PAST AND PRESENT INTERNATIONAL
COOPERATION ON MARINE RESEARCH
IN THE MEDITERRANEAN

Cécile Thiery
Musée Oceanographique
Monaco

ABSTRACT

The Mediterranean area is considered the cradle of civilization and maybe it is also the cradle of oceanography. The Mediterranean Sea has been observed and described by men from early antiquity, and then, in the 18th and 19th centuries, by scientists, individually at first, and later on, jointly on scientific cruises and at various marine stations. Since the beginning of this century, a number of international organisations have been formed leading to several types of cooperative activities, the Mediterranean Action Plan being one of the most important.

THE EARLY YEARS

When reading the historical introduction by John Murray to the first volume of the summary of scientific results of the CHALLENGER expedition, the role of the Mediterranean Sea in the development of the knowledge of the seas becomes immediately evident. Since earliest antiquity, populations living around this sea have acquired a lot of information on it and on the seas in general; and some authors do not hesitate to consider the Mediterranean Sea the cradle of oceanography, as it is the cradle of civilizations, as we usually say in the Western world (Fig 1).

The Phoenicians were excellent navigators; they settled down in many places around the Mediterranean Sea and even sailed beyond the Pillars of Hercules around the coasts of Africa. Their itineraries, as well as their knowledge of astronomy, were not transmitted to us; perhaps they intentionally kept it secret. We know that the Phoenicians were able to navigate at high seas, even during the night, guided by the Polar Star. The Greeks and Romans, for their part, for a long time followed the coasts and sailed only during the day.
While the Phoenicians and Carthaginians developed their knowledge of the seas for practical (commercial) purposes, the Greeks started its scientific study. Without naming them all, Aristotle certainly brought some basis to oceanography from his observation of the depth of the seas around Greece, of the currents from the Sea of Azov to the Black Sea, and from the Black Sea to the Aegean Sea, and in his description of a number of species of fish, crustaceans, annelids and mollusks. The influence of Aristotle was noticeable until the end of the Middle Ages, and also at the time of the great discoverers. Many famous Greek and Roman philosophers, geographers and astronomers contributed to the knowledge of the seas and the world.

The Middle Ages did not contribute a great deal to marine science. The situation changed with the Renaissance and the re-discovery of the Greek astronomers and geographers whose writings were brought to Western Europe by Greeks emigrating after the capture of Constantinople by the Turks in 1453. From that time the Eastern Mediterranean was infested with Turkish pirates, and merchants tried to find new routes for their vessels to the countries of spices. This was the time of the great discoveries, which, of course, greatly increased our knowledge of the sea.

With the 18th and then the 19th centuries, scientists studying the Mediterranean Sea again played an important role. Everybody knows Conte Luigi Ferdinando Marsigli (1658-1730), the author of *L'Histoire Physique de la Mer* (1725). He studied the Mediterranean Sea along the French coast. He measured the depth around Cassis (close to Marseille), studied the winds, the currents, the color, density and salinity of the water, and described the fauna, mainly corals. He was the first to recognize that they were not mineral but he thought that they were vegetal. After him Horace Benedict de Saussure (1740-1799) measured the temperature of the sea at various depths. Georges Aime (1810-1846) worked out new types of oceanographic instruments to study deep-sea currents for instance, and he was the inventor of a reversing thermometer, which would take measures at depths down to 1000m. He studied mainly the area around Algiers. He is the author of *Les Recherches de Physique Generale sur la Mediterranee*.

Antoine Risso (1777-1845), who was a native of Nice, described the marine fauna of the Gulf of Nice and Villefranche, and for the first time recognized the specificity of the deep-sea fauna which was later more precisely observed by Edward Forbes (1815-1854) in the Aegean Sea and also studied by Alphonse Milne-Edwards (1835-1900).

