

SOME CONSIDERATIONS FOR THE ESTABLISHMENT OF A NATIONAL MARITIME POLICY AND ITS RELATION WITH HYDROGRAPHIC SERVICES

by Captain Hugo GORZIGLIA ¹

ABSTRACT

The objective of this paper is to outline the importance of the sea on the growth, development and welfare of nations, as a fact to be considered by the government sectors of each country. An introductory comment and a definition of some national maritime objectives are followed by the main topic, "Issues to be considered when establishing a National Maritime Policy", which is developed in seven sections. The conclusion considers the impact of such a National Maritime Policy on the hydrographic and oceanographic fields and highlights the important role that Hydrographic Services can play in this context.

The idea which inspired the drafting of this article is that the suggestions presented, after being developed with further study and review, may be adopted by national institutions as a contribution to the national policy of each country. Public and private debate may help nations to develop a national maritime policy to conduct their future development. The author hopes that the ideas and proposals drafted in the paper will be useful for experts or institutions dealing with maritime affairs or other related activities

I. INTRODUCTION

The idea of carrying out this study resulted from the desire of the author to provide some information which may contribute to the development of the maritime nations' concern about the marine environment, in the interest of their general progress.

¹ Director, Hydrographic and Oceanographic Service of the Chilean Navy, Valparaiso, Chile.

A significant amount of information regarding different areas of maritime activities was used in the preparation of this study. This comprehensive documentation has been summarized to include the most relevant aspects of this information which have a direct impact on the formulation of a national maritime policy. A wide range of literature was consulted, and the knowledgeable views and experience of naval officers, academicians, businessmen, legal experts, administration representatives and other persons with interests in maritime affairs were taken into consideration.

The marine environment has been always vital in human evolution, not only as an important source of food, but also as the most expeditious transportation route between coastal States. The economical advantages of transporting large volumes of commodities by sea over great distances are undeniable when compared to other means of transportation. Maritime transportation has, in fact, made the oceans a uniting factor rather than a barrier between nations separated by oceans and seas. Fishing as an economical activity, offshore petroleum resources and the potential of mineral deposits on the ocean floors are other important contributors to the uses of the sea.

While all nations have the same juridical right to use the oceans, International Maritime Law offers basis in which their interests in exploiting the oceans for economical purposes may peacefully compete. Fundamental principles are established to prevent conflicts or acts of war that may obstruct maritime trade or severely damage the oceans for future use.

II. NATIONAL MARITIME OBJECTIVES

The geographic conditions of maritime nations determine their future development. No efforts should be spared to help nations to realize the important role of the ocean in their future development, and therefore, the need to establish a National Maritime Policy.

This objective could be stated as follows:

"To make efficient use of the waters under the national jurisdictional interest and welfare of the nation, within the frame of International Maritime Law and preserving the marine environment and the stability of its ecosystems."

This national objective involves a number of subjects which cannot be considered as separate items. They are valid and fully effective only as a direct result of their harmonious integration.

1. Create a national maritime consciousness to drive the national objective.
2. Optimize the use of the seas as maritime transportation routes and for recreational purposes.

3. Ensure the effective use of the maritime resources within the area of national jurisdiction.
4. Promote science and technology in order to support the correct use, exploitation and administration of the national maritime resources.
5. Revise and improve the legal framework, and assist the national administration in matters related to national and international maritime law.
6. Preserve and enhance the marine environment within and adjacent to those areas under national jurisdiction and protect it against any possible detriment caused by foreign maritime activities that may affect the national interests and the welfare of the population.
7. Secure the waters under national jurisdiction, its interests and transportation routes from any threat or illegal action that may contravene the national rights and jurisdiction.

III. NATIONAL AND SECTORIAL MARITIME POLICIES

The following seven topics may be useful as a basis for carrying out an analysis of the geographic characteristics of a nation and to identify and develop its maritime interests. They are individual sectorial policies, but should be combined to create a single National Maritime Policy.

