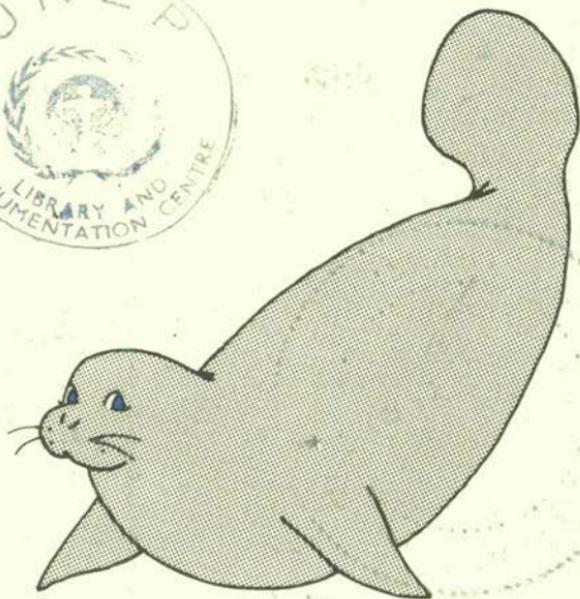
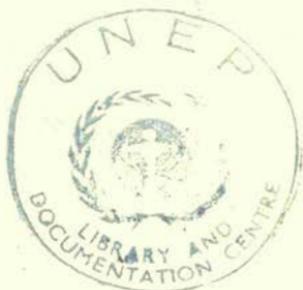


Four years of

THE SIBEX



ews from UNEP's Regional Seas Programme



THE SIREN

news from UNEP's Regional Seas Programme

You are looking at the first issue of an informal publication which is designed to present news from UNEP's Regional Seas Programme. It is written in a light journalistic style and the views expressed do not necessarily reflect the "official" views of UNEP.

Aside from standard columns (Forthcoming Events, News, Editorials, etc.), we shall present feature stories, short overviews and interviews. It cannot be hoped that an eight-page newsletter could reflect the Programme in all its detail, and so the reader is invited to request additional information from *The Siren* or other indicated sources. In return, we hope to receive contributions in the form of letters, suggestions, observations and, from the more imaginative, sketches, poems and relevant witticisms. To these we shall dedicate appropriate space in our future issues.

Greetings from *THE SIREN*



MEDITERRANEAN POLLUTION TREATIES ENTER INTO FORCE

Three agreements on Mediterranean pollution that were signed in Barcelona two years ago became international law on February 12. One commits Mediterranean countries to protecting the sea, their common heritage, from pollution "for the benefit and enjoyment of present and future generations." Another outlaws the dumping of certain dangerous substances from the land by ships at sea and strictly controls dumping of less toxic wastes. The third treaty calls for co-operation in combating massive oil spills.

These three accords required the formal ratification of at least six of the 18 Mediterranean coastal states to enter into force. The first six states to ratify the Barcelona agreements were Spain, Tunisia, Monaco, Lebanon, Malta and Yugoslavia. By May 1978, France, Israel and the European Economic Community had also ratified.

"By the end of this year I am certain that most of the Mediterranean coastal states will have ratified these significant agreements," said Dr. Mostafa K. Tolba, the Egyptian microbiologist who is the Executive Director of UNEP. "The speed with which most Mediterranean countries are acting reflects their determination to take protective measures while there is still time."

The dumping treaty contains a "black list" of substances that in no case can be dumped by ships or aircraft into the Mediterranean. These forbidden substances include mercury, cadmium, persistent plastics, DDT, PCBs, crude oil and hydrocarbons. The treaty's "grey list" consists of substances, considered somewhat less dangerous, that can be dumped into the sea but only with authorization from the appropriate government. These substances include lead, zinc, copper, cobalt, silver, cyanides, fluorides and disease-causing microorganisms.

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Since the Mediterranean countries have no intention of creating a police force to ensure respect for the new treaties, how will they be enforced?

"By the Mediterranean countries themselves," says Peter S. Thacher, Deputy Executive Director of UNEP. "In their own best interests there will be regular meetings every two years of the countries which have ratified the treaties to ensure that they are strictly observed, and they

will furnish each other information on the dumping licenses they have issued. After all, it was the Mediterranean coastal states themselves which asked UNEP to organize a Mediterranean Action Plan for them. They have been negotiating seriously on these treaties with the full intention of making them effective. Furthermore, the entry into effect of the treaties will exercise strong moral force on all Mediterranean governments as well as binding legal obligations on all of the contracting parties."

THE SEVEN SEAS



Once it was believed that the world's oceans consist of "Seven Seas." UNEP seems to have adopted this belief, since the Governing Council has designated seven endangered marine regions for a complex programme. These are the Mediterranean, the Caribbean, the Gulf of Guinea, the Red Sea, the East Asian Seas, the Pacific and the Region as defined by a recent inter-governmental conference in Kuwait.

The programme consists of regional action plans, based on co-operative projects of governments and their national institutions. Problems related to marine pollution are just one part of the programme. Other activities include formulation of international treaties, collaboration on coastal development schemes and aquaculture, creation of mutual aid centres, comprehensive training programmes, and so on.

At present 14 international organizations assist, under UNEP's overall co-ordination, in carrying out this large, long-term, multi-million dollar programme. Action plans for three of the regions are under way, and in the other four regions they are in active preparation.

for further information, contact THE SIREN



why 'The Siren'?



The name "Siren" has several meanings, more than one of which seems appropriate to designate our newsletter.

The sirens of Greek mythology--half woman, half bird--were singers of irresistible melodies which enticed sailors to their waters.

A siren is also a ship's whistle or fog-horn, which serves to orient and warn sea-travelers.

Finally, members of the zoological order Sirenia are thought to have caused

lovesick sailors to dream of mermaids. These are the sea-cows, large aquatic mammals who lounge about the mouths of rivers and coastal areas, feeding on vegetation and sometimes, it is said, rising out of the water to beckon to passers-by.

It is this, the original "mermaid," which we have chosen as our symbol.

Some species of sirens, zoological and mythological, are considered endangered species. So may be this newsletter.

Farming the Med

Fish farming experts from most Mediterranean countries have reached agreement on a programme to increase the supply of fish through aquaculture. At a five-day meeting in Athens, March 14 - 18, the government-appointed experts decided to give priority to farming molluscs, especially mussels and oysters, and fish such as grey mullet, sea bass, sea bream and eels.

"Although all of these species are already being cultivated in the Mediterranean, most countries in the region have not mastered the advanced technology necessary for industrial-scale production," said Michael Mistakidis, senior aquaculture official for the Food and Agriculture Organization (FAO).



In order to fill the gaps in their knowledge and to strengthen their capabilities in the field of mariculture, (i.e., fish farming in salt or brackish water), the experts drew up a co-operative programme to exchange scientific information, facilitate the transfer of technology and to provide for the training of mariculture specialists.

These co-operative activities will take place along the Mediterranean coast in mariculture centres to be selected shortly by the Mediterranean governments in consultation with UNEP and the United Nations Development Programme.

The Athens consultation was hosted by the Greek government and jointly sponsored by UNEP and the FAO. Experts came from Algeria, Cyprus, France, Greece, Israel, Italy, Libya, Morocco, Spain, Tunisia, Yugoslavia and the EEC.

"Some of the work to improve fish farming practices will be centralized in pilot plants, one probably located in the northern part of the Mediterranean and the other on the North African coast," said Mohamed Tangi, 32, a Moroccan economist in charge of socio-economic activities in UNEP's Mediterranean Action Plan. Seventeen of the 18 Mediterranean coastal states are involved in this Plan.



"Before these regional centres are set up," Tangi went on, "we will try to strengthen already-existing national aquaculture activities for the benefit of the people of the whole region."

The United Nations Development Programme (UNDP), whose immediate priorities include increasing food production, could be one of the principle financing organizations for Mediterranean fish farming.

While the main purpose of the meeting was to agree on a regional aquaculture programme, the experts discovered how much they could learn from each other. For example, French and Greek fish farmers disclosed that they had been experimenting with breeding rainbow trout in salt water. It is generally agreed that salt water fish are tastier than fresh water fish.

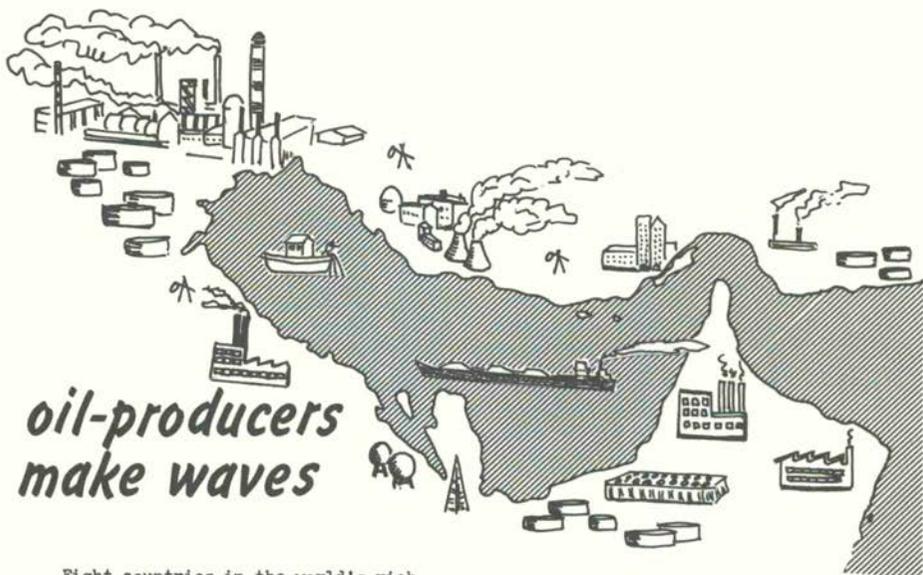
For another thing, developing countries do not have everything to learn from advanced countries. The Moroccan expert described the technique developed in his country for cage-breeding in rough waters. Instead of ropes commonly employed that often stiffen and break, elastic elements are used to attach the cages to the sea bed.



Characterizing the meeting as down to earth or, rather, down to water, Panos Lagos, 34, a Greek environmental planner, warned the experts on the final day that "the success of the programme we have agreed upon here will depend on the support of our Mediterranean governments."

While governments' reactions will be eagerly awaited, the public's interest in fish and the practical possibilities of fish farming was already reflected in the widespread coverage of the meeting by the mass media. . . . and a fish merchant from Piraeus telephoned the conference information desk to inquire whether any fish were being sold.





oil-producers make waves

Eight countries in the world's richest oil-producing region have reached agreement on two anti-pollution treaties and an Action Plan for environmentally-sound development at a meeting held in Kuwait, April 15-24, 1978.

A common concern over the deterioration of their sea and coastline led Bahrain, Iran, Iraq, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates to launch joint action.

The 10-day conference was convened by UNEP and hosted by the government of Kuwait. It had the support of various organizations of the United Nations system. Among the concrete measures unanimously approved were:

1. the establishment of a marine emergency mutual aid centre to co-ordinate action against oil spills in the region,
2. the creation of a regional trust fund of \$6,320,000 and
3. the setting-up in Kuwait of a regional organization for the protection of the marine environment to manage the action plan.

The first of the two treaties, a framework convention, states in its preamble that the eight countries "realize that pollution of the marine

environment in the region shared (by them) by oil and other harmful or noxious materials arising from human activities on land or at sea, especially through indiscriminate and uncontrolled discharge of these substances, presents a growing threat to marine life, fisheries, human health, the recreational uses of beaches and other amenities."

More specifically, the signatory states pledge to "prevent, abate and combat pollution...caused by intentional or accidental discharges from ships and aircraft...caused by discharges from land reaching the sea whether water-borne, air-borne or directly from the coast, including out-falls and pipelines...and resulting from land reclamation and associated suction dredging and coastal dredging."

The second treaty, a protocol, calls upon signatories to "co-operate in taking the necessary and effective measures to protect the coastline... from the threat and effects of pollution due to the presence of oil or other harmful substances...resulting from marine emergencies."

Such emergencies include collisions of ships, stranding of ships, principally tankers, blow-outs caused by

continued...

petroleum drilling, and failures of coastal industrial installations.

The importance of these two treaties is highlighted by the fact that about 60 per cent of all the oil carried by ships throughout the world--around one billion tons a year--is exported from this region. Most of it is transported in tankers as large as or larger than the Amoco Cadiz which recently ran aground off the Brittany coast of France.

The treaties are also significant in view of the region's extraordinarily rapid industrial development. There are 20 existing or planned major industrial centres along the coast. Some idea of the colossal size of the region's development is suggested by investment figures: 40 million dollars per kilometer of the coastal strip on the Arabian side, 20 million dollars on the Iranian side.

In his speech to the conference, Dr. Mostafa K. Tolba, the Executive Director of UNEP, declared that

"the Action Plan is designed to contribute to the overall development of the region. Therefore it is aimed at fulfilling both the environment and development objectives and priorities set by the states of the region."



The eight-country Action Plan puts much more emphasis on applied research and development than on academic research. For example, the Plan deals with such practical matters as the origin and magnitude of oil pollution, an inventory of industrial waste and municipal sewage, stock assessment of commercially-important species of shellfish and fish, and the ecological effects of coastal engineering and mining.

The Action Plan also involves contingency planning for accidents arising from oil exploration, exploitation and transport, environmental engineering, public health problems, aquaculture, marine parks, port pollution and fresh water management. Intensive training programmes and public awareness campaigns are also foreseen.

Tanker operations and the spreading of oil spills are strongly influenced by meteorological conditions at sea. Of special interest, therefore, is the intention to strengthen and co-ordinate the region's marine meteorological services. In this connection a regional marine meteorological meeting was convened in Tehran, Iran, from April 29 to May 4, and another is planned in Jeddah, Saudi Arabia, later this year.

Marine pollution primarily affects coastal areas because the winds and surface currents drive the pollution towards the shore. It is accentuated by the particular physical nature of this regional sea. It is narrow, shallow and semi-enclosed. Approximately 1,200 kilometers long, it varies in width from about 75 to 350 km. On the average, it is only 35 meters deep, while shore waters less than 10 meters deep stretch for many kilometers offshore. This sea is also very salty and warm and has a limited capacity for breaking up and absorbing industrial waste and urban sewage.

Elaborating on this point, Dr. Abdul Rahman Abdullah Al-awadi, Minister of Public Health of Kuwait, cautioned this is "the only body of water which receives the waste and residues of our industrial and urban activities. This obliges us to make a special effort to protect it because it is the only source of our drinking water besides offering our principal place for recreation."

Close to 80 high officials, experts, legal and scientific advisers from the eight countries participated under the presidency of Dr. Al-awadi, assisted by vice-presidents Farrokh Parsi of Iran and Dr. Abdulbar Al-gain of Saudi Arabia, and rapporteur-general Amer Arain of Iraq. After signing the final conference report, the eight plenipotentiaries, among them an assistant prime minister and four health ministers, attended the formal treaty-signing ceremony at the invitation of the government of Kuwait.

Upon ratification by five countries the treaties will enter into force. It is expected that this will take between one and two years; however, without waiting for the five ratifications, work on the co-operative programmes as approved by the conference will begin very soon.

Further information from



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cleaning the cradle of civilization

Seventeen of the 18 Mediterranean countries and the European Economic Community met in January (9 - 14) in Monaco to evaluate the Mediterranean Action Plan, which they launched in Barcelona three years ago. One of the subjects on the agenda was a draft treaty designed to control the discharge of industrial waste, municipal sewage and agricultural chemicals (pesticides and fertilizers) into their coastal waters.

How successful were they in agreeing on this treaty? Can they afford to pay a bill variously estimated at about five billion dollars to cleanse their sick sea? Are they really determined to reverse the rising tide of Mediterranean pollution?

These questions were put to two officials of UNEP: Dr. Stjepan Keckes, 46, the Yugoslav marine scientist who co-ordinates UNEP's Regional Seas Programme, and Patricia A. Bliss, UNEP programme officer of the Regional Seas Programme.

Question: Why do you attach so much importance to this treaty on the land-based sources of pollution?

Ms. Bliss: Because most of the pollution of the sea comes from the land. Naturally, oil pollution is a visible problem in the Mediterranean, but the real polluting "villains" are the toxic chemical substances released by factories, city sewage that enters the sea untreated or inadequately treated, and agricultural pesticides.

Dr. Keckes: The real danger to swimmers, sunbathers, and lovers of seafood comes from a much more insidious form of pollution than tarballs or oil slicks--the kind you cannot see. Heavy metals like mercury are not detectable to a tourist who dines on tuna, nor can he see the contagious and often very dangerous microbes in the water.

Question: Is it true that approximately 80 per cent of all sewage around the

Mediterranean empties into the sea untreated or inadequately treated?

Dr. Keckes: Unfortunately, yes.

Question: Did the Mediterranean countries achieve anything significant in Monaco?

Ms. Bliss: Yes, they did. They identified the problems very clearly, narrowed the disagreements and unanimously agreed to "take urgent steps" to draw up this key treaty. In practical terms, they agreed that government experts, both technical and legal, should meet in Geneva in October to refine the text of the treaty and to sign it in Athens, probably some time next year.

Question: Why does it seem to take so long to get moving on a treaty that most people--the 100 million tourists who come every year--consider essential?

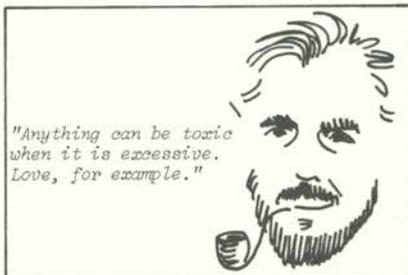
Dr. Keckes: Because regulating pollution that comes from industry, agriculture and municipal sewage is extremely complicated. Enormous economic interests are involved, so the creation of controls is bound to be a gradual process. Mind you, signing the treaty on land-based sources of pollution won't be enough. It will have to be implemented. For example,

common Mediterranean principles may have to be agreed upon for the quality of coastal waters. This in turn may lead to the establishment of national standards for effluents.

Question: What does the treaty say?

Ms. Bliss: It says that the Mediterranean states "shall take all appropriate measures to prevent, abate and combat pollution of the Mediterranean sea area originating from land-based sources within their territories." The treaty also contains a "black list" and a "grey list."

Question: What are they?



Dr. Keckes: The so-called black list refers to substances which must not pollute the Mediterranean under any circumstances. For example, mercury, DDT, PCBs, persistent plastics, used lubricating oils and radioactive wastes.

Question: What criteria were used to select them?

Dr. Keckes: Their toxicity, persistence and their accumulation in seafood. Take used lubricating oils. When you have a garage mechanic change the oil in your car, in most parts of the Mediterranean it is poured into sewers and finds its way into the sea. Since the oil has been in contact with fuel containing dangerous additives such as lead, and with metal in your car and contaminated by it, used lubricating oil is more dangerous than tanker oil. Or take plastics. Unlike paper which disintegrates in the sea in a few days, an ordinary plastic bottle and plastic foils survive for years in the water. They are not toxic to marine life but aside from being a nuisance on the beaches, they do clog up fishing nets and boat propellers.

Question: You mentioned radioactive wastes. Are they a current danger in the Mediterranean?

Dr. Keckes: No, they are not. But they could pose a problem in the future. Don't forget that some kinds of radioactive wastes will stay in the sea for hundreds and thousands of years before disappearing.

Question: What substances appear on the grey list?

Ms. Bliss: Among others, zinc, copper, lead, arsenic, cobalt, silver, cyanides, fluorides and disease-causing microorganisms. They can be discharged in limited quantities, in certain places and in controlled ways, providing a government grants a licence to do so.

Question: But why would anyone want to throw silver into the sea? The Mediterranean isn't the Trevi Fountain.

Dr. Keckes: The list means soluble silver compounds and not silver coins. Silver is toxic, even when diluted.

Question: Is gold toxic?

Dr. Keckes: Toxicity is usually a function of concentration. Anything can be toxic when it is excessive. Love, for example. Or, if you prefer to stick to gold, gold fever.

Question: Is most of the industrial waste discharged into the Mediterranean from coastal factories.

Dr. Keckes: No. Almost three-quarters of it comes into the Mediterranean through rivers. The large rivers make a decisive contribution to the pollution of the Mediterranean. The question was raised whether waste discharges into rivers emptying into the Mediterranean, sometimes hundreds of miles upstream, should require licensing, too. It was not resolved and will have to be discussed further. I said this treaty is not a simple matter.

Question: It has been seriously estimated that it would cost about five billion dollars to implement the treaty; i.e., to "clean up" the Mediterranean. Isn't that a huge sum of money?

Ms. Bliss: Not really. This sum would be spent over a period of 10 to 20 years. And no one country would have to pick up the bill.

Seventeen of the 18 Mediterranean coastal states are actively participating in UNEP's Mediterranean activities. They would share the cost. If these countries do not raise the money to deal with their industrial and municipal waste, then they will find themselves losing huge sums on medical treatment of their sick citizens, on an ailing fish and shellfish industry, and on decreasing numbers of tourists. Holiday-makers may go somewhere else if they risk getting sick in a polluted Mediterranean. Signing and implementing the treaty are in the interests of all the Mediterranean governments and peoples, and they realize it. ☉



Successful meetings held on Gulf of Guinea

As a follow-up to a UNEP survey mission to West Africa in 1976—whose purpose was to assess the feasibility for implementing a comprehensive Action Plan in the Region—and in answer to a request by UNEP's Governing Council to proceed in the West African region, two meetings were recently held in Abidjan, Ivory Coast.

The first was a scientific workshop convened by IOC, FAO, WHO, and UNEP from 2 to 9 May. The workshop reviewed the major problems related to marine pollution by petroleum hydrocarbons, by industrial and agricultural wastes, and by sewage as priority areas on which to focus research and monitoring activities.

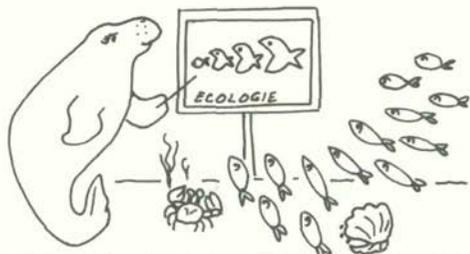
The meeting recommended that the UN system assist in the training of local scientists and technicians in analytical techniques for measuring pollutant concentrations, techniques used to measure effects of pollutants on human health, fishery resources and marine coastal ecosystems, and methods for establishing quality criteria and effluent standards. UNEP was also requested to help equip national institutions so they could effectively participate in a regional programme.

Immediately after the workshop, representatives of the United Nations Development Programme from thirteen West African States and of eleven international

organizations met for two days (10 and 11 May) in Abidjan to discuss co-operative actions to be taken as part of a comprehensive plan for the development and protection of the region.

One of the main purposes of the meeting was to agree upon a joint strategy for the preparations leading to the adoption of an Action Plan. The meeting also discussed what elements could effectively be incorporated in the regional programme.

On the basis of the meeting, UNEP will develop a draft Action Plan. It is proposed that this draft be presented to the Governments by a UNEP mission which will visit the capitals of the region later this year. Thereafter, the preliminary plan will be submitted to a meeting of government-nominated experts for review and revision. UNEP hopes that the final Action Plan may be adopted some time in 1979.



COMING EVENTS

DATE	LOCATION	TITLE	ORGANIZER(S)
4-7 Sept	Malta	Workshop on contingency planning in cases of emergency	Oil Combating Centre (IMCO/UNEP)
18-22 Sept	Geneva	Meeting of experts on Mediterranean trust fund and other institutional and financial matters	UNEP
9-13 Oct	Malta	Meeting of experts on renewable sources of energy	UNDP, UNEP
30 Oct-3 Nov	Geneva	Meetings of experts on draft Mediterranean protocol on land-based sources of pollution	WHO, UNEP
Oct	Cartagena	Workshop on prevention, abatement and combating of pollution from ships in the Caribbean	IMCO, UNEP
24-25 Nov	Antalya	Workshop on pollution of the Mediterranean	ICSEM, in co-operation with UNEP
Nov/Dec		Mission to West African States on draft Action Plan	UNEP
Dec		Meeting of government experts to approve Kuwait Action Plan projects	UNEP and specialized agencies



THE SIREN

news from UNEP's Regional Seas Programme

ENVIRONMENTAL PROJECT FOR THE CARIBBEAN MOVES AHEAD

Representatives from 16 international organizations met in Mexico City last month (August 23 to 25) to discuss their involvement in the preparation of the Caribbean Environmental Project (CEP).

They were told that the reaction of the Caribbean Governments to the CEP in its initial form was "overwhelmingly positive." The final version of the Project, in the form of a Draft Action Plan, should be submitted to Caribbean Governments for their approval late next year (1979).

Vast environmental programmes such as the CEP are not drawn up and adopted overnight. The Caribbean was selected as a "priority area" by the annual UNEP Governing Council in Nairobi in 1974 and has become one of the seven seas of the Regional Seas Programme.

The first steps were to identify the area's environmental problems and the manpower and institutions available to deal with them, to take a look at environmental activities already under way, and to fix objectives for future action.

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"Although the Caribbean Programme began as a follow-up to the Mediterranean Action Plan," says Vicente Sanchez, the head of UNEP's Latin America Regional Office in Mexico City, "we have to stress that the two regions have quite different characteristics calling for different approaches."

The Caribbean contains distinctive tropical ecosystems and care must be taken when applying development patterns first pursued by countries in temperate climates. The region has 19 island nations which share the common problem of the extreme fragility of their ecosystems. Islands dare not risk following patterns of development created for continental land masses.



Sanchez also points out that no environmental crisis is believed to threaten the area as a whole although there are localized problems. But the possibility of a crisis and the need to take quick action are recognized. Most of the Caribbean countries are developing ones whose major problem is to fulfill people's basic needs. Nonetheless, there is a widely-held conviction that environmental management is a necessary feature of development and can even encourage it.

In other ways the area's needs are not appreciably different from those elsewhere. For instance, there is a paucity of information on the natural systems and resources of the area. Training of professionals and technicians in environmental management skills is urgently required. Existing

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institutions in the region, such as monitoring stations and research institutes, need strengthening and support. And, perhaps most urgent, there is a need to create awareness of the nature of environmental problems and solutions through public education.

In its present form the draft Action Plan is a reflection of the complexity of the Caribbean's environmental problems. Action-oriented, it contains specific recommendations concerning the incorporation of environmental criteria into preferred modes of development. Its environmental assessment component calls for a survey of regional ecosystems, environmental conditions, and factors which greatly influence human health and the quality of the environment.

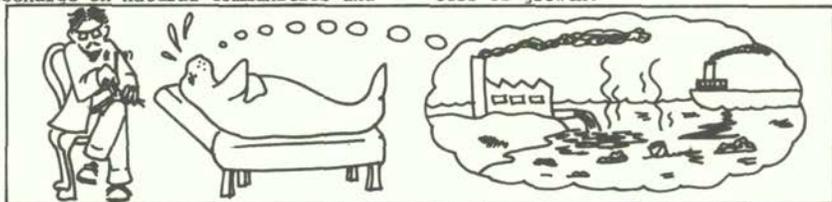
Specific activities will notably include (1) an assessment of the origin and magnitude of oil pollution in the region including a report on the frequency of oil spills, the effects of oil pollution on mangroves, coral reefs, beaches and coastal fisheries, and the ability of existing methods to handle oil spills; (2) an assessment of the effects of coastal and land-based activities on marine resources, with special attention to the effects of industrial, agricultural and domestic waste discharge on natural communities and

coastal fisheries; (3) a survey and evaluation of non-conventional energy sources, and (4) a survey of existing environmental health problems with special reference to water-borne diseases, malnutrition, and substances concentrated in the food chain.

Furthermore, there are plans for identifying major economic growth activities, their trends and influence on environmental quality. The plan also provides for assistance to countries in such matters as environmental impact assessments for major development projects, the formulation of coastal zone management schemes, and the promotion of public awareness of environmental issues.

These and other activities must, of course, have a legal base, so the plan calls for governments to ratify existing international treaties and offers to provide assistance and advice for drafting national legislation.

The preparation of the Action Plan is jointly sponsored by UNEP and the Economic Commission for Latin America (ECLA). ECLA's interest in the project, said Daniel Bitran, who chaired the Mexico meeting, is based on its "growing concern for promoting the concept of integral development within the region, conceived as a completely different process from that of a mere process of growth."



Experts discuss contingency planning

The "Amoco Cadiz" and "Torrey Canyon" disasters show that serious pollution incidents may be expected in the Mediterranean as a result of the heavy traffic of large tankers. No individual country could cope with the consequences of a very serious accident. Economically, it is not feasible to tie up in a single place important resources to handle a disaster that might occur only once in 10 or 20 years. Therefore, joint contingency planning seems the most effective way to deal with large-scale accidental oil pollution of the Mediterranean.

These views were considered by experts from 14 Mediterranean countries and the European Economic Community in Malta from 4 to 7 September. They met to exchange information on national contingency plans for oil pollution emergencies and to discuss possible regional contingency plans.

The meeting was organised by the Mediterranean Regional Oil Combating Centre in Malta, a jointly-sponsored institution of the Intergovernmental Maritime Consultative Organisation (IMCO), UNEP and the Government of Malta.

seafarer wins prize

"Far from being an insuperable obstacle, the vast oceans actually facilitated the spread of civilizations from one distant part of the earth to another." So says Thor Heyerdahl, the Norwegian anthropologist-explorer and co-recipient of this year's International Pahlavi Environment Prize.

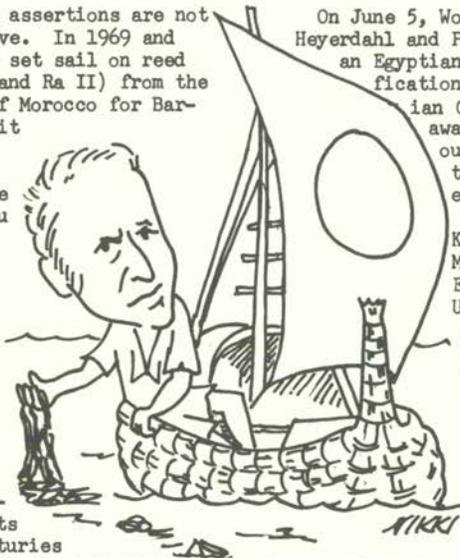
Heyerdahl recently told The Siren of his conviction that the peoples of ancient Mesopotamia and Egypt sailed past Africa in reed boats to South America and Mexico.

Heyerdahl's assertions are not merely speculative. In 1969 and again in 1970 he set sail on reed boats (the Ra I and Ra II) from the Atlantic coast of Morocco for Barbados, reaching it the second try. And his famous voyage across the Pacific from Peru to Polynesia on the balsa raft Kon Tiki proved that so-called "primitive" peoples could have done the same thing.

"With the Ra expeditions we proved that an Atlantic crossing on reed boats was feasible centuries before Columbus, but not that it had actually been done. I have accumulated a vast quantity of evidence that the civilizations of the early Middle East influenced American aborigines in Mexico, Central America and Peru before the Spanish conquistadores."

Heyerdahl recently completed a 132-day voyage on the reed boat "Tigris" from Iraq to the Indus Valley in Pakistan and to Djibouti on the Red Sea. "My ten companions and I lived for months, so to speak, in 3000 B.C. When we surfaced in the 20th century 5,000 years later, at the entrance to the Red Sea,

civilization seemed to us to consist of war, starvation, inflation and misery. Around us were ships of war and military aircraft. We were forbidden to anchor virtually everywhere. I was ashamed to belong to the developed part of the world which was furnishing arms to the developing countries. I was filled with a feeling of revolt against modern morality. As much as I loved the Tigris, I decided to burn it as a gesture against the supplying of arms to the developing world, an act unworthy of mankind on the eve of the third millenium, A.D."



On June 5, World Environment Day, Heyerdahl and Prof. Mohamed Kassas, an Egyptian expert on desertification, received the Iranian Government's annual award for the "most outstanding contribution in the field of environment" from U.N. Secretary-General Kurt Waldheim and Dr. Mostafa K. Tolba, the Executive Director of UNEP. But Heyerdahl's interest in the environment does not date from yesterday.

"When I discovered that the middle of the Atlantic was polluted in 1969 and announced it, it had more impact than the voyage of the Ra II. On 43 of the 57 days it took to cross the ocean, I encountered tarballs. People could hardly believe that the open seas were polluted. I myself thought it impossible. How could little man pollute the gigantic ocean?"

Heyerdahl is often called a "modern Viking." "There isn't a seafaring ancestor in my family," he explains. "They were all farmers or forest owners, living inland. I was brought up on the Oslo fjord and didn't learn to swim or sail.

"It wasn't only a spirit of adventure that sent me to sea. It was more an unanswered question that intrigued me and set my course."



Syria and Egypt have recently ratified the Convention for the Protection of the Mediterranean Sea against Pollution and its Protocols! The Convention entered into force on 12 February 1978 and the first meeting of the Contracting Parties, at present eleven, will be held in France next February.

PACIFIC PROGRAMMES TAKE OFF

Scientists, managers and legal experts from the SOUTH-EAST PACIFIC region plan to hold an international workshop in November in Santiago, Chile, on the area's environmental problems in general, the state of marine pollution in particular, and the legislation relevant to the region's environmental protection.

The workshop is being organized by the Permanent Commission for the South Pacific (CPPS), in co-operation with several international organizations (FAO, IOC, WHO) and with the full support of UNEP. On the agenda is a draft Action Plan envisaging a co-ordinated programme to monitor and control marine pollution and the drawing up of a convention for the protection of the region.

The SOUTH-EAST PACIFIC sub-region refers to the coast of South America, stretching from Colombia in the north to the southern tip of Chile, and its coastal waters. The principal environmental problems seem to result from sewage and industrial waste discharges, but other problems may yet be identified.

Since UNEP's Regional Seas Programme is not attempting to deal with the vast area of the Pacific as a whole, it has so far identified two sub-regions for special, separate attention.

The major activity currently in preparation for the second sub-region, the SOUTH-WEST PACIFIC, is the South Pacific Conference on the Human Environment, planned for 1980. The Conference will review the major environmental problems of the area, identify priority actions necessary to reverse the present trend of environmental deterioration, formulate environmentally-sound guidelines and management policies, including legislation, and adopt an Action Plan for the protection and development of the sub-region. Preparatory activities for the Conference will consist of extensive consultations with the governments concerned, presentation of country reports, meetings of experts from the region and of the international organizations supporting the Conference, field missions and study tours.

Under UNEP's general guidance, the Economic and Social Commission for Asia and the Pacific (ESCAP), the South Pacific Bureau of Economic Co-operation (SPEC) and the South Pacific Commission (SPC) will play the leading roles in the preparation of the Conference.

WEST AFRICAN MISSION READY TO GO

The first draft of the Action Plan for the West African Region has been prepared and circulated to the UN organisations involved in the programme and to United Nations Development Programme (UNDP) Resident Representatives in the region for their comments. FAO, IMCO and the UN Department of Economic and Social Affairs (UN/ESA) are finishing the preparation of documents in support of the Action Plan. The next step will be a UNEP mission to the region to present the draft text to Governments for their comments.



early action plan makes steady progress

The Red Sea and Gulf of Aden Region was one of the first of the Regional Seas to adopt an Action Plan. That was in Jeddah in 1975, and since that time the Arab League Educational, Cultural and Scientific Organization (ALECSO) has been co-ordinating the programme.

Work began on a Regional Convention for the Protection of the Red Sea and Gulf of Aden Environment, and in 1977 a revised draft of this Convention was prepared for submission to a meeting of plenipotentiaries in late 1978 or early 1979.



Within the environmental assessment component of the Action Plan, activities have included the training of scientists and technicians, the setting up of new marine science institutions and evaluation of the needs of already existing ones, and reviewing of past scientific work in the region. These activities are aimed at establishing a solid base for a marine pollution monitoring and research programme.

Last year a team of scientists and a specialized architect visited the Arab Republic of Yemen, the People's Democratic Republic of Yemen, Somalia and Ethiopia to select sites for future marine research stations, while UNESCO prepared a project for the establishment of a marine sciences and resources institute in PDR Yemen.

ALECSO commissioned a marine scientist to visit the University of Jordan in Amman to discuss the organization of marine science teaching and research. Institutes in Jordan, North Yemen, Port Sudan and Ghardaqa prepared reports and equipment lists, and negotiations began for the acquisition of research vessels.

Another project proposal for a survey of marine turtles and dugongs was drafted last year, and a bibliography on Red Sea marine research was prepared for the use of local institutions. A provisional report was made concerning the establishment of a marine park off the Jordanian coast of the Gulf of Aqaba, and with technical

assistance from the International Union for the Conservation of Nature (IUCN), a project on the ecology and conservation of coral reefs was initiated by the Institute of Oceanography at Port Sudan.

Other proposals involved (1) a pilot monitoring programme for evaluation of oil pollution levels at selected sites, (2) the monitoring of phosphate pollution in coastal waters off Egypt and Jordan, (3) a survey of mangrove systems off the Saudi coast and other areas, and (4) preparation of a taxonomic atlas of fishes of the northern Red Sea and Gulf of Aden.

Last December ALECSO organized a seminar on oil pollution as a preparatory step for a future regional meeting on the subject. The Intergovernmental Maritime Consultative Organization (IMCO) issued a report (prepared under contract with the Saudi Arabian Government) on the state of coastal pollution off the Saudi Arabian coast.

Since the programme was initiated, seminars and symposia have been held on such subjects as the effects of coastal development on the marine environment, and a survey of existing laws and regulations relating to protection of the marine environment. A training course on Red Sea ecology was held in Ghardaqa in 1977, attended by 16 trainees from seven countries. A course on diving methods was also given, and other courses in oceanography and water pollution are being prepared.

Kuwait Action Plan

Representatives of twelve United Nations organizations met in Geneva for three days (24-26 July) with the UNEP Regional Seas team to start preparing a detailed work plan for the various activities approved at the Kuwait Conference of Plenipotentiaries (see SIREN No. 1). The work plan will be submitted for review and possible approval at a meeting of experts designated by Governments of the region, which is planned for the end of 1978.

At the same time, negotiations are under way to set up the Interim Secretariat in Kuwait which will be responsible for co-ordinating the Action Plan until a permanent Regional Organization is established by the Governments themselves.

...the power of ideas

Dr. Ismael Sabri Abdalla is a leader in what may be called the "modern development thinking" of the Third World.



Born in a small village in upper Egypt, he was educated at Cairo and Paris Universities, and has taught at the Universities of Alexandria and Cairo. For eight years he was Director of the Egyptian Institute of National Planning. He then became a member of the Cabinet where he was in charge of planning for four years. At present he is chairman of the Third World Forum, an organization concerned with discovering new strategies for development.

Dr. Abdalla has contributed a great deal of expertise to the formulation of the Blue Plan, which is an integral part of the Mediterranean Action Plan's activities in the socio-economic field.

The SIREN caught up with Dr. Abdalla on one of his rare holidays and took the opportunity to hear his candid views on some Mediterranean issues.

This interview will be presented in two parts, the second to appear in the December SIREN.

The Siren: You have continually stressed the importance of public awareness or "consciousness-raising" in any programme dealing with environmental protection and development. Why is this?

Dr. Abdalla: I simply do not believe that anyone can make people happy in spite of themselves. I do not believe in "development from above". If we want people to live better, we have to motivate them to rely on their own actions. This is the essence of my thinking relating to any development exercise, and, believe me, it is not merely a matter of ideology but the result of my own experience in the field of development planning. Unless the people concerned are really actively involved, nothing meaningful can be undertaken. In the case of the Mediterranean, there is a delicate problem: on the northern side, you have industrialized or more-or-less industrialized nations, and on the southern side, you have developing countries. There are suspicions, doubts, all that sort of thing. We have to live with it, and try to make all the participants regard this programme as their very own.

Obviously, one of the suspicions you mention is the feeling shared by many developing countries in the Mediterranean that environmental legislation, coming now - just at the beginning

of their own industrialisation - is hindering their progress. Especially when you realize that the northern countries achieved their present state of development without ever having had to take environmental factors into consideration. Do you think this feeling is justified?

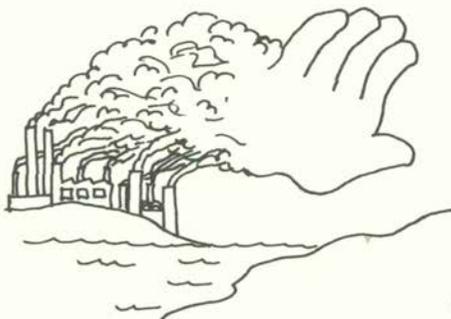
There is something very true in what the developing nations say. If you now tell the Third World "DO NOT INDUSTRIALIZE" because the environment is already polluted, that's unfair. Then one side has the best part of the cake and the other is left with crumbs.

However, we in the Third World have raised the environmental issue in a very different way. We say to our people, "We have to avoid the mistakes committed by industrialized countries." No one has proven that there is only one way to industrialize and that we have to imitate the way of the northern countries. We can industrialize in a different way - a way involving less pollution and having a less wasteful impact on natural resources. There is no a priori reason to concentrate industry in huge urban centres. It makes more sense to have a better distribution of industrial plants and more balanced development between urban and rural areas.

But doesn't there have to be some sort of economic motivation for this

approach to succeed?

The development experience of Western countries has been based on the principle of maximization of private profit. Its view was short-term and on the "micro" level. But environmental problems require a long-term perspective and a "macro" level viewpoint. For a single chemical plant, the best procedure according to rules of business is to slough its effluents into the nearest river. Anti-pollution measures are an added cost to the plant, and work against the principle of maximum profits. But a polluted river is a net loss for the national economy as a whole, and from this point of view anti-pollution measures become resources and not costs. So, in our countries where industrialization is still taking its first steps, we must calculate in a different manner and somehow accommodate economic principles and industrialization processes to the requirements of a healthy environment.



Do you think that the developed countries have a responsibility to provide technical assistance to developing countries, or even to give financial compensation as some have asked?

Well, technical assistance and financial compensation are two quite different issues. I don't believe at all in technical assistance. The results of three decades of technical assistance are worse than poor. The policy of Third World countries should be to build up their own technical capabilities so they can solve their own problems. If we continue to rely on technical assistance, we will never be really independent and we will

always be technologically backward. And while developing our own technological capabilities, we will have the opportunity to develop those which are really appropriate to our own conditions and societies.

Do you think that the training of technicians from developing countries is a good alternative to direct technical assistance? This is one approach that UNEP has taken in its Mediterranean Pollution Monitoring and Research Programme, at the insistence of the Mediterranean governments themselves.

That depends on the people to be trained, in what field and for what purpose. Our experience is that often people from the Third World who train in other countries don't return home. Or they are trained to function outside their own environment. For example, a doctor from Tunisia is trained in a modern Paris hospital and becomes very efficient in that hospital. But no one is training him to work in a small dis-



pensary in a remote village in southern Tunisia, which should be the case. What he has learned in Paris is useless to him at home.

I personally believe that the best approach is first to build up local technological capacities by helping developing countries to generate their own technicians, rather than to rely on training them abroad. Secondly, outside training should be on carefully selected subjects, because a great proportion of training grants are wasted by sending people abroad to learn what they could learn at home. Thirdly, training should be very, very specific, not a big bag of general information unrelated to human problems.

...continued on page 10

MED SCIENTISTS JOIN FORCES

"Hooray!" shouted Saverio Civili down the long corridor of UNEP's Geneva office, waving a cabled message. "Another lab has joined us, and this one is from Syria." The young Italian biologist explained his excitement. "This makes 82 marine laboratories in 16 Mediterranean countries now participating in our pollution monitoring and research programme."

The Co-ordinated Mediterranean Pollution Monitoring and Research Programme, known as MED POL, is the part of the Mediterranean Action Plan that deals with the assessment of sources, levels and effects of various pollutants.

The reaction of Dr. Saad El-Wakeel, the Egyptian marine geochemist who is Deputy Programme Co-ordinator of MED POL, was more reserved. "We'll really only be satisfied when marine institutions from all 18 Mediterranean countries are actively participating."

But 82 is a substantial number. "Each of these laboratories is working on one or more of the original seven pilot projects," said Dr. Civili, who is Assistant Programme Officer for the Mediterranean programme. "The projects were organized in co-operation with FAO, IOC, WMO and WHO, under the overall co-ordination of UNEP.

In consultation with the Mediterranean Governments, one research centre was chosen for each pilot project as Regional Activity Centre to assist the specialized agencies in carrying out the project."

Four of the original MED POL pilot projects are basically monitoring activities although all of them have a strong research element. The monitoring is based on very precise sampling and analytical procedures as well as on permanent intercalibration techniques. All this leads to comparable data from the whole Mediterranean. The monitoring covers:

- visual observation of oil slicks and other floating pollutants, tar ball

- sampling, survey of tar on beaches and sea water sampling to analyse the amount and composition of the dissolved petroleum hydrocarbons (MED I);

- the concentration of selected metals, particularly mercury and cadmium, in marine organisms (MED II). In addition to these elements the measurement of the levels of copper, lead, manganese, selenium and zinc is recommended, particularly when detection methods providing for multi-elemental analysis are used. The striped mullet, the Mediterranean mussel and the bluefin tuna have been selected

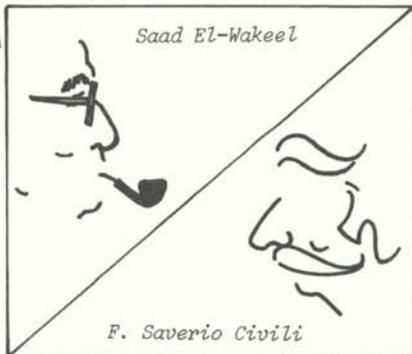
for the monitoring programme so that representative ecotypes are included. The sampling frequency is seasonal;

- the levels of selected organochlorine compounds which are considered as especially relevant to representative elements of the Mediterranean ecosystems (MED III); DDT, PCBs, dieldrin and their metabolites were singled out as falling into this category.

Whenever possible, other persistent organic compounds are also identified in analysed samples. The organisms selected as monitoring targets (striped mullet, Mediterranean mussel, pink shrimp) are representative of different Mediterranean ecotypes, of great economic importance and almost ubiquitous in the Mediterranean. The sampling frequency is seasonal;

- sanitary and health surveillance of coastal recreational waters and of shellfish-growing waters in selected coastal areas (MED VII). Microbiological indicators are used as the most significant indicators of the quality of seafood and coastal waters.

The three MED POL research pilot projects deal with:



- effects of pollutants on marine organisms and their populations (MED IV). Acute toxicity experiments are used only when the organisms cannot be kept long enough under culture conditions to allow long-term toxicity tests. Instead, long-term experiments are envisaged with the aim of investigating the sub-lethal effects of potential pollutants, and functional as well as morphological changes;

- effects of pollutants on marine communities and ecosystems (MED V). Ecosystems are particularly investigated in areas which have been repeatedly studied in the past in order to detect long-term changes. The studied parameters and effects vary, depending on the community and ecosystem. The most common ones are: community structure, functional indices and body burden of pollutants;

- problems of coastal transport of pollutants (MED VI). The water circulation in coastal areas and the exchange of water between the coastal and off-shore regions is investigated. Special attention is paid to the movement of the surface layer as this contributes considerably to the rapid spread of certain pollutants (e.g. petroleum hydrocarbons, floating litter, etc.).

"These are not the only projects under way, however," elaborated Dr. El-Wakeel. The original seven pilot projects of MED POL deal mainly with the coastal waters of the Mediterranean, and therefore an additional pilot project (MED VIII) dealing with pollution levels of the open waters and the biogeocycles of the most important pollutants was later initiated in co-operation with the International Atomic Energy Agency and IOC.

Since 1975 UNESCO and UNEP have been undertaking a project (MED IX) on the role of sedimentation in the pollution of the Mediterranean, with special emphasis on the assessment of current knowledge in this field.

In 1975 a project was initiated by UNEP on pollutants from land-based sources (MED X). It was carried out in close co-operation with the Governments of the region, by the Economic Commission for Europe (ECE), the United Nations Industrial Development Organization

(UNIDO), FAO, UNESCO, WHO and IAEA. Its objective was to provide information on the type and quantity of pollution from major land-based sources and through rivers, and on the present status of waste discharge and waste management practices. The project also provided for the preparation of an inventory of land-based sources of pollutants being discharged into the Mediterranean. It was a concrete example of the linkage between environmental assessment and management in that it produced data which will assist Governments in the negotiation of the regional protocol on pollution from land-based sources.

Recently, in co-operation with UNESCO, plans have been developed to formulate conceptual models for the biogeocycle of selected Mediterranean pollutants, including models for their impact on marine ecosystems. Using data collected through the various pollution monitoring and research activities, these conceptual models should lead to the formulation of predictive models which might be useful tools for making appropriate management decisions.

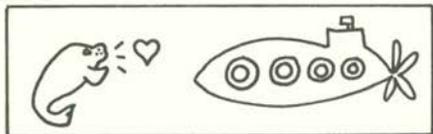


The preliminary results of MED POL and of related projects of the Mediterranean Action Plan were reviewed at a meeting attended by 47 Mediterranean scientists in Monaco (18-22 July 1977), and were presented to the Governments of the Mediterranean states at their meeting earlier this year. "We have already issued a 200-page preliminary report on the state of pollution in the Mediterranean," added Dr. El-Wakeel. "This will be expanded and presented in detail in a book to be published next year in Britain by the Pergamon Press." Asked what it might contain, he replied "What, and ruin the suspense?" 

continued from page 7...

Let's get back to the subject of financial compensation. Do you see this as a better way of encouraging the independent buildup of technological capabilities in developing countries?

The case for compensation is two-fold. First of all, I believe the present wealth of the industrialized nations is not entirely due to their own industry. The centuries-long exploitation of undeveloped countries is a simple fact. Then there is the penalty aspect which could easily be applied in a relatively small area such as the Mediterranean. I believe it is quite reasonable to imagine financial contributions proportional to the polluting impact of every Mediterranean country. Any one of the northern developed countries pollutes a great deal more than, say, Libya, and should therefore pay a great deal more.



Since 1975 UNEP has sponsored an Action Plan for the protection and development of the Mediterranean region. Looking at this plan in an historical perspective, do you think it differs from other attempts to promote international co-operation in the Mediterranean region?

I believe that there is something very special about the Environment as an issue which can transcend national frontiers. In the Mediterranean, as elsewhere, the problems at stake cannot be solved by bilateral or purely national actions, and international co-operation is indispensable. The Mediterranean governments realize this, and UNEP has succeeded in pulling them together into the Mediterranean Action Plan in spite of all the conflicts of ideologies, policies, and orientations which characterize the region. But if Environment has the advantage of requiring international co-operation, its drawback is that it involves a good many vague and very broad ideas which leave decision-makers as well as the public with a feeling of helplessness.

Fortunately, in the Mediterranean the problems have been clearly defined and deeply felt, and this makes it a good example of an international pilot exercise which attempts to reconcile development with environmental imperatives.

It has been said that the presence of foreign military fleets, in particular vessels either carrying nuclear weapons or powered by nuclear energy, constitutes the highest potential threat to the life and survival of the Mediterranean ecosystem. Do you agree with this observation?

I can claim the honour of having been the first to raise this question at the two expert meetings which have been held in the framework of the Blue Plan. So far, everyone has been overly discreet about this issue. While much has been written on the dangers of a collision between two supertankers - perhaps because it is relatively simple to assess the possible results - no one can really predict what would happen should two nuclear submarines collide. Radiation can last decades, centuries, even millenia, and I see it as a major threat to the Mediterranean.

One of the first targets of the Mediterranean countries should be some kind of denuclearization of the sea. I personally am anti-nuclear, but I am realistic and understand that if we cannot win the battle against nuclearization completely and must face the alternative - including the presence of nuclear power plants - we must at least have agreements concerning regulations and safeguards.

Of course, the nature of the region and the conflicts that exist make this a very delicate matter, and perhaps it is not up to the intellectuals to solve this problem. We should rather present the problem honestly to the public, and make them aware of the dangers. And I believe in the power of ideas.

In the next SIREN, Dr. Abdalla talks about tourism - its evils and potential benefits, the Mediterranean as a microcosm of world conflict, the dangers of data misuse, and a play by Pirandello.

quotes...

It remains to be seen just what will be the level of responsibility and morality of the participating countries when the chips are down, when ecological necessity collides with economic interests more sharply than is the case in the treaties concluded so far. --Andreas Uhlig in the Neue Zürcher Zeitung of Zurich, discussing the efforts of the Mediterranean countries to agree on a treaty to control the discharge of industrial waste, domestic sewage and agricultural pesticides.

The phenomena of over-fishing, limited availability of protected coastlines, the spread and persistence of the impact of pollution all speak eloquently of the vulnerability of a (Mediterranean) system which has too often been considered capable of absorbing the waste of all types produced by human activity, without any practical limits.

--La Vanguardia of Barcelona

Environmentalists are hailing as an example to the rest of the world the rapid agreement (of Bahrain, Iran, Iraq, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates) on action to save their common sea from death by pollution. The eight countries concerned took just 18 months to cut through political red tape and legal nit-picking to approve two treaties on cleaning and protecting (their region) from further damage. --John A. Callcott United Press International, Geneva, in the St. Louis Post Dispatch.

UNEP has taken on the onerous task of co-ordinating the clean-up of eight large bodies of salt water around the world...UNEP does not do the actual cleaning but prods and cajoles and hosts meetings to get the nations around the seas to sign treaties saying they will do it...UNEP must steer a delicate diplomatic course...for neither rich nor poor governments like to admit to dirty habits. --Lloyd Timberlake, Science Editor, Reuter's, in the Singapore Business Times and the Trinidad Express.

...and misquotes

To persuade the diplomats to agree (on a treaty controlling land-based sources of pollution in the Mediterranean), the United Nations Environment Programme dangled the promise of a subsidy of 25 billion francs (about \$5.5 billion) in front of them. The size of the bait did not succeed in preventing the failure of the (Monaco) conference.

--Françoise Monier, l'Express of Paris.

The Siren comments: Ah, would that UNEP had 25 billion francs to "dangle as bait." UNEP hopes to raise \$150 million over the next four years to cover the costs of its activities, and the Mediterranean programme accounts for only a smidgen of this. Could it be that l'Express was referring to the 25 billion francs which was simply the estimate of what the Mediterranean countries themselves would have to spend over the next 10 to 20 years to effectively control pollution from land-based sources?



Dr. Stjepan Keckes, the data collector from Dubrovnik...knows that some of the participating countries are not even willing to help him with his diagnosis (of the sick Mediterranean) and that, quite often, alarming data does not even reach Dubrovnik.

--Jörg Steinert, Stern of Hamburg.

The Siren comments: Whether or not the data reaches Dubrovnik can hardly be Dr. Keckes' major concern, since he has been in Geneva for the past three years and has never worked in Dubrovnik. The Stern article also puts some very disturbing quotes in Dr. K's mouth, but it turns out that its author never contacted him or anyone else at UNEP. "I am available to serious journalists any time," asserts Keckes, "and more than willing to discuss our programme's failures as well as its successes."



Peter Thacher on OCEAN MANAGEMENT

"We in UNEP are concerned to assist governments to choose sustainable development, to select an approach that respects the environment, while at the same time combating and trying to prevent further increases in significant levels of pollution. This requires political commitments by the governments of the Mediterranean countries, best cast in the form of binding international treaties, accompanied by continuing scientific assessment of sources, levels and patterns of pollution and a rational plan for long-term social and economic development."

So says Peter S. Thacher, Deputy Executive Director of UNEP, in his introductory statement to a special issue on the Mediterranean of the publication, *Ocean Management*. Published in the Netherlands (P.O. Box 1527, Amsterdam) this month by the Elsevier Scientific Publishing Company, the 174-page magazine (Volume 3, No. 3-4) contains eight articles. They range in subject from the development of the Mediterranean as a maritime trade route and a study of the importance of marine parks and wetlands as natural reserves for the ecological balance of the Mediterranean Sea to the origin, nature and levels of metallic pollutants and the vulnerability of Mediterranean marine ecosystems to pollution.

"Readers will find a wealth of up-to-date, useful information that should provide excellent source material for specialists and students of the Mediterranean," added Thacher.



COMING EVENTS

DATE	LOCATION	TITLE	ORGANIZER(S)
9-12 Oct	Athens	Sub-committee for the Study of the Means to Control Pollution of the Mediterranean Sea	Inter-Parliamentary Union (IPU)
9-13 Oct	Malta	Meeting of Government Experts for Developing a Co-operative Programme on the Practical Applications of Renewable Sources of Energy in the Mediterranean Region	UNDP/UNEP
23-27 Oct	Cartagena, Columbia	Workshop on Prevention, Abatement and Combating of Pollution from Ships in the Caribbean	IMCO/UNEP
Oct-Nov		Mission to Mediterranean Countries on Regional Mariculture Co-operative Programme	UNDP/FAO/UNEP
24-25 Nov	Antalya, Turkey	Workshop on Pollution in the Mediterranean	ICSEM in co-operation with UNEP
Nov-Dec	West Africa	Mission to West Africa to discuss with Governments the draft Action Plan	UNEP
Dec or Jan	Kuwait	Meeting of Government experts to approve Kuwait Action Plan projects	UNEP/UN Specialized Agencies
11-15 Dec	Rome	Meeting of experts on legal aspects of pollution from sea-bed exploration and exploitation	IJO in co-operation with UNEP
5-14 Feb	France	First Meeting of the Contracting Parties to the Convention for the Protection of the Mediterranean Sea Against Pollution and its related Protocols	UNEP



THE SIREN

news from UNEP's Regional Seas Programme

The Siren joins the members of the Regional Seas Team in wishing you a happy and prosperous 1979!

PACIFIC EXPERTS BOOST PLAN

An important step has been taken in the development of a regional Action Plan for the Southeast Pacific.

A meeting held in Santiago, Chile, from 6 to 10 November and organized by the Permanent Commission for the South Pacific (CPPS), gathered seventeen experts from Chile, Colombia, Ecuador, Panama and Peru, as well as numerous observers.

Ambassador J. M. Bakula, General Secretary of CPPS, described what the meeting accomplished: "The experts reviewed the specific conditions of the marine environment of the Southwest coast of Latin America, the major sources of pollution in this region, and the existing national legislation related to marine pollution. Not surprisingly, oil and the land-based sources of pollution, particularly domestic and agricultural wastes, have proven to be the major trouble-makers."

The technical and legal aspects of the envisaged action plan for the protection of the region were discussed. In this context the meeting approved (1) the elements of a pilot project on marine pollution, including details relevant to the execution of the project;

(2) guidelines for the formulation of a regional convention on the protection of the marine environment from pollution; and (3) a draft agreement on regional co-operation in combating pollution by petroleum hydrocarbons and other toxic substances in cases of emergency.

"The meeting emphasized the importance of controlling the local sources of pollution - domestic, industrial and mining wastes in particular," Ambassador Bakula added. "Oil was singled out as an important problem in the northern part of the region."

"The studies recommended by the meeting should tell us more about the causes and trends of marine pollution in the region and should serve as the rational basis for administrative and technical measures the Governments may wish to undertake."

"We believe that the proposed Action Plan may soon become a reality," he concluded.



The meeting was jointly sponsored by CPPS, FAO, IOC and UNEP. UNEP has promised to support the Action Plan as part of its Regional Seas Programme. □

SUN AND WIND IN MALTA

Fifteen Mediterranean countries and the European Economic Community have agreed on a regional cooperative plan for the practical use of renewable sources of energy in the Mediterranean.

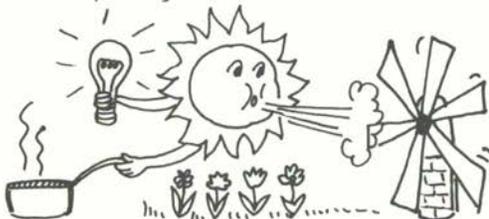
In simple words this means an effort to harness the sun and the wind, and to use biomass consisting of plant and animal matter, on a larger and more efficient scale.

The agreement was reached at a recent five-day meeting (9-13 October 1978) in Malta of experts from Cyprus, Egypt, France, Greece, Israel, Italy, Libya, Malta, Monaco, Morocco, Spain, Syria, Tunisia, Turkey, Yugoslavia and from the EEC.

Two countries made specific proposals. Malta and Turkey offered to host regional Mediterranean centres for renewable sources of energy. It was agreed at the meeting that the centre in Malta would deal with technical assistance and training and exchange of information in the region, while an existing national institution in Turkey would be designated as a regional centre for solar energy research and development.

These recommendations must be approved, however, next February in France at a major intergovernmental conference of the Mediterranean coastal states.

The experts at the Malta meeting, which was co-sponsored and co-chaired by the United Nations Development Programme and UNEP, devoted most attention to the use of solar energy for such purposes as household water and space heating, pumping and desalination of water for drinking and irrigation, drying and preserving of food, and greenhouse cultivation.



Interest was also expressed in harnessing wind power for generating electricity and pumping water, and in the production of biogas from organic wastes for cooking and localized electricity supplies.



"While this is especially important for the developing countries in the Mediterranean," said Stig Andersen, UNDP Assistant Administrator, "vigorous promotion of such use of renewable energy would clearly bring economic benefits to the more industrialized countries as well."

"We now have a framework for exploiting the considerable expertise on renewable sources of energy that exists on both sides of the Mediterranean," added Peter S Thacher, UNEP's Deputy Executive Director.

The discussion highlighted the need for assisting developing countries to establish their energy balance sheets and to integrate the use of renewable sources of energy in their energy development strategies.

It was generally agreed that the potential uses of renewable sources of energy were intimately linked to the social and economic development of the Mediterranean developing countries, most of which are located in arid and semi-arid zones. Two such uses were stressed: water desalination and distillation, and water pumping.

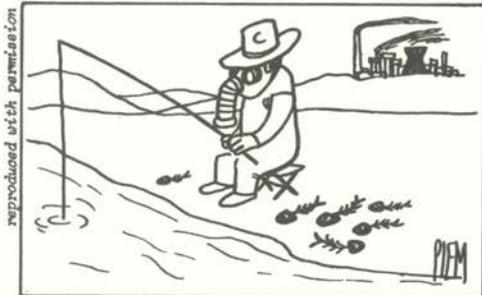
Mr. Andersen expressed UNDP's willingness to supplement the funding of concrete projects that promote regional co-operation and attract financial support from Mediterranean governments.

"It is now up to the governments," declared Dr. Stjepan Keckes, Director of UNEP's Regional Seas Programme, "to move directly to the practical application of the agreements reached in Malta." ✕

THE SIREN is issued four times a year in English and French by the Regional Seas Programme Activity Centre of the United Nations Environment Programme. It is designed as an informal presentation of news from the Regional Seas Programme, but does not present the "official" views of UNEP or its staff.

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Now that the UNEP mission to the West African capitals is on its way (see *The Siren*, June and September 1978), it is a good time to take a closer look at the draft Action Plan which the mission will present to the 19 Governments of the region. The *Siren* asked Patricia Bliss of the Regional Seas Programme to describe it for us.



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action plan under scrutiny

"The Action Plan follows the basic four-part scheme seen in other action plans sponsored by UNEP," Ms. Bliss explained. "The first is the *assessment* of sources of pollution and of their effects on marine life, human health, fisheries, tourism and other activities. The second concerns the *management* of natural resources on a sustainable basis and according to environmentally-sound principles. The legal component of the Action Plan suggests the formulation and adoption of a West African regional *Convention* for co-operation on the protection of the marine environment from pollution. *Institutional and financial arrangements* are also proposed to support the activities agreed as part of the Action Plan."

Careful examination of these four components reveals just how interdependent they are.

"Assessment must underlie all the other activities," continued Ms. Bliss, "since it not only tells us the type and present amount of pollutants entering the coastal waters of the region, but what the particular problems are. The West African region as a whole, each sub-region, even each estuary and lagoon, has its specific environmental character, so one cannot just apply pollution control measures or practices which have been found suitable for, say, the Mediterranean or the Caribbean."

Some of these specific problems were identified in 1976 by UNEP's fact-finding mission to 16 West African countries, and were further clarified by the IOC/FAO/WHO/UNEP Workshop in Abidjan, May 1978.



Oil pollution of coastal waters, mainly from tankers transporting crude around the Cape of Good Hope to Europe, was singled out as a problem for the whole region. Chemical residues from industry and agriculture seem to create considerable problems locally. Untreated or inadequately treated sewage is probably the third major source of pollution and may seriously affect human health directly or through consumption of contaminated seafood.

"We believe that the training of managers and policy-makers will be the key element in controlling pollution in the region," said Mohamed Tangi of the Regional Seas Programme, who is one of the two members of the current mission. "Environmentally-sound management decisions will have to be based on the priorities of the region and on principles which the Governments will have defined as acceptable and applicable. One of the main tasks of the Action Plan will be to assist the Governments in establishing their national policies concerning the continued socio-economic development of their countries."

The envisaged regional Convention may provide the legal backbone for the co-operation of the West African countries in order to protect the long-term environmental interests of the region and to ensure its harmonious development. The Convention may be seen as a mere "declaration of intent," but it may also contain obligations concerning, for instance, measures to be taken in cases of pollution emergencies or measures to control pollution from specific sources.

The first phase of the mission (November - December) included visits to

continued on next page..

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Benin, Gambia, Ghana, Ivory Coast and Togo. During the second (January) and third (February - March) legs the mission plans to visit Angola, Cameroun, Congo, Equatorial Guinea,

Gabon, Guinea, Guinea-Bissau, Liberia, Nigeria, Sao Tome and Principe, Sierra Leone, Senegal and Zaire.

The mission is composed of Mohamed Tangi and Josiah Ofori-Boateng, Chief of the Environmental Law Unit of UNEP in Nairobi. ☺

Kuwait Action Plan Programme Document Ready

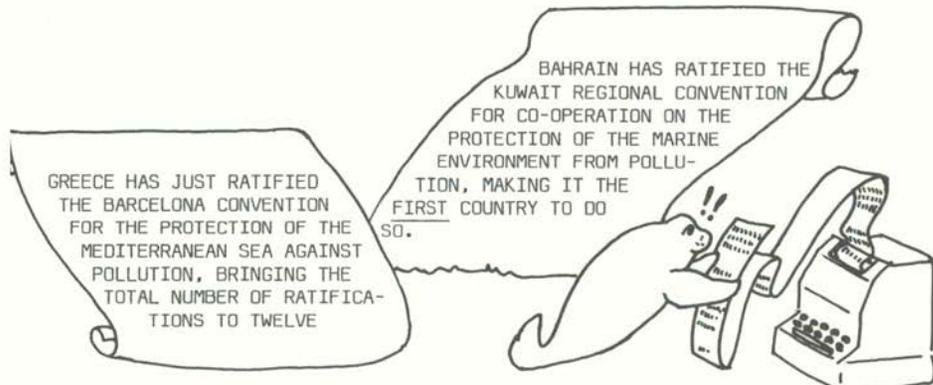
Based on the decisions of last April's Kuwait Conference (see Siren No. 1, June 1978), a programme document has been prepared by the Regional Seas Programme Activity Centre in collaboration with 11 UN Organizations and the International Union for Conservation of Nature and Natural Resources (IUCN). It describes the objectives, background, workplan, timetable, outputs, financial implications and institutional framework of 29 co-operative projects designed to implement the Kuwait Action Plan.

The overall goals of these projects, as defined by the Kuwait Conference, are:

- (1) assessment of the state of the environment, including socio-economic development activities related to environmental quality and the needs of the Region in order to assist Governments to cope properly with environmental problems, particularly those concerning the marine environment;
- (2) development of guidelines for the management of those activities which have an impact on environmental quality, or on the protection and use of renewable marine resources on a sustainable basis;
- (3) providing for supporting measures including national and regional institutional mechanisms and the structure needed for the successful implementation of the Action Plan.

The programme document has been sent to the eight Governments in the region with an invitation to a meeting, planned for 27 January to 1 February 1979 in Kuwait. The meeting will be requested to review the programme, its 2½-year budget of \$6.3 million and to give a green light for starting to work on the proposed 29 projects.

HOT OFF THE WIRES....



the siren goes



GESAMP!

In an organization as large and multidimensional as the United Nations, which includes many specialized agencies and bodies, there is bound to be considerable overlap of interest. Marine pollution, for example, is of serious concern for several of them. Therefore, it is absolutely necessary that the scientific knowledge on which decisions are based be not only of the highest quality and reliability, and a reflection of expertise gathered from all corners of the globe, but that it be consistent within the UN system.

"Another consideration is that marine pollution is such a broad, interdisciplinary field," elaborated Dr. Velimir Pravdić, the present Chairman of GESAMP, "and the information we need as a basis for our reports is quite special in character. While drawn from the pure, deep waters of basic research, it must be served up in a way that renders it useful to decision-makers who are concerned with the most practical of problems. Human health, for instance. Safe seafood and bathing waters. Pollution from seabed exploitation and coastal engineering. Trends in marine pollution. Safe maritime transport of dangerous cargoes. Simple adherence to the law. This is why GESAMP was formed."

GESAMP is actually the acronym for the IMCO/FAO/UNESCO/WMO/WHO/IAEA/UN/UNEP joint Group of Experts on the Scientific Aspects of Marine Pollution. At present it is made up of 20 scientists who serve in their individual capacities, and its

stated purposes are (1) to respond to requests for advice on specific scientific questions submitted by sponsoring organizations, (2) to prepare periodic reviews of the state of the environment as regards marine pollution, and (3) to identify problem areas requiring special attention.



"Since it was established in 1967, there have been ten regular sessions of GESAMP and these have produced an amazing number of reports and studies relating to marine pollution problems," Pravdić stated proudly. "They have covered a wide range of topics of the greatest relevance to marine environmental policy."

Anyone interested in these reports? Write to Dr. Yoshio Sasamura, Administrative Secretary of GESAMP, IMCO, 101-104 Piccadilly, London W14 OAE, England. ☉

Scientists report on the health of the Mediterranean

One hundred and thirteen scientific reports were presented at the pollution workshop jointly organized by the International Commission for Scientific Exploration of the Mediterranean Sea (ICSEM) and UNEP in Antalya, Turkey, from 24 to 27 November 1978.

"The quality and quantity of information made available at the meeting is quite impressive and shows the keen in-

terest of scientists to analyse the causes, trends and effects of marine pollution," noted Dr. S. Keckes, who co-chaired the meeting with Mr. Olivier Le Faucheu, Chairman of ICSEM's Committee "Lutte contre la pollution marine."

The report of the meeting will be presented to Mediterranean Governments at a meeting in Cannes in early 1979 (5-10 February).

the power of ideas

THIS IS THE SECOND PART OF A TWO-PART INTERVIEW WITH DR. SABRI ABDALLA, AN EXPERT ON THIRD WORLD DEVELOPMENT STRATEGIES. THE FIRST PART APPEARED IN THE SEPTEMBER *SIREN*.

... part 2

The Siren: Developing countries seem to get it from all sides—directly from the pollution of developed countries, and indirectly from the belated environmental restrictions which may hinder their own progress. Tourism, however, seems to be one means by which the developing countries can strengthen their economies quickly. Aren't the hoards of tourists from industrialized countries a boon?

Dr. Abdalla: No, quite the contrary. I think that tourism has been one of the biggest pitfalls of development in many developing countries. First, from the purely economic point of view, the system of accounting used for tourists internationally is not adapted to the realities of the Third World. They show benefit where there is none.

