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Preliminary Basis for an Integrated Management Program for the Coastal Zone of Argentina

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The continental coastal zone of Argentina can be differentiated by environmental, biological, socioeconomic, and historical characteristics in four distinct regions. The Great Fluvial region, 3725 km long, shows richness of natural resources and has a developing economy based on forestry and agriculture, The La Plata River (Río de la Plata) region, with a 392 km waterfront, is the most densely populated, urbanized,

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industrialized area in the country, and it also exhibits high levels of environmental degradation. The Pampean (Pampeana) and the Patagonian (Patagónica) regions have a 4725 km litoral They hold important fishery stocks, the largest of which (the hake) is currently overexploited. Tourism demand has caused urban landscape to progress in the Pampa coast during the last three decades. In Patagonia, most of the natural resources are well preserved but the territorial and economic integration is still delayed.

Despite the environmental and socioeconomic differences among the four regions, there is, however, a common set of problems which, to a greater or lesser extent, affect them all: (a) privatization of the public domain; (b) inadequate urban planning of the coastal zone; (c) industrial and urban pollution; (d) coastal erosion linked to inadequate coastal management practices; (e) overexploitation of natural resources; (f) loss and fragmentation of natural habitats leading to the loss of biodiversity; (g) increased coastal vulnerability.

According to this diagnosis, coordinated specific, long-term actions should be promoted. Even when Argentina has a wide range of environmental legislation, it lacks a single tool or instrument specifically designed for coastal management. Most of the regulations and administrative requirements applied to the current coastal zone management are general normatives, and thus diffuse or hardly suitable for specific situations. We propose to attain consensus about a minimal preliminary basis in order to develop a national integrated management coastal program. Some of the issues are: design of specific governmental policies; creation of a specific institutional organization; long-term funding for the program; promotion of interinstitutional coordination and public participation in the decision-making process; development of specific research, education, training and information generation; and promotion of international cooperation aimed at sharing experiences in coastal zone management.

Keywords Argentina, ICZM, La Plata River Basin, Pampa, Patagonia

Objectives and Proposed Methodology

Argentina lacks a coastal management program or policy together with an executive administration for coastal zone issues, even though it has the largest continental shelf and the third longest coastline in South America, as well as important fisheries and petroleum reserves. In several Latin American countries, agreements have been signed that explicitly propose, from the highest governmental authorities, a new model of coastal management (Barragán Muñoz, 2001b). In Argentina, none of the administrations, or interministerial commissions, have issued a statement on the matter, showing no political will to introduce changes in the coastal resources management policy.

Our aim is to characterize the status of the coastal resources, to analyze their current management, and to identify the key issues which should be included in a future national program for integrated coastal zone management (sensu Clark, 1996; Cicin Sain & Knecht, 1998; Kay & Alder, 1999; etc.). The current state of the natural, economic, and legal resources is analyzed within the framework of the political, institutional, and macroeconomic situation. Considering the coastal zone as three interacting subsystems (physical/natural, socioeconomic, and legal/administrative, according to Barragán Muñoz, 1997), it is possible to study the interrelations among them. This viewpoint enables a diagnosis of general problems, allowing an identification of the strengths and weaknesses of the space and resources of each coastal region. Finally, we include a number of proposals or guidelines which should be considered in any future coastal management planning in Argentina. This methodology has been previously applied for the Latin American subcontinent (Barragán Muñoz, 2001b).

The approximately 5,000 kilometers of the marine coastline (Figure 1 and Table 1)

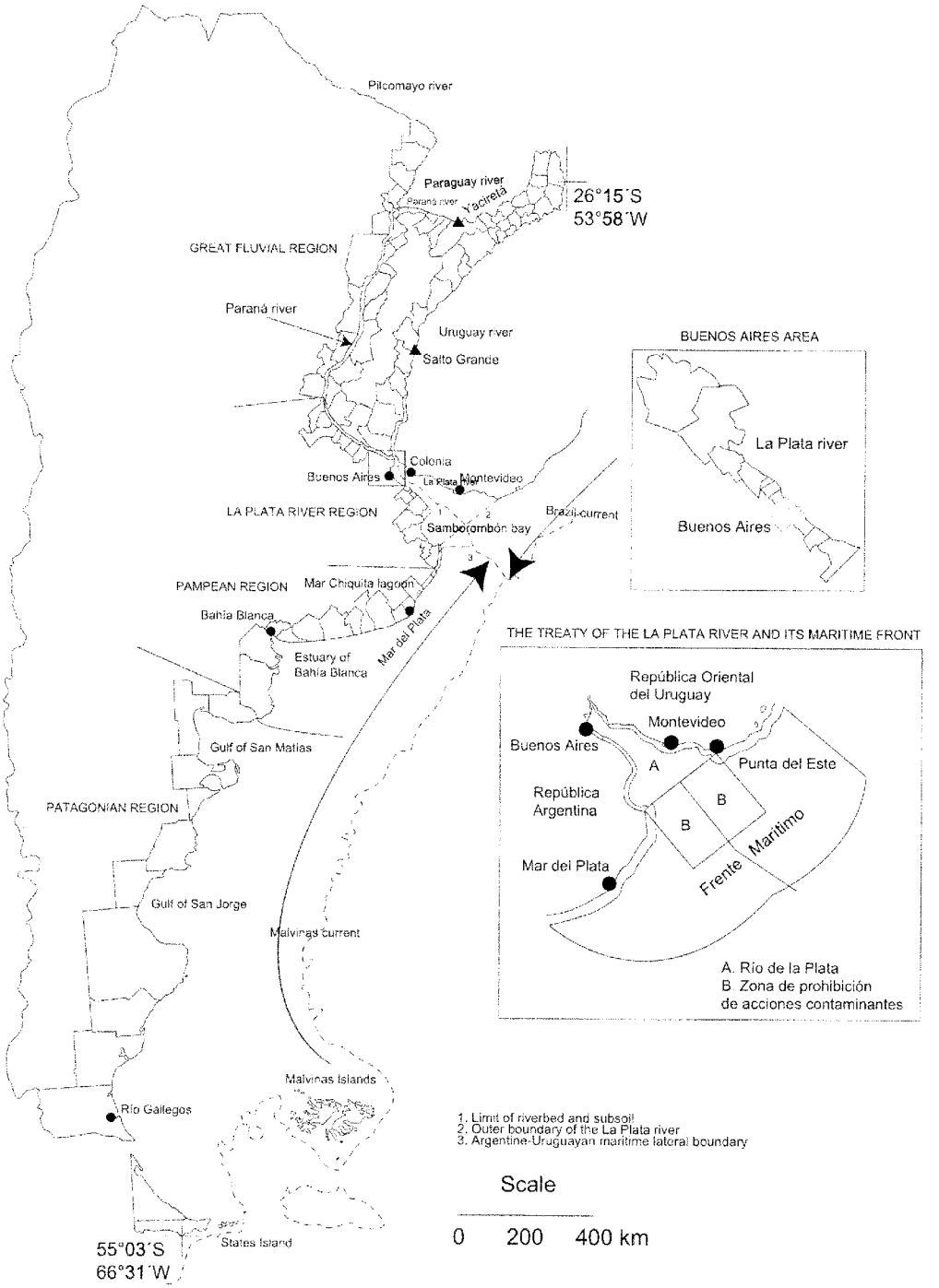

Figure 1. The coastal zone of Argentina. The regions and the coastal administrative units (departments) are shown, as well as the name mentioned in the text; main rivers making up the riverine coast, the borders of the La Plata River, and the Argentinian Epicontinental Sea; the Common Fishery Zone of Argentina and Uruguay; and the 50, 100, and 200 m isobaths. Reproduced with permission of GEPAMA.

