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TOWARDS A HEALTHY AND PRODUCTIVE ADRIATIC ECOSYSTEM

submitted by

Croatia

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BACKGROUND DOCUMENT



UNITED NATIONS

Towards a Healthy and Productive Adriatic Ecosystem

Introduction

The Adriatic region is characterized by intensive land-based and sea-based activities. The combined effects of human alterations of the environment, including global climate change, appear to be especially pronounced in the coastal zone. It is widely believed that these effects have elicited significant degradation of water quality, manifested as mucilage events, oxygen depletion of bottom water, harmful algal blooms, outbreaks of gelatinous zooplankton, invasions of non-indigenous species, loss of habitat and instability of fisheries. Individually, these phenomena may not be cause for concern, but taken as a whole, they may be indicative of a pattern of environmental stress that threatens the health of Adriatic ecosystems. It is already apparent that changes in the coastal ecosystems along the Adriatic are making the coastal zone more susceptible to environmental hazards (e.g., flooding, droughts, harmful algal blooms, mucilage events, hypoxia), more costly to live in, and of less value to the regional economy. It is here that the conflicts and challenges of promoting economic development, sustaining living resources, protecting and restoring ecosystem health, mitigating natural disasters, and protecting public health and safety will become most pronounced over the next several decades. Today, we understand that the causes and consequences of environmental change can only be understood and mitigated through a coordinated international effort that considers the Adriatic system as a whole. Such a more comprehensive and integrated approach will benefit the economies and populations of all nations that depend on, and gravitate to, the Adriatic for its resources and aesthetic value. Therefore the cooperation among the countries of the Region is of great importance especially in implementation of the conventions which deal with water and marine environment, such as Convention on the protection and use of transboundary watercourses and international lakes and Barcelona convention and related protocols as well as other relevant regional agreements.

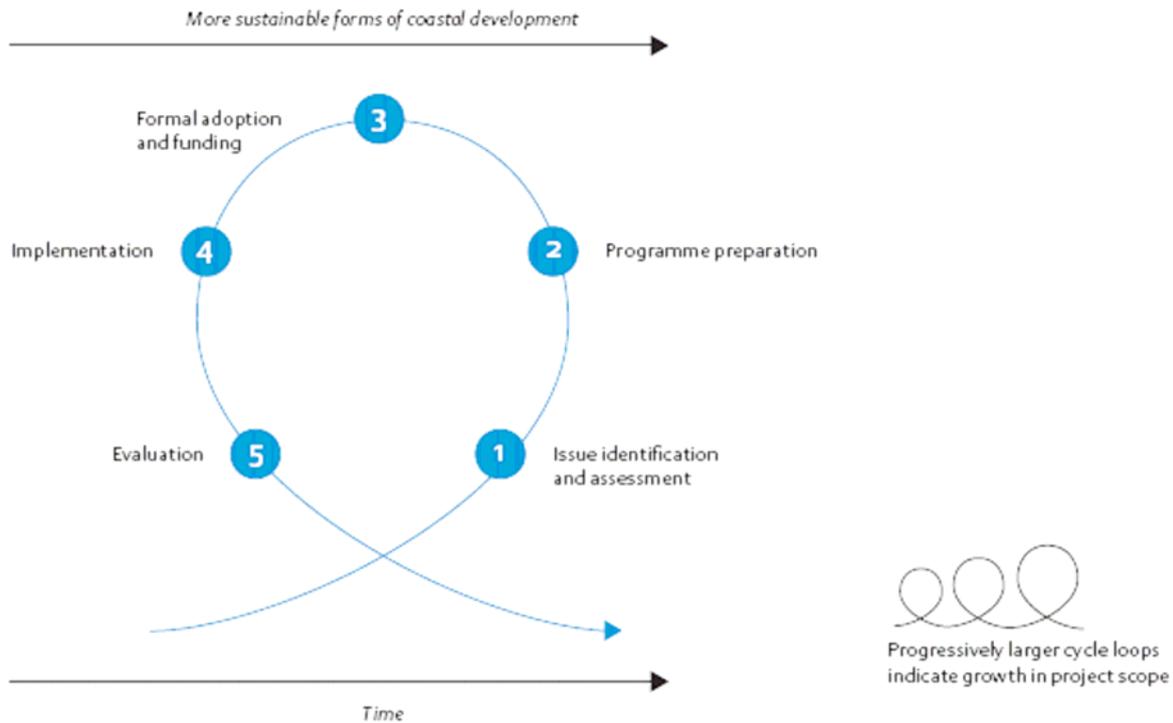
Ecosystem Approach

To ensure a successful response to today's challenges in environmental protection and sustainable development a wide set of tools are available. The main one is the **Ecosystem Approach** (EA) to the management (or Ecosystem-based Management) accepted by European Union (Water Frame Directive and Marine Strategy Directive).