- Occupancy and development of the coastal region and all waters under natural jurisdiction.
- Promotion of a maritime consciousness and education in maritime affairs.
- Use of the seas as maritime transportation routes.
- Development of the maritime industry.
- Encouragement and enhancement of marine scientific research.
- Protection and preservation of the economic zone and all waters governed by national jurisdiction.

This classification, improved with detailed study, academic deliberation, and public and private debate may provide national institutions with some guidelines for the establishment of a National Maritime Policy to conduct future development. The brief description that follows, demonstrates that Hydrography and Oceanography are subjects strongly connected to the above sectorial policies.

1 - Policy for the Occupancy and Development of the Jurisdictional Waters and Coastal Zone

The rights of countries utilizing the ocean are governed by international customary and conventional law. Without the existence of geographical features

used as reference, maritime delimitation cannot be clearly indicated. Natural phenomena and human activity often have effects which may affect national laws. In this respect, the rights of coastal States decrease with distance, from the coastline, where absolute jurisdiction is recognized, to the high sea, which is recognized as the "Common heritage of all mankind" and, consequently, in which there are equal rights for every nation. Therefore, the establishment of a "Policy for the Occupancy and Development of the Jurisdictional Waters and Coastal Zone" is very important to ensure a harmonious relation between shore and maritime activities and between the maritime interests of neighbouring States.

A full understanding of the characteristics of maritime activities, as well as a revision of the legal framework and administrative regulations that rule these activities are required to develop a policy on national jurisdictional waters as part of a programme of development.

The Law of the Sea provides an essential reference to facilitate maritime development and its implementation by the United Nations is a clear expression of the will to achieve it. Nevertheless, it is insufficient without the existence of a national legal framework and regulations.

In accordance with a desire to make life at sea and with the sea possible, it is necessary to develop the necessary facilities to enable easy access to the coastal zone. A ground transportation network is needed to connect the main production centres with maritime terminals and ports of loading, where the commercial exchange actually takes place. Coastal roads are also necessary to permit tourism and recreational activities, domestic fishing, aquaculture and other activities, allowing people the beneficial effects of a direct connection with the sea. The level of welfare and prosperity of small coastal settlements is determined in many ways by this road connection, by providing residents with an access to basic services such as health, education, supply, trade activities and logistic support for their production systems. Access to the ocean is complemented with the capacity of the marine industry to design, construct and provide all sorts of coastal engineering works, marine devices, and other equipment to increase the safety and efficiency of maritime activities.

The areas of interest of a "Policy for the Occupancy and Development of the Jurisdictional Waters" must include the internal waters, the territorial sea and contiguous zone, the economic exclusive zone (EEZ), the continental shelf and the international zone. Its objectives may be stated as follows:

- To optimize the use of continental or inland waters as communication and transportation routes and to exploit touristic resources of economical significance.
- To establish harmonious relations with neighbouring States for better use of international waterways and lakes.
- To seek an efficient use of the coastal zone, considering its fragile and vulnerable characteristics, ensuring that no activity against the national interest is carried out therein.

- To encourage the growth of coastal settlements and the establishment of new communities to ensure an optimum distribution of the population.
- To identify and protect areas of special scientific, ecological or anthropological interest in the coastal area.
- To encourage and intensify touristic activities in inland and coastal waters suitable for these purposes, by integrating them with the economical exploitation of natural resources in the same areas.
- To reach an optimal and rational use of the coastal zone, developing a communication infrastructure to enable easy interaction between shore based and maritime activities.
- To keep an efficient control over maritime traffic and other activities carried out in the Territorial Sea and the Contiguous Zone, in order to ensure its efficient and safe progress and to prevent illegal acts that may contravene the national jurisdiction.
- To review and improve legal and administrative regulations in order to confirm and strengthen the national jurisdiction of the Economic Zone, fostering national activities related to the use and exploitation of the resources in this area.
- To contribute to the development of the national sense of ownership for maritime areas, explaining the importance of these maritime areas for the progress of economical activities and general welfare of the nation.
- To increase technological knowledge, development and professional training to support and guarantee economic activities carried out in the Economic Zone and neighbouring seas, in order to increase safety and to reduce the risks of working in the marine environment.
- To foster the development of international regulations which define the economic rights of institutions which fund and carry out marine research and exploration programmes.
- To develop and maintain a record of the available resources and characteristics of the area, in order to perform a reasonable and profitable exploitation of the zone.
- To encourage the creation of a coastal patrol system, in order to prevent foreign maritime activities which could damage the marine environment.
- To fulfil the agreements with the international community regarding safety of human life at sea and the health of the oceans.
- To acquire a sound knowledge of the sea bed and to upgrade technological development and professional training so that they may provide a basis for reaching international agreements regarding