Table 1
The national context: Basic data about the territory, society, economy, and coast of Argentina

Territorial surface area (in the American continent)	2,791,810 km^2
Population (preliminary results year 2001)	36,027,041
Urban population (year 2000)	89.6%
Population density (year 2001)	13.1 inhab./km^2
Mean population growth rate (1995–2000)	1.3% per year
Position in the UN Human Development Index (2000)	34 out of 162
Position in the World GDP (2000)	52 out of 162
Per capita GDP (2000)	12,277 U.S.$
Unemployment rate (1989 and 2001)	8% and 21%
GDP growth rate (2000)	–0.5%
Overall external debt (1989 and 1999)	60 and 147 billion U.S.$
Coastline length:	
Atlantic maritime coast	4,725 km
La Plata River (Argentinian side)	392 km
Great Fluvial Region coast (Figure 1)	3,725 km
Continental shelf area	1,164,000 km^2

Sources: IGM (1998), AKAL (2001), and original data.

were divided into three large regions following traditionally established borderlines: (a) La Plata River (Río de la Plata) region, (b) The Pampean (Pampeana) region, (c) The Patagonian (Patagónica) region. Another one, the Great Fluvial region (Gran Región Fluvial), has also been included as proposed by several authors (i.e., Alvarez & Alvarez, 1984; Brandani, 1990). The Great Fluvial Region originates from the confluence of three great South American rivers, the Paraná, the Uruguay, and the Paraguay. Due to the geopolitical and socioeconomic importance of the La Plata Basin within the South American continent, together with its continuity with the maritime coastal zone, its inclusion in this study is compelling.

The Context of Coastal Zone Management in Argentina

Nowadays Latin American coastal management is a "new world mosaic" (Yáñez-Arancibia, 1999), where a wide spectrum of different training experiences, resources, and social development overlap. Expertise and overall interest in coastal management vary considerably among Latin American countries. Some of them have no specific tools for the integrated management of their national coasts, as is the case in Argentina, while others have developed advanced programs (Yáñez-Arancibia, 1999; Barragán Muñoz, 2001a). Sectorial planning has been attempted by consulting groups at various times on a restricted scale (Brandani, 1987, 1990), but up to now no broad national coastal management plan has been developed. Only the coastal areas with the highest priority have received some attention (Brandani, 1987, 1990).

The reasons for this situation are the historical and socioeconomic backgrounds. Argentina has traditionally been concerned about its hinterland. Since colonial times, the economy has been based on cattle ranching and agriculture. The only coastal activity with a long tradition is tourism, which was known since the mid-19th century; the fishing industry, by comparison, is a far more recent phenomenon. Another reason is the current model of economic development. The neoliberal formulas of global economy

constitute the pathway imposed by the international credit organizations in order to overcome the effects of the "lost decade." This is the name given by some authors to the 1980s, one of the most critical periods in the history in Argentina. During the 1990s, the state presence was withdrawn from several aspects of public life, with the privatization and deregulation which today dominates almost all areas of management. During this "decade of adjustment" the country showed the most open economies in the world, succeeding in terms of certain macroeconomic indexes (reduction of the relative external debt, growth of the gross national product). However, the social imbalances generated by these adjustments were too strong: rise of unemployment to levels hitherto unknown in the country, considerable reduction of the middle class, drastic cuts in public social assistance, and rising levels of social inequality due to the increasing concentration of wealth. As a consequence, the economic crisis was aggravated and an uninterrupted recession began in mid-1999, which led the nation to the external debt default in December 2001. The environment, natural resources, and public land (above all in coastal areas) were deeply harmed as a consequence of these changes.

Physical and Bioecological Characterization of the Coastal Zone

The Great Fluvial Region

This region comprises the Paraguay, Uruguay, and Paraná Rivers and their watersheds (see Table 2), which form the terminal portion of the International La Plata Basin, draining 1,005,756 km^2. The southern limit is the confluence of the Uruguay River with the La Plata River and to the 32° parallel, where the Paraná and Uruguay Rivers converge on a delta.

The Paraná and Uruguay Rivers support the largest biodiversity in the Argentinian coastal zones, with about 2000 species of vascular plants (200 are trees), more than 400 families of birds (including regional and transcontinental migratory species), and about 100 mammalian species. These environments are highly influenced by dams located upstream. These rivers, as well as the Paraguay River, flow along depressed flood plains, surrounded by ridges. In the middle course, the Paraná River shows asymmetrical margins; on its western margin there is a flood plain which varies in width between 6 and 57 km, and on its eastern margin it has steep scarps. This pattern reverses in the lower course. Riverine forests, diversified forests growing on the ridges, forests bordering wet-

Table 2
Metric properties of the Great Rivers of the La Plata Watershed in Argentina

	Paraná	Uruguay	Paraguay
Length (km)	1,950	1,100	375
Width (m)	400–8,000 (13,500)	1,200–13,500	120–2,700
Flow rate ($m^3\ sec^{-1}$)	17,400	5,500	3,500
Peak flow rate	January to April	January to April	May to July
Causes of flood	Rainfall in the high reaches of the watershed	Rainfall tides and "sudestadas"	Rainfall at the head of the tributaries
Lowest water level	August to November	August to November	September to January
Contribution to the main river ($10^6\ m^3\ year^{-1}$)	550,000 to the La Plata River	145,000 to the La Plata River	315,000* to the Paraná River

Sources: Bonetto and Hurtado, 1998; Arduino, 1990; OAS, 1969, and original data. *Indicates a maximum.

lands, and lagoons surrounded by palm groves are the natural flora. Aquatic fauna can be estimated as including between 380 and 550 species of fish, some species ranging over 2 m long and weighing up to 200 kg. In the case of the Uruguay River, the flood plain is not as well developed; the river is bordered by stepped terraces and the plant diversity is lower.

The functional characteristics to be considered for management are: (a) The rivers drain extensive lowland and estuarine areas; during the flooding of these areas important organism and nutrient exchanges occur; the riverine system also acts as an important nursery area for the species inhabiting the rivers. (b) The rivers and the riverine woods are an important migratory corridor for plant propagules, fish, birds, and other animals; this has extended the distribution of tropical species into subtropical and high latitude southern temperate areas. (c) International agreements are required for management in order to maintain international sustainability of the system (Morello & Matteucci, 2000). Present or future dams in neighboring countries could affect development projects within the Argentinian portion of the system.