The ecosystem approach is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way. It is based on the application of appropriate scientific methodologies focused on levels of biological organization, which encompass the essential structure, processes, functions and interactions among organisms and their environment. It recognizes that humans, with their cultural diversity, are an integral component of many ecosystems.

The ecosystem approach requires adaptive management (Figure 1.) to deal with the complex and dynamic nature of ecosystems and with the absence of complete knowledge or understanding of their functioning. Ecosystem processes are often non-linear, and the outcome of such processes often shows time-lags. The result is discontinuities, leading to surprise and uncertainty. Management must be adaptive in order to be able to respond to such uncertainties and contain elements of "learning-by-doing" or research feedback. Measures may need to be taken even when some cause-and-effect relationships are not yet fully established scientifically.

There is no single way to implement the ecosystem approach, as it depends on local, provincial, national, regional or global conditions.



Source: Adapted from GESAMP 1996

Figure 1. The Management Cycle¹

To help the implementation of EA the following 12 principles, complementary and interlinked, are proposed²:

Principle 1: *The objectives of management of land, water and living resources are a matter of societal choices.*

Different sectors of society view ecosystems in terms of their own economic, cultural and society needs. Indigenous peoples and other local communities living on the land are important stakeholders and their rights and interests should be recognized. Both cultural and biological diversity are central components of the ecosystem approach, and management should take this into account. Societal choices should be expressed as clearly as possible. Ecosystems should be managed for their intrinsic values and for the tangible or intangible benefits for humans, in a fair and equitable way.

Principle 2: *Management should be decentralized to the lowest appropriate level.*

Decentralized systems may lead to greater efficiency, effectiveness and equity. Management should involve all stakeholders and balance local interests with the wider public interest. The closer management is to the ecosystem, the greater the responsibility, ownership, accountability, participation, and use of local knowledge.

Principle 3: *Ecosystem managers should consider the effects (actual or potential) of their activities on adjacent and other ecosystems.*

¹ From: UNEP/GPA (2006). *Ecosystem-based management: Markers for assessing progress*. UNEP/GPA, The Hague

² The Convention on Biological Diversity. Cop 5, May 2000, Decision V/6

Management interventions in ecosystems often have unknown or unpredictable effects on other ecosystems; therefore, possible impacts need careful consideration and analysis. This may require new arrangements or ways of organization for institutions involved in decision-making to make, if necessary, appropriate compromises.

Principle 4: *Recognizing potential gains from management, there is usually a need to understand and manage the ecosystem in an economic context. Any such ecosystem-management programme should:*

- a) *Reduce those market distortions that adversely affect biological diversity;*
- b) *Align incentives to promote biodiversity conservation and sustainable use;*
- c) *Internalize costs and benefits in the given ecosystem to the extent feasible.*

The greatest threat to biological diversity lies in its replacement by alternative systems of land use. This often arises through market distortions, which undervalue natural systems and populations and provide perverse incentives and subsidies to favour the conversion of land to less diverse systems.

Often those who benefit from conservation do not pay the costs associated with conservation and, similarly, those who generate environmental costs (e.g. pollution) escape responsibility. Alignment of incentives allows those who control the resource to benefit and ensures that those who generate environmental costs will pay.

Principle 5: *Conservation of ecosystem structure and functioning, in order to maintain ecosystem services, should be a priority target of the ecosystem approach.*

Ecosystem functioning and resilience depends on a dynamic relationship within species, among species and between species and their abiotic environment, as well as the physical and chemical interactions within the environment. The conservation and, where appropriate, restoration of these interactions and processes is of greater significance for the long-term maintenance of biological diversity than simply protection of species.

Principle 6: *Ecosystem must be managed within the limits of their functioning.*

In considering the likelihood or ease of attaining the management objectives, attention should be given to the environmental conditions that limit natural productivity, ecosystem structure, functioning and diversity. The limits to ecosystem functioning may be affected to different degrees by temporary, unpredictable or artificially maintained conditions and, accordingly, management should be appropriately cautious.

Principle 7: *The ecosystem approach should be undertaken at the appropriate spatial and temporal scales.*

The approach should be bounded by spatial and temporal scales that are appropriate to the objectives. Boundaries for management will be defined operationally by users, managers, scientists and indigenous and local peoples. Connectivity between areas should be promoted where necessary. The ecosystem approach is based upon the hierarchical nature of biological diversity characterized by the interaction and integration of genes, species and ecosystems.