maritime research and exploration and exploitation programmes in the national territory.

2 - Policy for the Promotion of a Maritime Consciousness and Education

"Maritime consciousness" may be defined as the exact and reflective knowledge of the marine environment. It is essential for a successful achievement of national maritime targets. It can be said that a country is maritime or ocean minded when most of its population is aware of the contribution of the oceans to its livelihood, safety, growth and prosperity. Some guidelines for the establishment of a Policy for the Promotion of a Maritime Consciousness are given below :

- To develop a collective will to strengthen the country as a maritime nation.
- To provide suitable information and training in order to optimize the use of the seas as maritime transportation routes, renewable and non renewable resource provision and recreational areas. This will ensure a good use of the natural marine resources and will develop activities to support their use and exploitation.
- To promote the protection and preservation of the national marine environment and to ensure that it will not be damaged by the activities carried out by neighbouring States.
- To provide the necessary training on the legal framework that governs maritime activities and to reinforce the legal aspects of the administration of the waters under national jurisdiction.

3 - Policy for the Use of the Seas as Maritime Transportation Routes

The "Policy for the Use of the Sea as Maritime Transportation Routes" contains the main guidelines for national administration and private sectors about matters of maritime and fluvial transport. Port Policies must share the same objectives regarding port affairs.

Transport is an instrument for the development of the national economy. Supply requirements, social life, agriculture, industrial and mining activities have an impact on the construction, extension, planning or termination of a transport system and its facilities. Similarly, the Transport Policy will be determined and conditioned by Social and Economy Policies.

The economic targets of a nation are often decided with a view to national development, through a sustained growth and diversification of foreign trade. The existence of efficient and economic transport services are vital for this purpose. A large percentage of foreign trade is performed through maritime transportation. The remaining 10% is shared by transportation by air and land. A network of roads, railways, sea and air ports is necessary to ensure reliable, efficient and economic

inland transportation of exports and imports, and also national and international vessels capable of meeting these requirements.

Some of the objectives of a "Policy for the Use of the Seas as Maritime Transportation Routes" could be:

- As a global objective: to observe the requirements of the national economy, providing adequate means to satisfy the needs of the population and achieving a satisfactory development of foreign trade. This policy should be aimed at providing such services at a minimal social cost.
- The defence of national territory, according to international law and its application, particularly in boundary zones and isolated territories.
- The growth of underdeveloped regions and the physical integration with neighboring countries accomplished due to port, inland and specially, maritime transport.
- Optimum use of the coastal zone, to be achieved by means of technical administration, which, within a legal framework, will permit priority access to the ocean for all maritime activities relevant to national development.

Experience on matters of development and port operations indicates that private operation has considerable advantages over the public operation of ports. The participation of private sectors in port operations introduces competition within and between ports that have areas of common influence, so that service tariffs are fixed according to a market economy. National and international shipping should also be privately managed and dependent upon the market economy.

4 - Policy for the Use of Natural Resources

The economic activities which optimize the use of the waters under national jurisdiction is a factor related to the establishment of this policy.

Note: Although there may be alternative ways of exploiting oceanic resources - such as obtaining energy from dynamic sea phenomena and, eventually, the extraction of minerals dissolved in sea waters - they are still in a rudimentary stage and have not yet been developed as profitable activities.