During the 19th century many cruises were devoted to hydrography, on LA CHEVRETTE, L'ASTROLABE and LA ZELEE with Dumont d'Urville, on the PORCUPINE, and the SHEARWATER. On board the IMMACOLATA CONCEZIONE in 1865, Father Secchi invented his famous disk for measuring the transparency of the water. After the expedition of the CHALLENGER, the first important oceanographic cruise in the Mediterranean Sea took place under the scientific direction of A. Milne-Edwards on board the TRAVAILLEUR in 1881. The chronology and some information
on these various cruises are given in the literature by R. de Buen,\textsuperscript{2} J. Rouch,\textsuperscript{19} I. M. Ovchinnikov and Ye. A. Plakhin,\textsuperscript{14} M. Picotti,\textsuperscript{17} J. Richard,\textsuperscript{18} G. Fredj and L. Laubier.\textsuperscript{7} Between 1870 and the 20th century most of the European countries participated in the discovery of the Mediterranean Sea: the Austrians with the POLA, TAURUS, etc., the Danes with the THOR and the DANA, the Spaniards, the Greeks, the French, the Russians on the VITIAZ, to name only the most famous ones. We have to mention specifically the cruises organized by Prince Albert I of Monaco from 1885 on his yachts HIRONDELLE, PRINCESSE-ALICE, PRINCESSE-ALICE II, HIRONDELLE II. He did not work extensively in the Mediterranean Sea, but his role in the development of oceanography in general and of the Mediterranean in particular, is considerable as we will see later on. We have also to say a few words on the Adriatic Sea, which has been thoroughly explored by Austrian, Italian and Croatian expeditions from 1890 onwards, and which is up to now probably one of the best known seas of the world.\textsuperscript{3} During the same period the various marine stations were established one after another.\textsuperscript{10} In Italy the most famous and the first important one was created by Anton Dohrn in Naples in 1872, the Zoological Station of Naples. It has for a long time been a meeting place for biologists and oceanographers, who were numerous, to come and "hire a table" as it used to be the case also in other similar stations. Dohrn was convinced of the necessity to make available to scientists a good library with the most important publications, and Ch. Groeben writes in 1985; "The Naples Station's biological reference collection is still unrivalled in Europe today." The second important station to be created was the Laboratoire Arago in Banyuls-sur-Mer (France) in 1881 by H. de Lacaze-Duthiers, then the Russian Zoological Station of Villefranche in 1885 (close to Nice), which then became the Zoological Station of Villefranche. At present it is under the rule of the University of Paris and celebrated last month its first century of existence. The originally Russian station was established by A. Korotneff, a Russian biologist, who studied in France and was very much interested in the very rich fauna in the area of Nice and Villefranche. At that time, the Russian navy was allowed to use large buildings of a former Sardinian jail at the Bay of Villefranche as a warehouse and after long negotiations A. Korotneff was allowed by the Russian navy to install a zoological station in the building.\textsuperscript{20} In 1910 the Oceanographic Museum in Monaco was inaugurated, which is part of the Oceanographic Institute formed in 1906 by Prince Albert I of Monaco. A few other stations were created in these early years in Endoume (Marseilles), Trieste, Algiers, Palma de Mallorca, Malaga, Rovinj, Sebastopol but they did not have the same influence as the ones mentioned earlier. These stations, which were all established by the will and authority of individuals, were open to all scientists from all countries, who were desirous to carry out research in the fields of interest to the station. Many Germans, British, Swiss, Belgians and Romanians were able to use the facilities and contributed to the development of marine sciences in the area. A. Dohrn
was an especially good organizer and facilitated and often provoked meetings of researchers from complementary disciplines. This period can be considered as the beginning of a non-organized but very active co-operative activity in the Mediterranean.

INTERNATIONAL COMMISSION FOR THE SCIENTIFIC EXPLORATION OF THE MEDITERRANEAN (ICSEM)

At this time and in order to enhance the international cooperation for the oceanographic exploration of the Mediterranean Sea, the need for more organized structures was felt. This wish was expressed and approved in 1908 during the 9th International Congress on Geography held in Geneva, and a special commission was formed to prepare a technical conference where Mediterranean states would be represented and would study a programme of cooperation. A proposal was actively prepared by Prince Albert I of Monaco and his collaborators, and the Commission met for the first time on March 30, 1910 in Monaco, the day following the inauguration of the Oceanographic Museum. At that time the Commission found its definitive name: Commission Internationale pour l’Exploration Scientifique de la Mer Méditerranée = International Commission for the Scientific Exploration of the Mediterranean (ICSEM), and adopted a programme of research to be implemented by the various Mediterranean stations. The general assembly of ICSEM was held in Madrid and delayed until 1919 because of the First World War. At that time the programmes and methods of work of the Commission were established. Prince Albert I was the President of ICSEM and devoted much of his time and activity to it until his death in 1922. The plenary assembly of the Commission continues to meet every two years although the activities were again interrupted between 1939 and 1951 because of the Second World War.