Principle 8: *Recognizing the varying temporal scales and lag-effects that characterize ecosystem processes, objectives for ecosystem management should be set for the long term.*

Ecosystem processes are characterized by varying temporal scales and lag-effects. This inherently conflicts with the tendency of humans to favour short-term gains and immediate benefits over future ones.

Principle 9: *Management must recognize the change is inevitable.*

Ecosystems change, including species composition and population abundance. Hence, management should adapt to the changes. Apart from their inherent dynamics of change, ecosystems are beset by a complex of uncertainties and potential "surprises" in the human, biological and environmental realms. Traditional disturbance regimes may be important for ecosystem structure and functioning, and may need to be maintained or restored. The ecosystem approach must utilize adaptive management in order to anticipate and cater for such changes and events and should be cautious in making any decision that may foreclose options, but, at the same time, consider mitigating actions to cope with long-term changes such as climate change.

Principle 10: *The ecosystem approach should seek the appropriate balance between, and integration of, conservation and use of biological diversity.*

Biological diversity is critical both for its intrinsic value and because of the key role it plays in providing the ecosystem and other services upon which we all ultimately depend. There has been a tendency in the past to manage components of biological diversity either as protected or non-protected. There is a need for a shift to more flexible situations, where conservation and use are seen in context and the full range of measures is applied in a continuum from strictly protected to human-made ecosystems

Principle 11: *The ecosystem approach should consider all forms of relevant information, including scientific and indigenous and local knowledge, innovations and practices.*

Information from all sources is critical to arriving at effective ecosystem management strategies. A much better knowledge of ecosystem functions and the impact of human use is desirable. All relevant information from any concerned area should be shared with all stakeholders and actors, taking into account, inter alia, any decision to be taken under Article 8(j) of the Convention on Biological Diversity. Assumptions behind proposed management decisions should be made explicit and checked against available knowledge and views of stakeholders.

Principle 12: *The ecosystem approach should involve all relevant sectors of society and scientific disciplines.*

Most problems of biological-diversity management are complex, with many interactions, side-effects and implications, and therefore should involve the necessary expertise and stakeholders at the local, national, regional and international level, as appropriate.

To apply an ecosystem-based management to the Adriatic the following roadmap to the Adriatic States is proposed³:

1. Progressively apply the ecosystem approach to the management of human activities that may affect the marine and coastal environment.
2. Initiate a process, involving scientists, policy makers, and users, and when appropriate, with other competent bodies/organizations/authorities, aiming at the gradual application of the ecosystem approach which would include the following steps:
 - i) Definition of an ecological Vision for the Adriatic.
 - ii) Setting of common Adriatic strategic goals.

³ The rest of this section of the document is adapted from UNEP/MAP/MedPol: *Applying the Ecosystem approach in the Mediterranean* (in preparation)

iii) Identification of the important ecosystem properties and pressures* .

Ecosystem properties include *inter alia*: physical and chemical features, habitat types and biological features. Pressures and Impacts include physical damage and other physical disturbance, interference with natural hydrological processes, contamination by hazardous substances, nutrient and organic matter enrichment and biological disturbance.

iv) Development of a set of ecological objectives corresponding to the Vision and strategic goals.

Ecological objectives should relate to ecosystem health, structure and/or function and should take into consideration the analysis of ecosystem properties and pressures.

v) Derivation of operational objectives with indicators and target levels.

Operational objectives, the achievement of which requires action, should be derived from the ecological objectives. On the basis of the initial assessment made, a comprehensive set of environmental targets and associated indicators should be set with the aim to guide progress towards achieving good environmental status in the marine and coastal environment. A target level is a specific value of an indicator associated with a particular objective. This value can be set as an objective that must be achieved. When deciding on targets and indicators the relevant existing environmental targets, set out at national or international level in respect of the same waters should be taken into account, ensuring that these targets are mutually compatible.

vi) Revision of existing monitoring programmes for ongoing assessment and regular updating of targets.

vii) Redrafting the management plans.

In drafting the management plans all relevant work already undertaken within MAP and the EU should be taken into consideration. Management plans should also include supplementary activities such as monitoring, research, capacity building, information, etc.

As far as the first step is concerned it is recommended to the Adriatic States the adoption of the following ecological vision:

An Adriatic with marine and coastal ecosystems that are healthy, productive and biologically diverse for the benefit of present and future generations.

