MEDITERRANEAN - BLACK SEA FAUNAL EXCHANGE

Yuvenaly ZAITSEV
Odessa Branch, Institute of Biology of Southern Seas
37, Pushkinska Street, 65011 Odessa, Ukraine

INTRODUCTION

Several times during their geologic history the Sea of Marmara, the Black Sea, the Sea of Azov and the Caspian seas have been connected to the Mediterranean Sea and both the Atlantic Ocean and Indian Ocean (GROVES and HUNT, 1980). On the other hand, prolonged lowering of the sea level has periodically severed the connection between each of these basins because of the shallowness of the connecting channels. The present connection between the Mediterranean and Black seas was established about 6,000 or even 5,000 years ago (ZAITSEVand MAMAEV, 1997). At that time the level of the Black Sea was below that of the Mediterranean, now on the contrary, the Black Sea level is higher and this state is influencing the water exchange through the Bosphorus and Dardanelles.

As to water salinity, which depends on evaporations, atmospheric precipitations and river runoff, and which is a very important parameter of each marine habitat, the Aegean Sea is one of the most saline sea in the World Ocean and reached up to 38-39,9 ‰. The salinity of the surface waters of the Sea of Marmara, which is under the influence of the upper current through the Bosphorus from the Black Sea varies between 18‰ and 24‰, at 20 m depth it rises to 30‰ and at 45-50 m to 37‰ (KOCATAS et al., 1993). The Black Sea surface salinity is 17-18‰, except the North-Western part where is 14-16 ‰, due to strong river runoff (ZAITSEVand MAMAEV, 1997). At least, the Sea of Azov is a brackish water sea due to its isolation from the Black Sea and to Don and Kuban rivers runoff. Its salinity varies from 3-5‰ on the North-East to 13-14‰ to the south, nearly the Kertch Strait connecting to the Black Sea (BRONFMAN, 1995).

The Black Sea (and the Sea of Azov) biota- the historically established specific diversity of flora and fauna- reflects the geological processes that have influenced the marine ecosystem.

Research has shown that there are different elements in the Black Sea fauna comprising groups of taxonomically distinct species sharing a common origin in a past ecological event. These organisms react in a specific way, which varies according to their origin and the marine environmental conditions prevailing in the Black Sea, and consequently occupy different habitats within the sea (BACESCU, 1967, ZAITSEV & MAMAEV, 1997).

Pontian relics

The species which had once lived in the Neoeuxinian Lake, the predecessor of the modern Black Sea, should be considered among its most ancient

inhabitants. The lake-sea came into existence some 18,000-20,000 years ago after the end of the Würm glaciation during which the whole northern part of Europe had been covered by glaciers. Melting water filled the lake-sea and substantially reduced its salinity. This water body was completely isolated from the Mediterranean. It is believed that its salinity was approximately 5-7‰ and that it was inhabited by brackish water organisms. Its fauna included: bivalves such as *Dreissena polymorpha* (the zebra mussel) and *Hypanis*; the polychaetes *Hypania* and *Hypaniola*; the crustaceans *Pontogammarus* and *Paramysis*; and such fish as the kilka, *Clupeonella delicatula*, many species of gobies (Gobiidae), sturgeons (Acipenseridae) and herrings (Clupeidae). These organisms are generally referred to as the "Pontian relics" and today they can only be found in waters with low salinity. Many of such surviving species inhabit the brackish-water Caspian Sea, which is why they are also sometimes referred to as "Caspian relics". Some of them (e.g. *Huso huso, Acipenser stellatus*) can be observed in the brackish-water northern Adriatic Sea.

Boreal-Atlantic relics

A second group consists of marine thermophobic species originating from temperate and northern seas. They are referred to "Boreal-Atlantic relics" or "cold-water relics". They include: the ctenophore *Pleurobrachia rhodopis*; the copepods *Calanus helgolandicus* (*C. ponticus*) and *Pseudocalanus elongatus*, the spiny dogfish, *Squalus acanthias*; the sprat, *Sprattus sprattus phalericus*; the flounder, *Platichthys flesus luscus*; the whiting, *Merlangius merlangus euxinus*; and the Black Sea trouth *Salmo trutta labrax*.

It is difficult to be certain when and how these cold-water species entered the Black Sea. They may have entered through the rivers during the time of Neoeuxinian Lake, or at a later date during the early stages of the formation of the Bosphorus, when the Mediterranean Sea was colder than is today. At least, the sprat and the whiting are found in the Mediterranean. Whenever cold-water species entered the Black Sea, they constitue the second oldest element in the Black Sea fauna.

Mediterranean immigrants

The most numerous and the most important element of the Black Sea fauna is the third one. It is composed by Mediterranean origin species. Some 6,000 years ago, the Bosphorus established a connection with the Mediterranean, and via the Mediterranean, with the Atlantic Ocean. Gradually, the salinity of the Black Sea began to rise, and it soon reached a sufficiently high level to support many Mediterranean species. These species are reffered to as the "Mediterranean immigrants" constitue the third, and most populous, element in the Black Sea fauna, comprising up to 80 percent of the total fauna in the Black Sea by species number. Most of them prefer warm and saline waters, and for this reason are predominantly inhabiting the upper layers of the sea, which are not directly affected by the rivers.

The penetration of saline waters and Mediterranean settlers into the Black Sea put pressure on the autochthonous Pontian relics. They retreated to the brackish-water areas of the sea and took refuge in limans, estuaries and deltas except euryhaline species, such as the sturgeons and the herrings, which can also be found in saline Black Sea waters.

In summer-autumn seasons almost all Mediterranean immigrants can be found througout the sea. Invertebrates and fishs spend the winter either in a state of anabiosis, with a much reduced metabolic rate, either on the seabed, or in the warmest areas of the Black Sea along the shores of southern Crimea, the Caucasus and Anatolian coasts. After completing their winter migrations such fish as the anchovy form in these areas dense shoals suitable for fishing. The most termophilic species such as the mackerel *Scomber scombrus*, bluefish *Pomatomus saltator*, and tuna *Thunnus thynnus* migrate to the Sea of Marmara for the winter. In spring, the overwintering species migrate back to their spawning (except the mackerel, which spawn in the Sea of Marmara) and feeding grounds.

Mediterranean immigrants can be found in all major taxa of the Black Sea biota. They include: most sponges, scyphozoan jellyfish, polychaetes, molluscs, crustaceans, all echinoderms, and over 80 percent of fish species. Almost all of them are breeding into the Black Sea and some of Mediterranean settlers have been so good adapting to this marine environment that they have formed local subspecies and even distinct species. This is the case of the Black Sea and the Sea of Azov anhovy (*Engraulis encrasicholus ponticus* and *E. encrasicholus maeoticus*), garfish (*Belone belone euxini*), silverside (*Atherina mochon pontica*), red mullet (*Mullus barbatus ponticus*), and turbot (*Psetta maeotica*).

However, not all species inhabiting the Mediterranean Sea have been able to adapt and become naturalised into the Black Sea. Some have been prevented from doing so by low salinity and density of water, some by low water temperatures during winter, and others by the lack of oxigenated deep waters. As a result, some widespread mass Mediterranean taxa, such as the radiolarians, pelagic foraminifers, corals, siphonophores, pteropods, cephalopods and tunicates still do not have a single species in the Black Sea.

A good example of a species whose life cycle occurs in two seas is the mackerel. It spawns in the Sea of Marmara because the Black Sea water is not enough dense to enable its pelagic eggs to float. After breeding, in April, the mackerel migrate through the Bosphorus into the Black Sea feeding grounds, mostly in the north-western part of the sea. It feeds on zooplankton, shrimps, anchovy and other small pelagic fish. In August young specimens (four to five months old) of mackerel appear into the Black Sea for feeding on zooplankton. In October-November the mackerel returns for wintering and breeding in the Sea of Marmara. This fish was an important commercial species, their annual catches into the Black Sea reached up to 50,000 tonnes in all riparian countries.

After the early 1970's, the migration of mackerel from the Sea of Marmara to the Black Sea ceased because of a sharp decline in its population as a result of

pollution in its breeding grounds by local sources (KOCATAS et al., 1993). Now single specimens of *Scomber scombrus* can be found in the Black Sea. There is also an almost complete cessation of migrations of bonito, bluefish, and some other species through the Bosphorus. It's quite possible that the chemical pollution is non the only culprit in this situation. Perhaps the strong sound emited by ship's propellers in the Bosphorus produce an acoustic barrier in this biological corridor? This is an author's supposition which need to be investigated in the context of exchange of fish, marine mammals and may be some invertebrate species between the Mediterranean and the Black Sea through the Turkish straits.

The process of the mediterranisation of Black Sea fauna (PUSANOW, 1967) continue and some examples of this can be given. The Mediterranean sardine (*Sardina pilchardus*) is very close mo becoming fully naturalised in the Black Sea. It has often been found in fishermen's nets and its eggs are sometimes found in the Black Sea plankton. The occurrence of floating eggs of *Centracanhus cirrus* (TSOKUR, 1988) is another indication of the mediterranisation of Black Sea fauna.

The bluefin tuna, *Thunnus thynnus* is an example of transboundary migrating fish. Its migrations through the Bosphorus were firstly described by Pliny and Aristotle in ancient times but only in the 1930's its eggs were found in the Black Sea plankton (VODYANITSKI, 1936). Is not a mass fish although shoals of 30-40 specimens in the open Black Sea in the 1940's and 1950's were observed. Another migratory fish, the swordfish, *Xiphias gladius* was noted in different parts of the Black Sea, but there are no data about its breeding in this area. Both large pelagic fish are feeding in the Black Sea on anchovy, horse mackerel and mackerel and are wintering in the Marmara and Aegean seas. As to another Black Sea large pelagic, the bonito, *Sarda sarda*, its reproduction in the sea is a well established fact. It was an important commercial fish in the Black Sea till the early 1970's (ZAITSEV and MAMAEV, 1997).

Other Mediterranean origin fishes, which are rare in the Black Sea, are European conger (*Conger conger*), barracuda (*Sphyraena sphyraena*), Pilotfish (*Naucrates ductor*), Atlantic John dory (*Zeus faber*), anglerfish (*Lophius piscatorius*), and remora (*Echeneis naucrates*).

The European eel, *Anguilla anguilla*, which also can be considered among Mediterranean immigrants and which is rather common in the Danube delta and in brackish-water areas of the sea breeds in Sargasso Sea. According to other authors (d'ANCONA, 1959), possibly the European eels breed in other places, especially in the Mediterranean Sea, but there are no exhaustive data about this.

Other animals from the Mediterranean, sporadic observed in the Black Sea are the lobster, *Homarus gammarus* (MARINOV, 1990), loggerhead turtle, *Caretta caretta*, and green turtle, *Chelonia mydas* (BLACK SEA, 1978). A quite exceptional case was the entering of the minke whale, *Balaenoptera acutirostrata* in the Black Sea (ZAITSEV, 1978). It was in 1880 when a dying whale about 10 m long was observed on the beach of Kobulety, to the north from Batumi, Georgia.

Regular trophic migrations of the Manx shearwater, *Puffinus puffinus* in the Black Sea is an example of Mediterranean - Black Sea species among birds. It is nesting on the Mediterranean islands and is feeding in the Black Sea. Its main food among invertebrates are neustonic crustaceans and among fish- the anchovy (ZAITSEV, 1971). The shearwater is an excellent diver, it can reach up to 40 m depth. In the late 1980's- early 1990's, when the population of anchovy sharply decreased, due to exotic ctenophore *Mnemiopsis leidyi*, the shearwater was unnoticed in the Black Sea and it appears in large flocks of hundreds and thousands of birds in 1994-1995, when the amount of anchovy essentially increased.

A permanent plankton runoff from the Black Sea to the Sea of Marmara take place in the Bosphorus Strait due to the surface water current, and the Black Sea origin organisms are common in the northern part of the Sea of Marmara, some of them reaching the Aegean Sea. On the other hand, the bottom Bosphorus current of saline water transport Mediterranean organisms to the Black Sea. Only few of them can survive in low salinity water, but especially in the Prebosphoric area.

Exotic species

Special Mediterranean - Black Sea faunal exchange is connected with exotic species, accidentally or intentionally introduced by human activities.

Almost all Black Sea exotics are originated from different sow salinity areas of the World Ocean. Only the bivalve *Scapharca inaequivalvis*, a representative of Indo-Pacific fauna, was introduced in the Black Sea from the Northern Adriatic (ZOLOTAREV, 1996). But some of Black Sea exotics, being euryhaline organisms, tolerant of a wide range of salinity, proved to be able to live in the Sea of Marmara, the Aegean Sea and the Mediterranean. Transported by the upper Bosphorus current, or by other ways, they are now among new Mediterranean organisms.

In the early 1970's, the *Rapana* invaded the Sea of Marmara and became its predatory activity on the mussel beds. *Mya arenaria* is rather common on sandy and muddy bottoms in the Sea of Marmara and the Aegean Sea. In the same biotops can be observed the bivalve *Scapharca inaequivalvis* and the Blue crab *Callinectes sapidus* (OZTURK and OZTURK, 1996). Intrusion of the comb jelly *Mnemiopsis leidyi* (*M. mccradyi*) from the Black Sea in the Mediterranean Sea is well proved (KIDEYS & NIERMANN, 1993).

Intentionally introduced by Ukrainian ichthyologists from the Sea of Japan in the Black Sea the haarder, *Mugil soyui* became in the late 1980s an important commercial fish. Now this grey mullet is wide-spread and is fished in the Black Sea, is rather common in the Sea of Marmara and the Mediterranean, where is catched even along the Algerian coasts.

Exotics are the most dynamic element in recent marine fauna, their specific diversity and impact on native species is rapidly increasing.

As a rule, The Black, Azov and Caspian seas, because of low salinity, are settled by brackish-water or euryhaline and eurytherm species, whereas the Mediterranean is more suitable to halophile and termophile organisms. That's why,

tropical and subtropical exotic species, in particular so-called "Lessepsian migrants" are common here. At least 13 fish species reched the Aegean islands (Dodecaneze, Cyclades), by following the Asiatic coasts (PAPACONSTANTINOU, 1988). All of them are originated from the Red Sea and Indian Ocean.

According to author's observations, the process of adaptation and naturalization of a settler in a new habitat can be successful if the following three main conditions are present: 1. If the settler is an opportunistic species, having the ability to exploit newly available habitats and resources; 2. If the settler don't encounter stiff resistance from antagonistic local species; 3. If in the new habitat there are favourable food conditions.

The case of the ctenophore *Mnemiopsis leidyi* in the Black Sea is a clear proof of this. In the absence of antagonists and in good food conditions, *Mnemiopsis* population greatly increased, the total biomass reaching up one billion tons in ten years after first observations of first specimens in the sea. The consequences of this were the sharp decline in zooplankton, in anchovy population and a collapse of Black Sea and Sea of Azov fisheries in the early 1990's. After the appearance of antagonistic species *Beroe cucumis* and *B. ovata,* also transported in ballast waters in the late 1990's, and their successful reproduction, the population of *Mnemiopsis* significantly declined and the anchovy stocks increased.

The introduction of species to habitats outside their native ranges is increasing around the globe and represents a growing problem due to the unexpected and unwanted impacts these species might cause (GOLLASH and LEPPAKOSKI, 1999). This situation require special investigations, monitoring and recommendations to prevent the introduction of unwanted organisms and to mitigate harmful consequences of accidentally introduced and naturalized species.

REFERENCES

d'ANCONA, U., 1959. Distribution of the sexes and environmental influence in the European eel. *Arch. Anat. Micros. Morph. Exp.*, vol. 48 bis, supp. fasc. pp. 61-70. (in English).

BACESCU, M.C., 1967. Decapoda. In: Fauna Republicii Socialiste Romania. Bucuresti: Editura Academiei RSR. Crustacea, Vol. IV, Fasc. 9, 351 p. (in Romanian).

BLACK SEA, 1978. Compiled by A. Valkanov, Kh. Marinov, Kh. Danov, and P. Vladev. Varna: Gheorghi Bakalov Publ., 611 p. (in Bulgarian).

BRONFMAN, A.M., 1995. The Sea of Azov. Enclosed Seas and Large Lakes of Eastern Europe and Middle Asia. Edited by A.F. Mandych. SPB Academic Publishing bv/Amsterdam/ The Netherlands, p. 1-32. (in English).

GOLLASH, S., LEPPÄKOSKI, E., 1999. Initial Risk Assessment of Alien Species in Nordic Coastal Waters. Copenhagen: Nord, 8, p. 13-124. (in English).

GROVES, D.G. & HUNT, L.M., 1980. Ocean World Encyclopedia. New York: McGraw-Hill Book Company. 443 p. (in English).
KIDEYS, A.E. & NIERMAN, U., 1993. Intrusion of *Mnemiopsis mccradyi* into the Mediterranean Sea. *Senkenbergiana Maritima*, 23. p. 43-47. (in English).
KOCATAS, A., KORAY, T., KAYA, M., KARA, O.F., 1993. Review of the fishery resources and their environment in the Sea of Marmara. Studies and Reviews. Gen. Fish. Council for the Mediterranean, 64, Part 3, p. 87- 143 (in English).
MARINOV, T., 1990. The Zoobenthos of the Bulgarian sector of the Black Sea. Sofia: Publishing House of the Bulgarian Academy of Sciences, 196 p. (in Bulgarian).
OZTURK, B., OZTURK A.A., 1996. On the Biology of the Turkish Straits System. Bulletin de l'Institute Oceanographique, Monaco, No Special, 17 CIESM, Science Series No 2, pp. 205-221. (in English).
PAPACONSTANTINOU, C., 1988. Distribution of the Lessepsian fish migrants in the Aegean Sea. National Centre for Marine Research, Athens, p. 78 (in English).
PUSANOW, I., 1967. On the successive stages of the Black Sea mediterranisation. *Int. Rev. Ges. Hydrobiol*., No 52 (2), p. 219-236 (in German).
TSOKUR, A.G., 1988. First finding of *Centracanthus cirrus* Rafinesque (Centracanthidae) eggs in the Black Sea. Voprosy ecologii, 28, 2, p. 329-331. (in Russian).
VODYANITSKI, V.A., 1936. Observations on the pelagic eggs of the Black Sea. Travaux de la Station Biologique de Sebastopol, Tome V, p. 3-40. (in Russian).
ZAITSEV, Yu.P., 1971. Marine Neustonology. Jerusalem: Israel Program for Scientific Translations, 207 p. (in English).
ZAITSEV, Yu.P., 1978. This wonderful Sea. Odessa: Mayak Publ., 159 p. (in Russian).
ZAITSEV, Yu., MAMAEV, V., 1997. Marine Biological Diversity in the Black Sea. A Study of Change and Decline. New York: United Nations Publications, 208p. (in English).
ZOLOTAREV, V., 1996. The Black Sea Ecosystem Changes Related to the Introduction of New Mollusc Species. Marine Ecology, 17 (1-3), p. 227-236. (in English).

DENSITY DISTRIBUTION OF EXPLOITED DEMERSAL FISH BIOMASS IN THE CONTINENTAL SHELF AND OFF-SHORE OF THE AEGEAN SEA

Ömer Faruk KARA[1], Mustafa ERDEM[2], Murat AKTAS[1]

1.Fisheries Research Institute. Bodrum, Turkey
2. Mugla University, Fisheries Faculty. Mugla, Turkey

ABSTRACT

In the first survey period North and Middle to South Aegean Sea between July and December 1997 the area of 463 Sq/mi was surveyed, 70 trawling studies were carried out and 1154 tones demersal biomass was estimated. During the second survey period in North and Middle Aegean Sea 3671 tones demersal biomass were estimated from 98 trawling studies on the area of 1844 Sq/mi between February and September 1998. The average productivity was estimated between 2,6 to 1,98 tones fish/Sq.mi in the Aegean Sea.

INTRODUCTION

The most important data in modern fishing management are caught per unit effort (CPUE) in different types of fisheries and dimension of fishing fleet. These data determine directly production in per year, therefore it is possible to support to restrict to control or steer of fishing fleet.

This study has been done in the Aegean Sea water, which is continental shelf of Turkey and international area between 1997 and 1998.

The Aegean Sea is located in the Eastern Mediterranean, so it's characteristics show a semi enclosed sea. It is open to the Marmara Sea in the north by the Çanakkale Strait and open to the Mediterranean Sea in the south by the Crete Strait.

In the Mediterranean ecosystem, the Aegean Sea has special importance that is ecological, hydrological, biological and geomorphological. Geomorphological structure of the Aegean Sea is different from the other parts of the Mediterranean. On the other hand the Aegean Sea has long and folded coasts. In the Aegean Sea, there are so many islands that are big and small. Ecologically of the Aegean Sea is separated in to two regions as North and South Aegean Sea subdivisions. Western Mediterranean species are found in the North Aegean Sea

subdivision and Eastern Mediterranean species are found in the South Aegean Sea subdivision. For this reason, about 400 species of algae, 5000 species of invertebrae animals and approximately 300 species of vertebrae live in the Aegean Sea (KOCATAŞ and BİLECİK 1992). Because of its complicated topographic structure and narrow continental shelf, the Aegean Sea has a limited trawl area, in spite of its rich biological resources have which are importance for Turkey ecologically, economical and politically reasons, because of this, Turkey should keep developing marine resource researches and scientific fisheries policies.

MATERIALS AND METHODS

Depths of towing trawls, towing time, average speed of fisheries boat per hour, theoretical vertical opening of trawl nets, weight of biomass and length of economical species, catching trawls net, are materials of this study. Samples were taken by commercial fishing boats, which are using traditional Mediterranean trawl net. Speed of towing trawls was 2.5 mile / hour and towing time was between 2 and 6 hours.

Method Used in Estimated Stock

During the study the method of ALVERSON et al. (1964) was used for analysing and estimating stocks of bottom fishes. The method depends as a basic principle on the rate of abundance of the estimated unit catch effort, which may change according to the stock in the study area (RICKER, 1940 and GULLAND, 1964). The total population of demersal species within an area may be estimated from the speed at which the net is hauled, the area scanned by the net, the definite catch efficiency of the net, and the calculated catch abundance (KARA and GURBET 1989), (KARA et al. 1991).

The amount of stock of each species in the study area was calculated as follows : First areas were determined which had different densities of distribution of the fish samples caught with the trawl hauled for the unit time at various depths levels within the areas where the fish were distributed. After that the total catch amount occurring in each of these areas was figured separately and areas with different amounts were then combined into a total. In this method simple and clear mathematical calculations were used in estimating the stock present.

$b = w/a$ and $a = s.t.L$

Here;
- b: Biomass or fish per Sq.m or Sq.mi
- w: Amount caught by the trawl in the unit time
- a: The area scanned by the trawl in the unit time (Sq.m)
- s: The trawling speed (mph)
- t: The duration of the trawl (min)

L: The horizontal distance between the arms or the spreaders of the trawl.

B=b.A

Here; B**:** Total biomass

b: Average weight of biomass or the species in the distribution area (ton/Sq.mi)

A: The amount of the distribution area of the biomass or species (Sq.mi).

RESULTS OF THE SURVEY

General results

Catching areas were separated as three main divisions from North to South, North that is, Middle and South Aegean Sea.

The trawls surveys in three main divisions in 1997, North and Middle Aegean Sea one time, in Gökova and Bodrum Bay one time in South Aegean Sea have been done totally four surveys (Figure 1).

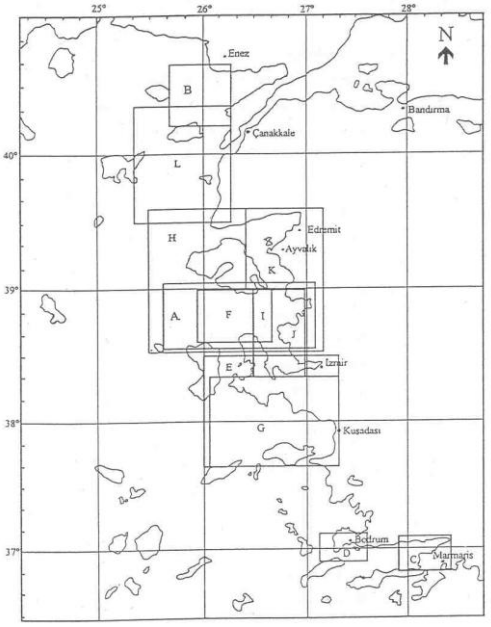


Figure.1. Trawl survey areas of the Aegean Sea was conducted in between in 1997 (A,B,C,D) and 1998 (E,F,G,H,I,J,K,L)

In the first survey, in the region from North and Middle to South Aegean Sea in between July and December 1997 an area of 462.9 sq.mi was surveyed and 70 trawling studies were carried out and 1154.4 tones of demersal fish biomass was estimated (Table.1). In the North Aegean Sea in 1997 174.9 tones of demersal fish biomass was calculated from 17 trawling studies on 81.1 Sq.mi area. In Middle Aegean Sea 866.7 tones of demersal fish biomass was calculated from 19 trawling studies on 305.1 Sq.mi area and in the South Aegean Sea 112.8 tones of demersal fish biomass was calculated from 34 trawling studies on 76.7 Sq.mi areas in 1997 (Figures. 2,3,4,5), (Table.1).

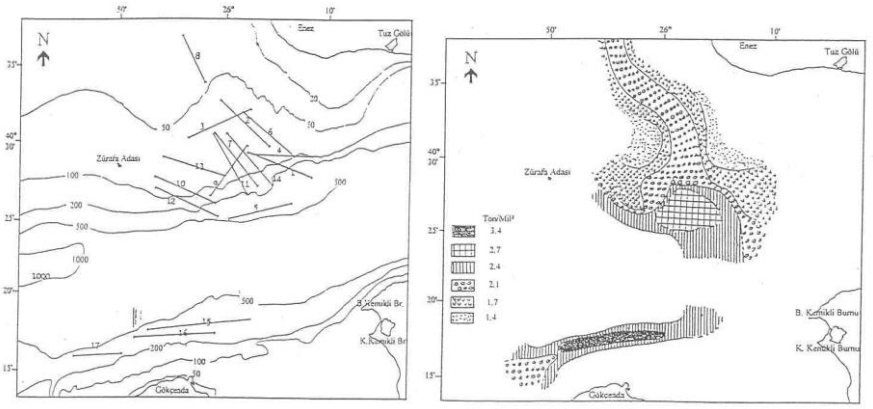
Totally eight trawl surveys, one of them in the North Aegean Sea and seven of them in the Middle Aegean Sea, were done between July and September in 1998 (Figures. 6,7,8,9,10,11,12,13).

In the North and Middle Aegean Sea 3671.1 tones of demersal fish biomass was estimated from 98 trawling studies on 1843.9 Sq.mi areas between July and September 1998 (Table.2). Stock dimension of demersal fish biomass and economic teleost fishes, molluscs and crustaceans amounts were calculated for in the three main divisions, North, Middle and South Aegean Sea.

More than 30 demersal fish species were caught with traditional Mediterranean bottom trawl in three main divisions of the Aegean Sea (Table.3). About 12 fish species among these 30 demersal fish species have an economic value (Table.4). Angler (*Lophius piscatorius*), sharks and rajas species formed the big portion for length and weight in trawl samples. Area of dense distribution of Elesmobranchia (sharks and rajas) changed between 80-100 meters depths in Gökova Bay in the South Aegean Sea and 80-200 meters depths. In Saros Bay and around Gökceada in the North Aegean Sea. These species were caught densely between 64-105 meters depths, in Karaburun and off Foca in the Middle Aegean Sea.

Table.1. Demersal fish density and biomass calculation in different areas of the Aegean Sea based on the surveys in 1997.

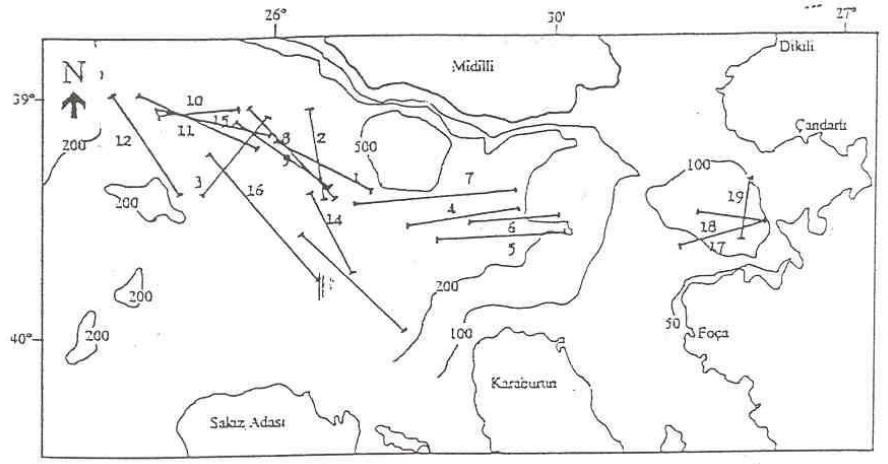
Date	Trawl survey district	Sampling Area (Sq.mi)	Mean catch of demersal biomass (Ton/Sq.mi)	Total weight of demersal fish biomass (Ton)
August 1997	Gulf of Saroz	8.6	2.7	23.2
	North of Gökçeada	11.1	2.4	26.6
		38.8	2.1	81.5
		16.3	1.7	27.7
		2.8	1.4	3.9
		3.5	3.4	11.9
	Total	**81.1**		**174.9**
July September November 1997	Offshore of Karaburun and Midilli Island and Foça	16.0	4.5	72.0
		30.5	3.8	115.9
		50.0	3.4	170.0
		75.0	2.7	202.5
		29.0	2.4	69.6
		43.0	1.7	73.1
		8.3	1.4	11.6
		4.2	6.2	26.0
		6.9	4.8	33.1
		22.2	3.1	68.8
		20.0	1.2	24.0
	Total	**305.1**		**866.7**
December 1997	Gulf of Gökova	6.0	1.9	11.4
		11.5	1.5	17.3
		22.0	0.9	19.8
		8.5	0.7	6.0
		0.8	0.4	0.3
	Total	**48.8**		**54.7**
December 1997	Gulf of Bodrum	2.0	0.3	0.6
		4.2	1.0	4.2
		5.6	1.4	7.8
		3.1	2.1	6.5
		4.2	2.4	10.1
	Total	8.0	3.1	24.8
		0.8	5.1	4.1
		27.9		**58.1**
Total		**462,9**		**1154,4**



A **B**

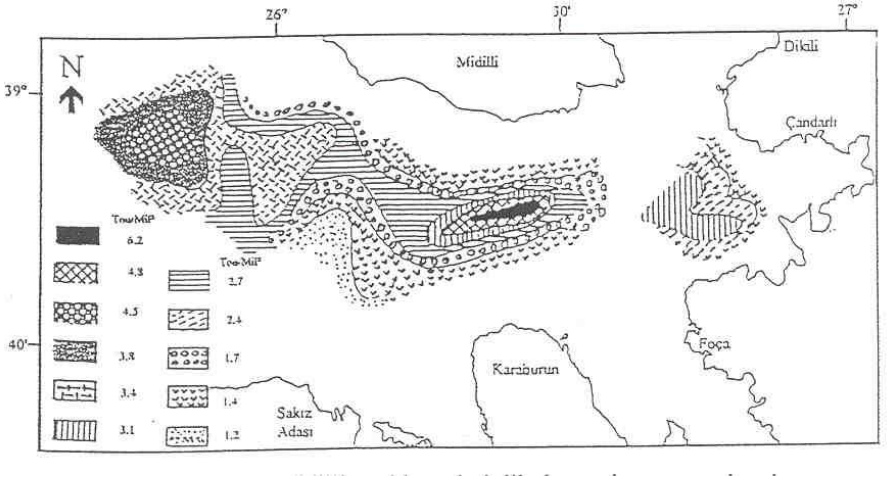
Fig. 2.a) Trawl study stations and depth counters of the North Gökçeada and Gulf of Saroz.

b) Distrubition of abundance estimate of demersal fish biomass in different areas during the survey period August 1997.



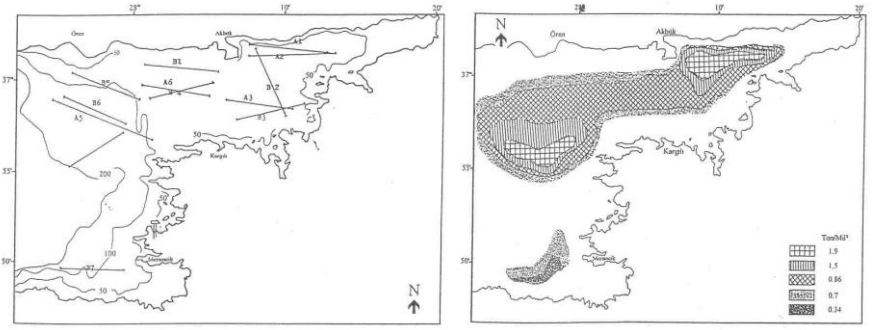
A

Fig. 3.a) Trawl study stations and depth counters of offshore of Midilli Island and between Foça – Karaburun.



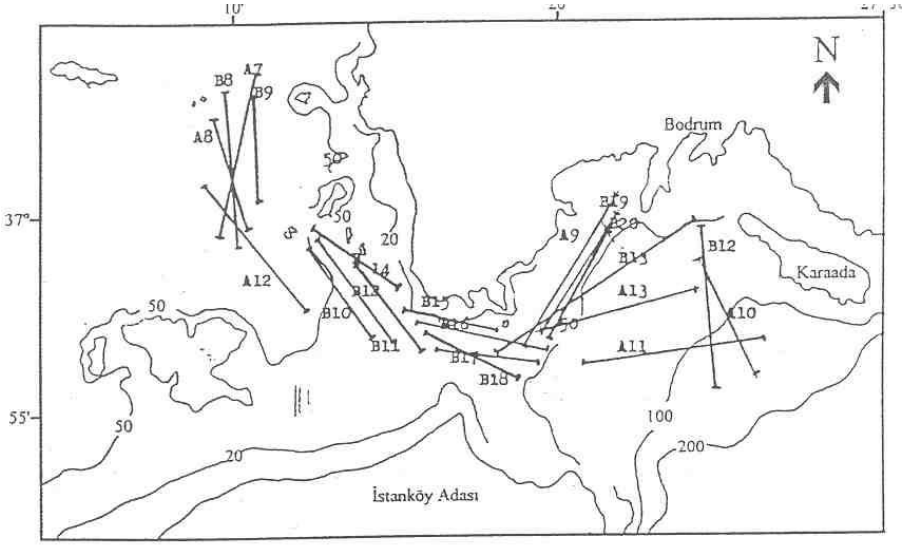
B

Fig. 3.b) Distrubition of abundance estimate of demersal fish biomass in different areas during the survey period July – August 1997.

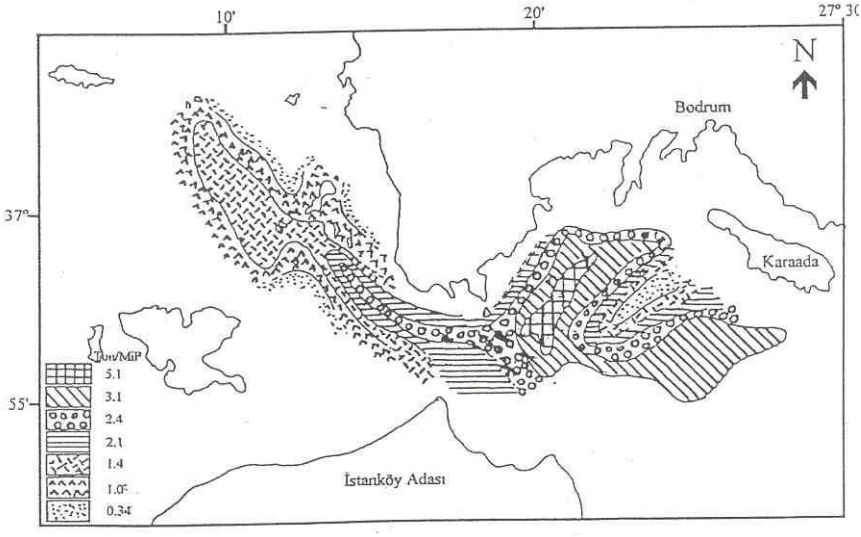


A **B**

Fig. 4.a) Trawl study stations and depth counters of Gulf of Gökova.
b) Distrubition of abundance estimates of demersal fish biomass in different areas during the survey period December 1997.


10'
N
Bodrum
Karaada
İstanköy Adası
37°
55'
50
20
100
200
A7
B8
B9
A8
A12
B10
B11
B12
B13
B14
B15
B16
B17
B18
A9
B19
B20
A13
A11
A10

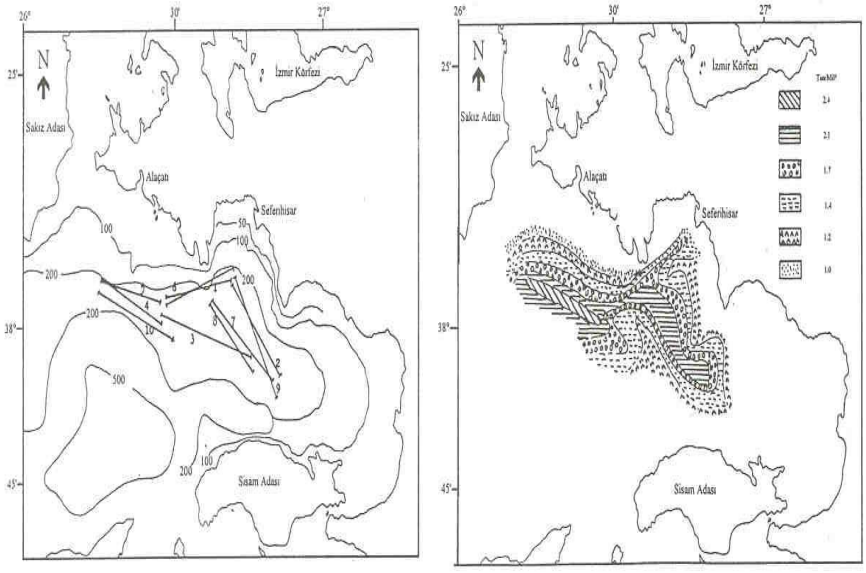
A


10'
20'
N
Bodrum
Karaada
İstanköy Adası
37°
55'
Tün/MiP
5.1
3.1
2.4
2.1
1.4

B

Fig. 5.a) Trawl study stations and depth counters of Gulf of Bodrum.

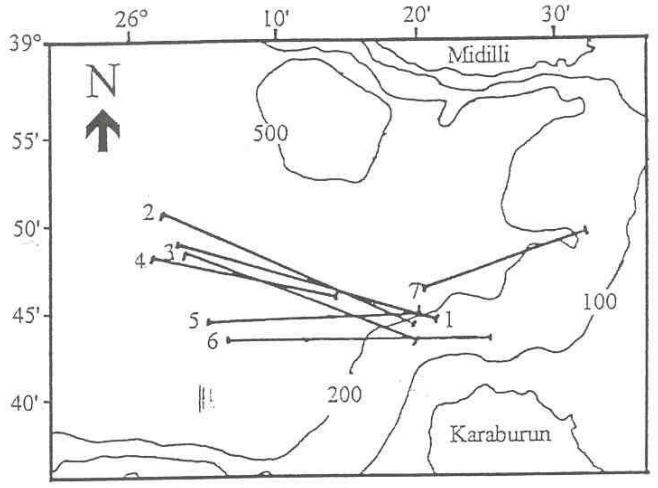
b) Distrubition of abundance estimates of demersal fish biomass in different areas during the survey period December 1997.



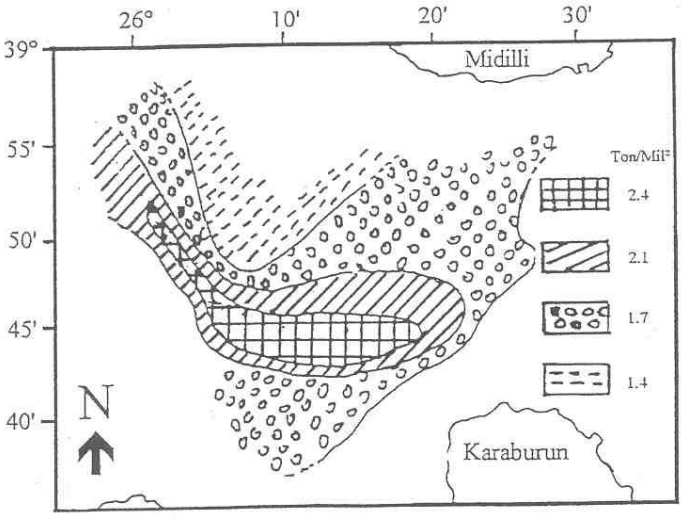
A **B**

Fig. 6.a) Trawl study stations and depth counters of Gulf of Kuşadası.

b) Distrubition of abundance estimates of demersal fish biomass in different areas during the survey period February 1998.

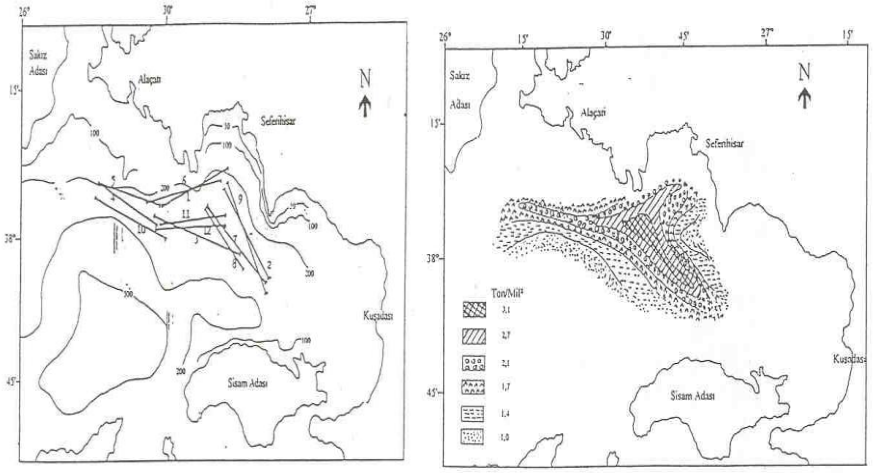


A



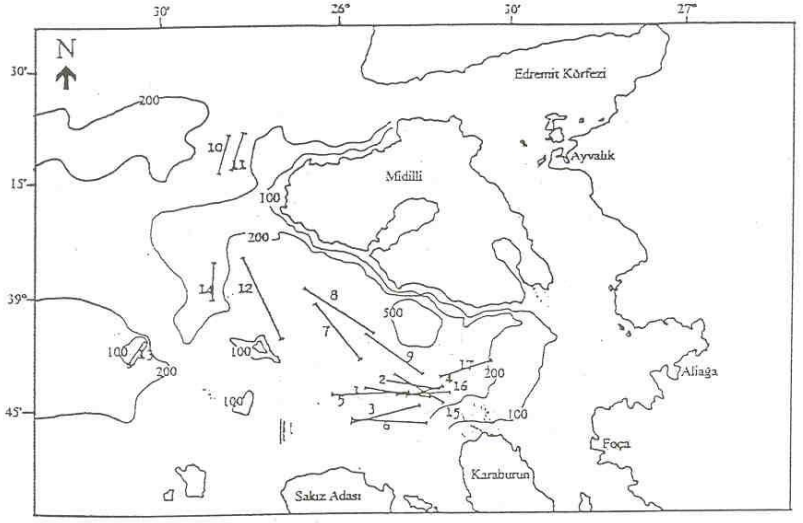
B

Fig. 7.a) Trawl study stations and depth counters of offshore of Karaburun
b) Distrubition of abundance estimates of demersal fish biomass in different areas during the survey period March 1998.



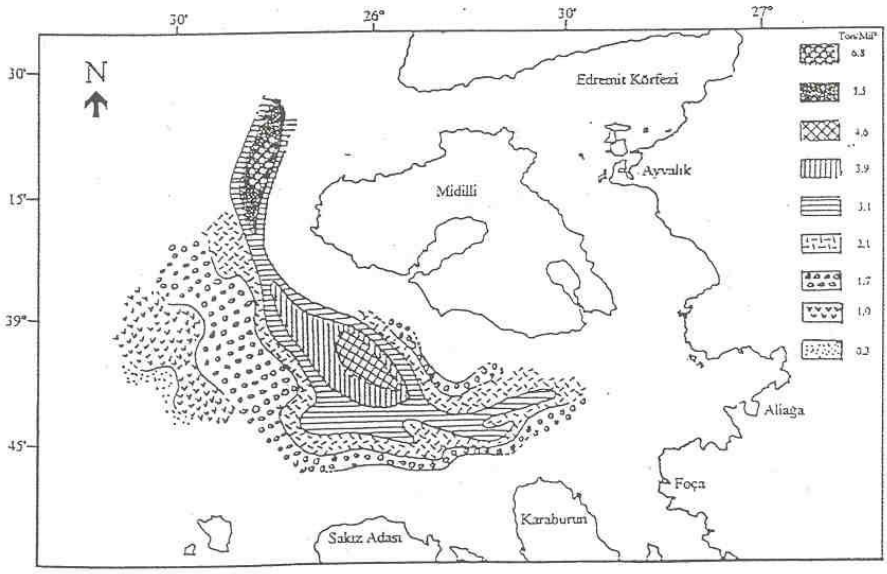
A **B**

Fig. 8.a) Trawl study stations and depth counters of Gulf of Kuşadası.
b) Distrubition of abundance estimates of demersal fish biomass in different areas during the survey period April 1998.



A

Fig. 9.a) Trawl study stations and depth counters of offshore of Midilli Island.



B

Fig. 9.b) Distrubition of abundance estimates of demersal fish biomass in different areas during the survey period April 1998.

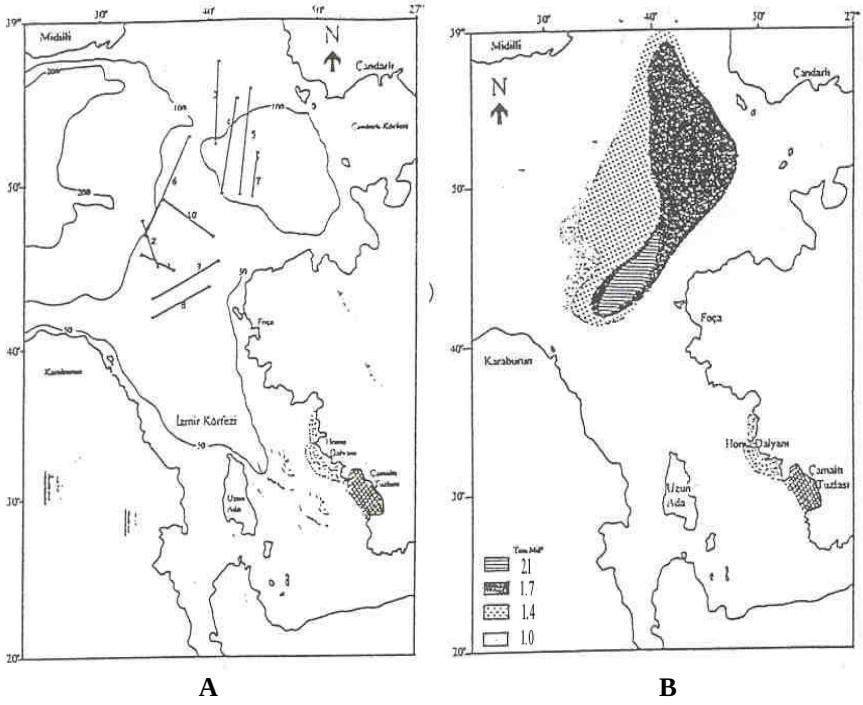
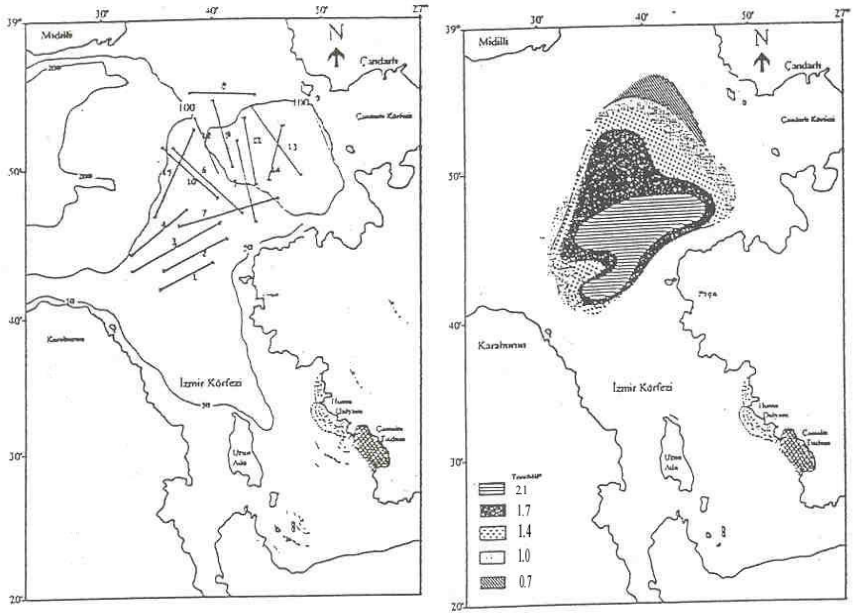


Fig. 10.a) Trawl study stations and depth counters of offshore of Karaburun-Çandarlı and Foça.

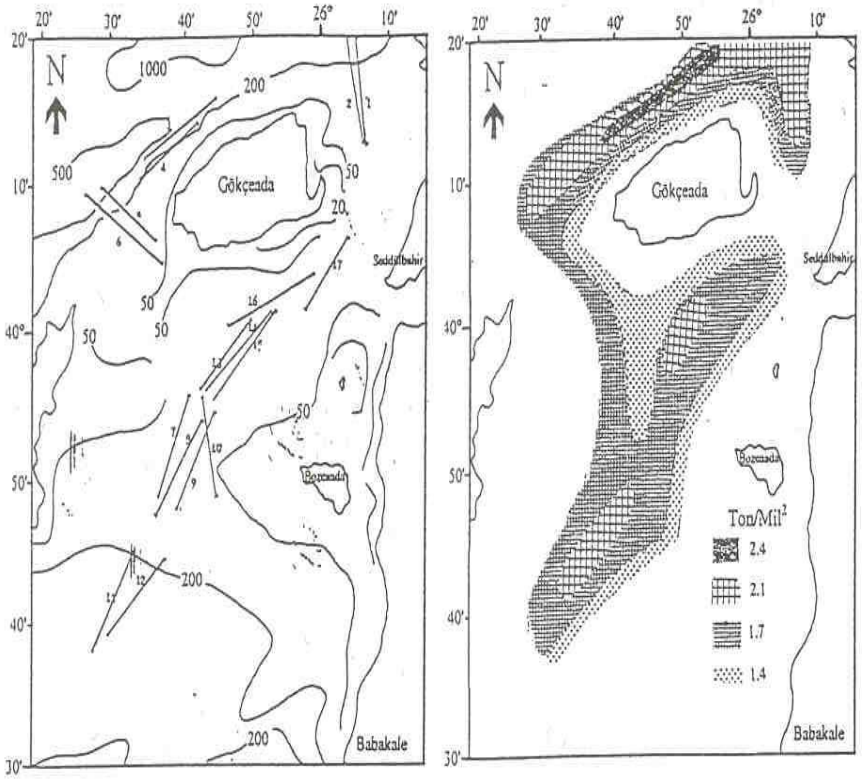
b) Distrubition of abundance estimates of demersal fish biomass in different areas during the survey period July-August 1998.



A **B**

Fig. 11.a) Trawl study stations and depth counters of offshore of Karaburun and Foça.

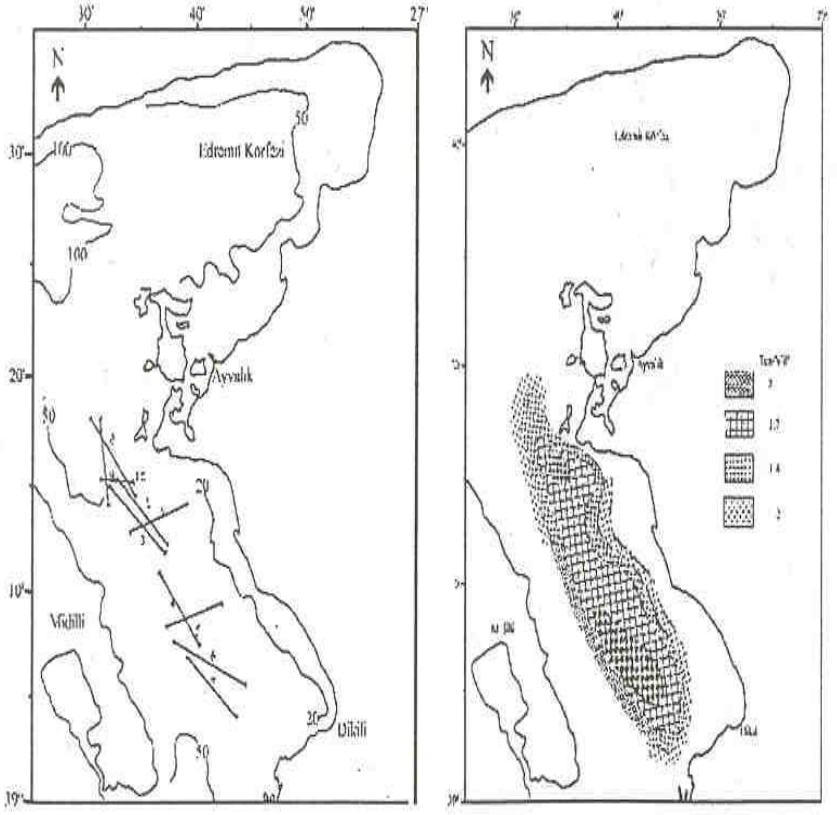
b) Distrubition of abundance estimates of demersal fish biomass in different areas during the survey period September 1998.



A **B**

Fig. 12.a) Trawl study stations and depth counters of offshore of Gökçeada and Bozcaada.

b) Distrubition of abundance estimates of demersal fish biomass in different areas during the survey period September 1998.



A **B**

Fig. 13.a) Trawl study stations and depth counters of offshore of Ayvalık and Dikili
b) Distrubition of abundance estimates of demersal fish biomass in different areas during the survey period September 1998.

Table.2. Demersal fish density and biomass calculation in different areas of the Aegean Sea based on the Surveys in 1998.

Date	Trawl survey district	Sampling Area (Sq.ml)	Mean catch of demersal biomass (Ton/Sq.ml)	Total weight of demersal fish biomass (Ton)
September 1998	Offshore of Gökçeada and Bozcaada	8.2	2.4	19.7
		88.5	2.1	185.9
		187.0	1.7	317.9
		111.0	1.4	155.4
	Total	**394.7**		**678.8**
February1998	Gulf of Kuşadası and Sığacık	21.0	1.0	21.0
		46.5	1.2	55.8
		48.0	1.4	67.2
		54.0	1.7	91.8
		36.8	2.1	77.3
		12.5	2.4	30.0
	Total	**218.8**		**343.1**
March 1998	Offshore of Karaburun	21.5	1.0	21.5
		43.0	1.4	60.2
		114.6	1.7	194.8
		27.7	1.4	38.8
		35.4	2.1	74.3
		26.4	2.4	63.4
	Total	**204.1**		**371.3**
April 1998	Offshore of Kuşadası and Sığacık	25.0	1.7	42.5
		35.4	2.1	74.3
		30.0	2.7	81.0
		11.1	3.1	34.4
	Total	**166**		**314.0**
April 1998	Offshore of Midilli Island	10.4	0.4	4.2
		30.0	1.0	30.0
		107.0	1.7	181.9
		142.3	2.1	298.8
		141.6	3.1	439.0
		23.5	4.6	108.1
		66.0	3.9	257.4
		21.5	5.5	118.3
		6.9	6.8	46.9
	Total	**549.2**		**1484.5**
July 1998	Offshore of Karaburun, Foça and Çandarlı	7.3	2.1	15.3
		59.7	1.7	101.5
		38.8	1.4	54.3
		10.4	1.0	10.4
	Total	**116.2**		**181.5**
August 1998 September 1998	Offshore of Karaburun, Foça and Çandarlı	26.3	2.1	55.2
		36.8	1.7	62.6
		19.4	1.4	27.2
		23.5	1.0	23.5
		10.4	0.7	7.2
	Total	**116.4**		**175.6**
September 1998	Offshore of Ayvalık and Dikili	31.2	1.7	53.0
		15.3	1.4	21.4
		21.0	1.2	25.2
	Total	**78.5**		**122.8**
TOTAL		**1449.2**		**2992.8**

Proportion of sharks and rajas from in trawl catch 30 % in North Aegean Sea, 17 % in South Aegean Sea and 8.6 % in Middle Aegean Sea.

In North Aegean economic species found in trawl catch materials were hake (*Merluccius merluccius*), angler-fish (*Lophius piscatorius*), horse mackerel (*Trachurus trachurus*), whiting (*Trisopterus minutus cepelanus*), shore rockling (*Gaidropsarus mediterraneus*), anchovy (*Engraulis encrasicolus*), john dory (*Zeus faber*), red gurnard (*Trigla sp*.) prawn (*Parapenaeus longirostris, P.norvegianus*) in North Aegean Sea. Proportion of these species in catch changed from 2 % to 52 %.

In Middle Aegean Sea economic species found in trawl catch were hake (*Merluccius merluccius*), angler-fish (*Lophius piscatorius*), horse mackerel (*Trachurus trachurus*), plaice (*Citharus macrolepidotus*), shore rockling (*Gaidropsarus mediterraneus*) prawn (*P. longirostris*,) octopus *(Octopus sp.)* and squid *(Loligo vulgaris)*. Proportion of these species in catch changed from 2 % to 21 %.

Table.3. Abundance estimate and percent age distribution of some fish species in different areas of the Aegean Sea (ton/Sq.mi) during two trawl survey periods in 1997-1998.

Period-division	August/97 North Aegean		Agust/97 Middle Aegean		Dece./97 South Aegean		Decem./97 Bodrum		Februa./98 Middle Aegean		March/98 Middle Aegean		April/98 Middle Aegean		April/98 Middle Aegean		July/98 Foça		August/98 Foça		Sept./98 Ayvalık		Sept./98 Gökçeada	
Samping Area Sq.mi	81.1		285		48		28		218.8		204.1		517.2		166		116		116.4		78.5		395	
Species	Ton	%	Ton	%	Ton	%	Ton	%	Ton	%	Ton	%	Ton	%	Ton	%	Ton	%	Ton	%	Ton	%	Ton	%
Octopus	0.7	0.40	29.6	3.52	0.5	0.90	1.70	2.96									22.1	12.3	11.4	6.57	4.8	3.94	3.4	0.51
Common lobster	2.5	1.44	139.4	16.55					13.30	3.92	25.5	6.93	265.3	18.33	28.1	9.07							5.4	0.81
Hake	47.2	27.20	146.3	17.37	4.8	8.62			81.50	24.0	51	13.86	183.1	12.65	45.7	14.76	24.6	13.6	23.2	13.4			165.6	24.76
Red mullet	0.7	0.40			8.2	14.72	7.00	12.2	8.20	2.41	8.1	2.20	23.1	1.60	4.1	1.32	0.7	0.39	3.7	2.13	16.7	13.72	3.4	0.51
Sea bream					0.3	0.54	0.50	0.87																
John dory	2.1	1.21	11.8	1.40	0.4	0.72			1.40	0.41			1.4	0.10					2.3	1.33			30.5	4.56
Common sole	0.5	0.29	27.9	3.31	0.3	0.54			10.90	3.21	25.5	6.93	50.5	3.49	10.3	3.33	3.4	1.89	0.8	0.46			2.7	0.40
Shark	23.4	13.49	6.8	0.81	1.9	3.41	1.70	2.96	5.50	1.62	1.8	0.49	63.4	4.38			2.2	1.22	0.7	0.40	34.2	28.10	35.3	5.28
Red gurnard	2.8	1.61	5.1	0.61	0.4	0.72	0.40	0.70	1.40	0.41			1.4	0.10			0.5	0.28	0.3	0.17	2.2	1.81	2.7	0.40
Squid			15.2	1.81	5.6	10.05	6.70	11.7	16.30	4.80	11.1	3.02	10.1	0.70	6.2	2.00	0.9	0.50	0.9	0.52	8.3	6.82	1.4	0.21
Shrimp	52.5	30.26	180.1	21.39	0.1	0.18			51.80	15.3	62.1	16.88	282.6	19.52	82.6	26.67							176.3	26.36
Bogue					5.5	9.87	6.40	11.2									3.2	1.77	6.5	3.75				
Picarel					4.2	7.54	5.80	10.1																
R. Scorpion fish	0.5	0.29	6.8	0.81					8.20	2.41	1.8	0.49	13	0.90	2.2	0.71							3.4	0.51
Two banded b.					0.2	0.36	0.70	1.22											0.3	0.17	0.3	0.25		
Striped bream			4.2	0.50	6	10.77	5.00	8.71	16.30	4.80	6.3	1.71	2.8	0.19	18.1	5.84	4.9	2.72	6.5	3.75	10.5	8.63	49.5	7.40
Whiting	13.1	7.55	9.3	1.10					4.10	1.21	5.2	1.41			31.3	10.11		0.00			0.3	0.25	24.4	3.65
S.rockling	1.9	1.10	36.3	4.31					18.70	5.50	13.7	3.72	2.8	0.19	36	11.62							14.2	2.12
Scorpion fish					1	1.80	1.90	3.31									0.5	0.28	0.8	0.46	4	3.29		
Striped bream							1.60	2.79																
White grouper									3.00	0.88														
Saupe							0.60	1.05																
Skate and rays	6.6	3.80	6.8	0.81	6.7	12.03	3.50	6.10	22.00	6.48	27.4	7.45	70.6	4.88	5.3	1.71							27.1	4.05
Stri. Red mullet	0.3	0.17	82	9.74	0.4	0.72							5.8	0.40			44.1	24.5	32.1	18.5	0.7	0.58	42.1	6.30
Cuttlefish			123.5	14.67	0.5	0.90																		
Angel fish	12.2	7.03			0.2	0.36			20.80	6.12	23.7	6.44	115.3	7.97	22	7.10	12.1	6.71	10.5	6.06	0.3	0.25	46.1	6.89
Horse mackerel	2.5	1.44			1.6	2.87	0.70	1.22	48.80	14.4	97.3	26.45	356.2	24.61	12.2	3.94	2.9	1.61	12	6.92	13.1	10.76	35.2	5.26
Eel									7.50	2.21	3.7	1.01			5.6	1.81								
Mackerel	1.9	1.10																						
Anchovy	2.1	1.21																						
Painted comber					1.9	3.41	5.70	9.93													0.7	0.58		
Others			11	1.31	5	8.98	7.50	13.1			3.7	1.01					58.2	32.3	61.4	35.4	25.6	21.04		
Total	173.5	100.0	842.1	100.0	55.7	100	57.40	100	339.7	100.	367.9	100.0	1447	100.0	310	100.0	180	100	173.4	100	121.7	100.0	668.7	100.0

Table.4. Abundance estimate of some economically important fish species in different areas of the Aegean Sea (ton/Sq.mi) during two trawl survey periods in 1997-1998.

Date	August 1997	August 1997	Decem. 1997	Decem. 1997	Septem. 1998	February 1998	March 1998	April 1998	April 1998	July 1998	August 1998	Septem. 1998	Total
Division	North Aegean Sea	Middle Aegean Sea	South Aegean Gökova	South Aegean Bodrum	North Aegean Sea	Middle Aegean Sea	Middle Aegean Sea	Middle Aegean Sea	Middle Aegean Sea	Middle Aegean Sea,Foça	Middle Aegean Aea,Foça	Middle Aegean Sea,Foça	
Octopus	0,70	29,60	0,50	1,70	3,40					22,10	4,80	11,40	74,20
Squid		15,20	5,60	6,70	1,40	16,30	11,10	10,10	6,20	0,90	8,30	0,90	82,70
Shrimp	52,50	180,10			176,30	51,80	62,10	282,60	82,60				888,00
Common Lobster	2,50	139,40			5,40	13,30	25,50	265,30	29,10				480,50
Hake	47,20	146,30			165,60	81,50	51,00	183,10		24,60		23,20	722,50
Horse mackerel	2,50	123,50	1,60	0,70	35,20	48,80	97,30	356,20	12,20	2,90	13,10	12,00	706,00
Angel fish	12,20	82,00	0,20		46,10	20,80	23,70	115,30	22,00	12,10	0,30	10,50	345,20
Striped bream		4,20	6,00	8,70	49,50	16,30	6,30	2,80	18,10	49,00	10,50	6,50	177,90
Common sole	0,50	27,90			2,70	10,90	25,50	50,50	10,30	3,40		0,80	132,50
Whiting	13,10	9,20			24,40	4,10	5,20		31,30		0,30		87,60
S.rockling	1,90	36,30			14,20	18,70	13,70	2,80	36,00				123,60
Red mullet	0,70		8,20	7,00	3,40	8,20	8,10	23,10	4,10	0,70	16,70	3,70	83,90
Striped red mullet	0,30		0,40		42,10			5,80		44,00	0,70	32,10	125,40
John dory	2,10	11,80			30,50	1,40		1,40				2,30	49,50
Total	136,20	805,50	22,50	24,80	600,20	292,10	329,50	1299,00	251,90	159,70	54,70	103,40	4079,50
Area t/Sq/mi	81,00	285,00	48,00	28,00	395,00	218,00	204,00	517,00	166,00	116,00	78,50	116,00	2252,50

In South Aegean Sea economic species found trawl catch were hake (*M. merluccius*), striped mullet (*Mullus barbatus*), striped bream (*Pagellus erythrinus*), bouge (*Boops boops*), picarel (*Spicara sp.)*, horse mackerel (*T. trachurus)* from cephalopod forms as squid (*Loligo vulgaris*). Proportion of these species in catch changed between 3,2 and 21 %.

Trawl surveys of the Aegean Sea in 1998 showed sharks and rajas were 9 % of the trawl catch in North Aegean Sea 28 % between Ayvalık and Dikili where the catch of these species was the most heavy and 10 % in Sığacık Bay in Middle Aegean Sea.

Hake, striped bream, angler, striped mullet *(Mullus surmuletus)*, horse mackerel, hake and john dory were caught densely by trawls in 1998 in North Aegean Sea. Also prawn was caught densely. Proportion of these species in trawl changed from 3.6 % to 26 %. In Middle Aegean Sea economic species found in trawl catch were striped mullet, angler, striped bream, horse mackerel and octopus are an economic species from Karaburun to Çandarlı fishing areas. Proportion of these species in trawl catch changed between 3.2 % and 21 %.

Fishes such as striped mullet, striped bream, horse mackerel and red scorpion fish (*Scorpeana* sp.) and cephalopods such as octopus and squid proportion in trawl changed from 3.3 % to 13.7 % and 3.9 % to 6.8 % in between Ayvalık and Dikili fishing areas.

Fishes suchas horse mackerel, hake, angler-fish, plaice, squid and prawn proportion in trawl changed from 3.7 % to 25 %, 2.3 % and 18 % to 20 % in between Karaburun and the offshore Lesvos Island fishing areas.

Striped mullet, angler, hake, striped bream, horse mackerel, plaice and whiting economic fish species in the fishing areas of Sığacık Bay in the Middle Aegean Sea. Proportion of these species in trawl catch changed between 2 % and 20 %. Crustaceans and cephalopod proportion to show from 7 % to 20 % and 3.5 % in this fishing area.

Density of Demersal Fish Biomass in Aegean Sea

During the study period, there were 12 trawl surveys done in the Aegean Sea in different months. Totally 34 trawling stations which were 17 trawling stations in August 1997 and 17 trawling stations in September 1998 in the North Aegean Sea were surveyed (Figure2). The study in August 1997 was done fishing areas between Gökçeada Island and Enez. Density distribution of demersal biomass in this survey was determined as 2.1-3.4 tones/Sq.mi between 300 and 400 m. depths at North of Gökçeada. Also it was determined 1.4-2.7 tones/Sq.mi from 80 to 110 m. depths between North and South Gökçeada and fishing areas (Figure 2-12).

In the Middle Aegean Sea, there were 19 trawling studies done in off Karaburun -Lesvos–Foça in July –September 1997. Density distributions of demersal biomass of in this area were determined 4.6-6.1 tones/Sq.mi from 270 to 320 m. depths between Karaburun and Lesvos Island, 3.4-4.8 tones/Sq.mi from 330 to 350 m. depths between Hiyos and Lesvos Island and 1.4-3.1 tones/Sq.mi 100 m. depths off Foça (Figure 3).

In the South Aegean Sea, there were 34 trawling surveys done around Gökova Bay and the Bodrum Peninsula in December 1997. Density distributions of demersal biomass of in these areas were determined 3 tones/Sq.mi from 64 to 160

m. depths and decreasing 0.1 tones/Sq.mi from 80 to 100 m. depths at Gökova Bay (Figure 4).

In Bodrum Bay 21 trawls were done. Density distribution of demersal biomass in this area was calculated as 5.9 tones/Sq.mi in 50 m. depths, 2.9 tones/Sq.mi between 67 and 157 m. depths and 2 tones/Sq.mi between 20 and 45 m. depths (Figure 5).

Totally 81 trawling studies were done between Ayvalık-Dikili, Karaburun-Çandarlı, Karaburun– offshore Lesvos Island, Sığacık and Kuşadası in 1998 in Middle Aegean Sea (Figures 6,7,8,9,10,11,13).

Density of demersal biomass from the trawl surveys in Sığacık Bay between February and April in 1998 were calculated as 1.7-2.4 tones/Sq.mi in 350 - 400 m. depth in offshore Alacatı, where the biomass was the densiest as, 1.2-2.1 tones/Sq.mi from 230 to 350 m. depth between Seferihisar and Hiyos Island (Figures 6,8).

In March 1998 in off Karaburun and its northwestern area of density demersal biomass distribution were showed as 2.4 tones/Sq.mi between 225 and 280 m. depths. North and South of this areas in density of demersal biomass were estimated 1.7-2.1 tones/Sq.mi in 220 m. depth (Figure 7).

The trawl study between Karaburun and Lesvos Island and west of Lesvos Island in April 1998 showed the density of demersal biomass was 3.1-4.6 tones/Sq.mi in 350 m. depths between Lesvos and Hiyos Island, 3.1–6.81 tones/sq.mi in 230-280 m. depths at west of Lesvos Island and 0.3 tone/Sq.mi in 100 m. depths at the banks of northwest of Hiyos Island (Figure 9).

Trawl surveys were done offshore Karaburun, Foça and Çandarlı from July to August in 1998. Density of demersal biomass distribution in this area was found 2.1 tones/Sq.mi between 70 and 74 m. depths between Karaburun and Foça, 1.7 tones/Sq.mi and 100-105 m. depths between Çandarlı and Foça and 1.4 tones/Sq.mi at south of Lesvos Island (Figure 10).

In the same areas in September 1998 the density of demersal biomass distribution showed decrease from 2.11 tones/Sq.mi to 1.4 tones/Sq.mi between 100 and 105 m. depths towards north of Foça. Density of demersal biomass distribution between 68 and 74 m. depths at offshore Foça was found 2.4 tones/Sq.mi (Figure 11).

In September 1998 between north of Dikili and west of Ayvalık density of demersal biomass was found 2.1 tones/Sq.mi between 30 and 40 meters depths (Figure 13).

RESULTS AND DISCUSSION

During the first period of demersal fish stock measurement study in the Aegean Sea in 1997, 1154 tones of fish was estimated in the survey by 70 trawl towings in a 463 Sq.mi area from North to South. As a result of this, it was calculated that the productivity in the Aegean Sea is 2.6 tones/ Sq.mi on the average. It is found out in

this study that the calculated distribution of average productivity per Sq.mi differs in the North, Middle and South Aegean Sea, which were 2.16 tones of fish / Sq.mi, 3.05 tones of fish / Sq.mi 2.07 tones of fish / Sq.mi for the area between Bodrum and Güllük Bay and 1.2 tones of fish / Sq.mi for Gulf of Gökova.

The surveys of the second period of the demersal stock measurement study made in 1998 were concentrated mostly in the North and Middle Aegean Sea. The fish biomass was calculated as 3670 tones based on 98 trawling studies on 8 trawl surveys in 1842 Sq.mi in the period between February-September 1998. As a result, the productivity in North and Middle Aegean Sea was found 1.98 tones / Sq.mi. Average productivity in the North Aegean Sea was 1.72 tones/ Sq.mi and in the Middle Aegean Sea 2.05 tones / Sq.mi.

It is determined in both 1997 and 1998 that the density distribution per Sq.mi of the demersal fish in 150-400 m. depths was at least two times as much as that of shallow waters. Prawn, hake, horse mackerel, anglerfish, red sea bream and plaice constitute 80 % of trawl catch in the survey areas in deep sea or international waters.

Teleost fishes as hake, red mullet, red sea bream and pickerel, molluscs such as octopus and squid constituted a big portion of trawl catch materials between 30 and 70 m. depths in Turkey's territorial waters. Average productivity was calculated as 1.2-1.5 tones of fish / Sq.mi in this area.

These results, show that the average productivity of demersal fish per Sq.mi in 1998 was found about 0.5 ton of fish / Sq.mi decreasing from 1997. This difference can be explained by the fact that the trawling samples were collected from smaller areas in 1997 than in 1998, because, the average length of commercial demersal fish species of trawling samples in 1997 and 1998 was not observed different length shrink. On the other hand the fish stock in the trawl survey areas was found not over exploited because of distribution of percentage age composition of trawl catch were found over first sex age.

There are 184 trawl boats fishing in the national and international waters of the Aegean Sea. Fifty of them from the Middle and East Black Sea, 30-40 of them Marmara and İstanbul for fishing for the last 8-10 years. Their number is increasing year by year. All the trawl boats, from the Black Sea, are fishing in the international waters of the Aegean Sea. From the Marmara and Istanbul are fishing international waters of the Aegean Sea half of those .All these trawl boats are fishing 100-120 days/ year (KARA and GURBET 1999). This number shows at least 80 trawl boats that are fishing in the international waters of the Aegean Sea. During a 12 hour towing trawl of each trawl boats dredges 55 hectare in a day. Eighty trawl boats dredge 528.000 hectares areas or 1540 Sq.mi in 120 days / year in the survey areas. CPUE of these boats as found as the average fishing rate, 350 kg / day. Considering these data, it was calculated that 80 trawl boats catch around 3360 tones of fish in 120 days. Furthermore, each of the 100 trawl boats that are working 140 days/year in Turkey's continental shelf or national waters in the Aegean Sea dredge on the average 45 hectares / day this the total average dredging

area per year is 630.000 hectares. Totally 2100 tones of fish is caught in this area. Average fish catching rate is 150 kg / day for a boat. As a consequence, trawl boats from outside the Aegean Sea region and come from Aegean Sea region dredge 3420 Sq.mi /year and they catch 5460 tones of fish / year in these areas.

These data, show that the trawling areas of Turkey's continental shelf and national waters in the Aegean Sea could be over exploited than the international waters of the Aegean Sea. As a result of these data, trawl fisheries can be to go away from economic fisheries for productivity of per Sq.mi area day by day. There are other trawl areas in the international waters of the Aegean Sea. Their distances are changing between 40 and 70 miles from Turkey's coasts, but only big trawlers can go offshore trawl fisheries. Consequently, trawling areas in the national waters are under pressure of over fishing. In this situation, for trawl fisheries of Aegean Sea of Turkey can be indispensable reconstruction and scrutiny.

The Aegean Sea is located northwest in the Mediterranean Sea and is a semi enclosed sea. The Aegean Sea has rich variety of fish species but poor productivity for fishing. The demersal and semi pelagic fish species of the Aegean Sea are expensive species for the domestic and European markets. Therefore there are no market problems of these species.

One of the most important problem of trawl fishing in the Aegean Sea for Turkey is the difference of technological equipment between trawl boats from outside of the Aegean Sea and those from the Aegean region. It causes technological competition. Other important problem of trawl boats, from the Black Sea and Marmara and fishing in the international waters of the Aegean Sea, is time to go to the fishing areas, which are far away, and to come back to fishing ports. It takes 6-8 hours and is almost near to 1/3 fishing time for these boats. For this reason, commercial fisheries for these boats are under pressure by fishing time. If trawl boats come to fishing ports every 2 and 3 days, they are saving diesel oil for 12 to 18 hours. Therefore trawl fisheries might be to become economical fisheries. Price of diesel oil use a for trawl boats, which is important for increasing productivity but also for finding new trawl areas in the international waters, should be subsidized by the government. Trawl boats requires the development of fish storage room and the modernisation for working in the international waters of the Aegean Sea. These trawl boats have to carry at least 1500 meters of steel wire on each trawl drum, GPS and echo sounder. All these trawl boats should using high opening mouth bottom trawl nets. New commercial fishing boats have to prevent adding fishing fleet.

When the above improvement is made the fishing areas in the national waters will relax as the trawl fisheries will be more open to the international fishing areas of the Aegean Sea. Demersal stocks in the continental shelf and the productivity of per unit area should be increasing by the after these applications.

REFERENCES

ALVERSON D.L., PRUTER A.T. and RONHOLT L.L. 1964. A study of demersal fishes and fisheries of the north-eastern Pacific Ocean H.R. Mac Millian lectures in fisheries, Vancouver, Univ. Of British Colombia, p.190

GULLAND, J.A. 1964. Catch Per unit effort as a measure of abundance. Rapp. P.V. Reun. Cons. Perm. Int. Explor. Mer. 155. pp.8-4.

KARA, O.F., GURBET R. 1989. Kuzey Ege Denizi Ekonomik Balıklarının dağılımı ve stok boyutlarının ölçümü. E.Ü. Araştırma Fon Saymanlığı. No: 1988/003 43 pp. İzmir.