The wetlands play a key role in the preservation of flora, fauna, and water resources. Their functional integrity maintains the balance of the groundwater, flood control, and climate control. They act as a potential nutrient reservoir and as a habitat for a whole range of endemic, rare, and threatened plant and animal species, and of species which rely on regular flooding for survival. Among the diverse living resources supported by this dynamic wetland system are commercially important fish species, some of them migratory.

La Plata River Region

The La Plata River is 320 km long, and up to 230 km wide at its mouth, modellating an estuarine system of about 35,000 km^2 (Guerrero et al., 1997). It is navigable only through channels. The astronomical tides amplitude oscillates between 0.3 and 1 m (Guarga et al., 1991), whereas the meteorological tides exceed 4 m in amplitude. Storms coming in from the southeast, locally called “sudestadas,” are frequent between July and September and often cause extreme flooding, affecting the low-lying areas of the extensive urbanized zone. This is the most endangered coastal region of the country. The biological and landscape heritage are heavily threatened due to the continued urban expansion and population concentration.

The maritime front of the La Plata River is included within this region (Figure 1). The hydrological dynamics is complex. The warm waters of the Brazil current mix with the cold waters of the Malvinas (Falklands) current, generating the Brazil–Malvinas Convergence (Legeckis & Gordon, 1982). The fishery resources are jointly managed between Argentina and Uruguay; the most important species are the hake (*Merluccius hubbsi*) and the whitemouth croaker (*Micropogonias furnieri*).

The Maritime Coastal Zone: The Pampean and the Patagonian Regions

The Argentine Epicontinental Sea (see below) lies over approximately 1,000,000 km^2 (IGM, 1998). Its width varies, being at the maximum 850 km at the latitude of the Malvinas Islands (Parker, Paterlini, & Violante, 1997). The dynamics of the continental shelf waters is dominated by the Malvinas current. The main resources are the fish stocks and the fossil fuel reserves. Over 400 species of fish have been reported, and even when twelve species are exploited, the most important is the hake (Subsecretaría de Pesca, 1997).

Two regions can be recognized in the continental shelf: the Pampean and the Patagonian.

The Pampean region extends between 35° and 41° south, occupying 230,000 km^2. The coasts in this region show accretion and some contain well-developed sandy beaches made up of clastic and organic sediments (Codignotto, 1997). The outstanding landscapes are the Mar Chiquita lagoon (the only microtidal coastal lagoon of Argentina); the sandstone and quartzite cliffs belonging to the Tandilia hills, which rise to heights of up to 25 m; and the tidal wetlands and mud flats found in the Bahía Blanca city area.

Overexploitation of fishery resources, inadequate management, and the expansion of tourism and urban areas are the critical processes to be taken into consideration in this region (Gómez & Toresani, 1998; Dadon, 1999). Deliberate replacement of native plant communities in the coastal dune systems by forestry and urbanization is causing changes in biodiversity (Dadon, 1999) and coastal erosion (see, for example, Isla, 1995; Marcomini & López, 1997; Isla & Villar, 1992). In addition, it has deleterious effects on the natural beauty and biotic value of the most populated seaside resorts.

The Patagonian region extends as far south as 55° S including the State and Malvinas Islands, and comprises 750,000 km^2. The coasts are erosional, with well-developed cliff of 10 to 150 m high. The most common beach sediment formations are composed of gravel and Patagonian pebbles. Coarse sand beaches also occur but are less common. Bays and gulfs (San Matías, San José, Nuevo, etc.) support ecosystems of remarkable interest. The astronomical tide amplitude vary according to the area; some of them (i.e., the Río Gallegos area) are among the widest in the world.

Patagonian resources are still well preserved (Yorio, 1998). The natural landscapes have remained relatively intact, and the fish stocks can be sustainably exploited through commercial, artisanal, and recreative fishing, especially in gulfs and bays (Ciocco, Lasta, & Bremec, 1998). There are large populations of coastal birds and marine mammals, which constitute international touristic highlights. There are also nursery areas for fish and crustaceans and macro-algal and molluscs beds (Yorio, 1998). However, pollution from the petrochemical industry and inadequate coastal management have caused deterioration of natural resources in some local areas.

Social and Economic Characterization: Uses and Activities

The social and economic characterization was based on the INDEC (Statistics and Census National Institute) census, Roccatagliata (1997) data, and original data obtained by the authors. More than the 50% of the population lives in the coastal zone (Figure 1), where the bulk of the industry and services of the country are located. The coastal population growth rate exceeds that of the hinterland, which is also the case with the economic indexes. The coastal zone has the country's most developed infrastructure; the road, rail, and air networks all converge on the La Plata River region, the traditional port of entry and departure for merchant and passenger vessels. In addition, the coastal zone is the leader in national tourism.

Great Fluvial Region

Forestry and agriculture stand out as the main economic activities of the zone. The oldest economic activity is the extraction of native trees. The quebracho tree (*Aspidosperma quebracho blanco* and *Schinopsis balanzae*) was the basis for an incipient industry of extraction of tannin and production of railway sleepers. From the 1930s onward, the use of tannin declined due to the growing competitiveness of the South African mimosa (genus *Mimosa*) trade, and the crisis in the regional industry resulted in the closure of 70% of the factories. Afterward the cycle of cotton production started and continued up to now, but the fall in demand over the last few decades has led to its

gradual replacement by soy, sorghum, sweet corn, and vegetables. This process is known as the pampeanization of the Chaco due to the application of the same techniques as those of the Pampean region.

The commercial exploitation of the Paraguay and Uruguay Rivers is generally carried out by inhabitants of the neighboring countries, Uruguay and Paraguay. The Argentine fluvial fisheries are subsistence fisheries lacking control and social acceptability. The sporting fishery on the upper course of the Paraná River is also important.

Various branches of these rivers are shallow and as such their navigation poses serious limitations. The importance of the six major ports and many small ones, together with the river transport system, has declined over the years. However, the consolidation of the Mercosur markets can open new possibilities in external commerce for this sector.

La Plata River Region

This region has a concentrated main infrastructure, which extends uninterrupted along the industrialized river margins of the Pampean Region. The capital city and principal urban center, the autonomous city of Buenos Aires (population near 3,000,000) is situated here. The city is surrounded by 31 metropolitan districts, which have a total population of 11,000,000, making up what is known as Greater Buenos Aires. There is a radial design to the country's rail, road, and air links in the capital city, and it could be said that in Argentina, "all roads lead to Buenos Aires."

The main economic activity is industry. The manufacture of textiles, chemicals, pharmaceuticals, tobacco, cars, clothing, and footwear predominate in Greater Buenos Aires. To the south, shipyards, distilleries, and meat processing are the most common industries, while iron/steelworks and metallurgical, mechanical, and agricultural machinery, petrochemical, paper and cellulose works, and plastics, are located to the north and west.

Pampean Region

The predominant activities within the coastal zone are tourism and ports, offering a wide variety of beach resorts with distinctive characteristics. Mar del Plata city is the largest seaside resort, and not only does it offer the highest number of hotel rooms and housing for rent, but it is also a multifunctional urban core. It is also the largest fishing port, an industrial, sporting, and naval center, and it links to the cereal industry. Further south lies Bahía Blanca, another regional center, which is the main link to Patagonia. Here the principal naval base is situated.

