime of the Danish Straits is basically subject to a long standing international convention providing a particular status in international law not necessarily identical with that of the 1982 LOSC. It seems therefore appropriate that the concept of the Danish Straits as fairways of international navigation enjoying an exceptional regime of passage as compared to the one applicable in the respective maritime area (s) covered by it, should be viewed in respect of the customary law aspects of it. There can be no doubt that the Danish Straits come under the definition of an international strait as provided by the International Court of Justice<sup>12</sup>. It would be hard to find a more or less important strait not to come under this definition anyhow since even the Corfu Channel was considered to be an international strait by the Court<sup>13</sup>. Moreover, the Danish Straits would definitely meet a more restrictive conceptual approach within the meaning of its importance for international navigation.

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<sup>11</sup> It is highly doubtful that the concept of art. 16 par. 4 Geneva Convention on the territorial sea and the contiguous zone 1958 is the codification of the customary legal definition. From the preparatory work, especially in the First Committee it can be concluded that this concept was not generally accepted by the majority of the participating States. It is therefore difficult to uphold that art. 16 par. 4 is the international law definition of an international strait.

<sup>12</sup> In the *Case Concerning Passage through the Great Belt* (Finland v. Denmark) before the ICJ, both parties agreed that the dispute concerned a strait used for international navigation as defined by the ICJ in the Corfu Channel Case. Cf. Koskenniemi, M., *Case Concerning Passage through the Great Belt*, Ocean Development and International Law Journal 1996, 261.

<sup>13</sup> It seems that the Corfu Channel would not be subject to the exceptional international legal regime of transit passage as provided in part III of LOSC 1982 demonstrating that its importance is not at all of an international nature.



So the question whether the Danish Straits would enjoy an exceptional legal regime even if they were not subject to the 1857 Convention, as provided in customary law or in the LOSC 1982 has to be answered in the positive.

## THE LEGAL REGIME OF PASSAGE THROUGH THE DANISH STRAITS

13. The passage through the Danish Straits - the Little Belt, the Great Belt and the Sound<sup>14</sup> - is becoming an issue in international relations in the second half of the 19<sup>th</sup> century<sup>15</sup>. The first head on attack on the Sound dues was introduced by Prussia on behalf of the European maritime states and the United States of America. The negotiations between Prussia and Denmark on the abolition of the Sound dues did not lead to a favourable result and were terminated in February 1845<sup>16</sup>. Later the USA took over notwithstanding the fact that the US government had concluded a treaty with Denmark in 1826 in which it agreed that the traditional dues would be applied to American vessels<sup>17</sup>. However, by the middle of the 19<sup>th</sup> century the USA refused to accept this situation any longer. Starting from April 14, 1856 the denunciation of the 1826 convention is notified to Denmark. The underlying reasoning is that Denmark does not possess an international legal title to passage dues for straits between two parts of the high seas. Although Denmark is prepared to start negotiations on the abolition of the dues, it is stubbornly maintaining that its original claim is legally valid. Because of the Danish position the USA remained absent from the international conference in Copenhagen in 1857 dealing with the redemption of the Sound dues<sup>18</sup>. The conference was successfully concluded with the conclusion of the treaty of March 14, 1857 on the redemption of the Sound dues<sup>19</sup>.

14. The aim of the treaty is mentioned in the Preamble : “to facilitate and increase the commercial and maritime relations...” *inter alia* by means of suppressing completely and for ever every toll levied on foreign vessels and their cargoes passing the Sound and the Belts”.

The main obligation that Denmark assumes is expressed in art. 1 par. 1:

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<sup>14</sup> Generally see: Alexandersson, G., The Baltic Straits, The Hague, M. Nijhoff, 1982.

<sup>15</sup> For a historical overview of the Sound dues, cf. Verzijl, J., International Law in Historical Perspective, Leiden, Sythoff, 1968-1979, IV, 129-136; also see: Bing Bing Jia, The Regime of Straits in International Law, Oxford, Clarendon Press, 1998, 115-116.

<sup>16</sup> See Martens, N.R.G., 1<sup>st</sup> Series, VIII, 95-107.

<sup>17</sup> Treaty of April 26, 1826 in Martens, NRG, 1<sup>st</sup> Series, VI, 919.

<sup>18</sup> See Hill, C., The Danish Sound Dues and the Command of the Baltic Durham, N.C., 1926; Bruel, E., International Straits: A Treatise on International Law, London, Sweet and Maxwell, 1947, II, 37-39; Verzijl, J., op.cit., IV, 137. Between the USA and Denmark a separate treaty for the discontinuance of the Sound dues was concluded on April 11, 1857. Text in Parry, C., The Consolidated Treaty Series, vol. 116, 465

<sup>19</sup> Text in Martens, NRG, 2nd Series, XVI, 345. The treaty was signed by Great Britain, Austria, Belgium, France, Hannover, Mecklenburg, Schwerin, Oldenburg, The Netherlands, Prussia, Russia, Sweden, the Hanze cities of Lübeck, Bremen and Hamburg and finally Denmark.

“1. Not to levy any customs, tonnage, lights, lighthouse or buoying dues or any other charge whatsoever, in respect of the hull or cargo, on vessels proceeding from the North Sea into the Baltic, or vice versa, passing through the Belts or the Sound, whether they restrict themselves to sailing through Danish waters, or whether any conditions of the sea or commercial operations compel them to anchor or put into port. No vessel shall henceforth, under any pretexts whatsoever, be subjected, in its passage of the Sound or Belts, to any detention or hindrance”<sup>20</sup>.

15. This principle is accepted to be valid *erga omnes* specifically taking into consideration the position of the USA<sup>21</sup>. With respect to the modalities of the passage Denmark undertakes to take care of the maintenance and in some circumstances eventually the improvement of buoys and lights. In practice this treaty boils down to the abolition of special rights in favour of the coastal State, Denmark. It brings the Danish straits under the international legal regime of international straits<sup>22</sup>.

16. Strictly speaking there is no obligation in the treaty on Denmark to guarantee the navigable character of the straits. On the other hand the treaty assumes that the Danish straits are at the moment of conclusion of a navigable nature. It implies that Denmark is not allowed to take this navigable nature away. Whether this would apply in the same way to all three of the Danish Straits is disputable. The construction of the bridges over the Little Belt undoubtedly influenced the navigable nature of this particular strait but left the other two passages open for navigation. Taking the text of the 1857 convention it can however be argued that this provides for an unhindered passage for all three of the straits. Nevertheless passage between the North Sea and the Baltic Sea is not endangered for contemporary navigation because of the bridges across the Little Belt. Normal navigation indeed is taking the route through the Great Belt because of constraints concerning water depth in the navigable channels of the other straits. It is therefore argued that the obligations arising from the 1857 treaty so far have been respected by the Danish government<sup>23</sup>.

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<sup>20</sup> Text in New Directions on the Law of the Sea, IV, 321.

<sup>21</sup> This shows from art. 1 par. 1 *in fine* :”but his Majesty the King of Denmark expressly reserves the right to regulate, by special agreements, implying neither visit nor detention, the fiscal and customs treatment of vessels belonging to powers which are not parties to the present Treaty”. Art. I of the bilateral treaty between Denmark and the USA provides for freedom of navigation through the Danish Straits for US vessels and their cargoes which obviously does not apply *erga omnes*.

<sup>22</sup> This was confirmed by the Danish government according to their answers on the questionnaire for the Hague Codification Conference. However in the *Case Concerning Passage through the Great Belt* Denmark expressed the view that the straits are governed by a special regime based on a combination of the 1857 and 1958 Geneva treaties, customary law and Danish national laws on passage; also see UNCLOS III, Official records, vol 1, 136.

<sup>23</sup> Considerations with respect to the navigable nature of water passages, be them straits or international rivers, should be made within the framework of the actual contemporary situation. There is no need for a system of a nostalgic museum like approach carefully respecting the wording of ancient texts but rather for a dynamic approach taking into consideration recent developments in navigation, traffic, mobility etc. See: Somers, E., Legal Aspects with Respect to the Maintenance of the River Scheldt,(in dutch) in Van Hooydonk, E., (ed), De Belgisch-Nederlandse verkeersverbindingen . De Schelde in de XXIste eeuw, Antwerpen, Maklu, 2002, 461-

17. Basically the 1857 treaty confirms the existing customary legal principle for passage through international straits. It was considered as: “the final establishment of the principle of free navigation as regards territorial waters constituting a necessary channel of communication between parts of the open sea”<sup>24</sup>. This principle was confirmed by a bilateral exchange of diplomatic notes between Denmark and Sweden on January 30, 1932<sup>25</sup>.

18. Within the light of further conventional developments however, as laid down in the 1958 Geneva Convention as well as in the LOSC 1982, it becomes necessary to identify the actual nature of the right of passage as included in the 1857 treaty. Can it be identified with the passage regime as provided in part III of the LOSC 1982 or is it still of a different nature?

19. First and foremost attention should of course be drawn in this respect to art. 35, lit c LOSC 1982 which states that nothing in part III affects:

“(c) the legal regime in straits in which passage is regulated in whole or in part by long-standing international conventions in force specifically relating to such straits”.

Thus, since the Danish straits are subject to the 1857 treaty which meets the requirements of art. 35 lit c, it is clear that its legal regime is not affected by part III LOSC 1982<sup>26</sup>. This does not necessarily mean *per se* that the applicable legal regime would be different from that of part III LOSC 1982. Indeed, it could be argued that the legal regime for passage through international straits, either non-suspendable innocent passage or transit passage, is or has become customary law. In that case either of the two legal regimes would be applicable to the Danish straits. However Denmark contended in the *Case concerning Passage through the Great Belt* that if transit passage had become part of customary law, also art. 35 (c) LOSC 1982 would have to be applied as an intrinsic part thereof, sheltering the Danish Straits from the

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468. Also: Favilli, V., Le nouveau pont sur le Petit-Belt du point de vue du droit international, R.D.I.L.C. 1936, XVIII, 633-644 ; Sørensen, M., Brückenbau und Durchfahrten in Meerengen, Recht im Dienst des Friedens. Festschrift für E. Menzel zum 65. Geburtstag am 21-1-1976, Berlin, Duncker und Humblot, 1975, 551-566.

<sup>24</sup> Cobbett, P., Leading Cases on International Law, London, H. Bellot, 1922-1924, I, 153. Generally also see: De Stael-Holstein, L., Le nouveau regime du Sound, R.D.I.L.C. 1932, XIII, 800-812; Bruel, E., Les détroits danois au point de vue du droit international, R.C.A.D.I. 1936, I, 595-696 ; Morawiecki, W., Le statut international des détroits de la mer Baltique, A.A.A.A. 1959, 159-171 ; Symonides, J., Legal Status of the Baltic Straits, Polish Yearbook of International Law 1971, 119-146.

<sup>25</sup> In this exchange of notes Sweden explicitly recognises a right of passage in favour of Denmark through the Flinterenden in the Sound both for merchant and warships. By a common declaration of the same date it was indeed agreed that the Flinterenden falls within Swedish territorial waters.

<sup>26</sup> Moreover, Denmark is not a party to the Convention and is therefore not bound by the provisions of part III save if and when they also apply as customary law.

legal regime of transit passage<sup>27</sup>. In the same case both Denmark and Finland agreed that the right of passage through the Danish Straits is covered by the 1857 treaty and by the 1958 Geneva Convention on the territorial sea and the contiguous zone<sup>28</sup>. Denmark rightfully argues that the ascertainment of the legal passage regime of the Straits has to start from its position as a sovereign coastal State bordering the Straits. Indeed, it should not be overlooked that in international law the exceptional regime bestowed on international straits is aiming to strike a balance between the interests of the coastal states involved and those of international navigation. Therefore, within the limits of international law – either conventional or customary – the legal passage regime of the Danish straits will also be dependent on Denmark’s applicable national legislation. The extent of the right of passage is based on art. 2 of the 1857 treaty “supplemented by the customary rules of international law related to the Danish straits”<sup>29</sup>. This seems to imply that the basis of the passage regime through the Danish straits as indicated in the 1857 treaty is given substance by the legal regime as laid down in art 16 par. 4 Geneva Convention 1958, i.e. non-suspendable innocent passage<sup>30</sup>.

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<sup>27</sup> It is clear of course that art. 35 (c) LOSC 1982 would not be able to shelter the Danish Straits from subsequent developments within customary law. Generally see M. Koskenniemi, *op.cit.*, 255-289; Bing Bing Jia, *op.cit.*, 118-120.

<sup>28</sup> The former applies *erga omnes* and both countries are contracting parties to the Geneva Convention.

<sup>29</sup> This might suggest that customary rules of international law related to the Danish straits are different from the customary legal regime applicable to international straits in general.

<sup>30</sup> This regime was previously declared by the ICJ in the Corfu Channel Case as generally accepted in conformity with customary law, cfr. CIJ *Receuil* 1949, 28. A similar right of passage applies in those parts of the straits which are enclosed by straight baselines established by Denmark, cf. art. 5 Geneva Convention 1958. This legal regime of passage also applies to warships and other ships used *de jure imperii*; the 1857 treaty is not applicable to this category of ships. Only in case of a simultaneous passage of more than three warships of the same nationality, Denmark requires prior notification, see Oude Elferink, A., The Regime of Passage Through the Danish Straits, *International Journal of Marine and Coastal Law* 2000, n° 4, 564.





## **THE LEGAL REGIME OF THE STRAITS AROUND GREAT BRITAIN**

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### **I. THE GEOPOLITICAL SETTING**

Great Britain is a large and populous island situated off the North-West European continental land mass (see the map annexed to this paper). Great Britain and its associated islands<sup>1</sup> form, together with Northern Ireland, the metropolitan territory of the United Kingdom: the full title of the State is “the United Kingdom of Great Britain and Northern Ireland” (in this paper, "UK"). The UK has long been a maritime state, yet it also has important coastal interests. Around the coasts of Great Britain, there are several named straits and some other similar stretches of sea bearing a variety of names.<sup>2</sup> Different regimes of navigation apply in these different areas of sea, composed mainly of territorial sea and internal waters. This paper examines the legal regimes applicable to different areas. In particular, the rights of passage of foreign ships and aircraft are noted, as well as the rights of the UK as the coastal state to regulate the exercise of those rights of passage.

### **II. THE EVOLUTION OF BRITISH PRACTICE IN REGARD TO THE TERRITORIAL SEA**

Following the failures at both the First and Second United Nations Conferences on the Law of the Sea, held respectively in 1958 and 1960, to reach agreement on the question of the maximum breadth of the territorial sea, the UK maintained its limit of 3 nautical miles (nm). However, during the next decade diplomatic protests were no longer addressed to States which claimed 4, 6, 10 or 12 nm. In 1964, the UK implemented the rules on baselines contained in the Geneva Convention on the Territorial Sea and the Contiguous Zone<sup>3</sup> and also introduced a fishery limit beyond the territorial sea extending to a maximum of 12 nm from those baselines.<sup>4</sup>

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<sup>1</sup> Notably, the Isle of Wight, the Isles of Scilly, Anglesey, the Hebrides, the Orkney Islands and the Shetland Islands. The Isle of Man, Guernsey and Jersey are Dependencies of the Crown and constitutionally separate from the UK.

<sup>2</sup> For instance, there are several “Channels,” two “Minches” and a “Gap” with two parts.

<sup>3</sup> Territorial Waters Order in Council 1964. The baselines are a mixture of normal baselines, bay-closing lines and some straight baselines. The latest version of the Schedule is set out in the Territorial Sea (Amendment) Order 1998 (Statutory Instrument No. 1998/2564).

<sup>4</sup> Fishery Limits Act 1964.

However, it did not do so unilaterally: rather, it acted in agreement with its neighbouring states in the form of the European Fisheries Convention of 1964. In 1974, at the first substantive session of the Third UN Convention on the Law of the Sea, the UK delegation presented a package of detailed proposals, including 12 nm as the new maximum breadth of the territorial sea, the right of innocent passage and the right of transit passage through straits used for international navigation. These proposals influenced the eventual outcome of the Conference on these important issues.<sup>5</sup> In 1987, the UK abandoned the 3 mile limit of the territorial sea, which it had upheld for very many years, both diplomatically and in former times by sending the Royal Navy. The Government's decision to extend was based upon the outcome of the Third UN Conference on the Law of the Sea and the practice of States. The Government took the position that the terms of the United Nations Convention on the Law of the Sea ("the LOS Convention") were helpful, with the sole exception of Part XI concerning deep sea bed mining. In line with Parts II and III of the Convention, the Territorial Sea Act 1987 established the maximum breadth of the British territorial sea as 12 nautical miles.<sup>6</sup> There is a need for boundaries in three areas where neighbouring jurisdictions are situated less than 24 nm away. These jurisdictions are France, the Republic of Ireland and the Isle of Man which, although British territory, has its own legislation for the territorial sea. The timing of the Bill had much to do with the preparations to construct the Channel Tunnel under the straits of Dover and the wish to tunnel through seabed which was either British or French in all respects, so as to have jurisdictional certainty.

In 1997, the UK acceded to the LOS Convention after introducing further legislation, notably on pollution jurisdiction and fishery limits.<sup>7</sup> Today, many aspects of British maritime law and practice are based upon the terms of the LOS Convention.<sup>8</sup> As this paper will attempt to show, this general position applies equally to the legal regime in the various straits and similar stretches of water around Great Britain.

### III. BRITISH STRAITS AND SIMILAR AREAS OF SEA

Part III of the LOS Convention defines different legal regimes for several types of straits and irrespective of the name of the waters in question. The following six types of strait or similar areas of sea can be identified around Great Britain.

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<sup>5</sup> A/CONF.62/C.2/L.3. For further details, see Nandan and Anderson, *Straits Used for International Navigation: A Commentary on Part III of the UN Convention on the Law of the Sea*, 60 BYBIL (1989) 159; and Caminos, *The Legal Regime of Straits in the 1982 United Nations Convention on the Law of the Sea*, 205 Hague Recueil (1987), p.9.

<sup>6</sup> The 12 nm limits are shown on Figure 1, the map annexed to this paper.

<sup>7</sup> A pollution control zone was created in line with Part XII and the claim to measure the fishery zone of 200 nm from Rockall was abandoned in view of article 121(3) of the LOS Convention: for details see British Accession to the UN Convention on the Law of the Sea, 46 ICLQ (1997) 761, by the present writer.

<sup>8</sup> But not all aspects: for example, the UK has not declared a contiguous zone or an exclusive economic zone.



### **1. Straits which are not used for international navigation**

The Menai Strait lies between Anglesey and the mainland. Bay-closing lines have been drawn across both ends of the Strait, so that the waters have the status of internal waters. There are low bridges at Conwy for rail- and road-ways, linking Anglesey to the rest of Wales, across the narrow strait. It connects two areas of the territorial sea. It is not used for international navigation and there are no rights of passage under international law through this strait. As a result, the applicable regime is based entirely upon UK legislation.

### **2. Broad Straits Used for International Navigation**

St. George's Channel lies between Wales and Ireland, which has a 12 nm limit for its territorial sea. At its narrowest point, the Channel is 36 nm wide, with the result that there is a corridor of high seas down the middle of the Channel. Ships on voyages between ports on the Irish Sea, such as Liverpool and Dublin, and ports in France, Iberia or the Mediterranean pass through St George's Channel. On the Irish side of the Channel, there is a traffic scheme known as "Off Tuskar Rock" and on the Welsh side a traffic separation scheme exists off the Smalls, both approved by the International Maritime Organisation (IMO). A boundary was agreed between Ireland and the UK for the respective continental shelves in 1988.<sup>9</sup> This Channel is subject to article 36 of the LOS Convention, entitled "High Seas Routes ... through straits used for international navigation"<sup>10</sup> according to which the applicable regime beyond the territorial sea is freedom of navigation and freedom of overflight.

### **3. Areas of Internal waters behind bay closing lines**

The narrow channel of sea between the Isle of Wight and the mainland of Great Britain is known as the Solent. Bay-closing lines have been drawn, in accordance with article 10 of the LOS Convention, across the western and eastern entrances to the Solent which are 15 and 16.5 nm across, respectively. The waters behind the two bay-closing lines are internal. Although the Solent is important for navigation, it is used by ships calling at ports in the vicinity, such as Southampton, Portsmouth, Cowes and Ryde. The Solent is not used by ships in transit up or down the English Channel. There is no right of innocent passage for ships in transit through the Solent. The legal regime is based on UK legislation.

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<sup>9</sup> For details, see Report No. 9-5 by the present writer in Charney and Alexander (Eds.), *International Maritime Boundaries*, Vol. II, p. 1767.

<sup>10</sup> A similar situation exists in the eastern part of the English Channel, in the approaches to the Dover Strait.

#### **4. Areas of Internal waters behind straight baselines**

In 1964, some continuous straight baselines were drawn around the Hebrides, linking the mainland to the outer Islands.<sup>11</sup> The Hebrides constitute a fringe of islands in the immediate vicinity of the coasts of the Scottish mainland. The lines were drawn in accordance with article 4 of the Geneva Convention on the Territorial Sea (now article 7 of the LOS Convention). The waters on the landward side of these baselines are internal waters within the meaning of article 8 of the LOS Convention. There runs to the west and north of Skye and to the east of the Outer Hebrides some stretches of water known as the Sea of the Hebrides, the Little Minch and the North Minch (together known as "the Minches") which have long been used by smaller coastal vessels proceeding from say Dublin or Glasgow to Oslo or the Baltic ports. Paragraph 2 of article 8 provides that where the establishment of straight baselines has the effect of enclosing as internal waters areas which had not previously been considered as such, a right of innocent passage exists in those waters. The British Government has accepted that a right of innocent passage applies in the Minches. Thus, in answer to a question about the status of the Minches, the Minister of State confirmed "that ships of foreign states enjoy innocent passage, but submarines would not be able to pass through the area except on the surface, and aircraft could not overfly, as they could straits such as the straits of Dover."<sup>12</sup> This question was investigated afresh by a Commission of Inquiry set up after the loss of the Braer and the position described in 1987 was confirmed.<sup>13</sup> To seaward of the Hebrides, a deep water route has been surveyed and approved by the IMO as a traffic routeing scheme.<sup>14</sup> Tankers and larger vessels are recommended to use this route.

#### **5. Straits in which a right of non-suspendable innocent passage applies**

When announcing in Parliament the proposal to extend the breadth of the territorial sea, the Minister stated the following:

"In...straits used for international navigation such as the Pentland Firth south of Orkney and the passage between the Scilly Isles and the mainland, a right of innocent passage will continue to exist, in accordance with the practice of states."<sup>15</sup>

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<sup>11</sup> Territorial Waters Order in Council 1964.

<sup>12</sup> Hansard, Lords, 5 February 1987, column 400.

<sup>13</sup> Report of Lord Donaldson's Inquiry into the Prevention of Pollution from Merchant Shipping, Cm 2560. For the British Government's Response to the Report, see Cm 2766.

<sup>14</sup> IMO Publication "Ships' Routeing" (1999), Part C – Deep Water Routes, Section II/6.

<sup>15</sup> Hansard, Lords, 5 February 1987, col. 382.

This right of innocent passage has been recognized in accordance with article 45 of the LOS Convention in three straits which are formed in two cases by an island and the mainland of Great Britain and in the third case by a group of islands off the island of Lewis in the Outer Hebrides. In other words, these three straits were recognised as falling within the exception in article 38, paragraph 1 of the LOS Convention. In the case of the passage between the Scilly Isles and the mainland (a passage bearing no specific name), there is a route of similar convenience through the high seas to seaward of the Scilly Isles. In the case of the Pentland Firth, to seaward of the Orkney Islands there is a route of similar convenience known as the Fair Isle Gap (as to which, see below). Both these straits are used for international navigation, although both are more than usually hazardous. The Pentland Firth has strong currents and tides, driven by the Gulf Stream. The Torrey Canyon was lost in 1967 in the waters between the Scilly Isles and the mainland, causing extensive coastal pollution in England and France. There is a traffic separation scheme in force in this area.<sup>16</sup> The third strait, again not named, is formed between the Outer Hebrides and the Flannan Isles which lie to the west of the Hebrides. Here again there exists an equally convenient and safe passage to seaward of the Flannan Isles. However, it should be noted that the route recommended by the IMO for deep draft vessels passes through this short strait.

In accordance with article 45, this right of innocent passage is the same as that defined in Part II of the LOS Convention, except that it may not be suspended.

## **6. Straits in which the right of transit passage applies**

The UK has accepted that the right of transit passage applies in three straits around Great Britain. Acceptance was conveyed by means of Ministerial statements in the two Houses of Parliament during consideration of the Territorial Sea Bill in which the Government of the day proposed the extension of the breadth of the territorial sea of the UK to a maximum of 12 nm. The statements first alluded to the then proposed Channel Tunnel and continued as follows:

“There is also the wider question of passage through straits. A special regime for navigation is appropriate in certain important straits where there is no convenient alternative route from one part of the high seas to another. That has long been recognized in state practice, international negotiations and the case law of the International Court.

Around the United Kingdom there are three such straits that would be brought entirely within territorial waters on extension to 12 miles. These are the Fair Isle Gap between the Shetlands and Orkneys, the North Channel and the Straits of Dover.

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<sup>16</sup> IMO Publication "Ships' Routeing" (1999), Part B – Traffic Separation Schemes, Section II/4, "Off Land's End, between Seven Stones and Longships".

In those straits, we consider that, in the light of developments in international law and state practice, it is necessary to afford others the essential rights of unimpeded passage for merchant ships and warships, a right of overflight, and the right of submerged passage for submarines, with appropriate safeguards for the security and interests of coastal states.”<sup>17</sup>

Provisions concerning these rights of passage were not included in the legislation, which was confined to the question of limits. However, later legislation did take account of the right of innocent passage and the right of transit passage for ships,<sup>18</sup> whilst the right of overflight was specifically provided for by means of an amendment to the Air Navigation Order.<sup>19</sup> The detailed situation in these three straits will now be considered in turn.

### **(A) The Fair Isle Gap**

This short strait lies between the Shetland Islands and the Orkney Islands. The small, inhabited island known as Fair Isle (famous for its knitwear patterns) lies in the centre of the strait, with the result that rights of passage are available either north or south of Fair Isle. The strait provides a route for shipping moving between ports in northern Europe and North America, as well as between Denmark and the Faroe Islands. The oil tanker “Braer” ran aground in the strait on the southern tip of the Shetland Islands *en route* from Norway to Canada. There is no traffic separation scheme in the strait. Overflight is permitted in a defined area around Fair Isle, up to its coasts.

### **(B) The North Channel**

The North Channel lies between Scotland and Northern Ireland. It is composed largely of British territorial sea, although the approaches may be regarded as extending also to some Manx and Irish waters. The North Channel is used by shipping moving between the Irish Sea and the Atlantic or ports in northern Europe, as well as by vessels calling at ports on the Firth of Clyde or Belfast. There is a traffic separation scheme in the narrowest part of the strait, between the Mull of Kintyre and Rathlin Island (part of Northern Ireland). North-bound vessels are to keep to the traffic lane nearer to Scotland and south-bound vessels to that nearer to Northern Ireland. An area for overflight has been defined over the whole length of the strait where arcs of 12nm from Scotland and Northern Ireland intersect and extending up to the coasts.

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<sup>17</sup> Parliamentary Under-Secretary of State for Foreign and Commonwealth Affairs, Mr Eggar, in Hansard, Commons, Second Reading Committee, 28 April 1987, columns 3 and 4. A similar statement had been made in the House of Lords on 5 February 1987 by the Minister of State (Hansard, Lords, at column 382).

<sup>18</sup> Merchant Shipping Act 1995, section 100C.

<sup>19</sup> The Air Navigation (Second Amendment) Order 1987 (Statutory Instruments 1987/2062) added a new article 91A to the principal Order according a right of overflight in terms clearly derived from the wording of articles 38 and 39 of the LOS Convention.

### **(C) The Straits of Dover/Pas de Calais**

The Dover Strait extends, including its approaches, for a distance of 65 nm between the coasts of England and France. At the narrowest point, the strait is 18 nm wide and on a clear day it is possible to see France from the White Cliffs of Dover. Both France and the UK have territorial seas extending to the maximum of 12 nm. A territorial sea boundary in the middle of the strait was agreed in 1988.<sup>20</sup> It is one of the busiest straits used for international navigation between ports in the North Sea and the Baltic Sea, on the one hand, and ports in southern Europe, Africa, Asia and the Americas, on the other. It is a major route for oil tankers and chemical tankers. In 2001, as many as 120,000 vessels passed through and in addition there were 74,000 movements by ferries across the strait, carrying 21 million passengers. That year, 654 incidents were noted by the Dover Coastguards: 193 persons were rescued and 21 lost their lives.<sup>21</sup> The sheer volume of traffic poses safety problems which are being addressed by the two Governments and the IMO. The British and French authorities have cooperated closely over many years in order to improve safety standards. On more than one occasion, they have worked out joint proposals for submission to the IMO concerning traffic separation and regulation, in the interests of safe navigation and the prevention of pollution. This practice provided the precedents for the UK's proposals<sup>22</sup> at the Third UN Conference on the Law of the Sea which influenced the terms of articles 22 and 41 of the LOS Convention. In 1988, the two Foreign Ministers issued a Declaration in the following terms:

*"The existence of a specific regime of navigation in the straits is generally accepted in the current state of international law. The need for such a regime is particularly clear in straits, such as the Straits of Dover, used for international navigation and linking two parts of the high seas or economic zones in the absence of any other route of similar convenience with respect to navigation.*

*In consequence, the two Governments recognise rights of unimpeded passage for merchant vessels, state vessels and, in particular, warships following their normal mode of navigation, as well as a right of overflight for aircraft, in the Straits of Dover. It is understood that, in accordance with the principles governing this regime under the rules of international law, such passage will be exercised in a continuous and expeditious manner.*

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<sup>20</sup> Agreement of Paris on the Delimitation of the Territorial Sea, 2 November 1988, with Declaration: for details, see Report No. 9-3 by the present writer in Charney and Alexander (Eds.), *International Maritime Boundaries*, Vol. II (1992), p. 1735.

<sup>21</sup> Press Release No.119e/02 of 13 May 2002 by the British Coastguard and Maritime Agency (annual survey for 2001).

<sup>22</sup> A/CONF.62/C.2/L.3.

*The two Governments will continue to cooperate closely, both bilaterally and through the International Maritime Organisation, in the interests of ensuring the safety of navigation in the Straits of Dover, as well as in the southern North Sea and the Channel. In particular, the traffic separation scheme in the Straits of Dover will not be affected by the entry into force of the Agreement.*

*With due regard to the interests of the coastal states the two Governments will also take, in accordance with international agreements in force and generally accepted rules and regulations, measures necessary in order to prevent, reduce and control pollution of the marine environment by vessels.*"<sup>23</sup>

The two Governments had co-operated very closely, as fellow members of the Group of Five, at the Third UN Conference on the Law of the Sea in regard to the question of passage through straits used for international navigation. This Declaration, issued by the two Foreign Ministers upon signing the boundary Agreement, applied the concepts of Part III of the LOS Convention to the Straits of direct interest to the two governments. This was done at a stage when the Convention was not in force and neither government had established its consent to be bound by it. The Declaration served both to strengthen the Convention's regime on navigation, albeit without expressly referring to that instrument, and to lay the foundation for continued bilateral cooperation.

Today, a mandatory traffic separation scheme<sup>24</sup> exists throughout the strait: north-bound vessels are to use the traffic lane nearer to France and south-bound vessels the lane nearer to England. (There are also inshore traffic zones on both sides.) The scheme is mandatory in the sense that France and the UK are both parties to the LOS Convention, that article 22 authorises the coastal state to require foreign ships exercising the right of innocent passage to use designated traffic lanes, that articles 41 and 42 are to similar effect in straits used for international navigation, that the Collision Regulations contain Rule 10 (Traffic separation schemes) and, finally, that the Convention on the Safety of Life at Sea (SOLAS) contains General Provisions on Ships' Routeing. These provisions represent the international rule of the road at sea and thus are applied to ships of all flags. Both France and the UK have enacted legislation making it obligatory to respect the traffic lanes and the regulations applicable to them, as agreed through the IMO. In recent years, the British Coastguard Agency, which has an enforcement unit, has successfully prosecuted masters and owners/operators of ships, fishing vessels and yachts for traffic offences and for pollution offences arising from collisions in the straits.<sup>25</sup>

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<sup>23</sup> For comment, see "*The Right of Transit Passage and the Strait of Dover*" by the present writer in M. Nordquist (Ed.), *Proceedings of the 13<sup>th</sup> Annual Seminar of the Center for Oceans Law and Policy*, University of Virginia.

<sup>24</sup> IMO Publication "Ships' Routeing" Part B – Traffic Separation Schemes, section II/7.

<sup>25</sup> See, for example, British Coastguard Agency Press Notices Nos. 97/02 and 133/01, available on the Website [www.mcga.gov.uk](http://www.mcga.gov.uk).

This is nothing new: as long ago as 1876, the German master of the *Franconia* was prosecuted on a charge of manslaughter following a collision in the territorial sea two miles off Dover which led to loss of 38 lives.<sup>26</sup> The *Franconia* was on a voyage from Hamburg to the Caribbean. When the English courts found they lacked jurisdiction, Parliament enacted the Territorial Waters Jurisdiction Act 1878 conferring jurisdiction for the future. In recent times, the courts have imposed fines by way of penalties upon conviction. No ship has been arrested at sea.<sup>27</sup> Prosecutions have been brought against persons resident in the UK and outside the UK who have answered summonses to attend court for trial.

Both Governments have invested in radars and other electronic systems so that Vessel Traffic Services (VTS) can now be offered to ships in transit. In addition, the British Government maintains a tug on station at Dover to assist any ship in difficulties in the Straits. From 1 July 1999, it has been mandatory for ships over 300 tonnes to report to the French coastguard at a point in the southern approaches and to the Dover Coastguard in the northern approaches when proceeding from the North Sea southwards. This scheme was drawn up in the IMO under the acronym CALDOVREP scheme.<sup>28</sup> Overflight in a defined area of the British half of the Strait is permitted as an exercise of the right of transit passage in accordance with articles 38 and 39 of the LOS Convention.<sup>29</sup>

## CONCLUDING REMARKS

1. The British coasts provide many examples of different legal regimes laid down in the LOS Convention. In several of these instances, IMO instruments have also been implemented. However, the UK does not have a strait covered by article 35 (c), such as the Turkish Straits.

2. The British authorities have accepted the burdens of transit passage, including flag state rights of overflight and submerged passage, and non-suspendable innocent passage, in appropriate straits. At the same time, the rights and protections afforded to the coastal state are also invoked by the authorities, always acting in accordance with the Convention.

3. In particular, there have been long-standing concerns about collisions and oil spills in the straits, especially just in front of the White Cliffs of Dover. These concerns have been addressed actively in cooperation with the French authorities, and also in cooperation with the international maritime community through the IMO.

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<sup>26</sup> *Reg. v. Keyn* (1876) 2 Ex D 63

<sup>27</sup> Article 225 sets out the duty to avoid adverse consequences in the exercise of the powers of enforcement.

<sup>28</sup> Details are set out in Marine Guidance Note 128, "Navigation in the Dover Strait" by the Maritime and Coastguard Agency

<sup>29</sup> Air Navigation (Second Amendment) Order 1987, S.I. 1987/2062, especially Chart A.

4. The latest technology has been employed so that the coastguards can talk to ships passing along the strait and this enables them to give warnings of hazards ahead such as fog or vessels moving slowly. Tugs, buoys, lights, radars and VTS are all provided.
5. Ships are required to obey the rules agreed in the LOS Convention and the IMO. Those who fail to respect the rules run the real risk of being prosecuted in court. The needs of maritime safety call for nothing less.
6. The British practice of designating straits in which transit passage or non-suspendable innocent passage exists may be unique, as may the practice of granting overflight rights in defined areas up to the coast.
7. Finally, it can be stated that British practice in regard to the straits and similar passages around Great Britain is now based directly upon the twin foundations of the LOS Convention and the IMO Conventions concerning safety of navigation.





Figure 1. Straits around Great Britain.



## **LEGAL STATUS OF THE CHEJU STRAIT**

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### **INTRODUCTION**

Korea has two straits, one is the Korea Strait between Korea and Japan's Tsushima Island and the other is the Cheju Strait between the southern tip of the Korean peninsula and Cheju Island. This study analyzes the legal problems of the Cheju Strait. In particular, the legal status of the Strait, as put forth by the International Straits Regime in the 1982 UN Convention on the Law of the Sea (the LOSC), is discussed. Furthermore, two other important areas of interest included as part of the LOSC will be discussed: the Strait's geographical features and the Strait Regime.

### **GEOGRAPHICAL FEATURES**

The Cheju Strait lies between the mainland of the Korean peninsula and Cheju Island. Cheju Island is situated about 48.6 miles south of the western tip of the south coast of the Korean peninsula as shown in Figure 1. The Island has a coastline of 136.6 miles and divides the sea into three parts, the Yellow Sea, the Korea Strait and the East China Sea. The Strait ranges in width between 14 miles and 45 miles. The narrowest width between Korea's mainland measured from its straight baseline<sup>1</sup> to the Island's normal baseline<sup>2</sup> is about 20.7 miles.

The Cheju Strait is a strait of important strategic concern for Japan, the United States, Russia, and China, as well as for Korea. The Strait offers not only a route of navigation, but also important fishing grounds for Korea. Unlike the Korea Strait, however, the legal status of the Cheju Strait has been a subject of considerable discussion because of its geographical and legal characteristics.

There are three basic legal issues involving in the Cheju Strait. First, whether it is an international strait or is located in Korean internal waters; Second, whether there exists a navigational route of "similar convenience" as provided in Article 38(1) of the LOSC. And third, what method should be used in the adoption of sea lanes and traffic

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<sup>1</sup> Presidential Decree No.9162 of 20 December 1978 specifies straight baselines connecting most of the outlying islands including the Cheju Strait.

<sup>2</sup> Korea promulgated the Territorial Sea Law on 31 December 1977 and it defines the outward limit of the territorial sea in Article 1 as follows: "The territorial sea of the Republic of Korea shall be the area of the water up to the outer limit of twelve nautical miles measured from the baselines. However, the breadth of the territorial sea in the specified area may be determined otherwise within the limit of twelve nautical miles in accordance with the Presidential Decree."

separation schemes. While considering these issues, it is necessary to discuss the definition of an international strait and the interpretation of Article 38(1) of the LOSC.



Figure 1. The Cheju Strait.

## KOREAN PERSPECTIVES ON THE CHEJU STRAIT

South Korea seems to maintain the position that the Cheju Strait should be treated as "internal waters", because the Strait is located in its territorial sea between the mainland and Cheju Island. Accordingly, the regime of innocent passage would be applied, but a prior notification of passage would not be required. However, Korean law imposes a prior notification requirement.<sup>3</sup>

The LOSC provides for a right of innocent passage in internal waters that are enclosed by a straight baseline (Article 8, paragraph 2). Even if the Cheju Strait were regarded as an international strait, the regime of innocent passage, instead of transit passage, would be applied under the LOSC. Article 45(1) of the LOSC provides that:

The regime of innocent passage, in accordance with Part II, Section 3, shall apply in straits used for international navigation:

(a) excluded from the application of the regime of transit passage under Article 38, paragraph 1.

Korea's claim of the Strait as internal waters is based on the use of the straight baseline method in measuring the limits of the territorial sea off the southern and western coasts of the Korean peninsula (Figure 2). If the straight baseline method is applied, the width of the Cheju Strait is only 20.7 miles at the narrowest point area, thereby making the Strait internal waters. However, when applying the same process at varying points between the Korean coast and Cheju Island, the Strait is wider than 20.7 miles.

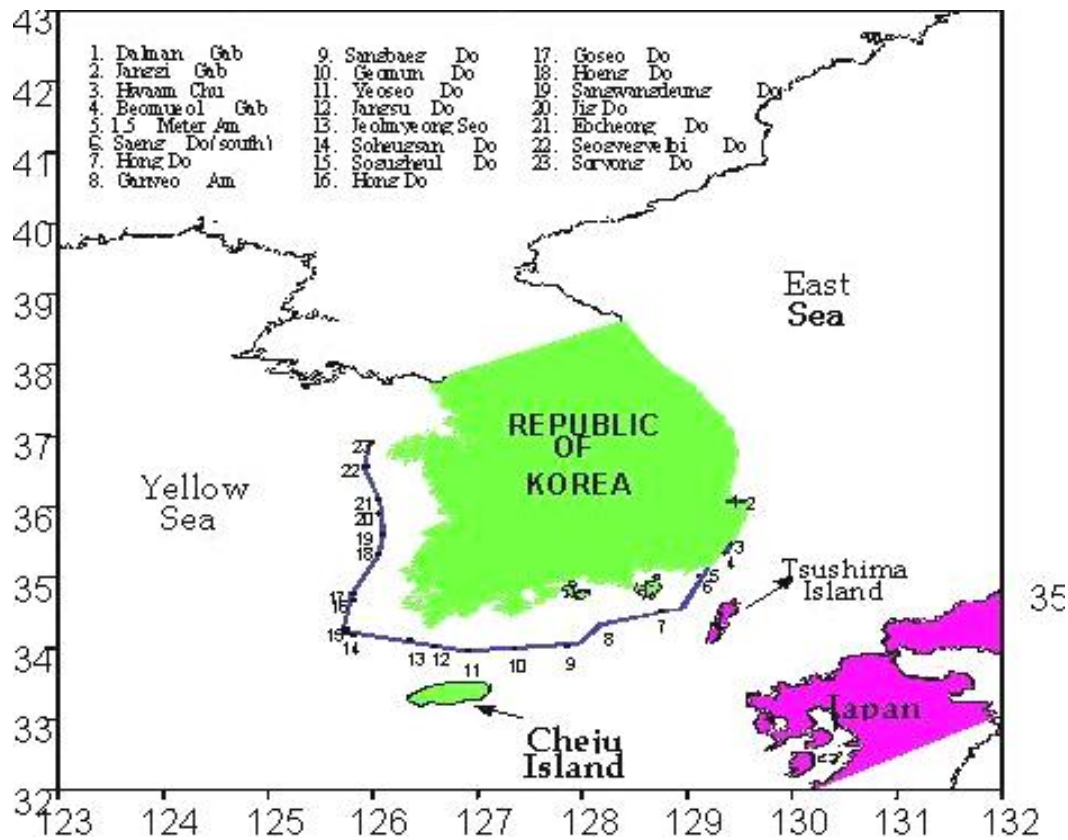
The main point, that the Cheju Strait is internal waters rather than is an international strait, may be summarized as follows. First, Cheju Island and the mainland of the Korean peninsula are inseparable, and there is a high frequency of local navigation traffic between them. Second, the treatment of the Strait as internal waters is essential not only for conserving living resources and ensuring the fishermen's livelihood, but also to protect the security of Korea. And third, since the Cheju Strait has not been used ordinarily for international navigation so that the special local circumstances of the Strait should be stressed.

Some deny the international character of the Cheju Strait by pointing out that there is an alternative route of "similar convenience" seaward of Cheju Island. Incidentally, Japan denies the existence of "similar convenience" southward of Cheju island. Although the South Korean claim seems logical, it will take far more than logic to persuade other maritime states to accept the legal status of the Cheju Strait as Korean internal waters.<sup>4</sup>

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<sup>3</sup> Article 4 of Enforcement Decree of the Territorial Sea Law, 1978.

<sup>4</sup> In this connection, it may be useful to note the case of the Qiongzhou Strait between Leizhou Peninsula and Hainan Island in China. In the 1958 declaration of its territorial sea, China, by using straight baselines, claimed as internal waters the Qiongzhou Strait (about 50 miles long and 9.8 miles to 19 miles wide), which connects the South China Sea and the Gulf of Tonkin and is an important shipping route. As discussed earlier, the 1964 regulations governing the passage of vessels through straits, excluded foreign warships from using the strait and established regulations for foreign non-military vessels to use the strait.



The southwestern coast of Korea's mainland is roughly indented and has numerous islands. According to such a geographical situation, the use of straight baselines is justified.<sup>5</sup> So considering a 12-mile territorial sea, the territorial seas of Cheju Island can be linked with the smaller islands in the Cheju Strait.<sup>6</sup> Nevertheless, it may be difficult to justify linking Cheju Island with the mainland through a single straight baseline system.

There exist sufficient geographical, historical, and economic conditions in the south and west coasts to justify the use of the straight baseline method<sup>7</sup> for the delimitation of Korean waters including Cheju Island.<sup>8</sup> The economic interactions between the mainland of the peninsula, islands in the Cheju Strait, and Cheju Island have notably increased in recent years, which has been an important consideration in determining baselines.

<sup>5</sup> Article 7(1) of the UN Convention on the Law of the Sea.

<sup>6</sup> D.W.Bowett, *The Legal Regime of Islands in International Law*, Dobbs Ferry, N.Y. : Oceana Publications, 1979, pp.89-90 and 293.

<sup>7</sup> In the 1951 *Anglo-Norwegian Fisheries Case* the court examined the principle of the Norwegian system of straight baseline and it recognized as legal "a system of straight lines drawn from certain outermost points of the 'skjaergaard' or rampart of rocks and islands which fringes much of the Norwegian coasts."

<sup>8</sup> The 1982 Convention provides that: In localities where the coastline is deeply indented and cut into, or if there is a fringe of islands along the coast in its immediate vicinity, the method of straight baselines joining appropriate points may be employed in drawing the baseline from which the breadth of the territorial sea is measured.(Article 7, paragraph 1).

South Korea has made a combined use of normal and straight baseline method in determining the limits of its territorial sea. It employed the normal baseline method to the eastern and southeastern coasts of the peninsula and the straight baseline method in the heavily indented western and southwestern coasts, including Cheju Island (Figure 2).<sup>9</sup>

## **INTERNATIONAL STRAITS**

### Legal Regime

The UN Convention on the Law of the Sea provides different kinds of straits used for international navigation,<sup>10</sup> each with a distinct legal regime.<sup>11</sup> These are described below.

1. Straits connecting one part of the high seas / EEZ and another part of the high seas / EEZ.<sup>12</sup>
2. Straits connecting a part of the high seas / EEZ and the territorial sea of a foreign state.<sup>13</sup>
3. Straits connecting one part of the high seas / EEZ and another part of the high seas / EEZ where the strait is formed by an island of a state bordering the strait and its mainland, if there exists seaward of the island a route through the high seas / EEZ of similar convenience with regard to navigation and hydrographic characteristics.<sup>14</sup>
4. Straits regulated in whole or in part by international conventions.<sup>15</sup>
5. Straits through archipelagic waters governed by archipelagic sea lanes passage.<sup>16</sup>

### Transit Passage

The following describes the meaning of "Transit Passage". Transit passage straits are used for international navigation and are subject to the legal regime of transit passage.<sup>17</sup> Transit passage is defined as the freedom of navigation and overflight solely for the purpose of continuous and expeditious transit in the normal

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<sup>9</sup> Under the 1977 Territorial Sea Law of Korea, straight baselines were drawn in the southern coast connecting Saengdo, Al-som, Kanyo-do, Sandbaek-do, Komun-do, Yoso-do, Changsu-do, Cholmyong-so, and Sohuksan-do.

<sup>10</sup> Refer to the UN Convention on the Law of the Sea, Articles 37-45.

<sup>11</sup> See Roberts Smith, "Navigation Issues in the Law of the Sea", presented at the International Conference on Maritime Issues in the 1990s, Seoul, Institute of East and West Studies, July 9-10, 1991, p.38.

<sup>12</sup> Article 37 governed by transit passage.

<sup>13</sup> Article 45(1)(a) regulated by nonsuspendable innocent passage.

<sup>14</sup> Article 38(1) regulated by nonsuspendable innocent passage.

<sup>15</sup> Article 35(c). The LOSC does not alter the legal regime in straits regulated by long - standing international conventions in force specifically relating to such straits.

<sup>16</sup> Article 53(4).

<sup>17</sup> Ibid., Article 38.

modes of operation utilized by ships and aircraft for such passage.<sup>18</sup> All transiting ships and aircraft must proceed without delay; must refrain from the threat or the use of force against the sovereignty, territorial integrity, or political independence of states bordering the strait; and must otherwise refrain from any activities other than those incidental to their normal modes of continuous and expeditious transit.<sup>19</sup>

Transit passage through international straits cannot be suspended by the coastal state for any purpose during peacetime.<sup>20</sup> The state bordering the international strait may designate sea lanes and prescribe traffic separation schemes to promote navigational safety. However, such sea lanes and separation schemes must be approved by the competent international organization in accordance with generally accepted international standards. Ships in transit must respect properly designated sea lanes and traffic separation schemes.<sup>21</sup>

## LEGAL CHARACTER OF THE CHEJU STRAIT

The Cheju Strait connects two high seas, the East China Sea and the East Sea (Sea of Japan). To be determined an international strait by the LOSC and international judgment, "the strait shall connect one part of the high seas with another part of the high seas, and shall be used for international navigation."<sup>22</sup> So, in this regard, the Cheju Strait falls within this definition.

But the Cheju Strait is situated between Korea's mainland and Cheju Island, which means the Strait cannot be considered a pure international strait that the transit passage regime would be applied to. Thus, it is important to examine whether an exceptional clause(article 45) relating to international straits can be applied to the Strait.

The International Court of Justice stated in the *Corfu Channel* case that:

...the decisive criterion is rather its geographical situation as connecting two parts of the high seas and the fact of its being used for international navigation.... It has nevertheless been a useful route for international maritime traffic.

According to the court, the frequency of traffic in navigation and the number of states that use a strait are not relevant factors in determining whether or not a strait is considered international, so long as it is used as an international navigation route. Thus, the court suggested that the potential utility of strait for international navigation was sufficient enough to meet the use requirement of an international strait.

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<sup>18</sup> See Smith, loc.cit., p.39.

<sup>19</sup> The UN Convention on the Law of the Sea, Article 39(1).

<sup>20</sup> Ibid., Article 44.

<sup>21</sup> Ibid., Article 41(1) and 41(3).

<sup>22</sup> *Corfu Channel Case*, 1949 ICJ Reports, pp.28-29.



All international straits do not have the same regime for passage. Such straits are given different treatment under the provisions of the LOSC, depending on their character. Normally the regime of transit passage applies to straits, "which are used for international navigation between one part of the high seas... and another part of the high seas...."<sup>23</sup>

However, the LOSC does not affect the legal regime of passage that is already regulated by other long-standing international convention in force specifically related to such straits. Moreover, the regime of transit passage does not apply to a strait "if the strait is formed by an island of a State bordering the strait and its mainland," and "if there exists seaward of the island a route through high seas or through an exclusive economic zone of similar convenience with respect to navigational and hydrographical characteristics."<sup>24</sup> Finally, the regime of innocent passage, not transit passage, is applied where a strait connects "a part of the high seas or an exclusive economic zone and the territorial sea of a foreign State."<sup>25</sup>

Thus, the transit passage provisions of the LOSC do not apply to all straits used for international navigation and clearly not to straits where a route of similar convenience is available. In this regard, therefore, the regime of transit passage would not be applicable to the Cheju Strait.

### **A ROUTE OF SIMILAR CONVENIENCE**

If a strait is formed by an island of a state bordering the strait and there exists seaward of the island a route of similar convenience, transit passage regime is not applied to the strait<sup>26</sup> and the innocent passage regime is applied to foreign vessels passing through the strait.<sup>27</sup>

The matter of concern to be discussed is who should judge whether there exists a route of similar convenience. Some argue that the actual responsibility for judging the existence of a route of similar convenience falls on the coastal states because there is no provision referring this issue in the LOSC. The key question, however, is to determine the criteria and extent of the alternate route.

Therefore, in straits where an alternate high seas route is available, all ships enjoy at least the right of innocent passage. But, it should be reminded that there should be a balance between the need to ensure a route for unhampered international navigation for the international community and the need to protect the interests of states bordering straits. When vessels have a choice in navigational routes where there exists a route of similar convenience, it is hoped that the special interest of a coastal state should be given a little more weight<sup>28</sup> over the interests of maritime states.<sup>29</sup>

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<sup>23</sup> The UN Convention on the Law of the Sea, Article 37.

<sup>24</sup> Ibid., Article 38(1).

<sup>25</sup> Ibid., Article 45.

<sup>26</sup> Ibid., Article 38(1).

<sup>27</sup> Ibid., Article 45.

<sup>28</sup> See, *ibid.*, Article 39(1).

Accordingly, it can be easily concluded that the Cheju Strait meets the requirements of Article 38(1).