KARA O.F., KAYA M., BENLI H.A. and MATER S. 1991. The productivity and hydrographical properties of the trawl areas of the Middle and Eastern Black Sea Symposium İstanbul 16-18 September 1991. The Black Sea foundation İstanbul pp. 205-222.

KARA O.F., GURBET, R., 1999. Ege Denizi Endüstriyel Balıkçılığı Üzerine Araştırma. Tarım ve Köyişleri Bakanlığı Bodrum Su ürünleri Araştırma Enstitüsü Yayınları. Seri B. No.5. Bodrum.

KOCATAŞ, A., BİLECİK, N., 1992.Ege Denizi Canli Kaynaklari. Tarım ve Köyişleri Bakanlığı, Bodrum Su Ürünleri Araştırma Enstitüsü Yayınları. Yayın no:7. Bodrum

PROBLEMS RELATED TO THE FISHERIES AND THREATENED MARINE SPECIES IN THE AEGEAN SEA

Bayram ÖZTÜRK[1] and Ayaka Amaha ÖZTÜRK[2]

[1]Faculty of Fisheries, [2]Science and Technology Institute
University of Istanbul, Ordu Cad. No: 200, Laleli, Istanbul, Turkey
and
Turkish Marine Research Foundation
Beykoz, Istanbul, Turkey

ABSTRACT

Fishery resources have vital importance in the Aegean Sea for Turkey. However, there has been a decline in the pelagic and benthic fish stocks, mainly due to overfishing. Besides, for Turkey, in the case of unlikely enlargement of the Greece's territorial waters, its fishing grounds will be greatly reduced.

The Aegean Sea has characteristics of insular ecosystem which is extremely fragile and difficult to recover in case of anthropogenic catastrophes like oil spills, invasion of exotic species and other unwanted ecological degradation. Based on the IUCN criteria, 4 seagrass species, 5 algae species, 13 invertebrates, 4 fishes, 8 mammals and 1 reptile species, a total 35 marine species, are under the threat in the Aegean Sea. The main threats are habitat destruction, overfishing, domestic, industrial and oil pollution and aquaculture. Joint environmental protection programs should be realized by both Turkey and Greece for the protection of the marine biodiversity of the Aegean Sea. Sustainable fisheries, coastal planning, tourism planning, monitoring and protection of endangered species, establishing marine protected areas, controlling the invasion of exotic species and contingency plans for oil spills are main cooperation fields for Turkey and Greece for the survival of the Aegean Sea and islands.

INTRODUCTION

The Aegan Sea is a sub area of the Mediterranean Sea and its most important pecularity is containing numerous islands and islets. This sea separates Greece and Turkey. The southern boundry of the Aegean Sea started from Elafonisou in the west, through Crete and Rhodos, and ends at River Dalaman on Turkish mainland in the east (KURUMAHMUT, 1998). In the northeast, there is the Marmara Sea, connecting the Aegean Sea to the Black Sea.

Fishery resources and their utilization are of great importance for coastal countries, especially those surrounding semi-enclosed seas, such as the Aegean Sea, because of the limited benthic and pelagic biomass. Main commercially important and migratory species are sardine, mackerel, horse mackerel, bonito, tuna and swordfish. These fishes constitute major catch in the Aegean Sea for Turkey. Main commercial benthic species are mullet, red mullet, sole and stingrays, among invertebrates are Norway lobster, spiny lobster, pink shrimp, squid and octopus. Sponge fishery is also traditional in the Aegean Sea.

In regards of threatened species, the Aegean Sea is ecologically important due to several reasons. First of all, the Aegean Sea is a semi-closed sea, thus isolated from the other water body, though not completely. Secondly, numerous islands are isolated from one another and the space in the coastal area of each island is extremely limited. This insular ecosystem has unique characteristics such as endemism, thus are vulnerable to habitat destruction. Thirdly, there is an important interaction with the Black Sea. The pelagic fish, such as tuna, swordfish, bonito and mackerel, migrate from the Black Sea to the Aegean Sea through the Turkish Straits system and vice versa (ÖZTÜRK and ÖZTÜRK, 1996). Moreover, the Aegean Sea is the only source of water renewal to the Black Sea. Fourthly, due to its complicated geomorphology, seen as caves, reefs, etc, the Aegean Sea has a high habitat diversity, thus a high species diversity. Fifthly, the Aegean Sea is a gene pool for some of the critically endangered species. For example, the Aegean population the Mediterrenean monk seal which is highly endangererd is the only population left in the Mediterranean besides the one on the Atlantic coast of North Africa. Last of all, the Aegean islands are in the Anatolian - European transition zone and biogeographically it is generallly accepted that fauna and flora of the Aegean Sea are similar to those of the Anatolian mainland. For example, the herpetofauna of the Turkish islands is not different significantly from that of the Anatolia mainland (BARAN et al., 2000). Therefore, the Aegean region can be considered as a critical area for the conservation of biodiversity of both Europe and Anatolia.

The Aegean Sea and islands contain several micro habitats for many species and some of these species play a vital role for the stability of the ecosystem, i.e. *Posidonia oceanica.* Some of the species have a role in bioconstruction in the coastal areas, i.e. *Ltypillum* spp.

However, in recent years, the fauna and flora of the Aegean islands are threatened due to masstourism, coastal degradation, overfishing, aquaculture, establishing new settlement in the islands and islets, oil spill, eutrophication, invasion of exotic species and so on.

PROBLEMS RELATED TO THE FISHERIES

FISHING GROUNDS

The Aegean sea has two types of fisheries. One is a small-scale fishery such as dalyan, sardine and sponge fisheries. Another one is an industrial fishery, like tuna, swordfish fishing, bonito and mackerel fisheries done mainly in the offshore area with purse seines. Benthic species fisheries with trawl start beyond 3 nmiles from the shore in certain seasons.

Turkey's fishing fleet catch the fish in the offshore area in the Aegean Sea by purse seines and trawling to supply cheap fish to the Turkish or international market. Main fishing grounds of the Turkish fishermen in the Aegean Sea beyond 6 nmiles of the territorial water (Fig. 1) .

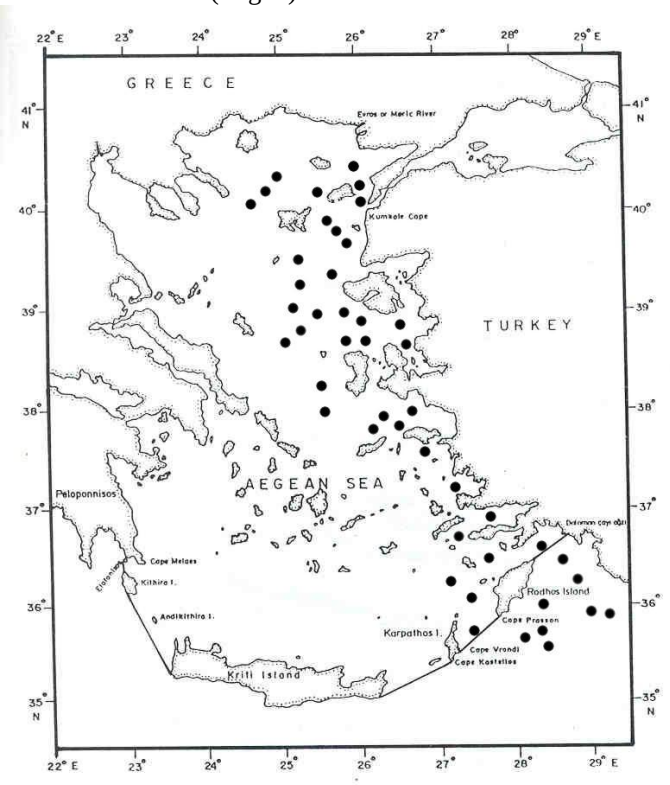


Fig.1. Main fishing ground in the Aegean Sea off-shore area which are used by Turkish fishermen (trawlers, purse-seiners, longliners).

If Greece expands its territorial sea , Turkey loses its present fishing grounds . This means that the Turkish fishermen cannot utilise the benthic and pelagic resources in the Aegean Sea as much as they do at present. This is not an equitable and reasonable solution in term of sharing the living resources in the Aegean Sea.

DECLINE OF THE FISHERIES RESOURCES

Fishing is one of the oldest traditions on the Aegean coasts. Many people catch fish on a small scale or by artisanal method. However, in recent years, the fishing effort has been increased both in Turkey and Greece, which has resulted in overfishing and decline of the commercial fish sotcks, such as sardine, spratt, mackerel and horse mackerel. Main problems of the fisheries in Greece are large-scale illegal fisheries, use of dynamite, illegal spear-gun fishing, and fishing license problems (VLACHOUTSIKOU and LAZARIDES, 1991). Furthermore, collapse of fishing in the Hellenic Sea was also studied by STERGIOU et al. (1997). Some problems were also studied by Turkish scientists and it was mentioned that the coastal fisheries declined due to overfishing (KARA and GURBET, 1999). Main fish spawning areas in the Turkish side are Saros Bay, Edremit Bay, Çandarlı Bay, Sığacık Bay, Kuşadası Bay, Güllük Bay and Gökova Bay (KOCATAŞ and BİLECIK, 1992).

In regards of migratory species like tunas and swordfish, the stocks are drastically declined mainly due to overfishing. The stocks of this kind of migratory species are evaluated by the Turkish and Greek fisheries scientists under the International Commission on the Conservation of Atlantic Tunas (ICCAT) or General Fisheries Council of Mediterranean (GFCM) as well as other Mediterranean organisations. The period of fishing ban, fishing effort, fishing gears and technics should be reviewed by scientists of two countries for the sustainable fisheries .

Sponge fisheries, which has been the tradition in the Aegean Sea, was greatly affected by an epidemic in the 1980s. The stock has not recovered fully yet, thus a special monitoring programme is needed.

Decline of the fish stocks in the Aegean Sea threatens one of the critically endangered species Mediterranean monk seal, *Monachus monachus*. Hungry Seals catch fish in fishing nets and damage nets, thus the fishermen in the Aegean region consider them as enemies, killing them deliberately. The monk seals live in the Aegean islands of Greece very close to Anatolia (VLACHOUTSIKOU and LAZARIDES, 1991; DENDRINOS, 1992). In the Aegean Sea, they move among the Turkish and Greek islands and islets freely (BERKES, 1978; ÖZTÜRK, 1992; ÖZTÜRK,1998). Therefore a joint monitoring study and protection program are needed between Turkey and Greece.

Cetaceans are also affected by the decline of the fish stocks. While they are not deliberately killed by fishermen, there have been stranded or wounded

specimens due to entanglement to the fishing gear on the Aegean coast (ÖZTÜRK and ÖZTÜRK, 1998).

WHAT ARE THE COMMON ENVIRONMENTAL PROBLEMS ?

EUTROPHICATION

Eutrophication is one of the serious threats for the Aegean ecosytem. As there is no sufficent treatment ifrastructure, the sewage of İzmir, Thessaloniki, and some other small cities, goes directly into the sea without any purification (CLARK, 1992). The amount is not known clearly on both sides.

Due to eutrophication, red tides occur in the Aegean Sea, which results in mortality of marine organisms due to the lack of oxygen (KORAY, 1992). It may also bring out the bloom of toxic dinofllagerates. Moreover, the turbidity increases as the water is eutrophicated, then the light diminution effects the sea grass and algae. Eutrophication and deterioration of the sea water quality may cause risk to tourism in the coastal water and beaches in the near future.

The Aegean Sea is connected to the Black Sea through the Marmara Sea and straits. The Black Sea is the largest mass of anoxic water on the planet. If the Black Sea pollution load through the Marmara Sea increases, it may cause more danger for the Aegean coasts.

OIL SPILL

The Mediterranean Sea is generally polluted with oil as some 250 m t yr-1 of oil are transported througth the Mediterranean, about 150 m t yr-1 of this from North Africa to European ports (CLARK, 1992). The Aegean Sea is also a busy way of the oil traffic between the Mediterranean and Black Sea. However, there is no sufficient port receiving facility in the most Aegean harbours. Due to petrol traffic, this sea is under the threat for ecological disasters due to collision, grounding, etc. Therefore an oil spill contingency plan is required for ship accidents with defining of the sensitive areas.

The Aegean Sea is contaminated with PAH (SAYDAM et al., 1988; HATZIANESTIS et al., 1998). However, the level of oil contamination is not accurately known and should be monitored in sea water, sediment and organisms for the entire sea.

EXOTIC SPECIES

Problems related to exotic species are relatively new in the Mediterranean basin. Most common exotic species are from the Indian Ocean through Suez Canal and they are called Lessepsian species. POR (1978) stated that 40 Lessepsian species have reached the Anatolian coast, Rhodos, Cyprus and Cret-Santorin areas. Recent studies showed that ship ballast water also carries exotic species to the Aegean Sea. One of the examples is blue crab *Callinectes sapidus* found in Turkey and Greece (HOLTHUIS, 1961).

The Aegan Sea fauna anf flora are under the threat of the comb jellyfish *Mnemiopsis leidyi* which reached firstly to the Black Sea from the North Atlantic by tanker ballast water in 1987 and damaged ecological balance there. This species has been also found in the Aegean and Mediterranean Sea (KİDEYS and NIERMANN, 1994). Besides, aquaculture industries are threatened by ship ballast water due to toxic algae and their permanent cysts, fish and shellfish disease and human pathogens (ROSENTHAL, 1997). Concerted action plans are needed for the control of ballast water for preventing the invasion of exotic species.

Another risk is presented by *Caulerpa taxifolia* and *Caulerpa raceamose*. These two algae species may cause harm to the Aegean Sea native flora.

HABITAT DESTRUCTION

Habitat destruction is one of the common problems in the Aegean coasts. Especially, hotel settlements, harbour installation, road construction on the islands and islets are harmful for the coastal environment. Due to these constructions, the siltation and coastal erosion spoil the beds of sea algae and sea grass in the coasts. This affects the organisms such as larvae and juveniles of fish and invertebrates using these beds as shelters. Sport divers also affect the habitats by collecting some organisms, such as molluscs and sponges, illegally.

Sea turtle, *Caretta caretta*, is vulnerable to habitat destruction, especially construction on beaches. The Turkish government and NGOs are very concerned about their *in situ* protection, thus have declared some areas in the Aegean Sea as Special Protected Areas.

AQUACULTURE ACTIVITIES

Aquaculture, mainly of sea bream and sea bass, started relatively new in the Aegean Sea. By marine aquaculture, Turkey produces 15,000 t of fish and Greece 35,000 t in the shallow bays in the Aegean Sea (CANDAN, 2000). However, large-scale farms without good planning and control can badly affect and eutrophicate closed bays or non-circulated areas in a short period of time. Particularly, remains of food and chemicals cause unpredictable harm to native fauna and flora in the Aegean Sea.

THREATENED SPECIES IN THE AEGEAN SEA AND ISLANDS

The following lists (Tables 1 & 2) were compiled, based on the criteria of the IUCN (1994).

Table 1. Threatened plant species of the Aegean Sea and islands. Abbrevations for the status are as follows; V: vulnerable, R: rare, E: endangered.

Species *	Status	Major risk
Cymodocea nodosa	R	#Coastal development and coastal fisheries
Zostera marina	E	#Turbidity, set net fisheries
Zostera noltii	E	#Turbidity, set net fisheries
Posidonia ocenica *	E	#Set net fisheries, coastal fisheries,anchoring and coastal degradation
Caulerpa olivieri *	V	Coastal development
Cystoseira spinosa *	V	Habitat destruction
Cystoseira zosteroides	V	Turbidity
Lithophyllum lichenoides	V	Oil pollution
Tenarea undolusa	V	Oil pollution

*Mediterranean emdemic species. # Under protection in Turkey according to the Fisheries Law, No. 1380.

Table 2. Threatened animal species in the Aegean Sea and islands. Abbrevations for the status are as follows; V: vulnerable, R: rare, E: endangered, CE: critically endangered, DD: data deficient.

Species	Status	Major risk
Axinella polypoides	V	Set nets and sport divers
Axinella verrucosa	V	Set nets and sport divers
Gerardia savaglia	E	#Set nets and sport divers
Eunicella singularis	V	Set nets and sport divers
Homarus gammarus	V	Overfishing
Palinurus elephas	V	Overfishing
Scyllarus latus	V	Overfishing
Scyllarus arctus	V	Overfishing
Maja squinado	V	Overfishing
Charonia tritonis	E	#Shell collectors
Pinna nobilis	V	#Set nets
Tonna galea	E	#Shell collectors
Asterina pancerii *	V	#Sport divers
Acipencer sturio	CE	#Overfishing
Huso huso	CE	#Overfishing
Hippocampus hippocampus	V	#Sport divers

Epinephelus marginatus	V	Spearfishing
Caretta caretta	E	#Coastal degradation, by-catch, pollution
Monachus monachus	CE	#Loss of habitat, deliberate killing
Tursiops truncatus	DD	#Loss of habitat, bycatch, food shortage
Delphinus delphis	DD	#Loss of habitat, bycatch, food shortage
Stenella coeruleoalba	DD	#Loss of habitat, bycatch, food shortage
Grampus griseus	DD	#Loss of habitat, bycatch, food shortage
Ziphius cavirostris	DD	#Loss of habitat, food shortage
Balaenoptera physalus	R	#Loss of habitat, food shortage
Physeter catodon	R	#Loss of habitat, food shortage

*Mediterranean emdemic species. # Under protection in Turkey according to the Fisheries Law, No. 1380.

CONCLUSION

As Van Dyke (1996) and others pointed out previously, Turkey and Greece should protect the Aegean Sea and islands for their rational exploitation of the marine resources. If the Aegean Sea is polluted, both countries will be influenced by this pollution, in terms of aquaculture production, tourism and so on.

Two countries should cooperate in the field of fisheries because overfishing is the most important factor for the decline of commercial fish stocks, such as sardine, spratt, horsemackerel, and mackerel. The swordfish and tuna fisheries should be regulated by national and international organizations.

As UNEP (1997) emphasized, marine and coastal protected areas in the Aegean Sea should be increased for the *in situ* protection of some threatened species, such as Mediterranean monk seals in Foça and other areas. The protected areas shold be organized with equipment and staff. Enforcement of the existing law is also important for the effective protection of the fragile ecosystem, such as that of the Aegean Sea and islands. Besides, monitoring studies on the biodversity of the Aegean Sea and islands are necessary, such as ÖZTÜRK et al. (1998), to see the long-term effect of above-mentioned problems on the ecosystem.

Turkey and Greece signed Barcelona Convention for the protection of the environment of the Mediterranean and Aegean Sea, and should cooperate for researches, management and implementation of protection measures. Unfortunately, this cooperation is not sufficient between two countries due to legal and political problems of the islands, delimitation of the sea, continental shelf and so on. However, as shown above, we emphasize the importance of the cooperaion between Greece and Turkey in the fields of sustainable fisheries, coastal planning, tourism planning, monitoring and protection of endangered species, establishing marine protected areas, controlling the invasion of exotic species and contingency plans for oil spills.

REFERENCES

BARAN, I., TÜRKOZAN, O., ILGAZ, Ç., 2000. Comparison of Anatolian Herperofauna with that of the Aegean islands. This volume.

BERKES, F., 1978. The possibility of movements of *Monachus monachus* between the coastal waters of Greece and Turkey. Brock Univ., St.Catherienes, Ontario, 14p.

CANDAN, A., 2000. The environmental impacts of the aquaculture in the Aegean Sea. This volume.

CLARK, B., 1992. Marine Pollution. Clarendon Press, Oxford, 172p.

DENDRINOS, P., 1992. Survey of shelters and of the monk seal population in the Dodecanese Region. EEC Contract No: 4-3040 (91) 7808, Athens, 18p.

VAN DYKE, J.M., 1996. The Aegean Sea dispute: options and avenues. Marine Policy, 20(5): 397-404.

HATZIANESTIS, J., SKLIVAGOU, E., FRILIGOS, N., 1998. Hydrocarbons in surface sediments from the Northern Aegean Sea. Rapp.Comm.int.Mer Medit., 35: 264-265.

HOLTHUIS, B.L., 1961. Report on a collection of Crustacea Decapoda and Stomatopoda from Turkey and the Balkans. Zoologische Verhandelingen, No: 47, Leiden, 67p.

IUCN., 1994. Red List Categories. IUCN, Gland, 21p.

KARA, Ö.F., GURBET, R., 1999. Investigation on Industrial Fishery on Aegean Sea.Su Ürünleri Araştırma Enstitüsü Müdürlüğü, Bodrum, Seri B, Yayın No: 5.

KIDEYS, A.E., NIERMANN, U., 1994. Occurrence of *Mnemiopsis* along the Turkish coasts (from northeastern Mediterranean to Istanbul). ICES J.Mar.Sci., 51: 423–427.

KOCATAŞ, A, BİLECİK, N., 1992. The Aegean Sea and living resources. The Tarım ve Köyişleri Bakanlığı , Bodrum Su Ürünleri Araştırma Enstitüsü Müdürlüğü, Bodrum, Seri A, 88p. (In Turkish).

KORAY, T., 1984. The occurrence of red tides and cousative organisms in Izmir Bay. E.Ü. faculty of Science Journal, Series B, 6(1): 75-83.

KURUMAHMUT, A., 1998. Basic Problem in the Aegean Sea. Türk Tarih Kurumu Basımevi, Ankara, 141p. (In Turkish).

ÖZTÜRK, B, 1992. Mediterranean Monk Seal. Anahtar Yayınları, İstanbul, 120p. (In Turkish).
ÖZTÜRK, B., 1998. Monitoring of the Mediterranean monk seals in the Turkish Coast of the Aegean Sea. Rapp. Comm.int.Mer Medit., 35: 570-571.
ÖZTÜRK, B., ÖZTÜRK, A.A., 1996. On the biology of the Turkish straits system. Bulletin de l'Institut oceanographique, Monaco, no special 17: 205-221.
ÖZTÜRK, B., ÖZTÜRK, A.A., 1998. Cetacean strandings in the Aegean and Mediterranean coasts of Turkey. Rapp. Comm.int.Mer Medit., 35: 476-477.
ÖZTÜRK, B., TOPALOGLU, B., TARKAN, A., 1998. Bodrum - Karaada'nın denizel biyolojik çeşitlilik açısından incelenmesi. In: Bodrum Çevre Sorunları Sim., 437-447.
ROSENTHAL, H., 1997. Problems poses par l'introduction d'especes etrangeres en mer. In: Dynamique d'especes marines invasives: application a l'expansion de Caulerpa taxifolia en Mediterranee, Technique & Documentation, Paris, 235-240.
SAYDAM, A.C., YILMAZ, A., BAŞTURK, O., SALİHOGLU, İ., 1988. Petrol hydrocarbon in sea water, marine organism and sediments from Northeastern Mediterranean and Aegean Sea. Rapp.Comm.int.Mer Medit., 31,2: 163.
STERGIOU, K.I., CHRISTOU, D., GEORGOPOULOS, D., ZENETOS, A., SOUVERMEZOGLOU, C., 1997. The Hellenic Seas: Physics, Chemistry, Biology and Fisheries. In: Oceanography and Marine Biology, an Annual Review, 35: 415-538.
POR , F.D., 1978. Lessepsian Migration - The influx of Red Sea Biota into the Mediterranean by Way of the Suez Canal, Springer-Verlag, Berlin, 228p.
UNEP, 1997. Protected Areas in the Mediterranean, from Geneva 1982 to Barcelona 1995. Regional Activity Center for Specially Protected Areas, Tunis.
VLACHOUTSIKOU, A., LAZARIDIS, Y., 1990. Monk Seal in Greece. European Nature Heritage Fund, 40p.

ENVIRONMENTAL IMPACTS OF AQUACULTURE IN THE AEGEAN SEA

Akın CANDAN
University of Istanbul, Faculty of Fisheries
Ordu cad. No. 200 Laleli, Istanbul, Turkey
and
Turkish Marine Research Foundation
Beykoz, Istanbul, Turkey

ABSTRACT

This paper reviews the ecological impacts of aquaculture in the AegeanSea.Marine fish farming has expanded considerably in recent years both in Greece and in Turkey. But the environmental impacts have been ignored since the beginning of this sector. Today, the adverse ecological impacts due to aquaculture have been scientifically proofed. The nutrient and organic enrichment, use of chemicals and antibiotics, biological interactions, negative feed back effects are now important factors when considering its impacts. A detailed environmental impact assessment study for big scale aquaculture facilities and offshore farming systems instead of coastal farming units could be the solution for the future of this sector.

INTRODUCTION

Aquaculture, the farming of aquatic organisms, including fish, molluscs, crustaceans and aquatic plants is the most rapid growing field in agriculture worldwide, and is expected to grow in the near future.

For more than 20 years aquaculture activities are developing on both sides of the Aegean Sea. Today, Greece is the biggest sea bass and sea bream producer of Europe and Turkey is the second (Table 1). The enormous climatic and geographic advantages give these countries an unique chance. Greece has also great financial support from the European community to its aquaculture activities.

Table 1.

Country Greece								
Group	**Name**	**Data**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**
Sea Basses	**Seabass**	**Quantity**	6800 t.	8000 t.	9000 t.	12000 t .	14000 t.	17000t.
('000 ECU)		**Total Value**	44.880	48.000	60.660	78.000	91.560	112.000
Sea Breams	**Seabre.**	**Quantity**	6700 t.	9000 t.	12000 t.	14000 t.	15000t.	18000t.
('000 ECU)		**Total Value**	43.014	50.940	69.120	81.200	93.600	112.320

Marine fish farming in Greece is dominated by European Sea bass and Gilthead seabream. The forecast for over 35.000 tons in 1999 will give the Greek fish farming sector a value of more than 225 million ECU, virtually doubling in the last 5 years.

Country Turkey								
Group	**Name**	**Data**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**
Sea Basses	**Seabass**	**Quantity**	2229 t.	2000 t.	3000 t.	5000 t.	5750 t.	8000 t.
('000 ECU)		**Total Value**	13.820	12.400	19.020	32.500	37.605	52.320
Sea Breams	**Sea Bre.**	**Quantity**	6070 t.	8000 t.	9000 t.	6000 t.	6750 t.	7000 t.
('000 ECU)		**Total Value**	37.634	49.600	42.750	30.000	42.120	43.680

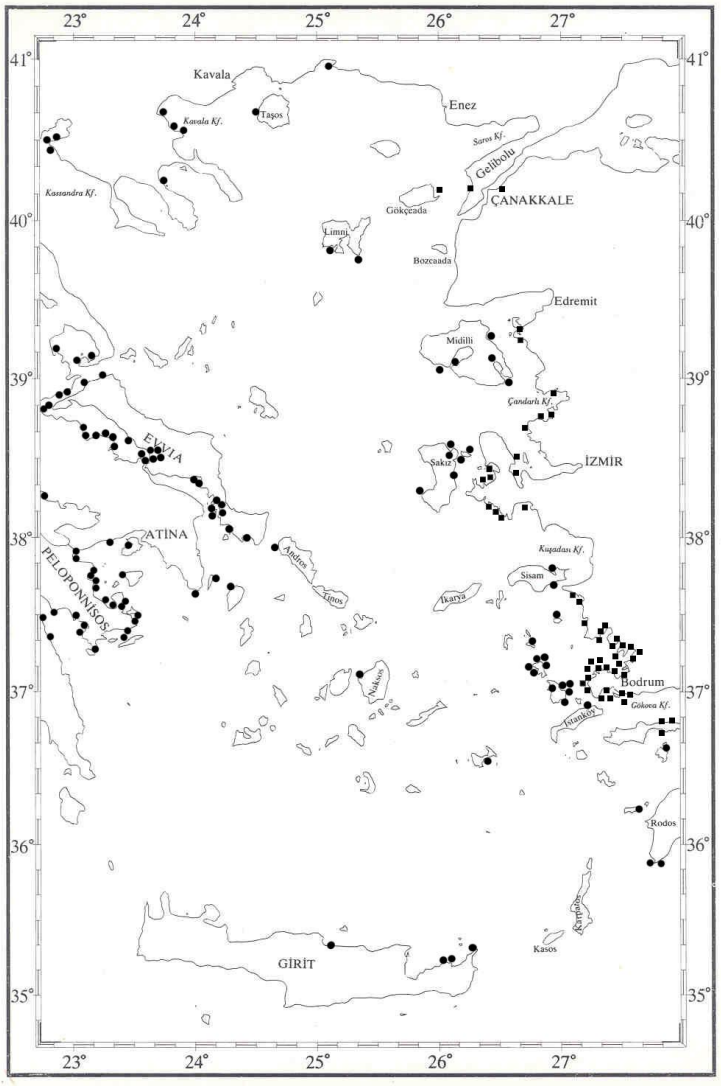
(Modified from BABADOĞAN 1998).

Turkey's marine fish farming sector has expanded considerably in recent years, most recently for seabass. Accuracy on data supply is improving and growth is greater than observed formerly.

As shown in Table 1, the total production of both countries are around 50.000 tons and a total value of 320 MECU.

This growing production is dominated by more than 200 intensive farms and hatcheries in each country in the Aegean Sea (Map 1).

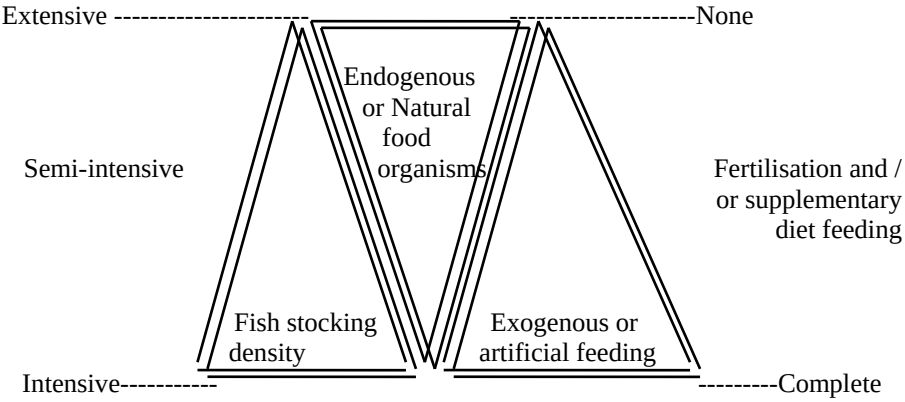
Map 1: Major locations of marine cage farms and hatcheries at the Aegean Sea.



• : Greek farms
+ : Turkish farms
(Modified from FFI, 1999)

It is useful to explain intensive farming system when considering environmental effects of particular aquaculture operations. Figure 1, illustrates farming density and relative contribution of natural food organisms and artificial feeds in the nutritional budget of fish within extensive, semi-intensive and intensive farming systems.

Figure 1. Farming density and relative contribution of natural food organisms and artificial feeds.



(NCC 1989).

A further distinction on farming practices has to be done between : 1) Open water culture systems and 2) Semiclosed and closed systems

1) Open water culture systems : The most commonly practiced aquaculture technique and also the oldest one, is defined as the production in natural body of water with or without any modification. Its popularity is due to the low cost that is involved and the minimum requirment for its management. The major problems of the open system are the danger of predators to the cultured organisms, the very difficult control of diseases and environmental parameters.

2) Semiclosed and closed systems : In these systems water is reused in multiple tanks, moving in one direction never used in the same tank twice. The difference among the two terms is the percentage recycle which means the percentage of the total system volume that is retained on a daily basis. (40 - 95 % semiclosed; 100 % closed system). In recirculating systems water flows from the fish tanks to a treatment process (mechanical, biological filtration, sterilisation and oxygenation) then, back to the tanks.

At present marine fish at the Aegean coast is cultured with profit in the open system. For some species and several types of operation the semiclosed systems are economically viable and practised. The closed systems are now profitable for only a few specific species like eel and only under very special circumstances.

The marine fish culture at the Aegean coastline is carried out in ponds, tanks, cages and raceways. The main species are seabream (*Sparus aurata*), seabass (*Dicentrarchus labrax*), sharpsnout seabream *(Diplodus puntazzo*), grey mullet (*Mugil cephalus*) and common dentex (*Dentex dentex*).

Aegean aquaculture and the environment ; the context

Aquaculture interacts with the environment more than any other agricultural activities. It utilises and causes environmental changes. Some interactions have beneficial effects, but there are also potential adverse effects.

Benefits of Aquaculture :

- The socio-economic benefits arising from aquaculture expansion include the provision of food, contributing to improve nutrition and health, the generation of income and employment, the diversification of primary production and, increasingly important for developing countries like Greece and Turkey, foreign exchange earnings through export of high-value products. As shown in Table 1, the total Aegean seabream and seabass farming has a yearly value of 156 million ECU approximately.

- Aquaculture is also being promoted for its potential to compensate for the low growth rate of capture fisheries. Stocking and release of hatchery - reared organisms into inland and coastal waters support culture - based fisheries.

- Sustainable development of aquaculture can contribute to the prevention and control of aquatic pollution since they rely essentially on good quality water resources.

- Aquaculture can contribute to rehabilitation of rural areas trough re-use of degraded land.

Potential adverse effects of Aquaculture

- Distinguish between the species cultured, the farming methods and the prevailing ecological characteristics of the aquaculture site.

- Most of scientific evidence on adverse ecological impact due to aquaculture originates from temperate environments like the Aegean Sea and cannot be applied to aquaculture in warm or tropical environments.

Nutrient and organic enrichment

- Many aquaculture operations invariably result in the release of metabolic waste products (faeces, pseudofaeces and excreta) and uneaten food into the aquatic environment. In general the 'recipient' for soluble wastes is the water column and the recipient for the organic waste is the sediment.

- The release of soluble inorganic nutrients (nitrogen and phosphorus) has the potential to cause nutrient enrichment (hypernutrification) possibly followed by eutrophication of a waterbody. Related changes in phytoplankton ecology may result in algal blooms, which can be harmful to wild and farmed organisms. However, there is no evidence that algal blooms have been cause by coastal aquaculture.

- The largest proportion of solid wastes released, which is predominantly organic carbon and nitrogen, settles to the seabed in the immediate vicinity of the farm. Organic enrichment of the benthic ecosystem may result in increased oxygen consumption by the sediment and formation of anoxic sediments, with in extreme cases, outgassing of carbon dioxide, methane and hydrogen sulphide; enhanced remineralization of organic nitrogen and reduction in macrofauna biomass abundance and species composition.

- There is evidence of very localised effects of reduced concentrations of dissolved oxygen in bottom and surface waters close to farm sites which are due to the considerable BOD of released organic wastes and the respiratory demands of the cultured stocks.

- Nutrient and organic wastes, in dissolved and particulate forms stemming from uneaten food and excreta, are generally characterised by an increase in suspended solids (SS), biochemical oxygen demand (BOD), chemical oxygen demand (COD) and content of carbon, nitrogen and phosphorus.

- Regarding the release of wastes from marine cage farms, estimates of solid waste production from carnivorous fish farm (salmonid) range from 0.3 to 0.7 dry weight of waste feed and faeces per kg of fish produced (WESTON 1991). A typical marine cage farm with an annual production of 200 t and well controlled feeding techniques is said to provide an annual loading level of 2 t of phosphorus, 18 t nitrogen and 100 t oxygen consumption as BOD7 (SEYMOUR & BERGHEIM 1991). According to this loading estimation levels only in 1999, 1000 t of phosphorus and 4500 t of nitrogen loaded from the aquaculture sites and 25.000 t oxygen consumption is required in the Aegean Sea.

- It is evident that considerable water exchange rates are required for waste removal and oxygen supply in both land-based and sea-based fish farms. The dilution / dispersal, areal distribution and sedimentation of the released waste and its potential ecological effects around fish farms are determined by current velocities and depths of water bodies receiving the waste load from pond / tank effluents and cages. The particulate organic matter released settles in the vicinity of the farm if the settling velocity of the particles is higher than the water current velocity.

- The areal extent of ensuing ecological effects on macrobenthic communities underneath and around cage culture (NCC 1989) according to the following patterns :

- Lack of macrobenthos (azoic zone, usually below the cage)
- Dominant of enrichment-tolerant species (opportunistic zone, covering an area of up to 30 m from the site).
- Gradual return to background conditions (normally occurring within 30 m of the farm, although effects may extend occasionally to up to 100 m of the farm site).
- Similar effects on the benthic community in the vicinity of discharge pipes from land-based fish farms can be expected.

Use of chemicals and antibiotics

A wide range of chemicals are used in aquaculture. These include therapeutants, disinfectants, anaesthetics, biocides, hormones, vitamines, flesh pigments and vaccines. Their use varies greatly with species, intensity of culture and location.

With regard to antibiotics, which are usually administered in feed (even if their use for many is forbidden) there is evidence that only 20 - 30 % are actually ingested by the fish, thus approximately 70 - 80 % reaches the environment notably from uneaten medicated food. These bioactive compounds in animal tissues or their residues in the aquatic environment effects human health directly or indirectly through food chain. And the antibiotic resistance in pathogenic microbial communities leads the farmers to use more and more antibiotics to cause more expensive production and more biological pollution. The use of the organophosphorus compounds, trichlorfon (Neguvon) and dichlorvos (Nuvan) for parasite treatment is potentially toxic to non target organisms such as lobsters, crabs and mussels.

Since 20 years chemicals and antibiotics are used in the Aegean aquaculture and many resistance strains of fish pathogenic bacteria are found at the region like Vibrio spp., *Photobacterium damsella* (*Pasteurella piscicida*). The diverse effects of the chemicals are also found in coastal cage farming sites especially semi-closed areas.

Biological interactions

- The introduction and the transfer of species and breeding for aquaculture purposes may alter the local biodiversity and genetic resources of the marine ecosystem through interbreeding predation, competition, habitats destruction and possibly through the transmission of parasites and diseases.

- Diseases may occur since many aquaculture practices and conditions around aquaculture operations can be stressful to the farmed stock. Certain water quality conditions enhance virulence of potential pathogens.

- Capturing wild juveniles in traps as a farming stock. This particular problem is still a major problem for the wild stocks of seabream juvenilesat the Turkish coasts of Aegean Sea.

Negative feedback effects

It is important to recognise that it is often aquaculture itself is often affected by ecological changes derived from farming practices. For example, water currents may be reduced significantly due to farm structure (cage, rafts, etc.) which may lead to increased deposition and accumulation of organic wastes underneath or around the farming unit, and water quality deterioration (high concentration of ammonia

and low concentration of oxygen). There is important loss of *Posedonia* sp. underneath the cage farms in both farming sites of two countries.

Predators such as fish and birds are attracted to the cultured as well as natural population of fish in the area and ready supply of fish food. There is the possibility not only that these predators damage and consume valuable fish, but also enhance disease in the area by transmitting diseases from a fish farm to another and by serving as intermediate hosts in the life cycle of parasites. One major predator problem for the Aegean cage farms are the Mediterranean monk seal (*Monachus monachus*) and the sea turtles (*Chelano mydas*, *Caretta caretta*). Those animals, especially Mediterranean monk seal is one of the rarest animals in the world and they are protected by national laws and international conventions.
A few monk seal attacks to marine cage farms have been reported in Bodrum Peninsula in Turkey.

CONCLUSIONS

Methods to reduce aquaculture impact

The methods utilised for reduce the impact of fish farm depend from the type of farming system ; the problems of a net pen farm are different from a land based farm. General recommendations involve the reduction of feed loss, the use of high quality feed especially extruded feed (low nutrient and organic matter releases and good food conversion rate). Avoidance of unsuitable farming sites, removal of dead fish and slaughtering waste and decreased use of antibiotics (more use of vaccines), insecticides and toxic antifoulant. For marine cage farms, two methods for reducing organic enrichment have been attempted : one method involves the use of a submersible mixer to maintain a flow rate through and beneath cages as a means of dispersing the waste (Fig. 2).

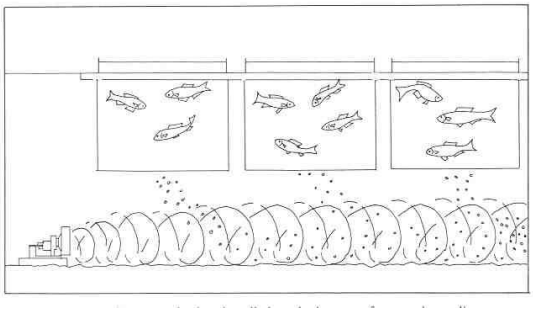
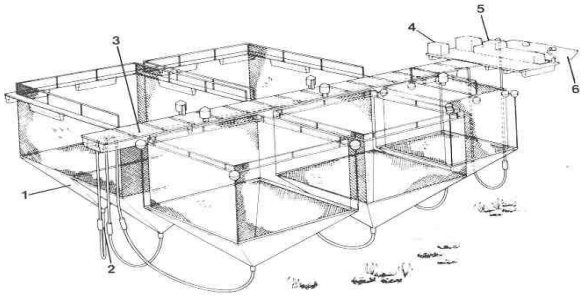


Fig. 2. Diagram of low-speed mixer installed on the bottom of a cage site to disperse wastes. (BEVERİDGE 1987)

The second method involves the use of a submersible pump to collect organic waste once it has settled (Fig. 3).



1 PVC CANVAS FUNNEL
2 AIR-LIFT PUMP
3 PIPE FOR TRANSPORTING WASTES/WATER TO FILTRATION UNIT
4 COMPUTER FOR CONTROLLING FEEDING, PUMPING, AND FILTERING OPERATIONS
5 FILTER UNIT
6 WASTE RECEIVING TANK

Fig. 3. Pilot computer controlled waste collection and uneaten feed retrieval system. (BEVERİDGE 1987)

The periodic movement or rotation of floating cages to allow the benthos to recover has also been suggested as a method to reduce benthic enrichment. For land based farms it is possible to operate control of water usage and organic water discharge water by the use of mechanical and biological treatments, for example, the use of sieves can reduce the phosphorus load by up to 80 % (MAKINEN et al.1988).

Degradation of coastal environments and potential effects on aquaculture

The coastal zone as an economic entity provides sites for a wide range of activities such as human settlements, manufacturing and extractive industries waste disposal, ports and marine transportation, land transportation infrastructure, water control and supply projects, shore protection works and tourism and recreation, agriculture etc.

It is important to recognise that in any coastal areas pollution and habitat modification stemming from human activities other than aquaculture are increasingly affecting resource use productivity of aquaculture as well as limiting success and development of the aquaculture industry. For example, heavy metals found in industrial effluent may be found in the animals cultured in the receiving waters (molluscs in particular). Serious oil spills can cause big scale fish kills, and obvious effects on aquaculture. High levels of pesticides stemming from agriculture run-off, can be lethal to cultured organisms, while lower doses are believed to produce sublethal effects such as pathological changes in various organs.

Factors influencing environmental performance of aquaculture

The Site Space is required, both on land and / or water. Of basic importance are site factors (biological environment, location factors, soil factors, meteorological factors) and seawater properties defining water quality requirements (temperature, salinity etc.).
The Species Aquaculture organisms differ significantly in their biological and eco-physiological characteristics. Reproduction, feeding habits, food and nutritional requirements, behaviours, growth capacities, water quality requirements, stress tolerance and susceptibility to parasites and disease, characterise suitability of a species to be cultured. The very specific characteristics of the cultured organism also determine type, magnitude and range of ecological implications. Biological interactions between cultured organisms and wild communities may also be restricted to the immediate vicinity of the site, or affect wider areas.
The Culture method
The choice of the culture method will to some extend depend on species and site selected. Availability of resources and inputs (land, water, seed, fertilisers/feed, energy skills) will also govern the ease or difficulty with which a site can be developed for extensive, semiintensive or intensive aquaculture. Major factors in environmental performance of aquafarms are design and construction of facilities as well as the operative efficiency in the production process.
Other important factors influencing environmental performance of coastal aquaculture are :
- Availability of technical and practical skills to efficiently operate in the farm;
- Modern and complete farming technologies;
- Access to financial and credit resources;
- Economic viability for transportation of products; and
- Co-ordination in terms of technical assistance, enforcement of supportive regulations, and planning development between the various activities in the coastal zone.

Environmental Impact Assessment (EIA)

The use of Environmental Impact Assessment, which involves the analyses of potential interactions of development projects with environmental quality, is a decision making-tool.

The EIA constitutes a study of the consequences of a proposed action on the environment, comparing various alternatives and identifying that which one is the best combination of economic and environmental costs and benefits. EIA will help to clear projects that have been found, from the past experience to cause no serious problems. For example, small scale farming units producing 50 – 100 tons of fish annually in pond or cage do not require a full EIA. Major projects that are likely to have serious impacts should need detailed assessments.

The final solution for the Aegean marine aquaculture would be a detailed EIA assessment study for big scale marine farms and encouragement of offshore marine cage farms rather than coastal ones.

REFERENCES

BABADOĞAN, G., 1998. Su Ürünleri Sektör Araştırması, İhracatı Geliştirme Etüd Merkezi, T.C. Başbakanlık Dış Ticaret Müsteşarlığı.

CANDAN, A., 1999. Akuakültürün çevresel etkileri Deniz Postası , TÜDAV bülteni

CHATZIEFSTATHIOU, M.H., 1998. Focus on Greece Panhelenic Society of Technologist Ichthyologists, Fish Farming International, Special supplement.

MAKINEN, T., LINDREN, S., & ESKINGEN, P., 1988. Sieving as a treatment method for aquaculture. Aquaculture Eng. 7, 367-377.

NCC, 1989. Fish farming and the safeguard of the natural marine environment of Scotland. The Nature Conservancy Council. Based on a report by Institute of Aquaculture University of Stirling, 136 p.

SEYMOUR, E.A and BERGHEİM, 1991. Towards a reduction of pollution from intensive aquaculture with reference to farming of salmonids in Norway. Aquaculture eng. 10 : 73-88.

BEVERIDGE, M., 1987. Cage Aquaculture. Fishing News Books Ltd. England 352p.

COMPARISON OF ANATOLIAN HERPETOFAUNA WITH THAT OF THE AEGEAN ISLANDS

İbrahim BARAN, Oğuz TÜRKOZAN, Çetin ILGAZ
Dokuz Eylül University, Buca Education Faculty, İzmir, Turkey

ABSTRACT

In contrast to Anatolian and Thrace Region, the herpetofauna of our islands could not be investigated until 1978. Starting from 1978, The Turkish coast were separated into 3 section and a total of 292 islands were examined with regard to amphibian and reptilian fauna in 3 years period. The systematic and periodic research resulted in the discovery of 3 amphibian, 2 tortoise and fresh water turtle, 15 lizard and 11 snake species in the area. All recorded species distribute in Anatolia and Thrace Region as well. However, 2 new subspecies of a common lizard of Anatolia were described. This situation confirms from the herpetofauna view that the islands constitute the continuation of the mainland. It is necessary to express that the human activities should be planned carefully on the islands.

INTRODUCTION

The Anatolian and Thrace Region which shelter almost equal number of amphibian and reptilian species with that of European mainland have been investigated by the national and foreign researchers until 1978. These investigations have built the skeleton of the Turkish Herpetofauna. By the help of above mentioned studies principal books which introduce the Turkish amphibians and reptiles have been written (BAŞOĞLU-ÖZETİ-YILMAZ 1994, BAŞOĞLU-BARAN 1977, BAŞOĞLU-BARAN 1980, BARAN-ATATÜR 1998). The important publications of various researchers (ALEXANDER 1966, ATATÜR 1973, BARAN 1969, 1976, 1977a, 1977b, 1977c, 1977d, 1978, 1981, 1982, 1983, 1984, 1990, BARAN-GRUBER 1981a, 1981b, 1982, BARAN et al. 1992, 1994, BARAN-ÖZ 1994, BARAN- ÜÇÜNCÜ 1994, BARAN-ATATÜR 1998, BAŞOĞLU-BARAN 1977, 1980, BAŞOĞLU et al. 1994, BERTHOLD 1842, BIRD 1936, BODENHEIMER 1944, BOETTGER 1988, 1989, BOULENGER 1926, BUDAK 1973, 1976, CLARK-CLARK 1973, EISELT 1965, 1967, EISELT-BARAN 1970, EISELT-SCHMIDTLER 1986, MERTENS 1924, 1952, MULLER 1939, SCHMIDTLER 1975, 1986, STEINDACHNER 1897, VENZMER 1919, 1922, WERNER 1902, 1905, 1919) on Turkish Herpetofauna have contributed the principal information and the introduction of the living species of Turkey were realized.

Although the Turkish coasts are surrounded by the sea from three sites and have a number of islands, no investigations was carried out in terms of herpetology on these islands. In order to fill the information gaps concerning the herpetology of

this site, the investigation of the islands of the western Anatolia has been planned. The first step of our study was initiated by the support of TÜBİTAK in 1978.

MATERIALS and METHODS

A total of 66 islands at the Black Sea, Marmara and Aegean (north of İzmir Bay) coasts of Turkey surveyed from herpetological viewpoint in the first three years period by the support of TÜBİTAK in 1978. In the second three years period a total of 71 islands situated between İzmir and Bodrum were studied. In the last three years period, remaining 155 islands between Bodrum and İskenderun were examined. As well as the first project second and third project were also supported by TÜBİTAK and the project was completed in 1986. During the 9 years research project since the climate conditions were unsuitable only the Giresun Island in Black Sea. Could not be examined. We planned to try for visiting this island however, time limitation prevented us. No amphibians and reptilians were recorded from 41 islands between Bodrum and İskenderun since there is no suitable ecological conditions for amphibians and reptiles. Furthermore, some of the islands totally consist of cliffs.

The distribution of the herpetological material with respect to groups as follows: In the first three year, a total of 1712 specimens from 21 different species were collected from 66 islands at the northern coasts of İzmir Bay. Of these, 2 belong to anurans, 2 belong to turtles, 9 belong to lizards and 8 belong to snakes. In the second period, a total of 909 specimens from 16 different species were examined from 71 islands between İzmir and Bodrum. Of these, 1 belong to anurans, 1 belong to tortoise, 7 belong to lizards and 7 belong to snakes. In the last three years, a total of 1050 specimens from 22 different species were taxonomically evaluated from 155 islands between Bodrum and İskenderun. Of these, 2 belong to amphibians, 1 belong to tortoises, 13 belong to lizards and 6 belong to snakes. In other words, during our 9 years survey between 1978-1986, a total of 3671 specimens from 31 different amphibians and reptilians species were examined in the 292 islands at the Turkish coasts. The distribution of the species lists with respect to research period are given in Table 1.

Table 1: List of species determined on the islands and their families.

Species	1st Project	2st Project	3st Project	Family
Mertensiella luschani (Luschan's Salamander)	-	-	+	Salamandridae
Rana ridibunda (Marsch Frog)	+	+	-	Ranidae
Bufo viridis (Green	+	+	+	Bufonidae

Toad)				
Mauremys caspica (Stripe-necked Turtle)	+	-	-	Bataguridae
Testudo graeca (Spur-thighed Tortoise)	+	+	+	Testudinidae
Cyrtopodion kotschyi (Kotschy's Gecko)	+	+	+	Gekkonidae
Hemidactylus turcicus (Turkish Gecko)	+	+	+	Gekkonidae
Laudakia stellio (Agama)	+	+	+	Agamidae
Ophisaurus apodus (European Glass Lizard)	+	-	+	Anguidae
Lacerta danfordi (Danford's Lizard)	-	-	+	Lacertidae
Lacerta trilineata (Three-lined Emerald Lizard)	+	-	+	Lacertidae
Ophisops elegans (Snak-eyed Lizard)	+	+	+	Lacertidae
Podarcis muralis (Common Wall Lizard)	+	-	-	Lacertidae
Podarcis sicula (Italian Wall Lizard)	+	-	-	Lacertidae
Ablepharus kitaibellii (Snake-eyed Skink)	+	+	+	Scincidae
Chalcides ocellatus (Ocellated Skink)	-	-	+	Scincidae
Mabuya aurata (Golden Skink)	+	+	+	Scincidae
Mabuya vittata (Banded Skink)	-	-	+	Scincidae
Ophiomorus punctatissimus (Speckled Sand Skink)	-	-	+	Scincidae
Blanus strauchi	-	+	+	Amphisbaenidae

(Strauch's Amphisbaenian)				
Typhlops vermicularis (Worm Snake)	+	+	+	Typhlopidae
Eryx jaculus (Western Sandboa)	+	+	-	Boidae
Coluber caspius (Caspian Whip Snake)	+	-	-	Colubridae
Coluber jugularis (Large Whip Snake)	-	+	+	Colubridae
Coluber najadum (Dahl's Whip Snake)	+	-	+	Colubridae
Coluber rubriceps (Taurus Whip Snake)	-	-	+	Colubridae
Eirenis modestus (Dwarf Snake)	+	+	+	Colubridae
Malpolon monspessulanus (Montpellies Snake)	+	+	-	Colubridae
Natrix natrix (Grass Snake)	+	+	-	Colubridae
Telescopus fallax (Cat Snake)	-	-	+	Colubridae
Vipera xanthina (Ottoman Viper)	-	-	+	Viperidae

Comparative Evaluation

The studies conducted until now, revealed 22 amphibian, 8 turtles and tortoises, 53 lizards and 39 snake species in Turkey. During our 3 separate surveys on the islands, 3 amphibian, 2 turtles and tortoises, 15 lizards and 11 snake species were determined. Besides, 9 amphibian, 3 turtles and tortoises, 16 lizards and 19 snake species were recorded in the adjacent areas of islands in Anatolian and Thrace Region coasts (Table 2). Some of the specimens living in the mainland could not be found on the islands since most of the islands are small and there is no suitable biotops for sheltering these amphibians and reptiles species. However some species known to be distributed in a wide-range *(Pelobates syriacus, Emys orbicularis, Elaphe quatuorlineata, Elaphe situla, Natrix tessellata, Vipera ammodytes)* and the species living in the adjacent coasts of the mainland *(Triturus karelinii, Triturus vulgaris, Bufo bufo, Bombina bombina, Hyla arborea, Podarcis taurica, Coluber*

nummifer, Coronella austriaca, Elaphe longissima, Vipera lebetina) in large islands such as Marmara, Gökçeada and Bozcaada, might be present. In fact, the vegetation of all islands did not show any differences from the mainland. The largest of the islands, Gökçeada, and islands of Marmara Sea typically possess the northern Anatolian vegetation. Bozcaada, the smaller of those, relatively has sparse vegetation. Since the remaining islands are not that big, the suitable biotops for the amphibian and reptile species are either small or not present. This is an important ecological factor which limits the survival of the reptiles in small islands. In conclusion, the number of species living on the islands naturally smaller that the that of mainland due to explained ecological factor.

Based on the size of the islands and the distribution range of the species determined on the islands, the island populations did not show any variation from the mainland. This situation can be seen clearly in the species list of islands. For instance, *Mertensiella luschani* is distributed in only at the southwestern Anatolian Region, so it is only recorded from the islands at this corner. The distribution range of *Chalcides ocellatus* extends to İzmir at north with Anatolian coasts, therefore this species was found only from the islands situated at the southern coasts. Moreover, *Lacerta danfordi, Mabuya vittata, Blanus strauchi, Ophiomorus punctatissimus, Coluber jugularis* are distributed in the south and southwestern Anatolia, these species were recorded only from the islands of these regions. In addition, *Podarcis muralis, Podarcis sicula and Coluber caspius* which are known to distribute at the north and northwestern Anatolia were determined only the islands of these regions.

However, a new subspecies of *Podarcis muralis* were described by us from Kefken Islandin the Black Sea. This new subspecies were named as *Podarcis muralis kefkenensis.* Furthermore, the description of two new subspecies of *Cyrtopodion kotschyi* that has a wide range in three reseach area, were made by us for the first time in 1981. Of these, *Cyrtopodion kotschyi beutleri* is distributed in the islands remained between north of İzmir and Ayvalık coast. The other subspecies, *Cyrtopodion kotschyi karabagi* is only known from Fener Island situated at the east end of Marmara Island. In Marmara Island which is very close to Fener Island, *Cyrtopodion kotschyi danilewskii* which is distributed at the northern part of Anatolia is living.

The isolation of the islands from the Anatolian mainland for five million years has not formed new amphibian and reptilian species. However, two new subspecies have derived from the Anatolian, form on some of the islands. Apart from this, there is no difference between the islands and Anatolian mainland in terms of amphibian and reptilian fauna.

We want to express that the biological richness of our islands should be protected. Because the bioptops are very limited on the small islands and even s small harmful factor might be affect the population in a negative way. We therefore have to be very careful when planning and regulating the settlement units on the islands.

Table 2: The amphibians and reptiles of Anatolian coast. The species which was not observed on the islands was marked with questions mark (?).

Species	Distribution range	Family
Mertensiella luschani	Southwest Anatolia	Salamandridae
Triturus karelinii ?	North and west Anatolia (south border Aydın)	Salamandridae
Triturus vulgaris ?	Northwest Anatolia (south border İzmir)	Salamandridae
Bufo bufo ?	West and northwest Anatolia	Bufonidae
Bufo viridis	All Turkey	Bufonidae
Bombina bombina ?	Northwest Turkey	Discoglossidae
Hyla arborea ?	North and west part of Turkey	Hylidae
Pelobates syriacus ?	Anatolia	Pelobatidae
Rana ridibunda	Whole Turkey	Ranidae
Mauremys caspica	Whole Turkey	Bataguridae
Emys orbicularis ?	Whole Turkey	Emydidae
Testudo graeca	Whole Turkey	Testudinidae
Laudakia stellio	West and south Anatolia	Agamidae
Ophisaurus apodus	West Anatolia, Thrace	Anguidae
Chamaeleo chamaeleon	Mediterranean Region (north border İzmir)	Chamaeleontidae
Cyrtopodion kotschyi	Whole Turkey	Gekkonidae
Hemidactylus turcicus	The coasts of Turkey	Gekkonidae
Lacerta trilineata	Whole Turkey	Lacertidae
Ophisops elegans	Whole Turkey	Lacertidae
Podarcis muralis	The north part of Turkey	Lacertidae
Podarcis sicula	Northwest Turkey	Lacertidae
Podarcis taurica ?	Northwest Turkey	Lacertidae
Ablepharus kitaibellii	The west and south of Turkey	Scincidae
Chalcides ocellatus	The whole Mediterranean coast of Anatolia	Scincidae
Mabuya aurata	West and south Anatolia	Scincidae
Mabuya vittata	South and soutwest Anatolia	Scincidae
Ophiomorus punctatissimus	Soutwest anatolia	Scincidae
Blanus strauchi	The south of İzmir, Mediterranean Region	Amphisbaenidae
Typhlops vermicularis	West and south Anatolia	Typhlopidae
Eryx jaculus	Whole Turkey	Boidae

Coluber caspius	West and middle Anatolia	Colubridae
Coluber jugularis	Southern part of Turkey up to İzmir in the north	Colubridae
Coluber najadum	West and middle Anatolia	Colubridae
Coluber nummifer ?	West and south Anatolia	Colubridae
Coluber rubriceps	West and south Anatolia	Colubridae
Coronella austriaca ?	North and west Anatolia	Colubridae
Eirenis modestus	Whole Turkey	Colubridae
Elaphe longissima ?	North Anatolia, Thrace	Colubridae
Elaphe quatuorlineata ?	Whole Turkey	Colubridae
Elaphe situla ?	North and west Anatolia	Colubridae
Malpolon monspessulanus	West and south Anatolia	Colubridae
Natrix natrix	Whole Turkey	Colubridae
Natrix tessellata ?	Whole Turkey	Colubridae
Telescopus fallax	The west and south part of Turkey	Colubridae
Vipera ammodytes ?	Whole Turkey	Viperidae
Vipera lebetina ?	South Anatolia	Viperidae
Vipera xanthina	The west and south part of Turkey	Viperidae

REFERENCES

ATATÜR, M.K., 1973. Güney Anadolu'da Yaşayan *Triturus vittatus* (Salamandridae) Populasyonları Üzerinde Morfolojik-Taksonomik Araştırmalar. *Ege Üniv. Fen Fak. İlmi Raporlar Serisi* No.188.

ALEXANDER, A.A., 1966. Taxonomy and Variation of *Blanus strauchi* (Amphisbaenidae, Reptilia). *Copeia*, 205-224.

BARAN, İ., 1969. Anadolu Dağ Kurbağaları Üzerinde Sistematik Araştırma. *Ege Üniv. Fen Fak. İlmi Rap. Serisi* No. 80: 1-78.

BARAN, İ., 1976. Türkiye Yılanlarının Taksonomik Revizyonu ve Coğrafi Dağılışları. *Tübitak Yayınları Ankara*, No. 309, T.B.A.G. Seri No. 9: 1-177.

BARAN, İ., 1977a. Türkiye'den Toplanmış Bazı Yılan Türlerinin Taksonomisi I ve II. *Doğa Bilim Dergisi*, *Tübitak* Ankara. 1: 100-105 ve 169-173.

BARAN, İ., 1977b. Türkiye'de *Blanus strauchi bedriagae* Türünün Taksonomisi. *Doğa Bilim Dergisi, Tübitak* Ankara, 1: 192-196.

BARAN, İ., 1977c. Türkiye'de *Scincidae* Familyası Türlerinin Taksonomisi. *Doğa Bilim Dergisi, Tübitak* Ankara, 1: 217-223.
BARAN, İ., 1977d. Türkiye'de *Anguidae* Familyası Türlerinin Taksonomisi. *Doğa Bilim Dergisi, Tübitak* Ankara, 1: 145-153.
BARAN, İ., 1978. Some rare species of snakes from Turkey. *Ann. Naturhist. Mus.* Wien, 81: 261-265.
BARAN, İ., 1981. Kuzey Ege Denizi, Marmara Denizi ve Karadeniz'deki Adalarımızın Herpetofaunasının Taksonomik ve Ekolojik Araştırılması. *Doğa Bilim Dergisi, Tübitak* Ankara, 5: 155-162.
BARAN, İ., GRUBER, U., 1981a. Eine neue Unterart der Mauereidechse *(Podarcis muralis)* von der Schwarzmeerinsel Kefken, Türkei. *Spixiana* München, 4: 271-274.
BARAN, İ., GRUBER, U., 1981b. Taxonomische Untersuchungen an Turkischen Inselformen von *Cyrtodactylus kotschyi* (Steindachmer 1870) (Reptilia: Gekkonidae). Teil I. die Populationen der nördlichen Agais, des Marmara Meeres und des Schwarzen Meeres. *Spixiana* München, 4: 255-270.
BARAN, İ., 1982. Zur Taxonomie der Schlangen in Södost- und Ost- Anatolien. *Spixiana* München, 5: 51-59.
BARAN, İ., GRUBER, U., 1982. Taxonomische Untersuchungen an türkischen Gekkoniden. *Spixiana* München, 5: 109-138.
BARAN, İ., 1983. Güneybatı Anadolu'da Finike ve Kaş civarının Herpetolojisi. *Doğa Bilim Dergisi, Tübitak* Ankara, Seri A, 7: 59-66.
BARAN, İ., 1984. İzmir-Bodrum Arasındaki Adalarımızın Herpetofaunasının Taksonomik Araştırılması. *Doğa Bilim Dergisi, Tübitak* Ankara, Seri A 2, 8: 43-52.
BARAN, İ.,1990.Marmaris-İskenderun Arasındaki Adalarımızın Herpetofaunasının Taksonomik Araştırılması. *Doğa Bilim Dergisi, Tübitak* Ankara, Zool. 14: 113-126.
BARAN, İ., YILMAZ, İ., KETE, R., KUMLUTAŞ, Y. & DURMUŞ, S.H., 1992. Batı ve Orta Karadeniz Bölgesinin Herpetofaunası. *Doğa Türk Zooloji Dergisi, Tübitak* Ankara, 16: 275-288.
BARAN, İ., KUMLUTAŞ, Y., KASKA, Y. & TÜRKOZAN, O., 1994. Research on the Amphibia, Reptilia and Mammalia species of the Köyceğiz-Dalyan Special Protected Area. *Tr. J. Of Zoology* Ankara, 18: 203-219.
BARAN, İ., ÖZ, M., 1994. *Salamandra salamandra* of Anatolia. *Mertensiella, supplement zu Salamandra*, Bonn, No. 4: 25-32.
BARAN, İ., ÜÇÜNCÜ, S., 1994. The state of *Mertensiella luschani* in Turkey. *Mertensiella, supplement zu Salamandra*, Bonn, No. 4: 33-40.
BARAN, İ., ATATÜR, M.K., 1998. Türkiye Herpetofaunası (Kurbağa ve Sürüngenler). *Çevre Bakanlığı Yayınları* Ankara, ISBN: 975-7347-37-x, 214 pp.
BAŞOĞLU, M., BARAN, İ., 1977. Türkiye Sürüngenleri. Kısım I. Kaplumbağa ve Kertenkeleler. *Ege Üniv. Fen Fak. Kitaplar Serisi,* İzmir, No. 76: 1-272.
BAŞOĞLU, M., BARAN, İ., 1980. Türkiye Sürüngenleri. Kısım II. Yılanlar. *Ege Üniv. Fen Fak. Kitaplar Serisi,* İzmir, No. 81: 1-218.

BAŞOĞLU, M., ÖZETİ, N., YILMAZ, İ., 1994. Türkiye Amfibileri, *Ege Ünv. Fen Fak. Kitaplar Serisi* No. 151. Bornova-İzmir, 1-220.
BERTHOLD,A.A., 1842. Ueber verschiedene neue oder seltene Amphibienarten. *Act. Soc. Rag. Sci.* Göttingen, 8: 48-72.
BIRD, C.G., 1936. The Distribution of reptiles and amphibians in Asiatic Turkey, with notes on a collection from the Vilayets of Adana, Gaziantep and Malatya. *Ann. Mag. Nat. Hist.* London (10) 18: 257-281.
BODENHEIMER, F.S., 1944. Introductıon ınto the Knowledge of the Amphibia and Reptilia of Turkey. *Rev. Fac. Sci. Univ*. İstanbul, B, 9: 1-78.
BOETTGER, O. 1988. Verzeichnis der von Herrn E. von Oertzen aus Griechenland und aus Kleinasien mitgebrachten Batrachier und Reptilien. Sitzungsb. *Akad. Wiss*. Berlin. 5: 139-186.
BOETTGER, O. 1989 Verzeichnis der von Herrn Staatsrat O. Retowski auf seiner Reise von Konstantinopel nach Batum gesammelten Reptilien und Batrachier. *Ber. senck. naturf. Ges.* Frankfurt. 1888/89: 203-206.
BOULENGER, G.A, 1926. Etude sur les Batraciens et les Reptiles rapportés par M. Gadeau de Kerville de son voyage en Asie-Mineure. *Bull. Soc. Amis. Sci. Nat.* Romen 60,61: 29-38.
BUDAK, A., 1973. Türkiye'de *Mabuya vittata* (Scincidae, Lacertilia) 'nın Bireysel ve Coğrafi Variasyonları Üzerinde Araştırmalar. *Ege Üniv. Fen Fak. İlmi Rap. Serisi*, İzmir, No. 162: 1-24.
BUDAK, A., 1976. Anadolu'da *Lacerta laevis, L. danfordi* ve *L. anatolica'nın* Taksonomik Durumu ve Coğrafi Yayılışları Üzerinde Araştırmalar. *Ege Üniv. Fen Fak. İlmi Rap. Serisi* İzmir, No. 241: 1-59.
CLARK, R.J., CLARK, E.D., 1973. Report on a collection of Amphibians and Reptiles from Turkey. *Calif. Acad. Sci.* San Francisco. No. 104, 62 pp.
EISELT, J., 1965. Einige Amphibien und Reptilien aus der nördöstlichen Türkei, gesammelt von Herrn H. Steiner. *Ann. Naturhist. Mus*. Wien, 67: 387-399.
EISELT, J., .1967. Bericht über eine dritte zoologische Sammelreise in der Türki, April bis Juni 1966. *Ann. Naturhist. Mus*. Wien, 70: 293-300.
EISELT, J., BARAN, İ., 1970. Ergebnisse zoologischer Sammelreise in der Türkei: Viperidae. *Ann. Naturhist. Mus*. Wien, 74: 357-369.
EISELT, J., SCHMIDTLER, J.F., 1986. Der *Lacerta danfordi*-Komplex. *Spixiana,* München, 9: 289-328.
MERTENS, R., 1924. Amphibien und Reptilien aus dem nördlichen Mesopotamien. *Abh. Ber. Mus.* Magdeburg, 3: 349-390.
MERTENS, R., 1952. Amphibien und Reptilien aus der Türkei. *Rev. Fac. Sci. Univ.* İstanbul, sér. B, 17: 41-75.
MULLER, L., 1939. Bemerkungen über einige von Herrn F. Fuss in der Umgebung von Akschehir, Anatolien gesammelten Schlangen. I und II über *Coluber schmidti* Nikolsky und seine systematische stellung. *Zool. Anz*. 127: 83-95.

SCHMIDTLER, J.F., 1975. Zur Taxonomie der Riesen-Smaragdeidechsen *(Lacerta trilineata*, Bedriaga) Süd-Anatoliens (Reptilia, Lacertidae). *Veröff. Zool. Staatssaml.* München, 18: 45-68.
SCHMIDTLER, J.F., 1986. Orientalische Smaragdeidechsen: 2. über Systematik und Synökologie von *Lacerta trilineata, L. media* und *L. pamphylica*. *Salamandra,* Bonn, 22: 126-146.
STEINDACHNER, F., 1897. Bericht über die von Dr. Escherich in der Umgebung von Angora gesammelten Fische und Reptilien. *Denkschr. Akad. Wiss.* Wien, 64: 695-699.
VENZMER, G., 1919. Zur Schlangenfauna Süd-Kleinasiens, speziell des cilicischen Taurus. *Arch. Naturge*. Berlin, A (11) 83: 95-122.
VENZMER, G., 1922. Neues Verzeichnis der Amphibien und Reptilien von Kleinasien. *Zool. Jb. Syst*. 46: 43-60.
WERNER, F., 1902. Die Reptilien und Amphibien fauna von Kleinasien. *SB. Akad. Wiss.* Wien, math.-naturw. Kl. 1. 111: 1057-1121.
WERNER, F., 1905. Einige für Kleinasien neue Reptilien. *Zool. Anz*. 29: 411-413.
WERNER, F., 1919. Reptilien und Amphibien aus dem Amanus-Gebirge. *Arch. Naturge.* Berlin, A (8) 85: 130-141.

HEAVY METAL FLUXES BETWEEN BLACK SEA AND THE AEGEAN SEA

Semal YEMENİCİOĞLU and İlkay SALİHOĞLU
METU-Institute of Marine Sciences, Erdemli, İçel, Turkey

ABSTRACT

The concentration of some heavy metals (Zn, Cu, Ni, Cr, Cd, and Hg) in sea water was determined along the Turkish Straits (Dardanelles and Bosphorus) and in the Marmara Sea. The concentrations are ranging between 13.26-144.9 µg/L for Zn, 0.23-0.77 µg/L for Cu, 0.41-5.42 µg/L for Ni, 0.26-2.56 µg/L for Cr, 0.67-12.67 ng/L for Cd and 2.0-5.3 ng/L for Hg.

By utilising the average metal concentrations and annual average water fluxes between the Aegean Sea, Marmara Sea and Black Sea the metal fluxes within the region were determined.

INTRODUCTION

The Aegean Sea is a special part of the Mediterranean Sea. It is a passage between Mediterranean and Black Sea. The less saline and cold Black Sea water effects the northern part and the warmer and saline water of the Mediterranean Sea effects the southern part of the Aegean Sea. Aegean Sea receives water of Black Sea origin via Dardanelles Strait, Atlantic originating waters, Eastern Mediterranean water, deep water and river water. The major rivers discharging in the Turkish territorial of region are, Meriç River, B. Menderes River, K. Menderes River and Gediz River. Because of these different water sources Aegean receives pollutants originating from a wide variety of sources. These pollutants include the aeolian originating materials that are transported by rivers, materials carried by the Dardanelles from the Black Sea, from the Mediterranean Sea, the atmosphere and coastal erosion.

The north-western Black Sea coastal waters transported to the Bosphorus region by along shore currents are drastically polluted by large inputs of organic and inorganic materials (BOLOGA, 1985, MEE, 1992; MEYBECK, 1982) which are carried by rivers such as Danube (which receives whole central European wastes) and other rivers draining in the region. The Bosphorus Strait carries the polluted Black Sea surface water into the Marmara Sea which are reexported to the Aegean Sea by Dardanelles Strait. The loads carried by Dardanelles Strait are estimated and published by several authors elsewhere (POLAT, TUĞRUL, 1996; YEMENICIOĞLU et al,. 1996; YEMENICIOĞLU, 1990) are summarised in Table 1. A comparison of the pollutant concentrations in surface water of the Black Sea entrance of Bosphorus and Marmara entrance of Dardanelles shows that within the Marmara basin some of the liable chemicals in the Black Sea inflow are naturally

exported to the lower layer in the form of biogenic or inorganic particulate matter (as in the case of metals) until the Aegean basin of the Mediterranean is reached via Dardanelles Strait. On the other hand DOC and DON in the Black Sea inflow reaches as far as Aegean basin of the Mediterranean due to their low decay rates. Turkish Straits system that connects the Aegean Sea and the Black Sea is shown in Figure 1. The hydrography and the water circulation of the can be summarised as follows:

The Marmara Sea which is a passage between Aegea Sea and Black Sea is a small inter-continental basin. It is connected to the Aegean Sea and Mediterranean Sea via Dardanelles Strait and to the Black Sea via Bosphorus Strait. The hydrography of the Marmara Sea is dominated by the Mediterranean and Black Seas water. Within the straits system two major currents are prevailing. The under current is generated by the saline Mediterranean waters flowing in to the Marmara Sea through the Dardanelles and out of the Marmara Sea through the Bosphorus. The surface current is generated by the Black Sea waters flowing in to the Marmara Sea through the Bosphorus and out of the Marmara Sea through the Dardanelles (ÜNLÜATA et al., 1990; BEŞİKTEPE et al., 1994; ÖZSOY et al., 1986; ÖZSOY, 1990). The prevailing current systems and the water fluxes within the studied region are shown in Figure 2. The great difference between the salinity of the two water masses results in a well stratified water body with a marked halocline separating a superficial layer salinity 22-25o/oo from underlying saline 38.5o/oo water mass. The strong stratification of the water masses coupled with the topographic restrictions inhibits the efficient ventilation of deep waters.

The Dardanelles Strait which connects the Aegean Sea and Marmara Sea is 60 km long and 1.3-7 km wide. Its average depth is 55 m with a maximum depth of 105 m. The Bosphorus Strait is 30 km long and 0.7-3.5 km wide. The average depth is 36 m and its maximum depth is 110 m. The inflowing waters of the Aegean and Black Seas and their vertical mixing at the halocline dominate the biochemical properties of the Marmara Sea. The algal production is always limited to the upper 20 m. Because of the presence of a permanent halocline between 20-25 m, the subhalocline waters have oxygen concentrations as little as 1-2 ppm throughout the year.

MATERIAL and METHODS

The seawater samples were collected during the monthly cruises of R/V BİLİM belonging to METU-Institute of Marine Sciences in the Marmara Sea between 1987 and 1989. Sampling locations are shown in Figure 1.

Mercury concentration was measured by cold vapour AAS technique. The reduction step was achieved by $NaBH_4$ and reduced mercury was swept from the reaction bottle by Hg free nitrogen gas and collected on silver packed microcolumn (YemenİcİoğlU and SalİhoğlU, 1994). By heating the microcolumn at about 500 ^{o}C mercury was desorpted and swept in to the absorption cell by nitrogen gas and the absorbance was recorded on a strip chart recorder (YemenİcİoğlU and SalİhoğlU, 1994, YemenİcİoğlU, 1990). The metals other than mercury were extracted from 100 ml of seawater at pH 8 in to Freon and DDC+APDC mixture and then back extracted into HNO_3. The extraction was done as follows; 100 ml of seawater was transferred to 250 ml Pyrex separating funnel. 5 ml of complexant and 10 ml of Freon (5% APDC +5% DDDC) was added and the funnel was shaked for 10 minutes. When the organic and aqueous phases had fully separated the Freon was drawn off into a 20 ml screw-capped polyethylene vial. Another 5 ml of clean Freon was added to the funnel and shaked for a further 10 minutes. Again the Freon was drawn off and added to the previous 10 ml Freon. For the back extraction 35 µl of concentrated HNO_3 was added to the combined Freon in the vial and shaked for 6 minutes. Then 875 µl of distilled deionised water was added and the vial was shaken for a further 6 minutes. The aqueous phase was then carefully drawn off by using a micropipette and transferred to 3 ml vial. The whole back extraction was repeated and the second aliquot was added to the first. The samples were then analysed using a GF 3000 GBC Graphite Furnace AAS.

The water volume fluxes through the straits were calculated by using long term averages (1986-1989) salinity values and published by (BeşİktepE et al, 1994).

FLUXES OF HEAVY METALS WITHIN THE TURKISH STRAITS SYSTEM

The fluxes of metals between the Black Sea-Marmara Sea-Aegean Sea are calculated by substituting the long term average metal concentrations and water volume fluxes into the equations 1, 2, 3, 4, 5 and 6. For this purpose the whole system is divided into two vertical layers and three boxes, Bosphorus Strait, Marmara Sea and Dardanelles Strait. Vertical exchanges between the two layers within each box were allowed to take place. To determine the boundaries of the upper and lower limits, the salinity values $S_1^*=S_S+0.2(S_B-S_S)$ and $S_2^*=S_B-0.2\ (S_B-S_S)$ were assigned as the salinity limits characterising the upper and lower layer waters respectively. Here S_S is the average salinity for the first 5 m and S_B is the average salinity within 5 m from the maximum depth of each cast.