The main fishery resource is the Argentine hake. Anchovies are also abundant, as are clams, prawns, shrimp, squid, mussels, and other commercial bivalves.

Patagonian Region

Historically, there have been three main settlement routes: the Atlantic coast, the west-east river valleys, and the Andean valleys; the former two gave rise to the present coastal urban centers. Sporadic coastal developments have arisen due to the demand created by either the petrochemical industry or the wool and lamb markets. The infrastructure is scant, with the two national highways connected by a few transverse roads, thirteen ports, and eleven airports.

A special taxation system was established for industrial promotion of electronic assembly plants in the south of the region. This policy is, however, falling behind schedule. The commercial fisheries are highly varied and include fish, molluscs, crustaceans, and sea urchins. The extraction of macro-algae for the production of phycoloids and other

products, boomed 1ocally during the 1960s. Overseas travelers select from several patagonic destinations searching for ecotourism, adventure, hunting, and fishing. Of particular importance are the areas renowned for whale watching, the observation of penguins and seals, and underwater sports.

Juridic and Administrative Characterization Related to Coastal Resources Management

Regulations and Share-Out of Responsibilities

Argentina has adopted a federal government (Article 1 of the national constitution) and is divided into 23 provinces and one autonomous federal capital city. The provinces (state level) are historically previous to the nation (federal level) and consequently they are responsible for matters which they did not delegate explicitly to the nation (Article 121 of the national constitution); among them are those matters related to their territories and to their natural resources. The resources and responsibilities are defined in Article 124 of the constitution. The provinces are divided up into departments (county level), which should assure a municipal regime that is established by each province.

Argentina lacks specific policy and laws concerning coastal zone and resource management and planning. A profusion of general regulations do exist, however, at all three levels of government (national, provincial, and municipal), with considerable overlapping responsibilities between them. Consequently, the present legal basis is broad, diffuse, and dispersed in a multitude of codes, laws, and decrees. No public organization is responsible for the matter, nor for coordinating the various agencies and institutions.

The applicable federal legislation with the highest interest can be divided into three groups: (a) large codes, (b) international treaties and agreements, (c) national and provincial laws and decrees.

Large Codes. Besides the national constitution, among the most important codes (commercial, mining, penal), worth mentioning is the Civil Code of the Argentine Republic (Law 340), whose Article 2340 defines as public assets "the territorial seas, the interior seas, bays, inlets, ports, anchorage sites . . . the rivers, their beds . . . ocean beaches and interior river banks, understanding as such the land space that water bathes or clears out during the usual high tides or the ordinary medium floods . . . the existing islands or those arising in the territorial sea or in any river type. . . ." It also establishes (Article 2343) the possibility of private appropriation of some resources, such as fish, plants, and weeds that grow on the seashores, etc. With regards to the responsibilities share-out, maritime beaches and internal river banks belong primarily to the provincial public domain (Article 124 of the national constitution), but some of those responsibilities were delegated to the nation. The civil code specifically establishes the regulation of lands and activities in riversides and in continental waters, paying little attention to those of coastal and maritime nature.

International Agreements and Treaties. Many of the issues relating to coastal management are dealt with by organizations whose remit is related to treaties on international borders. The maritime and coastal borders of Argentina are determined under the auspices of the Ley de Líneas de Base y Espacios Maritimos (Base-Lines and Maritime Expanses Law), the Tratado del Río de la Plata y su Frente Marítimo (La Plata River and its Maritime Front Treaty), and the Tratado de Paz y Amistad con Chile (Treaty of Peace and Friendship with Chile).

The Ley de Líneas de Base y Espacios Marítimos (Law 23968/91) was sanctioned under the United Nations Law of the Sea (UNCLOS) and fixes the continental and

insular territorial borders. The Law 23968 is important for two reasons: it gathers in a single normative body all the dispersed legislation referring to the Argentine maritime zones, and it solves the contradictions of the legal regulations previously in force. This regulation, approved by Argentina under Law 24.534, sanctioned on September 13, 1995, and ratified on December 31, 1995, is in force today. At the time of ratification, a number of declarations were made since Article 309 of the Convention prevents the formulation of reservations and exceptions (Warner, 1996). From the base lines, the outer limits of the jurisdiction over the rivers which form the borders between Uruguay, Brazil, and Paraguay has been established with successive treaties and agreements. A number of commissions and specific committees have been established for the joint management of these border areas, in which the countries directly involved participate (Table 3).

National and Provincial Laws and Decrees. The following are among the most interesting national and provincial laws and decrees for coastal areas and resources: Law 22351 of National Parks and Reserves, Law 13273 of Forest Riches Defense, Law 22421, and National Decree 666/97 of Wildlife Protection and Conservation, Law 23919 on adhesion to the Ramsar Convention, Law 24375 on adhesion to the Biological Diversity Agreement, and Law 24922 of the Federal Regime of Fishery. The latter, approved in 1997, reasserts that the biotic resources domain within a 12-mile limit belongs to the coastal province, while those in the rest of the exclusive economic zone belong to the nation. The enforcement authority is the Fishery Department (at present, the Department of Agriculture, Stockbreeding, Fishery and Food). Among other functions, it directs and enforces the national fishery policy; supervises the quota management system established by the Federal Fishery Council; issues the annual catch quotas per ship, per species, per fishing zone, and per fleet type, as granted by the Federal Fishery Council; and issues the fishing permits with previous authorization of the Federal Fishery Council. Other important regulations are Laws 25048/98 and 21105/99, which endorse an agreement between Argentina and Paraguay on conservation of fish resources in the Paraná and Paraguay Rivers.

Table 3
Organizations involved in the management
of coastal areas under shared jurisdiction

National Committee on the Outer Limit of the Continental Shelf (COPLA)
Intergovernmental Co-ordination Committee for the La Plata River Watershed
Joint Argentine Paraguayan Commission for the Paraná River
Administrative Commission for the La Plata River
Administrative Commission for the Uruguay River
Joint Technical Commission for Salto Grande
Joint Technical Commission for the Maritime Front (of the La Plata River)
Bi-national Administrative Commission for the Lower Pilcomayo River
Tri-national Commission for the Pilcomayo River
Intergovernmental Commission for the Paraná—Paraguay Waterway
Binational Commission for the Buenos Aires—Colonia Bridge
Joint Technical Commission for the Northern Road Network of the Southern Cone
Binational Organization Yacyretá

Source: García Santos (2000). In each case the Argentine side is represented by the Ministry of Exterior Relations and International Commerce (Subsecretary of American Economic Integration, MERCOSUR, and Subsecretary of Latin American Affairs).

The provincial legislation is also of huge interest in understanding the complex structure of coastal management in Argentina, among other reasons due to the fact that responsibilities such as the Land Use Code fall within this administrative level. The case of Buenos Aires Province may be illustrative. Its Land Use Code, under Law 8912, establishes (Article 58) that

> in the creation or enlargement of urban cores next to the Atlantic ocean, a parallel fringe 100 m wide from the foot of dunes or cliff should be demarcated for uses complementary to those of the beach; this fringe of fixed dunes should be given to the Provincial Treasury, properly forested, converted to a park, and provided with a parking lot.