ICSEM is a governmental organization with an official seat at the Oceanographic Museum of Monaco to acknowledge the specific role of Prince Albert I of Monaco in its early years. In 1919 eight Mediterranean countries were represented: Egypt, France, Greece, Italy, Monaco, Spain, Tunisia and Turkey. Today 17 countries are members (to the previous list we add Algeria, Cyprus, Israel, Morocco, Romania, Syria, Yugoslavia), and following a modification of the statutes in 1967, two non-Mediterranean countries became members: the Federal Republic of Germany and Switzerland. Scientists from all over the world are allowed to attend the plenary assemblies and participate in the work of the 12 specialized scientific committees: benthos, plankton, physical oceanography, chemical oceanography, marine microbiology and biochemistry, marine geology and geophysics, brackishwater ponds and lagoons, insular environment, marine vertebrates and cephalopods, marine radioactivity, fight against marine pollution and human underwater penetration.

During its two-yearly assemblies, ICSEM also organizes interdisciplinary meetings. The proceedings of these meetings and the Rapports et Procès-Verbaux of the plenary assemblies are regularly published. In these
documents the papers presented on the occasion of the assembly are published as well as a synthesis by each committee president of the literature published in his field since the last meeting of the committee. A complete list of these publications is also given. If one considers that this has been the rule of ICSEM since its very beginning, the *Rapports et Proces-Verbaux* are an invaluable bibliographic source on the Mediterranean Sea. Under the responsibility of the marine geology and geophysics committee a bibliography covering the literature in this field since 1960 is also issued.

Like most organizations involved with the seas, in the nineteen seventies ICSEM oriented its activities towards the fight against pollution and created in 1972 a special committee which regularly convenes specialized workshops (seven were held so far). It is now trying to initiate a long-term research programme for the study of pollution in the high seas which was adopted in 1980. A project for a pilot study of the continental margin in the Mediterranean Sea is also presently promoted within ICSEM.

When considering the number of countries involved and the divergent interests, co-operative actions of this type are very slow, difficult to initiate and carry out. However, the main advantages of ICSEM are firstly that it is an extremely valuable meeting ground for scientists of all origins (more than 800 people are attending the meetings) and secondly, that its publications constitute a very rich and unique source of references of the literature on the Mediterranean Sea.

Another international organization was created in 1964: the Mediterranean Association for Marine Biology and Oceanography (MAMBO) with the aim to promote the exchange of students and scientists and to organize symposia. It is located at the Zoological Station in Naples, but does not seem to be very active at present.

**CO-OPERATIVE INVESTIGATIONS OF THE MEDITERRANEAN (CIM)**

The Mediterranean Sea is an object of interest for other inter-governmental organizations and a programme entitled Co-operative Investigations of the Mediterranean (CIM) was adopted in 1967 by the Intergovernmental Oceanographic Commission of UNESCO (IOC) to be implemented together with ICSEM, and the General Fisheries Council for the Mediterranean of the FAO (GFCM). It started in 1969 and various organizational structures were established in Monaco where ICSEM was responsible for the financial management.

Twenty four countries participate amongst which are many non-Mediterranean countries, like the USA, UK and USSR. The idea was to coordinate various national programmes of research, to facilitate the exchange of scientists and their participation in multi-national cruises on board foreign vessels, and to exchange data in promoting the standardization of methods. The World Data Center B in Moscow was designated
the Regional Data Center for CIM. A newsletter was issued from 1970 to 1975. CIM never succeeded to implement its goals because of lack of financial and active participation of the member states and scientists. The various organizational structures were dismantled, and now only an operational unit in Monaco with one person is left, the Soviet contribution to CIM. In fact, the Soviets were rather active in trying to gather as much data as possible for the Regional Data Center. A bathymetric chart of the Mediterranean has been issued in 1981 under the auspices of IOC.