FLUXES WITHIN THE BOSPHORUS STRAIT: Under the steady state conditions the amount of a substance entering in a system must be balanced by an out-flow. By considering this concept, for the metal fluxes we can write equation (1) for the Bosphorus lower layer and equation (2) for the upper layer.

$$Q_{L3}\, C_{L3} + Q_{DB}\, C_{UB} = Q_{L4}\, C_{L4} + Q_{UB}\, C_{LB} \qquad \textbf{(1)}$$

$$Q_{U1}\, C_{U1} + Q_{UB}\, C_{LB} = Q_{U2}\, C_{U2} + Q_{DB}\, C_{UB} \qquad \textbf{(2)}$$

The fluxes of metals in and out of the Bosphorus are given in Table 2 and Table 3. The metal fluxes in Tables 2 and 3 show that inputs of Hg, Cr, Cu and Zn are almost balanced by the outflow from the Bosphorus. The Cd and Ni outflow for the lower layer exceeded the input from the Marmara Sea and upper layer. These two metals are used in industries, which discharge their effluents directly into the sea. These industrial effluents draining directly into the Bosphorus are the probable sources of excess of these metals.

FLUXES WITHIN DARDANELLES STRAIT: The metal fluxes for the upper layer of the Dardanelles is given by equation (3) and for the lower layer by equation (4). Results obtained are summarised in Table 4 and 5. From Tables 4and 5 it can be seen that the metals input in to the Dardanelles Strait is balanced by the out fluxes.

$$Q_{U3}\, C_{U3} + Q_{UD}\, C_{LD} = Q_{U4}\, C_{U4} + Q_{DD}\, C_{UD} \qquad \textbf{(3)}$$

$$Q_{L1}\, C_{L1} + Q_{DD}\, C_{UD} = Q_{L2}\, C_{L2} + Q_{UD}\, C_{LD} \qquad \textbf{(4)}$$

THE LOWER LAYER FLUXES OF MARMARA: The metal fluxes in the Marmara Sea lower layer is given by equation 5. In calculations input from sediment and removal by sedimentation processes are not known and for simplicity of calculations are neglected in the equation. The metal fluxes obtained from equation 5 by omitting F_S and F_R terms are given in Table 6.

$$Q_{L2}.C_{L2} + Q_{DM}.C_{UM} + F_R = Q_{L3}.C_{L3} + Q_{UM}.C_{LM} + F_S \qquad \textbf{(5)}$$

THE UPPER LAYER FLUXES OF MARMARA: The upper layer fluxes in the Marmara Sea is given by equation 6.

$$Q_{U2}.C_{U2} + Q_{UM}.C_{LM} + F_A + F_D = Q_{U3}.C_{U3} + Q_{DM}.C_{UM} + F_E \qquad \textbf{(6)}$$

Since the surface area of the Marmara Sea is small the atmospheric deposition (F_D) and emission to the atmosphere (F_E) is supposed to be small and balance each other, thus cancelled from both side of the equation (6). The anthropogenic input (F_A) also omitted since the anthropogenic input is included in the strait fluxes. The metal fluxes obtained from equation 6 are summarised in Table 7. The metal fluxes for the whole Marmara Sea (lower layer and upper layer together) is summarised in Table 8. From the results in Table 8 it can be seen that the input in to the Marmara Sea

exceeded the output fluxes. This excess input must be balanced by output. The F_S term (removal to sediment) in equation 5 was omitted for simplicity of calculations but here we see that the most probable mechanism to balance the excess input is the removal to the sediment site, ie. the F_S term in the right hand side of equation 5 must be equal to the difference between the input and output fluxes. Since re-suspension from sediment, atmospheric and river inputs in to the region are not included in the calculations the given fluxes must be taken as under estimated.

CONCLUSION

The results obtained from the flux calculations indicate that, within the inherent error limits of the fluxes and the methods used, heavy metal input into the Marmara Sea is balanced by the output. This could be the result of the high primary productivity (ÜNLÜATA AND ÖZSOY, 1986) within the basin that removes metals from the water column. This idea is further supported by the relatively high metal concentrations in the underlying sediments (Yemenicioğlu unpublished data).

Since the atmospheric and river input in to the region are not included in the calculations the above values are under estimated.

REFERENCES

BEŞİKTEPE, Ş. T., SUR, H. İ., ÖZSOY, E., LATİF, M. A., OĞUZ, T. and ÜNLÜATA, Ü., 1994, The circulation and hydrography of the Marmara Sea, *Prog. Oceanog.*, 34, 285-234.

BOLOGA, A. S., 1985. Planktonic primary productivity of the Black Sea a review. *Thallassia Jugoslavica, 21/22*, 1-22.

CODISPOTI, L. A., FRIEDERICH, G. E., MURRAY, J. W., SAKAMOTO, C. M., 1991. Chemical variability in the Black Sea: implications of data obtained with a continuous vertical profiling system that penetrated the oxic/anoxic interface. *Deep-sea Research, 38*, (suppl.2) 691-710.

FRIEDERICH, G. E., CODISPOTI, L. A., SAKAMOTO, C. M.,1990. Bottle and pump cast data from the 1988 Black Sea expedition. Moneterey Bay Aquarium Res. Inst., Tech. Rep. No. 90-3.

KIRIKOVA, M. V., 1986. The content of inorganic nitrogen forms in the upper layer of the Black Sea in the late summer period. *Marine Ecology (in Russian). 23,* 3-10.

KÜÇÜKSEZGİN, F., BALCI, A., KONTAŞ, A., ALTAY, O. 1996. Distribution of nutrients and chlorophyll a in the Aegean Sea. *Oceanologica Acta*. (in press).

MEE, L. D., 1992. The Black Sea in crisis:The need for concerted international action. *Ambio, 21*, 278-286.

MEYBECK, M., 1982. Carbon, nitrogen and phosphorus transport by world rivers. *American Journal of Science, 282*, 401-450.

ÖZSOY, E., 1990, On the seasonally varying control of the Black Sea exchange through the Bosphorus, *EOS*, 71, 138.
ÖZSOY, E., OĞUZ, T., LATİF M. A., ÜNLÜATA, Ü., 1986, *Oceanography of the Turkish Straits*. First annual rep., vol.1, Physical Oceanography of the Turkish Straits, METU Inst. Mar. Sci., 108 p.
POLAT, Ç., 1995. Nutrient and organic carbon budgets of the Sea of Marmara: A progressive effort on the biogeochemical cycles of carbon, nitrogen and phosphorus. Ph. D. Thesis, METU Institute of Marine Sciences, 215 p.
POLAT, Ç., TUĞRUL, S., 1996. Chemical exchange between the Mediterranean and the Black Sea via Turkish straits. In: *Dynamics of Mediterranean straits, and channels*. (Frederic Briand Ed.) Bulletin de l'Institut oceanographique. 167-186.
SAPOZHNIKOV, V. V.,1990. Ammonia in the Black Sea. *Oceanology, 30*, 39-42.
SEN GUPTA, R., 1971. Oceanography of the Black Sea: Inorganic nitrogen compounds. *Deep-Sea Research, 18*, 457-476.
SOROKIN, Yu. I., 1983. The Black Sea. In*: Estuaries and Enclosed Seas, Ecosystem of the world*. (B. H. Ketchum Ed.), Elsevier, Amstrdam. 253-291.
ÜNLÜATA, Ü., OĞUZ, T., LATİF, M. A. AND ÖZSOY, E., 1990, On the physical oceanography of the Turkish Straits. In: *The physical oceanography of sea straits*. (L. J. Prat, Ed.), NATO/ASI series, Kluwer 25-60.
ÜNLÜATA, Ü., ÖZSOY, E., 1986 Oceanography of the Turkish straits: Oxygen Deficiency of the Sea of Marmara. Vol. 2, METU-Inst. Mar. Sci. 82 p.
YEMENİCİOĞLU, S., YILMAZ, A., SALİHOĞLU, İ., 1996. Heavy metal input to northern Levantine basin from land based sources along the Turkish coast and by Dardanelles strait. 8'es Recontres de l'agence Regionale pour l'environment, Provence-Alpes-Cote d'azur 9-11 October 1996 Nice, France.
YEMENİCİOĞLU, S. AND SALİHOĞLU, İ., 1994, Preconcentration of mercury on silver wool and determination in natural waters by cold vapour atomic absorption spectrophotometer, *Tr. J. of Biology*, 18, 261-272.
YEMENİCİOĞLU, S., 1990. The basin-scale fate of mercury in the Sea of Marmara. Ph. D. Thesis, METU Institute of Marine Sciences, 151 p.

TABLE 1. Annual means of pollutant concentrations in waters flowing from Black Sea to the Marmara Sea (C1) and from Marmara Sea to Aegean Sea (C2).

	C1	C2
Dissolved inorganic phosphorus (1)	0.11	0.09
Particulate phosphorus (1)	0.15	0.21
Dissolved organic phosphorus (1)	0.30	0.14
Total phosphorus (1)	0.56	0.44
NH_4	0.50*	0.15**
NO_X	1.31	0.33
Dissolved inorganic nitrogen (1)	1.81	0.48
Particulate organic nitrogen (1)	1.96	1.94
Dissolved organic nitrogen	18.0[2]	13.0[3]
Total nitrogen (1)	21.77	15.42
Particulate organic carbon (1)	17.0	20.0
Dissolved organic carbon (1)	195	166
Total organic carbon (1)	212	186
Total suspended sediment (4)	1.92	1.09
Hg (5)	3.9	3.8
Cd (4)	10.5	3.5
Cr (4)	1.05	0.53
Cu (4)	0.43	0.29
Ni (4)	2.79	1.25
Zn (4)	75.85	57.89

Units of; nutrient and organic carbon concentrations are in μM; Total suspended sediment mg/L; Hg, Cd ng/L; Ni, Zn, Cr, Cu μg/L.

* Average of the data by: (SEN GUPTA, 1971; KIRIKOVA, 1986; SAPOZHNIKOV, 1990; CODISPOTI et al., 1991).

** Assumed for Marmara surface water from FRIEDERICH ET AL, 1990; KÜÇÜKSEZGIN ET AL, 1996 data in adjacent seas.

(1) POLAT, TUĞRUL, 1996 (2) SOROKIN, 1983. (3) POLAT, 1995. (4) YEMENİCİOĞLU et al., 1996. (5) YEMENİCİOĞLU, 1990.

TABLE 2. Metal fluxes in the Bosphorus lower layer.

Metal	From Marmara Sea (F_{L3})	From the upper layer (F_{DB})
Mercury	$1.34x10^6$ g/y	$0.16x10^6$ g/y
Cadmium	$1.62x10^6$ g/y	$0.45x10^6$ g/y
Chromium	$338.88x10^6$ g/y	$45.1x10^6$ g/y
Nickel	$95.31x10^6$ g/y	$51.66x10^6$ g/y
Copper	$109.43x10^6$ g/y	$28.29x10^6$ g/y
Zinc	$2.93x10^{10}$ g/y	$0.39x10^{10}$ g/y
	To the Black Sea (F_{L4})	To the upper layer(F_{UB})
Mercury	$1.09x10^6$ g/y	$0.34x10^6$ g/y
Cadmium	$2.12x10^6$ g/y	$0.52x10^6$ g/y
Chromium	$290.88x10^6$ g/y	$99.19x10^6$ g/y
Nickel	$139.38x10^6$ g/y	$33.67x10^6$ g/y
Copper	$81.81x10^6$ g/y	$27.3x10^6$ g/y
Zinc	$2.5x10^{10}$ g/y	$0.76x10^{10}$ g/y

TABLE 3. Metal fluxes in the upper layer of Bosphorus.

Metal	From Black Sea (F_{L1})	From lower layer(F_{UB})
Mercury	$2.23\ x10^6$ g/y	$0.34x10^6$ g/y
Cadmium	$6.33x10^6$ g/y	$0.52x10^6$ g/y
Chromium	$633.15x10^6$ g/y	$99.19x10^6$ g/y
Nickel	$723.6x10^6$ g/y	$33.67x10^6$ g/y
Copper	$259.29x10^6$ g/y	$27.3x10^6$ g/y
Zinc	$4.57x10^{10}$ g/y	$0.76x10^{10}$ g/y
	To the Marmara Sea (F_{U2})	To the lower layer(F_{DB})
Mercury	$2.74x10^6$ g/y	$0.16x10^6$ g/y
Cadmium	$7.31x10^6$ g/y	$0.45x10^6$ g/y
Chromium	$718.3x10^6$ g/y	$45.1x10^6$ g/y
Nickel	$750.95x10^6$ g/y	$51.66x10^6$ g/y
Copper	$300.38x10^6$ g/y	$28.29x10^6$ g/y
Zinc	$5.22x10^{10}$ g/y	$0.39x10^{10}$ g/y

TABLE 4. Metal fluxes in the upper layer of Dardanelles Strait.

Metal	From Marmara Sea (F_{U3})	From lower layer (F_{UD})
Mercury	3.30×10^6 g/y	1.67×10^6 g/y
Cadmium	2.96×10^6 g/y	1.53×10^6 g/y
Chromium	612.38×10^6 g/y	298.9×10^6 g/y
Nickel	296.45×10^6 g/y	103.48×10^6 g/y
Copper	330.33×10^6 g/y	191.04×10^6 g/y
Zinc	5.55×10^{10} g/y	1.73×10^{10} g/y
	To the Aegean Sea (F_{U4})	To the lower layer(F_{DD})
Mercury	4.75×10^6 g/y	0.1×10^6 g/y
Cadmium	4.26×10^6 g/y	0.1×10^6 g/y
Chromium	915.94×10^6 g/y	20.14×10^6 g/y
Nickel	415.34×10^6 g/y	9.77×10^6 g/y
Copper	533.48×10^6 g/y	11.61×10^6 g/y
Zinc	7.05×10^{10} g/y	0.16×10^{10} g/y

TABLE 5. Metal fluxes in the lower layer of Dardanelles.

Metal	From Aegean Sea (F_{L1})	From upper layer (F_{DD})
Mercury	3.95×10^6 g/y	0.1×10^6 g/y
Cadmium	3.58×10^6 g/y	0.1×10^6 g/y
Chromium	697.68×10^6 g/y	20.14×10^6 g/y
Nickel	293.76×10^6 g/y	9.77×10^6 g/y
Copper	459×10^6 g/y	11.61×10^6 g/y
Zinc	3.86×10^{10} g/y	0.16×10^{10} g/y
	To the Marmara Sea (F_{L2})	To the upper layer(F_{UD})
Mercury	2.3×10^6 g/y	1.67×10^6 g/y
Cadmium	2.2×10^6 g/y	1.53×10^6 g/y
Chromium	371.41×10^6 g/y	298.9×10^6 g/y
Nickel	207.86×10^6 g/y	103.48×10^6 g/y
Copper	301.94×10^6 g/y	191.04×10^6 g/y
Zinc	2.79×10^{10} g/y	1.73×10^{10} g/y

TABLE 6. Metal fluxes in the lower layer of Marmara Sea.

Metal	From Aegean Sea (F_{L2})	From upper layer (F_{DM})
Mercury	$2.3x10^6$ g/y	$0.22x10^6$ g/y
Cadmium	$2.2x10^6$ g/y	$0.28x10^6$ g/y
Chromium	$371.41x10^6$ g/y	$57x10^6$ g/y
Nickel	$207.86x10^6$ g/y	$17.67x10^6$ g/y
Copper	$301.94x10^6$ g/y	$18.24x10^6$ g/y
Zinc	$2.79x10^{10}$ g/y	$0.35x10^{10}$ g/y
	To the Bosphorus (F_{L3})	To the upper layer(F_{UM})
Mercury	$1.34x10^6$ g/y	$0.85x10^6$ g/y
Cadmium	$1.62x10^6$ g/y	$1.28x10^6$ g/y
Chromium	$338.88x10^6$ g/y	$251x10^6$ g/y
Nickel	$95.31x10^6$ g/y	$85.34x10^6$ g/y
Copper	$109.43x10^6$ g/y	$42.67x10^6$ g/y
Zinc	$2.93x10^{10}$ g/y	$1.56x10^{10}$ g/y

TABLE 7. Metal fluxes in the upper layer of Marmara Sea.

Metal	From Black Sea	From lower layer
Mercury	$2.74x10^6$ g/y	$0.85x10^6$ g/y
Cadmium	$7.31x10^6$ g/y	$1.28x10^6$ g/y
Chromium	$718.3x10^6$ g/y	$251x10^6$ g/y
Nickel	$750.95x10^6$ g/y	$85.34x10^6$ g/y
Copper	$300.38x10^6$ g/y	$42.67x10^6$ g/y
Zinc	$5.22x10^{10}$ g/y	$1.56x10^{10}$ g/y
Metal	To the Aegean Sea (F_{U3})	To the lower layer (F_{DM})
Mercury	$3.30x10^6$ g/y	$0.22x10^6$ g/y
Cadmium	$2.96x10^6$ g/y	$0.28x10^6$ g/y
Chromium	$612.38x10^6$ g/y	$57x10^6$ g/y
Nickel	$296.45x10^6$ g/y	$17.67x10^6$ g/y
Copper	$330.33x10^6$ g/y	$18.24x10^6$ g/y
Zinc	$5.55x10^{10}$ g/y	$0.35x10^{10}$ g/y

TABLE 8. Metal Fluxes in the Marmara Sea.

Metal	From the Bosphorus	From the Dardanelles	Total input
Hg	2.7×10^6 g/y	2.3×10^6 g/y	5.0×10^6 g/y
Cd	7.3×10^6 g/y	2.2×10^6 g/y	9.5×10^6 g/y
Cr	718×10^6 g/y	372×10^6 g/y	1090×10^6 g/y
Ni	751×10^6 g/y	208×10^6 g/y	959×10^6 g/y
Cu	300×10^6 g/y	302×10^6 g/y	602×10^6 g/y
Zn	5.2×10^{10} g/y	2.8×10^{10} g/y	8.0×10^{10} g/y
	to the Bosphorus	to the Dardanelles	Total output
Hg	1.34×10^6 g/y	3.30×10^6 g/y	4.64×10^6 g/y
Cd	1.62×10^6 g/y	2.96×10^6 g/y	4.58×10^6 g/y
Cr	339×10^6 g/y	612×10^6 g/y	951×10^6 g/y
Ni	95×10^6 g/y	297×10^6 g/y	392×10^6 g/y
Cu	110×10^6 g/y	330×10^6 g/y	440×10^6 g/y
Zn	2.9×10^{10} g/y	5.4×10^{10} g/y	8.3×10^{10} g/y

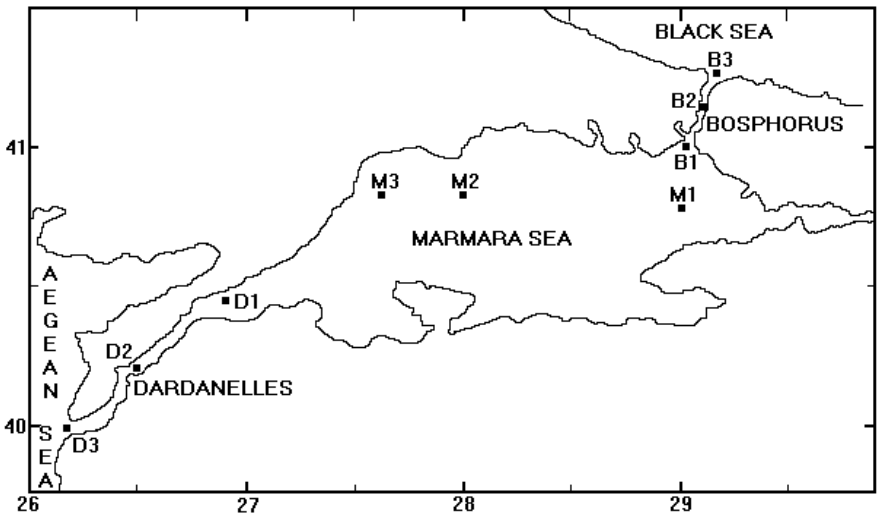


FIGURE 1. Sampling locations.

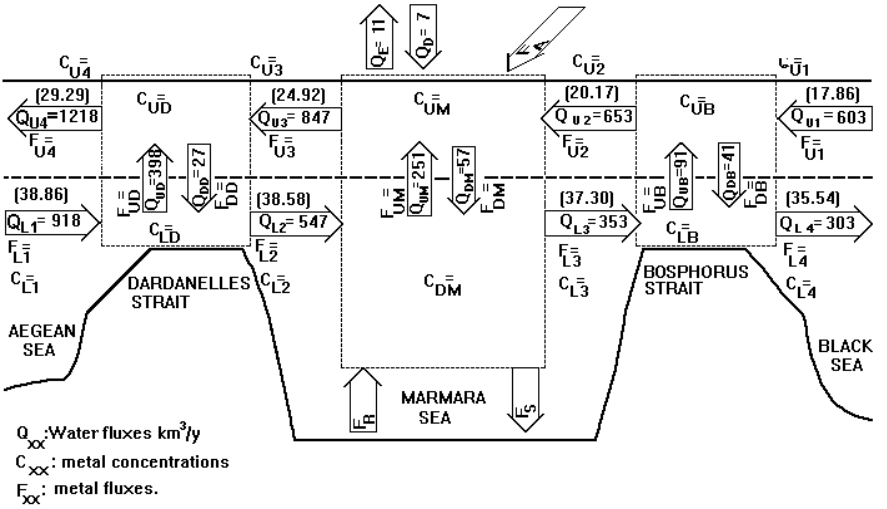


FIGURE 2. Volume fluxes across the Turkish Straits system using 4 yr (1986-89) average salinities. Number in paranthesis are average salinity values used in the computations.

BIODIVERSITY OF THE AEGEAN ISLANDS WITH SPECIAL REFERENCE TO SEABIRDS AND THEIR HABITATS

John G.WALMSLEY
La Bergerie, Mas De Petit Badon, 13129 Salin-de-Giraud, France

ABSTRACT

Besides being one of the most privileged tourist destinations in the Mediterranean, the Aegean Sea also boasts the largest and most extensive island ecosystems, insular communities and ininhabited islands and islets. Because of their isolation the natural biodiversity on these islands differs from continental organisms. The pelagic seabirds that occur in the Aegean are well adapted to this environment, each species occupying its own particular breeding habitat. Today however, seabirds and their habitats are threatened by increasing tourism and urban development, overfishing and pollution. Conservation actions are urgently needed that will guarantee the long term protection of these island ecosystems and their biological diversity.

INTRODUCTION

The seabirds of the Mediterranean know no political boundaries and those that occur in the Aegean Sea illustrate this point very well. Outside the breeding season many seabirds disperse and wander about the Mediterranean in search of food. One species in particular, the Mediterranean Shearwater *Puffinus yelkouan* moves into the Marmara Sea, through the Bosphorous and into the Black Sea in great numbers. In winter large flocks can be seen flying north and south under the Golden Horn Bridge in Istambul. By the time they return to the Aegean these same birds may have travelled several thousand kilometres and visited the national waters of six other countries.

The Aegean is also a paradise for botanists, where there are more endemic species of flowering plants than in the rest of the Mediterranean. The marine biologist informs us of all the exciting underwater life forms to be found, and the ornithologist the fascinating seabird life on the islands. And yet these same specialists tell you that plants, fish and bird populations are declining. The causes are multiple, atmospheric and water pollution, industrial and urban development and solid and chemical waste dumping**.** It is important to remember that our terrestrial, avian and marine flora and fauna are all indicators of a healthy environment.

The Aegean Sea is only a small part of the whole which is the Mediterranean Sea. Some 23 countries have coastal boundaries and each one benefits from its natural resources and uses its national waters in either a wise or

imprudent manner. The recent oil disasters on the Atlantic coast of France and in the Marmara Sea bear witness to this unwise use by the deaths of thousands of seabirds, and the stranding of many common dolphins whose deaths were attributed to several known causes. Unfortunately catastrophes of this kind are occurring more regularly, and it is the flora and fauna communities and populations that suffers first. The magnitude of these disasters to wildlife are suppressed because our present society is only interested in economic gains from the tourist and fishing industries. By protecting the environment and maintaining biological diversity, we are protecting ourselves.

During the last 15 years the Mediterranean Seabird Association (MEDMARAVIS) has established a network of seabird specialists in the Mediterranean and Black Sea region. During this period important Pan-Mediterranean Seabird Symposiums were organised in different countries, bringing together everyone interested in the conservation of seabirds and their habitats. International guest speakers were invited to discuss ongoing research projects, and studies directed towards priority species and habitats and public awareness campaigns. Today when we look at some of the data that has been collected we see that there is wealth of knowledge from the western Mediterranean (ZOTIER et al.1992), but very little information from the eastern Mediterranean (Fig.1). The reason for this can be attributed to the fact that there are fewer observers in eastern Mediterranean countries. The exceptions are Greece and Turkey which have their own competent organisations the Hellenic Ornithological Society (HOS) and the Dogal Hayati Koruma Dernegi (DHKD).

The Aegean Sea its islands and islets

The Aegean Sea comprises of several regional groups of islands: the Sporades, Cyclades, the Dodecanese, and the Turkish islands. Within each of these groups there are large islands with insular communities that attract thousands of tourists every year, the lesser known islands with small communities that are now being developed for tourism, and the small off-shore islands and islets without inhabitants.

Seabirds can generally be found on most of the islands, but it is the small off-shore uninhabited islets that attract the true pelagic species. The species composition however, will depend upon the specific rock formation of each island and the available breeding habitat required by each species. During visits to the Aegean islands I discovered that the main rock formations are limestone, schist and basalt. Limestone or calcareous rock formations are stable with numerous holes and recesses, caves and boulder screes that provide favourable breeding habitats for most seabirds. Islands comprising of schist or shale are also sound, but the exposed cliffs are unstable and comprise of irregular layers of compressed rock which are soft, flaky and extremely dangerous. There are fewer cliff-nesting species on this type of rock formation. On the volcanic islands the basalt rock provides only a limited number of breeding sites for pelagic seabirds.

Coastal and Pelagic Seabirds

Mediterranean seabirds can be divided into two categories, the coastal breeding seabirds and the pelagic species. Those that occur in coastal wetlands, river deltas, estuaries and salinas are the *Laridae* (gulls and terns). In the Aegean about 17 species occur regularly, of which 14 species breed. Of these 4 species have a low to medium priority status and 13 species a high priority status in the Mediterranean. Other waterbirds of coastal habitats are grebes, cormorants, pelicans, flamingo, ducks, rails and coots and shorebirds. Of the 92 species that occur in these habitats only 43.5% have a high priority status (Table 1). In the marine sites, rocky islands and islets, the two gull species: the Yellow-legged Gull *Larus cachinnans* and Audouin's Gull *Larus audouinii* occur also in coastal wetlands and salinas in the western Mediterranean. The Yellow-legged Gull is an invasive species and a predator on many waterbirds, hence its low status. On the other hand the Audouin's Gull is a true endemic species of both Mediterranean and European concern.

The pelagic seabirds are the Shag *Phalacrocorax aristotelis desmarestii*, the Storm Petrel *Hydrobates pelagicus*, Cory's Shearwater *Calonectris diomedea* and the Mediterranean Shearwater. They are all Mediterranean races or sub-species, their plumage colour is generally black or dark brown with some white above or below. With the exception of the Shag, all the other species spend most of their lives at sea, returning to land only during the breeding season. Concentrations of shearwaters occur on the sea in the evenings close to the breeding islets, but birds return to the nests only during the hours of darkness. For the smaller species like the Storm Petrel, this may be an adaptation by which they avoid capture by Yellow-legged Gulls and other predators.

Several species of raptors also breed on islands and islets. The Osprey *Pandion haliaetus* nests on sea-cliffs and has a strict diet of fish. The Peregrine Falcon *Falco peregrinus* feeds on a variety of avian species, the Eleonora's Falcon *Falco eleonorae* is another island specialist that feeds mainly on migrating birds, while the Long-legged Buzzard *Buteo rufinus* feeds on small mammals, snakes, lizards and large insects. Other marine species that occur are the divers, sea-ducks and the Gannet *Morus bassanus* that wander about the Mediterranean in winter.

Marine mammals are well represented in the Aegean, the most important and endangered is the Monk Seal *Monachus monachus*. Today the Aegean population is approximately 300 animals. If we consider the population trend for this species, this figure may not be enough to sustain its numbers. The Dolphins are represented by 3-4 species, the most common is the Bottle-nosed Dolphin *Tursiops truncatus*, the Common Porpoise *Delphinus delphis*, the Striped Dolphin *Stenella coeruleoalba* and Risso's Dolphin *Grampus griseus*. The Whales that reach the Aegean are the Fin Whale *Balaenoptera physalus* and the Sperm Whale *Physeter macrocephalus*. The Sea-Turtles are the Loggerhead Turtle *Caretta caretta* , the Green Turtle *Chelonia mydas* and the rare Leatherback Turtle *Dermochelys coriacea* . An important point to remember here is that despite the low number of

avian and marine species on rocky islands and islets, all species with the exception of the Yellow-legged Gull have a high priority status in the Mediterranean (Table 1).

Species presentation

The **Yellow-legged Gull** is one of the most widespread and abundant species in the Mediterranean. It occurs in all coastal habitats and also on small islands and islets. Breeding colonies are generally established on island plateaux and on sloping ground with a good cover of vegetation. On over-populated islands the species will also breed on rocky sites occupied by Shearwaters and Storm Petrels. This has led to an increase in adult and chick mortality of the two nocturnal species. The Yellow-legged Gull predates upon many waterbirds from the size of Flamingos down to shorebirds and small passerines. It is also responsible for the predation and disturbance of breeding colonies of Audouin's Gull, which are forced to move from one breeding site to another. The Mediterranean population of the Yellow-legged Gull is estimated at 84,000 pairs (BEAUBRUN 1993).

In the western Mediterranean the **Audouin's Gull** breeds in coastal wetlands (Oro & Vilalta 1992) and in salinas (WALMSLEY 1994). In the Aegean the preferred breeding habitat is on uninhabited rocky islands and islets. During the 1960s the Audouin's Gull was considered extremely rare throughout the Mediterranean. In 1966 the known Mediterranean population was 1,000 pairs confined chiefly to Spain (Chafarinas Islands and Ebro Delta). By 1989 the population had increased to 9,000 pairs, and in 1992 the global population was estimated at 13,000-14,000 pairs. This important population increase and high breeding success in the Ebro Delta and other western Mediterranean colonies was attributed to a regular and abundant food source in the form of discards from fishing boats, full protection measures and the control of Yellow-legged Gulls. In 1991 a fishing moratorium enforced during May-June caused a decline in the reproductive success (PATERSON et al.1992). It also meant that Audouin's gulls had to look for other food sources and fly further away from the colonies in search of food.

The only available information from the eastern Mediterranean was a figure of 100-200 pairs in Italy and the Aegean. In 1997 the Hellenic Ornithological Society began a LIFE project funded by the EU DGXI and the Greek Ministry of the Environment. The first year of the project focused on breeding surveys and visits to over 200 islands and islets. Important data was also collected on the species ecology, nest-site selection and food in 4 sample colonies. The results revealed a breeding population of between 500-600 pairs of Audouin's Gulls. In 1999 the population estimate for Greece was 800 pairs breeding on 20-25 islands (PAPACONSTANTINOU 1999). In Turkey the Audouin's Gull is still a rare species, but 15 pairs have been confirmed breeding on the Karaburun Islands near Izmir, Iydincik Island and on the Bodrum peninsula. This increase may reflect movements of birds from the nearby Greek islands. The Mediterranean and world population now stands at approximately 18,000 pairs.

The **Shag** breeds on cliff ledges, in amongst rocks and boulders and is strictly a fish eater. In the Aegean 60 pairs breed on the Foça Islands (KIRAC & KIRAC 1998) and 84 pairs on the small islets of Ildir Korfezi in Turkey (MAGNIN & YARAR 1997). The population on the Greek islands is much higher about 1,500 pairs (PAPACONSTANTINOU in prep.). The total Mediterranean population is less than 10,000 pairs (GUYOT 1993).

The Mediterranean **Storm Petrel** is slightly larger than the nominate Atlantic form. Nest-sites are generally on rat-free islets in deep recesses in rocks, rocky screes under boulders, in caves and occasionally under dense vegetation. The breeding season is long, from April until Sept-Oct. when the last fledged young leave the nest. The main predators are the Yellow-legged Gull and Black rat *Rattus rattus* which takes both adults and chicks. The Eleonora's Falcon has also been observed chasing and killing adult petrels. Human activities fishermen and hunters with dogs also cause disturbance to breeding birds. Assessing population size is extremely difficult because of the species nocturnal habits, but estimates can be made using a combination of methods (WALMSLEY 1986, ZOTIER & VIDAL 1998). The principal food are planktonic invertebrates, squid and other molluscs, small fish, and occasionally offal from behind fishing boats. In the Aegean Storm Petrels have been observed at sea (Papaconstantinou pers com.) but so far only one breeding site is known (AKRIOTIS & HANDRINOS 1986). Breeding surveys are urgently needed if we are to protect this species. The total known Mediterranean population is considered to be less than 15,000 pairs (ZOTIER et al. 1992).

The **Cory's Shearwater** breeds on small off-shore islets under large boulders, recesses in rocks and under tough woody vegetation. They will also accept artificial nest-boxes in places with few natural nest-sites. Distribution is widespread in the Aegean especially on the Greek islands and islets, and birds are regularly seen off the Turkish coast where they may also breed. Large concentrations occur in the evenings in the vicinity of breeding sites, but precise population estimates are not known. The food is mainly fish, cephalopods and crustaceans caught near the surface of the water and by plunge-diving. The threats are disturbance and predation by rats, cats and dogs. In Malta birds are still being shot despite protection measures and fishermen use the axillary feathers as fish-lures (BORG & ZAMMIT 1998). The known Mediterranean population is estimated at 57,000-76,000 pairs (ZOTIER et al.1992, THIBAULT et al.1996).

The **Mediterranean Shearwater** is widespread in the Aegean Sea where it occurs in large numbers near the Greek and Turkish Islands. The species is also present throughout the year in the Marmara Sea. The Greek population is estimated at 8,000-15,000 (PAPACONSTANTINOU in press) and the Turkish population up to 30,000 (SNOW & PERRINS BWPC 1998). Nest-sites are generally in burrows in the soil and under rocks and boulders. The threats are similar to the precendent species, especially predation by rats and cats, and a high adult mortality of birds

caught in fishing nets. Like all the pelagic seabirds, census surveys are urgently needed on all the islands and islets in the Aegean. The Mediterranean population is estimated at about 18,000 pairs (ZOTIER et al 1992).

Conservation measures and recommendations

While our knowledge of seabird populations and their distribution in the western Mediterranean is satisfactory, we have only fragmentary information from the eastern Mediterranean. The Audouin's Gull breeding surveys and action plan show what can be acheived when the appropriate funding is available. Conservation proposals for this species have since been updated by the Audouin's Gull Working Group in Melilla Spain (1997) and research and monitoring projects initiated. Similar action plans should also be proposed for the other vulnerable and endangered pelagic Mediterranean species. During the RAC-SPA Expert Meeting on Endangered Species in the Mediterranean held in Montpellier Nov.1996, MEDMARAVIS proposed a list of 15 Mediterranean priority species, which includes both coastal and pelagic seabirds to be protected under the Barcelona Convention (CRIADO et al.1996).

For the eastern Mediterranean, we need to know the distribution and size of the seabird populations before any conservation measures can be proposed and implemented. All islands and islets should be visited and inventories made of all breeding seabirds, together with habitat descriptions and other relative information. The data should then be stored and analysed in a central data bank and made available to all researchers interested in the conservation of these small but important island ecosystems.

It is also important to identify all predator species so that effective control measures can be implemented. The prevalence of cats on many of the Greek islands is something that most visitors remark on. The cats know exactly when the fishermen return to port with their catches, and the opening times of their favourite restaurants. This may seem like a cost-effective way of disposing of waste food and keeping down rat populations in the villages, but the majority are feral cats. Island cat populations are increasing and expanding to other sites like refuse dumps and areas where there are breeding seabirds. Once established cats can eliminate practically all seabirds. Because of their small size and distinct odour Storm Petrels are easy prey to cats, therefore this species can only survive on rat and cat-free islets..

Besides initiating breeding surveys, research and monitoring of seabird populations, food resources and food availability must also be investigated on the fishing grounds. The results will provide valuable information on seabird distribution and movements during and outside the breeding season.

Meanwhile, we must not forget the islands and islets. Each year in spring and autumn, the Aegean islands act as stepping stones for thousands of migrating birds moving between their winter quarters in Africa and their Palearctic breeding grounds. During adverse weather the islands are used as refuges by these long

distance migrants, which are forced to land and seek shelter. Unfortunately, thousands of birds are caught on lime sticks placed by hunters. This and other illegal and non-selective hunting should be banned completely. Food and water resources on islands are also scarce, so prolonged stays can lead to a heavy mortality among migrant birds. Waterbirds in particular have a hard time because they are dependent upon wetlands for their food.

Today the demand for water is an ever increasing problem and many people are ignorant of the natural hydrology of the Aegean Islands. Water resources are overdrawn and the few small wetlands are being drained, used as refuse dumps for domestic waste, or simply destroyed by agricultural and urban development. Whenever I visit one of the more popular holiday islands, I often ask the question, what will happen when no water comes out of the taps ?, there will be an exodus of people and the desertification of the Aegean islands. Therefore this closing statement is a plea for «**a wise and sustainable use of the natural water resources».** Water is one of the most important conservation issues today, and one we should all bear in mind whenever we visit the Aegean Islands.

REFERENCES

AKRIOTIS, T., HANDRINOS, G., 1986. The first breeding case of the Storm Petrel in Greece: 31-38. In: Mediterranean Marine Avifauna (MEDMARAVIS), Proceedings of the NATO Advanced Workshop on Population Dynamics and Conservation of the Mediterranean Marine Avifauna, Alghero Sardinia, March 1986. 537 pp.

BEAUBRUN, P-C., 1993. The Status of the Yellow-legged Gull *Larus cachinnans* in Morocco and in the Western Mediterranean: 47-55. In: (eds.) J.S.Aguilar, X.Monbailliu & A.M.Paterson. Estatus y conservacion de aves marinas - Status and Conservation of Seabirds. Proceedings of the 2nd Mediterranean Seabird Symposium, Calvia 21-26 March 1989.

BORG, J., CACHIA-ZAMMIT, 1998. Monitoring Cory's Shearwater *Calonectris diomedea* colonies in a hostile environment, Malta: 31-47. In: (eds) J.G.Walmsley, V.Goutner, J.Sultana & A.Hili. Proceedings (MEDMARAVIS), IV Symposium Méditerranéen des oiseaux marins, Ecologie des oiseaux marins et gestion intégrée du littoral en Méditerranée. Hammamet, Avril 1995.

CRIADO, J., WALMSLEY, J.G., ZOTIER, R. (Eds) 1996. An annotated list of threatened bird species as adopted by the Barcelona Convention. (UNEP Mediterranean Action Plan). Report :16p.

GUYOT, I., 1993. Breeding distribution and number of Shag *Phalacrocorax aristotelis desmarestii* in the Mediterranean: 37-45. In: (eds.) J.S.Aguilar, X.Monbailliu & A.M.Paterson. Estatus y conservacion de aves marinas - Status and Conservation of Seabirds. Proceedings of the 2nd Mediterranean Seabird Symposium, Calvia 21-26 March 1989.

KIRAC, S.K., KIRAC, C. 1998. Population and distribution of breeding seabirds on the Foça Islands, Aegean Sea, Turkey: (134-147). In: (eds) J.G.Walmsley, V.Goutner, J.Sultana & A.Hili. Proceedings (MEDMARAVIS), IV Symposium Méditerranéen des oiseaux marins, Ecologie des oiseaux marins et gestion intégrée du littoral en Méditerranée. Hammamet, Avril 1995.

MAGNIN, G., YARAR, M., 1997. Important Bird Areas in Turkey. Dogal Hayati Koruma Dernegi, Istanbul, Turkey, 315 pp.

ORO, D., MARTINEZ-VILLALTA, A., 1992. The colony of the Audouin's Gull at the Ebro Delta. In: (ed) M.Fasola, Proceedings of the 3rd. MEDMARAVIS Pan-Mediterranean Seabird Symposium, Chios, Greece 15-20 Sept. 1992. Avocetta, No.16: 98-101.

PAPACONSTANTINOU, C., 1999. Conservation and study of the Audouin's Gull in the E.U. Workshop, Leros, Greece Oct.1999. (Report 13 pages).

PATERSON, A.M., MARTINEZ, A., DIES, J. I., 1992. Partial breeding failure of the Audouin's Gull in two Spanish colonies in 1991. British Birds 85: 97-100.

SNOW, D.W., PERRINS, C.M. (Eds.), 1998. The Birds of the Western Palearctic, Concise Edition, Vol. 1, Non-Passerines. Oxford University Press, Oxford, New York, 1008pp.

THIBAULT, J-C., ZOTIER, R., GUYOT, I., BRETAGNOLLE, V., 1996. Recent trends in breeding marine birds of the Mediterranean region with special reference to Corsica, 31- 58. In: (eds.) A.Crivelli et al. Colonial Waterbirds, Colonial Waterbird society, Special publ.1, Vol.19.

WALMSLEY, J.G. 1986. The status of breeding Storm Petrels *Hydrobates pelagicus* on the Mediterranean coast of France: (153-160). In: Mediterranean Marine Avifauna (MEDMARAVIS), Proceedings of the NATO Advanced Workshop on Population Dynamics and Conservation of the Mediterranean Marine Avifauna, Alghero Sardinia, March 1986. 537 pp.

WALMSLEY, J.G., 1994. Un approccio pratico alla gestione ambientale nelle saline del Mediterraneo: (147-168). In: (eds) X. Monbailliu e A.Torre, MEDMARAVIS Associazione Mediterranea per l'Avifauna Marina, La gestione degli ambienti costieri e insulari del Mediterraneo. Edizioni del Sole 430 pp.

ZOTIER, R., J-C.THIBAULT, I. GUYOT 1992. Known population and distribution of Cormorants, Shearwaters and Storm Petrels in the Mediterranean. In: (ed) M.Fasola, Proceedings of the 3rd. MEDMARAVIS Pan-Mediterranean Seabird Symposium, Chios, Greece 15-20 Sept. 1992. Avocetta, No.16: 118-126.

ZOTIER, R., P. VIDAL.,1998. Technique de mise en evidence de l'Oceanite Tempete *Hydrobates pelagicus* a partir d'une embarcation et application au statut de l'espece dans l'Archipel de Riou (France): (204-219). In: (eds) J.G.Walmsley, V.Goutner, J.Sultana & A.Hili, Proceedings (MEDMARAVIS) IV Symposium Méditerranéen des oiseaux marins, Ecologie des oiseaux marins et gestion intégrée du littoral en Méditerranée. Hammamet, Avril 1995, 304pp.

Table 1. Seabirds, waterbirds and other marine species occurring in the Aegean.

Coastal Sites (Wetlands, River deltas, Estuaries & Salinas)

Coastal breeding Seabirds:	Species Br.	Oc.	priority status L.	M.	H.
Gulls	8	8	3	1	4
Terns	6	9	-	-	9
Other waterbirds:					
Grebes	5	5	-	-	5
Cormorants	3	3	-	1	2
Pelicans	2	2	-	-	2
Flamingo	1	4	-	-	1
Ducks	10	15	-	-	6
Coots & Rails	6	6	-	-	6
Shorebirds	11	40	6	29	5
Marine sites (Rocky Islands & Islets)					
Yellow-legged Gull - *Larus cachinnans*	1		+	-	-
Audouin's Gull - *Larus audouinii*	1		-	-	+
Pelagic seabirds:					
Shag - *Phalacrocorax aristotelis desmarestii*	1		-	-	+
Storm Petrel - *Hydrobates pelagicus*	1		-	-	+
Cory's Shearwater - *Calonectris diomedea*	1		-	-	+
Mediterranean Shearwater - *Puffinus yelkouan*	1		-	-	+
Raptors:					
Osprey - *Pandion haliaetus*	1		-	-	+
Peregrine Falcon - *Falco peregrinus*	1		-	-	+
Eleonora's Falcon - *Falco eleonorae*	1		-	-	+
Long-legged Buzzard - *Buteo rufinus*	1		-	-	+
Other marine species:					
Divers - (Great Northern, Red-throated & Arctic)	3		-	-	+
Sea Ducks	3		-	-	+
Gannet - *Morus bassanus*	1		-	-	+
Marine mammals:					
Monk Seal - *Monachus monachus*	1		-	-	+
Dolphins- (Bottle-nosed, Common, Striped & Risso's)	3		-	-	+

Whales - (Fin Whale & Sperm Whale)	**2**	**- - +**
Sea Turtles - (Loggerhead,Green & Leatherback)	**3**	**- - +**
Br.= breed Oc.= occurr		
Med. priority status: L=low, M=medium, H+=high		

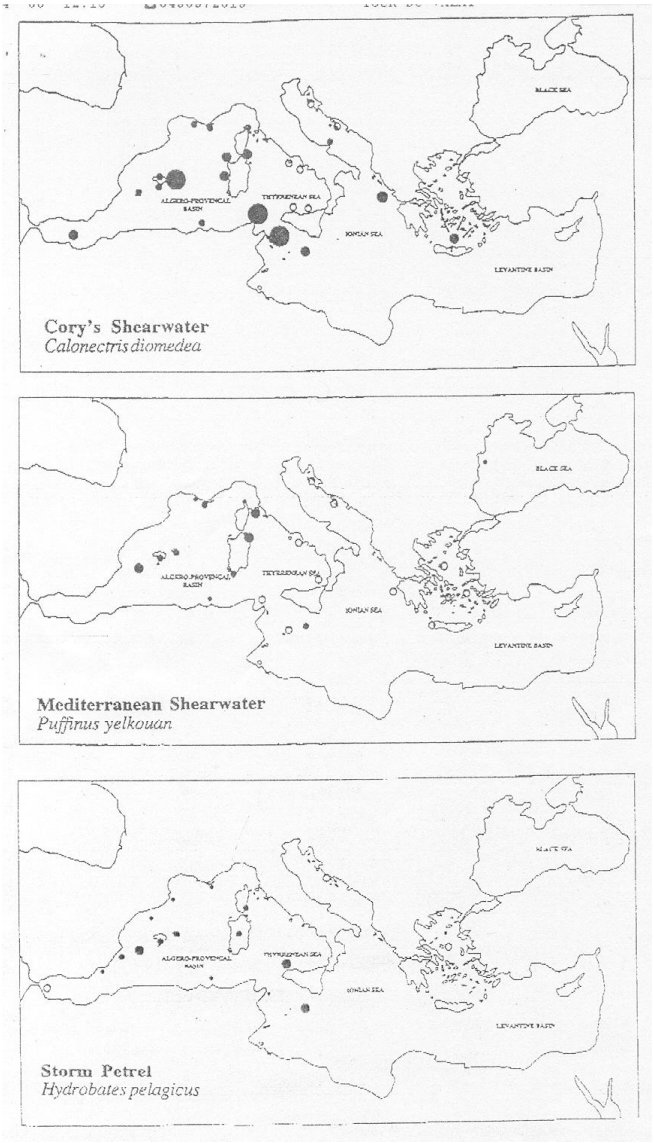


Figure 1. The location and size of all known breeding sites of three pelagic seabird species in the Mediterranean, Black and Azov Seas. Dots of increasing size represent 1-100, 101-1000, 1001-10000 & >10000 pairs. Open circles=numbers unknown or probable and old breeding records (After Zotier et al.1992).

THE AEGEAN SEA AND THE AEGEAN ISLANDS IN HISTORICAL PERSPECTIVE

Masahiro MIYOSHI
The Aichi University Institute of International Affairs
370 Kurozasa, Miyoshi-cho, Nishikamo-gun, Aichi 470-0296, Japan

INTRODUCTION

The delimitation of the maritime areas appertaining to Turkey and Greece respectively in the Aegean Sea has been a formidable problem. It has remained so because of its vital importance to these coastal States in terms of natural resources, especially oil and gas.[1] The heart of the problem lies in the fact that chain of islands off the western coasts of Anatolia, except a couple of islands near the entrance to the Strait of Dardanelles, legally belong to Greece.

The historical point of departure in discussing the issues of the Agean Sea may conveniently be the Treaty of Peace, signed at Lausanne on 24 July 1923. Article 12 confirms the Greek sovereignty over the islands of Lemnos, Samothrace, Mytilene, Chios, Samos and Nikaria, while effectively reserving for Turkey the sovereignty over the islands of Imbros, Tenedos and Rabbit Islands.[2] Article 15, however, lays down that Turkey renounces in favour of Italy all rights and title over the Dodecanese islands off the south-western coasts of Anatolia,[3] which were later to be ceded to Greece in full sovereignty in the Treaty of Peace with Italy of 10 February 1947.[4] No more territorial transactions have since been made in respect of the Aegean islands. Thus all the islands off the coasts of Turkey, except Imbros, Tenedos and Rabbit Islands lying close to the Dardanelles, legally belong to Greece; Turkey does not seem to dispute the Greek sovereignty over those islands**.**

1. The History of the Turkish-Greek Relations in Respect of the Aegean Sea

The Aegean Sea issues have two main aspects: the demilitarisation of the islands and the delimitation of sea boundaries.

[1] The delimitation of the resource-oriented maritime regimes of the exclusive economic zone and the continental shelf has in recent years been a sensitive issue, nearly as sensitive as that of land territory and the territorial sea, in the relations of coastal States.
[2] 28 *LNTS* 21 (1924).
[3] *Ibid*. 23.
[4] Article 14, 49 *UNTS* 134 (1950). The Dodecanese, with an overwhelmingly Greek population, were awarded to Greece in compensation for its sufferings under wartime Italian and German occupation. Wilson, A., "The Aegean Dispute", 155 *Adelphi Paper* 3 (1979/80).

(1) Demilitarisation of the Aegean Islands

The Peace Treaty of Lausanne of 1923, in Article 13, lays down that the Greek islands of Mytilene, Chios, Samos and Nikaria shall have no naval base nor fortification, that Greek military aircraft shall not fly over the Anatolian coast whereas Turkish military aircraft shall not fly over those Greek islands, and that the Greek military forces shall be limited to the normal contingent and a force of gendarmerie and police.[5] The Straits Convention of Lausanne of the same date likewise provides, in Article 4, that in the Aegean Sea Samothrace, Lemnos, Imbros, Tenedos and Rabbit Islands, all near the entrance to the Dardanelles, shall be demilitarised.[6] But in the Straits Convention of Montreux of 20 July 1936, in a preambular paragraph, provides that it shall replace the Straits Convention of Lausanne of 1923.[7] It does not specify, however, that the demilitarisation clause of the Lausanne Convention is thereby annulled, so that a slight suspicion seemed to exist as to whether the demilitarisation was actually denied in the Montreux Convention. Nevertheless, as the more pressing issue at Montreux was the passage of warships through the Straits, it looked as though the abolition of the demilitarisation clause of the Lausanne Convention were taken for granted.

Later in the Peace Treaty with Italy of 1947, in which the Dodecanese Islands, which Turkey had once renounced in favour of Italy in the Peace Treaty of Lausanne of 1923,[8] were ceded from Italy to Greece, it was laid down that those groups of islands off the south-west coast of Anatolia shall remain demilitarised.[9] It follows then that of all the Aegean islands, only the Dodecanese islands still remain demilitarised, unless any measure has since been taken to allow them to be re-militarised.[10]

(2) Maritime Boundary Delimitation

In maritime space between coastal States, only the territorial sea mattered in the days when the issue of the continental shelf had not emerged in international law yet. Even in those days territorial sea boundaries could indeed be a subject matter of dispute between neighbouring coastal States as in the *Grisbadarna* case of 1909 between Norway and Sweden.[11] The territorial sea delimitation between the Turkish coasts and the Greek islands near them would have been no exception.

With the advent of the legal concept of the continental shelf, the delimitation of maritime spaces became more acute than ever before. In the Aegean Sea the two coastal States leased certain areas of the seabed to oil companies for exploration in

[5] 28 *LNTS* 21-23 (1924).
[6] *Ibid*. 129.
[7] 173 *LNTS* 215 (1936).
[8] Art. 15, 28 *LNTS* 23 (1924).
[9] Art. 14, para. 2, 49 *UNTS* 134 (1950).
[10] Greece says that Turkey has no right to protest a Greek attempt to re-militarise the Dodecanese islands as it is not a party to the Peace Treaty with Italy of 1947. Wilson, *supra* note 4, at 16.
[11] For this arbitration, *see* 11 *RIAA* 147-166.

the 1960s and 1970s. Some areas of such leased seabed overlapped to give rise to a serious dispute between the two States. Negotiations ensued between them, but Greece unilaterally submitted the case to the International Court of Justice in August, 1976, while asking the Court to indicate provisional measures of protection pending the final judgment. It is true that Greece looked more willing to go to the ICJ, while Turkey wanted to exhaust chances of bilateral talks before relying on a third-party settlement as the last resort.

Thus the ICJ in its order of 11 September 1976 rejected the Greek request for the indication of interim measures of protection on the ground that the Turkish seismic activities did not amount to causing irreparable damage to the Greek interests.[12] Subsequently, the same Court found that it was without jurisdiction to entertain the Greek application in this case.[13] No further attempts seem to have been made since then to go to the Court in The Hague or an arbitral tribunal elsewhere.

2. Issues of Boundary Delimitation

(1) Entitlement to Maritime Areas

Before proceeding to the discussion of delimitation, the question of entitlement must be dealt with in the first place. For, the basic legal status of a maritime space, be it the territorial sea, the contiguous zone, the exclusive economic zone or the continental shelf, depends entirely on the coastal State's sovereignty over its land territory. As international jurisprudence has repeatedly shown, it is an 'appurtenance' to land territory.[14] There seems to be no question of this point in respect of the Aegean islands; Turkey has not officially claimed its territorial sovereignty over those islands except its three islands at the entrance to the Dardanelles.

The positions of Turkey and Greece differ greatly, however, as to the extent of the maritime space to be attributed to those islands: Greece claims such belts of its territorial sea and continental shelf around them as are permitted under international law, while Turkey claims that given their extraordinary geographical locations, those islands which lie very close to the Turkish coasts, being on the natural prolongation of the Anatolian landmass, are entitled to the territorial sea of 6 n.m only and no continental shelf to the west. Despite these diametrically opposed positions, it must be added, the two States have abstained from acting unduly offensively to each other: Turkey has proclaimed its EEZ in the Black Sea but not in the Aegean Sea, while Greece has not proclaimed its EEZ nor extended its territorial sea to 12 n.m. as it is entitled to under international law.[15]

---

[12] *ICJ Reports 1976*, p. 14.
[13] *ICJ Reports 1978*, p. 45, para. 109.
[14] *See*, for example, the *Grisbadarna* case, 11 RIAA 159; the Anglo-Norwegian *Fisheries* case, *ICJ Reports 1951*, p. 133.
[15] UN, *Law of the Sea Bulletin*, No. 39 (1999), pp. 42, 47.

In this connection, a few words would be in order as to the "natural prolongation" doctrine. It was so emphatically enunciated in *the North Sea Continental Shelf* cases of 1969 that it had great impact on not only the subsequent international arbitral and judicial cases of continental shelf delimitation but also international lawyers' thinking on this particular subject. As the *North Sea* cases were the first major judicial attempt for any continental shelf delimitation, the International Court of Justice had to begin with the discussion of entitlement to the continental shelf. Thus it was shown that the continental shelf is the natural prolongation, *i.e.* an appurtenance, of the landmass of the coastal State into and under the sea. Although its main job was to show guidelines of delimitation, the Court went so far as to refer to this basic entitlement in an operative paragraph of its judgment.[16] But the *Anglo-French Continental Shelf* case of 1977 slightly revised the significance of the "natural prolongation" doctrine,[17] as did subsequently the *Tunisia/Libya Continental Shelf* case of 1982,[18] the *Gulf of Maine* case of 1984,[19] the *Libya/Malta Continental Shelf* case of 1985,[20] etc. The "natural prolongation" doctrine has thus been gradually reduced in significance over the years. On the other hand, it must not be overlooked that entitlement and delimitation cannot be absolutely separated; they are "complementary".[21] Nevertheless, it is to be noted that natural prolongation, significant in entitlement, does not play a decisive role in delimitation.

(2) Guiding Principles of Delimitation of the Continental Shelf

In the *North Sea* cases of 1969 the Court was obliged to apply customary rules of international law as between the parties because the Convention on the Continental Shelf of 1958 was not applicable. Thus the Court propounded the applicable law in these terms: "delimitation is to be effected by agreement in accordance with equitable principles, and taking account of all the relevant circumstances, …"[22] This customary rule of continental shelf delimitation has been applied or referred to in the subsequent judicial and arbitral cases of similar subject matters. In this process of development, an attempt was made in the *Tunisia/Libya* case to define "equitable principles" as those "principles and rules which may be appropriate in order to achieve an equitable result".[23] Indeed, equitable principles are subordinate

[16] *ICJ Reports 1969*, p. 53, para. 101(C)(1).
[17] Decision, para. 191, 8 *RIAA* 91.
[18] *ICJ Reports 1982*, p. 58, para.67.
[19] *ICJ Reports 1984*, p. 277, para. 56.
[20] *ICJ Reports 1985*, p. 35, para. 39.
[21] *Libya/Malta Continental Shelf* case of 1985, *ICJ Reports 1985*, p. 30, para. 27; *see* also the *Guinea/Guinea-Bissau Maritime Boundary Delimitation* case of 1985, Arbitral Award, para. 116, 19 *RIAA* 191-192, where the Arbitral Tribunal says: "… la règle du prolongement naturel ne peut être utilement invoquée dans un cas de délimitation qu'en présence d'une séparation de plateux continentaux."
[22] *ICJ Reports 1969*, p. 53, para. 101(C)(1).
[23] *ICJ Reports 1982*, p. 59, para.70.

to the goal of equitable solution. This philosophy has now been incorporated in the UN Convention on the Law of the Sea of 1982.[24]

It may be recalled in this connection that the "equidistance or median line" principle, as laid down in the Convention on the Continental Shelf of 1958, has been repeatedly denied the place of primary importance in the judicial and arbitral cases of maritime boundary delimitation since the *North Sea* cases of 1969. This is true as a matter of case law, although that principle has been recognised as properly applicable as between opposite coasts.[25] But State practice, as evidenced in international agreements on maritime boundary delimitation, has a much higher percentage of application of equidistance or median line not only between opposite States but also adjacent States.[26] If the equidistance principle is not an absolute principle of delimitation, nor is it an inapplicable principle in any geographical situation. To use the expression of the International Court of Justice in the *Tunisia/Libya* case of 1982,[27] what is predominant is the result of an equitable solution.

What does matter in a delimitation of an equitable nature then? As the *Tunisia/Libya* case has shown, it is such equitable principles as produce an equitable result. But what are such equitable principles was not made clear until the *Libya/Malta* case of 1985. This last case showed a few "well-known" examples of equitable principles for the first time in the case law of delimitation.[28]

What is it that makes a delimitation equitable? It would be the relevant circumstances, because the notion of equity requires specification of the situation or context in which the subject matter is to be seen. Thus the "principle of respect due to all such relevant circumstances" could be the most important of such "well-known" equitable principles. Indeed the *North Sea* cases suggested that "there is no legal limit to the considerations which States may take account of for the purpose of making sure that they apply equitable procedures", and that "all the relevant circumstances" may be taken into account.[29] Later this pronouncement was rightly

[24] Art. 83, para. 1 (for the continental shelf) and Art. 74, para. 1 (for the EEZ).
[25] *See*, for example, the *North Sea Continental Shelf* cases, *ICJ Reports 1969*, p. 36, para. 57, where the equity-oriented judgment admits the applicability of equidistance in a situation of opposite coasts.
[26] *See* Willis, L. A., "From Precedent to Precedent: The Triumph of Pragmatism in the Law of Maritime Boundaries", 24 *Canadian Yearbook of International Law* 50 (1986); Charney, J. I., "Introduction", in Charney, J. I. and Alexander, L. M. (eds.), 1 *International Maritime Boundaries* xlii (1993).
[27] *ICJ Reports* 1982, p. 59, para. 70.
[28] The "well-known" examples in the words of the Court are: "the principle that there is to be no question of refashioning geography, or compensating for the inequalities of nature; the related principle of non-encroachment by one party on the natural prolongation of the other, which is no more than the negative expression of the positive rule that the coastal State enjoys sovereign rights over the continental shelf off its coasts to the full extent authorized by international law in the relevant circumstances; the principle of respect due to all such relevant circumstances; the principle that although all States are equal before the law and are entitled to equal treatment, 'equity does not necessarily imply equality', nor does it seek to make equal what nature has made unequal; and the principle that there can be no question of distributive justice". *ICJ Reports 1985*, pp. 39-40, para. 46.
[29] *ICJ Reports 1969*, p. 50, para. 93; p. 53, para. 101(C)(1).

amended in the *Libya/Malta* case of 1985 which says, "although there is assuredly no closed list of considerations, it is evident that only those that are pertinent to the institution of the continental shelf as it has developed within the law, and to the application of equitable principles to its delimitation, will qualify for inclusion".[30] It further stressed the primary importance of geographical factors.[31] This is a pertinent judicial finding. As a mater of fact, among the relevant circumstances, non-geographical factors such as geological ones, the size and political importance of islands, security considerations, economic factors, oil concessions, the conduct of the parties, interests of third parties, etc. have been relegated to a secondary place in the case law of maritime boundary delimitation.

A final point of importance is the verification of equitableness of the solution arrived at. Whether the delimitation decided is equitable is the test of primordial importance. The *Gulf of Maine* case of 1984 devised to separate the process of verification of equitableness of the solution from the process of delimitation, and this way of separating the two processes has been broadly followed in the subsequent judicial and arbitral cases of maritime boundary delimitation. Thus the test of proportionality between the attributed sea area and the length of coastlines has played the dominant role in verifying the equitableness of delimitation. A more detailed study of the cases would reveal that there have been two methods adopted: one is to involve the test of proportionality in the process of delimitation itself, and the other to see if the delimitation arrived at without such consideration is equitable in the light of proportionality. However, neither of them seems to be a well-established method, superseding the other.

There seem to be some more, if subsidiary, tests of verification. In a couple of cases the delimitation's economic impact, the structure and nature of the continental shelf and security considerations were discussed in the phase of verification. In the end, however, none of these were thought to justify a revision of the delimitation.

CONCLUDING REMARKS

The preceding discussion has been made on the understanding that any human institution is a product of history. The Aegean Sea and the Aegean islands are part of nature, to be sure. But on the other hand they cannot be free from the intricate historical developments in the region.

It is with this awareness that the above considerations were presented with a view to making an attempt to shed light, if at all, on the current situation in this region based on the lessons of the past experience. Thus an attempt was made to review the demilitarisation and maritime boundary delimitation aspects in historical perspective.

---

[30] *ICJ Reports 1985*, p. 40, para. 48.
[31] *Ibid*., p. 57, para. 79(B).

If the two States would not view the demilitarisation aspect of their relations very serious, since they are both members of the NATO and Turkey is now about to cross the threshold of admission to membership in the European Union of which Greece is already a member, the military aspect may now be set aside for the moment from our consideration. The more serious issue of maritime boundaries calls for a settlement. I would draw your attention to two possible solutions: arbitration and joint development. As the Greeks were saying before they went to The Hague in 1976, Turkey seemed to have lost interest in proceedings before the ICJ during the months of May to September, 1975.[32] Indeed Turkey was, in principle, for the idea of going to The Hague, as it was shown in its communication to Greece, dated 6 February 1975.[33] But it is also clear from the correspondence between the two governments that Turkey placed greater emphasis on the need for bilateral talks, whether about drafting a *compromis* or final settlement of the dispute. Does Turkey never think of a third-party settlement? It may be wondered in this connection if Turkey has ever thought of arbitration, rather than judicial settlement, provided it admits the possibility of a third-party settlement. In arbitration the parties may have a certain measure of control over the choice of arbitrators and some aspects of the procedure.

Joint development may be another possibility. There are two types of such joint undertaking: one is joint development in the absence of boundary delimitation and the other based on delimitation.[34] If Greece were to agree on joint development, it might only do so on the condition that a delimitation has been effected. Turkey would be ready to agree to the idea of joint development in the absence of a delimitation.[35] It is true that joint development is not the final solution, but one of its positive aspects in the absence of agreed delimitation would be an effect of defusing tension, at least for the time being.

One further possible alternative could be a 'fingers' solution, as suggested by Andrew Wilson in his paper in the *Adelphi Paper*. This is to assign Turkey's 'fingers' of continental shelf extending westwards between the Greek islands off its coasts.[36]

[32] Application Insituting Proceedings Submitted by the Government of Greece, 10 August 1976, paras. 12-14, *ICJ Pleadings, Aegean Sea Continental Shelf* case, pp. 4-5.
[33] *Ibid*., p. 31.
[34] See Miyoshi, M., *The Joint Development of Offshore Oil and Gas in Relation to Maritime Boundary Delimitation*, Durham: International Boundaries Research Unit, 1999.
[35] *See*, for example, the Turkish Note Verbale of 30 September 1975, para. 5, *supra* note 32, p. 35.
[36] Wilson, *supra* note 4, at 14, 38.

OTTOMAN SOVEREIGNTY IN THE AEGEAN ISLANDS AND THEIR ADMINISTRATIVE STRUCTURE

İdris BOSTAN
University of Istanbul, Faculty of Letters, History Department
Laleli, İstanbul, Turkey

The Aegean Sea which is a part of the Mediterranean, brings near the two continent Europe and Asia by means of the straits. As well as "Bahr-i Sefid" (the Mediterranean), in the Ottoman period the Aegean Sea was also called "Adalar Denizi" (the Sea of Islands) because of the abundance of islands. And for the islands the "Cezayir-i Bahr-i Sefid" term was being used.

This sea starts from the Morea Peninsula in the south and lies down on the costs of the Anatolia by a row of islands including Kitira, Crete, Karpatos and Rodos. This line also forms a frontier between the two seas. Although thousands of islands seem to be sprinkled all over the sea , they have been placed in a designated geographic position (1).

Just as these islands were named according to their locations, some islands were situated in front of the main land of Greece and some were situate in front of Anatolia. The islands in the east of Morea like Naxos, Paros and Andros are named as Cyclades Archipelagos and the islands in the north are called Sporads.

On the opposite side (Anatolia) there are also two island groups. The islands in the north like Midilli, Chios, Psara, and Samos were named 'Saruhan İslands' and Rodos, Kos, Leros, Karpatos, Kalimnos and the others in the south were named as 'Menteşe Islands'. Some historical and political names were given to these islands. For example, before the Balkan War, Rodos and some surrounding islands around of it had been started to be called as 'Dodecanese'-'Twelve-İslands'. But this term doesn't represent the real number of the islands. The other islands group is 'Boğazönü Islands' which includes Tenedos, Imbros, Samotraki, Limnos, takes place in the entrance of the Çanakkale Strait (2).

It is natural to seek dominance by strong states over the islands which are placed on the most important trade route between Black Sea and Mediterranean during the course of history. As a matter of fact the Byzantine Empire established the sovereiguty over the islands by its strong navy. Later Venice and Cenove states constituted the commercial colonies on these islands and became a big power in the area (3). After reaching the western Anatolia, Turks' interests were attracted towards the sea. They established maritime principalities and increased their power on the sea by using the fleets.

Although the Ottomans appeared as a land principality, they succeeded to reach the coast of Aegean and Marmara in a short time. Ottomans used the naval abilities of the maritime principalities but they had to wait until XV. century to constitute a big threat over the islands of the sea (4).

In this period Tasos, İmbros, Limnos, Midilli, Chios and Samos were under the control of Cenevo; Rodos and the islands around it were dominated by Saint-Jean Chevalier and on the other hand Cyclades Islands and Crete were under the control of Venice due to the fact that the Byzantine Empire had lost the hegemony over Aegean Islands and her sea-power compeletely.

After the collapse of Byzantine Empire by the conquest of İstanbul, the Ottomans had noticed the importance of the city as far as its feature of being related with the sea is concerned. From then on, Ottomans began to expand their sea-hinterland. They started with the Venice and Cenove struggles in the Aegean Sea and began to capture their colonies step by step.

Finally after the conquest of Istanbul, Mehmed II understood that defence of Istanbul was beginning from Çanakkale Strait. For this reason Tasos, Samotraki, Bozcaada, İmbros, Limnos, Midilli islands were captured and added quickly into Ottoman territories. Samos was conqured by Ottomans and people who came to the island for settlement, were exempted from the dwelling taxes. Chios remained in the hands of Guistiniani dynasty of Cenova from the time of Mehmed I due to payment of 6000 dukas a year. On the return from Malta Siege, Chios was captured by Kaptan-ı Derya Piyale Pasha as the island was helping to St. Jean Chevaliers at the time of the battle (5).

As regards Rodos and surrounding islands were captured by the Magnificient Süleyman and St. Jean Chevaliers were dismissed from these places (1522).

In this manner, the control of the south coasts of western Anatolia was established. Furthermore the security of the trade sea-route between İstanbul and Eygpt was at least obtained. The conquest of Rodos determined the Mediterranean diplomacy for Ottomans. At the same time Ottomans' sovereignty was established over Kalki, Tilos, Symi, Leros, Kos, Nisyros and Kalimnos islands (6).

After the conquest of Rodos, Ottomans had given neccesary importance to maritime and began to big preparations against Spanish Empire in the Mediterranean. Especially with the appointment of Barbaros Hayreddin Pasha as Kaptan-ı Derya in 1534, real activities were initiated in Aegean sea. Attentions were turned towards Cyclades when Barbaros had gone for conquest of Korfu in 1537. While going to and coming back from Korfu Siege , Barbaros captured the most of these islands one by one. In this expedition Kitira, Cyclades and Southern Sporads were captured. The Duka of Naksos kept his position by paying 5000 golds a year.

During the second siege of islands in 1538; Skatos, Karpatos and Kasos were taken by Barbaros Hayreddin Paşa. In this way all of the islands in Aegean Sea were added to the Ottoman territories. Annual taxes which were obtained from these islands were assigned for the captain-pasha ownership and Dukas became tax collectors. The old laws which were put into practice by Venice disappeared. This situation was confirmed with the agremeent of 1540 between Ottoman Empire and Venice (7).

Administrative Structure

The islands which were conquered step by step on the mentioned area took place in the administrative organization. The first conquered islands like Limnos, Tasos, Samotraki and İmbros were included by Gallipoli Liva and the timar system was applied over there (8).

The administrative structures of Midilli had developed in a different way from the others. Midilli was under the control of Cenevo and it was paying 3000 gold coins at the time of the conquest of İstanbul. But later the amount of tax was raised to 7000 gold coins. After a short time Midilli was captured by Mahmud Pasha in 1462 because of Midilli's strategic importance. This land was captured by fighting, because of this reason all the administrative authorities were turned over to Ottomans. According to practices of Ottomans if somewhere was captured without fighting, the situations of these lands were different from the others. All the laws used to be established by Ottomans if the land was captured by war.

Midilli Island was converted into the sancak status. The sancakbegs, kadıs and other officials were appointed, and the timar system was established there. Midilli was connected with Cezayir-i Bahr-i Sefid Province, thus it became the first Ottoman sancak among the islands.

After the conquest of Rodos, Midilli and Rodos were put together in terms of governance and were given under the control of the sancakbeg of Midilli. It might be a measure for the fortifications and improvements of Rodos after the war. This situation might be ended with annexation of Rodos into Cezayir-i Bahr-i Sefid province. Meanwhile surrounding islands of Rodos continued to be the attached to the Rodos as the same before (9).

The situation of Sisam was probably different than the others and it was possibly bounding to Midilli in terms of administration during the early periods of Ottomans. Hovewer the island was a uninhabited place at the begining of Ottomans sovereignty. The land was given to Kılıç Ali Pasha to dwell and then it was turned over to his foundation. With this way, the island achieved a status of foundation consequently.

Chios was captured ın 1566 and immediately transformed as a sancak and was attached into Cezayir-i Bahr-i Sefid. It seems apparently that the islands which start from Boğazönü and streches to Rodos were dispersed into four groups: Gallipoli, Midilli, Chios and Rodos.

The financial precedences defined the administrative structures for Cyclades islands. Ottomans searched the economic and administrative positions of them and they have considered that these lands weren't suitable for a sancak. They protected the rights of old rulers and permitted the inhabitants to stay in the islands. The administrators of Naksos, Paros and Andros were belonging to old Latin dynasty and were in the status of tax collectors. The duka of Naksos was accepted an Ottoman beg . He could use his rights over the island people only with Ottoman government's permission. He collected the tax-revenues of the

Mürted island besides Santorin, Şira, Milos, Miknos and Paros in the early period. The taxes of Cyclades were collected the method of Maktu. For example, between 1550-1558; 150.000 akças of Naksos. 10.000 akças of Paros, 50.000 akças of Andros, 50.000 akças of Skyros, 12.000 akças of Kea, 3.000 akças of Miknos, 10.000 akças of Skatos collected for the treasury (10).

There are some illustrative knowledges about the administrative organization in the records of 1552-1560. According to this, administration of Naksos and the neighboring island İos were belonging to Rodos beg..

Andros was under the hegemony of Eubeo sancakbeg. Andros and the neighbored islands of it were incorporated to Joseph Nassi's financial authority. Skathos island was in the Tırhala Province at the beginning and it was under the authority of the Tırhala kadı (11).

As from XVII century the influences and power of the Kaptan Pasha on the Cyclades increased. These islands were shared out by the sancak begs and they controlled there by the captains of small fleets (reis). Naksos, Paros, Andros, Milos and Santorin were responsible for building a warship and to participate the Navy.

The conditions of status and limitations of Cyclades were defined according to the firman Decree of the Ottoman goverment.

In 1566 Joseph Nassi was appointed as Duka of Naksos whose mission went on until 1579. In this period the Naksos has been seen as the sancak of Cezayir-i Bahr-i Sefid in the registers of Ottomans.

The administrative position of Naksos and others weren't same with the other subordinated states; Dubrovnik (Ragusa), Eflak-Boğdan and Erdel. Because Ottomans were controlling internal affairs of these islands by means of kadıs and sancakbegs (12).

After 1579, local islands were inserted into Naksos and Andros sancaks and appointed sancakbegs over there. When Cezayir-i Bahr-i Sefid Province was organized as a big administrative structure some different new developments appealed step by step.

According to the records of the mid XVII. century Cezayir-i Bahr-i Sefid's boundries were enlarged.

The invasion of Venice on some islands during the Girit war caused to the change of the administration of the island. After the war Ottomans conqured the islands again and the administrative system was reconstructed. As a result of this firstly a cadastral survey was formed in the year of 1670 (13). The knowledge about the tax system of the islands were acquired from this source. According to this register on the Cyclades islands Maktu system was applied. Some parts of the taxes would assaigned for the Kaptan-ı Derya as a 'Has', also some of them was allocated for the "deryabegs" as a salyane.

At the beginning of the XVIII. century some important changes took place on the province. These changes were generally about the authorities and the financial responsibilities of Kaptan Pasha. During the first periods of XVIII.

century, Morea Peninsula and some islands were invaded by Venice during the Ottoman-Venice war. The classic structure of the province spoiled after this event.

The economic situations of Aegean Islands have became restricted throughout the history. Lands of islands were very poor in terms of agricultural means except few ones. People's social and economic lives have depended on the sea. The most important tax was cizye for the Christians. "Maktu System" was used usually in the way of the collection the tax. Organizations of tax collection was allowed to the inhabitants of the island mostly. The revenues of cizye were coming in the treasury of Ottoman Empire directly. This situation was the same in the other regions of the empire. Cizye was allocated for the class of administrator such as beglerbeg, sancakbeg in some places (14).

The Christian people in these areas were in majority and they had the rights of the practicing their religion and traditions. Also there were their local representatives in the area. Some of the them were priests, kocabaşıs and voyvodos. Similarly conditions prevalented for the Muslim lands. They analyzed to their internal problems throught the their local representetives like kethudas or imams too. The most important thing that, these local rulers and the local representatives were recognized by the government.

All these evidences show us that the Aegean islands were under Ottoman control with timar system or salyane system.

Status of the Aegean islands have been protected until the indepence of Greece. In the other islands left under the rule of Ottomans some systematic changes happened as in the other places. All these evidences show us that the administrative structureof the islands are not different than the system applied in the other lands of the Ottoman Empire. More flexible administration has been applied in those islands, in accordance with the change of conditions happened in the other regions of the Empire.

REFERENCES

Archival Sources

Prime Minister Archives

1. ERİNÇ, S., YÜCEL, T., 1988. *Ege Denizi*: *Türkiye İle Komşu Ege Adaları*, Ankara, s.6-8; BOSTAN, İ., "Akdeniz", Diyanet İslam Ansiklopedisi, II, pp. 231.
2. KURUMAHMUT, A., (ed.), *Ege'de Temel Sorun*, Ankara 1998, p. 1-6.
3. TURAN, Ş., Türkiye-İtalya İlişkileri, İstanbul 1990; ZACHARİADOU, E., Trade and Crusade, Venetian Crete and the Emirates of Menteshe and Aydın (1300-1415), Venice 1983.

4. İNALCIK, H., 1985. “The Rise of the Turcoman Maritime Principalities Anatolia: Byzantium and Crusades”, *Byzantnische Forschungen*, XI, 1985, pp. 179-217.
5. SOUCEK, S., “Sisam”, EI², IX, pp. 679-680; “Sakız”, EI², VIII, pp. 889-892; “Midilli”, EI², VI, pp. 1035-1037.
6. TURAN, Ş., 1970. “Rodos’un Zabtından Malta Muhasarına”, *Kanuni Armağanı*, Ankara, s. 49-72.
7. SLOT, B.J., 1982. *Archipelagus Turbatus, Les cyclades Entre Colonisation Latin et Occupation Ottomane c. 1500-1718*, I-II, İstanbul 1982, pp. 35-65; Safvet, “Nakşa Dukalığı, Kiklad Adaları”, TOEM, IV/23 (1329), p. 1441; Savvides, “Nakşe” EI2 (Ing), VIII, 939-41; GÖKBİLGİN, T., 1964. “Venedik Devlet Arşivindeki Vesikalar Külliyatında Kanuni Sultan Süleyman Belgeleri”, *Belgeler*, I/2, s.121-128.
8. Prime Minister Archives, Tahrir Registers, no. 75, pp. 69-76, 133-135, 137-196.
9. GÖKBİLGİN, T., “Kanuni Sultan Süleyman Devri Başlarında Rumeli Eyaleti, Livalar, Şehir ve Kasabalar”, Belleten, vol. 78, pp. 253-257.
10. Prime Minister Archives, Maliyeden Müdevver Registers, no. 619, pp. 66-80; EMECEN, F., ŞAHİN, İ., “Osmanlı Taşra Teşkilatının Kaynaklarından 957-958 (1550-1551) Tarihli Sancak Tevcih Defteri”, Belgeler, 23 ,(Ankara 1999), p. 58-59.
11. Prime Minister Archives, KEPECİ, K., no. 63, pp. 163-164,180.
12. Prime Minister Archives, Mühimme Registers, no. VI, pp. 248; Safvet, “Yasref Nasi”, TOEM, III/6 (1328), pp. 982-993.
13. Prime Minister Archives, Tahrir Registers, no. 800.
14. İNALCIK, H., “Cizye”. Diyanet İslam Ansiklopedisi, VIII, pp. 46-47.