Actually, this does not happen in many places, especially in densely populated areas or in those devoted to tourist or leisure-time services (Bertoncello, 1993; Barragán Muñoz, 1996).

Other regulations of interest for that province are: Law 11820 of Public Services of Drinking Water Provision and Sewer Drainage System, Law 5965/58 of Protection of Air and Water Sources, Courses and Sinks (it prohibits pollution discharge and delegates the responsibilities to the municipality), Law 11723: Comprehensive Law of Environment (environment and natural resources protection, conservation, improvement, and restoration), Law 10907 of Natural Parks and Reserves, Law 11477 of Fishery, etc.

Within this framework of provincial legislation, two outstanding rules are essential: Law 11175/91 of Ministries, and Law 12257. The former aims at organizing the complex environmental administration system by establishing the responsibilities on environmental matters, and natural resources use and management dispersed in the various ministries and departments. The Water Code, under Law 12257, has a direct bearing on the coastal border, for it delegates to the municipalities the primary responsibility on the matter (Articles 161 and 162) and prohibits "the division of lands into lots and building within a 150 m wide fringe next to the Atlantic Ocean, as well as building on the dunes and dune ranges reaching the sea even when farther away."

A separate consideration should be given to Law 11366, sanctioned by the Senate and the Chamber of Deputies of Buenos Aires Province on December 17, 1992, which ratifies an agreement between the Province and the firm CODECO (Empresa Corporación Defensa Costera Sociedad Anónima) for the land filling and urbanization of 3300 ha on a (river and sea flooded) coastal front of almost 30 km at the Southern Greater Buenos Aires. Even though this project has not been carried out, this law: (a) took away from public domain the lands claimed from the river so they could be converted to urbanization; (b) exempted the firm from real state taxes, which would have been substantial, since up to 70% of the lands could be urbanized and sold away; the other 30% were assigned to streets, squares, and public fittings; (c) disregarded the environmental effects on river dynamics, flora, fauna, and protected areas of the famous Pereira Iraola Park, as well as the impact on the devices for water intake located in the river; (d) passed to private hands the control of water level, pumps for extracting water, and channel construction on the lands blocked by the project; (e) promoted new settlements in an overpopulated area (Barragán Muñoz, 1996, p. 124).

The legislation described above is complemented by the municipal and departmental responsibilities. These are in charge of developing the land use codes on the basis of the Regulating Plans or Urban Codes of Land Use. Other responsibilities of great interest for coastal management is the determination of the inner bank limit, which is a reference for demarcating the external bank or coastal margin. According to the Civil Code, this level is also responsible for the demarcation of public lands, and they comply to the administrative legislation applying the easement rights (Franza, 2002). Such a

complex legislation, together with the lack of a specific public organism, cannot but result in a complex system of public institutions (Table 4) involved in the administration of coastal resources and related activities.

Environmental Regulations. Regulation on environmental matters is quite old and abundant (see, e.g., Zeballos de Sisto, 1987a, 1987b, 1994; Brailovsky & Foguelman, 1991). According to the present environmental paradigm, a new article (Article 41) was included in the 1994 amendment of the constitution, which establishes the right to a "balanced healthy environment suitable for human development and for productive activities which satisfy the present needs without compromising the needs of future generations." The commitment to protect the environment is also mentioned.

The regulations on Environmental Impact Evaluation also bear on some of the activities developed in coastal zones. During the 1990s, laws and regulations directly affecting coastal zone management were approved. Among those of general implementation, we can cite the Environmental Impact of Port Activities Bill (Law 24093/93), the Regulation of EIA within the National Parks Administration areas (1993), and the Environmental Legal Reasons for the Oil and Gas Activities (1993).

Strategies for Coastal Resources Management

In the 1980s and 1990s, under the socioeconomic circumstances described above, most of the initiatives related to coastal resources aimed at their exploitation and their valorization. Strategies related to land use, protected natural areas, fish resources, etc., privileged the economic activity over that of resources protection. Since land capacity evaluation at the municipal level was conditioned upon the rising tourist options, resource deterioration has become easily noticeable, for example in the Pampean and Paraná river coasts. Little effort and financial resources have been put toward the management of protected natural areas, including those which have been declared as Heritage of Humanity (for example, Península Valdés, Reserva Isla de los Estados). Most of the 30 protected coastal areas of Argentina, located mainly in Chubut Province, suffer some degree of impact generated by tourism, resources extraction, recreative fishing, etc. (Kelleher, Bleakley, & Wells, 1995).

The serious social and economical situation during recent years has increased pressure on fishery resources. The catch quotas authorized by the Argentine government stand as an example. The legal quotas for the heaviest fish (hake *Merluccius hubbsi*, patagonian whiphake *Macruronus magellanicus*, patagonian toothfish *Dissostichus eleginoides*, and southern blue whiting *Micromesistius australis*) in 2001 were determined on the basis of catches per ship between 1989 and 1996, in spite of the fact that their growing population decrease is well documented.

Problems of Coastal Resources

As seen before, Argentina's four coastal regions show very different physical, natural, and socioeconomic characteristics, historical evolution, and future expectations. Despite these differences, however, there are a series of problems which are common to all four areas. To a greater or lesser extent these are problems which exist at the present day, and in the absence of clearly defined policies to tackle them, they are likely to persist in the future.

Privatization of the Public Domain

The most complex and best documented example of privatization of the coastal public domain is found in the coastline of Buenos Aires city. This is an issue dating back to

Table 4
Institutions involved in integrated coastal management in Argentina

Official public organizations of the national government—The Executive	Main organizations related to land planning and management
Presidency	Legal and Technical Secretariat Tourism Secretariat—Organization dependent on the National Parks Administration
Ministries Chief Office	Public Management Secretariat Dependent organization: Inter-jurisdictional Coordination Commission of the Paraguay-Paraná Waterway Program
Ministry of Internal Affairs	Municipal Affairs Secretariat Argentine Naval Command (to its regular functions, that of Environmental Policy has been added)
Ministry of Foreign Affairs, International Commerce and Worship	See Table 3
Ministry of Defense	Argentine Navy Military Geographic Institute
Ministry of Education	National Scientific and Technology Council
Ministry of Economy	Economic Policy Secretariat National Office of Coordination of Macroeconomic Policy Coordination Public Works Secretariat Water Resources Sub-Secretariat Public Works Sub-Secretariat Urban Development and Housing Sub-Secretariat
Ministry of Production	Industry, Commerce and Mining Secretariat Agriculture, Stockbreeding, Fishery and Food Secretariat River and Maritime Transport Sub-Secretariat
Ministry of Welfare	Environment and Sustainable Development Secretariat Environmental Policy and Code Sub-Secretariat Patagonian Coastal System National Office of Sustainable Development Office of Soil Conservation Office of Wild Fauna and Flora Office of Forest Native Resources Office of Fishery Resources Social Infrastructure and Housing Emergency Sub-Secretariat

1713 when cases of occupation of low-lying coastal areas were denounced (Brailovsky, 1995). Even in the 20th century, when public land was “reclaimed” from the river, using spoil from the subway tunnels and from the widening of boulevards, the land which was originally destined for public recreation was finally used for the national airport of the city. In the 1980s, extensive areas of coastal land were granted as concessions

for the establishment of restaurants, swimming pools, and marinas. Thus, views of and free access to the river were considerably reduced. By the beginning of the 1990s, only 5% of the coast was available for free and open access. However, by 1995, this tendency was being reversed by legal actions, resulting in landscape restoration through land recovery and the demolition of unoccupied buildings.