Can you give an example?

Certainly. We know that Japan, in 1976, received about 600,000 tourists and sent abroad more than three million. Taking the average expenditure for each tourist, we find that tourism in Japan is a source of deficit rather than benefit. In France, there is an approximate balance, since there are almost as many French tourists abroad as foreign tourists in France. But if you apply the same system to the developing countries, the result is absurd. People of these countries are too poor to afford to travel abroad. We cannot compare the number of tourists from Senegal to those coming to Senegal. This leads to the fallacious conclusion that tourism in these countries is always a source of benefit. And that conclusion is false.

Why is that?

First of all, the calculation does not take into consideration the fact that often what the tourists consume is imported. It must be paid for in foreign currency. This amount should be

subtracted from what the tourists spend to find how much the country actually gets. A 1973 OECD study made these calculations and showed cases of net loss from tourism in developing countries and instances where net revenues were very, very small.

But one sees tourist facilities springing up everywhere in these countries—roads, hotels, airports, water and power supplies. If tourism is generally a losing proposition, why is so much being invested in it?

The idea that tourism is the easiest way to get foreign currency has often led to a misallocation of resources. Investments have been made in tourism to the detriment of other sectors of the economy where the multiplier effect is greater and which could have a greater influence on the overall development of the country.

Does tourism have any benefits?

Again, considering the effects of tourism on the physical and cultural environment, I can see only the damage done. It is amazing how people at home can be civilized, polite, respectful of historical monuments and the landscape, and once they begin traveling, especially in the Third World countries, they become aggressive and destructive. Then there is the influence of tourism on public morality and social values and the growth of prostitution usually associated with it. It's strange, but books on tourism and economy usually list this as a "fringe benefit."

What if the tourists were perfectly well-behaved? Wouldn't there still be a terrific cultural impact on the host country?

Yes, but I'm not against cross-cultural fertilization and the exchange



of ideas and values. These can be very beneficial, provided the partners are equal. At its best, tourism is a wonderful means of contact between people of different cultures. But unfortunately tourism at some point became an industry in the capitalist sense, and dominated by the profit motive. But one can imagine a different kind of tourism, one based on cultural considerations. It could be organized through trade unions, student unions, women's organizations, professional groups, and so on.



What about the tourists who just want to lie in the sun?

One doesn't need to go all the way to Tunisia or Egypt to get a sun tan or to bathe in the Mediterranean. In fact people do go, but usually not for cultural reasons. They go because it's cheaper, and we're back to the case of unequal exchange. The only answer is to reorganize tourism and bring its cultural aspect to the fore.

The Mediterranean region has been described as a world microcosm where all North-South and East-West conflicts are represented, and yet quite satisfactory co-operation has existed among the Mediterranean countries for the three and a half years since the Action Plan was initiated. Do you think that this kind of co-operation can contribute to solving the conflicts which have broken out in the area during the last three decades?

The legal debate, dialogue and negotiation going on in the Mediterranean between the North and South is a rather privileged case of the usual confrontation between industrialized and Third World nations. This is because the Mediterranean has always been a place of exchange, though not always peaceful.

Never has there been complete isolation between the South and North, and this historical background has left its impact. The southern Italian can, in many respects, be more like an Egyptian than a Milanese. This common heritage is helpful in the efforts of Mediterranean peoples to find new methods of co-operation and co-existence, and success is more likely here than in most parts of the world. This, in spite of the fact that the countries involved are so different with respect to ideology and political allegiance. It is a fascinating and exciting exercise.

Some results of the Blue Plan as a prospective survey of development and environment in the Mediterranean will be available by the end of 1980. This will represent a tremendous amount of information on socio-economic activities in the Mediterranean region. Information is a tool which can be exploited for different ends. Do you consider justified the fear of some less-developed countries that the detailed socio-economic data made available might be used by others for different purposes from those of the protection of the environment and rational management of natural resources?

Of course, I am sure that they will be used for other purposes. But there is no point in hiding one's head in the sand like an ostrich. One should realize that in the international order of today those who are interested in such information have many other means of getting it. This information is available to the major secret services and multi-national corporations of the world. However, it is not available to the developing countries or to the average research workers in the Mediterranean. So, publicizing such data can only be helpful, because in this way we make it available to people of good will who want to make use of it.

"Monitoring is basic. There is no way that any sort of environmental planning or management can take place without it. We have to know what the physical, chemical and biological characteristics of our environment are, and how these are changing, before we can attempt to evaluate or influence them."

Dr. Francesco Sella was describing the purpose of GEMS, the Global Environmental Monitoring System, which is part of UNEP's Earthwatch programme. He is the director of the GEMS Programme Activity Centre in Nairobi.

A LOOK AT GEMS

When the Siren asked Dr. Sella to define monitoring, he replied, *"monitoring is systematic observation, measurement and evaluation of variables that determine the state of the environment. Comparable methodologies must be used to produce consistent and comparable data. It is important that these methodologies be particularly well-defined in a programme such as Earthwatch, which must work with data collected all over the world by many different individuals!"*

Although established as part of UNEP, GEMS has become a joint effort on the part of the world community, encompassing the United Nations family (especially FAO, UNESCO/IOC, WMO and WHO), national Governments and any concerned organizations with relevant data to contribute. Thus, through GEMS a truly global system of data gathering is foreseen.

GEMS is particularly concerned with four main types of activities:

(1) Health-related monitoring and assessment of air pollution in urban areas, of water quality, of food contamination and of exposure to pollutants through biological monitoring;

(2) Climate-related monitoring of background levels (i.e. at sites far from pollution sources) of turbidity, CO₂, and other pollutants that may affect the amount of solar radiation received by the earth and so affect the climate. Measurements of other variables such as ocean-surface temperature, and extent of snow cover of glaciers that may affect the climate or reflect climate changes are, or will soon be, included in this group of activities.

(3) Monitoring and assessment of long-range transport over Europe of pollutants (primarily sulfur oxides and the resulting sulfuric acids and sulfates) which, through the acidification of rains, induce damage to some freshwater ecosystems in northern Europe and may damage vegetation and crops;

(4) Monitoring of soil and vegetation cover which includes an assessment of soil degradation hazards, an assessment of tropical forests and inventories of forest cover and of rangelands in some West African countries.



Monitoring related to marine environment is the fifth major group of activities contributing to GEMS. It is increasingly the responsibility of UNEP's Regional Seas Programme.

The Siren was curious to know what progress has been made so far in these programmes, especially as they relate to marine pollution in general and UNEP's Regional Seas Programme in particular.

Dr. Sella replied, "The monitoring which is being carried out as part of the Co-ordinated Mediterranean Pollution Monitoring and Research Programme (MED POL) has already begun to provide a great deal of information on the amount of trace metals, petroleum, and chlorinated hydrocarbons in the Mediterranean. We expect similar contributions from other regional seas programmes as they develop.



FRANCESCO SELLA

"Monitoring programmes organized in the framework of these programmes are mostly restricted to coastal zones. Therefore the scientific rationale and the technical feasibility for baseline studies and monitoring of the open oceans were examined. It is likely that this activity will start with intercalibration of analytical techniques

to assure the comparability of data and will be based, in its initial pilot phase, on monitoring of a few selected parameters on a small number of stations in the Atlantic."

Another programme under way involves the monitoring of oil pollution in selected ocean waters, especially along main shipping lanes. This is termed the "Integrated Global Ocean Station System (IGOSS)", and was jointly organized with IOC and WMO. ☞

TOLBA'S VIEW



Dr. Mostafa K. Tolba, Executive Director of UNEP, in a recent interview with Marc Ambroise-Rendu of Le Monde, had this to say about GEMS:

"GEMS is not so much a system as a series of systems. One of them observes changes in climate. It operates under the supervision of the World Meteorological Organization. Another system monitors (fresh) water pollution. It is under the auspices of the World Health Organization. There is also a network of stations co-ordinated by the Food and Agriculture Organization monitoring changes in tropical forests.

"Governments and we ourselves at the UNEP have been over-optimistic in expecting rapid results from the complex worldwide system. We first have to establish whether data collected in, shall we say, France, Burundi, Egypt and West Germany are comparable or not. In my opinion, we are unlikely to get the first concrete results on the state of the environment until 1982."

The interview was published on October 3 in the monthly supplement EUROPA (Vol. VI, No. 1), which appears in Le Monde (France), La Stampa (Italy), The Times (Britain) and Die Welt (West Germany). Copies may be obtained from The Siren.

MARICULTURE TEAM BEGINS JOURNEY

"Increased production of food from the sea is just one purpose of the planned Mediterranean mariculture programme," declared Mohamed Tangi, UNEP's officer in charge of the Mediterranean Action Plan's socio-economic activities. "It could also be a significant source of employment, especially in developing countries."

A mission jointly launched by UNDP, FAO and UNEP to Mediterranean countries has just returned from the first part of its trip, having visited Cyprus, Egypt, Greece and Turkey. By the end of January 1979 the mission should have visited all the Mediterranean countries which have expressed an interest in participating in the programme.

"The purpose of the mission is multiple," explained Dr. Miroslav Zei, the Director of the Marine Biological Station in Portoroz (Yugoslavia) and a member of the four-man mission. "Our first job is to help the countries we visit to select suitable locations for mariculture production centres and for the pilot projects which will help determine the most appropriate technologies for a particular area and their economic feasibility."

"After that, we must identify the monitoring, research and training activities needed to develop these centres. And finally, we will determine as best we can the specific needs of the proposed centres - such as equipment, personnel and technical assistance - and draw up a detailed work plan and budget for each installation,

"This is no simple task," Zei added, "but by the time this work is completed, about six months from now, we should have a pretty clear picture of the future of mariculture in the Mediterranean."



Mariculture is one of the activities of the Priority Actions Programme, which, along with the Blue Plan, constitutes the socio-economic component of the Mediterranean Action Plan (See SIREN No. 1).

UNDP
and
UNEP
join
forces



The United Nations Development Programme (UNDP) decided recently to take a more active part in the UNEP-sponsored Mediterranean activities. The Priority Actions Programme (PAP) of the Mediterranean Action Plan was identified as a potentially fruitful field of this collaboration.

As the co-ordinator of the joint UNDP/UNEP co-operative projects in the Mediterranean, Roger Booth, former Assistant to the Administrator of UNDP (1972-1974) and UNDP Resident Representative in Iran (1974-1978) was selected by UNDP. "UNDP has supported a number of projects in Mediterranean countries which had a strong environmental component and our joining forces with UNEP on projects related to development activities is a very logical step," said Roger Booth. "The PAP, envisaging practical co-operation of the coastal states in fields such as aquaculture and renewable sources of energy, is definitely of the greatest interest to us. In co-operation with UNEP's Regional Seas Programme we have launched preparatory activities which we hope will lead to a regional or several sub-regional projects on utilization of non-conventional energy resources and on development of mariculture."

Looking to the future, Roger Booth envisaged UNDP involvement in other PAP activities. "Utilization of freshwater resources, human settlements and health may be our next targets," he declared.

continued from p. 7

If you had tried to organize co-operation among the Mediterranean countries for the protection and development of their common heritage, of their "Mare Nostrum", would you have followed an approach similar to the Mediterranean Action Plan?

To be fair, I have never worked for the UN and I am not familiar with its machinery. So, it is hard for me to imagine what I might or might not have done. I can only stress my belief in the need for expanded, detailed research and information about the present state of the Mediterranean Basin, the projection of present trends, and especially imaginative work on alternative solutions for our problems. It is not enough to say that tankers are polluting the sea. We must go a step further and look at other energy sources besides oil. But then what about nuclear energy and its wastes? This is a promising and exciting aspect of the whole problem. This is the kind of exercise which can keep the interest

of the public at a high level and open the way to alternative solutions.

What do you personally feel are the chances of success of the Mediterranean Blue Plan?

I must confess that I am fascinated by the possibilities, but at the same time I am afraid that such a programme may not live up to its promises. I have been helping to set the stage and we have the actors, but we do not yet have the script. There is a famous play by Pirandello called "Six Characters in Search of an Author." I feel that the Blue Plan is rather in a similar situation, which is very stimulating for people who are interested in ideas. But there is a real risk that the final results cannot live up to our expectations.

Perhaps it is really more like the Italian XVIIth Century Commedia dell'Arte, where actors improvise the words and actions to a preconceived plot. You may feel at the very beginning that it will all turn out well, but you can never really be sure. ☺

—Mediterranean Parliaments Back Action Plan—

Members of Parliament from most of the 18 Mediterranean coastal states, meeting in Athens 9 and 10 October, wholeheartedly endorsed UNEP's Mediterranean Action Plan to save their sea from pollution and to ensure environmentally-sound development.

The two-day meeting in the Greek Parliament was sponsored by the Inter-Parliamentary Union (IPU).

The Parliamentarians urged IPU to "encourage their Parliaments and Governments to participate actively and constructively in the efforts of UNEP for the rapid adoption of a third protocol concerning pollution from land-based sources" (industrial waste, municipal sewage, agricultural pesticides and fertilizers).

In another resolution the IPU Subcommittee for the Study of the Means to Control the Pollution of the Mediterranean Sea called upon Mediterranean Governments and Parliaments to "contribute urgently to the Mediterranean

Regional Trust Fund to ensure the continuation and development of activities to combat the pollution of the Mediterranean."

Still another resolution urged "close co-operation with UNEP and the international organisations concerned in carrying out pilot projects for the studying and monitoring of pollutants in the Mediterranean Sea, and taking an effective part in helping to find ways and means of ensuring that the national laboratories designated for that purpose may participate actively in the work of the pilot projects."

The IPU meeting recommended "zonal agreements" to combat regional pollution, along the lines of the French-Monégasque-Italian RAMOGE accord, and the Italo-Yugoslav and Italo-Greek agreements.

It also suggested declaring the year 1980 "Year of the Mediterranean, sea of civilization."

Participating Parliamentarians came from Algeria, Cyprus, Egypt, France, Greece, Israel, Italy, Monaco, Morocco, Spain, Syria, Tunisia and Yugoslavia. ☺



Caribbean workshop on pollution from ships

Forty-two experts from 17 Caribbean independent states and dependent territories met recently in Cartagena, Colombia (23-27 October) with the aims of identifying pollution problems in the region caused by ships and considering possible ways to deal with them. "Naturally, the discussion focused on oil pollution," reported Dr. Jon Wonham, Marine Pollution Adviser for the Inter-Governmental Maritime Consultative Organization (IMCO) and one of the experts who conducted the workshop. "This is certainly the most prevalent problem associated with maritime transport."

Participants examined such matters as the effects of oil spills on the open ocean, harbours, estuaries and rivers; the likelihood of a spill in any particular country and its most probable location; problems of cleanup and containment after a spill; the behavior of oil in the environment; appropriate disposal methods and possible preventive measures.



"A large part of the workshop's time was devoted to a review of the status, implications and means of enforcement of existing international law," added Dr. Wonham, "especially the 1954 Oil Pollution Convention as amended in 1969, and the 1973 Marine Pollution Convention and 1978 Protocol, as well as Conventions concerning Intervention (1969), Liability and Compensation (1969 and 1971). But we also discussed possible national arrangements - their technical problems and legislative and financial implications, and the setting up of contingency arrangements in the case of massive oil spills."

The International Workshop on the Prevention, Abatement and Combating of Pollution from Ships in the Caribbean was organized by IMCO and the Government of Colombia, and was sponsored by UNEP.

COMING EVENTS

DATE	LOCATION	TITLE	ORGANIZER(S)
Nov 78 - March 79		Mission to Mediterranean Countries on the Regional Mariculture Co-operative Programme	UNDP/FAO/UNEP
Dec 78 - March 79		Mission to West Africa to present the draft Action Plan to Governments of the region	UNEP
17-19 Jan	Rome	Workshop on monitoring of recreational coastal water quality and shellfish culture areas	WHO/UNEP
27 Jan - 1 Feb	Kuwait	Meeting of Government Experts to review the programme document of the Kuwait Action Plan	UNEP/UN Specialized Agencies
1-3 Feb	Cannes	Meeting of National Focal Points on the Mediterranean Blue Plan	UNEP/MEDEAS
5-10 Feb	Cannes	Intergovernmental Review Meeting of Mediterranean Coastal States and the First Meeting of the Contracting Parties to the Convention for the Protection of the Mediterranean Sea Against Pollution and its Related Protocols	UNEP
5-9 March	Geneva	Meeting of technical experts on the draft protocol for the protection of the Mediterranean Sea against pollution from land-based sources, and meeting of juridical experts on the draft protocol (tentative)	WHO/UNEP
18 April - 4 May	Nairobi	Seventh Session of UNEP Governing Council	



THE SIBER

news from UNEP's Regional Seas Programme

ASEAN gives go-ahead

Environmental experts from the five member nations of the Association of South East Asian Nations (ASEAN) met recently (18-20 December 1978) in Jakarta to consider the proposed ASEAN Sub-regional Environment Programme (ASEP).

"The Governments of Indonesia, Malaysia, the Philippines, Singapore and Thailand have shown determination to develop a programme for management of their seas," explained Dhira Phantumvanit, UNEP's Regional Adviser for the area. "They decided that steps were urgently needed to set up a scientific programme involving pollution research and monitoring and its subsequent prevention and control.

"A major purpose for this meeting," he went on, "was to have the experts identify specific projects for regional collaboration. Working groups were formed to discuss the subjects of marine environment, rural and urban development, environmental education, environmental planning and development, nature conservation, and the social aspects of environmental development. The experts finally identified four areas to be given top priority, namely (1) protection and management of their marine environment, (2) environmental development, especially the development of methodologies for environmental impact assessment, (3) water and urban air quality monitoring, and (4) pollution control technologies."

The experts requested special assistance from UNEP in the formulation of an action plan for the ASEAN region. UNEP's immediate response was to organize a mission to the region whose responsibility it will be to draw up an initial draft of the plan according to the advice and guidance

of regional experts. Dr. Richard Helmer, Deputy Director of UNEP's Regional Seas Programme (see box, page 2), undertook this mission during March, 1979.

Another key recommendation that emerged from the meeting deals with the creation of a sub-committee on environment under the Committee on Science and Technology of the ASEAN Secretariat. "Besides being responsible for the co-ordination of co-operative environmental programmes in the ASEAN region," explained Phantumvanit, "the committee will be charged with the task of making sure that environmental considerations are incorporated into all of the policies and programmes initiated by ASEAN."

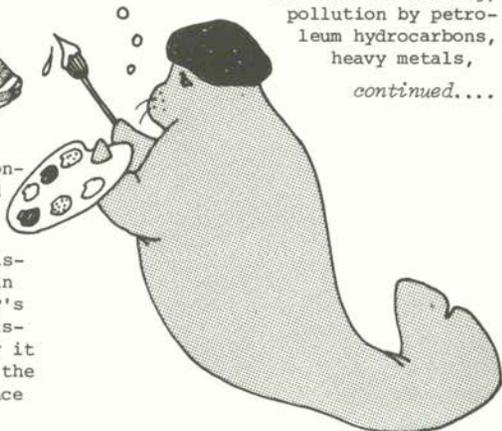
UNEP was also requested to prepare project proposals for ASEAN case studies on selected topics related to the four priority areas.

Richard Helmer had the following comments on the meeting report:

"Naturally, the part of ASEP which deals with the marine environment is of special interest to us at Regional Seas. The report clearly delineates those problems related to marine environment which the experts consider most pressing -- siltation and sedimentation; organic

and nutrient loading; pollution by petroleum hydrocarbons, heavy metals,

continued...



organochlorine pesticides and PCBs; and thermal pollution. It also emphasizes the need for water quality standards for effluent discharge, and urges that special consideration be given to the protection of mangrove and coral ecosystems and areas where seabed oil exploration and exploitation, submarine pipelines and nuclear power installations are to be found."

Several recommendations deal with specific actions to be taken, such as the establishment of training programmes, workshops and seminars for scientists and technicians involved in research and monitoring projects. A call is made for laws and regulations to protect the marine environment and for water quality standards. "Special mention is made of the necessity of intercalibration exercises for heavy metal, petroleum hydrocarbon and organochlorine analyses," notes Helmer. "This underlines the experts' determination to give ASEP a firm and valid scientific base for the policy decisions and legal instruments which must follow.

"I'd like to point out an aspect of the recommendations which I find especially interesting," Helmer added. "That is simply the degree to which they fit into the basic design of the action plans we have developed for the other Regional Seas. In every case, a tripartite structure tends to emerge, consisting of scientific assessment, environmental management and legal components, accompanied by the necessary support measures. That such a pattern is the consistent result of independent processes in various areas of the world is, I hope, an indication that the philosophy which underlies UNEP's approach to these complex and seemingly universal problems is a sound one." ☒

HELMER SIGNS ON

Dr. Richard Helmer has just joined the UNEP Regional Seas Team as its Deputy Director. He has been seconded from the World Health Organization, where for several years he worked



in the Environmental Health Division on various water pollution problems in fresh water and coastal areas. His major tasks were to set up a global network of fresh water monitoring stations for GEMS (see Siren no.3) and to develop coastal water quality control projects.

Prior to joining WHO, Dr. Helmer was engaged in research on advanced wastewater treatment at institutes in the Federal Republic of Germany and Switzerland. He has authored a number of articles and textbooks on pollution control technology and related subjects.

"In every major human undertaking there are two essential ingredients: imagination and determination, and one without the other is of no consequence."

--Dr. Mostafa K. Tolba, addressing the Intergovernmental Review Meeting of Mediterranean Coastal States (5-10 February, 1979).



THE SIREN is issued four times a year in English and French by the Regional Seas Programme Activity Centre of the United Nations Environment Programme. It is designed as an informal presentation of news from the Regional Seas Programme, but does not represent the official views of UNEP or its staff.

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FOUR RATIFY KUWAIT CONVENTION

Bahrain, Iraq, Kuwait and Qatar have ratified the Kuwait Regional Convention for Co-operation on the Protection of the Marine Environment from Pollution.

"Ratifications are proceeding at record pace," says Patricia Bliss, programme officer for legal aspects of the Regional Seas Programme. "Four States of the region have ratified in the ten months since the Kuwait Conference, which is a good deal faster than these things usually happen. And we're optimistic that a fifth State will follow suit in the near future, bringing the Convention into force."

WEST AFRICA REACTS FAVORABLY

Government representatives, scientists, lawyers and technicians from Benin, Cameroon, Gabon, Gambia, Ghana, Ivory Coast, Liberia, Senegal, Sierra Leone and Togo have reacted favorably to the draft Action Plan for the Protection and Development of the Marine Environment and Coastal Areas of the West African Region. A UNEP mission which has visited these countries lately reports that although dealing with environmental problems, in particular marine environmental problems, is not a top priority in most parts of West Africa, concerned government authorities are nonetheless anxious to launch a regional co-operative effort to reduce present sources of pollution—such as pollution by hydrocarbons, sewage, organic and industrial wastes—and to avoid additional degradation by rational exploitation of their marine and coastal resources.

By May, 1979, the UNEP mission will have visited almost all the countries of West Africa.

"Judging from the positive reactions received so far, the steps taken to organize and launch activities aimed at the protection and development of the marine and coastal areas of West Africa may be considered as a timely initiative," declared Mohamed Tangi, a member of the mission (see Siren Nos. 2 and 3).

Caribbean directory, overview on the way

A Directory of marine research centres in the wider Caribbean region is being prepared by UNEP in co-operation with the Secretariat of the IOC Association for the Caribbean and Adjacent Regions (IOCARIBE). The Directory will describe the staff, achievements, work-plans and facilities of the various research institutions in the region. Its prototype, the Directory of Mediterranean Marine Research Centres, has proved an invaluable source of information and guidance to environmental scientists and planners in that region, and UNEP foresees publication of similar directories for each of its Regional Seas.

Work has also begun on a marine pollution overview for the wider Caribbean area. The overview will be prepared in collaboration with several international organizations active in the region, and is intended to provide a general picture of the state of pollution of Caribbean waters, including (1) a description of water mass dynamics and marine and coastal ecosystem distribution, (2) a survey of the types, sources and levels of industrial, domestic, agricultural and river-borne pollutants, (3) a look at the effects of these pollutants on human health, ecosystems and socio-economic activities, and (4) a review of administrative and legal tools for pollution control. The overview will be accompanied by a separate paper on the special topic of oil pollution, its sources and its environmental and social impact.

"The Directory and the pollution overview are parts of the preparatory activities leading to a comprehensive plan for the development and protection of the Wider Caribbean region," said Dr. Arsenio Rodriguez, a member of the joint ECLA/UNEP team co-ordinating these preparations from Trinidad.

"Surveys on these and many other topics will be presented to a meeting of experts from the region which will be called later this year to discuss the first draft of the action plan."

For further details, see Siren no.3.



Med Action Plan in the hands of the Mediterranean Governments

Representatives of 17 Mediterranean Governments and the European Economic Community agreed to a programme of co-operation for the next two years (1979-1980) and by establishing a 3.28 million dollar Trust Fund took over the major responsibility for the Mediterranean Action Plan. These are the encouraging results of the recent (5-10 February) Intergovernmental Review Meeting of the Mediterranean Coastal States in Geneva, which was also the First Meeting of the Contracting Parties to the Barcelona Convention (at present 14).

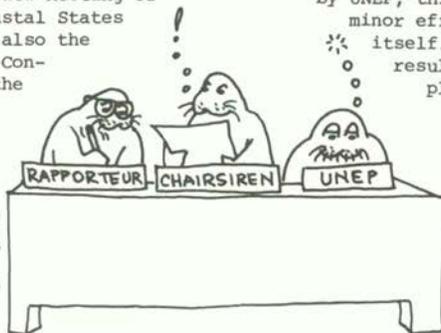
"By placing the Action Plan on a sound financial base," commented Dr. Mostafa K. Tolba, Executive Director of UNEP, "the Mediterranean States are continuing the co-operation they began at Barcelona in 1975. There can be no better proof of their determination to assume full responsibility for what is, after all, their programme."

Delegates to the meeting approved a two-year work programme and budget for 1979 and 1980 of 6.4 million dollars. Of this sum, half will come from the

countries, 25 per cent will be given by UNEP, and the other quarter is represented by contributions in services, staff and facilities from the dozen international organizations participating in the Action Plan.

Although the approved budget falls \$800,000 short of the budget proposed by UNEP, this will have only a minor effect on the programme itself. "The practical result of this cut," explains Stjepan Keckes, Director of the Regional Seas Programme, "was to assign a lower priority to only three out of 13 proposed projects. Everyone --and I believe this includes all those participating in the Action Plan-- should be encouraged and satisfied with the outcome of this meeting. It has clearly demonstrated that nobody wants to stop the wheels which started to turn four years ago in Barcelona."

The meeting, chaired by H.E. Ridha Bach Baouab of Tunisia, was charged with reviewing the progress made so far by the Action Plan.



BLUE PLAN GETS A PUSH

"Financial and administrative difficulties have somewhat hindered the initial phase of the Blue Plan," explains Mohamed Tangi, UNEP's officer-in-charge of the Mediterranean Action Plan's socio-economic activities. "Work during this phase includes a systematic survey of major development and environment protection activities in the Mediterranean, coupled with a careful study of development trends as observed from data contributed by the Mediterranean States themselves. We've got to move ahead quickly with these very basic activities, and with setting up the channels of information exchange crucial to the programme."

The Intergovernmental Meeting indicated practical solutions to some of the problems which have so far hampered the progress of the Blue Plan, and alleviated its financial difficulties with an allocation of one million dollars for the next two years.

The Centre d'Activités Environnement-Développement en Méditerranée (MEDEAS) in Cannes, which was selected as the Regional Activity Centre for the Blue Plan, is expected to play a key role in bringing the Blue Plan to life.

MED POL SEES CUTS; ORIGINAL PROJECTS INTACT

Delegates were in complete agreement as to the need to continue the original seven pilot projects of the pollution research and monitoring programme (MED POL) without substantial changes in methodology, along with the project providing intercalibration and maintenance services. These projects are expected to lead to a long-term pollution monitoring and research programme to be drawn up during the next two years. The long-term programme should ensure systematic and regular information on the sources, amounts, levels, pathways and effects of pollutants in the Mediterranean basin.

Support was also given to MED POL projects dealing with riverborne pollutants and with the evaluation of land-based sources of pollution. The meeting urged that work be continued on the development of environmental quality criteria for (1) recreational waters, (2) waters used for aquaculture and (3) seafood. Funds permitting, this may lead to the drafting of a model code of practice for the discharge of waste from land-based sources into the Mediterranean Sea.

Open-water monitoring, research and monitoring relevant to airborne pollutants, as well as modelling of the biogeochemical cycles of pollutants did not receive unanimous support at the meeting and work on these three projects, in the framework of the Mediterranean Action Plan, will have to wait.

"Major efforts this year and next will be devoted to analysis of the results which have started to flow in regularly, to the strengthening of the national marine laboratories co-operating in MED POL, and to the formulation of a long-term pollution research and monitoring programme," says Dr. Keckes. "The financial and other considerations which led to the postponement of work on three out of the 13 MED POL projects are unfortunate, but not surprising. No one sees this as a major setback."

PAP accelerates

Two of the six original projects of the Priority Actions Programme (PAP) are well under way, and the Intergovernmental Meeting recommended their continuation along the same lines. They involve Mediterranean co-operation in development of mariculture and renewable sources of energy (see Siren nos. 1 and 3).

The new UNDP/UNEP unit in Geneva (see Siren no.3) is behind these projects and may encourage fresh initiatives in other PAP projects approved by the meeting.

Feasibility studies are to be carried out for new projects on soil protection (emphasizing problems associated with erosion and desertification), human settlements, fresh water resources and tourism.

"The PAP has been designed to complement the Blue Plan," emphasizes Mohamed Tangi. "You might call it a practical demonstration that 'environmentally-sound development' is in fact possible and more than

just a nice idea. Without PAP, the Blue Plan might fail to convince many people that the theory of sustainable development not only can work but has an extremely pragmatic base. With these projects, we're putting theory into practice."

The Town Planning Institute of Dalamtia in Split has been selected to assist UNEP and UNDP as the Regional Activity Centre for PAP.





treaty partners urge last ratifications

The fourteen Contracting Parties to the Barcelona Convention and its related protocols strongly urged the five remaining states to ratify these vital legal agreements as soon as possible. They also urged the Mediterranean States which have not already done so to ratify the global IMCO conventions on the prevention and control of marine pollution from ships.

"The political will demonstrated by the majority of the eligible parties in ratifying the Barcelona Convention is encouraging," says Patricia Bliss, programme officer of the Regional Seas Programme. "The unanimous agreement to continue the difficult negotiations for a treaty on pollution from land-based sources, and the decision to examine the need for another treaty on special protection for selected marine and coastal areas, are unmistakable signs



of the political commitment of the Mediterranean States."

Other legal matters discussed at the Meeting concern the development of a treaty relating to pollution from the exploration and exploitation of the sea bed, the study by a group of experts of the possibility of establishing an Inter-State Guarantee Fund, and the formulation of procedures for determining liability and compensation for pollution caused by violations of the Barcelona Convention and its protocols.

ROCC cleared for action

The Regional Oil Combating Centre, officially inaugurated in December 1976 in Malta, won the Meeting's full support. In the future, the Centre's activities will focus on the gathering and dissemination of information, the training of those responsible (at the national level) for combating accidental oil pollution, and improving the reliability of communication links with national centres dealing with oil pollution. The Centre is also expected to provide assistance in developing national, bilateral and multilateral plans for actions in emergency situations.

—UNEP and the MEDITERRANEAN ACTION PLAN—

Peter S. Thacher, UNEP's Deputy Executive Director, explained UNEP's involvement in the Mediterranean Action Plan and the reasons behind UNEP's gradual withdrawal of its financial support for the Secretariat of the Action Plan:

"UNEP agreed to act as the Secretariat of the Barcelona Convention and in this capacity to co-ordinate the Mediterranean Action Plan. This is accomplished through a small UNEP unit which simply tries to carry out the decisions of the Governments supporting the Action Plan. However, we must realize that not only does UNEP have limited funds in its oceans programme, but within that programme it has an obligation to countries which border several other 'Regional Seas.'

"In each region our role is to get the particular programme started, to mobilize the assistance of the specialized organizations of the UN

system, and to provide funds needed to initiate such a programme. But ultimate responsibility for each regional action Plan must be shared by those who benefit from it - the bordering states. The Mediterranean Action Plan is, above all, a co-operative programme conceived and controlled by the Mediterranean countries. And these countries can take great pride in the way they have shown their willingness to assume increasing responsibility for their Action Plan. What is considered a traditional sea of conflicts is fast becoming an area of inspiring co-operation."

TWO MORE RATIFICATIONS!

Libya and Italy have recently ratified the Barcelona Convention. This brings the number of ratifications to fourteen.

RED SEA PROJECT REVIEWED

A joint review meeting between representatives of the Arab League Educational Cultural and Scientific Organization (ALECSO) and the Regional Seas Programme will be held in April, 1979, to discuss the nature of future collaboration in the Red Sea.

Further information on the Red Sea project can be found in Siren No. 2.

At present, the Contracting Parties to the Barcelona Convention, and their dates of ratification, are:

EGYPT	24 August 1978
EUROPEAN ECONOMIC COMMUNITY	16 March 1978
FRANCE	11 March 1978
GREECE	3 January 1979
ISRAEL	3 March 1978
ITALY	3 February 1979
LEBANON	8 November 1977
LIBYAN ARAB JAMAHIRIYA	31 January 1979
MALTA	30 December 1977
MONACO	20 September 1977
SPAIN	17 December 1976
SYRIA	26 December 1978
TUNISIA	30 July 1977
YUGOSLAVIA	13 January 1978

SIRENS OF THE WORLD

Aquatic mammals of the order Sirenia are commonly known as manatees or dugongs. Due to their appearance and herbivorous habits, they are also called "sea cows."

Four species of sirenians exist today: there is a single species of dugong, found in the Indo-Pacific, and three species of manatee, found in West Africa, the Amazon and the Caribbean. Another species, called Steller's sea cow, became extinct in the eighteenth century, with man's help.

The four existing species are considered vulnerable and one, the Amazonian manatee, in imminent danger of extinction. International efforts are under way to give legal protection to all.

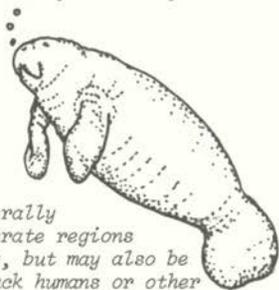
Sirenians are endangered owing to a combination of factors, including the animals' low birth rate and their overexploitation by humans for food and oil. Quite a bit of "accidental" mortality occurs, resulting from their capture in shark nets, being struck by boats, etc. Also, their habitats are being rapidly destroyed, and a great many of these beasts, who live in such proximity to man, are victims of general harassment.

"Sea cows" eat shallow-water plants, and so spend their time in coastal marine, estuarine and freshwater habitats, often venturing quite far inland. They are generally intolerant of cold temperatures, but can be found in temperate regions during the warm summer months. They tend to swim in herds, but may also be found singly. They're gentle creatures, and will not attack humans or other animals even when their calves are threatened.

Among sirenians' favorite activities are body surfing and playing follow-the-leader. But most of their time is spent eating, since they must maintain up to four meters of gigantic body, which can weigh more than 1,000 kilos. An average daily ration has been estimated at 50 kilos of vegetation, and in some areas thought is being given to using manatees to keep canals clear for navigation.

Of course UNEP's Siren is a fictional sirenian. But these gentle, endangered giants seemed an ideal symbol for the newsletter of the Regional Seas Programme.

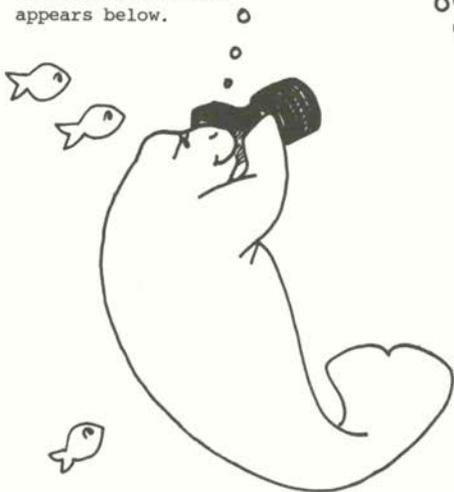
Long live the Sirens!



INTERVIEW: the Cap'n speaks on

POLLUTION and PROGRESS

On a recent winter's day, the Siren was lolling about in her favorite lagoon, munching water hyacinths, when she spied a silver glint in the distance. She investigated, and coming closer to the object she saw that it was a reflection off the aqualung of one of her oldest friends. "Jacques," she cried, "welcome back!" And, seizing the opportunity and her notebook, she persuaded her visitor to submit to the interview which appears below.



The Siren: For the record, Captain, how would you describe yourself? As an explorer, an inventor, a scientist or a sailor?

Cousteau: Mostly, I'm an extrovert. That means I'm concerned with the relationship between human beings and the outside world, and I really have little time for introspection and self-definition.

S: So it's up to us to describe you?

C: Well, you might say that for most of my life I've been an explorer, but lately I've turned my attention more and more to conservation. I still explore, but to serve the cause of conservation.

S: But you're also an inventor. You did invent that aqualung, didn't you?

C: Yes, but I didn't set out to invent something. I simply needed a tool which did not exist, so I made it.

S: I could use one of those myself, sometimes, especially with all these motorboats about. What about science.. aren't you also a scientist?

C: Oh, no. I have no science degree. I received my training at the French Naval Academy.

S: How long have you been diving?

C: With aqualung, since 1936. But I've been skin diving--just holding my breath--since 1920 when I was 10. And I plan to dive until the day I die. As you, of all creatures know, it's really not such a stress if it's done properly. And I make sure I keep myself in good condition by running and exercising every day.

S: Where are your favorite places to dive?

C: There is always something new to see wherever you are, so my interest is as great in the so-called "poorest" areas as on a coral reef.

S: How do you feel about, um, spearfishing?

C: I was first attracted to diving by a Greek diver in 1935. He was famous for going down with goggles and a bow and arrow and spearing fish, and it seemed such a miracle that I just had to do the same thing. But soon I switched to photographing my friends who were spearfishing, and it didn't take me long to realize that the increasing popularity of this sport would soon become detrimental to sea life. In 1947 my friends and I destroyed our spear guns.

S: Right on! But really, how are the effects of spearfishing so different from those of hook and line fishing?

C: The way I see it, anglers contribute to natural selection, since only stupid fish take the line. When diving, I enjoy watching what fish do around a hook. Most of them, the smart ones, just smell the bait and don't bite. On the other hand, trawl nets do a lot of harm since they take everything without discrimination, even when only a small part of the catch has commercial value. And sometimes not even enough escapes to repopulate the species.

S: And spearfishermen? Fisherpersons?

C: They really finish the job. Only they can pursue the fish into their homes, into their caverns and shelters. They don't just kill fish, but they interfere with their reproductive behavior. My conclusion, after years of observation, is that although spearfishermen are not a major cause of depletion of life in the sea, they can and do have substantial effect on a local scale, especially in the case of rock-dwelling fish.

S: Are you against all forms of fishing for pleasure?

C: My position on this is not as radical as some people believe. I don't claim that sport fishermen do great damage to the sea. I simply cannot comprehend the pleasure that anyone gets out of killing an animal--any animal.

S: How do you feel about marine pollution, which is, after all, just one form of global pollution?

C: I disagree with that statement. All pollution produced on land eventually ends in the ocean, carried there by rain and rivers. If you take a spray can and kill a mosquito on the wall, the pesticide will eventually find its way to the sea, as will the exhaust of your car when rain washes it from the air. There is really only one kind of pollution, and that is pollution of the water system.

S: Many human beings from developing countries consider poverty the worst form of pollution.

C: The word "pollution" has become extremely popular and is misused more

and more often. The man in the street understands pollution as the toxic effluents from industry and from cities, and I believe that this is the definition we should keep.

S: Over the years you've been exploring, have you seen much effect from pollution in, for example, the Mediterranean?

C: We recently finished a cruise around the Mediterranean just to look at what pollution has done there, especially to fisheries. To our surprise, we had to conclude that pollution couldn't account for all the damage we saw. There had to be another factor. This was, we decided, what I can only call the "mechanical aggression" done to the oceans by all sorts of human activities.

S: Such as?

C: Overfishing. Fishing with dynamite. Fishing for large fish with a small-mesh net. Using trawlnets in shallow water where fish lay their eggs. The uncontrolled proliferation of marinas. Coastal development, such as filling the sea with rubble and silt in order to extend the shoreline.

S: Ugh!

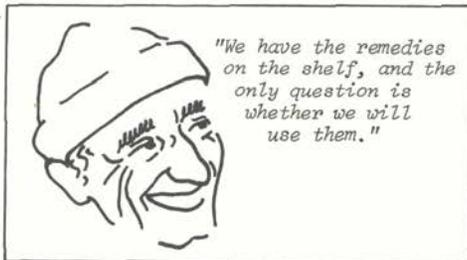
C: Exactly. A lot of damage is done by simple carelessness. In one place in the Mediterranean, the course of a river was changed for industrial purposes, and the river now empties into a coastal lagoon. Now the

wildly fluctuating salinities have produced a situation to which no creature, marine or fresh water, can adapt.

This anarchy in the exploitation of the sea does at least as much damage as pollution, and one multiplies the effect of the other. We must attract the attention of the public to this problem.

S: In the case of marine pollution, though, what can you suggest as a means of reversing the present trends?

C: The best solution is always to eliminate pollution at its source, and not to try to purify the water once it is polluted. We should oblige the factories, even if this requires the aid of public funds, to clean up their effluents to the point where they could



"We have the remedies on the shelf, and the only question is whether we will use them."

be served as drinking water in the cafeteria.

S: *But a lot of humans think that pollution is the price we have to pay for "progress".*

C: I don't like the work "progress" used in this sense. Progress is not necessarily synonymous with "development," and when activities are harmful to the water system, the proper term would be "careless development." We can imagine progress in the quality of our lives with a decrease in the tonnage of products manufactured. For example, when you build a large automobile, you use a lot of steel and energy. Later, you use a lot of gasoline getting somewhere, when you could probably walk just as easily, and be happier for it. Not to mention all the cheaper forms of transportation available. Most of what we see today is really "anti-progress."

S: What's an example of "real" progress?

C: Hmm...how about the miniaturization of electronics. This leads to less and less material being used, less and less energy. Today a little chip can do as much as a huge computer did in the past. That's going in the right direction. Also, soon we'll have three-dimensional video which will save energy and material by decreasing the need for transportation.

S: I don't even have television. But on the whole, are you optimistic about man's efforts to protect the marine environment?



C: It's such a difficult task...there are so many sources of pollution, so many problems to be solved. But we have the remedies on the shelf, and the only question is whether we will use them. I see two major obstacles.

S: They are...

C: For one, the population explosion. That's obvious. The other has to do with the present trend towards nationalism. Even the smallest countries may not want anyone to interfere with what they do. This is where the United Nations has an important role. But so far they have been slow to impose worldwide emergency regulations and to see that these are followed. While the Law of the Sea Conference is giving out big chunks of the sea to border nations, why don't they change the term for these from "economic zones" to "zones of responsibility," and make each country responsible for enforcing environmental regulations in its zone?

S: You sound as if you're not really satisfied with present efforts on the part of citizens, administrators, scientists and governments to do something about the environment.

C: For the most part, no. I am very pleased with the development of public awareness. But I am distressed at the way authorities close their ears to the public. We're still in the Middle Ages in a way, in that governments and authorities consider the public as children, assuming that they will swallow anything they're told. But in fact, today's public is extremely well-informed.

S: But don't you think that many governments and other authorities are beginning to come around, and even to admit past mistakes?

C: Some of them. And I'm certainly willing to let dugongs be dugongs. ☺

----- THREE RETURN FROM ENERGETIC MISSION -----

As a follow-up to the October meeting in Malta on the PAP programme on renewable sources of energy, a mission visited three Mediterranean countries from January 23 to 31, and plans to visit three others in March. The purpose of the trip is to determine how ready, willing and able Mediterranean Governments and national institutions are to participate in the programme, and to discuss the setting up of a network of institutions which would collaborate on technical matters.

During its first phase, the mission visited Syria, Libya and Morocco. Its members were Mr. Roger Booth, Co-ordinator of the Joint UNDP/UNEP Co-operative Projects in the Mediterranean, Dr. Claude Ducret from the Economic Commission for Europe, and Prof. Miho Cerineo, Institute of Physics, Belgrade University.

quotes...

...the agreement on the Mediterranean has caught on. Now the States of the Persian Gulf, the Gulf of Guinea, the Strait of Malacca, and those of the Caribbean, wish to emulate the Mediterranean countries. They, too, want UNEP to help them to come together to organize a common pollution monitoring and control programme. Consequently, UNEP, which has other fish to fry, would like the Mediterranean countries to pay their own bills.

--Marc Ambroise-Rendu, Le Monde of Paris.



- o UNEP is playing a key role in the Arabian/Persian Gulf in the attempt to balance the economically possible with the ecologically viable. In this process the UN agency regards itself as a catalyst and coordinator, its aim being to provide the nations with a forum for negotiation and collaboration. In the Gulf region, at least, it has successfully exercised that function....In the attempt to save the Persian Gulf from ecological disaster the Unep has succeeded in bringing a group of antagonistic neighbors to the negotiating table and has elicited a solemn promise that measures to protect this body of water will be taken. When representatives of the eight Gulf states meet again (in May 1979) to discuss what has been accomplished so far, it will become evident how much was just rhetoric and how much genuine concern.

--Andreas Uhlig in the Neue Zürcher Zeitung of Zurich.

The Mediterranean Sea pollution problem is forging cooperation among countries which otherwise might not have a basis for communication. It is bridging some important gaps...cooperation between developed and developing countries is just one of them. And it is blazing the way for similar action in other seas in the world which will inevitably face similar pollution problems.

-- Sara Mazumdar in The News World of New York City.

In the Gulf of Guinea and the East Asian Seas...the incidence or threat of oil pollution has grown sharply in recent years. This is due not only to the greater degree of large oil tanker movements, but to the growth of offshore oil drilling activities. And coastal areas everywhere are exposed to increasing municipal and industrial discharges.

--Dermot A. O'Sullivan in Chemical and Engineering News, Washington, D.C.

The fragile future of the Mediterranean Action Plan was at last made secure... when the United Nations Environment Programme handed over the financial responsibility for the plan to the nations which signed the Barcelona agreement in 1976.

--Stephanie Yanchinski in New Scientist, London.

...and misquotes



UN ENVIRONMENT Programme has been awarded a new \$6.4m budget to carry on its scheme to fight pollution in the Mediterranean. Seventeen of the 18 states bordering the Mediterranean voted the money to measure pollution levels and study ways of protecting fish breeding grounds. --Financial Times of London.

The Siren replies: Perhaps the Financial Times would be interested in finding out what else is going to be done with that money. All they have to do is to read The Siren to get their facts straight.

continued...

...Misquotes, continued

France, as the largest of the 18 countries, was concerned that its contribution should be well spent, and so devoted considerable efforts to analysing the research plans of UNEP's Regional Seas director, the Yugoslav Stjepan Keckes.

Keckes has developed a 13-part programme of research in the Mediterranean known as "Med Pol I to XIII....

...According to the French delegation, the question was the quality of the research teams that UNEP had put together.

--Robert Walgate in Nature, London.

Keckes comments:

"It is important to correct some of Mr. Walgate's misconceptions regarding my role and the role of UNEP in the Mediterranean Action Plan, specifically MED POL. First of all, let us give credit where it is due: the thirteen MED POL projects are not 'mine' at all; they were conceived, developed, reviewed and re-reviewed, and are now being implemented, by scientists from the Mediterranean countries themselves. This process began in 1974, and the reports from all the expert consultations are available to anyone who is interested.

"As for 'UNEP's research teams,' in fact UNEP has certainly not 'put together' any such group or groups. We didn't set up any laboratories either. That was never our purpose. Rather, our modus operandi is to assist the national laboratories, which have been named by their own governments to participate in MED POL, to bring their capabilities up to a level which allows them to carry out the projects agreed by their governments. We do this in co-operation with a number of specialized UN agencies by (1) organizing training and providing equipment for laboratories in less developed countries, (2) co-ordinating the development of methodologies yielding comparable results throughout the region, (3) organizing intercalibration and maintenance services and (4) analysing the results obtained and disseminating them to all those interested.

"We can't expect instantaneous results, of course...anyone who tried to organize a MED POL-type exercise with 83 labs in 16 countries would understand that."

COMING EVENTS			
DATE	LOCATION	TITLE	ORGANIZER(S)
April	Cairo	Joint Programming Session with ALECSO	UNEP
19 April- 4 May	Nairobi	Seventh Session of the UNEP Governing Council	UNEP
19-23 May	Kuwait	Expert Group Meeting on the Kuwait Action Plan	UNEP
25-29 June	Geneva	Meetings of technical and legal experts on draft protocol concerning land-based sources of pollution in the Mediterranean	UNEP
June	Kuala Lumpur	Task Force on the development of an action plan for the East Asian Seas.	ASEAN/UNEP
2-6 July	Geneva	Meeting of experts on matters arising from the protocol for the prevention of pollution from ships and aircraft in the Mediterranean	UNEP
5-10 July	Copenhagen	GESAMP Working Group on the Review of the Health of the Oceans	UNESCO
23-25 July	Rome	Second Interagency Meeting on Regional Seas	UNEP
July		Second meeting of the Advisory Panel on the Caribbean Action Plan	ECLA/UNEP



THE SIREN

news from UNEP's Regional Seas Programme

KUWAIT CONVENTION IN FORCE

On June 30, 1979, the ninth day after ratification by the fifth coastal State of the Kuwait Action Plan Region, the Kuwait Regional Convention for Co-operation on the Protection of the Marine Environment from Pollution came into force.

"As of April 1, Bahrain, Iraq, Kuwait, Oman and Qatar had deposited their instruments of ratification with the Kuwait Government, depositary of the Convention. We think it's quite remarkable that the necessary ratifications were made in less than a year after the Kuwait Conference," commented K. Al-Nahdi of Saudi Arabia, the recently-

appointed acting co-ordinator for the Kuwait Action Plan.

According to the Convention, the first meeting of the Council of Contracting Parties to the Kuwait Convention will be called within the first six months following the Convention's entry into force, or before December 31, 1979. Before that, an expert group meeting or informal consultation is planned to discuss the environmental assessment and management chapter of the Action Plan, as well as a meeting of experts to discuss the establishment of a Marine Emergency Mutual Aid Centre in Bahrain.

Cuban project as pilot for Caribbean Action Plan

In March, finishing touches were put onto a 3-year project entitled "Investigation and Control of Marine Pollution in Cuba" by the Cuban Government, the United Nations Development Programme, and UNEP.

Dr. Arsenio Rodriguez, scientific adviser for the Caribbean Environmental Project (CEP), describes the purpose of the project and how it relates to the action plan for the development and protection of the Wider Caribbean Region. (see Siren No. 2).

"The Cuban project, which is a national project, is very important in laying the groundwork for what we do in the future regarding pollution monitoring and control in the Caribbean region. It is a model, or 'pilot project', for subsequent regional activities. Due to its complex nature it will provide invaluable experience and information needed for environmental policy decisions at all levels."



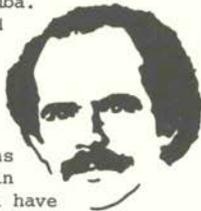
Dr. Rodriguez went on to describe the project's history:

"Discussions on the development of a continuous surveillance system on environmental pollution started with the Government of Cuba in 1974. The initial idea got a great boost after the joint mission of UNDP, FAO, UNESCO, WHO, IMCO, UN/ECLA and UNEP in late 1977, which assisted in drawing up the elements of a comprehensive programme covering a three-year period. This programme includes, among other things, identification of sources and present levels of coastal pollution, analysis of mechanisms of pollutant transport, study of alternative means of controlling these

continued...

pollutants and defining the alternatives for legal and institutional aspects of pollution control.

"The project will be executed by the Government of Cuba. The assistance provided by UNDP and UNEP (over one million US\$) will be for equipment and experts to be used by the large number of national institutions in Cuba participating in the project. UNEP will have the task of ensuring that the methodology used in the projects yields results comparable with those obtained in the other Regional Seas," concluded Dr. Rodriguez. ☺



UN FAMILY DISCUSSES CO-ORDINATION

UNEP, according to the Resolution of the UN General Assembly, serves as a focal point for environmental action and co-ordination within the United Nations system. Consequently, the Regional Seas Programme is based on the support and close co-operation of all parts of the UN system interested in supporting it.

The Second Interagency Meeting on Regional Seas, to be convened at FAO headquarters in Rome, 23-25 July 1979, will discuss the long-term plans for the eight regional seas programmes. For the results of the meeting, see the next issue of *The Siren*.

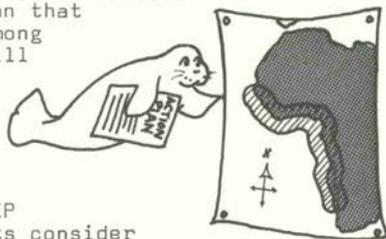
WEST AFRICAN PLAN TAKES SHAPE

In response to the comments received from 11 West African Governments visited by the recent UNEP mission to that region (see *Siren* No. 4), and to subsequent discussions with representatives from the West African States who attended the last session of the UNEP Governing Council in Nairobi, a revised text of the draft Action Plan has been prepared. This text will be used as the basic document for a meeting of Government-designated experts tentatively scheduled for next October in Libreville, Gabon. The meeting will review and further revise the Action Plan - an important step in the progression towards its final adoption by the Governments.

UNEP foresees even more revisions before the Action Plan reaches its final state, and considers it crucial to the long-term success of the Plan that it generate a regional consensus among the 19 West African States which will carry it out. The revised draft, which may emerge from the October meeting, will probably need to be further refined at a second meeting in early 1980.

Among other things, the October meeting will be asked to advise UNEP whether the West African Governments consider it appropriate to develop a regional Convention as has been done in other regions such as the Mediterranean and the area covered by the Kuwait Action Plan.

If the adoption of a Convention is recommended as part of the Action Plan, legal experts will have to meet before an Intergovernmental meeting or a Conference of Plenipotentiaries is called in 1980 to adopt the Action Plan. "This may seem like a long, involved process," comments one UNEP officer, "but things are actually moving very quickly in West Africa, thanks to the interest and support of the individual States."



Small Fishermen Issue Manifesto

There are over a million "small," or artisanal, fishermen in the ASEAN countries of South-East Asia who subsist on a per capita income of US\$100-300, making them among the poorest communities in the region. In May of 1978, small fishermen leaders from four of the five ASEAN nations and Japan met in Bangkok to attempt to draw attention to their plight and to discover ways of improving their living conditions through collective action.



The five-day meeting, sponsored by the Asian Cultural Forum on Development (ACFOD) and FAO, resulted in the adoption of a manifesto consisting of 18 resolutions, some of which are reproduced below:

1. We call for an immediate stop to all forms of pollution which destroy the rivers, lakes and seas and its life-forms. We urge the establishment of anti-pollution bodies and laws to protect the sea.
2. We deplore man-made activities such as reclamation, filling-up of mangrove swamps and shore-line development for tourist hotels, industrial factories or commercial enterprises which recklessly disturb the natural ecology and constrict the existing and potential fishing areas.
3. We urge immediate local, national and regional action which seeks to conserve and increase fish stocks and rehabilitate depleted fishing grounds.
5. We protest against the encroachment by powerful foreign fishing fleets into our national and regional waters. We also request our governments to prohibit the setting-up of joint-venture fishing enterprises unless they serve the interests of small fishermen and the local consumer.
10. We urge training be extended to small fishermen to upgrade their fishing practices and other economic activities with the emphasis on appropriate and

ecologically sound techniques. This should include opportunities for exchange of information and experiences between small fishermen both within and between countries to be provided by national organizations, non-governmental bodies and international organizations such as the FAO.

12. We urge the building up of appropriate information and communication services to serve small fishermen both within and between countries.

14. We call for the provision of supplementary means of livelihood including those based on aquaculture and integrated economic projects which can set into motion the local economic and social mechanism for development amongst coastal communities and other peoples dependent on fisheries.

16. We call for...a new strategy of development leading from the bottom upwards such as that formulated in the FAO/RAFE Small Fisheries Programme....

The conclusion of the manifesto states:

....We urge all peoples and governments to take heed of our resolutions and we pledge our collective resources to act in solidarity to overcome our problems.

The above story is based on a report which appeared in Ecodevelopment News, No. 8, March 1979.

misquote!



"During its first phase the (UNDP/UNEP mission to Mediterranean countries on the PAP renewable sources of energy programme) visited Syria, Libya, and Morocco."

--The Siren, No. 4, March, 1979.

The Siren replies: "We're sorry to report that an entire line of type is missing from the above sentence, which should read "During its first phase the mission visited Egypt, Tunisia and Algeria, and during its second phase it plans to visit Syria, Libya and Morocco."

Up to now, it has visited all of the above, as well as Malta and Yugoslavia. (For further information, see p.9 of this issue).

Med countries tackle land-based pollution

The necessarily long and sometimes difficult negotiations to draw up what many consider to be the key legal instrument for controlling Mediterranean pollution are beginning to bear fruit. In late June, technical and legal experts from Mediterranean Governments and the European Economic Community reached broad agreement on the draft text of a future protocol controlling pollution from man's activities on land, such as factory wastes, municipal sewage and agricultural pesticides and fertilizers. Such kinds of pollution pose by far the most serious threat to the health of the Mediterranean Sea, to the people living around it, and to 100,000,000 tourists who enjoy it every year.

"The agreement on this key treaty came as an agreeable surprise," declared Ambassador Ridha Bach Baouab of Tunisia. *"I am optimistic that our Mediterranean Governments will hold a diplomatic conference in Athens next spring and sign the protocol. The reservations were minor, and I foresee no difficulties."*



Bach Baouab

Peter S. Thacher, Deputy Executive Director of UNEP, also expressed great satisfaction in his closing remarks: "Frankly, we did not expect such a measure of agreement so soon. What you have accomplished is of great significance not only to the Mediterranean but to the rest of the world. You have proved that in spite of divisive issues it is possible to agree on a vital treaty."

It is generally recognized by Mediterranean specialists that no real progress in the fight against pollution can be made without a treaty that comes to grips with land-based sources. One of the Mediterranean scientific assessment projects, MED POL X, demonstrated that the largest proportion of such pollution is carried to the sea by rivers from inland sources - a fact which greatly complicates the legal process of controlling such sources. Over the past two and a half years UNEP has organized three major meetings on the draft protocol, in Athens, Venice, and the recent five-day expert meeting at the World Health Organization in Geneva.

The preamble of the preliminary draft Protocol for the Protection of the Mediterranean Sea Against Pollution from Land-Based Sources notes "the rapid development of human activities in the Mediterranean (region), particularly in the (domains) of industrialization and urbanization, and the seasonal increase in the coastal population due to tourism."

It goes on to "recognize the danger posed to the marine environment and to human health by pollution from land-based sources and the serious problems existing in this respect in many coastal waters and river estuaries, mostly due to the release of untreated, insufficiently treated or inadequately disposed domestic or industrial discharges."

About 80 per cent of all municipal sewage now enters the the Mediterranean untreated or inadequately treated, it is estimated.

The preamble also "recognizes the differences in levels of economic development among the coastal states, and takes account of the economic and social imperatives of the developing countries."

All but a few of the 18 Mediterranean states are developing countries.

Countries which may sign the treaty in Athens next year would "undertake to eliminate, by stages if necessary, pollution from land-based sources." They would agree to create common quality standards applicable to the Mediterranean Programmes. The time-tables for their application may vary from one pollutant to another.

There are two kinds of toxic substances dealt with in the technical annexes to the treaty. One group belongs to a so-called black list which, because of their toxicity, persistence and bio-accumulation, ought not to be allowed to pollute the Mediterranean at all. Among them are mercury, cadmium, used lubricating oils, phosphorus, persistent synthetic materials which may float, sink or remain in suspension, carcinogenic or mutagenic substances, and radioactive substances, including wastes.

The grey list consists of such substances as zinc, copper, lead, titanium, arsenic, silver, cobalt, tin, crude oils and hydrocarbons of all origins, pathogenic micro-organisms, non-biodegradable detergents, and those which have a deleterious effect on the taste or the smell of fish or shellfish.

Since these substances are less noxious or more readily rendered harmless by natural processes, their controlled discharge into the Mediterranean may be authorized.

In granting such authorizations, the national authorities will be guided by the characteristics and composition of the waste, the nature of the discharge site and the "receiving" marine environment, the availability of waste technologies, and the potential impairment of marine ecosystems and sea-water uses.

Treaty signatories will bind themselves to exchange information on the authorizations they grant, on pollution monitoring data and on the quantities of pollutants discharged from their territory, among many other things.

Elation over the broad agreement led Ambassador Bach Baouab, who is president of Contracting Parties to the Barcelona Convention, to declare: "Through our meetings, our treaties and our joint scientific endeavours over the past four or five years we have forged a common Mediterranean spirit. It is growing steadily stronger." ☉

THE SIREN is issued four times a year in English and French by the Regional Seas Programme Activity Centre of the United Nations Environment Programme. It is designed as an informal presentation of news from the Regional Seas Programme, but does not necessarily represent the official views of UNEP.

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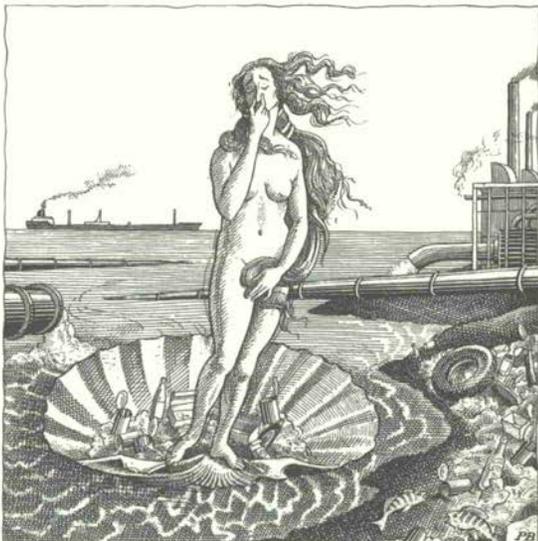
PACIFIC SCIENCE CONGRESS

Pollution of the Pacific Ocean will be one of the major topics under study at the XIV Pacific Science Congress to be held in Khabarovsk, USSR, from 20 August to 5 September, 1979.

"This section of the congress will look at the scientific aspects of environmental pollution in the Pacific region," explains Sven Evteev, Assistant Executive Director of UNEP and head of the UNEP delegation to the Congress, "including the methodology of marine pollution investigations, assessment of pollution sources, levels and trends, methods of control and effects of pollution on biological processes in marine ecosystems."

The meeting is of special interest to UNEP since three of the eight areas delineated in the Regional Seas Programme are found within the wider Pacific: the East Asian Seas, the South-East Pacific and the South-West Pacific regions. Therefore, a number of travel grants have been awarded by UNEP for scientists from the developing countries to permit their participation at the meeting.

A paper will be presented to the Congress on UNEP's approaches to the environmental problems of the Pacific.



Peter Brookes, in the *Radio Times*, BBC, London.



the need to protect

On the occasion of The Siren's first anniversary, Dr. Mostafa K. Tolba, UNEP's Executive Director, offered to share with us some of his views on protection of the environment and UNEP's approach to the problems of marine pollution.

* * * * *

The Siren: What do you feel is the worst form of environmental pollution?

Dr. Tolba: Rather than single out specific forms of pollution - whose incidence varies according to the different contexts where it occurs - it would be useful to consider the ultimate effects of pollution in general. Pollution reduces the productive capacity of ecosystems and man, and, in its most extreme form, can permanently impair the ability of the biosphere to support life. In this sense one could say that, ultimately, inequality is the worst form of pollution because of the extreme pressure it exerts on resources.

How do you mean?

On one hand there is the squandering of resources, sometimes to the point of exhaustion, to satisfy superfluous needs. On the other hand there is excessive pressure on resources because of poverty and lack of access to more abundant sources. Both of these extremes eventually destroy life-supporting systems. It is only through a more equitable distribution of resources, and through appropriate management, that this extreme form of social pollution - inequality - can be overcome.

On the physical side of pollution, because we in UNEP have lately been much exercised about CO₂, I could mention it as the worst pollutant. It certainly gives us cause for serious concern, but we are not even sure that the concern is justified, and, if it is, what to do about it. I would therefore rather select pollution that may seriously affect

human health and that is of wide occurrence in the environment, in food and in human tissues. Chlorinated hydrocarbons are good candidates for the top place. But really, pollutants' ranking - except the crudest ranking - is a subjective and arbitrary exercise until we can quantify in common terms the effects of current or expected levels of exposure. With the possible exception of ionizing radiation, we are still a long way from that.

Do you believe in the possibility of reconciling the attitudes and desires of rich and poor nations regarding their environment?

There is no contradiction between environment and the general development of all societies. Development can and should be pursued in conformity with sound environmental criteria. The protection and enhancement of the environment is a necessary condition for development to be sustainable. Therefore, appropriate environmental management should be a common practice to both poor and rich nations, and should be the meeting ground of common objectives.

How can we expect developing countries to carry out environmentally "safe" development when even the richest nations find it difficult?

The achievement of an environmentally "safe" development is a matter of universal concern. How to harmonise economic policies and objectives with environmental policies and objectives is a matter of concern to developed as well as to developing countries. to socialist as well as to market economy countries. It is clearly perceived by all countries that it is increasingly

necessary to integrate environmental consequences into long-term development strategies. At a time, however, when balance of payments difficulties, inflation and unemployment are increasing, two hard questions must be faced:

- (1) is it possible to integrate environmental considerations into the development process in a meaningful and cost-effective manner, and if so,
- (2) in what time frame and under what kind of umbrella of public policy including anticipatory economic policies?

In so far as the developing countries are concerned, the major environmental problems of these countries arise from extreme poverty and its consequences and their solution must be sought in the process of development itself. It is, therefore, not so much a question of financial resources necessary to meet environmental problems as it is the undertaking of rational decisions based on a long-term integrated concept of development, realistic appraisal of the resource base of the country concerned, and of the fact that as the development process gathers momentum, increasingly complex problems will arise as to trade-offs between environmental and developmental goals. If wrong or short-term decisions are taken, which ignore environmental consequences, the costs of rectification may be too high or impossible for developing countries' resources, both technical and financial.

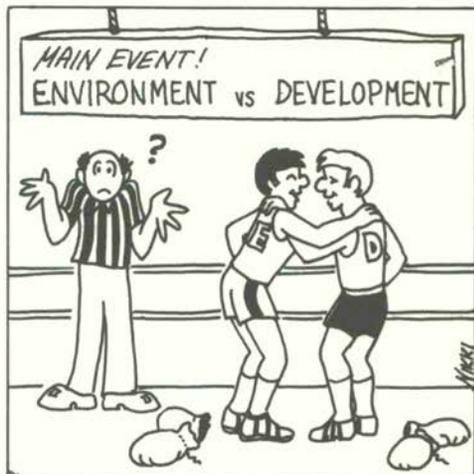
For the developed countries, rational decision-making requires that due attention be paid to environmental concerns and development of anticipatory economic policies.

Do you think that the "regional approach" to environmental problems is working, e.g. in UNEP's Regional Seas Programme?

I believe that the question itself gives a hint to the answer since you make specific reference to the Programme on Regional Seas. This is one of the best of our programmes if not just the best. It has the full support of the Governing Council of UNEP and the Governments concerned. They are ready not only to co-operate but to contribute substantially, financially, as was well demonstrated by the establishment of Trust Funds for two regions.

For many developing countries, the protection of the marine environment does not appear to be a high priority. How do you justify the fact that UNEP gives a high priority to Regional Seas?

While the direct benefits of the marine environment have always been understood, the more indirect ones have not yet come to the attention of all States. However, there has always been awareness of the world community, since the time of Stockholm and which is continually growing, of the need to protect this precious global resource. It is because of this that the Governing Council of UNEP has always given such priority to the Regional Seas Programme, and the effort is amply justified, as can be seen by the encouraging results achieved. It is now the developing countries themselves, in the Mediterranean region, those of the Kuwait Convention region, around the Red Sea, the Caribbean, the Gulf of Guinea and the South Pacific, which are putting tremendous pressure on UNEP to move quickly in this area of activity.



"Regional Seas" is aimed at protecting the enclosed seas and the coastal environment. Should not UNEP be devoting more attention to the open seas?

In an ideal world in which UNEP had boundless resources and everything could be measured, we should indeed devote more attention to open ocean waters. This not being so, we have pushed ocean monitoring activities in the coastal environment for at least

three reasons: it is in some of the coastal areas that levels of pollution are the highest; it is there that the impact of pollution on man is most direct; and facilities and methodologies to study the coastal environment are more readily available than for work in open seas. The study of pollution in the high seas, far away from sources of pollution, is still groping for analytical and sampling methods yielding consistent data at the very low levels of pollution expected there. When such methods have been agreed upon, and reliable data can be obtained, the study will require financial resources that might well dwarf those devoted to the coastal environment, and technical resources that only a few highly developed countries can muster.

As a microbiologist, would you say that pollution of sea water by sewage is a serious threat to human health? How would you compare this threat with that of pesticides, mercury, oil and other types of marine pollution?

Sewage is indeed a threat to human health and to that of the environment. However, in environmental terms, this type of pollution is not as serious, because of the inbuilt mechanisms which the sea has for treating organic wastes. On the other hand, pollution from pesticides or chemicals in general, or substances which do not exist in nature or do not occur naturally in high concentrations do prove a particularly serious threat to the marine environment because there are no natural mechanisms to deal with them. Furthermore, this type of substance can produce irreversible damage both on ecosystems and more particularly on the genetic patrimony. Therefore, this type of pollution is more serious.

One word of caution, however. We must not forget that sewage also contains these substances, for which reason the two problems cannot be separated. The real question lies in the overall treatment and emission of wastes which must be approached in an integrated

manner. On one hand by the development of technologies and techniques that produce little waste, and on the other by recuperation of wastes, which in fact are valuable resources if used properly.

The signatories of the Kuwait Convention and more recently the Mediterranean countries have taken over the major financial responsibility for the Action Plans of their regions. To what extent do you think their example will be followed in the other Regional Seas?

In the spirit of international cooperation, and of national self reliance, I am convinced that the countries involved in other regional seas programmes will endeavor to make the protection of the environmental conditions of these

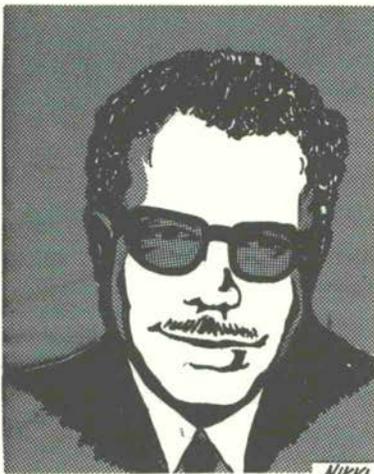
regions an integral part of their national development. Therefore, I believe that within the financial possibilities of each country, and backed by the appropriate support from the international community, the other Regional Seas Programmes will follow the example set by the signatories of the Kuwait Convention and by the Mediterranean countries.