ELEMENTS OF AN EQUITABLE SOLUTION OF THE AEGEAN CONTINENTAL SHELF DELIMITATION ISSUE

Esen ARPAT
Geomar Ltd. Cengizhan sk. 18/3 Göztepe, 81060, İstanbul, Turkey

`Equitable solution' which has to be the ultimate aim for any dispute handled by a court, is also a target to be achieved in the delimitation of the continental shelf between states. Article 83 of the `Law of the Sea' states: `*The delimitation of the continental shelf between States with opposite or adjacent coasts shall be effected by agreement on the basis of international law, as referred to in the Article 38 of the Statute of the International Court of Justice in order to achieve an equitable solution'*. Article 76 of the same law, which defines the continental shelf, ends with a provision stating: `*The provisions of this article are without prejudice to the question of delimitation of the continental shelf between States with opposite or adjacent coasts'*. It is quite clear that in such delimitations the dominant principle ought to be `an equitable share' taking into account of all the relevant principles of the Law of the Sea, as far as possible. All of the international courts which have faced delimitation problems declared that `delimitations have to be effected in accordance with equitable principles, or equitable criteria, taking into account of all the relevant circumstances, in order to achieve an equitable result'.

Relevant circumstances to be taken into account could be geographical, geological, economical, political and others. Circumstances relevant in the Aegean delimitation case are briefly discussed below. It has to be emphasized that this discussion by no means covers all of the relevant factors.

It is accepted that geographical features are at the heart of the delimitation process. Aegean sea is a semi-enclosed sea forming a part of the Mediterranean sea which is, itself a semi-enclosed sea. It is surrounded by, only two states, Turkey and Greece. It is a rather shallow sea, exceeding in depth 1000m, only in very limited areas. In no place it is wider than 200 miles. Numerous islands occur, distributed throughout Aegean sea. Most of them appurtenant to Greece, even those situated very close to Turkish mainland. In this geographical context Turkey and Greece are in a position, both opposite and adjacent. In short, with this peculiar geography, Aegean constitutes a **unique case** in continental shelf subject.

The institution of the continental shelf has arisen out of the recognition of a physical fact and the link between this fact and the law. This physical fact is the geomorphological character of continental shelves which make them to be considered as an extension of the land-mass. The 1945 Truman Proclamation on the Sea Bed, which is a landmark in the evolutionary trend towards wider coastal jurisdiction, clearly aims utilization and conservation of the resources of the continental shelf, since these resources frequently form a seaward extension of a pool or deposits lying within the land-mass of the coastal state. This geological aspect of the continental shelf issue is a fundamental part of it. This reality is

reflected in the judgment on The North Sea Continental Shelf Case, stating that *`The rights of the coastal state in respect of the area of continental shelf that constitutes a natural prolongation of its land territory into and under the sea exist* ipso facto (by the fact) *and* ab initio (from the beginning), *by virtue of its sovereignty over the land, and as an extension of it in an exercise of sovereign rights for the purpose of exploring the seabed and exploiting its natural resources'*. In the same judgment Court, also stated: *`The continental shelf of any state must be the natural prolongation of its land territory and must not encroach upon what is the natural prolongation of the territory of another state'*. This statement, together with the preceding one, attribute a geomorphological identity to the continental shelf notion.

Aegean sea has not a single, uniform-looking shelf. In the Aegean, both Turkey and Greece have pronounced submerged prolongations of their land territories (Figure 1). These submerged parts form natural prolongations of each state, therefore they must not be encroached by continental shelves of each other. These separate natural prolongations are also delineated by the geological characteristics of the Aegean sea area. They are covered by a rather thick sediments of Miocene and younger ages, which form the only potential for oil and gas productions. The area between these prolongations opposite to each other, is heavily tectonized, hence unsuitable for oil or gas accumulation. These deeper areas of the Aegean sea are surface manifestations of deeper geological phenomena, such as crustal thinning, and related extensions. They do not result from surficial erosion.

In a continental shelf delimitation affair, relative lengths of the relevant coastlines of the parties involved, have an important influence on the partitioning of the shelf area between the parties. The process is not the equal proportioning of the shelf between the parties. But, court, always make a proportionality test between the areas assigned to parties and the relevant lengths of the coastlines. This proportionality test has become a fundamental test to check the results of a delimitation process in order to see if a balance of equities has been reached. Courts expressed this opinion on several occasions by formulating as *`.....the element of a reasonable degree of proportionality, which a delimitation carried out in accordance with equitable principles ought to bring about between the extent of the continental shelf areas appertaining to the coastal state and the length of its coast...'*. The use of coastal lengths as a means to test equitable nature of a delimitation is based on the principle that *`coasts generates the right for continental shelves'*. In this context lengths of the relevant coasts are measured in the general directions of the coastlines. Measurements in the Aegean sea show that ratio of lengths of relevant coasts of Turkey and Greece varies between 33 to 44% for Turkey, and 67 to 56% for Greece, depending to various adoptions of general directions and whether the northern coast of the island of Crete is included or not.

In the calculation of proportionality it is customary and also rational to include the area covered by the territorial water in the continental shelf area. In this respect Aegean sea is unique, about 30% of the sea area shallow than 200m has

already being covered by 6 mile territorial waters of Greek islands. Percentage of the area less than 200m deep, having high sea status and being subject to continental shelf delimitation is only 38% of the total shallow sea area. It is clear that this fact constitutes a special circumstance to be taken into account, in order to reach an equitable solution in a delimitation process.

Spatial equity besides its economical component has political components including considerations of security, navigation, environment etc. having vital interests for the states which are parties of the delimitation operation. This balance of equities has been established in the Aegean sea with the present status quo which covers the existing conditions for territorial waters and the high sea area. A delimitation of a maritime boundary in the Aegean will be a legal-political operation which has to consider this balance of equities. Figure 2 illustrates Greek claim for the continental shelf boundary between Turkey and Greece. An examination of figures 2 and 3 show that the present high sea areas, which are an integral part of the existing balance of equities between Turkey and Greece, are considered as the natural prolongation of the Greek mainland.

It is clear that the Aegean sea area constitutes a unique and delicate case for the delimitation of maritime areas, and besides legal concerns, require careful examination of all valid considerations of both, political and economic character.

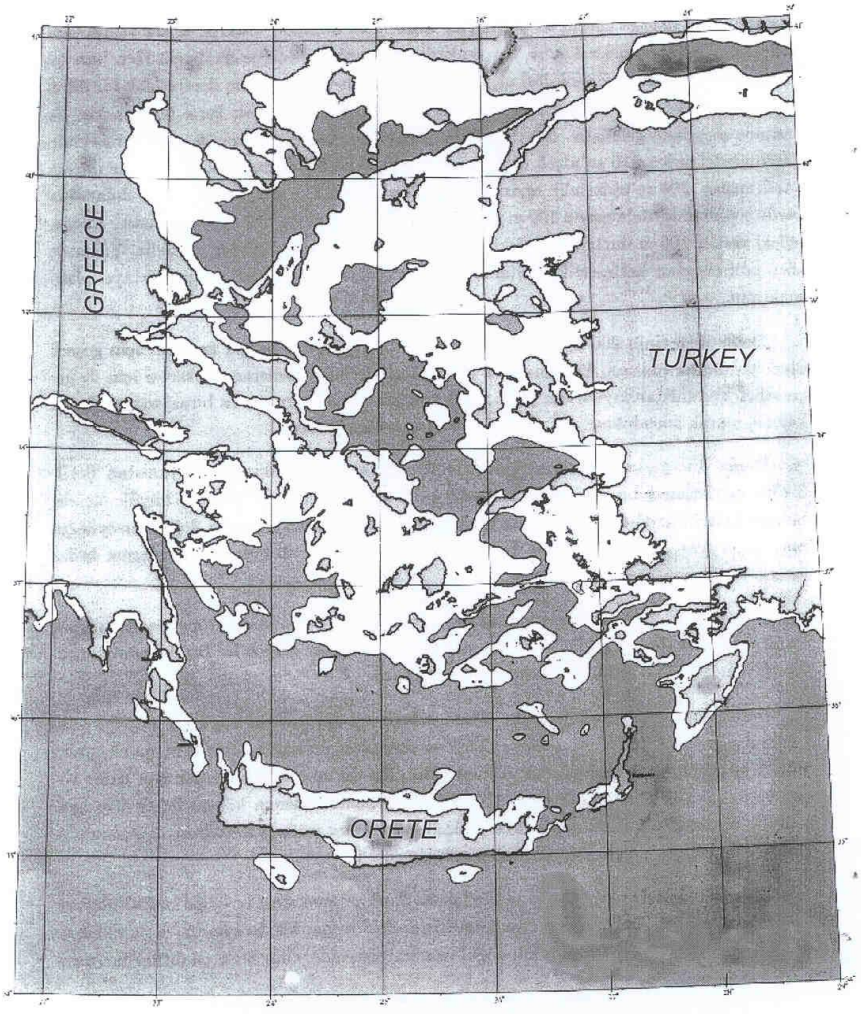


Figure 1. Configuration of land-masses in the Aegean sea area for a sea level 400 m lower than the present one. Blank areas at both sides of the narrow sea belt are emerged prolongations of the mainlands. Notice that emerged prolongation of the Turkish mainland extends near to Greek mainland in the central part of the Aegean, while the contrary is the case for the southern Aegean sea area.

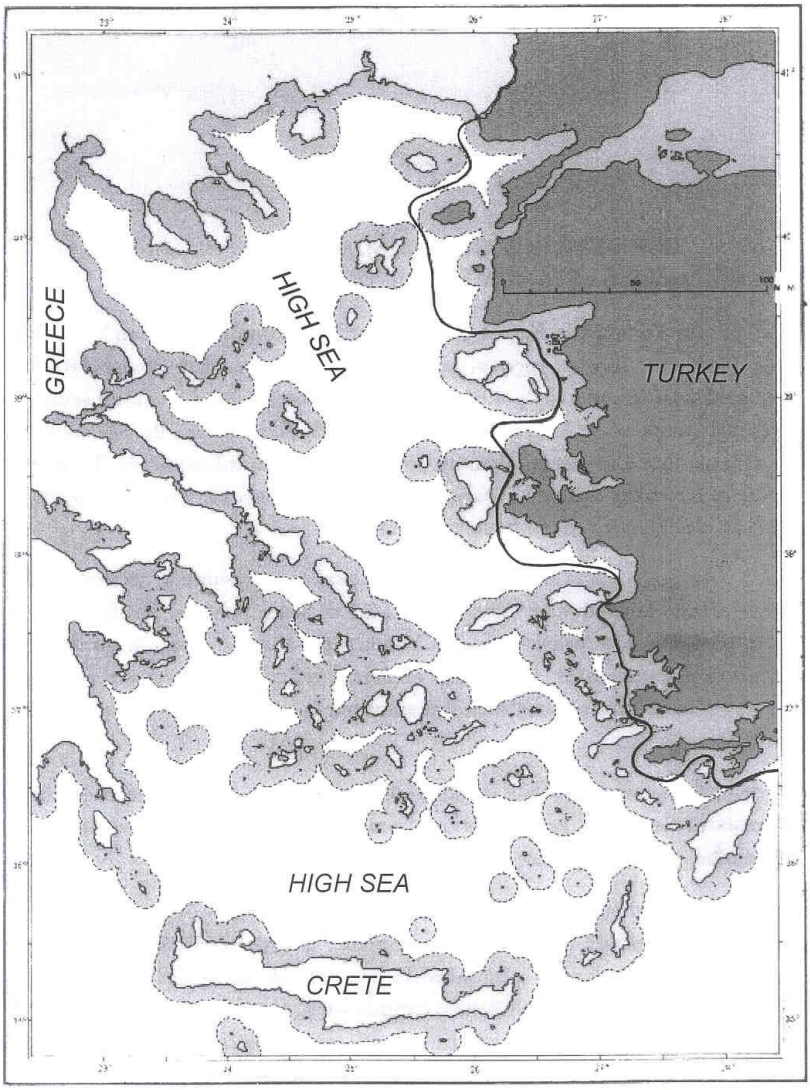


Figure 2. Greek claim of the continental shelf boundary (solid thick line near the Turkish mainland) in the Aegean sea. The boundary has been placed between eastern-most Greek islands and the Turkish mainland.

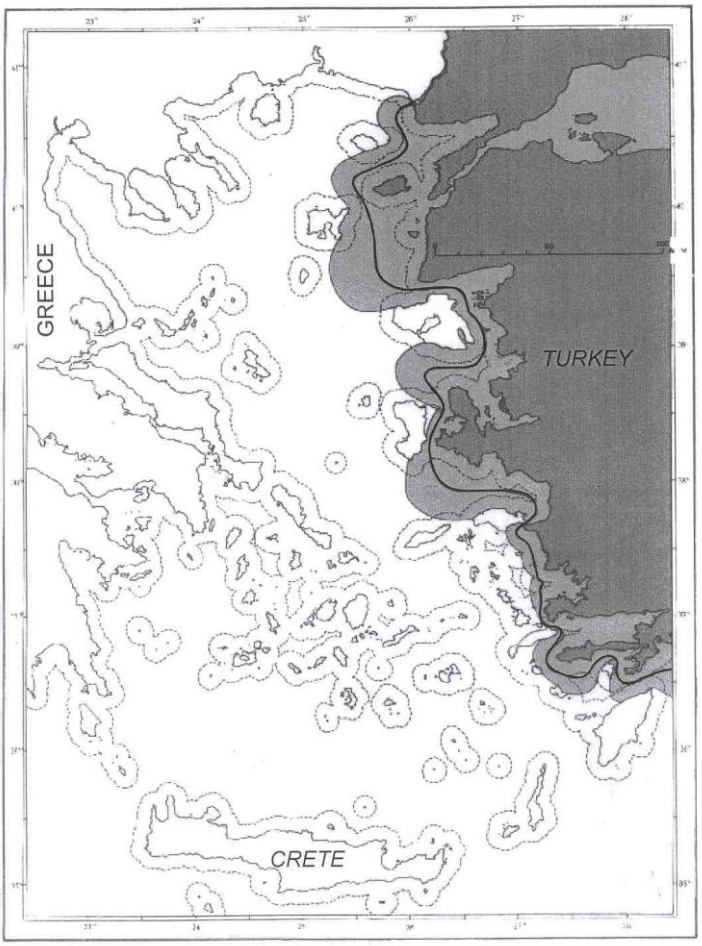


Figure 3. A hypothetical continental shelf boundary between Turkey and Greece if 90% of Aegean sea area were Greek land-mass instead of sea, and the sea area were limited to a narrow belt (medium-gray colored belt) in front of Turkish coast.

Notice that the boundary line is the same as in Figure 2. This figure illustrates the Greek conception that present high sea areas in the Aegean are parts of the legal natural prolongation of the Greek mainland.

GEOLOGY AND PROSPECTIVITY OF THE NORTH AEGEAN OFFSHORE (Western Turkey)

Metin YAZMAN [1], Zeki BATI [2], Haluk İZTAN [2], İzzet ÖZDEMIR [1],
Murat YILMAZ [1], Aladdin SAYILI [2], Muzaffer SIYAKO [1]

[1] Turkish Petroleum Corporation, Exploration Group.
[2] Turkish Petroleum Corporation, Research Center,
2. Cad. No:86 ,06520 Esentepe, Ankara, Turkey

SUMMARY

The North Aegean-Island Region is located in between Saroz and Edremit Bays , south of the Thrace Basin . The Tertiary rocks cropping out in the region were deposited in two major basins controlled by different geological events. The first one is compressional fault controlled basin formation right after the continental collision due to subduction of Intra-Pontid ocean. The second major event was regional N-S extension and related basin development, volcanism and dextral faulting initiated in Late Miocene. The Saroz and Edremit depressions are the major bathymetrical features in the North Aegean offshore. The Saroz depression in the north of study area is a narrow and elongate trough (basin) with 600 m depth and 20 km length along North Anatolian Fault extending from Saroz Bay to Greece. The second important bathymetric feature is E-W trending trough that widens westward and connects to Edremit Graben in the east. These two troughs are transtensional basins controlled by NAF and its splays. These basins are the major kitchen areas with extremely high geothermal gradients for source rocks that are immature in the outcrops.

The basement is composed of ophiolitic mélange and related rocks of Upper Cretaceous Intra-Pontid suture belt. The Lower Eocene to recent sediments, up to 2000-4000 m thick, overlie the basement and include various sequences that have been differentiated from each other by onlaps and erosional truncations. The sediments in the post collision molasse basins reflect two regressive sedimentary systems formed during the first major geotectonic episode:

I. Depositional episode of Early Eocene,
II. Depositional episode of Middle Eocene-Early Miocene (?)

Early Eocene sequence shallows upwards and grades into deltaic and fluviodeltaic sediments deposited in a deep and narrow basin bounded by extensional faults which developed in a compressional system. During this time, proksimal turbiditic marine fans and prodeltaic shales of Hamitabat Formations were deposited. These are major gas reservoir and source rocks of the Thrace Basin. These prodelta shales grade upward into fluvial and flood-plain topset deposits (Fıçıtepe Formation) formed during the uplift of fault blocks. Transgression is

widespread in the second depositional episode, initiated in Middle Eocene. The Soğucak Formation, deposited during this transgression is characterized by coastal fan and reefal facies in basin margins, and neritic and reefal sediments in intra-basin highs while it is characterized by shallow marine clastics in other areas. The shallow marine carbonates grade into siliciclastic turbidities (Ceylan Formation) due to deepening of the basin in Late Eocene. The pyroclastic rocks (ash-flows, air-falls) erupted along the basin bounding faults were interbedded with these turbidites. The turbiditic succession grades into a deltaic system due to the regression controlled by basin shallowing started at the end of Late Eocene . The pro-delta shales of 500-1000 m thick Mezardere Formation (Early Oligocene) grades into 350-500 m thick delta front sands of Osmancık Formation. The Osmancık Formation is overlain by flood-plain and coal-bearing (lignite) lacustrine sediments of Late Oligocene-Early Miocene Danişmen Formation in Gökçeada and in the central part of the Thrace Basin. This unit of Maykop age penetrated partly or completely in offshore exploration wells İgneada, Karadeniz and Limanköy is known as the most important source and reservoir unit deposited from Carpatians to Caspian Sea in Para-Tethys when the Pontids were emerged. During the deposition of Danişment Formation marine environments gradually changed into continental regime due to compressional tectonics which caused uplift and basin filling in the region. The Istranca Massif was progressively uplifted and underwent erosional truncation by means of compressional tectonics. The detritus derived from the uplifted blocks filled the Hayrabolu trough in the south. In the mean time, continental crust in Biga Peninsula shortened and thickened, and the lower parts partly melted leading to prevailing core-complex processes. This was ideal time for ductile deformation to develop which occurred during Late Oligocene to Early Miocene? time. Following deformations were rather brittle in nature. Some of the old extentional faults (Kuzey Osmancık and Terzili faults) inverted at that time. The hydrocarbon generated during this episode when the burial depth increased, migrated and trapped in clastic reservoirs and in compressive structures (The Ceylan, Mezardere, Osmancık and Danişmen formations) and in reefal facies of the Soğucak Formation formed in basin margin and intrabasinal highs draped by Ceylan shales. The crustal thickening and core-complex development continued due to continental collision followed by thermal doming and orogenic collapse in Biga Peninsula, causing to the development of NE trending basins in Late Oligocene-Middle Miocene. During the first Tectonostratigraphic unit fluvio-lacustrine sediments were deposited in the NE trending graben in Early-Middle Miocene . The calcalkalin volcanism (20-15 my), granite intrusion and single volcanoes occured in horst blocks (Gökçeada, Bozcaada volcanics, and Hisarlıdağ volcanics in SE Thrace) . Lateral fans and lacustrine fan deltas deposited in basin margins, while pyroclastics interbedded with fine-grained lacustrine shales deposited in the deeper parts. The dark colored, laminated bitumen shales are mature in the outcrops or early mature in some areas carrying moderate to well source rock characteristics (TOC 1.8 %; Tmax 440 C; and Type-II kerogene). These NE trending graben

basins containing source rocks and prograding coastal reservoir rocks are very important for oil exploration in the Aegean offshore, including Edremit Bay.

The Aegean area was effected by regional extensional tectonics in Late Miocene with lesser amount of volcanic activity. NE and EW trending basins (cross grabens) were formed and controlled by roll-back processes of subduction. The Çanakkale-Enez basin was developed in this time. Additionally, alluvial fan deposits and near-shore beach sands were deposited at the same time in the NE-SW faulted graben margins. These facies later overlapped the footwalls as a result of the decrease in fault activity at the basin margins due to sediment supply being greater than subsidence rate (Gazhanedere-Kirazlı and Alçıtepe-İlyasbaşı formations).

The area around Gökçeada-Bozcaada was still a continental near-shore depositional site during Late Miocene. In the west of Gökçeada-Bozcaada line organic-rich marine evaporites were deposited (Kavala-Prinos offshore field). As a result of sea level rise Gelibolu Peninsula were invaded by marine waters leading to the development of widespread lakes in the previously continental environments of Western Anatolia. Extensive lake carbonates were widely deposited on the old horsts and in the grabens. At the end of the second phase of extension, all the Mediterranean and Aegean Sea region was completely dried up as a result of well-known Messinian salinity crisis , during which some local evaporites were deposited in the study area. Finally, as a result of the extensive erosional phase, all Western Anatolia was highly peneplained. The Alçıtepe Formation composed of lacustrine limestones mentioned above is the unique lithology underlying the peneplain surface. This unit is the key horizon for the seismic interpretations on the land area. During the final phase of the N-S extension in Late Miocene-Pliocene period dextral North Anatolian Fault (NAF) and its splays also affectted the region. Then, all the NE oriented basins were superimposed by E-W trending newly-formed grabens and the position of the present shoreline of Western Anatolia was almost formed. Conglomaretes and sandstones of lateral fan and fluvial origin were deposited along the basin boundary faults while lacustrine carbonates were deposited in the distal sites of these transtensional basins. In the mean time basalt lavas were erupted along the same basin boundary faults. Divergent and convergent splays of the dextral NAF were formed in this period. The Saroz Bay and its western extension (northern Aegean depression) is a transtensional basin between Saroz and Ganos faults. Whereas, the area between Gelibolu Peninsula and Gökceada is a transpressive structure (dextral convergent splay) between Ganos and Anafartalar faults. The Anafartalar Fault, an Early Eocene extensional fault inverted during Pliocene.

Four different types of basins which developed partly on top of each other have been here described in the study area. These are namely:

-The Thrace Basin (Middle Eocene-? Early Miocene)

- Küçükkuyu-Bergama Basin (NE trending, Early-Middle Miocene)
- Enez-Çanakkale Basin (NE trending, Late Miocene)

- Saroz; South Bozcaada and Edremit Basin (EW trending late Late Miocene-Pliocene)

The Lower Oligocene Mezardere Formation composed of prodelta shales is the most important gas prone source rock of the region which was not effected by the Late Oligocene-? Early Miocene erosive phase. The second most important lithostratigraphic unit having HC potential is the Early-Middle Eoceneaged Karaağaç Formation. Early-Middle Miocene Küçükkuyu Formation cropping out on the northern areas of the Edremit Bay and the Late Miocene shales alternating with evaporites in the Prinos-Kavala field of Greece are the other important source rocks of the region.

The Çandarlı oil seep, one of the 2 known seeps in the study area, is a biologically degraded, early-medium mature petroleum. It was probably generated from shale source rocks deposited in near shore, oxic marine conditions. On the other hand, biologically degraded Gökçeada oil was considered to be generated from sub-oxic, near shore-deltaic Tertiary shales. This oil is not correlateable with Thrace basin oil and was probably generated from Early to Middle Eocene-aged lithostratigraphic unit cropping out in Gökçeada.

Reservoir rocks of the area, generally have good porosity but low permeability values. The Hamitabat Formation is the most important gas reservoir in the Thrace Basin where mature source rocks are present and HC production is still continuing. Additionally, Middle Eocene-Oligocene reefs of the Soğucak Formation is the second most important petroleum-gas reservoir of the area. However, fluvial channel sandstones of Osmancık and Danişmen Formation (Oligocene-Early Miocene?), prograding lacustrine fan delta type sandstones of Küçükkuyu Formation should be also considerable as potential reservoir rocks.

Hydrocarbon exploration efforts in the offshore areas have been unsuccesful so far, because NAF has truncated the structures. Moreover volcanic domes appearing as pseudo-structures on seismic sections was another reason for unsuccesfull offshore drilling. According to our present play concept most important exploration targets are in or around the areas of transtentional basins containing source and reservoir units preserved within pre-rift sequences.

ACKNOWLEDGEMENTS

The authors thank the TPAO General Directrate and the management of the Exploration Group for allowing this publication. Thanks are also given to all exploration scientist from the Thrace Basin Project and Prof. Dr. Yücel Yılmaz (ITÜ) & his colleagues for their collaborative support.

A NEW GREEK – TURKISH DISPUTE: WHO OWNS THE ROCKS?

Ali KURUMAHMUT
Turkish Marine Research Foundation, Head of Aegean Study Group
Beykoz, İstanbul, Turkey

Turkish – Greek relations are always of great importance and high priority within the foreign policy of both countries. This importance and priority will probably continue during the coming decade. On the geographical basis Turkish – Greek relations can be divided into three main groups: Western Thrace, Aegean Sea and Cyprus. These regions constitute the source of already existing conflicts. Within this general framework, Aegean issues lie at the center of Turkish – Greek relations.

The Aegean Sea is strewn with thousands of islands, islets and rocks, most of which are owned by Greece and are very close to continental Turkey, encircling Anatolia from the north to the south as a chain. Turkey and Greece agree only on a few things in the Aegean Sea. Among others, they disagree on the title to some islets and rocks. This further exacerbates the already chaotic relationship between the two countries. On the other hand, there are many islands, islets and rocks which are not ceded to Greece by the relevant treaties. Hence these issues raise the Aegean up to the special status among other seas of the world.

The issue is deep rooted in the history and is complicated by the geography. Therefore, without being sufficiently acquainted with the geographical and historical facts of the Aegean which has peculiar characteristics, it is difficult to analyse and evaluate the Aegean disputes and their impacts on the Turkish – Greek relations.

At a time when Greece was trying to change the status of some Aegean islands and islets its own favour by creating a *de facto* situation through the opening of these formations to settlement in November 1995[37], a Turkish ship going aground in the Aegean near Kardak Rocks on 25 December 1995 exposed territorial disputes between the two states in Aegean[38].

[37] In a news printed in weekly 'To Vima' newspaper on November 26, 1995, it was reported that 9 islands had been opened to inhabitancy. Under the headline of ' There is much demand to the uninhabited islands in Aegean Sea' in the newspaper ' Ta Nea', leaned to Greek Government. The same subject was brought again to the agenda and the number of islands which were going to be opened to inhabitancy had now been reported to be 10.

[38] The Turkish Ministry of Foreign Affairs rejected the Greek claims regarding Kardak Rocks by responding the same day to the diplomatic note dated December 26, 1995 of Greek Embassy in Ankara and sent to The Turkish Ministry of Foreign Affairs on December 29, 1995. Another diplomatic note dated January 9, 1996 was given to The Turkish Ministry of Foreign Affairs on January 10, 1996. By the Permanent Undersecretary of Greek Ambassador to Turkey. This diplomatic note, claims that 'Kardak Rocks' had been turned over to Greece in the light of 1947 Paris Peace Agreement by the reason of decadency with respect to 1932 regulations (Contract and Technicians Record).

The fact that before and after this accidental event purported to extend further her sovereign rights which had been bestowed on her by international treaties. In order to possess all the islands, islets and rocks situated beyond three miles from Anatolia, have introduced a new aspect to the Aegean disputes thus making them more complicated.

The disputes becomes all the more complicated by the fact that the geographic formations, the ownership of which has not been ceded to Greece will have their own maritime areas such as territorial sea, contiguous zone, exclusive economic zone and continental shelf, depending on whether or not they are inhabited. Besides, it is clear that each of those geographical formations shall have its own air space with potential adverse effects on the air space conflicts in Aegean. Therefore, clarification of the territorial status of disputed land areas in Aegean is indispensable for the conflicts on maritime jurisdictional areas and air space can be resolved only after that territorial status is correctly laid down.

A general classification of disputes between Turkey and Greece concerning Aegean Sea is illustrated in the annexed table.

After the inclusion of Girit (Crete) Island in the Ottoman territory in 1669, all Aegean islands formerly under the control of Genoese, Venetans and the Knights were subjected to Turkish rule and the Aegean turned into an Ottoman internal sea. The Ottoman sovereignty over the islands had continued uninterruptedly until the recognition of the independence of Greece by Ottoman State on 24 April 1830.The Ottoman sovereignty over the islands was undisputed and in full compliance with the rules of legitimacy of the period. Accordingly, the islands left to Greece since her foundation are only the ones which have been transferred to her, in compliance with international law, from the sovereignty of the Ottoman State, and subsequently that of the Republic of Turkey as the successor to the Ottoman State.

The Ottoman State was forced by Britain, France and Russia to recognize the independence of Greece. It is observed that Greece, supported by the Three Powers, started following an expansionist policy to realize her ideal of Great Greece from the date of her establishment. She has watched for the crises and the hard times of Ottoman State in order to take advantage of them, since all her targets had been within the Ottoman territory.

Northern Sporade and Cyclade Islands on the west of Aegean Sea were left to Greece at her foundation. The Ottoman / Turkish sovereignty over the rest of islands of the Aegean continued without any exception until before the Balkan War.[39] 16 islands in total within Menteşe Islands region were occupied by Italy during the war of Tripoli.[40] However, these islands remained under the Ottoman sovereignty, for Italy undertook by Ouchi Peace Treaty to withdraw without any condition from the islands.

[39] Prime Ministry Ottoman Archives Department, Maps Number 54-55.
[40] Prime Ministry Ottoman Archives Department, Ministry of the Interior, Political Affairs Department, Documents Numbered 75-12/1-17, lef 2, 10, 12, 13, 17, 21, 24, 27/1.

The primary target of Greece at the Balkan War was the conquest or capture of the Ottoman islands in Aegean Sea. It then occupied Taşoz (Tasos), Semadirek (Samothrace), Gökçeada (Imbros), Bozcaada (Tenedos), Limni (Lemnos), Bozbaba (Evstratios), Midilli (Lesvos), Sakız (Chios), İpsara (Psara), Sisam (Samos) and Ahikerya (Ikaria)[41]. Thus after the invasion of certain islands by Italy a greater number of Eastern Aegean islands went under the Greek invasion. However, the Ottoman State never acknowledged the Greek invasion of the islands. She closely watched those two states' acts and activities in the islands. She took every opportunity on international platforms to challenge the *de facto* status quo and asserted her sovereign rights over the islands.

In order to determine which islands in Aegean belong to Greece, one should ascertain which islands have been transferred from the sovereignty of Ottoman Empire / Turkey to Italy and Greece in the first place, which would, in turn require primarily the examination of the treaties governing legal status of the Aegean islands. The islands over which Ottoman / Turkish sovereignty has been terminated, and ceded to Greece and Italy, are only the ones clearly tall within the scope of relevant international treaties[42], subject to the conditions stated in their provisions, that is, only the ones mentioned by name and defined unequivocally. Accordingly:

The Ottoman State renounced all her sovereign rights over Girit (Crete) Island in favour of the Allied Balkan States by Article 4 of the Treaty of London.

The Ottoman State undertook by Article 5 of the Treaty of London and Article 15 of the Treaty of Athens to confer on the six Great Powers the right to determine the fate of all the Aegean islands except Girit (Crete) Island.

The Six Great Powers decided, pursuant to Article 12 of Lausanne Peace Treaty States concluded by their decision communicated to the Greek Government on 13 February 1914 and confirmed by, that all Aegean islands under Greek occupation except Gökçeada (Imbros), Bozcaada (Tenedos) and Meis (Castellorizo, Megisti) islands which should be returned to the Ottoman State should be ceded to Greece on the condition that they should be demilitarized.

The fundamental documents which would enlighten the current controversial status of Aegean islands are Articles 6, 12, 15 and 16 of Lausanne Peace Treaty and Article 14 of Paris Peace Treaty. The provisions of Lausanne

[41] Prime Ministry Ottoman Archives Department, Ministry of the Interior, Political Affairs Department, Documents Numbered 112-10/10-1, lef 7, 13/1, 14, 19/1, 26, 28, 35, 37, 112-10/10-5.

[42] Those treaties determining the legal status of Aegean Sea are:

- Ouchi Peace Treaty of 18 October 1912,
- Treaty of London of 17 / 30 May 1913,
- Treaty of Athens of 1 / 14 November 1913,
- Decision of the Six Great States communicated to the Greek Government on 13 February 1914,
- Lausanne Peace Treaty of 24 July 1923,
- Paris Peace Treaty of 10 February 1947.

Peace Treaty stipulating the cession of Eastern Aegean islands to Greece from Turkish rule are Articles 12 and 15.

Article 12 of Lausanne Peace Treaty has two different regulations, one of which concerns the islands which Turkey has ceded, while the other deals with the ones which were confirmed to remain under Turkish sovereignty.

Islands which Turkey has ceded are fixed partly by naming them and partly by refering to the decision of Six Great Powers. The Greek sovereignty over the islands mentioned by name (Semadirek [Samothrace], Limni [Lemnos], Midilli [Lesvos], Sakız [Chios], Sisam [Samos] and Ahikerya [Ikaria]), and over the ones not enumerated in the article, but transferred by the decision of Six Great States for being under Greek occupation by the date 13 February 1914, has been recognized by Turkey on the condition that the islands in question should not be fortified or used for military purposes.

Gökçeada (Imbros) and Bozcaada (Tenedos) being under Greek occupation on 13 February 1914, and the Rabbit Islands for their strategic position at the entrance of Çanakkale Strait remained Turkish sovereignty as it is confirmed by Article 12 of Lausanne Peace Treaty naming them one by one. Also Turkish sovereignty over the islands within three miles of Asiatic coasts is corroborated.

The sovereignty rights over thirteen islands mentioned by name in Article 15 of Lausanne Peace Treaty, (Batnoz [Patmos], Lipso, Leryoz [Leros], Kilimli [Kalimnos], İstanköy [Kos], İncirli [Nisiros], Sömbeki [Simi], İlyaki [Tilos], Herke [Kalki], Rodos [Rhodes], Kerpe [Karpatos], Çoban [Kasos] and İstanbulya [Astipalaia]) and over their dependent islets, together with Meis (Castellorizo) Island were ceded to Italy. Italy transferred the above-mentioned fourteen islands, including Meis (Castellorizo), and their adjacent islets to Greece by Article 14 of Paris Peace Treaty.

An assumption that Turkish sovereignty over the islands beyond three miles from Anatolia has terminated, is inconsistent with the text and spirit of Lausanne Peace Treaty, with the interpretation of treaties in general and with the rules of international law requiring explicit declaration of consent for the cession of territorial sovereignty. Such a conclusion is also incompatible with the rationale of that principle within the context of Lausanne Peace Treaty.

The islands over which Turkey has renounced all her rights and to which she has ceded title by Lausanne Peace Treaty are the ones ceded to Italy together with their dependent islets, and those under the Greek occupation by the date 13 February 1914 and ceded to Greece mentioning by name. Turkish sovereignty is reaffirmed over the remaining islands which have already been under Ottoman / Turkish rule. Article 16 of Lausanne Peace Treaty simply supplements the arrangements concerning the status of the territories in Articles 12 and 15 of the same Treaty. The interpretation of Article 16 of Lausanne Peace Treaty as a total

renunciation despite Articles 12 and 15, will be contrary to the rules of international law on the transfer of sovereignty[43].

After the Lausanne Treaty, two separate works were done between Turkey and Italy in connection with the territorial status of islands, islets and rocks in the areas of Meis and Menteşe Islands region. At the end of the last of those works the Ankara Agreement was signed on 4 January 1932. Likewise on 28 December 1932 the representatives two states drafted a Process Verbal in Ankara whereby they purported to leave to Italy many islands, islets and rocks including Kardak, as to which Article 15 of the Lausanne Treaty did not provide for any disposition.

However Process Verbal of 28 December 1932 did not become law because it failed to go through the legal procedures in order to acquire the character of treaty for the purpose of national and international law. The Process Verbal in question was not signed by the duly authorised representatives was not ratified by Turkish Grand National Assembly as it was requires by the Constitution, was not registered with the League of Nations. So it has never entered into force. It is well known that a Process Verbal of similar character had been prepared on 18 June 1931 by Turkish and Italian technicians, before the Protocol dated 4 January 1932 arranging the status of Castellorizo Region and was signed by the authorised representatives of states, and thus went through legal procedures necessary for its validity. This Process Verbal regarding Castellorizo Region:

- was signed in Ankara on 4 January 1932 by Turkish Minister of Foreign Affairs and the Italian ambassador to Ankara;
- went through the ratification procedure required by the Laws of the two Powers;
- was put into force by the exchange of letters concerning the ratification and
- was registered with the League of Nations Secretariat-General. Consequently, it gained the character of a valid document to be set forth in international forums.

On the contrary the signing, ratification, entry into force and registration procedures were not fulfilled for the Process Verbal of 28 December 1932. For a text to gain the character of an annex of a valid international treaty or protocol, it should proceed the same phases as the treaty itself. It is possible for a supplementary document, which lays down the details of a valid treaty to enter into force in a simpler way. However, either an explicit authorization should exist in the primary treaty text or it should be perceived that the intention of the parties is directed thereto. There is no evidence proving that the Process Verbal of 28 December 1932 is a supplemental to the Protocol of 4 January 1932, when analyzed. If it had been so, Turkish Grand National Assembly would have ratified both at the time when the ratification procedure was accomplished on 14 January

[43]For detailed information, see, Kurumahmut, Ali, Ege'de Temel Sorun - Egemenliği Tartışmalı Adalar, Ankara 1998, Türk Tarih Kurumu (Turkish History Association) Publication.

1933 by the law no. 2106. The Process Verbal, instead of being an annex of existing treaty, has the position of the minutes of technicians' meeting, with the character of preparatory activity of a treaty. When the scopes of both the Protocol of 4 January 1932 and the Process Verbal are compared, this character of the latter is plainly revealed. As the Protocol of 4 January 1932 is arranging the territorial status of only the Castellorizo Region, the minutes of the meeting of 28 December envisages the determination of maritime jurisdictional areas in a vast zone in Dodecanese except for Castellorizo Region. It may be possible for the details of a treaty of a broader scope to be regulated by supplementary documents. But one can not assume that, a treaty of a broader scope concerning the cession of sovereignty is an annex of a treaty of a much more limited area. The Process Verbal of 28 December 1932 in its existing position, is not a valid treaty as Greece asserts. The minutes in question have no value than being an inconclusive preparatory activity of an international agreement, which failed to come to fruition[44].

The contacts and correspondences which took place between Turkish Ministry of Foreign Affairs and Italian Embassy in Ankara, between January 4, 1933 and January 8, 1937, shows clearly that this document is neither treaty nor an annex to the convention dated January 4, 1932.

The letter written by Turkish Minister of Foreign Affairs Tevfik Rüştü to Italian Ambassador to Ankara Mr. Aloisi on January 4, 1932 and also the same dated reply by Mr. Aloisi, show that December 28, 1932 dated document is a mere minutes of the technicians meeting which was held in order to prepare a possible treaty.

Finally and repeatedly; there is no political boundary over islands, isles, and rocks including Kardak in Aegean Sea which gives Greece the right of sovereignty.

TURKISH – GREEK DISPUTES IN THE AEGEAN SEA

ITEM	CHARACTER OF THE PROBLEM	ISSUES	SUB-ISSUES	PERCEIVED AS A PROBLEM BY
1	The Fundamental Issue	Sovereignty over the islands	-	BOTH STATES

[44] For detailed information, see, İnan, Yüksel-Başeren, H. Sertaç, Status of Kardak Rocks / Kardak Kayalıklarının Statüsü, Ankara 1997.

2	Major Issues	The Territorial Sea Issues	Determination of side boundaries of the territorial sea	BOTH STATES
3			The extension of the territorial sea beyond 6 miles	TURKEY
4		Delimitation of the Continental Shelf (and the Exclusive Economic Zone)	Determination of the side boundaries	BOTH STATES
5			Determination of southern boundary	BOTH STATES
6			Delimitation	BOTH STATES
7		Air Space Issues	10 mile Air Space Claims of Greece	TURKEY
8			FIR (Flight Information Region)	TURKEY
9		The remilitarization of the Demilitarized Islands	-	TURKEY
10	Other Issues	Delimitation of the SAR (Search and Rescue) Areas	-	TURKEY

11		Existence The Aegean Army of Turkish Ground Forces	-	GREECE

THE AEGEAN SEA BETWEEN GREECE AND TURKEY: THE KARDAK ROCKS AND THE OTHER ISLANDS NEVER GIVEN

Anna Lucia VALVO
Studio Legale Sinagra - Sabatini - Sanci, Rome, Italy

In accordance with international law, the Turkish sovereignity over the Kardak rocks is incontestable. The Kardak rocks lie 3.8 nautical miles off the Turkish coast. In confirmation of turkish historical connection with the Kardak rocks, its important to say that the title deed of the rocks are registered on the Karakaya village of Bodrum prefecturate, Muğla province. For years Turkish fishermen have engaged in fishing activities around this rocks without any problem. Turkish ship have navigated freely through the waters surrounding them.

Never Turkey, before 25 december 1995, has had objection about the own sovereignity over Kardak rocks.In spite of this, Greece has violated turkish sovereignity by hoisting its flag on the mentioned above rocks, and by placing its troops on one of them.Preliminarily it's necessary to say something about the biginning of the, socalled, Kardak rock dispute.

The dispute started by pure coincidence when on 25 December 1995 a turkish bulk carrier named "Figen Akat" ran aground on Kardak rock. In the following weeks there was not any reaction by Greece. But, almost a month later, exactly on 20 Januar 1996, the things changed.

In fact, on 20 January 1996 the incident was revealed into the Greek peiodical "Gramma" wich is famous to be close to the Greek government. After this, a media campaign was launched by the Greek press with nationalistic overtones. In this moment begin the absurd claims of Greece over the Kardak rocks. Afterwards, the Mayor of Kalimnos, a Greek island wich is 5.5 nautical miles away from the Kardak rocks took upon himself to come to the rocks on 26 January and raise the Greek flag.

Notwithstanding this provocative action, the official turkish reaction was very moderate and well - balanced. Nevertheless some turkish journalists hoisted the turkish flag over Kardak rocks the day after. The Greek reaction was very unexpected. In fact Greece taken a decision to send troops to the Kardak rocks. With this act of aggression against turkish sovereignity, started the Kardak dispute.

Indeed, although international treaties lawfully establish wich islands and islets are subjected to Greece sovereignity; Greece claims rights and sovereignity not only over Kardak rocks, but also over other islands and rocks that are beyond three miles of Anatolia's cosat in addition to the island and islets granted to Greece by international treaties.

In a few words, Greece considers the Aegean Sea as a Greek lake. Greece avails, wronfully, itself of the Procès Verbal, signed on 28TH of Decembr, 1932, in order to assert its own sovereignity on the said rocks.

In this Procès verbal were a binding document then Greece, within the Dodecanese Region, would gain more rights than international treaties recognize it.

The position of Turkey on this matter is very clear: Turkey does not object against the title of sovereignity set up by Greece over those islands, islets and rocks given to this Country by provision of international treaties; but Turkey does not accept other Greek claims that are not grounted on provisions of lawful international treaties. This problem is related to the lack of any agreement concerning the delimitation of maritime boundaries between Turkey and Greece in the Aegean Sea.

The settlement of Kardak rocks is very important for both States. Contrary to the greek point of view, Turkey does not recognize legal and binding effects to the said Procès Verbal of 1932. According to Turkey's position, the Lausanne Peace Treaty, signed on 24TH of July, 1923, is the only relevant document about this matter.

In fact, 13 islands, namely Stampalia (Astropalia), Rhodes (Rodhes), Calki (Kharki), Scarpanto, Casos (Casso), Piscopis (Tilos), Misiros (Nisyros), Calimnos (Kalymnos), Leros, Patmos, Liposos (Lipso), Simi (Symi), Cos (Kos) plus the Castellorizo island within the Dodecanese Region, were given to Italy with this Treaty.

Italy gave to Greece the mentioned islands and islets with the Paris Peace Treaty, signed on 10TH of february, 1947.

The above mentioned Procès Verbal, used by Greece to set up its sovereignity claims, is just the minute, drawn up in Ankara, of the negotiations held among turkish and italian tecnicians concerning the partition of maritime area between dodecanese Region and Anatolia; but this document was not signed by the involved States and, consequently, it did not gain legal effect since that it was not ratified.

The greek claims grounded on this Procès Verbal are without legal basis just because the Procès Verbal is not an international treaty.

Well, Greek thesis is the following: like said before, Greece claims that the Procès Verbal of 28 december 1932 is a valid document having the force of a treaty. Cosequently, since the islands of Dodecanese Region are ceded to Greece by 1947 Paris Peace Treaty, the rights wich Italy acquired by the Procès Verbal of 28 December 1932 passed on Greece. However, as everybody knows, the Procès Verbal under discussion was never signed by the States involved and didn't gain legal validity since it was not ratified.

So, the greek claims grounded on this Procès Verbal are without legal basis just because the Procès Verbal is not a treaty.

Greece asserts also that only the islands situated at less than 3 miles from Anatolia have been left to Turkey. Exactly, the distance from Kardak rocks to Anatolia is more than 3 miles!

Moreover, Greece asserts that the sovereignity over the Dodecenese Region is totally ceded with Lausanne Treaty before, and then with the Paris Peace

Treaty. So, in Greece opinion, Kardak rocks is under Greek sovereignuty since 1947, in spite of this, as already been pointed out, the title deed of Kardak rocks are registered on the Karakaya village of Bodrum prefecturate, Muğla province.

A further argument, which Greece uses on own's benefit. According to Greece, in fact, its sovereignity on the Kardak rocks is demonstrated by various maps prepared ether by Turkey and by other States and this rock are mentioned in numerous maps with their Greek name as "Limnia/imia".

But, Greece tries to base her soveeignity over the Kardak rocks on 28 December 1932 turkish – italian tecnical draft, and her succession of the italian titles in the Aegean Sea though the 1947 Paris Peace Treaty.

In connexion with just said, it's interesting to note that there is no mention of any "Imia Islet" in these documents. A reference was made to the Kardak rock in the 28 december 1932 document. However, legal procedures with regard to the latter werenot completed. Neither was it registered with the League of Nations.

Article 18 of the Covenant of the League of Nations reads as follow: "Every Treaty or international engagment entered into hereinafter by any Member of the League shall be forthwith registered with the Secretariat and shall as soon as possible be published by it. No such Treaty or international engagment shall be binding until so registered".

Therefore, no legally binding document exists in this respect. That Italy has approached the Turkish Government in 1937 raising the issue of ratification of the 28 december 1932 document. This is an other additional indication against its validity.

The Greek proposal submitted during the negotiations of the 1947 Paris Peace Treaty to make a reference to the 1932 documents was not accepted, and no such reference was included in the text of the Treaty.

On the contrary, the fact that Greece has approached the turkish Government in 1950 and yet again in 1953 proposing talks with a view to exchanging letters between the two Governments ascertaining the validity of the above mentioned two documents, shows that Greece also has doubts as to their international validity.

The only document that may be referred to regarding the sovereignity of Dodecanese islands is the 1947 Paris Peace Treaty. This Treaty in its article 14 enumerates those islands to be transfered to Greek sovereignity one by one. Kardal, is not mentioned among these. The Kardak formations are not islets but two rocks. They lie 5.5 miles away the nearest Dodecanese island. So they don't fit into the definition of "adjacent islets" as stipulated by the article 14 of the said Traty.

The turkish thesis is the following: the Procès Verbal of 28 December 1932, has not accomplished the legal procedures to acquire the character of a treaty. The above mentioned Procès Verbal, has not been signed by the rapresentatives duly authorised to sign, has not been ratified by Turkish Grand National Assembly, has not been registered to the League of Nations, so it has never entered into force.

The Procès Verbal of 28 december 1932, as a position of the minutes of a technicians' meeting. The Procès Verbal in its existing position, is not a valid treaty as Greece asserts. The minutes in question has no value than being an inconclusive preparatory activity of an international agreement which have been envisaged to be done.

The Procès Verbal of 28 december 1932 is an invalid document without the character of an international treaty, and Greece cannot assert any right over Kardak rocks relying on this document.

Art. 15 of Lausanne Peace Treaty arranges the status of the islands in the Dodecanese Region between Turkey and Italy: "Turkey renounces in favour of Italy all – rights and title over the following islands: Stampalia (Astrapalia), Rhodes (Rhodos), Calki, Scarpanto, Casos (Casso), Piscopis (Tilos), Misiros (Nisyros), Calimnos (Kalymnos), Leros, Patmos, Lipsos (Lipso), Simi (Symi) and Cos (Kos), which are now occupied by Italy, and the islets dependent thereon, and also over the Island of Castellorizo". No mention about Kardak rocks!

The article 12 of Lausanne Peace Treaty is the following: "… Except where a provision to the contrary is contained in the present Treaty, the islands situated at less than 3 miles from the Asiatic coast remain under Turkish sovereignity", but it is a mistaken to interpret this provision as if Turkey had renounced all the islands situated beyond 3 miles from Anatolian coasts.

Italy, has ceded full sovereignity over the 13 islands namely mentioned and their adjacent islets in the Dodecanese Region, and Castellorizo, to Greece by Art. 14 of Paris Peace Treaty of 1947 as it had been by the Art. 15 of Lausanne Treaty. In fact, the island ceded to Italy by Art. 15 of Lausanne Treaty only consist of these ones.

The Art. 14 of Treaty of Peace bettween Greece and Italy, Signed at Paris on 10 february 1947, is the following: "Italy hereby cedes to Greece in full sovereignity the Dodecanese islands indicated hereafter, namely Stampalia (Astropalia), Rhodes (Rodhos), Calki (Kharki), Scarpanto, Lipsos (Lipso), Simi (Symi), Cos (Kos) and Castellorizo, as well as the adjacent islets".

The Kardak rocks and the other islands, as everybody can see, had never given to Greece. Although it might seem that both Turkey and Greece give an excessive importance to the Kardak rocks, the statement about which States has jurisdiction on this above mentioned rocks in not all of secondary importance.

The conclusion that should be drawn from all the above mentioned problems and their consequences is clear: in order to find mutually acceptable solutions to the exixting disputes there is an absolute necessity of convincing Greece to accepte the repeated calls made by Turkey to engage some form or constructive and sincere dialogue.

As everybody knows, the Government of Turkey is ready to enter into negotiations with Greece with a view to determining the possession of small islands, islets and rocks in the Aegean.

But, the major impediment for the resolution process is the attitude of Greece to consider Aegean Sea as a Greek lake and to try to close it to the other riparian state, that is Turkey.

SOME REFLECTIONS ON THE INTERRELATION OF THE AEGEAN SEA DISPUTES

Sevin TOLUNER
University of Istanbul, Faculty of Law, Turkey

Anyone interested in the law of the sea has unavoidably became acquainted by now with the Aegean Sea disputes between Greece and Turkey. And yet, the nature of this problem continues to be the most controversial issues between these two States.

For the Greek Government the sole question to be discussed and, failing to reach an agreement to be submitted to third party settlement, is the delimitation of the Continental Shelf; to be more percise, delimitation of the submarine areas between the Anatolian coast and the nearby Greek Islands, beyond the six-mile Territorial Sea of which the Turkish Government had granted exploration permits (1).

For the Turkish Government the problem is not so simple : In a semi-enclosed sea surrounded by the mainland coasts of the two States, it is impossible to unilaterally define the delimitation area in exclusion of the Greek mainland, thereby treating these islands as if they were the territory of a separate insular State. Furthermore, the Continental Shelf being the submarine areas extending beyond the Territorial Sea, it is not possible to effectuate a delimitation of the former without reaching an agreement on the breadth of the latter and the baselines from which they will be measured. On this point we are faced with another thorny question : In drawing the baselines which of the many insular formations around the aforesaid islands or those scattered all over the Aegean should be taken into consideration as basepoints. After the Kardak (Imia) Rocks crisis, which has unveiled the rather concealed efforts of the Greek Government to achive *effectivités* in the vicinity of the said islands with the aim of moving the baselines further to the east, the question of title to this formations became acute; because, as the I.C.J. has repeatedly held, the rights of coastal states to the waters and the submarine areas off its coasts is the function of its sovereignty over its land territory (2). The demilitarized status of the East-Aegean Islands is another factor that complicates the question, a factor that should be taken into consideration in order to reach valid conclusions on the subject.

It is therefore clear that, in a semi-enclosed sea which is geographically unique, surrounded by two coastal states the legal, political and military relations of whom has been the subject of treaty regulation it is not possible to treat one question seperately from the others; nor it is possible to bring a solution to any of them by the blind application of the general legal norms. For this reason, it has become necessary to recapitulate first on the treaty relations of the two states in so far as relevant to the Territorial Sea problems.

I. Title to the Aegean Sea Formations .(Islands, Islets, Rocks)

The *Treaty of Peace* signed at Lausanne, on July 24, 1923 (3), is the basic instrument that regulates the territorial rights of the two States in the Aegean Sea. It is by this treaty that the pending territorial disputes were finally settled and a political-military balance established in order to promote peaceful relations between Turkey and Greece. The legal basis for any claim to territorial sovereignty in the Aegean has to be sought, first and foremost, in the provisions of this treaty, before recourse is made to the general norms of international law. The second point to be underlined at the outset is the fact that, the relevant treaty provisions are based on a clear distinction between "*islands*" and "*islets*", a fact which cannot be overlooked in the interpretation of its terms.

1- *General Rule: Article 6*

Article 6 of the *Treaty of Peace* provides that, *"In the absence of provisions to the contrary in the present Treaty, islands and islets lying within three miles of the coast are included within the frontier of the coastal State."* This provision, which was added to the text after the completion of discussion regarding title to the East-Aegean islands (4), was intended to be in the nature of a general norm applicable to the *"coasts"* of both States in the absence of a provision to the contrary. The intention of the parties as well as the meaning given to the term *"three miles"* used, is revealed by the discussions held over title to *Castellorizzo*. The Turkish delegation had tried in vain to convince the other Parties of her legitimate claims by pointing out to the fact that, *" Castellorizzo se trouve dans les eaux territoriales d'Anatolie et que cette île a toujours été considérée comme formant une partie intégrant de la Turquie." "...il s'agit d'une île située dans les limites du territoire national." "... elle est conforme à la règle générale posée dans I'article 6 ... au sujet des îles situées dans les eaux territoriales, et d'après laquelle les frontières maritimes comprennent les îles et les îlots situés à moins de 3 milles de la côte."* The Italien delegation dismissed this contention by quoting the phrase, *" A moins de stipulations contraires..."* (5). Hence, in the ensuing controversy between Turkey and Italy over the *"islets"* around *Castellorizzo*, which was omitted in Article 15 probably because of its inclusion in the text at a later stage of negotiations, the dispute was settled by agreement, not by recourse to Article 6. (6)

Under the general principles of treaty interpretation (*generalia specialibus non derogant*) as well as the preparatory work and the subsequent practice of the interested Parties, it must be concluded that, if there is a special provision regarding insular formations, Article 6 does not operate; in the sense that, one cannot inject the term " *islet* " into a special provisions by referring to Article 6.

2- *Special Provisions*

There are three Articles in the nature of special provisions amongst the territorial clauses of the *Treaty of Peace*, namely Article 12, 15, 16.

A- *Article 12*

In Article 12, " *The decision taken on the 13th February 1914… regarding the sovereignty of Greece over the islands of Eastern Mediterranean… particularly the island of Lemnos, Samothrace, Mytilene, Chios, Samos and Nikaria, is confirmed…"* The *"islands"* expressly excluded by this Article are *"islands placed under the sovereignty of Italy which form the subject of Article 15"* and *" the islands of Imbros, Tenedos and Rabbit Islands"* as well as *" the islands situated at less than three miles from the Asiatic coast"* which *" remain under Turkish sovereignty "* , in the absence of a provision to the contrary.

The conclusions to be drawn from the clear and unambiguous language of Article 12 are as follows: The intention of the Parties was not to draw up a new territorial settlement but to *" confirm "* a previously agreed one. The decision of 13th February 1914, which is thus incorporated in Article 12 was that, *" la Grèce...conserverait la possession définitive des autres îles de la Mer Egée qu'elle occupe actuellement...les îles dont elle gardera la possession ne seront ni fortifiées ni utilisées pour un but naval ou militaire..."* (7). It is clear that, what was ceded to Greece are the islands *occupied* by her *in fact* at the very time this decision was taken; this decision which was *" confirmed (confirmée) "* in Article 12, does not give license to unlimited claims of sovereignty over the insular formations in the Aegean, in exclusion of solely those *" islands "* that were to be restored *(restituerait)* to Turkey in accordance with the same decision and those lying within the Territorial Sea of the Asian Coast which remains under Turkish sovereignty. This is so, whether or not this provision is interpreted as an implicit renunciation of sovereignty on the part of Turkey. The original title being vested on Turkey as the continuation of the Ottoman Empire (8), Greece is under an obligation to prove her title on insular formations not occupied by her at the said date. In the absence of a treaty providing cession of territory *in her favour*, it will be up to her to choose the appropriate legal basis in support of any such claims, since proof of the non-existence of a right may not be damanded from Turkey.

The second point to be emphasized regarding Article 12 is the fact that, unlike Article 6 and 15, it speakes solely of *" islands "* over which the sovereignty of Greece is confirmed. The question of *"islets"* was brought to the fore by the Turkish delegation and was disposed of by the last sentence of Article 12, on the understanding that, *" Les petites îles, situées dans les eaux territoriales, peuvent menacer de très près la tranquillité de I'Asie-Mineure...puisquelles sont situées dans les eaux territoriales turques, elles soient maintenues sous la*

souveraineté turque " . Whereas *" islets "* around the islands over which Greek sovereignty was confirmed or those scattered in the Aegean were not pronounced. On the contrary, the Greek delegation by distinguishing *" parmi les îles de la Mer Egée, il convient de distinguer, d'abord "* , those *" qui sont placées depuis longtemps sous la souveraineté de la Grèce "* , from *" desquelles un acte international n'est pas encore intervenu "* (9), properly defined the scope of the question under discussion. One can only speculate, after nearly eighty years, on whether the Allied Powers some of whom, were the authors of the 13th February 1913 decision, with any notion of equity on their conscience and while pretending to be considerate of the security interests of Turkey, would have insisted on the transfer of sovereignty, if they had foreseen the extension of the Territorial Sea to such extent.

The third conclusion to be drawn from the language of Article 12, which should be stressed at this point is this: By confirming the *" decision taken on the 13th February 1913 "* regarding sovereignty of Greece, the demilitarized status of those islands provided for in this decision was made a constituent of consent on the part of Turkey to the cession of territory; what was ceded is not territory but territory over which sovereign rights of Greece is restricted at the very moment is was established, in order to meet the security interests of Turkey. The sovereignty of Greece and the security interests of Turkey go hand in hand at East-Aegean. That the security interests of Turkey outweighed the security considerations of Greece is demonstrated by Lord CURZON by the following statement: *" Alors qu'il avait été proposé à un certain moment de limiter les effectifs ou le recrutement de I'armée turque en Asie, cette proposition n'a pas été maintenue: désormais la Turquie ne pourra pas se plaindre de ne pas être en mesure de se protéger elle-même "* (10). A clear rejection of Greek demands for reciprocity in this respect! (11).

B- *Article 15*

Article 15 of the *Treaty of Peace,* under scrutiny since the Kardak (Imia) Rocks crisis and by which Turkey *" renounces in favour of Italy all rights and title "* over the fourteen islands mentioned by name (commonly known as the Dodecanese) and *" the islets dependent thereon "* , primarily raises a question of interpretation; namely, the meaning to be given to the term *" dependent islets "* or in the words of Article 14 of the *Treaty of Peace* with Italy (12), *" adjacent islands "* . Attempts to achive a delimitation by aggrement at this section of the Aegean was abortive due to the absence of parlimentary approval and ratification of the text adopted *(Procés-Verbal* of 28th december 1932), as will be explained by the other participants (13).

C- *Article 16*

The last question that must be examined here is, whether or not, Article 16 provides a renunciation of sovereignty *in favor of Greece " over or respecting the territories situated outside the frontiers laid down in the present treaty and the islands other than those over which her sovereignty is recognized by the said treaty "* . Neither the wording nor the intention of the Parties as revealed by the preparatory work confirms such a construction.

The language of Article 16 is a modified version of those provisions included in the peace treaties designed to fulfill a renunciation of sovereignty over territories that were going to be placed under the mandates régime. Unlike Article 118 and 119 of the *Treaty of Versailles* (14) and Article 132 of the stillborn *Treaty of Peace* of August 10, 1920 signed at Sévres, it is *not* expressly stated that the renunciation would be in favor of the Principal Allied Powers and that Turkey would undertake to recognize and conform to the measures which might be taken in the future by these States. The phrase, *" the future of these territories and islands being settled by the parties concerned."* has been adopted instead, on the objection of Turkey which ran as follows: *"...le deuxième paragraphe de I'article oblige la Turquie à reconnaître et à agréer des dispositions relatives à des territories détaches de I'Empire Ottoman, dispositions qui ne la concernent pas et qui ne sont pas connues d'elle. On demande également à la Turquie de reconnaître et d'agréer des dispositions à intervenir dans I'avenir. Il est évident que la Turquie ne peut pas s'engager à accepter des dispositions dont elle ignore le caractère et la portée."* (15)

That the main preoccupation of Turkey was to prevent the adoption of any formulation that would be prejudicial to her accord of 20 October 1921 with France, especially the provisions concerning the régime of autonomy for Alexandrette, is disclosed by the official records of the Conference. What is not evident however, is the construction of the phrase *" being settled or to be settled "* as the legal basis of the Greek claims regarding the future hand over of the Dodecanese, asserted by some writers (16).

The interpretation of Article 16 adopted in the *ERITREA – YEMEN Arbitral Award* of 9 October 1998 is illuminating in many respects: The territories or islands mentioned in Article 16, *" They did not become res nullius that is to say, open to acquisitive prescription by any State including any of the High Contracting Parties...Indeterminacy could be resolved by ' the parties concerned ' at some stage in the future...That phrase is incompatible with the possibility that a single party could unilaterally resolve the matter by means of acquisitive prescription." "Article 16 of the Treaty created for the islands an objective legal status of indeterminacy pending a further decision of the interested parties..."* The replacement of the Ottoman sovereignty *" by Article 16 regime " ,... " put the islands completely at the disposal of the 'interested parties' ". "What was intended by the parties concerned is not clear...it is not unreasonable to conclude that what*

was envisaged was a settlement of the matter in the future by all those having legal claims or high political interests in the islands, whether Treaty of Lausanne Parties or not." (17)

Assuming that Article 14 of the *Peace Treaty* with Italy is such a decision of the *" intersted parties "* and acknowledged by Turkey as a *" party concerned "* in view of the demilitarization of the ceded islands, by no stretch of imagination one can argue that, what was transferred was not solely sovereignty over the enumerated islands and islets *" adjacent "* to them, but over all the insular formations of the Aegean Sea.

Therefore, there will be no figures concerning areas, distances, coastal lengths, proportions etc., in this paper since all the figures given by both sides up to this time are in need of modification or recalculation according to the legal findings regarding title to such insular formations.

I- *Territorial Sea Questions in the Aegean*

The Territorial Sea issues in dispute between Turkey and Greece comprises very broad topics namely, the method to be used in drawing up the baselines, the breadth of the Territorial Sea and delimitation of the Territorial Sea. It is impossible and unnecessary to examine, even summarily, every legal aspect of these problems in this paper. The intention is rather to point out and open to discussion only those aspects which are controversial or may lead to one between these two States.

1- *Baselines*

The views of the two States regarding the method of drawing the baselines or the proper implementation thereof have not taken shape bacause both States apply the low-water line method at present (18). Several points should be emphasized however, taking into account the eventuality of resorting to the straight-baselines method in the future and the fact that, in the words of the I.C.J.,

" The delimitation of sea areas has always an international aspect; it cannot be dependent merely upon the will of the coastal State as expressed in its municipal law." (19)

As is well-known, the method of straight baselines was first sanctioned by the I.C.J. in the Anglo-Norwegian *Fisheries Case*, not as an *" exceptional system "* as was contended by the United Kingdom, but as the *" application of general international law to a specific case "*, as the liberal application of the rules relating to bays to a coast *" the geographical configuration of which is ... unusual "*, as *" an adaptation rendered necessary by local conditions."* (20) This decision does not only exemplify the proper use of judicial discretion in adapting legal norms to unsimilar geographic settings; but also the careful accomodation of the conflict of interests that arise from a change in the legal *status quo*, as can be seen in the conditions of validity pronounced by the Court.

These conditions agreed upon with some modifications in Article 4 of the Geneva *Convention on the Territorial Sea and the Contiguous Zone* and in Article 7 of the U.N.C.L.O.S. are, as far as relevant: The straight baselines must not depart to any appreciable extent from the general direction of the coast and the sea areas lying within the lines must be sufficiently closely linked to the land domain to be subject to the régime of internal waters; they may not be applied in such a manner as to be drawn from low-tide elevations unless lighthouses or similar installations which are permanently above sea level have been built on them. These principles are repeated in Article 47 as regards archipelagic baselines. To the obligation of respecting the right of innocent passage in water areas enclosed as internal waters provided for in Article 8 and Article 52 are added several others in the provisions concerning archipelagic States: The obligation to respect existing rights and all other legitimate interests of the State whose territory is immediately adjacent and lies at the two sides of the archipelagic state (Art.46/6); The obligation to recognize traditional fishing rights and other legitimate activities of the immediately adjacent neighbouring State (Art.51/1); and most important of all, recognition of the right of archipelagic sea lanes passage through or over archipelagic waters and the adjacent territorial sea that includes all normal passage routes used for internatioal navigation and overflight (Article 53).

Under these principles, Greece cannot draw the baselines by taking the East Aegean islands as basepoints so to enclose the whole Aegean Sea as internal waters; nor can she employ the archipelagic principles in drawing the straight baselines since she is not an archipelagic State. After much debate, Article 46 defines the *" archipelagic State "* as a *" State constituted wholly by one or more archipelagos and may include other islands."* which is not the case with Greece. And yet, it is submitted that, taking into account the aim and porpose of all these obligations which are *"the product of mutual cooperation, reasonableness and cooperation "* in the words of the Court (21), the same restrictions should be applicable by anology to any use of a right in good faith which leads to similar situations. The more so, in a semi-enclosed sea geographically unique where the distinction between different concepts becomes very blurred.

2- *The Breadth of the Territorial Sea*

In order to recapitulate on the state of the customary law regarding the breadth of the Territorial Sea, which is of crucial importance for Turkey in the Aegean, one may begin by posing this question: Since when did the twelve mile limit gain general support in the international community? That it was not so before the 1958 and the 1960 Geneva Conferences is authoritatively stated by the International Law Commission who had taken no decision on this point and had left the decision making to the conference (22); that it was not so after the abortive attempts in this respect in these conferences and a short time after the Third United Nations

Caonference had convened, is again authoritatively stated by the I.C.J. in the *Fisheries Jurisdiction* Cases (23). In its decision of July 25, 1974 the Court, after pointing out to the fact that, in the years following these conferences *" the question of the extent of the fisheries jurisdiction of the coastal State" " became separated from the notion of the territorial sea "* (24) held that, *" the concept of the fishery zone " " the area in which a State may claim exclusive fishery jurisdiction independently of its territorial sea "* has *" crystallized as customary law " " the extension of that fishery zone up to a 12 mile limit...appears now to be generally accepted."* (25) As will be seen, the court did not rule the same for the twelve-mile Territorial Sea although it was the right occasion to do so.

The turning point then must be the Third United Nations Conference, the earliest. It is common knowledge that, the twelve mile limit was not introduced at the Conference as a rule declaratory of customary law; it was rather a part of the package deal which is today reflected in the several provisions of the 1982 U.N.C.L.O.S. : The twelve-mile limit was considered the minimum by those who had proposed a 200 miles wide Exclusive Economic Zone; it was the maximum for those who gave their consent to it subject to the adoption of a new régime, transit passage régime, for some straits that would be covered by the twelve-mile Territorial Sea of the coastal States. The same is true for the archipelagic principles: Special rules for drawing the straight baselines were adopted subject to the acceptance of a special régime for the archipelagic waters.

In the long bargaining process, Turkey's objection was not to the twelve-mile limit as such; the objection was to its adoption without exceptions, especially regarding semi-enclosed seas having special geographical characteristics such as the Aegean. This attitude is reflected in all her proposals that aimed at to restrict the rights of islands, islets and rocks in semi-enclosed seas; the sea areas subject to the national jurisdiction of those formations to be determined by the agreement of the coastal States; to treat them as a special circumstance in delimitation situations that would require a delimitation by agreement according to equitable principles (26).

It is in Article 3 of the U.N.C.L.O.S. that, a treaty provision expressly states for the first time the maximum limit to the breadth of the Territorial Sea: *" Every State has the right to establish the breadth of its territorial sea up to a limit not exceeding 12 nautical miles..."* And Article 121 provides that, except *" Rocks which cannot sustain human habitation or economic life of their own "* in which case they *" shall have no exclusiive economic zone or continental shelf " , " the territorial sea, the exclusive economic zone and the continental shelf of an island are determined in accordance with the provisions of this Convention applicable to other land territory."*

Do we have to conclude that the Turkish views, shared to a certain extent by some other States, were totally rejected by the adoption of such formulations in respect to the relevant provisions? Can anyone contend for example that, because it does not appear in Article 3, contrary to what was propounded by Turkey, a coastal State may use its rights to determine the breadth of its Territorial Sea *" in such*

manner as to cut off the Territorial Sea of another State or any part thereof from the high seas? " Or, insist that islands, whatever their location, are entitled to equal treatment, in spite of Article 15 which provides otherwise? Furthermore, how can one treat *" a right to extend"* as if it was *" an obligation to extend "* , and justify the exercise of a right in a manner that will have results similar to the ones prohibited elsewhere? It is contended that, what is prohibited under one provision of the Convention may not be by-passed by reliance on another treaty provision and, leaving aside the principles of treaty interpretation, it is here that the *" good faith "* and *" abuse of rights "* clause (Art.300) comes into play.

The prohibition of formulating reservations to Article 3 was the main reason for Turkey (27) in casting a negative vote in the adoption of the text (28) and later in not becoming a party to the U.N.C.L.O.S. The 1982 Convention therefore, does not bind Turkey *(pacta tertiis nec nocent nec prosunt)* and Article 3 is not opposable to Turkey as treaty law (29). Assuming that Article 3 did not embody and reflect customary law, one may ask, was it instrumental in the emergence and crystallization of a rule of customary law providing for a twelve mile limit; a rule of customary law opposable to Turkey who has always objected to its application in semi-enclosed seas having special characteristics?

In the words of the Court, *" before a conventional rule can be considered to have become a general rule of international law...a very widespread and representative participation in the convention might suffice of itself, provided it included that of States whose interests were specially affected."* (30)
" State practice, including that of States whose interests are specially affected, should have been both extensive and virtually uniform in the sense of the provision invoked; and should moreover have occured in such a way as to show a general recognition that a rule of law or legal obligation is involved." (31) It is clear under this statement that, a numerical majority would not be sufficient (32); *" an extensive and virtually uniform practice"* is not *" representative"* unless it includes the *" States whose interests were specially affected "* .

That Turkey is such a State cannot be doubted: A State surrounded on three sides by the sea, the implementation of the twelve-mile Territorial Sea will have the effect of transforming her virtually to a land-locked State, resulting not only in the extinction of all the rights she is entitled to under the existing law but also, in the division of her territory into two parts with no direct communication by sea between the two. There is nothing in the above quoted decision of the Court that supports the tyranny of the majority, still less the tyranny of the more powerful (33). It is therefore contended that, Turkey's opposition to a twelve-mile limit in semi-enclosed seas having special characteristics, as a State *"whose interests are specially affected"* , prevents the formation of a rule of customary law in this respect.

The decision in the ERITREA-YEMEN Arbitration may cast some doubts on this proposition. In order to decide on the question of title to certain islands, the Tribunal interpreted Article 16 of the 1923 Treaty of Lausanne in support of the

holding that islands lying within the twelve mile limits of the Eritrean coast belong to that State. After giving to the term *" three miles "* the meaning of *" territorial sea "* without any comment, decided in favour of Eritrea as the successor of Ethiopia on the following ground: *" In those days the territorial sea was generally limited by international law and custom to three nautical miles, but it has now long been twelve, and the Ethiopean territorial sea was extended to twelve miles in a 1953 decree."* (34) One may ask, *" where and for whom?"* It is impossible to write into these six words *" in customary law "* and still less *" even for an opposing State "* because the Tribunal was very careful to point out the fact that the Ethiopean territorial sea had been extended to twelve miles long before the Third United Nations Conference convened. Therefore, this *obiter dictum* can be seen as another example in support of the observation that, if both parties consented to be bound by a rule, this is *" sufficient "* for a ruling accordingly, it being not *"necessary"* to prove the existence in customary law of a rule on that subject (35). Regarding this interpretation of Article 16, it must be reiterated that, it is not applicable to the East Aegean Islands which are subject to special rules, nonexistent in the case decided.

" There...seems to be no case in which the International Court has applied a rule of customary law against a State which has persistently opposed it." observes Professor MENDELSON in his course at the Hague Academy on *" The Formation of Customary Law "* , where the principle of *" the persistent objector "* has been extensively analysed with the conclusion that *" the persistent objector rule is well established in State practice, case-law and literature, and justifiable as a matter of policy."* (36) This principle, contended by Norway and contested by the United Kingdom, was unequivocally upheld by the Court in the Anglo-Norwegian *Fisheries Case: " In any event the 10 mile rule would appear to be inapplicable as against Norway inasmuch as she has always opposed any attempt to apply it to the Norwegian coast. "* (37) Necessarily so, because any other proposition would be contrary to the consensual basis of international law and to the cardinal principle of sovereign equality of States.

Is Turkey a *" persistent objector "* in the sense stated above, that is, begining from the formative stage a State who has objected unequivocally, consistently and constantly to the application of the twelve-mile limit, more particularly to its application in semi-enclosed seas having special characteristics? The answer is undoubtedly affirmative. Turkey has never taken the initiative to extend the Territorial Sea; her position in this regard has always taken shape according to the attitude of the neighbouring States which are coastal to the Black Sea, Mediterranean Sea and the Aegean Sea, each having different characteristics.

The three mile Territorial Sea limit underlying the *Treaty of Peace* arrangement was modified by Greece who has extended it to six miles in 1936 (38), with no sign of objection on the part of Turkey,probably because it had not jeopardized her right to free access to the High Seas and the absence at the time concepts such as the Continental Shelf and Exclusive Economic Zone. In the 1958

and 1960 Geneva Conferences, evincing their official positions, Turkey and Greece have voted against proposals for a twelve-miles Territorial Sea and have voted in favour of the six-mile limit (39). It is astonishing to see in these Conferences that, Greece was the only State who had proposed a three-mile limit for the Territorial Sea (40), expressing her readiness to make the necessary amendments in her legislation in order to *" revert to the three-miles limit if general aggreement were reached upon that breadth."* (41); and that, she had taken care to uphold her objection to anything more than six-miles wide by stating that *" it declined to recognize the existence of any exclusive fishing zone "* (42) after the rejection of the joint Canada-United States proposals providing for an additional six-miles fishery zone (43).

Regarding the Turkish legislation, it should be underlined that, the term *" twelve-mile Territorial Sea "* has not been used in any statute passed up to this time. The *Law of the Territorial Sea* dated 15 may 1964 (44), is the first statute that mentions the breadth of the Territorial Sea, Article 1 of which provides that *" The breadth of the Turkish Territorial Sea is six miles "* . The reason why it is not more than that, in spite of the more extensive claims in the Black Sea and Mediterranean and as freshly revealed by the Law of the Sea Conferences, is explained in the commentary to Article 2, which provides that, *" To those States whose Territorial Sea is wider, the breadth of the Turkish Territorial Sea will be determined according to the principle of reciprocity."* To quote: *" The research made on this subject demonstrates that the six-mile limit is the breadth which best protects our economic, political, military interests in the Mediterranean and the Aegean Sea "* (45). The twelve-mile or any limit more than six-miles comes into the picture as the function of the *principle of reciprocity*, a principle that operates irrespective of a rule of law concerning the breadth of the territorial Sea, as was pointed out in 1956 by the International Law Commission (45), endorsed in the *Eighteen Power* proposal (47), and acted upon for many years. To quote again from the Commentary to Article 2: *" Not to discriminate among States, the principle of reciprocity has been extended to all States that have adopted a more extensive breadth."* Could any such State oppose it, even if the customary rule on this subject had been three-miles? Certainly not, and that is what distinguishes the legal basis of the latter from the principle of reciprocity. The *Law of the Territorial Sea*, dated 20 May 1982, which repealed the former, brought no change on this position: Under Article 1 *" The breadth of the Turkish Territorial Sea is six miles"* . The power to establish a wider breadth is given to the Council of Ministers who, *" taking into consideration all the special circumstances of the sea and the principle of equity "* decided in 29 May 1982 *" the continuance of the present situation in the Balck Sea and the Mediterranean "* (48).