As far as the strategic goals are concerned, on the basis of the objectives of the relevant priority field of action of the MSSD and the experience gained by other international and regional bodies, the following three goals for marine and coastal areas are proposed:

- a) *To protect, allow recovery and, where practicable, restore the structure and function of marine and coastal ecosystems thus also protecting biodiversity, in order to achieve and maintain good ecological status allowing for their sustainable use.*
- b) *To reduce pollution in the marine and coastal environment so as to ensure that there are no significant impacts or risk to human and/or on ecosystem health and/or on uses of the sea and the coasts.*

* from this step onwards, it is necessary to consider the appropriate spatial and temporal scale of application of the approach

- c) *To preserve, enhance and restore a balance between human activities and natural resources in the sea and the coasts and reduce their vulnerability to risks.*

Throughout the process of applying the ecosystem approach, a number of actions would be necessary. In particular,

- I. Study the socio-economic consequences of the proposed management actions and put forward ideas for alleviating them.
- II. Use the best available scientific information for setting the target levels. In addition, ensure that the capacity exists to determine the indicators at the required accuracy, precision and frequency. In this regard, it should be noted that assessment, monitoring, and scientific research are required to provide a sound scientific basis for identifying ecological objectives, selecting indicators, and assessing the effectiveness of measures taken by providing regular evaluations of the ecosystem status.
- III. Initiate and maintain a process to inform the public and involve the stakeholders in the entire course of implementation, in particular, a) prepare an information package on the objectives for the benefit of the stakeholders and the general public and b) obtain feedback from all stakeholders on the management actions and tools proposed.
- IV. Assist countries, where necessary, in the implementation of the management activities.

In implementing the management plans, Adriatic States should apply the ecosystem approach principles, especially adaptive management, periodic reviews and updates, and the principle of decentralization to the lowest appropriate level.

Integrated Coastal Area and River Basin Management (ICARM)

The terms Integrated Water Resources Management or River Basin Management (IWRM or RBM) and Integrated Coastal Zone Management (ICZM) are increasingly appearing high on the international agenda, following the declarations from United Nations Conference on Development and Environment in Rio de Janeiro and Agenda 21 in 1992.

Realising the necessity of overcoming the gap between the freshwater and the coastal zone management, UNEP has been working with developing concepts and mechanisms for a linked management of the "continuum" from freshwater over the coastal zone to the ocean under the title "*Integrated Coastal Area and River Basin Management (ICARM)*". Thus, concepts and guidelines⁴ are being developed based on a number of pilot and case studies. Substantial progress has been made in understanding – and even modelling – the hydrological, oceanographic and environmental processes in the coastal zone, including the links between rivers and coastal waters. But there is a substantial need for further efforts, particularly in relation to development of more integrated and effective management mechanisms.

The main objective of ICARM is to ensure a sustainable economic and social development of the coastal zone and its associated river basin through maintaining healthy and productive aquatic ecosystems as well as an appropriate physical environment.

In this context it is important to acknowledge that the conceptual development of both IWRM and ICZM already to a large extent target the intentions towards sustainable management of natural resources (although implementation often lack behind). Thus, ICARM should not be considered a "new" or "alternative" way of management but rather a way to actively focus on the remaining issues or "the gap" which is appearing due to the history or heritage from

⁴ UNEP/MAP/PAP: *Conceptual Framework and Planning Guidelines for Integrated Coastal Area and River Basin Management*. Split. Priority Action Programme, 1999.

former institutional division of responsibility. Therefore, the ICARM approach naturally promotes the introduction/implementation of both IWRM and ICZM, but adds a specific focus on promotion and facilitation of the dialogue between the freshwater and the marine world as well as on the provision of specific solutions to the management issues of this interface.

The key constraints in IWRM and ICZM to implementation of the ICARM objective need to be further identified, and priority issues for further development of ICARM should be established.

The Guiding Principles for Integrated Coastal Area and River Basin Management (ICARM)⁵

1. **Identify the shared issues** for river basin, coastal area and marine environment.
2. **Prioritise** the shared issues and **assess the need for and benefits** of integrated management of river basin and coastal waters.
3. **Analyse cause and effect relations** for the identified issues in the river catchments and coastal waters.
4. Define the spatial **problem area** for the integrated approach and **identify the stakeholders** relevant to the issues, causes and effects.
5. Secure **political commitment** as an absolute prerequisite for appropriate integrated management.
6. **Involve all relevant stakeholders** from the very beginning to secure their commitment.
7. **Define goals** of the management initiative as part of a long term perspective of the integrated management of catchments and coast.
8. Establish a **common knowledge and information platform** as a major tool for participatory planning processes.
9. Facilitate **knowledge and awareness raising** at all relevant levels to create optimal conditions for a participatory approach.
10. Create an **enabling environment** for the management of river and coast to achieve sustainable solutions at national, river basin and local level.
11. Encourage coastal and freshwater management **institutions to make arrangements** for an integrated approach of relevant aspects of management of catchments and coast.
12. Ensure adequate **resources and capacity** to secure successful implementation and sustainability

The European Union has a similar approach. The synthesis of the approach is given in Figure 1.