Urbanization of the Coastal Zone

Urbanization resulted in increased pressures on natural resources, such as space, landscape value, drinking water, natural vegetation, and fishery resources. Frequently it has gone ahead with inadequate planning, failing to take into account either geomorphologic processes or landscape and aesthetic criteria. Examples where such criteria were not taken into account include farmland encroachment (Morello et al., 1998; Matteucci et al., 1999), immobilization, reduction or destruction of dune systems, impermeabilization of streets with asphalt, construction of buildings and roads too close to receding coastlines; inversion of the drainage system so that rainwater flows into the sea, and so on. These actions led to increased coastal erosion and reduced groundwater recharge.

In many seaside areas, the urban design is not in keeping with the main economic activity. It is commonplace that the line of tallest buildings is sited directly on the seafront, putting the beaches in the shade from mid-afternoon onward.

Pollution

Pollution is becoming an increasingly serious problem. The source of the chronic pollution finding its way into surface and subterranean waters include pollutants from the activities of ports, domestic sewage, and industrial discharge. The situation is critical in the La Plata River tegion, where the waste from domestic and industrial sources converge along the region's industrial riverine axis. This problem is not confined to the industrial districts and is indeed slowly spreading to the coastal Pampean region. Wastewater treatment is either incomplete, insufficient, or absent, and in many places pulses of contaminated water can be seen in coastal waters or in areas adjacent to the point of discharge. Rubbish management is inefficient in some localities. Solid waste often builds up on beaches which fall outside the cleaning circuit, and it is redistributed by coastal drift. Coastal defenses, in particular breakwaters, tend to trap floating rubbish and turbidity, concentrating contaminants on beaches (Isla & Villar, 1992).

Oil spills are primarily related to petrochemical industries in Pataonia and La Plata River. Yet, recent spills in front of the tourist beaches of Punta del Este (Uruguay) and in the Bariguí-Iguazú River (Brazil) (which flows into the Paraná River) have shown the vulnerability of the entire coastal zone of Argentina.

Coastal Erosion

Coastal erosion is a recurrent problem in the Pampean region (Isla & Villar, 1992). Human action tends to increase the rate of erosion, usually due to inadequate planning. In areas of coastal accretion, poor coastal management practices have generated problems of erosion. As an extreme example, the coastline of Mar Chiquita has receded over 130 m in 23 years, losing ten square blocks of forested parceled dunes (Schnack, 1985). In addition, sand extraction from dunes and beaches, extending impermeable urban surfaces (leading to increased runoff), and introduction of artificial drainage systems aggravate the damage (Marcomini & López, 1997).

In fore dunes, forestation for sediment consolidation and dune leveling interfere with the sedimentary balance increasing erosion and vulnerability to storms. In more developed urbanizations, the fore dunes have been replaced by paved avenues. Sand extraction from beaches is prohibited in many departments but it is often locally tolerated in order to reduce construction costs (Isla & Villar, 1992).

In shorelines backed by cliffs, the cliff tops are encroached by infrastructure such as road networks or second residences. The groins, which inhibit the free transport of coastal sediments, together with the immobilization of sand dunes, have cumulative effects, often increasing erosion in neighboring down-drift areas. In Mar del Plata, artificial sand nourishment programs were carried out to replenish critically eroded beaches.

Overexploitation of Natural Resources

The most remarkable example of overexploitation is the hake, the principal target of the fishing industry. The stocks are distributed between the mouth of La Plata River and 50°S. During winter, the main bulk is found to the north and migrates to the southern limits in spring and summer. Declining catch despite of the increasing fishing effort registered in the 1990s led to the imposition of quotas, threatening the future of the fishery. The case of the squid fishery (*Illex argentinus*) should also be followed with due care. At present this fishery is below full capacity, while the exploitation of the species in international waters outside the exclusive economic zone continues totally uncontrolled.

Another documented case is the surf clam *Mesodesma mactroides*. Its distribution range has retreated concomitant with coastal urbanization and the consequent elevated levels of exploitation. Moreover, it disappeared completely from areas in which it was extremely common (Dadon et al., 2001).

Uncontrolled consumption of groundwater in the La Plata River, Pampean, and Patagonian regions has led to saline intrusion in several localities (Brandani, 1987, 1990; Isla & Villar, 1992). In the northern areas of the Buenos Aires region, subterranean water becomes scarce at the end of summer (Isla & Villar, 1992). In these growing urban areas, aquifer recharge rates have been reduced even in the wet season, due to asphalt and concrete, and most of the rainwater is rather channeled directly into the sea than infiltrated.

Loss of Critical Habitats and Natural Biodiversity

Biodiversity loss is caused both by the overexploitation of certain species and by the fragmentation of the natural habitat. Agriculture, forestation, and urbanization are concurrent factors in the destruction and fragmentation of natural habitat (Dadon, 1999, 2002). As a result, the native biota is being replaced by species associated with anthropogenic systems. Landscape quality is devaluating in many areas (Matteucci et al., 1999). However, some implanted forests are considered as components of the community heritage.

Another cause of biodiversity loss is the invasion by exotic species. One well-documented case is the growing and massive invasion of the La Plata River by Asiatic bivalves *(Limnoperna fortunei* and *Corbicula fluminea*) (Darrigran, 1997) and by the algae *Undaria pinnatifida* in Nuevo Gulf (Patagonia) (Piriz & Casas, 2001), propagated from larvae discharged in ballast water from an ever-increasing volume of traffic from the Far East. The expansion of both bivalves has been exponential, favoring the colonization by associated species and displacing the native benthic assemblages upstream the La Plata River (Darrigran et al., 1998).

Vulnerability and Risks

The construction of large-scale dams for water management, most of which are in neighboring countries, affects the quality, location, extension, and composition of the biota as well as fish migration patterns. The lack of baseline data prior to these developments means that in many instances it is practically impossible to evaluate their environmental impacts. The proposed damming of the Paraná River middle basin will certainly modify the annual pulses of flooding, altering the migration patterns of organisms between both flood-plain and river, and along the river course. The water lens expansion could cause local extinction and loss of habitats. Social impacts on local communities should also be expected.

Deforestation in the Paraná, Paraguay, and Uruguay Rivers' upper basins has worsened problems of flooding and soil erosion. Increasingly, larger areas and more sediment volume are being affected with each new flooding pulse. The "sudestadas" generate coastal overflows and erosion in the La Plata River region, destroying precarious settlements and flooding farmland. These storms increase coastal erosion, causing buildings, resorts, and coastal defenses to crumble into the sea and displacing large volumes of sediment seaward (Isla, 1995; López 1995).

