



# Progress of coastal management in Latin America and the Caribbean

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## ABSTRACT

The outputs that result from the formal procedures of public policies are objective indicators that drive their progress. In this paper we have used four indicators of Integrated Coastal Zone Management (ICZM) that reflect the institutional capacity of each country: Policy, Regulations, Institutions and Instruments. The results are mostly heterogeneous in Latin America and the Caribbean (LAC). Some countries have been working towards ICZM for several decades whereas others are lagging behind. In this article the 26 LAC countries have been grouped into four different levels of ICZM progress over the previous two decades: Pre-Initial, Initial, Transition and Development. The results from this classification exercise allow us to state that the majority of countries are in the two lowest levels, with only nine countries in a better situation.

The 2019 results have been compared with those obtained in a similar exercise done almost two decades ago. This comparison allows us to observe the progress, setbacks or stagnation of certain countries. Precisely because the situation detected is heterogeneous, the possibility of cooperation between more advanced and less advanced countries in LAC for ICZM can be considered. South-South cooperation also facilitates taking advantage of the regional fact that they are countries with a shared history, culture and language.

## 1. Introduction

The condition of coastal areas and ecosystems in almost the entire world is of great concern (Agardy and Alder, 2004; UNEP, 2006; PNUMA, 1999, 2002, 2007; UNEP, 2012). Regarding the loss of coastal marine ecosystem services (IPBES, 2018), the countries of Latin America and the Caribbean (LAC) are no exception. Diagnoses confirm that the process of deterioration of this natural capital is continuous (PNUMA, 2000, 2003, 2010, 2016).

From an environmental, social and economic point of view, coastal areas in LAC are of key importance. Ecosystems such as mangroves, coral reefs and lagoons that are of particular interest for the conservation of biodiversity are located in coastal marine areas (Elbers, 2011; FAO, 2012; UNEP WCMC, 2016). From a demographic point of view, population concentration in cities within coastal zones has increased dramatically. Between 1945 and 2014 the number of Cities and Coastal Agglomerations (CCA) in LACs has gone from 42 to 420 (Barragán and De Andrés, 2016). During the same period, the population of these CACs has risen from 20 to 180 million (only 140 million people live in cities in the remaining interior territory).

A large part of the large urban centers or regions, including the political capitals, act as centers of population attraction, large infrastructures and economic activity. This causes great territorial

imbalances (Dadón and Odani, 2017). Additionally, the areas at greatest risk to natural phenomena, such as hurricanes, floods and tsunamis, are found in coastal areas. Added to this is vulnerability to climate change: sea level rise, erosion, flooding (CEPAL, 2011).

The situation described explains a series of problems and conflicts that affect most coastal LAC (BID, 1998; Arenas, 2012): chaotic urbanization processes, threats to indigenous cultures, degradation of coastal marine ecosystems, loss of biodiversity, effects of climate change on the socio-ecological system, coastal erosion, contamination of soil, water and living resources, etc.

Integrated Coastal Zone Management (ICZM) emerges as an instrument that aims to respond to these problems (Clark, 1996). The search for a new development model implies finding solutions that take into account social needs in vulnerable, complex, dynamic and changing ecological environments such as coastal marine areas. ICZM is presented as a possible strategy for Ecosystem Based Management (Agardy et al., 2011).

The main aim of this article is to provide a general overview of ICZM and its evolution over the past 20 years in LAC. The first clarification to be made is regarding the scale of this study. LAC is a geographical and cultural reality. Geographically, there is little to add to what is already known: it covers 26 sovereign nations or states (with a surface area of more than 400 km<sup>2</sup>). Culturally, however, it is important to highlight an

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idea that is of interest to coastal management. The majority of LAC countries share a history of colonization from the same root - the Iberian Peninsula: Spain and Portugal. This implies that most of these countries maintain the legal tradition of Roman Law, which in turn, presupposes a vision of the coastal zone as a public domain. Additionally, shared language and culture points to more options to collaborate on international cooperation policies on coastal matters (Barragán, 2012). Here, it is important to point out that Puerto Rico, although belonging to the territories with a shared history of Spanish colonization, currently holds commonwealth status with the United States. For that reason, it has the same political, normative, institutional and instrumental system as an Anglo-Saxon country (Seguinot and Mendez, 2009).

Regarding the background of studies related to ICZM in LAC, they have been carried out from a bibliographic point of view, Scherer et al. (2014). Other studies that can be cited for the regional level are those of Sorensen and Brandani (1987), Yañez-Arancibia (1999), CEPAL (1999), Campuzano et al. (2013), Barragán (2001 a), Pallero and Barragán (2017). Other references have been published for the national level of Argentina (Barragán et al., 2003), Brazil (Barragán, 2001 b), Chile (Barragán et al., 2005), Ecuador (Pazmiño et al., 2018), Mexico (Rivera and Villalobos, 2001; Rivera et al., 2004) and Peru (Barragán and Lazo, 2018). The present study can be considered complementary to the previous ones.

## 2. Method

From a methodological point of view there are interesting studies to evaluate the degree of progress of ICZM. Among others, we can mention the work of Burbridge (1997), which assesses aspects related to equity, economy and the environment. Olsen (2003) constructs a theoretical model based on four areas of progress to evaluate the success of ICZM (1-Enabling conditions, 2-Changes in behavior, 3- The harvest, 4- Sustainable Coastal Development). Pickaver et al. (2004) pose questions for the five phases of an ICZM process (Basis for ICZM, Framework for ICZM, Vertical and horizontal integration agencies, Integrative planning and management, Full implementation of ICZM). Gallagher (2010) proposes a Coastal Sustainability Standard. These studies published general evaluation models to be subsequently applied to any country. This task requires in depth knowledge of ICZM in each of those countries.

On the other hand, the methodological proposed by Sorensen (2002) was applied to 150 countries. This was possible because progress was measured for efforts in ICZM from the sum of projects, policies, strategies, plans and programs. In this manner, Sorensen measured the institutional capacity of the countries.

It is true that some methods are very different from others. The first ones are based on a combination of outcomes (actual effects on beneficiaries of the ICZM policy, plan or program). Sorensen's (2002) measures only the outputs (implementation acts and administrative products of the ICZM policy, plan or program).

The key question, is therefore deciding which method to use to analyze the situation of 26 LAC countries, given that the scope of the study and the process for obtaining information, determines the chosen method. It could be said that the method chosen in this article is closer (making some improvements) to the one proposed by Sorensen (2002).

In order to provide a general overview of ICZM in LAC over the last 20 years, the national status of the countries within the region will be analyzed. In this study, only an approximation to the state of the question has been possible. The method used is the following:

1. The aspects of ICZM that are most linked to the public policies of each country have been selected. For this, the methodological framework called the Decalogue for ICZM has been used. This analytical method has previously been tested in countries such as Spain (Barragán, 2003, 2010), Honduras (Caviedes et al., 2014 a), Brazil (Diederichsen, 2013), Mexico (Nava et al., 2017, 2018). It has

also been applied by several authors in more than 13 LAC countries of the Ibermar Network of ICZM (Barragán, 2009). It involves analyzing the most important elements of a public coastal management system: Policy, Regulations, Institutions, Instruments, Participation, Responsibilities, Information, Managers, Resources and Education. Taking into account the scale of study, it is fundamental to know how many of those 10 elements provide accessible information. When the two criteria are applied (elements of the Decalogue most linked to public policy and availability of information) there are four elements to work with a certain level of objectivity: Policy, Regulations, Institutions and Instruments.