As long as the countries see their Regional Action Plan as something which contributes in a direct way to their ability to deal effectively with costly environmental problems, they are bound

to see that it is in their own best interests to support it.

When a country ratifies an international agreement, how can their compliance to the agreement be assured? Is UNEP a police force?

You might say that it is the countries themselves which are the "police force" in that they assure compliance with the treaties by direct "peer group pressure." Every year, in the case of the Kuwait Action Plan countries, or every two years, in the case of the Mediterranean countries, meetings of the Conventions' parties are held to review the degree of compliance to the agreements which they have ratified, especially the national legislation adopted by each



State to carry out its regional obligations within its own territory. The scientific monitoring which is called for in the Conventions, and which is carried out as part of the environmental assessment component of the Action Plans, provides another check which we would hope gives a fairly accurate picture of the changes in the levels and sources of pollution in the particular sea.

What do you think are UNEP's achievements in its Oceans programme?

I think that the overall achievement of this programme has been the creation of a strong international current of public awareness concerning environmental problems and the urgent need to protect the global shared resource that is the oceans. This regional co-operation, backed by formal international agreements will, in itself, go a long way in ensuring that effective and sustained action to preserve the environment takes place. More concretely, the two most important practical achievements of the Oceans programme are:

(1) the emergence of a common resolve among coastal states, regardless of political persuasion or of stage of development, to adopt, at the regional level, common approaches towards problems that affect them all; and

(2) the establishment of a technical and institutional infrastructure for the study of pollution of the regional seas that will yield compatible

results and thus, when the results have been made public, make a broadly acceptable assessment of pollution possible and suggest the communal solution that the situation may require.

What have been your greatest satisfactions during your term as UNEP's Executive Director? Your greatest disappointments?

I think that I can count it as an honour and feel great satisfaction to be at the head of an organization that is endeavouring to make a contribution to the protection of the global environment. My greatest satisfaction as far as UNEP's achievement during my term of office is concerned is the full recognition now by the world community of the complementarity of environmental and developmental goals, of the fact that proper environmental management is a new and evolving part of the planning process which is of considerable importance to both developed and developing countries, and of the immense need for taking environmental considerations fully into account in all aspects of the development process if we are to ensure a sustained development, a "development without destruction."

As for the disappointments, I will not deny that from time to time they do exist, but in the face of the many positive achievements, the enormous challenges facing the human environment and of the huge tasks still ahead, I can safely say they are of little importance. ☺



DE BROQUEVILLE JOINS TEAM

Pending the return of Roger Booth, currently on mission at UN Headquarters in New York (see Siren no. 3), Eric de Broqueville has signed on as Liason Officer of the joint UNDP/ UNEP Co-ordination Unit for the co-operative projects in the Mediterranean. He is detailed to this office, located at the Regional Seas Programme Activity Centre, from his current post of Deputy Resident Representative of UNDP in Lebanon.



One of de Broqueville's first activities in his new office was to organize and participate in UNDP/UNEP missions to Mediterranean countries on the PAP renewable sources of energy programme. The missions visited five Mediterranean countries (Syria, Libya, Morocco, Malta and Yugoslavia) between April and July of 1979.

Also joining the missions at various stages were Georges Peri of the University of Marseille, Claude Ducret of the ECE, Daniel Hauet of UNESCO, Christian Vauge of the French Commissariat for Solar Energy, Miho Cerineo of the Institute of Physics in Belgrade, Michel Dagueneat of the University of Perpignan, and Eduardo Dominico of Electro Consult, Milan.

EXPERTS URGE ACTION TO PROTECT MARINE MAMMALS



Five specific actions were recommended by a group of 16 experts who met in Nairobi early in June to review action on marine mammals such as whales, dolphins, seals, dugongs and manatees.

The proposed actions are: a world-wide enquiry to formulate a general policy on marine mammals; a protected conservation area for whales and other cetaceans in the southern hemisphere; promotion of public awareness of the importance of these sea creatures in the marine environment and to man; a programme of scientific research on marine mammals; and a programme to improve laws and conventions relating to the marine environment (including their enforcement) and legal recognition of a special status for these animals.



The meeting was convened by UNEP and attended by representatives of FAO, UNESCO, the International Union for Conservation of Nature and Natural Resources (IUCN), the International Institute for Environment and Development (IIED), and the Secretariat for the Convention on International Trade in Endangered Species (CITES). Other participants attended in their individual capacities as economists, lawyers, communicators and scientists.



The expert group also proposed that two committees be set up - an expert advisory group and a co-ordinating intergovernmental/non-governmental group. The meeting stressed, however, that existing institutions should be used as fully as possible to implement the Plan and give professional advice.



Among the 28 recommendations endorsed by the participants, one advised UNEP to inform governments of the advantages of becoming a party to international conventions relevant to marine mammal conservation, such as the International Whaling Convention of 1946 and CITES, and, together with other competent organizations, to offer help to governments, on request, in drafting national legislation.

It was suggested also that UNEP should commission a study of legal prob-

lems relating to live capture and harassment of marine mammals; that the Plan of Action for the Mediterranean Monk Seal, formulated last year at a meeting in Rhodes, Greece, and sponsored by UNEP, be formally adopted by Mediterranean States and implemented.

Three recommendations dealing with the Amazonian, Caribbean and West African manatee were endorsed to ensure a more effective conservation plan in each case.

The lesser-known dugong, is found in tropical oceans and is hunted for food as well as often captured accidentally, making it a threatened species. Since the East African coast is one of its most important habitats, the meeting recommended that the Government of Kenya sponsor a survey of these mammals with appropriate international assistance.

The creation of a whale sanctuary in the Indian Ocean was proposed and further review was recommended with the aim of drawing up a detailed programme in a global context.

Effects of marine pollution, considered a growing threat to all marine life, was discussed, and a recommendation made that pollution effects on marine mammals be studied and reviewed. This will be one of the items on the agenda of the Interagency Meeting on Regional Seas in late July (see announcement, this issue, p. 2).

The experts also noted that action should be consistent with the objectives of the World Conservation Strategy being prepared by UNEP, IUCN and the World Wildlife Fund.

IWC sets ban!

At its July meeting, the International Whaling Commission called for a world-wide moratorium on whaling by factory ships (which account for most of the killing of whales), with the exception of the presumably still-numerous minke whale. The commission also decreed that for ten years the Indian Ocean will be a sanctuary for all species of whales.

Although the moratorium will come up for review next year, the decision of the IWC appears to be a victory for conservationists.

"Whales have great public appeal," explains Ms. Mona Bjorklund, Chairman of UNEP's Conservation Task Force. "We have always felt that using whales as a focus for problems in marine mammal conservation could yield considerable results."

the Siren goes....

IRPTC!

The International Register of Potentially Toxic Chemicals (IRPTC), is part of "Earthwatch," UNEP's global environmental assessment effort. Earthwatch also comprises GEMS, the Global Environmental Monitoring System (see Siren No. 3), and INFOTERRA, the International Referral System. The latter, like IRPTC, deals with information exchange, specifically identifying world-wide information sources.



The overall goal of IRPTC is to facilitate the reduction of hazards due to the presence of chemicals in the environment by supplying information to those who request it, and providing base data for evaluation - and perhaps prediction - of hazards associated with specified chemicals.

Jan W. Huismans, Director of IRPTC, describes the magnitude of the problems addressed by the Register:

"There are more than five million chemical compounds known and identified and at present about 100,000 of these substances are in world commerce. Additionally, there are unknown numbers of chemicals which are entering the environment as unwanted by-products from the activities of man. Of these, about 10,000 are produced in amounts greater than 500 kg per year; they are used in industry, agriculture and public health programmes, or as food additives, drugs or cosmetics. In addition, there are the waste products of industrial activities.



"A major problem in assessing the hazards associated with these chemicals is that the effects on man and the environment may take a very long time to show up. Also, some substances will accumulate in the environment - in the atmosphere or aquatic sediments - building their potential for toxicity and for environmental damage which may not be recognized until far into the future.

"The need to identify the chemicals which can behave in such a way, and to evaluate the dangers associated with them is obvious. It's not an easy task, but the obvious place to start is to collect the pertinent information which has been shown by experience to indicate possible noxious behavior on the part of chemicals entering our environment; i.e., the chemical, physical and biological properties which tend to identify the chemical's behavior in, hazard to and effect on man and his environment.

"All of this information should be made available to anyone who has an interest in controlling hazards from chemicals. This is IRPTC's mandate and is exactly what is being done. Needless to say, this is an enormous task that can be accomplished only by a co-operative effort, through data contributions from IRPTC's steadily growing system of network partners." α



Mallorca Conference on Med Pollution

Next September 24-27 specialists will gather in Palma de Mallorca to look at the effects of pollution on Mediterranean coastal areas and to consider means of solving the myriad problems associated with these effects. The Specialized Conference on Coastal Mediterranean Pollution, which is organized by the International Association on Water Pollution Research (IAWPR), will address a variety of topics, including the biological and geomorphological aspects of coastal pollution, risks to human health, aesthetic considerations and effects on confined areas such as lagoons. The Conference will also discuss land use planning in the Mediterranean, water quality criteria and effluent standards, application of mathematical modelling to pollution studies and the efficiency and economy of various technologies for effluent treatment and disposal through submarine outfalls.

Conference papers, including one to be presented by a representative of UNEP on the Mediterranean Action Plan, will be published in the journal Progress in Water Technology following the Conference.

Registration forms for the Confer-

ence may be obtained from: Dr. Ing. Rafael Reig (Palma de Mallorca 79), Departamento de Ecología (DYC), Avenida América 24, MADRID-22, Spain.

PROJECT OFFICE OPENS IN GENEVA

A project office for the WHO Regional Office for Europe was established in June at the Regional Seas Programme Activity Centre. Mr. George Ponghis will act as the project officer.

"The purpose of establishing our office in Geneva is to make it easier to manage the Mediterranean Action Plan projects on which WHO and UNEP cooperate," explains Ponghis, "especially MED POL VII (coastal water quality control). The direct contact with UNEP that is now possible will reduce the time and energy spent co-ordinating the projects, and cut down greatly on expense as well. Also, we're now closer to participating Agencies than we were in Copenhagen (previous site of the project office), and closer to the Mediterranean itself."



COMING EVENTS

DATE	PLACE	TITLE	ORGANIZER(S)
23-25 July	Rome	Second Interagency Meeting on Regional Seas	UNEP
1-5 Oct	Cannes	Second Meeting of National Blue Plan Focal Points	UNEP
October		Meeting of the Steering Committee for the Development of the S.E. Pacific Action Plan	CPPS/UNEP
8-12 Oct	West Africa	Meeting of Experts on Draft Action Plan for West Africa	UNEP
8-12 Oct	New Delhi	Regional Seminar on Environmental Impact Assessment in South-East Asia	WHO/ESCAP/ UNEP
November	Kuwait	Meeting of Government Experts on the Kuwait Action Plan	UNEP
November		Regional Workshop on the Prevention, Abatement and Combating of Pollution from Ships in East Asia	IMCO/UNEP
November		Regional Workshop on Coastal Area Development in South-East Asia	UN/DIESA, UNEP
November		Expert Group Meeting on Regional Conference on the Human Environment in the South Pacific	SPEC/SPC/ ESCAP/UNEP
2-5 Dec	Bahrain	Meeting of Experts on the Establishment of Marine Emergency Mutual Aid Centre	UNEP



THE SIREN

news from UNEP's Regional Seas Programme

special
report

THE AGENCIES GET IT TOGETHER

"The Regional Seas Programme is not just UNEP's programme, it's the programme of the whole United Nations System."

This assertion fell on the ears of 33 representatives from 15 UN organizations involved in the Programme, who were attending the Second Interagency Meeting on Regional Seas in Rome, 23-25 July 1979. The speaker was Stjepan Keckes, Director of the Programme and chairman of the meeting, who went on to ask that the meeting be a frank and open review of the proposals before it--proposals which would establish the "guidelines and principles for the formulation and implementation of comprehensive action plans for the protection and development of regional seas."

"Naturally, when that many organizations which are active on a global or regional scale get together there is plenty of basis for discussion," Keckes told the Siren after the meeting. "For example, it was pointed out that each agency has its own mandate and its own definition of geographical boundaries and regional activities. Naturally, the mandates sometimes overlap and the boundaries are usually different for each organization since they

are established for different purposes--even though they're established by the same agents, the governments. So, what seems to be a simple, straightforward issue may become very complicated. Fortunately, we've all worked together on this programme for the last few years, and such problems are usually resolved quickly."

Dale Krause, Chief of UNESCO's Division of Marine Sciences and rapporteur of the meeting, explained that

"the environmental problems of the Regional Seas are interdisciplinary and intersectoral, and require for their resolution a unified and systematic approach of the entire UN family. Thus, as was the case with the first Interagency Meeting on Regional Seas (held in Paris in June 1976), there was far more agreement on the issues than there was disa-

greement. Because each Secretariat serves a different official community, we each have our different approaches, and this gives rise at times to some rather lively discussions. As in other 'families', there are some disagreements and even some rivalries, but beneath it all, we're related by a belief in the UN system and in what we're doing. And we're determined to make the Regional Seas Programme a continuing success."

continued on p. 4...



Mediterranean

On 12 February 1978, the Barcelona Convention for the Protection of the Mediterranean Sea against Pollution and its two related protocols entered into force, and to date 13 Mediterranean States and the EEC have ratified the agreements. In February 1979, the Governments agreed to a biennial programme and pledged 3.2 million dollars for a Trust Fund to support it. The big news at present is the substantial progress made in negotiations on a protocol on pollution from land-based sources, which should be adopted in May 1980. The 84 laboratories in sixteen states, working since 1975 on MED POL, continue to provide scientific assessment of the Mediterranean's problems. Programme activity centres have been established for the Blue Plan and Priority Actions Programme, and activities are getting under way. Notable progress has been made in the mariculture and energy projects.

Red Sea

The Action Plan for the Red Sea and the Gulf of Aden was adopted at an Intergovernmental Conference in Jeddah in January 1976. The Arab League Educational, Cultural and Scientific Organization (ALECSO) is co-ordinating all relevant activities and projects. So far, activities have concentrated on training and support to improve the capabilities of scientists and institutions in the region, and a number of seminars, workshops, study tours and training courses have taken place. A regional convention is under consideration, and a symposium on the coastal and marine environment of the Red Sea, Gulf of Aden and tropical Western Indian Ocean is planned for 1980 in Khartoum.

Kuwait Action Plan Region

The Kuwait Regional Convention for Co-operation on the Protection of the Marine Environment from Pollution entered into force on 30 June 1979, and has so far been ratified by five countries. Later this year government-appointed experts will decide on the priorities to be assigned to the co-operative projects identified in the Action Plan which will become operational immediately thereafter. A meeting will be held in Bahrain (2-5 December) to clear the way for the establishment of a marine emergency mutual aid centre in the region. The first meeting of the Council of the Regional Organization for the Protection of the Marine Environment, comprised of the Contracting Parties to the Convention, will meet in late 1979 to decide on the further course of events. Almost six million dollars have been provided by the Governments, through a Trust Fund, to support the initial phase of activities.

Caribbean

The preparatory phase of the Caribbean Environment Programme, which began in 1976, is drawing to its end. Overviews have been prepared highlighting the problems of human settlements, energy, agriculture and fisheries, human health, natural disasters and marine pollution. They have been used as a basis for a document which synthesizes the major issues linking development and environment and for a draft Action Plan for the development and protection of the Wider Caribbean Region. These documents will be reviewed by government experts and the Action Plan will be considered for adoption by the intergovernmental meeting which is planned for 1980.

West Africa

After preliminary consultations with the Governments of West Africa, the draft Action Plan for this region will be reviewed by regional experts at several meetings, the first of which will be held in Libreville, Gabon, in November 1979. A workshop on coastal area management and development will be held in March 1980. The recommendations of the experts will be submitted to an Inter-governmental meeting planned for late 1980, at which the Action Plan is expected to be adopted. In the meantime, projects relevant to coastal problems, including erosion, lagoons and mangroves, will be initiated and surveys on industrial and oil pollution will be prepared on the basis of on-the-spot information gathered by various missions to the region.

East Asian Seas

Countries of the Association of South East Asian Nations (ASEAN) are hard at work on a sub-regional environmental programme, of which a large component will deal with marine pollution problems. At their request, a draft Action Plan was drawn up for the ASEAN sub-region, and co-operative action of all organizations interested in the region was initiated. For 1979, a series of preparatory activities are planned such as workshops on oil pollution control and coastal area development, and a seminar on environmental impact assessment. Regional experts will discuss mangrove pollution problems and the effects of oil pollution on marine ecosystems. Several review meetings on the Action Plan will be held within the next year, and its adoption is envisaged for late 1980.

South-East Pacific

Regional experts met in Santiago, Chile, in November 1978, to agree on the framework for an Action Plan. As a result, under the joint sponsorship of the Permanent Commission for the South Pacific (CPPS) and UNEP and with the co-operation of FAO, IMCO and IOC, a programme on marine pollution monitoring and research is being developed and legal experts are formulating a regional convention on the protection of the marine environment against pollution and an agreement on regional co-operation for emergency measures against pollution. A meeting of government experts is planned for mid-1980 to review the draft of this programme and the legal documents which will then be submitted to an intergovernmental meeting for approval.

South-West Pacific

The upcoming Regional Conference on the Human Environment in the South Pacific is the major news item in this area. The Conference, jointly sponsored by the South Pacific Commission (SPC), the South Pacific Bureau for Economic Co-operation (SPEC), the Economic and Social Commission for Asia and the Pacific (ESCAP) and UNEP and planned for the second half of 1980, will lay the groundwork for future environmental action at all levels in the region. Documents which will be submitted to the meeting include a report on the state of the environment in the South-West Pacific, a draft declaration of principles on the management and improvement of the environment, and a draft regional Action Plan which includes specific projects to be implemented at the international, regional, national and local levels. The basis for these documents will be national environmental reports prepared by the states of the region with assistance of the conference co-sponsors.

The meeting reviewed the achievements and the proposed long-term work-plan for each of the eight regions covered by the programme. The first of the Regional Seas to be discussed was the Mediterranean.

"Despite some criticism, the general feeling was that the Mediterranean Action Plan has achieved results that many of us thought were impossible a few years ago," commented Krause.

After reviewing the other programmes, the meeting discussed at some length how to organize assistance to developing countries in their task of choosing the most suitable methodology to assess the impact of development activities on the marine and coastal environment. "Clearly, we are at the stage where the economic costs and benefits of taking environmental considera-

....*"the Mediterranean Action Plan has achieved results that many of us thought were impossible a few years ago."*



tions into development planning must be specified," said Krause. "The formulation of such methodology was agreed as a priority task and WHO was designated to co-ordinate the efforts of several other organizations in this field. Once the methodology is developed, a series of regional seminars will be organized for planners and policy-makers in these regions, using specific local examples."

The Secretariat of the Third UN Conference on the Law of the Sea (UNCLOS)

could not participate in the meeting as the Conference was in session at the time. However, Under-Secretary-General Bernardo Zuleta, Special Representative of the Secretary General to UNCLOS, sent a lengthy memorandum empha-

sizing the relevance of the Regional Seas Programme for the deliberations of the Conference.

SAs* speak for themselves

THE SIREN TACKLED SOME OF THE REPRESENTATIVES OF THE SPECIALIZED AGENCIES AND OTHER UN ORGANIZATIONS WHO ATTENDED THE INTERAGENCY MEETING AND ASKED THEM TO COMMENT ON THEIR INVOLVEMENT IN THE REGIONAL SEAS PROGRAMME. HERE ARE THEIR REPLIES:



UN/DIESA

The United Nations is concerned with all legal and political aspects of the sea and the seabed, including marine pollution matters. The United Nations Economic and Social Council (ECOSOC) deals specifically with subjects related to the economic and social development of nations, including co-operation on marine matters.

Through the Department of International Economic and Social Affairs (UN/DIESA), the UN is directly involved in many projects of the Regional Seas Programme.

"Once the UN General Assembly en-

dorsed the recommendations of the 1972 Stockholm Conference on the Human Environment, we could start the follow-up," states Larry Neuman, the Scientific Affairs Officer for the Ocean Economics and Technology Office of UN/DIESA.

"Recently, UN/DIESA organized a workshop on coastal erosion in Togo, which contributed to the Action Plan being developed for West Africa. We are busy organizing a Regional Workshop on Coastal Area Development and Management in South-East Asia for next December. In 1981 there will be a UN Conference on New and Renewable Sources of Energy, dealing in part with ocean energy resources."



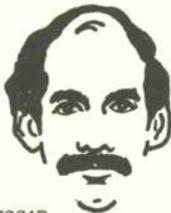
* Of course, not all of the organizations mentioned here are "Specialized Agencies." Some (UN/DIESA, the regional Economic Commissions), like UNEP itself, are parts of the United Nations proper.



ESCAP

The Economic and Social Commission for Asia and the Pacific has a large environmental programme co-ordinated through the Environmental Co-ordinating Unit (ECU) of the office of the Executive Secretary. The aim of the programme is the formulation of environmental protection and management plans for the member states of the ESCAP region and to create awareness about the problems related to them.

"ESCAP, in co-operation with the Swedish Environmental Protection Service has launched a major programme for the protection of the marine environment and related ecosystems for the Asia and Pacific region which commenced in April 1979 and is expected to continue until April 1984," says S. Thampi, Programme Officer for ECU. "This programme is being implemented as a supporting activity of the Regional Seas Programme. ESCAP is also one of the organizations involved in the development of a comprehensive programme for environment and management for the South Pacific, which will culminate in the Sub-Regional Conference on the Human Environment in 1980."



ECA

States of the Economic Commission for Africa have participated in three of the regional seas programmes: the Mediterranean, the Red Sea and the West African. Norman H. Ayodele Cole, Chief of the Environment Co-ordination Unit of ECA outlines ECA's involvement:

"In the Mediterranean, the Commission has closely reviewed all the relevant documentation of the Mediterranean Action Plan and assisted with a number of comments and suggestions. We've kept close track of the progress of this plan, since it can be a useful model in other regions. In the Red Sea, although our participation has been rather sporadic, we are in the stage of attempting to identify projects related to the technological and economic



development of the region. We have been active in West Africa primarily through an ECA/UNESCO/UNDP project covering the West and East African coastal regions, which aims at developing and strengthening the scientific and technological capabilities for exploration and exploitation of marine resources through environmentally-sound management. This project is complementary to the West African Action Plan in its intent to help existing national institutions to improve their capabilities to carry out the technically-rigorous aspects of the plan."



UNIDO

The UN Industrial Development Organization, which will soon become the 16th specialized agency, is responsible for the promotion of industrial development in the developing countries and the achievement of full utilization of locally-available natural resources.

"UNIDO has been active in a number of the Regional Seas Programmes in the belief that the development it promotes should be sustainable," explains

Jack B. Carmichael, Industrial Development Officer for UNIDO's International Centre for Industrial Studies.

"One of the major areas of co-operation is in West Africa, where UNIDO is preparing a survey of marine pollutants from industrial sources. The report will be based largely on data collected through field missions to the states of the region, and is aimed at supplying West African governments with information on the type and quantity of pollutants from major land-based sources entering the marine environment through direct coastal discharges or indirectly through rivers, and on the present status of waste management. A similar survey was prepared two years ago, with the co-operation of several other specialized agencies, for the Mediterranean and probably will be done in the near future in other regions as well. An assessment of environmental problems related to conventional and renewable sources of energy was prepared by UNIDO as a contribution to the development of the Caribbean Action Plan."





FAO

In the field of marine pollution, the UN Food and Agriculture Organization promotes studies on the effects of pollutants on living aquatic resources and fisheries, and the application of the results of these studies to the protection of fishery resources. It provides advice, technical assistance and training to member countries on ways to prevent damage to living aquatic resources from urban or industrial waste. FAO also promotes the development of methods needed to evaluate the impact of pollution on aquatic communities and fish stocks.

Hiroshi Kasahara, Director of the Fisheries Resources and Environment Division of the Fisheries Department, describes FAO's extensive involvement in Regional Seas: "FAO was the initiator of activities which later led to the Mediterranean Action Plan.

Through a series of workshops, with co-operation from IOC and other specialized agencies, the first analyses of marine pollution problems have been prepared for several regions covered by the Regional Seas Programme.

FAO co-ordinates four of the MED POL pilot projects dealing with the effects of pollution on living resources, is preparing the implementation of a Mediterranean regional project on aquaculture development, is about to start regional projects in East Asian Seas on the protection of mangroves and fisheries resources from pollution, and is ready to be involved in similar activities in other regions."



UNESCO

The scientific aspects of pollution, wherever it may occur, and especially as it affects human welfare and culture, are well within the domain of the UN Educational, Scientific and Cultural Organization. Aside from its specific marine activities through IOC, UNESCO's major responsibility lies in training and education. It is concerned with

several programmes relating to marine pollution, some of them described below by J.A. da Costa, Senior Officer in UNESCO's Division of Water Sciences:

"Our International Hydrological Programme includes studies of rivers and river discharges, on a global as well as a regional basis. This programme allowed UNESCO

to contribute substantially to the assessment of riverborne pollutants from land-based sources into the Mediterranean, and should be of equal use in source assessment in all the other regions.

Today it is clear that rivers are bringing a lot of pollution into the marine environment, sometimes originating hundreds of kilometers upstream, and in many regions they are more important sources of marine pollution than the coastal industries and urban centres.

"UNESCO also promotes ecological studies of coastal ecosystems such as mangroves, lagoons, estuaries and coral reefs, with special reference to the impact of coastal development on these systems," da Costa continues. "In nearly every case, not enough basic research has been done on such communities to allow us to assess the potential impact of human activities, and helping to fill this enormous gap in our knowledge might be one of UNESCO's major contributions to the Regional Seas Programme."



IOC

The promotion of marine pollution research and monitoring is one of the general tasks of the Intergovernmental Oceanographic Commission, and is tackled through programmes such as the Global Investigation of Pollution in the Marine Environment (GIPME), the Integrated Global Ocean Station System (IGOSS) and through IOC's participation in the UNEP-sponsored Regional Seas Programme.

"IOC's pollution research and monitoring efforts should eventually have relevance for the Regional Seas Programme," asserts Ray Griffiths,

Assistant Secretary of IOC. "As a direct contribution to this programme, IOC is co-ordinating the organization of regional workshops to provide the initial assessment of the marine pollution problems for each of the regions covered by the programme. The Mediterranean workshop was the first of these (Monaco 1974), followed by similar workshops in Penang (1976), Trinidad (1976), Santiago de Chile (1978) and Abidjan (1978). In addition, IOC actively participates in the programme by supervising several regional pilot projects related to monitoring oil pollution and to surveys of current systems contributing to the spread of pollutants."



their sanitary quality, developed principles and guidelines for the discharge of waste into the marine environment, trains technicians and policy-makers to assess the impact—and avoid it—of marine pollution on human health, and has been backing the preparation of a Mediterranean treaty to control pollution of seas from land-based sources."



IMCO

Since its inception in 1959, the Inter-governmental Maritime Consultative Organization has been engaged in developing and implementing measures for the promotion of safety at sea and the prevention and control of marine pollution from ships. In general, the organization's primary anti-pollution activity has stemmed from a number of international conventions and protocols for which IMCO is the depositary and provides secretariat services.

Says David Edwards, Senior Technical Officer of the Marine Environment Division of IMCO, "Naturally, it is these conventions, such as the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter of 1972, and the International Convention for the Prevention of Pollution from Ships of 1973 and its related protocol



of 1978, which receive the greatest attention among our global pollution control efforts. IMCO is also increasingly active in other ways in controlling marine pollution from ships, as is demonstrated by the substantial growth of its technical assistance programme.

"So far, in the Regional Seas Programme, IMCO has been active in several ways: it is responsible for the operations of the Regional Oil Combating Centre in Malta, is preparing the technical basis on which the Marine Emergency Mutual Aid Centre will be established, probably in Bahrain, is organizing specific seminars, workshops and training courses on abatement of oil pollution from ships (Douala 1977, Cartagena 1978), and is providing analyses and overviews on oil pollution problems of various regions."



WHO

The mandate of the World Health Organization's programme in environmental health includes the range of pollution problems that can have a direct or indirect impact on human health and well-being. Marine pollution problems and health aspects of coastal water quality control in particular are among areas of concern.

"WHO spends a large part of its efforts working with experts in establishing criteria for water quality in coastal areas, formulating recommendations to national and other authorities on matters relating to fish and shellfish hygiene, advising countries on the selection of sites and methods for waste disposal in the marine environment, and establishing monitoring networks and other information services," explains Chris Timm, a consultant with WHO's Division of Environmental Health.

"WHO takes a very active part in all the regional seas programmes. It organized the systematic monitoring of Mediterranean beaches and seafood for



INFOTerra

the international referral system

A WORLD-WIDE INFORMATION NETWORK

Decision-makers all over the world, increasingly faced with environmental problems, can now get assistance from INFOTERRA, the International Referral System which aims to put those who seek information on environmental issues in touch with those best able to provide such information.

INFOTERRA, like GEMS (see Siren No. 3), is part of UNEP's Earthwatch programme.

The idea of a referral system for environmental information was first suggested at the UN Conference on the Human Environment in Stockholm in 1972. After UNEP was established, high priority was given to the setting up of INFOTERRA. International consultants were called in to apply finishing touches to the final design, which was then approved by representative of 60 countries and put into full operation in January, 1977.

According to Dr. Ashok Khosla, Director of the system and former director of India's Office of Environment, "People often take wrong decisions on environmental issues more out of ignorance than ill will.

Few decision-makers are aware of the full range of the environmental consequences of their development strategies, let alone how to circumvent them. Yet with the right information and a little forethought, many development projects can be made to enhance the environment rather than destroy it."

A vast amount of information relating to environmental problems already exists, scattered throughout the world in data banks, laboratories and research institutions.

"In every country, there are large numbers of individuals who have know-



ledge in one or more aspects of environmental concern," Khosla points out, "many of them with expertise which could be useful to others within the same country and elsewhere. But it simply would not be feasible to collect all the information in one gigantic bank and keep it up-to-date. Instead, we chose the more workable alternative—to leave the information where it is and tell people how to find it."

INFOTERRA has been set up as a decentralized network of national, regional and sectoral information systems throughout the world, linked together by the INFOTERRA Programme Activity Centre at UNEP in Nairobi. National offices appointed by the governments of participating countries form the nuclei of the system. They have among their principle tasks to identify and register sources of information, to provide referral service to users and to promote the use of environmental information in their own countries.

Khosla stresses that the success of INFOTERRA depends fully upon governments, which designate their own offices, called National Focal Points, which then locate useful sources of information among organisations and experts dealing with environmental issues in their own countries. So far, 99 governments have designated National Focal Points, and 70 governments regularly submit sources. INFOTERRA has over 7,000 reliable reference sources included in the International Directory of sources of environmental information—sometimes described as the "Environmental Yellow Pages." The Directory is updated every three months and contains sources classified under 1,000 different subject headings.

INFOTERRA'S GLOBAL NETWORK

 Partner
Countries

● National
Focal
Points

HOW DOES THE SYSTEM WORK?

Suppose you are involved in developing new techniques of aquaculture and you wish to know more about how to deal with outbreaks of parasites without harming the environment. First you write to your National Focal Point, who will provide you with a list of sources from all over the world with experience in your problem, together with information on their capabilities. You are then free to contact any or all of these for the information you want.

"Every effort is being made to involve the developing countries, both because they are repositories of a wide variety of information on a multitude of environmental problems and because they can benefit so much as users of the system," explains Khosla. INFOTERRA



has received considerable support from developing countries, and nearly half of the questions processed so far have originated from or concern developing countries. *"Through INFOTERRA, countries are making a joint effort to pool the kinds of information they need to tackle their environmental problems. The importance of good information to environmental decision-making at all levels has been recognized by the international community. We feel that INFOTERRA is making an important contribution to environmentally-sound development,"* Khosla concludes. ☉

MIGRATORY SPECIES PROTECTED

On 13 June 1979 in Bonn, a diplomatic conference adopted the Convention on the Conservation of Migrating Species of Wild Animals.

The Convention covers all wild migrating animals throughout the world, without exception. The proposal to exclude marine mammals, fish crustacea and molluscs was defeated 24 hours before the treaty was signed by a vote of 41 to 9. Attempts to exclude the polar regions were also rebuffed.

The outcome of the conference was a great victory for environmentalists, and it was plain that the majority would not compromise in order to "buy" the support of a handful of countries more concerned about their fishing interests than with protecting the "common heritage of humanity."

Fifteen Governments must now ratify the Convention before it enters into force.

The above is based on a report from IUCN Bulletin No.10/6, June 1979

BLUE PLAN REVIEWED

The second meeting of the National Blue Plan Focal Points will be held in Cannes, 1-5 October 1979, at the invitation of the French Government. The meeting will be called on to review the proposals for the early implementation of the first phase of the Blue Plan, and if necessary to modify those proposals before adoption.

COPING WITH DISASTERS

Strange things happen in this world: in an environment resembling paradise, experts chose to discuss disasters. Some hundreds of them gathered in the lush St. Lucia (10-20 June 1979), a small island-state in the Caribbean, to review the vulnerability of the Caribbean region to threats ranging from volcanic eruptions, earthquakes and landslides to deforestation, oil spills, hurricanes and floods. Experiences in dealing with these disasters were exchanged, co-operation in disaster preparedness was discussed, and the use of early warning systems to avoid or mitigate the often catastrophic consequences was elaborated.

The Caribbean Disaster Preparedness Seminar was sponsored by 8 national and international organizations, the Office of the U.S. Foreign Disaster Assistance (A.I.D.) playing a major role.

The conclusions and recommendations of the Seminar are considered a valuable input into the preparation of the ECLA/UNEP-sponsored Caribbean Environment Programme (see Siren No. 2).

Oily Waters



for the Caribbean

The IXTOC I oil rig which blew out on June 3 off the Yucatan coast began releasing 30,000 barrels of oil daily into the Gulf of Mexico. After many weeks the flow is down to 10,000-15,000 barrels per day, but the well is not expected to be capped until mid or late September. This means that oil losses from IXTOC I will easily exceed the 1.3 million barrel spill from the grounding of the Amoco Cadiz off the coast of Brittany in 1978.

UNEP is sponsoring an interagency mission (FAO, IMCO, IUCN and UNEP), at the invitation of the Government of Mexico, to assist in assessment of the immediate and long-term environmental consequences of the IXTOC I spill and to advise on measures to mitigate the damage to fisheries, coastal ecosystems and amenities.

As if the greatest spill on record were not enough, on 19 July, eighteen miles north-east of Tobago, a collision occurred between the Atlantic Empress and the Aegean Captain, two super-tankers carrying 3.2 million barrels of oil. That is nearly one-fifth of the daily consumption of the United States. Luckily (?) only about 10% of the total cargo was lost.

No doubt a spill of this size would have provoked an outcry from environmentalists a few years ago, but nowadays it receives little notice since spills of much greater magnitude have taken place.

KAP gets co-ordinator



Khamis A. Nahdi of Saudi Arabia was appointed in August as the acting programme co-ordinator of the Kuwait Action Plan. Mr. Nahdi worked previously at the Ministry of Petroleum and Mineral Resources in Jeddah, and as a consultant to the Directorate General of Meteorology and Environmental Protection in Saudi Arabia.

Nahdi recently returned from a mission to the Governments of the region. He visited Bahrain, Qatar, Kuwait, Iran and Saudi Arabia to discuss the proposed Kuwait Action Plan projects, the establishment of the interim secretariat for the Kuwait Action Plan, and to determine which national institutions might be able to participate in the projects.

MARINE POLICIES COMPARED

Scientists, policy-makers and managers gathered from four continents compared their views on local, national, regional and international marine policies at a meeting sponsored by the Center for Ocean Management Studies of the University of Rhode Island (Kingston, 18-20 June 1979).

Are you interested in the results of the meeting or its proceedings? Contact Dr. Virginia K. Tippie, Executive Director, COMS, U.R.I., Kingston, RI, 02881.

quotes....

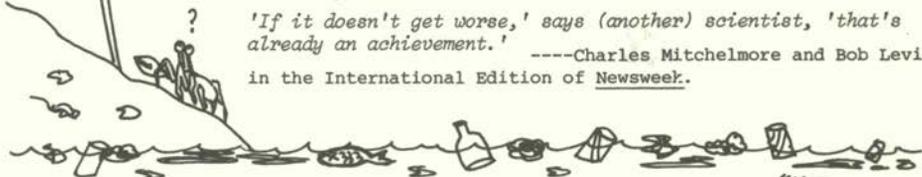
Marine pollution experts assert that 'if we count only on the capacity of the oceans to cleanse themselves, we are heading straight for a catastrophe.' The most recent accidents show they are right. The list of ecological catastrophes in the oceans grows longer every year with more and more serious consequences for fauna and flora.

----Yves Gacon, Environmental Correspondant of Agence France-Presse, Paris.



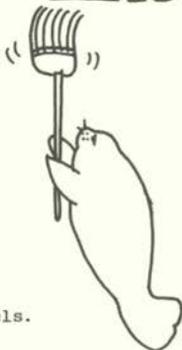
'My friends know I'm not an optimist when it comes to pollution,' says Alain Bombard, a French physician turned marine scientist. 'But Mediterranean pollution is a diagnosed illness that we are in the process of treating.'

'If it doesn't get worse,' says (another) scientist, 'that's already an achievement.' ----Charles Mitchelmore and Bob Levin in the International Edition of Newsweek.



The solution (agreement on the text of a treaty on land-based sources of pollution in the Mediterranean, reached in Geneva in late June) was undoubtedly the fruit of a lot of diplomacy. But it was also the result of a better scientific understanding of the problem...UNEP has played a remarkable driving role in the whole affair...Another treaty obligation should be noted: the governments commit themselves to exchanging information about the discharge licenses they grant, about the results of pollution monitoring and the quantity of pollutants discharged from their territory...Let us hope for the people who live around the Mediterranean and those who love it that this obligation to exchange information will be...respected...

----Jacques Poncin, Environmental Correspondant of Le Soir, Brussels.



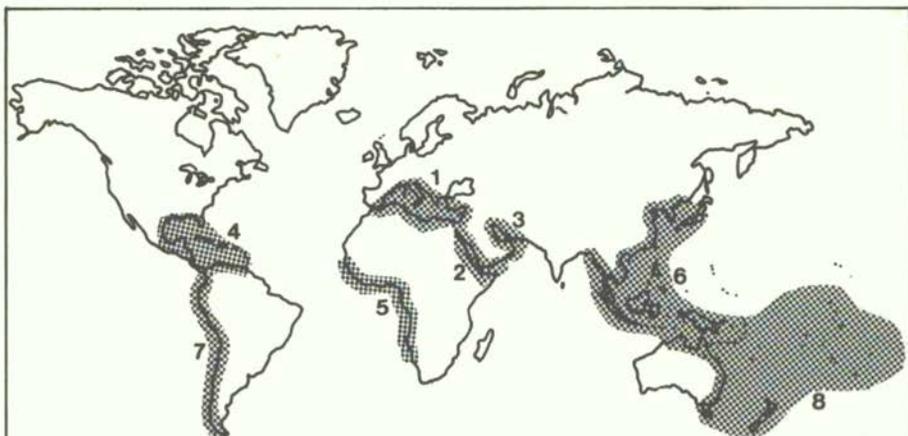
Not a single country in the Mediterranean wishes its tourist industry to fall to pieces because of 'No Swimming Here' signs, polluted fish or mussels and epidemics. ----Guido Kindt in the Belgian Flemish newspaper, De Standaard.

....and misquote

'We fear that the Mediterranean has already lost 45% of its capacity to support life. In 50 years, perhaps even sooner, there will be nothing left but viruses and bacteria,' said Jacques Cousteau.

----Der Spiegel of Hamburg.

The Siren comments: In its 11-page cover story, entitled "Mediterranean Garbage Dump" and graced by a bathing beauty in a monokini, Der Spiegel is indulging in "scare" journalism hardly worthy of its reputation as a serious weekly news-magazine. We doubt very much that Captain Cousteau said the alleged words, at least not in a serious context. For his views today, could we recommend to Der Spiegel that they read The Siren (March, 1979)?



The Regional Seas. The land and seaward limits to the regional seas indicated in this map are merely illustrative. Definition of the boundaries is the responsibility of the Governments concerned. Action Plans are in effect for (1) the Mediterranean, (2) the Red Sea and Gulf of Aden, (3) The Kuwait Action Plan Region. Action Plans are in various stages of preparation for (4) the Caribbean, (5) West Africa, (6) East Asian Seas, (7) The South-East Pacific, and (8) the South-West Pacific.

COMING EVENTS

DATE	PLACE	TITLE	ORGANIZER(S)
8-12 Oct	New Delhi	Regional Seminar on Environmental Impact Assessment in South-East Asia	WHO/ESCAP/ UNEP
5-10 Nov	Libreville	Meeting of Experts on Draft Action Plan for West Africa	UNEP
18-22 Nov	Kuwait	Meeting of Government Experts on the Kuwait Action Plan	UNEP
November		Regional Workshop on the Prevention, Abatement and Combating of Pollution from Ships in East Asia	IMCO/UNEP
2-12 Dec	Manila	Regional Workshop on Coastal Area Development in South-East Asia	UN/DIESA, UNEP
2-5 Dec	Bahrain	Meeting of Experts on the Establishment of a Marine Emergency Mutual Aid Centre	UNEP
16-22 Dec	Kuwait	First Meeting of the Contracting Parties (Council) to the Kuwait Convention	Government of Kuwait
<u>1980</u>			
January		Expert Group Meeting on Caribbean Action Plan	ECLA/UNEP
12-14 Feb	Barcelona	Intergovernmental Meeting of Mediterranean Coastal States	UNEP

The Siren is issued four times a year in English and French. It is an informal presentation of the news from the Regional Seas Programme Activity Centre of the United Nations Environment Programme. Articles may be reprinted with or without reference to The Siren. Please address all correspondence to: SIREN, UNEP, Palais des Nations, 1211 Geneva 10, Switzerland.



THE SIREN

news from UNEP's Regional Seas Programme

1980s BRIGHT for WEST AFRICAN ENVIRONMENT



A recent manifestation of environmental awareness on the part of the West African Governments occurred at a meeting of experts from 13 States of the region in Libreville, Gabon, 5-9 November 1979. Oceanographers, engineers, fisheries experts, marine biologists, hydrologists, jurists and pollution experts assembled to review a draft programme which has been evolving over the past three years to provide a framework for sound environmental management of the marine and coastal environment of West Africa.

The meeting was organized as part of UNEP's Regional Seas Programme, with the support of several United Nations specialized agencies and other international organizations. The main task of the experts at the Libreville meeting was to review and revise a draft "action plan" for the protection and development of the marine environment and coastal areas of the West African region. In structure, the draft plan follows the example set by other regions such as the Mediterranean and the Kuwait Action Plan Region. In substance, however, the plan reflects the priorities and needs particular to West Africa.

The chapter of the plan concerned with environmental assessment calls for assessment of the origin and magnitude

of oil pollution, of suspended and dissolved matter in rivers, of chemical residues and of domestic wastes. The need for studies dealing with coastal lagoons, estuaries and mangroves as important features of the West African coast is recognized. The training of local scientists and technicians to carry out the research and monitoring incorporated into the plan is stressed and, as an initial step, a survey of the capabilities of scientific institutions in the region is to be undertaken.

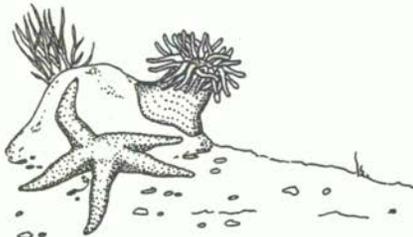
The environmental management chapter of the action plan reflects the widespread concern that development of the coastal and adjacent sea areas of the region be accompanied by sound management and control of industrial, agricultural and domestic wastes, rational exploitation of marine living resources (including aquaculture), management of coastal lagoons and mangrove ecosystems, and development of non-polluting alternative sources of energy. A programme is envisaged to assist the Governments in identifying development opportunities that are in harmony with their natural environment. In addition, the formulation of contingency plans for dealing with pollution emergencies caused by maritime accidents is recommended as well as the application of measures to control oil pollution from such practices as ballasting of ships. Training of technical personnel in environmental management practices is prescribed as a priority.

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KAP projects move ahead

Forty-six experts from the eight Kuwait Action Plan countries (Bahrain, Iran, Iraq, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates) met recently in Kuwait, 19-22 November 1979. Khamis A. Nahdi, acting Programme Co-ordinator of the plan, explains the purpose of the meeting: *The experts had before them the draft programme document setting forth the environmental assessment and management activities to be carried out within the Action Plan. This document describes 17 specific projects which the experts reviewed and amended as*



they felt necessary. Further, they divided the projects into thematic groups and assigned them orders of priority so that work on certain of them could begin immediately.

A number of useful recommendations came out of this meeting, he went on, perhaps the most important of which was a call for immediate establishment of the Interim Secretariat in Kuwait to oversee these initial stages of the action plan until the permanent Regional Organisation is established. Its staff will consist of the co-ordinator (at present myself), one marine scientist, one economist or environmental scientist, an administrative officer and secretaries, all of whom are now being recruited. Our office will be open for business by the end of January.

The first group of projects, which the experts urged should start without delay, will generate information to be used as a basis for subsequent work. These include surveys of national capabilities related to the action plan (such as the status of institutions, manpower and equipment available in the region); the status of meteorological studies related to the transport and distribution of oil; a survey of land-based sources of pollution of the region; and organizing of a workshop on marine pollution from ships.

The gathering of baseline information called for in these projects will be greatly facilitated by the visit of an inter-

disciplinary mission to the region in the near future, comments Nahdi. The group will spend about a week in each of the eight countries, making direct contact with the various government agencies involved in environmental matters. This direct approach might be considered the most efficient means of gathering the required information.

By mid-1980 results of this mission should be reported, at which time a working group of regional experts will meet to review the results and determine the operational details of a second group of projects. These constitute selected field projects, which should give a comprehensive picture of how serious pollution in the region is and what the effects are likely to be. Included in this group are (1) baseline studies on the sources, transport and distribution of oil and petroleum hydrocarbons; (2) physical, chemical and biological oceanography as related to the transport, distribution and fate of oil as a pollutant; (3) assessment of the magnitude of pollutants affecting human health and marine ecosystems; (4) the productivity and distribution of plankton;

continued....

Tolba visits Region

In mid-December, Dr. Mostafa K. Tolba, Executive Director of UNEP, traveled to Kuwait to consult with officials of the Kuwait Action Plan Region countries participating in the action plan on the immediate future of the programme.

"The purpose of my trip was to discuss UNEP's role and commitment to the action plan in the light of the recommendations of the November experts meeting," said Dr. Tolba. "This next year promises to be an extremely active one, which will see the establishment of the Interim Secretariat, execution of a number of projects and laying of the groundwork for others. These projects will be essentially carried out by national institutions and experts of the region assisted by the specialized United Nations agencies. The role of UNEP will be to co-ordinate all the activities according to guidance provided by parties to the Kuwait Convention."

...continued

(5) ecological studies of intertidal and subtidal zones; and (6) assessment of geological processes related to the fate and impact of pollutants.

When the experts meet to define the operational details of these projects, says Nahdi, they will consider the feasibility of an oceanographic cruise around the region to collect data.

The remaining projects largely relate to environmental management and include the assessment of environmental impact of development activities in the region, the building up of engineering capabilities related to environmental management, co-ordination of marine and land transport and establishing of guidelines for coastal development. Still others deal with the biology of commercially important species of marine organisms and assessment of their stocks, management of living resources, co-ordination of water management policies and strengthening of public health services.

Work on the latter projects will begin only after the first annual review

meeting of the States of the region is held at the end of 1980. *Annual review meetings and the regular convening of working groups of regional experts are considered essential means of keeping the programme running smoothly and in concordance with the immediate wishes of Governments, comments Nahdi.*

One project remains outside the grouping described above because it is considered as an essential part of all action plan activities. This project calls for regular and systematic public awareness campaigns aimed at enhancing environmental awareness and understanding throughout the region. Detailed proposals for such campaigns, aimed at utilizing the available media and production of information materials by the Interim Secretariat, will be submitted to the mid-1980 expert meeting. The campaigns will stress not only the importance of protection of the marine environment and coastal areas of the region, but the more novel idea that this protection can actually be an asset to development. ☪

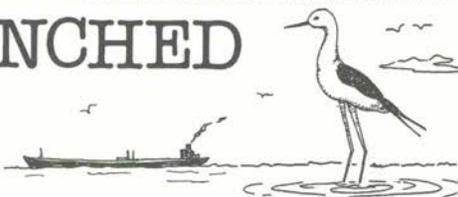
MEMAC LAUNCHED

Our Region is going through a difficult historical period which requires that we co-operate in every field and at every level, asserted Dr. Ali M. Fakhro, the Minister of Public Health of Bahrain.

Your success in salvaging the marine environment will set an excellent example for what could be accomplished in other fields... and in other endeavours against pollution on land and in the air.

These statements were made at the opening of the recent meeting of experts on the Establishment of the Marine Emergency Mutual Aid Centre (MEMAC) for the Kuwait Action Plan Region, held from 2-5 December 1979 in Bahrain. The Centre will be established in accordance with a resolution of the 1978 Kuwait Regional Conference of Plenipotentiaries on the Protection and Development of the Marine Environment and Coastal Areas, and the Protocol concerning Regional Co-operation in Combating Pollution by Oil and other Harmful Substances in Cases of Emergency (also adopted at the 1978 Conference).

The experts meeting was held to review the objectives and functions of the Centre and determine how best to establish the Centre quickly and effectively. Recommendations of the meeting will be presented to the first meeting of the



Council of the Regional Organization for the Protection of the Marine Environment, consisting of the contracting parties to the Kuwait Convention, to be held early in 1980.

There was a consensus among the experts that MEMAC should be a relatively autonomous operation, especially since its purpose will be to deal with emergency situations. In such a case it's best if the Director of MEMAC has a fairly free hand in order to respond quickly and efficiently to a given situation, said Khamis Nahdi, acting co-ordinator of the Kuwait Action Plan. Flexibility and independence are quite necessary if a Centre such as this is really going to be effective.

Another theme which was consistently stressed as being one of the Centre's major tasks, Nahdi went on, was the training of personnel, both within and outside of the Region, to deal with pollution emergencies. Besides local training programmes, this could include a

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When discussing the legal activities to be included in the action plan, the experts gave their full support to the development of a regional convention for co-operation on the protection of the marine environment from pollution. It was suggested that such a convention should be supplemented by protocols specifying detailed obligations of contracting parties, and UNEP was requested to prepare the negotiation of a first protocol concerning co-operation in combating pollution in cases of emergency.

Addressing the closing ceremony of the meeting, Mr. François Owono-Nguema, the Gabonese Minister of Scientific Research in charge of Environment and Nature Protection, praised the participating experts for the extremely competent work they had accomplished. "All States of the West African Region are well aware of the benefits to be gained from the rational management of our resources. The economic importance of marine and coastal resources has been highlighted during recent years by the United Nations Conference on the Law of the Sea. All Governments of our region recognize the intrinsic value of our fraternal collaboration and attach great importance to the speedy adoption and implementation of the action plan for the West African Region."

In the light of the recommendations of the meeting, UNEP plans to complete preparatory studies and activities in 1980 so that the action plan, including its legal component, may be adopted in 1981. The preparations will include surveys of oil pollution problems with particular emphasis on pollution from shipping activities, of industrial pollution from land-based sources, and of river inputs to the marine environment, to be carried out in co-operation with IMCO, UNIDO and UNESCO, respectively. Initial activities related to coastal lagoons, estuaries and mangroves will be supported by UNESCO, FAO and IUCN. A regional seminar on coastal area management will be organized by UN/DIESA in mid-1980. FAO and IMCO will co-operate with UNEP in preparing guidelines on which the experts may begin their negotiations towards the final text of the regional convention and the first protocol. Two meetings of legal experts from the region will be held in 1980 to discuss the texts.

Special Protection!

....the Mediterranean has to be protected as a whole. To achieve this, some parts require special treatment.

Preparations are under way for an intergovernmental meeting in late 1980 which will examine principles, criteria and guidelines for the selection, establishment and management of specially protected Mediterranean areas, the state of existing legislation and the various legal alternatives for protection of such areas, and the guidelines that may serve as a possible basis for a treaty on Mediterranean protected areas.

On 11-12 December a small group of Mediterranean experts met in Geneva to review the first drafts of documents in preparation through a joint project of FAO, IUCN, UNESCO and UNEP for the intergovernmental meeting now scheduled for next September in Athens.

film announced

The Consumer's Association of Penang has produced a 22-minute film entitled "Crisis in the Malaysian Environment."

The film covers several aspects of the environmental crisis faced by Malaysia, such as the rapid depletion of tropical forests, pollution of major rivers, air and noise pollution, soil erosion and floods, deterioration of the urban environment and the problems of squatters. It also gives case studies of three villages hit by environmental problems: Kuala Juru, where fish in the river died of poisoning from chemicals discharged from industry; Kuala Kedah, where rice fields were destroyed by a chemical factory; and Bagan Lallang where the entire village was flooded for two months due to blockage of a river resulting from construction activities.

The 16-mm colour film may be purchased from The Consumer's Association of Penang (a non-profit organization), 27 Kelawei Road, Penang, Malaysia. (US\$485)

Manos takes on MED



Mr. Aldo Manos has been appointed Co-ordinator of the Mediterranean Action Plan, effective 1 January, 1980. Previously, he held the post of Deputy Director of the Environment Fund with UNEP in Nairobi.

Mr. Manos, an Italian born on the Adriatic Sea, has long been interested in the problems of the Mediterranean. "I am very happy to have the opportunity to become more personally involved in this region," he declared, "especially through a programme of which UNEP is so proud. I plan to do it justice."

Mr. Manos' appointment comes about one month before the Intergovernmental Review Meeting of Mediterranean States on the Mediterranean Action Plan, which will be held in Barcelona, 11-13 February. He was asked what he expects this

meeting to accomplish.

"The Mediterranean States are exemplary in their determination to keep a close and watchful eye on the progress of their plan. Although they hold bi-annual meetings of the Contracting Parties to the Barcelona Convention for this purpose, at the last such meeting early in 1979 they also decided to hold a short intergovernmental meeting in a year's time to review the progress of the plan in 1979 and the work programme for 1980.

"And in fact," he went on, "they will have a great deal of progress to review. A number of meetings took place in 1979, dealing with such subjects as environmental quality criteria applicable to recreational waters, shellfish-growing areas and waters used for aquaculture and seafood; implementation of the first phase of the Blue Plan; application of the protocol on dumping from ships and aircraft; and on the upcoming protocol on pollution from land-based sources.

"So you see, I'm taking on a programme that seems to be running at full steam. Nevertheless, I'll see if I can't add a little steam of my own."

Taming the **FUTURE**

The Mediterranean region is one of the parts of the world which is experiencing rapid rates of change and growth. Just how to understand this extremely dynamic socio-economic development, evaluate its relationship to the environmental quality of the region and assess its impact on the well-being of present and future generations was the central theme of a meeting which took place in Cannes in early October 1979. The meeting was attended by Government experts from 14 Mediterranean countries and the European Economic Community.

The meeting dealt with the part of the Mediterranean Action Plan which has come to be known as the Blue Plan. H.E. François Delmas, Secrétaire d'Etat à l'Environnement et au Cadre de Vie of France, in opening the meeting, reminded the participants that "the Blue Plan project is concerned with one fundamental issue: how to reconcile environment and development." He added that "the time has come when protection of the environment could and should consti-

tute an essential aspect of the socio-economic development of all countries, whatever their particular characteristics, their culture or their aspirations."

The experts made specific recommendations on the steps to be taken to achieve the objectives of the project. These included the preparation of selected surveys and studies as well as ways and means for undertaking them.

In reviewing the conclusions of the meeting, Mr. Peter S. Thacher, Deputy Executive Director of UNEP, said that "the meeting once again confirmed that the Blue Plan is not merely an academic exercise." He expressed his satisfaction that "experts, in particular those from Mediterranean developing countries, are steering the project in such a way that it will really assist their Governments in making appropriate decisions for the protection of the environment, while taking into account the cultural and socio-economic development objectives adopted sovereignly by each State."

'patterns of co-operation'

The following is an interview with Mr. Bernardo ZULETA who, in November 1974, was appointed by the Secretary-General as his Special Representative to the Third United Nations Conference on the Law of the Sea. A national of Colombia, Mr. Zuleta has had wide experience within the United Nations in legal aspects of peaceful uses of the sea-bed, preservation of the marine environment and scientific research.

The Siren: How do the UNCLOS and the Regional Seas Programme relate to each other ?

Bernardo Zuleta: Any regional seas programme must unavoidably take into account the legal frame-work within which the marine environment can be safeguarded. The jurisdiction of a coastal State over areas of the ocean adjacent to its coastline and the interest of the international community as a whole in the preservation of the marine environment must be reconciled by means of clear rules of international law, freely agreed upon by all States bordering enclosed or semi-enclosed seas.

But States that border a given enclosed maritime space do not necessarily have the same set of priorities or the same perception of the law of the sea as it applies to the specific problem. In many cases, the maritime interest of a State is greater outside of the enclosed or semi-enclosed sea than inside it. It is, therefore, not always possible to achieve a general agreement on jurisdictional questions exclusively within the context of a region or sub-region. This was widely recognized when the General Assembly convened the Third United Nations Conference on the Law of the Sea under a Gentlemen's Agreement according to which "the problems of ocean space are closely interrelated and need to be considered as a whole".

It is, therefore, clear that the viability of the regional seas programme may be contingent upon a successful completion of the work of UNCLOS which can provide the negotiated legal framework and reconciliation between the interests of the international community and those of the different coastal States concerned.

In the discussions held so far, how have environmental issues been treated? Has there been general agreement on environmental matters ?



The Informal Composite Negotiating Text contains a very detailed set of provisions with regard to the protection and preservation of the marine environment. It calls upon all States to take all the necessary measures to prevent, reduce and control pollution of the marine environment from any source, using for this purpose the best practicable means at their disposal and in accordance with their capabilities, individually or jointly, as appropriate. These measures shall include, *inter alia*, those designed to minimize to the fullest possible extent the release of toxic, harmful and noxious substances from land-based sources, from or through the atmosphere or by dumping and also pollution from vessels or from installations and devices used in the exploration or exploitation of the natural resources of the sea-bed and the subsoil thereof.

It is generally recognized that those provisions which are contained in Part XI and are extremely specific with regard to pollution from vessels and less specific in connection with land-based sources, reflect a consensus within the Conference.

Has there been any recognition of the effectiveness of a regional approach to environmental management of the seas in UNCLOS ? For example, since the development of the UNCLOS and Regional Seas have followed parallel causes, do you find any reflection of this in the UNCLOS text?

The Informal Composite Negotiating Text contains in Part IX provisions pertaining to the co-operation of States bordering enclosed or semi-enclosed seas. States are expected to co-ordinate the management, conservation, exploration and exploitation of the living resources of the sea, the implementation of their

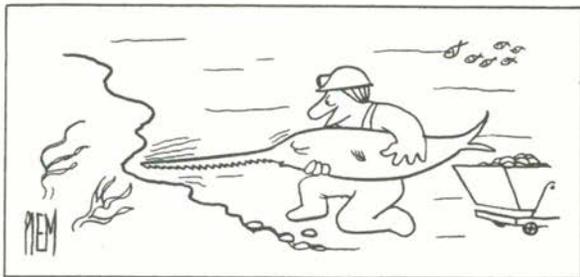
rights and duties with respect to the preservation of the marine environment and their scientific research policies directly or through appropriate regional organizations.

It is broadly recognized in the Conference that there is a logical sequence in the development of any regional or sub-regional approach.

It is necessary first to determine the rights and duties of the coastal States and the extent of their national jurisdiction and, as a consequence of this recognition, to establish patterns of co-operation suited to the peculiarities of every enclosed or semi-enclosed sea. States are reluctant to join in any pattern of international co-operation without a clear recognition of their jurisdictional rights as a condition precedent to any such co-operation.

The 200-mile economic zone seems likely to find acceptance. Will environmental responsibilities be incorporated into this concept?

The new legal concept of the exclusive economic zone implies by definition a balance of rights and duties of the coastal States. In accordance with Article 56 of the Informal Composite Negotiating Text the jurisdiction of the coastal State with regard to the preservation of the marine environment has to be exercised as provided for in the relevant provisions which are generally contained in Part XII and which I described in broad lines in answer to a preceding question. The reply to this question is therefore quite positive: the exclusive economic zone by definition embodies environmental responsibilities.



What new regime is being established for marine scientific research and do you think this will affect regional and international co-operation in this field?

In accordance with the Informal Composite Negotiating Text States, irrespective of their geographical location, and competent international organizations have the right to conduct marine scientific research subject to the rights and duties of other States as provided for in

other relevant provisions. Marine scientific research activities shall not, however, form the legal basis for any claim to any part of the marine environment or its resources. States and competent international organizations, when undertaking marine scientific research in the exclusive economic zone or on the continental shelf of a coastal State, must comply with sovereign conditions and the coastal State may, in certain cases, withhold its consent for the conducting of such activities, subject to very precise legal rules. There are some aspects of this issue that have yet to find a generally agreed formulation although it is widely recognized that the existing text is very close to one.

What do you foresee as the role of the United Nations and the specialized agencies once the new ocean regime now being negotiated comes into effect?

The institutional implications of the new law of the sea are numerous and of special importance for the United Nations and practically every specialized agency within the system. The new legal regime to be adopted will have the effect of adding to or modifying the policies and programmes of existing institutions.

The International Sea-Bed Authority to be established will have a very precise role in the exploration and exploitation of the resources of the sea-bed and ocean floor beyond the limits of national jurisdiction and will have to seek the co-operation of all the competent inter-governmental organizations that have been entrusted by Governments with specific tasks with regard to ocean space.

The Secretary-General of the United Nations will be entrusted with entirely new functions in addition to those required of the depositary under normal United Nations conventions. Secretary-General Waldheim has stated more than once that the success or failure of this monumental effort will greatly influence the willingness of States to utilize the United Nations machinery in the search for global solutions to urgent problems. ○

A Whale of a Lot of Projects

The Siren was wallowing in the Regional Seas files the other day and came across an entire shelf dealing with projects currently under way or just completed as part of preparatory activities for the action plan for East Asian Seas. Described below are eleven such projects designed specifically for South-East Asia and sponsored by UNEP in co-operation with other international organizations. Reports and recommendations from these projects will be submitted to a meeting of government experts in early summer of 1980.



1. REGIONAL SEMINAR ON ENVIRONMENTAL IMPACT ASSESSMENT IN SOUTH-EAST ASIA. In response to increasing interest in environmental impact assessment (EIA) in East Asia as an effective tool for pollution control, a seminar was held in New Delhi, 8-12 October 1979 in co-operation with the World Health Organization. Besides general topics, such as background, objectives and regional applicability of EIA in East Asia and the development of a model code of practice for EIA, several case studies were discussed.

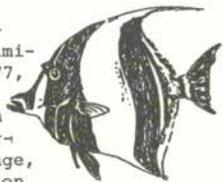
Particular emphasis was given to coastal tourism development, including health aspects (nutrition, accidents, intoxications, etc.) and amenities. Alternatives for liquid waste disposal--estuary or coastal water vs. land--were considered, as well as the topics of industrial development in coastal municipal agglomerations, energy generation, land use planning and agriculture.

2. WORKSHOP ON COASTAL AREA DEVELOPMENT AND MANAGEMENT IN SOUTH-EAST ASIA. This project brought together people who deal with coastal area development projects within their countries to study techniques, methodologies and administrative procedures related to resource evaluation, development and management. Meeting in Manila, 2-12 December 1979, participants were presented with information on various inventory techniques (aerial reconnaissance and remote sensing, oceanographic and biological sampling, geographic and socio-economic data collection) and examined methods of site selection and EIA. Several specific examples were presented for study concerning waste disposal, offshore mineral and petroleum exploitation and land reclamation. The workshop was organized in co-operation with the United Nations and other sponsors.

3. DEVELOPMENT OF REGIONAL OIL SPILL CONTINGENCY ARRANGEMENTS IN SOUTH-EAST ASIA. Tanker traffic in the Lombok/Makassar Strait/Celebes Sea shipping route has increased with recently-imposed restrictions on under-keel clearance in the Malacca Strait. At the same time, offshore oil and gas production facilities are proliferating. The possibility of collisions involving Ultra and Very Large Crude Carriers (ULCCs and VLCCs) threatens the area with massive releases of oil into the marine environment. Experts met in Jakarta, 7-9 January 1980, to discuss the risks associated with this situation, the possibility of co-operative response to a major spill, and the drafting of guidelines for a Protocol Concerning Co-operation in Combating Pollution of the South-East Asian Waters by Oil and Other Harmful Substances in Cases of Emergency. (Organized in co-operation with the Inter-Governmental Maritime Consultative Organization)

4. IMCO/UNEP INTERNATIONAL WORKSHOP ON THE PREVENTION, ABATEMENT AND COMBATING OF POLLUTION FROM SHIPS IN SOUTH-EAST ASIAN WATERS.

In order to help countries of East Asia to develop an independent capability to deal with oil pollution and provide them with a nucleus of personnel trained in the techniques of oil pollution abatement, a workshop will be convened in early 1980. The workshop, which will probably be held in March in Manila, will be similar to those held previously for other Regional Seas (Douala 1977, Cartagena 1978) and will provide instruction in mechanical and chemical methods and techniques of dealing with oil spills, such as containment, mechanical recovery, burning and chemical dispersion. Other topics will include legal aspects of pollution damage, contingency arrangements in case of massive spills, and prevention of pollution by dumping. Results of an Oil Pollution Overview Study now in preparation will provide information on specific regional problems.



5. RIVER INPUTS TO SOUTH-EAST ASIAN SEAS. East Asian Rivers exhibit some of the highest suspended matter concentrations found in the world, a situation which is likely to have widespread effects on estuaries and coastal ecosystems and coral reefs. In addition, countries bordering South East Asian seas have many densely populated areas, and their industry and agriculture are growing rapidly, further contributing to the load of material borne by rivers to the sea. In co-operation with UNESCO, this project was organized to evaluate river water monitoring activities in the region and recommend guidelines for future monitoring. Two consultants are currently gathering information and documentation from regional institutions and laboratories to be presented at a meeting of scientists planned for March.

6. RESEARCH INTO TOXICITY OF OIL DISPERSANT CHEMICALS ON TROPICAL AND SUB-TROPICAL MARINE SPECIES. In order to determine the suitability of using oil-dispersing chemicals in East Asian waters, IMCO and the Government of the Philippines are co-operating in the organization of a programme of toxicity testing. A technical expert was sent to the Philippines to give advice on the design of such a programme, and two Philippine scientists are currently involved in on-job training in the United Kingdom in specialized techniques of toxicity testing. Research results will be of use to neighboring countries with similar coastal ecosystems.

7. DEVELOPMENT OF LEGAL INSTRUMENTS FOR THE PROTECTION OF THE MARINE ENVIRONMENT IN SOUTH-EAST ASIA. A great deal of work has already been done to provide the basis for national and regional legal action protecting the marine environment of South-East Asia. A comprehensive legal survey and a report on the status of environmental protection legislation in the ESCAP region was submitted to the ESCAP/UNEP Intergovernmental Meeting on Environmental Protection Legislation (Bangkok, July 1978) and a subsequent meeting of ASEAN experts on the environment (Jakarta, December 1978) gave further impetus to this effort. The Environmental Co-ordinating Unit (ECU) of ESCAP is assisting in a project which provides the services of legal experts to review existing national legislation in the region and alternatives for legal action including the possibility of a regional convention.



8. OVERVIEW OF LAND-BASED POLLUTION SOURCES IN SOUTH-EAST ASIA.

The purpose of this project (jointly organized with WHO) is to provide baseline information on the magnitude and type of pollution entering the coastal waters of East Asia from sources along the coastline, especially cities, industrial sites and areas





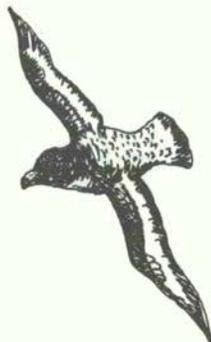
of intensive agriculture. This information will in turn be useful for the design of environmental assessment and management projects under the envisaged action plan. Consultants preparing the overview have already completed draft reports for the cities of Jakarta and Bangkok and are expected to cover other areas during early 1980.

10. IMPACT OF POLLUTION ON THE MANGOVE ECOSYSTEM AND ITS PRODUCTIVITY IN SOUTH-EAST ASIA (PREPARATORY PHASE). The Indo-Pacific region, particularly South-East Asia, is the centre of the world's mangrove belt. Mangrove swamps serve as spawning, nursery and feeding grounds for many commercially-important organisms and have a high potential for aquaculture development. Unfortunately, not very much is known about the functioning of this important system, which is also characteristic of several other regional seas (notably West Africa and the Caribbean). What we do know is that the mangrove system is especially susceptible to water pollution, and this project calls for an evaluation of that susceptibility as well as of the type and amounts of pollutants entering the mangrove swamps of East Asia. Regional experts on mangroves, fisheries and aquaculture will meet in early February to summarize what is known about pollution impact on mangrove systems and suggest plans for future research and international co-operation. Work is now under way on the mapping of mangrove distribution in the coastal areas, and the feasibility of aerial reconnaissance and remote sensing techniques is being studied. The project is organized by FAO with the support of UNESCO and the International Union for Conservation of Nature and Natural Resources.



9. ASSESSMENT OF OIL POLLUTION AND ITS IMPACT ON LIVING AQUATIC RESOURCES IN SOUTH-EAST ASIA (PREPARATORY PHASE). Heavy maritime traffic through the Strait of Malacca, 12% of which consists of oil tankers, results in a small but steady release of oil into the marine environment. This project, organized with the Food and Agriculture Organization of the United Nations and the Intergovernmental Oceanographic Commission and carried out by national institutions collaborating with FAO, will utilize regional expertise to compile data on levels and distribution of oil in the marine environment and organisms, to examine areas affected by oil pollution, to study the response of marine life to oil pollution and to propose research projects for studying pollution effects. As part of the first phase, which is hosted by the South China Seas Fisheries Development and Co-ordinating Programme of FAO, an expert consultation will be held in Manila in February. These preliminary activities will provide baseline information on which a full-scale programme can be launched as part of the East Asian Seas action plan.

11. ENVIRONMENTAL PROBLEMS OF OFFSHORE EXPLORATION AND EXPLOITATION IN SOUTH-EAST ASIA. Offshore exploration and exploitation is one of the most rapidly developing activities throughout South-East Asia due to the richness of seabed resources such as mineral oil and natural gas, tin and other heavy metals, and phosphorite and manganese nodules. Assessment of the risks associated with geological hazards and the application of new technologies has been carried out for particular localities in East Asia. The Committee for Co-ordination of Joint Prospecting for Mineral Resources in Asian Offshore Waters (CCOP) of ESCAP is co-operating on this project, which provides a consultant to advise Governments on environmental problems associated with these offshore activities, an appraisal of monitoring technologies, guidelines for hazard assessment and related technical advice.