Some ideas for the planning of a "Policy for the Use of Natural Resources" are given below :

- To promote the development of coastal activities, aimed at gaining the maximum benefit possible, but preserving the natural marine environment.

- To make efficient and responsible use of hydro-biological resources in the coastal zone, bearing in mind the fragility of this environment and that fauna can be easily damaged.
- To encourage the development of national fishing as a small-scale industrial activity.
- To encourage a continuous growth of aquaculture, as a source of natural renewable resources. To encourage also the establishment of new production centres in coastal zones with low density of population.
- To minimize the negative impact of the foreign deep-sea fishing on the national fishing industry.
- To encourage the development of fishing at a State cost and risk.
- To comply with the obligations and responsibilities of a Flag State, with respect to national vessels operating in the deep sea, specially in areas under formal international agreements.
- To improve the prospects for commercial fishermen by providing them with opportunities for national and international post-graduate education and training.
- To harmonize the professional interests of mariners with the qualification required by national fishing industry in relation with production processes in use.
- To increase the professional level of fishing crews, in order that they may maximize the operation of their vessels and fishing equipment and be capable of introducing specialized technology to their work.
- To improve the efficiency of the exploitation of natural non-renewable resources in the economic zone but ensuring the quality of the environment.
- To reinforce the national ability to negotiate its independent or associated participation in oceanic mining activities.

5 - Policy for the Development of the Maritime Industry

The establishment of a maritime industry may produce considerable benefit to the economy of a coastal State. The industry requires the development of highly specialized personnel and consequently leads to a secondary industry of education and training. The availability of these well qualified people and the development of products within the country rather than importing them externally, has significant economic benefits.

The implementation of a policy which encourages the growth of a maritime industry can be seen to have major benefits. Organized well, it can lead to taking

advantage of strengths already existing in a country and reducing weaknesses that may exist due to an absence of key elements of the structure needed to maintain a strong economy.

The objectives of a "Policy for the Development of a Maritime Industry" are summarized as follows:

- To promote the development of the maritime industry in order to meet the national requirements.
- To seek to increase the National Gross Product (NGP) by exporting services and goods produced by the maritime industry.
- To facilitate a continuous growth of the supporting structure of national production in order to meet the market requirements.

6 - Policy for Marine Scientific Research

Maritime scientific research must often consider topics of a multi-disciplinary nature and the solution of problems often requires close cooperation between experts in different fields and with different experiences. Countries planning to establish a "Policy for Marine Scientific Research" in accordance with their particular circumstances should bear in mind some fundamental principles and considerations and, as a matter of priority, should clearly establish the following parameters:

- Description of their current situation regarding supporting structure and equipment, scientific vessels, qualification of their scientists, planning and research programmes and especially, the coordination mechanisms available.
- Future trends of the marine scientific research, as it is vital to establish a priority of the tasks involved in this field.

From these parameters, the different objectives sought by each country will be determined and, at the same time, these objectives will decide the specific policies needed for their achievement.

The impact of human activity in marine systems is diverse. A clear example of this is the modification of the number of marine species as a consequence of fishing activity, and the introduction of new species in the deep-sea flora and fauna, due to shipping activities. It is consequently necessary to have a better knowledge of the whole environment. On the other hand, the settlement of new population in coastal areas and their activity have evidently increased, resulting in the need for adequate administration which would control a continuous development and maintain the balance between this increase and the natural environment. In this respect, a more active participation and effort by the scientific community and institutions would be helpful and is needed to guarantee a sound knowledge of maritime affairs, in order to make good use of the coastal area and to protect the marine environment.