2. Once the four most important elements were selected, information was sought in bibliographic and documentary sources from various institutions. On the one hand, there are bibliographical references, mainly from specialized journals; but also of books and reports. On the other hand, the websites of most of the responsible bodies of ICZM in the LAC countries have been consulted.
3. The available information is intended to correspond with some of the general situations that are described as "criteria" in Table 1. At least four levels have been established in each of the four elements of the Decalogue for each country. They have been ordered from low to high development in a hypothetical management model. This would evolve, in theory at least, from a sectoral or very general management model, to a more integrated or specific one. For the evaluation, expert criterion is used based on the existence of an ICZM product related to Policy, Regulations, Institutions and Instruments.
4. Having collected this information, each LAC country was classified according to the levels or stages of integration of ICZM (Table 1). For this we have been inspired by previous studies (Barragán, 2001; Olsen, 2003; Arenas, 2011). Four different stages were established:

**Table 1**

Elements and criteria for assessing national ICZM efforts in LAC.

- 5 When the products of the four elements have been classified, they are then given a score. In this process, sectoral products of a country are penalized (A = 1) and products closer to ICZM are rated higher (D = 9). The intermediate values are between B = 4 and C = 6. The classification of countries into four groups corresponds to the following frequency ranges: PRE-INITIAL (between 4 and 10: equivalent to 2–3 minimum values and none maximum), INITIAL (between 11 and 20), TRANSITION (between 21 and 31) and IN DEVELOPMENT (between 31 and 36: equivalent to 2–3 maximum values and no minimum).
- 6 Finally, we proceed to compare the results collected with studies of almost two decades ago for LAC (Barragan, 2001). This is intended to give an approximation of the dynamic nature of these processes. It should be noted that they are not always progressive processes. Sometimes there are setbacks due to lack of political interest, economic and social crises, etc.

Element	Criteria	Classification
Policies	Sectorial of interest for ICZM	A
	Initiatives/ICZM policy/strategy drafts	B
	Approved ICZM strategy	C
	ICZM approved policy	D
Regulations	Sectorial of interest for ICZM	A
	Initiatives/Draft ICZM regulations	B
	ICZM developed in Decrees, Codes, Ordinances and similar	C
	National law of ICZM approved	D
Institutions	Sectorial of interest for ICZM	A
	Specific to ICZM of a technical nature	B
	Specific ICZM of an institutional nature	C
	Specific ICZM of a technical and institutional nature	D
Instruments	Sectors of interest to ICZM (environmental, port, etc.)	A
	Specific to CM: territorial, regional plans, concessions	B
	Guidelines of ICZM: Standards or National Guidelines	C
	ICZM Operations: National Plans/Programs	D

A-PRE-INITIAL; B- INITIAL; C- TRANSITION; D- IN DEVELOPMENT.

A- PRE-INICIAL; B- INITIAL; C- TRANSITION; D- IN DEVELOPMENT. It is interpreted that, in reality, these stages represent a process of progress over time. At one extreme (A) would be those countries that only have a sectoral management approach, no specific ICZM norms, institutions or instruments. While, at the other extreme (D) would be those countries that have a specific Policy, Regulations, Institutions and Instruments for ICZM. Between the two stages of minor and major development would be the intermediate national scenarios. We reiterate that ICZM products are valued as public policy, and their results are not being evaluated (the characteristics and quantity of information needed for each country makes this type of analysis very difficult in the scope of this article).

### 3. Results

#### 3.1. ICZM National Policies

For this section, documents from public institutions have been considered (Table 2). These are made up of government commitments on what to do for the coastal zones of a country, as well as how it should be done. In this section of the study, ICZM Strategies have also been taken into account, for the simple reason that documents that are titled Policy, exhibit the content and form of a Strategy. Evidence of the above is observed in the cases of Mexico, Guatemala or Trinidad and Tobago. We also find cases such as the one in Brazil that, although it is called the National ICZM Plan (PNGC in Portuguese), it is actually a Policy document (Jablonski and Filet, 2008; Scherer et al., 2009). Specifically, the PNGC, in its first article, is defined as an integral part of the National Policy for the Resources of the Sea and the National Policy on the Environment.

Most LAC countries have some type of sectoral policy or strategy that is relevant to ICZM. Thus, Costa Rica, for example, has National Adaptation Policies for Climate Change (2018), Wetlands 2017–2030, Biodiversity 2015–2030, Drinking Water 2015–2030, National Strategy for the Conservation and Protection of Sea Turtles. (2018), etc. Peru is another example: National Strategy on Biological Diversity (2001), State Policy for Sustainable Development and Environmental Management (2007), National Environmental Policy (2009), National Policy and Strategy of Water Resources (2015), National Strategy for Climate Change (2015), National Wetland Strategy (2015).

In the aforementioned policies, coastal zones are present although they do not constitute the main center of interest. This type of document should be evaluated positively but insufficiently. Positive because the scope of these policies includes the coastal zone. In addition, a sectoral policy is compatible with one of ICZM. However, the latter, being more specialized, better directs government action.

Of the 26 LAC countries considered, 10 countries do not show significant indications of ICZM policies and 16 have indications of having an ICZM National Policy or Strategy, or interest in having one. The latter is verified by finding several draft National Policies or Strategies that have been offered for institutional and social debate. Of the 16, at least 8 have approved ICZM National Policies. Most are large or medium-sized countries (Brazil, Chile, Colombia, Mexico, Ecuador). Other countries have approved National Strategies (Belize, El Salvador, Mexico and Costa Rica). There is a third group that has drafts or documents for institutional and social discussion. Thus, Honduras and Argentina have drafts or contributions for a strategy, while Trinidad and Tobago, Peru and Uruguay have preliminary drafts for a future National Policy of ICZM. The latter, with significant efforts since 2003 (Conde, 2013). The really interesting fact is that at least 11 countries have approved their policies or strategies, or outlined their drafts in the last 10 years. In most of the cases analyzed, National Policies have been prepared by Ministries of the Environment or by Inter-institutional Commissions.

There are some countries that have two documents on policies or strategies related to ICZM. Colombia, for example, has approved a National Environmental Policy for the Sustainable Development of Oceanic

**Table 2**  
Coastal marine policies and strategies in LAC.

Country	Document	Year	Institutional References
Argentina	(Baseline) Contributions for a federal strategy in integrated coastal management: state of coastal management in the Argentine Atlantic Coast	2016	Ministry of Environment and Sustainable Development
Barbados	The Barbados Policy Framework		In the framework of the Integrated Coastal Zone Management Plan for Barbados
Belize	The National Integrated Coastal Zone Management Strategy for Belize	2000	Coastal Zone Management Authority and Institute
Brazil	II National Plan of Coastal Management	1997	Resolution CIRM n°005/97
Chile	National Policy of Use of the Coastal Border of the Coast of the Republic	1994	Supreme Decree No. 475
Colombia	National Environmental Policy for the Sustainable Development of Oceanic Spaces and Coastal and Island Areas, PNAOCI	2002	Update of the Ministry of the Environment (DNP-DPA) National Council of Economic and Social Policy 3164
	National policy of the ocean and coastal spaces, PNOEC	2017	Update by the Colombian Ocean Commission
Costa Rica	National Strategy for the Comprehensive Management of the Marine and Coastal Resources of Costa Rica	2008	Inter-institutional Commission of the Exclusive Economic Zone of Costa Rica
	National Policy of the Sea. Costa Rica 2013–2028	2013	Approved by the Council of Ministers of the National Commission of the Sea held on December 18, 2013.
Ecuador	Coastal and Oceanic Public Policies: Diagnosis and implementation proposal.	2012	Minutes No. 004–2012 of 12/27/2012 of the Interinstitutional Committee of the Sea
El Salvador	Strategy of Integral and Sustainable Development of the Marine Coastal Strip 2012–2024	2011	Ministry of Environment and Natural Resources
Guatemala	Policy for the integral management of the coastal marine areas of Guatemala	2009	Government Agreement 328-2009
Honduras	(Draft) Strategy of guidelines and regulations for the integrated management of marine, coastal and freshwater ecosystems of Honduras.	2014	USAID/PROPARQUE, SERNA-ICF-DIGEPESCA (Caviedes et al., 2014 b)
Jamaica	Ocean and Coastal Zone Management Policy	2002	Ministry Paper No. 14/02 dated July 24, 2002
Mexico	National Strategy for Ecological Management in Seas and Coasts	2006	Secretary of State for the Environment and Natural Resources (SEMARNAT)
	National Policy of Seas and Coasts of Mexico	2018	Inter-secretarial Commission for the Sustainable Management of Seas and Coasts. Agreement DOF: 11/30/2018
Peru	(Draft) National Policy of Integrated Coastal Marine Management	2018	Ministry of Environment in collaboration with the Ministry of Production (fisheries sector)