Caribbean Action Plan on solid ground

The Caribbean Environment Programme in its totality is passing under review for the first time at a meeting of scientists and environment experts in Caracas, 28 January-1 February. The Government-nominated experts will have before them the draft action plan for the development and protection of the Wider Caribbean Region, and a number of information documents which provide a rationale for the action plan's form and content.

"The action plan has been designed to reflect the unique and specific environmental problems encountered in the Caribbean," explains Arsenio Rodriguez, scientific adviser for the programme. "The Caribbean region consists of States and Territories with diverse economic and political structures, varied natural resources and widely divergent social systems, which means that capabilities for development differ among them as well. Many environmental problems in this region are due to underdevelopment, others are side-effects of the particular type of development tried before."

"For example, methods which are suitable for temperate, land-locked areas have been applied to tropical island and coastal zones with unfortunate consequences. Thus, the basic assumption

which underlies all our work on the Caribbean programme is that development *per se* has not been responsible for environmental problems, rather it is the type of development pursued."

The background documents for the meeting include a number of sectorial overviews which explore the issues of development and environment as they concern the Caribbean, especially those that require co-operative regional action. They deal with subjects such as environmental health, natural disasters, energy, marine pollution, oil pollution and control, human settlements and existing environmental legislation. These reports were summarized in a synthesis document which also proposes the general outline of a strategy for environmentally sound development. It describes not only the goals and objectives of the action plan, but the reasons behind them.

Rodriguez continues: "The action plan takes into account both the strengths and weaknesses of existing Caribbean institutions, and it has been designed according to the needs of the peoples of the region to utilize their fisheries, forest, agricultural, mineral and human resources while maintaining a healthy natural environment." ☪

(continued from p. 3)

series of workshops and seminars, supplemented by a strong fellowship programme.

The above concerns were reflected in the recommendations of the meeting, which also urge that the offer of Bahrain to host and provide facilities for the centre be accepted.

Also attending the meeting was Y. Sasamura, representative of the Inter-Governmental Maritime Consultative Organization, who stated that IMCO attaches great importance to the questions of maritime safety and prevention of pollution from ships in the Region. *There is no doubt that this region is an extremely important shipping route, he stated, with a huge amount of traffic consisting of very large tankers carrying millions of tons of crude oil to destinations all over the world. There are also large-scale activities of exploration and exploitation of mineral oil resources in the Region. Any accidents to one of the tankers or platforms might give rise to a very serious threat to the marine environment in this Region. It is therefore*

very urgent for the Region, firstly, to take the necessary steps to prevent such accidents, and, secondly, to make the necessary arrangements to mitigate pollution should such accidents occur.

His call for urgent action echoed the concern expressed by Dr. Fakhro: *We are running short of time and problems are accumulating against our will. He reminded the experts that the layman is wondering about the delay in our action at a time when the causes of pollution increase and so do the effects on man of dumping harmful substances from the factories into the coastal areas. I personally share the feelings of those who think that we are slow in combating the pollution problems of our marine environment.*

We're fortunate that no major accident of the size of the Amoco Cadiz has happened yet, adds Rifaat A. Mahmood, who chaired the Bahrain meeting, and we can keep our fingers crossed that this will not happen before we have the necessary response system built up.

The meeting was attended by experts from Bahrain, Iran, Iraq, Kuwait, Oman, Qatar and Saudi Arabia.

Small Islands Plan Ahead



The small islands of the Caribbean have a number of common problems, not least of which is how to develop their varied but often limited resources within relatively severe environmental constraints. There are few ecosystems as vulnerable to ecological stress as that of a small island in the tropics.

In September, a Conference on Environmental Management and Economic Growth in the Smaller Caribbean Islands was held in Barbados and attended by government officials and observers from the Caribbean islands, several mainland countries and international and regional organizations. The purpose of the conference was to allow those concerned with resource management in the Caribbean to sit together and assess their common problems and examine the various development strategies open to them.

"The countries and territories of

the Caribbean region are largely under-developed, and eager to begin developing their varied resources," explains Trevor Boothe, Co-ordinator of the UNEP/ECLA Caribbean Environment Project. "Perhaps it is the very diversity of development opportunities here that breeds caution on the part of planners. Tourism, agriculture, industry, mining and recreational activities can be pursued within a limited space only if they are carefully managed with regard to their environmental and economic impact, and this is true for small islands more than for any other type of environment.

"A lot of interesting ideas were tossed around at this meeting," said Boothe, "which is exactly what we hoped would happen. If I had to say what the major themes were, I'd say first, the absolute necessity for proper management of land and other natural resources of the small Caribbean islands; second, the advisability of forming pools of talent to solve the problems which arise; and third, the need for communication among all the partners in this struggle to find the best solution to our development problems." ☺

COMING EVENTS

DATE	PLACE	TITLE	ORGANIZER(S)
16-17 Jan	Noumea	1st Meeting of Joint SPEC/SPC/ESCAP/UNEP Co-ordinating Group	SPC (SPEC, ESCAP; UNEP)
28 Jan-1 Feb	Caracas	Meeting of Government Nominated Experts on the Caribbean Action Plan	ECLA, UNEP
4-8 Feb	Manila	Meeting on the Pollution of Mangrove Ecosystems in South-East Asia	FAO (UNESCO IUCN, UNEP)
11-13 Feb	Barcelona	Intergovernmental Meeting of Mediterranean Coastal States	UNEP
11-15 Feb	Manila	Meeting on the Impact of Oil Pollution in South-East Asia	FAO, IOC, UNEP
25-27 Feb	Nicosia	IPU Sub-Committee on the Mediterranean	IPU
25 Feb-1 March	Dubrovnik	11th Session of GESAMP	UNEP, other sponsors
March	Manila	International Workshop on the Prevention, Abatement and Combating of Pollution from Ships in South-East Asian Waters	IMCO (UNEP)
March	Kuwait	First Meeting of the Contracting Parties (Council) to the Kuwait Convention	Govt. of Kuwait
March	Kuala Lumpur	Expert Consultation on River Sedimentation in East Asia	UNESCO (UNEP)
16-29 April	Nairobi	UNEP Governing Council, 8th Session	UNEP
April-May	Geneva	Committee of Experts on Mediterranean Interstate Guarantee Fund	UNEP



THE SIBER

news from UNEP's Regional Seas Programme

Prospects for the adoption of a sweeping environmental action plan to promote environmental management in the Wider Caribbean Region have taken a long step forward.

After a five-day meeting in Caracas (28 January - 1 February), government-nominated experts from 23 Caribbean mainland states, islands and territories agreed to recommend to the governments a draft action plan for their region.

The plan is an extremely broad one dealing with, inter alia, alternative sources of energy; oil spills and marine pollution; the protection of coral reefs, mangroves, coastal lagoons and turtle grass beds; rational development of fisheries and fish farming; an early warning system for such natural disasters as hurricanes; supply of drinking water; environmental health problems; housing conditions; tropical forests; mineral resources; watersheds; soil use and erosion; the impact of tourism; the training of scientists and technicians; and the equipping of laboratories in the less developed states.



"The action plan is needed because many of these problems cannot be solved by individual countries, even the richest. They require transnational or regional co-operation," explained Trevor Boothe, head of the joint ECLA/UNEP project team which co-ordinated preparation of the action plan.

Drawn up by the United Nations Environment Programme (UNEP) and the U.N. Economic Commission for Latin America (ECLA), the plan as modified by the experts will be submitted to an interministerial meeting early in September.

The Action Plan seems certain to be adopted if one may judge from the attitude of the government-nominated experts in Caracas.

"In its economic and social aspects, the Caribbean Action Plan goes well beyond the Mediterranean Action Plan," Boothe continued. "As in the Mediterranean, we expect political differences to be overcome because of the common interest of the Caribbean countries in safeguarding their common heritage, the sea, and because of their vulnerability to the same natural and man-induced disasters and hazards affecting the region."

The "Wider Caribbean Region" covered by the Action Plan comprises the countries and territories of the insular Caribbean including the Bahamas, the northeastern part of South America from Colombia to French Guyana, all of Central America, Mexico,

CARIBBEAN STATES

ACT ON ENVIRONMENT

the gulf states of the United States, as well as the coastal and open waters of the Caribbean Sea proper, the Gulf of Mexico, and the waters of the Atlantic Ocean adjacent to the States and territories mentioned above.

It should be noted that because of their departments and territories in the region, France, the Netherlands and the United Kingdom participated in the Caracas meeting and are expected to participate in the September interministerial conference.

continued on page 4...

FULL SPEED AHEAD for the South-East Pacific

In January, a 14-month project was approved by UNEP which consolidates the efforts of five international organizations and five governments to prepare and develop an action plan for the South-East Pacific.

"The division of labour incorporated into the project from its start will be, I think, the key to maintaining its momentum over the next year," commented Ambassador Juan Miguel Bakula, Secretary General of the Permanent Commission for the South Pacific (CPPS). The day-to-day co-ordination will be handled by CPPS, the regional organization which has been involved in the promotion of coastal resource management in the area since 1952. The CPPS will also contribute to development of principles and guidelines for a regional convention on protection of the marine environment from pollution, and compilation of background data on sources and levels of pollutants along the coasts."

The Governments of Chile, Peru, Ecuador, Colombia and Panama, which will eventually participate in the project, will be asked to identify their individual and collective priorities. These will then be reflected in the design of the draft action plan.

Several United Nations organizations have been interested in a regional environment programme for a number of years. In 1978 an International Workshop on Marine Pollution in the South-East Pacific was held in Santiago, Chile. This resulted in joining the efforts of CPPS with those of FAO, IOC, IMCO and UNEP in developing the regional programme which has since become one of the UNEP-sponsored Regional Seas programmes. The FAO, with help from IOC, will bear primary responsibility for creating a regional marine pollution

monitoring and research programme, with particular attention to protection of living resources such as the region's vital fisheries.

Evaluation of the capabilities and needs of regional institutions as they relate to marine pollution assessment and research will be taken on by IOC of UNESCO. And, since oil pollution is recognized as a special concern in this region, IMCO will prepare an overview on the problem, followed by a training programme for regional experts in methods of preventing and abating pollution by petroleum hydrocarbons and other materials.

IMCO will also be active on the legislative side, helping to prepare a protocol on regional co-operation for emergency measures against pollution and providing assistance to the Governments to bring their national legislation in line with various international agreements, such as the London Dumping Convention of 1972.

"Among the most immediate jobs to be accomplished is collection of information about the state of pollution in the region and the capabilities of marine research institutions to deal with it," noted Ambassador Bakula. "Consultants will visit each of the countries and many of their research institutions between now and mid-1980, and one result will be the publication of a directory of marine institutions similar to those already issued

continued...



The Siren is issued four times a year in English and French. It is intended as an informal presentation of the news from the Regional Seas Programme Activity Centre of the United Nations Environment Programme, and does not necessarily reflect the official views of UNEP.

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for the Mediterranean, Caribbean and Indian Ocean. This background work and work on the convention and protocol should be far enough advanced by this summer for a draft action plan to be drawn up. An expert review meeting on the plan is scheduled for the end of the year. In the meantime, a number of supplementary projects will be undertaken, including seminars, training courses, and preparation of background documentation." ☺

OPTIMISM IN NOUMEA

Hopes that the South Pacific Regional Environment Programme (SPREP) would get off to a quick start were realized in an atmosphere of optimism and expectation at the recent meeting held in Noumea, New Caledonia, 16-17 January 1980. The Programme is designed to help island countries in the South-West Pacific region to maintain and improve the quality of life of their residents by sound management of the environment and resources. The first phase is to start immediately and will last about 18 months, during which time Pacific Governments will establish national environmental priorities and prepare country reports outlining their policies and special environmental problems.

The area of the Pacific extending from Papua New Guinea as far east as the Tuamotu archipelago is comprised of remarkably diverse biotic communities. These have evolved, and are evolving, within ecosystems noted for their varied structures and extreme degree of geographical isolation from one another. Numerous island groupings support large numbers of endemic species whose local extinction means total and irrevocable disappearance and permanent disruption of communities of organisms.

"The livelihood of Pacific peoples has always depended on the wise use and sustainable exploitation of such communities -- of the coral atolls, rain and beach forests, coastal swamps and lagoons," comments Mahe U. Tupouniua, outgoing Director of the South Pacific Bureau of Economic Co-operation (SPEC). "Continuation of this pattern in the face of modern development presents a special challenge to environmentalists and managers, who are just now beginning to come to grips with the complexity and urgency of their problem. The very fate of Pacific peoples and cultures depends on their success in protecting the natural ecosystems which sustain them."

An approach to environmental management in the region was first discussed in 1974, owing to the initiative of the South Pacific Commission (SPC). Participating in the original talks were SPEC, the Economic and Social Commission for Asia and the Pacific (ESCAP), UNEP's Regional Office for Asia and the Pacific (ROAP) (see Box), and several other specialized organizations of the United Nations system. In 1975 the idea of convening a Conference on the Human Environment of the South Pacific -- a sort of "Stockholm of the Pacific" -- was first introduced by Dr. Mostafa K. Tolba, UNEP's Executive Director. The proposal gained increasing acceptance and was eventually

continued on page 11...

PROFILE

Reynaldo Lesaca



Preparations for the Regional Seas programmes for East Asia and the South-West Pacific are running smoothly and efficiently thanks largely to the involvement and active support of UNEP's Regional Office for Asia and the Pacific (ROAP) and the efforts of its Deputy Regional Representative, Dr. Reynaldo M. Lesaca. A native of the Philippines, Dr. Lesaca has been formally involved in environmental protection work since 1968, when he was appointed Commissioner of the newly-created National Pollution Control Commission by the President of the Philippines. He was a senior Philippine delegate to the 1972 Stockholm Conference on the Human Environment and was seconded to UNEP as Senior Adviser of the UNEP Regional Advisory Team in 1976. He has held his present post since 1977 and has since been involved in a variety of environment programmes for Asia and the Pacific, and in a number of country projects where he provided substantive assistance to the formation and operation of national environmental services throughout the region.

Dr. Lesaca is the author of some 75 articles on science, environment, public health and related subjects.

Quite obviously, there is great political and economic diversity in this vast region. There are highly-developed free market economies, planned economies, rapidly-developing, potentially-rich countries, poor States and tiny islands largely dependent on tourism.



...we expect political differences to be overcome because of the common interest of the Caribbean countries in safeguarding their common heritage, the sea, and because of their vulnerability to the same natural and man-induced disasters affecting the region.

--Trevor Boothe

include voluntary contributions from participating countries as well as from States interested in the plan but not participating in it, the United Nations system, and from other regional and international organizations. The establishment of a Caribbean Regional Trust Fund is contemplated. UNEP is expected

to provide the initial financial support for the Action Plan, but the aim is for it eventually become self-supporting.

When governments of the region meet in September to adopt the Action Plan, it will be the first major conference ever held in the Caribbean to discuss and decide what to do about the environmental problems of the region.

One of their jobs will be to determine the kind of legal framework they wish to give to their Action Plan. One possibility would be a formal treaty committing signatory States to protect their common seas and coastal areas from environmental degradation and to develop them in a sustainable and environmentally-sound manner. To coordinate activities approved, a small regional coordinating unit is likely to be established. ☺

They strongly endorse the four components of the Mediterranean Action Plan, invite the States concerned to complete ratification of the Barcelona Convention and related protocols, and to adopt the Protocol on land-based sources of pollution; recommend programmes of environmental education and public information and propose to mark each year by common accord a Mediterranean Day; recommend that the programmes of technical assistance, training and the provision of equipment be further developed; urge Governments to make payments to the Mediterranean Trust Fund at the earliest possible date and recommend exploration of other methods for the financing on a larger, more automatic basis of the activities of the Action Plan.

Present at Nicosia were Parliamentarians from Algeria, Cyprus, France, Greece, Monaco, Morocco, Spain, Syrian Arab Republic, Tunisia and Yugoslavia and observers from Finland, Jordan, Liberia and the United Kingdom. ☺

Put in a nutshell the Caribbean Action Plan's principal objectives are: (1) to assess the state of the environment of the region, and (2) to assist the governments of the region to solve or minimize environmental problems through environmental management of development activities.

Since nothing can be done without money, the Action Plan envisages several sources of financial assistance. These

IPU GIVES STRONG SUPPORT TO MEDITERRANEAN ACTION PLAN

The Inter-Parliamentary Union's Sub-Committee for the study of the means to control the pollution of the Mediterranean Sea held its second meeting in Nicosia from 25 to 27 February 1980. The President of Cyprus, in his opening address, called pollution one of the most serious problems in the world at the present time and said that everything must be done to protect the Mediterranean, a cradle of civilization and once a lake full of life.

The meeting heard a report from the Co-ordinator of the Mediterranean Action Plan, Aldo Manos, on the situation following the review meeting in Barcelona, and a report from IMCO on the participation of Mediterranean States in global conventions dealing with marine pollution control.

The final recommendations, addressed to the 88 Parliaments in which IPU national groups exist, were unanimously adopted.

Agreement in Barcelona

Barcelona, 13 February -- Mediterranean States Meeting in Barcelona from 11 to 13 February 1980 agreed to fulfill and accelerate their promised financial commitments to their Trust Fund to combat pollution in the Mediterranean.

After an animated three-day inter-governmental meeting they refused to curtail, postpone or abandon any of their principal scientific, legal or socio-economic activities. These are aimed at controlling pollution in coastal waters and beaches, and developing their coastal environment in a sensible, sustainable manner.

Representatives of most of the 18 countries in the region and of the European Economic Community were "shaken", said one delegate, by the strongly-worded, opening-day warning of Peter S. Thacher, Deputy Executive Director of the United Nations Environment Programme (UNEP) which convened this meeting.

"Without a dramatic and immediate increase in cash contributions," Thacher said, "we shall have to stop a number of activities. Our financial resources are insufficient to carry out the programme of the Mediterranean Action Plan."

Several countries indicated that their contributions had already been sent, while the major contributors confirmed that their payments would be made within the next few months.

The financial tempest, which dissolved in a Spanish tea cup, led Malta to suggest that in the future Mediterranean governments make budgetary requests a year ahead of time. This proposal met with general approval.

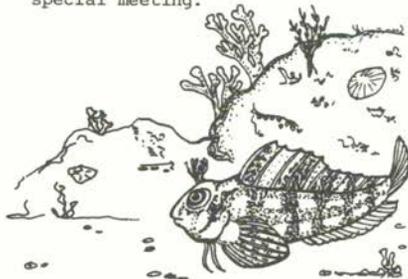
The meeting approved the activities carried out in 1979 and adopted a revised work programme and budget (in the amount of \$ 1,072,200) for 1980.

The following meetings were agreed for 1980:

1. A Plenipotentiaries Conference will be held in Athens, 12-17 May, to consider a key treaty on land-based sources of pollution (factory waste, municipal sewage and agricultural pesticides and fertilizers). These account for an estimated 85% of all Mediterranean pollution, so its signing and ratifi-

cation are fundamental to any serious effort to diminish and control pollution in the region;

2. In spite of proposals to put off an Intergovernmental Meeting on Specially Protected Areas in the Mediterranean for the sake of economy, the conference will be held in October in Athens. The Tunisian delegation reiterated its offer to host a Centre for such a programme.
3. An expert meeting will review the results of the pilot phase of the pollution monitoring and research programme (MED POL) which started in 1975 and involves 84 national laboratories from 16 Mediterranean countries. The meeting will also discuss the proposal for a long-term research and monitoring programme for the Mediterranean. This meeting will be held in Geneva in October 1980.
4. A financial and programme experts meeting to prepare the 1981-83 work programme and budget for submission to the February 1981 meeting of Contracting Parties was proposed by France and will be held in November 1980. France will finance this special meeting.



Aldo Manos of Italy, the recently named Co-ordinator of the Mediterranean Action Plan, gave a preliminary estimate of the 1981 budget requirement -- \$ 4,500,000.

The Barcelona meeting of Mediterranean States was buoyed up by Algeria's announcement that it had ratified the 1976 Barcelona Convention and is expected to ratify the two related Protocols soon. This will bring the number of ratifying states to 16 (out of 18) plus the European Economic Community. ☺

On March 5, 1980, a World Conservation Strategy was launched at simultaneous press conferences in over 30 countries on every continent. The result of an intensive effort involving governments and more than 1000 scientists and other experts from more than 100 countries, the Strategy aims to ensure that the

earth's natural resources will be safeguarded for future generations. The Strategy was prepared by the International Union for Conservation of Nature and Natural Resources (IUCN) under the joint sponsorship of the United Nations Environment Programme and the World Wildlife Fund (WWF).



conservation's new context

--- AN INTERVIEW WITH DAVID MUNRO

The Siren: It is a widely held belief that conservation by its very nature is opposed to progress. How can you get around this image problem?

David Munro: I don't think it's hard to get around at all. Conservation is simply the opposite of waste. While attempting to improve the standard of living and quality of life for people, the only way we can ensure that any progress we make is lasting is through careful management and prudent use of the earth's resources--that is to say, by avoiding waste. We don't want improvements that are good for a few years and then disappear.

IUCN through the World Conservation Strategy commits itself to "conservation through development." Does IUCN's traditional constituency accept this? Can you in fact make them care what happens in the Third World?

Yes, I am sure that our constituency accepts the basic premise of the World Conservation Strategy. In fact, when the first draft was presented to our General Assembly in Autumn of 1978 the delegates resolved that even more attention be paid to the relationship between conservation and development than was reflected in that draft. They said that the next time the draft should place conservation firmly in its socio-economic context, with due reference to population and such other major influences as poverty, economic growth, the consumption of energy and raw materials,

inappropriate technologies and the satisfaction of human needs. There may be a few individuals who remain unconvinced of the significance of this close relationship between conservation and development, but I don't think there's really very much opposition to it any more.

In any specific set of circumstances where a decision must be made weighing a conservation benefit on the one hand against a benefit from development on the other, what criteria are used to determine the best course of action?

The main criteria which I think must be taken into account are the need to conserve renewable resources so that our forests and seas and wetlands, for example, go on producing what human beings require, and the need to keep basic life support systems functioning without deterioration.

Development has to be planned in such a way that ecological processes and life support systems are secure and that the use of resources does not rise to levels which result in their depletion beyond

Dr. David A. Munro is the Director of IUCN. A wildlife biologist from British Columbia (Canada), he has held several high posts in the Canadian Government and served for a year as Special Adviser to UNEP's Executive Director. For the past three years Dr. Munro has been deeply involved in preparations for the launching of the World Conservation Strategy.

the point of recovery.

To go back to the question about the extent to which IUCN's constituency is likely to accept this linkage between conservation and development, I think one of the main reasons for this acceptance is that people now realize that many of the most significant conservation problems in the world today, including the threat of species

extinctions, occur in developing countries and are the result of the extreme pressures on resources caused by poverty and lack of development. It is understood now that until there is a reasonable chance for populations as a whole to enjoy a reasonable quality of life--on a sustained basis--throughout the world, there will be such destructive pressures on resources that conservation cannot succeed.

The World Conservation Strategy places a good deal of emphasis on marine species. Why is this? Can't we say that when compared with the land, the seas are in fairly good shape?

Not really. We are aware of considerable problems in the marine environment. Some of these arise from the fact that large areas of the oceans are nobody's responsibility. They are part of the common heritage of mankind, but that just means that sometimes it's difficult to find anybody to take responsibility for their good management. Consequently, there have been severe instances of pollution which have endangered ecosystems in various parts of the world, as well as severe cases of overexploitation of living resources. A well-known example of the latter is the large whales. Here we are still fighting to ensure that some of the most spectacular and unusual species of marine animals are not lost just through the selfishness and irresponsibility of certain people trying to exploit a resource to the very last drop.

Of your two examples of threats to the marine environment, which do you feel is more serious -- pollution, or what Cousteau terms "mechanical aggression", including overexploitation, dredging, coastline expansion, etc? (see Siren No. 4)

The problem for a great many species is certainly "mechanical aggression", or we might say "large-scale human interference." This is the case with the whales, as well as the marine turtles -- another very interesting group, many species of which are presently under severe threat. That is why a number of fish stocks have declined significantly in recent years. But I don't think that we can minimize

pollution as an adverse factor either, particularly in the enclosed seas. Readers of The Siren have been made well aware of this factor so I don't need to belabour it.

It has often been the strategy of IUCN to use a particular animal as a symbol of conservation in a particular region, such as the tiger in India. Do you plan to continue this approach? Can the monk seal be for the Mediterranean what the snail darter was for rivers in the US?

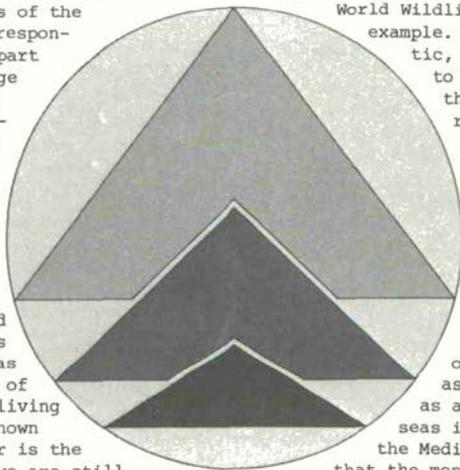
Oh, yes. The idea of finding a symbol for a biome or an ecosystem is a very effective one since people relate much more easily to an individual species. There are some species which attract people from infancy -- the panda of the

World Wildlife Fund is a good example. Yes, it's a good tactic, and we will continue to employ it. We are thinking now of the rhino and elephant as symbols to promote good management of the savannah lands of Africa and all the wildlife they support. As for the seas, you have probably noticed that models of a whale have been used in a number of public demonstrations as a symbol for the seas as a whole and the high seas in particular. As for the Mediterranean, I don't know

that the monk seal is that well known, except in the few places where it still exists. But just because it hasn't yet achieved the notoriety of the snail darter doesn't mean that it couldn't be used. It is an interesting and attractive animal and it might well be a useful tool in a public information programme in the Mediterranean.

What about the annual harp seal hunt? Is this a real issue for conservationists or simply an emotional one?

We try to approach problems like this on a rational basis, and to develop our positions on the basis of scientific information. Of course we cannot discount the importance of emotional factors in considering the politics of the matter, but emotions should not be taken into account when trying to develop the basis of a position. Incidentally, it is important to remember that despite all you hear, the harp seal is not an endangered



species. The Canadian populations of the harp seal in particular have been studied as intensively as any marine species anywhere, and thus there is a better information base for management of that species within its ecosystem than there is for just about any other species I could name. In fact, we agree with the management goals which have been set by the Canadian Government, but do not feel that the quotas and regulations established to control the harvest take full advantage of the information available and are sufficiently rigorous and conservative to achieve those goals as quickly as possible. We are really looking for perfection in this instance.

To return to the question of emotion. One of the reasons the harp seal has attracted more attention than other animals of which considerable numbers are killed every year -- such as kangaroos in Australia -- is that the image of the hunt is so very striking. The young animal is white, lying on an ice flow, and its blood is very red. But really there is no more reason to cease killing harp seals than there is to cease killing any of the many hundreds of other species in all parts of the world, both domestic and wild, that we use in order to sustain ourselves.

Conservation traditionally deals with the preservation of species, but to do this outside of zoos, we must protect their ecosystems. How far can this effort be pursued in the light of expanding human populations and the need for development?

There are two avenues of approach open to us. One is that we can establish, and indeed have established, a number of parks and reserves where priority for management of the land is given to maintenance of the ecosystems and all of the plant and animal species that they comprise. But there will never be more than a minute fraction of the earth's surface devoted to parks, and so it is necessary also to ensure that within areas where the primary use is an exploitive one -- where timber is being cut, where animals are being grazed or crops grown -- the management of land allows the existence of wild animals and plants within these modified ecosystems. And this is quite a practical objective. There are many parts of the world where ecosystems have been modified and heavily utilized for centuries, and yet are far from devoid of wild animal and plant life. Many landscapes of Western

Europe are of this sort and can in fact serve as models for such management.

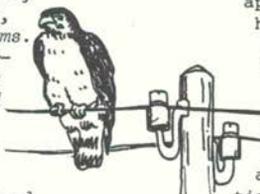
We are sitting here right in the middle of such a highly modified ecosystem, around the shores of Lake Geneva. We have cropland, small areas of woodland, vineyards, built-up areas -- there is no truly natural landscape here at all. And yet there is a lot of wild fauna and flora here; and the woodlands, although intensively managed, contain native species of wild mammals, birds, insects and other invertebrates and plants. Shifts in the patterns of agriculture, increased use of fertilizers and pesticides, for example, may create conditions to which certain animals and plants may not be able to adapt. So there are changes still being made which have to be assessed in light of all their costs and benefits. Even in a landscape that is intensively utilized by man, it is possible for wild fauna and flora to exist and provide benefits to man as well.

But so often we don't know enough to determine whether an animal can -- or rather, will -- live in such a modified habitat.

Actually we have quite a lot of knowledge about various types of habitat and their ability to support wildlife. Studies of them have been going on for a number of decades now. We need to apply more of the knowledge we have and I would agree we need much more knowledge, particularly on situations where ecosystem modifications are just beginning -- where agriculture is changing dramatically, such as in parts of the Third World, and where substantial modifications are being made to forests. In such situations we can only suspect, somewhat pessimistically, that the worst will occur unless knowledge is gained and applied.

The World Conservation Strategy stresses the preservation of genetic diversity as a priority, using the example of new medicines which might come from yet undiscovered species. Is this the best rationale for protecting genetic diversity there is?

It is true that one never knows when a plant or animal is going to yield a product which will be of value, and examples demonstrating this uncertainty occur all the time. So, it is prudent to ensure that we don't just throw away something that has evolved naturally through millenia simply because we don't see a use for it



at the moment. It doesn't make sense to do that. But I would go a step further and say that it is immoral to do that. What right have we to totally destroy another living species? I don't think we have any right at all, and find the act morally objectionable.

In conclusion, Dr. Munro, what exactly is IUCN? When and why was it founded?

People has been thinking that there should be an international, non-governmental, professionally-based organization interested in the protection of nature since before 1914-1918, and since that time several attempts were made to get such an organization going. Individuals in both Switzerland and the Netherlands were prominent in this effort, but each time they were on the verge of success a war came along. So in fact the organization did not come into being until 1948, at a founding conference at Fontainebleau, and it owes its existence largely to the efforts at that time of Sir Julian Huxley, the first Director of UNESCO.

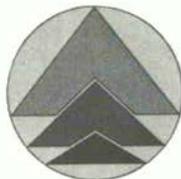
What has IUCN to do with the Regional Seas Programme?

We in IUCN have been attracted to the Regional Seas Programme out of a common interest in many of the same regions of the globe -- regions where the opportunity to achieve conservation, particularly the conservation of marine and coastal areas, appears favourable and where geographical characteristics are such that they favour efforts to cooperate on matters of conservation and environmental protection. We are particularly interested in the Caribbean programme because there are a number of important conservation problems there. For example, marine turtles are under heavy pressure there, and so are some of the crocodilians. It would be very difficult to solve such problems without regional collaboration and so we are encouraged by the possibilities in the Caribbean and look forward to continuing co-operation with UNEP in development of the Caribbean Action Plan.

As for the Mediterranean, quite frankly we are a bit frustrated at the slowness of the pace. We are involved in the preparation of a directory of protected areas in the Mediterranean, which is a very interesting and worthwhile project, but many countries have been slow in responding to our requests for information. A similar situation exists in the Kuwait Action Plan Region. We had hoped that by some time this year we would begin to identify areas around that sea which should be given protected

area status. There has been a delay, which we hope will not be prolonged, since it's critical that these areas should be identified and delineated soon.

FOR A WORLD OF DIFFERENCE



WCS symbol

LETTER

Distinguished Mr. Keckes,

... In August of this year I had the privilege to travel on the Mediterranean via a 7-day boat cruise on a Greek cruise line. I was very impressed with the awesome beauty of the islands in the area. However, there was one thing that greatly appalled me and detracted from the natural beauty. It seems that the cruise ship that I was on was dumping large volumes of garbage, boxes, cans and other trash items overboard into the sea 2 or 3 times daily. During the cruise we passed many other cruise ships that also were dumping refuse into the sea. We observed 20 or so boats during our journey and if all of the cruise boats practice similar refuse disposal then the sea is receiving tons of pollutants every day during the cruise season. It is my understanding that many of these boats move into the Caribbean area during the winter months.

...I felt compelled to inform you of these practices with the hope that you may be able to curtail such senseless practices.

Sincerely,

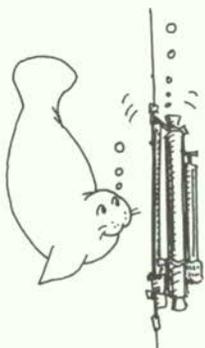
Tim Rees

Tim Rees
Dhavan, Saudi Arabia



The Siren investigated the case. The ship in question was the MV JUPITER of the Greek Cruise Line EPIROTKI.

Shame on her and others who do the same!



GESAMP Revisited

GESAMP, the group of experts advising the United Nations system on matters related to global problems of marine pollution, met in Dubrovnik, Yugoslavia, 25-29 February.

The agenda was long and so were the working hours.

Three reports, being prepared during the last few years by specialists, were carefully scrutinized and approved for publication. They concern:

- marine pollution implications of coastal area development,
- monitoring of biological variables related to marine pollution, and
- interchange of pollutants with the atmosphere.

The progress on the report on the

"Health of the Oceans" was examined as well. The report will present the critical oceanic processes influenced by, or influencing, the fate of pollutants on a global scale. Specific regional problems will be highlighted as well as the need for further studies in relatively unknown areas. The first report is expected to be published in 1982 and is planned to be up-dated every 3-4 years.

GESAMP also decided to continue its work on:

- evaluation of the hazards of harmful substances carried by ships, and
 - review of potentially harmful substances;
- and approved initiation of studies on:
- an oceanographic model for the dispersion of waste disposed of in the deep sea,
 - biological aspects of thermal discharges on the marine environment,
 - criteria for the identification of particularly sensitive sea areas, and
 - marine pollution implications of ocean energy exploitation.

For further information on GESAMP, see Siren No. 3 or contact The Siren.

"PANCAL 80" survives the Bermuda Triangle

In January the Bermuda Biological Station for Research (BBS) was the site of a workshop to study the feasibility of monitoring background levels of selected pollutants in the open ocean, or "PANCAL 80" as it was dubbed by its participants. "PANCAL 80" is derived from the name of one of the world's longest-studied hydrographic stations, Panulirus Station, which is located in deep ocean water just south west of Bermuda, and "intercalibration" which was one of the objects of the workshop.

"The eventual idea is to see if a network of national laboratories can generate consistently comparable data on trace metal and chlorinated hydrocarbon concentrations in open ocean waters," explained Dr. Tony Knapp of BBS, one of the co-sponsors of the workshop.* "To do so will require very sophisticated analytical techniques which in turn need great care and attention to the smallest detail. Our approach was to select a number of participants on the basis of their known expertise in the field, bring them to Bermuda to employ their own methods of sampling, treatment of samples and analysis and then have them take back to their own institutions a set of samples collected from the same place at the same time to see if they can produce similar results. If they can, it may then be possible to set up a monitoring network. If not, we should at least be able to determine what steps need to be taken next in the way of research on sampling or analytical methods before reproducible data can be generated. We expect substantive results to be in by summer, followed by a detailed report and recommendations in September."

"Although rough weather took its toll in sea-sickness and lost equipment," explained Dr. Knapp, "the typically skeptical scientists attributed none of their problems to the mysterious Bermuda triangle. On the other hand I saw many of them surreptitiously wearing 'I Survived the Bermuda Triangle' T-shirts on their way to the airport."

* The workshop was a co-operative effort of IOC, the Bermuda Biological Station, WMO, US-NOAA and UNEP.

...continued from page 3

incorporated into SPREP. The Conference will lay the groundwork for whatever environmental action is to take place in the future requiring international co-operation, and is planned for early 1981. Support will be provided largely by UNEP, as part of its Regional Seas Programme, in co-operation with ROAP, SPC, SPEC and ESCAP.

The major documents to be submitted to the Conference are those which will emerge from the present phase of SPREP. These will be based on country reports and sectoral regional overviews including a Report on the State of the Environment in the South-West Pacific Region, a draft declaration of Principles on the Management and Improvement of the Environment in the South-West Pacific, a draft for a Regional Action Plan on development and environmental protection, and proposals for the administration and financing of the Action Plan.

"The preparation of country reports on which these documents will be based, launched through a dialogue between SPC/SPEC and the countries of the region, will be our first order of business", said Richard Helmer, Deputy Director of the Regional Seas Programme. "Through these reports, the governments will outline the environmental policy, resources and problems of their countries and territories in the SPC region, and we hope to see these completed by autumn".

More specifically, the reports will summarize:

- national environmental policies and the status of their implementation;
- national legislation relevant to environmental problems and experience in its application;
- national administrative arrangements and bodies for the implementation of national environmental policies and for the control of the effectiveness of their implementation;
- the major environmental problems affecting or affected by development activities;
- the status of terrestrial and marine resources requiring environmentally-sound management practices;
- major development trends in fields such as human settlements, industrial development, agriculture, forestry, fisheries and aquaculture, and their dependence on environmental factors; and

- requirements for the solution of particular environmental problems, including the need for environmental education, training and information.

"The successful launching of SPREP at Noumea was exciting to witness", said Helmer. "We can only hope that the momentum established will carry us successfully through this first phase and into a successful completion of the South Pacific Conference. There are certainly going to be some problems, not the least of which is adapting an approach used in other regional seas to the peculiarities of the South Pacific and the environmental problems of small islands with limited human and other resources. We must remember that the size of both the land area and human populations we are concerned with in this region are orders of magnitude smaller than in our other Regional Seas programmes. No one underestimates the importance of these factors." ☒

Marine Regionalism Evaluated



A two-day symposium devoted to the policy and legal aspects of marine regionalism, sponsored by the Marine Affairs Programme at the University of Rhode Island, was held in October of 1979.

The symposium examined the trends in marine regionalism, case studies, and regional development within the United Nations system and involved participants from governments, international agencies, and academia.

The proceedings of the conference may be obtained from Prof. Lawrence Juda, Marine Affairs Program, Washburn Hall, University of Rhode Island, Kingston, Rhode Island 02881 (USA).



mission sets off

A seven-man survey team is currently visiting the States of the Kuwait Action Plan Region. Their assignment is to identify institutions and individuals throughout the region who will participate in the environmental assessment and management projects called for by the Kuwait Action Plan, to begin pinpointing major sources of land-based pollution entering the sea, and to begin an assessment of the potential impact of current and planned development activities on the environment.

"The mission set off in early March and plans to spend about a week in each of the eight countries," said Stjepan Keckes, Director of the Regional Seas Programme. "It is composed of representatives of several relevant disciplines - a marine scientist, an information expert,

a legal expert, an economist, a marine meteorologist, a sanitary engineer and an industrial engineer. They'll be traveling through mid-May, after which the information they gather will be catalogued to form a base for subsequent work."

The mission will work with regional and national institutions, government departments, environmental information centres and libraries. Some of its products will be a draft for the Directory of the Kuwait Action Plan Region Marine Research Centres, a catalogue of bibliographies relevant to scientific and economic studies of the region, and a directory of institutions dealing with environmental management.

"The mission reports are in no way to be considered end products in themselves," explained Keckes. "They will be used by regional experts in preparing the more substantive and inclusive second group of projects recommended by last year's meeting of government-nominated experts (Kuwait, 18-22 November). The mission's reports, together with proposals for the implementation of the second group of projects, will be reviewed at a mid-year expert review meeting tentatively scheduled for September 1980. But even beyond the purpose of this meeting, we expect these information papers to be invaluable to decision-makers, lawyers and scientists of the region for many years to come." ☺

COMING EVENTS

DATE	PLACE	TITLE	ORGANIZER(S)
16-29 April	Nairobi	UNEP Governing Council, 8th Session	UNEP
12-17 May	Athens	Conference of Plenipotentiaries of the Coastal States of the Mediterranean Region for the Protection of the Mediterranean Sea against Pollution from Land-Based Sources	UNEP
17-21 June	Baguio	Meeting of Government Experts to review the East Asian Seas Action Plan	UNEP
25-29 Aug	Kuala Lumpur	Regional Symposium on Mangroves of South-East Asia	UNESCO (FAO, IUCN, UNEP, others)



THE SIBEX

news from UNEP's Regional Seas Programme

turning the TIDE

ratified the 1976 Barcelona Convention, I think it is reasonable to predict that the Athens treaty will enter into force after a few years--two, maybe three. However, one should not consider that those years will be 'lost'

of pollution

"The high ideals of the Mediterranean Action Plan have been brought down to earth and, I'm happy to say, splashdown was a success." This is how Aldo Manos, co-ordinator of the Mediterranean Action Plan, describes the results of the recent week-long meeting of Mediterranean coastal States in Athens, 12-17 May 1980. "After three years of difficult and delicate negotiations, the treaty to control pollution from land-based sources has become a reality. What is remarkable is that not only did 15 countries reach a consensus on the text of the treaty, but 12 of them have already signed it."

The treaty covers all kinds of pollution from land-based sources, such as mercury, lead, pesticides, used motor oil, bacteria contained in sewage, non-biodegradable detergents, radioactivity, carcinogenic substances and many others. In addition, it takes into account all possible pathways of pollution into the sea: pipelines, outfalls, chimney stacks and rivers.

It is the first of the Mediterranean legal agreements to deal directly with such pollution sources, which constitute about 85% of all pollution entering the sea. Its implementation will cost the Mediterranean countries 10 to 15 billion dollars over the next 10 to 15 years.

"Signing a treaty is one thing; ratifying and implementing it is quite another," cautions Patricia Bliss-Guest, in charge of UNEP's Regional Seas legal activities and secretary of the Athens conference. "To judge by the rapidity with which the Mediterranean countries

because the governments and legislatures of the Mediterranean countries will need to harmonize their national legislation with the text of the treaty on land-based sources of pollution. At the same time, scientists and experts will be hard at work on the regional level, defining in concrete, technical terms exactly what are the requirements of the agreement; for example, what constitutes safe water for swimming and shell-fish culture. Then, on the basis of regional water quality objectives, it will be necessary for each government to establish for sources of pollution under its jurisdiction acceptable effluent standards for wastes entering their coastal waters."

Enforcement of the agreement will lie in the hands of each government. At regular meetings, every two years, the 18 Mediterranean governments will have to report to each other about the measures taken, permits issued, and the level of pollution in their waters. Countries which do not live up to the terms of the treaty will have to face embarrassing criticism from other governments. They will also be exposed to the pressure of public opinion. They risk losing tourists and their fish will not be acceptable for export.

continued on page 9...

Coastal Africa Eyes Its Resources



"As we enter the third United Nations Development Decade, Africa finds itself at a rather low level of utilization of science and technology in development... This is also true when the situation in marine science and technology is examined... Africa now is in the grip of technological backwardness and technological dependence on industrialized countries. New initiatives are called for as a consequence of underdevelopment, the wasteful exploitation of resources, the marginalization of the indigenous science and technology systems and the cost (direct and indirect) incurred in the process of acquisition of foreign technology."

In his opening remarks to the Working Group Meeting of Experts on the Development of Marine Science and Technology in Africa, Dr. E. Lartey, Acting Chief of the Natural Resources Division of the Economic Commission for Africa (ECA) thus expressed the concern shared by African scientists and economists for the future of African development.

"Practically all African States are only making minimal use of their marine resources and in most of them even this minimal use is limited to the more accessible inshore (or nearshore) living resources," Dr. Lartey continued. "The exploitation of the non-living resources of the sea, i.e. minerals and oil, and of the deep sea living resources are very much underdeveloped in these countries. At present the very rich open and deep sea fisheries resources of African coastal states are being exploited by fishing fleets of other nations with little or no benefit to the coun-

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1211 Geneva 10, Switzerland.

tries concerned. The main cause of this unsatisfactory situation has been the low level of marine science and technology development in these countries coupled with the lack of adequate administrative and organizational machinery."

One attempt to remedy this disturbing situation is embodied in a project on Development of Marine Science and Technology in Africa, sponsored by ECA and Unesco with the co-operation of the Food and Agriculture Organization of the United Nations (FAO), financial assistance from the United Nations Development Programme (UNDP) and participation of UNEP in connexion with its Regional Seas Programme. The five-day experts meeting, held in Addis Ababa, 5-9 May 1980, was held to review a working document for the project prepared by ECA and Unesco on the state of marine science and technology development in African coastal states. The experts also prepared a series of missions to the African research and training institutions, and to government agencies dealing with marine science and technology matters, to gather further information as background for the project.

"Ever since the late 1960's, ECA has been trying to generate action in the area of marine resources with the aim that African countries can begin to exploit to their advantage their sea-bed resources," explains Dr. Lartey. "And our present activities are being carried out within the framework of what we call the 'Monrovia Strategy,' which was adopted by a summit meeting of the Heads of State of the Organization of African Unity (OAU) in Monrovia, Liberia, in July 1979. This is a comprehensive strategy for economic development of the African continent, and it gave first priority to the 'food and agriculture' chapter, which includes development of fisheries.

"Clearly, efficient exploitation of the marine resources requires that African nations develop capabilities in this field, and the best way to do this is through training of scientists and technologists at all levels in appropriate disciplines, through efficient use of existing research, development and training institutions, and through establishment of such institutions where they do not exist.

continued.....

"At present, the small pool of available indigenous scientific and technical manpower is either untrained, or is denied the opportunity for experience in such important aspects of project development as feasibility studies, project formulation, evaluation and design, start-up and monitoring of project execution. Skills for such activities are sought from abroad and paid for in foreign exchange. Some of the resources used to hire foreign skills could and should be channelled into the development and strengthening of local capabilities."

Experts are currently visiting over 30 coastal African countries to collect data on the status of marine science and technology, the state of national institutions involved in these fields, ongoing programmes of marine pollution monitoring and marine resources management, and associated legislation. One of the uses of the information so collected will be the joint production by ECA, Unesco and UNEP of a Directory of African Marine Research and Development Centres. The Directory will resemble those previously produced for the Mediterranean, Caribbean and Indian Ocean. ☒

Caribbean to manage

A project entitled "Protection of the Marine and Coastal Environment of the Caribbean Islands" was launched in May under the joint sponsorship of the Caribbean Community Secretariat (CARICOM) and UNEP. The project, which complements the recommendations of the Expert Review Meeting on the Caribbean Action Plan in Caracas last January, aims to assist the smaller island countries of the Caribbean to get a general picture of their environmental health problems (especially those related to waste management), to lay the groundwork for a programme for monitoring of coastal water pollution, and to assess the potential impact of development practices on the environment of the CARICOM region.

"This project is an extremely practical one," says Mel Gajraj, Senior Research Officer for the UNEP Caribbean Environment Project team, "and it will put in the hands of those who need it most a step-by-step plan to deal with some of their most pressing problems. By the end of the project, some time in 1981, we should have an inventory of land-based sources of pollution in the region; an exhaustive analysis of waste disposal practices and related regulations; a specific plan for solid waste management; and a detailed assessment of the environmental implications of development projects currently planned by CARICOM member states. In addition, the project will give a boost to the proposed CARICOM Environmental Health Institute in St. Lucia by helping it to improve its capabilities to monitor



coastal pollution. If and when this institute is established, it may also become the general headquarters for the project."

Technical co-ordination of the project will be the responsibility of CARICOM, in close co-operation with the Pan American Health Organization (PAHO) and the Caribbean Development Bank.

"A lot of background work has gone into this project," notes Gajraj, "including the recent Barbados workshop on human ecology and development in the Caribbean, which was sponsored by the Pan American Centre for Human Ecology and Health (ECO) in co-operation with the Commonwealth Human Ecology Council (CHEC), CARICOM, the Government of Barbados and UNEP. In the immediate future a number of waste management experts will be recruited to carry out the substantive work of the project. In September they will meet to establish the methodologies they will use when undertaking their respective studies. We expect their reports, in the form of country-by-country profiles, to be ready by this December. These will then form the basis for the management plan for solid and liquid wastes to be drawn up over the next year." ☒

ASEAN

Oil pollution, the destruction of coral reefs and mangrove swamps, siltation, threats to fisheries, public health and tourism - these are some of the problems facing the peoples and governments of the East Asian Seas.

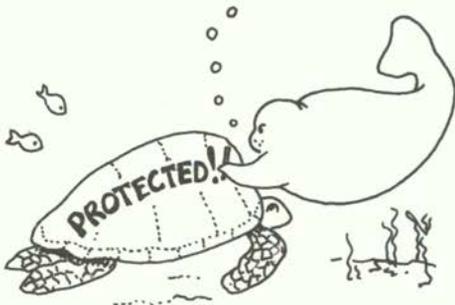
Like countries bordering the Mediterranean, the Caribbean and other endangered seas, five South-East Asian States have united to do something about the threat to their marine and coastal environment and their peoples' health and prosperity.

Experts from Indonesia, Malaysia, the Philippines, Singapore and Thailand met in Baguio (Philippines) from 17 to 21 June 1980 under the sponsorship of UNEP to consider the first draft of a plan aimed at the protection and development of the long coastlines of their vast region. In December, in Bangkok, they will come together again to put the final touches on their ambitious plan.

High government officials are expected to adopt the plan formally next April at an Inter-governmental Conference, possibly in Singapore.

The idea of a regional Convention, similar to those which have already entered into force in the Kuwait Action Plan Region and in the Mediterranean, is under consideration.

As to the content of the East Asian Seas Action Plan, it is intended to provide a framework for an environmentally-sound and comprehensive approach to coastal area development. It is concerned with the marine waters and coastal



experts

consider

draft

plan

In practical terms this means finding

out what is happening to bathing waters, beaches, fish and other marine organisms, delicate and precious ecosystems, such as coral reefs and mangrove forests, and endangered species, such as turtles crocodiles and dugongs, as a result of activities such as sea-bed mining of tin, arsenic and lead, inadequate waste disposal practices, charges of heavy metals, or petroleum exploration and exploitation.

The Action Plan also foresees training programmes for scientists and technicians and support for marine laboratories in the region. Marine laboratories will standardize analytical techniques for measuring the concentration of pollutants and will ensure the comparability of results on a regional basis by means of intercalibration exercises.

In short, a reliable and co-ordinated system of pollution monitoring and research by national institutions will be launched in the marine waters of Indonesia, Malaysia, the Philippines, Singapore and Thailand, as they have in UNEP's other Regional Seas programmes.

Already, 11 preparatory projects are under way in the region in such fields as oil pollution contingency planning, land-based sources of pollution, coastal area development, off-shore exploration and exploitation, and management of mangroves and coral reefs.

Preliminary activities for the East Asian Seas region began just over four years ago at an International Scientific Workshop on Marine Pollution in April 1976 in Penang, Malaysia.

Limited for the moment to the marine waters of the five countries, the East Asian Seas programme seems likely to be expanded eventually to other neighbouring States. ☒

small islands tackle BIG problem



Small islands have very special environmental problems, not the least of which is how to deal with massive oil spills which can coat beaches with tarry ooze and devastate fishery and tourism-based economies.

At a recent meeting in San Juan, Puerto Rico, representatives of 15 small Caribbean islands showed their determination to come to terms with the problem of oil pollution. The Meeting of the Smaller Caribbean Islands on Oil Spill Contingency Planning was held from 16 to 20 June. UNEP co-sponsored the meeting as it contributes to the development of the Caribbean Action Plan. Other sponsors were the Organization of American States (OAS), the United States Man and the Biosphere Program (MAB), the Inter-Governmental Maritime Consultative Organization (IMCO) and the United States Agency for International Development (AID).

"The purpose of the meeting was to consider the possible threat of massive marine pollution from tankers and other shipping passing through the wider Caribbean, with particular reference to the smaller islands, and to work towards a greater state of preparedness to deal with such an emergency," explains Commander Terence M. Hayes, who represented IMCO at the meeting. "Prevention is clearly the best way to answer this threat, but when preventive measures fail, quick and efficient action is needed to minimize damaging effects to the marine and coastal environment. Two investigative missions, one sponsored by OAS and the other a joint IMCO-OAS effort, have reported that the state of oil spill preparedness in the region is discouragingly low, with the few exceptions of those islands which are oil-producing and refining centres.

"This important meeting in Puerto Rico was charged with revising the draft framework of a Caribbean Regional Oil Spill Contingency Plan as it relates

to small islands. The original draft resulted largely from the excellent work of the Caribbean Scientific and Technological Cooperation Committee of OAS and its Task Force which met in Trinidad and Tobago in May of last year."

"This was the first of two meetings," added Dr. Michael Greene of OAS. "In Barbados, in November of this year, representatives of the Governments of all the Caribbean islands territories will come together, with some observers from other countries of the Wider Caribbean region, to produce a draft oil spill contingency plan. Once a consensus is reached on the technical aspects of the plan in Barbados, approval for the plan will be solicited on a political level through inter-organizational missions to each of the island territories. These missions will present the elements of the regional plan to the governments and discuss the terms of each country's participation. Finally, this regional contingency plan for Caribbean islands will be made available for consideration within the context of the Action Plan for the Wider Caribbean at a meeting of experts in January 1981.

"The subject of oil spill contingency planning is of vital importance to all the territories represented here," Greene continued, "and I have never before seen a programme with such a high element of co-operation among the international organizations working actively in the area. All of the major actors are with us. We have received generous support from UNEP and US AID. IMCO is lending us talented experts with experience in contingency planning in other regions of the world. The OAS is providing its considerable experience in managing technical assistance programmes in the region. And the US Man and the Biosphere Program has provided valuable expertise. In addition, the US Coast Guard has taken an extremely active role in this programme, and oil companies have shown their interest by sending representatives to speak to us."

The meeting was chaired by Mr. Pedro A. Gelabert, Chairman of the Environmental Quality Board of Puerto Rico. 



LANDSAT scans the surface



The Siren: We now have, 915 km over our heads, an orbiting satellite which provides regular data about conditions on the Earth's surface. In what areas does Landsat operate and what kind of "pictures" does it take?

Dr. Frosch: We have two satellites still operating - Landsat-2 and Landsat-3 - each one in an 103-minute near-polar orbit. The two satellites are spaced such that every area on the Earth is covered every nine days. The satellites cross the equator at approximately 9:30 in the morning sun time, so the imaging sensors always look at the Earth in roughly the same illumination. What the satellites measure is the sunlight reflected from the Earth's surface in four discrete spectral bands in the visible and near infrared regions. Data is transmitted to ground stations in digital form and manipulated to provide a picture of what is on the Earth at that point. This is termed "remote sensing" and in Landsat is carried out by an instrument called a Multi-Spectral Scanner (MSS).

because the data can be formatted to construct a variety of pictures, depending on the purpose. For example, we can use the data in the different spectral bands to tell us about vegetation - including what kind it is and whether it's healthy or not, the weather, the amount of water present, geological properties, extent of urbanization; in fact, the entire range of what I would call general environmental and resource data. The data are all there, and the key lies in the processing and analysis.

How is this information used, and by whom?

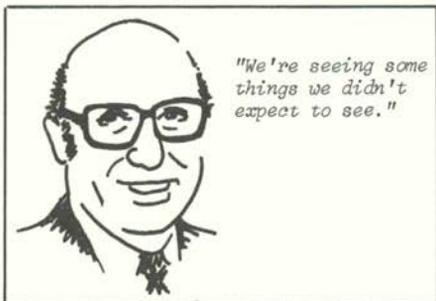
The data are generally available and can be bought by anyone. In addition to ground stations in the United States, there are others throughout the world which receive data for their respective regions. There are stations in Brazil, Sweden, Italy, Japan, Argentina, Australia and India. We expect still others to be established in China, Argentina, Kenya, West Africa and Thailand.

Can any country put in a ground station?

There are two requirements. One is an annual fee for the use of the satellite, currently set a \$200,000 - a nominal fee, really. The other is that the country must agree that the data it receives are available to anyone who asks for it and will pay the cost of reproducing it.

The data are used largely by business and industry - especially private mineral and petroleum companies. Isn't provision of Landsat data therefore incompatible with NASA's role as a publicly-funded research agency?

No, because public money is being used to provide publicly-available data, in fact, internationally-available data. And its purpose has been, and will continue to be, basic research. The mineral



How big are these pictures?

The data taken represent a block about 185 km on a side. The smallest picture element that can be resolved in a Landsat image is 80 m on a side - about .64 hectares. We must be careful to use the word "data" instead of pictures,"

and petroleum exploration companies realize the utility of remote sensing data over large areas. However, the same data are available to anyone who wants to use them.

Can Landsat be used to tell us about the sea?

Yes, it has been used for some marine purposes, but it's not the only instrument we're using. On Nimbus 7, a weather satellite, we have a Coastal Zone Colour Scanner, which is a simpler instrument than the Multi-Spectral Scanner and designed specifically for coastal zone purposes. Its resolution is not as good, but it sees a larger area. Both of these instruments are useful for water. For example, the Landsat MSS has been used to create a very nice series of pictures of suspended sediment in Lake Ponchartrain in Louisiana (USA) before and after a storm, showing the gradual sediment fallout. You can only see the surface and near-surface of the water, but this is enough for some useful diagnoses.

Can these instruments tell the differences among a phytoplankton bloom, surface oil pollution, suspended sediment and miscellaneous waste material?

Yes, with cloud-free conditions and suitable colour contrast, we can differentiate among these materials, as long as they are on the surface. We can't tell how thick the layers are, however, except by indirect methods.

Waste dumping is a major source of marine pollution in the open ocean and coastal areas. Could Landsat be used to catch illegal dumpers?

Only if the effects of the dump are still on the surface when the satellite comes by. There would have to be frequent passes, that is, a short revisit time. But we do see dumping, and we do see oil slicks. I just can't tell how much we don't see.

Recently, we have collaborated with the U.S. Department of Interior and the Environmental Protection Agency in using satellite data to follow the surface oil slick from IXTOC I, the Mexican oil well

that ran out of control, and to warn people of its movements. We can also guide investigating aircraft to a slick so they needn't search for it, which greatly improves their efficiency.

When did the Landsat programme get under way?

Eight years ago, when Landsat 1 was launched. Although designed to operate one year, the satellite wasn't shut down until 1978, six years after its launch. Landsat 2 continues to provide useful data. Landsat 3 dates from March 1978. The fourth in the series, Landsat D, will, we hope, get off in mid-1982.

Will Landsat D be just like the others?

No, it will contain considerable improvements. It will generate 800 images per day compared with 190 from Landsat 1 and 2, and will have a resolution of 30 m instead of 80. Besides the MSS, it will carry a new sensor, the Thematic Mapper, and operate under a new data management system.

What was Seasat?

Seasat was a satellite launched in June 1978 and designed to study the oceans. Although it only operated for

Robert A. Frosch is the Administrator of the United States' National Aeronautics and Space Administration (NASA). A physicist, he has held posts with the U.S. Department of Defense and was Associate Director for Applied Oceanography at Woods Hole Oceanographic Institution before joining NASA. From 1973 to 1975 he served as Assistant Executive Director of UNEP

34 months, we received a huge amount of useful data from its synthetic-aperture radar which is still causing a lot of excitement on the part of

oceanographers who are trying to interpret the resulting imagery. We're seeing some things we didn't expect to see, which may be currents, the wakes of islands in currents, or perhaps internal waves expressed on the surface. Some of it could be pollution and oil slicks affecting either the capillary waves on the surface or the radar reflectivity. There is a good deal of promise associated with this technique.

Why don't you map everything with radar?

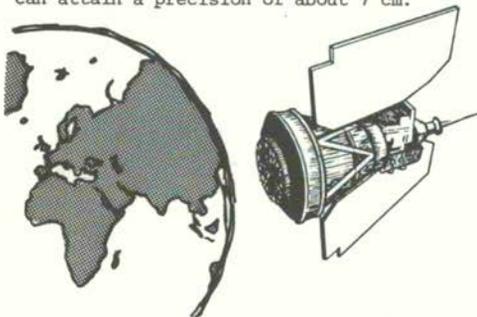
There's one terrible problem with using radar, and that is that it takes a formidable amount of data from the satellite to be processed into a picture. So, we simply cannot afford to map everything with the radar until we can put

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enough computer capability into the satellite to do the radar processing in situ and send down just the mapping information. Until that time, we will continue to experiment with radar techniques.

What kind of experiments?

One technique we have been trying out which is of considerable interest to oceanographers involves the use of a radar altimeter, which measures the distance from the satellite to the land or sea surface. At a distance of 900 km we can attain a precision of about 7 cm.



What practical applications could this have?

I can think of two things you could do with such an instrument. If you measured the position of the satellite very accurately, you could determine the shape of the ocean surface as it is determined by variations in the shape and composition of the earth beneath, which is called the "gravity surface." You could also see the dynamic height of currents, comparing, for example, the higher eastern side of the Gulf Stream with the depressed western side. Geophysicists who are particularly interested in gravity can make a great deal of use of such altitude mapping.

Do you foresee any possibility for fruitful co-operation between NASA's Landsat and UNEP's Regional Seas Programme?

I think that the Regional Seas Programme has come a long way very rapidly. When it started we saw it as a sort of political experiment; that is, we knew it was important and could see its possibilities, but we also saw how difficult it might be to gain the co-operation of so many countries in a programme which was going to cost them a great deal of money and effort. I am

very happy that the Mediterranean programme is really moving in the hoped-for direction, and that the other seas are coming along well also. It is a very valuable contribution for UNEP to make, and we hope to be able to help out by providing some of the data we have been talking about. We have already discussed some possibilities with Dr. Keckes, such as the potential application of Landsat to the measurement of the area and state of health of mangroves in West Africa and the Caribbean. This is technically feasible and the only question is whether we are collecting enough data in the right places.

What is the future of Landsat?

There have been two important policy decisions with regard to remote sensing in the U.S. in the last few months. One is a decision that the Landsat kind of remote sensing system will become an operational system. Up to now we have regarded it as research and development, and "going operational" means that the system will be continued and will guarantee continuous data. The agency selected to carry out the operational responsibility is the National Oceanic and Atmospheric Administration (NOAA), which already has the meteorology remote sensing responsibility. However, NASA will continue to be the technical agent for research and development on new instruments and satellites. We will also carry out the business of buying and launching the satellites which will then be operated by NOAA. In addition, NASA will pursue bilateral agreements with other countries relating to establishment of ground stations and provision of openly-available data.

Another important decision will be made by the U.S. Congress on whether to provide in the 1981 budget cycle the money necessary to develop the National Oceanographic Satellite System (NOSS), which is a 3-agency co-operative system involving the U.S. Navy and NOAA as operating agencies and NASA, again, as the technical agent. It would involve two satellites to be launched in 1986-87 or thereabouts with resulting data used for both Naval and Civil marine purposes. In the latter case, the data would also be made available to non-U.S. users.

Will NOSS be created, do you think?

That depends entirely on the U.S. legislature. ☉

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A monitoring network will regularly provide data on the state of pollution of the sea. The data will indicate how effective and adequate the control measures are.

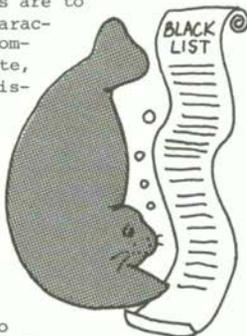
There are two kinds of toxic substances dealt with in the technical annexes to the treaty. The first belongs to a so-called black list, and pollution of the Mediterranean by these is prohibited because of their toxicity, persistence and accumulation in the food chain. Among them are mercury, cadmium, used lubricating oils, persistent synthetic materials which may float, sink or remain in suspension, carcinogenic or mutagenic substances and radioactive wastes.

The grey list consists of such substances as zinc, copper, lead, titanium, crude oils and hydrocarbons, pathogenic (disease-causing) micro-organisms, non-biodegradable detergents, and materials which have a deleterious effect on the taste or smell of fish and shellfish. Since these substances are less noxious or more readily rendered harmless by natural processes, some polluting discharges into the Mediterranean are allowed. Nonetheless, these must be strictly controlled and limited by means of a licensing procedure.

In granting licences, the national authorities are to be guided by the characteristics and the composition of the waste, the nature of the discharge site and the "receiving" marine environment, the availability of waste control technology, and the potential impairment of marine ecosystems and sea water uses.

States party to the treaty also bind themselves to exchange information on the authorizations they grant, on pollution monitoring data and on the quantities of pollutants discharged from their territory, among other things.

What does all this add up to for the more than 100 million tourists who vacation every year in the Mediterranean, the world's number one tourist region? Does it mean no more dirty beaches and polluted water for the tens of millions of people who live on the Mediterranean's shores?



Interim Secretariat opens its doors

The Kuwait Action Plan Interim Secretariat Offices were officially inaugurated on 7 July 1980 by H.E. Mr. Abdul Rahman Al-Awadi, Minister of Health of Kuwait.

In his inaugural statement, Dr. Al-Awadi congratulated the countries of the Region who have been co-operating since 1978 in an effort to protect and develop the Region's marine environment and coastal areas.

He pointed out that their efforts on behalf of their shared environment are now moving from the conceptual to the concrete phase, as will be illustrated by the Government Expert Review Meeting scheduled to take place next October.

In their regional co-operative effort, the countries of the Region have the full support of UNEP.

"Eventually yes, immediately no," replies Dr. Stjepan Keckes, the Yugoslav marine scientist who runs UNEP's Regional Seas Programme. "Mediterranean beaches and coastal waters were not polluted just in a day or a year, so it is not realistic or reasonable to expect them to be 'cleaned up' overnight. Nevertheless, I can honestly say that the signing of the treaty on land-based sources of pollution in Athens will mark a turning point in the rising tide of pollution. By the end of this decade I believe that we will have reversed the trend of pollution and be in a position to limit and control it."

Asked whether 1990 was not a long way off, Dr. Keckes said, "Well, the British began talking about cleaning up the Thames in the early 1950s, about 25 years ago. Today, salmon have returned to the Thames. The Mediterranean countries, UNEP and other United Nations organizations first started to do something serious about the Mediterranean at Barcelona in 1975, when they agreed on a Mediterranean Action Plan. If, as I hope and believe, we can make the Mediterranean a much cleaner and safer place by the end of this decade, that is, after only 15 years, I think that we will all have reason to be satisfied." &

Agencies meet on MED POL-II

Representatives of eight international organizations met in Geneva on 30 June to revise the draft long-term programme for pollution monitoring and research in the Mediterranean (MED POL - Phase II).

In attendance at the eighth session of the Interagency Advisory Committee (IAAC) for MED POL were the five members of IAAC* and three organizations also supporting MED POL**.

"We hope that the long-term programme will be ready for the approval of Mediterranean Governments by the second meeting of the Contracting Parties to the Barcelona Convention in March 1981," says Stjepan Keckes, Director of UNEP's Regional Seas Programme. "In the meantime, there will be at least two more meetings to put the draft programme into a more precise form."

In August the members of the IAAC will meet again to complete an additional document which outlines the technical details, workplans, timetable and budget for the activities of MED POL's second phase. It will contain proposals for projects relating to the recently-signed land-based sources protocol, including monitoring of land-based pollution; for development of common emission standards for substances mentioned in the protocol; for research on toxic

city, persistence, bioaccumulation and carcinogenicity of listed substances; and for establishment of guidelines and criteria for discharge of effluents. Other projects will deal with monitoring of estuaries, saltwater marshes, coastal waters, selected reference areas and the atmosphere, and still others call for research on ecosystem modifications, pollutant transfer, eutrophication, effects of thermal discharges on ecosystems, and the biogeochemistry of specific pollutants.

A meeting of Mediterranean experts will be held in December 1980 to review the project proposals and the long-term programme itself.

"When phase two goes into effect," notes Keckes, "the pilot phase of MED POL will be officially over, after six very successful years of work. Over 200 scientists in 16 Mediterranean countries have done an outstanding job of laying the scientific groundwork for the long-term programme. Their data have shown us where to look, and for what. Thanks to them, the long-term programme will be as efficient and reliable as possible."

* General Fisheries Council for the Mediterranean (GFCM of FAO), the Intergovernmental Oceanographic Commission (IOC of Unesco), the World Health Organization (WHO), the World Meteorological Organization (WMO), and the International Atomic Energy Agency (IAEA).

** The United Nations Industrial Development Organization (UNIDO), the United Nations Economic Commission for Europe (ECE) and UNEP. ☒



The Great BALTIC Experiment

On May 3 the Convention on the Protection of the Marine Environment of the Baltic Sea Area, otherwise known as the Helsinki Convention, entered into force—two months after the seventh instrument of ratification was deposited with the Government of Finland.

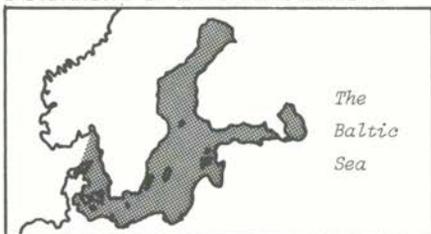
The Convention was adopted and signed in Helsinki in 1974 by all Baltic Sea States: Denmark, Finland, the German Democratic Republic, the Federal Republic of Germany, Poland, Sweden and the Union of Soviet Socialist Republics. It demonstrates the determination of these countries to bring the present pollution of the Baltic Sea under control and gradually to improve the condition of

areas which are already polluted.

"The Helsinki Convention is, in a way, a huge experiment in regional co-operation on environmental matters," says Professor Aarno Voipio, Executive Secretary of the Commission. "For one thing, it is one of the first regional legal agreements of its kind in the world, which takes into account every aspect of the marine environment and its protection. It is an exclusive agreement among seven countries to co-operate in a matter viewed as a vital threat to their individual and communal well-being. We hope it will become a model for the rest of the world."

continued....

... Long before the Convention entered into force, the Baltic countries considered the matter of protecting the Baltic so important that they began work on several major aspects of the draft Convention, including the scientific problems of monitoring the sea for chemical pollutants. An Interim Commission was set up which in turn established two subsidiary working groups, the Scientific-Technological Working Group in 1974, and the Maritime Working Group in 1975. These began work on such matters as criteria and standards for discharges of harmful substances, monitoring and assessment of the state of the marine environment, and water protection technology. In 1979 a five-year pilot programme was started to monitor the marine environment in a manner which permits comparison of the results submitted by institutions in all seven countries.



Much attention has been given to regional co-operation in combating oil spills in the Baltic Sea Area and to reducing operational discharges of oily mixtures from oil tankers.

Common criteria for the readiness of national oil combating forces have been established, together with radio frequencies to be used in joint oil combating operation, and standards for reporting oil spillages and for requesting assistance from the other contracting parties.

A joint field experiment in tagging of oil residues in tankers was carried out during the last 6 months of 1979 with the aim to trace operational spillages back to the polluters. A report of the experiment has been forwarded to the Commission for further consideration.

The work of the Interim Commission culminated in reports submitted to the First Meeting of the Baltic Marine Environment Protection Commission (Helsinki Commission), held two days after entry into force of the Convention (5 - 8 May 1980).

"The work of the Interim Commission has given us an invaluable head start in our task of implementing the Convention," comments Dr. Raimo Pekkanen, Chairman of the Helsinki Commission. "Conditions are favourable and the outlook is good. If the Baltic States can indeed stop the deterioration of their sea, then so can other countries bordering other seas. We all feel acutely the responsibility of being among the first to try." ☼

launching the BLUE PLAN

A major element of the Mediterranean Action Plan was officially launched at a meeting in Cannes in June.