⁵ Ipsen, N, M. Dyhr-Nielsen, J. Lyngby, M. Adriaanse and J. Hassing (2006). *Linking Freshwater and Coastal Zone Management – General Issues Paper* www.ucc-water.org/documents [Accessed on March 29, 2007]

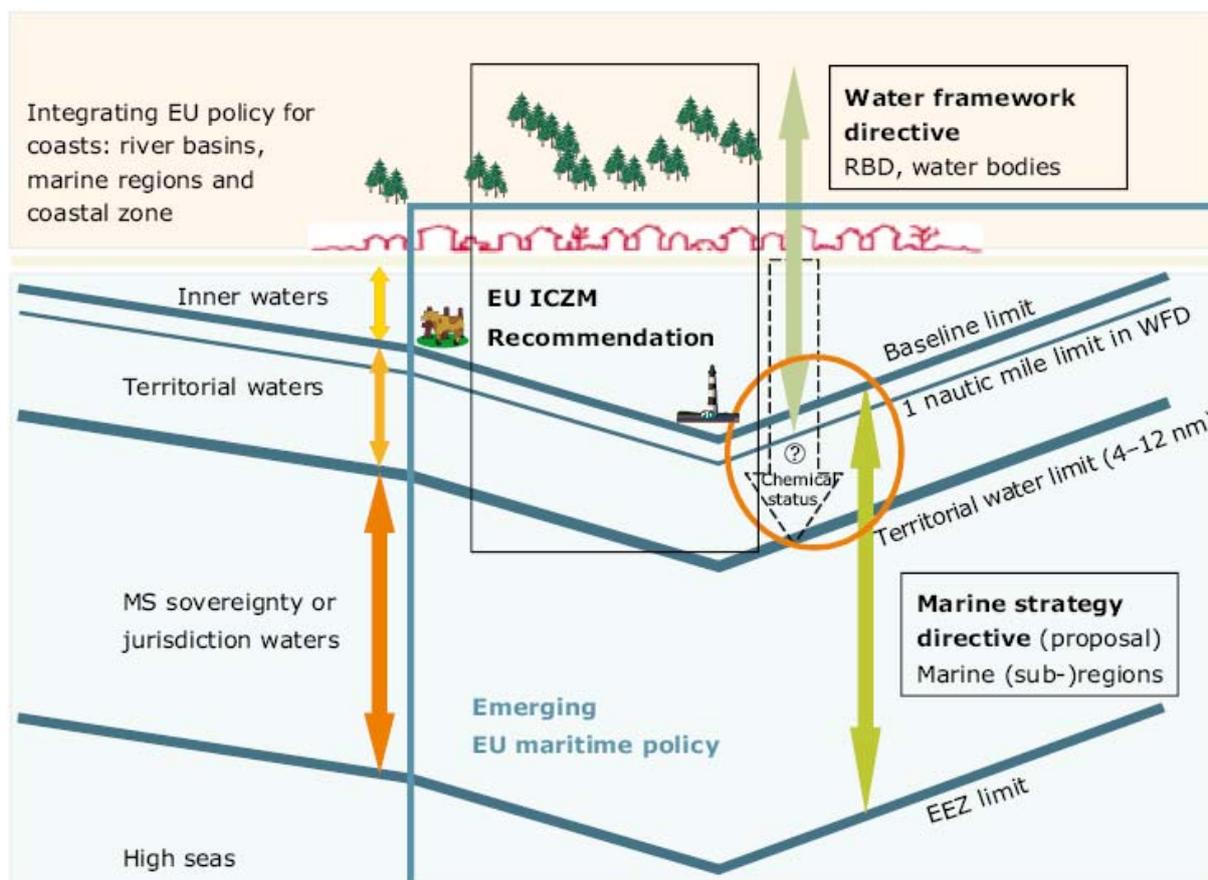


Figure 2. Integration model of river basins, marine regions and coastal zones⁶

Mediterranean Strategy for Sustainable Development (MSSD)

The 21 Mediterranean countries and the European Community decided, at the 12th Conference of the Contracting Parties to the Barcelona Convention (Monaco, November 2001), in line with the WSSD process, to prepare a “Mediterranean Strategy for Sustainable Development” (MSSD). They requested the Mediterranean Commission on Sustainable Development (MCSD) of the Mediterranean Action Plan (MAP) to develop a draft of the Strategy. The 2nd Euro-Mediterranean Ministerial Conference on the Environment (Athens, July 2002) endorsed this initiative.