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Table 2 (continued)

Country	Document	Year	Institutional References
Trinidad and Tobago	(Draft) Integrated coastal zone management (ICZM) policy framework	2014	and Inter American Development Bank (IADB) Ministry of Environment and Water Resources
Uruguay	(Draft) Decree National Policy of Coastal Space	2003	Council of Ministers of the Executive Branch (December 2003)

Spaces and Coastal and Insular Areas (in force since 2002), and the Sustainable Development Policy of Oceanic Spaces and Coastal Zones 2016–2030 (updated in 2017). The first is strictly an environmental policy. The second is broader as it aims to be a synthesis of other State policies: foreign policy, defense and security, coastal marine regulation, etc. Costa Rica also approved its National Strategy for the Integrated Management of Marine and Coastal Resources (2008); and subsequently the National Sea Policy (2013–2028). Although its name only refers to the marine environment, its content also covers the coastal area.

Mexico first approved its National Strategy for the Ecological Management in Seas and Coasts (2006). In this document the integrated approach was oriented following the hierarchy of public management (federal, state, municipal) and the four geographical areas into which Mexico is traditionally divided (Gulf of California, North Pacific, South Pacific and Caribbean Sea-Gulf of Mexico). More recently, the National Policy on Seas and Coasts (November 2018) was approved, which updated the 2006 National Environmental Policy for the Sustainable Development of Oceans and Coasts of Mexico (Azuz et al., 2011).

During the reading of the documents, special attention was given to the formulation processes. The first discovery was that in very few cases was the origin of the policy or strategy described. This led us to consider a top-down model rather than a bottom-up one. We only have information on the formulation process in five cases. Guatemala, Ecuador, Costa Rica, Mexico and Argentina mention holding regional and national workshops. Thus, Guatemala held five consultation workshops in which 225 people participated, representing 95 organizations and institutions. In Costa Rica, one national and seven regional workshops were held. Mexico and Honduras should also be mentioned, given the importance of academic and research institutions in those processes. In Argentina, according to Boscarol et al. (2016), workshops were held in the five provinces of the Atlantic coast (most of the attendees were representatives of government institutions and, to a lesser extent, academic and social organizations).

The case of Ecuador can be considered as a good example of the need for coordination between institutions. In this country, the CIMAR (Inter-institutional Committee of the Sea) is responsible for the tasks of planning, coordinating and monitoring the implementation of ocean and coastal policies. This Committee applied the Guide for the Formulation of Public Policies approved in 2011, where it followed four steps: 1) Identification of problems, 2) Identification of challenges, 3) Definition of the policy, 4) Identification of responsible projects and institutions. This process was carried out through various seminars, workshops and consultations with the different ministries, national secretariats, maritime and port authorities.

Peru is representative of the role that international cooperation can play. In this case, the Ministry of Production (fisheries sector) and the Ministry of the Environment, with funding from the IADB (Inter American Development Bank), started the groundwork for the future National Policy of ICZM (2016–2017). Several national workshops were held where almost all participants were representatives of the different ministries and public institutions. Civil society was not represented and the employers of the fishing sector had a discreet representation. Currently, the country has a draft National Policy of ICZM using the Decalogue as a guide.

If the analysis of national policies is geared towards the geographical area, the results are clear: most countries do not define the limits of ICZM. Two countries, Brazil and Mexico, point out that land borders are related to coastal municipalities. What is interesting about this criterion is that the coastal municipality must not only be understood as being that which reaches the sea. Also, those related to estuaries, coastal lagoons, metropolitan regions, etc. are included. It should be noted that one of the main differences between the PNGC I and II of Brazil has been the redefinition of the coastal municipality (Scherer et al., 2009). The marine limit is determined as the 12 nautical miles of the Territorial Sea for Brazil, and for Mexico, as the isobath of 200 m of depth.

Perhaps the greatest detail on ICZM limits is found in the draft policy of Trinidad and Tobago. This country proposes up to two land areas (Immediate Area and Area of Influence) and three marine areas (Immediate Area of Direct Impact, Territorial Sea and Exclusive Economic Zone). As observed, functional criteria are mixed with legal-administrative criteria. Other countries resolve the issue of limits mentioning ecosystems or coastal physiographic units (Chile, Ecuador, Mexico). Possibly the most dynamic and integrated approach is that adopted by Costa Rica, where the relationship of terrestrial human phenomena and activities with the marine environment (impacts, problems, conflicts) is taken into account.

Several countries agreed to bring a series of principles to their national policies or strategies (Brazil, Belize, Guatemala, Peru, Mexico, Costa Rica). Several of these principles are repeated (precaution, integrated vision, adaptive, participatory, etc.). Only Costa Rica (2008, 2013) uses those from Ecosystem Based Management, EBM (it reproduces the 12 principles of EBM in its 2013 National Policy). Contributions to Peruvian National Policy of ICZM is also based on EBM principles.

Finally, distinctive aspects have been sought in the documents indicated in Table 2. For example, many content topics of the policies or strategies are repeated. Possibly they are in line with the major problems facing some of these countries: conservation of natural capital, support to the productive sectors, security and sovereignty, training and research. Costa Rica has started from the most self-critical approach, with the deficiencies of institutional coordination and public participation, the need for scientific knowledge and the necessity of overcoming short-term policies, stand out in its two national policies (2008 and 2013). Other singularities of the national policies or strategies of several countries that deserve mention are the following: a) In Chile, the National Coastal Edge Policy of the Littoral created the corresponding National Commission (the most important body for ICZM). b) In Brazil, Belize and Mexico, funding is allocated to the one that can be supported by existing organizations. No new funding sources are indicated for ICZM. c) The Strategy of Integral and Sustainable Development of the Marine Coastal Strip of El Salvador is targeted, almost exclusively, to the improvement of the economic conditions of the population. Possibly, the unfortunate social situation in this country explains this focus. However, the Strategic Environmental Assessment to which this Strategy was subsequently submitted, recommended greater involvement of matters such as natural risks, environmental sanitation, water resource management, more sustainable fishing, mangrove restoration and environmental management of the territory.