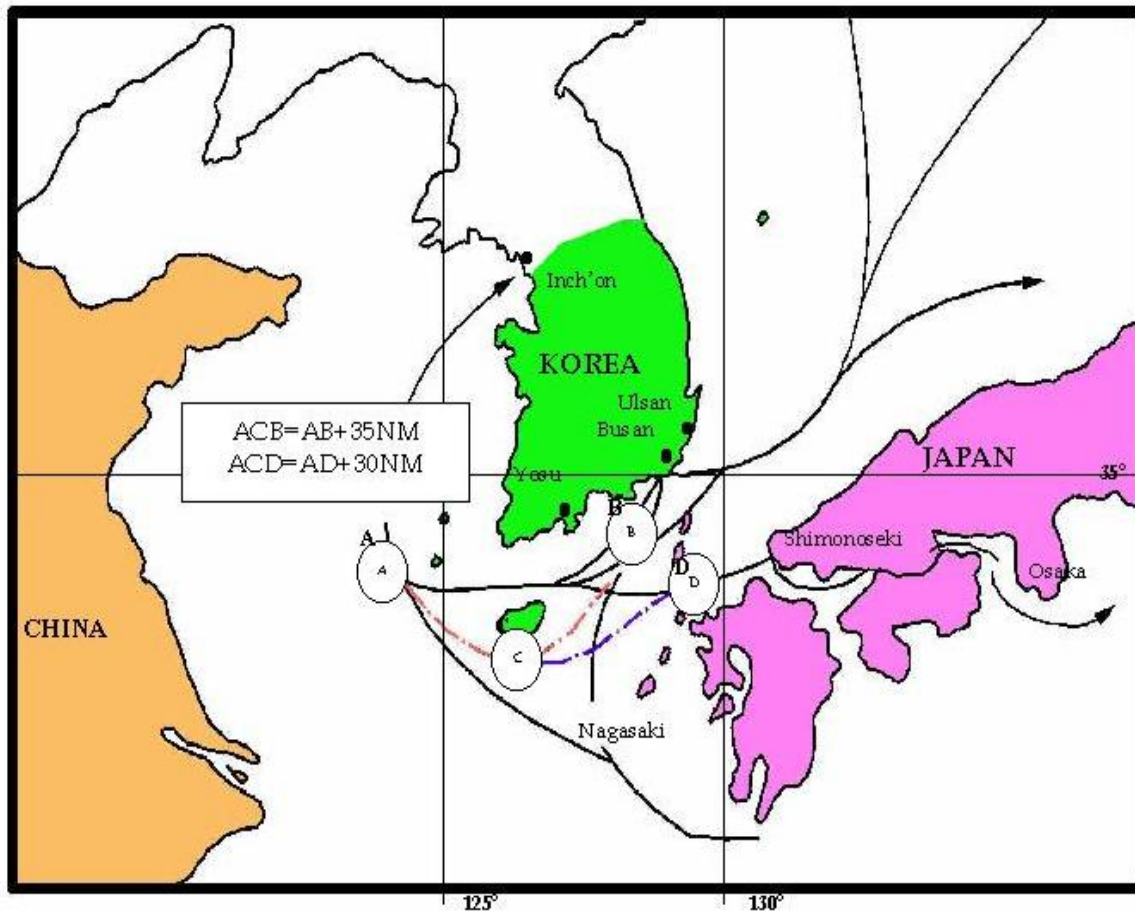


Figure 3. Navigation routes around Cheju Island.

When the existence of a route of similar convenience is claimed, various conditions may be taken into consideration. For example, reefs, natural and artificial navigational conditions (ex. depth, fog and ice etc), the velocity of sea current and the length of the route are all conditions to be considered in judging whether there is a convenient passage route outward the strait. It seems that the route south of Cheju Island has no special problem in meeting the criteria of similar convenience. There is a safe navigational route south of the island, which is well-marked by lighthouses and other navigational aids. By detouring south of the island a vessel would only add 30 to 35 miles to its voyage (Figure 3).<sup>30</sup> Therefore, this detour would be sufficient to meet the requirements for a route of similar convenience in the LOSC.

<sup>29</sup> Y.H.Kang, Legal Status of Warships(Korean), Seoul : Yunkyoung Publisher, 1984, pp.291-92.

<sup>30</sup> Y.K.KIM, "An Appraisal of the Regime of Passage through Straits Used for International Navigation in the New Convention on the Law of the Sea"(Korean), 28 *Korean Journal of International Law* (1983), p.31.

In addition, it is wise to consider another factor, marine pollution, which would affect the passage regime of the Cheju Strait. Oil tanker spills in the Cheju Strait could lead to catastrophic pollution of the Cheju Strait. Nowadays, many large-size oil tankers coming from the Malacca Strait pass through the Korea Strait to reach Yoosu and Busan on the southern coast and Ulsan on the southeastern coast of the Korean peninsula (Figure 3). Thus, there exists a real danger of oil pollution in the Cheju Strait.

## SEA LANES AND TRAFFIC SEPARATION SCHEMES

The most effective way to control pollution problems is to make the Cheju Strait Korean internal waters. But this might incur many legal and political problems, particularly the objections of maritime states. However, according to the LOSC, it is possible for the Korean government to designate sea lanes and prescribe traffic separation schemes as an alternative measure,<sup>31</sup> which could possibly prevent marine pollution and other problems from the Cheju Strait.<sup>32</sup>

If Korea designates sea lanes or traffic separation schemes,<sup>33</sup> it may also consider having Korean pilots guide large oil tankers through the sea lanes.<sup>34</sup> Among the problems of pilotage is whether the coastal state could charge for the service of conduction the large-size oil-tankers through the strait and, if so, how much? If only sea lanes or traffic separation schemes were designated, the coastal state could not levy any charge for the passage of foreign vessels.<sup>35</sup> Instead, the prior-notice requirement on foreign warships and noncommercial government vessels should be maintained according to the 1995 Revised Territorial Sea and Contiguous Zone Law (Article 5), except in cases where "the waters through which the aforesaid vessels navigate constitute a strait used for international navigation in which there is no high seas area."<sup>36</sup>

The designation of sea lanes and traffic separation schemes for straits used for international navigation is a right of coastal states under international law. It involves consultation with the affected maritime states and should be done in

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<sup>31</sup> The UN Convention on the Law of the Sea, Article 41.

<sup>32</sup> There could be three different methods in designating routes through the Cheju Strait: one method would be to mark latitude and longitude with the course of sea lanes for navigation along the middle points between the mainland of the peninsula and Cheju Island; a second method would be to separate sea lanes according to the tonnage of the vessels in transit; and a third method would be to have pilots guide large oil tankers through the sea lanes. Recited from C.Y.Pak, *The Korean Straits*, Dordrecht : Martinus Nijhoff, 1988, p.104.

<sup>33</sup> In January 1978, Japan and the United States suggested the designation of a high-seas corridor in the Cheju Strait, but the suggestion was ignored by Korea. See C.H.Park, *East Asia and Law of the Sea*, Seoul : Seoul National University Press, P.143.

<sup>34</sup> This method will follow the sea lanes separation scheme designed for the Dover Strait by the United Kingdom and France in May 1978 and a similar measure for the Malacca Strait taken by Indonesia, Malaysia and Singapore.

<sup>35</sup> See the UN Convention on the Law of the Sea, Article 44.

<sup>36</sup> Article 4 of Enforcement Decree of the Territorial Sea Law.

consultation with competent international organizations like the International Maritime Organization (IMO) under the LOSC.<sup>37</sup>

Up to now, the Korean government has not taken any action to designate a navigation route or otherwise prevent pollution by large oil tankers in the Cheju Strait and adjacent waters. However, according to the aforementioned legal analysis, it seems be that if Korea designates sea lanes or traffic separation schemes there would be no significant legal obstacle.

## CONCLUSION

Considering possible legal and policy problems with regard to the Cheju Strait, a central issue is whether the Cheju Strait should be treated as Korean internal waters or an international strait. The claim that the strait is internal waters has been based on the use of a straight baseline method of demarcation. With the use of straight baseline, Korea claims that the breadth of the Cheju Strait is only 20.7 miles at its narrowest point and therefore the strait becomes internal waters.

The consideration of marine pollution has weighed heavily in claiming the Cheju Strait as internal waters. Pollution resulting from the accidents of tankers caused by fire, collision, or stranding in the Cheju Strait and the Korea Strait would be enormous, affecting the entire coastal waters of the south coasts of Korea's mainland and Japan's Tsushima Islands areas. Catastrophic pollution in the Cheju Strait could also come from the accidents of large-size oil tankers passing through the Korea Strait from the Malacca Strait.

Although the Korean government considers the geographic and socio-economic conditions sufficient to justify Korea's claim of the Cheju Strait as internal waters, it believes that declaring it so would raise considerable legal conflicts with maritime states. In view of the legal difficulties and the need to meet the problems arising from the growing vessel traffic in the Cheju Strait, the sea lanes and traffic separation schemes may be considered an alternative to the internationalization of the Cheju Strait. Even if the Korean government does not do so, the regime of innocent passage should be applied to vessels passing through the Strait and should not suspend innocent passage through the Strait.<sup>38</sup>

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<sup>37</sup> Article 41 of the UN Convention on the Law of the Sea provides:

1. In conformity with this Part, states bordering straits may designate sea lanes and prescribe traffic separation schemes for navigation in straits where necessary to promote the safe passage of ships.....

4. Before designating or substituting sea lane or prescribing or substituting traffic separation schemes, States bordering straits shall refer proposals to the competent international organization with a view to their adoption. The organization may adopt only such sea lanes and traffic separation schemes as may be agreed with the States bordering the straits, after which the States may designate, prescribe or substitute them.

5. In respect of a strait where sea lanes or traffic separation schemes through the waters of two more States bordering the strait are being proposed, the States concerned shall cooperate in formulating proposals in consultation with the competent international organization.

<sup>38</sup> Ibid., Article 45.

The Korean government needs to have a more legal, pragmatic, functional and managerial approach than a purely sovereign and selfish approach to the solution of legal matters of the Cheju strait. For this purpose, the LOSC would serve as a guide. In conclusion, self-restraint and cooperative approaches would become norms governing the resolution of the law of the sea issues in the Cheju Strait.



## **INTERNATIONAL LEGAL ASPECTS OF NAVIGATION IN THE KERCHENSKY STRAIT**

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The Kerchensky Strait is located between Kerchensky and Tamansky peninsulas and it links the Sea of Asov and the Black Sea. At the west it is bounded by Kerchensky peninsula (the Ukraine) and at the east – by Tamansky peninsula (Russia). The southern entry to the strait is between the capes Takil and Panagia, the northern one – between the capes Hroni and Ahilleon. The length of Kerchensky Strait is 22 miles (around 41 km), its width varies from 4 to 45 km, depth – from 5 to 15 m. The least width of the strait is about two miles, however, a number of sandbanks and other dangers make it very narrow and shallow.

The navigation in the Kerchensky Strait, or to be exact in the Kerch-Enikalsky Channel is aggravated with legal problems of both public and private nature.

The public constituent is obvious – there is no agreement between the Ukraine and Russia, which would specify not only navigational procedure in the Strait but also in the Sea of Asov as the whole.

The private legal aspect of the problem is as follows: after the collapse of USSR, authorities of the Kerchensky Commercial Sea Port unilaterally implemented different types of duties. For some Russian navigation companies those sums were quite substantial and higher than duties imposed on Ukrainian ships.

As is well known, after the Agreement on CIS establishment was signed on 8 December 1991, USSR ceased its existence. New subjects of international relations appeared, Russia and Ukraine were among them. The Kerchensky Strait linking the Black Sea and internal Sea of Asov lost its status of a national strait and its legal regime completely depends on establishment of the Sea of Asov legal status.

Today the Kerchensky Strait is the only outlet from the Sea of Asov. Ships' passage through this strait nowadays is being arranged through two routes: the Kerch-Enikalsky Channel – KEC (passes close to the Crimean coast and under the supervision of Ukraine) and Russian fairways 50 and 52. KEC is the biggest deep-water route (through-pass draught of the ships is up to 8 meters). The cost of the passage through KEC is estimated at the rates of Ukraine and it is approximately twice as much than the cost of the passages through the shallow fairways 50 and 52 (through-pass draught of the ships is up to 3 meters), which is estimated at the rates of Russia as for the ships of coastwise navigation.

When ships pass the Kerchensky Strait, there are claims between Russian and Ukrainian sides regarding (according to the Ukraine's opinion) the use of Russian Ukrainian waters in the Kerchensky Strait. Another interesting thing is that there are cases when both sides give out the invoices for the pilotage of the same ship.

Several times Russian Ministry of Transport has raised a question on establishment of a joint enterprise that would deal with organization of ship traffic in the Kerchensky Strait and the Sea of Asov. In its opinion, it would exclude the unilateral uncoordinated actions. However, Ukraine is against this offer as it claims to have a preferential use of the Kerchensky Strait. Examining the legal status of the Kerchensky Strait, some politicians pay special attention to a nationality of the Island Tuzla\* located between the Kerchensky and Tamansky peninsulas. Historically this spit was a continuation of Tamansky Peninsula's land. In 1925 in the middle of the spit a channel for fishing boats passage was dug. Later, as the result of the storms, a wider scour formed on the spot of the channel and Tuzla Spit actually became an island.

According to the norms of international law, the point located at the line connecting Kyz-Aul Cape (Crimea) and Jelezny Rog Cape (Ukraine), both of them enter the Kerchensky Strait, is considered to be a baseline for territorial sea delimitation when using a method of a median line between Russia and Ukraine. Ukraine insists that the baseline should be located in the middle of the connecting line; Russian side insists that this point should be located at the axis of ships traffic division that crosses this line and passes near the Crimean Coast.

The basis for today's negotiations between the sides is an agreement achieved in February 1998 between Presidents B. Eltsin and L. Kuchma, who agreed that the Sea of Asov is an internal sea of Ukraine and Russia. Russian side states that it is in the general use of Russia and Ukraine that it is why it should be monitored and managed on a mutual basis. There is an undeniable fact –the Kerchensky Strait is an integral part of Asov-Kerch water area - in all respects (geographical, natural and economical).

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\* Spit Tuzla which was named after the Cape Tuzla (there are two names – Southern and Middle) encloses the southern part of Tamansky Peninsula in the northern-western direction and deeply juts out into the Kerchensky Strait. The distance between spit's extremity and Crimean Peninsula is about 4 km. Its total length together with underwater and above water areas is more than 11 km, the maximum width of above water part is more than 600 meters. Nowadays 4 parts of the spit are above water level. The area of the biggest one is 35 hectares. From the very beginning of Kuban's settlement, the spit was an issue of controversy between the Crimea and Kuban. On 28 November 1869 the Decree of Russian Senate confirmed the belonging of the spit to Kuban region. The middle of the strait, between the Crimea and the limit point of Tamansky Spit was considered to be a boundary. After the revolution and Civil War, these territories were rearranged. Under the Regulation of Central Executive Committee dated 13.08.1922, Tuzla Spit formed a part of the Crimea region. Then, as the result of Supreme Court of Russian Federation Decree of January 1941, a solution was taken – “On passing the Island Tuzla to Crimean Autonomous Republic”. The decision was taken when Crimean Peninsula itself was a part of Russian Federation, as far as its administrative and territorial division is concerned, i.e. belonged to Russia. In other words, it was passed within administrative boundaries of Russia Federation. After 1954, administrative boundary between the Crimean region and Krasnodar Territory wasn't revised. Also, according to the Decree of USSR Supreme Council Presidium of 1954 regarding the passing of the Crimea to the Ukraine, Ukraine got in its disposal only a continental land area of Crimean region. It was USSR that retained the jurisdiction to the coastal waters, coming from the principle that water area of the coastal waters belongs to the state as a whole, not to its separate subjects. Administrative boundary between Krasnodar territory and Crimean region was established only along the Kerchensky Strait and further, was restricted by a coastal strip of these administrative formations at the Sea of Asov.

Practical passing of the spit and establishment of administrative boundary between Russian Federation and Ukrainian Soviet Socialist Republic were made only in the beginning of 70-s. It was made as a graphic drawing of administrative boundaries at the map.



So, as far as legal regime is concerned, the sea should be considered as internal waters of Russia and the Ukraine without any water spaces delimitations between them. The position of the Ukraine is contradictive: on one hand, it agrees that it's necessary to reserve the status of the Sea of Asov internal waters, on another hand, it insists that the Sea of Asov and Kerchensky Strait should be delimited "in order to determine sovereignty bounds of the coastal states". Besides, referring to the existence of inter-regional administrative boundaries established before, it announces that the water area of the Kerchensky Strait belongs to the Ukraine.

Clause 2 of Agreement on Friendship, Cooperation and Partnership concluded between Russian Federation and the Ukraine on 31 May 1997 reads that High Contracting Parties "respect the territorial integrity of each other and confirm the inviolability of the frontiers between them". According to the norms of international law, maritime boundary of the coastal state is "outer limit of its territorial sea" and the boundary with a neighbor state is "a side boundary of the territorial sea, that was established under the agreement between these states".

A real necessity to get statesmen to take part in the problem appeared only two years after the agreement was concluded. In December 1999, under the direction of Special Envoy of Russian Ministry for Foreign Affairs V. Kouznetsov and approval of Government of Russia, a negotiating group on the matters regarding legal status of the Sea of Asov and the Kerchensky Strait was founded. Since then, for a few years the negotiations are being alternately held in Moscow and Kiev. There are many precedents in history similar to this territorial dispute between Russia and the Ukraine. International law acknowledges the delimitation of territorial sea between states that have "opposite or adjacent to each other coasts on the principle of the median line". Clause 15 of 1982 UN Convention on the Law of the Sea reads that "neither of the two States is entitled, failing agreement between them to the contrary, to extend its territorial sea beyond the median line". The above provision does not apply, however, where it is necessary, by reason of historic title or other special circumstances to delimit the territorial seas of the two States in a way, which is at variance therewith.

As early as 1969, International Court in Hague acknowledged in the case of Northern Sea that equidistance method is not the only one in the International Maritime Law. Instead of it, the court proposed the rule of equitable principle.

Deviation from the equidistance method was again undertaken in the case of Tunisia-Lebanon of 1982 and in the case on Strait of Man between Canada and USA in 1984. There were about 130 agreements on sea spaces delimitation concluded between states, and only 40% were those that based on median line method.

Recently, the Ukraine becomes more and more reluctant to let our side use fairways 50 and 52 and it is more explicit in its statements regarding the location of bypass channel in the Ukrainian waters. In this regard, it is necessary to raise a question on Russian nationality of Tuzla Spit because only this decision will legitimate belonging of bypass channel in the Kerchensky Strait to Russia (fairways

50 and 52). Otherwise, passing of the spit to the Ukraine will deprive Russia independent communication passage between the Black Sea and the Sea of Asov and Russian ships will have to pass the Kerchensky Strait through the Ukrainian waters. The Ukraine interprets the situation different way. Referring to administrative and territorial division of the former USSR (Ministry for Foreign Affairs note of 16.11.1999), it insists that "Ukrainian-Russian boundary in Kerchensky Strait already existed in time of USSR" and it has actually established such boundary unilaterally. In the reciprocal note of 28.12.99 Russian Ministry for Foreign Affairs expressed its disagreement with such interpretation of the former administrative and territorial division, pointing out that this division was introduced and underwent modifications for particular administrative and economical purposes within the bounds of one state, especially when applied to the water areas. The latter remained in the common use of the former Soviet republics, even if several maps had the lines drawn, which reflected nationality of adjacent land areas. Further, it was underlined that after the collapse of USSR any issues regarding a legal status of the Kerchensky Strait and its operation regime can be solved only during the negotiations between Russian Federation and the Ukraine as two sovereign states that became the successors of USSR.

Abstracting from results of negotiation and positions of the States in this respect, one can ascertain that the Ukraine and Russia should follow the provisions of 1982 UN Convention on the Law of the Sea and acknowledge the presence in the Sea of Asov territorial waters and exclusive economic zones of the Parties.

Another option can be possible - basing on the historical practice of the USSR, Parties will retain internal waters regime in the Sea of Asov with the joint use of its areas and sea-bed, referring, for example, to international experience, for example the way it was with Sweden and Finland when they established exclusive jurisdiction over marine spaces of Gulf of Bothnia. Another example is the decision of International Court on Fonseca Strait.\*

As far as the Kerchensky Strait is concerned, due to its geographical position, it is completely covered with territorial waters of the Ukraine and Russia\* and depending on the status of the Sea of Asov, it can lead whether to the Ukrainian and Russian exclusive economic zones or to the internal waters (in this case the provisions of part III of UNCLOS should be applied, since there's no special agreement on its status).

According to the provisions of the above-mentioned Convention, the Kerchensky Strait may be regarded as "international strait" with all the relevant legal consequences. The criteria determining "international" character of the Strait are as follows:

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\* By the decision of UN International Court in 1949, Fonseca Strait was acknowledged to be a historical strait with enclosed sea characteristics and all three states (Honduras, Nicaragua and Salvador) can own the waters of this Strait on a mutual basis.

\* The Law of the Ukraine on the State boundary (4 November 1991) and RF Law on the Boundary of Russian Federation (1 April 1993) have established the limit width of Russian and Ukrainian territorial waters as 12 nautical miles.

- the strait “should link a part of high sea or exclusive economic zone with another part of high sea or exclusive economic zone”;
- the strait should be used “for international navigation” (Clause 37)

When international legal regime in the Sea of Asov is established in accordance with 1982 UN Convention on The Law of the Sea, the Kerchensky Strait will link exclusive economic zone of the Black Sea states with exclusive economic zone of Russia and the Ukraine in the Sea of Asov.

The following data can confirm that the Kerchensky Strait is properly used for “international navigation”:

- Foreign ships (Russian, Ukrainian and third parties’) use Kerchensky Strait for their navigation;
- The Strait is the part of “international navigation routes”;
- The Strait is a historical communication route for the ships of different states.

As for the first statement, one should underline that even though navigation activity of foreign states in this Strait is not big in comparison with Strait of Gibraltar or Bering Strait, it is big enough for the strait to be regarded as “international strait”.<sup>\*\*</sup>

The second statement can be confirmed by the fact that the Kerchensky Strait is the part of international routes between the ports of different states. Some experts of economical geography confirm this saying that “international routes” are the “routes between the ports of different states”.<sup>\*</sup>

Besides, it is necessary to mention that in view of Clauses 35 and 36 of the Convention, provisions of Part III (Straits used for international navigation) are completely applicable to the Kerchensky Strait and sovereignty and jurisdiction of the Ukraine and Russia should be realized with the adherence to this Part and other norms of international law.

As it is known, Clause 38 of UNCLOS regarding the straits used for international navigation between one part of the high sea or exclusive economic zone and another part of the high sea or exclusive economic zone, indicates the right of the transit passage which should not be impeded (providing that in this strait there isn’t another route of the similar convenience with respect to navigational and hydrographical characteristics).

Exercising the right of transit passage, Ships and aircrafts, should proceed without delay through or over the strait and refrain from any activities other than those incident to their normal modes of continuous and expeditious transit unless

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<sup>\*\*</sup> One could also point out the decision of UN International Court taken in 1949 on the incident that took place in the Strait of Corfu. It specifies the basis, which gives the strait the international status. It said that “the decisive criteria was mostly geographical location of the strait linking two parts of the high sea and the fact that it is used for international navigation”. During the investigation, the Court established that the Strait of Corfu had been widely used by military and commercial ships of the foreign states. From 1 April 1936 to 1 January 1938, 2884 ships under the flags of Romania, Yugoslavia, France and other states were registered in the port of Corfu (transit ships, which didn’t enter the ports, were not recorded; International Court of Justice. Reports. 1949, p.15-16)

<sup>\*</sup> See L.A. Brilliant, “Geography of Sea Navigation”

rendered necessary by force majeure or by distress. It should also refrain from any threat or use of force against the sovereignty, territorial integrity or political independence of States bordering the strait, or in any other manner in violation of the principles of international law embodied in the Charter of the United Nations.

Rules and laws taken by the state on regulation of transit passage are limited with safety issues in navigation area and regulation of ships traffic, the prevention, reduction and control of pollution from ships, the prevention of fishing, the loading or unloading of any commodity, currency or person in contravention of the customs, fiscal, immigration or sanitary laws and regulations. In any case, laws and regulations shall not discriminate in form or in fact among foreign ships or in their application have the practical effect of denying, hampering or impairing the right of transit passage (Clause 42).

If the status of the Sea of Asov will be determined as the internal waters status of two states, then, in view of Clause 45 (section 3, Part III) provisions, the regime of innocent passage should be established in the Strait.

However, the real problem of the strait passage is not only in applied navigation regime, but mainly passage regime of its navigable part.

As it is stipulated in the Clause 41 of 1982 UN Convention on the Law of the Sea, both Russia and the Ukraine as the states that have borders with the Strait, can determine sea lanes and traffic separation schemes when it is necessary to assist safety passages of the ships. The problem is that only narrow part of the Strait - Kerch-Enikalsky Channel is navigable.

The Channel was dug as far back as 1874 for big ships using the Channel.

A big large-scale reconstruction was made in 1970. After it, the Channel acquired nowadays dimensions: its length is 18,9 miles, width is 120 meters. The Channel consists of four bends (counting from the side of the Black Sea): Pavlovskoye, Burunskoye, Enikalskoye, Chushinskoye. Regarding its dimensions, the Kerch-Enikalsky Channel was the biggest marine hydraulic work constructed by USSR (possibly, the second one after the Burgsko-Dneprovsky Channel).

It is significant that the part of hydro engineering equipment was constructed while the existence of Russian Empire (for example, lighthouses Kamysh-Burunsky and Churubashsky were built in 1872 and had very few modifications (even light and optical devices have been in use from that time), and these lighthouses are the monuments of the technical architecture of that epoch).

Each bend of the channel has a range of the lighthouses; at the Enikalsky bend leading rangers are equipped on both sides. Burunsky lighthouses served as defense base stations during WWII landing battles at Eltigen, Pavlovsky lighthouses were destroyed by the fascists in spring 1942 as they provided safe evacuation by sea from Kerch.

Without any doubts, maintenance of hydro engineering and navigational equipment that provides safe navigation in the Channel requires financing and this is not the problem of the Ukraine only, but both of near-strait states.

Boundary at each separate section of the should be determined with observance of the procedure and regulations elaborated by international law considering the interests of each contracting party and conclusion of the final boundary agreement. Nowadays, there is a “latent period of territorial dispute” between Russia and the Ukraine, when both sides conceive territorial boundary between each other in its own way.

Regarding the space, one can already point out “disputed area” in the Kerchensky Strait. If it acknowledged by Russian and Ukrainian governments, both Parties observing the procedure of peaceful settlement of the disputes, should “shortly come to equitable solution based on the principles of the international law” (Clause 5 of Final Act of European Conference on safety and cooperation).

Before appropriate boundary agreement is concluded, both Russia and the Ukraine should refrain from any unilateral actions, which can infringe on the interests of another Party.

The private aspect of the problem is that despite the fact that there is no agreement on navigation regime between two countries, navigation in the Strait is being carried out and someone should bear costs for the maintenance of the equipment and other should pay relevant duties for the rendered services.

Recently, all buoys in the Channel were put and serviced by the same body – Hydrographical Office of Navy and this unilateral handing over the equipment to the Administration of Kerchensky port is questionable. The Ukrainian side explains the necessity to collect great duties from the ship owners for their passages through the Channel, as it is necessary to pay for its maintenance. The port has concluded an agreement with Kerchensky State Hydrographic Enterprise.

According to this agreement, the port undertook the obligations to finance (from its revenues) enterprise’s expenses on maintenance of navigational facilities of the Channel (these expenses reach 2700 griven a year).

As per other data, the cost of navigation facilities maintenance (8 lighthouses and 5 signs) is about 970 thousand griven a year.\*

However, it doesn’t seem probable that Administration of the port would manage to maintain such a great hydro technical construction on its own. It is a fact that the part of the equipment needs to be replaced urgently and several passages require dredging works to be done. For example, entrance channel of Arshintsevo is completely silted up, the fence is taken off and from 15 February 1999 it is declared to be non-navigational. Fishery port does his best to keep the channel entrance depth of one scoop, puts out the fence in nonluminous mode and leading beacons at non-standard equipment.

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\* In Kerch-Enikalsky strait there are 52 buoys, 26 of them are light ones. In entrance Kerchensky Channel there are 13 buoys, 4 of them are light ones. In the entrance channel of the sea port there are 7 buoys, 4 – light ones, in entrance channel of Arshintsevo there are 14 buoys, 5 – light ones, in KMZ entrance channel “Fregat” there are 6 buoys.

[http://www.uports.odessa.ua/Pu/04\\_99/bezop\\_2.htm](http://www.uports.odessa.ua/Pu/04_99/bezop_2.htm)

To provide the functioning of navigation equipment at the Ukrainian coast, the state has established a lighthouse duty and other duties to be paid by all ships at their entering ports.

Commercial Navigation Code of the Ukraine, accepted by Verhovnaya Rada in December 1994 has a list of port duties (Clauses 84, 106 and 115). Two conditions of this law raise doubts.

First, the list of port duties is open, since it is indicated that “other types of duties can be established by legislative acts of the Ukraine”, and second that “port duties’ rate is fixed by the Cabinet Council of the Ukraine”. However, two months after the law was passed a decree of Cabinet Council of the Ukraine was issued. In accordance with it, Ministry of Transport got a right to establish rates and duties for the services rendered to the ships in the sea and river ports of the Ukraine as well as the rates on the works related to handling of goods in the ports. Thus, the provisions of Commercial Navigation Code of the Ukraine were violated and Cabinet Council has reassigned establishment of the duties and their rates to the Ministry of Transport.

In 1996 Ukrainian Ministry of Transport in its turn approved the document “Duties and fees for services rendered to the ships in the commercial sea ports of the Ukraine” (Ministry of Transport Instruction No214 of 27.06.96). In 1995 the ministry issued “Articles on rates and services rendered to the ship owners by the sea ports of the Ukraine” (Instruction No392 of 31.10.95) which introduced “a pilot fee, ship documentation issue fee, ship regulation services’ fee and agent services fee”.\*

Since CNC doesn’t have a section that interprets the main notions and terms, it is rather hard to draw a distinction between terms “duties” and “rates”.

Harbor dues imposed on Russian ships passing KEC are surprisingly high, as Agreement on Commercial Navigation signed between the Ukraine and Russia on 8 February 1995 reads that “Each Contracting Party will grant most-favored-nation treatment to the ships of another Contracting Party in any issues of commercial navigation” Clause 6.

Besides, the Ukraine bound itself to “treat the ships of another Contracting Party in the manner as its own ships engaged in the international navigation with respect to free entrance to the ports, usage of the ports for loading and unloading commodity and passengers, paying ship and harbor dues, usage of the services earmarked for navigation and carrying out regular commercial operations (Clause 7, item 1)\*\*

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\* Authorization to introduce these duties was reassigned by Cabinet Council of the Ukraine to the Ministry of Transport in 1995 (Decree No898 of 10.11.05)

\*\* 1923 Convention on International Regime of the Sea Ports entitles the states to regulate the pilot service at their discretion only at “their territory”

## THE CONCLUSIONS TO BE MADE

(1) Clause 15 of UNCLOS says that “Where the coasts of two States are opposite or adjacent to each other, neither of the two States is entitled, failing agreement between them to the contrary, to extend its territorial sea beyond the median line.... The above provision does not apply, however, where it is necessary by reason of historic title or other special circumstances to delimit the territorial seas of the two States in a way which is at variance therewith.”

Most likely, median line method cannot be used while delimitation of Kerchensky Strait territorial waters, because both “historical” character of the strait’s regime and “other special conditions” are evident. One of the historic reasons may be the fact that for a long time the Kerchensky Strait (KEC to be exact) was used by the ships that were managed both by USSR and RSFSR – two republics of the former Soviet Union. The special circumstance that can’t but be considered while determining a marine boundary between Russia and the Ukraine is that KEC located in the Kerchensky Strait is the only navigable and safe route from the Sea of Asov to the Black Sea and back.

The most acceptable marine boundary between Russia and the Ukraine in a legal respect could be the boundary that would go through KEC’s axis. International practice confirms the adequacy of this statement.\*

(2) Safety provision in Kerchensky Strait is not the competence of the Ukraine only because Clause 43 of UNCLOS binds the States bordering a strait to “cooperate in the establishment and maintenance in a strait of necessary navigational and safety aids or other improvements in aid of international navigation”.

Basing on the aforesaid, a mutual competence of Russia and the Ukraine would be the issue of determining traffic routes for the ships in the Kerchensky Strait (which is also stipulated in the Clause 41 of 1982 UN Convention and IMO resolution A.378 (X) of 14 November 1977) and establishment of pilotage and icebreaker passage.

The main document used by the Kerchensky Commercial Sea Port’s administration while presenting the claim to Russian ship owners was the normative document of the former USSR – MMF Instruction No 186 dated 1987 “Regulation on duties and services rendered to the ships in the sea port of USSR”.

Nowadays however, this document is not valid anymore. According to Clause 11 of Agreement on CIS establishment, where the Ukraine takes part, “from the

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\* The example is the boundary that goes through the fairway between Singapore and Johor territorial waters of the Strait of Johor. This boundary was established by the Agreement between Great Britain and Sultan of Johor on 19 October 1927.

moment of signing the Agreement, the norms of the third states', including former USSR, can not be applied at the territories of the states which signed the Agreement".

(3) Incurring channel and other duties on Russian ships passing KEC is illegal, because besides absence of boundary agreement between Russia and the Ukraine nowadays, it is not clear to balance of which state it belongs.

Regarding amounts and types of claims given to Russian ships for the transit passages of KEC, one should admit that the claims can be satisfied only when they regard the services that have been actually rendered to Russian ships (only pilot fee and UDS), but only in case when captains of the ships took this decision voluntarily but not under the pressure of the Kerchensky Commercial sea Port Administration (these facts regarding Russian ships exists).

As it is known, Systems of Ships Traffic Control (SSTC) have been functioning in USSR and then Russia for more than 40 years. After the first SSTC started operating (it was established to manage ships bounding for Leningrad commercial sea port), Minmorflot of Russia developed SSTC program and 24 systems were put into operation. At the moment 9 SSTC are functioning in Russia, in the Ukraine there are 7 systems, including the one in Kerchensky Strait. International maritime Organization (IMO) has worked out and included to a new chapter of SOLAS new regulations that would provide safety of life at the sea, increase level of safety and navigation efficiency as well as environment protection. These are the regulations 10, 11, 12 and they regard establishment of ships traffic routes, implementation and operation of ships communication systems and UDS services. Regulation 19 determines the requirements on equipment of the ships with new navigation facilities such as GNSS receivers, conveyors of Automatic Identification System (AIS) and Electronic Cartographic Navigation and Information Systems (ECNIS). According to the international practice, the biggest efficiency of operating these facilities and system can be only reached when they are used in an integrated way, both on the ships and the shore. That's why, International Association of Lighthouse Services (IALS) started working out operating standards for new technical facilities of SSTC as well as new methods and manuals on their operation.

Almost all national documentation on SSTC had been worked out and published before modern acting international documents on SSTC were edited and took effect. Therefore, normative papers on SSTC acting in Russia and the Ukraine don't completely comply with international recommendations and need to be comprehensively improved on a mutual basis. It is impossible to provide safety in the Kerchensky Strait unilaterally.



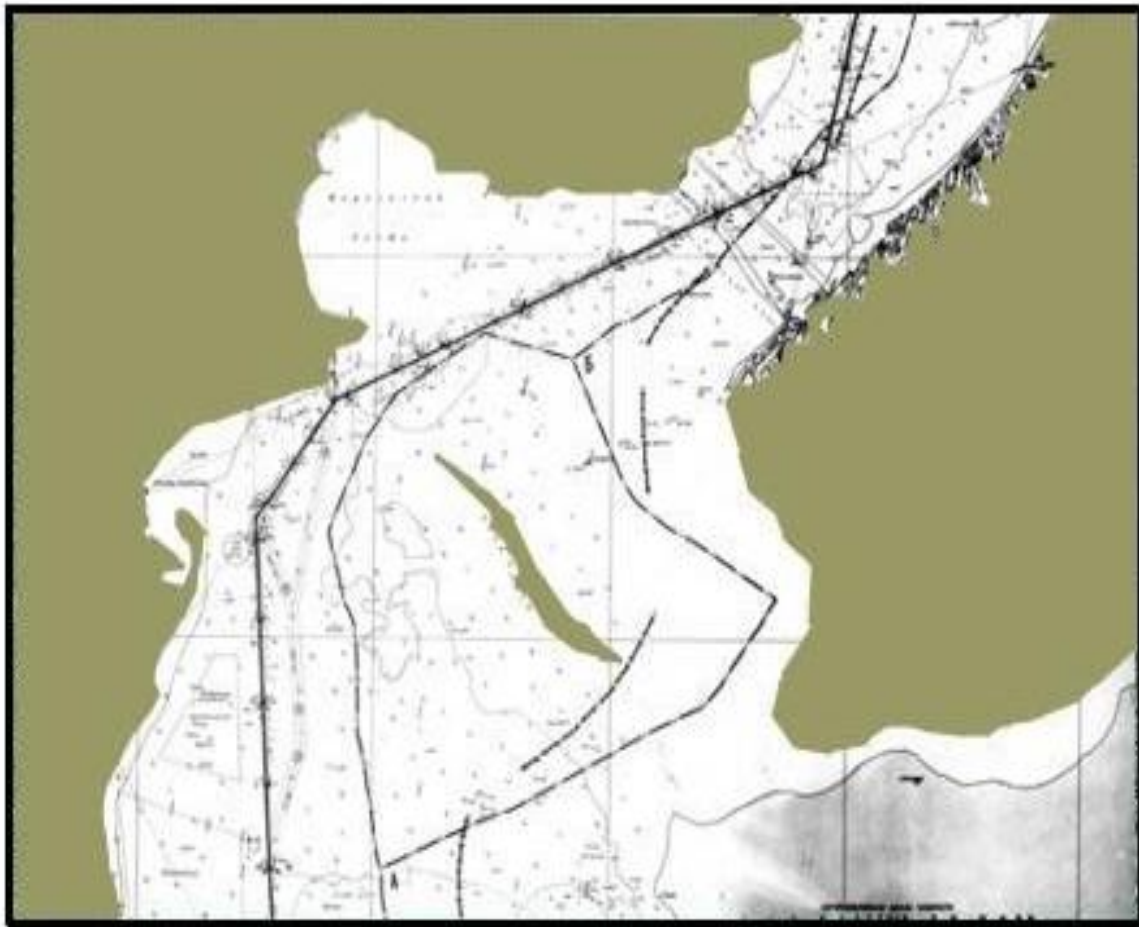


Figure 1. The legal regime of the Kerch Strait.





## **THE STRAIT OF HORMUZ**

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At the time the United Nations Convention on the Law of the Sea was adopted,<sup>1</sup> about 800 oil wells were active in the Persian Gulf region and about 25 terminals were loading oil to the tankers passing through the strait of Hormuz.<sup>2</sup> It is estimated that about 55 percent of the world's proven oil reserves are located in the Persian Gulf which are of vital importance to the industrialized world and the coastal states of the Persian Gulf. Currently millions of barrels of oil pass through the strait of Hormuz every day. Generally speaking the United States, the European Union, Japan, as well as the coastal states of the Persian Gulf are critically dependent on supplies of oil, liquefied gas and other goods that pass through this strait.

### **1. GENERAL SETTING**

The strait of Hormuz is about 104 nautical miles long linking the Persian Gulf to the Indian Ocean. Its breadth varies between 52 ½ miles and 20 ¾ miles lying between the Iranian island of Larak and the Omani island of Great Quoin. In fact the territorial seas of Iran and Oman overlap each other in the narrow parts of the strait of Hormuz. On 7 March 1974, in a joint declaration both states expressed their full co-operation in order to maintain the security in the region and to ensure “the freedom of navigation through the strait of Hormuz and the adjacent seas”.<sup>3</sup> Subsequently, on 25 July 1974, they signed an agreement concerning the Delimitation of the Continental Shelf between Iran and Oman<sup>4</sup> including the shared waters of the Strait of Hormuz. Because of this chronology in events, it has been suggested that security issues relating to the strait of Hormuz were considered when determining this continental shelf boundary.<sup>5</sup>

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<sup>1</sup> 10 December 1982, 1833 *United Nations Treaty Series* (hereinafter cited as *UNTS*) 3 (this convention entered into force on 16 November 1994). Hereinafter cited as 1982 Convention.

<sup>2</sup> Ebtekar, T, "A Prospective to the First International Conference on the Impact of Oil Spills in the Persian Gulf", in *The First International Conference on the Impact of Oil Spill in the Persian Gulf*, Tehran, 20-27 May 1984, p. 13 (1984).

<sup>3</sup> *Middle East Journal*, vol. 28, p. 305 (1974).

<sup>4</sup> *Atlas of the Seabed Boundaries* (Conforti, B. & Francalanci, G., eds.), Milan, G. Giuffrè, p. 123 (1979).

<sup>5</sup> Pietrowski, R., "Report Number 7-5: Iran-Oman", in *International Maritime Boundaries* Charney, J. & Alexander, L., eds.), vol. 2, Dordrecht, Martinus Nijhoff, p. 1503, 1504 (1993).

In line with the Article 3 of the 1982 Convention, all the Persian Gulf states have today enacted legislation establishing a 12-mile territorial sea. As a result, the narrow part of the strait of Hormuz either lies in the territorial sea of Iran or Oman. Nevertheless, a conflict remains between the sovereignty approach, favoured by the coastal states of Iran and Oman, and the transit passage approach, based on the 1982 Convention, adhered to by the maritime powers and used states.

In order to place this problem in its proper context the present paper intends to have a closer look at this newly created right of transit passage. In doing so, consideration will be given to the views and practices of both coastal states and naval powers alike. In the former category, particular attention will be devoted to the respective positions of Iran and Oman, two countries that considered the strait issue as a top priority throughout the third United Nations Conference on the Law of the Sea.<sup>6</sup> But also the period leading up to UNCLOS III, as well its final result, namely the 1982 Convention, will be separately addressed in the present paper. Finally, some tentative conclusions will be drawn.

## 2. PRE-UNCLOS III PERIOD

Generally speaking, the concepts of territorial sovereignty and freedom of the seas are among the well established principles of international law. Unimpeded navigation in straits used for international navigation appears to form an exception to the sovereignty a coastal state normally exercises over its territorial sea necessary to give a meaningful content to the freedom of navigation.

Passage of ships through straits normally used for international navigation and connecting two parts of the high seas has indeed long been recognized as vital to the freedom of navigation and appears to be a well-established rule of customary international law. The International Court of Justice in the Corfu Channel Case<sup>7</sup> had no difficulty in acknowledging that even warships enjoyed a right of innocent passage through the territorial sea under those particular circumstances, an issue very much debated as a matter of principle.<sup>8</sup> In this case, the Court stated:

*“It is, in the opinion of the court, generally recognized and in accordance with international custom that states in time of peace have a right to send their warships through straits used for international navigation between two parts of the high seas without the previous authorization of a coastal state, provided that the passage is innocent. Unless otherwise prescribed in*

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<sup>6</sup> Hereinafter cited as UNCLOS.

<sup>7</sup> I.C.J. Reports, 1949, Corfu Channel Case.

<sup>8</sup> Indeed, whether warships enjoyed a right of innocent passage in the territorial sea in general remained very controversial at that time and the Court wisely decided to side-step the issue.

*an international convention, there is no right for a coastal state to prohibit such passage through straits in time of peace.”<sup>9</sup>*

It may therefore safely be submitted that there existed a general agreement on the existence of a right of passage through international straits.

But at the same time one should not lose out of sight the concerns of the coastal states whose territorial seas are increasingly crossed by huge oil tankers, nuclear warships or ships carrying nuclear or other hazardous goods on board. The 1982 Convention, as will be seen, tried to solve this conflict by introducing the notion of transit passage that normally applies within straits used for international navigation.

Throughout the different codification attempts relating to the law of the sea, this fundamental clash between the two above-mentioned principles, namely territorial sovereignty versus the freedom of navigation, remained omnipresent. This helps to explain why until the middle of the century, the law of the sea remained basically uncoded and in need of clarification.

During UNCLOS I, a lot of proposals were put forward regarding the different categories of straits. The regime of innocent passage of ships through straits was a hotly debated issue at that time. The outcome of this conference was Article 16 (4) of the 1958 Convention on the Territorial Sea and the Contiguous zone, which provides:

*“There shall be no suspension of the innocent passage of foreign ships through straits which are used for international navigation between one part of the high seas and another part of the high seas or the territorial sea of a foreign state.”<sup>10</sup>*

Nonetheless, under the concept of innocent passage the ships passing through the territorial sea of a foreign country still have to comply with the laws and regulation of the coastal state concerned. Submarines are moreover under an obligation to navigate on the surface and to show their flag while airplanes need permission to fly over it. The only fundamental difference with the normal regime of innocent passage in the territorial sea lies in the words “no suspension of innocent passage of foreign ships through straits...”, as just mentioned. This article, however, proved unable to guarantee the freedom of navigation through straits normally used for international navigation due to the lack of a precise definition of the concept innocent passage. Strait states, for instance, could still impede the passage of ships which they considered as being non-innocent.<sup>11</sup> In this connection Koh clearly states:

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<sup>9</sup> I.C.J. Reports, 1949, Corfu Channel Case, p. 28.

<sup>10</sup> Convention on the Territorial Sea and the Contiguous Zone, 29 April 1958, 516 *United Nations Treaty Series* 205 (this convention entered into force on 10 September 1964).

<sup>11</sup> The clarification which Article 19 (2) of the 1982 Convention provides in this respect, it should be recalled, is novelty of this convention and therefore no similar provision is to be found in the 1958 conventional framework.

*“The vague definition of innocent passage, both under customary law and under the 1958 Convention leaves much to be desired as it does not adequately meet the needs of nations to navigate through international strait...”<sup>12</sup>*

### 3. UNCLOS III

The extension the breadth of the territorial sea to 12 nautical miles resulted in the so-called "territorialization" of about 116 international straits,<sup>13</sup> resulting in an important restriction of the freedom of navigation. This general trend towards the extension of the breadth of the territorial sea combined with the rather vague contours of the notion of innocent passage as it then existed, made the maritime powers realize that a more precise regime for passage of ships through straits was urgently needed.

The naval powers strongly urged that straits should remain free for international navigation to the extent that on 2 February 1970 President Nixon, in his report to Congress regarding the United States Policy for the 1970s, emphasized that the most urgent issue regarding the law of the sea was to find a solution for the breadth of territorial sea, before the coastal states extended their claim over the oceans even further.<sup>14</sup> On the same day the State Department declared that the United States would recognize a maximum 12 nautical mile belt of territorial sea on the condition that all vessels and aircraft, including military ships, would enjoy freedom of navigation through straits used for international navigation.<sup>15</sup> In fact a similar policy was adhered to by naval powers and other beneficiary states.

During UNCLOS III, the Soviet Union supported the idea of keeping the straits free for navigation and its delegate stated:

*“Attempts to modify the traditional regime or to limit transit through those straits were against the interest of the international community.”<sup>16</sup>*

However, the Soviet Union, in line with the Arab states, tried to distinguish between different kinds of straits such as those linking one part of the high seas to another part of the high sea on the one hand, and those linking the high seas to the territorial sea of a particular state on the other.

During UNCLOS III, all the littoral states of the Persian Gulf, with the exception of Iran and Oman, supported the free navigation regime through international straits, while emphasizing that these straits had to connect two parts of the high seas. Mr Al-Sabah, the delegate of Kuwait, distinguished between merchant and warships, stating that merchant ships might enjoy free and unimpeded passage

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<sup>12</sup> Koh, K, *Straits in International Navigation*, London, Oceana Publications, p. 47 (1982).

<sup>13</sup> Reisman, M., "The Regime of Straits and National Security : An Appraisal of International Law Making", *American Journal of International Law*, vol. 74, p. 48, 59 (1980).

<sup>14</sup> *U.S. Department of State Bulletin*, vol. 62, no 1602, A New Strategy for Peace – A Report to the Congress by Richard Nixon, 18 February 1970.

<sup>15</sup> *Ibid.*, vol. 62, no 1603, 16 March 1970.

<sup>16</sup> UNCLOS III, Official Records, vol. II, p. 127.

through straits used for international navigation,<sup>17</sup> whereas different criteria should be applied to warships and military aircraft due to the risk involved in their passage. He concluded by proposing a system of prior notification for passage of such vessels through straits.<sup>18</sup>

The delegate of Saudi Arabia supported free navigation through international straits connecting different parts of the high seas.<sup>19</sup> In the meantime the delegate of the United Arab Emirates supported the freedom of navigation through international straits without referring to any specific kind of ship.<sup>20</sup> The delegate of Iraq strongly supported the free navigation through straits and stated:

*“In straits which had been used for international navigation since historical times and which connected two parts of the high seas, freedom of navigation must be maintained and guaranteed.”<sup>21</sup>*

During the debates over the strait issue, Iraq always emphasized the freedom of navigation and supported Article 1 of the draft articles contained in document A/CONF.62/C.2/L.11 regarding the free navigation through straits which was submitted by the Soviet Union and its allies.<sup>22</sup> The delegate of Iraq argued that this Article would ensure the freedom of navigation through straits linking two parts of the high seas while taking into account the interests of the coastal states.<sup>23</sup>

Being states bordering the strait of Hormuz, national security interests urged Iran and Oman to adopt a completely different position towards the concept of transit passage. Their concern was rather focussed on how to maintain safety and security in the strait of Hormuz. Even though the waters of this strait in certain localities form part of their respective territorial seas, the concept of transit passage did not provide Iran and Oman any real control over vessels passing through the strait. In fact, they considered themselves as bearing a great responsibility without receiving any adequate authority to tackle and prevent possible problems which might arise.

During UNCLOS III, the delegate of Iran tried to provide a satisfactory solution towards the right of transit passage. By focussing on the right coastal states have over their territorial sea and he argued:

*“Rules could be devised which would guarantee freedom of passage for foreign vessels while taking account of such questions as the security of coastal states, the protection of the marine environment and the regulation of the passage of vessels through sea corridors.”<sup>24</sup>*

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<sup>17</sup> *Ibid.*, p. 139, para. 64.

<sup>18</sup> *Ibid.*, para. 66.

<sup>19</sup> *Ibid.*, vol. I, p. 144, para. 23.

<sup>20</sup> *Ibid.*, p. 141, para. 33.

<sup>21</sup> *Ibid.*, p. 148, para. 2.

<sup>22</sup> *Ibid.*, p. 189. These draft articles were proposed by : Bulgaria, Czechoslovakia, the German Democratic Republic, Poland, Ukraine, and the Soviet Union.

<sup>23</sup> UNCLOS III, Documents, vol. V, p. 276, para. 74.

<sup>24</sup> UNCLOS III, Official Records, vol. I, p. 72, para. 18.



During the debate on this issue, he also emphasized that the legal status of the territorial sea forming the straits used for international navigation should be maintained.<sup>25</sup> He supported the rule of unimpeded innocent passage of ships through straits forming part of the territorial sea of the coastal state.<sup>26</sup> In this connection, he argued:

*“While certain exceptions to the sovereignty of the Coastal State might be envisaged in the interests of international trade and communication, the draft Articles should in no way alter the status of the territorial sea encompassing the Straits.”*<sup>27</sup>

Oman, the other country bordering the strait of Hormuz, took a position in line with that of Iran and thus contrary to the other Arab states of the Persian Gulf. It contested the provisions regarding the right of transit passage. Contrary to general bathymetry of the Persian Gulf, clearly indicating that the deeper part is normally located off the coast of Iran, the deepest navigable channels in the strait of Hormuz are located on the southern side of the strait, i.e. immediately off the coast of Oman.<sup>28</sup> In the narrowest part of the strait, where the territorial seas of Iran and Oman overlap, the sea lanes and traffic separation schemes adopted by IMO are therefore all located in the territorial sea of Oman.<sup>29</sup> Due to these geographical constraints, Oman set up a fierce opposition during UNCLOS III against the notion of transit passage through international straits. In this connection, the delegate of Oman during the general statements at UNCLOS III concerning straits used for international navigation argued:

*“The cardinal point was the protection of the legitimate interests of the Coastal States and the promotion of international trade. Straits should not be subject to a special regime, because they were part and parcel of the territorial sea and should be viewed as such. The regulation formulated by the Coastal State should be heeded and obeyed.”*<sup>30</sup>

Oman along with Malaysia, Morocco and Yemen submitted draft articles on navigation through the territorial sea and straits used for international navigation.<sup>31</sup> These draft articles consisted of 23 Articles. Part II of the draft articles dealt with the right of innocent passage through straits in a way similar to how it was normally applied in the territorial sea. Warships under Article 15 (3) of the draft required authorization from the coastal states for innocent passage through the straits forming part of the territorial sea. This proposal was not only rejected by the naval powers, but neither did it receive the support of most other coastal states, not even Arab states.

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<sup>25</sup> UNCLOS III, Documents, vol. V, p. 259, para. 3.

<sup>26</sup> As provided by the 1958 Convention on the Territorial Sea and the Contiguous Zone. See *supra* note 10 and accompanying text.

<sup>27</sup> UNCLOS III, Documents, vol. V, p. 260, para. 5.

<sup>28</sup> Lenza, U., "Marine Delimitation in the Persian Gulf and Right of Passage in the Strait of Hormuz", *Marine Policy Reports*, vol. I, no 3, pp. 217, 229-230 (1989).

<sup>29</sup> *Ibid.*, p. 230.

<sup>30</sup> UNCLOS III, Official Records, vol. I, p. 152, para. 47.

<sup>31</sup> *Ibid.*, vol. III, p. 129, Document A/CONF.62/C.2/L.16.

Nevertheless, it must be admitted that some other littoral states, such as Indonesia, Malaysia and Singapore, took a similar position and suggested the concept of non-suspendable innocent passage to apply in international straits.<sup>32</sup> All these attempts were however rejected by the naval powers.