A list of some objectives to be considered in establishing a "Policy for Marine Scientific Research" is given below :

- To promote and strengthen national marine scientific research and to emphasize its importance for national development.
- To develop marine scientific research programmes in parallel with port and shipping activities and to protect the national marine environment from pollution.
- To develop marine scientific research programmes for the development and maintenance of touristic and recreational areas and activities in the coastal zone and waters under national jurisdiction.
- To exploit adequately the natural renewable and non renewable resources, thus contributing to the continuous development of the country, while preserving the natural environment and the equilibrium of its ecosystems.
- To define the typical environmental systems that can be found in territorial waters, in order to obtain a solid scientific knowledge of the seas, the coastal and open seafloor and their natural resources.
- To improve and maintain the national supporting structure for research, education and training in the marine sciences with a view to improving areas which at present are insufficiently developed.
- To strengthen the administrative structure in order to coordinate and carry out research activities.
- To develop educational strategies for the academic, technical and professional areas, in order to produce enough qualified scientists, experts and assistants to carry out marine research activities.
- To ensure the completion and continuity of the short, medium and long term research programmes carried out by national institutions.
- To develop and strengthen the scientific and technological capacity - in accordance with the objectives of the various national areas involved in marine sciences - in order to meet the national scientific and technological requirements and to contribute to the development of the economic and social programmes of the country.
- To carry out parallel and harmonious activities in the coastal zone, assuring the protection and preservation of the marine environment in the national development process.
- To acquire a solid knowledge of international law and its gradual development regarding marine sciences in order to assist the national participation in international courts.

- To establish national standards in order to standardize the calculation of pollution measurements in aquaculture activities.
- To emphasize the importance of the preservation of marine environment.
- To establish standards and regulations applicable to maritime and fluvial activities based on a scientific knowledge of their associated elements.
- To obtain a solid knowledge of the marine environment, in order to carry out its adequate exploitation for the benefit of maritime operations.

7 - Policy for the Protection and Preservation of the Waters under National Jurisdiction.

Oceans are generally considered as an abundant source of food and recreational resources. They provide transport routes and act as a regulator and moderator of climate and as a result of all these, provide a function of extraordinary importance for the development and well being of the population.

It is necessary to know all the type and magnitude of all these, their variables, changes, seasons and periodic alterations in order to fully understand the diverse ecosystems that exist together in this environment.

If a country has not yet established a policy on nature reserves and the creation of marine sanctuaries, there is an urgent need to study the marine ecosystems as they represent a unique opportunity and are also important educational and touristic resources.

The State is responsible for the protection of the environment and from any danger that may alter its ecologic equilibrium and its value as a natural resource, especially from pollution, the consequence of which may be decisive for the survival of marine fauna and flora, harmful for human life and diminish its interest for recreational and tourism purposes.

The pollution of the maritime environment may originate from many elements but shore based sources of pollution are recognized as the most significant cause. A great part of the polluting elements that exist in the atmosphere are transported by precipitation directly into the seas, or indirectly by drainage from the shore. A portion of the industrial residues and polluting materials generated by cities and agricultural activities are also carried into the seas by fluvial processes.

The evaluation of the environmental impact is a basic reference and a very important element for decisions involving the establishment and operation of aquatic, marine and oceanic resources. All industrial installations, ports, maritime terminals, and all the activities carried out in the coastal zone, lakes, rivers or in jurisdictional waters, as well as undersea mining, cable laying, construction of bridges and other engineering works, are subject to a previous evaluation on the environmental impact before any decision is taken on this subject. The deposit of radioactive residues in

the oceanic sea bed and the dumping of toxic and harmful substances are also matters of grave concern that countries must investigate, monitor and control.

Ports and shipping terminals are important nodal points in transportation routes, but are also important polluting agents. Therefore, their design, installation and construction must be controlled, and great care must be taken to ensure that environmental criteria is applied to their construction along the coastline, and to the control of their activities and development.