### 3.2. ICZM regulations

In this article, by *regulation* means any legal document that conceptualizes ICZM from a law, decree, order, etc. The first result that we find is that not all countries have approved a norm that regulates the coastal zone (Table 3). Only 13 LAC countries have any type of law for coastal management. The rest approximates coastal management through more general or sectoral rules. For example, The Dominican Republic has a highly developed legal system that regulates specific problems: prohibition of scrapping on the margins of rivers (Resolution No. 0013/2016), prohibition of the capture and commercialization of shark species



**Table 3**  
Main normative products for ICZM in LAC.

Country	Law or Standard	Year	Legal reference
Argentina	(Draft) Planned and integral management of coastal areas	1999, 2001, 2008, 2009	Senate of the Nation. Parliamentary Secretariat.
Bahamas	Coastal Protection Act	1968	
Barbados	Coastal Zone Management Act	1998	LRO 1998, Cap. 394
Belize	Coastal Zone Management Act	1998	Revised 2000
Brazil	National Coastal Management Plan	2004	Lei No. 7,661, of May 16
Chile	Creates the marine coastal space of the native people	2008	Law 20249
Costa Rica	Law on the Maritime Terrestrial Zone and its Regulations	1977	Resolution of the Constitutional Chamber No. 447-91
Cuba	Management of the coastal zone	2000	Decree Law 212
Ecuador	Organic Code of the Environment. Book V of the Coastal Marine Zone. Articles 262-278	Entró en vigor en 2018	Official register. Supplement 983. April 2017
Mexico	Regulation for the use of the Territorial Sea, navigable waterways, beaches, Federal Maritime Land Zone (ZOFEMAT) and land reclaimed from the sea	1982–1991	Official Gazette of the Federation 21 August 1991
	General Law of National Assets	2004	Title four ZOFEMAT and land reclaimed from the sea
Mexico	(Draft) General Law for the integrated and sustainable management of Mexican coasts	2011	
Nicaragua	Law for the development of coastal areas	2009	Law No. 690, Approved on June 4, 2009
Panama	(Draft) Law of Marine and Coastal Resources	2002	General Directorate of Marine and Coastal Resources of the Panama Maritime Authority
Peru	Law on Sustainable and integrated management of coastal marine areas for their protection, recovery, maintenance and sustainable use	2017	Provisionally approved on July 12, 2017
Puerto Rico	Coastal Zone Management Act	1972	
The Dominican Republic	(Draft) Sectoral Law of Marine Coastal Resources	2008	National Congress of R. D. and <a href="#">Heredia (2009)</a>
Uruguay	National Guideline to Coastal Space	2019	Housing and Land Planning Commission. Senate
Venezuela	Decree with the Force of Law on the Coastal Zone	2001	Official Gazette n° 37.319. Decree 1.468

(Resolution No. 0023/2017), suspension of extraction, transport and commercialization of sediments in beaches or rivers (Resolution n° 0015/2017), exclusion of fishing activities in the Bay of Samana (Resolution 0025/2017). However, it does not have specific legislation for ICZM.

A group of countries (Panama, The Dominican R., Argentina, Mexico) tried to approve legislation, or general law, for ICZM between the years 2002 and 2011. Without doubt, the draft of the Mexican law (2011) is one of the most complete, with 120 articles, it deals in detail

with almost all topics of relevance to ICZM: principles of a Policy for coastal spaces, creation of a National Coastal Service, creation of Coastal Councils (for the three hierarchies of government: federal, state and municipal), proposals for coordination agreements, proposals for the distribution of responsibilities, creation of a National Coastal Commission, creation of a National Coastal Information System, creation of a Mexican Coastal Fund. etc. This draft, after being debated in the Congress of the Union, was, however, not approved.

Argentina is the country where the most legal initiatives for ICZM have been found ([García and Veneciano, 2011](#)). Senator Cafiero proposed a “Coastal Law” to the National Congress in 1999 and again in 2001. In 2008, 2009, Senator Guinle did something similar. Deputy Macaluse defended a project for the “Protection of coasts on the South Atlantic”. In 2008 Senator Cabanchik presented a draft law for “Planned and integral management of the coasts”. In this draft the future National Institute of Coastal Areas would propose coastal policies, comprehensive plans and studies, information for participation, training, education, agreements for the provinces and the state. In this last document a well-argued theoretical-practical foundation was emphasized. None of these initiatives succeeded. It would appear that in Argentina, like Mexico, no agreement was reached in parliament for the approval of a law on ICZM.

Among the countries that have specific regulations for ICZM there are notable differences. First is Puerto Rico, which has commonwealth status with the United States, and, as such, it is governed by the Coastal Zone Management of 1972. Costa Rica (1977), like others that were former colonies of Spain, defines the coastal zone as national heritage, inalienable and imprescriptible, and therefore, the Maritime Terrestrial Zone is considered a public good. The significance of this is that its management is assigned to the Costa Rican Tourism Institute ([Morales et al., 2009](#)). This may well have had an influence on Nicaragua, where the Coastal Zone Development Law of 2009 assigned the tasks of coordination, policy and concessions of the Coastal Zone to the Nicaraguan Tourism Institute.

As stated before, strictly speaking, Mexico has no law for ICZM. But, since the nineteenth century, an area of 20 m of beach is classified as a public good. Over time, the concept of beach has widened. In 1991, regulation for the use of the territorial sea, navigable waterways, beaches and the Federal Maritime Terrestrial Zone (ZOFEMAT) was approved. This zone is outlined in the General Law of National Assets of 2004. Its inalienable and imprescriptible character is also agreed. At present, the system of rights of way and concessions is regulated.

In the Caribbean, Barbados and Belize, a Coastal Zone Management Act (CZMA) has existed since 1998. The first focuses on the ICZM Plan while the second focuses on the Authority and Institute of CZM. They are very simple and practical laws, centered on a few basic elements. Venezuela has had, for its part, a decree with force of law since 2001. It defines the coastal area of the country as a strip not less than 500 m from the high tide on the land side, and up to three nautical miles in the maritime. It has some guidelines for human uses and for the conservation of coastal ecosystems. However, being in the public domain, it is defined as a strip not less than 80 m from high tide. A series of coastal marine ecosystems and diverse coastal physiographic units are also included. The Ordination and ICZM Plan is established and the Technical Unit of Coastal Zones was created under the Ministry of the Environment and Natural Resources. The concession system is also regulated. Another Caribbean country, Cuba, has had a Decree-Law since 2000 ([Milanés et al., 2019](#)). Under this law, the Coastal Zone (main ecosystems) and the Protection Zone are defined in meters from the high tide (up to 40 m for beaches and mangroves and 60 m for estuaries).

In 2008 Uruguay approved the National Coastal Space Directive. Its content outlines clear guidance for land planning. It proposes the creation of a National Coastal Management Board, an Executive Coordination Unit (within the Ministry of Housing, Territorial Planning and the Environment), Scientific Council, Regional Coastal Forums and a Coastal

Space Observatory. In 2019 the Uruguayan Congress approved the National Guideline for Land Use and Sustainable Development of the coastal space along the river, Rio de Plata and the Atlantic Ocean.

The Regulations of the PNGC of Brazil (2004) have several points of interest. One of them is a very complete list of specific instruments for the coastal zone. These will be discussed in the next sections. It also has a new initiative in the delimitation of the “Orla” or coastal edge (up to the isobath 10 m in the sea, and up to 50 m of distance in urban areas and 100 in non-urban areas of land).

In Chile, two norms should be mentioned: the Supreme Decree 475 on the National Policy for the Use of the Coastal Border (1994), and Law 20249, which “creates the coastal marine space of native people” (2008). The first has already been cited in the section on coastal policies. The second norm aims to protect the traditional use of coastal resources by indigenous communities. It primarily affects the Mapuche people (“Lafkenche” or Mapuche coastal) of the Araucanía region. This law is original from a management point of view: the Under-secretariat of the Navy (the body responsible for managing the coastal border), grants the Under-secretariat of Fisheries a marine coastal area with its own particular model of administration. This is based on community management, with a series of ancestral cultural events (religious, economic, recreational, medicinal) that must be upheld.

The case of Nicaragua is also rather unique. Firstly, because its Coastal Zone Development Law (2009) was approved to deal with the great historical disorder in its concession system. These have hindered public access to the coast (the law does not speak of a *de facto* privatization but it is understood). Secondly, because it not only affects the coastal areas, but also lakes, which, in Nicaraguan geography, is very important. Under this law, a Coastal Zone for Public Use (beaches and intertidal space to which 50 m is added from the high tide) is defined, as is a Restricted Use Coastal Zone (a 200 m strip). The Nicaraguan Tourism Institute (coordinating body of the National Development Commission of the Coastal Zone) has the power to create “Declared Tourist Areas”.