It should be remembered that the Soviet Union and the United States had already tuned their respective positions on this point in 1967:

*“To preserve explicitly in international straits traditional freedom of navigation as it had existed in the pre-12 mile territorial sea regime.”*<sup>33</sup>

In fact this common declaration constituted the main position of these two countries towards the right of the transit passage throughout UNCLOS III. The 1982 Convention reflects this approach by creating separate regimes : that of innocent passage through the territorial sea<sup>34</sup> and that of transit passage through straits used for international navigation.<sup>35</sup>

#### **4. THE 1982 CONVENTION AND BEYOND**

The 1982 Convention establishes new rules regarding the division of the straits into different categories.<sup>36</sup> The straits listed in Section 2 of Part III of that document<sup>37</sup> are now subjected to the novel regime of transit passage. Some of the most important straits in the world, such as for instance the straits of Dover, Gibraltar, Malacca and Hormuz, which all link “one part of the high seas or an exclusive economic zone and another part of the high seas or an exclusive economic zone”,<sup>38</sup> have to be listed in this category to which the rules of transit passage apply. Coastal states cannot impede the passage of ships and aircrafts enjoying the right of transit passage even though ships and aircraft, as a rule, should comply with rules contained in that Part of the 1982 Convention.

In case of a grave threat posed by a ships in transit passage, nothing would however seem to impair the right of a state bordering that strait from defending its interests based on the inherent right of self-defence as stated in Article 51 of the Charter of the United Nations. The lack of a clear provision concerning the exact relationship between coastal states and passing ships that do not comply with the concerned rules, seems to remain a deficiency in the 1982 Convention and could well create difficulties in the future.

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<sup>32</sup> See : *New Direction in the Law of the Sea* (Churchill, R. & Nordquist, M., eds.), vol. IV, New York, Oceana, p. 330 (1975).

<sup>33</sup> Anand, R., "Transit Passage and Overflight in International Straits", *American Journal of International Law*, vol. 26, nos 1 & 2, p. 72, 90 (1986).

<sup>34</sup> 1982 Convention, Articles 17 to 32.

<sup>35</sup> 1982 Convention, Articles 34 to 45.

<sup>36</sup> For more details see : Razavi, A., *Continental Shelf Delimitation and Related Maritime Issues in the Persian Gulf*, The Hague, Martinus Nijhoff, pp. 55-71 (1997).

<sup>37</sup> 1982 Convention, Articles 37-44.

<sup>38</sup> 1982 Convention, Article 37.

Iran in its declaration made upon signature of 1982 Convention on the Law of the Sea mentioned that, according to Article 34 of the Vienna Convention on the Law of Treaties,<sup>39</sup> only state parties to the 1982 Convention shall be entitled to benefit from the right of transit passage through straits used for international navigation.<sup>40</sup>

In 1983, Oman in its Declaration made upon signature of the 1982 Convention expressed the following view on the issue of transit passage:

*“It is the understanding of the Government of the Sultanate of Oman that the application of the provisions of the Articles 19, 25, 34, 38 and 45 of the Convention does not preclude a coastal state from taking such appropriate measures as are necessary to protect its interests of peace and security.”*<sup>41</sup>

On 17 August 1989, Oman in its Declaration made upon ratification of the 1982 Convention, emphasized the right of innocent passage for merchant ships and prior permission for warships passing the territorial sea of Oman.<sup>42</sup>

However, to date there seem to be no reports regarding the application of those Declaration made by Iran and Oman. Even during the Persian Gulf wars, when warships of the United States for instance crossed the strait of Hormuz without prior notification or authorization at several occasions, these actions apparently did not trigger any specific reaction from either Iran and Oman.<sup>43</sup>

## 5.CONCLUSIONS

The above analysis tends to demonstrate that Iran and Oman have acted in tandem when it comes to determining the legal regime applicable in the strait of Hormuz. Certain corrections to this impression of complete harmony seem nevertheless to be justified.

First of all, even though the two countries usually coordinated their actions with respect to the strait of Hormuz, this apparently was not without flaws. When Oman for instance established a system of straight baselines which extended its territorial sea in the region, Iran reacted by sending a letter of protest.<sup>44</sup>

Secondly, also the legal position of both states at present is quite different. Iran clearly relies on the argument that the regime of transit passage does not at present form part of customary international law. By not ratifying the 1982 Convention, this country argues that it is not bound by this regime of transit passage for the latter only applies *inter partes*. Iran takes a very special position in this respect, for it is the only

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<sup>39</sup> Vienna Convention on the Law of Treaties, 23 May 1969, 1155 UNTS 331 (this convention entered into force on 27 January 1980).

<sup>40</sup> U.N. *Law of the Sea Bulletin*, no. 1, September 1983, p. 19.

<sup>41</sup> *Ibid.*

<sup>42</sup> U.N. *Law of the Sea Bulletin*, no. 14, December 1989, p. 8.

<sup>43</sup> Roach, A. & Smith, R., *Excessive Maritime Claims*, Newport, Naval War College, pp. 179-180 and 189-191 (1994).

<sup>44</sup> Momtaz, D., "Les interprétations discordantes des dispositions de la Convention de Montego Bay : tracé des lignes de base droites et passage des navires de guerre dans la mer territoriale", *Collection Espaces et Ressources Maritimes*, vol. 9, p. 29, 37 (1995).

country at present which neither signed nor ratified the 1982 Convention, but is nevertheless a party to the so-called 1995 United Nations Fish Stocks Agreement.<sup>45</sup> The latter document, it should be recalled, makes certain parts of the 1982 Convention directly applicable to parties adhering to it.<sup>46</sup>

Oman on the other hand is a full-fledged party to the 1982 Convention.<sup>47</sup> Its legal argumentation not to be bound by the transit passage regime becomes therefore much more difficult to sustain in theory.<sup>48</sup>

But despite these differences as far as the theoretical justification of both states is concerned when trying to subtract themselves from the application of the transit passage regime in the strait of Hormuz -- and without having to form a judgement on them --, it is submitted that on the practical level a certain uniformity cannot be denied, be it to the opposite effect.

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<sup>45</sup> Agreement for the Implementation of the Provisions of the Convention Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (U.N. Doc. A/CONF.164/37), 8 September 1995, *International Legal Materials*, vol. 34, pp. 1542—1580 (1995) (this agreement entered into force on 11 December 2001). Canada's position resembles somewhat that of Iran as it is also bound by the 1995 United Nations Fish Stocks Agreement. But Canada did at least sign the 1982 Convention.

<sup>46</sup> Taking into account the topic of this agreement, the provisions on transit passage are of course not concerned.

<sup>47</sup> Oman ratified on 17 August 1989.

<sup>48</sup> As coherently argued by Mahmoudi, S., "Passage of Ships through the Strait of Hormuz", in *The Passage of Ships through Straits* (Karabelias, G., ed.), Athens, Defense Analyses Institute, pp. 43, 46-48 (2000).



## **THE STRAIT OF OTRANTO: THE LEGAL REGIME, NAVIGATIONAL ASPECTS AND GEOPOLITICAL SIGNIFICANCE FOR THE ADRIATIC STATES**

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### **1. GEOGRAPHICAL CHARACTERISTICS OF THE STRAIT OF OTRANTO**

The Strait of Otranto is a sea passage between the Apennine and Balkan Peninsulas, connecting the Adriatic and Ionian Sea.<sup>1</sup> Its length is 57 miles and its minimum width is 40 miles. The southern limit is 58 miles wide and it is composed of lines drawn from Cape Santa Maria di Leuca in Italy to the northern coast of the Corfu Island (between Cape Kefali and Cape Karagol) which belongs to Greece, and from Corfu to the mouth of the Butrint River in Albania. The northern entrance is 67 miles wide and it is the line connecting the Italian port of Brindisi and Cape Semeni at the Albanian coast. The depth in the central area varies from 550 meters to the maximum of 1081 meters (south of the Othonoi Islet). The sea current which enters the Adriatic from the Mediterranean (Ionian) Sea goes closer to the Albanian coast and is stronger in the winter (the average speed is 0.5 knots), while the current from the opposite direction becomes more intense during the summer and flows near the coast of Italy.

The Strait of Otranto is especially important not only for the states bordering the Strait (Albania, Italy and Greece),<sup>2</sup> but also for the coastal states of the entire Adriatic basin (Slovenia, Croatia, Bosnia-Herzegovina and Montenegro-FRY) and the landlocked countries in the hinterland (Austria, the Czech Republic, Slovakia, Hungary and Macedonia).

The navigational routes that go through the Strait of Otranto lead towards the Italian Adriatic ports (Brindisi, Bari, Ancona, Ravenna, Venice and Trieste) and towards all the ports of the other coastal states of the Adriatic: Albania (Durrës and Vlorë), Croatia (Rijeka, Zadar, Šibenik, Split, Ploče and Dubrovnik), Montenegro (Bar) and Slovenia (Koper). The annual amount of cargo is approximately 180 million tons. The traffic control is carried out from the bases in Italy (Brindisi and Taranto) and Albania (Vlorë, also known as Valona).

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<sup>1</sup> The Strait, which is also known as the Otranto Channel, was named after the city of Otranto situated on the Italian coast in the central part of the strait (*Canale d'Otranto, Canal d'Otrante, Estrecho de Otranto, Otrantski tjesnac*).

<sup>2</sup> Besides the Island of Corfu, there are three little Greek islands located in the Strait: Othonoi, Errikousai and Samothraki.

## 2. HISTORICAL BACKGROUND AND STRATEGIC ASPECTS

Throughout the history the Strait of Otranto had military importance because of two reasons: it is the shortest way from the southern part of the Apennine Peninsula to the Balkans and it is the strategic connection between the Adriatic basin and the Mediterranean area.

After the centuries of Roman and Byzantine domination, the Republic of Venice gradually spread its influence from the North Adriatic towards the Strait of Otranto. The Venetian Navy under the command of the Captain of the Gulf (*capitaneus culphi*) exercised control of the Adriatic Sea, from Otranto and Sazeni to Venice.<sup>3</sup>

However, on the basis of the Peace Treaty concluded in Zadar in 1358, the integrity of Croatian territories in Dalmatia was re-established within Hungarian Kingdom (through personal union), while Dubrovnik emerged as an independent republic. The domination of Venice in the Adriatic basin further diminished and the balance of powers changed with the presence of the Ottoman Empire at its southeastern coasts, including east coast of the Strait of Otranto.

This strategic importance of the Strait was confirmed in the 20<sup>th</sup> century, in both global conflicts. During the World War One there was a system of 150 meters high underwater obstacles in the Strait (the so-called *Otranto barrage*), which was deployed by the Antante forces in order to prevent the entering of the German and Austro-Hungarian submarines from the Adriatic to the rest of the Mediterranean.<sup>4</sup> The operation started in 1915 with sixty fishing boats (the so-called drifters) which were dragging 1000 meters long anti-submarine nets with mines at the depth of 20 to 40 meters, covered by navy (one cruiser and four destroyers) and air force. Both the barrage and the navy fleet were constantly increasing: by 1917 there were 6 cruisers and 40 destroyers with the additional 400 mines and by 1918 the barrage was 66 km long with 282 navy ships and submarines in the fleet. However, the Otranto barrage was not completely successful, because the Central Powers' submarines managed to penetrate through it on several occasions during the war and Austro-Hungarian navy made eighteen attacks at the barrage and maritime transports.<sup>5</sup>

As the Strait of Otranto was used by Italy for maritime traffic with Albania during the World War Two, since October 1940 it was the area of intensive activities of the Allied naval forces (mainly submarines, occasionally destroyers and torpedo ships).

## 3. POSITIONS OF THE ADRIATIC COASTAL STATES REGARDING INTERNATIONAL STRAITS DURING THE UNCLOS III

During the UNCLOS III Albania supported the concept of the sovereign right of coastal states to prescribe the regime of navigation in the international straits,

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<sup>3</sup> Katičić, Natko, *The Sea and the Authority of the Coastal State*, Zagreb, 1953, p. 47.

<sup>4</sup> *Maritime Lexicon*, Lexicographic Institute "Miroslav Krleža", Zagreb, 1990, p. 562.

<sup>5</sup> *ibidem*.

which would be appropriate to protect their national security. Based on the political positions of the Government of Albania during the period of the cold war, its representative at the UNCLOS III Session which took place in Caracas in 1974 argued that “the two superpowers are using international straits for passage of their military vessels and aircraft with obvious intention to intimidate the coastal states according to their policy of hegemony”.<sup>6</sup> Albania held that ships of all states without any discrimination should enjoy the right to navigate through international straits obeying the laws and regulations of coastal states, including those that require previous authorization for the passage of military vessels and aircraft.<sup>7</sup> Their representative reasoned that coastal states, for the protection of their security, could prescribe the conditions even for merchant ships, because they might be used by foreign intelligence agencies.<sup>8</sup> During the last Session of the UNCLOS III in 1982, Albania did not vote on the final text of the UN Convention on the Law of the Sea.

Although Greece was generally defending the regime of free navigation as “the basic principle and need of the international community” throughout the UNCLOS III,<sup>9</sup> because of its geographical situation and presence of many islands it supported the regime of innocent passage through straits used for international navigation, with the possibility that coastal states may request previous notification or authorization with respect to military vessels. This approach would, according to the position of Greece, achieve the right balance between the interests of the international community and interests of coastal states. It was expressed in the Greek proposal on provisions relating to the straits used for international navigation.<sup>10</sup> In its Declaration upon signature of the 1982 Convention, Greece stated that in the sea areas with many islands and alternative straits the coastal state may designate routes for ships and aircraft in transit passage, which will satisfy demands of safety of international navigation and overflight, as well as security interests of coastal states.<sup>11</sup>

Italy was also actively participating in the sessions of UNCLOS III, supporting the idea of free navigation and overflight through the international straits in order to avoid any unnecessary hindrance of the international traffic, with the possibility that coastal states designate suitable lanes and corridors for transit passage. Having in mind the Strait of Messina, Italy argued that the regime of innocent passage should be allowed as an exception in the narrow straits (less than six miles) between the coasts of only one state, situated in the vicinity of other navigational routes between parts of the sea connected with those straits, in which coastal states have a special interest<sup>12</sup>

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<sup>6</sup> Third UNCLOS, Vol. I, p.101.

<sup>7</sup> Third UNCLOS, Vol. II, p.139.

<sup>8</sup> *ibidem*.

<sup>9</sup> Third UNCLOS, Vol. I, p.129.

<sup>10</sup> Doc. A/AC.138/SC.II/L.18 of 27 March 1973.

<sup>11</sup> Law of the sea Bulletin, No. 1, 1983, p. 19.

<sup>12</sup> Doc. A/AC.138/SC.II/L.30 of 16 July 1973.



On the other hand, the delegation of the former Yugoslavia at the UNCLOS III focused most of its efforts concerning the straits used for international navigation on achieving precise and explicit provisions regulating the wide straits like the Otranto Channel.<sup>13</sup> Based on the standpoints of the majority of the delegations regarding the preservation of freedoms of navigation and overflight in such straits, the former Yugoslavia submitted three amendments during the Third Conference. The first one was a proposal of 6 July 1977 to add a provision to the part dealing with enclosed or semi-enclosed seas (like the Adriatic), which would guarantee undisturbed navigation and overflight through passages leading to such seas. The second amendment (of 16 August 1979) was related to Article 36 of the Revised Single Negotiating Text with a purpose to emphasize the freedoms of navigation and overflight in straits wider than 24 miles in which there is a suitable high seas or EEZ route, adding that in such routes those freedoms would not be hindered.<sup>14</sup> Ambassador Zvonko Perišić, who was vice-chairman of the delegation of the ex-Yugoslavia, explained at the Conference that the goal of this amendment was to state *expressis verbis* what had been implicit contained in Article 36: that freedoms of navigation and overflight do exist outside the territorial seas of the coastal states bordering the straits, and that they shall not be obstructed, no matter whether those waters have the status of high seas or EEZ.<sup>15</sup> During the Ninth Session of the Conference (on 27 July 1980) the ex-Yugoslav delegation distributed the Memorandum to the participants, which drew attention to the potential danger that even *bona fide* exercising of sovereign rights and jurisdiction of coastal states in sea areas outside the territorial sea (contiguous zone, exclusive economic zone and continental shelf) in certain situations may prolong, hinder and even suspend the passage of the ships, which is a considerable problem in the straits which are the only connection of enclosed or semi-enclosed seas with other seas and oceans.<sup>16</sup> Based on this reasoning and with intention to clarify the provisions of Article 36, the delegation of former Yugoslavia in its third amendment proposed that the following text would be added to that Article: “in these routes (straits) freedoms of navigation and overflight shall not be impeded (hindered)”.<sup>17</sup> However, these three amendments were not adopted until the Eleventh Session of the Conference, because most of the delegations considered them unnecessary. Commentators argued that Article 36 had been conceived as an exception to the regime of transit passage, because the straits wider than 24 miles may encompass equally suitable high seas or EEZ navigable routes outside the territorial seas and nobody had ever contested the application of the freedom of navigation in such straits.<sup>18</sup>

<sup>13</sup> Rudolf, Davorin, *International Law of the Sea*, Zagreb, 1985, p. 172.

<sup>14</sup> C. 2 (Informal Meeting) 2/Rev. 1.

<sup>15</sup> Rudolf, *op.cit.*, p. 173.

<sup>16</sup> Yugoslav delegation, III UNCLOS, Geneva, 27 July 1980, p. 3.

<sup>17</sup> Doc. C. 2 (Informal Meeting) 2/Rev. 2.

<sup>18</sup> Moore, John Norton, *The Regime of Straits and the Third United Nations Conference on the Law of the Sea*, *American Journal of International Law*, Vol. 74, No. 1, 1980, p. 115.

Finally, during the Eleventh Session of the Third Conference (in September 1982) the amendment of former Yugoslavia was adopted and included in Article 36 with the following wording: "... in such routes, the other relevant Parts of this Convention, including the provisions regarding the freedom of navigation and overflight, apply."<sup>19</sup>

#### **4. UN CONVENTION ON THE LAW OF THE SEA AND STATUS OF THE ADRIATIC COASTAL STATES**

With the exception of Albania, which has never signed and ratified the 1982 United Nations Convention on the Law of the Sea, nor acceded to it, all other coastal states of the Adriatic Sea are parties to the LOS Treaty. Italy signed the Treaty in 1984 and ratified it on 13 January 1995. Greece was a signatory of the Treaty in Montego Bay on 10 December 1982 and ratified it on 21 July 1995.

The former Yugoslavia had also signed it in Montego Bay in December 1982 and 1 during the three-year period between its dissolution and entry into force of the UNCLOS (1991-1994) none of the successor states, including Serbia and Montenegro (The Federal Republic of Yugoslavia), did not notify the depositary of the Convention (The United Nations) on their continuation in this respect.<sup>20</sup>

The first notification of succession among the successor states was the one of Bosnia-Herzegovina (12 January 1994) and the second one was that of the former Yugoslav Republic of Macedonia (19 August 1994), the only land locked state which emerged after the dissolution of the former Yugoslav Federation.<sup>21</sup> Following the conclusion of the Informal Consultations of the Secretary General which resulted in the adoption of the Agreement Relating to the Implementation of Part XI of the Convention on 28 July 1994 and the subsequent entry into force of the UNCLOS on 16 November 1994, Croatia decided to become a party to both treaties and deposited the related notification with the Secretary General of the United Nations on 5 April 1995.<sup>22</sup>

Only two months later, on 16 June 1995, Slovenia also became a party to the LOS Convention through succession. Finally, the Government of the Federal Republic of Yugoslavia, having realised that its position was identical to all other states successors of the former Yugoslavia and that its claim to the continuation of the Yugoslav status of the party to the UNCLOS was not valid, notified the Secretary General of its succession on 12 March 2001.

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<sup>19</sup> The entire Article 36 is cited below in Chapter 5.

<sup>20</sup> This could mean that the Yugoslav ratification was not valid during that period, and that the sixtieth instrument of ratification should have been the notification of succession of Bosnia-Herzegovina (12 January 1994) instead of the ratification of Guyana (16 November 1993). This change would have consequently postponed for two months the entry into force of the LOS Convention (12 January 1995, instead of 16 November 1994)

<sup>21</sup> The other land-locked states in the Adriatic hinterland also became parties to the LOS Convention: Austria (14 July 1995), Slovakia (8 May 1996), the Czech Republik (21 June 1996) and Hungary (5 February 2002).

<sup>22</sup> The Official Gazette of the Republic of Croatia, International Agreements, no. 11/1995.

## 5. LEGAL REGIME OF THE STRAIT OF OTRANTO

The essential factors determining the legal regime of the Strait of Otranto are its hydrographic features, because its breadth of 40-67 miles combined with its depth (550-1081 meters) means that there is a suitable high seas route outside the territorial seas of the coastal states bordering the Strait. This route which is located in the central part of the Strait is 16 miles wide at the narrowest point and the freedoms of the high seas apply in it. On the other hand, in those areas of the Strait which are the territorial seas of the coastal states ships of all states enjoy the right of innocent passage. The breadth of the territorial seas of Italy and Albania is 12 miles, while the territorial sea of Greece around the Corfu Island and three smaller islands in the Strait is 6 miles.<sup>23</sup> However, even if Greece decides to extend the breadth of its territorial sea to 12 miles, that would not produce a significant influence on the legal regime of the Strait of Otranto, because the central parts of the Strait would still maintain the status of high seas.

None of the Adriatic coastal states have proclaimed contiguous zone or exclusive economic zone. However, the regime of contiguous zone does not interfere with the freedoms of the high seas, but only gives to the coastal state the possibility to exercise control necessary to prevent or punish “infringements of its customs, fiscal, immigration or sanitary laws and regulations in its territory or territorial sea”<sup>24</sup> Thus, the potential proclamation of contiguous zones by the states bordering the Strait of Otranto should not have any influence on its present legal regime.

According to the provisions contained in Article 36 of the United Nations Convention on the Law of the Sea (with the title “High seas routes or routes through exclusive economic zones through straits used for international navigation”): Part III of the Convention “does not apply to a strait used for international navigation if there exists through the strait a route through the high seas or through an exclusive economic zone of similar convenience with respect to navigational and hydrographic characteristics; in such routes, the other relevant Parts of this Convention, including the provisions regarding the freedom of navigation and overflight, apply.”

The cited provisions mean that even if the states bordering the Strait of Otranto decide to proclaim exclusive economic zones, changing thus the legal status of the waters beyond their territorial seas which today are high seas, all states shall still enjoy the freedoms of navigation and overflight in that part of the Strait.

As for the other four freedoms of the high seas listed in Article 87(1) of the LOS Convention, two of them would cease to exist with the establishment of the exclusive economic zones (freedom of fishing and freedom of scientific research), while the remaining two (freedom to lay submarine cables and pipelines and freedom to construct artificial islands and other installations) would keep the present legal regime connected with the status of the sea-bed and subsoil, which is the continental shelf of

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<sup>23</sup> Albania had unilaterally proclaimed the breadth of 15 miles of its territorial sea in 1977, but later reduced it to 12 miles.

<sup>24</sup> Article 33 of the United Nations Convention on the Law of the Sea.

the coastal states. This means that, according to the Article 79 of the 1982 Convention, all states are now and will be in the future entitled to lay and maintain submarine cables and pipelines, subject to the consent of the coastal states concerning the delineation of the course of laying and with due regard to cables and pipelines already in position.

On the other hand, Article 60 prescribes that in the exclusive economic zone the coastal state shall have the exclusive right to construct and to authorize and regulate the construction, operation and use of artificial islands, installations and structures, and shall have the exclusive jurisdiction over such artificial islands.<sup>25</sup>

Perhaps the most important advantage of the exclusive economic zones for the coastal states would be the jurisdiction regarding the protection and preservation of the marine environment in this sensitive area with very intensive maritime traffic.<sup>26</sup>

The Strait of Otranto is only a part of the Adriatic Sea, which is an enclosed sea within the Mediterranean. Compatibility of the regime of enclosed or semi-enclosed seas with that of the exclusive economic zone may be found in provisions of the Article 123 of UNCLOS: “Coastal states should co-operate in the exercise of their rights and performance of their duties, and to this end shall endeavor, directly or through a regional organization, to co-ordinate: the management, conservation, exploration and exploitation of the living resources of the sea, the implementation of their rights and duties with respect to the protection and preservation of the marine environment, the policies of marine scientific research, undertaking joint research programs in the area.”

## **6. MARITIME BOUNDARY DELIMITATION IN THE STRAIT OF OTRANTO**

As for the delimitation of maritime boundaries in the Strait of Otranto, there are so far only two agreements relating to seabed and subsoil.

Greece and Italy concluded the Agreement on the delimitation of the continental shelf in Athens on 24 May 1977. The two states used the method of equidistance with minor deviations in the northern delimitation segment located in the Strait of Otranto, reflecting the presence of the above mentioned Greek islands, which were given three quarters effect. This advantage for the Greece was compensated in other parts of the boundary line (defined by sixteen points), which itself did not comprise the entire continental shelf, because it fell short of both tripoints (one point is equidistant from the nearest points in Italy, Greece and Albania in the Adriatic Sea, whereas the other is equidistant from the nearest points in Italy, Greece and Libya in the Mediterranean Sea). Although the 1977 Agreement took account of the Italian straight baseline closing the Gulf of Taranto, its effect had very limited significance.<sup>27</sup>

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<sup>25</sup> Article 80 prescribes that these provisions (of Article 60) apply *mutatis mutandis* to artificial islands, installations and structures on the continental shelf.

<sup>26</sup> The Adriatic Sea and the entire Mediterranean are “special areas” according to MARPOL Convention.

<sup>27</sup> Treves, Tullio, *Il diritto del mare e l'Italia*, Giuffr  Editore, Milan, 1995, p. 71.

The second Agreement was concluded between Italy and Albania in Tirana on 18 December 1992. This delimitation encompassed almost entire continental shelf in the Strait of Otranto and extended northwards into the Adriatic. Both the Preamble and Article 1 of the Agreement state that the delimitation of the respective areas of the continental shelf in the Adriatic Sea and in the Strait of Otranto shall be determined on the basis of the principle of equidistance expressed by the median line.

This Agreement also applied the method of equidistance with minor adjustments related to the systems of straight baselines of Italy and Albania, which were not generally taken into account. The only basepoint relevant for this delimitation, which was not located on the mainland, was the Sazani Island in Albania.

The boundary line, which is 73 miles long, is composed of segments connecting seventeen points defined by geographical coordinates. In this case the first and the last point of the continental shelf boundary also fell short of the tripoints with Yugoslavia and Greece.

However, it seems that it has been easier for the coastal states of this area to negotiate the opposite boundaries than to reach an agreement on lateral delimitations. There are three lateral boundaries of the continental shelf which still have not been settled: Greece-Albania, Albania-Montenegro (FRY) and Croatia-Montenegro (FRY). Once these delimitations have been determined, it will be easy to connect the three boundary lines between states with the opposite coasts, simply by extending them to the tripoints.

## **7. NAVIGATIONAL ASPECTS**

There are three areas of intensive maritime traffic within the Adriatic Sea: Northern Adriatic (Gulf of Trieste - off the western coast of Istria), Central Adriatic (between Gargano Peninsula and Island of Pianosa in Italy and Islands Palagruža and Jabuka in Croatia) and the Strait of Otranto. The best way to address the issues related to safety of navigation and environmental problems arising from such intense traffic are to regulate navigation and to establish compulsory sea-lanes and traffic separation schemes.

In the first area mentioned above this was done two years ago by the Memorandum of Understanding between the Governments of Italy, Slovenia and Croatia on the Establishment of the Common Routing System and Traffic Separation Scheme in North Part of the North Adriatic, which was signed in Ancona on 19 May 2000. The second area has been more difficult to negotiate, because of the different standpoints of Italy and Croatia concerning the actual zones of navigation in the Central Adriatic. Regarding the third area, the Strait of Otranto, it seems completely inexplicable why the three bordering states (Italy, Albania and Greece) have not established the traffic separation scheme and protected their own seas and coasts.

The frequency of maritime traffic in the Strait of Otranto is 109 ships a day (8-9 tankers), which amounts to 40000 ships a year (3194 tankers).<sup>28</sup> The breadth of the sea route actually used for international navigation is 16 miles, with tendency of greater traffic density in area closer to the Italian coast. Difficult hydro-meteorological circumstances in the Strait with frequent low visibility cause navigational hazards with potential consequences to the safety of ships and marine environment (like the collision in which the ship “Cavtat” was damaged and sank in the northern area of the Strait).

Although the establishment of traffic separation scheme in the Strait of Otranto would be interest priority of the coastal states bordering the Strait (Italy, Albania and Greece), the other coastal states of the Adriatic (Croatia, Slovenia, Bosnia-Herzegovina and Montenegro) would also benefit from it. The traffic separation scheme should cover the area starting from Cape Santa Maria di Leuca at the southern entrance of the Strait and extend to Cape San Cataldo at the northern entrance (length of 45 miles) or even to Brindisi (83 miles).<sup>29</sup>

There would be two navigational zones within the scheme, divided by the separation zone. Ships sailing northwards from the Ionian to the Adriatic Sea would use the eastern navigational zone, whereas those ships going south from the Adriatic to the Ionian Sea would pass through the western navigational zone.

The traffic separation scheme should be compulsory for all tankers, ships carrying dangerous cargo and other ships above 5000 GT, whereas other ships might navigate within the inshore traffic zones. The western inshore traffic zone would be established between the coast of Italy and the traffic separation scheme, while the eastern inshore traffic zone would extend from the coasts of Albania and Greece towards the eastern separation line.

## 8. CONCLUSIONS

The Adriatic Sea has most of the characteristics of enclosed or semi-enclosed seas contained in Article 122 of the UN Convention on the Law of the Sea: it is a gulf of the Mediterranean Sea, it is a basin between the Apennine Peninsula and the Balkans, it is a sea surrounded by several coastal states and it is connected to other seas (Ionian Sea as part of the Mediterranean) by a narrow outlet - the Strait of Otranto. On the other hand, it is not consisting entirely or primarily of the territorial seas and exclusive economic zones of the coastal states, because beyond the 12-mile territorial seas there is still only high seas regime.

Having in mind the rules of the international law of the sea and the fact that the Adriatic coastal states (with the exception of Albania) are parties to the UNCLOS 82, it is strange that these states have not yet proclaimed exclusive

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<sup>28</sup> Lakoš, Stjepan, *The Regulation of Navigation in the Adriatic Sea* (doctoral thesis), University of Rijeka Faculty of Maritime Studies, Rijeka, 1980, p. 146.

<sup>29</sup> Lakoš, op.cit., p. 148.

economic zones in the Adriatic. It is obvious that the proclamation would give them a better possibility to protect the environment of the Adriatic, whereas the high seas regime in such a small, enclosed and vulnerable sea as Adriatic is nowadays simply an incredible “luxury”.

Difficult hydro-meteorological and navigational conditions in the Strait of Otranto, as well as the increased traffic density of ships carrying oil and other noxious substances bring increased risks for the safety of navigation and for the protection of the marine environment. The establishment of the traffic separation scheme in the Strait of Otranto is of paramount importance for the prevention of accidents and marine pollution. Time has come when all coastal states of the Adriatic should start working together and cease to target separately specific issues of the various areas of the Adriatic basin. As it is an enclosed sea, the provisions of the UN Convention on the Law of the Sea contain guidelines for coastal states to approach it as a whole. It would be mistake to wait for serious accidents involving human casualties and pollution of the environment take place before going into action. That is the reason why traffic separation schemes should be established without further delay.







## **THE LEGAL REGIME GOVERNING THE GIBRALTAR STRAITS**

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### **TRANSIT PASSAGE THROUGH INTERNATIONAL STRAITS UNDER THE LAW OF THE SEA CONVENTION<sup>1</sup>**

Maritime nations have long insisted that international law protects free passage as a matter of right through international straits, and this position was adopted in Part III (Articles 34-45) of the 1982 United Nations Convention on the Law of the Sea.<sup>2</sup> Each strait, however, presents unique geographical and practical considerations, and some straits have historically been governed by unique legal regimes, which remain in force pursuant to Article 35(c) of the Convention.

The rules recognized in the Convention do not allow suspension of transit passage (Article 44) and do not require innocence,<sup>3</sup> but they do impose, *inter alia*, the following restrictions on transit passage: (1) transit passage must be solely for the purpose of continuous and expeditious transit (Article 38(2)); (2) transiting ships must comply with generally accepted international regulations, procedures, and practices for safety at sea (Article 39(2)(a)) and for the prevention, reduction, and control of pollution from ships (Article 39(2)(b)); and (3) ships exercising the right of transit passage must proceed without delay through the strait and must refrain from any threat or use of force (Article 39(1)).

Article 38(3) of the Law of the Sea Convention states explicitly that "[a]ny activity which is not an exercise of the right of transit passage through a strait remains subject to the other applicable provisions of the Convention." Any such "nontransit" activity, if undertaken in the territorial waters of a coastal state, would have to comply with the innocent-passage provisions of Articles 17-26 of the Convention, and the activity could be prevented if "noninnocent."

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1 A few sections of this paper are adapted from Jon M. Van Dyke, *Legal and Practical Problems Governing International Straits*, in *Ocean Yearbook 12* at 109 (Elisabeth Mann Borgese, Norton Ginsburg, and Joseph R. Morgan eds. 1996), also published in *The Straits of Malacca* 305 (Maritime Institute of Malaysia, Kuala Lumpur: Pelanduk Publications, Hamzah Ahmad ed., 1997).

2 United Nations Convention on the Law of the Sea, Dec. 10, 1982, UN Doc A/Conf.62/122 (1982), *reprinted in* 21 I.L.M. 1261 (1982).

3 The regime of nonsuspendable innocent passage continues to apply, according to Articles 38(1) and 45, to passage through an island and mainland of a state (*e.g.*, Corfu Channel) and between a part of the high seas or an EEZ and the territorial sea of a foreign state (*e.g.*, Strait of Tiran); Article 36 says that the right of normal innocent passage is applicable to the territorial seas in straits wider than 24 nautical miles (*e.g.*, the waters between the United States and Cuba).

The Convention, furthermore, allows states bordering straits to adopt laws and regulations with respect to "the prevention, reduction and control of pollution, by giving effect to applicable international regulations regarding the discharge of oil, oily wastes and other noxious substances in the strait" (Article 42(1)(6)), provided that such laws and regulations are not discriminatory and do not "in their application have the practical effect of denying, hampering or impairing the right of transit passage" (Article 42(2)) and have been duly publicized (Article 42(3)).

## **PREVIOUS REGIMES GOVERNING PASSAGE RIGHTS THROUGH STRAITS**

The right of passage through straits has had a tumultuous and contentious history, and unique regimes have developed for the many unique straits that exist around the globe. Maritime nations have always insisted on free passage for all ships, but nations fronting onto straits have likewise always tried to regulate such passage, and have frequently distinguished among types of ships and made distinctions between times of war and times of peace.<sup>4</sup>

The Danish Straits provide an intriguing case study to illustrate the ambiguity regarding passage rights through straits. For more than four centuries (1429-1857), Denmark collected a transit duty on ships passing through these straits, and these fees at their peak contributed about two-thirds of Denmark's budget.<sup>5</sup> Foreign governments and merchants protested these fees over the years, and the British challenged them directly in the first half of the nineteenth century, shelling Copenhagen in 1801 and capturing the Danish fleet in 1807. The Copenhagen merchants also saw these dues as limiting the trade into and out of their markets, and a canal was built across southern Sweden to circumvent the Danish fees. Finally, in 1845, the United States announced that it would not pay these fees as a matter of principle, citing the "public law of nations."<sup>6</sup> These dues were discontinued in 1857 with the signing of the Copenhagen Convention on the Sound and the Belts by the European shipping nations.<sup>7</sup> Article I of that Convention contains the key language that: "No vessels shall henceforth, under any pretext, be subject, in its passage of the Sound or Belts to any detention or hindrance." That same year, a special strait convention between the United States and Denmark was also signed in Washington, D.C. In exchange for \$393 million, Denmark granted U.S. vessels free passage "in perpetuity."<sup>8</sup>

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4 See, e.g., Erik Bruel, *International Straits* (two volumes, Copenhagen: Nyt Nordisk Forlag, 1947).

5 Gunner Alexandersson, *The Baltic Straits* 70 (Dordrecht: Martinus Nijhoff, 1982).

6 *Id.* at 72.

7 Treaty between Great Britain, Austria, Belgium, France, Hanover, Mecklenburg-Schwerin, Oldenburg, the Netherlands, Prussia, Russia, Sweden, and Norway and the Hanse Towns, on the One Part, and Denmark on the Other Part, for the Redemption of the Sound Dues, signed at Copenhagen, March 14, 1857. 116 Consol. T.S. 357. To soften the financial blow to Denmark, the contracting parties paid an indemnity "corresponding to an annual income capitalized to the current value." Alexandersson, *supra* note 5, at 73.

8 Convention between the United States of America and Denmark for the Discontinuance of the Sound Dues, signed at Washington, April 11, 1857, 11 Stat. 719.

It can be argued, based on the extraordinarily high sum paid for the right of "free passage" through the Danish Straits, that the maritime nations purchased this right in perpetuity with the massive lump sum they paid in 1857, and therefore that the right of passage cannot be characterized as "free." Even today, disputes continue whether warships are entitled to free passage through the Baltic Straits, or whether prior notification and authorization can be required. Sweden allows foreign naval ships to pass through the Swedish part of the Sound according to the rules of innocent passage -- they cannot stop or anchor, and submarines must operate on the surface.<sup>9</sup> Denmark also allows innocent passage through the straits as long as the passage avoids claimed internal Danish waters.<sup>10</sup> Passage of naval vessels through the straits is subject to advance notification through diplomatic channels. Denmark requires authorization if more than three naval vessels flying the same flag are passing through the same part of the strait together, and requires submarines to pass on the surface.<sup>11</sup> According to Alexandersson, "the Swedish and Danish regulations on the use of the Baltic Straits are in agreement with international law, the Geneva Convention of 1958 on the Territorial Sea and the Contiguous Zone as well as customary law on the use of foreign territorial waters by navy ships."<sup>12</sup>

The two 1857 treaties were written with only surface navigation in mind, but U.S. commentators have argued that they should now be viewed as authorizing free transit by submerged vessels and airplanes because the regime established in 1857 "was ostensibly the broadest regime possible to grant" and should be interpreted now in light of "subsequent developments of customary international law."<sup>13</sup> In the U.S. view, the regime governing these straits "would preclude the Danes from applying their domestic laws to foreign flags transiting the straits, except as recognized under

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9 Alexandersson, *supra* note 5, at 82 (citing a Swedish law of June 3, 1966).

10 *Id.* (citing a Danish law of February 27, 1976).

11 *Id.*

12 *Id.* at 83. Although some scholars have expressed uncertainty whether a special regime established by "long-standing international conventions" and recognized under Article 35(c) of the Law of the Sea Convention exists for the Baltic straits, *id.* at 73 (citing the different views of Erik Bruel, Wolfgang Graf Vitzthum, and Ib R. Andreassen), the Finnish, Swedish, and Danish delegates stated explicitly during the final 1981 session of the Law of the Sea negotiations that the Baltic Straits were covered by Article 35(c) and that their legal status should remain unchanged. 2 United Nations Office of Legal Affairs, Division for Ocean Affairs and the Law of the Sea, *The Law of the Sea: Straits Used for International Navigation: Legislative History of Part III of the United Nations Convention on the Law of the Sea* 132, 149, 154, 156 (New York: United Nations, 1992) (hereafter *Straits Legislative History*). This understanding that the Baltic Straits are an Article 35(c) strait appears now to be generally accepted, although U.S. commentators have contended that "it is somewhat academic whether or not the Belts are considered 35(c) straits" because the 1857 treaties "ensure free navigation." William L. Schachte, Jr. and J. Peter A. Bernhardt, *International Straits and Navigational Freedoms*, 33 Va. J. Int'l L. 527, 546 (1993). Sweden and Finland ratified the Law of the Sea Convention in 1996, and Germany ratified in 1994; Denmark has signed the Convention but has not yet ratified it. United Nations Division of Ocean Affairs and the Law of the Sea, *Convention on the Law of the Sea of 10 December 1982—Overview*, <[http://www.un.org/Depts/los/convention\\_agreements/convention\\_overview\\_convention.htm](http://www.un.org/Depts/los/convention_agreements/convention_overview_convention.htm)> (site visited Oct. 10, 2002).

13 Schachte and Bernhardt, *supra* note 12, at 546.s

the LOS Convention, and from applying their internal 1976 Ordinance to foreign warships.”<sup>14</sup>

This view is probably not widely shared by commentators in the Baltic region. Writing two decades ago, the German Professor Wolfgang Graf Vitzthum reported that the Danish and Soviet governments maintained that only merchant vessels were covered by the 1857 Conventions and that the Danes viewed their restrictions on the passage of warships described above as consistent with the 1857 Conventions, and with the Law of the Sea Convention because these straits are exempt from the transit passage regime under Article 35(c).<sup>15</sup> The Danish diplomat responding to Professor Vitzthum’s presentation said that the Baltic Straits are covered by Article 35(c)<sup>16</sup> and that “it is clear from the preamble and the whole purpose of the Convention that it does not cover warships. The passage of warships is regulated by the general international rule of innocent passage through international straits.”<sup>17</sup>

The right to pass freely through international straits was not firmly established until the *Corfu Channel Case*<sup>18</sup> in 1949, which said that ships have the right of nonsuspendable innocent passage through such straits. Disagreements continued, however, regarding what activities qualified as “innocent,” and commentators differed on whether warships were entitled to pass under this regime.<sup>19</sup>

## THE STRAIT OF GIBRALTAR

Bound on the north by Spain and on the south by Morocco, the Strait of Gibraltar connects the Atlantic Ocean to the Mediterranean Sea. Thirty-six miles (58 km) long and eight miles (13 km) wide at its narrowest point, the Strait of Gibraltar is unquestionably one of the most important passages in the world’s oceans, with an average of between 140<sup>20</sup> and 200<sup>21</sup> ships passing through the Strait each day. Many

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14 *Id.* at 546-47. See also John Norton Moore, *The Regime of Straits and the Third United Nations Conference on the Law of the Sea*, 74 Am. J. Int’l L. 77, 111 (1980)(concluding that the Baltic Straits are covered by Article 35(c), but also that the 1857 Treaties “provide for freedom of navigation”).

15 Wolfgang Graf Vitzthum, *The Baltic Straits*, in *The Law of the Sea in the 1980s* at 537, 552 (Honolulu: Law of the Sea Institute, Choon-ho Park ed., 1983). He cited the Danish expert Erik Bruel as having taken the position that “warships fall outside the scope of [the 1857 Treaties’] provisions,” *Id.* (citing 2 Bruel, *supra* note 4, at 41, 45). Vitzthum’s own analysis of the text and context of the 1857 treaties led him to conclude that the treaties “do not pertain to the rights of passage of warships.” *Id.* at 555. But he also concluded that the 1857 Treaties should be considered as dealing with commercial, fiscal, and customs matters, *id.* at 575, rather than as establishing a special straits regime for the Baltic Straits, and therefore that these straits should not be considered Article 35(c) straits, *id.* at 555-58, and that (at least as of the time he was writing (in 1980)) the regime of nonsuspendable innocent passage should apply in the Baltic Straits. *Id.* at 565.

16 *Ib* R. Andreasen, *Commentary*, in *The Law of the Sea in the 1980s* at 597, 602 (Honolulu: Law of the Sea Institute, Choon-ho Park ed., 1983).

17 *Id.* at 600.

18 *Corfu Channel Case (U.K. v. Albania)*, 1949 I.C.J. 4.

19 Scott C. Truver, *The Strait of Gibraltar and the Mediterranean* 153 (Dordrecht: Martinus Nijhoff, 1980)(citing *Commentary on Article 24 of the Draft Articles Concerning the Law of the Sea, Yearbook of the International Law Commission, 1956, Vol. 2, at 276-77*).

20 *The Times Atlas of the Oceans* 151 (New York: Van Nostrand Reinhold Co., Alastair Couper ed., 1983).

are tankers, which bring more than 200 million tons of oil through the Strait each year.<sup>22</sup> The Strait presents navigational challenges from changing and sometimes strong winds, periods of reduced visibility, and offshore shoals. A collision in 1979, for instance, cost 50 lives and spilled some 95,000 tons of crude oil.<sup>23</sup> In July 2000, two ferryboats collided near the Spanish port of Algeciras, killing five and injuring 17, caused by fog and the heavy summer traffic.<sup>24</sup> The Strait is now also used by Moroccans seeking a better life in Europe who attempt the crossing in small boats, leading frequently to accidents and drownings.<sup>25</sup> In June 2002, Abu Zubair al-Haili, a Saudi national thought to be one of the top 25 Al Qaeda leaders, was arrested in Morocco and accused of plotting to blow up U.S. and British warships in the Strait of Gibraltar.<sup>26</sup> The idea of connecting Spain with Morocco through an undersea railway tunnel, or even a bridge, remains under discussion, with various ideas being presented by futuristic thinkers.<sup>27</sup>

**Historical Passage Regimes.** Both sides of the Strait of Gibraltar were controlled by Carthage between 573 B.C.E. and about 190 B.C.E., and Carthage prohibited (by force) non-Carthaginian ships from passing through the Strait.<sup>28</sup> Again, between 711 A.D., when Muslim armies headed by Musa Ibn Nasayr and Tarik ibn Ziyad landed at Gibraltar Rock, and the early twelfth century, "[the Muslims completely controlled traffic in the strait for about 400 years, denying passage to all ships but their own."<sup>29</sup> Beginning in the twelfth century, trade increased from Western Europe into the Mediterranean region, and internal divisions among the Moors reduced their ability to limit passage through the Strait.<sup>30</sup> Ships thus began to pass through the Strait, but were sometimes "subjected to savage attacks by pirates based along the North African shores."<sup>31</sup> The town of Gibraltar was captured by a joint British-Dutch invasion in 1704 during the War of Spanish Succession,<sup>32</sup> and the British took advantage of this strategic location in its subsequent war with France and

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21 *Id.* at 157.

22 *Id.*

23 *Id.*

24 *Two Ferry Boats Collide in Gibraltar Strait*, ArabicNews.com, July 17, 2000, <http://www.arabicnews.com/ansub/Daily/Day/000717/2000071734.html> (site visited Oct. 25, 2002).

25 27 Moroccan Nationals Missing in the Gibraltar Strait, ArabicNews.com, Dec. 18, 2000, <http://www.arabicnews.com/ansub/Daily/Day/001218/2000121822.html> (site visited Oct. 25, 2002); *The Strait of Gibraltar: A New Wall of Shame*, June 1994, <http://www.fecl.org/circular/2504.htm> (site visited Oct. 25, 2002).

26 *Top Al Qaeda Leader in Custody*, CNN.com / U.S., June 18, 2002, <http://www.cnn.com/2002/US/06/187/alqaeda.arrest/> (site visited Oct. 25, 2002).

27 See, e.g., International Tunnelling Association, *Gibraltar Strait Fixed Link* (proceedings of April 22-24, 1999 workshop in Rabat, Morocco), <http://www.ita-aites.org/gibraltar/gibindex.html> (site visited Oct. 25, 2002); Francisco Ferrer, *The Gibraltar Strait Bridge* (site visited Oct. 25, 2002).

28 Truver, *supra* note 19, at 160-61.

29 *Id.* at 162.

30 *Id.*

31 *Id.*

32 *Id.* at 163.

Spain, as well as during the later Napoleonic Wars and the two world wars.<sup>33</sup> In 1942, allied control of the Strait permitted the invasion of North Africa.<sup>34</sup>

Spain sought to recapture Gibraltar from Britain on several occasions, including the Great Siege of Gibraltar in 1779-83, when it imposed a blockade to prevent any supplies coming to the British garrison.<sup>35</sup> On March 13, 1780, Spain issued the Ordinance Relating to Neutral Navigation allowing neutral merchant ships to pass through the Strait if they had their papers and cargoes in good order, kept to prescribed sea-lanes, and avoided the Gibraltar area.<sup>36</sup> These requirements have been described by one commentator "as completely legal measures under the customary rules of naval war at the time," and that "[e]ven in the middle of the twentieth century, such action may be required by extreme circumstances and still remain within the bounds of legality."<sup>37</sup> Because of their continued tension, Britain and Spain each required the ships of the other nation to show their flags when passing through the Strait until 1864 when Spanish shore batteries fired at and sunk the British schooner *The Mermaid*, whose ensign was not clearly visible from shore because of a serious storm and high seas. After the Spanish rejected Britain's subsequent protests, the dispute was submitted to a mixed claims tribunal, which in 1869 awarded 3,866 pounds to the British owners of the ship.<sup>38</sup> The two countries agreed to drop the requirements that passing ships show their ensigns, but the agreement "made no mention of the customary regime of passage through straits," and "no special significance can be attributed to the Declaration of 1865 regarding the right of passage through the Strait of Gibraltar."<sup>39</sup>

Although this issue is not entirely clear, the right of passage through the Strait of Gibraltar was apparently not governed by any special regime established by treaty prior to the 1982 Law of the Sea Convention. Some writers have asserted that the 1904 Declaration between Great Britain and France respecting Egypt and Morocco<sup>40</sup> guaranteed freedom of navigation through the Strait, but others have argued that the reference in this document to "free passage" simply protects whatever navigational rights existed through any strait,<sup>41</sup> which was the regime of innocent passage of all

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33 *Id.* at 5.

34 *Id.* at 6.

35 *Id.* at 168.

36 *Id.* at 169 (citing Julio D. Gonzales Campos, *Navegacion por el Mar Territorial, Incluidos los Estrechos* 396 (Madrid, 1975); see also 2 Bruel, *supra* note 4, at 166.

37 Truver, *supra* note 19, at 169.

38 *Id.* at 170.

39 *Id.* at 171.

40 Declaration Between Great Britain and France Respecting Egypt and Morocco, together with the Secret Articles, signed at London, April 8, 1904. The text of Article 7 of this agreement is found in Tullio Scovazzi, *Management Regimes and Responsibility for International Straits*, in *The Straits of Malacca* 327, 349 (Maritime Institute of Malaysia, Kuala Lumpur: Pelanduk Publications, Hamzah Ahmad ed., 1997), and in Truver, *supra* note 19, at 256.

41 Truver, *supra* note 19, at 179; Jose A. Yturriaga, *Navigation Through the Territorial Sea Including Straits Used for International Navigation*, in *Hazards of Maritime Transit* 85-91 (Cambridge, Mass.: Ballinger, L.M. Alexander and T.A. Clingan, Jr., eds. 1973).

vessels.<sup>42</sup> Professor Lewis Alexander has pointed out that the regime of nonsuspendable innocent passage did not emerge until the *Corfu Channel Case*<sup>43</sup> and that Spain has argued that the 1904 Declaration did not include freedom of overflight.<sup>44</sup> The United States did fly its planes from the United Kingdom over the Strait of Gibraltar in April 1986 when it bombed Libya, claiming the right to do so based on the transit passage regime established in the 1982 Law of the Sea Convention.<sup>45</sup>

**Territorial Sea Claims and Maritime Boundary Delimitations.** The division of waters in the Strait of Gibraltar Strait is particularly challenging because Spain disputes the legitimacy of the United Kingdom's 6.5-square-kilometer enclave at the Port of Gibraltar, and Morocco likewise disputes the legitimacy of Spain's enclaves in North Africa along the Moroccan coast. One commentator has explained that this patchwork of disputed land claims on both sides of the Strait has "brought the possibility of delimiting the waters of the Strait to a stalemate."<sup>46</sup>

In 1760,<sup>47</sup> Spain claimed a six-nautical-mile territorial sea, which "placed the strait within Spanish territorial jurisdiction between the Spanish mainland and Ceuta [a Spanish enclave in North Africa], [but] Spain apparently never attempted to close the strait to any ship movements, either military or commercial."<sup>48</sup> With international acceptance of a 12-nautical-mile territorial sea in the 1982 Convention,<sup>49</sup> the strait now falls almost entirely within Spanish and Moroccan territorial waters, except for a disputed portion of the northeastern section of the strait, which the British claim by virtue of the dependency it has maintained at the port of Gibraltar since 1704.<sup>50</sup> Spain has been trying to negotiate with the British for joint sovereignty over Gibraltar,<sup>51</sup> and, in addition, has taken the position that the 1713 cession did not transfer any territorial waters to Britain.<sup>52</sup> Britain currently argues that the "cession of a territory

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42 Lewis M. Alexander, *Navigational Restrictions within the New LOS Context: Geographical Implications for the United States* 143 (Peace Dale, Rhode Island: Offshore Consultants, 1986).

43 *Corfu Channel Case (United Kingdom v. Albania)*, 1949 I.C.J. 4 (April 9).

44 Alexander, *supra* note 42, at 144.

45 *Id.*

46 Faraj Abdullah Ahnish, *The International Law of Maritime Boundaries and the Practice of States in the Mediterranean Sea* 288 (Oxford: Clarendon Press, 1993).

47 Truver, *supra* note 19, at 171.

48 *Id.* at 169.

49 Law of the Sea Convention, *supra* note 2, art. 3.

50 In Article X of the 1713 Treaty of Utrecht, Spain yielded to Britain, "the full and entire propriety of the town and castle of Gibraltar, together with the port, fortifications, and forts thereunto belonging...without any territorial jurisdiction." See Ahnish, *supra* note 46, at 288. The United Kingdom removed its troops from Gibraltar in 1991, but has maintained it as a dependency. *Gibraltar*, in *The Columbia Encyclopedia* (6<sup>th</sup> ed. 2001), <http://www.bartleby.com/65/gi/Gibraltar.html> (site visited Oct. 25, 2002).

51 See generally Simon J. Lincoln, Note, *The Legal Status of Gibraltar: Whose Rock Is It Anyway?* 18 *Fordham Int'l L.J.* 285 (1994). The Gibraltar government rejected a 1997 Spanish proposal for joint British-Spanish sovereignty. *Gibraltar*, *supra* note 50.