The Mediterranean Strategy⁷ is a *framework strategy*. Its purpose is to adapt international commitments to regional conditions, to guide national sustainable development strategies and to initiate a dynamic partnership between countries at different levels of development. By making a public and high profile commitment to sustainable development and to reporting on the progress achieved, countries as well as donors and the other partners concerned will help to produce and sustain a common dynamic in which much greater attention is paid to achieving harmonious growth throughout the region. The Strategy calls for action to pursue sustainable development goals with a view to strengthening peace, stability and prosperity, taking into account the threats and weaknesses in the region as well as its strengths and

⁶ EEA Report No 6/2006

⁷ UNEP/MAP: *Mediterranean Strategy for Sustainable Development*, Athens, 2005.

opportunities. It also takes into consideration the need to reduce the gap between developed and developing countries in the region.

Within MSSD seven interdependent priority fields of action and synergy are identified below in which it is essential to make real progress:

- better management of water resources and demand;
- improved rational use of energy, increased renewable energy use and mitigation of and adaptation to climate change;
- sustainable mobility through appropriate transport management;
- sustainable tourism as a leading economic sector;
- sustainable agriculture and rural development;
- sustainable urban development; and
- sustainable management of the sea, coastal areas and marine resources.

To fulfil their commitments partners should:

- Improve regional cooperation and promote the implementation of regional programmes of action with adequate means.
- Promote the balanced and integrated management and development of coastal zones.
- Guarantee unhindered access to the coast for everyone. Preserve, enhance or restore the coastal heritage. Avoid linear and continuous urbanization. Reduce the vulnerability of sensitive areas to natural risks.
- Prevent and combat marine pollution from ships by achieving the goals set out in the Regional Strategy for Prevention of and Response to Marine Pollution from Ships, which is currently being finalized. Eliminate operational pollution from ships by 2025.
- Prevent and reduce land-based pollution by achieving the goals set out in the Strategic Action Programme to address Land-based Sources of Pollution, adopted in 1997.
- Halt the loss of marine and coastal biodiversity by 2010 in EU Member States and reduce it substantially in other countries, in accordance with international and European commitments.
- Ensure the development of fishing in the Mediterranean towards an ecosystem approach and restore the stocks as far as possible by 2015, in accordance with the commitment of the Johannesburg World Summit on Sustainable Development.
- Promote sustainable aquaculture techniques that minimize their impact on the environment and conflicts with other users of the coast.

For its implementation, the Strategy requires:

- a regional space of solidarity and commitment
- the participation of States through national strategies, of local authorities, the socioeconomic actors, associations and populations;
- new methods of governance, which are indispensable for progress in achieving sustainable development; and
- collective follow-up at the Mediterranean level.

The Strategy offers an excellent opportunity for Adriatic and gravitating States to make substantial advances towards sustainable development, based on genuine partnership and co-development.

Plan of interventions in case of emergencies

The Adriatic Sea (as a part of the Mediterranean Sea) has been classified as a special area under Annex I to MARPOL 73/78, where no oil discharges are permitted. It is estimated that the main sources of shipping generated oil pollution in the Adriatic are illegal discharges of oily residues from machinery spaces and from cargo tanks. This type of pollution appears less obvious, but it is certain that it is equally or even more damaging for the marine environment than accidental pollution. Adoption of the new **Protocol** concerning Cooperation in Preventing Pollution from Ships and, in Cases of Emergency, Combating Pollution of the Mediterranean Sea (*Malta 2005*) of the Barcelona convention gave the Adriatic coastal States a necessary legal basis to concentrate their efforts on tackling this problem. That should be done through:

- promoting and monitoring effective implementation of the relevant international regulations by the Flag States, Port States and Coastal States;
- developing port reception facilities;
- reducing environmental risks of maritime traffic;
- surveillance of illicit discharges and promoting prosecution of offenders;
- establishing arrangements when necessary for emergency towing.

Protection of the marine environment could only be achieved through what is known as the “safety continuum” encompassing three inter-related phases of prevention, preparedness and response. While the focus of the original Emergency Protocol was on co-operative action for preparedness and response to marine pollution emergencies, the new Protocol also addresses the prevention of pollution from shipping. It also opens the possibility for tackling marine pollution problems that coastal States have not been dealt with so far, including pollution by discharges of sewage and garbage from ships, non-indigenous marine species, and exhaust emissions. By adding cooperation in preventing pollution from ships to the preparedness and response to marine pollution accidents that had already been addressed in the original Emergency Protocol, Adriatic countries could close the loop in the “safety continuum”.