In Peru, the law on “Sustainable and integrated management of coastal marine zones for protection, recovery, maintenance and sustainable use” has been provisionally approved since 2017. It is very brief, with only eight articles. It emphasizes the guiding principles of sustainable and integrated management: participatory management, an ecosystem approach, concurrent levels of governance and subsidiarity, with emphasis of general interest over private interest. It also assigns the Ministry of the Environment as the main governing body. The latter is apt because it was necessary to regulate the responsibility of ICZM in this country. Another of the most outstanding aspects was the creation of the “Observatory of the Sustainable and Integrated Management of Coastal Marine Areas”. Unfortunately, and despite the deadlines given in the same law, the Observatory has not yet been created.

Finally, Ecuador approved its Organic Code for the Environment in 2017, which entered into force one year later. Book V of said Code is dedicated to the “Integrated Management and Protection of the Coastal Marine Zone”. Interestingly, it gives responsibility to local entities (Decentralized Autonomous Governments, GAD in its Spanish acronym) for the regulation of uses and activities together with the National Environmental Authority. In practice though, the GADs have serious technical and economic deficiencies, albeit they have to formulate the ICZM Plans, in accordance with the Development Plans and Land Planning.

### 3.3. Institutions for ICZM

The findings in this section allow us to differentiate between various institutions with technical profiles, where decision making tend to be made by planners and civil servants. Albeit, there are also those with institutional profiles, where key decisions are taken by politicians or institutional representatives. The result of the search of institutions related to ICZM in LAC can be summarized as follows: seven countries have institutions of a technical nature only, seven have created technical

institutions, but additionally others for institutional coordination, two countries only have coordination institutions and 10 countries demonstrate no evidence of any major institutional responsibility for ICZM (Table 4). The latter is interpreted as management through institutions of a more general (linked to the environment) or sectoral nature.

Countries that do show evidence of technical capacity in their institutions (Barbados, Costa Rica, Panama, The Dominican R., Venezuela, Uruguay, Argentina) represent very different scenarios. In Barbados, for example, the CZM Unit was created in 1996 based on an older institution (Coastal Conservation Project Unit). Its functions are varied (monitoring, control, inventory of coastal resources, etc.) but its relationship with the influential Town and Country Development Planning Office stands out. Other countries have created specific departments for ICZM: Costa Rica (Marine and Coastal Management), Panama (Water Resources Authority of Panama, ARAP, and the Department of Management of Coastal and Marine Resources of the Ministry of the Environment), The Dominican Republic (Directorate of Marine Resources in the Vice Ministry of Coastal and Marine Resources), Venezuela (Technical Directorate of Coastal Areas), Argentina (Secretariat of Environment and Sustainable Development), Uruguay (Department of Coastal and Marine Management in the Ministry of Housing, Territorial Planning and Environment). In the latter, technicians from the important Ecopla Program were integrated. In general, these organisms are at a low profile level of public administration. An exception to this general scheme is in the ARAP of Panama. This institution is a prominent organism because it implements integrated coastal management plans, as well as having other functions related to fishing and aquaculture.

Those LAC countries with specialized technical support and inter-institutional bodies (Mexico, Puerto Rico, Belize, Colombia, Ecuador, Brazil and Chile), are also the ones with the longest ICZM tradition. That is probably why they have more complete ICZM program. The case of Mexico is a good example of a country with institutions of a more technical nature (such as the General Directorate of the Federal Maritime Terrestrial Zone and Coastal Environments of the SEMARNAT) that are complemented with others of a coordinating nature (such as the Inter-Secretarial Commission for the Sustainable Management of Seas. and Costas, CIMARES). Colombia has the experience of INVEMAR (Institute of Marine and Coastal Research) for planning, information and training; while the Colombian Ocean Commission has, as its mission, the integration of policies of a sectoral nature that affect the coastal zone.

Chile has the National Commission of the Coastal Edge, where the main public institutions of the country are represented. It is worth mentioning in this case the role played by the Regional Commissions for the use of the Coastal Border for key tasks such as Zoning. In recent years, the role of the Regional Plans of Territorial Organization constitute an opportunity to adapt these Instruments to the special characteristics of the Coastal Zone (Peña-Cortés et al., 2019). The last example that can be mentioned, is that of Ecuador. The National Secretariat for Planning and Development (SENPLADES) formulates its plans from the Directorate of Coastal Marine Affairs, while, the Inter-institutional Committee of the Sea (CIMAR) coordinates to decide ICZM policies. In almost all of these countries there are institutions that coordinate sectoral ministries or secretariats.

The two countries that only have coordination institutions (Jamaica and Peru) do not have relevant technical bodies in their administrative scheme. In the case of Jamaica, there is no specific institution for ICZM, with the National Environment and Planning Agency (NEPA) being technically responsible. However, this country has the Council on Ocean and Coastal Zone Management to standardize policies that affect coastal and marine resources.

The case of Peru is similar. The Multi-sectoral Commission for the Environmental Management of the Marine-Coastal Environment (COMUMA in its Spanish acronym) is attached to the Ministry of the Environment. This institution is permanent and has the purpose of coordinating, articulating and monitoring environmental management

**Table 4**  
Specific institutions for ICZM in LAC.

Country	Institutions of interest for the ICZM	References
Argentina	Secretariat of Environment and Sustainable Development. The province of Buenos Aires created the Coordination Unit of ICZM by Decree (1802)/08	<a href="https://www.argentina.gob.ar/mar-y-costas">https://www.argentina.gob.ar/mar-y-costas</a>
Barbados	Coastal Zone Management Unit	<a href="http://www.coastal.gov.bb">http://www.coastal.gov.bb</a>
Belize	Coastal Zone Management Authority	<a href="https://www.coastalzonebelize.org/">https://www.coastalzonebelize.org/</a>
Brazil	Coastal Zone Management Institute	
	Ministry of the Environment	<a href="http://www.mma.gov.br/ge-stao-territorial/gerenciamento-costeiro">http://www.mma.gov.br/ge-stao-territorial/gerenciamento-costeiro</a>
	Coordination Group for Coastal Management (COGERCO in Portuguese acronyms), Integration Group for Coastal Management (GIGERCO in Portuguese acronyms)	<a href="http://www.mma.gov.br/informacao/item/9255-representantes-do-gi-gerco">http://www.mma.gov.br/informacao/item/9255-representantes-do-gi-gerco</a>
Chile	Ministry of National Defense. Under-secretariat of the Navy – Under-secretariat of Defense. National Commission for the Use of the Coastal Border. Regional Commissions for the Use of the Coastal Border	<a href="https://www.defensa.cl/categoria/ssffaa/comision-nacional-de-uso-del-borde-costero/">https://www.defensa.cl/categoria/ssffaa/comision-nacional-de-uso-del-borde-costero/</a>
Colombia	Ministry of Environment and Sustainable Development. Directorate of Marine Affairs, Coastal and Aquatic Resources INVERMAR, Institute of Marine and Coastal Research	<a href="http://www.minambiente.gov.co/index.php/asuntos-marinos-y-costeros-y-recursos-acuaticos">http://www.minambiente.gov.co/index.php/asuntos-marinos-y-costeros-y-recursos-acuaticos</a> <a href="http://www.invermar.org.co/web/guest/estructura-organica">http://www.invermar.org.co/web/guest/estructura-organica</a>
Costa Rica	Vice Ministry of Water and Seas. Coastal Marine Direction	<a href="http://marino-costero.minae.go.cr/">http://marino-costero.minae.go.cr/</a>
Ecuador	Inter-institutional Committee of the Sea	<a href="http://www.planificacion.gob.ec/organigrama-de-la-secretaria-nacional-de-planificacion-y-desarrollo/">http://www.planificacion.gob.ec/organigrama-de-la-secretaria-nacional-de-planificacion-y-desarrollo/</a>
Jamaica	National Environment and Planning Agency (NEPA) Council on Ocean and Coastal Zone Management.	<a href="http://nepa.gov.jm/">http://nepa.gov.jm/</a>
Mexico	Secretariat of Environment and Natural Resources (SEMARNAT), General Directorate of Federal Zone, Maritime Terrestrial and Coastal Environments	<a href="https://www.gob.mx/semarnat">https://www.gob.mx/semarnat</a>
	Inter-secretarial Commission for the Sustainable Management of Seas and Coasts (CIMARES) and the National Oceanographic Research Commission (CONACIO)	
The Dominican Republic	Ministry of Environment and Natural Resources. Vice Ministry of Coastal and Marine Resources	<a href="http://ambiente.gob.do/wp-content/uploads/2016/09/Organigrama.jpg">http://ambiente.gob.do/wp-content/uploads/2016/09/Organigrama.jpg</a>
Puerto Rico	Department of Natural and Environmental Resources. Division of the Coastal Zone	<a href="http://drna.pr.gov/historico/oficinas/arn/recursosviviend/costasreservasrefugios/pmzc/prccc">http://drna.pr.gov/historico/oficinas/arn/recursosviviend/costasreservasrefugios/pmzc/prccc</a>
Peru	Ministry of the Environment. Multi-sectorial Commission for the Environmental Management of the Marine-Coastal Environment	<a href="http://www.minam.gob.pe/ordenamientoterritorial/funciones/">http://www.minam.gob.pe/ordenamientoterritorial/funciones/</a>
	General Directorate of Environmental Territorial Planning	<a href="http://www.minam.gob.pe/ordenamientoterritorial/funciones/">http://www.minam.gob.pe/ordenamientoterritorial/funciones/</a>
Panama	Water Resources Authority of Panama (ARAP)	<a href="http://arap.gob.pa/wp-content/uploads/2017/09/ORGANIGRAMA-Actual.pdf">http://arap.gob.pa/wp-content/uploads/2017/09/ORGANIGRAMA-Actual.pdf</a>