52 Ahnish, *supra* note 46, at 290-91 (citing declarations made by Spain when it signed the 1958 Convention on the Territorial Sea and the 1982 Law of the Sea Convention). See also Truver, *supra* note 19, at 164-67.



automatically carries the cession of the appurtenant territorial waters,"<sup>53</sup> but in previous generations its officers recognized that the treaty language was ambiguous and that any claim of offshore waters would be firmly opposed by Spain.<sup>54</sup>

On the southern side of the Strait, Morocco has drawn straight baselines along its coast that may not be justified based on the language of Article 7 of the Law of the Sea Convention,<sup>55</sup> which "push[] the [median] line [claimed by Morocco] further north than a true median line (measured from the low-water line) to a marked degree, if one takes into account the narrowness of the area involved."<sup>56</sup> More significantly, Morocco's claimed line ignores the Spanish claimed land territory at the eastern end of the southern side of the strait -- the peninsula of Ceuta and the uninhabited islet Perejil, which Spain retained after Morocco became independent in 1956.<sup>57</sup> Ceuta was first occupied by Spain in 1580<sup>58</sup> and is now occupied by 70,000 Spaniards, many of Moroccan descent. Morocco has long complained that Spain's retention of this peninsula is a vestige of colonial occupation, arguing that Ceuta is part of Morocco's "national territory,"<sup>59</sup> and that Spain's occupation cannot be allowed to continue indefinitely.<sup>60</sup> Spain has recently been obliged to build four-meter high steel walls around its Moroccan enclaves to block entry from African refugees seeking entry into Europe.<sup>61</sup>

In the summer of 2002, Moroccan troops landed on the half-mile-wide Isla Perejil ("Parsley") claimed by Spain 200 meters offshore of the southern coast, and then withdrew after Spanish troops descended on the rock.<sup>62</sup> Spain claims to have controlled the island since 1668, but has not maintained a permanent presence there for four decades, and in recent years it has been inhabited only by goats. After mediation facilitated by the United States, Spain agreed to remove its forces and both sides agreed that the islet would be returned to its previous demilitarized, unoccupied status.<sup>63</sup> One commentator has contended that "It is unreasonable to argue...that the

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53 *Id.* at 291.

54 *Id.* at 291-92.

55 Article 7(1) of the Law of the Sea Convention, *supra* note 2, permits countries to draw straight baselines only if their "coastline is deeply indented and cut into, or if there is a fringe of islands along the coast in its immediate vicinity." If such lines are drawn, they "must not depart to any appreciable extent from the general direction of the coast." *Id.*, art. 7(3).

56 Ahnish, *supra* note 46, at 295.

57 Michael Slackman, *Spain Pulls Troops from Disputed Islet*, Honolulu Advertiser, July 21, 2002, at A23.

58 Truver, *supra* note 19, at 162.

59 Ahnish, *supra* note 46, at 278 (quoting the statement of the Moroccan representative to the Second Committee, UNCLOS III, *Official Records*, iv, 75-76).

60 Slackman, *supra* note 57.

61 Vicky Short, *Spain Strengthens Borders Against African Refugees*, World Socialist Web Site, June 2, 1999, <http://www.wsws.org/articles/1999/jun1999/spai-j02.shtml> (site visited Oct. 25, 2002).

62 Jerome Socolovsky, *Spain Offers Morocco Deal to Pull Troops from Island*, Honolulu Advertiser, July 18, 2002, at A12. In Arabic, the islet is called "Leila," which means "Night."

63 Reuters, *Spain and Morocco Settle Dispute Over Occupied Isle*, Honolulu Star-Bulletin, July 21, 2002, at A6.

rock of Perejil...should be entitled to a full belt of territorial sea," because "it is a small, uninhabited rock and situated only 200 metres from the coast of Morocco."<sup>64</sup>

**The Recent and Current Positions of the Strait States.** During the negotiations that produced the 1982 Convention, both Spain and Morocco argued that the rule of innocent passage should govern navigation through all straits encompassed by expanded territorial seas.<sup>65</sup> They argued further that the regime of innocent passage should apply only to merchant vessels and that warships and submarines should be subject to regulation by coastal states. Spain had previously taken the view that the regime of nonsuspendable innocent passage applied in the Strait of Gibraltar,<sup>66</sup> and it viewed the concept of "transit passage" that was emerging during the Law of the Sea negotiations as "inherently non-innocent."<sup>67</sup>

Because of these concerns, Spain's introduced amendments in 1978 to the working draft text of the Convention that, if adopted, would have said that aircraft do not have the right of transit passage; would have said explicitly that ships exercising transit passage could not engage in acts of propaganda, collect information, or interfere with coastal state communications; would have increased coastal state enforcement powers; would have allowed coastal states to regulate navigational aids, cables, and pipelines; and would have required ships passing through straits to have adequate insurance to cover any loss or damage they might cause and have required flag states to ensure prompt and adequate compensation for such losses.<sup>68</sup> At this same 1978 session, Morocco submitted "informal suggestions" that would have prohibited ships and aircraft from any use of weapons, the taking off or landing of aircraft from ships, hydrographic surveys or other research activities, deliberate acts of pollution, all fishing activities, intelligence-gathering by aircraft, and any interference with coastal communications during transit passage.<sup>69</sup> Morocco's proposal would also have required ships to maintain radio contact during their passage and to inform coastal authorities of any damage, unforeseen stop, or other change required by *force majeure*.<sup>70</sup> Morocco supported Spain's suggestions regarding insurance, liability, and compensation for damage.<sup>71</sup>

These proposals were rejected by the maritime nations, who argued that "the question of straits had been fully debated and the compromise reached should not be

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<sup>64</sup> Ahnish, *supra* note 46, at 282.

<sup>65</sup> For a description of Spain's initiatives during the negotiations in the 1970s, see Jose A. de Yturriaga, *Straits Used for International Navigation – A Spanish Perspective* 68-162 (Dordrecht: Martinus Nijhoff, 1991).

<sup>66</sup> *Id.* at 49 (quoting from a 1971 speech made by Spain's Minister for Foreign Affairs, Gregorio Lopez-Bravo).

<sup>67</sup> Truver, *supra* note 19, at 11 (citing a private letter to the author from Jose Manuel Lacleta, a member of the Spanish delegation, dated May 11, 1976).

<sup>68</sup> K.L. Koh, *Straits in International Navigation* 145-46 (London: Oceana Publications, 1982)(citing Second Committee, Informal C.2/Informal Meeting/4 of 26 April 1978, in Renate Platzoder, *Dokumente der Dritten Seerechtskonferenz der Vereinten Nationen – Genfer Session 1978*, Vol. 3 (July 1978), at 929).

<sup>69</sup> *Id.* at 147 (citing Second Committee, Informal Meeting C.2/Informal Meeting/4 of 28 April 1978, in Platzoder, *id.*, at 959).

<sup>70</sup> *Id.*

<sup>71</sup> *Id.* at 148.

reopened."<sup>72</sup> Nonetheless, they illustrate the views of the nations that border on the Gibraltar Strait and their unhappiness about the transit passage regime that emerged in the Convention.

Maritime transit through the Gibraltar Strait has been free and unimpeded for all vessels during most recent periods of history, although at times this free transit has had to be enforced with military might.<sup>73</sup> Since the drafting of the Law of the Sea Convention, no serious attempts have been made by Spain or Morocco to limit passage through the Strait of Gibraltar, but Spain did issue a declaration when ratifying the Convention saying that it understands that the straits regime in the Convention "is compatible with the right of the bordering State to enact and enforce in straits used for international navigation its own regulations, provided that such regulations do not interfere with the right of transit passage."<sup>74</sup> Spain's declaration also stated that the requirement in Article 39(3)(a) that government aircraft exercising transit passage will "normally" comply with the Rules of the Air established by the International Civil Aviation Organization means that they will do so "except for force majeure or serious difficulty."<sup>75</sup> Spain and the United Kingdom both ratified the Law of the Sea Convention in 1997 (including conflicting declarations on the status of Gibraltar); Morocco has signed the Convention but has not yet ratified it.<sup>76</sup> In 1991, a Spanish commentator wrote that Spain was "the ideal 'persistent objector'" seeking to insist on a regime of nonsuspendable innocent passage and to oppose "the emerging customary rule on transit passage through straits used for international navigation,"<sup>77</sup> but "political" realities later led to Spain's ratification of the Convention, which weakens Spain's position "despite the interpretive declaration attached to it."<sup>78</sup>

## CANALS

Canals are considered to be "internal waters" under the law of the sea, and therefore no right of innocent passage exists through the canal itself. Because canals are human-made and always present unique problems of management, maintenance, financial

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<sup>72</sup> *Id.* at 145 (citing Statement of Representative of United States of America of 17 April 1978, United Nations, *Third UNCLOS, Official Records*, Vol. 9, at 130 (1980)).

<sup>73</sup> See Truver, *supra* note 19 at 178-81.

<sup>74</sup> Spanish Declaration, issued January 15, 1997, in *Convention Overview*, *supra* note 12; see generally de Yturriaga, *supra* note 65, at 303-04.

<sup>75</sup> *Id.* With regard to its enforcement powers, Spain's declaration interpreted Article 221 (Measures to avoid pollution arising from maritime casualties) "as not depriving the coastal State of a strait used for international navigation of its powers, recognized by international law, to intervene in the case of casualties referred to in that article," and further said that "article 233 must be interpreted, in any case, in conjunction with the provisions of article 34." One commentator has observed that Spain's declaration "gives a meaning of the wording of articles 39(3) and 42(1)(b) which is different from their ordinary sense." Tullio Scovazzi, *Management Regimes and Responsibility for International Straits*, in *The Straits of Malacca* 327, 341 (Maritime Institute of Malaysia, Kuala Lumpur: Pelanduk Publications, Hamzah Ahmad ed., 1997).

<sup>76</sup> *Convention Overview*, *supra* note 12.

<sup>77</sup> de Yturriaga, *supra* note 65, at 329.

<sup>78</sup> *Id.* at 330.

integrity, and control, greater regulation of passage is permitted through these waterways. Passage through canals is generally governed by international treaties, such as the treaty that led to the return of the Panama Canal to Panama, which says that passage cannot be regulated in a discriminatory manner, but does allow for restrictions based on safety concerns. Article 1 of the 1888 Convention of Constantinople says that the Suez Canal “shall always be free and open, in time of war as in time of peace, to every vessel of commerce or of war, without distinction of flag.”<sup>79</sup> At least during the time the United States governed the Panama Canal, the obligation to keep the canal open for all ships was “somewhat less explicit.”<sup>80</sup>

The Kiel Canal, a 53-mile waterway linking the Baltic and North Seas, which can accommodate vessels of eight meters draft, opened through Germany in 1895 for the purpose of providing access to the sea by Germany’s navy and ensuring that its movement between the North Sea and the Baltic could not be cut off.<sup>81</sup> The Versailles Treaty transformed it into an international waterway, saying that: “The Kiel Canal and its approaches shall be maintained free and open to the vessels of commerce and of war of all nations at peace with Germany on terms of entire equality.”<sup>82</sup> In 1936, Germany declared that the Canal was not an international waterway and that foreign warships could pass through it only with advance authorization,<sup>83</sup> leading to protests from France and Czechoslovakia.<sup>84</sup> After World War II, no formal action was taken to “internationalize” the Canal, but it has been open to international transit.<sup>85</sup> In 1980, two German commentators said that in the opinion of “most authors in international law – the internationalization system of the Versailles Treaty for the Kiel Canal has been abandoned.”<sup>86</sup>

The Panama Canal Regulations, implemented by Panama when it assumed control, explicitly allow Canal authorities to prohibit ultrahazardous cargoes. The regulation “Denial of Passage to Dangerous Vessel” states that: “The Canal authorities may deny any vessel passage through the Canal when the character or condition of the cargo...is such as to endanger the structures pertaining to the Canal, or which might render the vessel liable to obstruct the Canal...”<sup>87</sup> Article III (1)(a) of the 1977 Treaty between the United States and Panama<sup>88</sup> also permits Panama to adopt regulations that are “necessary for safe navigation and efficient, sanitary

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79 See Myres McDougal and William Burke, *The Public Order of the Oceans* 1075 n. 113 (1962).

80 *Id.*

81 Alexander, *supra* note 42, at 181 (citing Richard Baxter, *The Law of International Waterways: With Particular Regard to Interoceanic Canals* 164 (Cambridge, Mass.: Harvard University Press, 1964)); Vitzthum, *supra* note 15, at 544..

82 Baxter, *supra* note 81, at 172.

83 *Id.*

84 *Id.*

85 Alexander, *supra* note 42, at 181.

86 Ingo von Muench, *Commentary*, in *The Law of the Sea in the 1980s* at 602, 608 (Honolulu: Law of the Sea Institute, Choon-ho Park ed., 1983); Guenther Jaenicke, *id.*, at 615.

87 35 C.F.R. sec. 103.2.

88 Treaty Concerning the Permanent Neutrality and Operation of the Panama Canal, Sept. 7, 1977, 16 I.L.M. 1040 (1977).

operation of the Canal.” This Treaty emphasizes at several places the importance of keeping the Canal open for commerce and the necessity of providing sufficient security to ensure that it remains open.

Panama is entitled to demand full indemnity<sup>89</sup> and insurance (as the Suez Canal does), an environmental impact assessment, notification and consultation with shipping states, and the development of emergency response plans for shipments transiting the canal. The Panama Canal Authority already requires that notification be given to the Authority 30 days in advance of the arrival of a vessel in Canal waters for all cargoes of fissionable materials, in order to obtain approval to transit such cargo.<sup>90</sup>

### **WHAT CONTROLS CAN COASTAL STATES EXERCISE OVER VESSELS ENGAGED IN TRANSIT PASSAGE THROUGH INTERNATIONAL STRAITS?**

A wide range of questions have arisen regarding what regulations are permissible under the transit-passage regime established under the Law of the Sea Convention. Some types of regulations are clearly permissible:

\*Traffic separation schemes and other safety measures can be established under Articles 41 and 42(1)(a) of the Law of the Sea Convention. These must be developed in coordination with other adjacent or opposite states, must conform to generally accepted international regulations, must be submitted to the component international organization (the International Maritime Organization) for adoption, and must be widely publicized. Traffic separation schemes have been adopted for many of the important straits, including Baltic, Dover, Gibraltar, Kerch, Bab al-Mandeb, Hormuz, Malacca-Singapore, and Kurile.<sup>91</sup>

\* Pollution control regulations can be adopted under Article 42(1)(b). These regulations must be consistent with "applicable international regulations regarding the discharge of oil, oily wastes and other noxious substances in the strait."<sup>92</sup>

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89 See Article 139 of the Regulations on Navigation in Panama Canal Waters: “vessels carrying radioactive substances shall be required to provide current proof of financial responsibility and adequate provision for indemnity to the Republic of Panama, the Authority, or any agency thereof, covering public liability and loss as a result of accidents owing to radioactive cargo.”

90 Regulations on Navigation in Panama Canal Waters, Article 137.

91 Alexander, *supra* note 42, at 129.

92 During the final negotiating session in 1982. Spain objected to the word "applicable" in this provision, because it meant that the regime that could be imposed on a ship would change with the flag of the ship, and urged instead that the phrase "generally accepted" be used in order to ensure a uniform standard. A vote was taken on Spain's proposal, with 60 countries voting in favor, 29 against, and 51 abstentions; because the proposal did not receive the affirmative votes of two-thirds of those voting, it was deemed to have been defeated. 2 *Straits Legislative History*, *supra* note 12, at 136, 141-42. After Spain was defeated on this vote, it issued an "understanding" to the effect that "it considers that the provisions of [Article 42(1)(b)] do not prevent it from issuing, in accordance with international law, laws and regulations giving effect to generally accepted international regulations." *Id.* at 156. Later the phrasing of Spain's "understanding" became: "The regime established in Part III of the Convention is compatible with the right of the bordering State to enact and enforce in straits used for international navigation its own regulations, provided that such regulations do not interfere with the right of transit passage." *Convention Overview*, *supra* note 12.

\* Fishing regulations can be adopted under Article 42(c) to prevent fishing. Among these regulations can be the requirement to stow all fishing gear.

\* Regulations can be adopted to control the loading, unloading, or transfer of any goods, any currency, or any person in contravention of the "customs, fiscal, immigration or sanitary laws and regulations" of the coastal state, under Article 42(d).

These regulations cannot discriminate against foreign ships nor can they have the effect of "hampering or impairing the right of transit passage" (Article 42(2)), and due publicity must be given to these regulations. Nonetheless, they can be promulgated, and foreign states whose flag vessels do not comply are responsible for "any loss or damage which results to States bordering straits" (Article 42(5)).

With regard to passage through the territorial sea, the Law of the Sea Convention recognizes in Articles 22 and 23 that nuclear cargoes present unusual risks, and allows them to be regulated accordingly. Article 23 states that restrictions should be arranged pursuant to "international agreements," but no such agreements have yet been developed. Several countries have concluded, therefore, that they are authorized to regulate such transports directly, until international agreements are completed.<sup>93</sup>

Some commentators have suggested that the transit passage regime in the Law of the Sea Convention may not yet have been confirmed as customary international law because of "the attitude taken by a significant number of States which appear reluctant, either explicitly or implicitly, to accept the transit passage regime as a whole or some of its implications."<sup>94</sup> Professor Tullio Scovazzi has explained that the Convention does not adequately protect the "vital concern" of states bordering straits regarding the protection of their marine environment.<sup>95</sup> In particular, the Convention provides only limited authority to the bordering states to enforce their environmental regulations, it does not create an adequate liability regime, nor does it require the prior notification of transit of ultrahazardous cargoes that would allow coastal states to protect their coastal populations and resources.<sup>96</sup> These inadequacies have led a number of straits-bordering states to promulgate regulations that appear to go beyond what is permitted by the Convention.<sup>97</sup> He concludes, therefore, that "[i]t is therefore possible to argue that the LOS Convention transit passage regime is still far from fully corresponding to present customary international law."<sup>98</sup>

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93 See declarations filed by Saudi Arabia and Malaysia, *Convention Overview*, *supra* note 12.

94 Tullio Scovazzi, *The Evolution of International Law of the Sea: New Issues, New Challenges* 174 (The Hague: Martinus Nijhoff, 2001)(reprinted from *Recueil des Cours*, Volume 286 (2000)).

95 *Id.* at 174-75.

96 *Id.* at 175-77.

97 *Id.* at 177-87 (providing examples from the Malacca Strait, the Canadian Arctic Straits, the Russian Arctic Straits, and the Turkish Straits).

98 Scovazzi, *Management Regimes*, *supra* note 75, at 344.

## CONCLUSION

The Gibraltar Straits are among the most important straits in the world, central to the movement of goods and vessels. Professor Scovazzi has explained in his recent writings that the regime of transit passage through international straits is still in a period of evolution, and that the rules found in the Law of the Sea Convention cannot yet be viewed as accepted customary international law in all respects. Major straits states, such as Canada, Denmark, Iran, Morocco, and Turkey have not ratified the Convention, nor has one of the major maritime powers -- the United States.<sup>99</sup>

Although passage has generally been permitted through the Gibraltar Strait without restriction, Spain and Morocco have historically contended that the regime of nonsuspendable innocent passage applies to this Strait, and they continue to argue that they are entitled to issue regulations necessary to protect their coastal environments. The declaration filed by Spain when it ratified the Convention in 1997 asserted again the power of coastal states to regulate passage in order to protect their environment and resources.<sup>100</sup> As environmental and security concerns become more focused, it is probable that strait states will take new initiative to protect their coastal environments and populations. It is likely, therefore, that conflicts will continue between shipping and maritime powers and states bordering straits.

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<sup>99</sup> *Convention Overview*, *supra* note 12.

<sup>100</sup> See *supra* text and notes accompanying notes 74-75 and 92.







## THE SECURITY AND THE LEGAL ASPECTS OF TURKISH STRAITS

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### ABSTRACT

During the last century, Turkish Straits witnessed two world wars and, following them, the Cold War tension between the NATO and Warsaw Pacts just near the coast of the magnificent blue waters. Also, just a decade ago the terrible Soviet Black Sea Armada was the main threat <sup>1</sup>for NATO Alliance security strategies around these waters. But today, NATO has signed important agreements with Russia, the ex-arch-enemy of the Alliance which formulated (19+1) new security relationship and cooperation, also ongoing friendly common exercises with Black Sea riparian states naval fleets<sup>2</sup> and Black Sea rapid deployment forces. Nowadays they are ready for humanitarian missions to protect democratic humanitarian ideas. All these tremendous peaceful steps exchange legal and security aspects of Turkish Straits in an optimistic dimension. However, up to 1,500 ships a day sail through the *Bosphorus*, *Sea of Marmara* and the *Dardanelles* Straits that links the Mediterranean and Black Seas off the coast of habitat of more than ten millions people in Turkey. After the collapse of the Soviet Union, an increasing energy transport has been aimed at taking the pressure off these strategic waterways that link the Caspian Sea oil and gas resources to the world market.<sup>3</sup> Indeed, as Dana MUNRO stressed the Russians were the first to import petroleum to Germany in 1883 from rich Russian wells in Baku. According to this, German oil market demand jumped up from 300.000 tons to 755.199 tons in 1911, creating a big competition between Russia, Austria, Romania, and the USA, <sup>4</sup>just before the “*Great Game*” oil operation in the region. The existing *Montreux Convention* allows complete *freedom of passage* both day and night, regardless of the nationality of the vessels or their cargoes.<sup>5</sup>

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<sup>1</sup> On the maritime the main axis, such as that directed against the Bosphorus-Dardanelles an operational – strategic assault landing would probably involve amphibious and airborne forces supported by naval surface combatants as well as aircraft of the navy and the air forces. See Philip A. PETERSEN: *The Southeastern TVD in Soviet Military Planning-The Bosphorus-Dardanelles Direction*”, Conference Papers, “ Strengthening NATO’s Defense in the Southern Region: A 40 Th Anniversary Perspective ‘’, Foreign Policy Institute, Ankara, 1990.

<sup>2</sup> “Black Sea Nations Hold Joint Exercises”, the Russia Journal, 5 August 2002. ,

<sup>3</sup> Kamyar, MEHDİYOUN : “Ownership of Oil and Gas Resources in the Caspian Sea” American Journal of International Law, Vol.94, Issue 1, p.179-189, Jan.2000., Thomas, GOLTZ: “The Caspian Oil Sweep Stokes”, Nation, VOL. 205, 17.XI, 1997.

<sup>4</sup> Dana G.MUNRO :” The Proposed German Petroleum Monopoly””, The American Economic Review” , Vol.4, Issue 2, p.315-326, June,1914.

<sup>5</sup> **Article 2.** In time of peace, merchant vessels shall enjoy complete freedom of transit and navigation in the Straits, by day and by night, under any flag and with any kind of cargo, without any formalities, except as

To respect new regulations drawn up by the International Maritime Organization (IMO), dangerous cargoes must now be given a notice in advance. Furthermore, these cargoes are under a possible threat of terrorist attack after September 11, 2001.

## INTRODUCTION

As the world moves towards becoming an international community at the beginning of a new millennium, greater effects of globalization also tend to concentrate on economic growth supported by free trade and free markets. The growth of the economic productivity and transportation in international trade has been overwhelmingly dominated by shipping at the beginning of this century. Furthermore, international maritime law is trying to understand how such globalization advances be accomplished and human achievement could also be burdened with so much sustainable *environmental security* matters and destruction. It considers problems, opportunities, and key principles that have emerged in recent international negotiations on admiralty law. In 1977 shipping did some 95 percent of all international commerce by weight and over 1.1 trillion US dollars by value.<sup>6</sup> Instead, the major part of world's tanker fleet, about 80 percent controlled by the oil industry, either owns the ships or charters them on long term contracts.<sup>7</sup> The Turkish Straits are one of the main important sea routes on the planet connecting Asia and Europe.

From the *ancient regime*<sup>8</sup> Straits to the last century, combatant coastal states have been actively involved in very serious complex questions dealing WW-I and WW-

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provided in Article 3 below. No taxes or charges other than those authorized by **Annex 1** to the present Convention shall be levied by the Turkish authorities on these vessels when passing in transit without calling at a port in the Straits. In order to facilitate the collection of these taxes or charges merchant vessels passing through the Straits shall communicate to the officials at the stations referred to in Article 3 their name, nationality, tonnage, destination and last port of call (<sup>5</sup> Kamyar, MEHDIYOUN : "Ownership of Oil and Gas Resources in the Caspian Sea" American Journal of International Law, Vol.94, Issue 1, p.179-189, Jan.2000., Thomas, GOLTZ: "The Caspian Oil Sweep Stokes", Nation, VOL. 205, 17.XI, 1997.

<sup>5</sup> Dana G.MUNRO : "The Proposed German Petroleum Monopoly", The American Economic Review", Vol.4, Issue 2, p.315-326, June,1914.

<sup>6</sup> Thorston, RIMMAN and Rigmor LINDEN: "Shipping-How it Works" p.15, Stockholm, 1978. See, Lawrence JUDA: World Shipping, UNCTAD, and the New International Economic Order, International Organization, Vol., 35, Issue 3, p.493, Summer, 1981. On the other hand, one of the forgoing discussion is the world tanker cargo shipping in 1939 17.1 m dwt, to 325.2 m dwt at the 1982.UNCTAD, Review of Maritime Transport, 1982, Report by the UNCTAD Secretariat; OECD, Maritime Transport, Paris, 1983, See, Alan C. CAFRUNY, "The Political Economy of International Shipping: Europe Versus America", International Organization, Vol.39, Issue 1, p.79-19, Winter, 1985.

<sup>7</sup> Bernhard J. ABRAHAMSON : "The Marine Environment and Ocean Shipping : Some Implications for a New Law of the Sea" International Organization, Vol.31, Issue 2, Restructing Ocean Regimes: Implications of the Third United Nations Conference on the Law of Sea, p.291, 311, Spring,1977.

<sup>8</sup> Troy Wars, Persian Armies, Roman Empire Soldiers, Christendom Attacks, Byzantine Armies, Arab Challengers, finally the Turkish Troops captured and controlled Turkish Straits initially the Gallipoli step to European continent, in 1356 also following Istanbul faiths by the Fatih Sultan Mehmet Han in 1453.. See, Mesut Hakkı, CAŞIN: "Dünya Deniz Ulaşımında Marmara Denizi ve Türk Boğazlarının XXI. Yüzyılda Değişen Stratejik Vizyonu" Ibid, "100 Soruda Türk Boğazları", Genelkurmay Basımevi, 2002, Feridun Cemal

II of national security balance with such rights like allowing passage for warship vessels or commercial ships through the Straits. They were adopted and modified as well as multilateral conventions between the *mare liberum* and *mare clausum*, and have legitimized the rules of maritime law in the 20<sup>th</sup> century. This article aims to concentrate exclusively on the events of Turkish Straits from the WW-I until today, and provides Montreux Regime concepts as a basis for understanding the 20<sup>th</sup> century crisis behavior of the actors. In this article, we aim to discuss changing balances around the navigation safety broadened on the basis of threats and innocent passage discussions. In this regard, we need to study the reasonable legal and institutional solutions that bring preventive measures rather than tearing down the bridges for navigation safety from more than one perspective.

The passage right of the Turkish Straits by foreign naval forces was only one of the security elements in the 20<sup>th</sup> century but it was perhaps the key instrument in Turkish diplomacy and defense policies. Indeed, the rivalry<sup>9</sup> of the Ottomans and Russians, two powerful neighbors of the Eurasian Empires, for the control of Black Sea and the strategic Turkish Straits was crucial to the growing importance for the reality of international geopolitics. Nevertheless, at the heart of the understanding recently developments about the Turkish Straits legal matters, of course, requires detailed explanations after the 1936 Montreux Convention regime. Unfortunately, what we usually regard as long historical large scale naval operations for controlling the Turkish Straits with the interests of actors has been established within the limits of international law. Therefore, the high contracted parties have been legislated by force to present all relevant evidence in the spirit of treaties,<sup>10</sup> the nature of Bosphorus and Dardanelles, geographical, ecological, technical, military, economical, political and diplomatic procedures on the maritime law which result from main differences among the other international straits.<sup>11</sup> The conflict surrounding these important waterways still prevails

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Erkin: Türk-Sovyet İlişkileri ve Boğazlar Meselesi, Ankara 1968., Ali, KURUMAHMUT: “Uluslararası Boğazlardan Geçiş ve Türk Boğazları’Nin Hukuki Statüsü”, Harp Akademileri Basım Evi, Yenilevent, İstanbul, 1999. , Cemal, TUKİN: Boğazlar Meselesi “Yayına hazırlayan, Bülent AKSOY, İstanbul, 1996. , Kemal Baltalı: 1936-1956 Yılları Arasında Boğazlar Meselesi, Ankara, 1959.

<sup>9</sup> C. HUREWITZ: “Russia and Turkish Straits: A Revaluation of the Origins of the Problem”, World Politics, Vol.14, Issue 4, p.605, July 1962.

<sup>10</sup> At the Treaty of Sevres, provided an absolute guarantee of the freedom passage right’s to warships and commercial ships of the Straits by leaving Turkish Armed Forces in status demilitarized under the control of Straits Commission. But, the Turks were able to successfully to resist the imposition of the Treaty of Sevres. The Turks at Lausanne stood firmly and consistently on the platform of their National Pact of 1919, they were fights for their principles, which asserted the rights of Turkey to a full sovereign status on equality with all other nations. Following the negotiation of the Treaty of Lausanne, Turkey rejected old diplomacy and former capitulations. See: Philip Marshall, BROWN: “From Sevres to Lausanne” American Journal of International Law, Volume 18, Issue 1, p.113-116, January 1924.

<sup>11</sup> The evolution of general rules legal regime of the straits from historical expression challenges has long formulation problems between the big maritime states and territorial states. This, of course, has deal with as part of the general question of right of passage through straits such as Bab El Mandeb, Dover, Gibraltar, Hormuz, Malacca, Lombok serve as routes for the bulk of the words shipping trade. Essentially, the general right of free passage through these important strategic shock-points has rooted in the general principles of customary law that applied in the general term’s law of sea. Which regarded the critical balance of vital security interests between the coastal state sovereignty and maritime powers? Moreover, because unnecessary increased costs

today, though, not using military force used as it was in the past. At the present stage, the problem of Turkish Straits is primarily economic and political. However, in order to understand the recent picture, we should *look* at the previous settlements in the history.

## 1. CHANGING THE LEGAL STATUS OF TURKISH STRAITS FROM THE CRIMEAN WAR TO THE GREAT WAR

After the Ottoman Empire had increased its maritime power, the Black Sea became the internal sea of the Ottoman Empire, and as a result, Istanbul became the Omni-power to determine the Black Sea Straits regime. The 1809 Kale-i Sultaniyye Treaty with Great Britain since Russia followed 1774 Küçük Kaynarca Treaty was signed with Russia right after the wars <sup>12</sup>and France decided to have an alliance against England. <sup>13</sup> The next step was the Treaty of London concluded by the four powers (Russia, Great Britain, Prussia and Austria) in 1841, which completely changed the situation, establishing the regime of closing the Straits to foreign warships in the time of peace only. This agreement, accepted by other powers, later became a part of public order between the Ottoman Empire (Turkey) and the Western European powers. After the 1856 Paris Agreement, on March 13, 1871 the Treaty of London was accepted, which became the fundamental ground of the Black Sea Straits regime until the WW-I. Its sense was formulated as follows: *"No Foreign warships allowed into the Straits as long as the Porte is at peace"*. The situation completely changed after the WW- I broke out. But the Crimean War was a corner stone for the future power balances and Western-Ottoman relations at end of the 17<sup>th</sup> century.

After the Crimean War, British changed their policy for the status of straits. According to Lord Campbell the "best fatal" operation route was the Black Sea. On this latitude, the English side notified the Turkish Government on the passage permission for the British Fleet to enter the Black Sea. <sup>14</sup> The English Naval Fleet decided to design new warships carrying "oil only"; considering its advantages over the coal usage; not only speed supremacy but also the benefits of cutting on personnel and costs, <sup>15</sup> but increased capability more than 40%. By that time the English Naval Fleet built 189 vessels and raised the oil demand from 20.000 tons to 200.000 tons in

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resulting from an efficient or restrictive straits regime ultimately will be borne by all, this commercial interest is substantial even for nations, see: John Norton, MOORE: "The Regime of Straits and the Third United Nations Conference on the Law of the Sea", American Journal of International Law, Vol.74, p.81, Jun.1980.

<sup>12</sup> Mahmut R. BELİK : " Türk Boğazlarının Hukuki Statüsü ", İstanbul, 1962.

<sup>13</sup> Rıfat , UÇAROL : " Değişmekte Olan Dünyada Türk Boğazlarının Önemi ve Geleceği " , Yeni Dünya Düzeni ve Türkiye, Derleyen, Sabahattin, ŞEN , sf.165-202, İstanbul,1992. .

<sup>14</sup> P.P. GRAVES: "The Question of the Straits", p.137, London, 1931, S. GORALNOW: "Le Bosphore ET Les Dardanelles", p.383-384, Trans by. İskender Macar, Ali Reşat, "Devlet-i Osmaniye Rusya Siyaseti", İstanbul, 1331.

<sup>15</sup> Admiralty Committee on the Use of Oil Fuel in the Navy, 25 April 1912, A. Trover, DAWSON, F.W.BLACK; Director of Navy Contracts, Engineer Rear-Admiral W.H. RILEY, Churchill to Fisher, 26 May 1912, WSC Comp. Vol.II, pt.iii, p.1928.

1911.<sup>16</sup> Although these changing strategic material demands and wartime supply, Dreadnought oil requirements created to find oil supply in “sufficient quantities” and at a “reasonable price”, and thus, resulted in new challenges with Germany to control the “Oil Supply” regions for Naval Power which dominated in Mediterranean and Mesopotamia.<sup>17</sup> It should be underlined that, Germany was one of the most important players about the Turkish Straits security diplomacy during the WW-I and WW-II. As CHADWICK stressed, Germany continued to appeal to challenge British diplomacy in Far East, Mediterranean, Egypt, and North Africa by establishing Naval Force from Atlantic to the Black Sea. In order to achieve this aim Germany planned to increase her naval construction capacity, without reflecting that is requested her national growth and growing people armaments are the instrument by which expansion is achieved.<sup>18</sup> The Admiral Von Tirpitz shaped Germany’s naval building program and their political aims. He was the architect of developing a naval power as an instrument for the establishment of Germany and as a world power by building of a German battle fleet. British decision-makers wanted to eliminate German’s naval threat to their security. Also, they determined that a strategic alliance between Germany and the Ottoman Empire would be important considering the oil demands in the future of Middle East. This fear brought in maritime history a big competition between the German and British naval forces just before the war.<sup>19</sup>

Why Britain suddenly turned traditional Turkish Alliance down and applied an arms embargo on the Turkish cruisers? I think considering the future oil supply question was one of the important reasons to gain regional control ability by the British manipulation on the Ottoman Empire’s Middle East territories via using Arab nationalism. For that reason, rising possible strong Germany-Ottoman Empire cooperation on the oil field rights would be against the British vital interests. The British side’s consideration for supplies of oil from Mesopotamia might or might not eventually be required for naval purposes and the establishment of the perpetuation of British control in the region. This aim had become the sine qua non-of British Strategy which, counter balances<sup>20</sup> allowing Russia to Istanbul and the Turkish Straits, and providing for a logical bargain. Great Britain had decided to change its policies on the Turkish Straits considering the “ill and therefore weak” Ottoman Strategy. The maintenance of close and friendly relations with the Turks was against the Anglo-Russian Convention interests and German influence in the Middle East.<sup>21</sup>

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<sup>16</sup> Winston, CHURCHILL: “Oil Fuel Supply for His Majesty's Navy”, 16 June 1913, PRO Cab 37/115/39.

<sup>17</sup> Dumas to Nicholson, with Enclosures, 19 Nov. 1912, PRO, FO 800/360, M.KENT: “Oil and Empire, British Policy and Mesopotamian Oil 1900-1920”, p.38-39, London, 1976.

<sup>18</sup> F.E.CHADWICK : “ The Anglo-German Tension and a Solution” , American Journal of International Law, Volume 6, Issue 3, p.601- 613, July,1912.

<sup>19</sup> Mesut Hakkı CAŞIN : “Strategic Effects of WW-I for the International Security Balances in the Middle East “ Ibid.

<sup>20</sup> Sir Edmund, BARROW: Military Secretary, India Office, “Military Situation in the Middle East”, 25 Jan 1915, PRO Cab 37/123/50.

<sup>21</sup> Heeler p.98 Lowe Docrill, in G.MILLER, Ibid, & I "British policy" p.146-147.

Why did Russia form an alliance with Great Britain for their interests in Turkish Straits? What were the Russian side's strategic concerns about the Ottoman-German Alliance and Turkish Straits control?

Russia's interest in the Straits was both complex and shared by other states. Russian policymakers had been seriously concerned with the Straits since Catherine II made Russia a riparian power on the Black Sea. In terms of total value of trade, over 1906-13 the southern ports averaged 26.1 percent of the total Russian international trade, while the Baltic ports averaged 30.4 percent over the same period. More crucially, the Black Sea ports were the gateway largely for exports, while the majority of imports came through the northern ports. Russia's naval interests in the Straits began to change shortly before Sazonov became foreign minister in 1910. Russia's southern coast had long been protected by the prohibition against the passage of foreign warships through the Straits without the Sultan's permission, but from the time of the Russo-Japanese War this prohibition proved more a hindrance than help. During that war, St. Petersburg had been unable to send reinforcements from the Black Sea to the Pacific. The Straits regime thus played a critical part in Russia's sense of national security. Before the Balkan wars, efforts to change this situation had begun. Diplomatically, there had been two notable Russian attempts to change the Straits regime. Sazonov then explained the resolution that would best suit those needs. First, he dismissed internationalization of Constantinople and neutralization of the Straits as an insufficient guarantee of Russia's key interests. Land or sea forces could be used to violate any treaty that disarmed these areas, threatening both the closure of the Straits and the penetration of other Powers' warships into the Black Sea. "Russia must not rely on written agreements", Sazonov concluded, "but instead must physically assure its vital interests at this crucial waterway". Finding such an arrangement, of course, was no easy matter. The radical option was to seize Constantinople and the Straits by force. Such an arrangement would give Russia several advantages, including control of a center of world trade and a "key to the Mediterranean Sea."<sup>22</sup>

Sazonov's preferred option was to control the upper *Bosphorus*, once further Turkish role there was impossible, either as an outright possession or through a long-term lease. Most important, a fortified position on the *Bosphorus* would allow St. Petersburg to prevent any hostile ships from entering the Black Sea. Constantinople itself could be internationalized, and the *Dardanelles* stripped of any fortifications. Under such an arrangement, Sazonov hypothesized; the strengthening of the Russian Black Sea Fleet would allow Russia freedom of passage through the *Dardanelles*. In this manner, Russia would occupy a minimum of territory but acquire a significant change in its rights at the Straits. Russia would also have made an important first step toward someday acquiring the whole region. From this analysis, then, certain things stand out in Sazonov's attitude toward Constantinople and the

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<sup>22</sup> Ronald, BOBROFF: "Behind the Balkan Wras : Russian Policy Toward Bulgaria And the Turkish Straits, 1912-1913, Russian Review, An American Quarterly Devoted to Russia Past & Present, Vol.59, Issue 1, Jan.2000.

Straits.<sup>23</sup> Potential German control of the Straits was an issue of immense gravity for Russia. As Minister of the Navy J.K. Grigorovich wrote Sazonov late in 1913, “Russia cannot allow another power to dominate the Bosphorus and the Dardanelles, for the Straits in the hands of another power state would mean the control of the economic development of southern Russia. A foreign power could transfer to that state of the hegemony of the Balkans and the key to Asia Minor.”<sup>24</sup> The question of the Black Sea Straits became one of the main topics of the President Wilson address to the joint session of USA Congress on January 8, 1918 (the 12th one of the famous 14 points): “...the Dardanelles should be permanently opened as a free passage to the ships and commerce of all nations under international guarantees”. Detailed discussions of the status of Constantinople and the Straits took place at the Paris Peace Conference, but no solution was reached before the Treaty of Lausanne signature (July 24, 1923). The Lausanne Convention of the Straits, presented on July 24 1923 was composed of twenty articles with an annex to Article 2, concerning the rules of commercial and war vessels and aircraft forces throughout the region of the Straits passage.

## **2. THE REMILITARIZATION OF THE TURKISH STRAITS UNDER THE MONTREUX CONVENTION REGIME**

The changing power balances and vital interests of Big Powers, especially Anglo-American and Soviet Union, considering German-Italian predominance threat around the Mediterranean-Persian Gulf oil regions interests totally modified their policies to a friendly situation contrary to WW-I desires.<sup>25</sup> On 10 April 1936, the Turkish government, in a note, requested that the Lausanne Treaty signatories and the Secretary-General of the League, Joseph Avenol, call a conference to revise the Straits Convention. Turkey declared that when the Lausanne Convention was signed, the European situation presented a totally different aspect which had come to existence. Ankara's request for revision of the Straits Convention by negotiation had thrown Turkey's weight on the side of international law and peaceful revision.

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<sup>23</sup> Leading this effort, Foreign Minister Sergei D. Sazonov repeatedly made clear that his government could allow no power, large or small, the opportunity to control the Straits save for Turkey or, ultimately, Russia. His policy was the preservation of the status quo at the Straits for as long as possible, until Russia would be able to take them over itself. Long the subject of historical investigation, the centrality of the Straits question in Russian diplomacy has been accepted by all sides of the debate, even with some differences of interpretation over the primacy of the issue vis-a-vis the need to contain the expansionism of the Germanic empires. First, he believed that any arrangement would have to satisfy Russian needs on the ground, for no written agreement could protect Russia's economic, military, and cultural interests there. Second, while Sazonov was fully aware of Constantinople's and the Straits' potential importance to the Russian Empire, the current threat of Austrian expansion outweighed them in his calculations. Here, then, was not some blind, romantic pursuit of traditional aspirations, but a calculated appraisal of Russia's strategic position.

<sup>24</sup> Zakher, Kransyi Arhiv, 7, :33-34, CF, Un livre noir, . Diplomatie d'avant – guerre d'après les documents des archives russes, 3, vols, p.365, Paris, 1922-1927, William A. RENZI: Great Britain, Russia and the Straits, 1914-1915, THE Journal of Modern History, Vol.42, Issue, 1, p.1-20, MARCH, 1970.

<sup>25</sup> HOWARD : Ibid.



The Montreux Convention was a victory for Turkey, for its friends in the Balkan Entente, and for the policy of regional pacts. In the eyes of Western observers, Turkey's peaceful, diplomatic and lawful approach to revision of the Lausanne Straits Convention was welcomed contrasting Hitler's unilateral action in the Rhineland and Mussolini's aggression in Ethiopia.<sup>26</sup> The High Contractor Parties, considering development existing strategic power balance and "rebus sic stantibus" principles, decided to change the existing status quo through the Montreux Convention in 1936.<sup>27</sup> The Montreux Convention Regime recognized the reestablishment Turkish Sovereignty over the Turkish Straits region in consistent with the "Right to Remilitarize" the zone.<sup>28</sup> Also, the Convention provided for a key to new provisions, that regulated commercial vessels to enter Straits by day and transit by route indicated by Turkish authorities (Art. 6) and introduced concrete limits for warships belong to non-Black Sea powers; for Black Sea powers—insignificant limits (Art. 13-18). When we evaluate Turkey's role in detail we will see it as a successful guardian of the Straits during the WW-II against the progress of "violent action" against of the belligerent parties. This was addressed not only by the French Governor's observers but also stressed by Anthony De Luca.<sup>29</sup>

It's very interesting that, both the Soviet Union and Great Britain wished "to see Turkey strong and prosperous".<sup>30</sup> But, in Hitler's view, about the Turkey "never be an enemy of the Axis", and it" would remain neutral to the end of the war".<sup>31</sup> Because, Von PAPEN expressed his views to İNÖNÜ that "the British Fleet would support the Russian Flank in the Black Sea and a convenient way for defense of the Caucasus would be found".<sup>32</sup> Churchill and Eden desired to play the "Turkish Card" whether in munitions or diplomatic proposals without delay. During the Casablanca Conference, they brought up the issue of the "Turkish Straits" to force the country to join the war.<sup>33</sup> However, İNÖNÜ was very careful against these intentions. His explanations for security balance, favored guarantees, substantial munitions and reinforcement of Turkish Armed Forces in the event of attack.<sup>34</sup> Turkey during the war strictly kept the general regime of the Montreux Convention, which mainly was served and supported Soviets and British interests during the WW-II. It was also natural that the Turkish Government should have pursued a cautious policy

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<sup>26</sup>Yücel,GÜÇLÜ: "Regulation of the Passage the Turkish Straits " Perceptions, Journal of International Affairs, Volume VI - Number 1, March - May 2001.

<sup>27</sup> Sevin, TOLUNER: "Milletlerarası Hukuk Dersleri", sf.164-165, İstanbul, 1989, Aslan, GÜNDÜZ: "Milletlerarası Temel Hukuk, Temel Belgeler, Örnek Kararlar", sf.218-219, İstanbul, 1998, Seha, MERAY: "Devletler Hukukuna Giriş", sf.154—155, AÜHF Yayın No. 206, Ankara, 1975.

<sup>28</sup> Montreux Boğazlar Konferansı, Tutanaklar ve Belgeler, Çev. Seha L.Meray, Osman Olcay, p. 287-434, A.Ü.S.B.F. No.390, Ankara, 1976.

<sup>29</sup> Anthony R. De LUCA: "Soviet-American Politics and the Turkish Straits"; Political Science Quarterly, Vol.92, Issue 3, p.503-524, Autumn, 1977.

<sup>30</sup> Parliamentary Debates, House of Commons, Vol.377, No.20, Col.37.

<sup>31</sup> Von, PAPEN: "Memories", Translated by Brian, CONNEL, p.485-487, Andre, DEUTCH: 1952.

<sup>32</sup> Robert, E. SHERWOOD: "Roosevelt and Hapkins" A Intimate History, p.552-559, Harper, New York, 1948.

<sup>33</sup> Chester, WILWOT: "The Struggle for Europe", p.118, Harper and Brothers, 1952.

<sup>34</sup> C. WILMUT: Ibid, p.702-703.

throughout this period. Contrary to the WW-II threat and tensions near the borders of Turkey, German troop's hands were tied and unable to breathe properly. The occupation of the Aegean Islands which was the main lead to Turkish Straits was not a desirable choice to involve as a belligerent party. Prime Minister İsmet İNÖNÜ and Chief of General Staff Fevzi ÇAKMAK kept to the foreign policy principles of Mustafa Kemal ATATÜRK's which meant "There is no desire at all to obtain territorial gain", and it considered against Atlantic-Euro-Pacific front for the possibility of not involving a conflict threat by sticking to the principle of "neutrality". Thanks to İsmet İnönü's astute leadership, Turkey managed to stay out of WW- II, maintaining formal neutrality right through the end of the war. On the other hand, Anthony de Luca stressed that in effect the grand strategy of the United States as the defenders of Turkish integrity and independence about the issue of Turkish Straits actually just behind WW-II Soviets pressures upon Turkey; since its strategic geopolitical situation. According the to Anthony R. De LUCA: "Soviet-American Politics and the issue of Turkish Straits actually just behind WW-II Soviets pressures upon Turkey; since its strategic geopolitical situation."<sup>35</sup> Indeed, Washington looked with apprehension upon Turkish Straits about the free passage right issue "to be open to merchant vessels at all times" possession of the keys to their house".<sup>36</sup>

### 3. NEW ENVIRONMENT SECURITY PROBLEMS AROUND THE TURKISH STRAITS

There are different questions about the maritime law, which dominated the meaning of environmental safety and free passage rights. We aimed to answer these questions within the legal arguments of about the straits and freedom of innocent passage: What are the main elements of *innocent passage* phenomena? What if any ship gives causes hazard to either territorial waters of coastal states, or it is against environmental security and vital interests of a state? Regardless of national or international dimensions, can we accept this illegal action as being "innocent"? H.GROTIUS stressed that "*one who has occupied a part of the sea cannot hinder navigation which is without weapons and of innocent intent*".<sup>37</sup> Netherlands argued before the 1930 Hague Codification Conference, the right of free passage as customary law for all ships only in straits "*which may be regarded as main routes of*

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<sup>35</sup> Anthony R. De LUCA: "Soviet-American Politics and the Turkish Straits", Political Science Quarterly, Vol.92 Issue 3, p503-515, autumn, 1977. Also, Ferenc, VALI stressed that : Turkey endeavored to apply the Montreux Convention as best as she could during the difficult war years. The entry of the ships of Western Allies into the Straits had become impossible by late 1944. Despite the pressures exerted on Ankara by Berlin and the counter pressures by Moscow and the Western Allies, the Turkish Government managed to prevent the passage of forbidden craft through the Straits". When misled by camouflage it prohibited renewed entry of each ship as soon as the real character was discovered."

<sup>36</sup> A.L. LUCA: Ibid. p.513-524.

<sup>37</sup> E.VATTEL: "The Law of Nations or the Principles of Natural Law", Trans. By. Ch. FENWICK, Carnegie Institution of Washington DC.1916.

*communication*". But, the Italian delegate stated at the Conference that "*as a general role, all straits which are of general concern to word shipping are already governed by special regulations.*"<sup>38</sup> However, *innocent passage* termed "*inoffensive*" navigation moves. Such as Rousseau, defines" who does not have opportunity nor intention to do wrong"<sup>39</sup> We can determine in this point that manner of passage do not reflect to coastal state national security or independence of the state rights. STRUPP remarked in 1934 that "*as for as straits are concerned, the most important ones, such as the Bosphorus and the Dardanelles, fall under a special conventional regime and exceed therefore our context, there is virtually no settled, generally accepted rule*".<sup>40</sup> In 1956 the International Law Commission stated the innocence based on behavior or manner: "*Passage is innocent* so long as a ship does not use the territorial sea for committing any acts *prejudicial to the security of the coastal State* or contrary to the present rules, or to other rules of international law".<sup>41</sup> "*Once again, since the Turkish Straits have special rules for individual cases, after 1956 Convention Commission Reports, the Turkish government stated that the existing rules relating to straits did not lend themselves to conditions affecting the regimes of straits are and by nature ought to be widely divergent.*"<sup>42</sup>

Recently, the navigation safety and marine environment problems are important in around the Turkish Straits. If the rule of UN Convention Article Part XII: "*States have the obligation to protect and preserve the marine environment*" is correct; the rights and duties of coastal states and flag states have to be carefully protected against pollution or violations of navigation safety. In this context, an objective analysis of Turkey's attention will show the efforts behind the Montreux Convention for longer than six decades. However, considering end of the Cold War transformation around the Europe and Eurasia, it is necessary to an amend the Convention, or a better solution is required to set rules for the safety of navigation addressing international law *rebus sic stantibus* rule. Will Turkey attempt to prevent, reduce and control possible pollution threats as well as being a coastal state cooperating with international organizations and their actors? On the other hand, the Montreux Convention well-established principle remains in force. There is no official application for radical revision circumstances under Article 28 of the Convention and 1969 Vienna Convention on the Law of the Treaties Article 62(1) (b). It should be used in the parties' demands. Is there any attempt in this way? However, if there is such a requirement recently or in the future about the present convention, which kind of modalities of transmits if shall become obvious for further development in free passage and environment safety rules in creating legal framework? In this regard, especially argued in this article, should be balanced with,

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<sup>38</sup> S. ROSENNE: "League of Nations Conference for the Codification of International La", The Hague, p.58-115, New York, 1975.

<sup>39</sup> Ch. ROUSSEAU: "Droit International Public", p.374, Paris, 1984.

<sup>40</sup> "Règles Générales du Droit de la Paix", p.552, Paris, 1934.

<sup>41</sup> YBILC 272-3, aj, See Also, MM. WHITEMAN: "Digest of International Law", p.353, Washington DC, 1965.

<sup>42</sup> YBILC "Yearbook of the International Law Commission", 73, A/CN 4/99, C4, 21, 1956.

*inter alia* between the flag states important strait state navigation safety and environmental security interests. The potential utilization maritime transport, hazardous cargo, nuclear waste transportation and oil spill accidents have created threats to the Black Sea and Turkish Straits causing hazards to the environment and ecology of the area. Turkey has decided to establish maritime traffic control system and traffic separation schemes where necessary to promote safe passage for ships and to look at the problem as a part navigation safety for keeping track with the changing conditions and maritime environment.<sup>43</sup> Of course, one of the most important security matters is terrorist attacks to shipping cargo tankers after the September 11 attacks.<sup>44</sup> A new argument after September 11 tragic attack in New York and Pentagon that US territorial integrity by international terror organizations can engage a considerable range of risks and possible security affects in the future, which was not taken up in the Montreux Convention directly.