The Blue Plan, a perspective study which the Mediterranean Governments may use in their development plans over the next few decades, originated at an intergovernmental meeting organized by UNEP in Split in early 1977. The aims of the project were refined by two meetings in 1978 and 1979, while a network of government focal points was being set up. The French government offered to host a regional activity centre for the plan at Cannes. The Centre, which is needed to provide the technical back-stopping for the Blue Plan, was established at the Centre d'activités développement-environnement (MEDEAS) at Sophia Antipolis, between Nice and Cannes.

Studies are being initiated on the topics of water resources; tourism; health, population and migration; cultural heritage and exchanges; and intra-Mediterranean economic relations. A preliminary report will be submitted to the Meeting of Contracting Parties in Cannes in March 1981.

The plan will be supervised by a Group of Co-ordination and Synthesis (GCS), headed by Ismaïl Sabri Abdalla of Egypt, special advisor to the Executive Director on the Blue Plan. Four members of the six-man team have already been appointed: F. Gasparović (Yugoslavia), P. Lagos (Greece), E. Makhlouf (Tunisia) and J.P. Pliego (Spain).

The first phase of the Blue Plan will identify trends and bottlenecks in the development process of the Mediterranean, and recommend "priority actions" to deal with some of the key issues identified by the studies. ☼

Regional Seas Expanding

UNEP's policy-making body, the Governing Council, met in Nairobi in April 1980 to examine the progress made in the past year and to decide what activities are to be carried out in forthcoming years.

The 400 representatives from 78 Governments scrutinized the Regional Seas Programme and it passed with flying colours.

They particularly noted the exemplary co-operation of the United Nations system in the programme, and praised the growing self-sufficiency of the Mediterranean and Kuwait action plans.

The Council urged that national institutions become more directly involved in the programme, and requested that a special meeting of experts be convened to review the global significance of the experience gained thus far in each of the regions.



Perhaps the biggest news concerning the Regional Seas Programme was the addition of two new regions to make the programme more balanced geographically. These are the East African Region and the South-West Atlantic.

The Siren, asked to comment on the fact that over 100 States now participate in the 10 Regional Seas programmes, said, "That's a whale of a lot! It ruins our concept of the 'Seven Seas,' but the more the merrier."

COMING EVENTS

DATE	PLACE	TITLE	ORGANIZER(S)
25-29 Aug	Geneva	Interagency Advisory Committee on MED POL	UNEP
Sept	Barbados	Meeting on Caribbean Oil Spill Contingency Planning	IMCO (OAS, UNEP)
9-13 Oct	Cagliari	Fifth ICSEM/UNEP Workshop on Pollution in the Mediterranean	ICSEM, UNEP
13-17 Oct	Athens	Intergovernmental Meeting on Specially Protected Areas (Mediterranean)	FAO, IUCN, UNEP
25-29 Oct	Kuwait	Meeting of Experts to Review the Progress of Kuwait Action Plan projects	UNEP
Oct		Meeting of Experts to Review Information on River Inputs to the West African Region	UNESCO, UNEP
Oct/Nov	Fiji	Second Meeting of the Joint SPEC/SPC/ESCAP/UNEP Co-ordinating Group	SPC (SPEC, ESCAP, UNEP)
November	Manila	International Workshop on the Prevention, Abatement and Combating of Pollution from Ships in South-East Asian Waters	IMCO, UNEP
November		Meeting of Legal Experts on Regional Convention for West Africa	UNEP



THE SIREN

news from UNEP's Regional Seas Programme

One very interested observer at the Meeting of Experts to Review the Draft Action Plan for East Asian Seas (held in Baguio, Philippines, this June and reported in *Siren* No. 9) was Ian L. Baumgart. Formerly New Zealand's Commissioner for the Environment, Mr. Baumgart is Vice-Chairman of the OECD Environment Committee. He is currently working as a consultant to UNEP on the South Pacific Regional Environment Programme (SPREP).

What was someone involved in the UNEP-sponsored South-West Pacific programme doing at an East Asian Seas meeting?

And what, in particular, can SPREP learn from the East Asian programme?

"First of all, we must make the best use possible of the expertise in the region - the 'centres of excellence' that already exist. Associated with this, we need to carefully evaluate and catalogue the resources and manpower available to SPREP. Since there are many fewer national technical and legal resources available in the SPREP region than in East Asia, we have to make efficient use of what we have. Apart from this, our major job will be to catalyze the establishment of national programmes, in many cases essentially from scratch."

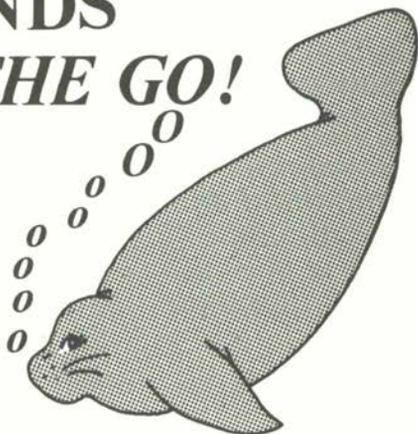
PACIFIC ISLANDS

"My primary interest in this meeting was to observe the development of an action plan," explains Baumgart, "in particular the relationship of UNEP to the countries participating in the process, and to see how the other UN bodies are contributing to the plan. Basically, I was trying to determine the extent to which this pattern might be followed in SPREP."

And what conclusion did he reach?

"The South Pacific region as a whole is fundamentally very different from East Asia. For one thing, it is very lightly populated, and the environment is therefore not highly stressed. But there are exceptions - areas of high localized stress - and we do have some problems in common, such as the prospect of offshore petroleum exploration. We also share a very deep concern for the preservation of coral reefs and protection of fisheries. So, even though we cannot transfer the ASEAN approach to the very different situation in the South-West Pacific in detail, there are certain elements which we can adopt. We certainly plan to benefit as much as possible from the Asian experience."

ON THE GO!



On his way to and from the Baguio meeting, Mr. Baumgart visited environmental authorities in Papua/New Guinea, the Solomon Islands and Vanuatu.

"In Papua/New Guinea I found an enthusiastic commitment to SPREP. The preparation of the country statement, which all South Pacific countries are being asked to contribute to the

continued on page 11...

mission accomplished



The Kuwait Action Plan has progressed a great deal in the past few months, with the opening of the Interim Secretariat in Kuwait, the appointment of a new acting co-ordinator (see box), and the return of a seven-man survey team from a mission to the countries participating in the plan.

These activities mark the beginning of the first phase of the Action Plan. The second phase, implementation of field projects, is scheduled to begin early in 1981. In the meantime, operational details of the projects will be discussed at a regional expert review meeting in October.

Reports of the survey mission are currently being analysed and refined for submission to the experts. These reports cover the initial phase of 10 projects which survey national capabilities in the region in the fields relevant to environmental protection and enhancement.

Yadollah Khosravi is an economist specializing in the application of economic principles and systems analysis to environmental management, and a former Assistant Professor of economics at Teheran Business College. His assignment for the mission was to gather all information relevant to the environmental management component of the Action Plan. "Specifically, I was called on to collect information for a directory of regional institutions active in environmental management, to survey existing and planned socio-economic development and related regulations, to list potential environmental implications of development activities, and to contribute to a bibliography relevant to economic development and environmental protection." After completing his mission work, Khosravi joined the Interim Secretariat where he will take charge of the Action Plan's socio-economic activities.

The team also had an information expert, Rabia Al-Issa of the National Technical Information Centre of the Kuwait Institute of Scientific Research. Her task was to identify the information centres and sources of data, other than marine science centres, relevant to the goals of the Kuwait Action Plan. "Besides carrying out this survey," explains Al-Issa, "I will try to produce a directory of information centres for the region. It will be incomplete at first, but at least it will give people something to work with for now and can be completed as the programme progresses."

Ahmed Hamza, a sanitary engineer from the High Institute of Public Health in Alexandria, Egypt, had three important assignments during his mission: (1) to prepare a survey of urban and rural human settlements, associated waste disposal practices, planned sewage schemes and municipal discharges into the sea; (2) to assess the present waste load of coastal water due to municipal wastes, rivers, agricultural runoff and atmospheric pollutants; and (3) to review present waste management regulation, legal instruments and administrative procedures. "In my job I have to work very closely with the team's industrial engineer and legal expert," adds Hamza.

Alexander Economopoulos is an industrial engineer specializing in environmental impact assessment in the coastal zone for the Greek Atomic Energy Agency. "I'm involved in producing the inventory of industrial activities in the coastal areas of the region," explains Economopoulos. "Mr. Hamza and I are finishing country reports and a regional summary evaluation of land-based domestic and industrial pollution in the region, including the waste load of coastal waters." →



The Siren is issued four times a year in English and French. It is intended as an informal presentation of the news from the Regional Seas Programme Activity Centre of the United Nations Environment Programme (UNEP), and does not necessarily reflect the official views of UNEP.

Articles may be freely reprinted with or without reference to *The Siren*.

Please address all correspondence to: *Siren*, UNEP, Palais des Nations, 1211 Geneva 10, Switzerland.

➔ The mission's legal expert is Farouk Ibrahim, a Supreme Court judge of the Government of Sudan and specialist on environmental legislation in Arab countries, who is currently working as a consultant for UNEP's Regional Office for West Asia. His job with the mission was to identify the national institutions and governmental department involved in environmental protection and pollution control at both the national and local levels, and to survey relevant national legislation of the States of the region. "A big part of my work has been to identify the gaps in environmental legislation and suggest supplementary regulations to fill these," Mr. Ibrahim told the Siren. "I have also provided the legal input into the regional directory of institutions, legislation and conventions concerning the marine environment in the Kuwait Action Plan Region."

The marine scientist of the mission, Scott Fowler of the International Laboratory of Marine Radioactivity of the International Atomic Energy Agency in Monaco, had the task of surveying the marine science facilities and capabilities of the region by visiting national research centres. On the basis of his survey the institutions visited by the mission will be described in the form of a directory and their capability to participate in various projects assessed. "We now have a draft of a Directory of Kuwait Action Plan Region Marine Research Centres similar to directories prepared for the Mediterranean, Caribbean and Indian Ocean," says Fowler. "We also obtained from this mission a good idea of exactly what these institutions need in order to participate fully in the action plan projects during the second phase."

The team's marine meteorologist, Saleh Jeetawi, a specialist in weather forecasting and training currently employed by Kuwait International Airport, can attest to the importance given to meteorological conditions as they relate to pollution transport in the Kuwait Action Plan Region. "The Plan has a large meteorology component," he affirms. "My role in the mission was to review the existing meteorological services in the region, to survey existing data compilations on climatological and oceanographic conditions as they relate to oil and petroleum hydrocarbon dispersion, to collect relevant bibliographical data, and to advise how meteorological services might be upgraded and expanded. I've also been charged with integration of the relevant

acting co-ordinator opens Kuwait office

Abdullatif Alzaidan has been appointed the new acting programme co-ordinator of the Kuwait Action Plan, replacing Khamis Nahdi.

Alzaidan, a Kuwaiti, has a long history of work in the field of environment. After obtaining his B.Sc. in science, specializing in chemistry and botany, he joined the Kuwait Ministry of Public Works' Agriculture Department where he pursued an interest in environmental matters. Since that time he has been active at the regional and international levels, representing Kuwait in conferences dealing with the subjects of desertification, arid land problems, marine parks, pollution control and environmental protection. He has participated actively in the development of the Kuwait Action Plan.



Alzaidan was present at the opening of the Interim Secretariat in July, 1980 (see Siren No. 9). "This is to be the home of the secretariat of the Regional Organization for the Protection of the Marine Environment, soon to be formally established and to become responsible for the Kuwait Action Plan," he observed. "In the meantime, there is a great deal to do in preparation for our experts' meeting, so if you'll excuse me I'll get to work."

Kuwait Action Plan activities with the Regional Marine Meteorological Programme (RMMP) initiated some time ago."

The data collected by the mission will be kept up-to-date and continually at the disposal of decision-makers, lawyers and scientists in the region. "The mission provided a quick and effective means of gathering the information needed to initiate the second phase of the Action Plan," commented the Plan's acting co-ordinator, Abdullatif Alzaidan. "This is information which should be useful to many people for many years." ☉

the will to go forward



Ambassador

Juan Miguel Bákula

The Siren: Tell us about yourself, Ambassador Bákula.

Ambassador Bákula: I have spent my whole life doing two things: studying, and working for the Ministry of Foreign Affairs of Peru. While I was working in various government departments, I was studying law. I went to the Jesuit College in Lima, and later I studied at the University of San Marcos, also in Lima and which is said to be the oldest university in the Americas. It was founded in 1556.

After that I became a career diplomat, and remained in that profession for 43 years until my retirement. As a career diplomat, I have always used my title of Ambassador, just as a general uses his military title. For six years I was head of the Peruvian Delegation to the Conference on the Law of the Sea. My last post was in Paris, which I chose to leave to take up my present post as Secretary-General of the Permanent Commission for the South Pacific (CPPS).

The South-East Pacific covers a vast area. What are the environmental features and problems common to the region as a whole?

Most regions have some distinguishing feature, and the South-East Pacific is best characterized by the ocean and people. In my view, the outstanding oceanographic feature of the region is the Peruvian Humboldt Current, which gives it a physical peculiarity from Panama to the Antarctic landmass. Social and political balance gives the region a measure of homogeneity which itself facilitates co-operation.

In all the countries of the region, the relationship with the sea has at all times been very close. The memory of the

relationship between man and the ocean is preserved in the most ancient vestiges of civilization, and even in archeological remains.

What was the source of this relationship?

The ocean has always been a source of food. Peru was the centre of the Inca empire, and the Incas were very fond of fish. Cuzco, the Inca capital, was situated 1500 kilometres from the coast. But, with the help of a system of human relay teams, the Incas could be supplied with fresh fish every day - each runner ran about 10 kilometres. Quite extraordinary!

And today, in the coastal regions, the annual consumption of fish is nearly 20 kilograms per person - a very satisfactory level. The region is an ideal fishing area. I believe that the annual catch is about 6 million tons a year, compared with 12 million tons of herrings caught in other countries.

One of the main activities envisaged by the Regional Seas Programme for the South-East Pacific is the conclusion of a regional convention. Do you think that such a convention can be applied realistically to an area so vast and so different in nature from a semi-enclosed sea?

Yes, for the reason I have already mentioned; there are conditions common to the five countries of the region. It is possible to make very rapid progress, or at least that is my hope. Moreover, the environmental problems are less serious than those of, for instance, the Mediterranean. I think that by about August of next year the five countries will have managed to work out the text of a convention and even to sign an international agreement.

Are the great distances involved not going to cause problems for the marine institutions which are to monitor pollution along the coasts? How is this going to be possible?

Since the countries of the region are under-developed, a special effort will be necessary. We shall have to appeal to the international organizations for technical and economic aid. We also need bilateral co-operation. The Federal Republic of Germany, for example, has given assistance

to Peru, and Japan has provided scientific research vessels - an indispensable tool for the surveillance of pollution.

Although the problems today are not so acute, preventive measures are essential before the problems get out of hand. Obviously, everything depends on the national will, on the will for co-operation among the five countries, and on the will to co-ordinate with UNEP so that we may all go forward in a single direction. This requires a concentration of effort.

What is CPPS, exactly. Why was it set up and what are its main functions, especially with regard to the marine environment?

The Permanent Commission for the South Pacific was set up in 1952 with very specific terms of reference; namely, to defend the principle of the 200-mile limit. I believe it was in fact the Commission that gave birth to this principle, which is today practically a norm universally accepted and applied. As early as 1952 we were speaking of "sovereignty" and "jurisdiction," and today the text drawn up by the Conference on the Law of the Sea (UNCLOS) uses precisely the same terms. This fact speaks volumes.

After such a long and difficult struggle to maintain the principle of the 200-mile limit, the Permanent Commission is anxious to give it substance by ensuring that the exercise of jurisdiction should be respected through collaboration and international understanding. In this way, the Commission can be an effective instrument for developing marine science in our region.

Actually, we began our work in this field as early as 1965-1966, so that by the time of the Stockholm Conference, we in the Permanent Commission had already carried out a survey on marine pollution problems which we published in 1975. Subsequently, we established contacts with UNEP, and since 1977 our work has been speeded up.

What is the general approach of CPPS to marine problems?

To solve the problems of the ocean, we must bear in mind two concepts: regionalization and organization. With regard to the first, marine problems are no doubt indivisible, and must therefore be dealt with as a whole, but as a regional whole. In other words, all the oceans do not have to be considered at the same time. This brings us to the second point: there must be some form of organization.

One might say that such organization already exists in the Permanent Commission, which is there to respond to problems as they arise. Today it is evident that the two principles, regionalization of the seas and the existence of an organization, are both necessary.

In the framework of the UNCLOS negotiations, what do the countries of the Permanent Commission regard as their vital interests? Is the 200-mile limit in fact considered sufficient?

The 200-mile limit was the result of the Commission's initiative. This distance has a scientific basis, since the 200-mile wide belt marks the boundaries of the Peruvian Humboldt Current. This current delimitates an ecological and biological space and constitutes one of the richest fishing grounds of the globe. In this space, juridical and scientific factors coincide; it is the expression of a fact of life.

The anchovy fishery is the outcome of a vast oceanographic process. Can human activities really have a deleterious effect on such an enormous scale?

From a scientific point of view, the anchovy offers an interesting example. It is unusual in that the biological chain is shorter in the case of the anchovy than for other fish. This peculiarity has two consequences: high productivity coupled with relative weakness, or instability, of the system. Scientific research is essential in order to thoroughly understand the ecosystem and to thus to make rational exploitation and conservation of species possible.



Where along the coast is pollution worst?

The situation is different in each country. We have a great variety of pollution sources. Mining and drainage are two examples. In the Gulf of Guayaquil reared hundreds of tons of pesticides are used, and in due course seep into the ground along with rainwater, eventually finding their way into the sea. There are also oil spills in the region. And of course cities like Lima and Santiago share problems common to all large cities. They are built-up areas of four to five million inhabitants. The sewers constitute a major source of pollution, in the same way as the ports through which minerals such as copper and iron are carried. Colombia, Peru, Chile and Ecuador, not to mention Panama, have among them a fleet of one millions tons of oil tankers. Every port is a source of pollution. We find ourselves at a decisive stage in regard to the adoption of preventive measures.

But to get back to your question, there are many forms of pollution in the region, and none can be considered more important than the rest.

Is small-scale, artisanal fishing on the way out in the South-East Pacific?

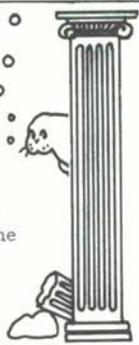
I don't think so. Industrial fishing has developed very rapidly, but for the

ECHOES from ATHENS

The world press gave a great deal of coverage to the signing last May in Athens of a treaty controlling land-based sources of pollution (see Siren No. 9). Here are some examples of their comments:

...the basic treaty leaves considerable room for interpretation and discretion, and envisages a gradual phasing in of controls. It does not set detailed technical standards but general environmental targets: water safe enough for swimming and shellfish culture. It will be left to future meetings of

continued on page 11....



purposes of human consumption, small-scale fishing is absolutely essential. And incidentally, fishing is the only means by which the populations along the coast can continue to provide themselves with an adequate source of protein.

In the five countries of the South-East Pacific region, is the public aware of the need for environmental protection?

The man-in-the-street has a very approximate idea of the dangers of pollution. We must become fully aware of the peculiarities of each region, and the public has to be made to understand the reasons for the laws which forbid certain activities. Although the laws are approved by Parliament, this is done in response to the mandates of the political parties, which are themselves expressions of public opinion. So there is a need for sound and sensible publicity and for public information activities. I should like, incidentally, to present my congratulations to the publisher of The Siren, which is a unique publication by any standards.

Do you have any other points you would like to make?

I am extremely happy to have been appointed Secretary-General of the Permanent Commission for the South Pacific, and to have signed the agreement with the UNEP Regional Seas Programme for co-ordination of activities in South America. It gives me a wonderful opportunity to break out of the sphere of national activity, which was my field, and to put my abilities and experience at the disposal of a world organization. It is an opportunity of which I am particularly proud.

I would also like to say a word about the Conference on the Law of the Sea. I came to Geneva to attend the last week of the Conference, which will end tomorrow morning, Friday, 29 August. We have more or less reached the end of our deliberations.

By now, we have overcome our problems and reached a point of no return. The Convention, a universal instrument for general application to all the countries of the world, will materialize. It represents one of the major victories in human history. Men have never progressed to this point before. Everyone working here, in UNEP and on the Law of the Sea, has reason to feel satisfied, for the Conference on the Law of the Sea is probably the most important achievement in the history of the United Nations. It epitomizes the will to go forward towards a single goal. ☉



Clearing the way for the Caribbean programme

The best way to achieve something is to make good preparations for it. This lesson, learnt the hard way, is on the minds of those in UNEP and ECLA who are responsible for further development of the action plan for the Caribbean Environment Programme.

In consultation with the Governments of the Caribbean region, it was decided to postpone the meeting for the adoption of the action plan (see *Siren* No. 8) from September 1980 to the spring of 1981, and, in close co-operation with national authorities of the region, prepare documentation for the meeting describing the details of the various possible co-operative projects and of the financial and institutional arrangements needed for their support. These documents, together with the draft action plan, will be examined at the meeting of government experts and then sent to the meeting of government representatives for adoption.

One of the documents being prepared by the UNEP/ECLA project team, with support from the Regional Seas Programme Activity Centre, contains the outline of 66 projects, giving details on their objectives, background, proposed activities, hoped-for results, timetable and estimated costs.

The first draft of the outline was sent, in mid-1980, to all Governments for their comments. Based on these comments, and with the help of the specialized United Nations organizations ready to support the projects, the document has been put into its final shape. Translation and printing of the 300-odd-page document will take some time, but it will be in the hands of the Governments well before the meeting of experts.

"The large number of proposed outlines does not suggest that they all have to be carried out simultaneously," commented Mel Gajraj, scientist from the joint UNEP/ECLA project team. "It is expected that the Governments will indicate, on a project-by-project basis, their interest in participating in each project, the priority assigned to it, the time frame in which it should be developed, and any modifications and instructions to be taken into account."

"The document illustrates the options along which regional, subregional and national projects could be developed," added Arsenio Rodriguez, Gajraj's colleague from the UNEP/ECLA team. "We don't expect more than a few of them to be given a green light for 1981."

The second document under preparation will describe the options for the financial and administrative support for the Caribbean Action Plan, once it is adopted. "We are consulting the Governments on such sensitive issues as, for instance, the location of the future unit which will co-ordinate the action plan, the sources of financial support for this unit, and the financing of the approved projects themselves," remarked Jaime Hurturbia of UNEP's Regional Office for Latin America, which is in charge of the document's preparation. "This must be done before the document can be put into its final form for presentation to the experts." ☪



from GESAMP

One of the three reports approved at the last session of GESAMP (Dubrovnik, February 1980) has been published and is available for distribution.

The report, entitled "Interchange of Pollutants between the Atmosphere and the Oceans" (GESAMP Rep. Stud. No. 13, WMO, 1980), describes the air-sea exchange mechanisms and processes modifying pollutants in the lower troposphere; estimates the air-sea fluxes for gases, petroleum hydrocarbons, metals and other substances in particulate form; and discusses the role of biota in the exchange of pollutants between the atmosphere and the sea as well as the modification of physical and chemical processes at the air-sea interface by pollutants.

"A good job," commented the *Siren*. "I am getting enough pollution from the sea and I don't want any more from the air. Thanks to Bill Garrett and his boys who wrote the report." ☪



Dr. Sylvia Earle, a marine scientist and conservationist known for her work with whales, her experiments in undersea living and her deep-sea dives, has recently been named among 14 recipients of the Order of the Golden Ark. Prince Bernhard of the Netherlands, who is founder and President of the World Wildlife Fund (WWF), established the Order of the Golden Ark in 1972 to mark outstanding service to the conservation of wildlife and the natural environment. Dr. Earle was on hand at the inauguration of the new joint headquarters of the International Union for Conservation of Nature and Natural Resources (IUCN) and WWF in Gland, Switzerland. The Siren took the opportunity to speak to her about her background, her interest in conservation, and what she saw during her recent record dive to 400 m to the floor of the Molokai Channel (Hawaii) in a one-atmosphere diving suit named JIM. Here are excerpts from their conversation:

SAVING THE GOLDEN GOOSE

A CONVERSATION WITH SYLVIA EARLE

...My research is all about plants - how they live, where they live, why they live there, who eats them and how they function and the basis of systems. I'm interested in plants wherever they occur in the ocean, those that grow on barnacles that grow on whales, for instance, and I'm especially interested in how deep in the ocean plants can grow, and in getting a picture of what productivity in the sea is all about.

...I did see plants at 400 m, but they were drifting plants, not attached. I think the deepest known collection of attached plants was obtained by divers out of a deep submersible at 218 m in the Bahamas in 1968. That's deeper than anyone had thought possible, since there had always been this 100 m "magic number" and a conviction that they don't grow below that, and now they've been found twice that deep. These plants are especially interesting since, because of the stable conditions in the deep sea, they have retained their character for longer periods of time, and you find a world-wide similarity sort of a band of continuity of similar genera - in the tropics around the world.



...Although my long-term perspective is in the Gulf of Mexico and Caribbean, I've worked in many areas of the world which are now associated with the Regional Seas Programme. I've worked in Micronesia, Australia, New Zealand, Chile, Peru, Ecuador, the Galapagos Islands, Panama...the effects of pollution are everywhere. But until something is dead, you can always do something to make it better.

...My mother was a great influence...she was always bringing frogs and snakes and other creatures into the house to show us kids how beautiful they were. She made me realize I was part of a natural system, not apart from it.

...I first became interested in conservation when it was something "respectable scientists" didn't do - conservation wasn't considered very challenging to anyone's intellect. But I had seen such changes taking place in my own back yard - the Gulf of Mexico - that I began to realize that the plants I cared about weren't going to be there any more unless we did something. I've visited the same areas again and again since the 1940's and 1950's, mostly in and around the Gulf of Mexico. Even in the 13 years between my Master's degree and my PhD I revisited specific stations seasonally, making observations that eventually led to my dissertation.

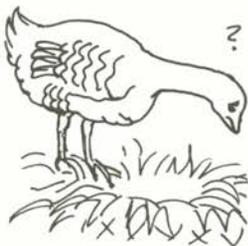


Conservationists are learning to work with government and business and to relate what we know to what they know. In most cases there's no need for an adversary position, since our long-term goals are the same. I've been working with the World Wildlife Fund because it is an organization that is effective on a world scale, working with heads of State and business instead of against them. The WWF has the idea that we need good brains and good economics applied to the environment, and the place to look for good economics is to those who have succeeded in business. Ecology is just economics of natural systems.



...The issue of the snail darter is worthy of many essays - in human nature if not nature itself... Who would step into the engine room of a 747 and throw out parts just because they don't know what they're good for? How can we on this planet be willing to discard things simply because at this point in 1980 we can't say exactly why it's of value to us, when we may be pulling out a pin that's holding something together. It took hundreds of thousands of years to produce the differences exemplified in that little critter, and it's not just that critter that's at stake, it's a whole system of which it's a part.

...As a child, I knew many natural rivers which had been unchanged for thousands of years. One of these was decreed by the Florida State legislature, at the request of a paper company, as an open sewer. So it became an open sewer. A system adapted over millennia of change was wiped out overnight and whatever possibilities there were for humanity in that river - for life support, as a repository for species diversity, for sustainability of natural systems - were sacrificed for one purpose: to provide a sluiceway for chemicals to feed into the Gulf of Mexico. That's just ridiculous. All it is is a short-term economic edge - not even a long-term edge! - for that company, which is not being required to pay the full price for what it's doing.



...The countries which abuse the oceans are making the oceans and the rest of the world pay for their abuse. They're robbing the natural systems which could produce for all time, just like the golden goose. Not satisfied with the golden eggs, they want the goose, too. They're taken it with whales, with fish, and now they want to take it with krill as well. They're running crazy and we have to stop and say look, here is what we all have to work with and we have to agree on how to keep these systems fundamentally intact for the benefit of all of us. The World Conservation Strategy has articulated this all very well. Everyone can win. We have to respect broad areas of the ocean that we'll keep untouched, as resource areas where no fishing can take place so we can continue fishing elsewhere.

...I went to China last May with a group from the California Academy of Sciences. I met a remarkable man there, Prof. C.K. Tseng of the Institute of Oceanology in Qing Dao. He speaks of alternatives to the hunting or "wild catching" of fish and krill. He refuses to call it "harvesting" because we're not putting anything back. He's showing us how to put in as well as take out, and has developed a system of producing two species of algae which the Chinese used to import from Japan. He grows them in a laboratory greenhouse, transplants them at sea, and harvests them at maturity. One species of *Laminaria*, used for food and pharmaceutical and industrial purposes, is being exported to Japan, and China's output now exceeds that of the rest of the world. All thanks to one man who says we can't afford to take wild fish from the sea any longer, since in every case we have destroyed the source. He's just applying good economics to the ocean, which says you don't use up your capital. You don't destroy the source.



....I am encouraged by peoples' awareness. Those who say that environmental causes are on the decline or no longer "fashionable" are just not awake. The early surge of awareness is just now being translated into action and becoming a part of everyday life that everyone takes for granted. People realize that the problems aren't just going to go away but are intensifying, and they can see for themselves the accelerating rate of change. Anyone over the age of 10 has seen it. Changes that used to take generations can now be seen in a single lifetime or less. We have changed the land and sea more in the last 25 years than in all of previous human history. We can see that for ourselves, and people are becoming more and more aware that the state of the polar ice caps is related to the well-being of people in Switzerland and Australia and Iowa and everywhere.

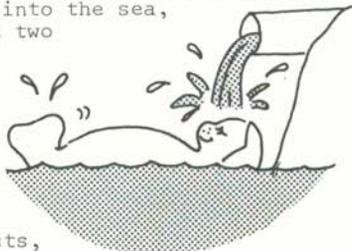


....The most important thing we can do is recognize our dependence on natural systems for our survival and look to maintain those systems, because without them we are dead. I thank the astronauts every day for their incredible picture of the Earth that gives us a perspective back on ourselves, making it look like something you could hold in your hand...a blue and white water biosphere that shows us that in spite of our terrestrial bias we must protect the oceans, which are fundamental to the good health of the planet. We think of the air and the water as free, but what we do to them in the next 10 years will determine our fate and the destiny of mankind and civilization forevermore.

...News gets around instantaneously and information is thrust upon us from all sides. We are more enlightened than at any time in history and even little children know what the Earth looks like from space. Everyone knows why whales and herring are disappearing and why there are fewer and fewer wild rivers. Ignorance is no longer an excuse for inaction.

It CAN be done

The Fos-l'Etang de Berre region on the Mediterranean coast of France was an early-'70s nightmare of environmentalists. A huge complex of petro-chemical, steel and other industries was spewing its inadequately-treated waste directly into the sea, consuming daily the equivalent of almost two hundred tons of oxygen in the recipient coastal waters and adding annually thousands of tons of waste to the sea (2340 tons of petroleum hydrocarbons, 83 tons of phenols, 3.3 tons of mercury, 31,000 tons of suspended matter, etc.).



But not any longer. Thanks to the efforts of French engineers and scientists, and at a cost of more than 400 million Francs, the waste reaching the sea from this largest single industrial concentration on the shores of the Mediterranean was reduced in 1980 to below 10% of its 1972/73 level.

"I am delighted to hear this," remarked the Siren. "I might even take my next holiday at Fos."

—detailed information is available from: *Secrétariat Permanent pour Les Problèmes de Pollution Industrielle de la Région de Fos-l'Etang de Berre*, 37 Bd. Périer, 13295 Marseille Cedex 2.

....continued from page 1

forthcoming South Pacific Environment Conference, is being used as a training exercise for the staff of the office of Environment and Conservation. It will contain a large component devoted to wildlife management, which reflects the effective work of the Wildlife Service there. There are a number of pressing local problems, such as forest exploitation, mining and hydroelectric development, which absorb resources and might take priority over international and regional programmes.

"I was particularly impressed with the activity of the South Pacific Appropriate Technology Foundation (SPATF), which disseminates information in simple form directly to villages and also hands out grants for establishment of small-scale industries. This concept could be successfully promoted through SPREP.

"In the Solomon Islands, problems of human health are foremost in many people's minds, but so far water pollution is negligible. Low population, high rainfall and steep short rivers result in quick runoff into the deep sea. But the flora is surprisingly low in diversity, making it especially vulnerable to stress, and there is population pressure on some parts of the coastal plains because people have left the inland hills to settle on the coast, where their agricultural practices have to be adapted to very different conditions.

"There is a wisely cautious approach to tourism in the Solomons, and developers there seem determined to avoid mistakes made elsewhere in the region. All in all, people I saw in the Solomons were ready to become increasingly active in SPREP, and there are plans to reactivate the Officials Committee on Environment and Conservation, and to fit the environmental concept into the machinery of government. But again there are limited resources to be balanced between local and regional programmes."

What about Vanuatu?

"Although Vanuatu has only become independent this month, the government accepts the need for responsible and well-planned environmental management. In fact, a basic documentation on the environment is being prepared, including a series of maps on basic geology and soils, vegetation, water resources, fisheries resources, population concentrations, pollution centres, etc. Both the Ministry of Lands and the Ministry of Primary Production are looking expectantly for SPREP to suggest good guidelines for national programmes, tech-

nically, legally and institutionally."

What are SPREP's priorities at the moment?

"Before anything else, we must get all the country reports and review papers submitted in preparation for the South Pacific Environment Conference. Some of the countries of the region are inexperienced in such matters and may need help preparing their statements. The political systems of most South Pacific countries require discussion, explanation and consideration at village level - true public participation. The programme must reflect this and allow ample time for the consultative process, so that its technical aspects and social implications are well understood by everybody participating.



"This preparatory period is perhaps the most important," Baumgart emphasized. "The countries of the South Pacific have well-established regional institutions for working together - the South Pacific Commission (SPC) and the South Pacific Bureau for Economic Co-operation (SPEC). These two bodies are actively engaged in SPREP. The momentum is increasing and I am confident that there will be a steady buildup of information and enthusiasm towards a South Pacific Regional Environment Conference next year. SPREP will be a very useful regional environment programme fully reflecting the interest of countries participating in it." ☒

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scientists and technicians to define just what those targets mean and then to individual governments to establish specific effluent standards for wastes entering coastal waters from sources under their control.

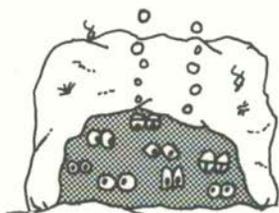
None the less, the treaty marks a big step forward in the effort to clean up the Mediterranean.

--The Economist, May 17, 1980

...The chances of getting all 18 countries that border the Mediterranean to agree on methods of controlling pollution seemed remote. But five years ago, the United Nations Environment Programme decided to try. Last week at a conference in Athens that climaxed a remarkable feat of scientific diplomacy, the U.N. team won the approval of all but one of the Mediterranean nations.

--Time, May 26, 1980

Working for the Good Life



Providing their people with decent and safe dwellings in a healthy environment is a universal goal of the Mediterranean Governments, but its possibilities for realization are being steadily eroded by rapid population migration from rural to urban areas, growing numbers of tourists, and ever-intensifying pollution from a variety of sources along the coast and on inland rivers.

Government-nominated experts from 10 Mediterranean countries met in Split, Yugoslavia, 22-24 September, to consider how best to approach this dilemma by means of a regional co-operative project on Mediterranean coastal human settlements.

"The improvement of living standards and housing in all the Mediterranean countries has to be linked with environmental protection and management," emphasized Aldo Manos, Co-ordinator of the Mediterranean Action Plan. "This means accommodating an enormous influx into the urban areas in the coastal strip, and providing adequate services such as solid and liquid waste treatment. It also means avoiding absolute saturation of the coastal areas, if possible."

The delegates agreed that the regional programme should address four broad areas of concern: migrations, urban planning, provision of services, and protection of historical and natural sites.

"People migrate to the coasts since it is here - in the area of ports and harbours - that the greatest industrialization is taking place, especially in the developing countries," explains Manos. "Clearly it will be difficult to halt or even slow down this trend, unless Governments succeed in creating a better level and distribution of employment in the inland areas."

The regional programme represents one aspect of the Mediterranean Action Plan's Priority Actions Programme (PAP). Other PAP projects which are expected to contribute substantially to the human settlements programme are those which deal with aquaculture, renewable energy, tourism, water and soils.

COMING EVENTS

DATE	PLACE	TITLE	ORGANIZER(S)
3-8 Nov	Manila	International Workshop on the Prevention, Abatement and Combating of Pollution from Ships in South-East Asian Waters	IMCO, UNEP
17-20 Nov	Malta	Expert Consultation on Long-Term Programme for the Regional Oil Combating Centre	IMCO, UNEP
24-28 Nov	Barbados	Meeting on Caribbean Oil Spill Contingency Planning	IMCO, OAS, UNEP
6-10 Dec	Bahrain	Workshop on Marine Pollution from Ships and on Safety of Navigation in Kuwait Action Plan Region	IMCO, UNEP
8-12 Dec	Geneva	Meeting of Experts to Evaluate the Pilot Phase of MED POL and to Develop a Long-Term Monitoring and Research Programme for the Mediterranean Action Plan	UNEP
8-12 Dec	Bangkok	Second Government Experts Meeting to Review Draft Action Plan for East Asian Seas	ASEAN, UNEP
Dec	Dakar	Meeting of Experts to Review Information on River Inputs to the West African Region	UNESCO, UNEP
Jan	Lagos	Regional Seminar on Coastal Area Development in the West African Region	UN/DIESA, UNEP

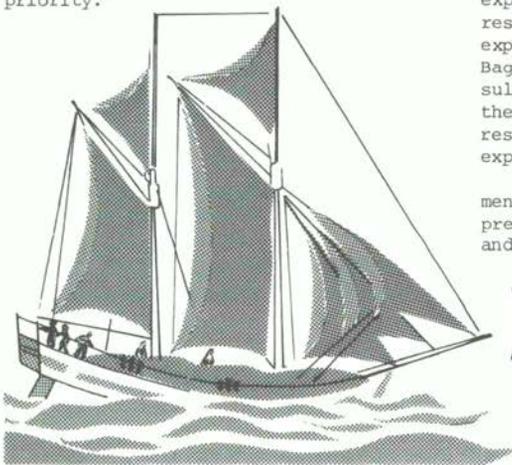


THE SIBER

news from UNEP's Regional Seas Programme

Environmental experts have trimmed and tightened the sails of the East Asian Seas action plan.

Meeting in Bangkok (8-12 December) to consider a document describing the drafts of various projects which may become parts of the plan, government-designated experts from the ASEAN countries of Indonesia, Malaysia, Philippines, Singapore and Thailand agreed to shorten the list of projects considered as "top priority."



"We haven't shelved the other projects," emphasized Kasem Snidvongs, Secretary-General of the National Environment Board of Thailand and Chairman of the meeting, "we're just giving the most urgent ones a head start."

Scientific projects making the short list are those related to oceanography, pollution and coral and mangrove ecosystems. In the case of environmental management, emphasis has been placed upon the issues of oil pollution control, management of wastes, and information exchange. Projects on environmental impact assessment and nature conservation were eliminated from the revised action

plan, since they are included in the ASEAN sub-regional Environment Programme already under way.

Postponed until a future date were projects on assessment of the environmental impact of offshore seabed exploration and exploitation, assessment of thermal pollution and its impact on coastal organisms, and assessment of marine pollution borne through the atmosphere.

The programme document under the experts' scrutiny was prepared as a result of a recommendation of the first experts' meeting held last June in Baguio. Following a small planning consultation convened by UNEP in August, the document was assembled from the results of regional pilot projects and expert consultations.

"The purpose of the programme document is to take the general goals expressed in the environmental assessment and management chapters of the action

ACTION PLAN SETS SAIL

plan, and present a precise and practical plan for achieving these goals," explained S.T. Sundram, Director-General for the Environment in Malaysia. "For example, the draft action plan says we need oceanographic data, and this document tells how, why and when to set up oceanographic reference stations, what the stations are going to do, and how much it will cost."

The action plan also calls for assessment of oil pollution and its impact on living aquatic resources, and research on oil and oil dispersant toxicity. The importance of other pollutants, such as metals, organics, nutrients and sediments,

continued on page 7...

West African States Reach Agreement

The 20 coastal states of West Africa have a pollution problem with many causes. Ships travelling in the offshore corridor from the Indian Ocean to Europe leave a wake of oily bilge on African beaches. Domestic sewage and industrial effluents from coastal cities create local hazards to the health of coastal populations and artisanal fisheries. Wastes from inland sources, including pesticides, fertilizers and sediment runoff from agriculture, are carried to the coast by rivers. In addition, coastal engineering projects - the building of harbours and piers and large-scale land reclamation - causes widespread coastal erosion with irreversible destruction of beaches, marshes and lagoons.

The West African Governments have decided that the answer to these problems lies in a programme of "environmentally-sound management." At a four-day meeting in Lomé, Togo (24-27 November), two documents were considered which will give the programme its legal backbone. These documents - a convention for co-operation in the protection and development of the marine and coastal environment of the West African region, and a protocol concerning co-operation in combating pollution in cases of emergency, were accepted by a consensus of legal experts from 13 West African countries (Benin, Cape Verde, Congo, Ivory Coast, Gabon, Ghana, Guinea, Equatorial Guinea, Liberia, Nigeria, Senegal, Sierra Leone, Togo).

The meeting, hosted by the Government of Togo, was convened by UNEP in co-operation with various United Nations bodies, especially the Inter-Governmental Maritime

Consultative Organization (IMCO) and the Food and Agriculture Organization of the United Nations (FAO).

The two legal instruments are being negotiated as one of the activities of the legal chapter of the draft action plan for the West African region, which has been in preparation since 1976. The most recent meetings held to prepare the action plan programme were:

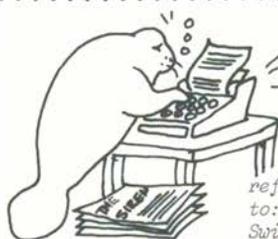
- a 1978 workshop on marine pollution in the region, jointly convened in Abidjan by the Intergovernmental Oceanographic Commission (IOC) of UNESCO, FAO, the World Health Organization (WHO) and UNEP, and

- a 1979 meeting of government-nominated experts to review all aspects of the action plan in Libreville.

The next step will be to submit the draft action plan, as well as the convention and protocol, for adoption and signing to a Regional Conference of Plenipotentiaries to be held from 16 to 23 March, 1981.

"Just before the plenipotentiaries' conference, a two-day meeting of legal experts will be held to harmonize the texts of the legal instruments and settle some remaining minor issues," explains Patricia Bliss-Guest, secretary of the Lomé meeting and UNEP's officer for Regional Seas legal activities. "At the expert level, it has already been agreed that UNEP should act as the secretariat of the convention, and that a small regional unit should eventually be established to co-ordinate implementation of the action plan and application of the legal instruments. Financial arrangements have yet to be worked out, but it is hoped that a trust fund will be set up to support the costs of the action plan," she added.

The meeting unanimously elected the following officers: Chairman: Firmin KOFFI (Ivory Coast), First Vice-Chairman: Andoulaye FOUSSENI (Togo), Second Vice-Chairman: Benjamin W. GARBRAH (Ghana), and Rapporteur: Akinlabi O. AWOBAMISE (Nigeria).



The Siren is issued four times a year in English and French. It is intended as an informal presentation of the news from the Regional Seas Programme Activity Centre of the United Nations Environment Programme (UNEP), and does not necessarily reflect the official views of UNEP.

Articles may be freely reprinted with or without reference to The Siren. Please address all correspondence to: Siren, UNEP, Palais des Nations, 1211 Geneva 10, Switzerland.

"The Lomé meeting was characterized by a remarkable degree of co-operation and consensus, as have been all the meetings on the action plan for West Africa," Ms. Bliss-Guest emphasized. "This is a good indication of just how dedicated these countries are to managing and rationally developing their environment."

In his welcoming remarks to the delegates, a spokesman for the President of Togo His Excellency General of the Army Gnassing Eyadema, stated that "...our objective is to formulate an African model for protecting the sea." With the successful completion of the Lomé meeting, two essential elements of the model are nearly in place.

Boateng describes mission

Professor Ernest A. Boateng, Chairman of the Environmental Protection Council of Ghana and a consultant for UNEP on the West African Regional Seas Programme, spent much of the time between April and November 1980 travelling to West African States, visiting government officials and political leaders. Professor Boateng describes below the purpose of his mission and what he discovered.



Well, my assignment was to have discussions with the Governments of the West African region - those along the coast and the land-locked States that lie on rivers that flow into the Atlantic - to discuss with them the draft action plan drawn up by the meeting of experts in Libreville last November. Also, I was to find out the extent of their interest in the programme for the protection and development of the West African marine environment and coastal areas, and the extent to which they were prepared to commit funds and institutional support to the implementation of the action plan.

I travelled to most of the States from Mauritania right down to Angola, including the two island States of Cape Verde and Sao Tomé and Príncipe. I also visited several inland countries - Mali, Upper Volta, Niger and the Central African Republic. My general impression was that they are all very much interested in the programme.

The coastal States particularly are concerned about the growing incidence of pollution along their coasts due to oil, discharges into the sea, and also to pollution from land-based sources, like sewage, industrial effluents, and so forth. I found that the countries that were particularly concerned were those that have oil reserves along or near their coasts. Gabon, for example, is very interested. Cameroon was particularly concerned because of its position between two oil-producing countries. Since it relies heavily on its wetlands and its immediate coastal zone for prawns,

oysters and other living resources, it wants to insure that the seas in that area are clean. In Benin and Togo, the main concern was about coastal erosion which is hitting those two countries very hard.

Now, one of the other aspects of my mission was to clarify the kinds of institutional support that the individual countries would be prepared to provide. I found that these were not developed very well in most of the countries, but there were a few which clearly had quite impressive institutional infrastructures, countries like Senegal, Ivory Coast, and to a certain extent my own country, Ghana. They seemed to have a lot of institutions which could be used later on when the action plan comes into being, both for providing inputs into it, and providing facilities for training personnel.

In the Ivory Coast, for example, there is an oceanographic research institute which carries out fisheries research. The Government itself has got a strong Department of Marine Research which is developing capabilities for policing the waters of the Ivory Coast and monitoring the incidence of pollution and giving the necessary signals so that these can be checked. The University in Abidjan also has a department which is interested in oceanographic research.

Senegal has quite an effective Environmental Protection Department and there is research into marine oceanographic matters. There is also a naval capability which, can, if necessary, assist in any policing that might be required.

Another Mediterranean Success

Mediterranean governments have committed themselves to the creation of a vast regional network of specially-protected marine areas.

At a meeting in Athens, 13-17 October, they also agreed on the first text of a new Mediterranean treaty.

"This agreement by the Mediterranean countries and the European Economic Community goes well beyond our most optimistic expectations," commented a leading Greek Government environmentalist, Marinos Yeroulanos, who chaired the conference. "We hadn't thought they'd move so far and so fast.

"When you look at the world today, it is highly encouraging to find such a remarkable example of regional co-operation. The Mediterranean today is far from being only a sea of conflicts."

So rapidly was unanimous agreement on the draft treaty reached that many of the 40 participants proposed an early diplomatic conference for signing it. However, it was finally agreed that there would be one more experts' session before a conference of plenipotentiaries.

"We expect an experts' meeting probably next spring or summer to put the finishing touches on the protocol and, if all goes well, we could have a treaty-signing ceremony late next year," said Patricia Bliss-Guest, a legal affairs officer of the sponsoring United Nations

Environment Programme and secretary of the Athens meeting.

In other words, this first draft of the future treaty on specially-protected areas of the Mediterranean Sea and coastline is also likely to be the next-to-last text. Few major changes are expected in the final version.

What is the purpose of creating a network of protected zones?

"For one thing, we want to protect the breeding grounds of commercially exploitable fish and shellfish," explained Aldo Manos, an Italian who co-ordinates the Mediterranean Action Plan.

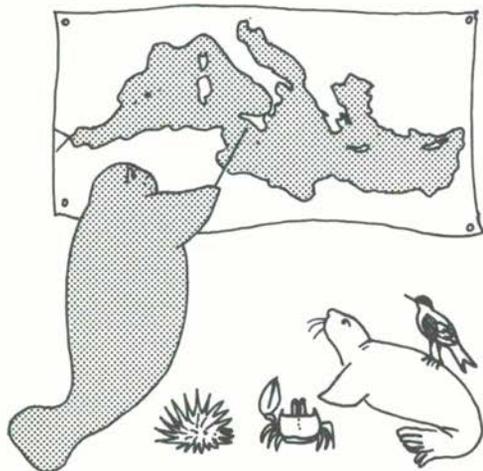
"It is not enough to preserve certain species, we must increase their stock. For another thing, we would like to have effective protection for a representative cross-section of Mediterranean ecosystems. A third *raison d'être* for protected areas is tourism. I mean areas where tourists can be certain of finding safe, agreeable bathing waters and sun-bathing beaches, especially around sites of historical, archeological or esthetic interest. Our network is not just for birds and beasts, fish and plants. After all, the principal beneficiaries of all our treaties and actions in the Mediterranean are the 100 million people who live around it and the even larger numbers who spend holidays there."

From a scientific point of view it is important that some of the protected areas be used for "baseline studies" of the ecosystems. In this way, it will be possible to compare conditions in five, ten or twenty years with what they are now, and to see whether things are getting worse or better.

Some protected marine and coastal areas would be wintering homes for migratory birds, others would be pools of genetic diversity, while still others could safeguard the rich but fragile flora.

It goes without saying that endangered species such as the monk seal, turtles and frogs, would have their own protected areas.

Among the other Mediterranean species in serious danger or in need of protection are the crested porcupine, the European otter, the precious coral, the edible periwinkle, the scarlet shrimp,



the Mediterranean oysters and mussels, the slippery lobster, the velvet fiddler crab, the violet sea urchin, the turkey toilet sponge, the Italian agile frog, the grooved sea squirt, the red-necked nightjar, the little bustard, the ostrich, the mourning chat, the gull-billed tern and the Caspian tern.

Ms. Bliss-Guest emphasized that "not only did the meeting agree on the first draft of the protocol, but it laid down the guidelines and established the criteria for selecting the specially-protected areas. The government representatives also accepted Tunisia's offer to establish the headquarters for the association or network of protected zones in Tunis."

At present there are about 15 well-organized marine parks, reserves and other protected areas in the Mediterranean. Eventually, the network seems likely to count more than a hundred. But if Rome wasn't built in a day, neither will the protected areas network be in a year.

Most of the scientific background papers were prepared by the International Union for Conservation of Nature and Natural Resources (IUCN), while FAO drafted the protocol. The meeting, which was organized by UNEP, was attended by experts from Algeria, Tunisia, Libya, Israel, Turkey, Cyprus, Greece, Yugoslavia, Malta, Italy, Monaco and France, plus the EEC. ☺

ROCC Rated

A modest building on a tiny island in the Mediterranean's smallest country houses an important pioneering effort and a lot of environmental optimism. The Regional Oil Combating Centre for the Mediterranean (ROCC), on Malta's Manoel Island, is the first institution of its kind, and is destined to be used as an example when others are established wherever the seas are threatened by oil.

Since it was founded in December of 1976, the Malta Centre has worked to fulfill its mandate, and to become the foremost instrument in the co-operative efforts of Mediterranean countries to meet the threat posed by oil pollution emergencies to their environment. The key is communication--to collect what is known about the effects of oil pollution and how to respond to spills, and to disseminate the information to each of the countries; to train people from around the Mediterranean in cleanup and preventive techniques; and to establish and maintain open lines of communication among the national centres.

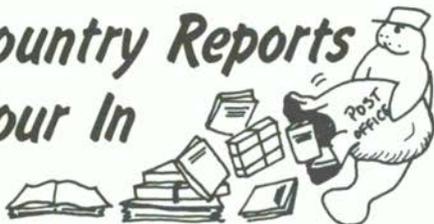
At a meeting at the Centre in November, government-appointed representatives of twelve Mediterranean countries and the European Economic Community met with representatives from IMCO and UNEP and the Centre's Director to review the activities of ROCC and consider what modifications to make in order that the Centre might be more effective.



The meeting affirmed that ROCC should continue to pursue its original objectives, with emphasis on assisting coastal States in dealing with emergencies and in responding to oil spills. It recommended that ROCC should provide countries, on their request, with an advisor service to help them set up national emergency plans, and that regional training courses be provided to increase the number of trained nationals. The meeting also stated that the Centre should become more "operational;" that is, although it would not have its own oil combating equipment it should be able to respond more quickly to emergency requests for assistance.

The recommendations of the meeting will be submitted to the meeting of Contracting Parties to the Barcelona Convention and Intergovernmental Review Meeting on the Mediterranean Action Plan, along with a new budget for the Centre to be drawn up by IMCO in consultation with UN

Country Reports Pour In



Twenty Governments of the South Pacific were invited in July to prepare reports describing their environmental policies, resources and problems.

Fourteen have already been received at the headquarters of the South Pacific Regional Environment Programme (SPREP), and at least three more are on the way. Those received so far were compiled, analysed and presented for review at the Second Co-ordinating Group Meeting on SPREP, held in Suva, Fiji, 12-14 November 1981.

"This is truly an excellent response", observes Ian Baumgart, advisor for the South Pacific Commission (SPC) on SPREP. "And, although the reports are vital to the further development of SPREP, perhaps their most important benefit has already been realized: the countries themselves, in preparing the reports, have had to sit down and really focus on the issue of environment. In assessing the significance of environmental issues in their present and planned programmes of resource management, each country has had a chance to determine what its individual needs and priorities are. And we're not surprised to see that in most cases they are identifying, quite independently, the same problems."

Those topics which emerged from the country reports as being of common concern or particular regional interest will be the subjects of a series of review papers prepared by appointed specialists during the next few months. They will cover a wide range of environmental topics relating to the sea (mangrove and coral reef ecology, fisheries, oceanography and marine pollution), the land (soils, agriculture and forests), and human needs (water supplies, sanitation, tourism and urban impact). The papers will be submitted to the third meeting of the Co-ordinating Group in Noumea in March 1981, with the three basic working documents - the draft declaration of principles, the draft regional action plan, and the proposal for administration and financing of the plan. The Co-ordinating Group

will prepare the papers for submission to a Technical Meeting on SPREP planned for June in Noumea. The Technical Meeting will in turn consider the topic reviews, revise the draft action plan, and begin detailed preparations for the upcoming Regional Conference on the Human Environment in the South Pacific, now scheduled for February 1982.

"The Technical Meeting will mark a critical point in the programme," emphasizes Baumgart. "Here, experts from all over the Pacific will try to make the documents reflect in specific terms the unique nature of the South Pacific, and to make them as relevant as possible to the needs of South Pacific countries."

The Co-ordinating Group consists of representatives from SPC, the South Pacific Bureau for Economic Co-operation (SPEC), the Economic and Social Council for Asia and the Pacific (ESCAP) and UNEP, the four agencies jointly implementing SPREP. Financing is provided by the Fund of UNEP as part of its Regional Seas Programme. ☉

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Ghana has a good Fisheries Department, where a lot of valuable research has been done. It has a large artificial lake which is also a base for research into aquatic biology, and the Council for Scientific and Industrial Research of Ghana has a strong Institute of Aquatic Biology.

These countries all have people with the necessary skills for assisting in the implementation of the action plan. I don't think they can do all the work, but they will constitute a useful core.

I also had discussions with a number of regional and sub-regional organizations like the Ministerial Conference of West and Central African States on Ocean Transport. This body is concerned mainly with shipping matters and with arrangements for the care and servicing of ships in the harbours of its member countries, and has quite obvious links with an action plan such as proposed.

Another group I contacted was the Mano River Union, which serves two countries: Liberia and Sierra Leone. They also seemed very interested in the programme, and are especially concerned about pollution and the large quantities of valuable soil and mud which flow to the Atlantic from the Mano River as well as from other rivers along the coast.

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will also be determined, taking into account their effects on the marine environment. And special attention will be given to the impact of all forms of pollution and human activity on mangrove and coral reef ecosystems.

Ed Gomez, science advisor for the programme (see interview, this issue) explained why basic oceanographic research was included with pollution research.

"Basic and applied research cannot be separated," he maintained. "We must understand water circulation, weather patterns, and the chemical and physical nature of water masses before we know what is going to happen to pollutants once they're introduced into the system."

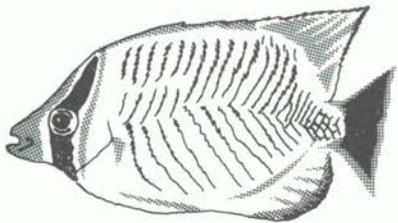
The problem of oil pollution control is covered in the action plan through a training programme on means of preventing and responding to oil spills, through establishment of national and regional contingency plans, through control of operational pollution from ships, and through provision of advisory services in support of these activities.

Wastes are to be managed through establishment of regionally-applicable principles and guidelines for coastal discharge, and research will be carried out to determine appropriate sites for dumping of hazardous wastes.

A regional data exchange system on marine pollution will be organized, and a directory of scientific and environmental management institutions issued.

The legal chapter of the action plan is still in its early stages, but the Bangkok meeting reaffirmed the need for a regional convention. Elements for a convention and related protocol on co-operation in combating pollution in cases of emergency were reviewed by the meeting, and the draft action plan mentions the possibility of developing further protocols on the establishment and management of specially-protected areas and control of pollution from specific sources.

"Now that the experts have stream-



MORE RESULTS

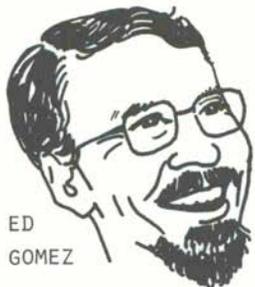
For the second time, results from the Mediterranean pollution monitoring and research projects of MED POL were presented for public scrutiny by the scientific community, and were well received. Over 150 papers were presented at the Workshop on Pollution of the Mediterranean in Cagliari, 9-13 October, which was jointly sponsored by the International Commission for Scientific Exploration of the Mediterranean Sea (ICSEM) and UNEP. Many of the papers reported results of projects initiated as part of the Mediterranean Action Plan by 84 laboratories from 16 Mediterranean countries. The last such workshop was held in Antalya, Turkey, in November 1978.

"The progress since Antalya has been tremendous," observed Dr. Joaquin Ros, a Spanish scientist and co-chairman of the workshop. "The quantity and, more important, the quality of the contributions were impressive. Although ICSEM has sponsored workshops for a number of years, this is only the second in which UNEP has been involved. Thanks to grants by UNEP and other international organizations, a number of scientists were able to participate who might otherwise have stayed home."

lined the programme to some extent, our timetable seems more realistic," commented Veronica R. Villavicencio, Deputy Executive Director of the National Environmental Protection Council of the Philippines. "The revised draft of the programme document, now being prepared by the UNEP Secretariat with the help of the UN specialized agencies, should be ready for submission to government focal points by April. It will then undergo internal review through inter-agency meetings with the governments, and put into its final form at a workshop some time next summer."

When does work on the projects begin?

"Well, we really cannot look that far ahead," she explained. "An inter-governmental conference is scheduled for this April in Manila to review and adopt the action plan. So, if all goes well, we'll then get a green light to start." ☉



ED
GOMEZ

In the six years since he completed his graduate work at Scripps Institute of Oceanography, Dr. Edgardo Gomez has been the Director of the Marine Sciences Centre of the University of the Philippines. He is currently UNEP's science advisor for the environmental assessment chapter of the East Asian Seas action plan.

no other way out...

The Siren: What kind of work is done at your Marine Sciences Centre?

Dr. Gomez: Our work is pretty typical - we have some people working on fish, some on marine microbiology, others on biochemistry of marine organisms. My own research concerns coral reef ecology and the reproductive biology of bivalves and other benthic invertebrates. It's a small centre at present, and our work is concentrated near shore. But we are growing, and we hope soon to be able to do some offshore oceanographic research - some "blue-water oceanography."

You've recently done some studies on mangroves and coral reefs for the East Asian Seas programme. What did you find out?

There is a lot of justified concern worldwide on the condition of the remaining mangroves. I say remaining, because they are being cut down at a very high rate. This includes in the Philippines, where recent remote sensing data have shown that we only have about 200,000 hectares of mangroves left. We thought we had twice that.

Why cut them down?

For one, fish pond operators want more space for their fish ponds. Loggers and wood dealers cut the mangrove trees for export, particularly to Japan. Some species of mangrove are used as raw materials in the manufacture of rayon. So, there's pressure from several quarters.

Is the mangrove situation of scientific interest only, or is there a noticeable influence on fisheries and other marine resources?

The fisheries people are beginning to show a lot of concern. Studies in several countries, including Indonesia and the U.S. have shown a direct relationship between the mangroves and the productivity of the shrimp fishery, and we're now conducting

similar studies in the Philippines. Although it's difficult to get hard figures showing how the mangroves are related to offshore fishing, it's a generally accepted principle that destruction of the mangrove swamps, which are spawning and nursery grounds for offshore fish species, is going to influence offshore fisheries.

Can't the loss be made up by creating more fish ponds?

Right now, in the Philippines, ponds account for about 10% of fish production, and the marine catch for about 90%. It is a big question whether fish ponds can ever make up for destruction of the breeding grounds for marine fish.

Is there a similar problem with coral reefs?

Yes, except here the destruction results from practices such as dynamite fishing and blasting, which is a bad method of fishing anyway.

To what extent are fisheries dependent on the reefs?

In the case of the Philippines, we're just beginning to get some estimates of the value of the reef for fisheries. Data from other countries indicate that the total coral reef-related fishery may represent as much as 15 to 25% of the marine fisheries production. For the Philippines, it seems to be about 10 to 15%.

How do you make such an estimate?

You look at the fishery catch statistics and try to identify the species of fish that are normally associated with the coral reef. But this figure does not take into account the contribution of the coral reefs to offshore fisheries, so their importance may be greatly underestimated.

For example, a recent study in New Caledonia showed that some species of tuna are dependent on coastal fishes,

and particularly reef fishes, so that the tuna industry could be affected by destruction of the reef ecosystem.

Isn't blast fishing illegal?

For the most part, yes. The problem has been enforcement, and the practice is still widespread throughout South-East Asia. It takes something like 20 to 25 years for a coral reef damaged by blasting to recover to its climax condition, although the exact time can vary due to the hydrographic and other environmental conditions. It took reefs destroyed by lava flows in Hawaii several decades to recover.

But blast fishing isn't the only danger to coral reefs by far. Another major cause of damage is siltation and sedimentation. Most of the reefs in South-East Asia are fringing reefs, and therefore located close to shore. Destruction of island watersheds by cutting down forests brings a lot of eroded sediments into the coastal waters, killing the coral. Any type of land clearing and development has a great impact on the fringing reefs around these islands.

Is the picture the same throughout the region?

The coral reef situation in the Philippines is very similar to that in Indonesia and Malaysia, and to a lesser extent in Thailand, which has limited reefs.

In the case of mangroves, the major concern is for those in the Philippines, Thailand and Indonesia. Malaysia hasn't yet started its fish pond projects on a large scale, and Singapore, being a highly industrialized island country, has virtually no mangroves left to worry about.

How are you going to save mangroves and coral reefs when it conflicts with present patterns of socio-economic development in these countries? Is there really any hope for the environment in this struggle?

It's a long process, and a common problem for developing countries in general. It will take improved education and public information campaigns to present the environmental side of the issue. I feel that the environmentalists will eventually get the upper hand, simply because there is no other way out. If they aren't listened to, there will be an environmental backlash in that these ecosystems will be destroyed. People are already finding out the hard way that

blast fishing is not good for their fisheries, and in some areas it is the local authorities who are taking the lead in putting an end to such practices.

Are there many conservation movements in South-East Asia?

There are a few such organizations in the Philippines, and I would guess this is true for the other ASEAN countries. But private, non-governmental organizations are few and far between at present, and it's going to be some time before their impact is felt. A lot of the effort will have to come from the governments, perhaps with the help of the law enforcement agencies, in order for the necessary public information work to be accomplished, and for conservation laws to be enforced.

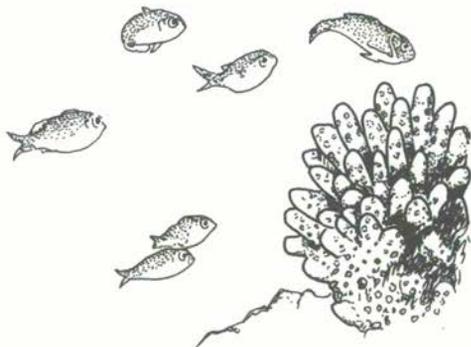
What can the East Asian Seas programme of UNEP do?

In each of the countries there has been real effort to solve pollution problems on a national scale. A regional effort such as the East Asian Seas programme can pull these different groups together. They can help and encourage each other, share their resources, and, with some assistance from the United Nations system, increase their capabilities to deal with pollution problems. Co-ordination and communication is of first importance, and then perhaps training and provision of equipment so that the existing laboratories and institutions in the area will be better able to carry out the scientific activities envisioned in the Regional Seas Programme.

Are there enough existing institutions in the region to do this?

Yes, but many of them don't have the necessary equipment and trained personnel. Most of the South-East Asian countries

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have a number of institutions in different parts of their country, and there is good geographical coverage of the region.

Oil pollution is a major concern in the region. It comes from offshore and on-shore drilling, exploration and exploitation, and at the same time from tankers passing through the region from countries outside East Asia. How are the South-East Asian countries dealing with this problem?

At present, the problem of oil pollution is being addressed at different levels in different countries. I feel there has not been enough attention to it in the Philippines. We have just started offshore drilling and yet environmental impact studies have yet to be undertaken. I understand that Malaysia has begun some impact studies, and I believe Indonesia has also. But most concern has been expressed about the problem of tanker traffic. With the

advent of the supertanker, a new route will have to be found since the Straits of Malacca and Singapore are too shallow for the biggest of them. So now we have to think about another passageway that will have to be monitored and perhaps have some oil combating centres established along its way in case of accidents.

If you were given a million dollars for pollution-related research, what would you do with it?

I would put some of it into mangrove and coral reef research. But there are other problems that need study, such as the impact of pesticides and heavy metals on the marine environment. In some areas of heavy industry and agriculture, where there is heavy runoff into shallow seas, we need to know what is happening, and how it relates to human health.

What kind of health problems are there?

I'm most familiar with the Philippines and Manila Bay, of course. There, shellfish appear to be thriving and are continually being harvested, but visitors sometimes get intestinal disorders from them. The Government should really take a stronger hand in regulating the use of these shell-fishing areas since many of them are polluted by sewage. The problem is cost - pipes to take the sewage from Manila out to the Bay would probably cost several hundred million dollars. We have to decide how much we can spend in order to keep the environment clean, but clearly it's more prudent to spend the money directly on preventive measures rather than have to cure all the people who get sick from the pollution.

In general, how would you rate the Philippines and South-East Asia as a tourist area?

I suppose the major attraction is our coral reefs. Scuba divers come from all over the world to see their fantastic variety of marine life. Of course, many of the most beautiful natural areas in the region don't have the first-class tourist hotels that many people are used to. But for those who want to see nature at its best and are willing to forego some of the creature comforts, it's an ideal place, and relatively inexpensive. This situation will change as facilities are built, and we'll have to work to see that the changes are not destructive to the natural environment which attracts people in the first place. ☪

Experts Revise Red Sea Convention

Pollution levels in the Red Sea are beginning to reach critical levels, and urgent action is needed to prevent irreparable damage to the Sea's unique assemblage of marine organisms. The Arab League Educational, Cultural and Scientific Organisation (ALECSO) is currently preparing legal measures to protect the sea from oil pollution, which is the major problem, as well as from industrial wastes, domestic sewage and siltation from dredging operations.

At a meeting in Jeddah, 10-14 January, legal experts from ALECSO countries will meet to consider and revise the text of a draft convention on the protection of the Red Sea and Gulf of Aden environment.

Following this revision, the draft convention will be submitted to a conference of plenipotentiaries for further consideration and eventual adoption.

OIL'S WELL THAT ENDS WELL

Blackened sand and the multicoloured reflections of sunlight on oiled water are unromantic and increasingly familiar sights on beaches around the world. But gluey toes, tar burns and spoiled vacations are the least worrisome of the effects of oil pollution. Vital fisheries are threatened in some areas, and toxins associated with oil spills can affect marine ecosystems at their roots.

In the Kuwait Action Plan region, oil is at the centre of things. It is the mainstay of the region's economy - and it may destroy the region's marine environment. Careless exploitation and shipping practices have already caused a number of polluting incidents, and the situation is worsening.

A workshop on the problems was held recently in Bahrain (6-10 December), and was organized by IMCO and UNEP as an activity envisaged according to the Kuwait Action Plan. More than 50 participants from the region met to hear some of the world's foremost oil pollution experts discuss up-to-date means of preventing oil spills and responding to them when they occur.

"I would guess that this was one of the most inclusive and comprehensive such workshops ever held," observed Abdullatif Alzaidan, Acting Co-ordinator of the Kuwait Action Plan. "It covered the effects of oil on the region's marine environment, methods of risk analysis and spill simulation, the role of weather data as they pertain to safe drilling and transport, maritime traffic control and navigation, and detailed procedures for responding to emergencies. I can't think of anything that was left out.

"A recent large oil spill in our region made an extremely useful case study," he continued. "The workshop not only looked at methods already available for dealing with such a spill, but looked forward to applying the most advanced technology possible to prediction and tracking of spills.

"This workshop had the added result of reassuring us all of the continued co-operation of everyone concerned with the programme, and that their united efforts will contribute to the quality of human life and afford a reprieve to the environment of the region," Alzaidan added.

✕



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Then I saw the River Niger Commission, based in Niamey, in Niger. They were also interested, even though their major concern is with development of the Niger River basin for agriculture, irrigation, hydro-electric power generation, transportation, communication, and so forth. They seemed to think that an effective programme for protecting and developing the West coast of Africa might be complementary to their own efforts in the interior to stem the advance of the Sahara. These are the Sahelian countries, and the feeling was that if these two parts of the region were properly organized, we might be able to create the kind of environment that was strong and viable.

Finally, we get to the question of finance. This is not an easy one. Every country I visited pledged its willingness to contribute its just share of whatever was required. They all welcomed the idea of establishing a trust fund for the West African programme, but it was quite clear that without outside support, especially from UNEP and other UN agencies, it would be difficult to get the action plan off the ground.

I was encouraged by my visit to the African Development Bank in Abidjan. That is an organisation which I'm sure could provide funds, at least on a project basis, and I was interested to learn that they had recently developed an environmental programme and would be willing to look at any proposals UNEP might present to them.