I would like to mention another aborted project which was momentarily, in 1969, promoted by ICSEM and CIM: an oceanographic Mediterranean computer-produced regional bibliography. The idea came from Mrs. R. Paldi of the Sea Fisheries Research Station of Haifa (Israel), who, with the help of the Smithsonian Institution, had already worked out a sketch of such a bibliography for the Eastern Mediterranean, Suez Canal and Red Sea. She proposed her project to CIM and presented it to ICSEM. A few meetings were held at the seat of FAO and the project was discussed until 1973. The project was very comprehensive: in 1970 it was estimated that the bibliography would hold 100,000 to 150,000 references. Finally it was impossible to find the necessary finances and, of course, to reach any agreement.

**UNEP AND THE MEDITERRANEAN ACTION PLAN (MAP)**

As stated earlier regarding the evolution of the co-operative actions in the Mediterranean under the ICSEM leadership, in the nineteen seventies the coastal states got more and more concerned with environmental issues. After the Stockholm Conference in 1972 on Man and the Environment, UNEP was created and started its Regional Seas Programme. The specificity of the Mediterranean Sea as a unique oceanographic environment has long been recognized. It is also a very densely populated area, industrializing very rapidly and attracting each summer millions of tourists from all over Europe and the world. It was seriously in danger and, it was said at the time, that the sea was dying. It was then decided to prepare for the Mediterranean area an action plan which would serve as an example for other geographic areas. The Mediterranean Action Plan (MAP) was proposed in a meeting in Barcelona in January 1975 and approved by 16 countries out of the 18 coastal states.

The MAP is composed of 4 categories of action:

1. **The Co-ordinated Mediterranean Pollution Monitoring and Research Programme.** Its first phase, called MED POL Phase I, was started in 1975 and was completed in 1980. The first phase aimed at a rough evaluation of the real state of the environment of the Mediterranean. Seven pilot projects were selected to which six more were added later on and implemented by 84 institutions from 16 countries and the European Economic Community, under contract with UNEP, and with the cooperation...
in services or in kind of many other specialized agencies of the United Nations: FAO, UNESCO, IOC, WHO, WMO, IAEA and especially its International Marine Radioactivity Laboratory which is located in the Oceanographic Museum in Monaco and is playing a major role in setting methods for the intercalibration of measurements of marine pollutants for the Regional Seas Programme. This phase resulted in a considerable amount of data and information, and also brought some kind of direct assistance to the participants by providing equipment and maintenance services, and by individual or collective training of the personnel. On the basis of the results of this first phase, it was decided to promote a Comprehensive Long-term Monitoring and Research Programme, MED POL Phase II\textsuperscript{23} for the next 10 years (1981-1990), the main objective of which is to provide a continuous assessment of the state of pollution in the Mediterranean basin.

2. The Legal Framework. Following the adoption of the MAP in 1975, the coastal states convened again in Barcelona in 1976 and agreed to and signed the convention proposed to them: Convention for the Protection of the Mediterranean Sea against Pollution\textsuperscript{21} called also the Barcelona Convention.

All the Mediterranean countries but Albania signed the Convention as well as the European Economic Community (EEC). They are all the Contracting Parties to the Convention and they have all ratified it. This Convention was completed in Barcelona by two protocols, which were also signed and later ratified: Prevention of Pollution of the Mediterranean by Dumping from Ships and Aircrafts, and Cooperation in Combatting Pollution of the Mediterranean Sea by Oil and Other Harmful Substances in Cases of Emergency\textsuperscript{11} In connection with the second protocol, the Regional Oil Combating Center (ROCC) was established in December 1976 on Manoel Island (Malta), which is functioning under the auspices of the International Maritime Organization (IMO).\textsuperscript{24} Its role is to collect and disseminate information on oil pollution, to set up an inventory of experts and equipment available, to assist the countries in developing contingency plans and to train and organize courses to combat oil pollution.

Since 1976 two other protocols have been approved and signed by the Contracting Parties, partly as a result of the information gathered during MED POL Phase I: The Protocol for the Protection of the Mediterranean Sea against Pollution from Land-based Sources, was signed in 1980 in Athens, entered into force in 1983, but was ratified by only 8 parties. The Protocol Concerning Mediterranean Specially Protected Areas was signed in Geneva in 1982 but only three parties have ratified it so far. This protocol led to the creation of a Center for Specially Protected Areas in Salambo, Tunisia, which opened in 1984. It is too early to know much about its achievements.