Current Status of Coastal Resources

The present status of coastal resources shows great differences among the four regions. Considering the fluvial connection within the Mercosur, the richness of natural resources and landscape diversity, climate, and soils, the Great Fluvial region has a great misused potential. Drawbacks are the high level of basic unsatisfied needs, which worsen northward; the high risk of flooding in rural and urban areas; and the changes caused by dam construction.

The La Plata River region is heavily degraded due to chronic pollution, loss of biodiversity, destruction of natural habitat, elevated flood risk, and invasion by exotic species. The coastline here is the most deeply modified of the country. These modifications, concentrated in the northern sector, were the result of successive interventions, which were undertaken without a regional focus. Toward the south (Samborombón Bay), however, the natural landscapes, including mudflats, are well conserved together with emblematic species that inhabit them, such as mud crabs, the pampas deer, and migratory birds.

In the Pampean region, the successive swings in national polities over the coastal municipalities have meant that their economy now relies almost entirely on beach tourism and the construction industry. Consequently, the region was the most dynamic in the last three decades. This tendency is, however, unsustainable and incompatible with the preservation of the natural conditions that had originally attracted tourism.

The territorial and economic integration of Patagonia is delayed and remains incomplete. Some of the main factors which maintain the region's isolation are the rigors of climate, geography, and soils, the poor economic diversity, and the vast distances from the industrial centers of production and consumption. The beauty of the wide and wild litoral, with its unique attractions such as sea-lion and penguin colonies, all make for a distinctive destination full of opportunity for the development of adventure and ecotourism. These options could fit in well with the current circuit of international tourism off the Patagonian coast.

Initiatives of Integrated Coastal Zone Management

There is a close relationship between the coastal zone problems and the Argentine socioeconomic situation. Among the most important deficiencies, stands the absence of a real

public awareness, especially among government officials. This explains the lack of a good policy for coastal resources as landscapes. Neither are there specialized mechanisms or institutions working on coordination and cooperation among the various public agencies. Consequently, there is a shortage of specific instruments for the management of coastal zones. With some exceptions described below, there are no officially recognized programs of integrated coastal management at any administrative level (federal, provincial, or municipal). Aspects as important as technical education or the design of an information system for decision making are not solved either, and this situation produces an important deficit in human resources for coastal management.

In spite of this scene, there are some interesting initiatives. For example, Carnevari et al. (1999) mention those that have affected the humid zones, among which the following ones, of the 1990s stand out:

Integrated Management Plan for the Patagonian Zone (ARG/92/031—GEF/PNUD). This project aims at protecting the biological diversity of productive and economically attractive ecosystems of Patagonian coasts, at improving local capacities, at increasing coordination and cooperation of public institutions, and at achieving community commitment. The project's first phase was developed between 1993 and 1996, and it centered around the professional training, strengthening of institutions, and gathering of information for decision making in the most relevant sectorial aspects of the Patagonian coasts: fishery, fauna, tourism, and polluting activities (Fundación Patagonia Natural, 1996).

Coastal Pollution Prevention and Marine Biological Diversity Management (GEE TE 028491-49012). This project's objective is to assure the sustainable management of the Patagonian coastal region through the following goals: (a) to protect the marine ecosystem on the coast and on the Patagonian continental shelf; (b) to prevent pollution from ships; (c) to propose policies for preventing and minimizing pollution; (d) to promote the institutional strengthening of national and provincial enforcement authorities; and (e) to promote applied research and technological innovation in Patagonia. This project will finance technical assistance and investment in three areas: (i) planning, institutional strengthening, equipping, and opportunities to fight and prevent water and land pollution; (ii) development of fishery-integrated systems in order to prevent abuse and provide long-term protection to the marine resources; (iii) implementation of an electronic information system for maritime matters.

Environmental Protection Project for the La Plato River and Its Front. Prevention and control of pollution and habitat restoration (FREPLATA), supported by CARP (Comisión Administradora the La Plato River) and COFREMAR (Comisión Técnica Mixta del Frente Marítimo), with financial assistance of Global Environmental Facility (GEF) through the United Nations Development Program, the Interamerican Development Bank, and cooperation agencies of third parties. Among its objectives, the across-border Diagnostic Analysis and the preparation of a Bi-National Strategic Program for the La Plato River stand out.

Integrated System for Coastal Management Bill (1999). This is an initiative of Senator Antonio Cafiero, then-president of the Ecology and Human Development Commission of the Senate. It consists of only 15 articles, and it proposes the establishment of the Coastal Management Programs (Articles 2 and 3). These programs must survey the coastal environment, the domain's situation, problems and their causes, areas of interest for conservation, impacts on species and on water, adequate intervention strategies, etc. (Article 5). Besides emphasizing the programs' financial needs (Article 8), the so-called vulnerable or critical coastal areas are defined and declared (Articles 9 and 10). Finally, aspects related to public participation are discussed (Article 11). This initiative represents an important step forward, but it shows an evident deficit in relation to the proposed institutional coordination and cooperation methods. It has not been approved and its future is uncertain.

Projects of the City Foundation (1995–2000). The nongovernmental organization (NGO) City Foundation has organized several meetings, such as The Coastal Area of the Capital City in 1995; City and River in 1996; and The Metropolitan River Bank in 1998. The most advanced methods of participatory planning and management were used. Coastal zones and resources were treated in an integrated fashion with the intention of design-

ing a "sustainable plan for the metropolitan river bank." The "Working Guide for Group Work" includes: river and banks evaluation, perception of the problems and its causes; use options; planning and management options; and an action plan (Fundación Ciudad, 2000). It is difficult to quantify the practical results; however, action of this type in private institutions is remarkable because it facilitates the introduction of new methods in Argentine planning and management.

Toward a National Program for Integrated Coastal Zone Management in Argentina

The problems raised in the preceding sections require specific tools for their resolution. There is a deficient coordination in some aspects of the CZM between the different jurisdictions, both among municipalities and among administration levels (municipalities, provinces, and nation), as well as regional NGOs, resulting in a collage of overlapping actions that are sometimes contradictory in nature (see, for example, Fundación Ciudad, 2000; Fundación Patagonia Natural, 1996).

According to the general diagnosis and characterization described above, coordinated specific, long-term actions should be promoted. Most of the regulations and administrative requirements applied to the current coastal zone management are general normatives and thus diffuse or hardly suitable for specific situations. We propose attaining consensus about minimal preliminary basis in order to develop a national integrated coastal management program. During the last two decades, some authors (e.g., Alvarez & Alvarez, 1984; Brandani, 1987, 1990; Cafiero, 1999) have pointed out the need for regional or national programs. We believe that a national program should: (a) provide a general framework in which to integrate and coordinate concurrent research and development efforts, which nowadays are confined to restricted sectors or areas. Many of these efforts have been proposed and performed by municipalities and NGOs acting in isolation because they did not find an official organism to channelize the initiatives; (b) harmonize differences, arbitrate, and restrain conflicting initiatives; (c) optimize financial and social resources, avoiding effort overlap and fragmentation; (d) lay the foundations for the development of regional programs.