It will be wrong therefore to say that, Turkey applies a twelve mile Territorial Sea in some seas; because, what is in question here is the application of the principle of reciprocity in fact, which does not exist in the Aegean. The conscious or the unconscious confusion and distortion of legal concepts to such an

extent, does not do justice to a legislature, who has knowingly made its preference for the six-mile limit amongst the others.

In the light of the foregoing, it is contended that, the twelve-mile limit has not become a rule of customary law; in any event it is not opposable to Turkey, who has from its inception up to this time, in the international forums as well as in her internal legislation (49), openly, constantly and consistently objected to its application in semi-enclosed seas.

3- *Delimition of the Territorial Sea*

As is well-known, the conventional norms concerning delimitation questions between neighbouring States, whether Territorial Sea or the Continental Shelf, were treated together in the codification efforts. The principle of equidistance, proposed by the Commitee of Experts (50), *" formulées en tenant compte du point de vue technique et en vue d'être interprétées facilement par les navigateurs "* was adopted by the International Commission, the 1958 Geneva Conference and the U.N.C.L.O.S., not as an absolute delimitation principle; but a principle applicable in the absence of agreement and if, *" by reason of historic title or other special circumstances "* it is not necessary to delimit the Territorial Sea in a way which is at variance therewith (51). From its inception up to this time, in the codification conferences, in scholarly writings and in the case-law of the international courts, *"des intérêts de navigation ou de pêche "* , the geographical configuration of the coast, the presence of islands, islets and rocks, particularly the ones *" on the wrong side "* are frequently mentioned as *" special circumstances "* necessitating a delimitation according to equitable principles. The question of whether the composite rule, *" agreement-principle of equidistance-special circumstances "* is a rule of customary law has been raised in several continental shelf cases, the negation of which has led after much discussion to a different formulation of the delimitation clauses regarding the Continental Shelf and the E.E.Z. (Article 74, 83); the phrase *" by agreement...in order to achieve an equitable solution "* used emphasizes the result rather than the method.

That means that, in most cases it makes no difference whether the argument is based on the conventional norm of Article 15 or the equitable principles of customary law: to achieve an equitable result is a requirement of international law, notwithstanding the fruitless efforts of Greece in the codification conferences to delete the *" special circumstances "* exception that safeguards equity in delimitation clauses (52).

It would not have been necessary to recapitulate on what must now become obvious, if we had not seen the Greek thesis repeated in DİPLA recently: *" le côte turc semble confondre le rôle accordé aux circonstances spéciales lors de la délimitation des espaces maritimes entre États en voulant les introduire dans un domaine d'où celles-ci sont exclue...I'article 3 de la Convention...ne contient pas d'exception à l'application de la règle des 12 milles...la limit actuelle entre les mers*

territoriales grecque et turque est effectuée soit par des traités, soit de manière coutumière suivant la méthode de la ligne médiane " (53). In reply to this argıment it will suffice to quote, Sir R.Y. JENNINGS, an eminent jurist and judge: *" the twelve mile territorial sea rule is clearly a simple rule of law; but when territorial sea boundaries between opposite or adjacent States are under consideration the rule may be modified in its application by rules of equity...To assert that legal entitlement is per se equitable is to abolish any notion of equity "* (54). The abolition of equity, in spite of a rule of law requiring the application of it, is what Greece has been trying to do in the Aegean.

The case-law on the delimitation of the Continental Shelf is illuminating as regards factors that should be taken into account in order to reach an equitable result, such as the general direction of the coast and the presence of insular formations, the principle of non-encroachment, proportionality etc., as will be explained by the other participants.

One of these considerations requires comment here, because of its importance to Turkey in the Aegean, namely the security interests of the coastal States. That it is the importance of the interests of the coastal States that justifies her sovereignty over the territorial waters is a truism that cannot be challenged. The economic-interests oriented concepts being separated from the Territorial Sea, the *raison d'être* of the latter mainly became the safeguarding of the legitimate security interests. Whose security interests in the East Aegean? As is explained in the first part of this paper, the demilitarized status of these islands is the legal expression of the recognition given to the legitimate security interests of Turkey, that deliberately had outweigned those of Greece. Extension of the Territorial Sea to twelve miles, would not only cut off the Anatolian coast from the High Seas in violation of the principles of non-encroachment embodied in every relevant provision of the U.N.C.L.O.S., but will be contrary to the object and purpose of the political settlement achieved in the *Treaty of Peace* of 1923. It is not possible to consistently maintain that, what Greece cannot do by her land territory, she is entitled to do by extending her maritime territory.

That the Turkish grave concerns in this respect is not unfounded is proved by the official declarations already made. In the statement of 30 April 1982 made under Article 310 of the U.N.C.L.O.S., Greece disclosed her intention to take a selective approach regarding the transit passage régime by confining its application to *"areas where there are numerous spread out islands that form a great number of alternative straits which serve in fact one and the same route of international navigation...the coastal State concerned has the responsibility to designate the route or routes, in the said alternative straits, through which ships and aircraft of third countries could pass under the transit régime..."* (55) An appeasement policy towards third States leaving Turkey alone to oppose the application of twelve-mile limit in the Aegean; a solution that will result for Turkey in the extinction of the freedom to fly over straits which will not be so designated and the restriction of the freedom of navigation especially of warships, in view of the discretion of the

coastal States concerning *" the innocence of passage "* . Turkey, defining this position as an attempt *" to ensure the application of the régime of archipelagic States to the islands of the continental States "* rejected at the Conference, declared that, *" With the limited exceptions provided in articles 35, 36, 38 paragraph 1 and 45, all straits used for international navigation are subject to the régime of transit passage "* and, rejected the concept of *" a separate category of straits "* , i.e. *"spread out islands that form a great number of alternative straits "* as *"not permissible under the Convention nor under the rules and principles of international law."* (56)

In concluding, I would like to reiterate that, the Aegean Sea disputes are complex and interrelated problems, each of which cannot be treated out of the legal and political context. As was stated in another occasion, (57) a final and permanent solution to the Aegean disputes requires an over-all settlement arrived by negotiations; an agreed solution satisfying the vital interests of the coastal States, interests the renunciation of which may not be expected from any State.

ENDNOTES

1- *R.G.* (Official Gazette), 1 November 1973, No. 14699.
2- *Fisheries Case, Judgment of December 18th, 1951, I.C.J. Reports 1951,* p.116,133; *North Sea Continental Shelf, Judgment, I.C.J. Reports 1969,* p.3...; p.23 paragraph 19; p. 32, paragraph 43.
3- 37 *L.N.T.S.*, 701 (1923)
4- *Recueil des Actes de la Conférence, Première Série,* p. 347, Imprimerie Nationale, 1923.
5- *İbid*., *Deuxième Série,* Tome I, p. 9-12.
6- 138 *L.N.T.S*., 243.
7- ŞİMŞİR, *Ege Sorunu – Aegean Question*, vol. II, 1982, No. 406, p. 394.
8- I *R.I.A.A.*,p.529; (1925)
9- *Recueil..., Première Série*, p. 79-80.
10- *İbid*., p. 335.
11- That is why Greece challenges the continuance in force of the demilitarized status of these islands, in vain as long as the *Treaty of Peace* is not terminated. For a more detailed analysis of the contentions of the two sides regarding the demilitarized status of the Island Lemnos, see TOLUNER, " The Pretended Right to Remilitarize the Island of Lemnos Does Not Exist " , *Limni Ada'sının Hukuki Statüsü ve Montreux Boğazlar Konvansiyonu*, 1987, pp. 53-96.
12- 49 *U.N.T.S.*, p.3.
13- For an English summary of the relevant facts and the related legal arguments see: İNAN – BAŞEREN, *Status of Kardak Rocks*, 1997; " The Troubled Situation of the Aegean Territorial Waters " , *Hellenic Studies*, Vol. 4, No. 2, 1996, p. 56, 64-66. For a more detailed analysis and

documentation see : *Ege'de Temel Sorun – Egemenliği Tartışmalı Adalar*, edited by A. Kurumahmut, 1998.

14- WHITEMAN, I *Digest of International Law*, 1963, p. 598-619.

15- *Recueil..., Deuxième Série*, Tome I, p. 12.

16- ROUCEK, " The Legal Aspects of Sovereignty Over the Dodecanese " , 38 *A.J.I.L.*, 1994, pp. 701-706.

17- Eritrea – Yemen Arbitration of 9 October 1998, http://www.pca-cpa.org/ER-YEAwardTOC.htm, paragraphs 158, 169, 445.

18- Although in Article 4 of the Turkish *Law of the Territorial Sea* both methods were mentioned (dated 15 May 1964, No. 476 in *Official Gazette* 24 May 1965, No. 11711), Article 3 of the new *Law of the Territorial Sea* which repealed the former (20 May 1982, No. 2674 in *Official Gazette* 29 May 1982, No. 17708), gives the power of drawing the baselines to the Council of Ministers without mentioning the method to be used.

19- 1951 *I.C.J. Reports*, p. 132.

20- *Ioc. cit.*

21- *Fisheries Jurisdiction (Federal Republic of Germany v. Iceland), Merits, Judgment, I.C.J. Reports 1974,* p. 175, paragraph 45.

22- Commentary to Article 3, Report of the International Law Commission to the General Assembly, 1956 *Yearbook of the International Law Commission*, vol. II, p. 265.

23- *I.C.J.Reports 1974.*

24- *İbid*., paragraph 43.

25- *İbid*., paragraph 44.

26- See: Draft article on the breadth of the territorial sea...,*A/CONF. 62/C.2/L.8* and draft article on the delimitation of the territorial sea..., *A/CONF. 62/C. 2/L. 9 (Official Records*, vol. III, p. 188); draft article on delineation between adjacent and opposite States, *A/CONF. 62/C. 2/L. 34* (*ibid*., p. 213) ; draft article on delineation between States..., *A/CONF. 62/C. 2/L. 23,* (*ibid*., p. 201) ; draft articles on the régime of islands, *A/CONF. 62/C. 2/L. 55, (ibid*., p. 230); draft article on enclosed and semi-enclosed seas, *A/CONF. 62/C. 2/L. 56,* (*ibid*., p. 230); draft article on the territorial sea, *A/CONF. 62/C. 2/L. 90*, (*Official Records* vol. V, p. 202); draft paragraph on the régime of islands, *A/CONF. 62/C. 2/L. 96*,(*Official Records*, vol. VII, p. 84).

27- The proposal of Turkey to delete Article 309 (*A/CONF. 62/L. 120*) was rejected by 100 votes to 8 with 26 abstentions. (*Official Records*, vol. XVI, p. 133-134).

28- The text of the treaty was adopted by 130 votes to 4 with 17 abstentions (*Official records*, vol. XVI, p. 155).

29- Article 34 of the *Vienna Convention on the Law of Treaties.*

30- *North Sea Continental Shelf, Judgment, I.C.J. Reports 1969*, p. 3, paragraph 73.

31- *İbid*., paragraph 74.

32- Numerical majority does not mean much in the case under discussion because comparison can only be made amongst the similar which does not exist. The islands question is to a large extent dealt with under the archipelagic principles which is not applicable in the Aegean. The Baltic Sea may be taken as the nearest example where the coastal States tried to accomodate their interests in good faith although they do not have an *"islands on the wrong side"* problem which exists in the Aegean in the most exaggerated form and no conventional norms providing for a balance of power. (Out of the 150 coastal states 120 claim a twelve-mile, 16 States claim more, 4 States claim three, 2 States claim four, 3 States claim six miles. *(1994 Law of the Sea Bulletin*, No. 25. The update indicates that the number of States claiming more than twelve miles is reduced to 9 (Report of the Secretary General of 30 September 1999 *A/54/429)*. The other specially dealt cases are the Torres Strait, Korea Strait, Gulf of Honduras, Gulf of Finland, Bogskar (1999 *B.Y.I.L.*, vol. LXIX, p. 544-549).

33- For a critical analysis of the effects of contemporary developments in the norm-creating process on classical concepts see: WEIL, " Towards Relative Normativity in International Law? " , 1983 *A.J.I.L.*, vol. 77, p. 413.

34- *Supra*, Note 17, paragraph 472. In fact, in the Award of 17 December 1999, concerning the Second Phase, reference is solely made to Article 3 and 121/2 of the *U.N.C.L.O.S.* which, according to Article 2/3 of the Arbitration Agreement was chosen as the applicable law between the Parties. (paragraphs 155, 156, http://www.pca-cpa.org/ER YE2TOC.htm)

35- For an explanation of these terms see : MENDELSON, " The Subjective Element in Customary International Law " , LXVI *B.Y.I.L.*, 1995, pp. 177, 192-193, 203; " The Formation of Customary International Law " , 1998 *Recueil des Cours*, vol. 272, p.158, pp. 248-249.

36- *İbid*., p. 334, 227-245, 266-267.

37- *I.C.J. Reports* 1951 p. 116, 131. The Norwegian contention was, *" Il n'est pas douteux en effet, que la Norvège a, d'une manière constante et non équivoque refusé d'accepter, en ce qui la concerne, les régles en question."* (Contre-Mémoire de la Norvège 31 VII 50, *Pleadings, Oral Arguments, Documents*, vol. I, p. 283, paragraph 260). The United Kingdom, while by associating this view with extreme pozitivizm had criticized it on the ground that *" the right of a State to dissent from a customary rule cannot be regarded as absolute "* . (*ibid*., vol. II, Reply of the United Kingdom, 28 X 50, p. 428); nevertheless had conceded to it on this understanding : *" if (a) it could be shown that at one time international law had given States wider rights or a greater freedom than they at present possessed under the actual rules now prevailing; and if also (b) the dissenting state could show that it had openly and consistently*

made known its dissent at the time when the new rule was in process of formation or when it came into operation ; and if further (c) that position had been consistently maintained since..." (FITZMAURICE, " General Principles of International law Considered from the Standpoint of the Rule of Law", 1957 *Recueil des Cours*, II, p. 1, 101).

38- The Law No. 230 of 17 September 1936, *Official Gazette*, vol. A. No. 450/1936.

39- For a more detailed analysis of these proposals and the action taken by the two States regarding them see : TOLUNER, *Milletlerarası Hukuk Dersleri*, Fourth edition, 1989, pp. 87-91, especially footnotes 57-56

40- *A/CONF. 13/C. 1/L. 136*, *Official Records*, vol. III, p. 248, which was later withdrawn (*ibid*., p. 175, paragraph. 4)

41- *Official Records*, vol. III, pp. 21-22, paragraph 21.

42- Second United Nations Conference on the Law of the Sea, *Official Records*, p.33, paragraph 7.

43- *İbid*., p. 30, paragraph 18; the text of the joint proposal *A/CONF. 19/C. 1/L. 10* ,*ibid*., p. 169.

44- *Official Gazette,* 24 May 1964, No. 11711.

45- The report of the Ministry of Forign Affairs and Ministry of International Affairs on the draft of Territorial Waters Act (1/206) of 31 May, 1962, *MİLLET MECLİSİ S. Sayısı : 156 ya I. Ek.*

46- Report of the International Law Commission to the General Assembly, Commentary to Article 3 (1956 *Y.I.L.C.* vol. II, 265).

47- *A/CONF. 19/C. 1/L. 2/Rev. 1*,1960 Official Records, p. 167.

48- Law No. 2674 of 29 May 1982 (*Official Gazette* 29 may 1982, No. 17708) ; Decree of 29 May 1982, No. 8/4742 (*Official Gazette* 29 May 1982, No. 17708, Mükerrer).

49- It is difficult to understand the reason why DİPLA, in spite of this practice , confined her research to the 1956 pre-Conference period in order to prove inconsistency in Turkey's position, which is not the case. In the Note-Verbale dated 2 March 1956 (A/CN.4/99), in reply to the International Law Commission, Turkey's observations on the draft articles were made subject to the reservation that, *" it does not consider itself committed in any way by the opinions expressed by it at this stage on the work of the Commission "* The sentence cited, *"the twelve-miles has already obtained the general practice necessary for its acceptance as a rule of international law "* (1956 *Y.I.L.C.*vol. II, p. 74), is just an expression of an *"opinion"* clearly disproved at the Geneva Conferences, not a recognition of it as is revealed by the position teken a short time after. (DİPLA " La mer territoriale grecque", *The Aegean Dispute, Hellenic Studies*, vol. 4, No. 2, 1996, p. 69, 80-81).

50- 1953 *Y.I.L.C* vol. II, p. 77.

51- Article 12 of the Geneva *Convention on the Territorial Sea and the Contiguous Zone ;* the same provision appears in Article 15 of the *U.N.C.L.O.S.*.

52- See: Greek comments on Article 12, 1958 *Official Records*, vol. II, p. 64, paragraph 32; Article 8 of the Greek draft (*A/CONF. 62/C. 2/L. 22), Official Records*, vol. III, p. 220. On the other hand Turkey, in her proposal to the Third United Nations Conference (*A/CONF. 62/C. 2/L.9)* emphasized equitable principles and the taking into account of *" special circumstances, including, inter alia, the general configuration of the respective coasts and the existence of islands, islets or rocks".(Official records*, vol. III, p. 188).

53- *Supra*, Note 49, p. 81.

54- JENNINGS, : " Equity and Equitable Principles " , 1986 *Annuaire Suisse de Droit International*, vol. XLII, p. 27, pp. 29, 32.

55- *A/CONF. 62/WS /26 Official Records*, vol. XVI, p. 266.

56- Statement of 15 November 1982, *A/CONF. 62/WS /34, Official Records*, vol. XVII, p. 226.

57- TOLUNER, " Opening Speech on Means and Methods for the Settlement of Disputes " , *Aegean Issues : Problems-Legal and Political Matrix,*1995, Foreign Policy Institute, pp. 43-48.

A TENTATIVE PROPOSAL FOR DEALING WITH THE AEGEAN DISPUTES

Aslan GÜNDÜZ*
University of Marmara, Faculty of Law, Haydarpaşa, İstanbul, Turkey

INTRODUCTION

For Greece and Turkey the Agean Sea is a sea of disputes, the recent list of which include: a) dispute over the breadth of territorial sea, b) dispute over the delimitation of the continental shelf, c) dispute over the extent of the Greek airspace, d) dispute over demilitarised status of some Greek islands in close vicinity of Turkish coasts, e) dispute over the FIR line, and f) dispute over the ownership of those geographical formations, islets or rocks which according to Turkey were not ceded to Greece by international treaties. One can also add the command control issues in the Aegean within framework of NATO.

So far the two nations have failed to solve any of the disputes in question. As years passed by new disputes have come up which have further aggravated the already sensitive and chaotic relations between the two countries.

Until recently to an observer of international relations, the pair of Turkey and Greece had come to be associated with mutual quarrels, disputes, conflicts, and animosity. The past of the two nations is full of pains and tragedies for which they blame each other. The past colours and even poisons the present. It shapes the current policies. The previous governments had become the prisoners of their past, except for the period of Atatürk and Venizelos. All nations have their pasts, which generally are not free from pains. But they should not allow the past to dominate their future. Germany and France have succeeded in leaving their past grievances in the past. There is no reason why Turkey and Greece should not do the same thing. The two countries need forward-looking policies. They are neighbours. They have to learn how to live peacefully, and how to solve their differences.

Now, Turkey and Greece hopefully have opened a new phase in their relations. Two natural disasters, earthquakes, in Turkey and Greece paved the way for bringing together the representatives of the two nations. Greece has softened its veto attitude towards Turkish membership of the EU. Mutual high level visits have taken place. A number of agreements on cooperation in the field of the so-called soft issues have been concluded. Exchanges of journalists, businessmen, artists are contributing towards the improvement of mutual relations.

This paper has for its objective to give a picture of the disputes between the two nations as they appear from the Turkish side and to point to some conflict resolution methods which have already been tested by other nations in similar situations with a view to their application to Greece and Turkish disputes. It shall

*Views expressed here are the personal views of the author only; they do not represent in any way the official position of the Turkish Government

focus on the procedural issues rather than the substantive ones, manly for the space considerations.

Background to the Present Political Relations and the Need for Confidence Building Measures

We need a correct diagnosis of the current problems and of the reasons underlying it in order to be able to make appropriate proposals for the resolution of them. We know about the current disputes. We also more or less know about the legal positions, and legal arguments of the two sides. But what we less know is the equally important psychological aspects of the disputes and historical myths which shape their mutual positions. They are fears, animosity and mistrust.

Greeks think or even perhaps believe that Turkey is a danger to their existence, and that it is revisionist and aggressive. (See, for example among others, **Hellenic Studies,** Vol. 4, No 2, 1996, pp. 19,24, 27,33,35,42,174-175)

At least until very recently , the relations of Greece to Turkey have been partly shaped by the fear. The fear has been kept alive by the media and politicians. Greece and Turkey are arming themselves beyond their means or at the expense of the wellbeing of their population to counter each other's military might. Yet they both are in NATO!

Ironically, Greece also has somehow cherished a myth, the so-called Megalo Idea, coming very much close to irredentism, based on the hope that Greece would one day re-take all the territories it or its ancestors had once occupied. Many Turks believe that the Megalo Idea constitutes the Greece's hidden agenda and that in fact Greece has been implementing that Grand Project since 1830s by continually expanding territorially at the expense of Turkey. So, the Turks feel or even fear an institutionalised Greek hostility towards Turkey, which they perceive to be a pillar of the Greek foreign policy towards Turkey.

The two sides do not trust each other. The Turks believe that Greece is not a reliable partner to deal with. A prominent Turkish professor of international relations, Ilter Turan, expressed these feelings in the following words:

"When we talk about submitting the problem [about the delimitation of the continental shelf] to an international body, it is submitted with the understanding that the dictum shall be binding. However, my observation of Greek political behaviour leads me to think that the word "binding" has different meanings for Greece and Turkey. Let me try to illustrate what I mean by that. (…) We might also turn to their behaviour in Cyprus; there was a Constitution in 1960 and in two years it was the Greek party which started reneging on the commitments they have undertaken (…) I am under the constant fear that what we feel a binding situation is in fact perceived to) be rather fluid by our rivals or if you so wish our allies." (See, "Discussions", in **The Aegean Issues: Problems and Prospects**, (hereinafter cited as the Aegean Issues) Foreign Policy Institute, 1989, Ankara, pp. 58-59)

Of course this does not exhaust the list of mutual recriminations or accusations. But one thing is clear: Turkey and Greece do not trust each other; they fear each other for different reasons. The Greek side fears that Turkey would attack them, and the Turkish side fears that Greece would expand again, and would cause Turkey to shrink. (See intervention by Mümtaz Soysal, in the Aegean Issues, pp. 50-54) The Greco-Turkish relations are in fact characterised by mistrust, fear and animosity.

Until very recently with the provocations of the media and politicians, the mutual mistrust and animosity have penetrated deep into the fabrics of the two nations. Thus the problem was not only that the two sides could not solve their differences but was also that they could not even talk. We need time to see how much the current raproachement have affected those feelings and perceptions.

In a political environment characterised by no-talk policy one would have considerable difficulties in one's attempts to solve politically sensitive disputes. A better environment is needed.. The high tension has to be reduced. A real Greco-Turkish **d'etant** is needed. We are on our way to such a d'etant. Now, the two current governments have made some progress and showed that they could reach at least on soft issues.

Are Greco-Turkish Disputes of Political or Legal Nature?

In the context of the dispute settlement procedures one can categorise international disputes according as they are legal or political in nature, with the implication that legal disputes are justiciable whereas political issues are not. The political issues by definition either concern extremely vital interests of the state the solution of which cannot be put in the hands of third parties, or they are not fully or clearly regulated by law yet. They are therefore are not susceptible to judicial settlement.

In this sense the Aegean questions are probably not "political". Neither Turkey nor Greece has ever wanted a solution outside international law. On the contrary the two sides have always sought to formulate their claims in legal terms. They have referred in their arguments to conventional or customary rules of international law.

However it is a truism to say that the two sides act towards each other under the influence of political considerations. Beneath their legal arguments probably lie self-catering and preconceived political convictions or at least political considerations. Some times legal arguments are grafted on mystified political preconceptions. It was in this sense when Mr. Tashan said in a conference on the Aegean issues:

"I agree with those statement that recourse to international arbitration is desirable and feasible where Parties to the dispute are prepared to eliminate the dispute and ready to accept the result of the arbitration without reservations. However the arbitration that is proposed by our Greek friends relate only to the delimitation of the continental shelf as a legal solution as if the whole dispute in the Aegean is confined to the continental shelf. The Greek myths has the entire Aegean

with its air and sea as Greek and militarisation of islands as irrelevant and even aggressive as if Greece has already established sovereignty over the totality of the Aegean." (See, Discussions, in the Aegean Issues, p. 56)

By any standard one will probably acknowledge that every dispute concerning boundaries or limits of sovereignty has some political aspects. One can go as far as to say that even an adjudication of such disputes might entail some political consequences for the litigants. In addressing this point in the Aegean Continental Shelf Case the International Court of Justice ("ICJ") itself said:

"….but a dispute involving two states in respect of the delimitation of the continental shelf can hardly fail to have some political element…" (I.C.J., Reports, 1978, para. 31

Likewise, a Chamber of the Court said in the Gulf of the Main Case that the delimitation of the continental shelf was a political-judicial operation. (I.C.J., reports, 1984, para. 36) If these observations are true, then the Aegean disputes become all the more political in the face of the fact that they are multifaceted, interconnected, politically sensitive, and some times shrouded in historical myths. This much was said by Professor Karaosmanoglu of Bilkent University when he commented on the same issue:

"Political, legal and in some cases military and all these aspects are intertwined, and I do not think that the origin of issues in the Aegean is legal but rather political. Because although all the parties formulate their claims and counter-claims in legal terms, and although they always try hard to impress the third parties putting forward legal arguments, the whole Aegean issue is heavily dominated by political problems, by historical experiences, by misperceptions (…) And the problem is how to shift legal aspects of the Aegean conflict, how to separate legal aspects from political aspects…" (Discussions, in the Aegean Issues, p. 23)

Professor Ulman also emphasised the political aspects in similar terms:

"…though the Aegean problem seems a legal one, in a sense it is a political one…. In order to submit this problem to the ICJ there must be a political will, a political understanding coming from both parties…Unfortunately this understanding is lacking today. The Greek side does not accept or rather is not ready to accept that the Aegean is not a Greek **mare nostrum**, but a common sea to be shared with Turkey".(Discussions, in the Aegean Issues, pp. 56-57)

In the same Conference Professor Charney opined that he "believe the political issues are fundamental ones".(Discussions, in the Aegean Issues, p. 59)

Professor Toluner agrees that the Aegean disputes are essentially legal disputes, but she adds that they also have important political consequences touching on vital interests of the coastal states, especially that of Turkey who is in a geographically disadvantaged position in the Aegean . (See, Toluner, "Opening Speech on ' Means and Methods for the Settlement of Disputes", in **Aegean Issues: Problems - Legal and Political Matrix, Conference Papers** (hereinafter cited as the Conference Papers) Foreign Policy Institute, 1995, Ankara, pp. 43-47)

The Aeagean disputes are mostly on boundaries and limits of sovereignty. It is impossible for any solution of such disputes not to produce political consequences. Moreover, the current state of law is still far from being crystal clear so far as, for example, the continental shelf is concerned. It is today very much different from what it was in early 1960s or even '70s. And the today's law is ambiguous to say the least.

This brief survey should indicate that although the Greco-Turkish disputes have their origin in law, they have important political aspects. In a dispute between two states over the delimitation of a boundary it is highly likely that the parties would think politically and would purport to sound legally. The conception of any legal solution to international sensitive issues has to first take place in political terms.

Legal Status quo, De Facto Status quo and Tendencies for Revisionism

Until the recent rapproachment it had seemed to be the entrenched Greek policy that Greece would not negotiate with Turkey any of its disputes except for the dispute on the limits of the continental shelf in the Aegean which it proposes to refer to the International Court of Justice in the Hague. The conclusions of the Helsinki Summit of the EU seem to suggest that Greece has abandoned its no-talk policy to Turkey however. As it stands, beneath this rigid policy lies an equally rigid but perhaps a misleading and to certain extent self-defeating misconception: the Greek understanding of **the status quo**. Greek scholars, statesmen, and media assert in concert that while Greece is a **status quo** state trying to maintain what it possesses, Turkey is a revisionist state, seeking to change or even to thwart **the status quo** in its favour.

From the Turkish perspective the truth is the other way round. The Greek perception of Turkey's position goes against the historical facts and is belied by the current Greek policies regarding the Aegean issues. We shall try to illustrate by way of examples what we mean.

By "revisionist" Greeks mean one who challenges the **status quo** established by law, and one who wishes to have things changed in his favour through illegal means. More or less they use the adjective "revisionist" for Turkey in this sense.

However Turkey is not a revisionist state and the reality is that it is Greece which has little or no respect for the **legal status quo** in the Aegean and is after a **de facto** revision of the latter. Greece first unilaterally defines and declares its own "rights" in the Aegean and then sticks to it as the unchallengeable **status quo**. Thus it creates its own **de facto status quo**. It refuses to talk with Turkey as to the legality or legitimacy of the **de facto** situation. This no- negotiation or no-talk policy of Greece, in our opinion, has no place in international law. The disputes are over boundaries or about the limits of sovereignty. In such cases a state cannot

or should not try unilaterally to dispose of the differences. The International Court of Justice ("ICJ") has expressly declared it in the Anglo-Norwegian Case that:

"The delimitation of sea areas has always an international aspect; it cannot be dependent merely on the will of the coastal state as expressed in its municipal law..."

"Accordingly unilateral claims for delimitation of maritime areas will not be valid under international law, and the attempts to establish maritime boundaries regardless of the legal position of other states are contrary to recognised principles of international law". (Anglo-Norwegian Case, **I.C.J., Reports**, 1951, para.32)

We hardly need to look for further judicial support for our view that in maritime areas where two or more states have rights, unilateral attempts by one of them to create new situations are not acceptable in law, if they adversely affect others.

Second, both the Permanent Court of International Justice ("PCIJ") and the ICJ made it clear in their case laws that when two states are in disagreement as to their respective rights in a particular area there is an international dispute between them. (See Mavromatis Jurisdiction Case, P.C.I.J., 1924, Series A, No 2, p.10) Unfortunately Greece and Turkey agree on few things in the Aegean. On the same issues they put forward different and opposing legal arguments. On some points of fact they do not see eye to eye. Then by definition they do have international disputes.

I think the Greek position of non-negotiation or no-talk with Turkey on the ongoing disputes would constitute a recipe for the escalation and aggravation of the already tense relations with regard to 'hard' issues . No one can be the judge in his own case. If one purports to propose and dispose at the same time, one can hardly have the long-desired peaceful solutions.

Third it seems that by "status quo" Greece probably means the **de facto** situation it has created in the Aegean. By way of example let me point to a few such situations:

1) Most of the islands in the Aegean are possessed by Greece and some of them are legally demilitarised. In the Lausanne Conference and after the Second World War the demilitarisation was considered as the price which Greece had to pay and in fact it agreed to pay in return for the acquisition of the ownership of the islands. The demilitarisation was also the **quid pro quo** for which Turkey agreed to the cession of the islands to Greece. They were demilitarised by the Laussane Treaty of 1923, the Paris Treaty of 1947, and by other relevant international documents of which we do not need to give details here. They constituted and still constitute the l**egal status quo** in the region in terms of security. Greece today repudiates the status quo. It has now militarised the islands. The demilitarisation which was the pre-condition of the transfer to Greece of the ownership of the islands is now seriously **de facto** changed or revised by Greece. Then the question is this: which **status quo** does Greece defend today? The **status quo** established by law or the **de facto status quo** which it has illegally created?

This is not the place to go into details of the issue but it is factually clear that Greece militarised the islands in early 1960s and Turkey deployed its Fourth Army in 1965 in response to the military insecurity created by the militarised islands. The so-called self-defence argument by Greece in justification of the militarisation thus is not acceptable.

2) Under the Lausanne Treaty the breadth of the territorial seas of the two countries was 3 nautical miles. That was the **status quo**; it was the main pillar of the overall political balance in the Aegean because the airspace, fishing, high seas rights, navigation, research, cable and pipeline laying rights all had to be determined by reference to the extent of the territorial sea. In 1936 Greece made the first indent on the **status quo** by extending its territorial waters from 3 miles to 6 miles. Unbelievably Turkey's reaction came as late as in 1964 when it also adopted the 6 mile rule. In fact the extension in 1936 of the territorial sea by Greece had shaken off the foundations of the Laussanne **status quo**. The Turkish acquiescence in the Greek departure from the 3 miles extension leaves little reason to comment... Today the 6 mile territorial sea in the Aegean represents the **status quo** for the two nations, with its consequences for the scope of the airspace, navigation, fishing etc.

Turkey has declared in express terms that it sticks to and it shall do everything possible to preserve the **status quo**. We all know that it is Greece which once again is purporting to challenge and thwart the **status quo** by its desire to extend its territorial waters from the six mile limit.

Under the present **status quo** the two states have areas of territorial seas and high seas available to them. Turkey has enjoyed uninterruptedly all the legitimate uses of the high seas in the area for hundreds of years. These uses include freedoms of overflight, navigation, fishing, cable and pipeline laying, scientific research, survey activities etc. Turkey today enjoys and " needs a right of unimpeded passage to gain access to the Mediterranean and open ocean. In addition air planes do not have the right of innocent passage and Turkey needs right of passage for its aircraft. Turkey now engages in naval and aerial military manoeuvres in the Aegean in order to maintain its defence preparedness. Turkey's concern is that if Greece extends its territorial sea to 12 nautical miles or establishes continental shelf and exclusive economic zone rights to the bulk of the Aegean Turkey will loose its right to move its ships and aircraft freely. " (See, Jon M. Van Dyke, "The Aegean Sea Dispute: Options and Avenues," in the Conference Papers, pp. 59, 64)

Any change to the legal **status quo** would result in confining Turkey within one mile of its coast in some places. And this would be in violation of its present rights under the **present status quo**. Were Greece to extend its territorial waters to 12 nautical miles it would expand territorially or in terms of sovereignty. It would extend its sovereignty to new areas which had hitherto been legitimately used by Turkey. Greece would increase its territorial waters but Turkey would lose

a range of vital rights or legitimate uses of the sea. The high seas areas available to it almost disappear.

With the extension of the Greek territorial waters the Turkish rights to overflight, fishing, navigation, military manoeuvres , scientific researches, cable laying would be lost. Turkey would also be deprived of its current continental shelf areas, as the seabed of the Aegean would automatically go to Greece with the territorial sea extension.

Turkey wants to maintain the **status quo**, because without the **status quo** its current rights cannot survive in that area.

This is what I believe is the picture of the **status quo**. Any attempt to solve the disputes need closely looking at it.

3) A state's airspace extends over its land territory and reaches as far as the outer limit of it territorial waters, and not beyond. In the Aegean Turkey and Greece have a 6 mile territorial waters respectively, but Greece wants an extra 4 mile air space , that is a 10 mile airspace altogether. This covers the bulk the air space of the Aegean. This is once again a challenge to the **legal status quo**. Now once again Greece's **status quo** is a **de facto** one! Turkey wants to maintain the legal **status quo** and it is against any revision of it.

4.) As to the question of the delimitation of the continental shelf, it is undisputed that the seabed of the Aegean Sea is undivided. The two countries abutting on the same seabed can make claims to the overlapping parts of it. Before the delimitation is effected, the two countries are equally entitled make claims to the whole undivided seabed in the delimitation area. The ICJ has said so much in the Jan Mayen case:

"But maritime boundary claims have the particular feature that there is an area of overlapping entitlements, in the absence of overlap between the areas which each state would have been able to claim had it not been for the presence of the other state; this was the basis of the principle of non-encroachment enunciated in the North Sea Continental Shelf Cases". (**I.C.J., Reports**, 1993, para. 59)

The Court further improved the same idea in the **Fonesca Case** where the coastal states were accepted to hold undivided areas in condominium beyond the Fonesca Bay. [Land, Island and Maritime Frontiers Dispute (EL Salvador/Honduras: Nicaragua Intervening), **I.C.J., Reports**, 1992, para. 351] In the Aegean Sea the seabed is undivided. Mutual claims overlap. Before the seabed is definitively delineated it is not known who owns what. Therefore the Turkish claim to the Aegean seabed is fully legitimate by any standard. The **status quo** is the undivided seabed for the time being. There is nothing about revisionism there.

5) Finally the rocks. The current row on some minor rocks in the Aegean should amply demonstrate that when two neighbouring nations refuse to talk to each other as a matter of foreign policy their disputes are likely to accumulate and escalate to a level which is difficult to manage.

Here the dispute is on territory, an inflammatory question. Without going into the merits of the dispute we can confidently say that the dispute is a legal one, both parties relying on different documents or making different interpretations of the same documents. The two sides are in disagreement as to a point of law: the ownership. Then Greece can hardly unilaterally establish in law that it alone is entitled to the ownership of the rocks according to its own interpretation of the relevant law. Once again we are faced with a unilaterally declared **status quo** for which Greece wants Turkey's acceptance.

In short, when one looks at the problem from the Turkish side, the picture of the **status quo** looks different than the picture Greece depicts.

Piecemeal, or Package Deal Approach

We have already concluded that Greece and Turkey have a number of disputes, and the dispute on the limits of the continental shelf is only one of them. The question here is how to approach these disputes.

A piecemeal approach should assume that each and every dispute has its own dynamics and distinct features, and there are no links between them. The outcome of the solution of one would not affect the others.

On the other hand a package deal approach should start from the premise that the disputes are interlinked, with the result that the resolution of one would affect the future of the others. So they must be handled together and within the same context.

Now in our opinion the Cyprus dispute ,and the dispute about treatment of minorities have no link with the Aegean disputes. They may be addressed separately.

On the other hand, the Aegean disputes are interlinked. The outcome of one would necessarily affect that of the others. For example a judicial settlement of the continental shelf dispute alone is likely to affect the future of other differences. Any further enlargement of the territorial sea in the Aegean by one party (read it Greece) would considerably diminish the area of the continental shelf which the other party may be entitled to claim (read it Turkey) if the two issues are not dealt with at the same time. Such an extension would adversely affect claims made by the parties to airspace, navigation, fishing, and high seas rights. A prior solution of the continental shelf dispute would likewise affect the position of the parties in regard to the other disputes. For example it would impact on the future of fishery rights or exclusive economic zone rights, as one state can hardly have these rights over the continental shelf of another state. It would also make it impossible for one party to make claims to the territorial sea over the seabed areas, which would go under the jurisdiction of the other party as the continental shelf.

It also seems that the resolution of the most recent row on the ownership of the rocks has some urgency, as all other uses or rights connected with the

ownership would have to decided after the dispute over the ownership has been disposed of.

On the other hand drawing a permanent line for one purpose without knowing other lines for other purposes could become a gamble so far as the other uses are concerned. Then in a legal settlement of the continental shelf alone the successful party would have killed two birds with one stone, while the other party would lose heavily, which would probably aggravate the current tension, far from helping to reduce or eliminate it

In conclusion, these considerations combine to suggest that there is an inseparable link between the Aegean issues. Hence a package deal approach is probably much more suitable.

Negotiations or Third Party Settlement

Coming back to the methods to be chosen for the purpose of solving the disputes, the two sides hold to different approaches. As it has been repeated before, in its official declarations Greece has refused to negotiate any "of its sovereign issues" with Turkey; it agrees however to refer the continental shelf dispute to the ICJ. Turkey in principle wants to negotiate all the disputes at the table in the first place but don't close the door to the international adjudication. This is an insurmountable obstacle.

In this context two points need addressing briefly. First, whatever might be the Greece's definition of mutual differences, it is clear that the two states do have disputes. We know that Greece and Turkey disagree unfortunately on many points of law and fact.

Second, the Greek covert and sometimes overt argument that Turkey refuses to go to the Court because the law is on the Greek side is not correct, because it ignores the fact that the method of negotiation is as much a lawful method for dispute settlement as the adjudication. In fact the law about conflict settlement does not support the Greek approach. In international law there is an obligation for a state to negotiate its differences or disputes with other states. (I.C.J. Reports, 1984, paras. 22,122, 230) But resorting to third party settlement is not compulsory. As the PCIJ said as far back as in 1929 the judicial settlement of a dispute "is simply an alternative to the direct and friendly settlement of such disputes between the parties." (P.C.I.J., Series A, No 22, p. 13)

The ICJ too has continued the same line of thought as it stated it in the North Sea Continental Shelf Cases:

"The parties are under an obligation to enter into negotiations with a view to arriving at an agreement and not merely go through a formal process of negotiations as a sort of prior condition for the automatic application of a certain method of delimitation in the absence of agreement. " (I.C.J., Reports 1969, para. 87)

The obligation to negotiate derives on the other hand from Article 33 of the UN Charter which places negotiations before the other methods for political settlement.

In cases of the maritime delimitation the importance of the negotiations is much more prominent because " the delimitation of sea areas has always an international aspect; it cannot be dependent merely upon the will of the coastal state as expressed in their municipal law" (Anglo-Norwegian Case, para. 132)

In a parallel way Article 6 of the Geneva Convention on the Continental Shelf and Articles 74 and 83 of the UN Convention on the Law of the Sea attach considerable significance to the agreement of the parties in formulating rules on delimitation of seabed or maritime areas. Neither of the Convention requires compulsory third party settlement. This situation is said to represent international law. The international practice also confirms this position. So far, scores of such disputes have been solved by agreements of the parties; only few have been referred to the ICJ.

Thus the Turkey's position that the mutual disputes should be negotiated first before resorting to third party settlement is a reasonable one.

In fact there are some reasons for which one can favour negotiations for the peaceful resolution of international disputes.

First, an international judicial settlement is risky, in that it is like a zero-game in which the winner takes all. In such a case the result might perpetuate the ongoing tension between the parties and eliminate the flexibility and room to manoeuvre for adjustments.

Second, states having disputes with one another resort to adjudication only after they have fully negotiated their differences, identifying points on which they agree or disagree. They also agree beforehand on what they are going to ask the Court to do for them. In the Aegean the parties agree on nothing except that the Aegean Sea is a sea!. Even in the case of the continental shelf, in the first place they do not agree on the area of delimitation. Greece insists that the area should be the maritime area between the easternmost Greek islands and the west coasts of Turkey, while Turkey would insist that the delimitation area should be the whole Aegean seabed between the coasts of the mainlands of the two nations.

Third, because of the obvious linkage between the Aegean disputes a package deal approach rather than adjudication might be more suitable. Through negotiations mutual trade-offs could be made which could minimise or compensate losses of one side in one area or on one issue by providing advantages or gains in another area or on another issue.

Fourth, it is not a coincidence that states which have so far submitted their maritime disputes to the judicial settlement have had friendly relations. Obviously good relations make it easy for the parties to accept the outcome of the judicial settlement and to sell it to their respective publics, as it was stated before the Turkish-Greek relations are improved.

Fifth, at least on some issues the law is not precise enough to enable the parties to predict the result or results of a third party settlement. For example the

law on the delimitation of the continental shelf is in a state of flux. It hardly gives any reliable guidance as to how the delimitation is to be effected. Judgments of the ICJ in the maritime disputes indicate that the Court has so far exercised very wide discretion coming close to the exercise of **ex aequo et bono** power or "roll-the-dice discretion" as some would call it.

The geography of the Aegean is one of the most complex in the world and its circumstances are extremely exceptional. It is not predictable which equitable principles the Court would derive from such complex geography in a judicial delimitation of the continental shelf. Therefore any outcome may be expected from a third party settlement of the Aegean continental shelf dispute.

Relying on all these reasons Turkey has proposed that the two parties should meaningfully negotiate their differences before any third party settlement is contemplated. This proposal accords with the Helsinki Summit conclusions.

Against this proposal it may be suggested that Governments of Turkey and Greece cannot make any concessions in the face of their publics which are hostile to each other. The way out is the third party settlement. Right, but before any meaningful step is taken for any contemplated settlement, a friendly political climate is needed, if the outcome is to bring peace.

A Tentative Proposal

In our preceding observations, we have come to the conclusions on the following points:

1) The two sides fear and mistrust each other for different reasons. The political relations between the two sides were extremely tense but are improving now and issues are inflammatory in nature. A Greco-Turkish d'etant is needed.

2) In spite of the pre-Helsinki Greek policy of no-negotiation or no-talk to Turkey as to any sovereign issue, the two sides do have international disputes under international law.

3) These disputes cannot be solved through unilateral acts without taking account of the interests of the other party and of the relevant rules of international law.

4) Some of the disputes seem to have arisen in reaction to certain fears caused by the other party or to some actions by the other party, which would be solved if the cause or **raison d'etre** of the problem, is removed first .For example Turkey has declared that it would consider any extension of the Greek territorial sea a **casus belli** ; Greece has remilitarised its islands after the Cyprus conflict ; and the Fourth Army was deployed by Turkey after Greece had remilitarised the islands.
5) The disputes have political as well as legal aspects intertwined.

6) The Aegean disputes are so intertwined that any solution of one would inevitably affect the outcome of the solution of the others.

In the light of these conclusions, we propose as follows: The current confidence-building measures, or foundation-laying measures which have been embodied in about ten agreements should be given effect resolutely and without delay. A direct telephone line should be established and maintained between the two governments to contact each other on any issues of mutual concern easily and less formally.

They should not allow themselves to be led by the virulent and bellicose media. Members of the leading media should also cooperate and accept not to provoke peoples. The current situation is satisfactory and it should be maintained.

Economic relations should be further supported. The 75 million Turkish market is a big market and it should attract the Greek businessmen. Mergers between the businesses and mutual investment must be encouraged. On environmental issues they should cooperate. On the repression of drug trafficking and terrorism they should act together. Population movement should be encouraged to show or to see that the other side is not dangerous or hostile .

For some times military manoeuvres might be suspended in the Aegean as it is seen to be the case now. In the Thrace the two sides may mutually withdraw their forces into the further interiors of their respective countries in order to show on the ground that they are friends. They should work together in the NATO more effectively. Thus the fear of military confrontation would be alleviated. The tension would be reduced.

After having laid down the foundation for the resolution of hard issues they may take the following measures:

The two sides should conclude a Greco-Turkish Pact on Stability and Friendship in which they should pledge themselves to:

*respect each other's territorial integrity and political independence in absolute terms, with the clear understanding not to use force against each other, and by providing for methods for peaceful solutions including third party settlement.

*maintain, and not to change, the **status quo** as established by the law, namely by the Laussane Treaty, the Paris Treaty, and the mutually agreed practices adopted thereafter, including the present **status quo** of the territorial sea, that is, the 6 miles practice.

*solve their outstanding disputes through peaceful means.

*retract any acts which would be incompatible with the **legal status quo** and the terms of the Pact. This would mean to return to **the status quo ante** in cases where the **status quo** has been **de facto** changed. For example, Turkey would take back the Parliament's decision about considering any extension of the Greek territorial sea as a **casus belli**, as the danger for such extension would have been removed by the Pact. Greece would respect the demilitarised status of some of the

islands, as again the alleged or perceived danger from the Turkish part would have been dissipated. Turkey would redeploy or even discharge its Fourth Army in the view of the affirmation of the **status quo** and of the Greek pledge to respect the demilitarised status of the said islands.

Once the issues such as the maintenance of the **status quo** regulated by the Pact, the two sides could start to implement the pledges: During this time they negotiate the unresolved questions. As the political climate improves they may refer to the third party such disputes as they have not been able to resolve through negotiations.

Such an overall solution, if achieved, would bring greater safety and permanent peace to the region; it would bring about democratic security which is the safest and cheapest.

COOPERATION IN THE ABSENCE OF MARITIME BOUNDARY AGREEMENTS: THE PURPOSE AND VALUE OF JOINT DEVELOPMENT

Martin PRATT and Clive SCHOFIELD
International Boundaries Research Unit, Mountjoy Research Centre Suite 3P,
University of Durham, DH13UR, UK

INTRODUCTION

The need for international cooperation in the management of the world's oceans is widely recognised, perhaps most strikingly in the 1982 United Nations Convention on the Law of the Sea (UNCLOS), which contains more than 50 explicit injunctions for states to cooperate in a wide variety of activities ranging from the conservation of living resources to the development and transfer of technology and the protection of archaeological and historical objects.

Clearly defined maritime boundaries are generally viewed as an essential component in the peaceful and sustainable management of maritime space. Although effective ocean management almost always requires transboundary cooperation, agreement on the limits of national sovereignty and jurisdiction is usually an important factor in making such cooperation possible.

Unfortunately, the process of maritime boundary delimitation has so far been a slow one. Only around 35% of the world's 425 or so potential maritime boundaries have been agreed; in the Mediterranean and Black Seas the proportion is even lower (just under 24%). By no means all of the boundaries that have yet to be delimited are disputed – some states simply haven't got round to what is often a time-consuming and costly exercise – but a significant number are a source of contention between neighbours. A recent survey by Gerald Blake revealed 55 competing claims to maritime jurisdiction (BLAKE, 2000) and there are almost certainly others that have yet to be made public. Some of these disputes are longstanding and apparently intractable, and a few have even given rise to military confrontation. The dispute between Greece and Turkey over boundaries in the Aegean certainly falls into the former category, and the two countries have only avoided military confrontation by the skin of their teeth on a number of occasions.

Yet it would be wrong to assume that failure to agree the alignment of a boundary precludes cooperation in the area under dispute. Indeed, UNCLOS contains a clear call for cooperation in such circumstances. Articles 74(3) and 83(3) relating to delimitation of the exclusive economic zone and continental shelf both state that:

> *Pending agreement...the States concerned, in a spirit of understanding and cooperation, shall make every effort to enter into provisional arrangements of a practical nature and, during this transitional period, not to jeopardise or hamper the reaching of a final agreement. Such agreements shall be without prejudice to the final delimitation.*

The aim of this paper is to provide an overview of the kind of 'provisional arrangements of a practical nature' that states have entered into around the world, in the hope of sparking ideas among experts on the Aegean for possible arrangements which may both encourage cooperation in the management of the sea and help to diffuse some of the political tension between the two countries with regard to maritime jurisdiction.

JOINT DEVELOPMENT ZONES

In recent years joint development zones (JDZs) have increasingly been heralded as a solution to intractable boundary disputes where the parties concerned cling inflexibly to overlapping claims. In situations where the borderlands contain significant natural resources but there appears to be little prospect of agreement on a boundary line in the foreseeable future, it has been argued that joint development agreements offer an ideal way forward – allowing the parties both to maintain their territorial claims and to gain access to the resources in question.

Joint development zones have also been welcomed as evidence of the emergence of a more broad-based, functionalist and comprehensive approach to boundary management, as opposed to more traditional legalistic and thus confrontational approaches focusing on the definition of a particular dividing line. As presented by its most enthusiastic advocates, the concept of joint development appears to offer great benefits and few apparent drawbacks and has attracted considerable discussion, debate and interest.

However, while there is little doubt that joint development arrangements have an important role to play in borderland management, particularly as a means of interim boundary dispute resolution, counter-arguments can nevertheless be raised to balance the aforementioned points. Indeed, it can be credibly maintained that joint development arrangements are by no means as obvious, logical or straightforward a solution as the body of advocating literature has suggested.

WHAT CONSTITUTES JOINT DEVELOPMENT?

The term 'joint development' has been used to apply to a wide variety of arrangements, ranging from undertakings not to drill within a certain distance of an established maritime boundary line (perhaps better described as joint lack of

development) to fully fledged agreements which include their own detailed, self-contained legal regimes and institutional structures for their regulation and management.

Within a true joint development zone, however, the states concerned enter into a formal agreement in order to pool their sovereign rights for a specifically designated purpose, for example the cooperative development and exploitation of hydrocarbon resources. Although much attention has, unsurprisingly, been lavished on joint development related to oil and gas resources, the concept can equally be applied to issues such as scientific research, fisheries management or the protection of the natural environment.

POTENTIAL BENEFITS AND DRAWBACKS OF JOINT DEVELOPMENT

BENEFITS

JDZs have the potential to facilitate the resolution of otherwise intractable disputes, unblocking often long-standing deadlocked negotiations. As Richardson (1988: 451-452) has noted, if the parties agree to such an arrangement:

> *the focus would be placed where it belonged: on a fair division of the resources at stake, rather than on the determination of an artificial line [thus] eliminating competition over the ownership of resources...especially where the resources are unknown.*

JDZs facilitate the exploration and subsequent exploitation of resources without undue delay, while circumventing the contentious issue of sovereignty – a scenario which would be highly beneficial to all parties involved. This is particularly true where the parties concerned attach a higher priority to the management and exploitation of the resources concerned than to 'winning' the boundary dispute, in which case a joint development zone represents an excellent functional response to their mutual resource management concerns (STORMONT & TOWNSEND-GAULT, 1995: 70).

JDZs can forestall the need to embark on a potentially time-consuming and highly costly boundary delimitation exercise. For example, on average, boundary cases submitted to the International Court of Justice (ICJ) for adjudication take in excess of four years to resolve – in addition to the time spent in fruitless negotiations prior to an agreement to submit the dispute to the Court. Moreover, litigation at the international level is extremely expensive with absolutely no guarantee of success for either side at the end of the process.

JDZs can also be beneficial when there is a lack of precise data concerning the scale, nature and area of hydrocarbon deposits in the disputed area. Should the parties attempt a delimitation in the absence of such information, there is every possibility that the resulting boundary line would cut across an oil or gas deposit. In

such circumstances the parties would be running the risk of creating considerable technical problems for the future in determining the proper share of production and revenues accruing to each party from divided oil and/or gas fields.

An agreement involving a JDZ is likely to be perceived by the parties as an *equitable* solution which, as emphasised by the ICJ and UNCLOS should be the goal of all boundary delimitation; it can therefore more easily be 'sold' to domestic public opinion.

JDZs may be applied exclusively to restricted, mutually acceptable areas rather than the entirety of the disputed zone and therefore represent an extremely *flexible* instrument which can be adapted to a whole range of geographical, technical and economic situations.

A JDZ may be 'unifunctional', that is, it may be tailored to concentrate on one specific element, such as hydrocarbons or fisheries. In contrast, a definitive delimitation may be complicated by a whole host of other issues for example security, environmental concerns, access to fisheries, navigation and piracy.

In relation to managing the resources of the joint zone, as well as pooling their sovereignty regarding the area concerned, the parties will be in a position to cooperatively pool their management capabilities. This may be a particular advantage where such human and technical resources are scare in both states. Alternatively, a more advanced state may be in a position to offer its services to the other to their mutual benefit.

A joint development zone is essentially a *cooperative* way in which to resolve a dispute whereas a delimitation is *confrontational* in character. Delimitation often yields a perceived 'winner' and 'loser' and may therefore be an ongoing source of stress between states. Furthermore, the initiation of a shared zone arrangement can help relieve neighbouring states of a major impediment to good relations. Although their operation and management depends on political goodwill, it can also be argued that, if successful, they are likely to *generate* goodwill and wider bilateral cooperation between the parties by acting as a confidence-building measure.

The establishment of a JDZ may be undertaken as a temporary measure and does not prevent the parties pursuing negotiations towards a mutually acceptable delimitation line in the future. States therefore feel reassured about joint zones because they provide a secure political context and a framework for practical action on resource exploration and exploitation while keeping the option of delimitation open for the future.

It can also be argued that joint development arrangements are consistent with international law in the shape of the views expressed in United Nations declarations, International Court of Justice pronouncements, international conventions such as UNCLOS, and in terms of state practice. Indeed, some commentators have expressed the view that norms of international law have developed to such an extent as to amount to a mandatory obligation to agree to joint development where it is clear that the law favours such a result; however, this view

is certainly not universally accepted, especially with regard to states which are not party to UNCLOS.

DRAWBACKS

Although there are now more than 20 JDZs of various kinds around the world, few of those have actually resulted in significant development. Given such limited state practice to draw on, it could be argued that the concept itself is as yet unproven. That there are relatively few examples of successful JDZs in existence should not, of course, preclude such arrangements from consideration, but it does argue against the concept's promotion as a panacea where the sole common denominator appears to be that jurisdictional claims overlap.

Another drawback associated with joint development arrangements is that the limits of the proposed joint zone are often defined by the limits of the parties' claims. The uncritical acceptance of these unilateral claims, which frequently have little or no legal validity otherwise, confers on them a degree of significance and credibility of which they are probably not worthy. This process may be seen as encouraging states to adopt extreme claims.

Joint development agreements are often highly sensitive as they can be perceived as representing a direct challenge to a state's sovereignty. Reaching such an agreement requires compromise over jurisdictional claims and thus involves an element of surrender. Furthermore, the issue of resources touches on states' vital interests. The conclusion of such agreements is therefore a highly political act and JDZs cannot be divorced from the overall political context between the states involved. As noted earlier, political will is essential to the successful implementation of joint development arrangements as they require a high degree of cooperation among the parties. As Stormont and Townsend-Gault (1995: 52) maintain, joint development should not be suggested lightly as:

> *The conclusion of any joint development arrangement, in the absence of the appropriate level of consent between the parties, is merely redrafting the problem and possibly complicating it further.*

Joint development should therefore probably not be presented as a 'last gasp' solution as this may ultimately aggravate tensions between the parties rather than ameliorate them. In addition, such an approach can obscure the profoundly functional nature of joint development arrangements, the aim of which is essentially to realise joint development or management of resources in the specified zone rather than to resolve a jurisdictional dispute.
Similarly, Jagota (1993: 117) has noted that:

> *…sensitive security conditions in the area, incompatible political relations between the disputants, vertical or dependent economic relations, reluctance to transfer technology or to codevelop technology, and other similar inconsistencies may generate resistance to joint development zones, with or without a maritime boundary.*

Furthermore, as development of oil and gas resources commonly has a timetable measured in decades, it is clear that in order to be successful the agreement must have an element of continuity. The agreement must therefore be able to withstand challenges such as domestic upheaval or a change of government in either country involved. In other words the two sides should have a high degree of commonality of interest in the maintenance of agreement which argues for a particularly close bilateral relationship.

JOINT DEVELOPMENT ZONES AROUND THE WORLD

There are 22 examples of JDZs worldwide, all but one of them relating to offshore areas (see Figure 1). Seventeen out of the 22 JDZs include provisions governing exploration and exploitation of transboundary hydrocarbon resources. The remaining five encompass issues such as scientific research, fisheries and metalliferous muds.

JOINT DEVELOPMENT AGREEMENTS IN THE ABSENCE OF BOUNDARY AGREEMENTS

Kuwait–Saudi Arabia in the Persian Gulf

This offshore JDZ emerged as part of the 1965 Kuwait-Saudi Neutral Zone partition agreement. The 1922 Neutral Zone agreement had made little provision for joint development since at the time oil was only a possibility rather than a reality but, as oil began to be produced in the 1950s, tension between the two countries increased greatly, ultimately leading to an agreement to divide the Neutral Zone. However, it was decided that the seabed beyond the 6 nautical mile (nm) territorial sea limit should be jointly exploited. This arrangement is somewhat complicated by a dispute concerning sovereignty over the offshore islands of Qaru and Umm al Maradim.

Iran–Sharjah in the Arabian/Persian Gulf

This is a case of a revenue sharing arrangement in respect of the territorial sea, rather than the continental shelf, of a disputed island and provides for a single oil company to operate under a memorandum of understanding between Iran and Sharjah.

The island of Abu Musa was (and remains) the subject of a long-standing dispute between the two countries. On 29 November 1971 a Memorandum of Understanding between Iran and Sharjah was first announced by the Ruler of Sharjah in the context of a tense political situation between the two states. The Memorandum, in its first sentence, states: *"Neither Iran nor Sharjah will give up its claim to Abu Musa nor recognize the other's claim"*, and goes on to provide for Iran's *"full jurisdiction"* in the agreed areas occupied by Iranian troops and Sharjah's retention of *"full jurisdiction"* over the remainder of the island. Although the settlement would be of a temporary nature, the parties also agreed on an equal sharing of revenues accruing from the exploitation of Abu Musa's resources.

Japan–Korea in the Sea of Japan

Stimulated by the 1973 OPEC oil crisis, this 1974 agreement covers an area of 29,092 nm² and is a classic example of a compromise after continental shelf boundary negotiations broke down (263 nm of median line boundary to the north were agreed at the same time). The agreement entered into force in 1978 and was set to last for 50 years – and longer if no boundary agreement is reached, although it can be terminated by either side with three years' notice. Costs and revenues are shared equally and each state has a right to grant concessions in all of the six subzones (there were originally nine subzones but the number was reduced to six in 1987 following survey indications that the area contains few, if any, prospective commercial fields).

Saudi Arabia–Sudan in the Red Sea

This zone was set up in 1974 in lieu of a fully agreed boundary and covers the area in the Red Sea between the two countries which lies beyond the 1,000m isobath. The agreement technically covers all natural resources but was aimed mainly towards metalliferous muds which are concentrated in the deeps off Sudan. Although Sudan could probably lay exclusive claim to these minerals, Saudi Arabia agreed to provide much of the capital for their exploitation, creating a mutually-beneficial relationship. In practice, however, there has been relatively little activity in this zone.

Australia–Indonesia in the Timor Sea (Timor Gap)

The Timor Gap Zone of Cooperation Treaty was signed in December 1989 with additional detailed regulations being added in 1991, and is probably the most sophisticated of all joint zones. It covers an area of 60,500 km² and is divided into three subzones. These are a 'sovereignty neutral' central zone in which costs and revenue from hydrocarbon activities are shared equally, and two peripheral

'national' zones in which 10% of hydrocarbon-related tax revenue is paid to the other side.

The agreement was built on the successful delimitation of the remaining 992 nm of seabed boundary in 1971-72. Negotiations were stalled following the Indonesian invasion of East Timor but, as Australia became aware of the oil potential of the Kelp structure (in the central zone), it gradually moved towards a *de jure* recognition of Indonesian sovereignty over the island in 1979, which allowed negotiations to recommence. The initial duration of the agreement was 40 years, to be followed by successive terms of 20 years. It is not yet clear whether independent East Timor will recognise the agreement or not.

Norway–USSR (Russia) in the Barents Sea

Formal negotiations over the Norway-USSR boundary in the Barents Sea began in 1974. An interim joint zone to regulate fishing was proposed in spring 1977, agreed in January 1978 and has been renewed annually ever since. The zone, known as the "Grey Zone" covers 67,500 km². A key feature of this zone is that its limits do not coincide with the boundaries claimed by the parties – a deliberate move designed to avoid a *de facto* confirmation of the validity of either side's jurisdictional claims.

Malaysia–Thailand in the Gulf of Thailand

A Memorandum of Understanding in February 1979 established broad principles for the joint development of *"non-living-resources, in particular petroleum"* in the area of overlapping claims between these two ASEAN states. A full agreement was not signed until May 1990 because of complications surrounding previously-granted Thai concessions (the 1979 Memorandum had stipulated a production-sharing regime but had also validated the legitimacy of existing licences). The agreement is for 50 years, to be extended if no boundary agreement is reached within that period.

Malaysia–Vietnam in the Gulf of Thailand

Having apparently learned from institutional problems in the Malaysia-Thailand and Australia-Indonesia agreements, this agreement eschews institutional and regime-building tendencies in favour of simply facilitating resource exploitation. It covers the area of overlapping claims (although no exact coordinates have yet been provided) and is due to last for 40 years, subject to reviews and extensions. The agreement offers a framework under which nominees of the two governments can enter into agreements for exploring and exploiting petroleum reserves once the area has been delimited. Costs and revenues are to be shared equally.

Colombia–Jamaica in the Caribbean

The Maritime Delimitation Treaty between Colombia and Jamaica of 12 November 1993 established a "Joint Regime Area" (JRA) to the west of an agreed maritime boundary. The JRA was defined as being a *"zone of joint management, control, exploration and exploitation of the living and non-living resources…pending the determination of the jurisdictional limits of each Party."* Within this area, however, two 12 nm-radius areas are excluded. These represent Colombia's territorial sea claims from Seranilla and Bajo Nuevo Cays. The total area of the JRA is approximately 4,500 nm².

Argentina–United Kingdom in the South Atlantic

Argentina has a long-standing and apparently intractable dispute with the UK over the sovereignty of the Falkland Islands, South Georgia and the South Sandwich Islands. The UK insists that it will retain sovereignty over the Falklands, as long as the population of the islands wishes to remain British; Argentina, despite its defeat in the 1982 war, maintains an equally determined sovereignty claim. However, tensions have reduced in recent years, with the two sides signing agreements relating to the management of living and non-living resources around the Falklands. The 1990 Joint Statement on the Conservation of Fisheries established a South Atlantic Fisheries Commission, and announced the cooperation of the two governments over the conservation of fish stocks between 45º and 60º south. The September 1995 Joint Declaration on Cooperation over Offshore Activities defined an area to the southwest of the islands in which the two governments would cooperate to encourage the exploration and production of hydrocarbons. These two agreements demonstrate that territorial disputes do not necessarily preclude the possibility of effective utilisation and management of resources, as long as the cooperation is clearly without prejudice to claims to sovereignty.

JOINT DEVELOPMENT AGREEMENTS WHERE BOUNDARIES HAVE BEEN DELIMITED

Lack of space prevents discussion of all the JDZs that have been established across or in the vicinity of fully-delimited maritime boundaries, but the following are among the more interesting and imaginative initiatives, some of whose features could just as well be incorporated into JDZs established in the absence of a boundary agreement.

Bahrain–Saudi Arabia in the Persian Gulf

This is generally considered to be the world's first JDZ agreement, signed in January 1958. It remains unique in that the hexagonal zone is located exclusively on

one side of the boundary (the Saudi side). Saudi Arabia has sovereignty and full control of the development of the area (basically the Faasht bu Saafa oilfield) but 50% of all revenue goes to Bahrain. In 1992, Saudi Arabia increased this figure to 70% for a two-year period.

Argentina–Uruguay in the Rio de la Plata

In an area of long-standing cooperation with protocols dating back to 1910, the Rio de la Plata Administrative Commission was established in the wake of a 1973 boundary delimitation to promote joint scientific research, regulate fishing, evaluate the rational use of living resources, monitor and coordinate conservation and pollution control, and aid navigation in the Rio de la Plata. There is no joint regime for hydrocarbons but each side has agreed to respect the other's right to exploit resources up to the boundary line. The joint zone does not include 12 nm of territorial waters off the respective coasts.

Australia–Papua New Guinea in the Torres Strait

The agreement concluded between Australia and Papua New Guinea (PNG) in 1978 concerning the Torres Strait represents an excellent example of a joint zone devoted to issues other than hydrocarbons. The agreement established a protected zone aimed at guarding traditional fishing activities and the free movement of traditional inhabitants, and regulating the exploitation of commercial fisheries (revenue is split 75:25 according to whose jurisdictional sector of the zone the fish are caught in). Within the protected zone separate continental shelf and fisheries boundaries were delimited. The agreement's detailed regulatory regime resolved sensitive sovereignty problems concerning the existence of numerous Australian islands in the northern parts of the strait near to the PNG coast, most of which fall on the Australian side of the fisheries boundary but the PNG side of the continental shelf jurisdiction line. In addition, the joint zone serves to protect traditional rights while promoting cooperative development of commercial fisheries. A joint advisory council was set up to promote cooperation and a moratorium on oil and gas exploration was imposed in the protected zone.

Iceland–Norway in the North Atlantic (Jan Mayen Island)

A product of a Conciliation Commission set up in 1980 to make recommendations for the resolution of a boundary dispute, this 45,470 km² zone lies unevenly across the border, 61% on the Norwegian side and 39% on the Icelandic side. Each state is entitled to 25% of revenue from petroleum activities on other side of border. Private companies carry state costs until commercial discoveries are made. It is generally considered that Norway was unusually generous in this agreement, in that it ignored the effect of the island of Jan Mayen in terms of entitlement to seabed. Moreover,

hydrocarbon fields straddling the joint zone and Icelandic waters are considered wholly Icelandic.

Guinea-Bissau–Senegal in the East Atlantic

A Management and Cooperation Agreement of 14 October 1993 provides for the joint exploration and exploitation of a triangular offshore zone extending out to 200 nm between the 220° and 268° azimuths drawn from Cape Roxo; the maritime boundary between the two countries extends along the 240° azimuth from the cape. A Management and Cooperation Agency was created to deal with mining and the production of petroleum products, the management of fisheries, and to control the exploration of resources. Within the zone, fishery resources are shared equally and continental shelf resources split in a ratio of 85% to Senegal, 15% to Guinea-Bissau.

This JDZ is noteworthy because it was established during a period when Guinea-Bissau was trying to persuade the ICJ to declare the 1989 maritime boundary award by an Arbitral Tribunal (which confirmed the maritime boundary established by France and Portugal in 1960) null and void. It therefore demonstrates the value of continuing to negotiate for as long as possible, even when litigation appears to be imminent.

Denmark–United Kingdom in the North Atlantic

In May 1999 Denmark and the United Kingdom finally concluded a maritime boundary agreement for the area between the Faroe Islands and Scotland after just over 21 years of negotiations. The agreement delimited separate continental shelf and fishery zone boundaries, with a "Special Area" of joint fisheries jurisdiction in the area where the two parties' fishery zone claims had overlapped. The Special Area covers approximately 8,000 km².

JOINT DEVELOPMENT IN THE AEGEAN?

Is some form of joint development possible and appropriate in the Aegean? While joint development arrangements have been established both in geographically complex areas (e.g. the Torres Straits) and in circumstances of legal and political confrontation (e.g. Argentina-UK and Guinea Bissau-Senegal), it is fair to say that none of the agreements outlined above have been concluded in a context as problematic as the Aegean.

Unless significant quantities of oil or gas are discovered in the area of overlapping continental shelf claims – which appears highly unlikely – a full-blown JDZ along the lines of the Japan-South Korea agreement or the Zone of Cooperation between Australia and Indonesia would seem to be an unnecessarily complicated (and

possibly inflammatory) option. However, an agreement to cooperate in areas of obvious mutual benefit, such as conserving living resources, controlling pollution and aiding navigation is certainly worth considering. The definition of the area in which such cooperation could occur might be problematic but, as noted above, a JDZ does not have to be defined by the claims of the parties; indeed, an agreement could begin with a number of small zones in less sensitive areas, with the possibility of expanding the area of cooperation over time as confidence is built.

REFERENCES

BLAKE, G.H. 2000. 'Borderlands Under Stress: Some Global Perspectives' in Pratt, M.A. and Brown, J.A. (eds) *Borderlands Under Stress*, London: Kluwer Law International: 1-16

STORMONT, W.G., TOWNSEND-GAULT, I. 1995. 'Offshore Petroleum Joint Development: Functional Instrument? Compromise? Obligation?' in Blake, G.H. *et al* (eds) *The Peaceful Management of Transboundary Resources*, London: Graham & Trotman: 51-76

BLAKE, G.H., CHIA LIN SIEN, GRUNDY-WARR, C., PRATT, M.A., SCHOFIELD, C.H. (eds) 1997. *International Boundaries and Environmental Security*, London: Kluwer Law International

BLAKE, G.H., PRATT, M.A., SCHOFIELD, C.H., BROWN, J.A. (eds) 1998. *Boundaries and Energy: Problems and Prospects*, London: Kluwer Law International

CHURCHILL, R., ULFSTEIN, G. 1992. *Marine Management in Disputed Areas: The Case of the Barents Sea*, London: Routledge

FOX, H. *et al*. 1989. *Joint Development of Offshore Oil and Gas*, London: British Institute of International and Comparative Law

JAGOTA, S.P. 1993. 'Maritime Boundary and Joint Development Zones: Emerging Trends', *Ocean Yearbook* 10: 110-131

LAGONI, K. 1984. 'Interim Measures Pending Maritime Delimitation Agreements', *American Journal of International Law*, 78: 345-368

LETALIK, N.G. 1988. 'Boundary Making in the Mediterranean' in Johnston, D.M. and Saunders, P.M. (eds) *Ocean Boundary Making: Regional Issues and Developments*, London: Croom Helm: 109-141

MIYOSHI, M. 1999. *The Joint Development of Offshore Oil and Gas*, Maritime Briefing Vol. 2 No. 5, Durham: IBRU Press

RICHARDSON, E.L. 1988. 'Jan Mayen in Perspective', *American Journal of International Law* 82 (July): 443-458.

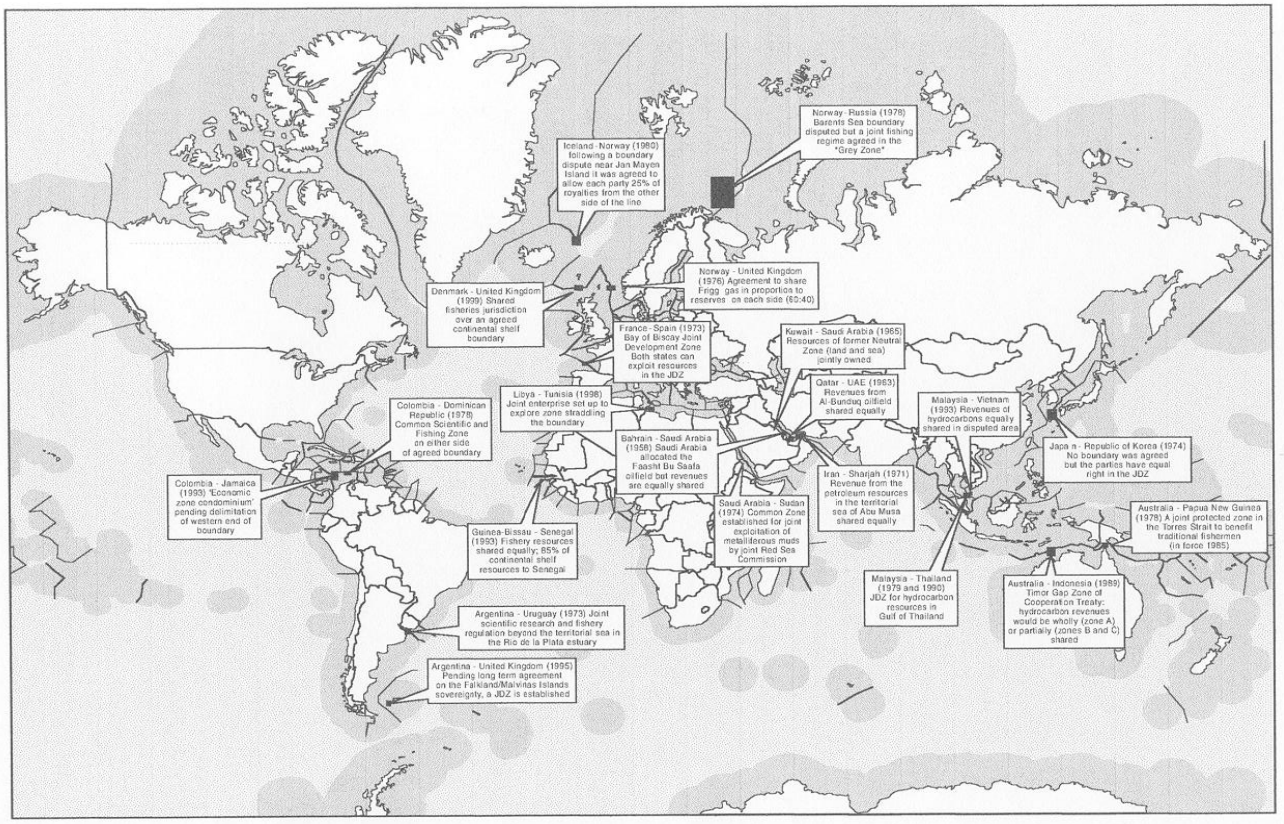


Figure 1: Offshore joint development zones around the world

MARITIME DELIMITATION IN THE AEGEAN SEA

Jon M. Van DYKE

William S. Richardson School of Law
University of Hawaii at Manoa, USA

Many observers have suggested that the present time may be propitious for settling the festering boundary disputes between Greece and Turkey in the Aegean Sea. The controversy between the two neighbors is one of the globe's most intractable maritime problems[45] and has proved to be difficult to resolve because of the unique geography of the region. Many detailed analyses have been written about the Aegean controversy,[46] and this short paper will not review all the ideas and arguments presented in these numerous publications. Instead, this paper will summarize the current governing principles and discuss the procedural options open to the two countries.

The competing positions of the two countries are easy to articulate. Greece asserts jurisdiction over all the living and nonliving resources of the Aegean based on its claim that the Greek islands scattered throughout the Aegean (some of which hug the Turkish coast) are entitled to generate continental shelves and exclusive economic zones (EEZs).[47] Greece also claims the right under Article 3 of the 1982 U.N. Law of the Sea Convention[48] to declare 12-nautical-mile territorial seas around its islands, although at the moment its territorial sea claim is limited to six nautical miles (and Greece claims national airspace around its islands of ten nautical miles).Turkey, on the other hand, asserts that its continental shelf extends to the midpoint of the Aegean as an extension of its landmass,[49] and that, as a large

[45] Another festering boundary delimitation problem is in the South China Sea. See Mark Valencia, Jon M. Van Dyke and Noel Ludwig, Sharing the Resources of the South China Sea (1998).

[46] See, e.g., Jon M. Van Dyke, The Aegean Sea Dispute: Options and Avenues, 20 Marine Policy 397 (1996); The Aegean Issues: Problems and Prospects (Foreign Policy Institute, Ankara, 1989); [1995 Meeting].

[47] Hellenic Ministry of Foreign Affairs, Unilateral Turkish Claims in the Aegean, http://www.mfa.gr/foreign/bilateral/aegean.htm (visited April 9, 2000); see also Greek Ministry of Press and Mass Media – Secretariat General of Information, The International Legal Status of the Aegean.

[48] United Nations Convention on the Law of the Sea, Dec. 10, 1982, UN Doc. 62/122, reprinted in 21 I.L.M. 1265 (1982).