It was a very interesting mission. I met a lot of very active and enthusiastic people working in different departments related to the environment. From these contacts it seems to me that the action plan is going to have the kind of support we hoped it would have. ✕

Caribbean contingency plan takes shape



The Wider Caribbean region has become an area of intense oil production and refining, and tanker traffic from all over the globe passes through or near the Caribbean Sea. There are currently 73 refineries with a total capacity of more than 12 million barrels per day, and at any one time there are around 200 tankers in the area, 50 of which are supertankers or very large crude carriers. Nearly 5 million barrels of oil pass through Caribbean waters daily.

Caribbean States and Territories have been aware of the threat of oil pollution for many years, and of the need for carefully-organized procedures for responding to major spills. "The economics of oil spills is overwhelming," observes Ms. Billie A. Miller, Minister of Health of Barbados. "In 1968 a relatively small tanker ran aground off San Juan, Puerto Rico, and cleanup costs amounted to \$US 2 million. It is estimated that the same job today would cost \$5 million."

The meeting of Caribbean Islands on Oil Spill Contingency Planning, held in Barbados, 24-28 November, was the most recent effort to develop oil spill response procedures. The meeting, hosted by the Government of Barbados, was attended by delegates from 21 countries and 12 international, national and regional organizations. The meeting revised the draft regional oil spill contingency plan for the island States and Territories of the Wider Caribbean, which proposes establishment of co-ordinating mechanisms for oil spill control among the Government, establishment of links with major producers and refiners and international organizations active in the region, and mutual assistance among Governments in preparing for oil spill emergencies. The meeting also recommended that an assessment be made of the need for new routing schemes in areas of high traffic density to reduce the risk and impact of collisions.

The revised draft contingency plan and other resolutions of the meeting will be submitted in February to an experts' meeting on the Caribbean Action Plan, and then to the Intergovernmental Meeting of Caribbean States later this spring. The Barbados meeting was a result of the joint efforts of the Organization of American States (OAS), the United States Man and the Biosphere Program (MAB), and the Inter-Governmental Maritime Consultative Organization (IMCO), with financial support from the United States Agency for International Development (AID), OAS and UNEP.

COMING EVENTS

DATE	PLACE	TITLE	ORGANIZER
10-14 Jan	Jeddah	Meeting of legal experts on a regional convention on the protection of the Red Sea and Gulf of Aden environment	ALECSO
12-16 Jan	Geneva	Meeting of experts to evaluate the pilot phase of MED POL and develop a long term monitoring and research programme for the Mediterranean Action Plan	UNEP
26-30 Jan	Geneva	Meeting of government financial and programming experts on 1981-83 workplan and budget for Mediterranean Action Plan	UNEP
23-27 Feb	Managua	Second meeting of government-nominated experts on the Caribbean Action Plan	ECLA UNEP
13-14 March		Second meeting of legal experts on a regional convention for the West African Region	UNEP
16-23 March		Conference of Plenipotentiaries on Co-operation in the Protection and Development of the Marine and Coastal Environment of the West African Region	UNEP
2-7 March	Cannes	Second meeting of the Contracting Parties to the Barcelona Convention	UNEP



THE SIBEX

news from UNEP's Regional Seas Programme

Caribbean experts give nod to fund, projects

At a meeting in Managua, Nicaragua, the vast majority (23 out of 27) of the states, territories and islands of the Wider Caribbean recommended the adoption of a sweeping environmental action plan.

The decision was reached at a five-day (23-27 February 1981) meeting of government-selected scientific and legal experts, organized by UNEP and the Economic Commission for Latin America (ECLA).

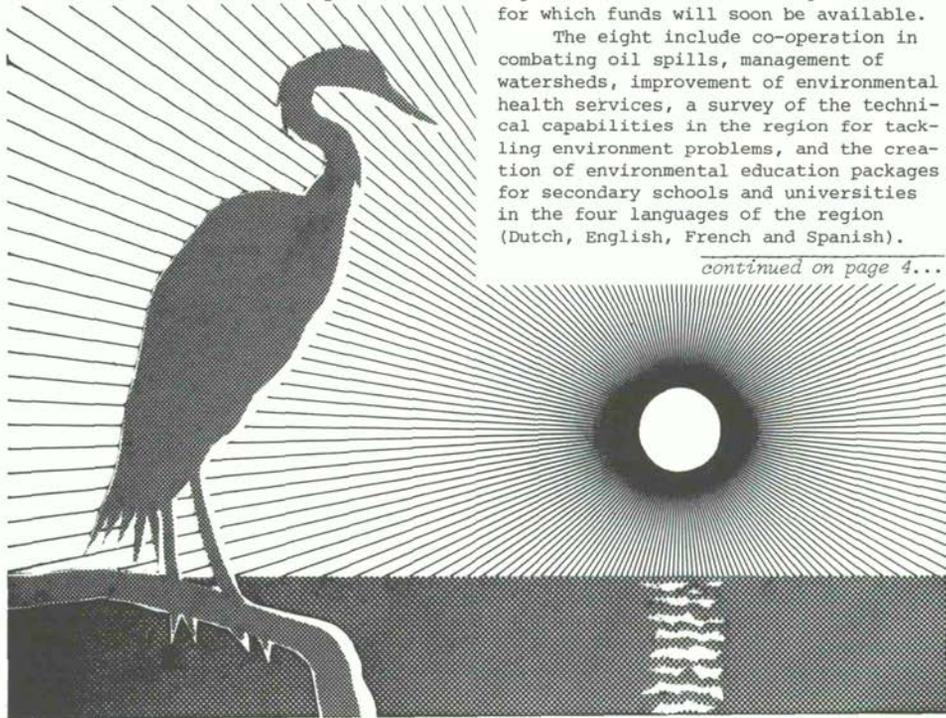
Final approval of the ambitious action plan is expected at a top-level (ministerial) intergovernmental conference in Jamaica from 6 to 8 April.

"The reason for the success of this meeting is the brotherhood and spirit of co-operation among the peoples of the Wider Caribbean who share common problems that transcend cultural, linguistic and economic differences," said Jorge Jenkins, the Nicaraguan Chairman of the meeting.

The experts came out in favour of the establishment of a Caribbean Trust Fund to finance the action plan. They also selected 25 "high priority" projects of common interest to the whole region from among the 66 before them. They urged immediate action on eight of these for which funds will soon be available.

The eight include co-operation in combating oil spills, management of watersheds, improvement of environmental health services, a survey of the technical capabilities in the region for tackling environment problems, and the creation of environmental education packages for secondary schools and universities in the four languages of the region (Dutch, English, French and Spanish).

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Red Sea Programme Remodeled

An environmental protection programme has been operating in the Red Sea and Gulf of Aden region since 1975, but its activities reflected the almost exclusive priority given to training of marine scientists and strengthening of marine science institutions.

Now, an effort is under way to make the programme a more comprehensive one, bringing it more into line with other Regional Seas programmes such as those for the Mediterranean and Kuwait Action Plan Region.

Environmental and legal experts from the Red Sea and Gulf of Aden coastal States met to put the finishing touches on a draft action plan and a regional convention for the conservation of the marine environment and coastal areas, as well as a protocol for co-operation in pollution emergencies. This meeting was held in Jeddah under the auspices of the Arab League Educational, Cultural and Scientific Organization (ALECSO).

Although the action plan is being given a basic structure similar to those for other regions, there are some important differences in its conception and goals.

"One unique feature of the Red Sea programme is its emphasis on conservation," explains Dr. Abdulbar Al-Gain of Saudi Arabia. "The Red Sea and Gulf of Aden are not as polluted as many other regions of the world, and so we felt that the plan should be given a dynamic and positive orientation rather than a purely defensive one."

Article I of the convention will include the following definition of conservation:

"...the management of human use of the biosphere so that it may yield the greatest sustainable benefit to present generations while maintaining its potential to meet the needs and aspirations of future generations. Thus, conservation is positive, embracing preservation, maintenance, sustainable utilization, restoration and enhancement of the natural environment...."

Another outstanding feature of the action plan is that it is directed relatively far inland as well as at the coastal and marine environment. For example, one project calls for surveys of the vegetation cover and population distribution of terrestrial animals in the coastal zones. Also covered are subjects as varied as the environmental impact of coastal human settlements, basic research on geological and geophysical processes, determination of the sources and magnitude of pollution by oil and other substances which affect human health and marine ecosystems, monitoring of pollution levels and general ecology.

Since experts of the region share the conviction that "environmental protection" is just another way of saying "sustainable development," the action plan also has a strong management chapter. Its activities include rational exploitation of marine living resources, public health, co-ordination of water management policies, development of oil spill contingency plans, drafting of guidelines for coastal area development schemes, training in science and engineering related to environmental protection, and public awareness campaigns.

An Interim Directorate will be set up to administer the plan until a Regional Organization is created. Establishment of a Regional Marine Mutual Aid Centre is also planned.

"One of our first goals is to see the ratification of the proposed Convention for the Conservation of the Marine Environment of the Red Sea and Gulf of Aden, and the Protocol concerning Regional Co-operation in Combating Pollution by Oil



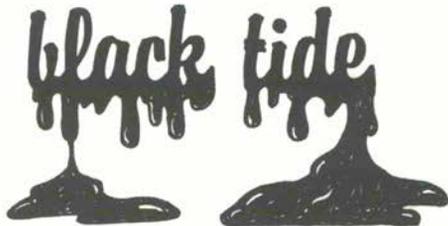
and Other Harmful Substances in Cases of Emergency," stresses Dr. Al-Gain. "This process should begin after the upcoming conference of plenipotentiaries, now scheduled for June 1981, which is expected to adopt the action plan and legal agreements. There are several other protocols in the planning stage - on scientific and technical co-operation, on pollution from exploration and exploitation of the continental shelf and sea bed, on liability and compensation for damage by pollution, and on pollution from land-based sources. Our legal experts have a busy time ahead of them."

If all goes as planned, three countries of the Red Sea and Gulf of Aden

region will be involved in more than one action plan. Egypt will participate in both the Mediterranean and Red Sea action plans, Saudi Arabia in the Kuwait and Red Sea action plans, and Somalia in the Red Sea and East African action plans.

"This situation could be extremely beneficial to these countries," claims Dr. A. Banaja, Executive Director of the Red Sea Programme. "They will be able to apply the experience gained in one programme to another, and make double use of their facilities and expertise. This should give the Red Sea and Gulf of Aden programme an added boost, so don't be surprised if it starts to progress even faster than planned." ☺

battling the black tide



One of the best way to get information quickly about how a pollution source is affecting, has affected or may affect the environmental in a specified area is to send a well-prepared multi-disciplinary team to the spot. Providing such teams, made up of experts acting in their personal capacity rather than as representatives of organizations or governments, is one of the ways that UNEP and other international bodies have been able to help individual governments faced with environmental damage from polluting accidents or activities.

Often such missions are asked not only to provide a reliable assessment of the consequences of a polluting - or potentially polluting - activity, but also to advise the government on the best means of preventing or reducing the environmental impact.

In the late summer of 1979 (26 Aug. - 12 Sept.), at the request of the Mexican Government, a mission sponsored by UNEP, in co-operation with FAO, IMCO and IUCN, visited Mexico to assist in connection with the well-publicized ICTOX-I oil well blow-out. The mission's task was to assist the Mexican authorities in assessing immediate and long-term environmental consequences of the 450,000 tons of oil spilled into the marine environment and to advise the Government of Mexico on possible remedial steps for mitigation of the environmental consequences of the spill on marine living resources, coastal ecosystems and amenities.

Before the first report of the mission was submitted to the Government of Mexico, the mission revisited the sites affected by the spill in March and June of 1980.

A year later (25 Sept. - 4 Oct. 1980) a similar mission was dispatched by UNEP and IAEA in response to a request from the Government of the Sultanate of Oman. Over half of the world's crude oil supply is transported by tankers through the narrow Strait of Hormuz, which forms the northern boundary of the Sultanate of Oman. Disturbed by the repeated sightings of tar on their beaches, Omani officials asked the mission to carry out a quantitative survey of oil pollution along the coast and to identify the major sources. The mission found that the level of chronic tar deposition along the shoreline was among the highest ever reported, and the level increased in proximity to the Strait of Hormuz. This supports the belief that deballasting by tankers as they approach and pass through the Strait is the major source of oil pollution along the Omani coast.

Another of the Kuwait Action Plan countries is also concerned about pollution in the vulnerable enclosed sea: the

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The cost of implementing the 25 projects is estimated at \$3.1 million over the next three years. Of this, \$1.5 million is expected to come from the Caribbean Trust Fund and \$1.38 million from UNEP. The other 41 projects were identified as of interest to groups of countries and they will be financed directly by interested governments and international aid agencies and banks, etc.

Among the other "high priority" projects are one dealing with an assessment of coastal and land-based sources of pollution, another concerning endangered species in the Caribbean (parrots, turtles, etc.), a third calling for a survey of non-convention sources of energy, and a fourth involving disaster relief.

The recommended total budget for 1981, 1982 and 1983 is \$8.2 million.

In its recommendations, UNEP stressed the importance of an international agreement that would commit Caribbean states to do something about the deteriorating environment of their common sea and coastal areas.

The Caribbean experts reacted favourably to UNEP's suggestion by recommending to their governments that the text of a regional treaty be drafted and a legal experts' meeting be held to consider it, possibly late in 1981 or early in 1982.

The Managua meeting also agreed to recommend to their governments the creation of a small regional co-ordination unit located somewhere in the Caribbean

to run the programme.

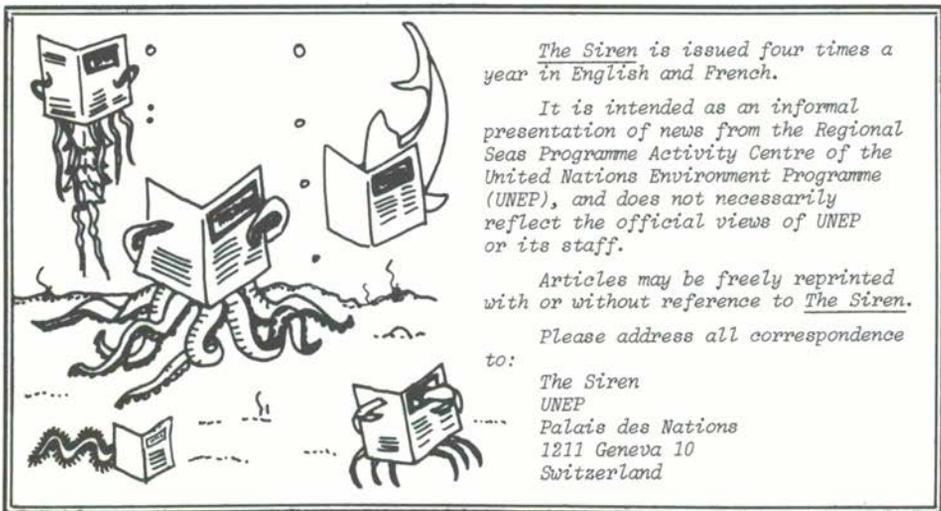
Final decisions on all these aspects of the Caribbean Action Plan will be taken at the April meeting in Jamaica.

Three of the participating countries -- Great Britain, the Netherlands, and the United States -- while declaring their support of the action plan, said they could not promise any money now for the Trust Fund. The experts of these countries said their governments would consider financial aid for specific projects as they were developed.

Based on their contributions to the United Nations, the major contributors to the Trust Fund are likely to be Colombia, Cuba, France, Mexico and Venezuela.

The 23 states represented in Managua were Barbados, Colombia, Costa Rica, Cuba, Dominican Republic, El Salvador, France, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, the Netherlands, Nicaragua, Panama, St. Lucia, St. Vincent and the Grenadines, Suriname, the United Kingdom, the United States and Venezuela.

"The participation of so many Caribbean governments at the Managua meeting is a remarkable achievement," said Trevor Boothe, a Jamaican who co-ordinates the programme from Trinidad and Tobago, "especially in view of the great political and economic diversity of the region. Obviously, they don't all have the same interests or priorities, but they do clearly recognize the common character of many of their environmental problems and they have identified high priority areas of common concern." ☪



Coral Reefs, Mangroves and the

Today's informed and responsible consumers would never be seen purchasing ivory figurines, powdered rhino horn or coats fashioned from the pelts of endangered mammals. But few of them would put coral centrepieces and coral jewelry in the same hands-off category. They should. Coral reefs are yet another community of animals and plants threatened by human carelessness and over-exploitation.

There are many reasons, not only aesthetic, why we should protect coral reefs. They are important to us on a global scale owing to their role as high-powered centres of primary productivity. They grow in nutrient-poor waters, trapping the relatively scarce materials that are carried their way by ocean currents, and injecting energy-laden organic substances into the base of the oceanic food web.

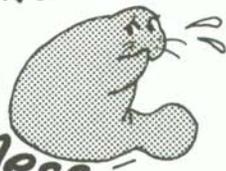
On a more local scale, they are important as aquatic food factories, attracting and nourishing fish which, in turn, furnish essential protein for families of sustenance fishermen and contribute both directly and indirectly to the deep-water fisheries catch. Reefs also supply man with marine invertebrates and plants whose potential as a source of food and medicinal products has yet to be fully explored.

Furthermore, coral reefs provide physical protection for low tropical coastlines against damaging waves, tidal surges and storms. And for many small island countries, they are the major if not only resource, attracting as many tourists as fish and providing innumerable marketable products.

In short, coral reefs are essential to man both environmentally and economically. The extensive reef systems of the Caribbean are a prime example, and here, as elsewhere, man is threatening their existence.

Another, perhaps less glamorous, community - as important to the peoples of the Caribbean as the coral reef, and no less endangered - is the mangrove forest. Mangrove trees grow thickly in tidal estuaries, salt marshes and muddy coasts. Their exposed supporting roots collect nutrient-rich sediments, gradually building the coastline and protecting it against erosive forces, as well as

Cost of Carelessness



providing attachment surfaces for marine organisms. Such secure and rich coastal habitats are the womb of the ocean, where the sea's larval and infant organisms are nurtured and where nutrients collect and enter the cycle of life.

Both mangroves and coral reefs are in danger in the Caribbean, because coastal development, when it is uncontrolled, can stress these ecosystems in a variety of ways.

For the most part, the Caribbean is a developing region where the level of industrialization and urbanization is still relatively low. But a great deal of new heavy industry is under construction or on the planning boards, and will bring with it the toxic chemical wastes associated with petrochemical processing, iron, steel and aluminum smelting and caustic soda and chlorine processing. And with industrialization come concentrations of population and of human wastes.

Agricultural activities contribute inorganic fertilizers and pesticides, liquid effluents high in organic content from farm-related industries (sugar refineries and rum distilleries), and silt from runoff caused by poor soil management.

Although pollutants from such sources have sometimes caused problems on a local scale in the Caribbean, oil is the only pollutant which has thus far been implicated in major polluting incidents. And since the region is potentially one of the largest oil-producing areas of the world, and since the countries with petroleum resources understandably plan to develop them as quickly as possible, the risk of such accidents is bound to increase.

One of the greatest threats to both coral reefs and mangroves is tourism. The construction of harbours, marinas, coastal resorts, hotels, houses and

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Julio Carrizosa is a civil engineer and economist from Colombia. He carried out graduate work in cartography at Ohio State University (USA) and in public administration at Harvard. For five years he was Director of INDERENA (Instituto para el Desarrollo de los Recursos Naturales Renovables y el Ambiente) in Colombia, and he was one of the eight members of the Advisory Panel which assisted in the development of the Caribbean Action Plan.

providing alternatives

The Siren: As someone who is well-acquainted with the Wider Caribbean region, what would you say are the major environmental problems in this part of the world?

Julio Carrizosa: First place would have to go to pollution by oil, which results directly from petroleum transport and production. Then, I would list water supply, since for many people in the region obtaining enough fresh water for their everyday needs is a continual worry and effort. Next I would put the question of energy - providing adequate energy is a special problem for the small islands. It's a basic problem for the poor, not the rich. Fourth on my list would be degradation of beaches, followed closely by destruction of mangroves.

Next would come natural disasters. Some people might think it strange to include natural phenomena in a list of environmental problems, but it's really quite logical owing to the relationship between human settlements and coastal development and the physical characteristics of ecosystems.

Finally, I would add a problem common to all human concentrations: disposal of wastes.

Are peoples and governments in the Caribbean aware of these problems?

Certainly. Everyone is aware of them, because they confront them every day. Take the case of San Andres, where the Government faces the problem of what to do about drinking water, electricity and waste. Governments don't always regard such problems and environmental problems, but rather as economic or engineering problems because they don't see the relationship among them.

For example, governments generally treat the supply of drinking water as an engineering problem, and will spend a lot of money on engineering projects with almost no provision for conservation of water resources.

Have there been cases of grass-roots environmental activity in the region?

In Colombia people started to talk about the environment nine or ten years ago. There was a big fight over the preservation of Tayrona National Park on the coast - whether a tourist resort should be built or the park kept as a natural reserve. The scientific community and students were active in the battle.

Who won?

The conservationists! People compared the spotless Tayrona Park beaches with those near Santa Marta and they saw the difference. The fight lasted two years, and some very powerful economic interests were involved.

What is the role of the media in the region? Do they have much effect on the public or on the governments?

The media influence governments and decision-makers much more than they do the public, which doesn't read much.

Do you think the environmental problems in the Caribbean are so widespread and so massive that they cannot be solved?

Problems such as deforestation, which are social and economic as well as environmental, cannot be solved by con-

trol measures but require the provision of alternatives. For example, the poor people who destroy forests to create farmland have no alternative, and no police controls could stop them.

Another such problem is the use of dynamite for fishing. Legal controls won't work, because fishermen increase their catch ten times by using dynamite. So difficult are their living conditions, so poor are these coastal dwellers, that even if they are aware of the implications of what they're doing, they are driven to do it anyway. Therefore, solutions to such problems must be partly economic.

Can oil pollution be controlled?

Yes, the problem of oil pollution can and will be solved. It just requires more investment by the oil companies. But I think they can afford it!

In your opinion, how serious is the intention of Caribbean governments to do something about the environment?

I believe they are serious and will do something. For example, take the case of hydro-electric power in Colombia. The Government realizes that conservation of water resources is critical and they're beginning to spend a lot of money on that. The same is true for drinking water supply. In Colombia 40 children out of every 1,000 die before their fifth year because of bad drinking water. So, the Government is starting a big programme to improve drinking water systems.

Take another example. In several countries people have begun to talk about communal forests, which in Colombia are created by contract between the Government and local co-operatives made up of small farmers. The Government gives them small sums of money for every tree planted on communal land and for every year that a tree survives. At the end of the growing period, say 10 years, the community will decide what to do with the forest.

Can this be done for tropical rain forests?

Well, that's much more difficult, because there is not enough research on them, and no technology for restoring tropical rain forests.

Is there hope for the mangroves?

Yes, because at last people are beginning to be aware of their importance. Ten years ago they were considered merely as something in the way of tourists and real estate developers.

Why have attitudes begun to change?

I believe this is one of the accomplishments of the region's scientific community.

What about disposal of wastes?

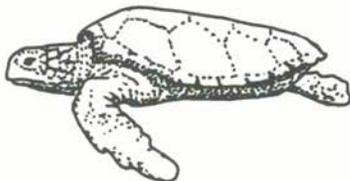
I was thinking mostly of the small islands. They depend on cleanliness of their beaches and water to attract large numbers of tourists, which in turn affects the quantity of goods sold in free ports. Clearly there's a contradiction here, since tourists contribute greatly to the waste.

What kind of waste do you mean, and how can it be taken care of?

I have in mind every kind of waste you can name. And I think the only answer is recycling. They could recycle paper, for example, and export it to the mainland in ships that now go back empty. And it's necessary that all these islands begin converting human wastes into energy.

What good will the Caribbean Action Plan do?

I see it as a useful framework for various efforts on the part of the governments, and also as a kind of umbrella to unify the different investment programmes of the Inter-American Banks, which I hope will provide some funding. I believe when they come to realize that environmental concepts not only identify problems in the development process, but furnish solutions to them, they will increase their investments in environmental protection and management efforts. &



MED ACTION PLAN ENTERS NEW PHASE

Mediterranean countries met in Cannes, 2-7 March, and charted a new course for their six-year-old action plan. Sixteen of the 18 Mediterranean countries and the European Economic Community agreed on a broad, three-year programme of activities to "Save their Sea," which will cost about 12 million dollars for the 1981-83 triennium.

The second meeting of the Contracting Parties to the Barcelona Convention considered an agenda heavily laden with plans, proposals and timetables for the next three years -- a period which promises to be crucial in the history of the Mediterranean Programme.

One of the duties of the Governments at Cannes was to review activities which have taken place since their meeting two years ago. This past year alone has seen a number of accomplishments:

- Turkey ratified the Convention and two related protocols bringing to 17 the total number of Contracting Parties.

- The Protocol on protection of the Mediterranean Sea against pollution from land-based sources was adopted at a Conference of Plenipotentiaries in Athens last May, and was immediately signed by 12 countries. This culminated a process of consultation and legal drafting begun in 1977.

- Mediterranean Governments committed themselves to creating a large network of specially-protected marine areas and agreed on a first text of a related protocol which could be ready for signature in 1982.

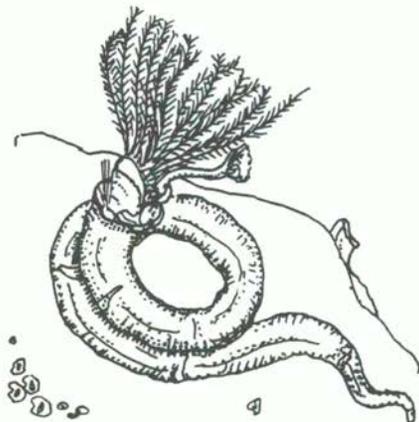
- The results of the five-year pilot phase of MED POL were reviewed at a government experts' meeting in January 1981, and a long-term programme for pollution monitoring and research (MED POL-Phase II) was elaborated.

- The first draft of eight reference methods for marine pollution studies in the Mediterranean was prepared and circulated to Mediterranean scientists and Governments for their comments.

- The first draft environmental quality criteria for recreational waters, shellfish-growing areas and seafood were drawn up.

- A wealth of scientific data emerged from MED POL, much of which was reported at an ICSEM/UNEP workshop on Mediterranean pollution held in Cagliari, Italy, in October 1980.

- A report on plans for establishing a data base and needed data processing facilities for MED POL-Phase II, the Blue Plan, the Priority Action Programme and action plan administration was issued.



"Just as there is a European or African 'personality,' we are witnessing the emergence of a Mediterranean personality, which is forming not without difficulty, but with conviction and enthusiasm." Such was the conclusion offered by Francois Delmas, the French Secretary of the Environment, about this week (in Cannes). It expresses the spirit of the participants, who have shown their willingness to assume their responsibilities in the domain of environmental protection.

-- Le Monde, 12 March 1981

- The work of the Regional Oil Combating Centre, established in Malta, was reviewed by government experts in November 1980 and its usefulness was unanimously reconfirmed.

- An investigation into the future of the Mediterranean basin, known as the Blue Plan, was launched.

The six-day Cannes conference selected Athens to be the headquarters of the small group (headed by Aldo Manos, Co-ordinator of the Mediterranean Action Plan) which will direct action plan activities.

Marinos Yeroulanos, a leading Greek Government environmentalist, said that "Athens thus becomes the environmental capital of the Mediterranean."

The largest single sum of money in the budget - about three million dollars - will be spent on the Mediterranean pollution monitoring and research programme now being carried out by 83 laboratories in 16 countries throughout the basin.

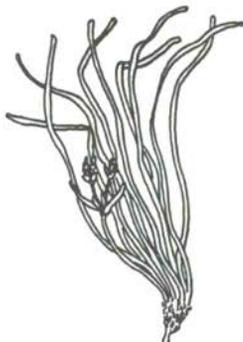
"This is a vital programme," commented Louis Dominici, a high official of the French Ministry of the Environment. "For one thing, the findings of the labs tell us what the state of health of the sea is, whether it is getting better or worse, and how fast. Secondly, they will serve to control the implementation of the treaty on land-based sources of pollution signed in Athens last May."

Industrial waste, municipal sewage and agricultural run-off (fertilizers and pesticides) account for 85% of all Mediterranean pollution.

How long will it be before Mediterranean beaches and bathing waters are clean and safe for tourists and people living on Mediterranean shores?

"Well, most of them are reasonably clean and safe for swimming and sun-bathing today," remarked Stjepan Keckes, Director of the 10-sea Oceans programme of the United Nations Environment Programme. "But obviously there is a lot of room for improvement, especially in regard to 'invisible' and insidious pollution from heavy metals and bacteria. It is an illusion to imagine that the Mediterranean will ever be pristine, but we can reverse the tide of pollution and guarantee the same safe, clean waters all around the sea. Naturally, this won't be done overnight. The

skies of London were not made fog-free or the Thames safe for salmon in a month or a year. But I sincerely believe that in 10 to 15 years there will be a vast improvement, with things getting better gradually every year."



More than 8 million dollars have been spent by UNEP on the Action Plan since its beginning in 1975. For the 1981-1983 period UNEP's contribution is planned at the level of 0.5 million and the rest is expected to be contributed by the Mediterranean Governments and the EEC. In urging all 18 Mediterranean States to give more, UNEP Executive Director Mostafa K. Tolba recommended that the smaller states increase their share.

"None of us has any doubts about the programme of activities or about what they will cost," an Algerian delegate told the conference. "The only real problem is how to find the money. But we will find it."

The budget calls for sizeable sums to be spent during the coming three years on the Blue Plan which is a series of projections of the impact of industrialization, tourism, transportation, etc., on the environment of the Mediterranean basin; the Priority Action Programme which involves such practical projects as fish farming as solar energy; and the Oil-Combating Centre in Malta. The Blue Plan centre is located in Sophia Antipolis on the French Riviera, the Priority Actions centre in Split, Yugoslavia. It was decided in Cannes to create an additional centre in Tunis to deal with specially-protected areas. ☉

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bridges quite often begins by inadvertently clearing out all the mangroves in sight. Silt from dredging and dumping of debris suffocates and chokes near-shore animals, many of which are delicate filter-feeders. In some areas the silt has begun to kill coral polyps a mile offshore.

Also associated with tourism is the wholesale destruction of reefs by entrepreneurs, from the owners of small gift shops to large-scale exporters armed with dynamite and sledgehammers. And just as destructive as these is the nature-loving but ignorant tourist: the beachcomber who picks up brightly-coloured snails and sea urchins to take home (and who is surprised when they start to smell and have to be thrown out); the reef diver or snorkeler who fills his or her collecting bag with small pieces of coral, sponges, sea fans and pink conch shells, thinking "just these few won't make any difference;" the careless boater who ventures over coral at low tide and breaks off its living leading edge.

When thousands of such people visit a reef or shoreline every season, the accumulated damage can be thorough. And as always it will be the people who can least afford it - the local inhabitants directly dependent on marine resources associated with such ecosystems - who will pay for the damage.

A number of the proposed environmental projects to be submitted for approval at the April intergovernmental meeting in Jamaica are related to the threat that rapid economic development poses to coral reefs, mangroves and the other endangered coastal ecosystems - notably lagoons and seagrass beds. Their approach varies. Some will measure the levels of pollutants in Caribbean waters and identify

their sources, while others will try to determine their effects on marine communities and fisheries. One will explore the best areas for setting up national parks and marine reserves. Where the damage has already been done, two projects will address the problem of recovery and restoration of the degraded areas.

Coral reefs and mangrove forests are good examples of the coastal ecosystems which must be protected if the best interests of Caribbean peoples are to be protected as well. But these areas of spectacular natural beauty cannot be considered separately from the environment as a whole, which is a precisely tuned, yet flexible and adaptable, system that man can never succeed in fully understanding. But by efforts such as the Caribbean Action Plan, human beings can hope to become again an integral and harmonious part of that system. ☉

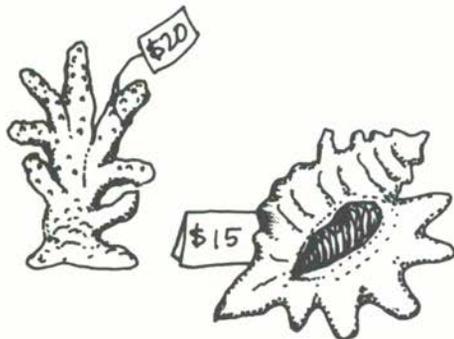


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United Arab Emirates. A mission appointed by UNEP and IMCO will visit two industrial sites to map out plans for a detailed environmental impact assessment and follow-up monitoring programme. The mission will last from 23 March through 6 April, and will visit Ruwais, about 250 km West of Abu Dhabi City where a major industrial complex is planned, and Zirku island, where oil exporting terminals will be located. In addition to assessing the situation in these areas, the mission team will advise the Government on how best to set up a continuous monitoring programme using expertise and institutions in Abu Dhabi.

"The Abu Dhabi situation is one of the best examples I've seen of willingness on the part of industry, government and the international organizations to act together to head off environmental damage before it occurs," exclaims Abdulatif Alzaidan, Acting Co-ordinator of the Kuwait Action Plan. "Since the Ruwais and Zirku complexes are similar to others existing and planned in the region, this could serve as a model of how the goals and ideals of the Kuwait Action Plan can be incorporated into industrial development at its outset."

In connection with a recent oil spill off the coast of Jamaica, the Government of that country has turned to UNEP with a request for assistance. Such assistance is now being provided. ☉



PAVING THE WAY IN THE SOUTH-EAST PACIFIC

Several important steps in the development of an action plan for the South-East Pacific will take place during 1981.

Finishing touches are now being put onto a review of the marine pollution and coastal development problems of this vast region, which extends the length of the West coast of South America and includes Panama, Colombia, Ecuador, Peru and Chile. The Permanent Commission for the South Pacific (CPPS), which co-ordinates the programme, has prepared the review, and is also producing a Directory of marine science-related institutions in the five countries.

Both documents will be available for the upcoming meeting of government-nominated experts, scheduled for 29 June - 3 July in Quito, Ecuador. At this meeting, the draft of the action plan for the protection of the marine environment of the South-East Pacific will be reviewed. The experts will also be asked to recommend a number of environmental assessment projects to be carried out over the next few years.

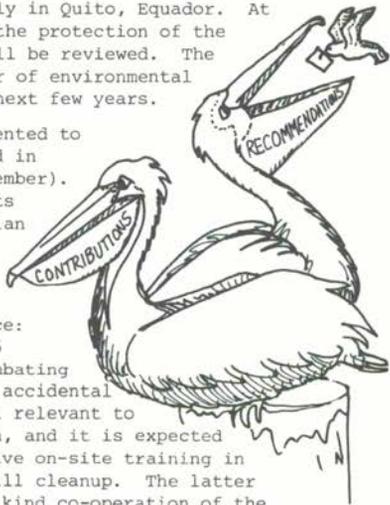
These recommendations will in turn be presented to an intergovernmental meeting, planned to be held in Lima, Peru, later this year (31 August - 4 September). At that meeting, it is hoped that the governments will approve the implementation of the action plan and make decisions concerning the institutional and financial arrangements necessary for initiating the various action plan activities.

Two other important meetings will take place: the first, to be held in Santiago, Chile (6 - 15 April 1981), is a CPPS/IMCO/UNEP Workshop on combating oil pollution resulting from chronic as well as accidental spills. Several lecturers will present material relevant to the various oil pollution problems of the region, and it is expected that the participants of the Workshop will receive on-site training in the use of equipment and water-craft for oil spill cleanup. The latter facilities are being made available through the kind co-operation of the Government of Chile in connection with their national programme for training of personnel in oil clean-up procedures.

In Bogota, Colombia (4 - 8 May 1981), a seminar sponsored by CPPS and UNEP will be held to review international and regional conventions related to problems of marine pollution. Instructors in this course will provide practical information about existing conventions and what the implications of these conventions are, with respect to liability of the signatory countries as well as the protection they should receive by becoming parties to such conventions.

In addition, the participants in the seminar will discuss a regional convention which has been drafted with the South-East Pacific countries specifically in mind. It is hoped that the seminar will also provide the basis for discussions on legal aspects of the South-East Pacific Action Plan during the intergovernmental meeting in Lima.

With such a heavy schedule of meetings, the CPPS secretariat is extremely busy, but rather pleased to be looking forward to the initiation of the action plan programme in late 1981 or early 1982. ☺



GESAMP does MORE

The Siren was looking through a pile of reports issued by GESAMP, the joint Group of Experts on the Scientific Aspects of Marine Pollution, an advisory group of scientists nominated by eight United Nations agencies (see Siren No. 3).

How can a single group of 25 scientists issue so many reports on so many topics, she wondered.

Mr. Yoshio Sasamura, Director of the Marine Environment Division of the Inter-Governmental Maritime Consultative Organization (IMCO) explained: "Because really it's not just one group. The reports are prepared by sub-groups, called working groups, which draw on the expertise of the whole scientific community and involve the efforts of hundreds of scientists."

Several working groups have recently completed work resulting in the following GESAMP reports, issued in 1980:



- Marine Pollution Implications of Coastal Area Development,
- Interchange of Pollutants between the Atmosphere and the Oceans, and
- Monitoring of Biological Variables related to Marine Pollution.

Eight working groups are currently active and will report to the next GESAMP session which will be held next October in Geneva. These reports, if approved by GESAMP, will be published shortly afterward.

Interested in any of the GESAMP reports? Ask for them from the UNEP Regional Seas Programme Activity Centre, or The Siren.

COMING EVENTS

DATE	PLACE	TITLE	ORGANIZERS
6-8 April	Jamaica	Intergovernmental meeting on the action plan for the Caribbean Environment Programme	ECLA/UNEP
6-10 April	Santiago	Seminar/training course for regional experts on prevention and abatement of marine pollution by petroleum hydrocarbons	CPPS/IMCO
April		Regional training course on Caribbean oil spill clean-up co-ordination	IMCO/OAS/ UNEP
11-15 April	Kuwait	First government experts review meeting on co-operative projects of the Kuwait Action Plan	Interim Secretariat UNEP
27-30 April	Manila	Intergovernmental meeting on the protection and development of the marine environment and coastal areas of the East Asian region	UNEP
4-8 May	Bogota	Seminar for South-East Pacific on legal aspects of existing international conventions	CPPS/UNEP
1-5 June	London	Third interagency meeting on Regional Seas	UNEP
June		Meeting of experts of the draft action plan for the South-East Pacific	CPPS/UNEP



THE SIBEX

news from UNEP's Regional Seas Programme

West and Central Africa vote YES

The way in which West and Central African peoples have made use of the coastal lands and exploited the ocean has changed greatly in recent decades. The once-familiar sight of skilled fishermen working from dug-out canoes, using traditional techniques to supply fish for village food and commerce, is increasingly rare. Instead, fisheries along the West African coast have come to be dominated by foreign vessels and fleets which have little or no contact with the mainland. Ancient settlements have declined, their functions outmoded by the busy ports, new and efficient industries and expanding capital cities.

As is often the case, the changes associated with rapid economic growth have not all been beneficial. An especially insidious side-effect has been the pollution of previously clean and healthy coastal waters and marine communities throughout Africa.

At a meeting in Abidjan, Ivory Coast, 16-23 March 1981, sixteen coastal countries of West and Central Africa unanimously approved a treaty to protect their lengthy coastline and coastal waters from pollution.

They also agreed on a protocol committing them to co-operate in pollution emergencies such as a massive spill of oil or a toxic chemical. And, they endorsed an Action Plan dealing with environmental assessment and environmentally-sound development.

The African Governments are also quite willing to foot the bill for their new environmental programme. In fact, they pledged \$2.5 million in 1982 and 1983 for a special regional

trust fund, while UNEP (which sponsored the Abidjan conference) promised an additional \$1.4 million during the next three years.

"An ambitious programme like this needs solid financing," declared Dr. Raimi Ojikutu, Director of the Environmental Division of the Nigerian Federal Ministry of Housing and the Environment (see interview on pages 6-7). "Nigeria has made a very substantial effort and I am happy to note that the other 15 Governments present have also assumed their financial responsibilities."

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Caribbean Action Plan:

FOUR LANGUAGES, ONE VOICE

Acting in concert for the first time in their long history, the Nations of the Caribbean have launched a far-reaching environmental protection plan.

Representatives of 23 of the 27 Caribbean States, territories and islands approved the Action Plan at a three-day meeting (6-8 April) in the Jamaican beach resort of Montego Bay. In effect, the number was really 24 because St. Vincent and the Grenadines, although absent, expressed their support in a telegram. The proposal of the Commission of the European Communities (EEC) to participate actively was accepted.

The Action Plan contains 66 specific environmental projects ranging from combating oil spills, managing watersheds and protecting coral reefs, mangroves, tropical forests and endangered species (turtles, parrots, etc.) to mitigating the risks of natural disasters, monitoring coastal water pollution and studying the impact of tourism on the environment.

To finance them, an initial sum of \$8.2 million is to be raised over a period of three years, 1981, 1982, 1983. Cabinet Ministers and high Government officials pledged to raise \$1.5 million for a Caribbean Trust Fund of which \$1.2 million was committed at the Montego Bay Meeting. Country contributions will range from \$375,000 from France, \$250,000 from Mexico and \$230,000 from Venezuela

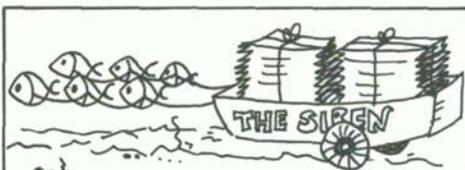
to about \$30,000 each from Colombia and Cuba, and around \$16,500 each from Barbados, Dominica, Nicaragua, and several other countries.

The United Kingdom said it would contribute but did not specify how much. While supporting the Action Plan, the United States declared it was unable at this time to make a specific pledge to the Trust Fund.

The United Nations Environment Programme (UNEP), which jointly sponsored the conference with the United Nations Economic Commission for Latin America, promised to contribute \$1.38 million providing the Caribbean countries fulfilled their promise to put \$1.5 million into a trust fund. The remainder of somewhat over \$5 million will come from governments and development aid organizations.

Other concrete decisions were (1) the choice of Jamaica as the headquarters of the small Caribbean Action Plan Co-ordinating Unit, (2) the naming of a nine-country monitoring committee (Colombia, Costa Rica, Cuba, Dominican Republic, France, Grenada, Mexico, Saint Lucia, and Venezuela) which will work with UNEP in carrying out the Action Plan, and (3) agreement to go ahead with the drafting of a Caribbean environmental treaty to be ready, if possible, for signing early in 1983.

What makes the approval of the Caribbean-wide environmental programme remarkable is that broad regional co-operation in past years has been exceedingly rare, not to say non-existent. The Caribbean has long been divided between the Hispanic cultural group of countries and separate English, French and Dutch-speaking States. But in spite of these historical differences, and in spite of present differences in economic systems, political outlooks, stages of development and social values, the representatives of small, poor, developing countries like Grenada and Haiti, of rapidly industrializing, larger states such as Mexico and Cuba, and industrial giants like the United States, sat down at the same table and agreed on an environmental programme for their common sea and coastal areas.



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Please address all correspondence to: *The Siren*, UNEP, Palais des Nations, 1211 Geneva 10, Switzerland.

The Caribbean Action Plan bids fair to "attain the sustainable, non-destructive development of the region and that should improve the quality of life for everyone", declared UNEP's Executive Director, Dr. Mostafa K. Tolba. "So, the hopes and promise for the future of the Caribbean Environment depend upon how you carry out the decisions you have taken here".

The 23 countries that participated were Barbados, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, France, Grenada, Guyana, Haiti, Honduras, Jamaica, Mexico, Netherlands, Nicaragua, Panama, Saint Lucia, Surinam, Trinidad and Tobago, United Kingdom, United States, Venezuela, and the West Indies Associated States. Absent were Bahamas, Belize, Guatemala and Saint Vincent and the Grenadines.

Now that the years of preparation have resulted in adoption of the Caribbean Action Plan, the rather more difficult task of carrying it out lies ahead. The projects identified as having the highest priority must be described in detail and circulated to all the countries participating in the action plan. The countries must then decide which projects they wish to participate in, which of

their national institutions are available for participation, and the level and kind of contributions they can offer to specific projects.

Project descriptions will likewise be sent to potential funding agencies such as the World Bank, the United Nations Development Programme, and the Canadian International Development Agency (CIDA).

Another immediate task will be the drafting of the environmental treaty called for in the action plan and a protocol on co-operation in combating pollution in cases of emergency. A meeting of legal experts is planned in December 1981 to discuss these initial draft agreements.

The Monitoring Committee designated by the Jamaica meeting will probably also convene its first meeting in December.

Using the recommendations of the legal experts and the comments received from Caribbean Governments and funding agencies, the committee will continue to work out the details of project implementation and financing.

The Regional Co-ordinating Unit for the Caribbean Action Plan is to be established in Jamaica, probably in 1982. The Caribbean Governments have asked UNEP to co-ordinate the plan. ☉

Caribbean quotes

Edward Seaga, Prime Minister of Jamaica, in his address to the Intergovernmental Conference on the Caribbean Action Plan:

"This is by any evaluation a most ambitious programme; it cannot be said that the Caribbean Action Plan will lack projects of far-reaching significance and I urge all participating countries to give this well-conceived programme adequate financial support."

"Unfortunately, developing countries are more prone to relegating priorities on ecological expenditure to the lowest levels for the obvious reason that budgetary pressures are, in such cases, more intense."

"But it is also true, notwithstanding budgetary reasons, that in many cases we are prone to take the short-term gain of immediate development when these conflict with the long-term strategy of conserving environmental assets."

"Justifiable situations do of course exist, and the most developed and least developed of us have at some time compromised the environment for the sake of

major development."

"What is really in issue is not the handling of extreme positions but the overall balance in policy and executive decisions which determines the level of priority we give the environment."

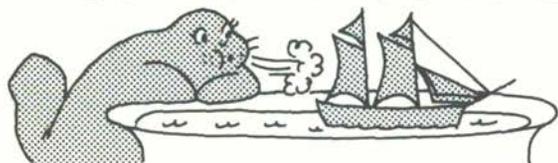
"...the (Caribbean) area comprises four linguistic groups with many separate streams of cultural heritage. Its commonalities are few, its diversities many."

"This conference signals the greatest collaborative effort of the Wider Caribbean to date and may well be a vanguard of future efforts to develop a bond of common cause."

"...the sea is ever present in (Jamaica's) heritage and in our visions..."



East Asian Seas Action Plan launched



The East Asian Seas are in for a massive clean-up.

At a meeting which concluded in Manila on 29 April, senior government representatives from the Association of Southeast Asian Nations (ASEAN), comprised of Thailand, Malaysia, Singapore, Indonesia and the Philippines, adopted an Action Plan aimed at protecting and enhancing the marine environment of the East Asian seas.

Commenting on the agreement, Dr. Mostafa K. Tolba, Executive Director of UNEP, said that it was "the beginning of a new era of co-operation among the states of the region to develop their common marine area in an environmentally-sound manner".

The Action Plan, first of all, calls for an assessment of the effects of man's activities on the marine environment through studies and research programmes. It also calls for the creation of a regional data exchange system on marine pollution.

Regarding oil pollution control, the Action Plan suggests the development of a training programme for preventing and combating oil spills. Joint investigations aimed at curbing operational pollution from ships are also proposed.

Special attention will be given to managing domestic, industrial and agricultural wastes through developing and applying principles and guidelines for discharging wastes into the coastal waters. Research will be carried out to find suitable ways of dealing with hazardous wastes.

Activities concerning marine pollution include the setting up of programmes for safeguarding endangered species, establishing marine reserves and conserving coastal areas.

A resolution adopted by the Manila meeting requested that UNEP prepare, with the collaboration of various international organizations, a draft programme document describing in detail a number of projects singled out in the Action Plan

as being of first priority. This document is currently in preparation and will be submitted to the Governments for comment in July.

The Manila intergovernmental meeting requested that UNEP complete the preparatory phase of the action plan by the end of 1981. This entails issuing the results of several surveys destined to provide baseline information needed for the 1982-83 project implementation phase.

In the meantime, a number of practical issues remain to be resolved, and for this purpose, UNEP will convene a second intergovernmental meeting in the autumn of this year. This meeting is expected to split into two committees. One will decide on an effective co-ordinating mechanism for the programme and work out institutional and financial arrangements such as how funds are to be allocated to specific projects. The other will discuss and approve the draft programme document.

continued on p. 11...

Mission to S-W Atlantic

The first steps towards preparation of an action plan to protect the coastal and marine environment of Brazil, Uruguay and Argentina are now being taken.

"As usual, our initial task is to contact the Governments individually, and find out what they want from an environmental programme," explains Stjepan Keckes, Director of the Regional Seas Programme. "We must also find out what they would be willing to contribute to it in turn. So, UNEP will send a mission to the region in the next few months, and its report will tell us where to go from there.

"We hope to have a draft for an action plan for the South-West Atlantic some time in 1982," he added.

...continued from first page

Nigeria, the biggest country in the region which stretches from Mauritania to Namibia, will contribute the largest single sum - around \$550,000.

At one point during the conference it was pointed out that oil tankers sometimes clean their tanks in one country's territorial waters and, when spied, flee to safety in another's territorial waters. The 16 countries, several of which were represented by cabinet ministers, then approved a "right of hot pursuit" resolution to allow naval vessels of one country to give chase to offending tankers in another's waters. Even if "hot pursuit" may not always prove feasible, the resolution does create a political basis for catching tankers and may make oil tanker captains think twice before doing something illegal.

Signatories of the environmental treaty "recognize the threat to the marine and coastal environment, its ecological equilibrium, resources and legitimate uses posed by pollution and by the absence of an integration of an environmental dimension into the development process."

They also acknowledge "the need for co-operation among the (signatories) in order to ensure sustainable, environmentally-sound development through a co-ordinated and comprehensive approach."

The preamble to the treaty stresses "the need for a carefully planned research, monitoring and assessment programme in view of the scarcity of scientific information on marine pollution in the West and Central African Region."

Six kinds of problems are specifically mentioned in the treaty: discharge or dumping from ships, pollution from such land-based sources as industry, agriculture and sewerage systems, pollution from exploration and exploitation of the seabed and its subsoil, atmospheric pollution and coastal erosion.

The African environmental treaty will enter into force when it has been ratified by six States. This is expected to take about two years.

"This is an historic and quite unprecedented act of West and Central African unity, solidarity and co-operation," said Lamine Fadika, Ivory Coast Minister of Marine, who chaired the conference.

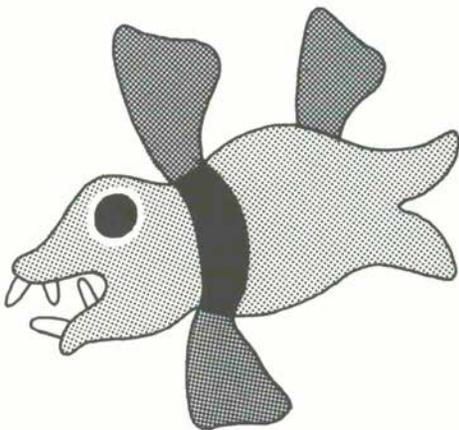
Of the 20 States invited to the Abidjan conference, the 16 that attended were Angola, Benin, Cameroon, Congo,

Equatorial Guinea, Gabon, Gambia, Ghana, Guinea, Ivory Coast, Liberia, Mauritania, Nigeria, Senegal, Togo and Zaire. The four absent countries were Cape Verde, Guinea-Bissau, Sao Tome and Principe, and Sierra Leone.

The next step is to decide which of the many environmental projects mentioned in the action plan should be given top priority over the next two years (1982-83). A Steering Committee will meet for this purpose some time during the next few months. Then UNEP and the other organizations active in the region will work together to draw up specific project documents in the light of the Committee's recommendations.

Once the project documents have been sent to West and Central African Governments for comment, the Steering Committee may meet once again to decide how to carry out the projects and how much money can be allocated to each one.

Deciding on priorities from among the region's long list of environmental concerns will not be easy. But the Steering Committee will have a good deal of guidance from the reports and recommendations that have emerged from the many workshops and seminars held in the region over the past four years, and from a number of surveys now being issued. The surveys, which were undertaken as part of preparatory activities for the action plan, treat subjects such as industrial pollution from land-based sources, oil pollution (especially from shipping activities), pollutant discharge from rivers, and studies on coastal development in West Africa. In addition, a Directory of Marine Research and Development Centres in Africa will be published later this year. ☺





The Benefits of Co-operation

Dr. Raimi O. Ojikutu is the Director of the Division of the Environment of Nigeria's Federal Ministry of Housing and the Environment. As a leading member of the Nigerian delegation, he has been active in consultations leading to development of the action plan for the West and Central African Region, and the related legal instruments. Dr. Ojikutu, 44, is married and has three children.

The Siren: How did you first become interested in the environment?

Dr. Ojikutu: My interest in the environment came as a direct result of my professional work on the effects of heat stress on human populations. While studying at Oxford, I had specialized in environmental physiology, particularly heat physiology. Then, in the Federal Republic of Germany, I pursued my career teaching and doing research in heat physiology, human genetics and human population biology at the University of Giessen.

Where did you go from there?

In 1966 I returned to Nigeria on a contract with the World Health Organization to work on the problem of heat stress in industries which use hot manufacturing processes. My job was to assess the effects of heat on productivity, which was closely related to previous research I had carried out on climatic adaptation in different human populations.

Then in 1972 I was awarded a Woodrow Wilson Fellowship to work on environmental policy for Africa at the Smithsonian Institution in Washington, D.C., after which the U.S. Academy of Sciences asked me to co-ordinate one of their programmes dealing with environmental sciences in developing countries.

And then?

The Federal Government of Nigeria asked me to create the Division of Environment, of which I am now the Director. The Division is part of the Federal Ministry of Housing and Environment. We hope soon to create a Federal Environmental Protection Agency, which would entail passage of national environmental legislation and the development of environmental regulations.

Does Nigeria, a rapidly-developing country, really give a high priority to environmental considerations? If so, why?

It is precisely this rapid economic development that has led us in Nigeria to recognize the importance of environmental planning and protection. Our growth is based on the exploration and exploitation of our natural resources, and only good environmental management programmes will allow us to continue to sustain the rapid growth we want. Therefore, the Nigerian Government has accorded a very high priority to our national planning programmes.

What are Nigeria's major environmental problems, and what is being done about them?

One of the major problems is pollution of the water and air by industry and urban activities, and the resulting threat to human health. Our response is to improve sewage and drainage systems. We are also looking into ways of developing solid waste management programmes which are greatly needed in all our cities. We are studying the use of pesticides, especially organochlorine compounds used in agriculture, and trying to find ways of using these more safely and effectively.

We are also very hard at work developing various means of oil pollution control, especially in the Niger Delta area where most of the exploration and production are taking place. These are just a few of our activities, and our interests are certainly not limited to only these.

We are also counting on passage of a National Environmental Protection Law to give us the legal backing to enforce these projects and other activities in our Environmental Planning and Control Programme.

How do you see Nigeria's role in the Regional Seas Programme?

Nigeria is very interested in this programme. We have an extensive coastal area which we need to protect against environmental pollution which could adversely affect the area's natural resources. And, as a major oil-producing country, we are naturally interested in ensuring the protection of the marine environment from major pollution which could result from our exploration and exploitation activities.

Another potential problem comes from an outside source. Recently some countries in the West African region were approached by companies from developed countries with a request to establish in their coastal areas disposal facilities for toxic and hazardous wastes. Our Environmental Planning and Control Programme, as well as the Convention and Protocol which are the legal instruments of our Action Plan, will greatly help the countries in the region in protecting themselves from such things.

Why do you believe that regional co-operation will greatly benefit your country?

The most important thing I think we'll get out of the programme is that not only will we protect the environment, but we will protect our natural resources. Co-operation is necessary because no one country could carry out such a programme successfully, even if it had the means--its neighbor could become overwhelmed by its environmental problems, and there's no way to keep such problems within national borders.

The achievement of the Abidjan conference will give impetus to the Monrovia Strategy for Economic Development in Africa and the Lagos Action Plan in carrying out the desires of African Heads of State in protecting the environment.

Is the Nigerian public aware of the need for environmental protection?

The public in Nigeria has been showing a greater awareness since they have seen how environmental conditions affect their everyday life. A recent major incident involving oil pollution in the oil-producing zone of the Niger Delta has helped to illustrate the need for environmental protection of the coastal area and the delta in order to protect the economy and welfare of the people living there. ☺



East Africa is one of the most recent additions to the Regional Seas Programme. It includes, provisionally, the coastal waters and the adjacent coast of the African States bordering the Indian Ocean (Somalia, Kenya, Tanzania, Mozambique), of Madagascar, the Seychelles, Mauritius and of the Comoros.

A series of preliminary activities are planned which it is hoped will lead to the adoption of an action plan for East Africa in 1983. First among these is an exploratory mission to the East African States to assess their interest in participating in the action plan, and to find out which activities they would like to see included in it. The mission will also try to discover which environmental problems are most pressing in the region, what institutions are available to deal with these problems, and what scientific data is available describing

the state of the marine and coastal environment.

The findings of the mission will be used to prepare a summary of environmental resources and problems, and will also contribute to sectoral reports on a number of subjects, including coastal land-use management, conservation of coastal and marine resources and ecosystems, and various sources of marine and coastal pollution. On the basis of these reports, the UNEP secretariat will prepare the first draft of a regional action plan.

Mission members will be invited to present their findings to a regional workshop on environmental problems of the East African region, now scheduled for March 1982. The results of the mission will also be used in the preparation of a preliminary draft action plan that will be circulated to Governments. ☺



Birth of an Organization

The Council of the Regional Organization for the Protection of the Marine Environment (ROPME) of the Kuwait Action Plan Region met for the first time in Kuwait, 21-23 April 1981. In doing so, it brought to an end the first, or interim, stage of the Action Plan, and assumed responsibility for the Plan's future, its work programme, financial support and co-ordination.

"The Council welcomed its new role with great enthusiasm," remarked Abdulatif Alzaidan, acting co-ordinator of the Kuwait Action Plan, "and began its work by making 12 major decisions concerning the future conduct of the programme. It appears that UNEP's 'catalytic' role has been especially well fulfilled in this case--the chemical reaction is complete and we're left with an independent and fully operational Regional Organization in control of the Action Plan.

"Since the Action Plan was adopted in 1978, and throughout the UNEP-administered interim period, the Governments of the region have shown unflinching commitment to the protection of their environment. This is why so much progress has been made, and so many tasks already accomplished," Alzaidan concluded.

The Council decided, among other things, to proceed with the establishment of the Marine Emergency Mutual Aid Centre, and allotted 327,270 Kuwaiti Dinars (approximately \$1,170,000) for its first 18 months. An Executive Committee was named to supervise the Action Plan, and the staff of the interim secretariat appointed to corresponding posts in the Regional Organization Secretariat. A total budget for July 1981 - December 1982 was adopted based on a Trust Fund of KD 2,885,000 (approximately \$11,000,000) and made up entirely of contributions from the Governments.

The Council also defined its future relationship with UNEP, deciding to maintain the full co-operation which had highlighted the interim period, and requesting that UNEP continue to provide

the expertise and assistance which had proven so valuable during this phase of the programme.

Dr. Mostafa K. Tolba, Executive Director of UNEP, indicated a similar desire for continuing co-operation in his address to the Council:

"Your meeting here today marks the end of the interim period and the birth of the Regional Organization for the Protection of the Marine Environment. But it does not mean the end of UNEP's interest nor involvement in the Kuwait Action Plan. We stand ready to continue to serve you, assist you and support you, if you so wish, through the Regional Organization in your co-operative effort to protect and develop your region."

INTERIM HIGHLIGHTS

Some highlights of the interim period have included the following activities: (1) the Regional Convention for Co-operation on the Protection of the Marine Environment from Pollution and the Protocol concerning Regional Co-operation on Combating Pollution by Oil and Other Harmful Substances in Cases of Emergency entered into force, (2) an environmental assessment and management survey of the region generated a wealth of information on the region's major environmental problems, (3) operational documents for environmental assessment projects were drawn up, (4) the groundwork was laid for establishment of the Marine Emergency Mutual Aid Centre (MEMAC), (5) the interim secretariat of the Kuwait Action Plan became fully operational, and (6) the Regional Trust Fund was established.

EXPERTS MERGE TASK TEAMS

Paving the way for the ROPME Council meeting, 45 Government experts from the eight Kuwait Action Plan countries met in Kuwait from 11 to 14 April. Their purpose was to assess the progress made to date on the 'Group A' Action Plan

projects, and to consider proposals for a second group of projects, 'Group B'.

"Group B contains the scientific projects," explains Abdullatif Alzaidan, the Action Plan's acting co-ordinator. "The experts decided that the several task teams proposed -- one for each topic -- should be merged into just two groups. One task team would cover all the oceanographic projects, the other all the projects relating to oil and non-oil pollution monitoring and effects."

One other project on impact of industrial and municipal wastes will be undertaken as an in-depth study.

Each task team will be made up of one representative from each country of the region, and one representative from each of the regional and international organizations participating in the projects. In addition, experts specialized in fields related to the work of the task teams will be invited to participate. ☐

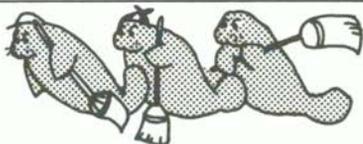
Bogota Legal Seminar

A seminar on legal practices for the protection of the environment against pollution was held in Bogota, Colombia, from 4 - 8 May, 1981, under the auspices of CPPS and UNEP. Participants came from Colombia, Chile, Ecuador, Peru and Panama.

The main objective of this seminar, which forms an integral part of the regional action plan for the protection of the South-East Pacific against pollution being developed by UNEP and CPPS, was to train participants in the utilization of various legal mechanisms formulated for the protection and preservation of the marine environment against pollution sources.

Representatives from CPPS, IMCO, UNEP, the International Oil Pollution Compensation Fund, and other organizations, also attended the seminar.

Trainees practice mopping up



Students of oil spill clean-up methods had a rare opportunity to put theory into practice at a recent international oil spill control training course held in Vina del Mar, Chile. Twenty-two participants from Colombia, Chile, Ecuador, Panama and Peru gathered early in April to study procedures and equipment used in responding to spills in the sea, rivers and coastal areas.

The course, organized by the Inter-Governmental Maritime Consultative Organization (IMCO) and the Permanent Commission for the South Pacific (CPPS), was held under the auspices of the CPPS/UNEP project for the development of an action plan for the South-East Pacific.

During the 10-day course, mornings were devoted to lectures, complemented by audio-visual aids, and afternoons were spent actually applying the methods

being studied. Included in the programme were observation of ballast treatment plants; practice with oil booms, suction skimmers and dispersant spraying equipment at several locations; and practice in identifying the source of spilled oil through laboratory determinations of its chemical nature. The students also carried out toxicity tests of three types of dispersants on fish, shrimp and molluscs. The course culminated with an exercise in organizing oil spill control operations in an oil spill simulation, followed by panel discussions.

Participants in the course were extremely pleased with its content and the equipment available for their use. The success of the course was largely due to the efforts of two people: Ignacio Vergara, the IMCO Assistant Regional Marine Pollution Advisor for Latin America, and Commander Francisco Pizarro of the Chilean Merchant Marine. As well as organizing the course, they prepared an oil spill control manual, in Spanish, for use by the course participants. ☐

Caribbean quotes, continued from p. 3

Salvano Briceño, Director General of the Office of Professional Development and International Relations, Ministry of the Environment of Venezuela, head of the Venezuelan Delegation to the intergovernmental meeting and to the 1981 UNEP Governing Council:

"The adoption of the Caribbean Action Plan by the Governments meeting in Montego Bay represents a significant step forward as well as a challenge in the search for development styles which will improve the quality of life in our countries.

"The Action Plan expresses the will of the Caribbean community to ensure that development is sustainable and is based on a rational utilization of resources. It establishes the mechanisms for co-operation that will enable Caribbean peoples to protect their common and shared resources from environmental degradation, in a situation where co-operation is essential for the effort to succeed."

Jill Sheppard, Executive Director of the Caribbean Conservation Association (CCA):

"The Caribbean Action Plan is one of the most important things that has happened in a very long time, because virtually all of the Caribbean countries have become deeply involved. It represents an unprecedented

degree of regional co-operation among disparate countries with a variety of institutions and speaking four languages."

Is there such a thing as the 'Caribbean man?' Perhaps so. At least it would seem

that at last people in the Caribbean are united over something-- their concern for their environment."

"Non-governmental organisations should play as large a role as possible in the implementation of the Caribbean Action Plan, because NGO's represent

the only type of organisation that can act really quickly. An example is the CCA, where decisions can be made virtually at once unless a major policy change is involved."

"The CCA functions to a large extent as a result of the dedication of people who are willing to give their time and energy to a good cause."

John Connell, former Senator from Barbados and President of the Caribbean Conservation Association from 1974 to 1980; excerpts from an article which appeared in The Nation of Bridgetown, Barbados, on 30 April 1981, entitled "Sea: A new challenge to our youth."

"What is the Caribbean Action Plan? Basically it is a plan to develop the human resources of the people of the wider Caribbean and the physical resources of their countries and regional sea, while maintaining essential environmental balances."

"...our young students must prepare and position themselves to take full advantage, in a patriotic sense, of the exciting new possibilities. There is a wide spectrum of disciplines which will be needed to achieve this. Not only the more traditional medicine,

economics, law and engineering, but also many of the branches of science specialisation which still tends to be a novelty in the Caribbean such as marine biology, including fisheries, coastal engineering, coastal zone management, sea bed mining, etc."

"If modern Caribbean man is to go forward he must demonstrate his capacity to effectively overcome the hurdles in his way be they economic, social, spatial or spring otherwise from some quarter of the multi-faceted environment."

"Whether we as Barbadians go forward holding our own with other regional and world people in the great relay race of humanity will depend on the quality of trained young men and women we can produce. Their skills must be relevant to the prevailing needs of the time." X



...continued from p.4

Manila Declaration on the ASEAN Environment

"If all goes well, the work of the intergovernmental meeting this autumn will have set the stage for a smooth transition into the next stage of the Action Plan," observes Richard Helmer, Deputy Director of the Regional Seas Programme. "The Action Plan should be ready to begin on 1 January 1982, and by the end of 1983 the programme should be running at full speed."

a question of funding

One question which was not resolved during the course of the Manila inter-governmental meeting was that of financing the Action Plan. Although the establishment of a Trust Fund was discussed, and tentative pledges made by several countries during the subsequent Manila meeting of Ministers, no formal decision was made. This left only a few weeks before the annual meeting of the UNEP Governing Council for an official statement regarding such a Fund to be drafted.

A communication did reach the Council in time, made by the Minister of Science, Technology and Environment of Malaysia on behalf of the ASEAN States, which requested the Executive Director of UNEP to pursue the establishment of a Trust Fund to finance the Action Plan. Taking note of the agreement of the ASEAN Ministers on the need for a trust fund, and welcoming the pledges of contributions to the proposed fund, the Governing Council approved establishment of a Trust Fund for an initial two-year period extending to 31 December 1983.

Immediately following the inter-governmental meeting on the Action Plan for East Asian Seas, environment Ministers from the five ASEAN countries met for two days in Manila, and issued a joint declaration reaffirming their commitment to environmental protection in their region and endorsing the ASEAN Environmental Programme (ASEP).

The text of the Manila Declaration on the ASEAN Environment states that its main objective is "to ensure the protection of the ASEAN environment and the sustainability of its natural resources so that it can sustain continued development with the aim of eradicating poverty and attaining the highest quality of life for the people of the ASEAN countries". It also promises, according to its policy guidelines, to (1) foster a common awareness among the people of the ASEAN countries of the biological, physical and social environment and its vital significance for sustained development to proceed apace, (2) ensure...that environmental considerations are taken into account in development efforts..., (3) encourage the enactment and enforcement of environmental protection measures in the ASEAN countries, and (4) foster the development of environmental education programmes."

Barbara Ward was an author, scholar, friend and advisor to heads of State, and a strong advocate of rational sharing of resources among rich and poor nations.

She addressed the modern world's most serious problems: overpopulation, environmental degradation, resource conservation and improvement of the quality of life for the world's poverty-stricken people.

With her death on 31 May 1981 we all lose a courageous ally in the fight to make the Earth a better, healthier place for everyone.



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The Jewel in the Crown

Nairobi, Kenya, May 1981 -- There was nothing but high praise and requests for higher funding for the Regional Seas Programme at UNEP's Governing Council here in May.

"Regional Seas is the jewel in UNEP's crown," declared Lorne Clark, director of the Department of External Affairs' Legal Operations Division of Canada.

"I agree with my Canadian colleague," said the head of the U.S. delegation, Ms. Mary Elizabeth Hoinkes. "Regional Seas should be strongly supported and promoted. It is a great programme, one of UNEP's most effective and important."

"The most successful of all UNEP programmes," asserted Colin McMahon of New Zealand.

These and other favourable remarks were made during a day-and-a-half discussion by delegates to the GC.

They adopted a resolution that "underlined the very positive results achieved in the implementation of the various regional seas programmes already under way and welcomed the implementation of the new regional seas programmes adopted since the last session of the Governing Council."

The resolution also called upon UNEP's Executive Director to "make funds available from all relevant budgetary lines, whenever appropriate," for Regional Seas activities.

GC IX decided to allocate \$4,000,000 to Regional Seas in 1982 and \$5,000,000 in 1983. The availability of these funds depends; however, on the target of \$93,000,000 for programme activities during the two years being reached.

In expressing support for Regional Seas, one delegate described it as a mechanism for addressing unique environmental problems at the land/sea interface and as a link to more effective treatment of the environmental issues of the open ocean. Another said that the inclusion of East Africa, the South-West Atlantic and the South-East Asian Seas in the programme gave it a better global balance. Spokesmen for Venezuela and the European Economic Community also commended the programme.

It was a source of great satisfaction to Mexico, said a Mexican delegate, that the Caribbean Action Plan was approved in 1981, and Ghana likewise expressed appreciation for the Regional Seas Programme in West and Central Africa. A Kenyan delegate congratulated the programme for making the East African sea and coast one of its 10 regions.

A Greek delegate expressed concern over what he considered inadequate funds for Regional Seas, which he said deserved special support. Yugoslavia, noting that in 1981 funds were smaller than previously, praised the programme for its "visible results."

COMING EVENTS

DATE	PLACE	TITLE	ORGANIZER(S)
Sept	London	Third Interagency Meeting on Regional Seas	UNEP
Sept	Lima	Meeting of Experts on the Draft Action Plan for the South-East Pacific	CPSP/UNEP
Nov	Jeddah	Conference of Plenipotentiaries on the Protection and Development of the Marine Environment and Coastal Areas of the Red Sea and Gulf of Aden	ALECSO/ PERSGA
Nov	Suva	Fifth Meeting of Joint Co-ordinating Group SPEC/SPC/ESCAP/UNEP	SPC (SPEC, ESCAP,UNEP
Nov		Second Intergovernmental meeting on the protection and development of the marine environment and coastal areas of the East Asian region	UNEP
Nov	Lima	Intergovernmental meeting to review and adopt the draft action plan for the South-East Pacific	CPSP/UNEP



THE SIBEX

news from UNEP's Regional Seas Programme

They're Off!



Fueled by information contributed by 18 South Pacific States and Territories, preparations for the Regional Conference on the Human Environment in the South Pacific are building momentum.