**Table 4 (continued)**

Country	Institutions of interest for the ICZM	References
	Ministry of the Environment	<a href="https://miambiente.gob.pa/organigrama-analitico/">https://miambiente.gob.pa/organigrama-analitico/</a>
Uruguay	Ministry of Housing, Territorial Planning and the Environment. National Directorate of the Environment. Department of Coastal and Marine Management	<a href="http://www.mvotma.gub.uy/ambiente/conservacion-de-ecosistemas-y-biodiversidad/costa-y-mar">http://www.mvotma.gub.uy/ambiente/conservacion-de-ecosistemas-y-biodiversidad/costa-y-mar</a>
Venezuela	Ministry of People's Power for the Environment. General Directorate of Planning and Environmental Management. Technical Management of Coastal Zones	Rangel (2017)

Sourced from reviewing the websites between February 4 and 15, 2019.

in the marine-coastal environment. The majority of institutions involved in issues of the Peruvian coastal marine zone are represented within it: Ministries of the Environment (the president), Foreign Affairs, Production, Energy and Mines, Transport and Communications, Housing and Sanitation, National Port Authority, National Water Authority, The Peruvian Sea Institute, National Service of Natural Areas Protected by the State, National Forestry and Wildlife Service, DG of Captaincies and Coastguards of Peru of the Navy, Directorate of Hydrography and Navigation of the Navy of Peru. Unfortunately there is no representative of activities that affect both the coastal zone and agriculture. Operationally, several Specialized Technical Work Groups (GTTE in its Spanish acronym) have also been created. One of which is the Integrated Management of the Coastal Marine Zone.

It has been noted that in most countries, changes of government usually bring about institutional changes. Over the past decade there have been major institutional changes in Ecuador (Pazmiño et al., 2018). In Chile, much time has past since the different governments considered transferring the management of the coastal border from the Under-secretariat of the Armed Forces, to the Ministry of National Assets. The latter Ministry would assume coastal marine functions in a new department.

### 3.4. ICZM instruments

In seven LAC countries, no clear indications have been found of specific instruments for ICZM at a national level (Argentina, Costa Rica, Guyana, Haiti, Honduras, Suriname, The Dominican Republic). We can only assume therefore that the instruments that affect these coastal areas are sectoral. In the Dominican Republic there is a Coastal and Marine Resource Management Program for the 17 coastal provinces, but they come under the Natural Resources Management Program of the Ministry of the Environment, meaning that it is clearly environmental and conservationist in character. The activities scheduled for 2018 are diverse: inspections, inventories, zoning proposals, impact monitoring, etc.

In another five countries (Bahamas, El Salvador, Jamaica, Nicaragua and Trinidad and Tobago) there are some interesting precedents. In the Bahamas, any activity or project that might alter the coastline must be approved (Notification and Request for Coastline Activity and Projects) by the Port Department. In El Salvador and Nicaragua, Spanish, Danish and Dutch international cooperation helped initiate ICZM projects. The case of Nicaragua made the most progress, but the Program was abandoned in its initial phases. In El Salvador, the “pre-diagnosis” of the coastal zone by the Spanish Agency for International Development Cooperation (AECID) should have initiated the future ICZM Program, however it was also abandoned due to lack of funding. In Trinidad and Tobago, international aid selected ICZM for the North West Peninsula of Trinidad as a pilot project, as coastal management in this country is

particularly sectoral (Hassanalís, 2015). Finally, in Jamaica, the little progress that has been made in ICZM was only possible due to help from the United Nations Environmental Program (UNEP), within the framework of the National Spatial Plan Vision 2030. This plan has focused on protected areas, the effects of climate change and the coastal zone. In the majority of these countries exterior financing is the primary reason that allows projects to go ahead. What tends to happen is that when international co-operation finishes, the project is abandoned.

Another large group of eight countries have specific coastal management instruments (Table 5). These can be divided into four classes: Special, Land Planning, administrative concessions of the Maritime Terrestrial Public Domain and emphasis on Plans or Subnational Programs of ICZM. Of the first, Cuba is a very interesting case, it has environmental management instruments where the “Areas under the ICZM Regime” can be found. These are regions or municipalities that meet a series of requirements determined in the 2007 legislation on “requirements and procedures to declare areas under the ICZM Regime” (Cabrera et al., 2009).

Among those that are based on Land Planning - Chile, Brazil and Ecuador can be mentioned. The first uses two land planning instruments: a) Macro-zoning of the coastal border and b) Micro-zoning of the coastal border. The final product is the Coastal Land Management Plan, whose results are categorized into several types of areas: protected, for economic activities, for human settlements, for the naval industry, ports and for the State. The main goal of this instrument is to generate favorable conditions for public and private investment. Brazil also has land planning instruments but we will refer to this country later, as it has a more complete and diversified program.

The case of Ecuador is also worth analyzing. Until 2008, the Coastal Resources Management Program (PMRC in its Spanish acronym) was in operation. This program was first financed by USAID (International Cooperation Agency of the USA) and later by the IADB. But as of 2008, this instrument was replaced by others of an environmental nature. Currently, the Plan for the Coastal Marine Area (2017) is in force. This plan is directed towards land planning and offers a series of guidelines related to Coastal and Oceanic Public Policies. The ICZM Local Agendas are also incorporated. The Decentralized Autonomous Governments (GAD) or local governments come under these instruments.

Included in the countries that manage their coast through a concession system, Mexico stands out. Each municipality administers the corresponding part of the Federal Maritime Terrestrial Zone (ZOFEMAT) that defines the SEMARNAT. Additionally, the Municipal Plans of Ecological Ordering are important for the Mexican coastal zone. On another level, the Regional Ecological Management Programs of the Gulf of California, the Gulf of Mexico and the North Pacific have been approved.

There are several countries that stand out for having a sub-national ICZM approach to their coasts. Panama has ICZM plans for the Azure Peninsula, Darién, Bocas de Toro, Pocrí, etc. and has declared Areas of Special Coastal Management for the Las Perlas Archipelago and the Southern Zone of the Province of Veraguas. Colombia, does something similar in the Coastal Environmental Units: South Alluvial Plain, Bocananas de Guapí, Darién, etc. Also in the Colombian case, the land planning approach is important.