[49] In 1976, for instance, Turkish President Fahri Koruturk said that the Aegean is "an extension of Asia Minor, and we will never allow it to be turned into an internal sea of another country." Time, Aug. 23, 1976, at 33.

populous country with a long maritime tradition and extensive coastline, it should be able to share in the resources of the Sea.[50] It strongly contends that its security interests entitle its ships and planes to unimpeded access through the Aegean, and hence argues strenuously that Greece is not entitled to extend its territorial sea from six to 12 nautical miles. Turkey also notes that the decisions of the International Court of Justice (ICJ) and arbitral tribunals have invariably limited the ability of islands to generate maritime zones in relation to opposite continental land masses[7] and hence that the Greek islands in the Aegean should not be entitled to generate full continental shelves and exclusive economic zones.

In my earlier writings,[8] I suggested that the most equitable solution to this dispute would involve dividing the Aegean into three sectors because of the different geography as one goes from north to south. In the northern Aegean, which has relatively few islands, a median line could be drawn between the continental land masses of the two countries, which would be adjusted somewhat toward Turkey because of the location of the islands and the proportionality of the coasts. Territorial-sea enclaves could be drawn around the Greek islands on the Turkish side of this line.

In the central sector, the number of Greek islands increases, so the maritime boundary would move eastward toward Turkey's coast. But Turkey should be allocated enough maritime area to give it a corridor from Istanbul to the Mediterranean and thus to protect its security needs.

In the southern sector, the number of Greek islands increases once again, and thus the maritime boundary line would move further east, but a Turkish corridor must still be provided to ensure unimpeded access.

In drawing the precise lines, attention would be given to the comparative length of the coastlines of the two countries.[9] If all islands are ignored, this ratio favors Greece by 59 to 41, and if the islands are included, the ratio is in favor of Greece by a 4 to 1 margin. Decisions of the ICJ have not used such figures with precision, but nonetheless have examined them to determine if a solution comports with a sense of rough justice or relative fairness. If its earlier decisions are followed, the ICJ would probably adopt a solution that allocated to Turkey somewhere between 20 and 41% of the Aegean's EEZ and continental shelf, while

---

[50] See Republic of Turkey Ministry of Foreign Affairs, Turkish-Greek Relations Aegean Problems, http://www.mfa.gov.tr/grupa/ade/adea/default.htm (visited April 9, 2000).

[7] See Van Dyke, supra note 2, at 400; Valencia, Van Dyke, and Ludwig, supra note, at 1; Jon M. Van Dyke, The Role of Islands in Delimiting Maritime Zones – The Boundary Between Turkey and Greece, in The Aegean Issues: Problems and Prospects 263 (Foreign Policy Institute, Ankara, 1989).

[8] Van Dyke, supra note 2, at 402-03.

[9] Id. at 398, 403.

also protecting its security and navigational interests by ensuring that it has a corridor connecting the Turkish Black Sea Straits to the Mediterranean.

The proper limits of the territorial seas in the Aegean presents a complex question. Although Article 3 of the Law of the Sea Convention permits countries to claim twelve-nautical- mile territorial seas, a number of examples exist where countries have claimed smaller territorial seas, usually in crowded semi-enclosed seas like the Aegean.[10] Article 300 of the Convention prohibits countries from making claims that constitute "an abuse of right," and the expansion of the territorial seas around the Greek islands – particularly those in the eastern Aegean – would appear to be such an abuse because the expanded territorial sea would completely fill the Aegean in the southern sector. Such a step would deny Turkey the unimpeded ability to moved its ships and planes between the Turkish Straits and the Mediterranean, because only the right of innocent passage exists through territorial seas, innocent passage can be suspended in times of war or emergency, and innocent passage does not permit submerged passage by submarines or overflight by planes, even in peacetime.[11]

Turkey's need for a navigational corridor through the Aegean is so central to its security interests that it must be part of a solution to this dispute. Even if expansion of the territorial seas around some of the Greek islands occurred, it would be crucial to ensure that a route is identified through which Turkish ships and planes can travel as a matter or right.

The closest geographical analogy is found in the Gulf of Finland, where the important Russian port of St. Petersburg (formerly Leningrad) sits at the eastern end, wedged in between Finland in the north and Estonia in the south.[12] Finland has claimed a 12-nautical mile territorial sea generally, but limited its claim to three nautical miles in the Gulf of Finland to enable Russia to have a corridor for unimpeded access to the Baltic Sea.[13]

Similarly, Belize has defined its territorial sea as extending 12 nautical miles from its coast, but has limited the claim to only three nautical miles between the mouth of the Sarstoon River and Ranguana Caye in order to give Guatemala a corridor for unimpeded transit into the Caribbean Sea, pending further negotiations.[14] Another example is provided in the France-Monaco Maritime

---

[10] Id. at 401-02.

[11] Law of the Sea Convention, supra note 4, arts. 17-19.

[12] This example and most of those that follow were provided by J. Ashley Roach, of the Office of the Legal Adviser, U.S. Department of State, April 7, 2000.

[13] For the Finnish legislation, see 29 United Nations Law of the Sea Bulletin 56.

[14] The Belize legislation is at 21 U.N. Law of the Sea Bulletin 3.

Delimitation Agreement of 1984 which allocated a 12-nautical-mile corridor to Monaco, to give it direct access to the Mediterranean.[15]

Two recent international decisions also support the idea that each coastal country is entitled to access to the high seas. In the St. Pierre and Miquelon Arbitration between France and Canada, the panel gave the French islands a narrow 200 nautical-mile long EEZ corridor across the Grand Banks to the high seas.[16] And the Gulf of Fonseca Case, the International Court of Justice recognized a shared or "condominium" control over the resources of the Gulf and extended that condominium regime into an EEZ corridor projecting to the high seas.[17] These conclusions are consistent with the "principle of nonencroachment," which is found in Article 7(6) of the Law of the Sea Convention[18] and seems generally to prevent one state from cutting off the extension of another state's entry into the high seas.[19]

What procedures can Greece and Turkey utilize to address and resolve these disputes? Direct negotiations are an obvious alternative. They have the advantage of allowing the parties to define the parameters and timetable of the discussion, and to permit issues to be bunched together, with trade-offs in one area possibly offset by gains in another area. Given the complexity and diversity of issues between Greece and Turkey, direct negotiations may be appropriate at least to define and focus the issues. Proposals presented in direct negotiations can be more creative than solutions directed by judicial or arbitral tribunals, and can include, for instance, a joint development or shared zone.

The second approach would be to establish a non-binding conciliation commission, which would make recommendations to the two countries. This approach was used successfully in the maritime dispute between Iceland and

---

[15] France-Monaco Maritime Delimitation Agreement of 1984, 9 U.N. Law of the Sea Bulletin 58.

Another example is Japan's limitations on the claimed breadth of its territorial seas at the Soya Straight, the Tsugaru Strait, the Tsushima Strait, and the Osumi Strait, to permit high seas corridors through those straits, U.S. Dept. of State, Limits in the Sea No. 120, Straight Baseline and Territorial Sea Claims: Japan (1998).

[16] Delimitation of the Maritime Areas Between Canada and France (St. Pierre and Miquelon), 31 I.L.M. 1149 (1949).

[17] Land, Island and Maritime Frontier Dispute (El Salvador v. Honduras; Nicaragua intervening), 1992 I.C.J. at 606-09 paras. 415-20.

[18] Article 7(6) of the Law of the Sea Convention, supra note 4, says that no state can use straight baselines " in such a manner as to cut off the territorial sea of another State from the high seas or an exclusive economic zone."

[19] See also Case Concerning Maritime Delimitation in the Area Between Greenland and Jan Mayen (Denmark v. Norway), 1993 I.C.J. 38, 69 para. 70, and 79-81 para. 92 (delimiting the EEZ in a manner that protected Norway's access to the capelin fishery).

Norway, with regard to Jan Mayen Island.[20] The conciliation commission proposed a joint development zone for part of the area, and its recommendations were followed.

The third approach would be to submit the dispute -- after it has been further defined – to the International Court of Justice, or to the International Tribunal for the Law of the Sea, or to an arbitral tribunal. Although such a third-party dispute mechanism has risks, it also has advantages. The risks are perhaps not as grave as they may seem at the outset, because every adjudication during the past 25 years has left each party with something, always splitting the difference between the claims presented by each side.[21] The advantage is that it leads to a solution in a situation where it may have been politically impossible for either side to have made the necessary territorial concessions to lead to a conclusion.

In the Gulf of Maine dispute between the United States and Canada, for instance, the fishing interests in both countries prevented the diplomats on both sides from giving up any territorial claims, no matter how reasonable. Although a treaty was negotiated, the legislatures in the two countries would not ratify the treaty. The festering dispute could be resolved only by an outside body immune from the political process – in this case a chamber of the ICJ..[22]

One question that needs to be resolved is whether the Aegean disputes should be examined by themselves, or whether they should be addressed in connection with other Greek-Turkish problems, such as Cyprus. Bunching all the problems together allows for tradeoffs, as mentioned above, but may also make the ultimate resolution more difficult to reach because of the deep emotional passions associated with the Cyprus question.

Another question is whether a joint development or shared "condominium" approach offers a possible solution,. These approaches have been utilized in a number of areas – even between traditional adversaries like Korea-Japan and Australia-Indonesia.[23] The northern Aegean does seem to be a de facto joint use area, because military exercises, navigation, and fishing, have been engaged in by each country without interference by the other. Establishing a more formal joint zone would protect the respective claims of each country while creating the possibility of promoting mutual trust and building confidence between the two neighbors.

---

[20] _____ I.L.M. _____ ( ).

[21] See Van Dyke, supra note 2, at 400.

[22] Delimitation of the Maritime Boundary in the Gulf of Maine Area (Canada v. U.S.), 1984 I.C.J. _____.

[23] See Valencia, Van Dyke, and Ludwig, supra note 1, at ___.

The peaceful resolution of the Aegean disputes is important to both Greece and Turkey, and, with persistence and a positive political will, such a conclusion is now realistic. If each country understands and respects the vital interests of the other country, it is altogether possible that a fair resolution could be achieved.

THE PROBLEM OF DELIMITING THE TERRITORIAL WATERS BETWEEN GREECE AND TURKEY IN THE AEGEAN SEA

Augusto SINAGRA
Studio Legale Sinagra – Sabatini – Sanci, Rome, Italy

1. If one takes in account not only the history and the present political relationship between Greece and Turkey, it is easy to see that the problem of regulating the Aegean Sea area pursuant to the rules of international law is an *unicum*. Relationship between Greece and Turkey are really complex and they show contradictory issues due to the fact that both Countries are members of NATO, of UEO, of Counsel of Europe and of many other important international organisations.

To find a common regulation of international law for the sea space in the Aegean Sea is particular and hard and this is also due to the geographical features of this part of sea. In the Aegean Sea there are almost three thousand islands, islets and rocks (a lot of them are uninhabited or they can not be inhabited for their geographical features) and most of them are under the greek sovereignty. This geomorphological and political situation in the Aegean Sea makes really difficult to find a criterion, acceptable for both Countries, that is respectful of the principles of international law not only in order to mark the boundary of each State's territorial waters, but also for the purpose of delimiting the continental shelf and the related air space problems.

2. We will be only interested in the problem of delimiting the territorial waters in a sea area where there are thousands of islands, islets and rocks.

To face this problem we must look at four main issues:

- if there are bilateral agreements between Greece and Turkey with regard to the above mentioned sea region;
- which are the applicable rules of international law according to the wide and multilateral international Conventions on the sea spaces;
- which are the general principles of the international Law of the sea, among which it must be included the equity principle and the principle of the protection of third States' rights and interests;
- the practice as followed by States for the purpose of delimiting the territorial waters.

It must be added that the analysis of the problem, the evaluation of the present situation and the research for a different and final resolution that is acceptable for both Countries, has to take in account a reflection that is also a rule of law: delimiting the breadth of its own territorial sea is not an expression of a sole and exclusive discretionary power of every single State. Delimiting must be in accordance with the general principles of international law on the subject and and it can nor violate the rules as provided by Treaties nor become an abuse of right (in

this case it would be nothing more than a violation of the international law as a result of the violation of a rule whose aim is to protect the rights and the interests of a third State or of the whole international Community).

3. In analysing the specific issue of territorial waters in the Aegean Sea we will not deal with the problem of sovereignty over the islands of the eastern Aegean sea that pursuant to the Treaty of Peace signed in Paris in 1947 were given to Greece by Italy, that had received them pursuant to the Treaty of Lausanne in 1923. In the same way, we will not face the problem due to the greek remilitarization of many of these islands whose demilitarization was ordered to Italy, first, and Greece, then, by the Treaties of Lausanne and Paris for the purpose of defending the security of Turkey because many islands are really very close to the turkish mainland on the aegean side.

Being stated all above, it is underlined how the greek and turkish perceptions of the territorial waters problem are opposite.

Turkey thinks that the Aegean Sea is so peculiar as not to be able to apply the settlements chosen for other sea regions.

At present for the purpose of delimiting the territorial sea Greece observes the six nautical mile territorial sea limit. Due to this Turkey has only three points at which shipping may enter or leave turkish territorial sea from international waters without passing through greek territorial sea.

An extension of greek territorial waters from six to twelve miles would prevent turkish ships from any free and direct access to the international waters. In these circumstances Turkey would regard the extension as a *casus belli* namely as a reason for using the military force in order to fight and repress the possible greek one-sided choice to extend the territorial sea from six to twelve miles.

On greek side, they claim their right to extend the territorial sea from six to twelve miles in alleged accordance with the present international law and in alleged compliance with the practice as followed by coastal States; moreover Greece says that at present this right will not be exercised because Greece is more interested in maintaining a good relationship with Turkey.

It has been also stated on greek side that the possible extension of her territorial sea to twelve miles would not "enclose" Turkey because it would leave untouched the right to innocent passage of turkish and third State ships through her territorial waters, according to the rule of the customary international law on this subject. Greece also states that she is not willing to limit the general freedom of the seas because Greece is the State that spends more money than any other State in the world for the sea activity.

According to the six-mile territorial sea limit, 43,5% of the Aegean is to be designate as a greek territorial sea; 7,5% of the Aegean as a turkish territorial sea and the left 49% as high seas, namely free waters.

Were Greece to extend with a one-sided decision the territorial waters from six to twelve nautical miles, the greek share of the Aegean would rise to

71,5% and the turkish one would be 8.7%; the proportion remaining high seas would fall to 19.7% to the detriment not only of the rights and interests of Turkey but also of any other State whose ships would sail across the Aegean Sea. This possibility would enclose Turkey in the narrow field of her own territorial waters and would prevent the free navigation of her ships notwithstanding the turkish mainland stretches for 2.820 Km along the Aegean Sea.

Moreover, an extension of baselines of every greek island in the Aegean Sea up to twelve nautical miles would fragmentize the little left high seas so as to make not useful sailing across it. As a matter of fact, the whole Aegean Sea would become a greek territorial sea.

According to the six-mile present rule, 126 Km of the turkish western coastline have a free access to the high seas; but if the territorial sea is extended to twelwe nautical miles, then the turkish coastline having a free access to the high seas would be reduced to only 12 Km. The situation would be paradoxal if one thinks to the detriment for the important economic and business interests of Turkey and if one keeps in mind that turkish coastline stretches for 2.820 Km along the Aegean Sea. Even the harbour of Izmir, the second most important harbour in Turkey, would have no chance for a free and direct access to international waters in the Aegean Sea and, hence, in the Mediterranean Sea.

It would be hard, then, to imagine the respect on greek side of other's right of innocent passage through her territorial waters, as provide by international law, because it would be easy for greek authorities to create false obstacles, unlawful limitations and any other kind of burdens, as already shown by the history of the air space above the Aegean Seas where Greece claims to exercise an exclusive sovereignty according to her own one-sided regulation.

Anyway, one thing is for sure: any turkish military activity would be allowed neither in the Aegean sea space neither in the above air space to the only detriment of military security of Turkey. We have to remind that since 1993 the turkish military flights are prevented from Greece even if they are flying under the NATO command.

This aspect of the whole problem shows how the final delimitation of territorial sea spaces involves very important and economic interests that are strictly related to the delimitation of the continental shelf, of the EEZ and to the freedom of flight in the above airspace. The issue concerning the territorial waters is not a problem only regarding the right and the opportunity for turkish ships to access the high seas and the Mediterranean without passing through the greek territorial waters.

4.The possible one-sided decision of Greece to extend her own territorial sea beyond the six-mile limit would also violate the UN Convention of Montego Bay of 1982 on the Law of the Sea which we will talk about later.

It is useful to remember that Greece took in consideration the legal, economic, strategic and political reasons of Turkey, even if they were not expressly

recognized; this happened in the recent and important joint *Declaration* signed in Madrid on 8 July, 1997. Given that there are no maritime boundaries in the Aegean Sea between Greece and Turkey upon which both Countries agreed and given that it is not possible to draw such a boundary according to a rule of customary international law that would give a State the freedom to delimit, at its own's discretion, the breadth of its own territorial sea, Greece and Turkey bound each other with the 1997 Madrid *Declaration* to refrain from any one-sided behaviour able to change the legal regime of the Aegean Sea with regard to territorial waters as well as to the contiguous zone, economic exclusive zone, fishing rights and continental shelf. The Madrid *Declaration* on the Aegean Sea guarantees, by binding both Countries, the preservation of *status quo* in this sea region; that means to preserve the present six-mile limit for territorial waters of both Countries. In fact the Madrid *Declaration* underlines in the first paragraph that any behaviour able to change the *status quo* with regard to the breadth of territorial sea would upset the balance as provided by the Treaty of Lausanne of 1923.

The whole greek-turkish dispute about the Aegean Sea turns around the main problem that is to say the final delimitation of each Country territorial sea pursuant to the limit of six nautical miles.

A different breadth of the territorial sea in the Aegean Sea, namely a breadth beyond the present limit of six miles, would turn the Aegean Sea into a greek territorial sea with only a few and limited areas of high seas; moreover those high seas areas would also be divided each other due to the huge number of greek islands. Any different resolution would endanger at all the vital interests of Turkey in the field of air and sea navigation.

The general rule of international law regarding the right of innocent passage through other's territorial waters and above airspace wouldn't be able to protect enough those vital interests because - as already said - any possible regulation could be easily used as a pretext and endanger the possibility of an effective passage.

Greece can not even recall the conventional rules as contained in the Convention of Montego Bay on the Law of the Sea that, anyway, Turkey did not sign.

Article 3 of the Montego Bay Convention, according to the age-old practice of the international law of the sea, provides that every State has the "right" to establish the breadth of its territorial sea up to a limit measured from coastal "baselines".

But one should add that the age-old history of inter State relationships on this specific issue, namely delimiting the breadth of territorial sea, shows how this "right" of every State to establish by itself the breadth has never been deemed as an unconditioned right: every State in exercising this "right" must take into account the geographical features of the sea region, the *historic rights* of every other coastal State, the vital interests of opposite or adjacent States and, moreover, the general interests of the international Community of States. The Montego Bay Convention

also refers to this; moreover the Convention implements principles, criteria, limits and scopes that, time after time, consolidated in this field of law by means of an unambiguous practice.

The practice tells that consent of the international Community of States is the basic guideline for regulating those issues. The Montego Bay Convention also deals with this aspect of consent and it must be remembered that the rule of the breadth of the territorial sea up to six nautical miles was born and was recognized only after that a general consent of the greater part of the international Community of States had formed on this rule. For centuries every development of the rule regarding the delimitation of the breadth of the territorial sea happened in accordance with the general consent of the international Community of States: from the point of the longest range of gunfires to the criterion of three nautical miles; from this criterion to that one of six nautical miles.

5. Hence article 3 of the Convention of Montego Bay has to be interpretated in only one way: every State has the right to delimit the breadth of its territorial sea but this right must be exercised taking into account the special circumstances of the specific sea area, the *historic rights* and the vital interests of any other State and, above all, the interests of the international Community of States. Among those general interests there is, first of all, the freedom of sailing in the high seas in order to let States entertain relationships. It is not possible to imagine and allow that, due to the unconditioned exercise of this "right", a State would be allowed to wholly "enclose" another State inside its own territorial waters: it would happen to Turkey if Greece claimed to exercise her alleged "right" beyond this limit of six miles. This limit, by the way, is already detrimental to Turkey. As a result, the article 3 of the Montego Bay Convention means that the limit of twelve nautical miles is the maximum breadth of a territorial sea of a State and that every State may establish with a one-sided decision the breadth of its territorial sea not beyond that limit - taking into account, anyway, the special circumstances, the rights and the interests of other States and of the whole international Community as well. The same article does not mean that a State may always exercise without reserve this "right" up to the limit of twelve nautical miles measured from coastal *baselines*.

This interpretation of the article is supported by the international practice of States and by the fact that general interests of international Community of States are not renounceable. Due to this, the interpretation does not need to be confirmed by the text of article 300 of Montego Bay Convention according to which States "doivent remplir de bonne foi les obligations qu'ils ont assumées aux termes de la Convention et exercer les droits, les compétences et les libertés reconnus dans la Convention d'une manière qui ne constitue pas un abus de droit.". In fact, in our case the problem is not the "abuse of right" but the non-existence of the right. From a general point of view it is a mistake to apply in international law, and as a result in the relationships among States, rules and structures that are part of the domestic private law of the States. To talk about "abuse of right" in international law is an

improper exercise: if there is an abuse, there can not be a right and what constitutes an abuse, a fact or a behaviour, is by itself an unlawful act according to the international law from which derives a responsibility for the State.

That is the reason why article 15 of the Convention of Montego Bay, dealing with the problem of delimiting the territorial sea among adjacent or opposite States, as in the case of Turkey and Greece, states that:

"Lorsque les cotes de deux Etats sont adjacentes ou se font face, ni l'un ni l'autre de ces Etats n'est en droit, sauf accord contraire entre eux, d'étendre sa mer territoriale au-delà de la ligne médiane dont tous les points sont équidistants des points les plus proches des lignes de base à partir desquelles est measurée la largeur de la mer territoriale de chacun des deux Etats. Cette disposition ne s'applique cependant pas dans le cas où, en raison de l'existence de titres historiques ou d'autres circonstances spéciales, il est nécessaire de délimiter autrement la mer territoriale des deux Etats".

If one looks for the best example of *titres historiques* and, above all, of *circostances spéciales*, then one should refer to the Aegean Sea; in this case the special circumstances are given by the existence of almost three thousand of islands, islets and rocks upon the greek territorial sovereignty. If the limit of the breadth of the territorial waters for every single island is extended up to twelve nautical miles, then the whole Aegean Sea will become a greek territorial sea.

There are three *criteria* that can be read in the article 15 of the Convention of Montego Bay and that can be applied to the relationship between Greece and Turkey for the purpose of delimiting the territorial sea of both Countries in the Aegean: 1) in preference a delimitation should be found through the agreement of the States and, anyway, without damage for the different rights and interests of third States and of the international Community of States; 2) without an agreement between two States, one should apply the criterion *de la ligne médiane* or of the equidistance, unless 3) there are the above mentioned *titres historiques* or *circostances spéciales*: in a case like this it is necessary to look for and apply a different criterion in order to delimit the territorial waters.

As it has been rightly observed, the criterion *de la ligne médiane* or of the equidistance, as any other criterion that is useful for the purpose of delimiting the sea areas, "may have a sense only if the special circumstances allow the recognition of all the various factors and elements in determining the baselines from which the line of the equidistance must be drawn"; from the same baselines one must also take into account the tempering of the rights and interests of the other opposite or adjacent State, of the possible rights and interests of third States and of the international Community of States. This is the typical example of the Aegean Sea where there are a lot of islands and islets upon the greek territorial sovereignty.

The italian doctrine said that "the rule of special circumstances has to be applied to those situations that can be called as *unusual*, and the existence of islands often creates situations like this".

It has been also observed that "it is neither necessary nor useful, for reasons that are both legal and practical, to qualify some factors as *special circumstances*. In fact special circumstance means every situation that can be qualified as *special*. So, something that is deemed as a special circumstance in a particular case it could not be deemed the same in a different case. The right of delimiting depends on the goal that one is trying to achieve. On the other hand, both the States' practice and the international case-law think of special circumstances as a concept that concerns equity, rather than as a definite and clear class of circumstances with special effects".

6. The Convention of Montego Bay in 1982, with regard to the issue of the territorial sea, recalls the *criteria* and the rules as provided in the Convention of Geneva in 1958 on the Law of the Sea and article 15 of Montego Bay Convention is like the article 12 of the Convention of Geneva. It must be underlined, anyway, that during the course of the preparatory works of the Conference and of the Convention of Montego Bay the problem of the islands with regard to delimitation of the territorial sea was faced. A trend was going to appear but then it was not translated into the Convention; according to this trend, on one hand, it was necessary to restrict the unlimited use of the twelve miles criterion for the territorial sea and, on the other hand, to grant a smaller breadth of territorial sea for islands and to create a new principle, that was not translated into the Convention, according to which the effects coming from the recognition of a territorial sea around islands as wide as it is around a mainland have to be evaluated looking at every single case.

It is true that the Convention of Montego Bay did not implement this trend but it is also true that a right interpretation of the whole text of the Convention forces the interpreter to recognise that the islands must be deemed as special circumstances. Otherwise, as we already said, the effects coming from an unlimited enforcement of the general *criteria* for recognising and delimiting the territorial waters would be inadmissible. One can see that looking at the preparatory works of the Convention and, above all, at the situation in the Aegean Sea where the agreement between States or the possible one-sided decisions must pursue equity and reasonableness: in order to achieve these goals, the rights and interests of both States must be taken into account as well as those of third States and of the international Community of States.

At the first Convention in Geneva, the british Delegate, talking about the *special circumstances*, told that the islands are part of this class and they must be "treated on their merits"; the doctrine rightly observed that "the merits to be considered regard the population, the economic issues, the size of the island, the political *status*; anyway, all of these factors must be evaluated according to the general geographical ambit".

The criterion is correct because it is reasonable. Moreover, it makes easier the problem of delimiting the turkish and greek territorial waters in the Aegean Sea because it does not allow an excessive breadth of territorial sea for those islands

that do not have the right to such a breadth due to their size, their population (very often they lack of population), their not relevant economic interests or more simply to the "general geographical ambit".

It is not possible to think that all the islands of a State must be taken into account for the purpose of delimiting the *baselines* from which the territorial sea and the other sea areas upon the jurisdiction of the coastal State must be calculated.

This was the english claim against France in the case of **Anglo-Normanne** islands and of Scilly islands; today the unacceptable and groundless claim, as submitted by Greece against Turkey regarding the Aegean Sea, is the same.

The claim is grounded, about islands, on the hypothesis that islands are *a natural prolongation of the mainland*. We will not discuss whether this hypothesis is groundless or not even if the hypothesis shows the unacceptable idea that the territorial sovereignty of a State may extend; anyway, the hypothesis can not deny the reality and the effects that come from the existence of islands in the Aegean Sea. Those islands must be deemed as *special circumstances* and due to this they have the power to create special effects for the purpose of delimiting the territorial waters between adjacent or opposite States.

Islands as special circumstances must be evaluated with regard to the consequences that could derive from the application of the general rules concerning the delimitation of the territorial sea. In the case of the Aegean Sea the consequence would be "the greek sovereignty over almost the whole sea region, with a very serious limitation of the freedom of sailing and flight not only for Turkey but also for every other third State".

It must be also said that the general principle that one has to apply for the purpose of delimiting the sea spaces must pursue a result of *equity* and respect of rights and interests of third parties as well as the respect of mandatory rules of international law. Islands - because they are *special circumstances* - can not be always deemed as the extreme borderline of a State's whole territory, namely as a *natural prolongation of the territory*.

Moreover, the criterion for tempering between general rule and *special circumstances* on this specific issue is recognised by the practice, by the national and international case-law and by the Treaties subsequent to 1878. In fact in this year it was issued the british "Territorial Waters Jurisdiction Act" where for the first time the problem of international law concerning the territorial sea was faced: before the issuing of this Act the idea of a territorial sea as a space upon the exclusive jurisdiction of a coastal State was unknown to the international practice and to the national case-law of that period.

Among many international Treaties on the subject, the agreement between Italy and Turkey signed on 4th of january 1932 is not an exception to the trend which we were talking about before. In this agreement it was applied the criterion *de la ligne mèdiane* and for the purpose of delimiting the territorial waters of each State the islands of Castellorizo and Kara-Ada were taken into account; but the real matter was the sovereignty upon the little and adjacent islands and it is sure that

Italy and Turkey were not - and are not - adjacent or opposite States: that is the reason why these islands could not be deemed as *special circumstances*.

7. Greek perception of the "Aegean Dispute" is really too much restrictive; Greece thinks that the only problem with Turkey is to find the right delimitation for the continental shelf. This means that Greece, on one side, at the moment does not want to extend the six-mile breadth of the territorial sea, but that, on the other side, Greece thinks to be free to exercise the alleged right (that would be grounded on a unlawful interpretation of the Convention of Montego Bay and on the unlawful extensibility of the State's territorial sovereignty over the sea space) to extend the breadth of her territorial sea up to twelve miles; moreover Greece would like to keep on exercising the alleged and unlawful exclusive power to control the whole air space over the Aegean Sea.

As a result of this attitude, it looks like the turkish attempts for an agreed resolution of all the issues related to the Aegean Sea, among which there is also that one related to the territorial sea, wouldn't succeed in achieving a satisfactory result for both Countries.

It is also right to remember that Turkey would accept any kind of peaceful dispute settlement procedure (including the claim before the International Court of Justice that, anyway, may not be submitted if Greece would not accept in advance the unconditioned and mandatory jurisdiction of the Court), but Turkey asks for a peaceful solution, if possible negotiated and agreed between States, over all the issues regarding the Aegean Sea while Greece thinks that all those issues, with the exception of the continental shelf matter, has been already resolved with her own one-sided decisions.

The greek attitude has been denied by the above mentioned *Declaration* of Madrid signed on 8th of July, 1997 and by the principles that are contained in this document on which Greece consented; moving from these principles it would be possible to look for a positive resolution of the greek-turkish problems regarding the Aegean Sea. The greek attitude, then, is not useful for the purpose of following the measures as provided by the "Confidence Building Measures in the Aegean" that were drawn with the help of the NATO General Secretary.

A LEGAL SURVEY OF THE AEGEAN ISSUES OF DISPUTE AND PROSPECTS FOR A NON-JUDICIAL MULTIDISCIPLINARY SOLUTION

David S. SALTZMAN
Saltzman & Evinch, P.C. 1010 Vermont Avenue,
NW Washington, DC 20005-4902, USA

I. ISSUES OF DISPUTE

Sovereignty and Militarization of the Eastern Aegean Islands.
The Kardak/Imia Incident, and the Status of Other Islands, Islets and Rocks.
Maritime Boundaries and the Breadth of Territorial Waters in the Aegean.
The Aegean Continental Shelf.
The Aegean Airspace.[51]

These disputes concern the Aegean Sea's two coastal states: Turkey and Greece. Turkey perceives each as a genuine issue requiring examination and resolution. Greece's position has been that "the only legitimate dispute that needs to be settled between Greece and Turkey in the Aegean is the delimitation of the Aegean continental shelf."[52] In this paper I will demonstrate that, by virtue of the existence of legitimate arguments in Turkey's favor regarding each issue, all of the issues ought to be settled. A favored method of settlement would be bilateral negotiations resulting in a durable, nonjudical, multidisciplinary solution.

A.Militarization of Greece's Eastern Aegean Islands

The mainland borders dividing Turkey and Greece, the sole Aegean coastal States, are not in question. They were established in Section I, Article 2 of the Treaty of Lausanne of January 24, 1923. The archipelagic and maritime boundaries of Turkey and Greece are not as neatly delineated as the land borders. One may group the eastern Aegean islands according to the international agreements which concern each: Article 14 of the Paris Treaty of Peace with Italy of February 10, 1947

[51] This paper is a shortened version of a more comprehensive paper bearing the same title. In particular, this paper omits discussion of the Aegean airspace. The more comprehensive paper is on file with the conference organizers and is also available from the author. As the scope of neither paper permits a complete dissection of each problem, the author looks forward to using this paper as a point of departure for additional, more specified research.

[52] From the pamphlet, Unilateral Turkish Claims in the Aegean, published by the Hellenic Ministry of Foreign Affairs, available on the web site http://www.mfa.gr/foreign/. Greece claims that beyond the continental shelf issue, "all other matters at times termed 'Aegean disputes' by Turkey consist exclusively of arbitrary claims again.

concerns the 14 islands known as the Dodecanese and the adjacent islets. Article 12 of the Lausanne Peace Treaty, including the February 13, 1914 decision communicated to the Greek government, concerns Samothrace and Lemnos. Article 13 of the Lausanne Peace treaty concerns Mytilene, Chios, Samos and Nikaria. All were transferred to Greece providing that they not be militarized.

During the 1960s, Greece began slowly to remilitarize many of these islands. Turkey protested repeatedly. Greece met these protests with assurances that the activities were meant only to enhance the law enforcement capabilities of the local police and in no way violated applicable international agreements. Upon the Turkish intervention in Cyprus, however, remilitarization began in earnest. Greece erected a series of defensive fortifications on Mytilene, Chios, Samos and Ikaria that included armored vehicles and artillery. A major air base was built on Lemnos. At approximately the same time Turkey created the Fourth Army, the Army of the Aegean, which, based at the port of Izmir is equipped with amphibious capability. To justify its militarization of the islands, the Greeks pointed to the apparent Turkish willingness to use force, as demonstrated on Cyprus, and to the power projection capability of Turkey.

Greece has often sought de facto legitimization for its actions through NATO. For instance, Greece requested establishment of a NATO infrastructure project on Lemnos, and sought to have that island included in a NATO Apex Express exercise. Both attempts were unsuccessful, but they do display the approach Greece has taken on the matter.

Turkey may posit legitimate arguments opposing the militarization of the islands based on several treaties. The Dodecanese, a group of Greek islands located off Turkey's southwest coast between Turkey and the Greek island of Crete, are directly discussed in the July 24, 1923 Lausanne Peace Treaty (the "Lausanne Peace Treaty"), including the February 13, 1914 decision communicated to the Greek government (the "1914 Decision"), and the February 10, 1947 Treaty of Peace with Italy (the "Paris Peace Treaty"). The Paris Peace Treaty states unequivocally, "These islands shall be and shall remain demilitarized."[53] Greece does not abide by this stipulation. As justification, it invokes a "constant threat" by Turkey, implying an inherent right of self-defense according to Article 51 of the Charter of the United Nations. Further, Greece asserts that Turkey, as a non-party to the treaty, has no right to seek enforcement, whether bilaterally, within the treaty's own dispute resolution mechanisms, or by other judicial means.

Although it is generally agreed that a third State can obtain rights under a treaty only if the parties so intend, in the aberrant case where the rights of third States are materially effected, there is no conspicuous rule. Non-party States, such

[53] Greece's use of U.S.-sourced equipment as part of its militarization of certain Aegean islands may not only render Greece in violation of treaty obligations, but also the U.S. in violation of its own domestic law such as the Foreign Assistance Act and the Arms Export Control Act. These issues are discussed in a paper entitled, "Analysis of Violations of International and U.S. Law Resulting from the Deployment of Certain Equipment on Aegean Islands," available from the author.

as Turkey, are required to resort to international law mechanisms outside the treaty itself. In the present instance, several alternatives exist. The 1969 Vienna Convention on the Law of Treaties strongly indicates that Greece must fulfill her treaty obligations regardless of the origin of the complaint. In addition, the Law of the Sea and the Statute of the International Court of Justice provide dispute resolution mechanisms with jurisdiction over the subject matter.

The issues are similar for Samothrace and Lemnos; islands strategically located near the entrance of the southern Turkish Straits, also known as the Dardanelles. Their militarization has proven to be one of the most contentious issues in the Aegean since the end of the first World War.[54]. Following the Balkan Wars, several instruments loosely confirmed the war gains of Greece, Bulgaria, Serbia and Montenegro at the expense of the Ottomans. They include the May 30, 1913 Treaty of Peace Between Bulgaria, Greece, Montenegro, Servia [sic.] and Turkey done at London, the November 14, 1913 Convention Between Greece and Turkey for the Consolidation of Peace and Friendship and the Restoration of Normal Relations done at Athens (together, the "1913 Treaties") and the Decision of the Conference of London which considered the 1913 Treaties and which was communicated to Greece on February 13, 1914 (the "1914 Decision"). The Lausanne Peace Treaty, made direct reference to the 1913 Treaties and the 1914 Decision and restated and reinforced the territorial provisions pertaining to the northeastern Aegean islands. The Lausanne Straits Regime, an integral part of the Lausanne Peace Treaty, also directly concerns Samothrace and Lemnos (as well as Gökçeada, Tenedos and the Rabbit Islands) and determines that the islands are part of a demilitarized zone. This regime was revisited in the Montreux Convention in 1936, which may replace the entirety of the arrangement established in the 1923 Lausanne Straits Regime.[55]

The 1913 Treaties and the 1914 Decision determined the extent and nature of Greek sovereignty in the eastern Aegean following the Balkan Wars. Specifically, the 1914 Decision determined that Greece could not fortify or use certain islands, among them Samothrace and Lemnos, for military or naval purposes. The 1923 Lausanne Convention on the Regime of the Straits, an integral part of the Lausanne Peace Treaty, provided that the territorial sovereignty of Turkey be recognized under the condition that a demilitarized zone be established along the coasts of the Turkish Straits. Significantly, this zone also included

[54] When confronted with the militarization of Lemnos in the mid 1980's, Greece forced the cancellation of NATO exercises, choosing instead to issue various proclamations accusing Turkey of threatening NATO security by refusing to accept its militarization. On April 7, 1985, then-Prime Minister Papandreou admitted, "Did we violate the Lausanne Treaty by militarizing the islands? Yes we did."

[55] In the fall of 1984, Greece attempted to include its forces on Lemnos as part of its NATO contingent. Turkey objected. Little progress has been made in resolving this dispute, and NATO has advised the two countries to settle the dispute themselves, seeking arbitration outside NATO if necessary. More recently, Turkey alleged that on March 19, 1999 one of its F-16 fighters flying in international air space was illuminated by radar from a Greek missile site on Lemnos. Turkey sent Greece a warning stating that pilots would be instructed to destroy missile sites in the future if they were tracked by air defense radar.

Samothrace, Lemnos, Gökçeada, Tenedos, and the Rabbit Islands. In Article 4 of the Lausanne Straits Regime, these islands were explicitly to be demilitarized.[56]

The Montreux Convention of 1936, to which both Turkey and Greece are parties, discusses the rights of States concerning the Turkish Straits and the surrounding lands and waters.[57] It does not specifically mention Samothrace and Lemnos. Theories abound whether the Montreux Convention relieves Greece of the obligation to demilitarize.

Thus, the treaties concerning the northeastern Aegean may not definitively settle the issue of demilitarization for Samothrace and Lemnos. Other sources of international law must be examined. Indeed, Turkey has been considering whether to seek to modify the Montreux Convention or even to withdraw from it in hopes of garnering support for an effort to create a new, comprehensive agreement.

Mytilene, Chios, Samos and Nikaria, located in the eastern Aegean near the Turkish coast, north of the Dodecanese, south of Samothrace and Lemnos, are specifically included among the group of six islands listed in Article 12 of the Lausanne Peace Treaty that also includes Samothrace and Lemnos. In Article 13, the Lausanne Peace Treaty provides that the islands are to be demilitarized. The 1914 Decision also provides Greece may not fortify or use Mytilene, Chios, Samos or Nikaria for military or naval purposes.

Greece and Turkey may also wish to consider the status of several non-Aegean islands, for example, Gavdos and Gavdopula, which lie off Crete's southern coast. Gavdos and Gavdopula are not specifically mentioned in any agreement. They also are outside of the zones covered by other regional agreements such that it is unlikely that they could be considered "adjacent," "appurtenant" or "dependent" upon the islands in those agreements. Nonetheless, Greece has behaved as sovereign over Gavdos and Gavdopula and presently maintains possession and control over the islands. Greece's sole present justification to sovereignty over the islands appears to be acquiescence. Turkey objects to this justification and claims that it persistently and publicly has objected to Greek claims over the islands. Turkey continues to urge NATO not to include the islands in exercises until the sovereignty issue is settled.[58]

---

[56] Commentators have argued that the somewhat vague provisions of the 1913 Treaties and the 1914 Decision concerning demilitarization have little present bearing on the islands' status in light of the express disposition of the military status of Mytilene, Chios, Samos and Nikaria made in the Lausanne Peace Treaty, and of Samothrace and Lemnos in the Lausanne Straits regime.

[57] The Montreux Convention remains in force as none of the signatories has submitted a note of renunciation. No amendments have been issued since its coming into force, though Turkey has instituted numerous stipulations for the safe use of the Turkish Straits. The Greek government believes that the Montreux Convention abolished any restriction on militarization. Though it expressly states that it supersedes the Lausanne Straits Regime, the Lausanne Straits Regime remains in effect and is void only to the extent it conflicts with regulations of the Montreux Convention.

[58] On May 30, 1996, during the planning of the NATO exercise, Dynamic Mix, the Turkish General Staff announced that Turkey opposed the inclusion of Gavdos in the exercise "due to its disputed status of property."

B.Islets and Rocks

This issue of the status of the many small named and unnamed islets and rocks not specifically mentioned in the several agreements concerning the Aegean is exemplified by the Kardak/Imia crisis. Kardak/Imia is a group of rocks lying within 3.5-nm of he Turkish coast and 6-nm of the Greek island of Calimnos. Kardak/Imia had been Ottoman territory for several hundred years. Following the Balkan Wars, World War I and the Turkish War of Independence lands in and around the Aegean were redistributed. Nowhere in the documents resolving these conflicts was Kardak/Imia specifically mentioned. The status of these barren rocks lay dormant until December 25, 1995 when the freighter Figen Akat ran aground near Kardak/Imia and then refused Greek salvage efforts. The crisis which emerged led to the Turkish and Greek navies circling each other menacingly in defense of rival claims of sovereignty. By February 1996, the tension had been diffused with the participation of the U.S. A brief flurry of diplomatic activity ensued ending with then Greek Prime Minister Pangalos suggestion that each nation consider demilitarizing the Aegean. Turkish Prime Minister Mesut Yilmaz ruled out the possibility.

Turkey has since announced a willingness to work out a negotiated settlement. Greece rejected the initial Turkish overture, but then softened its stance and announced a willingness to settle limited questions of ownership at the ICJ. Turkey has since said that it would rather consider the Kardak/Imia issue along with others in bilateral talks. As there exists arguments in favor of Turkey's assertion that ownership of the islet is unclear, the issue is ripe for settlement.

Article 15 of the Lausanne Peace Treaty records that 13 islands, including Calimnos and Castellorizo, are specifically ceded to Greece. Following the entry into force of the Lausanne Peace Treaty, Italy and Turkey endeavored to solve the status of certain islets and rocks near Castellorizo. Thus, Turkish and Italian negotiators convened in Ankara on June 18, 1931. The result was a Procès Verbal which formed the basis of the 1932 Convention Between Italy and Turkey ("Ankara Convention"). The Procès Verbal was signed by the Turkish Foreign Minister and the Italian Ambassador in Ankara, ratified according to the appropriate mechanisms of each State, and then registered with the League of Nations. It thus gained the force of law. However, the Ankara Convention though signed, was never registered with the League of Nations.

In order to resolve similar issues regarding islets and rocks associated with the Dodecanese, Turkish and Italian negotiators again convened in Ankara on December 28, 1932. Again, a Procès Verbal detailing the proceedings was drafted. However, it was merely initialed by the negotiators and was not signed by the States or ratified by itself or in conjunction with another instrument.

Greece claims that this second Procès Verbal, of December 28, 1932, though not independently signed or ratified by the States is an annex or supplementary protocol to the Lausanne Peace Treaty and the Ankara Convention.

To support this contention, Greece points to correspondence between the Turkish Foreign Minister and the Italian Ambassador on the date the Ankara Convention was signed, apparently authorizing the Procès Verbal. Thus, Greece argues, the Procès Verbal has the force of law.

The Greek position is untenable. The 1932 Procès Verbal was not properly registered in accordance with international law and practice. In addition, the Ankara Convention never gained the force of law due to Turkey's deliberate actions not to ratify it or deposit it with the League of Nations for registration and publication. In fact, after four years of inconclusive correspondence between Turkey and Italy, Italy informed the Turkish Government that non-ratification would render the Ankara Convention invalid. Indeed, Article 18 of the Covenant of the League of Nations provides, "Every Treaty or International Engagement entered into hereinafter by any Member of the League shall be forthwith registered with the Secretariat and shall as soon as possible be published by it."[59] No such Treaty or International Engagement shall be binding until so registered." The Ankara Convention remains on weak footing, having never been registered.[60]
Moreover, there is no evidence that the parties intended the 1932 Procès Verbal to enter into force, whether independently or adjunct to of another agreement. Most conspicuously absent is the Procès Verbal's ratification by the Turkish Grand National Assembly on January 14, 1933 when it ratified the Ankara Convention. The more likely explanation is that the 1932 Procès Verbal was viewed by the parties as merely the record of a meeting of technicians.

Article 15 of the Lausanne Peace Treaty ceded 14 specific islands, and "the islets dependent thereon" and no others. There are tens, if not hundreds of islets and rocks located in the seas containing the archipelago commonly known and the Dodecanese. However, very little has been done to determine precisely what is a "dependent" islet and which among the numerous islets and rocks in this area would thus be included within the meaning of Article 15. As the drafters of the Lausanne Peace Treaty went to certain lengths to name islands and failed to include Kardak/Imia, it can be presumed that its omission was intentional, and, therefore, that treaty did not intend the islands to be included among the Dodecanese.

Greece also refers to Articles 12 and 16 of the Lausanne Peace Treaty to argue that because Kardak/Imia is more than 3 miles from the Turkish coast, it had been ceded to Italy. Article 12 lists 6 islands that were ceded specifically. As a catchall, the article provides that all islands within 3 miles of the Turkish coast were to remain under Turkish sovereignty, implying that islands beyond this range are under Greek sovereignty.

[59] This was also consistent with the Turkish constitutional law and practice which holds that no rights or obligations can be conferred on a contracting State by a treaty until it is ratified.

As a preliminary counter-argument, it can be argued that Article 12 should be applied narrowly, only to the six enumerated islands in the far northeastern Aegean

Further, when making its argument, Greece traditionally omits the part of the article that states, ". . . the future of these territories and islands being settled or to be settled by the parties concerned." According to contemporary correspondence and diplomatic sources, the phrase, "being settled" was added upon the joint recommendation and agreement of Ministers Tittoni and Venizelos who had envisioned that some of the Ottoman islands occupied by Italy prior to the Lausanne Peace Treaty would be ceded to Greece. The phrase also may have been added in conjunction with the Bonin-Venizelos Agreement that was signed on August 10, 1920. However, neither the Bonin-Venizelos nor the Tittoni-Venizelos agreement were ratified and therefore had no force of law. Thus, whatever islands were being settled at the time remained under Ottoman sovereignty and thence came under Turkish sovereignty.

Regarding the phrase "to be settled," no action has been taken in this regard. Thus, Article 16 of Lausanne, insofar as unnamed islets are concerned, seems moribund if not dead. Therefore, it may be argued that as successor to the Ottoman Empire, the Turkish Republic continues to have sovereignty over those islets about which a change of sovereignty has not been specifically addressed.

In the post-World War II Paris Peace Treaty 14 named islands and "adjacent islets" of the Dodecanese were ceded by Italy to Greece. Greece believes that this treaty ceded the entire "Dodecanese Region" to Greece and that Kardak/Imia should be included within this region and further, that Kardak/Imia is a dependent islet of Calimnos. However, as with the Lausanne Peace Treaty, very little has been done to determine precisely what is an "adjacent" islet and which among the numerous islets and rocks in this area would be included within the meaning of Article 14. Again, as the drafters of the Paris Peace Treaty went to certain lengths to name islands and failed to include Kardak/Imia, it can be presumed that its omission was intentional.

In addition, it can be argued that in incorporating Article 15 of the Lausanne Peace Treaty into the 1947 Paris Peace Treaty, the drafters substituted the term "adjacent" in place of "dependent" to identify those islets to be transferred to Italy. The change in terminology was probably deliberate. Kardak lies approximately 6 miles from the nearest Dodecanese island -- Calimnos. Not only does Kardak fail to qualify under the Paris Treaty as "adjacent" to Calimnos, by virtue of being a group of barren rocks, it also does not constitute and "islet" or "islets" within the meaning of the Lausanne Treaty.

Greece has also claimed that because Turkey did not vociferously plead its case of ownership over Kardak/Imia before 1995, it had acquiesced to Greek sovereignty. However, sovereignty should not transfer by default. That the parties to the Lausanne Peace Treaty and the Paris Peace Treaty did not engage to determine the status of the innumerable islets and rocks should not prejudice

Turkey. Sovereignty is one of the most fundamental State rights enshrined in international law. As such, it should only be transferred with full intent. A right can only be ceded explicitly. Turkey, believing that islets and rocks not explicitly considered in prior agreements remain under Turkish sovereignty has no obligation to protest in the absence of conflict. Finally, Greece points to maps, ancient and modern, to show that Kardak/Imia lay in Greek waters, within Greek administrative zones. Turkey may point to its own maps and administrative delineations that show the contrary.

As implied by the discussion of Kardak/Imia above, numerous small islands, islets and rocks in the Aegean were never ceded to Greece by the Ottoman Empire or Turkey or any other State. Most are uninhabitable and of little intrinsic economic value. However, their importance is magnified in light of the implication national sovereignty over these geological formations. A State that owns even a small islet gains valuable, territorial waters, national airspace, seabed rights, and other interests.

Turkey recognizes Greek title to those islands, islets and rocks that were explicitly ceded to Greece by the various international treaties discussed above. Greece claims that although not mentioned in the treaties, the islands are included as "appurtenant," "dependent" or "adjacent" to included islands. In the alternative, Greece has taken steps to show that the islands, islets and rocks are under Greek administration and are home to Greek citizens.

However, as discussed earlier, sovereignty over small islands, islets, rocks and geological formations not mentioned in the treaties should be and can only be determined by treaty law or other recognizable agreement. Thus, Turkey correctly objects to Greek attempts to assert sovereignty over some of these bodies by including them within Greek civil administrative zones, enacting laws which apply to them, and apparently by settling Greek persons on some of them.[61]

Greece has also argued that sovereignty may be inferred according to boundaries established for Flight Information Regions ("FIR"s) and Search and Rescue Regions ("SAR"s). These have no bearing on sovereignty under any theory of international law

D.Territorial Seas

Turkey and Greece presently claim territorial waters of 6-nm in the Aegean. This leaves nearly one-half of the Aegean as high seas, international waters to be utilized freely by Turkey, Greece and third States. Because Greece maintains sovereignty

[61] Greece has included some of the disputed bodies in various European Union environmental programs, such as NATURA 2000 and CORINE. Despite this, the European Union has not recognized Greek sovereignty over the disputed bodies and has announced that inclusion in an environmental program bears no recognition of sovereignty.

over most of the islands in the Aegean, over four-fifths of the territorial seas in the Aegean are Greek.

Greece is a party to the United Nations Convention on the Law of the Sea (the "UNCLOS"),[62] which grants signatories the right to claim 12-nm territorial seas. Prior to the ratification vote, Greek Deputy Prime Minister George Mangakis told Parliament that "Greece will exercise its rights whenever its interest dictate." Upon ratifying the UNCLOS, Greece declared its intention to extend its territorial sea "at an appropriate time" and "according to its national strategy."[63] Should Greece expand its Aegean territorial sea claim to 12-nm Turkey, according to its domestic law and traditional practice, would do the same. In June 1995, the Turkish Parliament enacted a law authorizing the Turkish Government to employ "all necessary measures" to respond to any possible extension by Greece of its Aegean territorial waters beyond 6-nm. Thus, latent conflict rests in any potential change from Greece's present 6-nm claim. Clearly, a unilateral extension would create a severe crisis with fearsome consequences.

An extension of territorial sea claims to 12-nm would redistribute the portion of the Aegean basin controlled by each State. The current 6-nm limit renders 43.68 percent of the basin's waters under Greek control and 7.47 percent under Turkish control. A change to 12-nm limits would augment the area under Greek control to 71.53 percent of the basin, while Turkey's share would increase only slightly to 8.76 percent. The practical effect of this would be to reduce the area of high seas dramatically from 48.85 percent of the basin to 19.71 percent.[64] In effect, this would turn the Aegean into a Greek *mare clausum.*

Though Turkey enjoys a 2,820-km coastline along the Aegean, expanding to 12-nm the territorial seas around the numerous Greek islands laying close to the Turkish mainland would: (i) result in the isolation of Turkey's Aegean ports, forcing ships on the high seas wishing to enter Turkey's Aegean ports or the Turkish Straits to pass through Greek territorial waters; (ii) impinge upon Turkey's ability to defend its western shores, as Turkish Naval vessels would be forced to cross Greek territorial waters to enter the Aegean or pass to from the Aegean to the Mediterranean; (iii) make access to parts of the Aegean by Turkish military aircraft subject to Greek permission [65]; (iv) deny Turkey all but the slimmest Aegean

[62] December 10, 1982, U.N.Doc. A/CONF. 62/122, reprinted in 21 I.L.M. 1261, in force since November 16, 1994.

[63] Even before ratification, President Clinton sent a letter to the Turkish President and Prime Minister indicating that he had received reliable assurances from Greece that the territorial sea would not be extended.

[64] These figures are derived from Turkish maps. Alternate published figures yield similar results.

[65] When signing the UNCLOS, Greece reserved the right to determine which of its straits would be subject to transit passage, limiting all others to innocent passage. Greece's declaration was most likely issued to prevent Turkish aircraft from flying through straits near the Greek mainland, particularly the Kea Strait southeast of Athens. The reservation runs counter to the UNCLOS in that it violates Article 38(1), the so-called "Messina Exception,' which provides that "if the strait is formed by an island of a State bordering the strait and its mainland, transit passage shall not apply if there exists seaward of the

continental shelf and exclusive economic zone; (v) deny Turkey access to subsurface resources; (vi) deny Turkey sea-based scientific and tourism opportunities which are currently available to Turkey and Greece on an equal basis; and (vii) destroy the present *de facto* 6-nm territorial sea boundaries between the Turkey and Greece in the Aegean have existed for decades and have proven sensible and durable.

A unilateral extension of territorial waters in the Aegean, though permissible under Article 3, is not favored by the UNCLOS for several reasons. First, the 12-mile territorial sea limit envisaged in Article 3 is neither compulsory nor applied automatically. No compelling authority points to the opposite. Second, Article 25 permits a coastal State such as Turkey the right to protect its land, territorial waters and internal waters. Thus, Turkey's right to protect itself in any manner not violative of the United Nations Charter (the "UN Charter") or other aspect of international law is preserved.[66] Although the movement of Turkish warships may be impinged by an extension of territorial seas from 6 to 12-nm, the level of impingement, and indeed the totality of the circumstances, would be viewed in light of this article and the U.N. Charter.

Third, the UNCLOS requires in complex cases exemplified by the Aegean to be negotiated and solved based on mutual consent. To this end, Article 15 of the UNCLOS imposes an obligation for states to take into consideration the historic title and special circumstances of their case in delimiting territorial waters. Then, Article 300 stipulates that obligations assumed under this Convention must be fulfilled in good faith, and that the rights, jurisdiction and freedoms recognized in the Convention must be exercised in a manner that does not constitute an abuse of right. It is Turkey's belief that a unilateral extension of territorial seas from 6 to 12-nm by Greece would constitute and abuse of right and would ignore the historic responsibilities of coastal states in the Aegean as ratified in numerous treaties prior to the UNCLOS and in the UNCLOS itself.

Finally, Part XV of the UNCLOS covers the settlement of disputes. As an initial matter, Article 279 places the obligation on all parties to settle disputes in a peaceful manner. Following that, a comprehensive dispute settlement regime is offered. This regime defers, however, to prior bilateral or regional agreements that

---

island a route . . . of similar convenience . . . ." The Kea Strait is just such a case, thus raising the question of why Greece continues to persist in its approach. More compelling, the UNCLOS, by its own terms, prohibits reservations. Greece has attempted to circumvent this by labeling the reservation a "declaration." However, the UNCLOS prohibits declarations which "purport to exclude or to modify the legal effect of the provisions of this Convention in their application to that State." That is precisely what the Greek declaration does vis-a-vis the transit passage regime.

[66] Article 29 requires warships that do not comply with the laws and regulations of the coastal State to leave the territorial sea immediately. Articles 32 and 35, however, preserve the immunities of warships, allowing them to avoid the jurisdiction of any State other than the flag State. Article 111 provides that the hot pursuit of a foreign ship may be undertaken when the competent authorities of the coastal State have good reason to believe that the ship has violated the laws and regulations of that state. This right ends once the ship enters the territorial waters of its own state or a 3rd State.

may produce a binding decision. As a non-party to the UNCLOS, unless Turkey explicitly consents, it will not be subject to the dispute settlement UNCLOS regime. Nevertheless, a similar regime exists, established according to the UN Charter, to which both Turkey and Greece are parties – the ICJ. Moreover, the UNCLOS strongly urges parties to seek binding bilateral solutions external to the UNCLOS itself.

Thus, although Greece may make a *prima facie* argument that it may unilaterally extend its territorial waters to 12-nm, pursuant to both the UNCLOS and customary international law, Turkey may posit that such would constitute an abuse of right according to Article 300 of UNCLOS. Turkey remains reluctant to admit that Greece has the right to extend its territorial seas to 12-nm. Yet Article 300 strongly implies that to apply its strictures, one must first acknowledgment that the right exists – that Greece has the right to extend. Moreover, Turkey must also contend with the fact that as a non-party to the UNCLOS, its ability to assert a violation of its provisions is limited.

Regardless of any legal justification pro or con, unilateral extension would demonstrably increase the likelihood of hostilities. Turkey's security and commercial concerns are too significant to be buried by an overreliance on Article 3 of the UNCLOS. It would also seem reasonable for Turkey to object to being limited to innocent and transit passage through the Aegean.

Turkey's concerns are shared to a large extent by NATO, which regularly conducts exercises in the Aegean as well as relies upon unimpeded passage through the area for operations. If Greece unilaterally extends, many NATO activities in the Aegean would be subject to Greek acquiescence. The United States harbors similar concerns.

Given such considerations, the current scheme in the Aegean ought to be maintained because it benefits all parties. More importantly, it ought to be solemnized by agreement.

E. Maritime Delimitations and the Aegean Continental Shelf

Because sovereignty over territorial seas and airspace proceeds directly from sovereignty over land, the larger dispute in the Aegean is the one discussed above – who owns that which pokes above the surface of the water. For the most part, the parties have refrained from openly disputing the precise methods of establishing maritime boundaries in the Aegean. Nevertheless, a latent conflict rests here too as the territorial seas of Turkey and Greece directly abut one another in numerous places whether under the current 6-nm claim or the potential 12-nm claim. Moreover, has become necessary to fix boundaries other than territorial seas to address the multitude of other interests at stake in the Aegean.

In early 1976, Turkish parties conducted a series of scientific and geological research missions on the Aegean continental shelf beneath international waters. Soon thereafter, Greece applied to the United Nations Security Council and

the ICJ to prevent Turkey from further exploration, claiming absolute right to the entire continental shelf.[67] On August 10, 1976, Greece requested that the Security Council hold an urgent meeting to address what it considered, "repeated flagrant violations by Turkey of the sovereign rights of Greece upon the continental shelf in the Aegean." The same day, Greece instituted proceedings in the ICJ against Turkey in order to confirm Greece's exclusive rights to explore and exploit the continental shelf of the Aegean. With the ICJ application, Greece filed a request for interim measures to prevent Turkey from conducting further exploration until the issue before the ICJ was resolved.

On August 25, 1976, the Security Council issued Resolution 395 calling upon the parties "to resume direct negotiations over their differences," while offering the ICJ as a potential arbiter. On September 11, 1976, the ICJ denied the Greek request for interim measures. The Court also decided that areas beyond the territorial waters of each state, were in fact "areas in dispute."[68] On November 11, 1976, Turkey and Greece entered an agreement in Bern to negotiate the delimitation of the continental shelf. Turkey and Greece also undertook to refrain from any initiative or act concerning the Aegean continental shelf. The 1976 Bern Agreement is still valid and its terms continue bind both countries. Turkey continues to favor a negotiated settlement on this dispute.

Final resolution has been elusive. When Greece announced in 1987 that it planned to begin drilling for oil near the island of Thassos,[69] Turkey announced in that it was going to send the Sizmik I also to conduct oil explorations. Turkey further protested that the Greek plans would violate of the 1976 Bern Agreement, which had called for a moratorium on unilateral exploration and exploitation in the contested area until an agreement could be reached. Greece responded that the agreement had become inoperative through the passage of events.[70] Meanwhile in March 1987, Greece and Turkey again exchanged threats after a Turkish seismic vessel arrived in disputed waters to prospect for oil. Greece placed its armed forces on alert. The crisis was averted by intense American and NATO pressures, and both sides made certain concessions.

As discussed earlier, present claims of both sovereignty and territorial seas in the Aegean are derived in large measure from a series of agreements, which

[67] As the continental shelf crisis flared and in the wake of the Cyprus intervention, the Greek Foreign Minister suggested on April 17, 1976, that Turkey should unconditionally state that war between the two countries is inconceivable. He also asked that Turkey agree to bring disputes concerning the interpretation of the Lausanne and Paris Peace Treaties before the ICJ.

[68] In 1978, the Court decided that it did not have subject matter jurisdiction to hear the Greek application.

[69] According to some studies, there are at least six oil basins in the Aegean continental shelf, the largest near the island of Thassos in the northern Aegean. Greece estimates that the overall oil potential of the Aegean is significant and could rival that of Alaska and Malaysia.

[70] The situation took on international dimensions when Prime Minister Papandreou intentionally briefed ambassadors from the Warsaw Pact countries on the crisis before doing so with those from NATO nations. Papandreou cast blame for the situation on NATO and ordered operations suspended at the United States communications base at Nea Makri.

resulted in the dismantling of the Ottoman Empire and the establishment of the Turkish Republic. These agreements, though, fall well short of establishing international maritime boundaries. The 1923 Lausanne Peace Treaty lacks any description of maritime boundary delimitation between the ceded islands and the Turkish coast. Maps prepared by the International Boundary Commission in the years following the Lausanne Treaty provide "lines of allocation" or so-called "international boundary line[s]". Though it was the evident purpose of the Boundary Commission to settle the Greek and Turkish frontiers insofar as they indicated ownership of islands and islets on either side of the boundary, these lines of allocation function poorly as international maritime boundaries. Likewise, the 1932 Treaty between Italy and Turkey draws boundaries primarily to settle the ownership of islands, islets and rocks, but not to establish international maritime boundaries.

The international law concerning the definition of international maritime boundaries has developed highly since the era of those treaties and reveals a cogent system for determining maritime boundaries quite different from the ones evinced in these earlier agreements. When applying contemporary international legal standards for maritime boundary delimitation to the inadequate methods employed in the earlier treaties, which were primarily concerned with land boundary delimitation, the results can be incongruous. For instance, a Greek island may appear to rest in a Turkish territorial sea or the converse. This disturbing prospect must be addressed. At a minimum, incongruities between sovereignty over an island and its surrounding seas, otherwise known as "enclaving," should be precisely settled and subsequently recorded in a lasting manner that will preclude future dispute.

Although maritime delimitation principles have evolved since the Lausanne era in a manner such that maritime boundaries should be simpler to establish, following the North Sea Continental Shelf Cases ("North Sea cases") beginning in the late 1960s, the rules in fact became cloudier. The case law in particular demonstrates confusion over maritime delimitation around islands and the waning of the principle of equidistance. Courts have since been able to avoid the problems raised in the North Sea cases by resorting to the concept of proportionality of maritime sovereignty to coastal lengths.

The North Sea cases begin with the ICJ establishing the general rule of equidistance, a rule that was incorporated in Article 6 of the 1958 Geneva Convention on the Continental Shelf,[71] modified by the exception of special circumstances. Examples of such circumstances are where the coastline is of an exceptional configuration and where there exist a large number of small islands or navigable channels. The Aegean fits this description.

The ICJ began the North Sea cases era by citing three basic instructions for the delimitation of the continental shelf: (1) negotiate in good faith to reach an

[71] April 29, 1958, 15 U.S.T. 471, T.I.A.S. No. 5578, 449 U.N.T.S. 311

agreement; (2) do not encroach on natural prolongation; and (3) apply equitable principles, taking all circumstances into account and employing appropriate methods, including equidistance. Together, these formed an "equitable" doctrine for the North Sea. Many commentators oppose equitable decisions; they believe that they force the courts to make arbitrary policy rather than merely review, interpret or apply policy. Indeed, it has long been held that equity's role should be reserved for a limited number of situations. Nevertheless, within the equity concept rules emerged. The simplest rule is that a State can only have maritime sovereignty if it possesses a coastline, and the logical extensions of this notion. From there, one examines the geographic peculiarities of the situation and considers whether it would be more equitable to favor equidistance versus natural prolongation, and how to weigh such factors as natural resources and coastal length. The North Sea cases, for example, weighed most heavily the relative coastal lengths.

In the post-North Sea cases decisions the ICJ continued to refuse to apply consistent rules. Indeed, in the Anglo-French Arbitration and the Tunisia-Libya case, though the ICJ said it would find objective principals to determine which circumstances are relevant to the ultimate equitable consideration, in each of these cases the ICJ applied equity to determine those principals. Thus, the ICJ lapsed back to a purely equitable inquiry.

What is left is a seemingly arbitrary morass. In the North Sea cases and the Anglo-French Arbitration the principle of equidistance was applied as a juridical starting point for the application of equity. In the Gulf of Maine case, involving the single boundary of the continental shelf and the fishery zone between Canada and the United States, the U.S. argued issues of natural prolongation and historical fishing m rights, distinguishing also between primary and secondary coasts. Canada proposed instead "equitable equidistance," excluding certain U.S. coasts, acquiescence and economic repercussions. The ICJ rejected all of these contentions, yet could find nothing specific in international law justifying the equitable criteria and methods. The ICJ chose to provide no systematic definition of the relevant equitable criteria. They did, however, apply the following theories: (a) the land dominates the sea; (b) divide areas of overlap equally; (c) recognize non-encroachment and no cut-off; (d) apply proportionality to the length of coast lines; (e) preserve of vital existing fishing patterns; (f) optimize conservation and management of living resources; and (g) draw lines which reduce the potential for future disputes.[72]

After similarly fumbling through the Guinea-Bissau and Libya-Malta cases without enunciating a clear rule, the ICJ finally settled on the current scheme by which equidistance is given greater weight, while preserving the notion of proportionality. Equity seems to have been demoted and coastal geography has

[72] There is no apparent connection between these criteria and what is known as equity. Their content is different from that of the traditional equitable principles, and their function is neither to override nor to remedy the unintended effects of a rigid rule.

thus become the prime factor. Considerations such as the size, shape or depth of the land territory behind the coast, or whether the coastal land territory is entirely surrounded by water (island), or whether it belongs to a landmass (mainland) have largely been bypassed. The idea of the physical natural prolongation for the continental shelf and, by extension, the exclusive economic zone has also been abandoned. Thus, the characteristics of the ocean floor no longer count. Where distance counts, then, it is measured not on the seabed, but on the surface of the water.

To this general regime a series of refinements have been made. First among them is the renewed importance of equidistance. In the Jan Mayen case the ICJ stated, "that the median line occupies an important place in the practice of states. . . . [It] produces, in most geographical circumstances, an equitable result."[73] This was a pleasing development for it produced a rule with which equity could not easily interfere. As another refinement, proportionality has been used to balance gross disparities between zones and lengths of coastlines. The Jan Mayen case remains the most coherent statement by the ICJ on maritime boundary delineation. The ICJ stated that "The law does not require a delimitation based upon an endeavor to share out an area of overlap on the basis of comparative figures for the length of the coastal fronts and the areas generated by them." The ICJ also rejected the notion that proportionality requires a direct and mathematical application of ratios. Rather, the court determined that when the shares are "so disproportionate . . . it has been found necessary to take this circumstance into account in order to ensure an equitable solution." Thus, equidistance and proportionality appeared only as a moderating factor to test the results reached under other geographical methods.

Still other factors need to be considered such as the location of natural resources and no-cut-off. The case law shows that nations may jointly share resources that bestride a boundary. In effect, the location of natural resources in the continental shelf or EEZ is irrelevant to their delimitation. When, however, resources happen to be located on or about the equidistance/proportionality line, there is some discretion to adjust the line to reflect the internal considerations of delimitation overall. The no-cut-off idea merely says that a boundary decision should not result in a coastal State being prevented access to its ports. No-cut-off is an issue for Turkey as many of Turkey's Aegean ports are vulnerable to being cut off from direct access to the high seas should Greece, for example, claim 12 nm territorial seas.

A major problem in synthesizing the equidistance and proportionality methods is that because either by itself can produce a total delimitation, some type of balancing and prioritizing between them is necessary. Further complicating the task is the different nature of the two methods. Equidistance is rather concrete and geometric while proportionality is less reducible to sizes and lines. The case law

[73] The word "equitable" is used only to mean "fair" in this instance.

indicates that priority ought to be given to equidistance because of several inadequacies in proportionality, among them its poor applicability to opposing coastlines such as Greece and Turkey's. Proportionality, by contrast, fares much better with adjacent coastlines. In recent cases, the ICJ has given priority to equidistance. It has only resorted to a correction by proportionality if the result between coasts and shares obtained under equidistance in the particular region or sector is in excess of twice the coastal ratios in that region or sector. The UNCLOS at Article 83(1) provides that, "the delimitation of the continental shelf between States with opposite or adjacent coasts shall be effected by agreement on the basis of international law, as referred to in Article 38 of the Statute of the International Court of Justice, in order to achieve an equitable solution."

Of greater interest to Turkey is the status of island coastal fronts. While international agreements and case law recognize the equal status and rights of all coastal territory, including that of islands, in some cases minor or small islands are somehow given lesser effect. For instance, while the UNCLOS explicitly confirms that islands are entitled to a territorial sea of their own, with no equitable limits placed thereon, the UNCLOS does not include among such islands having a full coastal front rocks which are incapable of supporting human habitation. This would appear to be the case for Kardak/Imia. Indeed, the raises still another issue: defining precisely what is an island for delimitation purposes. The time is ripe to search for and establish such guidelines.

Where islands are mentioned in agreements, they tend to enjoy equal status with other lands. Both Article 1 of the Geneva Convention and Article 121(2) of the UNCLOS recognize that islands enjoy equal status and equal continental shelf and exclusive zone maritime rights with any other configuration of territory. UNCLOS does say, however that distant islands project no economic zone or continental shelf of their own. Turkey's has thus proposed eliminating the rights of smaller islands providing that an island "situated in the economic zone or the continental shelf of other States shall have no economic zone or continental shelf of its own if it does not contain at the least one tenth of the land area and population of the State to which it belongs." Turkey also proposed that the maritime spaces of such islands should, "be delimited on the basis of relevant factors taking into account equitable criteria..." such as size, shape, geology, the needs and interests of inhabitants, and location relative to the territorial waters of another State. Unfortunately, this proposed regime relies on criteria that have been either explicitly rejected, or have not been taken into consideration in the prior cases.

The UNCLOS does not provide much assistance as it does not specifically address the maritime rights of islands in the context of a semi-enclosed sea. Thus, one can surmise that islands situated near another state are not just special

circumstances sitting on another State's continental shelf.[74] They may in fact be entitled to full status either on their own. In the case law, in every instance where an island was by some means given lesser effect, or status below equidistance, a proportionality adjustment was made. In no case was an island of comparable coastal dimensions with a mainland treated differently. The share of every island, however, like that of any other coastal territory, is affected by applicable considerations in the general geographical context. Thus, whereas the Aegean is concerned, one would expect equidistance to be adjusted by proportionality.

Negotiated settlements on maritime delimitations have not produced a stable body of international law because the settlements have often reflected considerations beyond those now favored by the ICJ. Thus, although it seems appropriate that equity or subjective principles ought not form the basis of ICJ maritime boundary decisions one must respect that the same principles can form the basis of durable bilateral or multilateral non-judicial settlements of boundary disputes. Turkey believes equitable principles should be considered, whereas Greece wishes to rely more on equidistance – presently the ICJ's preferred criterion. Thus, as the newly evolving principals tend to favor Greece, it would be to Turkey's advantage to keep this issue on the negotiating table and out of the hands of the ICJ. One available conclusion may be that Greece and Turkey would be able to reach a more durable and comprehensive solution if they do not submit their Aegean Sea boundary issues to the ICJ.

II. PROSPECTS FOR A NON-JUDICIAL, MULTIDISCIPLINARY SOLUTION

Before the parties arrive at the negotiating table to ponder a non-judicial solution, there must be some sort of agreement on what is in dispute. Turkey's starting point is that all of the issues thus far discussed are, at least in theory, subject to bilateral, or even multilateral, non-judicial resolution. Greece has been more or less consistent in asserting that only the continental shelf issue may be discussed. Greece considers all other issues unilateral Turkish claims. If indeed any other issues exist, Greece suggests, then perhaps they may be considered independently by the ICJ. More precisely, Greece characterizes the issues as purely legal whereas Turkey views them as also having important political components.

A. Progress, However Slight

Despite this divergence in approaches, as highlighted below, the parties have made some progress, however, slight.

[74] Concerning islands, the UNCLOS has adopted an approach favoring Greece. While it refers to pursuit of an equitable solution in Article 83, it does not call for the application of equitable principles. Based upon this outcome, it is believed, Turkey elected not to sign the UNCLOS.

In 1988, Greece and Turkey held talks in Davos, Switzerland designed to produce and implement tension-reducing procedures. The talks resulted in the Papoulias-Yilmaz Accords by which the States determined not to conduct unilateral military maneuvers in the Aegean between July 1 and September 1. In addition, a "hot line" was established between Ankara and Athens. The Prime Ministers also agreed to meet annually and to establish a joint committee to work out standing disagreements, including those over the Aegean. Following the talks, Turkey continued to favor bilateral negotiations while Greece urged ICJ participation. Any good will created by the talks and the accords as Greece continued to protest what it perceived as violations if its airspace by Turkish aircraft.

During an April 1996 visit to Washington, Greek Prime Minister Simitis proposed that Greece and Turkey adopt a "step by step" approach in order to improve the relations between the two countries. This proposal contained three recommendations: (1) Turkey should refer the Kardak/Imia issue to the ICJ; (2) Greece and Turkey should sign an agreement to accede to the jurisdiction of the ICJ for the delimitation of the Aegean continental shelf; and (3) Greece and Turkey should resume a dialogue on other bilateral, non-territorial, non-military issues such as economic affairs, trade, drug and trafficking.

In early 1997 a "Group of Wisemen" who would consider Greek-Turkish acrimony was created at the behest of the E.U. Presidency. Greece appointed Professors Krateros Ioannou and Argyris Fatouros. Turkey appointed former Ambassadors Suat Bilge and Sukru Elekdag. At the end of December 1997, the Turkish experts sent a letter directly to their Greek counterparts. Greece complained that by not communicating via the E.U. President Turkey had attempted to supersede the E.U. Presidency, through which all the memoranda were to have been sent. However, after the European Council's Luxembourg Decision of December 1996 Turkey had since frozen direct dialogue with the E.U. Greece vowed eventually to bring the "Wisemen" issues before the E.U.

On July 8, 1997, the Madrid Statement was issued. The statement was the result of a meeting between Turkish President Süleyman Demirel, and Greek Prime Minister Kostas Simitis, held during the NATO Summit in Madrid. The joint statement constitutes only a declaration of principles and is not, by its terms, binding. In it, each State declared to respect the sovereignty of the other and that each respects the fundamental principles of international law. Turkey and Greece also announced a commitment to avoid unilateral actions, to deter conflicts due to misinterpretations, and to settle differences through peaceful means.

Foreign Ministers Pangalos and Cem met in the margins of the U.N. General Assembly on September 23, 1997, without any significant results. In the beginning of November 1997, Prime Ministers Simitis and Yilmaz met in Crete, in the margin of the Informal Summit of SE Europe's Heads of State and Governments. Although the meeting did not produce tangible results, Pangalos and Cem, also in attendance, agreed that the principles governing the Joint Declaration of Madrid should be adhered to.

On February 16, 1999, Turkish special forces took into custody PKK Chief Abdullah Ocalan in Kenya where he had been hiding in the Greek embassy. Turkey's Foreign Ministry says Greece must account for "how it came to support a terrorist monster who has murdered thousands of people." Turkish Prime Minister Bulent Ecevit calls Greek behavior "unforgivable."

On June 30, 1999, just five months after Turkish Prime Minister Bulent Ecevit calls Greek behavior in the Ocalan affair, "unforgivable," Foreign Ministers Cem and Papandreou meet in New York and agree to low-level talks on uncontroversial mutual issues. Talks begin on July 26.

On August 17, 1999 the first of two major earthquakes hit northwest Turkey. Greece quickly provides aid and sympathy. On September 7, an earthquake hits an Athens suburb. Turkey is among the first to provide rescue workers.

On September 23, 1999, before the United Nations General Assembly, Foreign Minister Cem hails the new spirit of cooperation with Greece.

On December 11, 1999, Greece drops its objections to making Turkey a candidate for E.U. membership candidate. Turkey accepts the offer to be a candidate made at the Helsinki summit.

On January 20, 2000, Foreign Minister Papandreou visits Ankara hailing "a new chapter" in relations. Prime Minister Ecevit invites Prime Minister Simitis to visit Ankara, but Greece says it is too soon.

On February 3, 2000, Foreign Minister Cem arrives in Athens to sign a number of bilateral agreements on uncontroversial issues.