"The 18 country reports have given us an unequalled account of the state of the South Pacific environment, and shown how eager its people are to protect it," emphasizes Arthur Dahl of the South Pacific Commission (SPC) (see box, page 9).

"We are really thrilled at the response of these countries, which are so isolated from one another yet so united by this common goal."

Perhaps more than anyone else on Earth, the people of the South Pacific live with the sea. They inhabit islands whose land surfaces total about 600,000 square kilometers, yet are surrounded by 20 million square km of ocean, counting only the area within a 200-mile limit.

They also depend on the sea. It provides a good deal of their food, their transportation, and the resources on which they base much of their hope for a prosperous future: offshore fishery stocks, minerals and recreational areas unmatched for their attractiveness to tourists.

It also provides a convenient disposal site for their wastes, and seemingly unlimited volumes of water to dilute them.

In the past, the traditions and unwritten rules of behaviour of villagers have been sufficient to protect island ecosystems from overexploitation, pollution and other forms of stress.

This was not very difficult: relatively small populations were suf-

ficiently dispersed that their environmental impact was offset by natural processes of renewal.

But times have changed, even here, bringing new sources of stress and necessitating development of an environmental protection programme to deal with them. In January 1980, the South Pacific Regional Environment Programme was initiated. (see Sirens 8, 10, 11). Its first stage consisted of requesting, and aiding, the preparation by South Pacific countries of reports outlining their Governments' environmental policies, assessing their natural resources and the major threats to them, and stating their requirements for meeting these threats.

TECHNICAL MEETING STUDIES REPORTS

Meeting in Noumea, New Caledonia, from 22-26 June 1981, government experts from 12 States and Territories of the South Pacific reviewed the country reports submitted by 18 countries of the region. They also studied the 13 topic reviews, 3 information papers, and a number of working papers to be submitted to the upcoming Regional Conference, including the draft action plan for managing the natural resources and environment of the South Pacific region, and a draft South Pacific declaration on national resources and the environment.

"The Technical Meeting marked a very important point in the chain of activities leading up to the Regional Conference,"

continued on page 8....

TAKING STOCK IN EAST AFRICA

When the seven members of the fact-finding UNEP mission set off in October on their visit to the countries in East Africa, it will mark the first major step on the road to an action plan for that region (see Siren No.13).

The mission consists of a conservation expert, an industrial engineer, a land-use planner/economist, a marine pollution expert, an oil pollution expert, and a sanitary engineer. The team leader is Moncef Riahi of UNEP's Regional Office for Africa.

One of the major goals of the mission is to make a preliminary assessment of the environmental problems of the region, especially as they relate to management of marine and coastal natural resources and to the environmental quality of these areas.

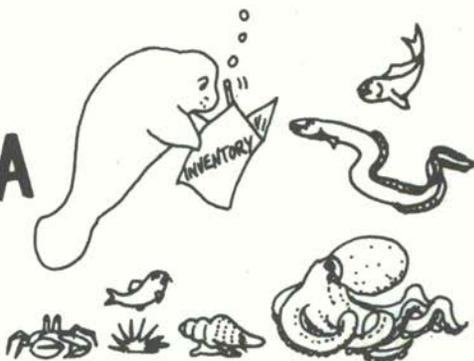
Although a great deal of basic oceanographic work has been carried out in the Indian Ocean, most of it has involved the open ocean, coastal waters of India and Australia, and the Bay of Bengal. In general, pollution studies have focused on major river outlets and highly populated and industrialized areas elsewhere along Indian Ocean coasts; relatively little has been done in East Africa. Helping the region's Governments to identify the gaps in their knowledge of their environment will be one of the tasks of the mission; filling those gaps will be a primary goal of the East African action plan.

The General Picture

It is difficult to generalize about the marine environment of the East African region, which is defined as the marine and coastal environment of Somalia, Kenya, Tanzania, Mozambique, Madagascar, the Seychelles, Mauritius and of the Comoros.

The great current systems in the area north of the equator vary drastically with the seasonal monsoons, among them the Somali current, which is a famous oceanographic phenomenon.

The Indian Ocean in general is char-



acterized by a lower rate of biological productivity than the Atlantic or Pacific, owing to its relatively small continental shelf area; the shelf is especially narrow along the East African coast.

The Indian Ocean is characterized by four major ecosystems: coral reefs, coral free inter-reef areas, mangrove swamps and the deep ocean. (The Somali upwelling area is sometimes considered a separate ecosystem.)

The narrow shelves of East Africa are fringed with coral reefs, and the inter-reef areas are important as trawlable grounds. The ocean contains between 3000 and 4000 species of shore fish, and its tropical beaches are considered among the richest in tropical marine fauna.

Mangroves abound near river estuaries, and extensive forests are found along the coasts of Mozambique, Tanzania, Kenya and southern Somalia, with some forests occurring in northern Madagascar. Many commercially important species are associated with mangroves, including oysters, the mangrove crab and mullet, and the system serves as a nursery ground for penaid shrimp.

The Problems

East African ecosystems are faced with a number of threats which could affect the region's marine resources.

Damage to coral reefs has already taken place in the region, where the productive and heavily-fished reef zone is close to shore and vulnerable to pollution and silting. Fishing with dynamite and poison has already destroyed some reef areas, although these methods have now been outlawed in Kenya and Tanzania.

Deforestation of mangrove areas to provide firewood, tannin, medicinal products, paper pulp and timber, and to open up new space for aquaculture has already seriously affected fisheries and altered the character of the environment in other coastal areas of the Indian Ocean, and threatens to become a similar problem in East Africa.

Most pollution studies carried out so far in East Africa have involved inland areas and their fresh waters, such as Lake Victoria. Some information on the marine environment has been collected, however, and oil was easily identified as a major pollution threat to the region's coastal ecosystems.

In spite of the opening of the Suez Canal, the tanker route to Europe along the East African coast is still heavily used. Pollution of the shoreline by oil is primarily due to slicks brought in by coastal currents from spills in the open ocean.

In 1972, the "Tayeb" broke up on the reefs of Mauritius and released 2000 tons of heavy oil. Over the past 12 years, 21 individual spills of more than 160 tons have occurred in the area.

Spills from offshore traffic is just one source of oil pollution; another is operational discharge. For example, the Somali coast is subject to oil from ships clearing their holds before entering the oil ports. Existing refineries also cause periodic problems in localized areas, and more are being built.

Industrial pollution, although not yet a serious problem, could become one. Effluents are often released untreated with possibly serious consequences for fisheries. Small industries, producing plastics, textiles, paper, sisal, sugar and phosphate, as well as tanneries and mining concerns, are found throughout the region.

Agricultural chemical use is on the upswing, adding to the pollution load of lakes, rivers, and eventually the sea. The use of pesticides in Kenya has increased 10 times since 1966. Tanzania and Somalia require increasing amounts for their cotton plantations. In Mauritius some pollution problems are apparent from pesticide use on sugar plantations.

Like industrial pollution, sewage pollution of coastal waters tends to be localized. In some countries, sewage treatment is rudimentary or non-existent. Eutrophication often results from this situation now and serious health problems for coastal inhabitants could follow.

Towards a Solution

If East Africa's current and potential pollution problems sound familiar, they are in fact similar to those of other Regional Seas. What could be different about East Africa is the way the eight countries affected by these problems judge their relative importance. The mission team is going to try to determine which problems each of the East African Governments considers the most immediate threats to its coastal environment and resources.

The findings of the mission are to be used in preparing a summary, overview report on the resources and the environmental problems of the region, as well as sectoral reports in the following areas:

- coastal land-use management, in particular as it affects or is affected by coastal pollution,
- conservation of coastal and marine natural resources and ecosystems,
- industrial pollution affecting human health and the coastal and marine environment,
- marine pollution, excluding pollution by petroleum hydrocarbons,
- pollution by petroleum hydrocarbons
- sewage treatment and disposal affecting human health, and the coastal and marine environment.

"Our mission is an important way to begin filling the gaps in our knowledge of the East African environment," comments Moncef Riahi. "This is a job which the action plan itself will continue, but the better job we do, the easier it'll be for those who follow." ☺



Pacific Experts Smooth Way for Action Plan



In September, environmental experts from the five South-East Pacific countries, (Panama, Colombia, Ecuador, Peru and Chile) will meet to review and revise a draft action plan for the protection and development of the marine environment and coastal areas of the South-East Pacific. These also include:

- a draft convention for the protection and development of the marine environment and the coastal zone of the South East Pacific,

- an agreement on regional cooperation for combating pollution of the South-East Pacific by hydrocarbons and other harmful substances,

- various options for institutional and financial arrangements to implement the action plan for the South East Pacific.

The experts meeting, which will take place in Lima, Peru, 21-25 September 1981, will put the finishing touches on the texts in preparation for their consideration at an intergovernmental meeting planned for 9-13 November in Lima, where it is hoped they will gain final approval.

The action plan has been designed to reflect the recommendations of the many meetings and studies which have occurred in the region over the last few years. The draft convention not only complements the action plan, but anticipates the possible outcome of the current United Nations Con-

ference on Law of the Sea (UNCLOS) negotiations. It also conforms to other regional conventions which have come about through the Regional Seas Programme, while complementing existing international conventions. Perhaps most important, it is broad enough to cover nearly any environmental issue which may arise in the future and require the adoption of a protocol to deal with it.

There are a number of other decisions the experts will be asked to make, the most essential of which involves establishment of a Trust Fund to finance the action plan and a budget for the 1982-84 triennium.

It is also likely that the Permanent Commission for the South Pacific (CPPS), which played the major role in orchestrating development of the action plan, will be asked to act as the depository and Secretariat of the action plan, and will be appointed to manage the Trust Fund.

"This would put the day-to-day running of the programme in the hands of CPPS," comments Daniel Elder, a UNEP scientist. "We are pleased that they requested the help of UNEP in developing the draft action plan and legal instruments as part of the Regional Seas Programme, and we hope that they continue to make full use of our experience in other seas as they begin to implement action plan projects."



The Siren is issued four times a year in English and French. It is intended as an informal presentation of the news from the Regional Seas Programme Activity Centre of the United Nations Environment Programme, and does not necessarily reflect the official views of UNEP.

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Training courses planned

A workshop jointly organized by the United Nations Economic Commission for Africa (ECA) and UNESCO was held in Addis Ababa from 8 to 13 June 1981. Participants developed a three-year training programme in oceanography, including marine pollution, chemical and physical oceanography, marine geology and marine technology.

The programme, whose cost has been estimated at about five million US dollars, has been submitted to the United Nations Development Programme (UNDP) for possible financing.

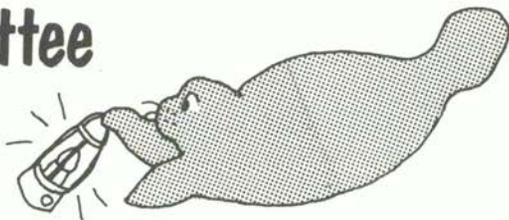
If approved, the programme will be implemented by regional institutions located in West and East Africa.

discharge alert system will be designed, along with a system for assessing and responding to an incident at sea or on land.

2. Coastal erosion was identified as a particular threat to development along the West African coast, both as a result of natural, long-term evolution in coastal morphology and as a direct result of the construction of harbours and other facilities. The project will take stock of the problem and attempt to devise an effective means of dealing with it.

3. A first step in approaching the problem of marine pollution is to design a reliable system of monitoring its levels and effects. The Steering Committee selected a monitoring project consisting of three steps: monitoring systems will be designed and installed in selected locations; pollutants of special importance will be identified and their effects assessed; different methodologies will be studied with the aim of maximizing the comparability of their results. The monitoring project will be reinforced by training programmes for local scientists

Steering Committee lights the way



Representatives from Congo, Ghana, Ivory Coast, Nigeria and Senegal met in Abidjan, 20-22 July, to provide a guiding light for the first stages of the Action Plan.

The task of the designated members of the Steering Committee for the West and Central African Action Plan was to choose which among the many Action Plan projects should get top priority over the next two years. Their selection reflects their appraisal of the relative severity of the many threats to the environment of their shared region:

1. Owing to the destructive impact of accidental and intentional discharge of pollutants, such as the dumping of oily ballast from passing tankers, or the release of chemical effluents from coastal industries, the Steering Committee decided that the development of national contingency plans to deal with such incidents was of prime importance. Accordingly, a

and technicians, and it is expected that a sub-regional centre for marine pollution studies in West and Central Africa will be established.

4. A project on "supporting measures" will provide a foundation for the above three, and will include training programmes in coastal area development and management, the production and compilation of background documentation, and development of relevant legislation.

Two more meetings are planned before implementation of the four selected projects begin. At the first, national authorities designated by their Governments will consider the programme document for the biennium 1982-83, after which the Steering Committee will meet again to consider endorsement of the recommendations of the national authorities. These activities should be completed by March 1982, if all goes according to schedule. ☒

a most unusual sea

It has been an important route for trading ships for at least 4,000 years, yet it presents a notorious obstacle course for navigators. It is surrounded by a dessicated and largely barren landscape, yet its hot, salty waters contain coral reefs praised by scientists and sport divers as among the loveliest in the world. For centuries its coasts were populated by poor artisanal fishermen, subsistence farmers and small traders, yet its depths conceal billions of dollars in untapped mineral wealth.

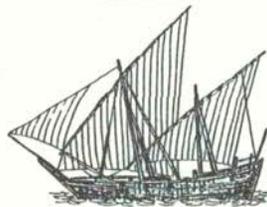
The Red Sea is a sea of paradox. This is further exemplified by the fact that the countries surrounding it are now joining in an effort to fight pollution of the sea--yet there is no pollution to speak of.

In fact, the efforts of Red Sea environmentalists are unusual in that they are designed to prevent damage to the marine environment and coastal areas before the first signs of it appear.

The man in charge of the ALECSO*-sponsored Red Sea and Gulf of Aden Environment Programme (PERSGA) is Dr. Abdul-Ilah Banaja of Saudi Arabia. Dr. Banaja is a specialist in parasites of herring gulls and fish, and pursues lateral interests in entomology and baboon behaviour. He received his PhD in 1975 from the University of Dundee (Scotland) and has since been teaching and carrying out research at King Abdul Aziz University, where he became Vice-Dean shortly before being seconded to ALECSO and appointed Executive Director of PERSGA.

Dr. Banaja agreed to tell Siren readers a bit more about the Red Sea and why the Red Sea and Gulf of Aden countries are so concerned about protecting their marine environment.

On Red Sea geology: Geologists consider



*Arab League Educational, Cultural and Scientific Organization

the Red Sea to be very young, with the first formative stages occurring when Africa began drifting away from Arabia

about 50 million years ago. This motion is still going on, as we can tell from the volcanic and earthquake activity in the area, and by the presence of hot brine in deep parts of the sea.

On climate and hydrology: The air temperature all around the sea is hot, averaging 25-29°C, and extremely humid, especially in summer. Except for areas where farmers have irrigated their fields and gardens, and certain high regions of Saudi Arabia and Yemen, the land is semi-desert. There are no rivers, and very little rainfall--so little threat of flooding, erosion and river-borne pollution. There is a high rate of evaporation from the sea surface, but this is compensated for by water flowing over the sill which divides the Red Sea from the Gulf of Aden. The estimated renewal time for its waters is about 20 years, vs. 80 years for the Mediterranean.

On why it is called the Red Sea: The Red Sea is normally a very lovely shade of blue-green. However, when conditions are right, the population of the algae *Trichodesmium erythraeum* explodes into a bloom. When these innumerable tiny plants die, they turn the sea reddish-brown.

On navigation: Coral reefs form natural barriers to ships traveling through the Red Sea on their way to or from the Suez Canal. The coral is so extensive in the south that only a narrow channel remains, which can be quite hazardous, and many southern harbours are at least partially blocked by reefs. In the north, the coastline is quite even, lacking the indentation that provides natural harbours. These factors, plus irregular currents and occasional sandstorms, can make navigation very difficult. Even entering it would be impossible if the channel from the Gulf of Aden at Bab el-Mandeb were not continually dredged and blasted.



Banaja

On Red Sea history: In spite of the reefs and other factors, towns along the sea have been centres of trade for thousands of years. Traditionally this trade has been in cloth, spices, aromatic woods, tobacco, nuts, gum arabic, coffee, tea and other products of inland agriculture.

Fishing has always been a very important source of food for coastal and inland populations. Also, the entire area has been a centre of travel and migration, and a gathering-place for pilgrims on their way to Mecca and other holy shrines. Today, tourists come in increasing numbers, both to seek the sun and to see first-hand the magnificent coral reefs.

On reasons for environmental concern: The extremely rapid development now taking place in the region has led to the fear that pollution and other environmental hazards will soon become a problem. Although overall population levels are still low, rapid growth in population and industry is taking place in the cities. With this comes increased demand for consumer goods, food staples, building materials, and services. People are migrating to the area from outside, seeking new jobs in industry and commerce. Petroleum resources are now being exploited, and the petrochemical industry is expanding to handle the oil supply. Tankers are ever-present, heading for Suez and perhaps disaster should one of them hit a coral reef. Pollution by oil, sewage and chemical effluents is an ever-increasing threat. Even something as necessary and seemingly benign as a desalination plant can damage the environment, since the effluent can raise an already high level of salinity in localised areas.

The Red Sea countries have seen what has happened in other regions facing the same threats from similar sources, and they are determined to prevent this from occurring in their sea.

On the future: As elsewhere in the world, the traditional ways of life are changing. Now development in the region focuses on the exploitation of petroleum resources, but there are other and greater resources lying in wait: recent discoveries have revealed that some of the deeper regions are full of metals of enormous value. Exploitation of these will no doubt have great impact on the economies of Red Sea countries. What that impact is, and whether the delicate sea environment will survive that exploitation, will depend on how it is carried out.

On PERSGA: This environment programme is starting where it must—with detailed surveys and assessment of where we are and where we are going, especially with regard to development in the region and what its environmental impact is likely to be. We'll first look at the scientific and other institutions of the region and see how capable they are of dealing with the problem. We will study the ecosystems most vulnerable to stress from development activities, and decide on the best ways to protect and preserve these systems.

The main impetus for all this work will be provided, we hope, by the adoption later this year by a Conference of Plenipotentiaries of an action plan, convention and protocol which will form a basis for conservation of the marine environment in coastal areas of the region.

If all goes well, and our preventive strategy works, the Red Sea and Gulf of Aden environment will be as clean and beautiful in 100 years as it is today. ☺

Family Conference on Regional Seas



Once again a number of United Nations, inter-governmental and non-governmental organizations are gathering to examine the Regional Seas Programme.

"This is the third such meeting," comments Peter S. Thacher, Deputy Executive Director of UNEP. "The Regional Seas Programme has always been a family effort, and regular meetings of the participating agencies have kept things running smoothly."

The Third Inter-Agency Meeting on Regional Seas is taking place in Geneva from 14 to 18 September. Items on the agenda include a review of past and planned activities, review of the involvement of the agencies in the programme, and consideration of the guidelines and principles for the development of regional action plans. The agencies will also discuss preparations for the Meeting of Government Experts on Regional Marine Programmes planned for January 1982 in Nairobi.

...continued from page 1

remarked Richard Helmer, Deputy Director of the Regional Seas Programme. "It applied some finishing touches to the working documents, and approved a draft agenda for the Conference. The experts also reiterated the basic strategy and approach of SPREP, which had been substantially reinforced by the contents of the country reports and topic reviews."

"One of the most striking results of the country reports is the way they reflect a traditional emphasis on wise environmental management in the culture of Pacific peoples. These small countries would make an excellent example for the rest of the world. Any legal support, however, will have to be in harmony with customary practices to ensure that environmental laws are effective and can be enforced."

The reports identified a basic weakness throughout the region in environmental assessment capabilities, although four universities and several research centres offer a source of expertise and information which have yet to be fully integrated into environmental policies. But there was a consensus that scientific information was essential for the effective incorporation of environmental values into planning at the earliest stages.

Education was also emphasized, as a means of creating an informed and understanding public as yet unfamiliar with stresses that new factors - such as industrialization, urbanization and unprecedented population growth - are placing on their environment.

Another important theme was the recognition of the difficulty of the balancing act that the developing South Pacific countries have before them as

they consider their alternatives: cultural values vs. economic values, conservation vs. subsistence agricultural production, protection of indigenous forests vs. wood selling and crop cultivation, etc.

TOPIC REVIEWS CONSOLIDATE ISSUES

After considering the country reports themselves, the Technical Meeting discussed the commissioned topic reviews, which highlight the development possibilities and environmental problems associated with the conservation of native plants and animals and the exploitation of mineral, soil, forest, mangrove, reef and fishery resources. The reviews also underline the difficulties faced by Pacific societies, both rural and urban, in meeting basic human needs -- a problem which is related to the rapidly-increasing cost of energy, and the provision of services to secure safe water supply and waste disposal. They emphasize the dangers presented by misuse of toxic chemicals (fertilizers, pesticides, herbicides and other pollutants, and discuss national and international legal measures which could be applied to such cases or developed in the future.

Subjects identified as of primary importance include: the problems of urban impact, especially the disposal of sewage and solid wastes; the difficulties of managing coastal areas with their complex interactions between land and sea; the special importance of careful handling of toxic chemicals on small islands, the need for restoration of degraded areas to productivity; the usefulness of protected areas as part of resource management and development; and the importance of working with, rather than against, traditional land and reef tenure systems in the Pacific.

"The experts discussed the idea of how environmental and social considerations, incorporated into planning at an early stage, can make development more efficient and reduce unexpected or future costs, and emphasized that it's not a case of having to choose between environment and development, but needing very much to have them coexist," explained Mr. Pati Faiai of American Samoa, who chaired the meeting.

The Technical Meeting then considered the draft South Pacific declaration on natural resources and the environment and the draft action plan.

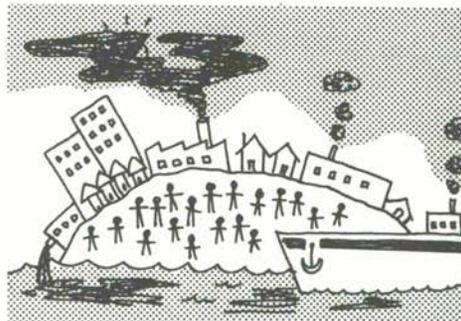


"During these discussions, many government experts requested that increased attention be paid to the problem of radioactive pollution," observed Mr. I. Armitage of Western Samoa. "They were especially concerned about plans to dump large quantities of low-level nuclear wastes into Pacific waters which might eventually enter food chains and contaminate island marine resources. There were also fears of high-level nuclear waste stockpiling on remote Pacific islands, and reminders of the human impacts of previous nuclear contamination in the region."

FURTHER PREPARATIONS FOR REGIONAL CONFERENCE

The several months between the Technical Meeting and the Regional Conference will be used for a public information campaign to broaden public awareness and knowledge of environmental issues. Radio broadcasts, newspaper and magazine articles, a press kit, and a poster chosen among designs submitted by students in a region-wide contest, will be produced during this time. SPREP staff and consultants will visit a number of the South Pacific countries to help them find ways to deal with specific environmental problems they have identified. A Directory of Environmental Research Centres will be published and Conference documents completed.

"Two regular meetings of South Pacific countries will take place during this interim period," adds John Sheppard, the Deputy Director of the South Pacific Bur-



reau for Economic Co-operation (SPEC). "The South Pacific Forum will have met in August and the South Pacific Conference in October, to review the results of the Technical Meeting and provide further input into the upcoming Conference in the form of policy guidance on certain substantive and financial matters. There will also be another regular meeting of the SPEC/SPC/ESCAP/UNEP Co-ordinating Group, which controls the general direction of SPREP, in November of this year.

"So far, preparations are moving along faster than anyone expected," he commented, "thanks largely to the interest and energetic efforts of the people who prepared the country reports. If the Conference and the subsequent stages of the programme go as well, then it is likely that the South Pacific peoples will be able to deal with, if not prevent entirely, the threat which development can pose to so fragile an environment." ☺



Arthur Dahl: the man from SPREP

The South Pacific Regional Environment Programme (SPREP) is the result of years of effort by its present co-ordinator, Dr. Arthur Dahl.

Dr. Dahl graduated from Stanford University (California) in 1964 with a degree in Biology, after which in 1969 he obtained a PhD from the University of California in Santa Barbara, specializing in phycology and marine ecology. He then spent 5 years as a research scientist at the Smithsonian Institution's Museum of Natural History in Washington, D.C., where his studies on coral reef ecology took him frequently to the Caribbean, the tropical Pacific and the Red Sea.

In 1974, Dahl became Regional Ecological Adviser with the South Pacific Commission, a regional inter-governmental organization for the Pacific Islands, and developed a wide range of environmental and conservation activities to assist the 23 countries and territories of the region.

"The governments of the Pacific Islands have a strong commitment to sound environmental management in spite of their small size, isolation, and limited resources," Dahl comments. "They hope, through SPREP, to combine their efforts and to strengthen their capacity to develop their resources while avoiding the mistakes made elsewhere."



HOW MUCH CAN THE OCEANS TAKE?

Dr. Edward D. Goldberg is Professor of Chemistry in the Geological Research Division of the Scripps Institution of Oceanography at La Jolla, California. He is a world-renowned expert on marine pollution, and in 1976 published a stimulating and controversial book entitled The Health of the Oceans, which attempted to summarize the field based on the conventional wisdom of the day. Here Dr. Goldberg discusses various aspects of his book and reveals some special insights into the problems of dealing with the oceans as waste space.

The Siren: How did your work in the field of marine pollution begin?

Professor Goldberg: For the past 30 years I have been concerned with the ability of the oceans to accommodate the wastes of human society, without the loss of renewable or non-renewable resources. My work on this general problem began with attempts to calculate the amount of radioactivity discharged from a nuclear facility which could enter the sea without returning to man and affecting his health, whether through sea food or exposure to radioactivity accumulated on beaches. Efforts along these lines were made in the mid-1950s by scientists from the United States, the United Kingdom and the USSR, and the consequence has been that the oceans, atmosphere and land have been protected from receiving unacceptable entries of artificial radioactivity.

Where did you go from there?

These activities led me to become concerned about other polluting materials entering the atmosphere and oceans, such as chlorinated hydrocarbons, including DDT and aldrin, and the polychlorinated biphenyls (PCBs). As part of a general increasing awareness on the part of scientists at that time, I joined the attempt to assess damage from the inadvertent or deliberate discharge of these materials in the marine environment. Then, in the mid-1970s, I tried to put my thoughts together in the volume, The Health of the Oceans.

In his preface to your book, Alan Holden both congratulates you on your courage in attempting to assess the

state of oceanic pollution, and mentions the misgivings of the book's reviewers over the assumptions you made and the validity of the data on which you based your conclusions. What is your answer to these misgivings?

At the time the book was written, I was aware that often we lack a truly adequate data base on which to propose public policy, both at national and international levels. Still, I felt one had to work with the available information. As a consequence, I often extended the interpretation of the existing data a bit beyond the limits of actual knowledge. I did this because I thought it important to do so, in order to stimulate further work and further evaluation. This would then lead us to more substantial conclusions and to the prosecution of priority research.

What is your answer to the problem of waste disposal? Is there an ideal solution?

Society is today by nature a disposing society, rather than an accumulating one. Our wastes must be accepted somewhere. They can go to several places -- onto the land, into the atmosphere, or into the oceans. On scientific, technological, economic or social grounds, any one of these possible discharge sites may offer advantages over the others, depending on the nature of the waste material and on the proposed area.

For example, I would argue that land sites are preferable for the storage of high-level radioactive wastes. The atmosphere, I suggest, can accept the com-

bustion products of terribly toxic organic compounds such as PCBs--at least more readily than the original materials can be accommodated on land or in the sea. The domestic wastes from 11 million people living in the southern California region are readily taken up by the coastal waters without an unacceptable loss or injury to marine resources.

How can we decide which is the best place to dump these wastes?

It can be extremely difficult. One approach to ocean dumping is to try to determine the assimilative capacity of the body of water in question for a given waste. The assimilative capacity is simply the amount of waste that can be introduced per unit time without unacceptable impact on the ecosystem in question.

How is it determined?

Primarily by development of what we call endpoints for individual substances. In pollution studies, the endpoint is the concentration beyond which the pollutant produces an undesirable effect. In one case the endpoint might be the pollutant concentration producing an unacceptable disturbance to the marine community, in another as its concentration in seafood which is still safe at a given level of consumption. Endpoints are very difficult to determine for industrial or domestic or agricultural wastes, because these may contain a wide variety of toxic substances. Sometimes we don't know what they contain.

Isn't the determination of endpoints, assimilative capacity, and what is an "acceptable" level of pollution extremely arbitrary?

Although subjective judgements are often involved, they are based on the best available knowledge and subject to revision when better data are available.

For example, over the past 20 or so years we have developed a sense of what is an acceptable dose of a radionuclide to a human being. The level of cesium-137 in commercially-consumed fish caught off the Windscale reactor in Britain constitutes an endpoint to maintain human health. The 0.5 parts per million level of mercury in fish gives an endpoint to protect populations which rely heavily on fish for food.

Where human health is not involved, acceptable impact is more difficult to determine. In the southern California region about five per cent of the Dover Sole--not a commercial species--caught near the outfall have fin rot or stomach tumours. Is this an acceptable impact or not? I don't know who answers this question, but it is not just the scientists. The decision should be made in coordination by those who manage the water and sewer resources, and by the general public, as well as the scientists.

Unfortunately we are still in a very primitive stage with respect to understanding the impact of single pollutants or sets of pollutants on individual organisms and communities, and the determination in the field of the impact. But I'm happy to say that the problem is attracting some first-rate talent among biochemists, behaviourists and toxicologists, who have joined with marine scientists in these endeavours.

Do you think that the assimilative capacity of coastal waters is being reached anywhere?

There is some evidence that it has been exceeded, at least on occasion, in Puget Sound, where recent dinoflagellate blooms and an incidence of oyster mortality may be related to sewage discharge. In the New York bight area, which receives the waste of 20 million people, cadmium is



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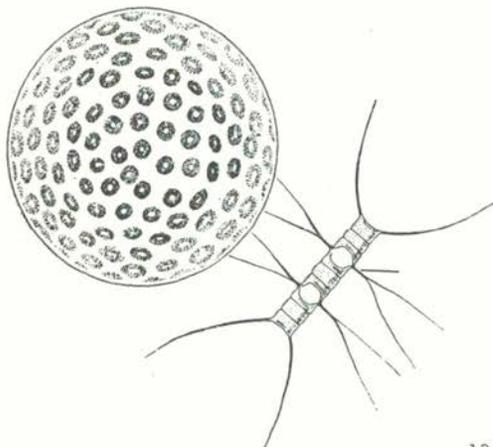
considered a potential problem. So far, estimates of cadmium concentration in sea water fall well below the proposed end-point of five parts per billion--the level at which oysters growing in the water can cause nausea in consumers. But realistic models of the system show that cadmium in oysters growing in heavily-contaminated areas could well exceed the safe limits.

In general, however, it seems that the coastal waters of the United States are generally under-utilized with respect to the acceptance of wastes, and thus some of the U.S. laws regulating future dumping are irrational.

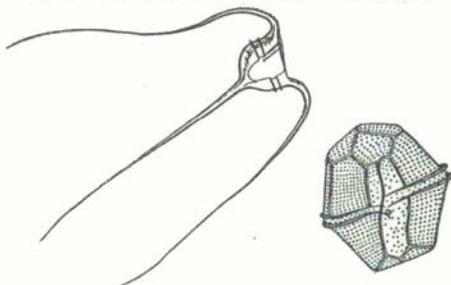
Are there any general problems in marine pollution that are receiving inadequate attention?

One problem which is global in nature and which needs both an assessment and strategy for monitoring is that of eutrophication. This is a long-term problem which is showing up in the coastal waters in many places of the world.

Generally, it involves introduction of biostimulants such as nitrate and phosphate to the coastal ocean, resulting in an increase of plant productivity. More important, we are seeing an alteration of species composition--diatoms, which are the life support base for many commercially-important fish, are being replaced by dinoflagellates, blue-green and brown algae, the weeds of the sea. This is taking place in the southern California and New York bight regions, in the Chesapeake Bay, and in Kaneohe Bay, Hawaii. But it's also occurring in the Adriatic Sea, the Aegean Sea, and the Oslo fjord, among other places.



Along with species displacement, there appears to be an increase in areas of anoxic zones along the coasts. The increased supply of organic detritus from plant production in the photic zone will clearly govern the amount of carbon storage in the sediments. Increased respiratory activity in rivers and estuaries has disrupted the calcium carbonate budget by



increasing carbon dioxide pressure and decreasing pH, which leads to undersaturation and dissolution of calcium carbonate. This problem--the trend toward eutrophication, its rate and geographical extent--is urgently in need of serious study by all coastal nations.

More so than problems such as heavy metal and oil pollution?

I would say that perhaps too much activity has been directed to heavy metal and petroleum hydrocarbon analyses, which tend to be extremely costly, at the expense of other activities. Some of the money allocated for pollution studies could be better spent on more widespread problems such as coastal eutrophication.

You mentioned that sometimes we don't know what chemicals are contained in discharged wastes. Couldn't it be that there are substances being released that are causing "unacceptable" impact and about which we are not even aware?

Yes, and the problem is compounded by the fact--I should say admission--that we marine scientists and environmental scientists sometimes fall asleep on the job. We have certainly done so in one notable case, that of the chemical toxaphene.

Toxaphene was brought into extensive use following the restrictions on DDT. It is commonly used on tomatoes, cotton, tobacco, etc., as a pesticide. Whereas DDT is composed of two basic substances, toxaphene contains over 200! So, it is about 100 times harder to analyze on the

gas chromatograph. Furthermore, some of its components have been found to have carcinogenic or mutagenic properties. Some are more stable in the environment than DDT. And the production of toxaphene now exceed that of DDT at its peak in the pre-1970 years.

Thus we have a persistent, difficult to analyze, and perhaps extremely toxic substance pervading our environment. Yet there are few scientists involved with it, to determine if it is producing a problem or if it might in the future. I've discussed this with many of my colleagues, who are generally reluctant to begin toxaphene research. It's much more difficult than DDT or PCB research. But we need toxaphene studies urgently.

In The Health of the Oceans you proposed a "mussel watch" or "barnacle watch" as a first step towards a global pollution monitoring programme. Has this been tried?

Yes, and it has been used most effectively on regional bases in many countries. In 1979, an international conference sponsored by SCOPE* was held in Barcelona to assess the observations made during such programmes in the countries whose scientists participated in the workshop.

In the United States, the mussel watch was effective in identifying hot spots of metal pollution, DDT pollution and radioactive pollution in certain coastal areas.

Perhaps most dramatic was the identification of a PCB pollution problem in New Bedford Bay, Massachusetts. At this site, an industrial concern discharged wastes containing high amounts of PCBs, mussels accumulated these materials, and the high levels in mussels was discovered. It was then ascertained the fish were also polluted, and the fishery was closed.

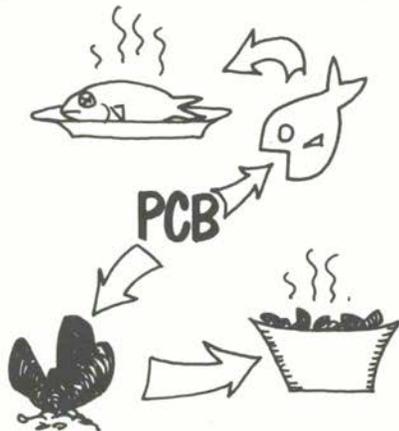
I don't think such monitoring programmes should be internationalized, however. Sovereign nations can best carry them out according to their specific needs. But there is an urgent need for scientists from various nations to get together to discuss their methods and results, and to make interlaboratory comparisons of their analytical techniques. Only in this way can they maintain the quality of their analyses and ascertain the most appropriate sampling and analytical strategies.

What is your opinion of international efforts?

I am gratified that there are so many international, and national, groups gath-

ering information, making assessments, and attempting to protect our marine resources. I personally prefer to work with non-governmental groups, such as SCOPE and SCOR since I find it more rewarding to associate with scientists chosen by their peers. Governmental groups often have scientist appointed by politicians or by agency secretariats. Such scientists are often not the most appropriate for the job, or have to work on the basis of their instructions rather than their abilities.

But international efforts are essential. Groups like GESAMP*** are terribly important in maintaining an awareness of what has happened to the oceans as a consequence of man's activities. Also, some



international efforts have been especially rewarding in gathering together privileged or proprietary information, and handling it without jeopardizing either countries or industries that yield such data. I think you're well aware that this has happened in the determination of the amounts of the fluorocarbons dispersed to the atmosphere by world society. This was carried out by an American chemical group to whom countries of the world submitted their production data. These were added up by a series of acco-

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- * Scientific Committee on Problems of the Environment
 - ** Scientific Committee on Ocean Research of the International Council of Scientific Unions (ICSU)
 - *** Joint Group of Experts on the Scientific Aspects of Marine Pollution (see Sirens no. 3, 10 and 12).

(continued from preceding page)

tants, the total discharge was obtained, and the scientists then had a very important number with which to predict impacts of these materials upon the ozone layer. Now we clearly need information on the production of other substances on a worldwide basis, as well as an estimate of total waste discharge to the ocean--amounts, composition, etc.

I once suggested to the IOC and UNESCO that we try to make an entry into this general problem, the production and use of toxic compounds. It never really got off the ground. It still remains in my mind as a terribly important thing to do, and I hope that some international agency will become involved in the problem.

How do you see the future of waste management?

I foresee a greater and greater number of conferences and workshops on the subject, involving people of many disciplines--marine scientists, industrial

scientists, hydrologists, atmospheric scientists, economists and political scientists. We are already seeing a trend towards this in the United States.

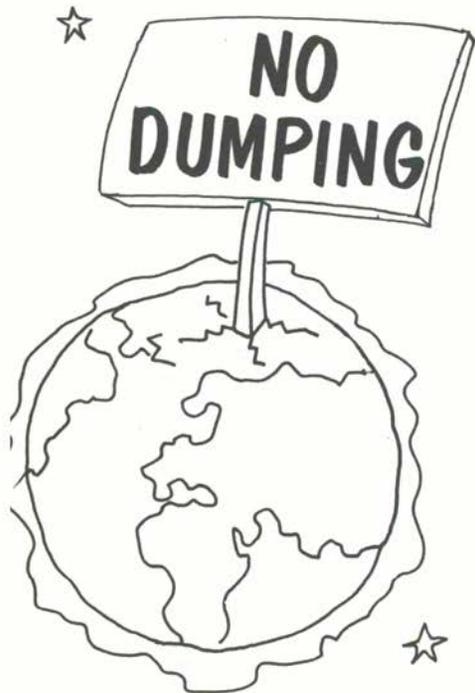
Secondly, I think we are going to see extensive efforts towards gathering a much more rational information base on which to assess potential damage to the oceans. We need to know much more about the production, composition and distribution of wastes, we need to know much more about what chemicals are being produced in large quantities on a worldwide basis, and which of these are being used dispersively. We also need, by the way, information about the waste products in chemical manufacturing.

Finally, I hope to see the northern hemispheric scientific community devote a lot more effort towards collaborating with their colleagues in the developing world to formulate strategies for the handling of wastes, especially as they might affect the marine environment. I've always been very warm to the efforts of UNESCO along these lines. Non-governmental organizations have also attempted to bring the developing world into the deliberations, but much more effort is essential.

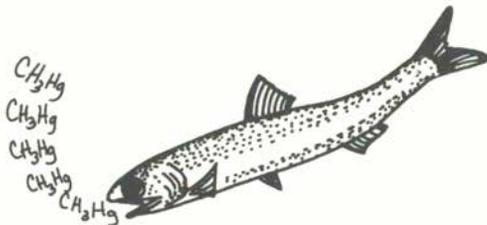
Why should someone want to study marine pollution?

Some scientists have a conscience, and want to feel they are contributing to the good of society. But there is also a self-serving reason to study pollution. In doing so, one can learn a great deal about natural processes. For example, our work on artificial radioactivity has given us a greater knowledge about oceanic mixing processes. Our work on DDT and PCBs has emphasized the atmospheric transport of large organic molecules from the continents to the oceans in the gaseous phase. The tragedy of Minamata Bay, with the discovery of methylmercury as the agent of distress has provided a springboard to study natural methylation reactions of not only mercury but of a wide number of other elements in the oceans. We've learned that many elements exist in nature--especially in sea water--naturally as methylated forms, such as arsenic, tin and antimony.

So, I submit that those people who are involved in pollution or assimilation capacity studies stand a very good chance of making significant contributions to basic disciplines in marine science. ☺



New Findings About Methylmercury



The consumption of fish represents the major source of methylmercury exposure in the general population. For this reason the mercury levels in fish throughout the world have been assessed, with particular attention being paid to the situation in the Mediterranean Sea. Here, there is limited knowledge of methylmercury intake in critically exposed populations such as fishermen, employees of the fish industries and their families.

Deciding how much methylmercury human beings can safely ingest is an extremely touchy problem, given the lack of completely reliable indices for low-level exposure and the limited knowledge of methylmercury intake among various segments of the population. The situation is further complicated by recent information suggesting a latency period for some effects which are inversely related to duration of exposure.

This newly-discovered latency period has cast some doubt on the estimated threshold levels for methylmercury in blood, hair and diet currently recognized by the World Health Organization. A recent report by the Monitoring and Assessment Research Centre (MARC) of the University of London has reviewed these difficulties and called for a lowering of recognized threshold levels.

The report, entitled Health Effects of Methylmercury, notes that pregnant women and the foetus are groups at special risk from methylmercury effects, and that blood mercury levels in the foetus are about twice those of the mother. These facts indicate the need for special reexamination of the threshold levels for pregnant women.

The MARC report was initially prepared as a background document for a WHO consultation held to re-examine the WHO Environmental Health Criteria Document on Mercury. After substantial revision, it was used as a consultation document at a

UNEP/FAO/WHO meeting of Experts on "Environmental Quality Criteria for Mercury in Mediterranean Seafood" (Geneva, 3-6 November 1980).

"The report reviews the literature from 1975 to 1979 relating to the health effects of methylmercury in humans and the attendant dose-response relationships," remarks Andrew Sors, acting Director of MARC. "It is an extremely useful document, since so much work has taken place in recent years."

Funded by UNEP and the Rockefeller Foundation, MARC was established to aid in the understanding and solution of major environmental problems, and to provide scientific support to the development of environmental monitoring systems, especially UNEP's Global Environmental Monitoring System (GEMS).

Health Effects of Methylmercury is MARC Report No. 24, and is available from the Monitoring and Assessment Research Centre, Chelsea College, University of London, The Octagon Building, 459A Fulham Road, London SW10 0QX, for U.K. £2.00.



So long, for now

In August the Siren waved a sad, if temporary, goodbye to George Ponghis.

Since June 1979, Ponghis had manned a small project office of the World Health Organization at the Regional Seas Programme Activity Centre. He was responsible for the WHO/UNEP project MED POL VII on Coastal Water Quality Control which began in 1975 and has now ended.

Ponghis succeeded in creating a network of 31 laboratories in 14 Mediterranean countries involved in the monitoring of microbial pollution in coastal areas. The project was considered a great success by everyone associated with it, thanks largely to the quality of Ponghis' work, his warm personal contacts with colleagues and participating scientists, and the experience and ability he displayed at the several experts' meetings convened for MED POL VII.



Cruzado joins Med

Dr. Antonio Cruzado has just joined the Mediterranean Co-ordinating Unit as its Senior Marine Scientist.

Born in Barcelona, Spain, in 1940, Dr. Cruzado attended the University of Barcelona where he graduated with a degree in chemistry in 1965. After post-graduate work in chemical oceanography at the University of Washington (U.S.), he returned to Spain to work with the Fisheries Research Institute in Barcelona. In 1976 he received his PhD in biology with Professor Ramon Margalef at the University of Barcelona.

Since then, Dr. Cruzado has been steadily involved in oceanographic research at various institutions in France, Scotland, the U.S. and Canada. His work

with the Mediterranean programme began in 1976 when he helped to co-ordinate two MED POL pilot projects at the Inter-governmental Oceanographic Commission (IOC) in Paris.

"The Mediterranean Action Plan is at a turning point," Cruzado observes. "From a legal standpoint, the Governments have the key to improving environmental conditions. From a scientific standpoint UNEP and the specialized agencies and the scientific community have the basic knowledge and know-how to carry out a strict monitoring of the environment. We will, in the coming months, begin a scientific monitoring and research programme on the basis of previous experience, which will give us the tools to undertake real control measures and improve conditions around the sea.

"But for this to be a real success, we need not only the co-operation of the Mediterranean scientific community, but also a strong commitment of the Governments around the sea—not just cash commitments, but the assurance that their scientific institutions and administrations will give priority attention to the problems addressed by their Action Plan."

COMING EVENTS

DATE	PLACE	TITLE	ORGANIZERS
22-28 Sept	Geneva	GESAMP XII	WMO
9-13 Nov	Lima	Intergovernmental Meeting to Review and Adopt the Draft Action Plan for the South-East Pacific	CPPS/ UNEP
7-11 Dec		Legal Experts Meeting to Review Proposed Legal Agreements on the Action Plan for the Caribbean Environment Programme	UNEP
14-16 Dec		First Meeting of the Monitoring Committee on the Action Plan for the Caribbean Environment Programme	UNEP
1982			
18-22 Jan	Nairobi	Meeting of Government Experts on Regional Marine Programmes	UNEP
8-12 March	Rarotonga	Regional Conference on the Human Environment in the South Pacific	SPC (SPEC, ESCAP, UNEP)



THE SIREN

news from UNEP's Regional Seas Programme

HURRAH!

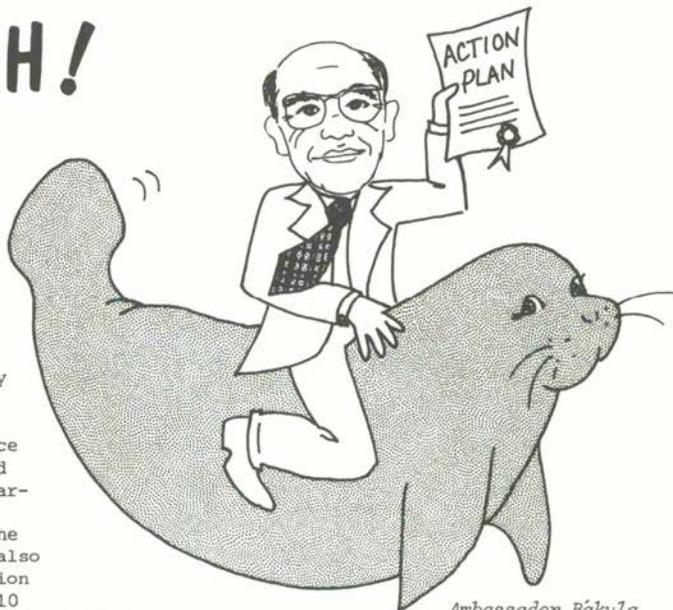
Two legal agreements and an action plan protecting the environment of the entire Pacific coast of South America have been adopted.

Meeting in Lima, Peru, representatives of five countries -- Chile, Colombia, Ecuador, Panama and Peru -- formally signed the agreements on 12 November 1981.

The four-day conference of plenipotentiaries capped four years of careful preparatory work by UNEP and the Permanent Commission for the South Pacific (CPPS). It also resulted in the fourth action plan approved in the past 10 months as part of UNEP's Regional Seas Programme. Similar action plans were recently adopted in the Caribbean, West and Central Africa and East Asia.

"This is the start of a new era of co-operative effort among the States of the South-East Pacific to protect the marine and coastal environment," declared Ambassador Juan Miguel Bákula, Secretary General of CPPS (see interview, *Siren* 10). "This momentous event reaffirms the close relationship which has always existed between man and the sea in this region."

The major accord adopted at the conference is known as the "Lima Convention" and is an umbrella treaty that protects the marine environment from the Panama Canal to Cape Horn. It covers an area 200 miles from the coastal zones of the signatory countries, and further in areas where pollution might affect a signatory of the Convention.



Ambassador Bákula
and friend

The second accord, the agreement on regional co-operation to combat pollution from hydrocarbons and other toxic substances in emergency cases, commits governments to co-operation in pollution emergencies such as oil spills and tanker accidents.

The action plan itself calls for pollution monitoring and research and, more generally, for taking environmental considerations into account in national development planning.

Commenting on the Lima Conference, Peter Thacher, Deputy Director of UNEP, noted that "the South-East Pacific Action Plan was adopted in a relatively short period of time and without much difficulty. Perhaps the main reason for this

continued on page 15...

A SOLID COMMITMENT

Senior government officials from the five States of the Association of South-East Asian Nations (ASEAN) concluded a three-day meeting (9-11 December) in Bangkok by contributing a sum of US\$ 172,000 towards financing of their Action Plan over the next two years.

Commenting on the contributions, Dr. Richard Helmer, representing UNEP, said, "This is indeed a welcome initiative by the countries of South-East Asia, and represents a solid commitment to environmental protection in the East Asian Seas."

In addition to these pledges, UNEP, which hosted the Bangkok meeting, will contribute US\$ 200,000--half of which will go directly into the financing of projects.

The Bangkok meeting also established a policy co-ordinating body, which will have overall responsibility for implementing the East Asian Seas Action Plan. It is called the "Co-ordinating Body on the Seas of East Asia," or COBSEA, and will meet periodically in conjunction with the existing ASEAN expert group meetings on the environment. It will meet for the first time next April (1982) in Thailand. The UNEP Regional Seas office was asked to provide technical co-ordination of the programme until the end of 1983.

During the Bangkok meeting, officials identified major project areas for implementation during the next two years. These deal with oceanography, assessing of oil and non-oil pollution,

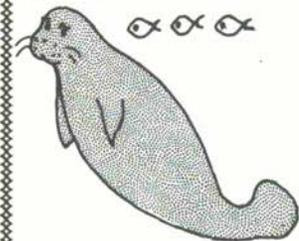
mangroves and coral reefs, oil pollution control, waste disposal and information exchange.

Each participating State assumed responsibility for implementing one of the projects for which it already has the expertise and where some work has already been carried out. During the meeting officials designated the institutions that will take the lead in co-ordinating the work of each project with other countries. For example, Thailand's National Environment Board will take responsibility for co-ordinating the oceanographic studies; the Marine Science Centre of the University of the Philippines will co-ordinate the assessment of the state of coral resources and the effects of pollutants and destructive factors, such as dynamite fishing, on coral reefs. A survey of sources and monitoring of oil pollution will be the main co-ordinating task of Indonesia's Oil and Gas Technology Development Center (Lemnigas), while Malaysia's Fisheries Research Institute will co-ordinate research on oil and oil dispersant toxicity. Several other projects will be co-ordinated by the remaining countries.

According to Dr. Herman Haeruman of Indonesia, who chaired the meeting: "Ours is a region with close affinity to the seas, witnessing rapid industrial development. It therefore becomes urgent for us to be vigilant in protecting our marine environment."

At the Bangkok meeting, officials called upon UNEP, as the Technical Secretariat, to conduct an immediate survey of national capabilities in the region relating to the marine environment and coastal area development, and to carry out a compilation of existing data on the oceanography of East Asian Waters.

The East Asian Seas Action Plan, which was adopted in Manila last April, is expected to serve as a nucleus of expanding environmental activity throughout East Asia and the Western Pacific. ☒

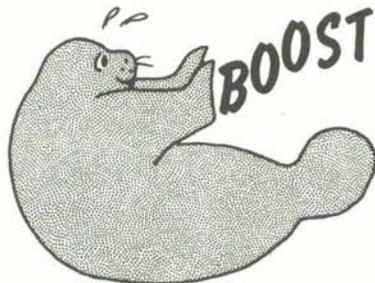


The Siren is issued four times a year in English and French. It is intended as an informal presentation of the news from the Regional Seas Programme Activity Centre of the United Nations Environment Programme, and does not necessarily reflect the official views of UNEP.

Articles may be freely reprinted with or without reference to The Siren.

Please address all correspondence to: Siren, UNEP, Palais des Nations, 1211 Geneva 10, Switzerland.

Caribbean convention, projects get a



Two important meetings on the Caribbean Action Plan were held in December at United Nations Headquarters in New York.

The first of these was a meeting of legal experts on draft regional agreements for the Wider Caribbean Region (7-11 December), attended by experts from 24 Caribbean States and Territories.

"This meeting was something of a landmark," noted Patricia Bliss-Guest, legal officer of the UNEP Regional Seas Programme. "The experts' attitude toward a regional convention was extremely positive...no one questioned that an agreement should be negotiated and eventually adopted. All in all, the meeting was successful, in that a good deal of progress was made toward reaching a consensus on the draft convention. However, it became clear during this meeting that another one would be needed to finish negotiations on the text of the convention, and to begin work on the draft regional agreement concerning co-operation in combating oil spills in the Wider Caribbean."

The legal experts did manage to consider and revise the fourteen substantive articles of the draft convention for the protection and development of the marine and coastal environment of the Wider Caribbean region. The revised articles concern geographical coverage, general provisions and obligations, pollution from ships, dumping, land-based sources, sea-bed activities, discharge of pollutants into the atmosphere, specially protected areas, co-operation in combating pollution in cases of emergency, environmental impact assessment, scientific and technical co-operation, and liability and compensation.

Recommendations of the legal experts were presented to the subsequent meeting, which was the first meeting of the Monitoring Committee for the Caribbean Action Plan (14-16 December). The Monitoring Committee, established in accordance with a decision of the Montego Bay Intergovernmental Meeting in April of 1981, is responsible for overall co-ordination of Action Plan implementation. For the period 1982-83, it is composed of representatives of Colombia, Costa Rica, Cuba,

Dominican Republic, France, Grenada, Mexico, St. Lucia and Venezuela.

Arsenio Rodriguez, Regional Seas programme officer in charge of co-ordinating the Caribbean Action Plan, described the purpose of the meeting, and its results: "This meeting was held so that the members of the Monitoring Committee could decide exactly what they are going to be doing for the foreseeable future. They also needed to adopt a budget for 1982 based on the funds which have already been made available in the Trust Fund."

Among the actions taken by the Monitoring Committee:

- they appointed a Committee Chairman, Manuel Lopez Portillo of Mexico,
- they reviewed the detailed descriptions of the priority projects,
- they reviewed the recommendations of the legal experts and decided to convene a second meeting probably early in 1982,
- they adopted a budget of US\$ 806,000, about two-thirds of which will be used to begin implementation of selected projects in 1982,
- they urged the Jamaican Government to establish the Regional Co-ordinating Unit for the Action Plan as soon as possible.

"Of these decisions, the most important were the allocation of Trust Fund money so that work on certain projects could begin, and the assigning of most of the responsibilities for policy co-ordination to the Committee Chairman," commented Rodriguez. "The Monitoring Committee will probably meet again in 1982 to review the progress of the Action Plan activities, and to decide exactly how the Regional Co-ordinating Unit is to be set up and run." ☒

task teams set the date

On January 1, 1982, an 18-month oceanographic and pollution monitoring programme will begin in the waters of the Kuwait Action Plan Region.

Delegations from the eight countries of the region met in Kuwait in early September to outline the programmes on oceanography and baseline pollution studies approved by the Council of the Regional Organization last April.

Following the directives of the Council, two task teams were appointed to oversee the environmental assessment projects of the Kuwait Action Plan. The task teams met to discuss details of the sampling and analysis to be undertaken in 1982, and the activities and contributions of each participating country.

"The projects will be carried out by each country in accordance with its national programmes, but they will be co-ordinated through the Regional Organization's Secretariat," explains Abdullatif Alzaidan, Acting Co-ordinator of the Kuwait Action Plan (KAP). "This means that the national programme in each country will become part of an agreement between that country and the secretariat. These agreements will specify the oceanographic and pollution parameters to be measured by each country, the sites to be monitored, and the supporting measures it will contribute.

"This is a very practical and efficient approach, because in this way the scientific facilities and resources of

the region--which are not always evenly distributed--can be of benefit to everyone. This includes equipment, training facilities, expertise, and support received from international organizations."

Among the first activities to be undertaken by both task teams is baseline studies and monitoring in coastal waters followed later by seasonal open-water cruises using the ships available in the region. The search for suitable ships has begun already.

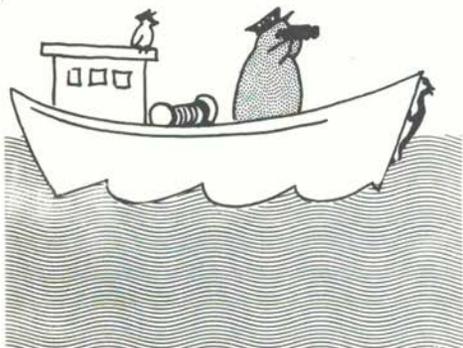
The task teams also agreed on the need for several workshops on methodology and intercalibration to ensure standardization of sampling and analysis throughout the region.

The task team on oceanography met from 5 to 7 September. There were 16 members and advisors representing seven KAP countries and four international organizations in attendance. They decided that sea water at 20 sites should be monitored at monthly or quarterly intervals within the region, each country being responsible for a minimum number of sites. Iraq, for example, will monitor two sites on a monthly basis to reflect conditions of the Shatt-al-Arab waterway, and other countries agreed to similar arrangements. It was emphasized that this programme is a minimum and more sites could be monitored voluntarily.

The task team decided that sediment characteristics should be determined at each site during the 18-month programme. It also designated several areas for special surveys of ecological systems, such as the intertidal mudflats, rocky intertidal zones, etc.

The task team agreed to adopt the methodology and data handling procedures already employed in similar programmes elsewhere, such as the Mediterranean marine pollution monitoring and research programme.

The task team meeting on baseline studies was attended by 23 members representing eight countries and four international organizations. They adopted a programme to measure pollution from oil, metals and chlorinated hydrocarbons at 17 sites within territorial waters. Measurements are to be made in sea water,



sediments, and selected biota two times a year, using standard methods developed in the Mediterranean programme.

Each task team adopted a work plan and timetable for the next 18 months. The activities to be undertaken will be financed to a large extent by resources available to the Regional Organization for its activities.

"These meetings were very successful," asserts Dan Elder, a UNEP scientist.

National co-ordinators break the ice



Meeting for the first time, MED POL national co-ordinators designated by 10 Mediterranean Governments and the EEC joined other experts from the region to discuss the launching of MED POL - Phase II, a ten-year marine pollution monitoring and research programme which is part of the Mediterranean Action Plan.

The occasion was the First Meeting of the Working Group for Scientific and Technical Co-operation, held in Athens, 28 September - 2 October (1981). The Working Group was established by the second meeting of the Contracting Parties to the Barcelona Convention last March. Its purpose is to assist in the review and evaluation of MED POL results and to advise UNEP on policy and technical matters.

In one decision, meeting participants defined the major sources of Mediterranean pollution: outlets of the main urban agglomerations, industrial effluents, large rivers and dumping operations.

"Direct measurement of three parameters--total mercury, total cadmium and petroleum hydrocarbons--will be carried out at these sources," reports Antonio Cruzado, Senior Marine Scientist with the Mediterranean Co-ordinating Unit. "Of course, nothing was excluded. Each of the Contracting Parties can decide what additional substances they wish to monitor. In an ideal world, they could all monitor all the substances included in the Land-Based Sources and Dumping Protocols. But with the financial outlook for the next three years so uncertain, it was necessary to limit the

"They reflect a determination to get data coming in as quickly as possible. We only had the few months remaining in 1981 to negotiate eight agreements between each of the KAP countries and the Regional Organization, which meant that in this time the details of each national programme had to be worked out. Plans for the cruise got under way, the everyone worked very hard to see that the programme was ready to go by early January."

priority to these three."

A programme to monitor pollutant transport through the atmosphere into the Mediterranean Sea will be developed, while monitoring of the levels of pollutants in coastal and reference areas will continue more or less as it was done during the pilot phase of MED POL, which lasted from 1975 to 1981.

"Developing the research activities identified by the Contracting Parties is essential to the programme's success," emphasizes Cruzado, "since they should provide a sound scientific background to the results of the monitoring."

Commenting on the meeting, Stjepan Keckes, Director of the Regional Seas Programme, stresses the importance of MED POL for UNEP.

"The qualified and responsible advice on technical matters expected and received from this working group at its first meeting bodes well for the future of MED POL. Now that the Mediterranean Contracting Parties have assumed primary responsibility for their plan, UNEP can focus on those parts of the Action Plan which contribute to its global programme. The Mediterranean Pollution Monitoring and Research Programme, or MED POL, is most important to UNEP because it contributes directly to the Global Monitoring System (GEMS). Most of the rest of the Action Plan is directed to regional problems and how to solve them, whereas the achievements of MED POL are of direct interest to scientists and environmentalists world-wide."

The next meeting of the working group is scheduled for September 1982. ☼

In late November, the seven members of the UNEP-sponsored East African Mission returned to Geneva to prepare their reports (see *Siren* No. 14). The *Siren* took the opportunity to ask them about their trip.

MISSION TEAM TELLS ALL



The Siren: Where did you go?

Moncef Riahi (team leader): We visited eight mainland and island countries: Kenya, Mozambique, Tanzania, the Comoros, Madagascar, Mauritius, the Seychelles, and Somalia. The order was determined by flight availability--we took 32 flights in eight weeks!

Siren: Was the trip a success?

Riahi: I am happy to report that each of the countries showed great eagerness to begin working on an action plan to protect the marine and coastal environment of East Africa. There was some uncertainty expressed about the financing of the plan, and that is a serious, if understandable, problem which we will have to face once an action plan is approved.

But for now, the governments are ready to address the environmental problems of their region. Although the level of pollution is not yet a serious problem in most places, there is the ever-present threat of a large oil spill in the tanker routes, as well as all of the problems usually associated with

growth and development in coastal zones.

Island countries are concerned about the future of tourism, which is so closely tied to the state of their beaches, coastal waters and seafood.



Riahi

Siren: Whom did you see, and how did they respond to your mission?

Riahi: We were warmly received

by people at all levels--Ministers, Principal Secretaries, high-level technicians, UNDP* Resident Representatives, local volunteers and townspeople. They were extremely helpful and enthusiastic, but tended to be under the impression that UNEP was going to develop an action plan on their behalf. I explained carefully that any action plan would be entirely theirs to develop and run.

I like to use the analogy of a car engine: UNEP will just provide the oil to keep things running smoothly, but they will have to provide both the fuel and the machinery. The fuel is their energy and commitment, including their financial commitment. The engine itself is the national machinery--the infrastructure that exists in each country to deal with environmental problems. The action plan will merely co-ordinate and harmonize the national machinery into a smooth-running engine that does the work of regional environmental protection. Maybe this carries the analogy a bit far, but it's a useful way to envisage the programme.

Siren: You mentioned oil pollution as a problem throughout the region, especially for the islands. Is this the worst problem you found?

Captain James Ferrari (oil pollution control expert): Oil pollution may be the biggest potential problem, since it threatens the region as a whole, especially the islands. We saw oil pollution everywhere, and not just in the ports where you would expect to find it. But this relatively small-scale contamination is minor compared with what could

*United Nations Development Programme

be expected in the event of a major spill.

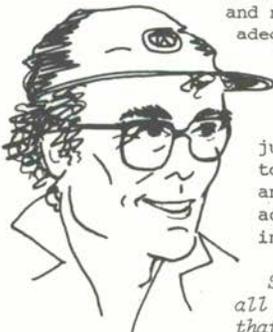
Siren: How can you do anything about something that hasn't yet happened?

Ferrari: You can do two things in East Africa: develop a regional contingency plan to deal with spills, and collect up-to-date equipment in strategic locations, ready to be sent to the site of an accident. All of the East African governments are interested in developing

a contingency plan, and none of them has adequate equipment.

So, the strategy is simple and straightforward, we just have to get to work on it and hope that no accidents happen in the meantime.

Siren: But of all the problems that exist right now, which would you say is the most serious?



Ferrari

Daniel Finn (land-use planner): We saw a problem that is already extremely serious in some areas, even though most of the officials we spoke with are unaware of its marine dimension. This is the general problem of erosion, and most serious is the erosion that causes mass transport of enormous quantities of sediment from inland areas, such as agricultural and grazing land, to the coast by way of rivers. This is happening on such a large scale that we may actually be witnessing an entire coastal ecosystem in a state of change!

Siren: Where is this happening?

Finn: The problem is especially serious in Madagascar. In some upstream areas up to 300 tons of sediment per hectare of land are lost each year. This will eventually have a devastating effect on the inland ecosystems involved, but the effects are also evident downstream. In fact, one port, Mahajanga, received 100 million cubic metres of sediment in this way, rendering it entirely useless. Floods are increasing in the coastal

floodplains and sediments are being deposited at the shore.

Siren: Is this happening everywhere in East Africa?

Finn: It is happening in Kenya, near Mombasa, and in Tanzania. Discharge from the Sabaki in Kenya is causing heavy siltation which has affected tourist beaches and valuable reefs. It also occurs in the islands. In the Comoros, the practice of planting hillsides and other marginal lands with seasonal or annual crops which don't hold the soil causes such serious erosion that you can actually see where plumes of silt have smothered the coral reefs.

Siren: What can be done about this problem in the Comoros?

Finn: Well, one could take perennial, soil-binding crops--which are now planted on the best land in the flat coastal plain and on plateaux--and plant them in areas susceptible to erosion. This would go a long way towards solving the problem and at no social expense other than the sacrifice of a harmful agricultural tradition.



Finn

Siren: Hasn't the sedimentation of estuaries always occurred?

Finn: Of course, and at the usual rates it is a necessary process providing nutrients for the coastal ecosystems, building mangrove areas and replacing sediments lost by wave and current erosion. But when it is extreme, it can lead to the situations I've described, killing coral and other coastal organisms which are adapted to clean water and covering beaches with mud. When surface water and sediment carry agricultural fertilizers, they can cause algal growth and eutrophication, which are distasteful to tourists who expect blue water, white beaches and pristine coral reefs.

continued....

Siren: Is there a lot of fertilizer in river runoff?

Oladele Osibanjo (marine pollution expert): We suspect there is a great deal of both fertilizer and pesticides in rivers which drain agricultural areas, and that the amount is proportional to its use in these countries. But our evidence so far is indirect--there are simply not very many scientific institutions in the region with the equipment necessary to analyse river and coastal waters for these chemicals.

The laboratories that are well-equipped, such as the excellent government chemistry lab in Tanzania, are not yet involved in marine pollution studies. Others are dealing with localized or specific problems. For example, the Maputo laboratory in Mozambique has studied the microbiological load of Maputo Bay.

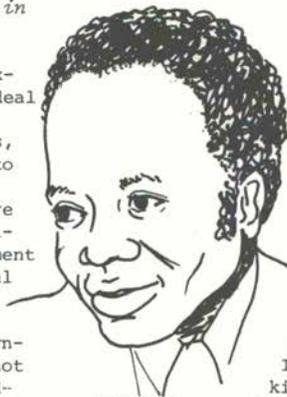
The Marine Research Institute in Mombasa has carried out a survey of tarballs on beaches--and found some which weighed as much as three kilograms! The Department of Marine Biology at the University of Dar es Salaam is studying the impact of pollution on mangrove ecosystems. And the Fisheries Department of the Seychelles has a chemical oceanographer working on mercury levels in tuna. But for the most part, the laboratories of the region lack equipment and trained personnel. The important thing is that they exist, and with the right kind of support we hope they will become active participants in a regional programme.

Siren: What do the governments consider their major pollution problems?

Osibanjo: I had some difficulty determining this because nearly everyone I interviewed seems to equate marine pollution exclusively with oil pollution, and had not even considered other kinds. So, I worked largely on the basis of what I could see for myself in the short time we had.

Siren: What did you see?

Osibanjo: The pollution I saw was mostly from land-based sources, aside from the oil visible in harbours which presumably comes from ships. In Kenya, there was heavy siltation from the rivers around Malindi and from dredging activity. In



Osibanjo

Mozambique, a member of our team discovered the hard way that shellfish were contaminated.

In Tanzania, the area around Dar es Salaam was polluted by sewage as was evidenced by algal blooms along the coast, and the Msimbazi Creek mangrove community was coated with oil from a nearby garage.

In Mauritius, fish kills have been reported in rivers, and fertilizer washed into lagoons has caused heavy algal growth.

In Somalia, wastes from a slaughterhouse near the coast are diverted to an open pond, causing a health hazard and an eyesore--and another problem that could have been expected: the blood in the effluents attracts sharks and the coast is now extremely dangerous for swimmers.

So you see, the problems vary from country to country. A detailed plan to assess marine pollution in the region should therefore be designed with this localized pattern in mind.

Siren: Is there a lot of new industry in East Africa, and is it polluting?

Enil Tutuwan (industrial pollution expert): If you count small-scale industries, and extend your definition to include household processing of various products, using the most elementary techniques and materials, then you could say that industry exists everywhere in East Africa. In general, the industrial sector has a lot of potential but is still largely underdeveloped, and so there are few environmental problems associated with it. Small agro-industries dominate the industrial sector, which nevertheless is attracting a lot of attention. As a result, reasonable progress is being made. For example, there are important sawmills, distilleries, tanneries and food processing industries in the region. Tertiary manufacturing industries are on the increase. Waste treatment is rare; consequently, all of these produce effluents that pollute nearby streams or bays.

Siren: Could anyone reasonably ask such small businesses to pay the costs of cleaning up their effluents?

Tutuwan: In most cases, the problem would be solved automatically if the industries underwent some needed modernization. I observed that many were using old, inefficient equipment and were operating at a fraction of their capacity, lacking proper maintenance or spare parts. Sometimes improperly trained staff were using wasteful methods which, when combined with a lack of environmental awareness, cause quite unnecessary problems.

Siren: But will updating the industrial sector automatically lead to pollution control?

Tutuwan: It will make it a lot easier. It is most practical to site industries together in industrial zones--and here they can share sewage treatment plants, as well as the burden of responsibility for environmental damage they may cause. The older industries, scattered around the landscape and along the coast, are reluctant to even admit there is a problem, and many could ill afford to clean up after themselves.

However, I suspect that with proper planning, the new industries being created throughout the region can easily manage their wastes and prevent damage to the environment. It is this preventive role that I would like to see reflected in the action plan when it addresses the matter of industrial pollution.



Tutuwan

Siren: You mentioned sewage treatment plants. Are there many in the region?

Paul Vallet (sanitary engineer): I can answer that: generally, no. And where they exist they are inadequate and overloaded, and the effluent discharged is

polluting the sea. Most of the larger cities have master plans for municipal sewerage systems, some of which have been financed and should be operating within the next decade. But I can say that in many areas of East Africa, coastal waters around cities and tourist complexes are polluted by liquid and solid domestic wastes.



Vallet

Siren: But can we hope that most of the people of East Africa will someday be served by treatment plants?

Vallet: I'm very glad you asked that. In fact, there is no need for sophisticated treatment plants in most of East Africa. These may be necessary for big cities and industrial complexes, but the most feasible and economical answer to the problem lies in the proper use of waste stabilization ponds.

Siren: What are those?

Vallet: Stabilization ponds are simply shallow basins where wastes are left to oxidize. In these ponds, beneficial organisms stabilize the waste water into a liquid that can be released to the environment without endangering man directly or affecting the environment adversely. And, they don't place an undue cost burden on a downstream user.