Of course, the Convention is in force since 1936, nearly half a century including periods of war and tension, without being amended or terminated, in spite of its provisions to that effect. This is a concrete proof of the fact that it has served well the interests of all the states concerned, so much so that, although there have been objections from time to time to some of its provisions, especially those regarding the passage of vessels of war. They are in fact in the nature of special provisions as compared with the general rules of international law. No contracting state ventured the revision of the Convention up to the present time<sup>45</sup>. It is unquestionable that Turkey had accepted the principle of the freedom of passage for merchant vessels. Nevertheless, once again, despite the use of the term “*free of passage*” the preparatory work of the conference clearly demonstrates that in recognized the right of freedom of passage for merchant vessels this right was subject to Turkey’ authority. This ‘policy navigation’ and to ensure that passage be ‘*inoffensive*’ or ‘*innocent*’ The Montreux Convention thus created regime of passage for merchant vessels that incorporated the general principles of an innocent passage regime but in addition, included unique conditions of passage. Free passage and navigation in the Turkish Straits for merchant vessels is a limited freedom subject to the interests of Turkey to protect its territorial welfare. A clear understanding of the meaning of “freedom of passage and navigation through the Turkish Straits as provided for by the Montreux Convention is of great importance in light of the continuing objections raised by Turkey’s Balkan and Black Sea neighbors at IMO platforms<sup>46</sup>.

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<sup>43</sup> Mesut Hakkı CAŞIN: “Eurasian Energy Strategies and Environmental Security Strategies”, 2nd International Conference Oil Spills In The Mediterranean And Black Sea Regions, Boğaziçi University, 31 St Oct-3 Rd Istanbul , Nov 2000.

<sup>44</sup> In May, the U.S. Coast Guard alerted law-enforcement officials that it had received intelligence information that 25 "Islamic extremists" linked to the al Qaeda network had entered America on prominent commercial cargo vessels through the ports of Miami, Fla.; Savannah, Ga.; and Long Beach, Calif. Open Door for Terror, By Michlle , MALKIN , *September 22, 2002* --<http://www.nypost.com/postopinion/opedcolumnists/57503.htm>

<sup>45</sup> Sevin, TOLUNER: “The Regulation of Passage Through the Turkish Straits and the Montreux Convention”, p.79-95, *Annales*-6.

<sup>46</sup> Nilufer, ORAL & Gündüz AYBAY: “The Meaning of Freedom of Passage and Navigation under The 1936 Montreux Convention On Regime of the Turkish Straits”, *Annual of Turkish Review of Balkan Studies*, 1998/99.

However, unless we devise a better way to make international law for the environment, future progress is likely to be piecemeal, fitful, unsystematic and even random. If the appropriate steps are not taken now, the manifestly unsatisfactory situation we have will limp along towards crisis.<sup>47</sup>

Black Sea exports, however, must pass through the increasingly crowded the Istanbul Strait. Traditional export routes through Black Sea ports have been running at full capacity, and environmental concerns about the possibility of oil spills in the Turkish Straits increase.<sup>48</sup> On the other hand, considering general energy marketing dynamics, Kazakhstan may also increase oil export capacity by using Turkish Straits especially for the next 25 to 50 years. It might be argued that in November 1998, the Caspian Pipeline Consortium, a joint venture of three governments and several companies, reached agreement on the construction, by mid-2001, of a Tengiz-Novorossiysk pipeline<sup>49</sup>. Its initial throughput capacity is projected to be 28 million tons *per annum* (MTPA), subsequently rising to a maximum of 67 MTPA<sup>50</sup>. These developments show that transiting vessels of hydrocarbons under the potential risk trends in mid and long term. Average ship traffic has measured about 700 ships during the Montreux Convention signed in 1936. But, because of above mentioned factors and beginning Caspian Sea oil transport into the market, heavy shipping traffic dramatically increased %150 skip tonnage and %400 numbers of these vessels. Although, the Black Sea was always open under the Montreux Regime to all merchant ships of all littoral and third states, the amount of maritime traffic is steadily increasing since the opening trade routes through Bulgaria-Romania-Ukraine-Russia-Georgia facilitated the integration with the Western Markets. Thus, the economic commercial importance has replaced the previous military significance. Furthermore, the European Union recently agreed to clear the Danube River, blocked since the 1999 NATO's Kosovo Operation.<sup>51</sup>

In March 1994, a dramatic accident occurred in the Istanbul Strait, very near to the entrance to the Black Sea. The 100.000-ton oil tanker Nassia collided with a cargo ship the Shipbroker, which exploded and ran ashore, killing most of its crew. The stricken Nassia caught fire and released over 1000 tons of oil to the sea, causing extensive environmental damage. This incident, one of many which occur in the busy and winding Bosphorus, is a sharp reminder of the risks involved in transporting oil and the poor state of preparedness of Black Sea countries in the event of an accident. These passages and shipment results have been evident with critical navigation safety threats with dramatic accidents and oil spills that polluted Turkish Straits like Greek Ship Evryali and Romanian tanker Independenta. The 100.000 ton oil tanker Nassia collided with a cargo ship the Shipbroker which

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<sup>47</sup> Geoffrey, PALMER : ‘‘ New Ways to Make International Environment Law ‘‘, American Journal of Law, Vol.86,Issue,2, p.259,Apr.1992.

<sup>48</sup> Russia: Oil and Natural Gas Exports April 2002<http://www.eia.doe.gov/emew/cabs/rusexp.html>

<sup>49</sup> Liz Fuller. Kazakh oil through Black Sea. RFE/RL NEWSLINE, Vol. 2, Part I, 13 November 1998.

<sup>50</sup> <http://www.cpcpipeline.com>.

<sup>51</sup> Mesut Hakkı CAŞIN : ‘‘ Turkish Straits and Black Sea Countries Geopolitics in The XXI Th Century’’- Ukraine And Turkey Security And Cooperation In The Black Sea Region Conference’’, Kyiv, on April 10-11, 2000.

exploded and ran ashore, killing most of its crew.<sup>52</sup> Finally Russian oil ship Volganef 248, which sunk down in Marmara Sea after structural failure causing an environmental disaster. 1279 tons of heavy fuel-oil was spilled into the sea during Volganef 248 incident affecting a 5 kilometer. Long shoreline. It sank down at a 30 meter-depth of sea water. This part was salvaged without causing any pollution damages to the environment in the Sea of Marmara.<sup>53</sup> All these serious accidents have brought Turkish authorities to make decisions about navigation control and safety rules and to declare new traffic control measures and Traffic Separation Schemes-TSS. This declaration was supplemented by assurances that Turkey's concerns were mainly security and environmental safety reasons, and in no way were they intended a revision of the Montreux Convention.<sup>54</sup> However, the other Black Sea coastal states, especially Russia, have resisted against the implementation process of the Montreux Convention. Russia asserted that it was technically safe for very "large vessels" to pass, and those only large vessels over 340 m. long and "deep draught vessels" with a maximum draught of 17.6 m. or more required to take special measures and precautions. It suggested no upper size limit for transiting vessels.<sup>55</sup> Russia has asserted that "when the status of the TSS is changed, it leads to difficulties for captains so far as application of the COLREGS is concerned."<sup>56</sup> It has to underline that Turkey established a communication links between the Black Sea coastal states and IMO in order to develop TSS. These efforts finally accepted by the IMO, and the results have decreased the accidents after their implementation. More reliable modes should be established after TSS and VTS operation modes. As the PLANT emphasized that largely as a result of the US support,<sup>57</sup> Turkey was able to fight a Russian rearguard action<sup>58</sup> at the 69th Session of the Maritime Safety Committee, in May 1998, by promising to co-operate in future discussions in IMO of *all aspects* of safety of navigation in the Straits. This was interpreted by the Committee Chairman to include a review of the IMO Rules and Recommendations.<sup>59</sup> Turkey thus secured a decision to take no further action on the existing NAV Sub-Committee report and defer the matter of preparing a new report to the next session of the Sub-Committee.<sup>60</sup> This is regarded as a major victory, and viewing the subsequent events need to be considered.

<sup>52</sup> Mesut Hakkı CAŞIN: "Eurasian Energy Strategies and Environmental Security Strategies", Ibid.

<sup>53</sup> The Annual MOIG Meeting held in Istanbul , [www.turkishpilots.org.meeting](http://www.turkishpilots.org.meeting).

<sup>54</sup> See, broadcast on 23 November 1993 and then published in the Official Gazette of 11 January 1994, No. 21815. Some of the provisions of the regulations were amended the same year and these were promulgated in the Official Gazette of 21 June 1994, No. 21967.

<sup>55</sup> See: G. PLANT : "The Turkish Straits and Tanker Traffic:"Marine Policy", Vol.24, 193-214, 2000., Tankers of newer design are likely to be smaller in tonnage terms than tankers of equal dimensions but older design, because of the addition of segregated ballast tanks, etc.

<sup>56</sup> MSC 70/11/11, para. 6 and 70/23, para. 11.13. See also MSC 71/22/8, 19 March 1999, para. 11. Added to this is the uncertainty caused by the absence of suspension on certain occasions when vessel over 150 m are transiting: see MSC 71/22/8, para.10.

<sup>57</sup> See e.g. IMO doc. MSC 69/22, para. 5.45.

<sup>58</sup> MSC 69/22, paras. 5.40 and 5.48.

<sup>59</sup> 126MSC 69/22, paras. 5.48}5.51.

<sup>60</sup> 127MSC 69/22, para. 5.52.

According to Article 17 of UNCLOS, “ships of all States ... enjoy the right of innocent passage through the territorial sea.” Furthermore, pursuant to Article 21(1),<sup>61</sup> also Article 22(3) of UNCLOS, “the Coastal State shall take due notice of the competent international organization,” the coastal State shall take due notice of the recommendations of the competent international organization,” together with 21(6), appear to favor the transfer of the environmental approach to routing measures from the IMO to coastal States. However, Article 22(3) directs that in designating a sea-lane “the coastal State shall take into account ... (b) any channels customarily used for international navigation.” Besides, Article 22(2) already established the possibility of adopting routing measures for environmental reasons, as well as for the security of maritime traffic, even though when certain types of ships are involved it reads that “... tankers, nuclear-powered ships and ships carrying nuclear or other inherently dangerous or noxious substances... They may be required to confine their passage to such sea lanes.” The second requirement is expressed in Article 24(1) of UNCLOS: “The coastal State shall not hamper the innocent passage of foreign ships through the territorial sea. Except in accordance with this Convention...” A valid interpretation of this provision would be that the coastal State can forbid navigation in protected sea areas but it cannot outlaw the passage of ships in the full breadth of the territorial sea. The question remains, however, whether satisfactory results will materialize if adequacy technologies to meet environmental standards. Indeed, the general directives of UNCLOS III present key problems to international enforcement of the treaty. Under Article 192, States have the obligation “*to protect and preserve the marine environment*”. This protection and preservation, is achieved by both individual and collective member-state action under Article 194: “States shall . . . reduce and control pollution of the marine environment from any source, using for this purpose the best practical means at their disposal.

#### 4. CONCLUSION

It’s a reality that, nevertheless, there have been critical oil spill and pollution threat and causes serious environmental damages not only in Turkish Straits, but also the Black Sea is under this potential risk. However, protecting the Straits as a coastal state is not only in Turkey’s responsibility since any disaster could close the Straits relating vital interest of all the riparian states of the Black Sea and the international maritime community. We have to remember that history taught us that unilateral restrictions on navigational safety could not accomplish to reach purposes without personnel who have a strong belief in their benefits. In this regard, coastal & flag states need reasonable balances of interests in innocent passages and have contribute to a stable legal order. From this multi-channel efficient communication perspective, the Montreux Convention guarantees to perform protection environmental disasters if the

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<sup>61</sup> See H. RINGBOM: “Introduction”, in *Competing Norms in the Law of Marine Environmental Protection*, ed. H. RIHGBOM: Kluwer Law, London, 1997.

parties combine their efforts in *bona fide* manner with respect to environmental sensitivity. In this regard of these indicators, first ‘Conflict Scenario’, tanker and oil traffic should continue dangerously to threat the Turkish Straits navigation safety and environment security concerns. In the second ‘International Cooperation Scenario’, to reduce heavy tanker traffic and eliminate the any possible environmental threat through the Turkish Straits, the international community, IMO, UNEP, NATO CCMS, Black Sea states, Caspian Sea states also environmental NGO’s and IGO’s develop cooperation efforts which secured solutions for navigation safety. The third scenario is; in spite of Turkey’s traffic regime implementation, VTS application efforts with IMO and other institutions may be faced with a breakdown point after very serious accidents. If the existing tanker traffic creates threats to Turkish Straits and local navigation safety rules, Turkey unitarily should increase the regime control, which declared under the Montreux preamble of territorial security concerns.

As Bayram ÖZTÜRK indicated that, the major significant threats to marine life growing the ecological and environmental security concepts originates part of ship – oriented marine pollution threat not only around the Turkish Straits and, but also in the Black Sea and Aegean Sea ecological life and going to crucial international legal problem together with technological progress and rapid growth of energy transport. Also the health of Turkish Straits System, is vital for the protection of the Black Sea and Mediterranean Sea and their marine biodiversity <sup>62</sup> Furthermore, we have to keep in mind that, the advance in environmental law affected by the Convention, is reflected in the unfettered clarity of the opening article of Part XII ‘’ states have the obligation to protect and preserve the marine environment ‘’. <sup>63</sup> Thus, it also provides for environmental impact of planned activities for pollution emergencies and force major casualties around the straits. In this regard, basically, the states, UNEP, UN Convention on the Law of Sea, the IMO are required tasks to cooperate in establishing regional and global applicable and generally acceptable rules and standards to eliminate sources and results of marine pollution around the straits. The implementation of marine pollution control standards will be costly, and freight rates will be high. However, the in principle higher cost of maritime transport and navigation is aimed to protect the environment and marine ecology is simply the price paid for the protection and preservation of universal a city of Istanbul civilization habitat and heritage which accepted by the UN, one of the world’s most beautiful international city.

In addition to this problem, after expressing international terror in September 11 in the US, the possible risk and threat potential bring some of the deployments around the Turkish Straits, especially against to hazardous cargo. Of course, there is no doubt that present’s potential risk capability of terror around the maritime shipping. In this regard, the concerning state has to take measures against piracy and

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<sup>62</sup> Bayram , ÖZTÜRK , Ayaka ÖZTÜRK, Nesrin ALGAN :’’Ship Oriented Pollution in The Turkish Straits System ‘’, Problems of Regional Seas 2001’’Proceedings of the International Symposium on the Problems of Regional Seas, p.86-92, Ataköy Marina- Istanbul May 12-14, 2001.

<sup>63</sup> LOS Convention, Art.192, Experinced aware of achieving to articulate an environmantal norms.



terror under the international maritime law. The Geneva Convention on the High Seas or the UN Convention on the Law of Sea jointly has provisions against maritime terrorism.<sup>64</sup> Furthermore the IMO should also pay attention to their approach to provide application methodologies in the future, not only around the Straits, but also in the entire enforcement process of the maritime navigation safety rules.

Therefore, such a serious collision threat between the tankers and city passenger's ships is another serious maritime traffic threat in the Straits. Another critical example was the former Soviet Union aircraft carrier *Varyag* passages. The Turkish Government was reluctant to give permission for the *Varyag* to pass through the Bosphorus straits because it thought it was dangerous for the giant engine ship to move through the narrow waterways.<sup>65</sup> Additionally the total tonnage of navy ships in the Turkish Straits at any given moment should not exceed 15,000mt, whereas the '*Varyag*' alone displaces 35,000 tons. The Convention also empowers Turkey to deny passage to a vessel considered technically unsafe ('*Varyag*' was a dead ship without engines). Escorted by several other tugs and fire-fighting vessels, the transit took place on 01 November 2001 with massive media attention. ITC tug '*Solano*' escorted the vessel during the passage. Immediately after the passage, the transport encountered bad weather in the Aegean Sea. The tow wire of the tug '*Havila Champion*' parted, leaving the '*Varyag*' adrift in the Greek Archipelago. With little time left before stranding, the '*Havila Champion*' managed to make an emergency connection. Escorted by several other tugs and fire-fighting vessels, the transit took place on 01 November 2001 with massive media attention.<sup>66</sup> Of course, modern global economy dependence with high ratio oil and hydrocarbon products in using industrialized features of distribution of economic circulation. But we should understand to share both mechanisms that help environmental prevention as an institutionalized point in order to survive marine navigation from the Turkish Straits. International law of sea should have an immediate focus on using effective implementation navigation safety rules and preventive environmental diplomacy methodologies to promote the free of passage not only through the Straits but also through all sea routes and aspirations of freedom. Those efforts in maritime shipping community should develop the rules against the global terrorism. As addressed above, the ultimate message of this paper can be found in the statement of Jacques-Yves Cousteau, *there is only one pollution; it is water pollution, because everything ends up in the water.*<sup>67</sup>

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<sup>64</sup> See, International Law Commissions draft article 38i which became article 14 of the Geneva Convention, INT'L. L. COMM'N 282, UN Doc.A/CN.4/SER.A/1956/Add.1

<sup>65</sup> Brian Hsu: Navy keeps an eye on Chinese Aircraft Carrier, Taipei Times, and October, 29, 2001.

<sup>66</sup> Tug Market Report, July, 12, 2001, Marcon International, Inc, [www.marcon.com](http://www.marcon.com)

<sup>67</sup> Jacques-Yves COUSTEAU: Quoted in John Warren KINDT, Solid WASTES and Marine POLLUTION, 34 CATH. U. L. REV. 37, 90 (1984) Hearings on H.R. 6112, H.R. 6113, and H.R. 6324 before the Subcomm. On Oceanography and the Subcomm. on Fisheries and Wildlife Conservation and the Environment of the House Comm. on Merchant Marine and Fisheries, 97th Cong., 2d Sess. 126 (1982)

## **SAFETY OF NAVIGATION IN NARROW STRAITS**

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### **ABSTRACT**

In recent decades, increasing size of ships carrying dangerous cargoes such as crude oil and derivatives, chemicals, explosives and others; together with increasing volume of maritime traffic, has increased the risk of catastrophic accidents. This risk realized in maritime disasters such as Atlantic Empress, Amoco Cadiz, Torrey Canyon, Sea Empress and Independenta. While the risk in maritime transportation increased to a level that one single accident could cause catastrophic effect to the life, property and environment due to the huge sizes of modern vessels, the safety concerns have also increased. Within this picture, narrow waterways constitute the most vulnerable sea areas for such accidents. There are many reasons that make these areas vulnerable; dense population, close proximity of land and other traffic to be effected in case of accident, etc. This article intends to summarize the risks of navigation in narrow straits and possible ways to meet or avoid these risks.

### **1. DEFINITION OF RISK**

According to Richard Goss, Professor of Maritime Economics at the University of Wales, *“Perfect safety, like perfect behavior, may be attained in paradise; it cannot it can not be achieved here on earth. We must therefore aim at some acceptable level of safety”*. “Absolute safety” which means “zero risk” is not an achievable goal. We can come to a conclusion that risk is something we have to accept to live with. So what is risk, and if we can not eliminate it, what can we do with it?

According to Steve Pelecanos, vice-president of IMPA, *“admitting that risk is inherent to all human activity is not fatalistic defeatism, it is accepting reality”*. Risk is a key element in marine safety philosophy, so it should be defined first. At any dictionary, risk is defined as “the source of danger”. But in marine terminology, risk is more complex than a simple definition.

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<sup>1</sup> Active pilot in the Strait of Istanbul, Secretary-General of Turkish Maritime Pilots' Association, Vice President of International Maritime Pilots' Association (IMPA)

International Maritime Organization defines the risk as “The combination of the frequency and the severity of the consequence.”<sup>2</sup> In this definition, “Consequence” represents “the outcome of an accident” and frequency represents “The number of occurrences per unit time”.

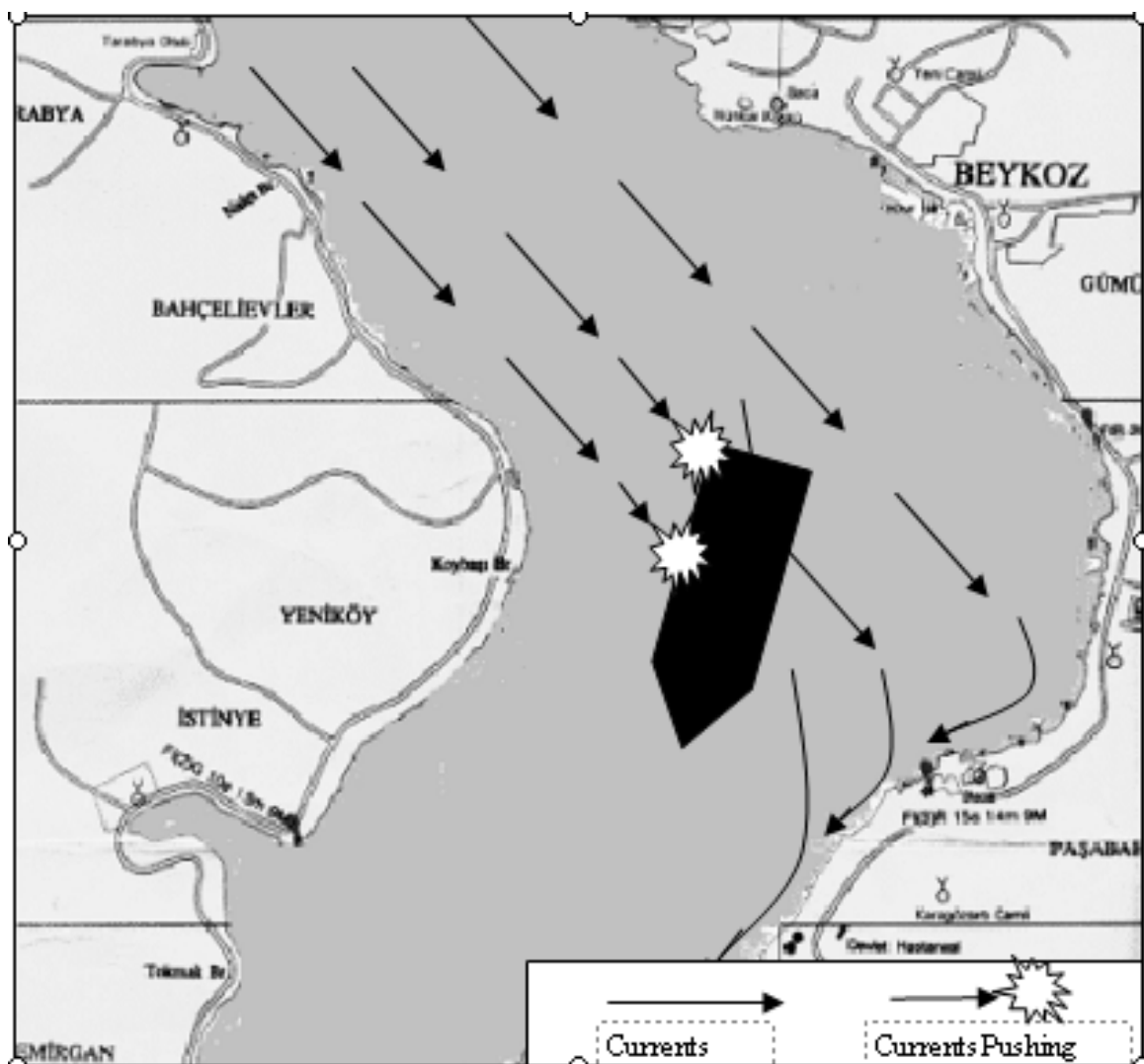


Figure 1. The hazard: sharp bend in a narrow strait.

<sup>2</sup> MSC/Circ.1023 “Guidelines for Formal Safety Assessment (FSA) for use in the IMO Rule-making Process”

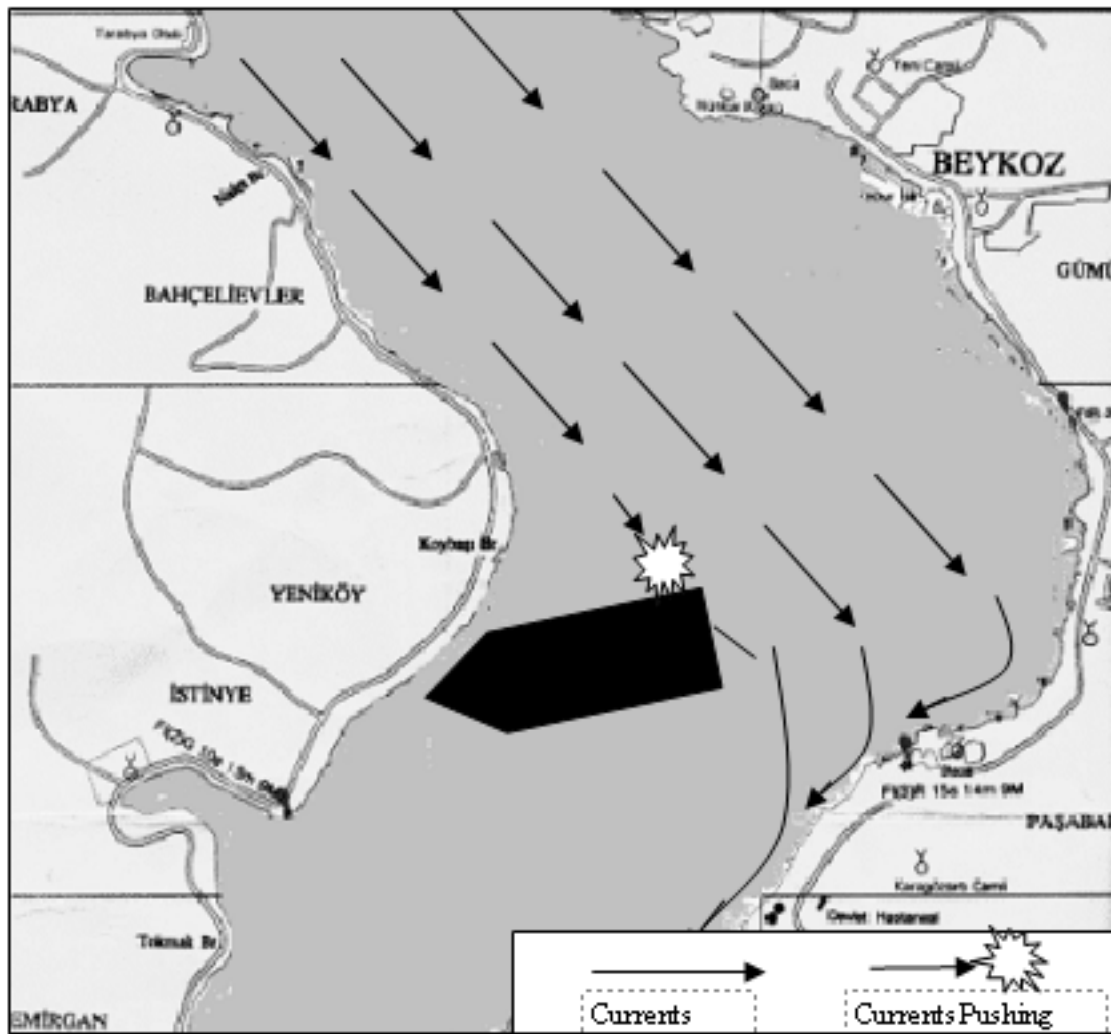


Figure 2. The risk: vessel might go aground with insufficient rudder counter effect to the currents pushing.

So we can formulate the risk as follows:

$$\text{Risk} = \text{Frequency} \quad \times \quad \text{Consequence}$$

(Probability)                      (Severity)

A sharp bend in a narrow strait is a hazard. The risk in such a case is, how likely it is that a ship can not stop the turning after this sharp bend and how severe the consequences can be both for the ship and the environment if the ship goes aground. According to IMO definition again, hazard is “A potential to threaten human life, health, property or the environment.”

In brief, in marine terminology, risk means a hazard that is proven as reason for accidents by the frequency and is proven intolerable by consequences.

## **2. MANAGING RISK**

Under the light of previous definitions, the following conclusions stand forward:

- a. We don't have the option for a risk-free world and we have to accept risk.
- b. We can still handle the risk to diminish its consequences even though we can not eliminate it.

The second option is called as the "Risk Management".

In managing the risk, there are four basic principles:

- 1) Identify the hazards (What can go wrong?)
- 2) Assess the risk (How likely is it and what are its consequences)
- 3) Determine the control measures (Decide what is the best way to manage it)
- 4) Apply and monitor the controls (Implement decision and evaluate its effectiveness)

There are many methods developed to apply these principles to organizations and to industry. Recently IMO developed the Guidelines for Formal Safety Assessment (FSA). These guidelines were approved at the 74th Session of Maritime Safety Committee, in June 2001 and published to member governments as a circular. IMO defines the FSA as follows:

"Formal Safety Assessment (FSA) is a structured and systematic methodology, aimed at enhancing maritime safety, including protection of life, health, the marine environment and property, by using risk analysis and cost benefit assessment." <sup>3</sup>

FSA aims to assist to decision-makers for their decisions to establish proper risk management tools in areas where necessary.

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<sup>3</sup> MSC/Circ.1023 "Guidelines for Formal Safety Assessment (FSA) for use in the IMO Rule-making Process"

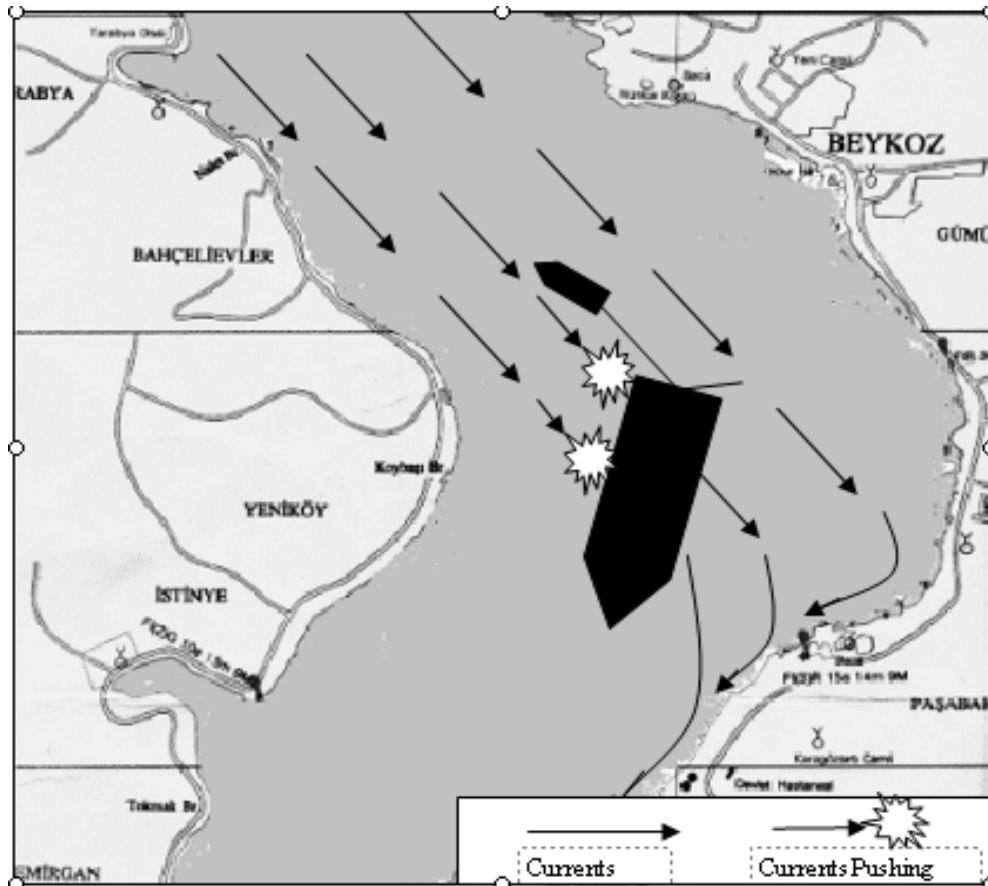


Figure 3. The risk management: tug assistance and pilotage combination.

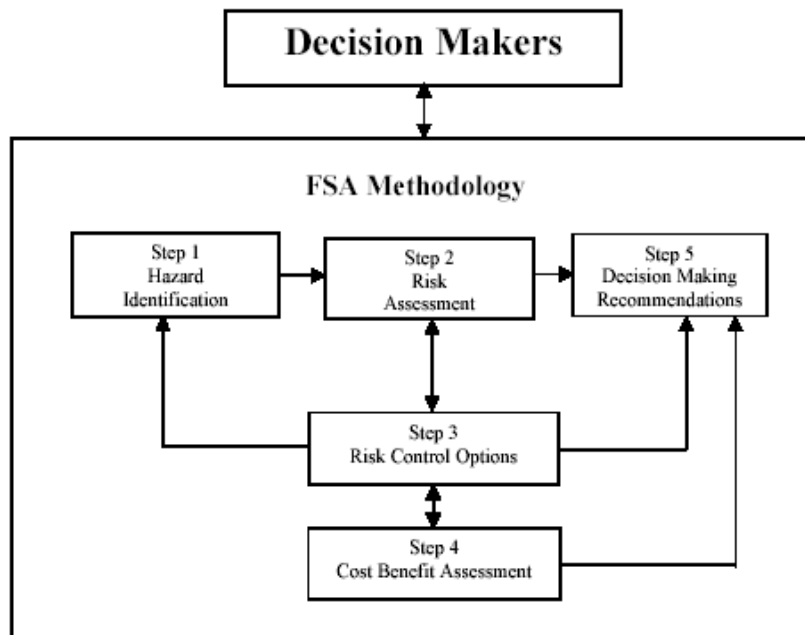


Figure 4. Flow chart of the IMO's FSA methodology.

### 3. HAZARDS, RISKS AND RISK MANAGEMENT IN NARROW STRAITS

So far, we concentrated to define and analyze the risk in general. However, vessels navigating in a narrow channel or strait, or near harbor approaches have much more challenges to cope with, compared to a vessel navigating in the high seas. Such sea areas generally called as “confined waters”. Following the steps in IMO’s FSA methodology, it is possible to make a safety assessment for narrow straits.

#### **Step 1: Hazard Identification**

Navigation in a confined strait is highly dependent on shiphhandling skills; while shiphhandling in narrow channels is more an art form than a science and a kind of intuition is required to detect and balance the dynamic, yet often subtle, interactive forces acting on a vessel so as to maintain control over its movement<sup>4</sup>. Modern ships are often pose some disadvantage rather than advantage in the shiphhandling field when a narrow strait is in case, because:

1. Waterway improvements lag years behind changes in ship design and performance<sup>5</sup>.
2. Ship propulsion and steering systems may be designed for sea-efficiency rather than maneuvering performance<sup>6</sup>.
3. The general maneuvering behavior of ships in narrow straits and shallow water is known, but “actual” behavior is uncertain, especially where underkeel clearances are only a few feet (Gates, 1089).
4. Determinations of natural changes in strait geometry are not always timely or conveniently available to vessel operators or pilots.
5. Real-time data on environmental conditions including weather, currents, and tide and river stages are lacking<sup>7</sup>.

#### **Risk factors:**

Hazards in a narrow strait often come along with the following risk factors<sup>8</sup>:

- **Physical factors**
  - Strait geometry and configurations
  - Hydraulic and hydrologic conditions

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<sup>4</sup> *Minding The Helm*, National Academy Press, 1984, p.41

<sup>5</sup> NRC, 1992-*Shiphhandling Simulation: Application to Waterway Design*. W.Webster, National Academy Press

<sup>6</sup> Gates E.T.1989-*Maritime accidents: What went wrong?*

<sup>7</sup> *Minding The Helm*, National Academy Press, 1984, p.41

<sup>8</sup> *Minding The Helm*, National Academy Press, 1984, p.57

- Hydrography
- Environmental Conditions (E.g. Currents, Wind, etc.)
- **Vessel Factors**
  - Types
  - Sizes
  - Propulsion and steering systems
  - Hydrodynamics
  - Maneuvering behavior
  - Vessel status/Maintenance condition
- **Economic Factors**
  - Ship scheduling
  - Cargo transfer operations
- **Transit Considerations**
  - Cargoes
  - Marine traffic
  - Duration of exposure
  - Navigational aids and support systems,
  - Waterway management/Traffic systems
  - Subsystem support (Such as tugboats)
- **Potential Consequences to**
  - Vessel
  - Human life
  - Environment
  - Economics
  - Property
- **Human Systems**
  - Decision making
  - Suitability, qualifications and proficiency of
    - ✓ Vessel operators
    - ✓ Bridge team
    - ✓ Support system personnel
  - Work environment

#### **Restricting factors in a narrow strait:**

In a narrow strait, good shiphandling is essential. But there are some factors that restrict or just obstruct ship handling. In hazard-identification process, it is necessary to have a look at some important restricting factors of ship's maneuvering in a narrow strait:



**a. Squat:** In 7 August 1992, huge cruise ship Queen Elizabeth II was outbound Vineyard Sound, Massachusetts, enroute to New York when it grounded on a shoal (charted at 12 Meters) 2.5 miles south-southeast of Cuttyhunk Island near Massachusetts. Speed was approximately 25 knots. Damage was extensive, with 4 double-bottom tanks holed. Repairs totaled \$13.2 million and put the vessel out of service for two months. But interesting part was, the QE had a maximum draft of 9.80 meters only. So how possible she could go aground with an underkeel clearance that was more than 2 meters? An investigation was soon underway. How could the QE2 have run aground in waters known to be deep enough for her? The answer came after serious investigation. The conclusion had been drawn and it was the so-called 'squat' that was to blame. This phenomenon is created when larger vessels travel through water at higher speed. The shape and speed of the ship pushes the surrounding water away, literally digging a hole in the water for the ship. What was discovered during the QE2-investigation was that this effect was greatly increased while traveling at higher speeds, which the QE2 was doing at the moment of the grounding. The amount of water pushed away was simply larger than expected, and thereby the ship also had a lesser depth of water to sail in. Squat can simply be defined as “the sinking of ship’s hull into water due to speed in shallow water”. The ship squats in deep water as well, but it is much lesser than she does in shallow water. For instance, a container ship squats 2.5 meters in 12 meters depth, since she squats only 0.75 meters in 50 meters depth. Taking into account that many of the narrow straits has draft limitations, squat effect is there as a hazard to be aware of. But, in narrow straits there is another point of squat effect which is equally important: as the underkeel clearance is reduced, ship may lose control of the steering due to reaction between the ship and the bottom<sup>9</sup>.

**b. Interaction between ships:** Interaction between ships is an important factor in narrow straits because ships usually have to make close pass or overtake while navigating in such areas. The effect of the “faster moving water” close to a ship’s hull being less dense, besides causing ships to squat, can have other effects on ships. It can cause an interaction between two ships, so that the ships will be drawn each other, whether one ship is overtaking the other, or they are passing. (Williamson,2001, p.131)

**c. Reaction between a ship and the bottom:** If a ship is navigating slowly in a channel with shallow water on one side of the ship and deeper water on the other side, then the ship will be pushed away from the shallow water towards the deeper water. But, if the ship is with high speed, then the effect will be on the contrary; the ship will be pushed towards the shallows. (Williamson, 2001, p.135, See Footnote 8)

**d. Increase in turning circle due to shallow water effect:** Restricted bottom clearance in shallow water impedes the flow of water underneath the ship, causing a restricted lateral motion of the aftship. The less bottom clearance, the more build up

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<sup>9</sup>Capt. Paul R. Williamson, *Ship Manoeuvring principles and pilotage*, Witherby, 2001, P. 130

of water on the side that the stern moves toward and the lower the water level on the side that the ship moves away from, leading to a smaller drift angle and consequently a wider turn in shallow water<sup>10</sup>. Every narrow strait has not limitations in depth, but where it does, this is an important factor to take into account for shiphandler.

**e. Environmental conditions:** In a narrow strait, environmental conditions are extremely important for safe navigation. These conditions include:

- State and height of tide.
- Minimum under keel clearance at the turning points.
- Wind direction and strength,
- Current direction and strength.
- Visibility.
- Sea state and swell.

**f. Substandard Shipping:** Condition of a ship navigating in a narrow strait is important on many aspects. Substandard shipping is a problem of world fleet in recent years. OECD studies suggest that the substandard can undercut the reputable by 15%. Substandard shipping is often indicated with four “M”s; Metal, Machinery, Men and Management. It has been estimated that the human factor lies behind some 80% of shipping casualties. If the ship fails in one or more of these “M”s, the navigation in a narrow strait will be extremely hazardous for her and for the environment. Effective port state control could help for the solution. In the Turkish Straits, for example, in order to improve the conditions of passing vessels, following requirements were set in Regulations which came in to force in 1994:

1. Main and auxiliary engines shall be operational in normal condition and ready for any-time maneuverings.
2. Emergency generators shall be stand-by for operation at any time. Main and auxiliary steering gear, gyro compass and radar shall be operational in normal condition.
3. The navigation bridge indicators such as RPM, rudder, and pitch shall be operational and illuminated.
4. The whistle and navigational lights of the vessel shall be operational and navigation bridge equipment shall be complete.
5. All communication systems primarily those that connect navigation bridge to the fore, aft, steering gear and engine control room and the alarm systems shall be operational.
6. VHF equipment(s) shall be properly functioning.

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<sup>10</sup> Hooyer H.H, *Behavior and Handling of Ships*, Cornell Maritime Press, 1983, p.35

7. A projector and at least one good-functioning binocular shall be kept ready in the navigation bridge ready for day and night use.
8. The windlass and its equipment shall be ready to drop both anchors and the crew for that operation shall stand-by.
9. Vessels carrying dangerous cargo shall lower emergency wires for fire at the fore and aft sides. Other vessels shall keep a towing hawser and a heaving line ready to use at the fore and aft sides.
10. A vessel shall not be with a trim by the aft so as to have negative effect on her ability to maneuver and steer; and no vessel shall enter to the Straits with a trim by the forward.
11. The trim of the vessel shall be arranged as far as conditions permit so that the propeller is totally below the water-level; in case of forcing conditions the partition above the water-level shall not exceed the 5% of the total diameter of propeller.
12. The vessel will be trimmed and loaded such that the forward of the vessel and the sea beyond shall be easily visible from the navigation bridge.
13. Vessels shall have these Regulations and updated versions of charts of the Straits available on the navigation bridge.
14. Qualifications of the officers and the crew of the vessels shall comply with the requirements of International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW-78).

**g. Current effect at the turning points:** If the strait has sharp curves as it is the case in the Strait of Istanbul, particular attention should be paid to the current and/or wind effect at the turning points. In such a case, current literally pushes the fore of the vessel and makes it very difficult for her to turn in the desired direction, or if pushing from the aft, makes it difficult to stop turning (See figures 2 and 5).

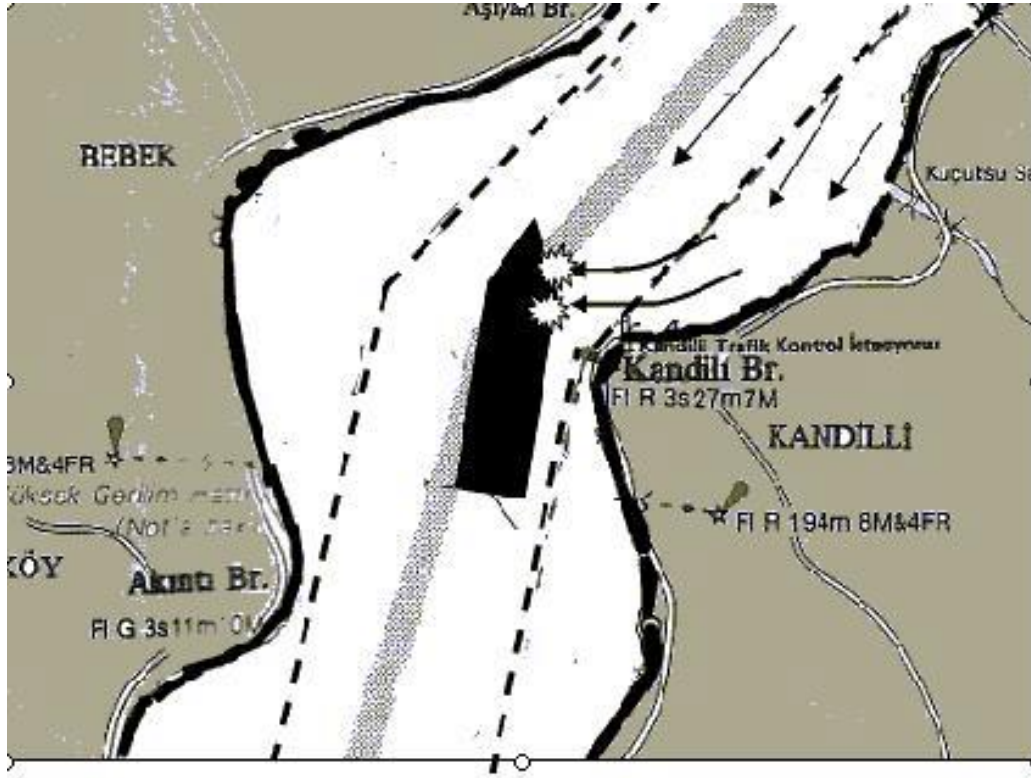
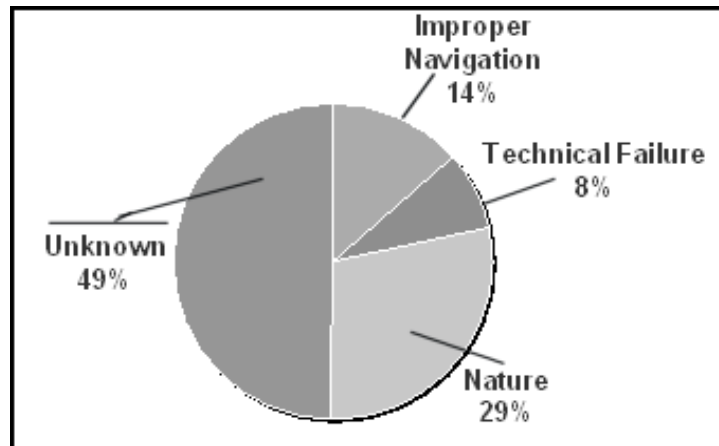


Figure 5. Current effect at the narrowest part in the Strait of Istanbul: current pushes the fore of the ship giving difficulty to alter course in to desired direction.

### **Step 2: Assessing the risk**

Risk in narrow straits varies according to channel dimensions, configurations, and length, hydrodynamics, commodity types and flows, vessel types, hull forms, sizes, propulsion and steering systems, vessel loading, traffic types, patterns, density, times of movement, tides etc. All of these factors are not identical at every narrow strait. A general statement can not be taken custom-made for every narrow strait. But, it gives an idea to make a strait-specific assessment and that is exactly our intention in this article.

“What can go wrong in narrow straits?” Long list above was the answer to that complicated question. The second step is “what is the likelihood of possible wrong-goings in a narrow strait and what the consequences can be?” To answer this question, we will analyze the likelihood in the Strait of Istanbul.



**Figure 6:** Reason of accidents in the Strait of Istanbul. (Based on analyze of 396 accidents between 1982-2000, Source: Turkish Maritime Pilots' Association, [www.turkishpilots.org](http://www.turkishpilots.org))

Between 1982-2000, there were 396 accidents in the Strait of Istanbul, according to the records of Turkish Maritime Pilots' Association. Reasons were shared as follows:

Improper Navigation 14%, Technical Failure 8%, Nature 29 %, Unknown 49 %

Records indicate that natural conditions, such as currents, wind, rain, snow etc. are the main factors for accident in the Strait of Istanbul.

**The consequences of wrong-goings in a narrow strait:** A catastrophic accident in a narrow strait can be disastrous, both from human life and environmental aspects. For instance, according to experts, in the case of a major tanker accident in the Strait of Istanbul, the followings may happen:

- Thousands of people may be killed.
- Such an accident will give irreplaceable damage to insurance, finance and production sectors, national and international level.
- The waterway may be closed for an unpredictable period of time.
- Black Sea countries which depend on the Straits for their vital imports will receive strong impact.

### **Step 3: Risk Control Options in Narrow Straits**

**1.Pilotage:** A pilot will be familiar with all the dangers in a narrow strait and the rules designed to ameliorate them. No one knows those places and situations that pose the most hazards than the pilots of a waterway. Pilots are most qualified, in most respects, to lay down guidelines for the safest manner in which to conduct the

navigation of vessels in the area covered by their pilotage<sup>11</sup>. International Maritime Organization strongly recommends using pilots in narrow straits, such as the Turkish Straits<sup>12</sup>. IMO makes a general recommendation on pilotage in resolution A.159 (ES.IV) and strongly recommends pilotage in the straits such as Turkish Straits (Resolution A.827-19) Straits of Malacca and Singapore (Resolution A.375-10/Annex V) Torres Strait and the Great North East Channel (Resolution A.710-17) Euro-Channel and IJ-Channel (Resolution A.668-16) entrances to the Baltic Sea (Resolution A.620-15) North Sea, English Channel and Skagerrak (Resolution A.486-12). These are clear indications that IMO accepts pilotage as a major risk reducer in narrow straits and confined waters. According to the long term statistics in Turkish Straits, 85% of all accidents were done by vessels that were not using pilots. It can be presumed that pilots worth to be at the first rank in the list of risk eliminators in narrow straits.

**2. Escort Towage:** In the case of technical difficulties of a vessel navigating in narrow channel, the escort tug would be a good option to put the vessel in the track again or to assist her reducing the speed.

**3. Traffic Control Systems (VTS, VTMIS, etc.):** There are many available models to control and manage the traffic in narrow straits. Most common system is “Vessel Traffic Services” According to IMO definition, vessel traffic service (VTS) is a service implemented by a competent authority, designed to improve the safety and efficiency of vessel traffic and to protect the environment. The service should have the capability to interact with the traffic and to respond to traffic situations developing in the VTS area<sup>13</sup>. Recent years, VTS systems proved successful in many confined sea areas including narrow straits. In the Turkish Straits, after the introduction of Vessel Traffic Regulations and Traffic Control System in 1994, number of accidents dramatically dropped.

**4. Universal AIS:** The AIS is a shipboard broadcast system that acts like a transponder, operating in the VHF maritime band that is capable of handling well over 4,500 reports per minute and updates as often as every two seconds. Display information previously available only to modern vessel traffic service operations centers could now be available to every AIS-equipped ship. With this information, you could call any ship over VHF radiotelephone by name, rather than by "ship off my port bow" or some other imprecise means. Or you could dial it up directly using GMDSS equipment. Or you could send to the ship, or receive from it, short safety-related email messages. AIS is designed to improve marine safety and efficiency by providing the navigating officer and pilot with important additional navigation

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<sup>11</sup>Richard A. Cahill, *Collisions and Their Causes*, Nautical Books, 1997, p.132

<sup>12</sup> Article 3.3.1 of IMO Resolution A.827 (19) is as follows: “*Masters of vessels passing through the Straits are strongly recommended to avail themselves of the services of a qualified pilot in order to comply with the requirements of safe navigation.*”

<sup>13</sup> IMO Resolution A.857(20): “*The VTS Guidelines*”

information; simplifying information exchange between ships and between the ship and the shore; and reducing verbal mandatory ship reporting to VTS Centers; and it has the potential to reduce overall operating costs. Within a phased-in carriage requirement program, all ships over 500 Gross Tonnage will be fitted with AIS equipment by July 2008. When fitted on all ships, there can be no doubt that AIS will enhance safety at sea, the efficiency of navigation and the protection of the marine environment.

#### **4. CONCLUSIONS**

For a captain of a ship who is navigating through narrow straits there's very little room for error. The risk is "intolerable" on many occasions. All available resources should be used and managed to minimize the risk. Briefly saying, "Human Error" and "Technical Failure" are the main reasons of accidents in the Straits. To my opinion, "use of pilot for every vessel and use of escort tug(s) for certain vessels" are essential safety measures; beside a modern VTMIS System. Eliminating the substandard ships and substandard shipping is also an important factor for reducing risks. Following recommendations are my conclusion remarks for a safe passage through a narrow strait:

- Vessels should be technically in good condition and manned by qualified crew. An effective regional port state control network could help to improve the conditions of passing vessels in narrow straits.
- Vessels should use the service of a qualified pilot while passing narrow straits.
- Vessels carrying a certain amount of dangerous cargo should be escorted by tractor tugs.
- Traffic in the strait should be managed and monitored by an effective VTS or VTMIS system where pilots take part in the advice-giving process.
- Vessels should take part in the reporting system.

"A superior seaman uses his superior skills to keep out of situations requiring his superior skills"<sup>14</sup> It is true; we all should try our best practices to prevent accidents. And I hope this paper helps in doing that.

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<sup>14</sup> Captain Richard A. Cahill

## **VTS AND ITS APPLICATIONS WHAT TYPE OF VTS FOR TURKISH STRAITS?**

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### **ABSTRACT**

Shore based traffic control applied to the maritime transportation units is one of the important safety measures despite the fact that there are certain differences on the application, legal bases, names and organizations that are operating these services.

In this paper some examples of existing VTSs around the globe were compared from different aspects considering their own special circumstances. Then Turkish Straits and special circumstances of the region were examined. And finally considering these circumstances the authors state their own opinions regarding the Turkish Straits Vessel Traffic Service (VTS) depending their previous studies on the application wise in particular.

### **1. INTRODUCTION**

Despite technological developments and considerable safety measures taken in marine transportation, accidents and incidents are still matter of serious concern on the global basis. Increase of size and speed of the commercial ships as well as traffic density have been major contributory factors that increase the casualty risk in all navigable waters. Risk is apparently higher in confined waterways or port approaches in particular. On the other hand size of cargo vessels those are carrying dangerous or hazardous cargo in bulk have been major potential threat for the marine environment. This phenomena pushed many nations forward that have coast line on the trade routes to find out additional initiatives. Control and monitoring of marine traffic had become one of those extra measures.