The aim of a "Policy for the Protection and Preservation of the Waters under National Jurisdiction" is the protection and maintenance of the natural marine environment, improving the conditions for the existence of ecosystems, and establishing programmes to fight against harmful elements. The following items should therefore be taken into consideration:

- To prevent, reduce and control pollution, improving the environmental conditions in seas, ports, channels, rivers and lakes.
- To identify and evaluate the origin and effects of direct and indirect pollution of waters and their specific or dispersed action.
- To protect the marine environment from pollution caused by hydrocarbons, toxic and radioactive residues and other harmful substances, in order to maintain the equilibrium of the natural environment.
- To identify typical or nationally representative ecosystems along the coastline and to promote their preservation and development.
- To analyze the condition of the marine environment and to determine the existing and the potential pollution levels.
- To make efficient use of shore and oceanic resources by means of integrated programmes, establishing the framework for the exploitation of these resources. To develop monitoring and prevention programmes to control the pollution levels in waters under national jurisdiction.
- To draft guidelines and determine environmental impact parameters to carry out monitoring and supervisory programmes regarding the origin and consequence of marine pollution.
- To supervise, control and implement national jurisdiction regarding environmental protection of lakes, rivers and seas.
- To supervise, control and implement the international conventions ratified by national administration regarding the prevention, reduction and control of pollution in lakes, rivers and seas.
- To encourage participation in tourism and educational programmes by the private sector for the identification of ecosystems and the control of

contamination levels, procuring a highly qualified professional scientific participation and the best quality in the information provided.

- To emphasize the importance of preserving the marine environment by means of scientific programmes concerning the ecosystems in marine and inland waters, the species of economic and ecologic importance and those facing extinction.

IV. CONCLUSIONS

1. The potential of maritime nations is highly dependent on the ocean, where living resources and commercial possibilities must co-exist.
2. The seven policies suggested in this article intend to give nations a solid base for the establishment of a National Maritime Policy, strongly related to the hydrographic and oceanographic activities of their respective Hydrographic Services.
3. Hydrographic Services are committed to provide the necessary information and technical assistance to guarantee safe navigation and life at sea. At the same time, their specialized research, products and services provide important guidance for other maritime related activities relevant to the development of the country. The relation between Hydrographic Services and these policies has been outlined in the diagram annexed to this document.
4. Governments of maritime nations must always take the sea into account. When planning national policies, they must consider the ocean and its influence on the development and growth of their country, and in the achievement of the final objective of every nation : the welfare of its people.
5. Finally, it is necessary to note that a good knowledge of the sea and maritime resources is essential to make good use of them. In this respect, Hydrography and Oceanography include techniques, arts and sciences that can provide the sound and relevant knowledge required. Maritime nations should give them high priority in order to achieve the final objectives of their sectorial and National Maritime Policy.

**Some Hydrographic Services and Products to Assist
Maritime Policies**

	Policy (1)	Policy (2)	Policy (3)	Policy (4)	Policy (5)	Policy (6)	Policy (7)
Nautical Charts	X		X			X	X
Thematical Charts	X	X		X			X
Atlas			X				X
Bathymetric Data Base	X		X	X		X	X
Oceanographic Data Base	X			X	X	X	X
Meteorological Data Base	X		X	X	X	X	X
Geographic/Nautical Information	X	X	X	X	X	X	X
Nautical Publications	X	X	X	X			
Forecasting	X		X	X	X	X	X
Cartographic Data Base	X		X	X		X	X
Parametric Monitoring	X			X	X	X	X
Maritime Concessions	X			X	X	X	X
Coastal Settlements	X				X	X	X
Tourism and Recreation	X	X	X	X	X	X	X
Environmental Impact Studies	X	X		X		X	X
Safety and Salvage at Sea	X		X			X	

- (1) Policy for the Occupancy and Development of the Jurisdictional Waters and Coastline.
- (2) Policy for the Promotion of a Maritime Consciousness and Education.
- (3) Policy for the Use of the Seas as Maritime Transportation Routes.
- (4) Policy for the Use of Natural Resources.
- (5) Policy for the Development of Maritime Industry.
- (6) Policy for Marine Scientific Research.
- (7) Policy for the Protection and Preservation of the Jurisdictional Waters.