B.Whether Issues are In Dispute

Recent signs of rapprochement notwithstanding, the positions of the parties toward the issues have not changed. Thus, there seems to be little room to initiate a dialogue. However, I would posit that as long as one party insists there is a dispute, there indeed exists a dispute that both parties ought to address. When Greece asserts that all issues but the continental shelf issue have been raised unilaterally by Turkey, it should be taken merely as a statement of Greece's position in the dispute, that it prefers the status quo as viewed from Athens.

Regardless, one cannot force another to the negotiating table by mere semantics or for that matter by proving the mere existence of a dispute. Rather, there must be: (1) recognition the existence of differences of opinion that create tension; (2) sincere desire to deflate this tension; and (3) willingness on the part of both sides to make doctrinal changes and other compromises which would produce a durable solution.

C.Functional Theory of Management

Contrary to Greek assertions, the numerous issues in the Aegean are intricately bound together. For example, one cannot solve the issue of Aegean airspace without addressing the limits of each nation's territorial seas. One cannot solve the territorial seas issue without addressing the sovereignty over disputed islands, islets and rocks. Thus, the entire management of the Aegean basin must be examined if a durable solution is to be found. The prime concern from which all other issues would be considered will be the settling of maritime boundaries in the Aegean.

To date, approximately 120 maritime boundary settlements have been registered with the United Nations. The majority of them rely primarily on geography, attributes of the land bordering the waters subject to the agreement. This is in keeping with the UNCLOS' general preference for expanded coastal State jurisdiction. Several agreements, however, consider the full variety of functions of the maritime environment such as shipping, military use, overflight, fishing, tourism, research, mining, and habitation by indigenous islanders. Among those relying on something other than geography are the Jan Mayen Conciliation Case, discussed earlier, the Gulf of Maine Case, and the Torres Strait Treaty between Australia and Papua New Guinea.[75]

In the Gulf of Maine case, the United States and Canada negotiated a functional fishery management regime in an effort to avoid the larger maritime boundary dispute. U.S. fisherman opposed the result and the agreements collapsed, leaving the U.S. and Canada no choice but to enter negotiations strictly on the boundary question. When negotiations failed, the ICJ was given the case and eventually established a line. The ICJ's line, however, has not proven workable because it did not solve the resource management problems. The United States and Canada are considering taking another look at the management issues. A functional solution may prevail, but first it required a resolution of the boundary dispute by unitarian, not functional, rules.

D.The Australia-Papua New Guinea Agreement

The Australia-Papua New Guinea Agreement, otherwise known as the Torres Strait Treaty,[76] represents an inventive solution to a complex maritime boundary problem. The Torres Strait Treaty, negotiated and signed by Australia and Papua New Guinea in 1978, should be favored by Turkey as an example of a functional approach and

[75] In the Libya-Malta case the ICJ took a functional approach after refusing to permit Italy to intervene in the case. Though the court referred to the interests of third States and addressed the broader geographical context, it is the boundaries themselves were delimited based on the geographical relationship between the two competing states. If the Court truly had been open to a functional solution, it would have permitted Italy to intervene and would have considered facts other than geography.

[76] For a complete discussion of the Torres Strait Treaty, see, Burmester, The Torres Strait Treaty: Ocean Boundary Delimitation by Agreement, 76 A.J.I.L. 321 (1982).

by Greece as an example of a method to permanently reduce tensions and forestall armed conflict. The Torres Strait Treaty provides a special negotiation system by which both Turkey and Greece may protect their interests through a bilateral agreement. Moreover, the Torres Strait Treaty establishes superb precedent for the position that countries are bound by the maritime territorial limits to which they solemnly agree with a another party, despite provisions such as Article 3 of the UNCLOS which would permit a State to extend those limits.

The Torres Strait divides southwestern Papua New Guinea from northern Australia's Cape York peninsula. The strait is studded with small and medium-sized islands inhabited by nationals of both States as well as indigenous peoples who maintain little attachment to either State. Many of the small islets, reefs, and cays are uninhabited. The islands are somewhat evenly distributed throughout the strait. All of the islands, including the major inhabited ones are under Australian sovereignty except for a few small islands lying directly off the Papuan coast. Many of the Australian islands lay within several hundred meters of the Papuan coast. In these important respects, the Torres Strait is analogous to the Aegean.

Papua New Guinea achieved independence in 1975 after periods of British, Australian and U.N. control. Thus, the treaty was negotiated between a large nation and one of its former dependent colonies. The treaty helped cement the split between the States and reinforced Papua New Guinea's independent status. In this manner, the Torres Strait is unlike the Aegean where both coastal states are of similar stature. Another manner in which the Torres Strait differs from the Aegean is by the inhabitants. The aboriginal inhabitants of the islands in the strait are ethnically distinct from the coastal Papuans and the Australian aborigines. In the Aegean, the majority of the inhabitants are ethnically related to one or both of the coastal States and have few distinct cultural traits. [77]

The parties considered the following factors separately and then synthesized expansive treaty provisions to address: (a) the people, (b) maritime jurisdiction, (c) the islands, (d) fisheries resources, and (e) navigation.

The treaty goes to great lengths to protect the interests of the Torres Strait islanders. During negotiations, Australia sought to protect their rights and livelihood, placing great emphasis on the human element. Papua New Guinea, meanwhile, was somewhat less concerned because most Papuans generally follow a traditional lifestyle. Thus, Papua New Guinea felt it unjustifiable to focus unduly on one group of its citizens. Economically, the coastal Papuans are not as secure as the Australian islanders who are eligible to receive pension and social security income. The Papuans depend on fishing for a small cash income. Otherwise, economic activity in the region is limited mostly to pearling and fishing.

[77] The Torres Strait is also unlike the Aegean, in that, due to the many reefs and shoals, commercial navigation by large vessels through the Torres Strait is limited to one main channel. Contrastingly, the Aegean contains innumerable deep water channels.

The most important concern to the islanders themselves is freedom of movement; thus, they asked that their governments include this in the treaty. The islanders were concerned that an artificial boundary would supplant the "traditional boundaries" they had developed according to their fishing habits and cultural activities.

In response to the islanders' many concerns, the negotiators established a "Protected Zone" comprising the central Torres Strait area, including many of the islands and reefs. The stated purpose of the zone is "to protect the traditional way of life and livelihood of the traditional inhabitants including their traditional fishing and free movement." A further purpose is to protect and preserve the marine environment and indigenous fauna and flora in the vicinity. Within the zone, free movement is permitted.

To ensure the effective working of the Protected Zone a Joint Advisory Council consisting of representatives of the national and regional Governments, and traditional inhabitants was established. The council is only advisory and cannot enact or implement measures of its own in the area. Management and administration in the zone remain with the respective governments.

Thus, the interests of those living in a particular area were addressed independent of the overall delimitation scheme. If a single maritime boundary had been drawn, it is unlikely the result would have pleased the areas only inhabitants.

The Treaty establishes separate boundaries for seabed and fisheries jurisdictions and makes special provision for residual jurisdiction. In general, the two lines defining seabed and fisheries jurisdiction are identical. However, in the Torres Strait area itself, away from the mainland coasts, the lines diverge. Seabed jurisdiction under the treaty includes sovereign rights over the continental shelf and jurisdiction over low-tide elevations. In the central part of the strait, the seabed line passes to the south of a number of Australian islands, which have only a 3-mile territorial sea around them. Thus, a number of Australian enclaves were created within Papuan seabed jurisdiction.

The seabed boundary line achieves a reasonable balance between the rights of Papua New Guinea, based on its mainland coast, and the rights of Australia, based on its ownership of the majority of the islands scattered throughout the Strait. As a modified median line, the boundary conforms modestly to the current practice in international law. Had every island been granted a 12-nm territorial sea, the entire strait would have become Australian. The compromise resulted in Australia retaining jurisdiction over a majority of the seabed, but with Papua New Guinea having jurisdiction over a relatively large portion of the seabed north of the Strait.

The fisheries boundary line, though largely identical to the seabed boundary line diverges only to provide fisheries for those Australian islands just of the Papuan coast. This preserves the islanders' ability to maintain their lifestyle and not feel cut off from Australia.

The "residual jurisdiction" applies to areas not included within the fisheries or seabed boundaries. The functions considered there are preservation of the marine

environment, scientific research, and the production of energy from the water, currents and winds

Sovereignty over certain islands in Torres Strait became an issue of dispute that affected the delimitation of maritime areas. The Treaty, however, entirely disposes of any latent conflict. Article 2, provides that Papua New Guinea recognizes the sovereignty of Australia over more than a dozen named islands north of the seabed line, and all islands lying between the mainland of the two countries and south of the seabed jurisdiction line. In a reciprocal manner, Australia recognizes the sovereignty of Papua New Guinea over all the other islands that lie between the mainlands of the two countries and north of the seabed line other than those specified. To eliminate all possibility of disagreement it also states that north of the seabed boundary, Australia has sovereignty only over those islands specified in a list and no others. This also helped determine the status of the numerous reefs and shoals and low-tide elevations. Finally, the provision relating to sovereignty over islands also included a provision whereby Australia recognizes Papuan sovereignty over 4 specific islands concerning which Australia had been unable to produce adequate evidence of prior sovereignty, despite a prior belief that they were under Australian sovereignty. This provision superseded all prior agreements and settled firmly and completely the issue of sovereignty over any possible land masses in the area.

Among the provisions addressing the status of islands, the parties agreed to limit their territorial seas. Though Australia had only claimed a 3-nm territorial sea compared to Papua New Guinea's 12-nm claim prior to the treaty, Australia now limits the territorial sea around its islands north of the seabed line to 3 miles. For Australia's northernmost islands sitting just off the Papuan mainland, the territorial sea has been apportioned according to a specific method provided in an annex to the treaty. Papua New Guinea consequently has agreed not to extend its territorial sea into certain areas. This seems fair as the majority of territorial seas remain Australian due to the overwhelming number of Australian islands and the consequent seabed and fisheries lines drawn to accommodate them. Moreover, during treaty negotiations Australia refrained from requesting 12-nm territorial seas in recognition of the fact that such a claim would effectively have turned the Torres Strait into an entirely Australian jurisdiction, must as a unilateral Greek expansion to 12-nm would turn the Aegean into an entirely Greek jurisdiction.

The treaty creates a special regime within the Protected Zone for the conservation and management of the fisheries resources there. Fisheries resources are defined by the treaty in a manner which eliminates distinctions between sedentary species such as clams and sponges and other, possibly migratory species. The regime for management of fisheries resources within the Protected Zone puts primacy on managing living resources and only secondarily considers the bases upon which the initial seabed and fisheries boundary lines were established. In the Protected Zone, two concepts dominate fisheries management: sharing of the resources and enforcement of conservation measures. The regime first establishes a

method by which the parties can determine the total allowable catch of a particular species within the Protected Zone. The general rule applied was that within the territorial seas and within the fisheries boundaries, the allowable catch is apportioned 75:25 in favor of the territorial State. The parties crafted an exception for the seas around the uninhabited Australian islands north of the seabed line; there, the division is 50:50. Another carve-out gives Papua New Guinea permission to take 100 percent of the barramundi catch near its coast, outside of the territorial sea of Australian islands. This reflects the special economic significance of barramundi to the local inhabitants, as well as this species' biological association with Papua New Guinea.

To allow a certain degree of flexibility in the future, the Treaty provides for the parties, where appropriate, to negotiate subsidiary conservation and management arrangements.

The Torres Strait, like the Aegean, is a major international shipping route. Since Australia has sovereignty over all the islands in the Strait, the security and control of the shipping route lies with Australia. Still, there remains a right of innocent passage through the territorial seas of the islands. Furthermore, the Torres Strait, like many passages in the Aegean, qualifies under the definition in the UNCLOS as an international strait through which a right of transit passage would exist. Nevertheless, the treaty ensures Papua New Guinea its navigational and other rights through the area.

Thus, the treaty includes special provisions on navigation for both vessels and aircraft within the Protected Zone. There, vessels and aircraft are accorded the ordinary rights applicable to the high seas, subject to certain limitations, for example, for the prevention and reduction of pollution, and for compliance with the immigration, customs, and fiscal laws of the other party.

Another concern of Papua New Guinea was the prospect of certain of its ports being denied direct access to the high seas in the strait. Consequently, the treaty guarantees a right of passage through routes used for international navigation. This right is analogous to transit passage through international straits as described in the UNCLOS. Because of the security provided by the navigation provisions, it no longer became important for Australian seabed jurisdiction or territorial seas to reach nearly to the Papuan coast. Likewise, it no longer became important for Papua New Guinea to assert sovereignty over certain traditionally Australian islands near its coast.

In sum, the Torres Strait Treaty established, not one, but several maritime boundaries governing distinct political and economic interests. The net agreement may be summarized as follows:

1.The treaty establishes a modified median line for maritime delimitation between the southern coast of Papua New Guinea and the northern coast of Australia. This median defines the seabed and fisheries jurisdiction between the two states. As for that area of the maritime median that includes the central part of the Torres Strait,

the treaty carves out a "Protected Zone." Within the Protected Zone, a modified median line defines the various political and economic interests of the parties through distinct boundary lines for each interest. The conventional rules governing the sea have been suspended for the purpose of satisfying the political and economic interests of Australia and Papua New Guinea in a just and equitable manner. Both parties agree to a 3-nm territorial sea delimitation. The islanders continued to enjoy the representation of their historic government, Australia. And, the islanders continue to exploit the natural resources of the seas around them upon which they depended for their livelihood. Papua New Guinea extended its maritime and seabed jurisdiction to half of the Torres Strait.

2.Within the Protected Zone, the treaty recognizes Australia's sovereignty over the overwhelming number of the islands and their inhabitants.

3.The treaty limits the territorial sea jurisdiction to 3-nm for Australia's Islands as well as that part of the southern coast of Papua New Guinea that fall within the Protected Zone. Papua New Guinea's 12-nm territorial sea does not impact the strait.

4.Related to the issue of sovereignty, the treaty recognizes Australia's duty to protect the livelihood of the islanders who depend on the natural resources of the sea. The treaty provides Australia with fisheries resources jurisdiction over the sea around the islands. Of particular interest to both parties, in a section of the Protected Zone holding Australian islands on Papua New Guinea's side of the median line, Papua New Guinea agrees to extend Australia's fisheries resources jurisdiction north of the median boundary, up to Papua New Guinea's coastal 3-nm territorial sea boundary. Yet, the treaty provides that Australia's fisheries resources jurisdiction not intrude upon Papua New Guinea's continental shelf jurisdiction
.
5.The treaty defines the seabed in general as the "continental shelf." The treaty defines the seabed jurisdiction of the islands according to the their territorial seas, i.e., 3-nm. The seabed beyond the islands' 3-nm zones and within Papua New Guinea side of the median line, is under the full seabed jurisdiction of Papua New Guinea.

CONCLUSION

Although the Torres Strait Treaty is primarily a delimitation agreement, it demonstrates the necessity of addressing all related issues to arrive at a maritime boundary solution.[78] Though drafted to meet the peculiar geographic and political

[78] The navigational freedom of Torres Strait islanders and Papuans to move within the "Protected Area" has presented some difficulties. First, it has caused some consternation because within this area, the

circumstances of the Torres Strait, the treaty remains consistent with the general principles of international law. It relies on a median line modified to account for the predominance of one State's islands near the coast of the opposite State. Moreover, as the UNCLOS does not preclude an agreement among the parties to territorial seas of less than 12-nm breadth, the treaty shows how States can agree to lesser territorial seas in exchange for other concessions. The successful conclusion by agreement of the Torres Strait Treaty serves as a valuable precedent for other negotiators faced with similarly complex problems.

The Aegean Sea lends itself well to a Torres Strait-style, all-purpose system of boundaries that integrates conventional maritime medians with protected zone concepts and other modifications. Unfortunately, the Aegean lacks coastal States who agree on the nature and scope of the debate. Indeed, the coastal States bordering the Torres Strait had a special relationship that allowed them to productively consider all of the pertinent issues. In addition, one of the parties, Australia, expressed from the outset a willingness to make concessions about the sovereignty of certain islands in the strait and the weight to be given to that sovereignty. This was akin to the settlements reached in the and Paris Peace Treaty and the Lausanne Straits Regime whereby sovereignty over islands was transferred in exchange for a promise that they would be demilitarized.

To borrow an aphorism from the scientific world: nature abhors a vacuum. And so does the law. Greece in some circumstances has presumed a conclusion when none was warranted in the case of islands of undetermined status. The way to fill the vacuum created by these issues left long unresolved in from treaties negotiated earlier this century is by creating durable bilateral solutions. These solutions, be they a series of individual agreements or an integrated document along the lines of the Torres Strait Treaty, should reflect the present equality in bargaining position of Turkey and Greece.

Earlier this century, the positions were vastly different. For example, the debilitating Treaty of Sevres after World War I was an inequitable surrender forced upon a vanquished Ottoman Empire. After it proved unworkable and the Republic of Turkey was born, the Treaty of Lausanne replaced Sevres. The Lausanne Peace Treaty reflects a Turkish Republic recovering from a difficult war of independence and just happy to be alive. The concessions it contains probably would not have been given today. Turkey does not wish to revisit the Lausanne Peace Treaty; rather, it wishes to complete what it left undone. The Montreux Agreement and Paris Peace Treaty reflect a stronger, more confident Turkey. Yet, Greece, with an active and wealthy diaspora and numerous foreign State benefactors continued to occupy the vacuua left by prior agreements until the era of the Cyprus conflict.

---

treaty gives traditional fishing preference over commercial fishing. Second, Australia's enforcement of quarantine and immigration laws has also created difficulties due to the ease of movement between the islands on either side of the border. Third, Australia has become increasingly concerned about environmental protection in the strait. There has been some debate over whether compulsory pilotage should apply within Australian waters of the strait. A voluntary pilotage scheme is currently in place.

Now the two states may look eye to eye. Greece must become accustomed to a Turkey that is on equal footing. Correspondingly, Turkey has to learn to deal with its past neglect of certain issues. It is often said Greek-Turkish animosity is indelibly etched on the national psyche of both countries. True, Greece celebrates the outbreak of their struggle for liberation from the Ottoman Turks in 1821, while Turkey celebrates Mustafa Kemal Atatürk's victory over the Greeks in 1921. Nonetheless, to blame the two States' inability to yet reach a durable solution on psychology is to revel in excuses.

Though Greece proposes to limit the debate with certainty and indignation of the sort the U.S. would pronounce were the Russian Federation to suggest that Seward did not properly purchase Alaska and therefore it still belongs to Russia, it cannot ignore that Turkey may make plausible arguments for each of the issues discussed in Section I above. For the parties to reach a durable solution, all plausible arguments should be brought to the table. For its part, Turkey should not attempt to use these plausible arguments as a cudgel to force Greece to the negotiating table. Instead, these arguments should stand on their own as quiet reminders that comprehensive negotiations are necessary. Each side must have something to gain. Despite the divergence of Turkey and Greece's general positions, each side has almost identical interests – the settling of borders, the guarantee of security, and the establishment of a stable environment in which political and economic relations could flourish.

MILITARY STATUS OF THE AEGEAN ISLANDS

Henri ADAM*
Former legal expert of the French Foreign Ministry,
the Council of Europe, the United Nations

It is clear form the very title of this paper that we are considering only Aegean Island's status (not that of otherwise named or partially Aegean Islands (as Crete) and the status is considered purely military and not political as it is case for two Turkish Islands (Imbros and Tenedos).

It is also clear that military status, is an international status, agreed in the treaties and aiming at the demilitarization or the militarization of the concerned islands, the concept of neutralization being in some cases inclusive of the demilitarization, but going largely beyond the latter.

From a purely teleological point of view, we have two categories of demilitarization of the Aegean Islands : the first category had been provided for in the Lausanne peace treaty signed July 24th, 1923 (article 13). This is the case of the islands of which the demilitarization was aiming at "the maintaining of the peace" (paragraph 1 of article 13). These islands are all Greek : Mytylene, Chio, Samos and Nikaria (or Akaria). The second category of demilitarization concerns as well as Greek that Turkish Islands, namely Samothrace, Lemnos, Imbros, Tenedos and the Lagoussai Islands (or in French, Iles aux Lapins). These islands'demilitarization had been provided for by article 4, paragraph 3 of the Convention dated July 24th, 1923 concerning the regime of the straits (there is no any authoritative text in English neither of this convention nor that of the peace treaty, signed at the same day).

This convention's demilitarization measures were aimed at "the maintaining free from any hindrance (*Emtzaal says the official text*) the passage and navigation through the straits (art. 3 of the Convention).

It must be added that those Turkish Islands which have been demilitarized under the 1923 Convention had been remilitarized by turkey in conformity with the convention signed at Montreux (July 20th, 1936). This convention authorized Turkey to remilitarise immediately (the day the convention is signed) without waiting the completion of the ralification process, its islands (namely Imbros, Tenedos and Lagoussai Islands). The designation of these islands had been made in an implicit way through two processes : firstly, due to a mention in the Montreux Convention which reads : "The resolution of the signatory powers to substitute this convention to the convention signed in Lausanne July 24th, 1923" (Preamble in fine) and secondly, because this convention was aiming to operate in the framework of the security of Turkey and that of the Black Sea riparian states (1 of the Preamble).

* The views expressed here are purely personal.

Autorization to remilitarise was concerning demilitarized islands (Turkish and Greek) mentioned in the replaced 1923 Convention; namely: Tenedos, Imbos, Lagoussai (Turkish Islands), and Samothrace and Lemnos (Greek Islands). But the demilitarized Greek Islands status under article 13 of the peace treaty of Lausanne 1923 was not modified in no wise by the Montreux Convention as the former, is not replaced or modified and its objects and aims are different from those of the peace treaty. This difference in military status of the Greek and Turkish Islands in Aegean Sea had not been accepted from the Greek side at least in the Greek legal litterature (Greek Governments position seemingly having been slightly different).

[Concerning Greek literature see " Le regime juridique des iles grecques de I'Egée, by Constantin Economidés, Athénes 1989, and Théodoros Katsoufros, in Colloque organisé à Paris par le Centre d'Etudes et de Recherches internationales (1986) donl les acles onl élé publiés par les Editions L'Harmattan, 1988. In the same volume see the opposite view expressed by Professor Pazarci, p. 116.]

But some difficulties arise concerning Greek Islands remilitarization. This is so, because it is said that Montreux Convention had been signed in the " Framework of the security of Turkey", that of the Black Sea riparian states also. But Greek security needs had not been mentioned at all.

The clarification on this point can be obtained if one refers to the verbatim of the conference, which had been established by an official of the league of nations legal department, seconded as secretary general of the Montreux Conference (Actes de la Conférence de Montreux concernant le règne des détroits), namely Mr. Th. Aghnides (1936)

The clue to this situation can be found in the said verbatim. The original text of the protocol to the Convention, submitted by the representative from Great Britain, was readings following : "Nothing in the convention signed at Lausanne on July 24th, 1923 may be heneforth opposed to the adoption by Turkey of any remilitarization measure which she may deem necessary (see page 166). But Greek Delegation's head and vice-president of the conference, M. Nicolas Politis, objected to the British Proposal, he was quoted as saying that article 4 of the 1923 Convention on the straits as regards the measures of the demilitarization "does not concern only Turkey" (Verbatim p. 166). Consequently this part of the British Proposal had been deleted from the draft text of the protocol.

The deletion of this part of the British Proposal in the protocol made ambiguious the point whether Greece is entitled as well as Turkey to the remilitarization of the islands which had benn demilitarized as a consequence of article 4 of the Lausanne Convention.

Ambiguity is resulting from the omission of the Greek security needs as an objet of Montreux Convention while the replacement process operates automatically and *in toto*. But it is clear beyond any doubt that the Greek Islands Mythilene, Chio, Samos and Nikaria or Akaria remain demilitarized as this had been established by the Peace Treaty (art.13). All the more so that, the unilateral

demilitarization of the Greek Islands, without any corresponding demilitarization of the Turkish ıslands, had been provided for "in order to assure the maintaining of the peace", while the demilitarization measures provided for in the convention concerning the straits (1936) were aiming at the "maintaining free from any hindrance the passage and navigation through straits" (art.3).

In any case there is a discrepency between the aims of the treaty demilitarization and those of the convention demilitarization, as they have been mentioned in article 1 of the Convention, Viz, "The principle of freedom of passage and navigation", this principle having been maintained in the Montreux Convention. So, it can be said that military measures taken by Turkey, including remilitarization measures, are also aiming at the maintaining of the passage and navigation free from any hindrance in the straits. A second gorund for the remilitarization of the Turkish Islands can be found in the responsibilities bestowed on Turkey to assure effective application of the provisions of the Montreux Convention as regards restrictions and limitations of the passage of war ships through the straits as well as in time of peace that of war (see section II of the convention). It is difficult to imagine how Turkish Islands near the entrance of the straits could remain demilitarized without negative consequences for the capacity and capabilities of Turkey to relinquish its responsibilities (international) as regards the passage and navigation of the foreign war ships through the straits. But the replacement process having automatic effects these important points became rather unclear.

Suggestions had been made as regards the application to the Aegean Sea agreements of the rule on the changing of the circumstances allowing a party (*rebus sic stantibus*) to terminate or withdraw from a treaty (article 62 of the Law of Treaties) (see colloqium organized in Paris "On the Greek-Turkish dispute of which verbatim had been published by L'Harmattan in 1988, p. 115). The above mentioned article 62 allows the termination of a treaty or withdrawal there of, but not the refusal to the execution of one its provisions. There is no room for a partial withdrawing a termination in the law of treaties. And in this case, among other things, there are specific difficulties to terminate a peace treaty which would entail eventually the return of the state of war.

It had been also suggested that some statements made by the Turkish Minister of Foreign Affaires, head of the Turkish delegation to the Montreux Conference, was to the effect that the remilitarization measures allowed then for Turkey would be also available for Greece (see above mentioned Colloqium in Paris, p. 116). But such interpretation on behalf of one of the parties to the Convention, may not have the suggested consequence. This is so, because the Montreux Convention is a multilateral agreement not a bilateral one. Such statements may have legal effects only between Greece and Turkey, but not as regards the other contracting parties.

The dispute between Turkey and Greece concerning the military status of the Aegean Islands had caused the development of an another dispute, but this

time between Greece and Western European Union's Assembly (parliamentary). But this was on another aspect of remilitarization of these islands. This came out when Greece had to full fill the required conditions to become a member of the Western European Union, which is called now "military branch of the European Union".

According to article X of WEU's Charter (modified Brussel's Treaty October 23rd 1954) the HCP of this charter, are committed to accept the optional clause provided for in article 36, 2 of the statute of the International Court of Justice in order to submit all disputes of a legal character with other HCP for settlement to the jurisdiction of the Court. Consequently every new member has to accept the optional clause of the said statute before becoming a HCP to its charter, by the deposit of the instrument of ratification of its accession protocol. But Hellenic Republic's deposit was accompanied with a verbal note giving the text of the declaration made the same day (January 10th, 1994, by the Hellenic Government to the UN secretariat) to the effect of accepting the said article 36, 2 of the Hague Court's statute.

This declaration was reading as following :

"On behalf of the Hellenic Government, I declare that I acknowledge as fully binding in law and without special convention, on the condition of reciprocity, vis-à-vis any other state accepting the same obligation, the jurisdiction of the International Court of Justice over all legal disputes referred to in article 36, paragraph 2 of the statute of the International Court of Justice. However, the Hellenic Government excludes from the competence of the Court any dispute over the Hellenic Republic taking defensive military measures for reasons of National Defense"

The conformity of this reservation to he Brussels modified treaty of 1954, had been questioned by the Parliamentary Assembly of WEU. The reason lies in the fact that the permitted reservation to the acceptance were limited to those *already* made by that party. But here reservation had been made at the very time where the accession became effective.

The Council of Ministers in its reply to the question pulled by the assembly (question no 330) as to the legality of the Hellenic reservation said that this reservation "is entirely consistent with the *wording* of article X, second paragraph, of the modified Brussel's Treaty".

This reservation raised two question marks :

Firstly, if the intention of the Hellenic Government was to exclude the remilitarization of Aegean Islands dispute with Turkey from the jurisdiction of court, this could have been archived easily as commitment to accept the compulsory jurisdiction of the court was limited to the disputes between member states of the

WEU, while Turkey was not a member and Greece had always the veto power against any decision of the organization accepting Turkey as a member.
Secondly, the wording of the definition of the disputes excluded from the jurisdiction of the court were aiming at to "defensive military measures for reason of National Defense". And this creates a perplexity.

This is so because "defensive military measures" are always those taken for the reasons of National Defence. There are no defensive military measures for reasons of non-national defence, except those taken in the framework of article V of the Brussels Treaty or of Washington treaty 1949, which had setted up what is called Atlantic Alliance or again under the chapters VII and VIII of the United Nations Charter. Consequently the lawyer is inclined to suppose that those measures could be those of the "legitimate" individual defence of article 51 of the United Nations Charter. But here also we face a difficulty, due to the fact that the said article 51 is applicable when an aggression occurs. Without an effective aggression from the part of another state, there is no defence, legitimate or not.

The legitimate defence is the right to repel an attack from a foreign state. The principles of necessity and proportionality in the use of force required to repel an armed attack suppose that attack had already been made (see *San Remo Manual on International Law applied to the Conflicts at Sea* (14 Syracuse), International and Com. 553 (1988) special, part I, 4).

Kind of military action is the bombing of Israel in 1951 of the nuclear plant in Iraq out of consideration that this plant's production might be eventually used for military purposes. The western powers had condemned destruction of the said plant in Iraq (see Nato Asia Series, M. Nijhoff, 1985, pp. 126) ; also *Restatement of the Law* (third) published by the American Law Institute, *The Foreign Relations Law of the United States*, 1988, 1905, note 7).

It is supposed that building up and the stationing of the 4th Turkish Army on the Aegean coast of Turkey had caused remilitarization of the demilitarized Greek Aegean Islands. But this is in contradiction with the peace treaty signed in Lausanne in 1923 (see Adolphi Paper no 155 by Andrew Wilson). However this paper is not clear on the point whether Greece remilitarized before or after the building up and stationing at the 4th Army Turkish on its Aegean coast.

That Greek exception to the compulsory jurisdiction of the International Court as it is worded may be considered as aiming at the exclusion of any judgment by this Court on the legality of the remilitarization of the Greek Islands which have been demilitarized by the Lausanne Peace Treaty.

There are also second group Aegean Island which have been remilitarized by Greece, but this time, in contradiction with Paris peace Treaty signed February 10th in 1947, between Italy and allied powers ending the second world war Greece being among these allied powers.

In accordance with article 14 of this treaty, Greece received from Italy the full sovereignity on the Dodecanese Island. But the treaty added that "these islands shall be demilitarized and shall remain as such" (2).

Later, Greece remilitarized these islands. But in this case, no official justification had been given. Consequently, one could consider that there was a "defensive military measure taken for reasons of National Defence". Hellenic Government implicitly recognized the non-conformity of the remilitarization of the Dodecanese Islands to the provisions of the Paris Treaty signed in 1947. There is a recognition, because Greek side contested only the right of Turkey to prevail itself from the demilitarization provisions of the Paris Peace Treaty, of which Turkey is not a signatory power. In any case, the reservation made by Greece to its acceptance of the compulsory jurisdiction of The Hague Court was aiming seemingly, also at the remilitarization of the Dodecanese Islands.

Concerning the legal dispute with Turkey as regards this remilitarization of Dodecanese this amount to the question of the effects of the treaties for the third parties (see opposed views of both sides explained during Paris Symposium in 1986 in Le *Différend Gréco-turc*, L'Harmattan, 1988, pp. 75 and 117)

The question raised by the dispute between the two countries on this remilitarization is one of the most difficult questions of the International law : following comments can be made. Firstly, as a general rule, international treaties have effects only between the parties to these treaties.

This rule which had been codified as a result of the provision of article 34 of the Law of Treaties (Vienna Convention on) enshrines maxim *pacta tertiis nec nocent nec prosunt*: A treaty has effects only between the parties to it.

Secondly, exceptions to his general rule are admitted as well as by the Law of Treaties itself (see articles 36 and 38) that by the international jurisprudence. Now the question is whether article 14 of the Paris Peace Treaty could be considered as a treaty provision which creates rights and obligations for a third party, which is Turkey.

In order to answer to this question, it seems necessary to consider the nature of the demilitarization adopted by the international community concerning the Aegean Islands; This is so, bacause demilitarization of the Aegean Islands goes back in the history of the Balkans.

This region had experienced the system of international governenace assumed by the big powers (acting with *opinio juris* in the general interest of the peace). This is a reality of the international life.

Also the Dodecanese remained always non demilitarized under the sovereignity of Italy. But when Greece recieved these islands, demilitarization had been imposed by the big powers. These powers considered explicitly that to assure the maintaining of peace Greek Islands should be demilitarized (art.13 of the Lausanne Peace Treaty).

The same measures had been taken concerning Aaland Islands in the convention signed March 30th, 1856 by Sweden, Finland and Russia. This demilitarization had been succeeded by a neutralization regime in a convention signed October 1921. This measure was aiming at the prevention of dangers from the military point of view. And again in the Paris Peace Treaty signed February

10th, 1947 with Finland article 5 declared that "Aaland Islands shall remain demilitarized as they are now". This is the context in which the law of treaties should be interpreted and applied. For both, Aegean and Aaland Islands we are facing a traditional or customary rule of demilitarization giving rise to the application of articles 36 and 38 of the Law of Treaties.

As a result of Poxa Treaty which had been signed November 14th, 1863 by the great power of this time: Austria, Great Britain, France, Prussia and Russia, Ionian Islands had been assigned to Greece. But at the same time, the big powers had ordered demilitarization of these islands with "a view to appeasing Turkish fears" (see Marcel Sibert, Traité de Droit International Public, Paris, vol.1, 1951, p.401). Concerning Aegean Islands the same precautionary measures had been adopted when the islands have been assigned to Greece. Lausanne Treaty which gave to Greece in 1923, four islands in Aegean Sea ordered also demilitarization of the concerned islands (art.13). The aim and object of this demilitarization were to "assure the maintaining of the peace". The background of article 14 paragraph 2 should be searched in to treaty signed in 1863 at Poxa for the Ionian Islands.

Demilitarizaiton provisions of the Greek Aegean Islands are aiming, doubtlessley, at "maintaining of the peace", out of consideration of the conflictual relationship (Turkish Fears in 1863) between these two countries at least at sometimes of their history. Also importance of these islands from the military point of view had been a determining factor.

A treaty which is aiming at the maintaining of the peace is always in the general interest, for the benefit of all states concerned (with the peace) in the region at least. Here it could be said that the treaty (which is also a treaty of peace) signed in 1947 is called to have *erga omnes* effects as did the convention and punishment of the crime of genocide of the United nations (see International court of justice reports, judgment July 11th, 1996, 31).

Here a teleological view of the demilitarization provisions in the treaty signed in Paris (February 10th, 1947) allows *erga omnes* effects to the Paris Peace Treaty provisions. So there is no need to refer to the concept of *stipulation pour autrul* which had been rejected by the Permanent Court of International Justice (judgment dated 7th 1923, A/B no 46 the frees zone in Savoie).

There is no need neither to consider these demilitarization measures as a servitude with a view to allow them erga omnes effects. See Ian Brownlie *Principles of Public International*, 1973, pp.359-361). United Nations Law Commission also rejected the concept of universal effects for the demilitarization provisions in the treaties and settled with article 36 and 38 of the Law of Treaties (Vienna Convention on).

The ground for the *erga omnes effects* for the demilitarization provisions of the Paris Peace Treaty of 1947 concerning Dodecanese Islands in the legal nature of this provision, which had established an *international status* for these islands. Such is the concept which had been admitted for the demilitarization of the Aaland Islands by the Commission of legal of experts which had been appointed by the

Council the League of Nations with the purpose of obtaining a legal opinion about Aaland Islands which had been also demilitarized as we have seen above. In the opinion of this commission, the demilitarization of these islands has resulted in the establishment of an international status, and created an objective legal situation, due to the treaty signed in Paris March, 1865 (see the Journal of the League of Nations, 1920, suppl.3, p.17 fol,).

CONCLUSIONS

1.TheConvention on the regime of the Straits signed on July 14th, 1923 at Lausanne, provided for the demilitarization of some Greek and Turkish Islands in the Aegean Sea with a view to assuring the passage and navigation, without hindrance (*entrave* in French). This principle had been repeated 16 year later in another convention signed at Montreux, which deleted all the demilitarization provisions concerning the above mentioned Islands. An ambigious situation resulted from the process, as the second convention was saying that the new regime of the straits had been conceived in the framework of safeguarding the security framework had been omitted, while concerned Greek Islands remilitarization (authorization for) was resulting in an indirect way, due to the replacement process.

2.But Montreux Convention left untouched Lousanne Peace Treaty provisions concerning the demilitarization of the Greek Islands (only). All the more so that the aim and object of the demilitarization provided for in the said Peace Treaty were defined as being "to assure the maintaining of the peace". This compares with Aaland Islands demilitarization which had been agreed by the great powers in the Peace Treaty signed in Paris in 1856 and maintained in another Peace Treaty signed in Paris in 1947 by the allied and associated powers with Finland.

3. The Peace Treaty signed in Paris between Italy and the allied and associated powers provided for the assignement by Italy to Greece (allied power) of the Dodecanese Island in full sovereignity. But the treaty added that the assigned islands will be demilitarized and will stay as such under the Greek sovereignity (even full). Later, Greece having remilitarized the Dodecanese Islands Turkey claimed that Greece had violated the demilitarization provisions of the peace Treaty signed in 1947. From the greek side there had been nor denial of the existence of the remilitarization, neither of a treaty breach as a result of the said remilitarization. Bur Greece claimed (we have no the official releases of the discussion) that Turkey as a third party to the Peace Treaty in 1947 can't prevail itself from the rights stemming from that treaty, which remains an *inter alios acta*.

4. The legal dispute on this point has to take in to consideration the fact that remilitarization provisions in the peace treaties are setting up *status*, objective situations, having *erga omnes* effects. All the more so that demilitarization

provisions imposed by the big powers are designed to assure the peace. And this is in the general interest of the nations. This is not a deal between contracting parties.

5. Greece had asserted its right to remilitarize its Aegean Islands on the gorund that the process was a "defensive military measure for reasons of national defence". This justification had been given in the reservations of the Hellenic Government to its acceptance of the compulsary jurisdiction of the International Court of Justice under article 36 paragraph 2 of the statute of the court. This indirect or implicit justification given to the departing attitudes from the provisions of the peace treaties could be questioned on the base of the objections made to the legality of what is called "preventive legitimate defence measure".

Without making any prophesy concerning the consequencies of our discussions in this symposium one must be allowed to hope that the dispute on the military status of the Aegean Islands may be deferred for settlement to an impartial body. And this will help to address other contentious issues of the Aegean Sea.

FREEDOM OF OVERFLIGHT IN THE HIGH SEAS

Paolo Bargiacchi
Studio Legale Sinagra – Sabatini – Sanci, Rome, Italy

1. The Aegean sea has been since ever an area of military and political confrontation between Greece and Turkey because it has an utmost importance for the political, military and economic interests of both Countries. The unique geophysical structure, making really hard and uncertain the delimitation of the maritime and air boundaries, raised tensions to the extent that the whole confrontation has been usually called the "Aegean dispute". The Treaty of Peace, signed in Lausanne in 1923 with the aim of fixing a political balance between Greece and Turkey through the harmonisation and resolution of the interests of all concerned Parties, did not guarantee the hoped final balance for the Aegean sea. Besides the infringements of the Treaty, the Aegean dispute is due to the lack of comprehension of the basic political principle underlying that Treaty: in fact the real innovation as proposed by the Treaty was not due to have pointed a specific rule of international law useful to settle one of the several disputes that the Aegean sea offers to the interpreter of international law, but it was due to have clearly pointed which would be from a political point of view the only useful behaviour for both Parties: a sea, that is vital for the interests of both Countries, to be exploited and used jointly in the full respect of basic freedoms and of each Country sovereign rights as provided by the international law. The scope of this paper is not to discuss about the Treaty of Lausanne nor about the uncertain boundaries that divide Greece from Turkey but to analyse the air space related problems namely the dispute over military and civil air traffic control zones in the Aegean area. We will show how a bad interpretation of rights and duties related to the status of the high seas and above airspace can create further disputes.

2. The high seas, meaning all parts of the sea that are not included in the territorial sea or the internal waters of a State, is an old and well established concept in the customary and conventional international law. Since the Middle Age States' customary practice defined without hesitations the extent and the rights that a sovereign State may lawful claim over this part of sea and airspace. Some of these rights are as strong and effective in the international community of the States as principles of international law; the following Treaties on this issue merely assimilated all these customs, practices and behaviours of the States that had been unchanged for centuries. The whole legal regime of the high seas and above airspace has a basic and always unchanged idea: the idea of freedom. If navigation and overflight in spaces in which a State exercise its sovereignty are regulated in order to respect the prevalent needs of the State to the extent that the exercise of navigation and overflight is strictly limited, then, on the contrary, the same activities are widely guaranteed and protected in the high seas and above airspace

which are free from any exclusive claim of territorial sovereignty. In other words freedom is the rule and freedom precludes any State's claim of territorial sovereignty over those areas.[79] The basic principles of the law of the air agree exactly with the principles of the law of the sea: there is no way for a State to extend jurisdiction, that is the first expression of sovereignty, on the airspace that is not above a national land or sea,[80] with the only exception of flag State rule.

3. The Convention on International Civil Aviation, held in Chicago in 1944 and establishing the ICAO, has the aim to exhaustively regulate the international civil air traffic. Freedom of overflight the high seas has not been expressly stated, but however it has been implicitly recognized. Articles 1 and 2 provide that every State has complete and exclusive sovereignty over the airspace above its territory and if an aircraft is within it then, pursuant to article 11, the aircraft will have to comply with rules and procedures as provided by that State. On the other hand article 12 deals with the legal regime of the airspace above the high seas: in accordance with the general principle of freedom of overflight (also stated in the article 2 of the Geneva Convention the High Seas 1958 and in the UN Convention on the Law of the Sea 1982), this article states that "over the high seas, the rules in force shall be those established under this Convention". The rules are about the "flight and maneuver of aircraft": in the international airspace these rules are binding and not subject to the legislative power of a single State. By giving the legislative power to ICAO, one wants to avoid that international airspace would be subject to as many national regulations as are the States providing air traffic control services in a flight region: if this happened, in fact, then the international flights would become too much straining and dangerous due to the need for aircraft's pilot to comply with several and different regulations. That's why the flight in international spaces is regulated, without exception, pursuant to Annex 2 of Chicago Convention (Rules of the Air) signed on April 1948 and the States are bound to follow the ICAO rules only:[81] to preclude the power for a State to change the ICAO Rules of the Air, and moreover to request that national regulations would be consistent with ICAO Rules "to the greatest possible extent", means that the airspace above the high seas has an international status. We may underline two issues: on one side, the Chicago Convention has a technical nature and has the aim to guarantee the safety in the sky

[79] According to Kay HAILBRONNER " ... the area above the high seas [is] as an aerial highway open to all nations and not subject to the sovereignty of any State". See *Freedom of the Air and the Convention on the Law of the Sea* in *AJIL*, vol. 77 (1983), pag. 490.

[80] In this regard, concern has been expressed about "creeping national jurisdiction" and it has been argued that the freedom of the airspace of the high seas is not limited to the right of overflight but means the "establishment of a free area not subject to any national restrictions"; see Kay HAILBRONNER, *Commentary*, in J.K. Gamble, *Law of the sea: neglected issues*, Part III, Hawaii, 1979, pag. 154.

[81] In the national space, on the contrary, ICAO rules are not compulsory and the differences between national regulations and Annex 2 may be stated by a State and notified to the others pursuant to the procedure as provided by the article 38 of Chicago Convention.

through the adoption of clear and uniform rules, procedures and standards to the greatest extent; its rules have not the power and the will to regulate those rights and duties that are part of the international law as shown by the fact that the Convention does not refer to military and State aircraft. On the other side, the airspace above the high seas has an international status in the deeper meaning of the word, that is to say it is a place not subject to the exclusive jurisdictional claims of any State as shown by the compulsory enforcement of ICAO rules in these areas.

4. The need to guarantee the safety in the sky is the reason why ICAO has given to certain States the task to control air traffic in international spaces. Those States, hence, besides having a full and exclusive sovereignty on the airspace above their own territory, exercise the **operative** control on the international spaces that is to say that they offer all those services needed and useful to a safe flight. The whole flight region within which a State has the responsibility to provide the operative control has been called Flight Information Region (FIR)[82] and it is a merely technical airspace without likeness with those boundaries that are known by the international law: FIR boundary is absolutely nor a national boundary nor, however, some sort of delimitation that makes possible and lawful for a State to extend its sovereignty. The State managing the air traffic control within a FIR exercises its sovereign powers only over those land or sea zones that are part of its national territory while those ones constituting international airspace are free from any claim of jurisdiction of the State. They are subject to a mere control of technical nature that by no means may limit the rights as provided by the international law and, among them, *in primis* the freedom of overflight.[83]

5. The Chicago Convention does not apply to military and State aircraft[84] because due to their status as provided by the international law, according to which they are like warships and thus completely immune from foreign jurisdiction, it would be against any logical before than juridical principle to let ICAO regulate their status.[85] ICAO, in fact, is just an organisation with administrative powers and moreover without a legal status for the international law. So the authority that has the task to manage a Flight Information Region does not have any power to exercise over the military aircraft because aircraft's legal status is defined by the international law and not by rules and instructions whose nature is merely technical and operative. As an example please note that the rule of Annex 2 of the Convention, that requires to

[82] In the words of the Annex 2 of Chicago Convention, it is "an airspace of defined dimensions within which flight information service and alerting service are provided".

[83] By no means then a State that has the technical responsibility over the Flight Information Region could deny the right of the foreign aircraft to enter and fly through the international airspace.

[84] Article 3(a) of the Chicago Convention states that the Convention only applies to civil aircraft.

[85] In the international airspace this status becomes more privileged and special than ever as shown by the "policing powers" that may be exercised against civil aircraft and vessels.

submit in advance the flight plans before flying an international route, does not apply to military aircraft. The meaning of this is that while a civil aircraft flying through a FIR must communicate its position and its flight plan to the authority exercising the air traffic control in order to guarantee a safe and normal international air traffic, this is not true for a military aircraft for which the international law does not provide any rule like this.[86] But this reality, lawful and unquestionable, has to temper with the need to guarantee a safe air traffic: in fact the need requires that also the military and State aircraft would follow some rules in the international airspace. Anyway it is up to the flag State, namely the only entity that may exercise jurisdiction over the aircraft, to find these rules and nobody else may lawfully undertake this task.[87] This idea is well-known both in the States' practice and in the Treaties that deal with this issue.

In the article 3(d), the Chicago Convention with the aim to respect national sovereignty and to achieve a balance of opposite and general interests wants the signatory States "to instruct their military aircraft to operate with due regard for the safety of civil aviation";[88] in other words, notwithstanding the rules in the Annex 2 are not binding at all for the military aircraft, the plane will normally comply with them if, and to the extent that, its flag State would deem it appropriate. According to United States' practice, US military aircraft are expected to follow ICAO rules and procedures set forth in Annex 2 "to the greatest extent practicable". In particular, the military aircraft flying through the international airspace that is under the technical and operative control of another State, will have to co-operate with the State in order to only guarantee the safety of possible civil aircraft in the vicinity. It is clear, anyway, that the matter to guarantee the safety of civil air traffic and to avoid any danger for civil aircraft may only occur if the military aircraft is flying into or near civil air lanes.[89] So, on one side, only the flag State, in autonomous and unquestionable manner, may order its own aircraft to follow some rules or

[86] "As with civil aircraft, the attribution of nationality to military aircraft reflects the legal relationship between the State of registry and the aircraft in question. The former is responsible for the conduct of the aircraft when it operates in the airspace of the high seas. It exercises exclusive jurisdiction over the aircraft and its crew, and asserts on behalf of the aircraft the privileges and immunities to which it is entitled." N. GRIEF, *Public International Law in the airspace of the High Seas*, Martinus Nijhoff Publishers, The Netherlands, 1994, pag. 89.

[87] States, notwithstanding their well-recognised status in the international legal system, do not have indeed any power to amend and interfere with the legal status of a foreign military aircraft, except a few cases all provided by the international law; the opportunity, then, that a power like this, so prejudicial of the rights that are a typical expression of national sovereignty, should be vested in an organisation, like the ICAO, or in a State that is just carrying out a technical role, the air traffic control of international civil flights, inside a territory that is simply an operative "work-area", the Flight Information Region, is completely absurd from a legal point of view and it is a dangerous example of a "creeping" jurisdiction.

[88] In a similar way article 39(3) of UN Convention on the Law of the Sea provides that state aircraft will *normally comply* with the ICAO rules of the air when exercising the right of transit passage over straits used for international navigation.

[89] Outside those restricted areas there is no possibility for a military aircraft to endanger the civil air traffic.

procedures; on the other side these rules must be identified for the only aim to guarantee and protect the general interest for the safety of international routes with the attitude to collaborate with the technical authority that has to provide air traffic control services but, anyway and always, in the full respect of the main principle that international airspace is completely free from any claim of sovereignty.

The question is to select which is the level of this collaboration between the sovereign State and the technical authority: in other words, one has to find which rules and procedures is better to be followed by the military aircraft in order to satisfy both the need for a safe sky and the need for a complete enjoyment of flag State's sovereignty, free and far from unlawful interference of third parties. Once again it is important to look at the United States' practice: to co-operate does not mean to obtain the agreement of other States before issuing operating instructions for its military aircraft in international airspace and there is no obligation to inform ICAO of non-compliance by military aircraft with international flight rules.[90]

Because the aim of this co-operation is not to guarantee and protect the safety and security of the sovereign boundaries of the State managing the FIR, the only behaviour that a military aircraft, whose flight and position *could* endanger the safety of civil aviation, may be ordered by its flag State to follow is to allow the air traffic control authority the identification of the plane and to give its position every time that the plane reaches some fixed recording-points in the international airspace. Every other procedure would not be justified by security reasons, nor by the international law and, due to this, it would be an unlawful interference in the exercise of flag State's sovereignty. [91]

6. From this point of view the greek claim that turkish military aircraft flying in the international airspace and entering the Flight Information Region under the control and responsibility of Athens should submit in advance the flight plans and come under control of greek air traffic control authorities, is without any legal ground. FIR is not a national boundary line and within it Greece has not sovereign powers and rights: this could happen if that airspace would be a national space because only in this case Greece would have a legal title to exercise its sovereign powers. Since that the existence of a FIR does not change the legal regime, as provided by the international law, of the areas within the FIR itself, one has to look at the international law if he wants to understand which are the lawful rights of disputing Parties. In the Aegean sea, notwithstanding some uncertainty about their

[90] For a wide review on United States' practice on this issue, please see at US Air Force Pamphlet, AFP, 110-31: *International Law – The conduct of armed conflict and air operations*, Department of the Air Force, Washington, 1976.

[91] Doctrine, as you may see *infra* at note 14, thinks that any other procedure than identification is not justified indeed in certain areas, like danger, restricted and air defence identification zones that, however, know *latu sensu* the exercise of quasi-sovereign powers; the same procedures, then, in the international airspace where freedom is the principle, are not acceptable at all.

extension,[92] there is international airspace and the fact that it is included in a FIR under the control of Athens does not change its legal regime. To complain against turkish "violation of a FIR" or to call for a submission of flight plans by turkish military aircraft is equivalent to consider the whole Flight Information Region, namely the whole Aegean sea, as a greek national sea or lake.

The greek claims have been always and only founded on the assumption that due to the existence of a Flight Information Region they are vested with strong powers. But even if the greek claims would rely upon principles and structures that, unlikely the FIR, are part of the international legal system, then the result should not change anyway. It is a not useful attempt to look for extending the sovereignty outside its own territory recalling the existence of new areas that the international law is beginning to recognise only in the last years and among many difficulties.[93] These areas have a mere economic importance as well as the rights that are vested in the beneficiary States; these areas can never justify or support claims for sovereignty nor a limitation or an abolition of a general principle such as the freedom of navigation or flight in the international spaces. In a similar way, to recall the national security, a need that legitimated certain States, namely United States and Canada, but the Greece not yet, to mark the boundary of the Air Defence Identification Zone, can not justify the greek claims because FIR is not a defense perimeter: perhaps the ADIZ may authorise the State, close to which a foreign military aircraft is flying, to ask for an identification of the approaching aircraft since that this procedure does not interfere with the free movements of the aircraft and it is hard to define this call for identification as a violation of the freedom of overflight. But the idea that, due to a vague need for security, a military aircraft flying through an international airspace is under obligation to submit in advance

[92] The dispute between Greece and Turkey over the exact delimitation of maritime and air boundaries in the Aegean sea is very old and complex. Many problems and issues, from the existence of islands to the continental shelf, still prevent from reaching a satisfactory resolution. One thing is for sure: even if we adhere, but we do not, to the most detrimental hypothesis for Turkey, however we must recognise that some zones of high seas, and above international airspace, exist and that they are only subject to the international law. Moreover Greece claims a territorial waters limit of six-nautical miles while, contemporaneously, it claims a ten-mile limit for the above airspace: the oddity of this claim is that no Country in the world has territorial waters different from territorial airspace as Greece would like to have. The result of this idea is at least paradoxal: an helicopter leaving from a warship that is sailing very close to the greek territorial waters boundary could not fly because the above airspace would not be as international as the underlying waters but it would be a greek space!

[93] Among these, States' practice and doctrine have recognised the Economic Exclusive Zone, that is to say that area beyond and adjacent to the territorial sea up to 200 nautical miles. In this area, even if the coastal State may exercise certain sovereign rights for the purpose of exploring and exploiting the natural resources of the waters, there is no way to extend and exercise the territorial sovereignty; moreover, the superjacent airspace is deemed free by article 58(1) of UN Convention in the full respect of the freedom of overflight; it is also clear, looking at the preliminary works of the Convention, that military activities, in the wider meaning of the term, does not require coastal State permission in the EEZ. The same is true for the Contiguous Zone, that is to say the high seas area adjacent to the territorial sea within which the State may exercise certain powers of control against foreign shipping; the existence of a Contiguous Zone does not preclude the freedom of overflight for foreign aircraft.

flight plans or, even, that the coastal State may lawfully enforce measures against the aircraft, including interception, in order to defend such a zone, is an idea that is honestly outside and against any rule of international law.[94]

The interception of turkish military aircraft by the greek fighters because of the alleged "violation of greek FIR" and of the non-submission in advance of flight plans, is a violation of the international law since that such a behaviour may be justified in the international airspace only if there are the conditions for self-defense, namely a danger due to an impending attack.

7. From a legal point of view the problem has two benchmarks: the general principle according to which the air and maritime navigation in the international space is completely free and not subject to any exclusive claim of sovereignty and the irrelevance for the international legal system of a Flight Information Region. If a zone of high sea and above airspace is within the perimeter of a FIR, then this does not change their legal status, as provided only by the international law, and does not vest in the State, that merely provides technical and operative services, any right to extend the sovereignty over the whole FIR area. Stated these two mandatory principles, Turkey and Greece will have to ascertain their respective rights and duties in order to guarantee air traffic safety in the international spaces. This is the meeting point where to settle the dispute and the proposed solution in this paper is consistent with the international law and the politic interests of both States.

Anyway the Aegean sea from an historic and political point of view is a common sea to share between Greece and Turkey and since ever, moreover, is an important source for the economy of both countries. To understand this reality and to recognize the existence of air and maritime areas free and common because international, where everybody is free to enjoy its own rights, may be the real first step towards a resolution of the whole Aegean Dispute; a resolution really peaceful, lawful and politically balanced and satisfactory.

[94] "While identification of approaching military aircraft may be required for reason of security, it is difficult to see how enforcement measures, including interception of foreign aircraft passing through restricted zones and prosecution of their pilots for failure to follow a prescribed route or to file flight plans, can be justified under customary international law": K. HAILBRONNER, *op. cit.*, pag. 518. These measures without any doubt would be expression of a statal sovereignty unlawfully exercised outside the territorial boundaries. Moreover, "with the extension of sovereign or 'quasi-sovereign' powers to coastal states, the traditional rule of the freedom of the air above the high seas no longer appears to guarantee sufficiently the free movement of civil and military aircraft across the oceans" (K. HAILBRONNER, *op. cit.*, pag. 519) and due to this fact " ... we should not be too quick to recognize alleged security interests which in fact may endanger the freedom of flight": so again K. HAILBRONNER, in *Commentary*, in Gamble, *op. cit.*, pag. 155.

THE WORK OF THE INTERNATIONAL LAW ASSOCIATION'S COMMITTEE ON COASTAL STATE JURISDICTION RELATING TO MARINE POLLUTIONAND ITS IMPLICATIONS FOR THE AEGEAN SEA

Erik FRANCKX

Rapporteur International Law Association Committee on Coastal State Jurisdiction Relating to Marine Pollution , Director Center for International Law *Vrije Universiteit Brussel* Pleinlaan 2 1050 Brussels, Belgium

INTRODUCTION

After seven years of existence, the Committee on Coastal State Jurisdiction Relating to Marine Pollution of the International Law Association[95] will definitively wrap up its work during the month of july 2000. the present contribution intends to inform the conference about the working method and the actual work accomplished by this committee, while at the same time trying to make some links with the aegean sea setting.

In order to do so, a short introductory part describing the origin, structure and method of work this Association seems indispensable. Subsequently, a brief overview will be given of the work accomplished by the Committee on Coastal State Jurisdiction Relating to Marine Pollution so far. Besides organizational elements, substantive issues will be addressed with special emphasis on the final report and the conclusions reached therein. A last part will then try to assess the possible practical implications of the work accomplished by this Committee for the Aegean Sea area. Two main issues will be highlighted in this respect before reaching conclusions, to wit the customary law nature of the rule of reference relating to vessels-source pollution on the one hand, and of the strait regime on the other hand.

THE INTERNATIONAL LAW ASSOCIATION

1. Origin

Together with other countries, Belgium has played a crucial role in the establishment of the ILA. First of all, it was namely in Brussels that this organization, which was then called "Association for the Reform and Codification of the Law of Nations" was founded at a Conference held in October 1873. The idea originally came from the United States and has to be related to the name of David Dudley Field. For those of you interested in comparative law, this name

[95] Hereinafter cited as ILA

must certainly sound familiar. The United States, being a common law country, has indeed not much to do with codification of law. But if it had been up to David Dudley Field, America would today belong to the Romano-Germanic continental group of states, because he tried very hard in New York to start this movement of codification. After having drafted a Civil Code for the State of New York, he intended to draw up a Code of International Law.

Around the same time, a number of European jurists were considering the creation of an Institute of International Law. Again it was a Belgian, Professor Rolin of the University of Ghent, who took the initiative and succeeded in establishing that Institute which about a month later sent a delegation to the Brussels Conference which, in turn, established the "Association for the Reform and Codification of the Law of Nations". At the Brussels Conference of 1895, more than 100 years ago, the name was finally changed to "International Law Association". This change took place because the original founders of this organization were of the opinion that in order to promote international arbitration, and thus find an acceptable substitute for war, a Code of International Law had to be drafted first. Very soon, however, it appeared that arbitrations did start to increase and deal with important issue which otherwise might have escalated into war, such as for instance the Fur Sealing Arbitration which occurred in between. This trend was only confirmed by later state practice, as well as the establishment, and later case load, of the Permanent Court of International Justice in 1899/1907, the Permanent Court of International Justice (1920) and the International Court of Justice (1945). Therefore, other more pressing issues found their way into the agenda of the ILA, as evidenced by the first major accomplishment of this organization at its Antwerp (again in Belgium) 1877 meeting concerning the unification of the Rules of General Average, which almost immediately were generally followed in practice and referred to as the York-Antwerp Rules of General Average. Since then many more such draft rules and conventions have been elaborated in this way.

2. Structure

Main organ of the Association is an Executive Council. This body is elected by the members of the organization, which can be either Branch members, i.e. members elected by regional Branches of the Association, or Headquarters members, i.e. members elected by the Council. The number of Executive Council members a Branch can appoint varies between one and three according to the size of its Branch membership. This body has the full powers of the Association in the intervals between the conferences which, ever since the end of the Second World War, are held on a two-yearly basis. After each such conference the transactions are published.

Besides the Executive Council, there also is a Full Council, which consists of the members of the Executive Council and the Presidents and Secretaries of all Branches. The Full Council meetings take place during the conferences.
Branches are thus regional, not national, and need at least ten members in order to be created, but preferably not less than twenty in order to survive. With only five Branches in the beginning, this Association had grown to fifty-one Branches at the time of the last Conference in Taipei.[96]

3. Method of work

The actual work of the ILA is done through the medium of international committees. In 1980 the Executive Council adopted procedures for establishing international committees. The latter were revised in 1997.[97] The creation of such committees is decided by the Executive Council upon proposals which can be made by any Branch or any member of the Association, and upon the recommendation of the Director of Studies. If the proposal is accepted, the Executive Council also appoints from within the members of the Association a Chairman and a Rapporteur or Rapporteurs on the basis of their expertise. With respect to the appointment of the officers of these committees, the procedural rules provide that due regard must furthermore be given while making the selection to geographic and legal system representation.

When all this is done, Headquarters informs the different Branches of the decision taken and invites nominations for membership in those newly established committees. The number of committee Members a Branch can appoint, follows a similar pattern as the one observed with respect to the appointment of members of the Executive Council.[98] The procedural rules clearly indicate that it "would be impractical" for all Branches to be represented on all committees. Furthermore, Branches should propose people who are willing to contribute to the work of the committee, "in particular by responding to questionnaires and circulated drafts". Once all these suggestions for nomination are received it is the Executive Council which appoints, subject to the approval of the Chairman of the Committee. The latter should take into account "relevant expertise, geographic representation and the needs of the committee". Membership to such international committees is

[96] As listed in *The International Law Association: Report of the Sixty-Eighth Conference held at Taipei, Taiwan, 24 to 30 May 1998*, London, ILA, pp. 106-122 (1998). Hereinafter cited as 68th Conference Report.
[97] Revised Procedures for Establishing International Committees and Study Groups, as reprinted in *ibid.*, pp. 77-79
[98] *See* supra *sub* II (2).

however not an acquired right, for if a member evidences persistent lack of interest, he can be removed again.[99]

The way in which the actual work has to proceed is not regulated by a fixed procedure[100] but can *grosso modo* be explained in a simplified manner as follows. The Chairman and the Rapporteur get together to try to come up with a common concept and objective of how to proceed. A first meeting of the Committee then decides upon the concrete work to be undertaken. The Rapporteur, after having received this mandate, starts his work which consists of preparing a draft text on the subject placed on the agenda. Since there is a two yearly interval between conferences, normally a first draft has to be presented within one year. An interim meeting of the Committee is then convened, at which occasion the content of the draft is discussed between the members. This normally results in a whole list of comments, suggestions, amendments, changes .... which the Rapporteur then has to try to accommodate in a new version of his report. Once he has finished that job, the Rapporteur sends his text around to the members of his Committee for consideration. These members may then, in turn, submit this text to their regional Branches. After having received all these comments, the Rapporteur is then obliged to submit a final text to the Headquarters of the Association, several months in advance to the next Conference. Headquarters subsequently prints all these reports of the different committees, and sends the whole package around to all its members in the form of little leaflets. During the Conference, finally, this document forms again the basis of discussion of a meeting open to all members of the Association. During this meeting new directions or further improvements of the text are also on the agenda. Once the Conference has closed its doors, the whole exercise starts all over again, until the Committee submits a final set of draft rules or concludes its work.

THE COMMITTEE ON COASTAL STATE JURISDICTION RELATING TO MARINE POLLUTION

1. Organizational aspects

This Committee of the ILA on Coastal State Jurisdiction Relating to Marine Pollution was established in 1993. At that time Prof. J. Crawford was Director of

[99] Committees are established for a four-year term, with a renewal decision being taken for further periods of up to four years after that. At that occasion, also the membership of the Committee is reviewed on the recommendation of the Chair of the Committee and the Director of Studies.

[100] The only provision in the Revised Procedures for Establishing International Committees and Study Groups, Art. 12, supra note , pp. 78-79 (only article under the heading "Work of Committees") states: "The Officers of a Committee shall communicate regularly with members of the Committee. They shall provide sufficient time to them for commenting on drafts prepared by the Rapporteur(s), in order to ensure that the reports of the Committee represent the collective work of its membership. The Chair of the Committee shall keep the Director of Studies informed of the work of the Committee".

Studies and Prof. A. Soons Chairman of the Committee. When the latter became Director of Studies in 1998, the Chairmanship of the Committee was taken over by Prof. K. Hakapää. The author of the present paper was appointed Rapporteur. In 1997, Drs. E. Molenaar joined the officers of the Committee as Assistant-Rapporteur.

Conforming the method of work described above,[101] a first official[102] report was prepared for the 1996 Helsinki Conference.[103] A second report followed two years later and was presented during the Taipei Conference.[104] The final report of the Committee will be submitted for discussion at the next 2000 Conference to be convened during the month of July at London.[105] It is this document, which has just been submitted to ILA Headquarters a few days ago,[106] which will form the cornerstone of the present paper.

Several preliminary caveats need to be taken into account, however. First of all, according to the procedure explained above, the Final Report, even though it has been prepared by the Rapporteur and the Assistant Rapporteur, ends up being a collective undertaking which represents the views of the Committee as a whole, and through its members, the regional Branches represented in it. The comments included in this paper, therefore, should be understood against this background. Secondly, this text does not necessarily represent the final version of the report as it will appear in the proceedings of the Sixty-Ninth Conference Report after the July Conference. Amendments may still be made to it taking into consideration the remarks made during its discussion at the London Conference next July. Thirdly, the membership of the Committee has fluctuated somewhat over the years, but it ended up by representing twenty-five different Branches[107] and five more countries through Headquarters members.[108] Finally, despite the broad title bestowed on this Committee at the time of its inception, the latter made a clear choice during the early stages of its existence that vessel-source pollution would be its main focal point. At the same time it was decided that the central objective of the Committee's

---

[101] *See* supra *sub* II (3).

[102] A so-called First Internal Interim Report was already prepared by the Rapporteur for the 66th ILA Conference, held at Buenos Aires, Argentine in 1994. A slightly modified version of this report was published later on. *See* Franckx, E., "Coastal State Jurisdiction with Respect to Marine Pollution - Some Recent Developments and Future Challenges," *10 International Journal of Marine and Coastal Law* pp. 253-280 (1995).

[103] "First Report" (of the Committee on Coastal State Jurisdiction Relating to Marine Pollution, May 1996), in *The International Law Association: Report of the Sixty-Seventh Conference held at Helsinki, Finland, 12 to 17 August 1996*, London, ILA, pp. 148-178 (1996).

[104] "Second Report" (of the Committee on Coastal State Jurisdiction Relating to Marine Pollution, 1998), in 68th Conference Report, *supra* note , pp. 372-400 (1998).

[105] This Conference will be held on 25-29 July, 2000.

[106] On 18 April 2000 to be precise. Hereinafter cited as Final Report.

[107] Namely Argentina, Australia, Austria, Belgium, Brazil, Canada, Chile, Denmark, Estonia, Finland, France, Germany, India, Ireland, Italy, Japan, Malta, Mexico, Netherlands, Pakistan, Philippines, R.O.C., Sweden, U.K. and U.S.A.

[108] Namely Greece, Iceland, Indonesia, Malaysia and P.R.C.

work would be to produce results which could facilitate the interpretation and application of the 1982 United Nations Convention on the Law of the Sea.[109]

During the lifetime of the Committee, moreover, it became apparent that state practice played a crucial role in the realization of its objectives. From the very beginning, therefore, this Committee has worked by means of questionnaires to be filled in by its members. During the preparatory meetings leading up to the London Conference, when the decision was taken to publish the work of the Committee,[110] it was also agreed that Committee members would be invited to write national reports. As of now, sixteen such reports have been promised for inclusion.[111]

2. Substantive aspects

The Final Report, unlike the outcome of the work of many other ILA Committees in the past,[112] did not take the form of a draft convention. Indeed, even though the opinion could be found in the specialized literature that Part XII of the 1982 Convention "does not balance the interests of coastal and maritime states fairly",[113] the Committee arrived at the conclusion that no new general international convention is necessary at present. On the contrary, it is believed that the 1982 Convention is flexible enough to accommodate the new stressed placed on it. Instead of producing a draft convention, therefore, the Committee opted for an approach similar to one followed by the Restatements of the American Law Institute. The last part of the Final Report, as a consequence, consists of a series of conclusions, fourteen in total, which are then followed by commentaries.

These just-mentioned stressed are mainly the consequence of some major maritime casualties which occurred after the text of what finally became Part XII of the 1982 Convention was finalized during the Third United Nations Conference on the Law of the Sea.[114] It is noteworthy for instance that the lifetime of the Committee itself was marked by a series of such incidents,[115] the most recent in time being the *Erika* disaster in front of the French coast on 12 December 1999.[116]

---

[109] United Nations, *The Law of the Sea: United Nations Convention on the Law of the Sea* (U.N. Pub. Sales Nr. E.83.V.5). Hereinafter cited as 1982 Convention. This convention entered into force on November 16, 1994.

[110] *Vessel-source Pollution: The Work of the ILA Committee on Coastal State Jurisdiction Relating to Marine Pollution (1993-2000)* (Franckx, E., ed.), The Hague, Martinus Nijhoff (2000). Forthcoming.

[111] Covering the following areas: Australia, Belgium, Chile, Denmark, Finland, France, Germany, Greece, Iceland, Italy, Netherlands, P.R.C., R.O.C., Sweden, U.K. and U.S.A.

[112] For some illustrious examples, *see supra sub* II (1) *in fine*.

[113] Bodansky, D., "Protecting the Marine Environment from Vessel-Source Pollution", 18 *Ecology Law Quarterly* p. 719, 777 (1991).

[114] This Conference started in 1973 and was concluded in 1982. Hereinafter cited as UNCLOS III.

[115] *See* for instance the *Braer*, spilling 84.000 tons of oil in the southern Shetland Islands in 1993, and the *Sea Empress*, losing about 70.000 tons of oil on the English Pembrokeshire coast in 1996.

[116] 10.000 tons of heavy fuel were spilled. Another 20.000 tons remain for the moment trapped in the wreck of the ship, laying at a depth of about 120 meters.

Immediately after such occurrences, when the international attention is directly focused on them, it appears often feasible to incorporate substantial adjustments to the existing international legal framework. But equally true is the fact that many of these far-reaching proposals for adjustment subsequently tend to fall into oblivion as public interest slowly ebbs away once again. Or to use the words of the Secretary-General of the International Maritime Organization,[117] i.e. the competent maritime organization as described by the 1982 Convention:

> "Immediately after a major accident, and I refer particularly to the *Estonia*, we could have done anything with respect to ro-ro ferries. Twelve months, fifteen months later, issues crept in which did not allow things to proceed just the way some of us might have wished."[118]

The reaction of the French President in the wake of the *Erika* accident on 29 December 1999, of which *Le Monde* stressed the "déjà entendu" nature since it corresponded remarkably well with the declaration made by Valéry Giscard d'Estaing just after the grounding of the *Amoco Cadiz* in 1978,[119] was therefore illustrative of this tendency. France did take a series of concrete initiatives early 2000[120] and indicated that it would seize the French presidency of the European Union during the second half of the year 2000 to make security at sea a priority issue.[121] Without waiting for this French presidency, the Commission in the meantime already initiated a series of proposals during the month of March 2000.[122] The latter was explained by the Vice-president of the European Commission in charge of transport and energy, Mrs. Loyola de Palacio, with reference to the above mentioned trend:

> "Il faut saisir l'opportunité que représente la tragédie de l'*Erika* et donc agir vite pour mieux assurer la sécurité maritime au large des côtes de l'Union."[123]

But does this imply that France or the European Union will go *cavalier seul*? One may doubt the correctness of this submission. Indeed, France already informed the Secretary-General of IMO about its intentions, by means of a letter co-signed by its

[117] Hereinafter cited as IMO.
[118] O'Neil, W., "Concluding Remarks", in *Current Maritime Issues and the International Maritime Organization* (Nordquist, M. & Moore, J., eds.), The Hague, Martinus Nijhoff, p. 431, 432 (1999).
[119] *Le Monde*, 31 December 1999, p. 8.
[120] *Le Monde*, 17 February 2000, p. 11.
[121] *Le Monde*, 31 December 1999, p. 8.
[122] *Le Monde*, 4 March 2000, p. 15.
[123] As reprinted in *Le Monde*, 4 March 2000, p. 15.

Minister of Supply, Transport and Housing on the one hand, and the Minister of Foreign Affairs on the other, in which it stressed that IMO

> "remains the natural forum for discussions and decisions that will create the right conditions for safer and more responsible maritime transport. Out of respect for the international law of the sea, and with the aim of bringing together, under your aegis, all the States concerned, the French authorities wish to achieve progress over these concerns."[124]

At the same time one can stress the very reluctant attitude of Europe to defy the existing international system in a unilateral manner.[125] IMO, by means of its Secretary-General, has already firmly taken position in this respect by emphasizing that it is, and remains the only appropriate forum where such issues should be considered and adopted.[126]

3. The "conclusions" arrived at by the Final Report

The first four conclusions relate to the rules of reference to be found in the 1982 Convention with respect to vessel-source pollution, namely the concepts of "generally accepted international rules and standards"[127] and "applicable international rules and standards".[128] The former primarily concern prescriptive jurisdiction either for flag states, in which case it constitutes a mandatory minimum, or of coastal states, where it rather represents a facultative maximum. The latter, on the other hand, concern enforcement jurisdiction by flag states, port states and coastal states alike.

[124] As reprinted in International Maritime Organization, Communication from the Government of France, IMO doc. Circular letter No. 2208, 29 February 2000.
[125] Franckx, E., *supra* note , pp. 277-280, where the Eurorep-zone initiative is discussed, and by the same author "Évolutions récentes du droit de la mer dans ses relations avec l'environnement," in *L'actualité du droit de l'environnement (Actes du colloque des 17-18 novembre 1994)*, Bruxelles, Bruylant, pp. 227, 254-258 (1995).
[126] International Maritime Organization, Draft Report of the Marine Environment Protection Committee on its Forty-Fourth Session, IMO doc. MEPC 44/WP.6, 9 March, 2000. For the content of the statement of the Secretary-General *see sub* 1.7, for the overwhelming support by the other participants, *see sub* 1.12 and 1.14. A summary was already included in the unedited, advance copy of the report of the Secretary-General of the United Nations on the law of the sea for the year 2000. *See* United Nations, *Report of the Secretary-General: Oceans and the Law of the Sea* (U.N. Doc. A/55/...), 17 March 2000, para. 79, as available on Internet: http://www.un.org/Depts/los/GA55_61.htm.
[127] Hereinafter cited as GAIRS.
[128] Hereinafter cited as AIRS.

Going back to the origins of the notion of GAIRS, which is to be found in the 1958 United Nations Convention on the High Seas,[129] it is argued that this concept gives expression to the "umbrella" function of Part XII of the 1982 Convention by securing the primacy of international rules and standards over national laws and regulations. The primary rules apportioning competence are to be found in the 1982 Convention, the secondary rules, containing the more technical rules and regulations, on the other hand are mainly to be found in the relevant conventions and other documents drawn up under the auspices of IMO. This particular rule of reference entails that states parties to the 1982 Convention are bound by these latter technical rules and regulations, in whatever form they are expressed, as long as they are "generally accepted".

AIRS are defined as international rules and standards which, at the time of a violation, are operational in the direct relationship between the flag state on the one hand, and the coastal or port state on the other. For parties to the 1982 Convention, which are bound by GAIRS, this means that the latter concept is included in AIRS. Consequently, supposing a particular technical rule or regulation is contained in a convention, the combination of the rules of reference just-mentioned results in the fact that it does no longer matter for coastal states willing to enforce such a technical rule or regulation against a foreign vessel in front of its coast, whether the flag state of the latter is also a party to the convention containing the generally accepted technical rule or regulation in question, in the supposition that the flag state is a party to the 1982 Convention.

Conclusions five and six relate to the *pacta tertiis* principle and the particular approach of the 1982 Convention to vessel-source pollution, based as it is on the rules of reference just explained. The question can indeed be raised whether, by discarding the requirement for the flag state to be a party to the concrete convention containing the technical rule or regulation enforced against its vessel, one does not negate the *pacta tertiis* principle which remains a generally recognized cornerstone of contemporary international law.[130] The Committee came to the conclusion that this was not the case. The consensual nature of international law is satisfied by the fact that states, by becoming party to the 1982 Convention, automatically agree to accept the rules of reference contained in it. One in other words subscribes to a technique of law-making to be followed, rather than to concrete norms, the content of which may moreover be unknown at the time of the consent. This legal technique of law-making by reference appears especially efficient when contained in a widely ratified document such as the 1982 Convention.

---

[129] 450 *United Nations Treaty Series* 82, Art. 10. The purpose of this article was to make compulsory to all states the so-called maritime rules of the road, which had not yet taken the form of international conventions, but which were respected by most states.

[130] As codified in the Vienna Convention on the Law of Treaties, 23 May 1969, multilateral, Art. 32, 1155 *United Nations Treaty Series* 331, where it is stated that treaties do not "create either obligations or rights for a third State without its consent".

Conclusion seven concerns the concept of "wilful and serious pollution" to be found in Arts. 19 (2)(h) and 230 (2) of the 1982 Convention, but are not defined by that document. A closer analysis of state practice does not really shed any additional light on this matter either. It is submitted that the act of wilful and serious pollution, together with the non-compliance with the notion of passage as articulated in Art. 18, as well as the involvement in a maritime casualty which would give the coastal state a right to intervene under general international law, are all actions which result in the loss of the right of innocent passage when they occur in the territorial sea. To this one could add the mere presence of ships in the territorial sea whose condition is so deplorable that it is extremely likely to cause a serious incident with major harmful consequences, including to the marine environment. Normally, however, passive requirements, such as construction, design, equipment and manning standards, the type of cargo carried on board or the mere threat of pollution do not render passage non-innocent.