The translation of the new Protocol into practical actions is expected to reduce significantly pollution from maritime transport related activities. On the other hand, such efforts should also involve solving not only technical and financial problems, but also difficulties related to differences in setting priorities in the coastal States due partly to their economic diversities. The success of these efforts will depend on the enhancement of co-operation and the reinforcement of a regional attitude.

Particularly Sensitive Sea Area (PSSA)

Nevertheless, in order to increase the protection of the Adriatic Sea, Croatia initiated a process to designate the Adriatic Sea as the Particularly Sensitive Sea Area (PSSA) in accordance with the relevant IMO Guidelines (Revised PSSA Guidelines as adopted by Resolution A.982(24)), and referent Guidance Document adopted by IMO MEPC. All Adriatic coastal States are participating in the work of the Joint Expert Group in order to formulate their joint proposal to be submitted to the IMO.

The PSSA Guidelines place an obligation on all IMO Member Governments to ensure that ships flying their flag comply with the Associated Protective Measures (APMs) adopted to protect the designated PSSA. The enforcement should be ensured by the coastal States, on the basis of their national legislation, in accordance with the international law.

Coordinated Adriatic Observing System (CAOS)

An efficient ecosystem-based management needs reliable field data obtained through well designed and implemented observing system. Therefore, using the Global Ocean Observing System (GOOS) as a model, the Coordinated Adriatic Observing System (CAOS)⁸ was developed jointly by scientists from Croatia, Italy and Slovenia, with input from USA scientists, as a region-specific observing system. CAOS is based on almost two decades of numerous joint projects and experience in data exchange and analysis among the scientists from the Northern Adriatic. Its broad goals are:

- to develop the means for detection of changes in the Adriatic marine environment;
- to study the impacts of human activities on marine ecosystems and the living resources it supports; and
- to predict the effects of environmental variability on human activities and interests.

Achieving these goals requires an integrated system of sustained environmental observations that provides the data and information required by a broad range of user groups. The latter include: government authorities responsible for environmental protection, management of natural resource, public health and safety; industry; the scientific community; news media; and the public at large.

⁸ Workshop Report: *Nutrient and Trophic Dynamics in the Adriatic Sea: Towards a Coordinated Adriatic Observing System*. Rovinj, 17-23 October 1999.

Thus, CAOS would be needed to:

- Characterize the status of the Adriatic Sea in terms of its health (HABs, hypoxia, mucilage), living marine resources (fisheries, tidal wetlands, submerged macrophytes) and natural variability;
- Detect and predict changes in the status in order to protect and restore damaged coastal ecosystems, and sustain the living resources and the economic activities they support;
- Insure public health and safety;
- Enable safer and more efficient marine operations; and
- Forecast and mitigate the effects of extreme meteorological events and climate change on the Adriatic Sea and its bays and lagoons;

CAOS consists of the following subsystems:

- Observing Subsystem
- Communications Network Subsystem
- Data Management Subsystem
- Education and Training
- International Framework
- Governance

At present only some parts of CAOS are operational. Since 1998, the Croatian national monitoring programme (Project JADRAN) is fully implemented as part of CAOS. Starting from 2002 research institutions and operational agencies from Italian, Slovenia Croatia, Bosnia-Herzegovina, Serbia, Montenegro and Albania are developing and running operational a marine monitoring and forecasting system (ADRICOSM) which involved the first four subsystems of CAOS. ADRICOSM marine operational monitoring and forecasting systems deliver real time services such as analyses and forecast of Temperature, Salinity and currents, temperature and chlorophyll daily maps from Satellite, in situ Temperature and Salinity observations; all ADRICOSM products and services are available at the MOON website (www.moon-oceanforecasting.eu).

CAOS was officially presented, in 2001, to the ministerial level Trilateral Italian, Slovenian, Croatian Commission for the Protection of the Adriatic Sea. A Working Group for Monitoring was established by the Commission to further development of CAOS as an overarching Adriatic observing system.

The full implementation of CAOS would be a basic prerequisite for the application of an ecosystem-based management of the Adriatic Sea. It could be achieved by:

- formal adoption of CAOS by the Adriatic coastal States and its endorsement as their common framework for an Adriatic observing system;
- increased cooperation of relevant institutions and scientist of the Adriatic coastal States in the implementation of CAOS;
- agreement of the Adriatic coastal states on the governance structure of CAOS.

Regional cooperation

Efforts related to the protection and sustainable development of the Adriatic have been brought forward within the context of many initiatives, such as the Mediterranean Action Plan, the Adriatic-Ionian Initiative, and the Trilateral (Italy, Croatia, Slovenia) Commission for the Protection of the Adriatic Sea and Coastal Areas from Pollution, each of them with own specificities.