We must point out that our objective is not to enumerate a series of exhaustive guidelines, which would hardly be accepted in the present situation. We believe that it would be more fruitful to achieve social consensus and agreement on the preliminary basis and then debate a national model for a long-term integrated coastal zone management program. Relevant points to consider are:

Definition of governmental policy with regard to coastal space and resources. It is important to emphasize not only the need to tackle the coastal zone's present and future problems (see "Problems of the Coastal Resources" section) but also to point out that many of the coastal resources and ecosystems are in a good status of conservation, which means a great potential for future economic development. It is necessary to establish the priorities for the desired levels for economic development and for preservation of the natural resources, and consequently, to assign financial resources, unify the different elements of environmental policy, reorganize public institutions, and so provide an adequate framework for public participation. These aspects are only viable together with social consensus and political support. It would also be advantageous to pass specific legislation, taking into account the existence of various ongoing coastal zone management projects (see previous section).

Creation of a specific institutional organization. The nature and the complexity of coastal issues make it advisable to set up specific public institutions dedicated to the management of the national program and to the coordination of the interested parties and social institutions (both governmental and nongovernmental). Wide experience in this field already exists and can be drawn upon.

Assure financial support for the program. The funding of the program should be assured at

least over the medium term. The start-up funds could be linked to international funding bodies, as is the case in other Latin American countries. Once up and running, and after consolidation, the national program should be funded from the national budget in order to assure its continuity.

Establishment of interinstitutional mechanisms for cooperation and coordination. It is vitally important to establish mechanisms for cooperation and coordination between the various administrations and public institutions. It is often seen that integrated management is achieved once the compartmentalized character of sectorial management has been overcome and an adequate strategy should ensure that all levels of public administration can tackle the problems presented by the space and resources managements.

Increasing public participation in management, raising awareness, and extending public education on coastal issues. Given the high degree of political awareness of Argentine citizens, it would not be difficult to find mechanisms to promote public participation. The promotion of NGOs in the planning and management process may be valuable, as some of them have come up with interesting initiatives (see "Initiatives of Integrated Coastal Management" section). This approach, together with the promotion of educational topics related to the coastal zone, will help to focus the society's interest in coastal ecosystems

Development of specific research, education, training, and information generation. Scientific information is a major component of the decision-making process in integrated coastal management. Strong limitations of the Argentine research system are conditioned by institutional instability and cyclical economic crises, which led to cutbacks in the funding of universities and research institutes. The creation of multidisciplinary research programs with granted funding will provide the information required for resource management.

Specific technical education and training is needed because of the multifocus nature of the issues (physical, social, economic, legal, and administrative) prevalent in the management of coastal systems.

Regular courses organized by public institutions at college or high school levels are not offered in Argentina. This lack of skills is easily verified. In fact, the Landscape Ecology Group (GEPAMA) of the University of Buenos Aires, organized between 1999 and 2000 several short courses and workshops on integrated coastal management in Buenos Aires, Mar de Ajó, and Mar del Plata. Most of the attendees (public functionaries and high-levels technicians) were searching for a new professional specialty, trying to add the required complementary knowledge to their academic disciplines (law, biology, economics, architecture, the Navy, geology, geography, etc.). The wide scope of the Argentine network of existing organisms involved in marine science research, covering various basic aspects of integrated coastal management (Table 5), ensures its contribution to this technical education.

Table 5
Institutions related to training and research in coastal resources

Institution	City/province
Austral Centre of Scientific Investigations (CADIC)	Ushuaia Tierra del Fuego
National Patagonic Centre (CENPAT)	Puerto Madryn, Chubut
Centre of Applied Ecology of Litoral (CECOAL)	Corrientes, Corrientes
Argentine Institute of Oceanography (IADO)	Bahía Blanca, Buenos Aires
Institute of Limnology "Dr. Raúl A. Ringuelet" (ILPLA)	Florencio Varela, Buenos Aires
National Institute of Limnology (INALI)	Santo Tomé, Santa Fe
Argentine Museum of Natural Sciences "Bernardino Rivadavia" (MACN)	Ciudad Autónoma de Buenos Aires
National Institute of Fisheries Research and Development (INIDEP)	Mar del Plata, Buenos Aires
Navy Hydrographic Service (SHN)	Ciudad Autónoma de Buenos Aires
La Plata Natural Sciences Museum	La Plata, Buenos Aires
University of Buenos Aires (UBA)	Ciudad Autónoma de Buenos Aires
Puerto Quequén Hydrobiological Station	Quequén, Buenos Aires
Marine Biology and Fisheries Institute "Almirante Storni"	San Antonio Oeste, Buenos Aires
National University of Patagonia "San Juan Bosco"	Five cities in Patagonia

Promotion of international cooperation to make better use of accumulated experience. As mentioned previously, other Latin American countries are developing various national programs for coastal zone management (Yáñez-Arancibia, 1999; Barragán Muñoz, 2001b). The future of these programs relies on the development of several strategies. Worth mentioning are: (a) search for a national model, (b) consolidation of the achievements resulting from the experiences initiated in the 1980s and 1990s, (c) an evaluation of the efficiency of the approaches employed to date, (d) taking advantage of Latin America's cultural homogeneity, (e) a more homogeneous progress between the different countries of the continent (Barragán Muñoz, 2001b).

The development of most of these strategies would eventually create a favorable climate for the development of a supranational forum, which would make the most of Latin America's opportunities. For example, (a) the scale of continental work; (b) linguistic homogeneity (Spanish-Portuguese); (c) homogeneity of the legal normative derived from Roman law (which allows for specific protection of the coast); (d) previously developed experience, which will facilitate south–south cooperation; (e) reactivation of programs for supranational integration.

It is interesting to point out that these opportunities may eventually lead to a Latin American program for integrated coastal zone management (likely in collaboration with inter-American organizations or the United Nations), taking into account common or compatible working methods, strategies, instruments, and mechanisms. The geographical, social, and economic differences should not present an insurmountable obstacle. The example of the approach initiated by the European Commission through its Demonstration Programme for Integrated Coastal Management provides an interesting reference point. During the time frame of this experiment it has been observed that countries far more diverse in terms of culture, institutions, judicial systems, and economy than the Latin American counterparts have been able to come up with formulas leading to improved administration of their coastal resources (Barragán Muñoz, 2001b).

Chile, Brazil, and Uruguay, neighboring countries that are at present developing experience in coastal management (see, for example, Alvial & Reculé, 1999; Moraes, 1999; Martínez & Fournier, 1999), could make valuable partners for Argentina in any initiative, drawing on the regional integration that has been developing over the last few decades through Mercosur. There is a growing experience of socioeconomic integration between these countries, including the existence of joint organizations for the management of transboundary coastal areas between Argentina and her neighbors (see p. 63 and Table 3). This experience should be used to advantage in order to highlight regional cooperation and integration mechanisms, simultaneously improving the future prospects for the coasts of South America

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