Conclusion eight has to do with two rather novel concepts, namely mandatory ship reporting on the one hand, and vessel traffic systems on the other. The problem with these notions is that they are neither allowed nor prohibited by the 1982 Convention. At present, both appear to be tied to the territorial sea notion, even though mandatory ship reporting may exceptionally operate beyond that zone. They are moreover not supposed to prejudice the legal regimes of straits used for international navigation and archipelagic sea lanes.

Finally, conclusions nine until fourteen all relate to coastal state enforcement powers over vessel-source pollution. First (Conclusion nine) a distinction is made between enforcement powers over ships in innocent passage and those in non-innocent passage. Only the latter category includes the expulsion from the territorial sea as a sanction.

Secondly (Conclusion ten) the issue of non-transit passage is analyzed. Here, an analogy is made with non-innocent passage, as well with respect to the conditions as the actual enforcement powers.

Thirdly (Conclusion eleven) coastal state enforcement powers in archipelagic waters and archipelagic sea lanes are considered. In this respect it is submitted that references to the territorial sea in Part XII should be read to include archipelagic waters for the purpose of coastal state jurisdiction over vessels-source pollution. Because of the marked similarity between the transit passage regime on the one hand and the archipelagic sea lanes passage on the other, certain articles relating to the former are believed to apply to the latter as well.

Fourthly (Conclusion twelve) the enforcement powers of the coastal state in the exclusive economic zone are considered. In this respect it is specifically submitted that the powers under Art. 220 (3, 5 & 6) should also apply to violations committed in the coastal state's internal waters or territorial sea but actually enforced when the ship reaches the exclusive economic zone of that particular state.

Fifthly (Conclusion thirteen) the special areas under Art. 211 (6) are focused upon. Here it is suggested that IMO should prepare a list of theoretical

laws and regulations which can be adopted by the coastal state under paragraph (a) of that article. When a proposal is then made by a particular coastal state, IMO would subsequently have to indicate those laws and regulations which would be appropriate *in casu*. Also the additional measures, possible under paragraph (c), need IMO approval. This time, however, they can only relate to discharges or navigational practices excluding construction, design, equipment and manning standards.

Finally (Conclusion fourteen) special attention is devoted to Art. 234 relating to ice-covered waters. In this framework, the recent work within IMO concerning the guidelines for ships operating in ice-covered waters is believed to provide a useful instrument to give concrete content to the "due regard to navigation" clause. The latter, in fact, contains the only restriction to the coastal state's competence in its exclusive economic zone in this respect.

IMPLICATIONS FOR THE AEGEAN SEA

It will be clear after having reviewed the conclusions arrived at by the ILA Committee on Coastal State Jurisdiction Relating to Marine Pollution, that some of them are completely irrelevant simply because of the subject matter treated. This most certainly applies to Conclusion fourteen which relates to ice-infested waters. It also seems to apply to Conclusion eleven concerning coastal state enforcement powers in archipelagic waters and archipelagic sea lanes since the definition of an archipelagic state in the framework of the 1982 Convention explicitly excludes Greece to fit under this juridical category,[131] even though the etymological origin of this concept may well be rooted in that very country.[132] The argument sustaining that Greece may nevertheless further develop this notion so that one day it will be able to rely on the special archipelagic regime provided for by that convention,[133] does not seem very realistic. A closer analysis of Part IV reveals that there is no scientific basis at all to the rules contained in that section, resulting in the fact that some countries are included, while others remain excluded from the system. The latter can only be explained from a teleological approach, i.e. that the drafters of the convention phrased this part especially in view of excluding a considerable number

[131] 1982 Convention, Art. 46 (a). *See* especially the significance of the word "wholly" used in this definition.

[132] Roucounas, E., "Greece and the Law of the Sea", in *The Law of the Sea: The European Union and Its Member States* (Treves, T. & Pineschi, L., eds.), The Hague, Martinus Nijhoff, p. 225, 232 (1997).

[133] *See* Economides, C., "La nouvelle convention sur le droit de la mer et la Grèce: le pour et le contre", 48 *Revue Hellénique de Droit International* p. 53, 63 (1995), where this author writes that "la notion d'archipel ait été pour la première fois consacrée par le droit de la mer, ce qui est un point positif pour la Grèce, qui pourra à l'avenir oeuvrer pour l'extension progressive de cette notion, avec ses effets bénéfiques, à tous les archipels, même ceux appartenant à des Etats mixtes, c'est-à-dire ceux qui, en dehors des îles, disposent également de territoires continentaux".

of potential claimants.[134] The argument moreover looks a somewhat odd. What would indeed remain of the package deal of the 1982 Convention if all parties would start developing similar arguments concerning particular conventional provisions which are not totally satisfactory for them? Finally also Conclusions twelve and thirteen remain inoperative in the Aegean Sea because no exclusive economic zones exist there at present.[135] This tendency is characteristic of the Mediterranean as a whole.[136]

But more fundamentally, the question can be raised whether the work of the Committee, whose main objective consisted precisely of clarifying certain specific provisions of the 1982 Convention,[137] has indeed anything to offer to a country like Turkey which is not a party to that particular legal instrument at present and does not seem inclined to become so in the near future.

Since the other riparian state bordering the Aegean Sea recently became a party to the 1982 Convention,[138] the delicate problem arises concerning the customary law nature of the provision here under consideration.

Without trying to be exhaustive, the present paper intends to take a closer look at this specific problem with respect to two broad issues still to be found in the list of topics which formed part of the work of the ILA Committee and which have not been put aside so far in this section for lack of relevance.[139] The first concerns the rules of reference contained in the 1982 Convention in the area of vessel-source pollution. The second relates to the issue of straits.

---

[134] *See* for instance O'Connell, D., 1 *The International Law of the Sea*, Oxford, Clarendon Press, p. 256 (1982), who states: "To enable this negotiation to proceed, it was thought necessary to limit the number of countries which would be admitted to the archipelagic bloc, and therefore to define an archipelago so as to exclude all but the admitted members. From a diplomatic point of view, this manoeuvre may have had something to commend it, but the artificiality of the contrivance tended to deprive the concept of any intrinsic validity".

[135] Even though some authors have urged Greece to establish such a zone. *See* for instance Kariotis, T., "The Case for a Greek Exclusive Economic Zone in the Aegean", 14 *Marine Policy* pp. 3-14 (1990) as well as a later article by the same author, "Greek Fisheries and the Role of the Exclusive Economic Zone", in *Greece and the Law of the Sea* (Kariotis, T., ed.), The Hague, Martinus Nijhoff, pp. 187, 206-209 (1997).

[136] *See* for instance Quéneudec, J.-P., "Rapport général (La concertation en matière économique)", *3 Revue de l'Indemer* pp. 169, 170-171 (1995), who states the principle in a special issue on the Mediterranean, and Treves, T., "Rapport général (Action commune pour la protection de l'environnement marin)", *ibid.*, pp. 71, 82-83, who specifies the practice of states in this respect. This makes the regulatory role of European Community in the area rather problematic. See Cataldi, G., "La politique communautaire de la pêche", in *Le droit international de la pêche maritime* (Vignes, D., Casado Raigon, R. & Cataldi, G., eds.), Bruxelles, Bruylant, pp. 280, 304-309 (2000).

[137] *See supra* note and accompanying text.

[138] 21 July 1995, as available on Internet: http://www.un.org/Depts/los/los94st.htm.

[139] *See* supra notes - and accompanying text.

1. The rules of reference relating to vessel-source pollution

It is the firm believe of the present author that the "GAIRS" rule of reference relating to vessel-source pollution, to be found in the 1982 Convention, does not form part of present day customary international law. Different reasons can be put forward to sustain this submission.

First of all, there is the origin of the rule in question. As already referred to above,[140] this rule finds its roots in the 1958 Convention on the High Seas[141] and strictly applied to the area of safety of navigation. During UNCLOS III, however, the field of operation of this concept was broadened to a completely new area of application, namely that of marine pollution prevention. Under such circumstances, a supplementary difficulty seems to have been added for the inclusion of this concept in the corpus of customary international law.

But there are more fundamental objections. Law-making by reference appears to be a rather novel development in international law. And even though the Final Report found ample support for this in the specialized legal literature, strong objection was also encountered. The latter came as well from generalists discussing the contemporary sources of international law[142] as from specialists involved in the establishment of the technical rules and regulations.[143] If the principle itself is therefore already contested in some quarters with respect to states parties to the 1982 Convention themselves, it seems hard to conceive how this principle could then be made applicable to non-parties through the mechanism of customary international law.

Therefore, even though the Second Report suggested that GAIRS did form part of customary international law,[144] the Final Report, after a detailed analysis of the question, limited the rule to clearly stating:

> "*By becoming a party to the 1982 Convention*, states *ipso facto* accept the legal technique of law-making by reference inherent in the very notion of generally accepted international rules and standards."[145]

[140] *See supra* note and accompanying text.
[141] *See* the excellent study in this respect by Oxman, B., "The Duty to Respect Generally Accepted International Standards", 24 *New York University Journal of International Law and Politics* pp. 109-159 (1991).
[142] *See* for instance Danilenko, G., *Law-Making in the International Community*, Dordrecht, Martinus Nijhoff, pp. 72-73 (1993).
[143] *See* for instance Blanco-Bazan, A., "IMO Interface with the Law of the Sea Convention", in *Current Maritime Issues and the International Maritime Organization* (Nordquist, M. & Moore, J., eds.), supra note , pp. 269, 278-284.
[144] Second Report, *surpa* note , pp. 385-388.
[145] Final Report, supra note and accompanying text. *See* Conclusion No. 6. Our emphasis.

Finally, a quite similar argumentation was developed by some authors with respect to the so-called 1995 Fish Stocks Agreement,[146] namely that certain provision contained therein give rise to obligations *erga omnes*.[147] By becoming party to the 1995 Agreement, indeed, one accepts beforehand to be subjected to the regulations enacted by regional fisheries organizations, to which one may not have adhered or whose regulations one may not have consented to.[148] A thorough study by the present author of this specific issue came to the conclusion that the application of the rule of reference to be found in the 1995 Agreement is strictly tied to the conventional framework, i.e. only operates between states parties to the 1995 Agreement.[149]

When applied to the Aegean setting, and more particularly to the relationship between Greece and Turkey, this reasoning entails that as long as Turkey does not become a party to the 1982 Convention, its ships should not be subjected to GAIRS by any other countries having ratified the said convention. Taking in view the fact that Turkey is only party to a rather limited number of IMO conventions on the subject,[150] this may be an important issue for this country to consider.

2. The strait issue

The question whether the transit passage regime provided for in the 1982 Convention forms already part of customary international law, is not an easy one to answer. Nevertheless, after a careful examination of the question, based on the convention itself and state practice inside as well as outside the conference framework, T. Treves came to the carefully balanced conclusion in 1991 that in straits of minor importance, non-suspendable innocent passage appeared to be the rule, whereas for major straits a freedom of movement similar to the one existing on the high seas formed part of customary law, subjected only to certain environmental

[146] 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), reprinted in 34 *International Legal Materials* pp. 1542-1580 (1995). Hereinafter cited as 1995 Agreement. This agreement has not yet entered into force.

[147] Delbrück, J., "'Laws in the Public Interest' - Some Observations on the Foundations and Identification of erga omnes Norms in International Law", in *Liber amicorum Günther Jaenicke - Zum 85. Geburtstag* (Götz, V., Selmer, P. & Wolfrum, R., eds.), Berlin, Springer, pp. 17, 26-27 (1998). *See* also de Yturriaga, J., *The International Regime of Fisheries: From UNCLOS 1982 to the Presential Sea*, The Hague, Martinus Nijhoff, p. 223 (1997).

[148] Fitzmaurice, M., "Modifications to the Principles of Consent in Relation to Certain Treaty Obligations", 2 *Austrian Review of International & European Law* pp. 280 and 296 (1997).

[149] Franckx, E., "*Pacta Tertiis* and the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks." Accepted for publication by the *Tulane Journal of International and Comparative Law*. Forthcoming.

[150] As available on Internet: http://www.imo.org/imo/convent.

and safety concerns of the coastal state.[151] This conclusion can only have taken firmer root during the decade which has passed since then.

However, since the work of the ILA Committee was strictly tied to the framework of the 1982 Convention, this part will not look into the, be it very topical issue,[152] of the Straits of Chanakkale and Istanbul. Both of them are indeed excluded from the application of the transit passage regime provided by Part III of the 1982 Convention by means of Art. 35 (c),[153] of which they are said to be "arguably the fullest and best example".[154]

The remaining strait issue concerns in fact the validity of the Greek declaration, first made on the day of the final vote on the 1982 Convention,[155] and later at the time of signature[156] as well as at the time of ratification,[157] and which provides:

> "In areas where there are numerous spread-out islands that form a great number of alternative straits which serve in fact one and the same route of international navigation, it is the understanding of the Greece that the coastal State concerned has the responsibility to designate the route or routes, in the said alternative straits, through which ships and aircraft of third countries could pass under the transit passage regime, in such a way as on the one hand the requirements of international navigation and overflight are satisfied, and on the other hand the minimum security requirements of both the ships and aircraft in transit as well as those of the coastal State are fulfilled."[158]

This statement was contested by Turkey with respect to the original claim in 1982,[159] as well as with respect to the repetition of that claim later on in 1995.[160]

This interpretation has certainly found some adherents in the specialized legal literature,[161] but is contested by others who specifically focused on the issue.[162]

---

[151] Treves T., "Navigation", in 2 *A Handbook on the New Law of the Sea* (Dupuy, R.-J. & Vignes, D., eds.), Dordrecht, Martinus Nijhoff, pp. 835, 970-976 (1991).
[152] *See infra sub* V. for further references.
[153] Which reads: "Nothing in this part 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".
[154] Plant, G., "Navigation Regime in the Turkish Straits for Merchant Ships in Peacetime: Safety, Envronmental Protection and High Politics", 20 *Marine Policy* p. 15, note 3.
[155] 30 April 1982.
[156] 10 December 1982.
[157] *See supra* note .
[158] Both texts are available on Internet: http://www.un.org/Depts/los/los94st.htm.
[159] UNCLOS III, 17 *Official Records*, Part B, Doc. A/Conf.62/WS/34, p. 226.
[160] As reprinted in 30 *Law of the Sea Bulletin* (1996).

The way out of this dilemma, as suggested by B. Oxman, could to be found in the possibility for Greece to restrict in certain areas its own territorial sea claims in order to create routes of similar convenience with respect to navigational and hydrographical characteristics in areas which would normally be overlapped by territorial waters.[163] Both the strait state and shipping nations would profit from such a self-restriction, a recipe already successfully applied in other regions of the world, as for instance in the Finnish Gulf between Estonia and Finland.[164]

CONCLUSIONS

When reading through the present day legal literature on the Aegean Sea, one tends to be struck by the fact that environmental protection does not appear to be a high priority issue in the minds of the riparian states bordering the area. A recent book, for instance, treating in about 500 pages the status of the Aegean Sea according to international law, does not even raise the issue in a manner worth mentioning,[165] except with respect to the Turkish Straits.[166] Since the work of the ILA Committee in question precisely concentrated on the issue of vessel-source pollution, its importance may likewise be downgraded. The fact that this Committee moreover concentrated on the 1982 Convention seems to further confirm this trend, since one of the two states bordering the area is not a party to that legal instrument.

Nevertheless, the present paper demonstrates that the Final Report of the Committee does have some concrete implications for the Aegean Sea.

Environmental protection matters, moreover, more than once proved to be an appropriate vehicle to further international cooperation between riparian states, even in regions of high political tension.[167] In the Turkish Straits, which are at the center of international attention at present,[168] environmental issues do take a central

---

[161] *See* for instance Stelakatos-Loverdos, M., "The Contribution of Channels to the Definition of Straits Used for International Navigation", in 13 *International Journal of Marine and Coastal Law* pp. 71, 83-84 (1998). *See* also note 46 for further references.

[162] Oxman, B., "The Application of the Straits Regime Under the UN Convention on the Law of the Sea in Complex Geographic Situations such as the Aegean Sea". Paper presented at a Conference on The Passage of Ships Through Straits, Athens, October 23, 1999. Text on file with the author.

[163] 1982 Convention, Art. 36.

[164] Franckx, E., "Baltic Sea Update (Report Number 10-14)", in 3 *International Maritime Boundaries* (Charney, J. & Alexander, L., eds.), The Hague, Martinus Nijhoff, pp. 2557, 2565-2567 (1998).

[165] Syrigos, A., *The Status of the Aegean Sea According to International Law*, Bruxelles, Bruylant, 520 pp. (2000). Pollution comes only into play when it is incidental to some other point the author wants to make, as for instance when it is stated that the *Sismik-I*, in order to justify its presence in the Aegean in January 1988, was said to be on a pollution monitoring mission. *Ibid*., p. 257.

[166] *Ibid.*, pp. 323-331.

[167] The Arctic example readily springs to mind in this respect. *See* Franckx, E., *Maritime Claims in the Arctic: Canadian and Russian Perspectives*, Dordrecht, Martinus Nijhoff, pp. 245-248 (1993), stressing the early initiatives, and Rothwell, D., *The Polar Regions and the Development of International Law*, Cambridge, Cambridge University Press, pp. 221-257 (1996), further completing the picture

[168] *See* for instance the numerous journal articles which appeared on this topic after the 1994 crisis: Scharfenberg, A., "Regulating Traffic Flow in the Turkish Straits: A Test for Modern International

place at present.[169] Nevertheless, these straits appear to have had exactly the opposite effect on the position of the parties involved. Instead of a rapprochement, one rather witnesses a further growing apart of positions.

As was the case with the 1999 *Erika* incident,[170] moreover, the breaking-up of the Russian *Volgoneft 248* in the Marmara Sea a few days later on, resulted in new stresses being placed on the normal functioning of the existing international mechanism, even though the vessel broke up whilst at anchor and awaiting discharge off the port of Amberli.[171] It is to be hoped that in both cases, the international reflex will finally carry the day.

Law", 10 *Emory International Law Review* pp. 333-395 (1996); Dyoulgerov, M., "Navigating the Bosporus and the Dardanelles: A Test for the International Community", 14 *International Journal of Marine and Coastal Law* pp. 57-100 (1999); Kotliar, V., Chernomorskie prolivy: obshchepriznannyi pravovoi rezhim i sovremennye tendentsii (The Black Sea Straits: Universally Recognized Legal Regime and Contemporary Tendencies), in *Russian Yearbook of International Law 1996-1997* pp. 234-247 (1998); and Plant, G., *supra* note , pp. 15-27.

[169] As already alluded to. See supra note and accompanying text.

[170] *See supra sub* III (2).

[171] The incident occurred on 29 December 1999, about 20 km from the entrance of the Bosporus.

COMMON INTERNATIONAL COMMITMENTS OF TURKEY AND GREECE ON THE PROTECTION OF THE AEGEAN SEA WITH SPECIAL REFERENCE TO THE MEDITERRANEAN ACTION PLAN

Nesrin ALGAN
University of Ankara, Faculty of Political Science, Ankara, Turkey

Some of the international legislation on the protection of the Aegean Sea is in the form of globally, regionally or bilateral binding formal conventions or agreements which contain direct or indirect provisions for this purpose, others are in the form of voluntary, non-binding, informal agreements or understandings amongst stakeholders which cover direct or indirect protective regulations. While some of these aim to prevent or eliminate pollution, others contain arrangements to protect biological diversity, marine life resources, and coastal areas. In this study, among the international legal arrangements that aim to protect the Aegean Sea directly or indirectly, only those to which Turkey and Greece are both parties will be examined, and the Mediterranean Action Plan (MAP) will be discussed in detail. Other international arrangements which involve only one of these coastal states are not covered by this study.

At the Global Level

There are a number of global international conventions or non-binding international instruments with relevance to the protection of marine environment to which Turkey and Greece are both parties including:

- the Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar, 2 February 1971);
- the United Nations Human Environment Declaration (Stockholm, 1972);
- the Convention for the Protection of the World Cultural and Natural Heritage (Paris, 16 November 1972);
- the IMO International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 (MARPOL 73/78, Annex I, II,V);
- the United Nations Declaration on Environment and Development and Agenda 21 (Rio de Janeiro, 1992);
- the Convention on Biological Diversity (Rio de Janeiro, 5 June 1992) and the 1995 "Jakarta Mandate" adopted by the second Conference of the Parties to the Convention on Biological Diversity.

Among these arrangements, one might argue that the Ramsar and the World Cultural and Natural Heritage Convention contain general and indirect provisions concerning the protection of the sea and coastal areas. In this regard, the Stockholm Declaration, adopted by both countries, can be considered foremost of

the most important documents concerning the protection of seas in a general way. According to the Stockholm Declaration "The natural resources of the earth, including he air, water, land, flora and fauna and especially representative samples of natural ecosystems, must be safeguarded for the benefit of present and the future generations (Principle 2). States shall take all possible steps to prevent pollution of the sea by substances that are liable to create hazards to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea (Principle 7)". Recommendation 92/b of the Stockholm Conference plays a guiding role for the systematic and institutional development of joint efforts concerning the control of major sources of pollution for regional seas; governments should take effective measures at the national level and coordinate and concentrate these efforts at the regional and, where necessary, the international level. As a matter of fact, one of the decisions taken at the Executive Council meeting of UNEP in 1973 concerns the definition and prevention of all kinds of possible negative impacts on marine health, and calls on the Executive Director to demonstrate effort towards the enactment of regional agreements in this regard. A major aim of launching the Programme on Regional Seas within UNEP in 1974, is to protect the oceans by means of a regional approach (Algan, 1995).

IMO International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 (MARPOL 73/78) and its Annex I (Prevention of pollution by oil, 1983), II (control of pollution by noxious liquid substances, 1987) and V (garbage, 1988) are the other significant international common commitments of Turkey and Greece on the protection of marine areas including Aegean Sea. It covers all the technical aspects of pollution (except dumping) from all types of ships. On the other hand, the Convention does not apply to pollution from the exploration and exploitation of sea-bed. MarPol 73/78 and Annexes contain very detailed technical arrangements concerning the prevention of sea pollution generated by ships. These arrangements have been updated on numerous occasions as a result of changes in cargoes and developments in the field of marine protection. Indeed, with changes made in 1984, 1985, 1987, 1989, 1990, 1991, 1992, 1994, 1995, 1996 and 1997, these arrangements are meeting current needs. Within the framework of MarPol 73/78 one of the most important arrangements for the Aegean is that the Mediterranean area, including the Aegean, is designated as a "special area". This arrangement recognizes some sea areas, such as the Baltic, Black Sea and the Mediterranean, as being especially sensitive to oil pollution and provides for very strict discharge standards for oily waters.

The most important global level regulation in terms of illustrating the international consensus in political will, **the UNCED Agenda 21 (1992, Rio de Janeiro)** especially Chapter 17(Protection Of The Oceans, All Kinds Of Seas, Including Enclosed And Semi-enclosed Seas, And Coastal Areas And The Protection, Rational Use And Development Of Their Living Resources) states that

the marine environment - including the oceans and all seas and adjacent coastal areas - forms an integrated whole that is an essential component of the global life-support system and a positive asset that presents opportunities for sustainable development. According to Agenda 21, the protection and sustainable development of the marine and coastal environment and its resources. requires new approaches to marine and coastal area management and development, at the national, sub-regional, regional and global levels, approaches that are integrated in content and are precautionary and anticipatory in ambit, as reflected in the following programme areas:

(a) Integrated management and sustainable development of coastal areas, including
exclusive economic zones;
(b) Marine environmental protection;
(c) Sustainable use and conservation of marine living resources of the high seas;
(d) Sustainable use and conservation of marine living resources under national jurisdiction;
(e) Addressing critical uncertainties for the management of the marine environment and climate change;
(f) Strengthening international, including regional, cooperation and coordination;
(g) Sustainable development of small islands (UN, 1994).

In Chapter 17 of Agenda 21, under the programme area "Marine environmental protection" management related activities are classified in two groups: "Prevention, reduction and control of degradation of the marine environment from land-based activities" and "Prevention, reduction and control of degradation of the marine environment from sea-based activities". Sea-based activities recommends actions specifically addressing sea-based pollutants i.e. shipping, dumping, off-shore oil and gas platforms, and ports (UN, 1994).

The Convention on Biological Diversity (Rio de Janeiro, 5 June 1992) and the 1995 "Jakarta Mandate on Marine and Coastal Biological Diversity" adopted by the second Conference of the Parties to the Convention on Biological Diversity, are the other global international legal arrangements Turkey and Greece are Parties, containing provisions on the protection of marine environment and marine living resources. The Convention on Biological Diversity, was one of two major treaties opened for signature at the United Nations Conference on Environment and Development (UNCED) in 1992. Convention which come into force in 1993, defines biodiversity as "the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems". Under the Convention, the contracting parties, promise to develop national plans for the conservation and sustainable use of biodiversity, through making inventories of resources and integrating such plans into development strategies and they required

to enact laws to protect threatened species and habitats and expand natural protected areas. Three years after the Earth Summit, in 1995, at the Second Meeting of the Parties to the Convention of Biological Diversity in Jakarta, marine and coastal biodiversity were addressed in more detail and, a number of activities relevant to shipping were identified as having a significant impact on the marine environment and its diversity. Operational discharges of oil into the sea and gases to the atmosphere, the introduction of alien species and the lack of adequate routeing measures to protect sensitive coastlines were, in particular, highlighted for attention. One of the outcomes of this meeting is that IMO and all other UN bodies will now be requested to review their programmes with a view to improving existing measures and developing new actions which promote conservation and sustainable use of marine biological diversity'. Within the Jakarta Mandate, five thematic issues have been identified:

1. Integrated Marine and Coastal Area Management,
2. Sustainable Use of Marine and Coastal Living Resources,
3. Marine and Coastal Protected Areas,
4. Mariculture,
5. Alien Species (UNEP, 1995).

Activities covered by these five thematic issues are carried out in accordance with 1998 "Programme of Work Arising From Decision II/10 (Jakarta Mandate)" agreed in the Fourth Meeting of the Conference of the Parties. According to this document the aim of the working programme is: "to assist the implementation of the Jakarta Mandate on Marine and Coastal Biological Diversity at the national, regional and global levels. It identifies key operational objectives and priority activities within the five key programme elements: integrated marine and coastal area management, marine and coastal living resources, marine and coastal protected areas, mariculture and alien species and genotypes.....The primary basis for this programme of work is action at national and local levels. The Parties should, in accordance with Article 6 of the Convention, develop national strategies, plans and programmes in order to promote the conservation and sustainable use of marine and coastal biological diversity.....At the regional level, organizations, arrangements and bodies should be invited to coordinate activities of and/or relevant to the programme of work. These organizations should as appropriate and according to their own rules of procedure report to the Convention on their activities. Where regional organizations have not been established, the Parties and other institutions should examine the need for new regional organizations or other mechanisms for regional integration. Cooperation and information flow between the economic sectors involved should be promoted. Regional scientific and technical centres of excellence should be promoted" (UNEP, 1998).

At the Regional Level

The most important regional legal arrangements which can contribute directly or indirectly to the protection of the Aegean Sea are the Bern and Barcelona Conventions. **The Council of Europe Bern Convention on the Conservation of European Wildlife and Natural Habitats (1979)** has a significant role in protecting the wildlife and natural habitats in the Aegean, since the Aegean still enjoys being the habitat for endangered species, most importantly the Mediterranean monk seal and marine turtles. The same could be said for certain bird populations.

Mediterranean Action Plan and Barcelona Convention

The Barcelona Convention and its Protocols provide the legal dimension for the Mediterranean Action Plan which is carried out using a sustainable development approach and comprehensive and integrated environmental management for the whole Mediterranean joint efforts by the governments of Mediterranean countries to protect Mediterranean sea under the umbrella of UN has been going on for 25 years.[*] The activities are carried out by 20 coastal states and EU under the MAP Phase II ("**Action Plan for the Protection of the Marine Environment and Sustainable Development of the Coastal Areas of the Mediterranean")** which has the three major following components:

1. Legal Framework,
2. Sustainable Development in the Mediterranean,
3. Institutional and Financial Arrangements.

1. Legal Framework

In 1976, one year after the MAP is agreed, coastal countries gathered together and adopted the following legal instruments:

- Barcelona Convention for the Protection of the Mediterranean Sea Against Pollution (which came into force in 1978),
- The Protocol for the Prevention of the Mediterranean Sea by Dumping from Ships and Aircraft (which came into force in 1978),
- The Protocol Concerning Cooperation in Combating Pollution of the Mediterranean Sea by Oil and other Harmful Substances in Cases of Emergency (which came into force in 1978).

The other additional Protocols of the Convention are:

[*] The Mediterranean is the first area which is subject to a regional programme. Since the meeting of Mediterranean Commission in 1910 (re-named as CIESM later), several joint environmental cooperation programmes and project was realized under the umbrella of different international and scientific organizations.

- The Protocol for the Protection of the Mediterranean Sea against Pollution from Land-Bases Sources (which came into force in 1983),
- The Protocol Concerning Mediterranean Specially Protected Areas ((which came into force in 1988),
- The Protocol on the Prevention of Pollution of the Mediterranean Sea by Transboundary Movements of Hazardous Wastes and Their Disposal (signed in 1996 but has not been enacted yet).[**]

Negotiations has been started to amend the Barcelona Convention and some Protocols in accordance with the decision taken at the Eighth Ordinary Governmental Meeting on the Contracting Parties to the Convention for the Protection of the Mediterranean Sea against Pollution and its Protocols in 1993 in Antalya which was organized as a consequence of particularly Rio Summit, as well as changes which occurred in environmental matters on a global level in 1980s and 1990s, and also since activities carried out in the context of MAP extend beyond this legal framework. As a consequence of this work , a series of changes to the Convention have been approved, such as sustainable development goals, the integrated management of coastal areas, the protection of biological diversity , public participation, EIA, precautionary principle and extend the implementation area of the Convention which covers only marine environment, to include coastal areas.

In 1995 Barcelona Convention has been amended as "Barcelona Convention for the Protection of the Marine Environment and Coastal Region of the Mediterranean", and Dumping Protocol as "Protocol for the Prevention of the Mediterranean Sea by Dumping from Ships and Aircraft or Incineration at Sea." Protocol Concerning Mediterranean Specially Protected Areas is so radically changed or rather turned into a new Protocol and called "Protocol Concerning Specially Protected Areas and Biological Diversity in the Mediterranean". Land-Bases Sources Protocol has become "Protocol for the Protection of the Mediterranean Sea against Pollution from Land-Bases Sources and Activities" after the modifications made in 1996.

None of these legal arrangements has been enacted yet. On the other hand, although these documents are not yet in effect, II Phase of MAP has been implemented since 1995 under the name "Action Plan for the Protection of the Marine Environment and Sustainable Development of the Coastal Areas of the Mediterranean" in accordance with the decisions taken in 1995. The signatories carry out all technical, administrative and financial activities at national or regional

[**] Another additional Protocol to the Barcelona Convention is the Offshore Protocol which was opened to the signature of the coastal states in 1994. The Protocol which was signed by Greece but not by Turkey could not yet be enacted.

levels according to Phase II of Action Plan, and in accord with the amendments made in the Barcelona Convention and above-mentioned three Protocols. This can be interpreted as an indicator of a political consensus among all parties, although the modifications have not yet been ratified by all the Contracting Parties. This case, in away illustrates that although the amendments may not be endorsed yet, there is still a common political will.

On the other hand, some other legislative instruments concluded under this Program which have particularly importance for the protection of the Aegean Sea are:

- 1985 Genoa Declaration on the Second Mediterranean Decade;
- 1990 Nicosia Charter on Euro-Mediterranean Cooperation Concerning Environment in the Mediterranean Basin;
- 1992 Cairo Declaration and Specific Actions Programme on Euro-Mediterranean Cooperation on Environment in the Mediterranean Basin;
- 1994 Tunis Declaration and Mediterranean Agenda 21 (Med 21);
- 1995 Mediterranean Action Plan Phase II, Barcelona Resolution, Priority Fields of Activities for Environment and Development in the Mediterranean Basin (1996-2005)
- establishment of the Mediterranean Commission on Sustainable Development (MCSD) in 1996 (Algan 1995; UNEP, 1997; MAP/PAP 1999).

At this point it should be remembered that the recommendations agreed at the ordinary governmental meetings of the contracting parties to the Convention, the most important executive MAP body, are legally binding instruments.

2. Sustainable Development in the Mediterranean

The "Blue Plan Future of the Mediterranean Basin" Report prepared in the 1st Phase of the Mediterranean Action Plan, examines five different scenarios on the interaction between the environment and development in the basin and their progressive tendencies for the years 2000 and 2025 (PNUE, PAM, 1988). In the light of this progress, in order for the sustainable development in the Mediterranean to reach its goal, the regional and national measures to be taken should cover:

- the integration of the environment and development (including economic activities and the environment such as agriculture, industry, energy, tourism, and transport);
- urban management and the environment;
- sustainable management of natural resources (including water resources, soil, living marine resources, forest and plant coverage, integrated coastal areas);
- conservation of nature, landscape and sites;
- assessment, prevention and elimination of marine pollution;

- information and participation issues (UNEP, 1997).

In 1996 the Mediterranean Commission on Sustainable Development (MCSD) is established as an advisory body with the mandate too monitor the basic economic, ecological and social problems listed in Med 21, to follow-up the effective implementation of the decisions taken by the contracting parties, and to help develop regional cooperation. Main characteristic of this commission is its composition. Mediterranean local authorities, socio-economic actors and national or international non-governmental organizations as well as government representatives are equal members of this Commission whereas in the governmental meetings of the contracting parties only government representatives are qualified members while the other are only observers. Thematic study issues of the MCSD are sustainable management of coastal areas, water demand management, sustainable development indicators, eco-tourism, information, awareness and public participation, free trade and environment in Euro-Mediterranean context, (strategic impact assessment), industry and sustainable development (financial, technical, economic and cultural dimensions of removing land base sources pollution), rural/urban development management (UNEP, 1996).

3. Institutional and Financial Arrangements

The activities of Mediterranean Action Plan are maintained in accordance with the decisions made in the ordinary governmental meetings held once in every two years by the contracting parties. Since the parties prefer to execute the MAP within a multilateral regional cooperation system instead of establishing a permanent inter-governmental organization, the ordinary governmental meetings of the contracting parties have an important place within the MAP institutional structure. The Bureau of the Contracting Parties, one of the main bodies in the MAP system, operates at the ministerial level, and is comprised of six members who are elected for two years. The Bureau works under the mandate of the contracting parties ordinary governmental meetings. MAP Secretariat services are offered by the Mediterranean Coordinating Unit (Med-Unit) established in Athens in 1988. Within the institutional structure of MAP, Regional Activity Centers also have operational functions.[***] In accordance with Mediterranean Action Plan, the funding of the common activities executed at the regional level is realized by the Mediterranean Trust Fund created in 1979. Parties pay their contributions to this

[***] There are still 6 Centers and they are:
Blue Plan Regional Activity Center (BP/RAC, in Sophia Antipolis), Priority Action Programme Regional Activity Center (PAP/RAC in Split), Specially Protected Areas Regional Activity Center (SPA/RAC in Tunis),
Regional Marine Pollution Emergency Response Center for the Mediterranean (REMPEC in Malta), Environment Remote Sensing Regional Activity Center (ERS/RAC in Palermo) and ,Cleaner Production Regional Activity Center (CP/RACin Barcelona).

Fund in accordance with the United Nations regular budget system criteria and some developed region countries, UN and EU provide voluntary contributions to this Fund.

Another important activity for the protection of Mediterranean and Aegean Seas to which Turkey and Greece participate is **Euro-Mediterranean Partnership**. The EU's Euro-Mediterranean Partnership initiative and the Inter-ministerial Conference held in Barcelona, 27-29 November 1995, began a new era in relations between North and South countries of the region. According to the **Barcelona Declaration Adopted At The Euro-Mediterranean Conference** environmental cooperation will focus on "assessing environmental problems in the Mediterranean region and defining, where appropriate, the initiatives to be taken; making proposals to establish and subsequently update a short and medium-term priority environmental action programme for intervention coordinated by the European Commission and supplemented by long-term actions; it should include among the main areas for action, the following: integrated management of water, soil and coastal areas; management of waste; preventing and combating air pollution and pollution in the Mediterranean sea; natural heritage, landscapes and site conservation and management; Mediterranean forest protection, conservation and restoration, in particular through the prevention and control of erosion, soil degradation, forest fires and combating desertification; transfer of Community experience in financing techniques, legislation and environmental monitoring; integration of environmental concerns in all policies; setting up a regular dialogue to monitor the implementation of the action programme; reinforcing regional and sub-regional cooperation and strengthening coordination with the Mediterranean Action Plan; stimulating coordination of investments from various sources, and implementation of relevant international conventions; promoting the adoption and implementation of legislation and regulatory measures when required, especially preventive measures and appropriate high standards (EC,1995).

In this contex, **the Conference on Euro-Mediterranean Environment Ministers held in Helsinki in November** 25-28 ,1997, is the major mile stone of the cooperation on environmental protection. **According to the Short and Medium-Term Priority Environmental Action Plan** (SMAP) which was approved by this Conference, priority fields of action are; integrated water management, waste management, hot spots, integrated coastal zone management and, combating desertification (EC, 1999).

Moreover amongst common efforts participated by Turkey and Greece within the scope of multilateral activities for the protection of the Mediterranean Sea one might cite the following example. In parallel to the decision of the 1975 Helsinki Conference concerning the protection of the environment, CSCE held a Meeting on the Mediterranean on 24 September-19 October 1990 in Palma de Mallorca and a document concerning the protection of the Mediterranean is adopted. OSCE Seminar on Regional Environmental Problems and Co-operative

Approaches to Solving Them- The Case of the Mediterranean is held in Malta between the dates 22-23 February 1999. One of the most important characteristics of these studies is that environmental protection problem is handled together with the security concept, in accordance with the OSCE point of view.

The activities performed within the structure of OECD form another example of international commitments undertaken by the two coastal countries of Aegean Sea at the regional level. In this frame, one of the major regulatory activities is conducted by the OECD. On 23 July 1992, **the Council of the OECD adopted at its 787th session a set of recommendations** to its Members on integrated coastal zone management. In making these recommendations, the OECD Council reiterated that coastal zones and the oceans are areas where improved policy integration is necessary through integrated resource management strategies and comprehensive land use planning (OCDE, 1993). This "Recommendation contained the following essential elements; a recommendation to set specific policy objectives for the coasts and their resources, to enhance coordination of government strategies, and to strengthen the integration of sectorial policies; recommendations on instruments for coastal zone management that Member Countries should employ; specific recommendations focusing on fisheries, tourism and international waters" (OECD, 1997).[****]

At the Bilateral Level

"Memorandum of Understanding Between the Republic of Turkey and the Hellenic Republic Concerning Cooperation on Environmental Protection" (MOU) and its Annex signed on 20th of January 2000 in Ankara, is the major legal instrument which may be useful on the protection of the Aegean Sea marine environment. According to the Annex of this MOU, following items are identified as possible areas for cooperation: energy production; desertification; combating marine pollution; adoption of environmentally sound solid waste management strategies; preparation of joint programmes and exchange of information on development eco-tourism; exchange of information on environmental impact assessement; encouraging NGOs cooperation in both countries; land-based sources of pollution; earthquake issues, olive stone exploitation; forest fires extinction. In accordance with MOU, cooperation to be realized for combating marine pollution is determined as training programs, methodologies, new technologies and waste

[****] Some other OECD recommendations relative to the coastal area management including; Recommendation of the Council on Principles concerning Coastal Management of 12th October 1976 [C(76)161(Final)]; Recommendation of the Council on Environment and Tourism of 8th May 1979 [C(79)115]; Recommendation of the Council on the Assessment of Projects with Significant Impact on the Environment of 8th May 1979 [C(79)116]; Recommendation of the Council on Water Resource Management Policies: Integration, Demand Management, and Groundwater Protection of 31st March 1989 [C(89)12(Final)]; have addressed the interrelationships between the condition of coastal and marine environments and human activities (OECD, 1997).

receptions facilities at harbors and cooperation to be performed for land-based sources of pollution is determined as studies and establishment of systems for the exchange of information between the two parties, exchange of technologies and know-how. Furthermore, in the preparation of joint programs and exchange of information on development eco-tourism issue, studies for the impact on ecologically sensitive areas issue takes place. In accordance with the information received from the Turkish Ministry of Foreign Affairs, in the meetings held between the official boards of the two countries after signing the MOU, five of the eleven issues are determined as the priority cooperation areas. However, the combating marine pollution and land-based sources of pollution issue that would directly contribute to the protection of Aegean Sea is not within those priority areas yet.

CONCLUDING REMARKS

Aegean Sea still has the world's most important marine vessel traffic. Probability of transporting Central Asian and Caucasian natural gas and petrol via Black Sea, Turkish Straits and Aegean Sea would increase the environmental pressures and threats on Aegean Sea at a critical level. "In case these plans are implemented the figure of approximately 5 millions tons/year of crude oil passing through the Straits today will increase to perhaps 80-100 million tons/year" (Scovazzi, 1995). When such risks are taken into consideration, the cooperation activities required by the current international legal commitments of the two coastal countries should be urgently translated into concrete implementation programs. It should be underlined that, the environmental problems are being considered as security problems by a number of scientists, international organizations and decision-makers. The United Nations Development Program's 1993 Human Development Report reads: "The concept of security must change from an exclusive stress on national security to a much greater stress on people's security, from security through armaments to security through human development, from territorial security to food, employment, and environmental security"(UNDP, 1993). Therefore, both Turkey and Greece should adopt a common purpose for providing environmental security in the Aegean Sea and as the keepers of this common heritage, they should sensitively avoid policies and implementations likely to cause environmental conflicts. In the protection of the Aegean Sea, the above-mentioned various multilateral global, regional and/or bilateral legal arrangements have the necessary legal support in order for the two coastal states to perform the cooperation for common purposes. The common characteristic of all of these legal instruments are that they all require the collaboration of various actors at both national and international levels. Mediterranean Action Plan and Barcelona Convention system which encourage the strengthening of the sub-regional and bilateral cooperation in the basin, offer adequate legal framework for the protection of Aegean Sea. Hence, in addition to the existing multilateral

environmental cooperation between the two coastal countries at global and regional levels, the initiation of bilateral cooperation is an important progress. Nevertheless, there is a need to harmonize these bilateral cooperation activities with the common global and regional legal commitments in order to ensure protection for the common values of the Aegean Sea.

REFERENCES

ALGAN, N., 1995. Bölgesel Çevre Yönetiminde Model Arayışları: Akdeniz (Search for a Regional Environmental Management Model: Mediterraenan) , T.C. Çevre Bakanlığı Yay. (Turkhish Minisrty of Environment Publication), Çevre Yazıları 8, Ankara.

EC 1995. Euro-Mediterranean Partnership; Barcelona Declaration; Work Programme, Euro-Mediterranean Conference, Barcelona 27-28 November 1995, European Commission, Brussels,.

EC 1999. Euro-Mediterranean Partnership,the Short and Medium-Term Priority Environmental Action Plan (SMAP), European Commission, Brussels, 1999.

OCDE 1993. Géstion des Zones Côtiers, Politiques Intégrées, OECD, Paris.

OCDE 1997. Integrated Coastal Zone Management: Review Of Progress In Selected OECD Countries, OECD- GD(97)83, Paris.

MAP/PAP 1999. Formulation and Implementation of CAMP Projects, Operational Manual, MAP Coastal Area Management Programme (MAP CAMP), Athens - Split, 1999.

PNUE, PAM, 1988. Le Plan Bleu**,** Avenirs du Bassin Mediterranéen**,** Sous la directrion de Michel GRENON et Michel BATISSE, Economica, Paris, 1988.

SCOVAZZI, T., 1995. "New Turkish and IMO Regulations for the Turkish Straits", ICCOPS Newsletter, No.4, January 1995.

UN 1994. Earth Summit Agenda 21,The United Nations Program of Action From Rio, NY, 1994.

UNEP 1995. Doc.UNEP/CBD/COP/2/19: Report of the Second Meeting of the Conference of the Parties to the Convention on Biological Diversity, 30 November 1995.

UNEP 1996. Doc. UNEP(OCA)/MED IG.8/7 : Report of the Extraordinary Meeting of the Contracting Parties to the Convention for the Protection of the Mediterranean Sea Against Pollution and its Protocols**,** Montpellier, 1-4 July 1996.

UNEP 1997. Mediterranean Action Plan and the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean and its Protocols, Informal Document (Revized), Athens, 1997.

UNEP 1998. Doc.UNEP/CBD/COP/4/5: Implementation Of The Programme Of Work On Marine And Coastal Biological Diversity, Report of the Executive Secretary, 24 February 1998.

UNDP 1993 . Human Development Report, New York, Oxford University Press, 1993.

MARINE SPECIALLY PROTECTED AREAS AND PRESENT INTERNATIONAL LAW OF THE SEA *

Tullio Scovazzi
University of Milan , Faculty of Law, Italy

1. MSPAs under Customary International Law
2. MSPAs under Treaty Law.

1. The concept of marine specially protected areas (hereinafter: MSPA)[172], as a component of the broader category of specially protected areas, can be found in several domestic legislations, where the establishment of MSPAs aims at achieving a wide variety of objectives[173]. Irrespective of the measures peculiar to each of them, MSPAs can be defined in broad terms as areas of sea waters which are given special protection through legal provisions because of their significance for a series of reasons.
MSPAs often present also international implications[174]. For instance, a MSPA may cover in whole or in part the high seas or straddle the territorial seas of two or more States. Restrictions or prohibitions applying in a MSPA located in the territorial sea of a State may affect the rights enjoyed by other States (for example, the right of innocent passage of ships flying a foreign flag). This explains why the regime of MSPAs is greatly influenced by customary international law of the sea.

The influence played by rules of customary international law on the regime of MSPAs mostly depends on two factors, namely the different regimes applying to marine spaces and the principle of freedom of the sea.

* The present paper is based on some considerations developed in the book edited by T. Scovazzi on Marine Specially Protected Areas - The General Aspects and the Mediterraneran Regional System, published by Kluwer Law International, The Hague / Boston / London, 1999.

[172] See in general IUCN (The World Conservation Union), Guidelines for Establishing Marine Protected Areas, Gland, 1991.

[173] MSPA can also be established under the legislation of the European Community, namely EC Council Directive No. 92/43 of 21 May 1992 on the conservation of natural habitats and wild fauna and flora (Official Journal of the European Communities No. L 206 of 22 July 1992).

[174] On the international questions arising from the establishment of MSPA's see DUPUY, Les parcs marins dans le cadre international, in Revue Juridique de l'Environnement, 1980, p. 381; MIGLIORINO, La creazione di aree protette nei mari costieri, in Studi Marittimi, No. 30, 1987, p. 21; PEET, Particularly Sensitive Areas - A Documentary History, in International Journal of Marine and Coastal Law, 1994, p. 469; TSAMENYI, BATEMAN & DELANEY (eds.), Coastal and Maritime Zone Planning and Management: Transnational and Legal Considerations, Wollongong, 1995.

The regime of MSPAs is linked to the degree of powers that the interested States can exercise over the area where they are established. On land, the State to which the territory belongs where a specially protected area is located is entitled to exercise full sovereign powers on it. The situation is different in the sea, as the content of coastal State's rights with respect to those of third States varies in relation to the legal condition of the waters according to present customary international law of the sea.

In the territorial sea, an area where the coastal State is granted sovereignty, the ships of all other States enjoy the right of innocent passage[175]. It could thus be asked whether there is any use in establishing a protective regime for an area where a particularly fragile marine ecosystem is located, if foreign supertankers or ships carrying hazardous wastes are expected to freely pass through the area.

In the exclusive economic zone, where the coastal State has jurisdiction with regard to the protection and preservation of the marine environment, third States enjoy freedom of navigation and other internationally lawful uses of the sea. This is something more than a mere right of passage and, according to the position of some countries, goes as far as to include the right to engage in military manoeuvres in the exclusive economic zones of the others[176].

On the high seas there is no coastal State by definition. While all States are under a general obligation to cooperate for the protection and preservation of the marine environment, no State can impose its own legislation on the others. No State can, for instance, unilaterally establish an MSPA and claim that ships flying a foreign flag abide by the relevant provisions. It can thus be asked what the use is of adopting restrictive measures of environmental protection which only apply to ships flying the national flag, if all other ships are exempted from complying with them.

In short, the further an MSPA is located away from the coast the more questions of international law of the sea come into consideration and the need for international cooperation and agreement increases.

It would however be a mistake to think that customary international law of the sea, and in particular the traditional principle of freedom of the sea, are unsurmountable constraints against the establishment and sound management of MSPAs. Any principle, including the apparently sacrosanct principle of freedom of the sea, is to

[175] This right does not exist in the case of internal waters, i.e. marine waters on the landward side of the baseline of the territorial sea. Nevertheless, under Art. 8, para. 2, of the United Nations Convention on the Law of the Sea (Montego Bay, 1982), if 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.

[176] The existence of sui generis coastal zones different from the exclusive economic zone, such as the continental shelf or the fishing zone, does not facilitate the solution of problems of potentially conflicting rights.

be understood in relation to the natural evolution of legal systems and in the light of the peculiar circumstances under which it should apply.

This point deserves perhaps more elaboration. The concept of freedom of the sea was invented or, at least, theoretically developed by Hugo Grotius at the beginning of the XVIIth century in order to safeguard the right of any State (including his own country, the Netherlands) to navigate across seas and oceans. The stake was the right to occupy the newly discovered territories in Asia and the Americas[177]. When they engaged in their learned discussions, neither Grotius nor his opponents[178] had in mind questions posed by supertankers, nuclear-propelled vessels, off-shore drilling, mining for polymetallic nodules, fishing with driftnets and many other activities and means which could harm the marine environment today.

This assumption, which is completely obvious, leads to an equally obvious consequence which is nevertheless often forgotten. We cannot today use the same concepts that Grotius used and give them the same intellectual and legal strength that Grotius gave them[179]. To rely in an absolute way on the principle of freedom of the sea was justified in the circumstances existing in the past. But this is no longer true. Today it cannot be sustained that a State has a right to engage in a specific marine activity simply because it enjoys freedom of the sea, without giving any further explanations and without being ready to consider the opposite positions, if any, of the other interested States. Also the concept of freedom of the sea is to be understood in the context of the present range of marine activities and in relation to the other potentially conflicting uses and interests.

The needs of navigation and of the so-called "other internationally lawful uses of the sea" (a mysterious euphemism taken from Art. 58 of the 1982 United Nations Convention on the Law of the Sea, which probably covers naval manoeuvres and intelligence) are still important elements to be taken into consideration. But they have to be balanced with other interests, in particular those which have a collective character, as they belong to the international community as a whole.

---

[177] GROTIUS, Mare liberum sive de jure, quod Batavis competit ad Indicana commercia dissertatio, 1609. At that time, freedom of navigation through the oceans was put in question by the claims of Portugal and Spain which dated back to the papal bull Inter caetera of 1493 and the Treaty signed by Portugal and Spain in Tordesillas on 7 June 1494.

[178] Among the works of the opponents of Grotius, who also deserve consideration, are the following: WELWOD, De dominio maris, juribusque ad dominium praecipue spectantibus, assertio brevis ac methodica, 1615; SARPI, Dominio del mar Adriatico della Serenissima Republica di Venetia, 1616; FREITAS, De justo imperio Lusitanorum Asiatico, 1625; SELDEN, Mare clausum seu de dominio maris libri duo, 1635.

[179] Yet even Grotius conceded that coastal waters can be occupied: "Videtur & mare occupari potuisse ab eo, qui terras ad latus utrumque possideat, etiamsi aut supra pateat ut sinus aut supra & infra ut fretum, dummodo non ita magna sit pars maris, ut non cum terris comparata portio earum videri possit" (GROTIUS De jure belli ac paci libri tres, 1625, lib. II, cap. III, n. VIII).

The protection of the marine environment is one of these collective interests. It is not the case here to elaborate on the existence of customary international rules which bind States to protect the environment, prevent transfrontier pollution and cooperate to achieve these aims. Nor is it necessary to list all the treaties which have been concluded in order to establish specific forms of environmental protection[180]. It needs only be stressed that the measures to be taken in the field of the environment inevitably include also "those necessary to protect and preserve rare or fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life" (to use the wording of Art. 194, para. 5, of the United Nations Convention on the Law of the Sea).

More generally, the protection of the marine environment and the consequent establishment of MSPAs are today linked to the concept of sustainable development, which is one of the most important developments of international environmental law. According to Agenda 21, the Action programme adopted in Rio de Janeiro by the 1992 United Nations Conference on Environment and Development, States, acting individually, bilaterally, regionally or multilaterally and within the framework of IMO and other relevant international organizations, should assess the need for additional measures to address degradation of the marine environment. This should be done, inter alia, by "taking action to ensure respect of areas designated by coastal States, within their exclusive economic zones, consistent with international law, in order to protect and preserve rare or fragile ecosystems" (para. 17.30, a, v).

Agenda 21 stresses the importance of protecting and restoring endangered marine species, as well as preserving habitats and other ecologically sensitive areas, both on the high seas (para. 17.46, e, f) and in the zones under national jurisdiction (para. 17.75, e,f). As regards such zones,

"States should identify marine ecosystems exhibiting high levels of biodiversity and productivity and other critical habitat areas and provide necessary limitations on use in these areas, through, inter alia, designation of protected areas. Priority should be accorded, as appropriate, to: a) Coral reef ecosystems; b) Estuaries; c) Temperate and tropical wetlands, including mangroves; Seagrass beds; Other spawning and nursery areas" (para. 17.86).

In conclusion, the time-honoured principle of freedom of the sea has today to be balanced with the ever-increasing need to protect the marine environment and the innovative principle of sustainable development, which also pertain to the province of customary international law. The way in which the conflict of interests can be settled varies in the light of the

[180]See, in general, KISS, Droit international de l'environnement, Paris, 1989; BIRNIE & BOYLE, International Law and the Environment, Oxford, 1992; BROWN WEISS (ed.), Environmental Change and International Law: New Challenges and Dimensions, Tokyo, 1992; BADIALI, La tutela internazionale dell'ambiente, Napoli, 1995; SANDS, Principles of International Environmental Law, Manchester, 1995; NANDA, International Environmental Law and Policy, New York, 1995.

peculiar circumstances and of different factors. For instance, whether and, if so, under what conditions an MSPA can be created along a route of navigation is a question to which no predetermined answers can be given, as many different elements are to be evaluated together and each could play a more or less important role. How delicate or unique is the ecosystem to be preserved? How many ships use the route and how inconvenient would a change be in their course? What measures can be envisaged in order to limit the hazards of the transit of ships? And so on.

In this respect it is a matter of fact that on 6 November 1991 the Assembly of IMO (International Maritime Organization) adopted, as Resolution A.720(17), an instrument called Guidelines for the Designation of Special Areas and the Identification of Particularly Sensitive Sea Areas[181]. The IMO Guidelines expressly state that an option to limit pollution from ships in small sea areas (wherever they are located) "would be to limit the access of ships into such areas and into the buffer zones near these areas"[182]. Types of routeing measures which can be established and recommended by IMO on proposal by the interested States include areas to be avoided, traffic separation schemes, precautionary areas and deep-water routes. In particular, areas to be avoided can be established in places where, inter alia, "there is the possibility that unacceptable damage to the environment could result from a casualty"[183]. Two particularly sensitive areas have been designated under the framework of the IMO Guidelines, the first located in Australia within the Great Barrier Reef (Resolution of 16 November 1990) and the second located within the Sabana-Camaguey archipelago in Cuba (Resolution of 25 September 1997).

2. The general importance of MSPAs, as an instrument for the protection of the marine environment, is confirmed by the number of multilateral treaties which encourage the parties to create such zones[184]. Some treaties envisage the establishment of specially

[181]The category of particularly sensitive areas is defined by the IMO Guidelines as "an area which needs special protection through action by IMO because of its significance for recognized ecological or socio-economic or scientific reasons and which may be vulnerable to environmental damage by maritime activities" (point 3.1.2). See MERIALDI, Legal Restraints on Navigation in Marine Specially Protected Areas, in SCOVAZZI (ed.), Marine Specially Protected Areas - The General Aspects and the Mediterranean Regional System, The Hague, 1999, p. 29.

[182] IMO Guidelines, point 1.4.4. Large sea areas can be designated as special areas for the purposes of Annexes I, II and V of the Convention for the Prevention of Pollution from Ships (London, 1973-1978, called Marpol).

[183] IMO Guidelines, point 3.6.2.

[184] Mention should also be made of the network of biosphere reserves which has been established within the framework of the UNESCO (United Nations Educational, Scientific and Cultural Organization) Programme on Man and Biosphere. See UNESCO, Réserves de biosphère - La stratégie de Séville & le cadre statutaire du réseau mondial, Paris, 1996.

protected areas as one of the means for reaching their broader environmental objectives. Other treaties are specially devoted to the establishment of MSPAs in certain regional seas.

The following treaties, listed in chronological order, can be included in the first category of instruments.

a) The Convention on Nature Protection and Wild Life Preservation in the Western Hemisphere (Washington, 12 October 1940)[185] provides (Art. II) that the parties "will explore at once the possibility of establishing in their territories national parks, national reserves, nature monuments, and strict wilderness reserves", as defined in Art. I of the Convention. The species to be protected under the Convention include also marine species (for example, the sea otter and the manatee, which have been designated by the United States).

b) Under the Convention for the Regulation of Whaling (Washington, 2 December 1946)[186], the International Whaling Commission may adopt regulations with respect to the conservation and utilization of whale resources, fixing, inter alia, "open and closed waters, including the designation of sanctuary areas" (Art. V, para. 1). In 1993 the Commission decided to establish a Southern Ocean Sanctuary. It comprises an extremely large extent of waters in the Southern hemisphere, where commercial whaling, whether by pelagic operations or from land stations, is prohibited[187].

c) The African Convention on the Conservation of Nature and Natural Resources (Algiers, 15 September 1968)[188] provides that the parties "shall maintain and extend where appropriate, within their territory and where applicable in their territorial waters, the Conservation areas existing at the time of entry into force of the (...) Convention and, preferably within the framework of land-use planning programmes, assess the necessity of establishing additional Conservation areas (...)". The term "Conservation area" means "any protected natural resource area, whether it be a strict natural reserve, a national park or a special reserve" (Art. III, para. 4)[189].

---

[185] Text in BURHENNE (ed.), Beiträge zur Umweltgestaltung, International Environmental Law - Multilateral Treaties, Berlin, from 1974 (loose-leaf; hereinafter quoted as Beiträge), No. 940:76.

[186] Beiträge, No. 946:89.

[187] See MAFFEI, The Protection of Whales in Antarctica, in FRANCIONI & SCOVAZZI (eds.), International Law for Antarctica, 2nd ed., The Hague, 1996, p. 201. It is however regrettable that the prohibition is limited to commercial whaling and does not cover the so-called scientific whaling.

[188] Beiträge, No. 968:68.

[189] The notions of "strict nature reserve", "national park" and "special reserve" are carefully described in Art. III, para. 4.

d) The wetlands listed under the Convention on Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar, 2 February 1971)[190] may include also marine areas located in the vicinity of the coast[191]. The Ramsar Convention provides for the maintenance of a List of Wetlands of International Importance, as well as for the obligation of the parties to designate at least one wetland to be included in the list (Art. 2, para. 4).

e) The Convention Concerning the Protection of the World Cultural and Natural Heritage (Paris, 16 November 1972)[192] provides that the parties shall endeavour "to take the appropriate legal, scientific, technical, administrative and financial measures necessary for the identification, protection, conservation, presentation and rehabilitation" of their cultural and natural heritage (Art. 5 d). The term "natural heritage" is broadly defined and implicitly covers also marine sites[193]. MSPAs, such as the Galapagos Islands National Park (Ecuador), the Tubbataha Marine Park (Philippines), the Belize Barrier Reef Reserve (Belize) and the Great Barrier Reef Marine Park (Australia), figure in the World Heritage List established under Art. 11 of the Convention.

f) The International Convention for the Prevention of Pollution from Ships, called MARPOL (London, 2 November 1973, as amended on 17 February 1978)[194] provides for the establishment of special areas where particularly strict standards are applied to discharges from ships. Special areas provisions are contained in Annexes I (Regulations for the Prevention of Pollution by Oil), II (Regulations for the Control of Pollution by Noxious Substances in Bulk) and V (Regulations for the Prevention of Pollution by Garbage from Ships) to the MARPOL. For example, under Regulation 1, para. 10, of Annex I, ""Special area" means a sea area where for recognized technical reasons in relation to its oceanographical and ecological condition and to the particular character of its traffic the adoption of special mandatory methods for the prevention of

[190] Beiträge, No. 971:09.

[191] Wetlands are defined as "areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres" (Art. 1, para. 1).

[192] Beiträge, No. 972:86.

[193] "For the purpose of this Convention, the following shall be considered as "natural heritage": natural features consisting of physical and biological formations or groups of such formations, which are of outstanding universal value from the aesthetic or scientific point of view; geological and physiographical formations and precisely delineated areas which constitute the habitat of threatened species of animals and plants of outstanding universal value from the point of view of science or conservation; natural sites or precisely delineated areas of outstanding universal value from the point of view of science, conservation or natural beauty" (Art. 2).

[194] Beiträge, No. 973:84.

sea pollution by oil is required". Special areas are listed in the relevant annexes. For example, the whole Mediterranean Sea area is a special area for the purposes of Annexes I and V. Other special areas are the Baltic Sea, the Black Sea, the Red Sea, the "Gulfs", and Antarctica. However, the MARPOL special areas cannot be considered as MSPAs in the proper sense of this expression. Their scope is limited to discharges from ships and does not encompass the global system of protection that characterizes MSPAs.

g) Under the Convention on the Conservation of Migratory Species of Wild Animals (Bonn, 23 June 1979)[195], the parties shall take individually or in co-operation appropriate and necessary steps to conserve migratory species and their habitat (Art. II, par. 1)[196].

h) According to the Convention on the Conservation of European Wildlife and Natural Habitats (Berne, 19 September 1979)[197], the parties shall take appropriate and necessary legislative and administrative measures to ensure the conservation of the habitats of the wild flora and fauna species, especially those specified in Appendices I (Strictly Protected Flora Species) and II (Strictly Protected Fauna Species), and the conservation of endangered natural habitats (Art. 4, para. 1). They also undertake to give special attention to the protection of areas that are of importance for the migratory species specified in Appendices II and III (Protected Fauna Species) and which are appropriately situated in relation to migration routes, as wintering, staging, feeding, breeding or moulting areas (Art. 4, para. 3). Several marine animals are listed in Appendices II and III.

i) As already mentioned, the United Nations Convention on the Law of the Sea (Montego Bay, 10 December 1982)[198] provides that the measures taken in accordance with its Part XII (Protection and Preservation of the Marine Environment) "shall include those necessary to protect and preserve rare or fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life" (Art. 194, para. 5). Art. 194 has a general character and is related to any kind of measure to prevent, reduce and control pollution of the marine environment, be it from dumping, from vessels, from land-based sources, from sea-bed activities subject to national jurisdiction, from activities in the sea-bed beyond the limits of national

[195] Beiträge, No. 979:55.

[196] The relevant definitions are the following: ""Migratory species" means the entire population or any geographical separate part of the population of any species or lower taxon of wild animals, a significant proportion of whose members cyclically and predictably cross one or more jurisdictional boundaries" (Art. I, para. 1 a). ""Habitat" means any area in the range of a migratory species which contains suitable living conditions for that species" (Art. I, para. 1 g).

[197] Beiträge, No. 979:70.

[198] Beiträge, No. 982:92.

jurisdiction, or from the atmosphere. The ecosystems and habitats mentioned in Art. 194, para. 5, can be located everywhere in the sea, be it the maritime internal waters, the territorial sea, the exclusive economic zone, or the high seas.

As regards the prevention of pollution from vessels, a specific provision of the Convention enables coastal States, under certain procedural conditions, to adopt laws and regulations in a clearly defined area of their exclusive economic zone, "where the adoption of special mandatory measures for the prevention of pollution from vessels is required for recognized technical reasons in relation to its oceanographical and ecological conditions, as well as its utilization or the protection of its resources and the particular character of its traffic" (Art. 211, para. 6 a). Another provision gives to the coastal State "the right to adopt and enforce non-discriminatory laws and regulations for the prevention, reduction and control of marine pollution from vessels in ice-covered areas within the limits of the exclusive economic zone, where particularly severe climatic conditions and the presence of ice covering such areas for most of the year create obstructions or exceptional hazards to navigation, and pollution of the marine environment could cause major harm to or irreversible disturbance of the ecological balance (...)" (Art. 234). These two provisions could both be applied in order to establish MSPAs.

j) The United Nations Convention on Biological Diversity (Rio de Janeiro, 5 June 1992)[199], after defining the concept of "sustainable use"[200] of the components of biological diversity[201], provides that the parties "establish a system of protected areas or areas where special measures need to be taken to conserve biological diversity" (Art. 8a).

Other treaties are specifically devoted to MSPAs in certain regional seas. They include, inter alia, the following instruments[202].

---

[199] Beiträge, No. 992:42.

[200] ""Sustainable use" means the use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations" (Art. 2).

[201] "Biological diversity" is defined as "the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems" (Art. 2).

[202] Also Annex V to the Protocol on Environmental Protection to the Antarctic Treaty (Madrid, 4 October 1991) provides for the creation of MSPAs. However, the peculiar character of the Antarctic environment does not permit a comparison with the provisions of other treaties. See in this respect SCOVAZZI, The Application of the Antarctic Treaty System to the Protection of the Antarctic Marine Environment, in FRANCIONI (ed.), International Environmental Law for Antarctica, Milano, 1992, p. 113; PINESCHI, La protezione dell'ambiente in Antartide, Padova, 1993; MARKS & PERRY, The Protection of Special Areas in Antarctica, in FRANCIONI & SCOVAZZI, International Law for Antarctica cit., p. 293.

k) The Protocol Concerning Mediterranean Specially Protected Areas (Geneva, 3 April 1982)[203] was concluded within the framework of the Convention for the Protection of the Mediterranean Sea against Pollution (Barcelona, 16 February 1976)[204]. The Geneva Protocol has the merit of being the first treaty specifically devoted to MSPAs. The spirit of the Geneva Protocol is that marine areas which are important for the safeguarding of natural resources and sites, as well as for the safeguarding of the cultural heritage of the Mediterranean region, should be protected through "all appropriate measures" (Art. 1, para. 1).

However, a weakness of the Geneva Protocol is the contrast between its ambitious objective (as stated in Art. 1, para. 1) and the vague nature of the obligations the parties are required to fulfill. As the wording of most provisions of the Geneva Protocol is rather soft, the parties are left with broad discretionary powers as regards its implementation[205]. The parties are requested to establish protected areas only "to the extent possible" and shall only "endeavour to undertake the action" necessary in order to protect these areas (Art. 3, para. 1). In the case of the establishment of a SPA contiguous to the frontier with another party, the two parties concerned shall just "endeavour to consult each other" (Art. 6, para. 1). Under Art. 11 the parties shall merely "endeavour to inform the public as widely as possible" and only "endeavour to promote" its participation in appropriate measures. Moreover, the parties shall establish a co-operation programme simply "to the extent possible" (Art. 12), co-ordinate their research only "to the fullest extent possible" (Art. 13) and merely "endeavour to define jointly or to standardize" scientific methods relating to SPAs (Art. 13)[206].

Another critical point is that the area to which the Geneva Protocol applies does not extend beyond the territorial sea of the parties. It "shall be limited to the territorial waters of the Parties and may include waters on the landward side of the baseline from which the breadth of the territorial sea is measured and extending, in the case of watercourses, up to the freshwater limit. It may also include wetlands or coastal areas designated by each of the Parties" (Art. 2). An enlargement of the area to which the Geneva Protocol applies would also allow for better protection of endangered

[203] Beiträge, No. 982:26.

[204] Beiträge, No. 976:13. On the "Barcelona system" see RAFTOPOULOS, The Barcelona Convention and Protocols, London, 1993; JUSTE RUIZ, Le plan d'action pour la Méditerranée vingt ans après: la révision des instruments de Barcelone, in Collection Espaces et Ressources Maritimes, 1995, p. 249; RAFTOPOULOS, Studies on the Implementation of the Barcelona Convention: The Development of an International Trust Regime, Athens, 1997.

[205] For this remark see BIRNIE & BOYLE, International cit., p. 461.

[206] The recurring verb "to endeavour" is rendered in French with "s'efforcer" and in Spanish with "tratar".

species which are located beyond the territorial sea or which migrate through one or more boundaries[207], which exist also in the Mediterranean[208].
In order to improve the regional regime for MSPAs in the Mediterranean a new Protocol was signed in 1995 and is expected to replace the Geneva Protocol[209].

l) The Protocol Concerning Protected Areas and Wild Fauna and Flora in the Eastern African Region (Nairobi, 21 June 1985)[210] was concluded within the framework of the Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region (Nairobi, 21 June 1985)[211]. It provides that the parties shall, where necessary, establish protected areas in areas under their jurisdiction with a view to safeguarding the natural resources of the Eastern African region and shall take appropriate measures to protect those areas (Art. 8, para. 1). It can thus be inferred that the Nairobi Protocol applies as far as the external limit of the exclusive economic zones of the parties.

m) The Protocol for the Conservation and Management of Protected Marine and Coastal Areas of the South-East Pacific (Paipa, 21 September 1989)[212] was concluded within the framework of the Convention for the Protection of the Marine Environment and Coastal Area of the South-East Pacific (Lima, 20 November 1981)[213]. It provides that the parties shall establish areas under their protection in the

[207] As it has been observed, "it is now at least clear that the development of law taking account of the international aspects of the problem of conservation of wildlife must be based on recognition of the following factors, inter alia: that many species and some of the threats to them migrate across national frontiers; both migratory and non-migratory species need to be protected from over-exploitation that results from trade in those (or their products) that are regarded as especially valuable internationally; and that it is necessary to protect the whole environment supporting the life-cycle of the species concerned" (BIRNIE & BOYLE, International cit., p. 425). See also MAFFEI, The Protection of Endangered Species of Animals in the Mediterranean Sea, in MILES & TREVES, The Law of the Sea: New Worlds, New Discoveries, Honolulu, 1993, p. 253.

[208] It is well known that in the last decades the populations of a number of Mediterranean species have undergone a dramatic decline. The Regional Activity Centre for Specially Protected Areas of the Mediterranean Action Plan has adopted specific action plans for the conservation of some of them (namely, sea turtles, monk seal, cetaceans). On the protection of some species under national legislation see the doc. UNEP(OCA)/MED/WG.73/5 of 8 July 1993, Synthèse des législations concernant la protection des cétacés, des tortues marines, des plantes marines et des oiseaux dans le pays riverains de la Méditerranée.

[209] See infra, para. 2 o.

[210] Beiträge, No. 985:47.

[211] Beiträge, No. 985:46.

[212] Beiträge, No. 989:71.

[213] Beiträge, No. 981:84.

form of parks, reserves, flora and fauna sanctuaries and other such areas, in order to protect and preserve those ecosystems which are fragile, vulnerable or of unique natural or cultural value, with particular emphasis on flora and fauna threatened by depletion or extinction (Art. II). The Protocol applies to the maritime area of the South-East Pacific within the 200-mile maritime zone over which the parties exercise sovereignty and jurisdiction (Art. I).

n) The Protocol Concerning Specially Protected Areas and Wildlife in the Wider Caribbean Region (Kingston, 17 January 1990)[214] was concluded within the framework of the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region (Cartagena de Indias, 24 March 1983)[215]. It provides that the parties shall, when necessary, establish protected areas in areas over which they exercise sovereignty or sovereign rights or jurisdiction, with a view to sustaining the natural resources of the Wider Caribbean Region, and encouraging ecologically sound and appropriate use, understanding and enjoyment of these areas, in accordance with the objectives and characteristics of each of them (Art. 4, para. 1). It can thus be inferred that the Kingston Protocol applies as far as the external limit of the exclusive economic zones of the parties.

o) In order to improve the regional regime for MSPAs in the Mediterranean a new instrument called Protocol concerning specially protected areas and biological diversity in the Mediterranean (Barcelona, 10 June 1995) was recently signed and is expected to replace the above mentioned Geneva Protocol[216]. The new protocol is applicable to all the marine waters of the Mediterranean, irrespective of their legal condition, as well as to the seabed, its subsoil and to the terrestrial coastal areas designated by each party, including wetlands. The extension of the geographical coverage of the protocol was necessary in order to protect also those highly migratory marine species (such as marine mammals) which, by definition, do not respect the artificial boundaries drawn by man on the sea[217].

---

[214] Beiträge, No. 990:85. See FREESTONE, Specially Protected Areas and Wildlife in the Caribbean - The 1990 Kingston Protocol to the Cartagena Convention, in International Journal of Marine and Coastal Law, 1990, p. 362.

[215] Beiträge, No. 983:23.

[216] Supra, para. 2 k. On the new Protocol see SCOVAZZI, The Recent Developments in the "Barcelona System" for the Protection of the Mediterranean Sea against Pollution, in International Journal of Marine and Coastal Law, 1996, p. 95; BOU FRANCH & BADENES CASINO, La protección internacional de zonas y especies en la región mediterránea, in Anuario de Derecho Internacional, 1997, p. 33.

[217] In 1993 an expert meeting on environmental legislations, held at Ustica, Italy, made inter alia the following proposal:
"As the protection of certain species cannot be effective if it does not cover their whole range area, the territorial application of the Protocol should not be restricted to the territorial sea of the Parties, as far as regulation of activities potentially affecting wildlife is concerned". See the Report of the Expert Meeting on Environmental Legislations Related to Specially Protected Areas and Endangered Species in the Mediterranean, doc. UNEP(OCA)/MED/WG.73/6 of 18 September 1993.

The purpose to "go into the high seas" gave rise to some difficult legal problems which are peculiar of the present political and legal condition of the Mediterranean. The Mediterranean States have not yet established exclusive economic zones and there are large extents of waters located beyond the 12-mile limit which still have the status of high seas. Moreover, in the Mediterranean many maritime boundaries have yet to be agreed upon by the interested countries, including several cases where delimitation is particularly difficult because of the local geographic characteristics.

In order to overcome these difficulties, the new protocol includes two provisions whose precedents are to be found in instruments drafted for a very different region of the world. While very few similarities exist between the Antarctic and the Mediterranean as regards their environment, from the legal point of view the two regions share some common aspects: the presence of large extents of high seas and the existence of difficult and unsettled issues on sovereignty over coastal zones. This explains why the new protocol includes some very elaborate disclaimer clauses (Art. 2, paras. 2 and 3), which recall the legal devices used for the instruments of the Antarctic system[218]. The idea behind such a display of juridical complications is simple. On the one hand, the establishment of intergovernmental cooperation in the field of the marine environment shall not prejudice all the legal questions which have a different nature; but, on the other hand, the very existence of such legal questions (whose settlement is not likely to be achieved in the short term) should not jeopardize or delay the adoption of measures necessary for the preservation of the ecological balance of the Mediterranean. The new protocol provides for the establishment of a List of specially protected areas of Mediterranean interest (SPAMI List)[219]. The SPAMI List may include sites which "are of importance for conserving the components of biological diversity in the Mediterranean; contain ecosystems specific to the Mediterranean area or the habitats of endangered species; are of special interest at the scientific, aesthetic, cultural or educational levels" (Art. 8, para. 2). The procedures for the establishment and listing of SPAMIs are described in detail in Art. 9. For instance, as regards the areas located partly or wholly on the high seas, the proposal must be made "by two or more neighbouring parties concerned"[220] and the decision to include the area in the SPAMI List is taken by consensus by the contracting parties during their periodical meetings.

Once the areas are included in the SPAMI List, all the parties agree "to recognize the particular importance of these areas for the Mediterranean" and - what is even more important -"to comply with the measures applicable to the SPAMIs and not

[218] The model is Art. IV of the Convention on the Conservation of Antarctic Marine Living Resources (Canberra, 1980).

[219] The existence of the SPAMI List does not exclude the right of each party to create protected areas which are not intended to be listed as SPAMI.

[220] The determination of who are the neighbouring parties concerned is open to a certain degree of flexibility.

to authorize nor undertake any activities that might be contrary to the objectives for which the SPAMIs were established" (Art. 8, para. 3). This gives to the SPAMIs and to the measures adopted for their protection an erga omnes effect, at least as far as the parties to the protocol are concerned.

With respect to the relationship with third countries, the parties shall "invite States that are not Parties to the Protocol and international organizations to cooperate in the implementation" of the Protocol (Art. 28, para. 2). It is also provided that the parties "undertake to adopt appropriate measures, consistent with international law, to ensure that no one engages in any activity contrary to the principles and purposes" of the Protocol (Art. 28, para. 2). Is this provision -which is also shaped on the precedent of the Antarctic system - a prelude to a "prime responsibility" of the Mediterranean countries for their common sea, as the Antarctic treaty consultative parties claim to exercise for the Antarctic waters[221]?

The new protocol is completed by three annexes, which were adopted in Monaco on 24 November 1996. They are the Common criteria for the choice of protected marine and coastal areas that could be included in the SPAMI List (Annex I), the List of endangered or threatened species (Annex II), the List of species whose exploitation is regulated (Annex III).

p) The Inter-American Convention for the Protection and Conservation of Sea Turtles (Bahia, 5 September 1996)[222] provides that the parties shall take measures for "the protection, conservation and, if necessary, the restoration of sea turtle habitat and nesting areas, as well as the establishment of necessary restrictions on the use of such zones, including the designation of protected areas" (Art. IV, para. 1 d). These measures include "permanent or temporary closures, modification of fishing gear, and, to the greatest extent praticable, restrictions on vessel traffic" (Annex II, para. 3)

[221] "Recognizing the prime responsibilities of the Antarctic Treaty Consultative Parties for the protection and preservation of the Antarctic environment (...)": preambular paragraph of the already quoted Canberra convention.

[222] Text in International Journal of Marine and Coastal Law, 1997, p. 554.