1970s are the years that Vessel Traffic Services (VTS) had become a common element in major ports or waterways throughout the world. However although some countries stop running some of the systems due to budget problems later on it is observed that afterwards some severe oil pollution casualties these countries established more sophisticated VTSs around their coasts. New York VTS and New Orleans VTS can be given as a sample of this case (BABU and KETKAR, 1996). New Orleans VTS was also decided to be reopened in late 90s.



Today although some different names and abbreviations are used by various coastal state authorities for such services the only term which used by the International Maritime Organization (IMO) is Vessel Traffic Services (VTS). This term will be used throughout this paper as a general name for all types of shore based marine traffic services.

## **2. OVERVIEW OF VARIOUS VTS ORGANIZATIONS**

First radar set installed in the Port of Liverpool in 1948 is admitted as the pioneer of the modern VTS. This was followed by Long Beach, California after one year with installation of VHF radio set in 1951 (SATOW, 1990). In same period Halifax and Le Havre were the other ports carried out similar trials (Hughes, 2000) followed by Rotterdam in 1956 with a radar chain. Then shore based radar chains became a common tool in most other major European and North American ports and harbors in 1960s followed by Japan in early 1970s.

Currently there is one form of VTS all around the globe despite the fact that there is no determined standards. These services can be seen in all continents and most of the littoral countries. Some of these are China, Egypt, Hong Kong, South Africa, all European countries including those of Baltic Sea, Atlantic and Mediterranean littorals, most of Mediterranean countries, countries around the Arab Peninsula, some of the Black Sea littorals such as Romania, Ukraine. Only In the United States of America there are 23 operational VTS areas (BABU and KETKAR, 1996), 12 in Canada (MARTIN and BUSHELL, 2000) and 20 in China (GONCHEN *et al.*, 2000).

### **2.1. Definition of VTS**

VTS is defined in the IMO guidelines<sup>1</sup> as “... is a service implemented by a Competent Authority, designed to improve the safety and efficiency of vessel traffic and to protect the environment. The service should have the capability to interact with the traffic and to respond to traffic situations developing in the VTS area”. As it is mentioned in the definition, VTS is a service rather than a system. However the service may be given through a well organized system.

Having considered the definition it is clearly deduced that a VTS service should comprise at least an information service. Nevertheless it may also include other functions such as navigational assistance or traffic organization or a combination of both. In other words; it may range from the provision of simple information messages to extensive management of traffic within a port or waterway.

Information service provided by a VTS is the case that VTS is enabling essential or necessary information provided to the users i.e. those on-board subject to

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<sup>1</sup> Resolution A. 857(20) Adopted on 27 November 1997.

make navigational decision. Second service provided by a VTS is navigational assistance. Navigational assistance is a higher level service comparing the previous one and it is the case that VTS is involving decision making process regarding the ship's navigation and providing navigational advice to those on-board and consequently monitor its effects. Other service provided by VTS is traffic organization service. Traffic organization is a service to prevent the development of dangerous maritime traffic situations of an early stage and in fact it regulates the traffic within the VTS area.

Apart from the practical differences, major issue regarding the service provided by a VTS authority is legal part of it. There are serious differences on the legal and liability basis. However regardless of the type of service provided the common achievements of a successful VTS in general terms can be summarized as follows:

- ❑ Improvement of Safety of Traffic; by foresighted prevention of situations of likely to be endangering either the vessel concerned or any other encounters in the vicinity or the environment. This capability very much depends on the quality of the service provided which has direct link with the quality of all of the components of the VTS. The VTS components or the basic elements of the system can be categorized as four; hardware, staff, training and procedures (KOP, 1990) or in another categorization was made considering the training and staff in one category and hence; people, hardware and procedures (WIERSMA *et al.*, 2000). Thereby safer traffic flow can be achieved through the service provided either as an information service, traffic organization service or navigational assistance service or combination of them. In addition to that VTS can supply a supporting service to all allied services and other interested parties by exchanging information, using common databases and making action agreements.<sup>2</sup> On the other hand, in case of an unexpected emergency situation such as a casualty (e.g. collision or stranding) by organizing the other traffic in a confined waterway the an exacerbated situation can be avoided.
- ❑ Improvement of Efficiency of Traffic; by achieving an appropriate planning and execution delays can be avoided and optimum traffic flow can be obtained. This capability also depends on the quality of the VTS elements as well as VTS objectives. Similarly through the service provided this benefit can be shared by the service providers, allied services and the users.
- ❑ Improvement of Safety of Environment; by achieving safer navigable waters VTS does serve to reduce the environmental risks simultaneously in fact. Nevertheless, there are some other facilities provided by the VTS for the environmental protection in the following areas:
  - Optimized traffic flow and additional navigational assistance (if provided) for ships carrying dangerous and/or noxious cargo can decrease the possibility of casualties involved these type of vessels,

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<sup>2</sup> IALA VTS Manual, 1993 Edition.

- Providing prompt information to the competent authorities about movements of ships carrying hazardous/dangerous/noxious cargo onboard hence enabling them check the further planning i.e. port control or others if necessary,
- In case of emergency of a pollution incident early detection can be performed and co-operation can be done with the emergency clean-up services and other official bodies. Consequently by regulating the traffic further problems can be prevented in advance.
- By continuous monitoring illegal and deliberate spills and other source of pollution events can be prevented.

## **2.2. Various Types of Vessel Traffic Services and Their Comparisons**

In the International Association of Lighthouse Authorities' (IALA) VTS Manual the operation VTSs are categorized into three types in terms of operational area; coastal, estuarial and port. As a matter of fact these main categories are one of the most effective specifying factors for a competent authority to decide what type of VTS that the authority should establish. For instance, coastal type VTS is usually used for surveillance purposes established in sensitive areas to assure vessels passing through are complying with the traffic separation schemes. English Channel VTS, Morocco (Strait of Gibraltar) VTS and Turkish Straits VTS (still under construction) can be given as sample of coastal VTS. Great Belt VTS, two different VTSs one of which run by Swedish Administration where the other by Danish Administration in the Flint Channel area are other examples of coastal surveillance. It can be stated that major objective of the coastal VTS is safety of maritime traffic and protection of the marine environment. Traffic efficiency may or may not be of major concern.

Estuarial type VTS is usually found in rivers or estuaries and carry out its duties to ensure safe transit of marine traffic in the area concerned. Since these areas are usually on the approaches of ports performing the optimum and efficient traffic organization to achieve maximum possible traffic flow provided that the safety conditions observed are among the objectives of the VTS as well as providing safer navigational conditions and better environmental protection.

Harbor type VTS is for vessels entering or leaving the port. Main concern is usually traffic efficiency despite other important factors are also aimed. Port of Dover or Portsmouth are examples for harbor type VTS (HUGHES, 2000).

It can be stated that despite the relatively long history, VTS has come upon maritime sector in a rather *ad hoc* way. Since the VTS developed step by step rather in a scattered way all over depending on the individual trials in a number of different ports or out of traffic separation scheme neither training standards nor legal framework could have been set up. However it is on the contrary, in air transportation sector Air Traffic Control (ATC) was formulated as part of the overall development of a specific transportation and then easily set up necessary legal terms in a widely

accepted international convention<sup>3</sup> (GOLD, 1990). In other words, maritime transportation is always under influence of long historical and traditional background therefore implementation of changes – no matter how good they are – takes considerable time. VTS is a typical case of this phenomenon.

Apart from early applications despite the fact that Vessel Traffic Services have been existing quite a number of different regions and/or different countries since early 1960 first action by the IMO was carried out in 1968 when Resolution A.158 (ESIV) was adopted (KOP, 1990). This was followed by 1985 IMO VTS Guidelines<sup>4</sup> and an updated version Guidelines in 1997<sup>5</sup>. However there are still no common standards on many aspects on VTS applications. Today, one can observe different names for various VTS applications around the world which some of them giving the same service. Vessel Traffic Service (VTS) is the only acronym that has been officially defined by the IMO. However one can see various acronyms such as Vessel Traffic Information Services/System (VTIS), Vessel Traffic Management Services/System (VTMS), Vessel Traffic Management and Information Services/System (VTMIS), Vessel Traffic Control (VTC), Marine Traffic Control (MTC). Although there are some functional differences between these services, these are mainly due to the political regime of the VTS area or capability of VTS elements, aims and objectives of the Competent Authority etc. For instance; There are 12 “high level” VTS centers in operation covering 14 zones (Vancouver, Tofino, Prince Rupert, Sarnia, Montreal, Quebec, Les Escoumins, Saint John, Halifax, Placentia Bay, Port-aux-Basques and St. John’s) and the major impetus for the creation of Canadian VTS systems is declared as “Oil spills and the threat of oil spills” (MARTIN and BUSHELL, 2000). However another example is Hong Kong VTS, which was installed in 1989 and the main objective was handling the busy vessel traffic in an efficient way (FAN and PANG 2000).

It may be observed that the first generation of Vessel Traffic Services were rather found for optimizing the traffic flow or in other words more economy and efficiency concerned where the recent VTS types were established rather for environmental protection. And this is natural considering the recent campaigns and increase of public concern for the environment.

Considering these facts, it can be stated that the major issue of the vessel traffic services in the maritime field is the liability matter. Therefore some VTS authorities need to declare in their VTS guides which were prepared for the users that the responsibility for the safe navigation of the ship remains with the master and VTS does not interfere with the division of duties between the master and the pilot. Fedje and Oslofjord VTSS of Norway, Helsinki VTS of Finland, Storebelt VTS of Denmark can be given as example of such declarations.<sup>6</sup>

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<sup>3</sup> Chicago Convention on International Civil Aviation, 1944 and relevant protocols.

<sup>4</sup> Resolution A.578(14).

<sup>5</sup> Resolution A.857(20).

<sup>6</sup> VTS Master’s/User’s Guide of each respected VTS area.

According to a survey carried out by the Nautical Institute mariners who are the end users of the VTS are satisfied if the VTS work properly. For example Elbe and Weser VTSs found useful particularly for pilotage advice, Rotterdam and London for helpful support, Singapore for traffic advice and close proximity warnings and all other UK and Continent VTSs helpful (PARKER, 1999).

### 3. SITUATION IN THE TURKISH STRAITS

A strait is defined as ‘a narrow stretch of the seas separating two land areas and linking two portions of a sea or a gulf with the high seas’ (ROZAKIS and STAGOS, 1987). The area named “Turkish Straits” is consisting of the Strait of Istanbul, Strait of Çanakkale and the Marmara Sea connecting the Black Sea and Mediterranean Sea. Strait of Istanbul is approximately 31 km long, with an average width of 1.5 km. Narrowest part of it is 700 m. The Sea of Marmara is approximately 225 km long and the length of the Strait of Çanakkale is about 70 km, with a general width ranging from 1.3 km to 2 km<sup>7</sup>.

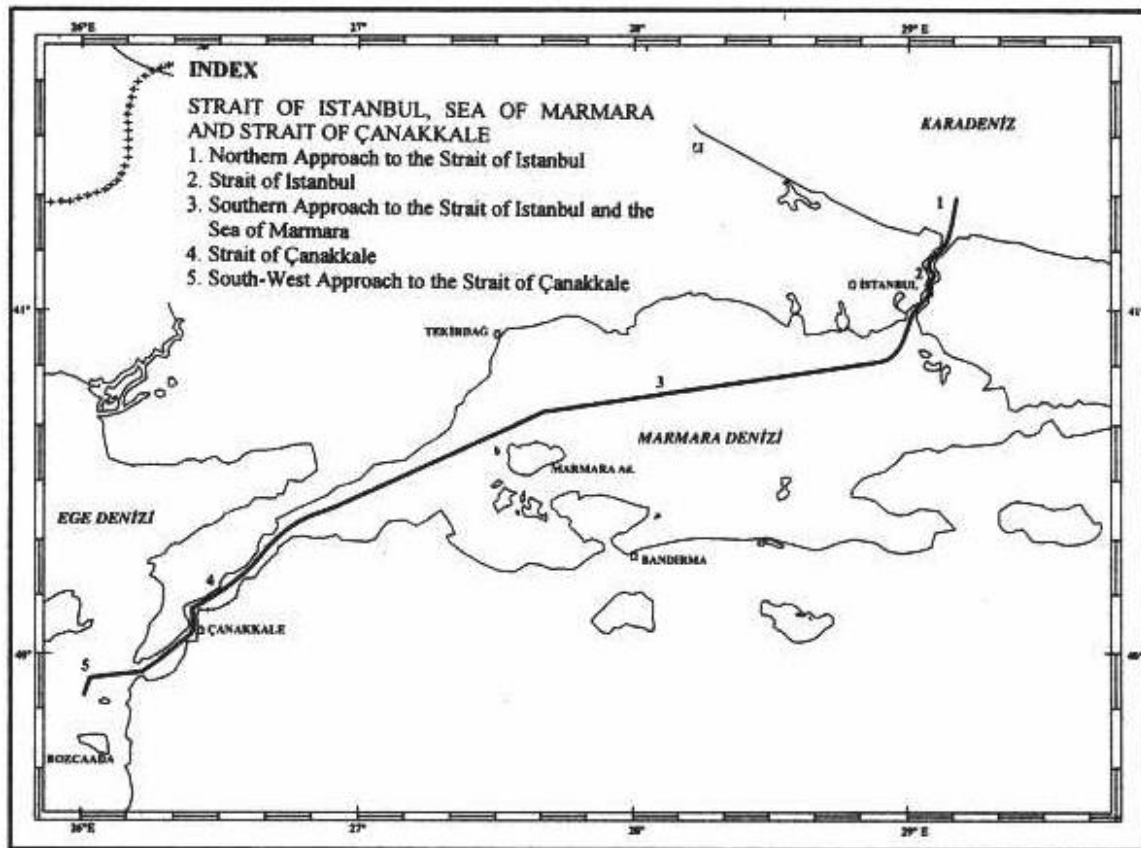


Figure 1. Turkish Straits (AYBAY and ORAL, 1999).

<sup>7</sup> Turkish Ministry of Foreign Affairs, Web Site, <http://www.mfa.gov.tr>

### **3.1. Legal Regime**

Apart from the international maritime conventions such as –*inter alia*– Safety of Life At Sea (SOLAS), Collision Regulations (COLREG) etc. regarding the rules and regulations drawing up marine navigation in all waters there are two major legislation in force in the region; national legislation and the Montreux Convention. While the Montreux Convention (July 20, 1936) builds the general regime of the Straits the latter one builds the technical structure for the safe passage of all marine traffic with the purpose of protecting lives, property and the environment. The national legislation known as “Traffic Regulations for the Turkish Straits and the Marmara Region” was first enforced in 1994 and then revised by the Turkish Government in 1998. The Traffic Separation Scheme established by the mentioned legislation was also adopted by the General Assembly of the International Maritime Organization (IMO) in November 1995 (İSTIKBAL, 2001).

### **3.2. Physical Characteristics and Traffic Condition**

Approximately 45,000 – 50,000 vessels use the Straits for non-stopover passages per year. Total vessel movement in the Strait of Istanbul per day is approximately 1,350. This figure does not include the movement of non-stopover ships (ships in passage that does not call at port and make direct passage southbound or northbound through the Strait of Istanbul), leisure craft and fishing vessel.

There is also very heavy ferry traffic in the Strait of Istanbul., which crosses between European and Asiatic sides. The number of local crossings by intra-city ferries and other shuttle boats is approximately 1,000. One-and-a-half million people are daily on the move at sea, crossing from one side to the other in Istanbul. The ferries cross the Straits in straight routes and diagonally as well.

### **3.3. Navigation Through the Straits**

The total navigational distance from one end to other in the Turkish Straits is approximately 300 km. For a commercial vessel traveling at an average speed it takes approximately 16-18 hours (İSTIKBAL, 2001). From the navigational safety point of view there are some serious difficulties in the region due to various factors. Physical characteristics of the area is one of those factors such as hydrological and oceanographic specifications; sharp turns, narrow points and unstable surface currents. Meteorological constraints are another such as seasonal dense fog and rain fall affecting the visibility. Traffic condition is also one of the important factors affecting the safety of navigation in the area.

### 3.4.VTS Under Construction

Having considered the conditions in the Turkish Straits Region it can be easily deduced that a well organized VTS is a must which should be manned and equipped appropriately to be able to ensure that all floating objects are following the respected safety measures (i.e. the local and international law, rules and regulations). As a matter of fact decision on investing some money for a state of the art VTS organization was given a long time ago. However due to several reasons it could not have been realized the project until very recently. For the time being hardware installation is still to be completed. It is expected that the system will be operational in 2003.

The hardware seems very sophisticated and satisfactory according the available information to perform all type of services and necessary functions. Under Secretariat for Maritime Affairs as being the Competent Authority appointed the General Management of Coastal Safety and Salvage Administration (CSSA) as VTS Authority and it has been approved and empowered by the Turkish Government<sup>8</sup>. There will be two “Vessel Traffic Control Center”, one in Istanbul Strait and the other in Çanakkale Strait. The other major components of the system will be as follows:

Description of Components (Equipment etc.)	Amount in numbers	
	Strait of Istanbul	Strait of Çanakkale
Observation Towers (With X-band mic.wave radars, CCTV and other facilities)	8	5
Doppler current sensors	9	5
Surface water measurement sensors	3	2
Salinity temperature profilers	2	1
Automatic weather stations	3	2
DGPS Reference station	1	1
Racons	4	1
VHF Direction finders	2	2

Table 1: Major components of VTS Turkish Straits<sup>9</sup>

<sup>8,9</sup> Çehreli, T. and Orakçı, S., General Management of Coastal Safety and Salvage Administration.

In addition total 6 Automatic Identification System (AIS) base stations will be established in the region and 50 portable AIS transponders will be available for the pilots to be used on board.

The other item for a proper VTS is manning. A proper VTS must form over three pillars; proper manning, proper hardware and proper organization (WIERSMA *et al.*, 2000). Therefore competent authority and VTS authority decided to hire highest qualified mariners as VTS operators and unlimited master mariners have been recruited for this post. And ITU Maritime Faculty selected as the training institute.

#### **4. CONCLUSION: IDEAL STRUCTURE FOR THE TURKISH STRAITS**

Having considered the situation VTS structure and organization seems that it will be able to contribute to the safety of marine traffic and consequently protection of the property and environment in the Turkish Straits together with the pilotage service. It should not be even considered that the VTS will provide all the necessary information, advise and/or assistance therefore any master without having a pilot on board can satisfactorily complete the safe passage of his vessel. The system will only be most efficient and effective when it is used as combination of both the VTS and pilotage. Therefore pilots will be the vital part of the system and it should be considered that they are to be integrated in the most efficient way.

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## **INVESTIGATION OF MARITIME ACCIDENTS IN THE ISTANBUL STRAIT VIA LOGISTIC REGRESSION AND SIMULATION**

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### **ABSTRACT**

Although the sea is not a particularly risky mode of transport, accidents do happen in different waterways. Furthermore, the transport of hazardous or dangerous substances by sea has a quite different risky position than that of other transport modes. The risk becomes greater when a ship is traveling in a narrow waterway, very near to land such as Istanbul Strait. As being one of the most difficult to navigate waterways in the world, the Istanbul Strait waterway is the interest of this study. Especially, in the recent years the hazardous material transport volume and the size of the vessels passing the Strait have increased a lot.

The primary objective of the study is to identify the causes of accidents and assess the transport risks in the Istanbul Strait, which will help predict the impact of future strategic decisions and traffic conditions on these risks. Firstly, potential accident causing factors were selected after having expert opinion and related data between 1990-1999 were collected. The Strait is divided into eight homogeneous risk zones and the accidents are classified into three categories (transit-transit collisions, transit-local collisions, groundings and rammings) to have a more accurate representation of the system assuming local traffic as a direct factor. Logistic regression methodology is selected and applied to the integrated data (672 data points) in SPSS and accident probability models were generated for each accident category.

After validation of the probability models, vessel characteristics are incorporated into these models through a Bayesian Analysis based approach. Final accident probability models are utilized in the Strait traffic simulation model developed in SIMAN. Finally, validation of simulation model is done through simulation output and some scenario analysis is conducted. As a result, the dynamic nature of risk in the Istanbul Strait is captured by integrating system simulation with risk probability models of logistic regression.

## INTRODUCTION

Vessels traveling through a narrow waterway usually follow a designated course. However, the actual position of a vessel may differ from its intended route at a given location and time. This is a result of the hydrodynamic conditions, i.e., currents and waves, visibility, wind, geometric constraints, and the boat traffic at that location and time. If the actual position of a vessel differs from its intended route, it may cause a collision with another vessel or with the shore. [3].

As being one of the most difficult to navigate waterways in the world, the Istanbul Strait waterway is the interest of this study. The Istanbul Strait is 31 kilometers long with an average depth of 35 meters and average width of 1.5 kilometers. At its narrowest point, the width decreases to 700 meters. It is a waterway connecting the Black Sea to the Aegean Sea through the sea of Marmara and one of the most important and crucial routes for international navigation. Since it is the only outlet of Black Sea, a great deal of transit exists as a consequence of an interminable increase in the passage of vessels of different types through the Istanbul Strait. Besides the heavy transit traffic, especially at the southern part of the Strait, there is a dense local traffic by which one and a half million people everyday cross the Strait. Also, the morphological and oceanographic characteristics of the Strait impose serious navigational difficulties on the transit vessels. There are many course changes that force vessels make difficult maneuvers during their passages. In addition, the intensity of the surface current sometimes imposes supplementary difficulty during navigation. On the other hand, fast changing meteorological conditions over the Istanbul Strait also have crucial impact on the navigation. Especially in wintertime, restricted visibility over the Strait is a threat to safe navigation. When all these factors, mentioned above, come together, the potential of having a maritime accident (such as grounding, collision etc.) becomes very significant. All these negative characteristics have caused numerous accidents. Potential maritime accidents in the Istanbul Strait impose serious risks to the nearby 12 million population, environment, property. These risks are increasing in parallel with the increase in population, property, maritime traffic volume and hazardous transportation. Especially, in the recent years the hazardous material transport volume and the size of the vessels involved has increased a lot. Also, in the near future transport of nuclear wastes might add to the current threat. In fact, recent figures indicate that the Istanbul Strait is more dangerous than similar waterways when compared in terms of accident rate and hazardous material transport volume.

### **Maritime Risks**

Lowrance defines risk as a measure of the probability and severity of the consequence of undesirable events [4]. An accident is an event that has adverse consequences (e.g. injury, loss of life, economic loss, and environmental damage). The risk of an accident

is defined as the product of the probability of occurrence of the accident and the consequences of that accident [5]. An incident is defined as a triggering event, such as a human error or a mechanical failure that creates an unsafe condition that may result in an accident [5]. Vessel casualty refers to any accident or incident that disrupts the normal movement of a vessel [6].

The combination of organizational and situational factors that describes the state of the system in which an accident may occur is termed an opportunity for incident (OFI). A day to day situation in the running of the system where something could go wrong is called an OFI. The accident models developed are usually based on the following probabilities [4, 7]:

- $P(\text{OFI})$ : the probability that a particular system state occurs,
- $P(\text{Incident} | \text{OFI})$ : the probability that a triggering incident occurs in this system state,
- $P(\text{Accident} | \text{Incident, OFI})$ : the probability that an accident occurs given that a triggering incident has occurred in this system state [4].

Thus to perform an assessment of the risk of an accident, one must determine an operational definition of an OFI and then estimate each of the terms in the probability model. Harrald *et al.*, [5] provides a discussion of the operational definition of an OFI.

### **Risk Assessment and Management**

One of the most important shifts in environmental policy in the 1980s was the acceptance of the role of risk assessment and management in environmental decision making. Similarly, risk assessment and management in the Istanbul Strait is becoming increasingly important. Risk assessment is the scientific side of the story. It is the gathering of data that are used to relate planning and response to potential or realized hazard. Such data can then be combined with estimates of likely human exposure, to produce overall assessments of risk. Risk management, on the other hand, is the process of deciding what to do. Given the estimates of risk already established, political and social judgment is required to decide whether a one-in-one million risk is acceptable and if it is, how to go about trying to achieve it. [8] Accordingly, Harrald [9] suggests a framework for maritime risk assessment. The stages of the framework are listed as follows:

- Basic Cause (such as inadequate skills, unsatisfactory equipment maintenance),
- Immediate Cause (such as human error, equipment failure),
- Incident (such as propulsion failure, navigational aid failure),
- Accident (such as collision, fire/explosion),
- Consequence (such as oil outflow),
- Impact (such as loss of life, environmental damage),

Also, the situational attributes of a port or waterway (waterway configuration, location, traffic density, weather, current) influence the probability that incident will become an accident (or “near miss”). In the language of probability, the probability that an incident will occur is conditioned upon the vessel; the probability that an accident will occur is conditioned upon both the situation (system state) and the occurrence of a triggering incident [5].

As a result, risk assessment seeks the determination of the potential consequences of the hazards affecting the involved organization. The mentioned potential consequences generally fall into several categories. Table 1 is an example for maritime risk assessment .

<b>Risk</b>	<b>Potential Consequences</b>
Safety	Loss of life, severe injury
Health	Health incidents due to toxic gas spread
Environment	Loss of habitat, loss of line systems
Finance	Damage to property, economical losses
Social Life	Sociological damage, psychological well being losses

Table 1. Potential consequences in maritime risk assessment.

The results of a risk assessment provide the baseline for risk management. Risk management is the adoption of a strategy for controlling and reducing risk. On the other hand, actions that reduce risk in one part of the system often increase risk in other parts. The ability to identify and to evaluate these risk tradeoffs is an essential element of risk management. After determining the risk stages, some solutions (risk reduction interventions) can be suggested to decrease the risks regarding each stage. Risk reduction interventions are required to maintain the current low likelihood of accidents and to reduce the potential consequences of accidents that could occur by increasing the effectiveness of emergency responses [7]. Safety management programs, inspection programs, double engine, for example, prevent the occurrence of vessel reliability failures and human and organizational errors. Closing the port or waterway (preventing the transits) due to strong currents, low visibility prevent exposure to a situational hazard. Escort vessels prevent an incident from becoming an accident, and double hull may prevent an oil spill if an accident occurs (but will not prevent the accident).

### **Objectives of the Study**

Everyone is aware of the maritime transportation risk in the Istanbul Strait after observing the characteristics, history, related studies and recent trend of the Istanbul Strait. This study is intended to support the assessment of the mentioned risk and therefore its objectives are set in accordance with risk assessment methodology.

In regard to the risk assessment framework suggested by National Academy of Sciences [8], the steps of such a study about the Istanbul Strait can be explained as follows:

Hazard identification is the process of determining whether maritime factors such as vessel traffic, ferry traffic, visibility level, waterway width, current speed that the Istanbul Strait is exposed to, are causally linked to adverse affects such as loss of life, injuries, enviromental damage, economic loss via maritime accidents/incidents like collision, grounding, oil spill. Dose-response assessment is the process of characterizing the relation (mathematical relationship) between the dose of these accident causing factors and the incidence of these adverse effects in the Strait. Exposure assessment involves the determination of the size and nature of the population, property, environment near the Istanbul Strait that are exposed to these factors and that may be affected by the adverse effects w.r.t. the estimates such as magnitude, type, duration and location of accidents, amount and characteristics of the exposed population and environment. Risk characterization is the integration of the above steps which gives an estimate of the magnitude of the problem on Istanbul public and environment and which helps to decide on the adequacy of proposed measures to manage/reduce the risks.

There is no need to rework the first step since the characteristics of and the accidents at the Istanbul Strait and the previous risk analysis studies clearly identify the present hazard. Being aware of this hazard, this risk analysis study includes dose-response assessment and risk reduction objectives. Exposure assessment is not covered in detail, but perhaps some recommendations regarding it will be given in the conclusion section. As a result, on the risk assessment side hazard identification and dose-response assessment are studied and on the risk management side risk reduction techniques are investigated. These dose-response assessment and risk reduction objectives can be listed as below:

- Estimate the mathematical relationship between accidents and potential accident causing factors,
- Predict future trend via traffic simulation with respect to the estimated relationship,
- Give suggestions to minimize total incident & accident probability, therefore the risks by taking significant factors and predicted accidents into consideration.

In order not to have poor or misleading findings in estimating the mathematical relationship, various potential accident causing factors should carefully be identified, then a sufficient database covering accidents and all these factors should be compiled.

## ACCIDENT CAUSING FACTORS AND DATA CONSTRUCTION

Recognized experts and related literature on maritime safety of the Istanbul Strait were surveyed in order to determine the most critical factors to use in the analysis. There were half-hour elicitation sessions with experts after visiting dock and harbour authorities, regional maritime offices, captains and pilot captains. These experts had over 10 years of experience at sea and the questions were asked in a random order to minimize response bias. Potential accident causing/reducing factors are listed as follows:

- Wind, Visibility
- Current
- Pilotage Service
- Transit Traffic
- Cross Traffic
- Human Error
- Vessel Physical Condition
- Vessel Flag, Type, Length
- Minimum Width
- Total Degree Turn
- Shallowness
- SP-1 Report
- Vessel Traffic Services

Large accident databases are not available for a standard statistical analysis of the contribution of perceived risk factors to accident risk [7]. Data must be pieced together from a variety of incomplete sources. This, unfortunately, leads to confusing, varied interpretations and necessitates simplifying assumptions [6]. For example, traffic arrivals logs including each passing vessel separately cannot be obtained. Instead, monthly average values are obtained.

Kornhauser and Clark [6] recommended that a 10 year span of both casualty and traffic data should be obtained for future risk analysis studies of the Istanbul Strait. Last 10 years' data are investigated in line with this recommendation. The data are collected from Turkish Pilots Association, Regional Maritime Office, Regional Port Masters Offices, Kandilli Observatory, Ahırkapı Traffic Control Station, Turkish Maritime Commission, State Meteorology Affairs, Maritime Traffic Regulatory Center and maritime public transporter agencies with great efforts. An extensive data set about the Istanbul Strait for the statistical analysis and the simulation study are compiled via direct meetings with above parties and publications received. Major components of this data set are as follows:

- 1980-1999 Accidents (Collisions, Groundings, Rammings, Fire, Breakdown),
- 1991-2000 Transit Traffic Volume (# of vessel transits/month - per flag/type/length),
- 1991-2000 Pilot Percentage (monthly pilotage percent for transit vessels),
- 1991-2000 Cross Traffic Volume,
- 1990-2000 Wind Speed (avg. wind speed/month)
- 1990-2000 Visibility Level (avg. visible distance/month, # of foggy days/month)
- 1995-2000 SP-1 Report Percent (monthly report completion percent for transit vessels),
- Total Degree Turn, Minimum Width, Current Speed per zone,
- Critical shallow areas per zone

Information about the past accidents include date, type, location of the accident and name, flag, type, and length of the involved vessels. Data taken from four different sources were checked carefully and consolidated. Information about cross traffic include starting, destination and visiting points of each route and daily number of runs for that route. Information about the morphological factors were compiled by making use of big map of the Istanbul Strait. Shallow regions were detected by making use of a marine map of the Strait. For each shallow within a certain distance from the vessel lane (inside risk band), the area of it was calculated and recorded as its risk level. The shallows that are outside this risk band were not taken into consideration. If any shallow region is inside the lane, its risk level was doubled. Information about current include the average speed per zone. No recorded data regarding the incidence of human error (vessel organizational / operational) in accidents were available. However, knowing that the characteristics of the vessel's owner and operator are predictors of the likelihood that the vessel will experience a human error, the effect of this factor can be attributed to flag factor. Besides knowing that human error drops down as an outcome of pilotage service, this factor can be attributed to pilotage service. No recorded data regarding the incidence of vessel mechanical failures in accidents were available. However, knowing that the attributes of a vessel are predictors of the likelihood that the vessel will experience a mechanical failure, the effect of this factor can be attributed to flag and type.

When studying relationships between an event and factors of interest, multivariate analysis is a very appropriate methodology. It emphasizes the simultaneous relationships among phenomena. Multivariate methods can be broadly categorized into two types: Functional and structural multivariate techniques. If the aim is to do a successful analysis on the simultaneous relationships among phenomena, it is better to use both multivariate techniques together. Firstly, data reduction can be done in order to simplify complex relationships and to give a better understanding to the researcher via structural multivariate methods. After this simplification process, the researcher can estimate the phenomenon of interest from the knowledge of other phenomena based on the reduced data. [1]



After considering several techniques, it is seen that clustering is appropriate for this type of data reduction as its objective is to meaningfully classify a group of entities into mutually exclusive clusters based on some judgemental or statistical rule. Clustering is applied to maritime accident since it is the phenomenon of interest. Collisions and other accidents(groundings, rammings, fire, breakdown) are the focus categories.

Firstly, since cross traffic factor would be directly included into the model we classified collisions into three categories and other accidents into two categories based on this set-up. As a result, accident types increased from 2 to 5 to have a better chance of accurately predicting the effect of local traffic as a direct factor and to obtain a more accurate representation of the overall system.

The factors selected above like transit traffic, pilotage, cross traffic were mostly external factors. Since fire and breakdown within other accident category do not depend on external factors, they were left out of the focus of the study. Thus, other accidents started to cover only groundings and rammings.

After the fire and the breakdown categories were removed, it was observed that within total accident history, accidents including transit traffic constituted major percentage. Besides, they have greater impact to the surroundings when compared with the rest of the accidents. The effect of the latter accidents to the whole risk is statistically insignificant and almost the whole risk can be illustrated with transit traffic accidents. Thus, local-local collisions like boat- ferry collision or local groundings and rammings like sea bus ramming were left out of the focus of the study since they did not include transit traffic. After clustering the accident data and eliminating the data groups of no interest and significance, the final accident classification structure was found as follows:

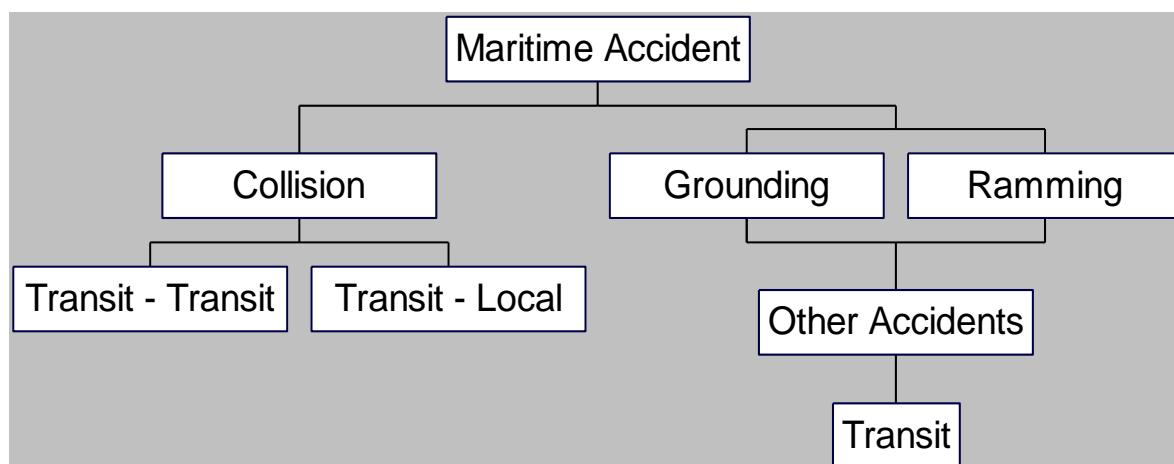


Figure 1. Final accident classification structure.

## **DATA ANALYSIS AND ACCIDENT PROBABILITY MODELING**

After the new accident classification structure was obtained, the compiled data of last 10 years were analyzed graphically with respect to this new set-up. According to this analysis, Zone-1 has the smallest number of accidents (6) among all zones. Zone 7 is the most risky zone of the Strait. 84 accidents, more than one third of all accidents occurred in this zone. Accidents have an increasing trend for Zone 3, 4 and a decreasing trend for Zone 2, 5 and 8.

Transit – transit collisions in Zone 7 and other accidents in Zone 3, 7, 4, 6 constitute more than half of the total number of accidents that have happened in the Strait. Therefore, the risk interventions that are to be suggested should primarily target these categories.

### **Selection of Logistic Regression**

After classifying the accidents into three categories, the database has to be analyzed in order to decide on the most appropriate regression type that would be used for accident probability modeling.

Le Blanc et al [1] argues that after clustering accident data as a descriptive technique, it is better to continue the study with an inferential statistical technique such as discriminant or logit analysis. This technique, employing cluster membership as the dependent variable, can determine which variables are relatively more influential in the formation of accidents.

Accordingly, the technique of discriminant analysis or logistic regression was considered as the first alternative. In this case, the dependent variable, for instance, might be the involvement of a vessel passing at any time in a transit-local collision. Linear regression was considered as a second alternative where the dependent variable, for instance, might be the number of transit-transit collisions occurring during any year at zone 8. In order to decide which statistical technique is appropriate for our case, the characteristics of the study were listed as follows:

- The event of interest is whether a vessel is involved in any type of accident given simultaneous conditions of different factors,
- The goal is to predict the conditional probability of this accident event,
- The potential accident causing factors include both numerical and categorical variables,
- The methodology to be used for analysis had better not rely on meeting a lot of strict assumptions since then it could be too complex to analyze real data including many different factors.

Considering our problem and the comparison of the mentioned techniques, logistic regression was found to be the most appropriate methodology for accident probability modeling because of its fit to the characteristics of our problem. Then the necessary conditions to apply logistic regression were checked. The problem was a good candidate for the application of logistic regression. However accident data on hand were not suitable for a rigorous model implementation. Although the dependent variable is defined with respect to the transit vessels, the compiled data did not include the figures taken during passage of a series of random vessels. But the data included the average monthly figures and figures taken during passage of vessels involved in accident. Therefore, the second alternative, linear regression, was considered. After observing the overall data, monthly number of accidents was selected as the dependent variable for the linear regression. Since there were 3 accident categories, we had 3 dependent variables.

In order to have a better chance of describing accident probabilities and representing cross traffic density, we decided to consider the zone effects (minimum width, number of turns, current speed, total degree turn) by revising the definition of the dependent variable as monthly number of accidents per accident type per zone and by constructing a different regression function for each zone and for each accident type. In this way, we had  $3 \times 8 = 24$  separate response variables, which we would try to model w.r.t. the accident causing factors mentioned before. After a detailed observation on the monthly accident data classified with respect to the focused 3 accident category and 8 regions, we noticed that the variable of interest (# of accidents/month/accident type/region) takes 0 or 1 almost everytime. But, of course there were a few months when there had been 2 or 3 accidents of the same type in the same region. These exceptions were converted into 0-1 variables by assuming them as 2 separate observations if the value is 2 and so on. Therefore, as a result of a different perspective the event of interest can be redefined as

$$E(ijk) = \text{If an accident of type } i \text{ occurred in month } j \text{ in region } k \text{ or not} \quad (1)$$

And this event being an appropriate dichotomous dependent variable made it possible to use logistic regression for the analysis.

### **Application of Logistic Regression**

After data compilation was completed, last 9 years data were available in terms of selected dependent and independent variables. Accordingly, the study period was accepted as 1991-1999. The initial intent was to include the other identified variables (flag, type, length) into the regression analysis, however the compiled data about them were not suitable for this. Because the data did not include their monthly figures between 1991-1999. The figures of vessels that were involved in accidents were available.

Tan and Otay [3] showed that as the vessel arrival rate (transit traffic) increases, the expected number of collisions and therefore the expected number of casualties do not increase in a linear manner but increase by the square of the arrival rate. After considering the specific axiom mentioned above, the square of transit traffic was included into the regression analysis.

### **Application of Logistic Regression on Accident Type X Zone (3 X 8)**

The objective is identifying the useful and effective variables in order to predict whether in any month ( $k$ ) a specific type of accident ( $i$ ) occurs in a specific region ( $j$ ) of the Istanbul Strait or not. Therefore, the investigation is focused on to determine whether the factors, explained previously, have any diagnostic value in predicting the probability of  $i$  type of accident in zone  $j$ . As a result, for each month of the selected study period, there are 24 separate response variables and eventually 24 separate events each of which is a binary variable (Accident, No Accident). For instance,  $Y_{1,2,A96}$  explains whether a transit-transit collision in Zone 2 in August 1996 occurred or not.

According to the results of SPSS, the predicted regression equations of several response variables become either insignificant or have wrong signs for the coefficient of the variables. Also multicollinearity is another problem. This shows that developing separate models for 24 events would be cumbersome and the resulting models would not be highly significant and reliable. The major reason behind this could be that the models are generated from small data sets including 84 observations. The accident events are accepted as rare events and it is suggested to work with very large sample sizes when the probability of event ( $\pi$ ) is small.

Under these conditions, the data sets of different zones were pooled within each accident category. In this way, both the sample size would increase and it would still be possible to apply logistic regression since the definition of the dependent variable remains the same. To ensure that the pooled model (3 models for 3 accident category) is appropriate as its individual models (previous 24 models) dummy variables would be included into the regression analysis.

### **Application of Logistic Regression on Accident Type**

After pooling the monthly accident data of 8 separate zones within each accident category, there is no change in the definition of the dependent variable, but there is a change in the definition of our model. The objective is still identifying the useful and effective variables in order to predict whether in any month ( $k$ ) a specific type of accident ( $i$ ) occurs in a specific region ( $j$ ) of the Istanbul Strait or not. However, this time we do not define the zone by dividing the data into 8 data samples. These samples are combined together in the data set of their related accident category and the zone is expressed in terms of dummy variables that would enter the model for

each data set. These dummy variables would surely be the factors such as zone number, minimum width, current speed which would represent zone effects. Therefore, the investigation is focused on to determine whether the previous factors and zone related factors, have any diagnostic value in predicting the probability of *i* type of accident. As a result, there would be 3 separate regression models, but the probability of having an accident in a specific zone would be different from that of having in the other zones since any zone related factor would surely be included into the model in terms of dummy variable.

$Y_{ijk}$	=	If <i>i</i> type of accident occurs in $j^{\text{th}}$ zone in month <i>k</i> : 1=yes 0=no
$X_{1jk}$	=	Cross traffic density of $j^{\text{th}}$ zone in month <i>k</i>
$X_{2k}$	=	Transit traffic rate in month <i>k</i>
$X_{3k}$	=	Pilot percentage in month <i>k</i>
$X_{4k}$	=	Wind level in month <i>k</i>
$X_{5k}$	=	Visibility level in month <i>k</i>
$X_{6k}$	=	Square of transit traffic rate in month <i>k</i>
$X_7$	=	Zone number, in other words “ <i>j</i> ”
$X_{bj}$	=	Value of zone dependent variable <i>b</i> in zone <i>j</i>

As a result, the probability for an *i* type accident in zone *j* in month *k* is defined as

$$P(Y_{ijk}=1) = \frac{\exp (\beta_{0i} + \beta_{1i} X_{1ik} + \sum_a \beta_{ai} X_{ak} ) + \sum_b \beta_{bi} X_{bj} )}{1 + \exp (\beta_{0i} + \beta_{1i} X_{1ik} + \sum_a \beta_{ai} X_{ak} + \sum_b \beta_{bi} X_{bj} ))} \quad (2)$$

where *a* is the index of time dependent variables and *b* is the index of zone dependent variables (Current, minimum width, total degree turn, shallowness).

Since the selected data for each accident category cover 8 zones and 108 months, 864 observations are available for each regression model. As done before, the sample of 864 observations is divided into an analysis sample of 672 observations for fitting the model and a holdout sample of 192 observations for serving in validation. For this application, the ratio of observations to the number of independent variables is 61 (672/11 = 61). It is above the recommended ratio of 15. There is no need to check linearity, multivariate normality, homoscedasticity, and normality of error term distribution.

The format of the data sheets used for each accident model is shown in Table 2. As a generalization of these, 3 separate data sheets were prepared for 3 regression models .

	Y <sub>1</sub>	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11
Month	Acc.	Transit Traffic	Cross Traffic (min.)	Wind (m/s)	Vis. (nmile)	Pilot Percent.	Square of Transit Traffic	Zone Number	Current	TDT	Min. Width	Shallowness
Jan-97	0	3551	15200	3.1	3.31	0.42	12609601	7	4	55	7.5	4.26
Feb-97	0	3391	15200	3.5	4.58	0.40	11498881	7	4	55	7.5	4.26
Mar-97	1	4207	15400	3.2	4.48	0.39	17698849	7	4	55	7.5	4.26
...												
Jan-97	0	3551	15200	3.1	3.31	0.42	12609601	8	3.5	0	8.3	3.20
Feb-97	1	3391	15200	3.5	4.58	0.40	11498881	8	3.5	0	8.3	3.20

Table 2. Sample data sheet deployed to estimate transit-transit collisions

The model suggested for the transit-transit collisions and the estimates of the independent variables (zone, cross traffic, square of transit traffic, visibility) are observed as “significant” in several tests. Additionally, the signs of  $\beta$  weights are correct and useable for future prediction. Finally, the calculated R-Square values are considerably large with respect to their expected levels. The model is significant with respect to Model Chi-square, CCR and R-Square measures.

The model suggested for the transit-local collisions is observed as “significant” in model tests. For the individual tests, all the four variables (zone, cross traffic, wind, visibility) are found to be “significant” and their signs are totally correct. Although Cox & Snell R Square is somewhat low, Nagelkerke R Square is above the desired level, so the model partially explains the variance observed in the data set. The model is significant with respect to Model Chi-square, CCR and R-Square measures.

The model suggested for the other accidents and the estimates of the independent variables (visibility, shallowness level) are observed as “significant” in several tests with the correct signs of the variables. Although, these are the satisfactory performance measures for the model, as a supplementary statistic, R-Square values are low. The model is significant with respect to Model Chi-square and CCR.

### **Validation of Regression Models via Correct Classification Rate.**

Validation of correct classification rate (1-prediction error rate) is a significant indicator for the validation of a logistic regression model. The chosen prediction rule during model building is applied to the new data or holdout sample in order to observe the reliability of the prediction error rate and therefore the overall model. In our case, the three holdout samples separated beforehand, each having 192 observations, are used for the validation of the three logistic regression models.

If the holdout samples generate considerably higher prediction error rate (lower CCR), then the fitted logistic regression model and the chosen prediction rule would not be validated. This indicates that there might be other key independent variables that have not been identified for inclusion in the logistic regression model [10].

In SPSS, cases defined by the selection rule(selected cases) are included in model estimation. However, statistics and classification results are generated for both selected and unselected cases. This provides a mechanism for classifying new cases based on previously existing data, or for partitioning the data into training and testing subsets, to perform validation on the model generated.

As seen from the tables, the new prediction rates (CCR) are about the same as those of the model-building data set. The CCR of all models are over 77 per cent and they can predict the accidents over 47 per cent which is a close value to 50 per cent. This gives a reliable indication of the predictive ability of the fitted logistic regression models and the chosen prediction rules and the three logistic regression models with their identified key variables are validated with respect to prediction error rate.

	Selected Cases (Analysis)		Unselected Cases (Holdout)	
Overall Percentage		<b>78.8</b>		<b>77.0</b>

Table 3. Classification matrix with 0.17 cutoff (T-T Collisions).

	Selected Cases (Analysis)		Unselected Cases (Holdout)	
Overall Percentage		<b>89.2</b>		<b>90.1</b>

Table 4. Classification matrix with 0.09 cutoff (T-L Collisions).

	Selected Cases (Analysis)		Unselected Cases (Holdout)	
Overall Percentage		<b>80.4</b>		<b>81.4</b>

Table 5. Classification matrix with 0.12 cutoff (Other Accidents).

### **Incorporation of Vessel Characteristics to the Logistic Regression Model**

Flag, type and length, variables representing vessel characteristics, could not be included into logistic regression due to data considerations. They are incorporated into the validated regression models through Bayesian Analysis based approach. In this incorporation, three simplifying assumptions are used.

Assume that  $B_2$  ,  $B_3$  ,  $B_4$  represent flag, type, length respectively and  $B_{1i}$  represent all factors found in the logistic regression model of accident type  $i$  ( $A_i$ ). The first simplifying assumption is that given an accident of type  $i$  ( $A_i$ ), flag, type and length ( $B_2$  ,  $B_3$ ,  $B_4$ ) are independent from the factors found in the logistic regression probability model of  $i^{\text{th}}$  accident type ( $B_{1i}$ ). The second simplifying assumption is that given an accident of type  $i$  ( $A_i$ ), flag, type and length ( $B_2, B_3, B_4$ ) are independent from each other. The third simplifying assumption is that flag, type, length and the factors found in the logistic regression probability model of  $i^{\text{th}}$  accident type ( $B_{1i}, B_2, B_3, B_4$ ) are independent from each other without any condition. Finally, the overall conditional accident probability becomes

$$P(A_i / LogMod_i, F_j, T_j, L_j) = \frac{P(F_j / A_i)P(T_j / A_i)P(L_j / A_i) P(A_i, LogMod_i)}{P(F_j)P(T_j)P(L_j)} \quad (3)$$

where  $i$  indicates the accident type and  $LogMod_i$  indicates the logistic regression model for accident type  $i$ .

### **Conversion of monthly accident probability to vessel based accident probability**

Since logistic regression is done over monthly figures, it provides a probability value for the occurrence of 1 accident of type  $i$  in zone  $j$  in month  $k$  given the monthly values for the accident causing factors. However, we need a probability model on the basis of a transit vessel in order to generate vessel based accident probability values during the execution of the simulation and follow the estimated accidents on the basis of vessels.

Against this need, this monthly accident probability model,  $P(A, \text{month})$ , is converted into an accident probability model for one vessel,  $P(A, \text{vessel})$  with a critical assumption. It is assumed that all vessels passing in month  $k$  pass under the same conditions determined by the same values of accident causing factors and they pass and meet independently. In other terms, for any vessel, firstly the values of accident causing factors are evaluated at the time of passage. A monthly accident probability is calculated with these values for that vessel. Then these values are assumed to apply during the whole month. Thus, each passing vessel and each meeting of vessels (meeting with another vessel or cross traffic) become independent Bernoulli random variables for us and related conversion is done by inverse transformation of binomial distribution considering 1 accident per  $n$  observations where  $n$  is number of meetings or passages. As a result, the conditional joint probability of accident for each transit vessel, given the values of accident causing factors at the time of passage, is calculated via

$$p_{k,i,j} = \binom{n}{1} p_{v,i,j}^1 (1 - p_{v,i,j})^{n-1} \quad (4)$$

where  $p_{k,i,j}$  = Probability of an accident of  $i$  type in zone  $j$  in month  $k$

$p_{v,i,j}$  = Probability of a vessel to have an accident of  $i$  type in zone  $j$

## **MARITIME TRAFFIC SIMULATION MODELING**

Simulation is a necessary technique in maritime risk analysis and a widely used tool to model the movement of maritime traffic, because it provides opportunity to capture the dynamic environment of changing risk factors, such as traffic interactions, visibility or wind conditions, and to evaluate future scenarios that are designed to alter this dynamic behavior for the purposes of risk reduction or improved passenger service. [7]



Interviews with the experts have indicated that the flow of transit traffic in the Istanbul Strait is guided by a few clear and simple rules. However, the flow of cross traffic is far more erratic and complex due to the unpredictable behavior of many small craft. The Istanbul Strait Maritime Traffic Simulation Model was constructed with respect to the following principles:

- Each transit vessel arriving at either entrance of the Strait is to be individually represented and tracked in the simulation.
- Cross traffic is tracked on individual boat basis. Normally, the maritime accident probability is determined with the average cross traffic density per zone. However, the average number of boats in each zone is known from the schedules and the number of boats in a zone at different times of the day is known. Therefore, the value of cross traffic density inputted to the probability models are modified (increased or decreased) according to this dynamic figure (number of boats in a zone at time t) obtained.
- There are two transit traffic lanes, a single southbound and a single northbound, in the Strait. Each lane is approximately 100 meters wide Transit vessels are not allowed to overpass one another, nor to deviate from their assigned lanes. They have a constant speed of 12 knots and go through all zones during their passage
- It is assumed that transit vessels arrive at the north and south entrances of the Strait one at a time and according to two identical, independent exponential distributions (whose parameters are based on past data). The type, length and flag of arriving transit vessels are randomly determined according to empirical probability distributions obtained from the past frequencies of the respective classes. A vessel enters the Strait at least 10 minutes after the entrance time of the previous vessel going on the same direction.

The Strait Simulation Model was developed with SIMAN Simulation Language. The components of the simulation model are given in Table 6. In the simulation model, the OFAs (opportunity for accident), the states of the system in which an accident might occur, are tracked and the accident probabilities are evaluated by inputting the values of key organizational and situational factors at that state into the obtained probability models. Each transit-transit collision, transit-local collision and other accident is recorded together with its date, time, location and characteristics of the vessels involved. The number and characteristics of transit vessels making safe passage are also recorded.

System	Entities	Attributes	Activities	Events	State Variables
Waterway Maritime Traffic	Vessels, Cross Traffic	Flag, Type, Length	Passing, Waiting	Arrival to the waterway, accident	Number of vessels passed, Number of accidents happened

Table 6. The Istanbul Strait Traffic Simulation Components.

## **Verification and Validation of the Istanbul Strait Traffic Simulation Model**

The verification and validation of the constructed simulation model is achieved by comparing the simulation output for the 1990 – 1999 period, with the historical data of the same period. The output results are based on the 3 year simulation results of the constructed model. The insignificant differences between realized values in the simulation run and expected values calculated according to the flag distribution of vessels indicate that the vessels are correctly represented with respect to their flags in the computer simulation.

As seen in Table 7,8 and 9, the minor difference values between realized number of T-T meetings, T-L meetings, vessels passed in the simulation run and related values according to past 10 years data verify that the arrival and movement of vessels and local traffic are correctly implemented in the computer simulation.