Peru has progressed significantly in recent years with respect to its instruments. In 2015 it approved the Guidelines for ICZM (R.M. No. 189 of MINAM). Since 2017, it has had a draft of the National ICZM Program facilitated by IADB support. In addition, it is worth mentioning several regional ICZM programs formulated over the last decade: Piura, Tumbes, Lambayeque, El Ferrol Bay, Paracas, etc. Another country with guidelines for ICZM is Uruguay. In this case, the guidelines have not materialized in a National Plan or Program of ICZM. However, the ECOPLATA program (Pérez and Chica, 2015) should be highlighted, the influence of which was commented on in previous pages. In this manner it can be said that the influence of Canadian international cooperation has also been beneficial.

**Table 5**  
National instruments for ICZM.

Country	Main Instruments	Other References
<b>The Bahamas</b>	Notification of and Request for Coastline activity and projects	Requirement of the Government of The Bahamas that any project/activity that will alter the coast line must be approved by the Port Department
<b>Barbados</b>	Integrated Coastal Zone Management Plan	
<b>Belize</b>	Belize Integrated Coastal Zone Management Plan 2016	CZM Authority & Institute
<b>Brazil</b>	Coastal Management Plan	Specific instruments of the CZ: Socio-Environmental Diagnosis, Ecological-Economic Zoning, Monitoring Systems, Federal Action Plan for the Coastal Zone, ICZM-ORLA Project, National Conservation Program of the Coastal Line, etc.
<b>Chile</b>	Macro Regional Zoning of the Coastal Edge Micro Coastal Community Zoning	Instrument of coastal territorial management. Coastal Land Management Plan. Advances in the zoning of almost all regions.
<b>Colombia</b>	Sub-national Integrated Coastal Management Plans	Carried out by INVEMAR: Bocananas de Guapí and Iscandé, Darién, Cispata, etc.
<b>Cuba</b>	Declaration of Areas under the ICZM Regime	In 2007 the requirements and procedures are approved.
<b>Ecuador</b>	Plan for the Regulation of the Coastal Marine Area	Local ICZM Agendas. Concession of Mangrove Areas for Traditional Communities.
<b>El Salvador</b>	Coastal Pre-diagnostics of the ICZM Program of El Salvador	Spanish Agency for International Cooperation for Development
<b>Guatemala</b>	ICZM Program for the Pacific of Guatemala 2018–2032	2018, Donation from the Global Environmental Fund and the United Nations Development Program
<b>Jamaica</b>	National Spatial Plan Vision 2030	Project (2006–2009) Integrated Watershed and Coastal Area
<b>Mexico</b>	Federal Maritime Terrestrial Zone: definition and concessions. Clean Beaches Program	Municipal Ecological Management Programs. Marine Ecological Management Programs: Gulf of California, Gulf of Mexico and Caribbean, North Pacific
<b>Nicaragua</b>	ICZM Program of Nicaragua (MAIZCo acronym in the Spanish language)	Started in 1998–1999 but later abandoned. International cooperation of the Netherlands and Denmark
<b>Panama</b>	Sub-national Integrated Coastal Management Plans	ICZM plans: Azure Peninsula, Darién, Las Perlas, Veraguas Province, Bocas de Toro, Pocrí, Pedasí and Tonosí
<b>Peru</b>	Guidelines for ICZM (R.M. No. 189-2015-MINAM)	Draft National Program of ICZM. Strategic Plan for the Management and Management of the Coastal Marine Ecosystem.
<b>Puerto Rico</b>	Program of Management of the Coastal Zone for Puerto Rico	Adopted since 1978 in relation to the US CMA
<b>The Dominican Republic</b>	Coastal and Marine Resources Management Program	Within the framework of the Natural Resources Management Program of the Ministry of the Environment
<b>Trinidad and Tobago</b>	Integrated Coastal Zone Management (ICZM) Plan and Marine Spatial Plan	Pilot area for the North West Peninsula of Trinidad
<b>Venezuela</b>	Ordination Plan and ICZM of Venezuela (has been awaiting approval for four years)	Technical publication: Public Domain of the Coastal Zones of Venezuela. Criteria for its definition



Four countries have approved their National ICZM Plan or Program (Barbados, Belize, Brazil and Puerto Rico). Since 1978, Puerto Rico has adopted the CZM Program of Puerto Rico (revised in 2009) following the same scheme of the USA. It is financed with federal and state funds. Its basic content responds to posing issues (risks, coastal resources, coastal development, recreation, fishing, etc.) and proposals to solve them (development in public and private ownership, active management of natural resources, promotion of sustainable development, research). Currently, they focus on community plans to adapt to climate change, public access to the coast, coastal risks and protected areas. The cases of Barbados and Belize are proof of the success of international cooperation. Both exhibit very important strategic content and approaches.

Finally, Brazil is the country that has approved the most instruments in the last two decades. However, there are doubts about the implementation of these instruments in the 17 coastal states. The main instrument is the Coastal Management Plan in its three hierarchies (federal, state or municipal). Although it is necessary to indicate that there are very few Municipal Coastal Management Plans approved. In second place can be cited the Ecological-Economic Zoning (closely linked to land planning). Other instruments of importance: Coastal Information Systems, Coastal Monitoring System, Coastal Environmental Quality Reports, etc. In 2004, others were added: Federal Action Plan for the Coastal Zone, ICZM Project “Orla” (this is currently the most important and applied in the municipalities of the Federation). Other newer ones are: PROCOSTA (National Program for the Conservation of the Coastal Line, associated with risk) and the National Marine Garbage Program.

### 3.5. General assessment of the products found

An analysis of the results allows grouping the LAC countries into four different groups, according to the status of their ICZM products

(Table 6).

In Table 7 the groups of LAC countries have been compared according to the status of their ICZM products in the last two decades. It is true that for 2001 the number of elements considered was greater, but the most important ones were the ones evaluated in 2019. This makes it

**Table 7**

Comparative distribution of LAC countries according to the progress of their ICZM products.

	PRE-INITIAL	INITIAL	TRANSITION	DEVELOPING
<b>2001</b>	Argentina, Bahamas, Barbados, El Salvador, Guyana, Guatemala, Haiti, Honduras, Jamaica, Nicaragua, Panama, Peru, The Dominican Republic, Suriname, Trinidad y Tobago, Venezuela	Belize, Chile, Colombia, Cuba, Ecuador, Mexico, Uruguay	Brazil, Costa Rica, Puerto Rico	
<b>2019</b>	El Salvador, Guyana, Haiti, Honduras, The Dominican Republic, Suriname, Trinidad y Tobago	<u>Argentina</u> , <u>Bahamas</u> , <u>Chile</u> , <u>Colombia</u> , <u>Guatemala</u> , <u>Jamaica</u> , <u>Nicaragua</u> , <u>Panama</u> , <u>Peru</u> , <u>Venezuela</u> , <u>Uruguay</u>	<u>Barbados</u> , <u>Chile</u> , <u>Colombia</u> , <u>Costa Rica</u> , <u>Ecuador</u> , <u>México</u>	<u>Belize</u> , <u>Brazil</u> , <u>Puerto Rico</u>

**Table 6**

Valuation of products related to ICZM in LAC.