The Adriatic Sea is a part of the Mediterranean and all actions taken towards its better protection are conducted within the Barcelona regional system which consists of the Convention for the Protection of the Marine Environment and Coastal Region of the Mediterranean and related Protocols. Barcelona Convention is the framework for the protection of Mediterranean Sea from pollution and it contains basic principles and general provisions which are elaborated in six protocols. General obligations of the Contracting Parties, according to the Barcelona Convention are to individually or jointly take all appropriate measures to prevent, abate, combat and to the fullest possible extent eliminate pollution of the Mediterranean Sea Area and to protect and enhance the marine environment in that Area so as to contribute towards its sustainable development and to take appropriate measures to implement the Mediterranean Action Plan and, further, to pursue the protection of the marine environment and the natural resources of the Mediterranean Sea Area as an integral part of the development process, meeting the needs of present and future generations in an equitable manner. Accordingly the Adriatic countries have developed very good bilateral and multilateral cooperation and have signed numerous of bilateral as well as multilateral agreements.

The Trilateral Commission, since its establishment in 1977, has worked on continuous research of Adriatic ecosystem, establishment of the system of Adriatic sailing routes, determination and combating the pollution caused by inadequate handling and disposal of solid and hazardous waste, revitalization and conservation of natural resources, remediation of hot-spots, implementation of development strategies, the problem of ballast waters in the Adriatic and cooperation and direct assistance in combating accidental pollutions.

The work of the Commission has been carried out through different working groups and the very significant results of the Trilateral Commission made in last years are following:

- Agreement on the Subregional Contingency Plan for Prevention of, Preparedness for and Response to major marine pollution incidents in the Adriatic Sea signed in 2005. The Plan was prepared in accordance with the Article 17 of the Emergency Protocol of the Barcelona Convention and it is the part of the project of development of the Subregional Contingency Plan for the entire Adriatic region .
- Coordinated Adriatic Observing System (CAOS) - program of monitoring and researching of the quality of the Adriatic Sea with focus on integral observing of the Adriatic and on developing long-term cooperative research on the Adriatic Sea involving scientists from Croatia, Slovenia and Italy;
- Constructive discussions and exchange of information and practice on the ballast water issues;

- Coordination of the activities related to the integrated coastal zone management in these three countries.

At its 7th meeting in July 2006, Trilateral Commission has expressed its openness for involvement of other Adriatic countries (Albania, Bosnia-Herzegovina and Montenegro) into its work and this was repeated at its 8th meeting in July 2007 in Trieste. It was agreed that Trilateral Commission extended to all Adriatic countries should be umbrella framework for cooperation on the Adriatic in the field of marine environment protection.

Under the Adriatic-Ionian Initiative (Albania, Bosnia and Herzegovina, Croatia, Greece, Italy, Montenegro, Slovenia) round tables exist, dealing with: illegal activities combating, economy, tourism and small and medium enterprises cooperation, transport and maritime cooperation, culture, education and inter-university cooperation, while one round table is concerned with environmental protection and sustainable development. The important achievements of the latter round table concern the proposal of extension of the Subregional Contingency Plan for Croatia, Italy and Slovenia to all of the Adriatic countries once the preconditions for such extension are met. Joint Statement regarding extension of the Subregional Contingency Plan to all AII countries was signed on 7 June 2005 at Council Meeting in Cetinje, Montenegro.

At the same time under the 6th Environmental Action Programme of the European Community, the new Thematic Strategy on the Protection and Conservation of the Marine Environment has been adopted and the Marine Strategy Directive has been proposed. The Strategy adopts a holistic and integrated approach, based on a common vision and recognition of specific regional situations. It is common to all seas (Baltic, North Sea, Mediterranean and Black Sea) but at the same time it embraces regional diversity through regional approach and through an ecosystem approach to the management of all human activities that have an impact in the marine environment. The proposed Marine Strategy Directive will establish Marine Regions and Sub-regions on the basis of the geographical and environmental criteria. The objective of the proposed Directive is to achieve a good environmental status in the marine environment by the year 2021 and this should be accomplished by developing marine strategies in respect of each Marine Region or Sub-Region. The marine strategies should consist of an analysis of the present state of the environment, definition of a good state and relevant indicators, establishment of environmental targets and monitoring and an action plan on how to achieve the good state. An important part of achieving good environmental status and developing marine strategies is close cooperation among the EU and non EU- countries. This cooperation should be done within the existing institutional structures such as regional seas conventions. In that respect the Adriatic countries should work together within the Barcelona regional system.