	N	Mean	Std. Deviation	Std. Error Mean
Past data	10	11.1000	4.5814	1.4488
Simulation model output	3	12.6667	1.5275	.8819

Table 7. Comparison of transit-transit collision statistics.

	N	Mean	Std. Deviation	Std. Error Mean
Past data	10	3.2000	2.0976	.6633
Simulation model output	3	4.0000	2.0000	1.1547

Table 8. Comparison of transit-local collision statistics.

	N	Mean	Std. Deviation	Std. Error Mean
Real Case	10	9.3000	3.9172	1.2387
Simulation Model Output	3	9.0000	3.4641	2.0000

Table 9. Comparison of other accident statistics.

For all accident categories, the mean number of accidents observed in the 3 year simulation run is very close to the mean number of accidents realized in the past. This shows that the simulation model represents the real system accurately.

For all accident categories, the mean number of accidents for each zone are very close except a few zones. If the simulation was run for 10 years, it is estimated that these difference values would converge to 0, too. These results are sufficient to validate the system.

### **Example Scenario Analysis for Other Accidents – Experimental Design with Three Factors**

The example is conducted for other accidents model since in the recent period (1998–1999) the majority of the accidents happened to be of other accident type. The response variable is the number of other accidents in 1 year. As mentioned before, the fitted logistic regression model included visibility (visible distance in nautical miles -  $V$ ) and shallowness level as factors and they were found significant via Wald test and log likelihood ratio test. However, this analysis is not possible for shallowness, since its levels cannot change. Besides visibility factor, transit traffic ( $T$ ) is included into the analysis in order to have insight about the trend if there is a substantial increase in the transit traffic volume in the future. Also, for groundings and rammings, long vessels tend to have higher accident rate than that of shorter vessels according to the statistics on past data, therefore percentage of long vessels ( $L$ ) is considered, too. It is assumed that long vessels percentage includes vessels over 150 meters.

- $V$  has  $p=2$  levels (40 per cent and 80 per cent decrease),
- $T$  has  $q=2$  levels (40 per cent increase and 80 per cent increase),
- $L$  has  $r=2$  levels (40 per cent increase and 80 per cent increase).

Two independent replications of each treatment combination are made. Then there are  $p * q * r = 2 * 2 * 2 = 8$  treatments or factor combinations, requiring  $R = 8 * 2 = 16$  independent runs of the simulation. The appropriate statistical model for analyzing the response variable then becomes

$$Y_{ijkn} = \mu + V_i + T_j + L_k + \varepsilon_{ijkn} \quad (5)$$

where  $i = 1, 2$ ,  $j = 1, 2$ ,  $k = 1, 2$  and  $n = 1, 2$ . Here  $Y_{ijkn}$  is the observation of the response variable  $Y$  for replication  $n$  of level  $i$  of visibility, level  $j$  of transit traffic and level  $k$  of long vessels percentage. It is assumed that all replications both within a treatment and over all treatments are made statistically independent by the correct use of random generators. More precisely, the model in Equation (5) is a completely randomized design and the random deviation terms  $\varepsilon_{ijkn}$  are assumed to be independently and normally distributed.

Another necessary assumption is that there is no interaction present among the three factors. Therefore, there are no interaction terms in Equation (5). Accordingly, 16 independent runs were taken from the simulation model in SIMAN. Then these results were put into SPSS and the  $F$  values observed in the ANOVA table indicate that the visibility and long vessels percentage both have a significant effect on the number of other accidents. However, transit traffic is not seen significant from its low  $F$  value.

## CONCLUSION

In this study, the risk associated with potential maritime accidents in the Istanbul Strait is investigated via multiple logistic regression and simulation techniques.

The scenario analysis results indicate that the visibility and long vessels percentage both have a significant effect on the number of other accidents. However, transit traffic is not seen significant. When visibility is decreased by 80 per cent and long vessels percentage is increased by 80 per cent, the number of accidents increase above 50 although it is 9 under normal conditions. This result indicates that, strict precautions should be taken for long vessel transits during low visibility times.

The predictive power of the logistic regression models are evaluated with the constraint that prediction rate of accident event should at least be around 50 percent. The three models present correct classification (prediction) rates of 79, 89, 80 per cent respectively after evaluating for different cutoffs in order to satisfy the minimum prediction rate for accidents.

According to the results of the logistic regression, visibility is a significant accident causing factor for all the three accident categories. Currently, there are regulations applied when low levels of visibility occur. However this in fact might be an indication that these regulations are not sufficient. As an alternative solution, the visibility limits when the Strait is closed to traffic or when the vessels have to move with a lower speed can be revised.

Cross traffic is found as a contributing factor in the formation of transit-transit collisions and transit-local collisions. When cross traffic within the Strait is evaluated, it is recognized that the passenger-boats and sea buses have new navigation, engineering, and control system technology and have significantly different maneuvering and response characteristics than traditional ferries. Operators using these new technologies experience significantly increased vessel responsiveness coupled with reduced human response times. However, the situation is not the same for ferries belonging to Turkish Maritime Organization. Since Turkish Maritime Organisation is under the scope of privatization and it has a limited budget, no investment has been done on its fleet for the last 4-5 years. As a result, these ferries are old and clumsy. They cannot make maneuvers rapidly. Besides, at some time intervals, a lot of fishing boats exist on the transit lane of vessels. This increases the collision risk, however Maritime Traffic Control Organization does not have the required number of boats to intervene.

As expected, square of transit traffic is observed as a significant factor in the logistic regression model for transit – transit collisions. This means that, for instance, if transit traffic increases around 40 per cent in the future, the collision risk for any vessel will increase as if traffic rate has increased by 100 per cent which indicates the significance of this factor.

As a new finding, shallowness level is observed as a significant factor in the regression model for other accidents. When the other accidents, especially the groundings are investigated, this result seems normal, because these accidents happen in zone 3 and zone 6 very frequently where the shallowness level is very high. As an intervention, in these zones the shallow areas can be signalled via visual controls and navigational aids. Also, one way traffic in zone 3 might be another suggestion since the shallow areas cover a major percentage of the southbound lane and causes a very risky situation.

On the other hand, the most unintuitive aspect of the accident probability models is that in none of the accident categories, pilotage service factor is significant. This can be accepted as an unusual result, since this factor has been emphasized as a significant factor during the interviews and discussions with experts. The reason behind this might be the problems related with the application of pilotage service in the Istanbul Strait.

- Vessels sometimes take pilots later than expected (after vessel enters the Strait)
- Pilots sometimes leave vessels earlier than expected (before vessel exits the Strait)
- The number of pilots is not sufficient for the dense traffic of the Strait.
- Vessels with pilots sometimes overtake other vessels

Also the nonexistence of current factor in the accident models might be attributed to the fact that we did not have a big and comprehensive data set for current speed values. Instead, there were average values for each zone which restricted the data set into 8 observations. Expert opinions are taken during the gap analysis on accident statistics as follows:

When the transit-transit collisions, that occurred in Zone 7 between 1997 – 1999, are observed in detail, it is understood that majority of the collisions occurred in Ahirkapı region where a lot of vessels are usually anchored. Generally, frictions and collisions take place between anchored vessels or between the passing vessel and anchored vessels. Experts firstly indicate that there is no parcellation at the anchorage area between Ahirkapı and Yeşilköy. Secondly, there isn't sufficient control over the anchored vessels.

There has been a continuous increase in the number of transit vessels over 200 meters from 1996 to 1999. However, there is no difference between the transit regulations applied to a vessel of between 150 and 300 meters (that does not carry hazardous material) and applied to a vessel of the smallest size.

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## **THE PROBLEM OF PETROLEUM TRANSPORT IN TURKISH STRAITS**

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### **ABSTRACT**

In this paper, the oil pollution levels were reported between 1996-2000 to establish a baseline for the potential environmental pollution in future. The max. pollution level was found highest in 1996 for Istanbul Strait, 1997 for Sea of Marmara and Çanakkale Strait. The pollution was decreased in 1997 for Istanbul Strait and in 1998 in Sea of Marmara (but increased in 1999 and 2000) and Çanakkale Strait. This investigation showed that Turkish Straits are more polluted than the other straits of the world.

The increase of Kazakh and Azeri oil transportation to the western countries through Turkish Straits will increase the environmental problem.

### **INRODUCTION**

The Turkish Straits are composed of Istanbul Strait (Bosphorus), Sea of Marmara and Çanakkale Strait (Dardanelles).

The Bosphorus is 31 km long, 1.6 km wide on the average and 0.07 km at the narrowest point, the max. depth being 110 m. There are two currents in this strait, upper (the Black Sea water) current flowing from the Black Sea to the sea of Marmara has a speed rate varies between 0.5-4.8 knots and rarely 6.7 knots and undercurrent is Mediterranean Sea water which flows through Çanakkale Strait into Sea of Marmara and the Black Sea in a speed rate of 1.6 knots.

The length of Sea of Marmara is 276 km and width 76 km. The speed of the upper layer current is 0.4 knot and undercurrent 0.1 knot.

The Çanakkale Strait is 62 km long, 1.2 km across the narrowest part and 6.5 km at the widest point. The speed of upper water 1.6 knots and undercurrent 0.4 knots (MEMORANDA, 1941).

Ships traffic is approx. 60000/a in Istanbul Strait 42000/a in Çanakkale Strait. The Turkish Straits System serves as a natural marine passage between the Black Sea and the Mediterranean. It is a shipping route between the former Soviet Block countries and the world market.

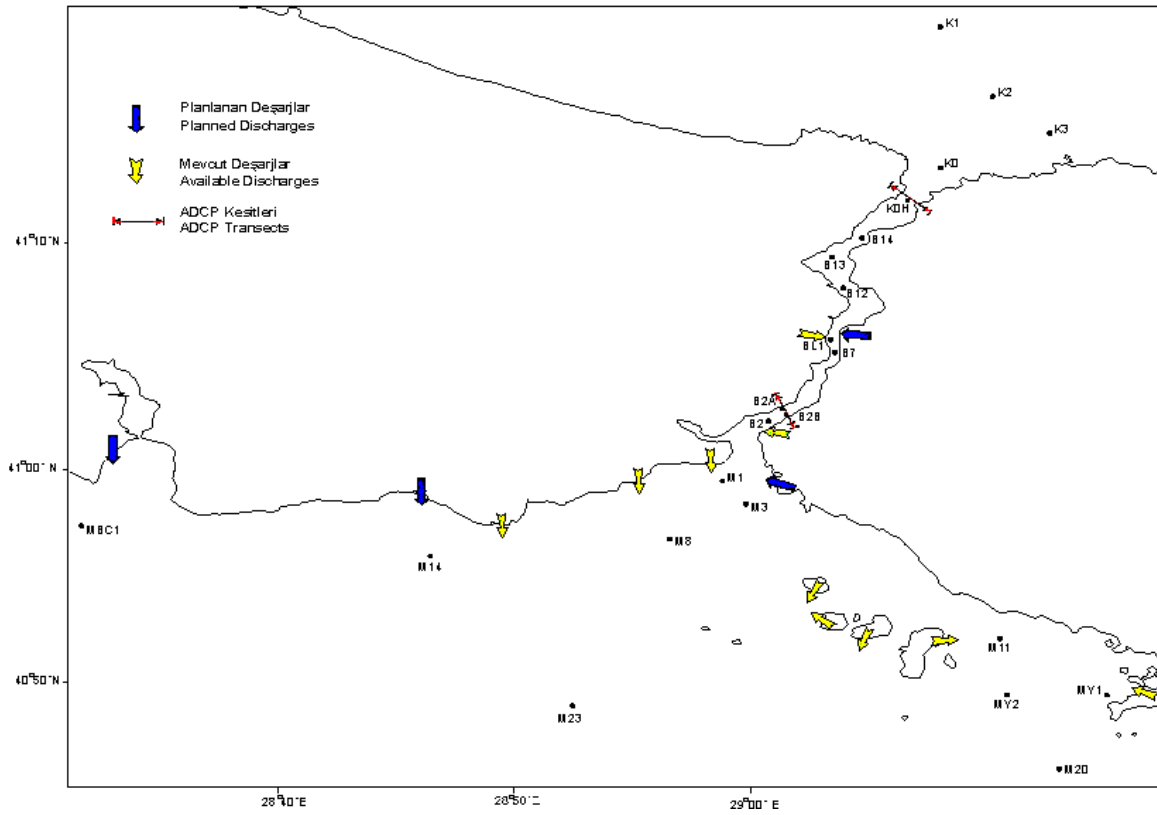


Fig. 1. The sampling station of the Black Sea, Istanbul Strait and the Sea of Marmara.

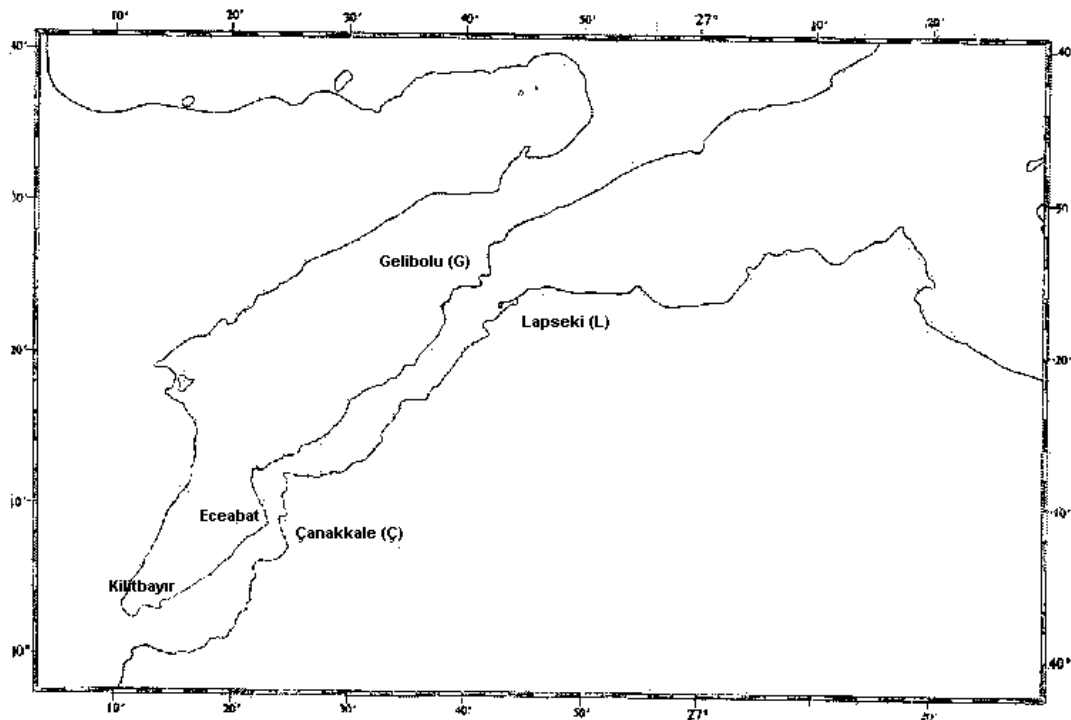


Fig. 2. The sampling stations of Çanakkale Strait.



The cause of the oil pollution of Seawater is summarized in below.

**The Source of Oil Pollution**

- Discharge of tanker ballast water
- Tanker accident
- Oil production from sea
- Other sources
  - Shipping activities
  - Land based source
  - Seawage, Industrial discharge
  - Rivers
  - Atmosphere
- Petroleum hydrocarbon originated from sea organisms
- Refinery

The spilled oil contaminates seawater and marine organisms especially mussels and algae. Mussels accumulate the oil and eliminate within 20 days. The oil was adsorbed superficially and also sorbed by algae in high level (150 µg/g) in more polluted areas, especially anthracene and phenanthrene and their derivatives (BINARK *et al.*, 2000).

Our investigation shows that the algae can be used as an indicator for the determination of oil pollution.

Oil contamination in Turkish Straits originated from the Black Sea water, tanker accidents additionally from the ship traffic. Annually 80.000 tons (through some author 450.000 tons) of oil is delivered to the Black Sea countries (POLIPARKOV *et al.*, 1991). The accident occurred in Turkish Strait are:

15.09.1964	Peter Zoranic (Yugoslavia) Norborn (Norwegian) wreck of Peter Zoranic	Collision, fire and oil spill	
01.03.1966	Lutsk (USSR) Karansky Oktiabr (USSR)	Collision and fire	1850 tons oil spilled
15.11.1979	Independenta (Romania) Evriali (Greek)	Collision and fire	70000 tons oil spilled / 20000 ton fired
09.11.1980	Nordic Faith (British) Stavanda (Greek)	Collision and fire	
29.10.1988	Blue Star (Malta) Gaziantep (Turkish)	Contacted	1000 tons amonia spilled
25.03.1990	Jambur (Iraq) Da Tung Shan (Chinese)	Collision	2600 ton oil spilled
13.03.1994	Nassia (Philippines) Shipbroker (Philippines)	Collision and fire (Güven <i>et al.</i> , 1995, 1998)	9000 tons oil spilled, 20000 tons oil fired
13.02.1997	TPAO	During the repair (Güven <i>et al.</i> , 2000)	214 tons oil spilled, 286 tons oil fired
30.12.1999	Volganef	Sunk	1200 tons oil spilled
07.10.2002	Gotia	Collision	22 tons oil spilled

Some quality standards have been established for either total hydrocarbons or specific hydrocarbons (PAH)<sub>s</sub> in marine waters. In the early 1970s the oil pollution problem was growing rapidly. Average oil concentration reached as high as 0.25 µg/L. The first class criterion for seawater was 0.05 µg/L and even up to 0.50 µg/L in some areas (ZHIJIE, 1990). The concentration of oil found in the water has been accepted as 0.33 µg/L in 1975 and 13 µg/L in 1989. The limit of oil pollution in seawater was 13 µg/L. According to another regulation the seawater containing hydrocarbon levels less than 2.5 µg/L can be classified as unpolluted (FAO, 1982). Law (1981) indicates that 1 µg/L is considered to be typical of seawater without significant petroleum pollution while concentration of about 5 mg/L are considered low for inshore water. Genjuatalin (1985) found that the limit concentration available (LCA) of petroleum is 0.3 µg/L for toxic influence. Zooplanktonic organisms die at oil concentration of 0.05 – 0.01 ml/L during first days. The 0.001 ml/L oil concentration accelerate death of the tested organisms (MIRANOV, 1991). The influence of seasons on oil pollution was investigated and in winter the level of oil found high. It was attributed to evaporation, photo oxidation and microbial degradation rate was low in winter.

The determination of oil pollution has some problems. These are 1) the methods used for plotting of calibration curve and 2) selection of extraction solvent.

Various solvents were used for oil determinations such as hexane, dichloromethane, the mixture of hexane and dichloromethane, carbontetrachloride. The best solvent is dichloromethane. UNEP and Law *et al.* (1987) recommended dichloromethane for extraction and gave the results around 2x higher but it also has some disadvantages as it dissolved approx 10% in water and is cause a loss of oil amount in the determination (GUVEN *et al.*, Unpublished data).

The second problem is the standard used for plotting of calibration curve. When chrysene used as standard the results was ten to twenty time lover then the result of crude oil standard. For example the oil pollution of Izmit Bay was found 1.2-2.7 µg/L in open sea and 1.2-18.5 µg/L coastal sea area for chrysene (TELLI *et al.*, 1999), but we found the oil level in the same area as 425 µg/L, 1688 µg/L by using crude oil as standard. A new correlation equation was proposed which was calculated from crude oils (UNLU and GUVEN, 2000), recently the correlation equations were calculated from the crude oils imported every year from various countries (GUVEN and ÇETINTURK, unpublished data).

Oil pollution level of Turkish Straits was investigated by our laboratory (GUVEN *et al.*, 1997, 1998, 2000; BILDACI *et al.*, 2000).

In this paper, the oil pollution results were reported in seawater of Turkish Straits. The regular quantitative monitoring was initiated in Jan 1994 and in this communication the results oil pollution of seawater collected between 1994–2000 was summarized.

The sampling points of seawater from Turkish Straits are shown in Fig 1 and 2.

The maximum amount of oil pollution (µg/L) in Turkish Strait between 1996 – 2000 and their graphical representation are below (GUVEN, UNLU and ÇETINTURK, Unpublished data).

### Oil pollution of Istanbul Strait

	Entrance	Exit
1996	212.06	229.64
1997	106.67	218.50
1998	57.82	103.87
1999	33.24	62.28
2000	34.80	110.06

### Oil pollution of Sea of Marmara

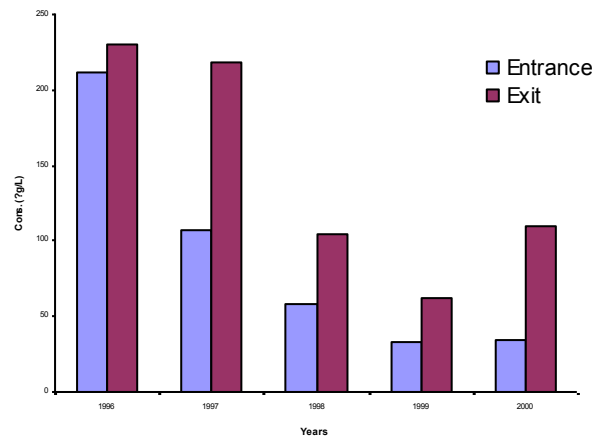
1996	59.80
1997	446.27
1998	28.01
1999	263.31
2000	126.28

### Oil pollution of Çanakkale Strait\*

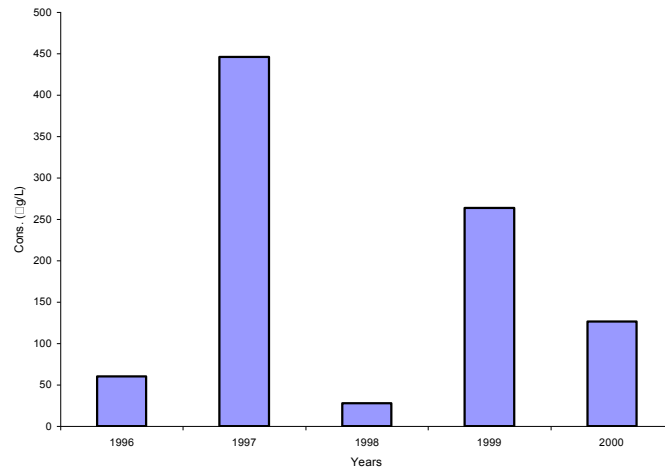
	Entrance	Exit
1997	85.79	112.53
1998	40.32	110.31
1999	15.88	13.11
2000	41.48	20.54

\* Coast of Çanakkale Strait the oil pollution are in 1996: 105.33-154.76µg/L in entrance and 44.82 µg/L in exit; in 1997 162.79-429.59 µg/L in entrance and 539.10 µg/L in exit (GUVEN and ILGAR, 2002)

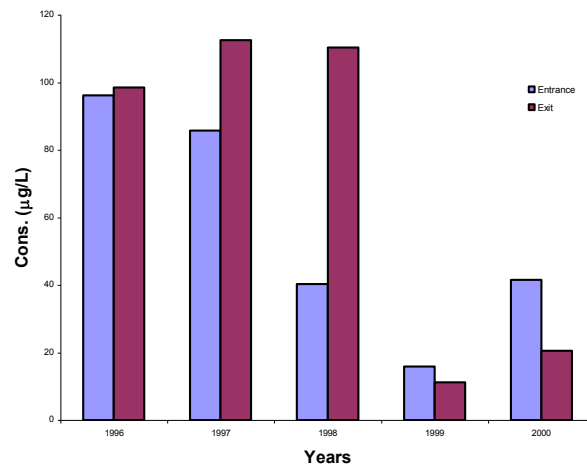
### Graphical representation of oil pollution of Istanbul Strait



### Graphical representation of oil pollution of Sea of Marmara



### Graphical representation of oil pollution of Çanakkale Strait



These results showed that the northern entrance of the Istanbul Strait is less polluted than southern exit due to heavy marine traffic in this region. In Çanakkale Strait exit is also more polluted than entrance in 1997-1998 but on the contrary in 1999-2000. The oil level of Istanbul Strait was found twice as higher than Çanakkale Strait in both entrance and exit. The pollution level of Sea of Marmara was lower than Istanbul Strait (except 1997) but higher than Çanakkale Strait. As can be seen in the table and the graphical representation the linearity was not observed in oil pollution level during the years examined in all regions.

The comparisons of oil pollution in various straits are:

English channel <sup>a</sup>	3.4-9 µg/L (1981)
Florida Strait	47 µg/L
Yucatan Strait	12 µg/L
Sao Sebastio Strait (Brasil) <sup>b</sup>	49.6 µg/L
Johor Strait (Malaysia) <sup>c</sup>	2800 µg/L

<sup>a</sup> LAW, 1981, <sup>b</sup> ZANARDI *et al.*, 1999, <sup>c</sup> ABDULLAH, 1996.

The comparisons of oil concentrations in coastal and open seawaters of the world are:

UK estuaries <sup>a</sup>	9.3-48 µg/L (1993)
Gulf of Lyons <sup>a</sup>	18-23 µg/L (1988)
Arabian Gulf <sup>a</sup>	3.25-25.33 µg/L (1988)
Sevastopol <sup>b</sup>	540 µg/L (1990)
Yalta <sup>b</sup>	180 µg/L (1991)
Novorossisk-Gelendzhik <sup>b</sup>	130 µg/L (1992)
North Atlantic Ocean	17-147 µg/L
Cretan Sea, Greece	0.092-0.317µg/L (1997)
Tanker route in Soudia Arabia	7 µg/L (1987)
Tanker route in Pasific	0.5-5 µg/L
Tanker route of Gulf of Oman <sup>d</sup>	6-84 µg/L (1999)

<sup>a</sup> AL-SAAD *et al.*, 1998, <sup>b</sup> POLIKARPOV, 1991, <sup>c</sup> KORNILIOS, 1998, <sup>d</sup> SHRIADAH, 1999.

When oil pollutions were compared in the straits, seawater and tanker routs mentioned above, Turkish Straits found more polluted (except Johor strait).

Shipping activities involving tankers and other vessels plying the Turkish Straits, have been recognized as a source of oil pollution in water. Land-Based industrial and urban sources also contribute to the oil pollution load in theses waters.

The discussion on the export route by tanker or pipeline was investigated by our laboratory (GUVEN *et al.*, 1998). This work was made in the area of Eastern Mediterranean of Turkey. The oil pollution was measured before and after service of Iraq-Yumurtalik (Iskenderun) export pipeline. The higher oil concentration was found as 514.28 mg/L and 30.35 mg/L at these areas before and after pumping respectively. The oil concentration was high at all stations examined before the pumping of the Iraq oil started and noticeable decreased following the pumping. The pollution increased as high as 3-20 fold when the tankers carried the oil.

Today the main problem of Turkish Straits is in future to be an export rout of oil for Russian, Caspian and other former Soviet Union countries. It has been conservatively estimated that oil production from the region will reach 100 million tones per year (a similar level to total UK production). With half of this, around 50 million tones may need to be exported to the international market (ANNON, 1996). Oil pollution level of Turkish straits is of serious concern for Turkey while transport of Caspian oil with tankers via Turkish straits. This will increase the risk of oil pollution. After the Independenta tanker accident in 1979 there was no quantitative analysis of oil pollution in seawater. After the second biggest tanker accident, Nassia 1994, the measurement of oil pollution was determined 1 month after from the accident. The highly dynamic nature (movement, mixing) of the sea water of Istanbul Strait, the spilled oil originated from Nassia tanker passed to the Sea of Marmara in approx. 10 h after. The determined oil levels were the oil covered on rocky shores removed by mechanical and flotation. Because of this the oil level determined after 1 month was not signify the real value of pollution. It is an administrative error.

In conclusion, when the oil transport with tankers increases the risk of pollution will rise. The oil pollution level found in Turkish Straits was higher than any other straits of the world. Our investigation on the oil pollution measurements before and after service of Iraq pipeline has proved that the better export route for Kazakh and Azeri oil is definitely through Baku - Ceyhan pipeline.

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## **IS ISTANBUL READY FOR AN OIL POLLUTION CONTROL AND OIL SPILLS?**

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In June 27<sup>th</sup> 2002, two tanker vessels caused an oil spill in Tuzla Shipyards near Princess Islands. 1.400 tons of crude oil spilled on sea at 10 o'clock PM. After five hours, 1,000 meters of oil boom were laided at sea around the vessels, two oil skimmer vessels started to skimming oils. But the wind and flow caused the oil pollution for very large area.

In October 6<sup>th</sup> 2002, only 25 tons of fuel leaked from a cargo vessel, because of a marine traffic accident on Emirgan coast. 257 fishing boats, yachts and 600 meters of coast were contaminated by waste oil. P&I Club and ITOPF arranged the cleaning operation after 24 hours immediately. 3,100 meters of sorbent boom, 1,200 meters of oil boom, 4 oil skimmer vessels, 5 units of portable oil skimmers and 500 men/day workers were used during 20 days of cleaning operation.

That was because of only 25 tons of waste oil. Everyday, at least 500,000 tons of petroleum products are carried by tanker ships over Istanbul Strait. If one of them causes an accident on the way, who can prevent the probable dangers?

What should 12 million citizens of Istanbul do?

What can the governmental authorities do, to prevent Istanbul City from any fire, oil pollution, ecological losses and other?

It is impossible to think about the problems to be solved nowadays and for the future!

M/T INDEPENDENTA caused a large fire and 60,000 tons of oil spilled, in 1979.

M/T NASIA caused a large fire and at the northern entrance of Istanbul strait, in 1994. 38 sea men died in fire. Nobody could prevent the fire and oil pollution at sea. Thousands of sea bird died. Thousand tons of fish were disappeared. Thousand tons of petroleum leaked at sea and marine fire continued for many days. All the balances (as natural, ecological, economical, etc.) changed in negative.

M/T VOLGONEFT 248, M/V GOTIA.... and unknown ones.

European Union Countries declared in 2001 that not only “dangerous” vessels but “probably dangerous” vessels must be under control during their operations. Port State Control Authorities must control them continuously and frequently. Unfortunately, any country from Europe, neither Russia nor others worry about big dangers on Turkish Straits and for Istanbul, 12 million citizens, fishes, fishermen, fire at sea, oil pollutions, ecological destroys and others. In case of an accident we will suffer, not them.

### **ANY SOLUTIONS?**

Environmental Protection Associations must have a meeting in Istanbul as soon as possible to advise a protection system establishments.

World Universities and Scientists must arrange a council and discuss about solutions for Istanbul's marine-ecological problems.

Turkish Government must immediately declare the "Contingency Plans of Turkish Straits" to IMO, P&I Clubs and ITOPF.

Oil Pollution Control and Oil Spill Response Stations must be established at least at 9 points on Istanbul Strait and 5 points on Çanakkale Strait. Oil Spill Response vessels must be stand by on straits for 24 hours in a day for all year.

All the vessels must be a member of P&I Club. That must be the first rule of "Free Passage on Istanbul Strait".

All the petroleum tankers must demand the Pilot and Oil Pollution Control - Oil Skimmer Vessel as escort for Turkish Straits.

P&I Clubs and ITOPF must pay some fees to Turkish Government for such services (they may pay 5 % of Insurance Fee). That is one of the rules of IMO : "If you have caused a pollution, you must clean and pay all costs!"

Please don't forget that :

**WE MUST SAVE OUR SEAS!**

**WE MUST LEAVE CLEAN SEAS TO OUR CHILDREN!**

## **STRAITS USED FOR INTERNATIONAL NAVIGATION: ENVIRONMENTAL PROTECTION AND MARITIME SAFETY IN THE DANISH STRAITS**

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### **INTRODUCTION**

As entrances to the Baltic Sea, the Danish Straits are important sea lanes for shipping. This paper deals with the commercial navigation through these straits. It does not focus, however, on the right of passage of merchant vessels, because such right rarely creates problems. In the Case concerning Passage through the Great Belt<sup>1</sup>, it was not contested between Finland and Denmark that merchant vessels have a right of passage through the Danish straits. Instead, the question before the International Court of Justice was, whether the future bridge across the Great Belt would hamper the passage of mobile offshore drilling units (MODUS) through the strait.

The actual problems with regard to straits are caused by a tremendous increase of maritime traffic – an increase in numbers and size of all kinds of merchant vessels, not only tankers. The world's fleet of oceangoing vessels above 1000 gross tons size consists of about 25 000 ships today. Cargo weight has multiplied by the factor ten since 1950 and the size of the fleet (in tons dead weight) has grown since 1976 for more than 35 percent.<sup>2</sup> Pollution caused by the operation of ships and the risk of maritime casualties in straits used for international navigation have become a real danger during the last decades. Maritime casualties occurred, for instance, in the Strait of Malacca, the Turkish Straits, and in the Kadet Channel in the Baltic Sea.<sup>3</sup> As a consequence of this development, the States bordering straits used for international navigation are increasingly concerned about the environment and the safety of navigation within their straits.

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<sup>1</sup> Passage through the Great Belt (Finland v. Denmark), Provisional Measures, Order of 29 July 1991, I.C.J. Reports 1991, p. 12 (henceforth: Passage case). Interim measures requested by Finland against Denmark's construction of a bridge with a vertical clearance of 65 m were denied. Finland removed the case from the Court upon a settlement in which Denmark paid a sum of approximately 16 Mio \$ to Finland.

<sup>2</sup> Tanker cargoes come up for 40 percent by weight, the rest is dry bulk and general cargo, more than 70 percent of which moves in containers; figures for 1998 from *H.L. Kite-Powell*, Shipping and Ports, in: John H. Steele / Steve A. Thorpe / Karl K. Turekian (Eds.), *Encyclopedia of Ocean Sciences*, San Diego, San Francisco, New York, Boston, London, Sydney, Tokyo (2001), p. 2768 seq.

<sup>3</sup> The Kadet Channel between the Danish island of Falster and the German coast is a narrow strait with a route through the exclusive economic zones of both States. Navigation in the channel with a charted minimum depth of 17 m is impeded by moving sandbanks. There were 19 casualties in the channel since 1990, including 16 cases of ground-touching; the last incident of the Cypriot vessel "Nikolas B" was in May 2001.

Therefore this paper will focus on the international law concerning the legislative and enforcement jurisdiction of Denmark with respect to environmental and maritime safety in the straits. It will also ask, whether this law would change, if the country would ratify the 1982 United Nations Convention on the Law of the Sea.

Considering these problems, however, one generally has to keep in mind that 90 percent of the world's international trade is carried by ships. Hence, maritime transport is not only a matter of economic interest for shipping companies, it is also in the public interest of flag States and coastal States. International law has accordingly to provide a reasonable balance between the environmental and safety concerns of the States bordering such straits on the one hand and the commercial interest of the international community in maritime shipping on the other hand.

## GEOGRAPHY OF THE DANISH STRAITS

The Danish Straits are three navigational routes from the North Sea and the Baltic Sea between the Danish Islands.<sup>4</sup> They are the Little Belt, the Great Belt and the Sound, each being of different relevance for international navigation. The *Little Belt* is a narrow strait separating the Jutland Peninsula in the West from the islands of Aeroe, Funen and Als. With a length of 70 nautical miles (nm) and an breadth of 0.4 to 16 nm, it has a minimum depth of 15 metres (m) in its navigable channel. Located completely within Danish internal waters, it is only relevant for small vessels and local navigation.

The *Sound* (Oresund) is the strait in the North-East between the Danish island of Zealand and the coast of Sweden. It connects the Kattegat directly with the Middle Baltic Sea. With a length of approximately 56 nm and a breadth between 2.2 and 27 nm the Sound has two navigational channels. Because of the minimum depth of only 7.7 m, which is maintained by dredging the mainly used Drogden Channel passing through Denmark's internal waters and territorial sea, the Sound is difficult to navigate for ships in transit to and from the Baltic Sea. Therefore it is mainly used by small and medium ships.<sup>5</sup>

The *Great Belt* is a strait of 90 nm between the Danish islands of Samsøe, Funen and Langeland in the West and Zealand and Lolland in the East with a breadth between 5.7 and 15 nm and a minimum depth of about 26 m in the North. Although the number of ships passing through the Great Belt per year is slightly smaller than those of the Sound,<sup>6</sup> the Great Belt the most important natural seaway<sup>7</sup> for oceangoing ships between the North Sea and the Baltic Sea.

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<sup>4</sup> For a detailed description see the Counter-Memorial of Denmark, I.C.J. Pleadings, Passage through the Great Belt (Finland v. Denmark), p. 403-405, 481 *seq.*; Gunnar Alexandersson, *The Baltic Straits*, The Hague / Boston / London 1982, p. 63-69.

<sup>5</sup> Of more than 21 000 ships passing through the Sound in 1990, only 34 percent exceeded 5 000 TDW, with more than 100 above 40 000 TDW; see Counter-Memorial (note 4), p. 491, para. 308.

<sup>6</sup> The Danish Counter-Memorial (note 4), p. 579, para. 583, mentions about 20 000 ships per year.

<sup>7</sup> Of more than 32 000 ships in transit from the North Sea through the Kiel Canal to the Baltic Sea in 1990, there were more than 11 000 or 34 percent smaller than 500 TDW, and only 14 percent above 4 000 TDW.

The Danish Straits are crossed by bridges, the Little Belt already since 1935 and by another one since 1970. The bridge across the Great Belt, which gave the reason for the mentioned case between Finland and Denmark before the ICJ, was inaugurated in 1998. The bridge linking the Danish capital Copenhagen with the Swedish port city of Malmö across the Sound was opened in 2001.

A seagoing ship bound for the Baltic Sea enters the Skagerrak from the North Sea between the northern tip of the Jutland Peninsula and Norway. It passes southward through the Kattegat between Jutland and Sweden into the Great Belt and arrives the Western Baltic Sea. Navigating from there eastward through the Femer Belt between the Danish island of Lolland and the German island of Fehmarn, it passes through the Kadet Channel between the Danish island of Falster and the German coast into the Middle Baltic Sea.

The Skagerrak and the Kattegat are parts of the Danish, the Norwegian and the Swedish exclusive economic zones, whereas main parts of the Great Belt are in the Danish territorial sea. Although they generally extended their territorial sea to 12 miles, Denmark and Sweden have maintained a territorial sea of three miles in the Great Belt and the Sound.<sup>8</sup> From the southern entrance to the Great Belt through the Femer Belt and the Kadet Channel into the Middle Baltic Sea, Germany and Denmark have limited the breadth of their territorial seas in order to maintain a route with a width of four miles through their exclusive economic zones.

### **THE DANISH POSITION: SPECIAL REGIME PROVIDING INNOCENT PASSAGE**

A few years ago, an author characterised the exact content of the legal régime of the Danish straits as “not altogether clear” proceeding: “For instance, it is not clear whether passage amounts to, e.g. (non-suspendable) innocent passage or transit passage and in what instances a ship is no longer in passage and what implications this has for the enforcement of regulations by the coastal State.”<sup>9</sup> In this situation it is fair to start from the official Danish position set forth in the mentioned Passage case in order to analyse the régime of the straits.

The Agents of the Danish Government described the “legal position of the Danish straits” in their Counter-Memorial as being “regulated by the special régime in Article 2 of the Copenhagen Treaty, supplemented by the customary rules of international law related to the Danish straits.”<sup>10</sup> The Copenhagen Treaty (or: 1857

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<sup>8</sup> See the Exchange of notes concerning an agreement between Denmark and Sweden concerning the delimitation of the territorial waters between Denmark and Sweden, 25 June 1979, in: Office for Ocean Affairs and the Law of the Sea (Ed.), *The Law of the Sea, Maritime Boundary Agreements (1970-1984)*, New York, 1987, p. 18.

<sup>9</sup> *Alex G. Oude Elferink*, *The Regime of Passage Through the Danish Straits*, *The International Journal of Marine and Coastal Law*, Vol. 15 (2000), p. 555, at p. 565.

<sup>10</sup> Counter-Memorial (note 4), p. 606, para. 670; similar p. 623, para. 742.

Treaty) is the Treaty for the Redemption of the Sound Dues of 14 March 1857<sup>11</sup> between Denmark and Austria, Belgium, France, Great Britain, the Netherlands, Russia, Sweden and Norway, and several German States of that time.<sup>12</sup> It is still in force for Denmark and several parties.<sup>13</sup> With regard to the legal *sources* of this régime, the Danish Agents explained: “Around the conventional right of passage for merchant ships established by the 1857 Treaty, the legal régime of the Danish straits has been completed by norms of customary law [...]”<sup>14</sup> As to the complex *structure* of the régime, they submitted: “It is true that [...] there have been customary law accretions to the legal régime of the Danish straits, but these accretions have not displaced the provisions of the 1857 Treaty; the legal régime as a whole has been built upon the core of legal norms having a conventional not a customary origin.”<sup>15</sup> This view was not contested by Finland which, however, added “that the precise relationship between these sources may be the object of debate”.<sup>16</sup> One certainly can agree to this. A legal régime that consists of different sources gives indeed rise to various questions, if its structure is couched in metaphors, such as “accretion” and “core”, instead of clearly defined legal terms.

The first question is, which conventional rules constitute this régime? The Copenhagen Treaty, like eight bilateral conventions concluded by Denmark between 1857 and 1860,<sup>17</sup> abolished once and for all the former dues on merchant ships and their cargoes passing through the Sound and the Belts (Art. 1) in return for a compensation to Denmark (Art. 4). Article 2 of the Treaty contains responsibilities undertaken by Denmark in the interest of navigation in the Kattegat, the Sound and the Belts. Denmark considered this provision as the conventional “core” of the régime, which includes a “conventional right of passage for merchant ships” through the straits,<sup>18</sup> albeit Art. 2 refers in connection with existing lights, buoys and pilot services only to “facilitating navigation in the Kattegat, the Sound and the Belts” and to the “general interest of navigation.” Without even mentioning the term “passage”, the provision obviously presupposes a right of passage rather than expressly stipulating it.

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<sup>11</sup> The original French text: *Traité conclu à Copenhague, le 14 mars 1857, entre le Danemark, la France, et les autres puissances maritimes pour l’abolition, relatif au rachat des droits du Sund et des Belts*, in: Martens, *Nouveau Recueil Général de Traités*, Vol. XVI, Part 2, Göttingen 1860, p. 345; also in: De Clercq, *Recueil des Traités de la France*, Vol. 7, 1856-1859, p. 259.

<sup>12</sup> Hannover, the Hanseatic Cities, Mecklenburg-Schwerin, Oldenburg, Preußen.

<sup>13</sup> Consolidated Treaty Series, Vol. 116, p. 357. Published by the German Foreign Office as in force of 1 May 1969, in: *Verträge der Bundesrepublik Deutschland, Serie A, Multilaterale Verträge*; hrsg. vom Auswärtigen Amt, 1969, Vol. 27, p. 2 (no. A 315).

<sup>14</sup> Counter-Memorial (note 4), p. 622 *seq.*, para. 740.

<sup>15</sup> Counter-Memorial (note 4), p. 623, para. 742.

<sup>16</sup> Memorial of Finland, I.C.J. Pleadings, *Passage through the Great Belt (Finland v. Denmark)*, p. 231, at p. 331, para. 401.

<sup>17</sup> Bilateral conventions on the redemption of the Sound dues concluded 1857 with the United States and Sardinia; 1858 with Sicily, Toscana, Venezuela, Portugal; 1859 with Turkey; and 1860 with Spain; see Counter-Memorial (note 4), p. 604, para. 661.

<sup>18</sup> Counter-Memorial (note 4), p. 622 *seq.*, paras. 740, 742.

As a consequence of its view, Denmark considers the right of passage under the conventional régime of the 1857 Treaty as being accorded to third States as beneficiaries under customary law codified in Art. 36 of the Vienna Convention on the Law of Treaties.<sup>19</sup> Hence, the conventional norms of the legal régime of the straits apply to all States which have accepted it.

This Danish interpretation of the Copenhagen Treaty, however, has to face the additional argument that Art. 1 of the Copenhagen Treaty stipulates, *inter alia*, “no ship shall henceforth, under any pretext whatsoever, be subjected in its passage of the Sound and the Belts to any detention or hindrance”. The text of this provision is neither ambiguous nor obscure, but its function and effect is contested. Finland regarded it as the basis for a “right of passage without detention or hindrance,”<sup>20</sup> whereas some writers considered it as the conventional basis for the legal régime entailing *freedom of navigation* in the straits.<sup>21</sup> This would have far reaching consequences for the navigation in the Danish straits, because freedom of navigation is more encompassing than the more limited right of innocent passage. Others considered it rightly as a restriction of the coastal State’s enforcement jurisdiction.<sup>22</sup>

Apart from the stipulations of the Copenhagen Treaty, Denmark declared for instance in the bilateral Convention for the Discontinuance of the Sound Dues between Denmark and the United States concluded in Washington on 11 April 1857<sup>23</sup> “entire freedom of the navigation of the Sound and the Belts in favour of American vessels and their cargoes [...] forever” (Art. I), and secured forever “the free and unincumbered navigation of American Vessels through the Sound and the Belts” (Art. III). Article I of the Washington Convention clearly stipulates freedom of navigation. This includes freedom from any Danish regulation or enforcement with respect to the navigation of American vessels in the straits. Despite the Danish statement in the Passage case that “(n)othing suggests an interpretation of the bilateral treaties different from the interpretation of the Copenhagen Treaty”<sup>24</sup>, one can fairly assume that the 1857 Washington Convention established a bilateral régime for the Danish straits, which is different from that of the Copenhagen Treaty.<sup>25</sup>

According to the Danish interpretation of the Copenhagen Treaty, however, based on historic and systematic considerations together with the object and purpose of Art. 1 of the Treaty, the mentioned sentence on the unhindered passage related only

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<sup>19</sup> Counter-Memorial (note 4), p. 609 *seq.*, paras. 683-689. The 1969 Vienna Convention, however, does not apply (Art. 4), but it codified customary law on this point. Finland regarded this as objective régime, Memorial (note 16), p. 323, para. 382.

<sup>20</sup> Memorial (note 16), p. 323, para. 381.

<sup>21</sup> Harald Löschner, *Schiffahrtswege zum und im Ostseegebiet*, Außenpolitik 1979, p. 220, at p. 274; *Oude Elferink* (note 9), p. 561 *seq.*

<sup>22</sup> R.R.Churchill / A.V. Lowe, *The Law of the Sea*, 3<sup>rd</sup> ed., Manchester 1999, p. 114.

<sup>23</sup> Consolidated Treaty Series, Vol. 116, p. 465. English text also in: Martens, *Nouveau Recueil Général de Traités*, Tome XVII (1861), p. 210.

<sup>24</sup> Counter-Memorial (note 4), p. 606, para. 668.

<sup>25</sup> Accordingly from the point of view of the US *Schachte* argues mainly on the basis of the bilateral 1857 Washington Convention, see William L. Schachte Jr., *International Straits and Navigational Freedoms*, Ocean Development and International Law, Vol. 24 (1993), p. 179 at p. 191.

to the abolition of the dues for all ships, including those from third States. Accordingly the Danish Agents asserted:

“Thus, there can be no doubt that this particular sentence, relating in its origin only to fiscal matters, cannot provide the basis for an interpretation designed to limit the sovereign rights of Denmark over Danish straits in any way that does not follow from general rules of international law concerning *innocent passage through the territorial sea* as later codified in the 1958 Convention on the Territorial Sea and the Contiguous Zone, supplemented by the special régime contained in the rules of Article 2 of the Copenhagen Treaty.”<sup>26</sup>

This statement is in two points confusing. Denmark is exercising the all encompassing “sovereignty” instead of the limited “sovereign rights” in its straits, and the conventional right of passage is, according to the Danish views cited before, supplemented by customary law, not *vice versa*. But it is clear on the question of the contents and scope of the right of passage through the straits: Albeit this right is created by the 1857 Treaty, its contents is determined by the customary law of *innocent* passage. Denmark identified the customary norms completing the conventional right of passage as those “codified in the 1958 Convention, such as the concept of innocent passage, and also by norms of an exclusive customary nature, such as those concerning the passage of warships.”<sup>27</sup> In the same vein, it maintained: “When it specifically comes to *merchant ships*, they have since the 1857 Treaty enjoyed a right of innocent passage through the Danish straits.”<sup>28</sup> This assertion is in conformity with a statement of the Danish representative at the 1958 UN Conference on the Law of the Sea.<sup>29</sup>

In conclusion, the Danish position consistently put forward is that the conventional right of passage through the Danish straits is neither a right of unimpeded passage of its own kind, nor does it provide freedom of navigation. Instead, it consists of an incomplete conventional right of passage that is completed by the customary right of innocent passage through the territorial sea. The cited sentence of Art. 1 of the 1857 Treaty can well be squared with this view, because the coastal State must not hamper innocent passage, which also means that the ships must not be detained or hindered during their passage, as it is stipulated in the Treaty.

However, as it is a right of passage through straits used for international navigation, the innocent passage shall neither be suspendable under customary law,<sup>30</sup> nor under the 1958 Convention on the Territorial Sea and the Contiguous Zone,<sup>31</sup> which Denmark ratified on 26 September 1968.

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<sup>26</sup> Counter-Memorial (note 4), p. 606, para. 671 (emphasis added).

<sup>27</sup> Counter-Memorial (note 4), p. 622 *seq.*, para. 740.

<sup>28</sup> Counter-Memorial (note 4), p. 575, para. 572 (emphasis original).

<sup>29</sup> Mr *Sørensen* in: Fourth Meeting, 4 March 1958, United Nations Conference on the Law of the Sea, Official records, Vol. III: First Committee, p. 5, para. 17.

<sup>30</sup> *Corfu Channel case* (United Kingdom v. Albania), I.C.J. Reports 1949, p. 28.

<sup>31</sup> Art. 16(4) 1958 Conv.



## THE FINNISH POSITION: RIGHT OF FREE PASSAGE

Finland submitted in the Passage case that “the rule providing for the right of passage without any hindrance or detention” through the Danish straits “has become a customary law rule.”<sup>32</sup> Likewise it claimed that the “régime of *free passage* through the Great Belt” should apply,<sup>33</sup> submitting that the Danish Ministry of Foreign Affairs had declared that the construction of the bridge over the Great Belt would, “in conformity with international law, allow the maintenance of free passage for international shipping”.<sup>34</sup> “Free passage”, however, is an undetermined concept, which merely means that the passage shall not be hampered. Each legal régime relating to passage – freedom of navigation, innocent passage, transit passage – provides for unhampered or “free” passage. But each is of a different legal nature with different rights of the ships passing through the strait; and each is envisaging a different scope of jurisdiction of the State or States bordering the strait. Hence, the statement that the régime of the Danish straits entails free passage is of little help for a legal analysis of the special nature of this régime.

## THE RIGHT OF INNOCENT PASSAGE AND COASTAL STATE JURISDICTION TODAY

In order to determine the scope and the limits of the Danish jurisdiction over foreign merchant ships passing through the straits, one has to ask what exactly the customary law of innocent passage is. The Danish Agents referred in 1991 to “general rules of international law concerning innocent passage through the territorial sea *as later codified in the 1958 Convention*”.<sup>35</sup> But the question is, whether this customary law forming part and parcel of the special régime has been “frozen” in its state of 1958. In the light of the legal structure of the special régime, there are good reasons to have doubts about this, as Finland submitted in the Passage case.<sup>36</sup>

Under the Copenhagen Treaty, merchant ships have a right of passage. But the determination of the modalities of this passage and the scope of the coastal State’s jurisdiction was left to developing rules of customary law. Already in 1930 this customary law was the law of innocent passage,<sup>37</sup> which was later codified in the

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<sup>32</sup> Memorial (note 16), p. 327, para. 392.

<sup>33</sup> Application Instituting Proceedings Submitted by the Government of Finland, I.C.J. Pleadings (note 4), p. 7 *seq.*, paras. 25-26 (emphasis added).

<sup>34</sup> Danish circular notes of 30 June 1987 and 24 October 1989, see I.C.J. Pleadings (note 4), p. 13, 14.

<sup>35</sup> Counter-Memorial (note 4), p. 606, para. 671 (emphasis added).

<sup>36</sup> Memorial (note 16), p. 327, para. 393.

<sup>37</sup> Innocent passage was included in Art. 5 of the rules proposed by the Second Committee of the 1930 Codification Conference of the League of Nations, see the Report of the International Law Commission to the General Assembly (UN Doc. A/3159), Commentary Art. 15 no. (3), Yearbook of the International Law Commission 1956 II, Vol. II, p. 273.

1958 Convention. Under this Convention, the right of innocent passage applies to straits used for international navigation with the only *proviso* that there should be no suspension of the innocent passage (Art. 16(4) 1958 Conv.). Pursuant to Art. 14, passage is not innocent if it is prejudicial to the peace, good order or security of the coastal State (Art. 14(4) 1958 Conv.), or if a foreign fishing vessel is fishing without permission in the territorial sea (Art. 14(5) 1958 Conv.). The conditions of innocence are defined more precisely now in Art. 19(2) UNCLOS. This provision contains a conclusive list of activities that shall be considered to be prejudicial to the peace, good order and security. A passage, which is not innocent, precludes any right of the merchant ship or fishing vessel. The coastal State may take the necessary steps in its territorial sea to prevent such passage.<sup>38</sup>

The coastal State's jurisdiction to regulate innocent passage was also very generally defined in the 1958 Convention. Foreign ships exercising the right of innocent passage through the straits should comply with the laws and regulations enacted by the coastal State, "in particular with such laws and regulations relating to transport and navigation" (Art. 17 1958 Convention). The International Law Commission mentioned in its Commentary of 1956 examples of such laws and regulations.<sup>39</sup> This non exhaustive list included rules on the safety of traffic, the protection against pollution of the waters by ships, the conservation of the living resources, the rights of fishing and hunting, any hydrographical survey as well as the use of the national flag, the use of the route prescribed for international navigation and the observance of rules relating to security and of customs and health regulations. These rules had to be enacted by the coastal State "in conformity with these articles and other rules of international law", which means: without discrimination between foreign flags.