3. The Blue Plan is the socio-economic chapter of the MAP. It is meant to provide the national decision-makers with tools which will
assist them to formulate plans for a socio-economic development without environmental degradation of regional resources and its main objective is to initiate a continuous process of concerted cooperation among contracting parties in the area of economic and environmental planning. It started only in 1980 and is a long-term activity. In parallel a Priority Action Programme (PAP) was initiated where technical cooperation among the Mediterranean countries was possible. One of these programmes is devoted to marine living resources and the management of fisheries and aquaculture.

4. The Financial and Institutional Framework. During the first years of its existence, up to 1979, the MAP was fully financed by the UNEP Environment Fund, which contributed several millions of US Dollars. UNEP was obliged in 1979 to transfer the burden to the Contracting Parties and the Mediterranean Trust Fund was created. The transition was somewhat difficult and the Contracting Parties were not always ready to take over the financing of MAP. But now they are providing their contribution regularly to the Trust Fund which is managed by UNEP. The budget for 1985 is $3.8 million. The role of UNEP has been and still is essential. It acted not only as the financing body but also as the organizer and the coordinator of all the activities (through its Regional Seas Programme Activity Centre) and provided the umbrella under which the Mediterranean countries could meet on an equal footing. Now UNEP has transferred the coordinator role to a special unit recently installed in Athens. Even if now UNEP little by little tries to hand over to the Contracting Parties the various responsibilities to handle MAP, its role is considerable and it can be said that without UNEP the MAP would never have happened.

The MAP led in some cases to the conclusion of subregional agreements for the monitoring and the protection of limited areas of the Mediterranean Sea. One of the agreements has been initiated by the Principality of Monaco within ICSEM from 1973. A trilateral convention was signed between France, Italy and Monaco to cover the Ligurian Sea from St. Raphael in France to Genova. The project is called RAMOGE. The ratification of this convention by the three countries took place only in 1982. Two other similar conventions have been worked out and much encouraged and favoured by MAP between Italy and Yugoslavia for the Adriatic Sea, and Greece and Italy for the Ionian Sea. To be also noted is a meeting of the Arab coastal states which took place in December 1982.

OTHER INTERNATIONAL ORGANIZATIONS

A number of international organizations, governmental or other, are also promoting programmes or actions for the protection of the environment in the Mediterranean area but they are not specialized in marine problems. Let us mention the Council of Europe, located in Strasbourg
(France), which gathers all European countries and held in March 1985 in Marseilles a "Conference of the Regions of the Mediterranean Basin" which called on governments to put the various existing agreements into effect and in particular the Barcelona Convention and its protocols.

The Commission of European Communities has adopted in 1982 a general environmental policy. A major programme is aimed at the Mediterranean region, the Strategy and Plan of Action for the Protection of the Environment in the Mediterranean Region (MEDSPA). As the Commission is a Contracting Party to the Barcelona Convention, this programme will make all efforts to integrate its planned activities in the various chapters of MAP.6

CONCLUSION

I have tried to show that international cooperation in the Mediterranean area is a very ancient tradition, but that it has not always been an easy one, to a big extent certainly due to the long and rich history of this region of the world. The Mediterranean Sea is surrounded by 18 countries, all very proud of their history and their traditions. From ancient times on each evolved in its own way, with its own rules, following its own rhythm according to the resources available, always poor but unequally distributed. This type of situation makes negotiations between all these countries very laborious and lengthy through raising of political issues and competition. Taking such circumstances into account, the success of the Mediterranean Action Plan is remarkable and very encouraging even if it did not always develop as easily and rapidly as one could hope. Its main achievement resides in the fact that most of the countries involved have introduced new national legislation or modified theirs to make them harmonize with the provisions of MAP. They did the same with their environmental policy and, in participating actively in the Plan, they acquired and/or improved their knowledge and training in environmental protection and marine sciences.

This certainly gives way to great expectations for future cooperation.

BIBLIOGRAPHY