Depending on treatment objectives, a pond system can be used to receive untreated domestic or industrial wastes, primary or secondary treatment plant effluents, excess activated sludge, or diluted night-soil. They may be used to pre-treat wastes, to remove most of the biochemical oxygen demand, and to reduce the concentration of disease-causing agents.

Siren: What conditions are required?

Vallet: Really all that is needed is enough space for the ponds and enough sunlight for the natural purification reactions. The ponds are simple to maintain, so there is no need for specialized staff. And what is very important is that the effluent can be used to great advantage for the controlled irrigation of crops.

Siren: Are there many such ponds in use there now?

Vallet: Unfortunately, no. Where sanitation exists, outside major cities, it consists of septic tanks or pit latrines.

Siren: Don't these work?

Vallet: Yes, they work, but septic tanks require regular maintenance, and pit latrines can pollute ground water stores--especially in areas such as northern Mozambique and the Comoros where the water table is high.

Siren: Where is the situation good?

Vallet: Port Louis in Mauritius has an old system, but it is well-maintained. The island is already crowded, however, and the problems of managing its wastes may complicate plans to develop a tourist industry there.

The outlook for Somalia is good--it seems they have found financing for a major waste control project. Kenya's tourist complexes generally have their own sewerage systems, although in many cases these are not expanded as rapidly as the hotels' capacity.

But the best systems, at least potentially, exist in the Seychelles and Mauritius. Although Victoria's old septic tanks are, at present, overloaded, there is a new sewage treatment plant now working at 10% capacity. When it goes into full operation, it will be able to handle all Victoria--it just has to find the financing.

Siren: Would you say that the major obstacle to liquid waste management in East Africa is financing?

Vallet: Not at all. It's one obstacle, but the real key to the situation is education. The people of East Africa need to learn how to handle the problems

associated with growing population and its concentration into cities. They must be educated to understand the need for sanitation, and the techniques--which are mostly simple and cheap--for bringing it about. I'm optimistic, because government officials understand the problem, and now they just have to persuade their people.

Siren: A recurring theme of the discussion so far is that pollution problems are localized. Does this mean that most of East Africa's coastal ecosystems are in pretty good shape?

John Kundaeli (conservation expert): If pollution were the only problem, that would be the case. But East Africa's ecosystems--the coral reefs, mangroves, swamps and marshes, and the marine fisheries dependent on these areas, are in danger from other directions.



Kundaeli

Siren: Such as?

Kundaeli: Let's start with coral reefs. The reefs of the Seychelles are still in good shape generally, but extensive damage has been done in the Comoros. It seems that people swim over the reef with sledgehammers collecting coral heads for gift shops, or to burn for lime to use in building their homes. Some countries attempt to control this, but it's really a region-wide problem.

Mangroves are cut in Kenya and Madagascar for building material or firewood. Fortunately, empty land is not yet scarce in East Africa, so they are seldom cut just to gain space for development. But countries in the region have only limited mangrove areas, and so these need special protection.

Siren: What are marshes used for?

Kundaeli: Marsh areas can be used for two activities which are increasingly common throughout East Africa: rice cultivation and salt production. Marshes are considered so unimportant that there is almost no information on them, and no one hesitates to transform them--but of course they are essential components of coastal ecosystems, and nurture the larvae of many commercially-important species of fish and crustaceans.

Siren: Is education also the key to saving the marshes and mangroves and coral reefs?

Kundaeli: It is possible that legislation is even more important, since the problem is urgent. Some species of animals are already endangered. The marine turtles, for example, are ever-decreasing in number owing to predation by man, during egg laying, either for eggs or for decorative shells. The Hawksbill Turtle is very much sought after for its valuable scutes.

Another animal in even greater danger is the dugong, called Nguva in Swahili and a close relative of the West African manatee. Like the marine turtles, it is often caught in fishing nets and drowned.

There is no question that information on present distribution and numbers of these animals is urgently needed. Fortunately, the relevant government agencies in Kenya and Somalia are considering launching an ecological survey of dugongs along their coast.

What a pity if our own "Siren" were to disappear from East Africa!

Siren: How soon can legislation be passed that will bring about management of coastal ecosystems and protection of these species?

Kundaeli: Two problems have to be solved before legislation can have much effect: one dealing with enforcement and the other with jurisdiction.

A serious obstacle is the paucity of marine conservation officers, which means that legislation alone cannot solve the problem of on-the-spot adherence. The region does not at present have an institution which can provide this training, although one--the College of African Wildlife Management at Mweka, Tanzania, trains park wardens for terrestrial parks and reserves.

Coastal area wildlife management is also complicated by the fact that a number of government agencies often have jurisdiction over a single resource. For example, when our turtle is at sea, it can be under the jurisdiction of the Ministry of Fisheries, but once it is on the beach, such as when laying eggs, the Ministry of Agriculture takes over.

Clearly, such situations must be clarified at the national level before a regional action plan can incorporate the national machinery into a co-ordinated regional management plan.

Siren: We're back to the engine, oiled by UNEP and fueled by the eight governments!

Riahi: You see, it is a good analogy!

Let me summarize what I think is a consensus of the mission team about our journey. Pollution control and environmental protection and management are necessary in East Africa, and will become increasingly so. It is best to start now, in time to prevent major damage to coastal ecosystems. Education training, and planning are the keys, not only financing. A great deal can be done at little expense, but it requires interest and determination.

I think M. Vallet's story from Mozambique tells it best.

Vallet: Maputo was the cleanest town we saw on our trip. There was no trash or garbage to be seen. I discovered that the entire town is kept spotless by a small team of lorries working four at a time around the clock. And yet, other towns with more lorries and personnel are much dirtier.

Clearly, someone in Maputo cares. It is by such people that the East African environment will be protected!



African sands drift...

as time runs out

Erosion can devastate a shoreline as surely as any hurricane. But it does so gradually, and the environmental and social disruption it causes can pass unnoticed by all but those who experience it directly.

In West Africa people have begun to notice. Several thousand inhabitants of coastal fishing villages have been displaced. The main coastal road is periodically washed out, to be rebuilt at great expense. New tourist complexes are threatened. Coconut plantations have been eaten away, and the beach in at least one area is becoming so steep that violent waves and currents are hazardous to swimmers. The hydrological regime of certain lakes and lagoons has been disrupted, affecting the species composition of their biological communities and causing fish production to decline.

West and Central African governments are trying to do something about this enormous problem, as evidenced by their giving it top priority among the many environmental problems facing their region (see Siren No. 14).

But first it is necessary to understand the causes of erosion. Why has this process, which has been going on since the oceans and continents were first formed, recently begun causing so much damage to coastal communities in West Africa?

The causes of coastal erosion are both natural and man-induced.

Shorelines are always moving; their appearance of stability is illusory and results from a temporary balance between

the opposing forces of erosion and accretion. Long-term changes in coastal morphology are a function of great natural forces, one of which is the Earth's climatic cycle. Since the end of the Ice Age, glacial melting has raised sea level by 12-20 centimetres per century. As the sea gradually overwhelms the edges of continents, river valleys are drowned, forming estuaries and lagoons which trap river sediments. These sediments would otherwise be available to build coastlines downstream.

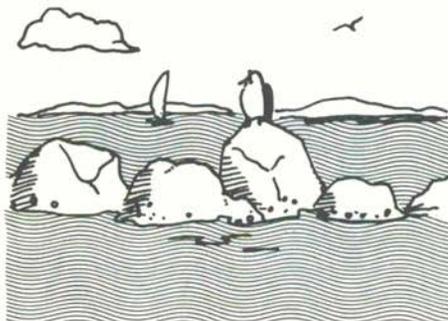
Beaches, banks and rocky shores are steadily eroded by wind-generated sea waves which form breakers as they approach the shore. Where the beach slopes gently, spilling waves move sand toward the shore. But where the slope is steeper, more forceful plunging waves are formed which move large volumes of sand offshore to the limit of breaker formation. Wave-generated currents within the surf zone, especially the long-shore current caused by waves breaking at an oblique angle to the shoreline, account for an estimated 90% of beach sand transport; ocean currents are thought to have little effect.

Other coastal features, such as headlands, shelves, tidal inlets and vegetation, can strongly influence erosion patterns. But as long as an overall balance is maintained between long-shore transport and sediment supply, the coastline will remain stable over a workable human time scale.

Human beings have devised several methods of interfering with this normal sediment balance.

Construction of jetties, piers, outfall structures and other barriers has the effect of restricting the drift of sand along the shore. Sand will tend to accumulate on the updrift side of the obstruction and erode on the downdrift side.

Dams, especially those built up-river and lacking flushing facilities, can trap river sediments, effectively cutting off the supply to the coast. Mining of upstream river sediments or of beaches to provide sand and gravel for construction can also interfere with the local sediment balance.



Altering the normal patterns of terrestrial or aquatic vegetation can work on the system in a variety of ways. Upriver farming and deforestation results in increased runoff and topsoil erosion, contributing to the sediment influx of rivers. At the shoreline, vegetation stabilizes coastline morphology and prevents erosion by wind and waves through trapping and consolidation of sediments.

Urbanization increases soil runoff, and contributes fine sediment in sewage wastes to rivers and coastal waters.

Other activities associated with coastal development--dredging of ports, modification of inlets, filling of swamps--are all capable of setting off a process of hydrodynamic change with dramatic consequences, especially on the downdrift coast.

For example, the position of coastal inlets responds naturally to tidal action and littoral drift, so that an equilibrium is maintained through cycles of inlet closure and migration. When the inlet is artificially stabilized, it acts as a littoral barrier and, like a jetty, causes erosion on the downdrift side.

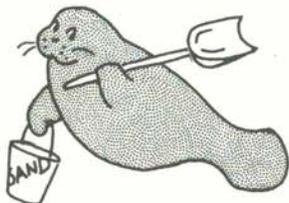
What is perhaps the most comprehensive study made of coastline erosion in West Africa to date emerged from a workshop held in Lomé, Togo, early in 1979 on cases and possible solutions to coastal erosion in Benin and Togo. Both natural and man-made causes were outlined by participants, who provided a number of examples and case studies.

Grand-Popo in Benin was once a prosperous commercial centre, where trading companies had established their offices during colonial times. Except for the inlets, which are sometimes affected by flooding, the coast of Benin has been stable for decades, providing suitable sites for towns populated by fishermen and their families. But in the last 30 years at Grand-Popo, erosion has claimed much of the shore, including several homes, a public school and many coconut trees. The town is being slowly abandoned as the remaining structures are left to deteriorate. The shore east of Grand-Popo has eroded an average of 200 metres. The reasons are unknown, but it could well be a natural phenomenon.

When the deep-water port of Cotonou was built, an attempt was made to restrict erosion by construction of a series of jetties at sea. This was supposed to prevent sediment from reaching

the lagoon, and to limit recession of the shore. A jetty was also constructed in the lagoon to prevent shifting of the main channel.

In spite of these efforts the coastline east of the port has continued to erode, threatening the industrial zone there, causing the displacement of fishing villages, and claiming several hectares of coconut trees. And since the channel into the lagoon of Cotonou was opened permanently, the lagoon has been dug deeper and wider by currents, and in several places the banks have become steeper. Many hectares of developed land were lost along the channel. Also, the encroachment of sea water into nearby Lake Nokoue and the lagoon of Porto-Noro through the channel of Cotonou not only caused an invasion of new species, but the disappearance of old ones. This resulted in a decline in fish production estimated at several thousand tons.



The situation in Togo is no better. The Port of Lomé, whose construction began in 1964, consists primarily of two jetties, one of which is 1700 metres long. This main jetty stops the transport of sand on the eastern side, where erosion claims an average of 8 metres of beach each year. Thousands of fishermen have been displaced, and the new tourist complex, Hotel Tropicana, is seriously threatened by the steady encroachment of the sea.

But quite often the remedies for erosion cause as many problems as they are designed to solve. Sea walls, such as that built east of Port Lomé, can help prevent erosion, but often require costly upkeep. The use of offshore breakwaters to reduce wave energy has become a popular preventive method, and tends to encourage beach buildup in its immediate vicinity. Unfortunately, erosion on the downdrift side continues and may even accelerate. Jetties, meant to stabilize and protect channels and to prevent shoaling by littoral drift are notorious for stimulating shoreline recession on the downdrift side.

continued on p. 16...

GESAMP



okays three new reports

A general review of the health of the oceans, revised scientific criteria for selection of sea disposal sites, and an evaluation of the hazards of harmful substances carried by ships are soon to be published.

In October, scientists from the eight agencies* which sponsor the Joint Group of Experts on the Scientific Aspects of Marine Pollution (GESAMP) met in Geneva at their twelfth session to consider summary reports from seven GESAMP Working Groups. In addition to the three approved for publication, the experts reviewed several reports still in preparation. These deal with oceanographic models for the dispersion of wastes in the deep sea, potentially harmful substances, biological effects of thermal discharge in the marine environment, the interchange of pollutants between ocean and atmosphere, and marine pollution implications of ocean energy development.

"The report of the Working Group on a Review of the Health of the Oceans is the first integrated report aiming at a global assessment of marine pollution," declares Velimir Pravdić, who chaired the session. "It reflects the dual approach adopted by the Working Group. The first provides an interfacial flux model for various pollutants entering the sea from the atmosphere or through rivers, residing and circulating within the water column, and being exchanged at the seawater/sediment interface. The other approach assesses the relative importance

of the effects of selected classes of pollutants and toxicants for the marine environment. The executive summary of the report stresses the importance of pollution control in coastal waters, closed and semi-enclosed seas as the parts of the oceans already threatened by man's activities.

"The report is intended to be presented in 1982 to the Governing Council of UNEP at the tenth anniversary of the Stockholm Conference on the Human Environment. A second integrated report is to be prepared by GESAMP in five years' time."

The report of the Working Group on Scientific Criteria for the Selection of Sites for the Disposal of Wastes at Sea was also approved.

"This report is an updated version of the one released in 1975," explains Pravdić. "It includes new material on recently-developed waste disposal methods, such as incineration at sea and capping and burial of contaminated solid wastes, and the application of remote sensing methods."

The third report approved by the session examines the activities of one of the longest serving of the GESAMP Working Groups--the group on the Evaluation of the Hazards of Harmful Substances Carried by Ships.

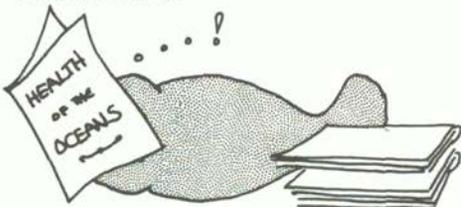
"The work of this team of scientists is one of the best examples of the practical value of GESAMP I can think of," notes Pravdić. "It constantly revises and updates the Review of Harmful Substances Carried by Ships, along with hazard profiles of these materials. These had been prepared originally by an ad hoc panel of experts of GESAMP and IMCO. The basic criteria used for these lists were considerations of commercial information on trade and transport of chemicals, and of particular conditions and circumstances in which these substances could accidentally or deliberately be released from ships. The panel's report was used as a reference document by the International Conference on Marine Pollution in drafting the International Convention for the Prevention of Pollution from Ships (MARPOL 1973). At the

* The Inter-Governmental Maritime Consultative Organization (IMCO), the Food and Agriculture Organization of the United Nations (FAO), the United Nations Educational, Scientific and Cultural Organization (UNESCO), the World Meteorological Organization (WMO), the World Health Organization (WHO), the International Atomic Energy Agency (IAEA), the United Nations (UN) and the United Nations Environment Programme (UNEP).

request of IMCO, GESAMP has since continued to evaluate the environmental hazards of some additional substances and revised the ratings of those already evaluated, as more and new information becomes available. These evaluations and the hazard profiles have become the mainstay of the International Convention for the Prevention of Pollution from Ships (1973).

The three new publications will appear as Nos. 15, 16 and 17, respectively, of the GESAMP series, "Reports and Studies."

A complete list of nearly 50 GESAMP publications and a thorough review of the history and achievements of GESAMP can be found in the booklet, GESAMP, the First Dozen Years, by Velimir Pravdić (UNEP, 1981). For a copy, apply to the Regional Seas Programme Activity Centre, UNEP, Palais des Nations, 1211 Geneva 10, Switzerland. ☒



...S-E Pacific, continued from cover

is that an organization of regional character dealing with environmental problems already existed--the CPPS. Therefore, it was most advantageous for UNEP to be able to work with the regionally-recognized and marine-oriented institution."

Francisco Szekely, Deputy Director of the Regional Seas Programme, summarizes where the programme goes from here:

"The next step is for the Governments of the region to designate their national technical focal points to be used for contacts on subjects related to the Action Plan. They will also be asked to provide information on existing national data exchange mechanisms. A General Authority and a Co-ordination Unit, both called for in the Action Plan, will be set up by CPPS. The first job of the General Authority will be to come up with concrete project proposals dealing with the three problems identified by the Governments as being of top priority. The projects will deal with (1) waste disposal, with emphasis on industrial residues and agricultural and

Erosion in West Africa, con'd from p 13

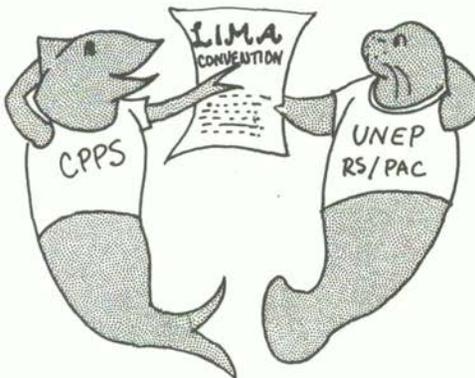
Controlling coastal erosion is obviously a complicated and potentially costly endeavour, and the results are seldom sure. The governments of West and Central Africa have decided to work rapidly to identify and evaluate incidents of erosion along the entire West African coast, to study its history and causes, to evaluate its costs to economics and societies. Only then can an effective remedy be devised and put into operation.

Understanding the causes of erosion will help the governments to avoid repeating the mistakes made previously by coastal developers. Understanding the dynamics of the process will allow them to predict its course, and establish setback lines behind which construction should be safe. Such methods are not costly, certainly less so than relying on mechanical barriers and truckloads of sand.

But whatever the cost, it cannot be as great as that of doing nothing about coastal erosion. West and Central African countries have recognized the necessity of dealing with this serious threat to their coastal environment before more mistakes are made and more damage done. ☒

mineral wastes, (2) oil pollution and (3) training of personnel for the above two activities."

The detailed outlines of these projects, along with a work plan and timetable for action plan activities, will be presented to the Governments at their first Intergovernmental Meeting on the Action Plan, scheduled for December 1982.



Szekely signs on

Francisco Szekely recently joined the Regional Seas team as Deputy to the Director, replacing Dr. Richard Helmer.



Dr. Szekely was born in 1947 in Mexico City, where he grew up. He holds an engineering degree from the National Autonomous University of Mexico, two Masters' degrees, and a PhD in Environmental Sciences and Economic Development from Washington University in St. Louis, Missouri.

Prior to joining the Regional Seas Programme, Szekely was Professor of Environmental Sciences at the Health Science Centre of the University of Texas in Houston. Before that, he was a UNEP Regional Adviser at the Office for Latin America and the Caribbean in Mexico City, and taught at the National Autonomous University. He is the author of a number of books and articles on environment and development in developing countries, including Environmental Problems in Latin America and Mexico, and Energy Alternatives in Latin America and the Caribbean.

The Siren and the Regional Seas staff give a hearty welcome to their new colleague.

COMING EVENTS

DATE	PLACE	TITLE	ORGANIZERS
9-13 Jan	Kuwait	Second meeting of the task teams on oceanography and baseline studies	ROPME
18-22 Jan	Nairobi	Meeting of government experts on regional marine programmes	UNEP
6-15 Feb	Jeddah	Regional Conference of Plenipotentiaries on the Conservation of the Marine Environment and Coastal Areas of the Red Sea and Gulf of Aden	ALECSO/ PERSGA
8-11 March	Rarotonga	Regional Conference on the Human Environment in the South-West Pacific	SPC (SPEC, ESCAP, UNEP)
29 March- 1 April		Extraordinary meeting of the Contracting Parties to the Convention for the protection of the Mediterranean Sea against pollution	UNEP
2-3 April		Conference of Plenipotentiaries on the Protocol concerning Mediterranean Specially Protected Areas	UNEP
April		Meeting of national authorities for the West and Central African Action Plan	UNEP
April		Meeting of the Steering Committee for the Marine Environment of West and Central Africa	UNEP
10-18 May	Nairobi	Session of a special character of the UNEP Governing Council to commemorate the tenth anniversary of the United Nations Conference on the Human Environment (Stockholm, 1972)	UNEP
20 May- 2 June	Nairobi	Tenth Session of the UNEP Governing Council	UNEP



THE SIBER

news from UNEP's Regional Seas Programme

TAKING STOCK



Government experts from 15 countries and representatives of 18 United Nations bodies and various intergovernmental and non-governmental organizations met in Nairobi from 18 to 21 January 1982.

Their purpose: to review the activities and achievements of the UNEP Regional Seas Programme and similar programmes sponsored by other organizations, and to formulate recommendations concerning future activities.

The results of this meeting are expected to contribute to the deliberations and decisions of the upcoming Tenth Session of the UNEP Governing Council, which is linked to activities marking the 10th anniversary of the United Nations Conference on the Human Environment (Stockholm, 1972).

The experts reconfirmed the basic premise of UNEP's Regional Seas Programme that regional action plans are an effective way to protect and develop the marine environment, including coastal areas, and to provide a sound basis for global action. More specifically, the experts supported the view that the

application of environmentally-sound management practices in coastal and maritime activities is the key to safeguarding the marine environment and that regional programmes provide an important middle step between global principles of management and national, practical implementation of those principles.

Asked to summarize the status of the UNEP Regional Seas Programme, Stjepan Keckes, Director of the Programme, reported, "The Programme at present includes 10 regions and has over 120 coastal States participating in it. Since it was initiated in 1974, action plans for eight regions have been adopted at the level of regional intergovernmental meetings or conferences of plenipotentiaries, along with five related regional conventions for the marine and coastal environment. The adoption of an additional regional convention is likely towards the end of 1982, and the adoption of action plans for the two remaining regions is envisaged for late 1983 or early 1984. UNEP was designated as the secretariat for five of the adopted action plans and for three of the regional conventions.

continued on page 6...

TRIUMPH in the South Pacific



An Action Plan for managing the natural resources and environment in the South Pacific Region was adopted on 11 March in Rarotonga. This is the eighth such plan to be developed as part of the UNEP Regional Seas Programme.

Representatives of 21 governments, meeting at the four-day Conference on the Human Environment in the South Pacific, also adopted a South Pacific Declaration on Natural Resources and the Environment, and approved institutional and financial arrangements for implementation of the Action Plan.

"Participants at this long-awaited Conference did more than approve documents," commented I. Short, Cook Islands Minister of Internal Affairs and Conservation and Chairman of the Conference. "This was an excellent opportunity for high-level government representatives from the South Pacific countries to exchange their views on environmental issues and to discuss policies and procedures for environmentally-sound development of their region. And I am happy to report that their discussions were extremely practical and to-the-point, thanks to the wealth of background material they had on hand--the result of many months of work on the part of the region's scientists and planners."

The background papers included an overview on the state of the environment

in the South Pacific region, an overview of development trends, their environmental consequences and the contribution of environmental management to development, and 18 country reports and 13 topic reviews (see Siren No. 14).

In his opening remarks to the Conference, Peter S. Thacher, Deputy Executive Director of UNEP, expressed UNEP's gratitude for the years of effort on the part of the organizations which initiated the South Pacific's regional environmental programme, now known as SPREP--the South Pacific Bureau for Economic Co-operation (SPEC), the South Pacific Commission (SPC) and the Economic and Social Commission for Asia and the Pacific (ESCAP). "This regional action plan is a perfect example and component of UNEP's Regional Seas Programme," he stated, "and UNEP is ready to continue its association with your programme, to co-operate with you on the terms defined by the Conference and to share with you our experience gained in other regions."

The main objectives of the action plan adopted by the conference are to:

-- further assess the state of the environment in the region including the impacts of man's activities on land, fresh water, lagoons reefs and oceans,

-- improve national legislation and regional agreements on environmental issues,



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Articles may be freely reprinted with or without reference to The Siren.

Please address all correspondence to: Siren, UNEP, Palais des Nations, 1211 Geneva 10, Switzerland.

-- develop management methods suited to the needs of the region that would enhance the quality of the environment,

-- strengthen national and regional capabilities, institutional arrangements and financial support needed for effectively implementing the action plan.

The South Pacific Declaration on Natural Resources and the Environment, as adopted by the Conference, declares that:

1. The resources of land, sea and air which are the basis of life and cultures for South Pacific peoples must be controlled with responsibility, and safeguarded for the benefit of present and future generations, through sustained resource management.

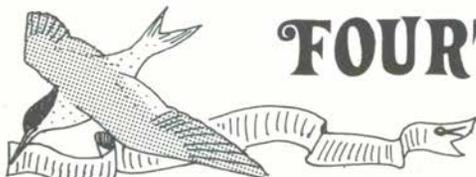
2. Integrated environmental, economic, social and resource planning and

management is essential to ensure sustainable rational use of the land and sea resources of the region, and the greatest enhancement of human well-being.

3. An effective programme of public information, education and training is necessary to promote basic environmental understanding by the people, as well as the skills necessary for effective environmental assessment and management.

4. Appropriate and enforceable legal instruments and institutional arrangements are a necessary basis for effective integration of environmental concern with the whole development process.

continued on page 11...



FOURTH PROTOCOL ON THE WAY

Early April is likely to see the signing of a fourth Mediterranean protocol to the 1976 Barcelona Convention. The draft protocol concerning specially-protected areas will be presented to a Conference of Plenipotentiaries from 2-3 April 1982. The goal of the protocol is to protect marine areas considered especially important in terms of the natural resources and cultural heritage of the Mediterranean.

"The chances of the protocol being approved and signed at this diplomatic conference are extremely good," comments Aldo Manos of UNEP, who directs the Mediterranean Co-ordinating Unit. "Negotiations have been running smoothly and, except for a few remaining minor difficulties, the text seems to meet with everyone's satisfaction."

The minor difficulties in the four language versions of the text mentioned by Manos should be resolved by a Working Group of legal experts established by the meeting of Contracting Parties to be held immediately prior to the diplomatic conference (29 March - 1 April).

"The Extraordinary Meeting of the Contracting Parties to the Barcelona

Convention is being held in addition to the regularly-scheduled bi-annual meeting of the Contracting Parties," explains Manos. "Not only is it necessary to apply the finishing touches to the draft protocol, but a number of other difficulties must be discussed and resolved. These result largely from projected deficits in the budgets for 1982 and 1983, which means that the budget and work programme for this period must be revised. Contributions to the Trust Fund have to be reapportioned, and a decision made among proposed alternatives for investment and administration of funds.

"This has all been made necessary by the rather grim financial situation in which the Mediterranean programme found itself throughout 1981. Fortunately, the European Economic Community has just decided on a major increase in its contribution to the Mediterranean programme, while several countries appear to have resolved bureaucratic difficulties that delayed payments in 1981.

"These developments," Manos concludes, "and the impending adoption of the new protocol, should contribute a share of brightness and optimism to the March proceedings." ☺

KAP:

CONSCIOUSNESS-RAISING



Several recommendations for increasing the environmental awareness of the general public living along the shores of the Kuwait Action Plan (KAP) Region were outlined at a meeting of government experts held in Muscat, Sultanate of Oman, in December 1981.

"Public awareness of environmental issues is easy to talk about, but not so easy to bring about," asserts Jasim Al Shatti, the KAP consultant who prepared the main working paper for the meeting. "This meeting was held in the belief--reflected in the Kuwait Action Plan itself--that it is extremely important to have a public which is not only informed about, but participating in, regional efforts to protect the environment."

In fact, the Action Plan calls for "systematic and regular campaigns for public awareness of environmental issues in the region." The 26 government experts from seven countries were called on to describe the nature, subject matter and objectives of such campaigns.

"The meeting recommended that emphasis be placed on the aesthetic, socio-economic and cultural values of the region, and that the environment as a whole should be considered instead of just the coastal areas," notes Abdullatif Alzaidan, Acting Co-ordinator of KAP. "What is called for is a gradual change in basic attitudes--the development in each person of a sense of responsibility towards his or her environment. This implies that we need a programme aimed largely at school-children, and which

deals with local, as well as regional and national, problems. And the ultimate aims of the campaigns is participation of the people in environmental action. Education and dissemination of information is simply the way this might be encouraged.

The experts felt the need for a high level of activity on the part of the Regional Organization and recommended that a full-fledged Department for Public Awareness be created in the secretariat.

Specific activities to be undertaken as part of the KAP Environmental Awareness Programme include preparation of two documentary films, an entire television film series on environmental issues of the region, a workshop to train people in public awareness activities, and preparation of informal materials including a newsletter, posters, calendars, booklets, and educational materials for use in schools. The programme will be co-ordinated by the secretariat of the Regional Organization for the Protection of the Marine Environment in Kuwait, with assistance from an advisory group made up of, or appointed by, the National Focal Points. ☒

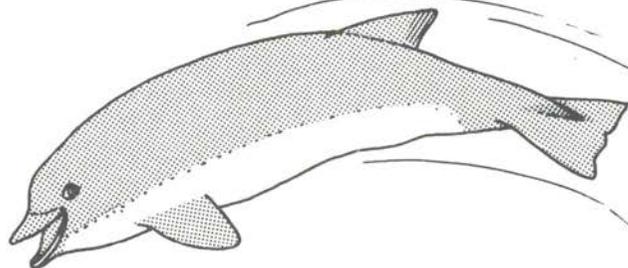
MORE ON REGIONAL SEAS

A report entitled "Protection of the marine environment by the United Nations" has recently been published by C.N.E.X.O (Centre Nationale pour l'Exploitation des Océans) as part of its series "Rapports économiques et juridiques" (No.9, 1981). The author, Michel Falicon, is Deputy Director of the Centre d'Etudes et de Recherches sur le Droit des Activités Maritimes of the University of Nice.

The 136-page report focuses on the Regional Seas Programme--its history, its role in catalysing international co-operation in marine environmental protection, its activities in the ten Regional Seas, and its legal and institutional aspects.

The report costs 150 F and can be ordered from SECTION DOCUMENTATION, Centre Océanologique de Bretagne, BP 337, 29273 Cedex (France).

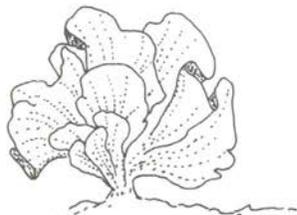
RED SEA COUNTRIES GET THE



The coastal States of the Red Sea and Gulf of Aden have taken steps to head off environmental damage to their common region before it starts.

Meeting in Jeddah from 13 to 15 February 1982, plenipotentiaries from seven countries of the region adopted and signed an Action Plan, a Regional Convention for the Conservation of the Red Sea and Gulf of Aden Environment, and a Protocol concerning Regional Co-operation in Combating Marine Pollution by Oil and Other Harmful Substances in Cases of Emergency.

"This Conference represented the culmination of eight years of effort," announced Dr. Abdul-Ilah Banaja, Executive Director of the ALECSO-sponsored Red Sea and Gulf of Aden Environment Programme (PERSGA). "The programme adopted in Jeddah goes well beyond the original environment programme under way since 1974, which mainly emphasized training of personnel in marine environmental fields of study. This Action Plan is much more comprehensive, and is given a strong legal base by the Convention and Protocol. Its activities are oriented towards environmental management, and aimed at preventing damage to the marine and coastal environment by expanding socio-economic activities in the region."



ON POLLUTION

The major incipient threats to the region's environment are thought to come from oil transport, offshore exploration and exploitation, port activities and the planned siting of huge industrial complexes in the coastal zone.

"The quick adoption of this programme encourages us to believe that these threats can be headed off completely," added Banaja, "leaving the Red Sea and Gulf of Aden environment as clean, healthy and undisturbed as it has been up to now."

Indicative of their commitment to the programme is the \$6 million budget adopted by the States for the next two years (1982-83). The Jeddah Conference also decided to establish a Regional Organization to oversee Action Plan implementation and to serve as secretariat to the Convention.

"This budget consists almost entirely of regional funds," comments Mohamed Tangi, a UNEP Programme Officer. "In this region, UNEP's contribution is limited to the environmental assessment component of the Action Plan and advisory services on other elements. Although the running of the programme is entirely in the hands of ALECSO and PERSGA, the programme has benefited to a large extent from the experience gained in the implementation of UNEP-sponsored Action Plans in the other Regional Seas." ☞

"Regional marine programmes are not a new phenomenon," Keckes explained. "The first such programme, ICES, has been operating since 1902."

The 1972 United Nations Conference on the Human Environment outlined a "master plan" for the world's environment which linked environmental assessment, environmental management and supporting measures as basic and inseparable elements and recognized the advantages of a regional approach in contributing to the solution of global problems. However, the viability of any long-term regional programme is determined by the political and financial commitment of Governments

concerned.

The development of UNEP's Regional Seas Programme since the action plan for the Mediterranean was adopted in 1975 demonstrated that the basic concepts formulated at Stockholm can effectively foster regional co-operation among interested States and that such co-operation benefits greatly from the support of the United Nations system as a whole.

"Without the help of the specialized agencies of the United Nations and of numerous other intergovernmental and non-governmental organizations, UNEP couldn't have achieved the progress it has up until now. We share with them any and all credit for the programme's success so far," concluded Keckes.

regional seas



Here is a brief review of the major events in the ten regions covered by the Regional Seas Programme:

Mediterranean

The Mediterranean Action Plan was adopted at an Intergovernmental meeting in Barcelona in February 1975. Geographically it covers the Mediterranean Sea proper between the Straits of Gibraltar and the Straits of the Dardanelles and the adjacent coast. The extent of the coastal zone covered by the Action Plan is defined according to each particular activity by the Governments of Spain, France, Monaco, Italy, Yugoslavia, Greece, Turkey, Cyprus, Syria, Lebanon, Israel, Egypt, Libya, Malta, Tunisia, Algeria and Morocco. The EEC also participates in the programme.

The Action Plan includes:

- integrated planning of the development and management of the resources of the Mediterranean Basin;

- a co-ordinated programme for research, monitoring and exchange of information, and assessment of the state of pollution and of protective measures;

- a framework convention and related protocols; and

- institutional and financial arrangements supporting the implementation of the action plan.

The Convention for the Protection of the Mediterranean Sea against Pollution (Barcelona Convention), the Protocol for the Prevention of Pollution of the Mediterranean Sea by Dumping from Ships and Aircraft, and the Protocol concerning Co-operation in Combating Pollution of the Mediterranean Sea by Oil and Other Harmful Substances in Cases of Emergency were signed at a conference of plenipotentiaries in Barcelona in February 1976. The Convention and its protocols entered into force in 1978.

An additional protocol, the Protocol for the Protection of the Mediterranean Sea against Pollution from Land-Based Sources, was signed at a conference of

plenipotentiaries in Athens in May 1980, and a Protocol concerning Mediterranean Specially Protected Areas is expected to be signed in Geneva in March 1982.

The Convention and its protocols apply to "the maritime waters of the Mediterranean Sea proper, including its gulfs and seas, bounded to the west by the meridian passing through Cape Spartel lighthouse, at the entrance of the Straits of Gibraltar, and to the east by the southern limits of the Straits of the Dardanelles between Mehmetcik and Kumkale lighthouse."

In the framework of the Action Plan the pilot phase of the Co-ordinated Mediterranean Pollution Monitoring and Research Programme (MEDPOL) was carried out by 86 national laboratories in 16 Mediterranean States during the period 1976-1981. It included baseline studies and monitoring of oil and petroleum hydrocarbons; metals, particularly mercury; DDT, PCBs and other chlorinated hydrocarbons; research on the effects of pollutants on marine organisms, communities and ecosystems; studies on problems of coastal transport of pollutants; and coastal water quality control. A thorough survey of pollutants from land-based sources was prepared and used in negotiating the Protocol for the Protection of the Mediterranean Sea against Pollution from Land-based Sources. The intercalibration of analytical methods used for organochlorine residues and metals was organized, as was the maintenance (regular and emergency services) of oceanographic and analytical equipment.

In 1981 the Contracting Parties to the Barcelona Convention endorsed a

long-term (1981-1991) pollution monitoring and research programme (MEDPOL - PHASE II), covering four different and complementary monitoring activities: monitoring of pollution sources, monitoring of coastal areas including estuaries, monitoring of offshore reference areas, and monitoring of transport of pollutants through the atmosphere. Twelve research projects ranging from the development of reference methods and environmental quality criteria to studies of basic oceanographic processes and toxicity, carcinogenicity and epidemiology of selected pollutants of special relevance to the Mediterranean region were also approved as part of MEDPOL - PHASE II.

Through MEDPOL, environmental quality criteria, needed for harmonized, region-wide environmental management and pollution control, are being developed. They include microbiological criteria for recreational and shellfish-growing waters and criteria on mercury in sea-food. Both, as they stand today, recommend a less stringent standard than that applied, at least theoretically, in most of the Mediterranean States.

The Blue Plan calls for systematic surveys of major development and environmental protection activities and for the development of action-oriented alternative development policies based on the findings of the surveys. The Priority Actions Programme focuses on the application of sound environmental practices which require immediate action in selected priority areas; e.g., protection of soil, management of water resources and of living resources and aquaculture, development of renewable sources of energy, human settlements and tourism.



In 1976 the Regional Oil Combating Centre was established in Malta to further the objectives of the Protocol on Co-operation in Combating Pollution of the Mediterranean Sea by Oil and Other Harmful Substances in Cases of Emergency. The objectives of the ROCC are to facilitate co-operation among the Mediterranean States in order to combat massive pollution by oil, to assist the States in the development of their own national capabilities, and to facilitate information exchange, technological co-operation and training.

UNEP was designated as the secretariat of the Action Plan and the Barcelona Convention.

Kuwait Action Plan Region

The Kuwait Action Plan was adopted at a conference of plenipotentiaries in Kuwait in April 1978. Geographically it covers the sea area bounded in the south by the rhumb line defined by the Kuwait Convention and the adjacent coastal areas identified by the Governments of Bahrain, Iran, Iraq, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates. The extent of the coastal area covered depends on the type of activities to be carried out and will be defined by each State accordingly.

Similarly to the Mediterranean Action Plan, the Kuwait Action Plan has an environmental assessment, an environmental management and a legal component, and provisions for institutional and financial arrangements supporting their implementation.

At the same conference the Regional Convention for Co-operation on the Protection of the Marine Environment from Pollution (Kuwait Convention) and the Protocol concerning Regional Co-operation in Combating Pollution by Oil and Other Harmful Substances in Cases of Emergency were signed. Both legal instruments

entered into force in 1980. The Convention applies only to the sea area of the region.

The conference also decided to establish in Bahrain a Marine Emergency Mutual Aid Centre.

The first projects of the Action Plan were begun in 1979 and included surveys of environmental problems, baseline studies of pollution and oceanographic studies. These are currently being implemented as a pilot phase which will end in December 1983. Appropriate steps have been taken to ensure compatibility of data generated through these projects with data developed in other regional programmes through the adoption of common methods of sampling and analysis as well as through the intercalibration of analytical methods.

UNEP was designated, on an interim basis, as the secretariat of the Action Plan and the Convention. According to the provisions of the Convention a Regional Organization for the Protection of the Marine Environment (ROPME) was established and assumed responsibility for the secretariat function in early 1982.



Wider Caribbean

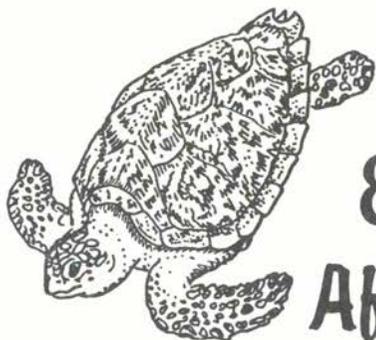
The Action Plan for the Wider Caribbean was adopted at an intergovernmental meeting at Montego Bay, Jamaica, in April 1981. Geographically, it covers the insular and coastal States and Territories of the Caribbean Sea and the Gulf of Mexico, including the Bahamas, Guyana, Suriname and the French Department of Guiana, as well as the waters of the Atlantic Ocean adjacent to those States and Territories.

The Action Plan places a strong emphasis on the links between the environmental assessment and environmental management components. It also defines supporting institutional and financial

arrangements. Regional projects of high priority expected to be carried out in the initial phase of the action plan include watershed management, oil spill control, public awareness campaigns and environmental impact assessment.

Negotiations are under way for a Convention for the Protection and Development of the Marine and Coastal Environment of the Wider Caribbean Region and on a Regional Agreement concerning Co-operation in Combating Oil Spills. The adoption of these legal instruments is expected in late 1982 or early 1983.

UNEP was designated as the secretariat of the Action Plan.



East Africa

The development of an action plan for East Africa is in its preliminary stage. A fact-finding mission visited the eight East African States (Comoros, Kenya, Madagascar, Mauritius, Mozambique, Seychelles, Somalia and Tanzania). Based on their reports and a regional workshop a draft action plan will be prepared and submitted to the Governments of the region for their consideration.

West and Central Africa

The Action Plan for West and Central Africa was adopted at a conference of plenipotentiaries in Abidjan in March 1981. Geographically it covers the marine environment and coastal areas of the region identified by the Governments; the extent of the coastal area to be defined according to the type of activity to be carried out. The Action Plan contains environmental assessment, management, legal and support components. In particular, it calls for the development of regional activities, in the initial phase of its application, related to contingency planning for environmental emergency cases, control of coastal erosion and monitoring of marine pollution.

At the same conference the Convention for Co-operation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region (Abidjan Convention) and the Protocol concerning Co-operation in Combating Pollution in Cases of Emergency were adopted and opened for signature.

UNEP was designated as the secretariat of the Action Plan and the Abidjan Convention.

East Asian Seas

The Action Plan for East Asian Seas was adopted at an intergovernmental meeting in Manila in April 1981. Geographically it covers the marine environment on coastal areas of Indonesia, Malaysia, Philippines, Singapore and Thailand, without prejudice to its future extension so as to cover the marine environment on a coastal area of all States bordering the East Asian Seas as may be determined at a later stage.

A large number of regional projects related to environmental assessment and management of the coastal areas is envisaged by the adopted Action Plan, but in the initial phase priority will be given to those dealing with basic oceanography, control of coastal pollution, protection of mangroves and coral reefs and waste management.

UNEP was designated as secretariat of the Action Plan.

continued...

Red Sea & Gulf of Aden

The Action Plan for the Red Sea and Gulf of Aden was adopted at an inter-governmental conference in Jeddah in January 1976, and reoriented at a conference of plenipotentiaries in Jeddah in February 1982. The Action Plan calls for efficient conservation and management of the coastal and marine environment and its resources.

The 1982 conference of plenipotentiaries also adopted and opened for signature the Convention for the Conservation of the Marine Environment of the Red Sea and Gulf of Aden (Jeddah Convention) and the Protocol concerning Regional Co-operation in Combating Marine Pollution by Oil and Other Harmful Substances in Cases of Emergency. Seven parties have signed the legal agreements to date.

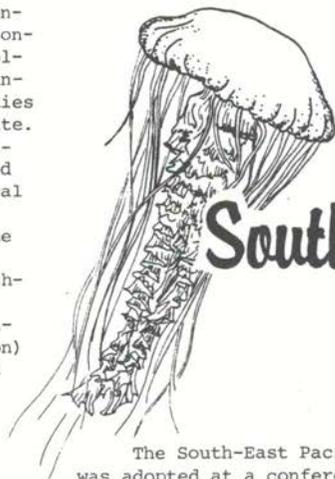
The Red Sea and Gulf of Aden Environment Programme (PERSGA) is sponsored by the Arab League Educational, Cultural and Scientific Organization (ALECSO). The PERSGA office was designated as the secretariat of the Action Plan on an interim basis; i.e. until the establishment of the Regional Organization for the Conservation of the Marine Environment (as provided for in the Convention) which will then assume the secretariat functions for PERSGA and the Jeddah Convention.

South-West Pacific

The Conference on the Human Environment in the South Pacific was convened in Rarotonga, Cook Islands, in March 1982.

The Conference reviewed the state of the environment in the South Pacific, adopted a regional Action Plan, signed a declaration on natural resources and the environment, and endorsed the proposal for institutional and financial support for the implementation of the South Pacific Regional Environment Programme (SPREP).

The geographic coverage of the Action Plan includes the coastal waters and the adjacent coast of States and Territories of the South Pacific Commission (SPC) and the South Pacific Bureau for Economic Co-operation (SPEC); i.e., American Samoa, Cook Islands, Fiji, French Polynesia, Guam, Kiribati, Nauru, New Caledonia, Niue, Norfolk Islands, Papua-New Guinea, Pitcairn Island, Solomon Island, Tokelau, Tonga, Trust Territories of the Pacific Islands, Tuvalu, Vanuatu, Wallis and Futuna Islands and Western Samoa.



South-East Pacific

The South-East Pacific Action Plan was adopted at a conference of plenipotentiaries in Lima in November 1981. The geographic coverage of the Action Plan comprises the marine environment and Pacific coastal areas of Chile, Colombia, Ecuador, Panama and Peru.

The Action Plan calls for the implementation of a large number of regional projects to assess the sources and magnitude of marine pollution and to control it through appropriate management techniques.

The same conference adopted the Convention for the Protection of the Marine Environment and Coastal Areas of the South Pacific (Lima Convention), the

Agreement on Regional Co-operation in Combating Pollution of the South-East Pacific by Hydrocarbons and Other Harmful Substances in Cases of Emergency, and the institutional and financial arrangements for the implementation of the Action Plan.

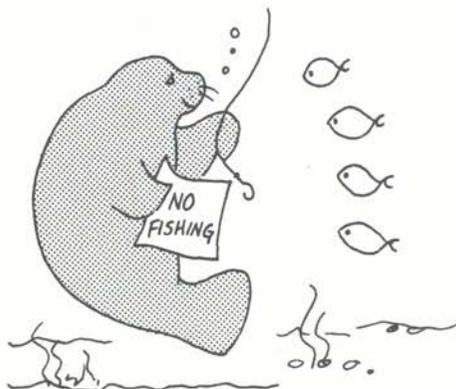
The Permanent Commission for the South Pacific (CPPS) was designated as the secretariat of the Action Plan and the Lima Convention.

South-West Atlantic



The development of an action plan for the South-West Atlantic (coastal regions of Argentina, Brazil and Uruguay) is in an early preliminary stage.

NOTE: The documentation reviewing the achievements of regional programmes and the contribution of these programmes to the control of marine pollution on a global scale, as well as the report of the meeting containing the recommendations for future activities are available from the UNEP Regional Seas Programme Activity Centre. ☺



...continued from page 3

5. A system of designated areas such as national parks as reserves is essential for the protection of traditional use of resources, and should be included in resource use planning.

6. The economic utilization of resources, particularly forests and fisheries, should be based upon reliable information to ensure sustainable production without over-exploitation or damage to the environment and affected peoples.

7. Management of the growth and distribution of population should be encouraged to ensure adequate management of natural resources and to maintain adequate standards of human well-being.

8. The rate and nature of discharges of non-nuclear wastes shall not exceed the capacity of the environment to absorb them without harm to the environment and to the people who live from it.

9. The storage and release of nuclear wastes in the Pacific regional environment shall be prevented.

10. The testing of nuclear devices against the wishes of the majority of the people in the region will not be permitted.

11. The vulnerability of much of the region to environmental and economic damage from natural and man-made disasters requires the development of national and regional contingency plans and prevention programmes.

12. Regional co-operation should be further developed as an effective means of helping the countries and territories of the South Pacific to maintain and improve their shared environment and to enhance their capacity to provide a present and future resource base to support the needs and maintain the quality of life of the people.

13. Traditional conservation practices and technology and traditional systems of land and reef tenure adaptable for modern resource management shall be encouraged. Traditional environmental knowledge will be sought and considered when assessing the expected effects of development projects.

14. Involvement and participation of directly affected people in the management of their resources, including the decision-making process, should be encouraged. ☺



STRONG MEDICINE FOR THE ENVIRONMENT

As the main architect of the environmental movement within the United Nations system, Maurice Strong is well-qualified to evaluate the success of that movement in the ten years since the Stockholm Conference on the Human Environment.

From 1970-72, he was Secretary-General of the Stockholm Conference and Under-Secretary-General of the United Nations. He then became UNEP's first Executive Director, a post he held until 1975. He has since held a number of important offices in international environmental organizations and in Canadian government and business, and is currently Chairman of the International Energy Development Corporation. Until recently he was Chairman of the Bureau of the International Union for Conservation of Nature and Natural Resources (IUCN) and Vice-President and member of the Executive Council of the World Wildlife Fund International.

Maurice Strong is a forceful exponent of the idea that business and environmental interests of a society are entirely compatible under the right conditions. He discusses this viewpoint, and the outlook for the environment ten years after Stockholm, in the following interview.

The Siren: In the light of what has been achieved in the last ten years, were the goals of Stockholm realistic?

Maurice Strong: I would say that they were realistic in terms of what is required, but perhaps not in terms of the willingness of people and governments to do what is required. Ten years after Stockholm a good many of the priorities of the Stockholm programme remain unfulfilled.

However, we should all recognize the fact that much of what the Conference recommended could not by its very nature be accomplished in one generation, much

less in ten years. And there has been progress in these ten years; a good many positive things have happened.

Such as?

The environmental movement has become deeply embedded in the consciousness of people at the grass-roots level. Almost every poll taken (in countries where polls are taken) discloses that these issues continue to be felt deeply by people and that most people are willing to make some personal sacrifice to protect the environment. The energy crisis gives us a good example of this:

higher energy costs, anticipation of shortages, and an awareness that a crisis exists has created a significant reduction in energy use.

Another Stockholm accomplishment was to sensitize world opinion and governments to basic environmental issues, which gave rise to the creation within governments of responsible environmental policies and institutions. Before Stockholm, only the OECD* countries really had environmental organizations as part of their governmental structures. Since then a world-wide environmental network has been put into place.

Much of this was accomplished through the help that came from and through UNEP to national governments in the developing countries which allowed them to develop their own environmental policies and organizations. UNEP's Regional Seas Programme is one of the very positive examples of an initiative on the international level that would not have been taken without Stockholm. And I consider INFOTERRA** and GEMS*** very tangible, if not yet very dramatic, examples of effective international action.

There have been a lot of individual success stories as well. For example, the quality of air in some of the cities of the industrialized world has improved, as has water quality in many areas. Now we know that it can be done, and recent advances in technology have rendered many problems capable of solution.

Does this mean we are on the way to solving them?

Unfortunately, even with these environmental success stories, there has been a deepening of the environmental crisis. But now more than ever the crisis is one of our will rather than our capacity. We have the capability to resolve most major environmental issues, but we have not demonstrated the will to do so. One of the reasons of course is the worsening economic situation, meaning that short-term problems have taken precedence over longer-term dangers of the kind that most environmental risks pose.

If you compare what has been done with what is really required on a global level to deal effectively with the larger

environmental issues--acid rain, the march of the deserts, contamination of the oceans and the food chain, man-induced climate change, destruction of forests and soil, extinction of species all of which represent the real source of the world's wealth--there has been too little progress. These issues constitute a threat to human existence and well-being that is as great as, or greater than, that of nuclear war. But it is much more difficult to deal with because it is a silent threat. There are few moments when the threat becomes dramatic enough for people to feel it in their daily lives.

Isn't one of the criticisms of the Stockholm Conference that the environmental situation was over-dramatized, with unfounded predictions of disaster?

I don't think that is a valid criticism because it really was not over-dramatized. There were voices of that kind raised at Stockholm, but if you examine the record of the Conference itself, we deliberately avoided such dramatics. I think the warnings we sounded were sober, and that they have been largely substantiated since then.

Nobody said the world would come to an end by the tenth anniversary of Stockholm. What we did say was that if we do not begin to deal with these issues seriously within our generation time was going to run out, and every year in which

continued...



* Organisation for Economic Co-operation and Development

** International Referral System of UNEP

*** Global Environmental Monitoring System of UNEP

we failed to address these problems was going to make it much more difficult until we reached the point of no return. We may not have reached that point yet, but we are even closer to it than we were at Stockholm.

No, I can't think of a single instance where the warnings sounded--in the official record, that is--were too extreme. In fact, I would say in the light of our experience in the last ten years that some of them should have received more stress.

Another criticism of the Stockholm Conference was that it did not consider the hard economic truth that environmental improvement has to be purchased with economic resources.

Again, if you will look at the Conference itself, instead of what was said by people independently in and around Stockholm, you will find that indeed a major emphasis was placed on the trade-offs between economic and environmental considerations. If there is any one thing the Conference did focus on, it was that the developmental side of human affairs and the environmental side needed to be brought together. This was my own major theme, as one of the persons involved in Stockholm.

It may be true that people reading about Stockholm in the press cannot distinguish what was said at the Conference from what was said by extremists (who made their own very important contribution, I might add. Sometimes it takes extremists to move people, even though

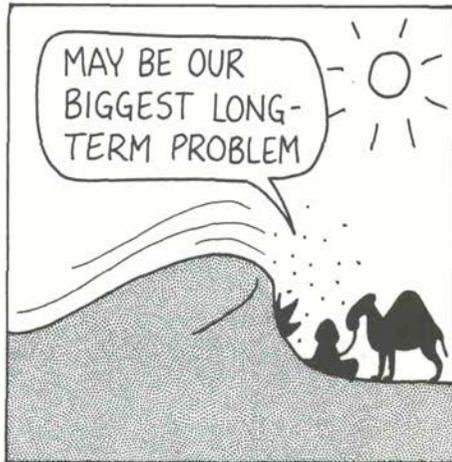
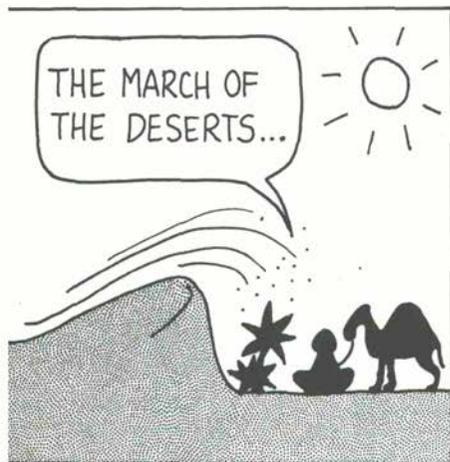
they can end up looking too one-sided on the issues).

I do believe, however, that many of the environmental issues are in fact of greater importance than the immediate economic issues. I mean those issues which involve permanent destruction of something vital to human life--our rare and precious natural heritage. These really do outrank immediate economic considerations, except in cases where survival itself is at stake.

At the same time, I believe strongly that it is possible to deal with the major environmental risks in ways that are fully compatible with our broad economic interests. Stockholm sounded this note very loudly. Of course, it will mean changes in some of our economic activity and in the motivation of that activity, but fundamentally there is no question that environmental sanity and dealing constructively with the threats to the environment do not require abandonment of economic growth. It does require significant modification in the processes of growth, but economic health is entirely compatible with our environmental objectives.

Ten years ago it was said that governments were lagging far behind public concern for the environment. Do you think that they have caught up yet?

In most cases, no. On the whole, people are still ahead of their governments. In the United States, for example, the Government lags well behind public opinion on environmental issues.



But public concern is being fed back through the U.S. political process and the administration is responding to this by moderating some of its harder-line attitudes.

What are the chances of mobilizing public opinion in the developing countries?

You certainly don't have to convince people in the developing countries that their lives and their well-being are affected by the environment. These are issues of survival to them--the facts of day-to-day life. You may not get much response when you talk about "the environment" in abstract terms to a family living in a shack on the outskirts of an African city or in a village in India. But you will if you talk to them about their problem of fuel supply. They will tell you that they have to go further today than they did yesterday for wood, it's harder to find, and they may even have to pay for it. They are seeing the forests recede before their eyes, and while they know that this is bad, they have to make a trade-off between today's need for fuel and their long-term concern for the forests. Of course daily survival is going to come first.

How can they escape such a situation?

The only answer is for them to become part of the economic system that offers people hope for a better life. If they can see that they can live and improve their lot by becoming part of the larger

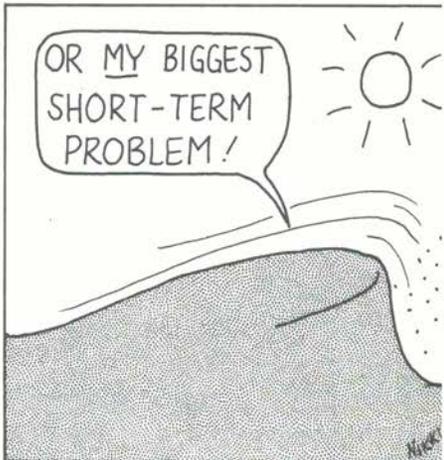
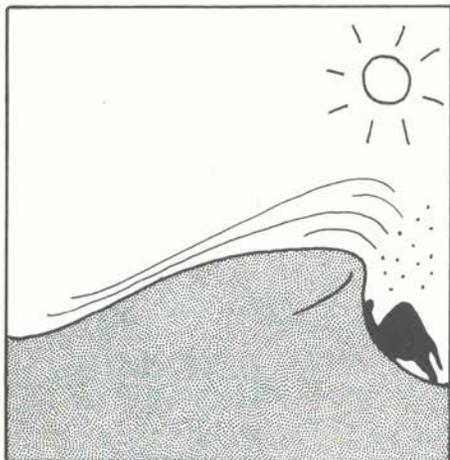
economy, by benefiting from some of the wealth that technological civilization now able to create, then their motivations for living according to short-term considerations in a manner which is destructive to the environment will disappear. They too are concerned about the future and future of their children, but they simply cannot afford to translate that concern into action if it threatens their immediate survival.

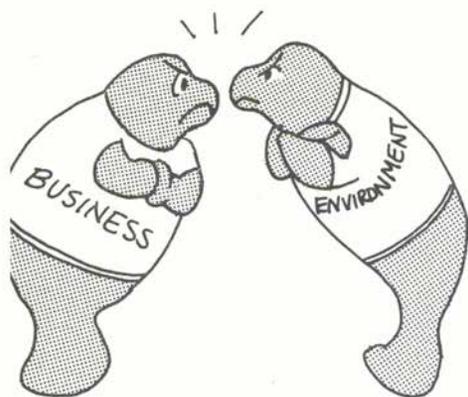
Couldn't the very same thing be said for business--that concern for survival the short term will always take precedence over the environmental concerns of society?

Of course there is that element in business, but business cannot be considered apart from the rest of society. Business, its value systems and the behaviour of businessmen are all very much a product of the society as a whole.

I think that most businessmen are quite prepared to see changes take place provided they do not affect the economic viability of business and industry itself. After all, business and industry are important assets in our society--they provide jobs, generate careers and provide goods and services that we need. We have to be concerned about the health of that side of our society--it's a balancing exercise. But in fact there has been a very significant accommodation by business to the environmental movement and environmental regulations in the last few years.

continued...





In return, many businesses have benefited from the environmental movement because of the demand for pollution control equipment, automobile emission control systems, for less polluting forms of energy and for new methods to conserve materials. All of these have created economic disruptions in some areas, but by the same token have created new economic opportunities.

How can business best be persuaded to change?

First of all, a climate is required in which public opinion and government legislation is designed to create incentives for business to do the right thing, and corresponding penalties to deter them from doing the wrong thing.

Then, a formula should be found in which they are not going to be unduly disadvantaged. This can be done by making sure that everybody in their industry has the same set of rules, that these rules are fair and realistic and that they can be implemented over a reasonable period of time.

Thirdly, industry, government and public interest groups should co-operate to try to find that balance which is most appropriate for society and not destructive of the environment or our resources, and yet which permits the kind of economic activity that people also need.

Can we really expect a particular business to do more than try to survive and make its profits as best it can?

I think society has a right to expect that businessmen will conduct

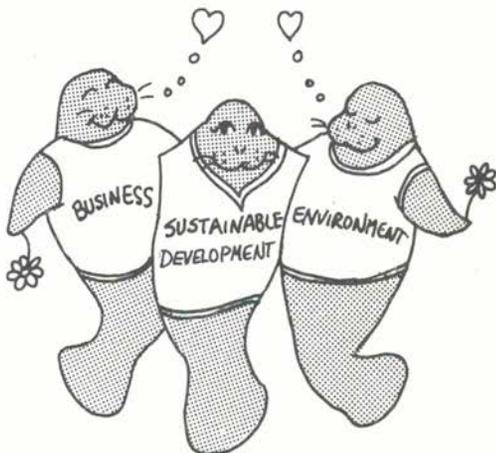
themselves responsibly. And I think there should be a lot more self-policing by industry, which would decrease the need for government regulation.

Business can be an engine for positive change as well. The business community has a long history of change and innovation, but its criterion for change is narrow: profitability. Recognizing that, if you want to make them take the lead in effective and desirable change you have to make it economically attractive for those changes to take place.

Do you think there will ever be enough weight on the side of environmentalists in a business-oriented society to bring about such change?

It is the society itself which has to bring about the change. We cannot expect environmentalists to shoulder the entire society's responsibility to protect its environment. The role of environmentalists is to sound the alarm, to inform the society about environmental issues, to propose solutions, and to help implement them. Those solutions will involve the whole society--environmentalists will merely help to bring about the change required.

Now, ten years after Stockholm, a system-wide mid-term planning exercise on environmental policy for the next ten years is under way. What should be included in this mid-term plan, and how should it be administered?



That's a large question, and I'll have to give you an over-simplified answer. I think there's no question that what UNEP should deal with primarily are those issues that require co-operation among a number of governments. The mid-term plan, at the level of UNEP's involvement, should be heavily concentrated on the larger issues, both because UNEP is the only global environmental agency, and because the larger issues we have mentioned are of such a magnitude that they need to be dealt with immediately.

The contamination of the oceans is one of these issues, and I think the Regional Seas Programme is a good start. However, it would be wrong to think we have solved the problems of the oceans simply because we have made some progress. What we have with the Regional Seas Programme is a mechanism which is in place in a number of areas and which needs very much to be supported and strengthened. So, I think that very high priority should be given to the Oceans programme of UNEP, and especially Regional Seas.

There also has to be a major effort in environmental education, because what is needed is a fundamental change in attitudes and behaviour, and a great deal has to start at the level of the educational system.

Then, I think that the whole information role is extremely important, including the strengthening of INFOTERRA and GEMS. The system is in place, it is functioning, and is just at the beginning stages of its usefulness. We now have in most countries a cadre of people who have environmentally-related responsibilities and who are receptive to receiving and applying the stream of knowledge generated by such internationally-managed information systems.

Another issue which should be addressed is the destruction of plant and animal life, and programmes to preserve genetic resources should be given emphasis in the mid-term plan.

The catalogue is not exhaustive, but is an illustration of some elements I believe need to be included in the programme.

We've talked about what the Stockholm Conference said, but is there anything it left out that has become a problem in the last ten years--anything that you forgot?



MAURICE STRONG

I don't know of anything...after all, it was a global meeting with inputs from scientists and institutions from around the world, so there haven't been any major issues that have surfaced since Stockholm that didn't get at least some attention.

A lot of things were not given adequate emphasis. I don't think there was enough emphasis on the CO₂ problem, but the evidence at that stage was inconclusive and the subject very controversial. Since then there has been new evidence that supports the view that there is a very important global risk from the release of CO₂ into the atmosphere, and that the problem may begin to have serious repercussions much sooner than was originally thought. Even those who do not yet consider the evidence conclusive are prepared to admit that the implications for human life and human welfare are severe.

This is just one example of a case where evidence has accumulated and yet very little has been done to deal with the issue itself. The acid rain problem is another issue that has been proven to be much more acute than was thought at the time.

Is there anything else?

There was, of course, one extremely important subject that did not get the attention it required, and still doesn't.

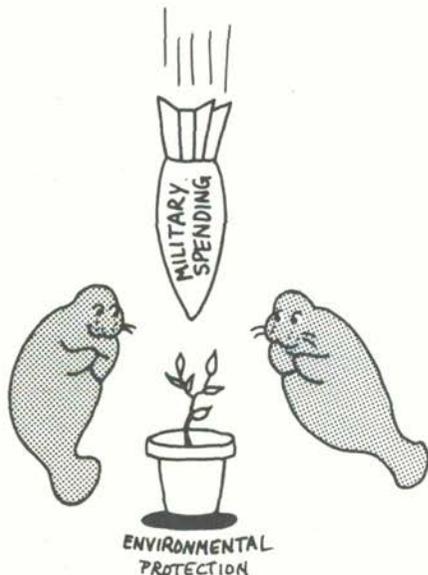
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Political conditions simply would not permit us to deal with it properly. I mean of course the whole military area. This includes the blatant misappropriation of human, material and economic resources as well as the completely unmonitored impacts on the environment.

The military has remained exempt from every consideration of environmental control, and there has never been any real monitoring of it--from the SSTs to the use of chemicals in the environment. I think the environmental dangers of this massive misuse of the world's economic resources have been grossly underestimated. And the reason for this is not because people like myself or Mostafa Tolba and others don't feel that the problem is important, it is just that governments are totally unwilling to permit international organizations to deal effectively with them.

I think it's quite unrealistic to talk about everything that is being done outside the military while this biggest single segment of our economy remains exempt from all consideration.

During the preparatory stages of the South Pacific Regional Environment Programme discussed in Rarotonga in March of this year, the issue of nuclear testing and dumping of radioactive wastes became an emotional issue. Is this a real problem, scientifically, or a question of principle?



Well, I am not a scientist so I cannot give you a scientific opinion. However, I am persuaded by the scientific evidence I have seen that there is a very strong case for stopping nuclear tests in the Pacific. Recent evidence suggests strongly that there is a higher degree of contamination than was recognized. On these grounds, as well as on the grounds of principle, there is no defensible rationale for the use by northern powers of the Pacific for these purposes, and it should not be permitted. If the environmental effects are indeed negligible, as the countries doing the testing and dumping maintain, why don't they do it in their own waters?

I feel very strongly about this issue, and I feel equally strongly about the Antarctic. The present treaty governments have in effect expropriated the Antarctic, although in principle it should be considered a global resource area. The claims of the treaty powers should not be regarded as exclusive territorial claims, and should not exempt this area from global concern and control.

This is another issue which has not received enough attention from the international community, and another issue about which I feel frustrated.

Do you interpret this as indicative of a rejection of the principle of the global commons?

Yes, but I think one of the promising areas was the advance in the Law of the Sea negotiations. But that has taken a more unpromising turn, as you know, and I'm concerned that we may yet see a spreading to the oceans of the assertion of national jurisdictions. At this stage I am afraid that there is reason for some real concern about the fate of the Law of the Sea treaty and its survival as the international regime to control the seas.

Do you think that the real hope of the environmental movement lies at the grass-roots level?

Since Stockholm there has been an encouraging growth of awareness of environmental issues at all levels, but the real question is whether this awareness will spread and will begin to affect people's behaviour. We have to learn to manage our affairs on this planet in a completely new way, and to realize that

ACID RAIN HAS ITS ADVANTAGES...
NOW YOU CAN DIGEST YOUR FOOD
BEFORE SWALLOWING!



we are in a unique period of human history. We are the first generation to have control over the future of human beings on this planet; in a very real sense we are in control of our own evolution.

We have to accommodate to this overwhelming new responsibility, to adopt a more disciplined attitude towards those activities which impinge on our resource base and on the life systems of the planet. We must develop a more responsible attitude toward future generations, and toward each other in this generation.

In other words, we need a significant change in people's values, and that change has to be reflected in our behaviour. Once that change takes place, no government will be able to resist making enlightened changes of its own. Such changes will then bring about what I call a "new growth" society.

What will this society be like?

It will be increasingly based on the satisfaction of mankind's intellectual and spiritual needs and aspirations. Most animals--and still many humans--exist at or near the survival level. Once we get beyond that stage, which will only be possible if the environment which sustains our lives is preserved, then the higher manifestations of human existence become more important. I believe strongly that to survive is an important objective, but mere survival is never a valid goal.

The thing that distinguishes humans from other species is their ability to develop a culture. This to me is not a side issue, but a central feature of human life.

However, at present we are living in an age when our values have become distorted. Activities such as meditation, contemplation of nature, just being, are not considered valid ways to spend our time. I consider this an aberration in our western life that will have to change.

If you look at the whole of western civilization, the times which are considered most creative are those when purely commercial interests were not the primary interests. In our society the commercial ethic has wrongly become the dominant ethic. This has created a distortion which I believe is at the heart of our real environmental issues.

When I say that we must change our values and behaviour, I mean just this--we have to abandon our devotion to the commercial ethic as the prime mover in society. I don't mean we should destroy it, but it should take its proper place in a balanced hierarchy of values.

Are you optimistic that this will actually happen?

Operationally, one has to be an optimist, because if you abandon optimism then pessimism becomes self-fulfilling.

The optimistic side of my own appraisal of the situation ten years after Stockholm is that we know we can do it--it is entirely possible for us to manage our lives on this planet in a way that will permit everyone to enjoy a decent economic level and preserve the environment.

The pessimistic side is that we are not yet doing it. And time is running out. ☹



IN WITH THE NEW

UNEP is ten years old, the Siren is nearly four. In June of 1978, most of the news from the Regional Seas Programme concerned the Mediterranean and Kuwait Action Plan Regions: that's where the action was. Now there are nine regions of the globe where Regional Seas Programmes are busy and growing, and a tenth that's just getting started.



In her four years, the Siren has enjoyed encouraging response from people all over the world. Letters have come in from people of many professions in the most unexpected places. The Siren thanks her readers for the compliments, the constructive criticism, and for their attention.

But rather than sit and bask in the glow of success, the Siren has decided to try to be better. Beginning with the next issue, No. 17, there will be a new language, Spanish. Besides news, opinion, coming events and other regular features, an expanded format will contain articles of general interest written by scientists, environmentalists, development planners-- anyone who knows something about the environment that needs telling.

If you would like to contribute an article to the "new" Siren, write to us with your proposal. Space limits us to three or four reports per issue, but we will try to fit you in. Please do not begin writing your article until you hear from us.

We hope you like the Siren in her new clothes. Your comments are welcome.

COMING EVENTS

DATE	PLACE	TITLE	ORGANIZER
29 March- 1 April	Geneva	Extraordinary Meeting of the Contracting Parties to the Convention for the Protection of the Mediterranean Sea against Pollution	UNEP
2-3 April	Geneva	Conference of Plenipotentiaries on the Protocol concerning Mediterranean Specially Protected Areas	UNEP
3 April	Bangkok	First Meeting of the Co-ordinating Body on the Seas of East Asia (COBSEA)	UNEP
19-21 April	Geneva	Meeting of National Authorities for the Action Plan for the West and Central African Region	UNEP
22-23 April	Geneva	Meeting of the Steering Committee for the Marine Environment of the West and Central African Region	UNEP
10-18 May	Nairobi	Session of a special character of the UNEP Governing Council	UNEP
20 May- 2 June	Nairobi	Tenth Session of the UNEP Governing Council	UNEP
7-16 July		Second Meeting of Legal Experts on Draft Agreements for the Wider Caribbean Region	UNEP
October		Workshop on environmental problems of the East African Region	UNEP