Any act of wilful and serious pollution and any fishing activity precludes innocent passage under the Law of the Sea Convention.<sup>40</sup> The other matters mentioned by the International Law Commission are now included in Art. 21(1) UNCLOS as matters of coastal State laws and regulations. Apart from this, the Convention has further developed the right of innocent passage in several points: First, the list of matters is conclusive and no longer an enumeration of examples. Second, the Law of the Sea Convention makes it expressly clear in Art. 21(1) that the laws and regulations of the coastal State shall "relate to innocent passage," thus excluding the application of other general laws and regulations of the coastal State on foreign ships which exercise innocent passage. Third, Art. 21(2) UNCLOS stipulates that only such laws and regulations on the design, construction, manning or equipment of ships shall apply to foreign ships, which give effect to generally accepted international rules or standards. These rules or standards are developed by the International Maritime Organization (IMO) through international conventions.

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<sup>38</sup> Art. 16(1) 1958 Conv. and Art. 25(1) UNCLOS.

<sup>39</sup> Commentary Art. 18 nos. (2), (3), Report of the International Law Commission (note 37), YBILC 1956 II, Vol. II, p. 274.

<sup>40</sup> Art. 19(2)(h)(i) UNCLOS.

Forth, the coastal State may designate sea lanes and traffic separation schemes through its territorial sea making them mandatory in particular for tankers, nuclear-powered ships and ships carrying nuclear or other inherently dangerous or noxious substances or materials (Art. 22(2) UNCLOS). Thereby it shall, *inter alia*, take recommendations of the IMO into account.

With respect to the coastal State's jurisdiction to enforce, the 1958 Convention contains only the customary limitations of the criminal and civil jurisdiction on board foreign vessels passing through the territorial sea (Art. 19, 20). They have been taken over almost literally in the Law of the Sea Convention (Art. 27, 28 UNCLOS). But the latter Convention regulates also the enforcement of environmental laws in the territorial sea (Art. 220 UNCLOS) as well as the safeguards applying in case of an enforcement (Art. 223 to 232 UNCLOS).

Finland rightly submitted in the Passage case that the developments concerning the notion of innocent passage arising from the Law of the Sea Convention "are not without consequences for the customary law notion of such passage".<sup>41</sup> These consequences are caused by the uniform State practice under the Law of the Sea Convention, which entered into force in 1994. Until now, 123 of 150 coastal States have become States Parties to the Convention, whereas others are deliberately applying its rules on the territorial sea in their practice. Even if one does not share the view that the whole Law of the Sea Convention has already become customary law, it would be difficult to argue that its rules on innocent passage have not become customary law by now.<sup>42</sup> Therefore, Denmark has to take the customary law of today into account, when it adopts laws and regulations to define innocent passage for the purpose of passing through its straits or when it enforces them upon foreign merchant vessels.

This is also the case, when Denmark would enforce its laws and regulations upon a ship under the flag of one of the States Parties of the 1958 Convention. When it applies this convention, Denmark has to take the existing customary law into account.<sup>43</sup> The practical relevance of the 1958 Convention, however, is limited, because the number of flag States of its 51 States Parties is quite small.<sup>44</sup> These are in particular Finland, Latvia, Lithuania and the Russian Federation as littoral States of the Baltic Sea, as well as Belgium, Italy, Malta, the Netherlands, Portugal, Spain and the United Kingdom as western European States, whilst oceangoing merchant ships under the flag of Australia, Japan, South Africa or the United States rarely pass through the Danish straits. Moreover, these flag States are, with the exception of

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<sup>41</sup> Memorial (note 16), p. 327, para. 393.

<sup>42</sup> Accordingly, the United States considers the 1982 Law of the Sea Convention „to be reflective of existing maritime law and practice with regard to the regime of innocent passage within the territorial sea.“ See aide-mémoire of 4 December 1984, in: Marian Nash (Leich) (Ed.), Cumulative Digest of the United States Practice in International Law 1981-1988, Book II, Washington 1995, p. 2023.

<sup>43</sup> See Art. 31(3)(c) of the Vienna Convention on the Law of Treaties, which codified the customary rules of interpretation. Denmark is a States Party to the convention.

<sup>44</sup> See the list in: Multilateral Treaties deposited with the Secretary General (ST/LEG/SER.E/20), Status as at 31 December 2001, Vol. II, p. 201 *seq.*

Latvia, Lithuania and the United States, also States Parties to the Law of the Sea Convention, which they apply on the innocent passage of foreign ships in their own territorial sea. The 1958 Convention is even with regard to the settlement of disputes with Denmark before the International Court of Justice of little practical relevance, because only a small number of the mentioned flag States have ratified the Optional Protocol of Signature concerning the Compulsory Settlement of Disputes of 29 April 1958.<sup>45</sup>

### **ADDITIONAL INTERNATIONAL RULES CONCERNING NAVIGATION THROUGH THE STRAITS**

The navigation of merchant vessels through the Danish straits is not exclusively regulated by the mentioned special régime. Additional international rules relating to the safety of navigation and the regulation of maritime traffic apply in the straits as well.<sup>46</sup> In order to enhance the safety of traffic through the straits, Denmark has designated in 1975, upon a recommendation of IMO,<sup>47</sup> a deepwater route with a charted depth of 17 m ("Route T") from Skagen through the Kattegat and the eastern channel of the Great Belt, the western Baltic Sea and the Kadet Channel into the Middle Baltic Sea. Route T includes several traffic separation schemes in particularly dangerous areas designated by IMO, and another scheme has been established in the Sound.<sup>48</sup> Traffic in such schemes is regulated in rule 10 of the 1972 International Collision Regulations.<sup>49</sup> Whilst such sea lanes and traffic separation schemes were not mentioned in the 1958 Convention, they are provided now in Art. 22 UNCLOS.

The IMO further recommended in 1987<sup>50</sup> to establish a ship reporting system in the entrances to the Baltic Sea for ships over 40 000 tons deadweight and for all ships carrying radioactive materials. Ships of a draught of 13 m or more and all ships carrying such materials shall make use of the pilotage service. In the Great Belt Traffic area, Denmark requires all ships with a gross tonnage of or above 50 tons and all ships with an air draught of 15 m to participate in the ship reporting system.<sup>51</sup> The jurisdiction to designate such mandatory vessel traffic service systems (VTS) in the territorial sea was provided in Art. 17 of the 1958 Conv. and is now in Art. 21(1)(a) UNCLOS.

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<sup>45</sup> Besides Denmark these are Australia, Finland, Belgium, Malta, the Netherlands, Portugal and the United Kingdom, see Multilateral Treaties (note 44), Vol. II, p. 219. Nevertheless, the Optional Protocol served as legal basis for the jurisdiction of the I.C.J. in the Passage case.

<sup>46</sup> So also *Oude Elferink* (note 9), p. 563.

<sup>47</sup> IMO Res. A.339(IX) of 12 November 1975.

<sup>48</sup> For a description see International Maritime Organization, *Ships' Routeing*, Seventh Edition, London 1999, Part B I, p. 10, 12, 14, 15.

<sup>49</sup> COLREG 1972 of IMO; the convention entered into force for Denmark on 15 July 1977.

<sup>50</sup> IMO Res. A.620(15), Navigation through the Entrances to the Baltic Sea, 19 November 1987.

<sup>51</sup> *Ships' Routeing* (note 48), Part G I, p. 1.

In addition to these technical traffic regulations, in two aspects general rules concerning the safety of navigation and the protection of the marine environment are also of relevance for the straits. On the one hand Denmark may not prescribe stricter rules and standards for foreign ships passing through its straits than those provided in the relevant IMO conventions. Denmark is a States Party to the Loadlines Convention of 1966, the Measurement Convention of 1969, the London Dumping Convention of 1972, the MARPOL Convention of 1973/78, the SOLAS Convention of 1974, and the STCW Convention of 1978. If the rules and standards set forth in these conventions are sufficient for foreign ships in port, they also must be sufficient for foreign ships on innocent passage. This principle is now codified in Art. 21(2) UNCLOS. On the other hand, the States Parties to the IMO Conventions shall generally not control the compliance of ships with the international rules and standards at sea during innocent passage, but only in its ports or at offshore terminals.<sup>52</sup> In the same strand, the regional Helsinki Convention of 1992, which applies in the Danish straits, stipulates that nothing in the convention shall be construed as infringing upon the right of innocent passage.<sup>53</sup> If, however, a ship navigating in the territorial sea violates laws and regulations of the coastal State adopted in accordance with international law or applicable international rules and standards concerning marine pollution from vessels, the coastal State may stop and inspect the vessel and institute proceedings including its detention. This jurisdiction to enforce recognised in customary law has been codified in Art. 220(2) UNCLOS.

In conclusion, the Danish jurisdiction to legislate and to enforce laws and regulations on innocent passage upon merchant ships passing through the Danish straits does not differ from the customary international rules of today relating to innocent passage in general. As a States Party to several international conventions, Denmark has taken their impact on innocent passage into account in its Act on the Protection of the Marine Environment of 1993.<sup>54</sup> This act applies to ships operating in the Danish “territorial waters” including the Sound and the Belts.<sup>55</sup> Danish authorities may examine a ship in the Danish straits as required to prevent or combat pollution of the sea, “if discharge or release from the ship [...] has taken place or is likely to take place in contravention to the Act.”<sup>56</sup>

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<sup>52</sup> See Art. 6(2) MARPOL 73/78; rules 6 and 19 of Annex I SOLAS 1974; Art. 21 LL 1966; Art. 12 TONNAGE. Apart from the IMO Conventions, see Sec. 1.3 of the regional Paris Memorandum on Port State Control (MOU), to which Denmark is a party.

<sup>53</sup> Convention on the Protection of the Baltic Sea Area, 1992 (BGBl. 1994 II 1397), Art. 27.

<sup>54</sup> Act no. 476 of June 30, 1993, as amended.

<sup>55</sup> Sec. 2-(1) and sec. 5-(1) of the Act.

<sup>56</sup> Sec. 42-(1) of the Act.

## ART. 35 (C) OF THE LAW OF THE SEA CONVENTION AND THE DANISH STRAITS

Denmark signed the Law of the Sea Convention on 10 December 1982, but it has not ratified it as yet. Therefore the question may arise, whether the régime of transit passage with the freedom of navigation for the purpose of continuous and expeditious transit of the strait (Art. 38(2) UNCLOS) would apply to the straits after a Danish ratification. This is not the case, because the Danish straits are potential Art. 35 (c)-straits. Together with the Turkish straits and the two actual Art. 35 (c)-straits – the straits between the Aland islands and the Magellan Strait<sup>57</sup> – they constitute the four recognised examples of such straits, each of which is forming a legal régime *sui generis*. If Denmark would ratify the Convention, nothing in Part III on “Straits used for International Navigation” would affect the special régime of the Danish straits.<sup>58</sup>

That passage in the Danish straits “is regulated in whole or in part by long-standing international conventions in force specifically related to such straits” (Art. 35 (c) UNCLOS) was contested, however, by some authors during the 1970s and early 1980s.<sup>59</sup> But the prevailing view in more recent publications is that Art. 35 (c) UNCLOS would apply to the Danish straits.<sup>60</sup> This is in conformity with the traditional Danish position, which was already put forward by *Erik Brüel* in 1947, when he maintained that the 1857 Copenhagen Treaty “places the Straits in the future beyond the ordinary rules of international law relating to international straits.”<sup>61</sup> Accordingly the Danish Delegate to the Third UN Conference on the Law of the Sea said in the Plenary: “After negotiations with all interested parties his delegation was satisfied that article 35 (c) applied to the specific régime in the Danish straits, a régime which had developed over the years on the basis of the Copenhagen Convention of 1857.”<sup>62</sup> Likewise Sweden declared upon signature of the Law of the Sea Convention and confirmed upon ratification “that the exception from the transit

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<sup>57</sup> The States bordering these straits, Finland and Sweden as well as Argentina and Chile, ratified the Law of the Sea Convention.

<sup>58</sup> As Sweden ratified the Law of the Sea Convention, Art. 35 (c) applies for it already with regard to the Sound.

<sup>59</sup> *Ruth Lapidoth*, *Le détroits en droit international*, Paris 1972, p. 112; *Wolfgang Graf Vitzthum*, *The Baltic Straits*, in: Choon-ho Park (Ed.), *The Law of the Sea in the 1980s*, p. 537, at 573 *seq.* The authors founded their views, however, on an interpretation of the 1857 Treaty which cannot be upheld any longer in the light of the consistent State practice.

<sup>60</sup> *John Norton Moore*, *The Régime of Straits and UNCLOS*, *The American Journal of International Law*, Vol. 74 (1980), p. 77, at p. 114; *Ib R. Andreassen*, *Commentary*, in: Park (note 59), p. 597, at p. 600; *Günther Jaenicke*, in: Park (note 59), p. 615; *Hugo Caminos*, *The Legal Régime of Straits in the 1982 United Nations Convention on the Law of the Sea*, *Recueil des Cours* 1987, Vol. V, p. 130 *seq.*; *Satya N. Nandan* and *David H. Anderson*, *A Commentary on Part III of the United Nations Convention on the Law of the Sea*, *The British Year Book of International Law*, Vol. LX (1989), p. 159, at p. 176; *J. A. Yturriaga*, *Straits used for International Navigation* (1991), p. 292; *Tullio Treves*, *Navigation*, in: Dupuy/Vignes (Eds.), *A Handbook on the New Law of the Sea*, Vol. II (1991), p. 954.

<sup>61</sup> *Erik Brüel*, *International Straits*, 1947, Vol. II, p. 40, with further references and the observation that this was also the official view in Denmark, footnote 3 on p. 41.

<sup>62</sup> Third United Nations Conference on the Law of the Sea, *Official Records*, Vol. XVI, 163<sup>rd</sup> meeting, 31 March 1982, p. 55, Danish Delegate *Brückner*. As to the consistent Danish and Swedish position at the Conference, see *Finn Laursen*, *Small Powers at Sea*, Dordrecht/Boston/London (1993), p. 48-53.

passage régime in straits, provided for in Article 35 (c) of the Convention is applicable to the strait between Sweden and Denmark (Oresund) as well as to the strait between Sweden and Finland (the Aland islands).<sup>63</sup> Denmark maintained its position also in the Passage case<sup>64</sup> and apparently also in practice *vis à vis* foreign ships in the straits.<sup>65</sup>

In the Danish straits, the passage is regulated only „in part“ by a long-standing convention in force, because the 1857 Copenhagen Treaty regulates only the passage of merchant ships, not of warships. Nevertheless, under Art. 35 (c) Part III of the Convention would be excluded as a whole (except for Art. 35 (c) itself) from an application to the Danish straits. The text of the provision refers to “the legal régime in straits”, without qualifying this régime further. Therefore, it seems not to envisage a split régime relating only to the passage of merchant ships, whilst the passage of warships and aircraft would be regulated by UNCLOS Part III.<sup>66</sup> Passage of all vessels and aircraft through the straits is excluded from the application of Part III.

But the conventional régime of the 1857 Treaty is not only a partly but also an incomplete régime, which leaves matters of the coastal State jurisdiction to legislate and to enforce to customary law, as has been shown above. Other Parts of the Law of the Sea Convention that are not excluded by Art. 35 (c) UNCLOS could well apply thereby supplementing the special régime of the straits.<sup>67</sup>

Nevertheless, Art. 35 (c) gives rise to a particular problem of enforcement jurisdiction. Pursuant to Art. 233 UNCLOS, the States bordering a strait used for international navigation may take appropriate enforcement measures against foreign ships, which have violated the laws concerning the safety of navigation or the protection of the environment in the strait, only if the violation was “causing or threatening *major damage* to the marine environment”.<sup>68</sup> As this provision is not contained in Part III of the Convention, it is formally not within the scope of application of Art. 35 (c). Notwithstanding this, it systematically relates to straits used for international navigation in its headline, and according to its object and purpose it shall protect the right of transit passage regulated in Part III. In order to prevent that Part III *indirectly* would affect the régime of the straits excluded from this Part, one has to assume that Art. 233 is not applicable in Art. 35 (c)-straits. Instead Art. 220(2) UNCLOS on the coastal State’s jurisdiction to enforce its environmental laws *vis à vis* a ship on innocent passage applies in the Danish straits. In accordance with this provision, the Danish authorities may examine a merchant ship passing through the straits and take the necessary measures pursuant to sec. 42 of the 1993 Act on the Protection of the Environment.

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<sup>63</sup> Multilateral Treaties (note 44), Vol. II, p. 244.

<sup>64</sup> Written Observations of Denmark on the Request for the Indication of Provisional Measures, I.C.J. Pleadings (note 4), p. 67, para. 97; also in: Counter-Memorial (note 4), p. 619, para. 729.

<sup>65</sup> See *Oude Elferink* (note 9), p. 562.

<sup>66</sup> So also *Jaenicke* (note 60), p. 615.

<sup>67</sup> So also *Caminos* (note 60), p. 136.

<sup>68</sup> Emphasis added.

## CUSTOMARY RIGHT OF TRANSIT PASSAGE ?

Customary law may finally create another problem with regard to the special régime of the Danish straits. Taking the development of this régime into consideration, one may ask, whether the customary right of innocent passage has been replaced by a newly emerged customary right of transit passage. Whether the right of transit passage in straits used for international navigation is still of a strictly conventional nature or can already be considered as customary law, is in dispute in international law and practice.<sup>69</sup> Notwithstanding this, the right of transit passage in no way affects the legal régime in straits, in which passage is regulated by long-standing international conventions. There are three obvious reasons for this: First, the régime of transit passage has been agreed for “new” straits with a width of more than six miles that came into existence through an extension of the territorial seas beyond three miles.<sup>70</sup> Hence, as customary law it would not apply *ratione materiae* to small straits with existing legal régimes. Second, Denmark has persistently claimed that the special régime of its straits is entailing a right of innocent passage. Therefore, an emerging customary right of transit passage would not affect the special régime of the Danish straits. Third, the object and purpose of the stipulation that the legal régimes of Art. 35 (c)-straits are not affected by Part III of the Law of the Sea Convention requires that they also should not be affected by any inconsistent customary law. Otherwise, one would face the strange situation that the right of transit passage would apply temporarily to the Danish straits until Denmark ratifies the Law of the Sea Convention. The very purpose of Art. 35 (c) is to preclude any (including a temporary) application of the right of transit passage on these straits, for which this provision was adopted.<sup>71</sup>

## CONCLUSION

The special legal régime of the Danish straits is founded on a conventional right of free passage through the straits for merchant ships provided in the 1857 Copenhagen Treaty. The passage is open to ships of all nations which recognise the régime. The specific content of the régime is determined by the customary law of innocent passage including the *proviso* that passage through straits used for international navigation shall not be suspendable. It is the customary law of today,

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<sup>69</sup> See the United States' view considering this as a long standing international practice bearing out the right of all States to transit straits used for international navigation, in: Cumulative Digest (note 42), p. 2016. Finland considered it more cautiously an „emerging principle“, Memorial, p. 329, para. 395. On the other hand the declaration of Iran upon signature of the Convention that the right of transit passage has a purely conventional character, in: Multilateral Treaties (note 44), Vol. II, p. 235.

<sup>70</sup> According to *Schachte* (note 25), p. 183, the non-suspendable innocent passage through straits developed into a customary regime of transit passage. This does not recognise, however, the effect of Art. 35 (c) on the possible development of a particular customary law in certain straits.

<sup>71</sup> This last point, however, has been contested by Finland, see Memorial (note 16), p. 330, para. 399.



as it has developed under the Law of the Sea Convention with its clear and detailed rules on innocent passage, which applies to the passage and determines Denmark's jurisdiction with regard to the straits. Together with maritime conventions on the safety (and in future also the security) of navigation and the protection of the marine environment, this special régime enables Denmark (and Sweden with regard to the Sound as well) to cope with the increasing traffic through the straits.

The legal régime entailing innocent passage through the straits would not be affected by a Danish ratification of the Law of the Sea Convention. On the contrary, a ratification would improve the legal situation both for the coastal State and for the flag States of merchant ships, in particular with regard to the issues of jurisdiction and dispute settlement.

Finally one also should keep in mind that passage through straits may be of strategic interest for naval powers and accordingly of security interest for the States bordering the strait. Therefore, a *caveat* has to be added: The situation might be different with regard to the passage of vessels enjoying immunity and questions of overflight through the straits. As the 1857 Treaty did not regulate these matters, Denmark considers their passage as regulated by local customary law forming a part of the special régime of the straits. Accordingly, it regulated the passage of warships and overflight in its 1976 Ordinance Governing the Admission of Foreign Warships and Military Aircraft to Danish Territory in Time of Peace.<sup>72</sup> But the crucial existence of the mentioned local customary law is contested, and some authors assume that the passage of warships over or under water and overflight comes under a customary régime of transit passage.<sup>73</sup> This would be, however, the topic of another paper on the Danish straits.

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<sup>72</sup> Of 16 April 1976, see Law of the Sea Bulletin No. 44 (2001), p. 52.

<sup>73</sup> The 1976 Danish Ordinance is contested by the US government, see the official position stated by *Schachte* (note 25), p. 191.

## **FISHING ACTIVITIES IN THE ISTANBUL STRAIT**

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### **ABSTRACT**

The Istanbul Strait is traditionally a rich fishing ground as it is a migratory passage of many pelagic fish. There are small-scale artisanal fisheries and large-scale industrial fisheries in the Istanbul Strait. The artisanal fisheries are carried out with pots, dredges, trap nets, beach seine nets, liftnets, lines, gill and trammel nets, and diving, whereas the industrial fisheries are carried out with purse seines only. These fishing activities face problems such as increasing sea traffic, oil spill, urbanization, lack of modernization, overfishing, and invasion of exotic species. The artisanal fisheries in the Istanbul Strait should be protected from the point of view of sustainable fisheries.

### **INTRODUCTION**

The Istanbul Strait (the Bosphorus) is one of the world's busiest waterways. However, it is also traditionally important as a rich fishing ground for the Istanbul fishermen, due to the biological peculiarity of the strait. The Turkish Straits System, including the Istanbul Strait, Marmara Sea, and Çanakkale Strait, connects the Black Sea and the Mediterranean Sea. It serves as a biological corridor between these two seas, that is, marine animals also use this strait for migration (ÖZTÜRK and ÖZTÜRK, 1996). Pelagic fish like bluefish and bonito enter the Black Sea from the Mediterranean through this strait in spring, and travel back to the Mediterranean in autumn (KOSSWIG, 1953). Therefore, the fishermen use this strait as a 'natural trap' to catch these pelagic fish. Some species like horse mackerel and silverside are year-round habitants of the Istanbul Strait.

In this paper, we describe the importance of the Istanbul Strait from the aspect of the fisheries.

## FISHING PORTS AND COOPERATIVES

There are 17 fishing ports and 13 fisheries cooperatives located in the Istanbul Strait (Fig. 1). Fourteen ports are located to the north of the Fatih Sultan Mehmet Bridge over the Istanbul Strait, because the area to the south of this bridge is always crowded with heavy maine traffic and not permitted for fisheries by law.

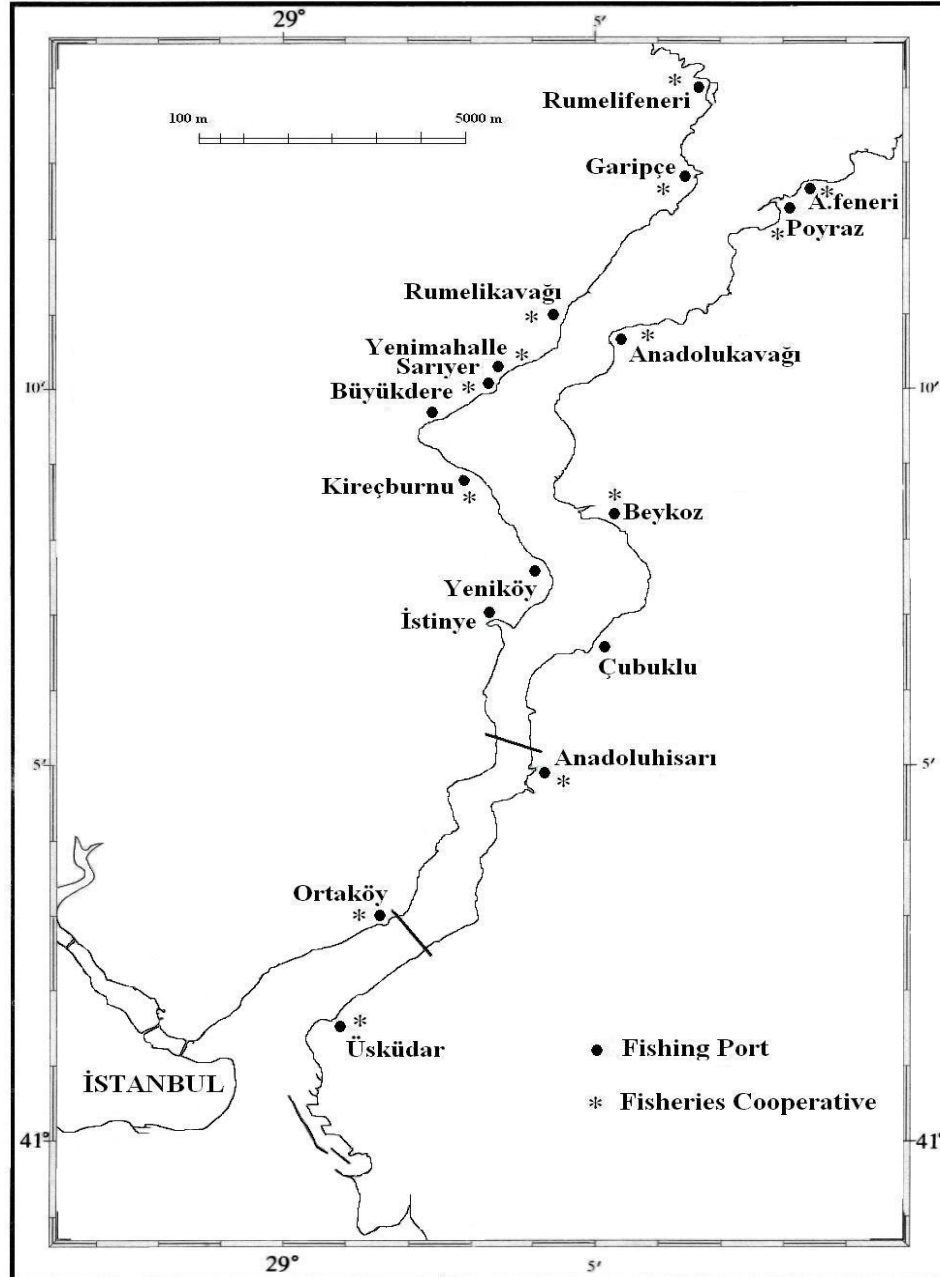


Fig. 1. Fishing ports and fisheries cooperatives in the Istanbul Strait.

## TYPES OF FISHING IN THE ISTANBUL STRAIT

The types of fishing in the Istanbul Strait are divided into two in general: artisanal and industrial. Small-scale artisanal fishing is still carried out with pots, dredges, trap nets (dalian), beach seine nets, liftnets, lines, gill nets, trammel nets, and diving. Large-scale industrial fishing is operated with purse seines, as trawling is forbidden in the Strait.

DEVEDJIAN (1926) described the fishing activities in the Istanbul Strait back in 1915. He mentioned that in that time sturgeons, bluefin tuna, swordfish, and turbot were common in the Strait. Besides, lobster, spiny lobster, shrimp, and oyster were caught. These species disappeared due to various reasons, but the most important ones are pollution and loss of habitats. He also described all of the below fishing methods, except diving, which are still used today.

**Pots (Fig. 2):** Pots are special basket- or cage-like traps to catch shore rockling in the Strait. The shore rockling is favored by Jewish people due to their religious reason. The pot fishing has been carried out in Anadoluhisarı, Yeniköy, Bebek, and Emirgan. There are no more than 10 fishermen using the pots to fish nowadays.

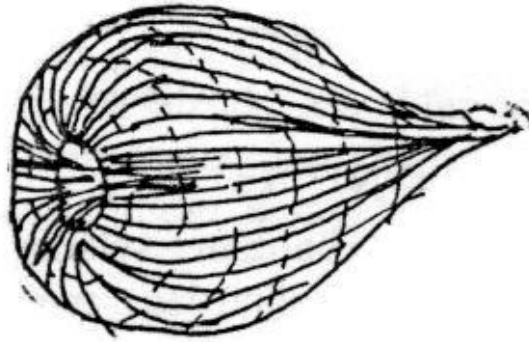


Fig.2. A pot used for catching shore rockling.

**Dredges (Fig. 3):** Dredges are used to catch mussels at the sea bottom. In the Istanbul Strait, it is allowed only in the north of the line connecting Yeniköy Ferry Port and Paşabahçe Lighthouse due to the heavy traffic in the region south of that line. It is also forbidden between 1 May and 1 September.

There are 24 dredge boats registered in the Istanbul Strait. Each of them does eight to ten dredges one day, catching 240 – 450 kg of mussels. Boats are 6.5-11.1 m in length, 2.4-3.3 m in width, with 16-56 HP. Dredges are 1.1-1.2 m in length and in width, the opening is 35-50 cm. Dredges are made of two bags; the mesh size of the inner bag is 10 mm and that of the outer bag is 5 cm. There are usually four to six persons working on a boat. In Rumelikavağı, where most of the catch lands, there are about 400 people shelling mussels.

This fishing method is very harmful for the benthic ecosystem.

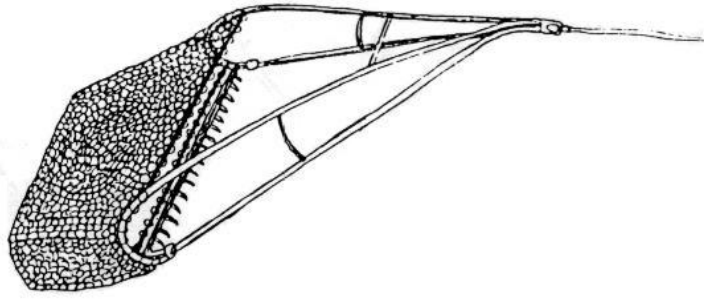


Fig. 3. A dredge used for catching mussels.

**Trap nets** (Fig. 4): Trap nets are called “dalyan” in Turkish and sometimes this word is used as “dalian” in other languages. According to DEVEDJIAN (1926), there used to be 52 trap nets in the Istanbul Strait only. There remain, however, only three trap nets at present: Bağlaraltı, Filburnu and Beykoz (Fig. 5). Bülbül Sokağı dalian in Sariyer is not set anymore.

KARAKULAK (2000) summarized the characteristics of the trap nets in and around the Istanbul Strait as follows. These nets are active only through summer, April-July. They are set parallel to the shoreline, about 100m in length and 20-40 m in maximum width. Although this is a passive way to catch fish, the location of the nets has been selected after their long experience, so that they catch surprisingly wide variety of fish species. Those are silverside, horse mackerel, bluefish, bonito, anchovy, mullet, garfish, pilchard, sprat, chub mackerel, two-banded bream, annular bream, picarel, corb, surmullet, striped mullet, scorpion fish, grey mullet and gobby. Among these, silverside, picarel, horse mackerel, grey mullet and bluefish are the basic commercial species caught by the trap nets. There are between 10 and 25 fishermen working at one trap net.

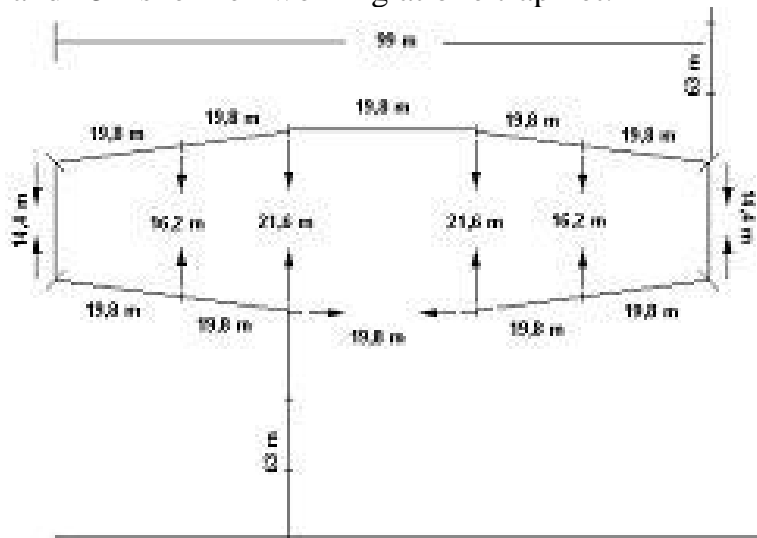


Fig. 4. Schematic figure of the trap net in Bağlaraltı.

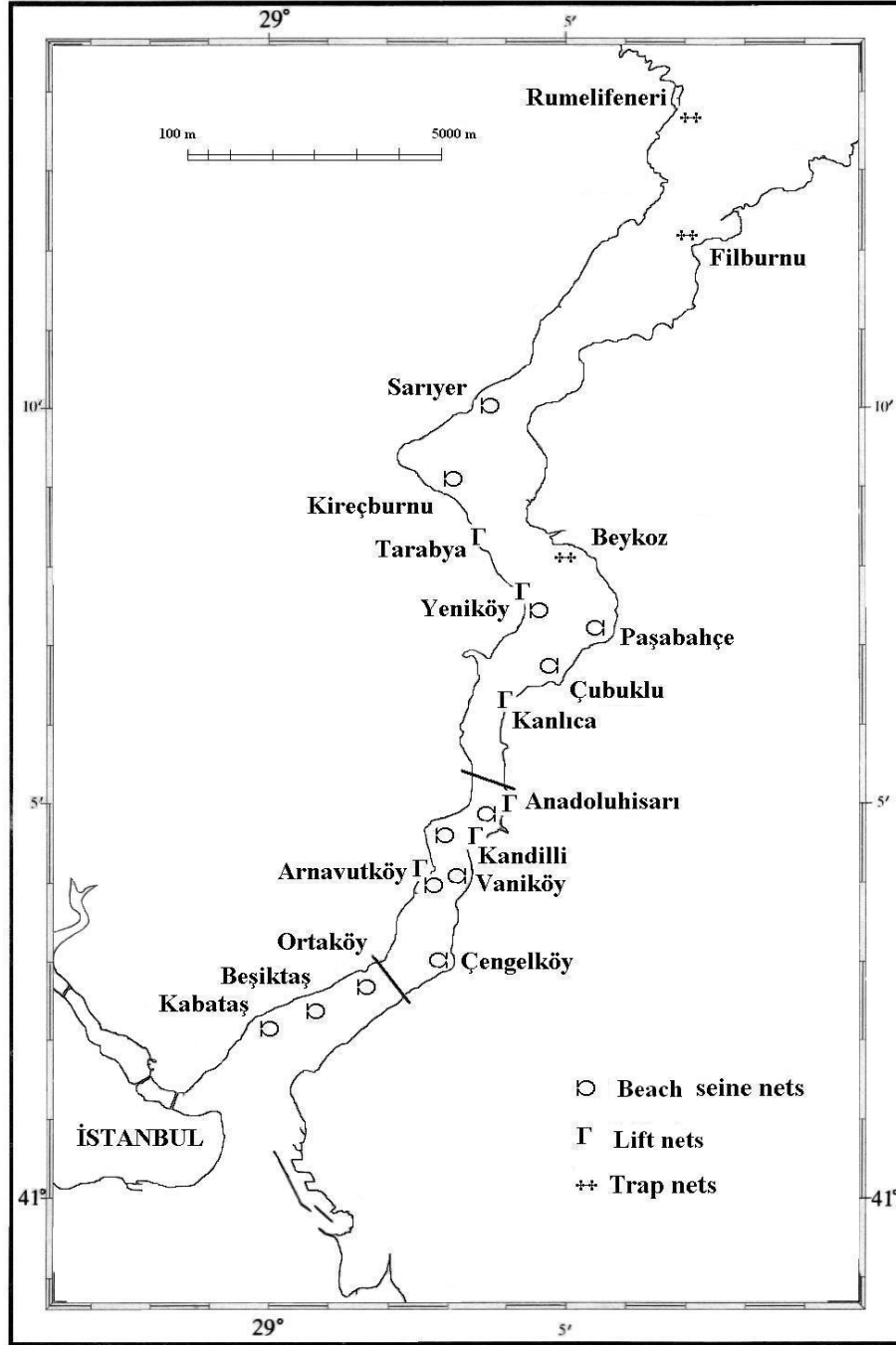


Fig. 5. Fishing grounds for trap netting, beach seining, and liftnetting.

**Beach seine nets** (Fig. 6): Beach seine nets are called “manyat” in Turkish and there are 12 boats, 9-14 m in length, fishing with this type of nets in the Istanbul Strait. Due to the characteristic of the technique, the sea bottom has to be smooth. In the Strait, therefore, their fishing grounds are limited to Sarıyer, Kireçburnu, Yeniköy, Paşabahçe, Kozaltı, Çubuklu, Küçüksu plajı, Anadoluhisarı, Bebek, Arnavutköy, Vaniköy, Çengelköy, Ortaköy, Beşiktaş, and Kabataş (Fig. 5).

They used to catch turbot, sole, and gurnards, but they are scarce and hardly seen in the Strait now. Therefore they mainly catch other bottom fish, such as red and striped mullets, and scorpion fish, but also garfish and horse mackerel. They operate 3-4 times a day between November and May. This fishing method is forbidden between 1 May and 30 September. There are usually three to four people working on a boat.

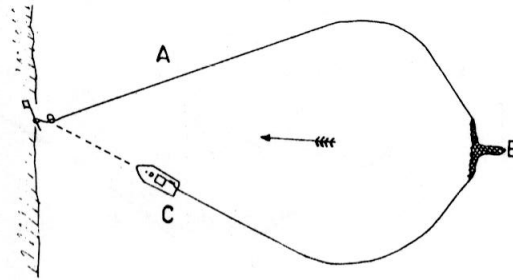


Fig. 6. Beach seine netting.

**Liftnets** (Fig. 7): The liftnets are used to catch fish when fish is seen above the nets fixed to the shore. The nets are hung from the metal frames, either rectangular (4 x 8 m) or circle (1.5-2 m in diameter). There remain six liftnets in Tarabya, Arnavutköy, Yeniköy, Kandilli, Kanlıca, and Anadoluhisari (Fig. 5). The fishermen catch mainly silverside and horse mackerel between March and June.

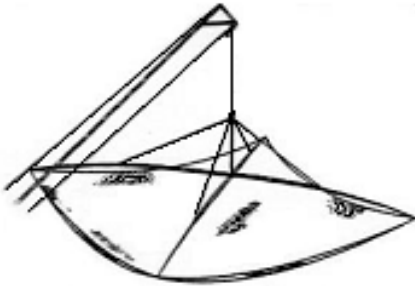


Fig. 7. A liftnet.



Fig. 8. A vertical hand line with hooks.

**Gill nets and trammel nets** (Fig. 9): They mainly catch migratory pelagic fish, such as bluefish, bonito, and garfish, during spring and autumn, and horse mackerel, red and striped mullets all year round. The length of the net is 180 m and the depth is 5 m, mesh size 17-36 mm. The nets are left in the water perpendicular to the coast in the evening and hauled in the morning. There are usually two to three fishermen on each boat.

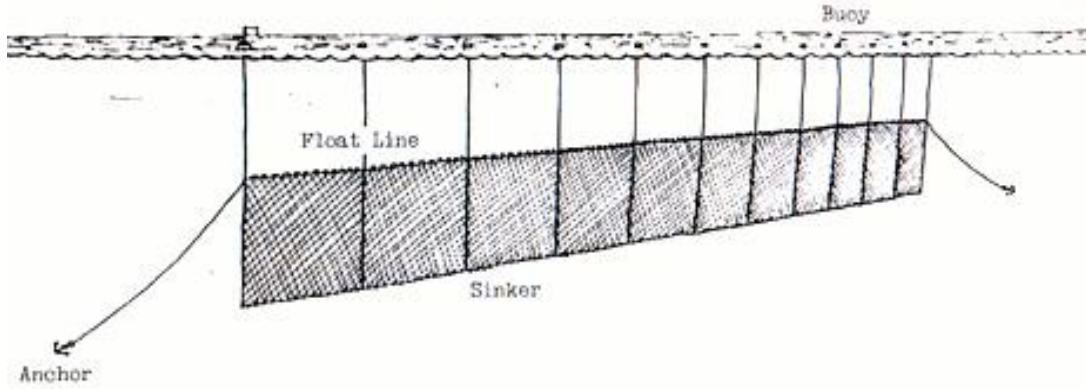


Fig. 9. Gill nets or trammel nets in the water.

**Diving:** Sea snail, *Rapana thomasiana* (= *R. venosa*), are caught by surface-supply divers from Beykoz, Poyraz, and Sarıyer. This sea snail was brought into the Black Sea by ships from the Sea of Japan and successfully invaded the Black Sea and subsequently the Turkish Straits System. This is not consumed domestically, but exported to Japan and Korea. There are six boats working for this fishing.

**Purse seines** (Fig. 10): Purse seining is one of the most effective ways to catch pelagic fish nowadays. Purse seining is the only industrial fishing permitted in the Istanbul Strait. According to the Fisheries Law (MINISTRY OF AGRICULTURE AND RURAL AFFAIRS, 2002), it is permitted in the area north of the line connecting Yeniköy Ferry Port and Paşabahçe Lighthouse. It is forbidden between 1 May and 1 September. They catch pelagic fish, such as horse mackerel, bluefish, bonito, anchovy, and chub mackerel.

There are 64 purse seine boats registered in the Istanbul Strait for 2002 fishing season: 2 in Beşiktaş, 7 in Beykoz, 8 in Eminönü, 45 in Sarıyer and 32 in Üsküdar. These boats are 10.2-62 m in length. Most of these boats usually work outside the Istanbul Strait, but fish in the Strait when they find a big catch there during the migratory season. There are also 199 purse seine - trawl boats, 9.3 – 46.5 m in length, registered at the same time, but they work mostly outside the Istanbul Strait. There are usually 8-15 people working on a boat.

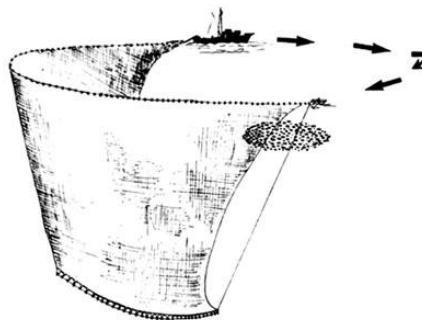


Fig.10. Purse seining.



## PROBLEMS RELATED TO THE FISHING ACTIVITIES IN THE ISTANBUL STRAIT

The fishing activity in the Istanbul Strait faces several problems as follows.

**Traffic:** There are about 50,000 ships passing through the Strait every year. There are also numerous ferries and small passenger boats travel through and across the strait for commuters every day. This heavy marine traffic affects the fishing activity in the strait. Trap nets and dredges already decreased greatly simply because they cannot operate due to the traffic. The Fisheries Law (MINISTRY OF AGRICULTURE AND RURAL AFFAIRS, 2002) itself forbids any fishing activity when vessels are present in the Istanbul Strait. According to TUMPA (2002) and İSTİKBAL (unpublished data), during 1982-2001, there were only 13 accidents involving fishing boats in the Istanbul Strait (Table 1). This means there is less than one accident happening in the strait annually. This figure is not very high, but it should be noted that some accidents occurred due the dense presence of fishing boats. There can be more of such accidents if the traffic in the strait increases.

Table 1. Sea accidents related to the fishing activities in the Istanbul Strait, 1982-2001.

No	Name of vessels (type)*	Date	Position	Type of accident	Remarks
1	Toroslar(T), unknown (F)	18/4/1983	Kızkulesi	Collision	Fishing boat sank.
2	Büyük Şaban Reis (C), Zulfikar (F)	16/11/1984	Rumelifeneri	Collision	Caused by the presence of fishing boats, damaged nets.
3	Pelikan	3/1/1985	Kabataş	Collision	Collided fishing nets.
4	Stanislay Kasper (C)	7/2/1985	Kabataş	Collision	Caused by the presence of fishing boats, damaged nets.
5	Nikolay Semiplatinsic	8/4/1985	Haydarpaşa	Collision	Caused by the presence of fishing boats, damaged nets.
6	Enis Köse (B), unknown (F)	10/8/1985	Kızkulesi	Collision	Fishing boat sank.
7	Akkoç (C), unknown (F)	30/6/1986	Anadolukavağı <sub>1</sub>	Collision	Caused by the presence of fishing boats.
8	Nusret Atasoy (C), unknown (F)	30/6/1986	Kanlıca	Collision	Caused by the presence of fishing boats.
9	Bilgilibiraderler (C), unknown (F)	17/11/1988	Büyükliman	Collision	Damaged nets.
10	Aries Erre (T), Kocadere (LF)	6/12/1988	Haydarpaşa	Collision	Damaged nets.
11	Salih Ünlü (C), unknown (F)	11/10/1997	Yeni Mahalle	Collision	Fishing boat damaged.
12	Uluç Ali Reis (SB), Ertan (F)	24/2/1998	Kabataş	Collision	Fishing boat sank.
13	Hayday-5 (C), unknown (F)	26/9/1998	Umuryeri	Collision	Caused by the presence of fishing boats, fishing boat sank.

\* B: bulk carrier, C: cargo ship, F: fishing boat, LF: local ferryboat, SB: sea bus, T: tanker.

**Oil spill:** Many aquatic organisms die due to tanker accidents, such as those of Independenta in 1979 and Nassia in 1994. BAYKUT et al. (1985) mentioned that there was a mass mortality of commercial fish, such as bluefish, grey mullet, and sea bream after the Independenta accident. Besides, the fishermen could not work for many days and the fish caught were tinted with oil. The Nassia accident resulted in an economic loss of about \$400,000, estimated by MACALISTER ELLIOTT AND PARTNERS (1994). The sediments of the Strait were long contaminated with oil (GÜVEN et al., 1996). Small oil spills from the engines may not affect as much as the above accidents, but as the number of passing boats increases, that may become unnegligible.

**Urbanization:** As the population of Istanbul increases, more people live and more industries are developed on the shores of the Istanbul Strait, thus the domestic and industrial wastewater increases. This has brought the habitat loss to some of the marine organisms of the Strait, which include mussels, oysters, lobsters, etc (ÖZTÜRK and ÖZTÜRK, 1996; TOPALOĞLU and KIHARA, 1993).

**Lack of modernization:** The artisanal fisheries described above have been carried out in the same way for more than 100 years. There are some modernization or technology which can be applied to these traditional fisheries. An example is the modification of the trap nets so that the fish entering the trap shall not escape from the net. The artisanal fishermen, however, are not eager to change their traditional methods. This attitude is favorable from the viewpoint of sustainable fisheries, however, can be economically disadvantageous.

**Overfishing:** Overfishing is one of the major problems in the Istanbul Strait. Since most of the commercial species are migratory species, not only the overfishing in the Istanbul Strait, but also that in the Marmara Sea and the Black Sea affect the fisheries in the Strait. Commercial species like mackerel, bluefin tuna, and swordfish, almost completely disappeared from the area. Other migratory species, such as bonito and bluefish, greatly decreased. Stocks of some non-migratory species, such as sturgeons, also declined due to the overfishing.

**Invasion of exotic species:** OZTURK (2002) summarized the invasion of exotic species in the Marmara Sea (including the Istanbul Strait), such as that of a comb jellyfish *Mnemiopsis leydyi*. This jellyfish was brought into the Black Sea in tanker ballast water from the North Atlantic, and destroyed the Black Sea ecosystem in the late 1980s. In 1992, an outbreak of this species was recorded from the Marmara Sea, affecting the fish stocks in the Turkish Straits System, as it feeds on zooplanktons which is also fed by fish, as well as fish eggs and larvae (ÖZTÜRK and ÖZTÜRK, 1996). Some other species also affect the local fauna and flora, some of which are commercially important.

## CONCLUSION

A total of 2160 people work directly as fishermen in the Istanbul Strait. Besides, there are thousands of people working in the fishing industry, as shelling mussels, buying and selling fish, processing fish, working at seafood restaurants, etc. The fishing activity in the Istanbul Strait is a source of livelihood for these people, although the fishermen are sometimes engaged in other activities, such as renting their boats for a recreational purpose during summer when most fishing is forbidden.

Unfortunately, we do not have data of total revenue by the fishing activities. Considering the above number of people engaged in the fisheries, however, we can assume that the economical importance of the fishing activities in the Istanbul Strait is not negligible. We should not forget as well that the fish has a high nutritional value and available for ordinary citizens, particularly during the peak migration season for many pelagic fish, when the price of the fish is reasonably low.

Artisanal fisheries are decreasing all over the world and so are in the Istanbul Strait. However, these types of fishing are so-called sustainable or responsible fisheries, which allow us to fish for a long time without damaging stocks, as marine resources are limited and have to be utilized wisely. This concept has been increasingly important and this is why the artisanal fisheries in the Istanbul Strait have to be protected.

Although the Strait is a busy waterway, which holds an extremely high economic importance, it is also for the local people, including the fishermen. They have a historical right to fish in the strait and that right should not be neglected.

## ACKNOWLEDGEMENTS

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<sup>1</sup> See Bases of Discussion Drawn Up by the Preparatory Committee, part II, Territorial Waters, Points VII and IX-XIII, League Of Nations doc. C.74.M.39.1929.V. Reprinted in 24 Am. J. Int'l L. Supp. 35, 38 (193). Reproduced in Shabtai. Rosenne (ed.), 2 *League of Nations Conference for the Codification of International Law* [1930], at 273, 283-309 (1975).

<sup>2</sup> Report of the Second Committee, *supra* note 3, 24 Am. J. Int'l L. Supp. 253; Rosenne, *supra* note 2, Vol. 3, at 836.

<sup>3</sup> This was the first time the issue had been addressed in major international litigation and was the first of the ICJ's pronouncements on the law of the sea, which have had such an important influence on the reconstruction of the law accomplished in the three United Nations Conferences on the Law of the Sea.

<sup>4</sup> *Corfu Channel* case (merits) (United Kingdom v. Albania), 1949 ICJ Reports 4,28.

<sup>5</sup> *Ibid.*

<sup>6</sup> Report of the International Law Commission covering the work of its eighth session (A/3159), II YB ILC 1956, at 253, 273.

<sup>7</sup> See, e.g., A/CONF.13/C.1/L.39 (1958), para. 4, comment (b), UNCLOS I, III Off. Rec. 220 (U.S.A.).

<sup>8</sup> A.L. Hollick, *U.S. Foreign Policy and the Law of the Sea* 174 (1981).

<sup>9</sup> President's Statement on United States Ocean Policy, 6 *Weekly compilation of Presidential Documents* 677, at 678 (23 May 1970).

<sup>10</sup> A/8047 and Add.1,3 and 4 (1970, mimeo.), "Explanatory memorandum" attached to the letter of 15 August 1970 requesting the inclusion of a supplementary item in the agenda of the 25th session of the General Assembly (Bulgaria, Czechoslovakia, Hungary, Iraq, Syria and USSR). See 25 GAOR, Annexes, agenda item 25, at 6. See also the statement by the representative of the USSR at the 1777th meeting of the First Committee (A/C.1/PV.1777), para. 63 GAOR, First Committee.

<sup>11</sup> See Introduction paras 4 and 5, Satya N. Nandan and Shabtai Rosenne, 1982 United Nations Convention on the Law of the Sea – A Commentary. Vol. II – Nordquist, (ed) Martinus Nijhoff Publishers.

<sup>12</sup> See UN Office for Ocean Affairs and the Law of the Sea, *Straits Used for International Navigation: Legislative History of Part III of the United Nations Convention on the Law of the Sea*, Volume I (UN Sales No. E.91.V.14 (1992)).

<sup>13</sup> See, e.g. U.S. Dept. of State, Office of the Geographer, "World Straits Affected by a 12 Mile Territorial Sea," Chart # 510376 (1971).

<sup>14</sup> For a full discussion of the regime for transit passage see S.N. Nandan and D.H. Anderson: Straits used for International Navigation: A Commentary on Part III of the United Nations Convention on the Law of the Sea, 1982: - British Yearbook of International Law, 60, 1989. See also S. Nandan and Shabtai Rosenne, *Supra*. pp 279 – 396.

<sup>15</sup> As an example, the traffic volume in the Straits of Malacca and Singapore has been increased remarkably. It is estimated that approximately 100,000 vessels per year navigate in the Straits, at a rate of some 200 to 300 vessels per day, but accurate figures are not available. An indication of the increase in traffic density may be observed from the data on vessel arrivals in Singapore which increased from 21, 999 in 1976 to 130,333 in 1997. The gross tonnage for the same period increased from 177,544,000 in 1976 to 808,305,000 in 1997.

<sup>16</sup> See D. Anderson, Traffic Regulation and Cost-Sharing in Straits and Archipelagos; Strait of Dover Model. 1998 Proceedings of the Law of the Sea Institute, University of Miami.