COUNTRY	POLITICS				NORMATIVE				INSTITUTIONS				INSTRUMENTS				Total
	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	
Argentina		X				X				X			X				13
The Bahamas	X							X		X				X			18
Barbados				X				X	X							X	28
Belize			X					X				X					33
Brazil				X				X				X				X	36
Chile				X				X				X		X			28
Colombia				X	X							X		X			23
Costa Rica				X				X	X				X				23
Cuba	X							X	X					X			12
Ecuador				X				X				X		X			28
El Salvador			X		X				X				X				9
Guatemala				X	X				X					X			15
Guyana	X				X				X				X				4
Haiti	X				X				X				X				4
Honduras		X			X				X				X				7
Jamaica				X	X							X		X			20
Mexico				X				X				X		X			28
Nicaragua	X							X	X				X				12
Panama	X					X				X				X			13
Peru		X				X					X				X		20
Puerto Rico				X				X				X				X	36
The Dominican Republic	X					X				X			X				10
Suriname	X				X				X				X				4
Trinidad and Tobago		X			X				X					X			10
Uruguay		X						X		X					X		20
Venezuela	X							X		X				X			18

PRE-INITIAL = 4 to 1; INITIAL = 11 to 20.

TRANSITION = 21 to 31; DEVELOPING = 31 to 36.

possible, at least, to offer a qualitative comparison. Moreover, Fig. 1 shows this distribution along the region.

#### 4. Discussion

There are various methods to analyze the progress of a country's ICZM program. Some methods measure the outcomes obtained in the ICZM process (Burbridge, 1997; Olsen, 2003; Pickaver et al., 2004; Gallagher, 2010). Others study the existence, or not, of the outputs obtained in said process (Sorensen, 2002). We have identified these last ones as products of the ICZM institutional process. These products are interpreted as objective results of certain public policies. The character of institutional outputs is a test that reduces the subjectivity of the

assessment process. In this article we have analyzed the outputs of the four most important elements of an ICZM process for 26 LAC countries: Policy, Regulations, Institutions and Instruments. There is no doubt that these four elements provide a good orientation on the institutional capacity of these countries, especially if it is continued over time.

A critical analysis of the method must recognize that there is not always a relationship of effectiveness between the outputs obtained and the targets set. For example, the fact that ICZM Policy or Regulations exist in a country does not ensure specific results for its population or coastal ecosystems. However, it seems logical to think that those countries with greater institutional capacity will be in a better position to address the challenges of their coastal zones. Additionally, among the difficulties related to the scope of the study, is the detail with which



Fig. 1. Map of Latin American and the Caribbean with the valuation of products related to ICZM in LAC.

certain elements can be analyzed. For example, ICZM Instruments (plans, programs, projects) at the sub-national level should be more visible and accessible.

It is logical to think that there is a clear relationship between these four elements: those countries of LAC that approved an ICZM Policy will need regulations that allow them to act within a democratic system. For this regulation, the institutions and instruments that will facilitate the progress of ICZM are likely to appear. Although it is not a general law, it could be said that, to a certain extent, it is a progressive relationship with certain political-administrative logic. The results of Table 6 affirm that the most positive results (C and D) of LAC countries follow the order described above: Policy, Regulations, Institutions and Instruments. It is possible that this says something of the growing complexity of reaching particular outputs.

The two decades studied show significant changes. In general, we can talk about the progress of ICZM in LAC. Currently, the number of countries that are classified in the Pre-initial stage group is significantly lower than in 2001 (seven, as opposed to 16): El Salvador, Guyana, Haiti, Honduras, Dominican Republic, Suriname, Trinidad and Tobago. What these countries have in common is that they are all small, very poor states. Perhaps indicating that they have not been beneficiaries of programs of international cooperation. At the other extreme, the countries that can be considered in Development are now three (in 2001 the figure was zero). It is possible that these two decades have helped to consolidate positions in countries such as Brazil or Belize. The total number of countries that have progressed from one stage to another is also substantial (16). However, these results should not lead us to a general opinion that is altogether positive. There are still 16 countries in a Pre-initial or Initial stage, compared to only ten in Transition or in Development stages.

Table 7 also allows us to consider what has happened over the last twenty years. It could be said that changes and improvements are slow in many countries. This is true if one takes into account the rate of degradation of coastal ecosystems in LAC. However, it is worth remembering that most of these countries are in full economic expansion, implying expansion of cities, construction of large infrastructures, growth of industrial areas, and major changes in land uses (millions of hectares will have new agricultural uses). Without doubt, this logical process of development will have a direct affect on coastal areas.

The positive part of the scope of our analysis is that it is a region where the majority of countries are linked by historical ties, cultural homogeneity and language. This is related with an aspect that has been observed throughout the analysis of the four elements: the role of international cooperation has been important in most countries, very few of which have been negative. Many national cooperation agencies have been involved (USA, Spain, Germany, Canada, Belgium, Holland, Denmark, etc.), as well as international institutions (IADB, Global Environmental Fund, UNDP, UNEP, etc.). This allows for other possibilities of international cooperation to be addressed. From the traditional cooperation model of Developed Countries-Developing Countries, or North-South, cooperation could arise that is South-South. This is especially true in LAC because some countries have advanced much more than others in ICZM over the past decades. Additionally, the influence of countries such as Brazil or Costa Rica on the rest of LAC is also well proven.

In previous paragraphs it was stated that the four elements selected could be part of a logical process. The first element analyzed was the ICZM Policy. Its important as it is a clear manifestation of the will of the authorities regarding their interest in a specific topic. In this element there has been a lot of activity in LAC over the past two decades, considering both the results achieved as well as the high number of unsuccessful attempts. The latter also demonstrates the difficulties for ICZM in countries with serious issues such as poverty, violence or political crises. It cannot be forgotten that ICZM Policies have to compete with other national policies for the attention of the authorities and funding. This explains why several of the policies or ICZM Strategies of

LAC have been aimed almost exclusively at the use of coastal space and resources (Chile and El Salvador being the best examples).

It was also previously noted that the number of countries with relative success in Policies is greater than in Regulations, and so too in Institutions and Instruments. This may be indicative once more of the progressive difficulty to specify actions. As most LAC countries have ICZM associated with institutions of environment, it likely that they are not communicating well the integrated nature of ICZM activities, but instead, its environmental aspects. Because in LAC therein lies the key: ICZM has to be linked with public policy that aims for sustainable development of people and spaces (socio-ecological systems). In this sense, Costa Rica has a lot to show and various successful formulas.

Another aspect that should be highlighted is the greater role of the marine space. This space is increasingly present in ICZM products, despite the fact that specific projects and initiatives on Marine Spatial Planning have appeared in different countries in recent years (the Pacific countries of LAC are a good example of this: Mexico, Chile, Peru, Colombia, Ecuador, etc.). In this sense, the influence of international cooperation is evident.

It is interesting to note that where there is evidence in the participatory processes, the presence of the government sector is excessive, compared to representatives of society and employers. The reason is unknown, but the lack of specific tools used in LAC to promote public participation such as Green Books, White Books, Discussion Papers, etc. is very significant.

With regard to regulations, most countries are included in two of the categories proposed by Cullinan (2006): National Approach (to respond to state policies as in the Bahamas, Barbados, Belize or Costa Rica), and Territorial Approach (linked to land planning as is the case in Brazil, Chile and Colombia). Also, some countries that have developed other products from their institutional capacity, such as Ecuador for example, continually seek the approval of a national regulation that supports the policies of the coastal zones (Pazmiño et al., 2018). With Institutions and Instruments, the state of affairs in LAC is somewhat more heterogeneous. Many of these countries are in Pre-initial or Initial stages.

A final issue that requires comment, is how to measure the degree of progress of LAC in ICZM at the subnational level. It has been observed that in several countries there is support to give more value to the subnational level for governance of the national territory. This translates to better linking of national efforts in ICZM with reasonable levels of decentralization and self-government. Chile, Panama and Peru are cases in point. It may be necessary in the future to pay more attention to products of subnational level. In certain countries, this level has proven more effective for ICZM. In Peru, for example, the products at this level are progressing reasonably, but the same cannot be said at the national level. Frequently this situation can be explained by the absence of a clear and decisive national ICZM policy.

## 5. Conclusions

The status of ICZM in LAC is somewhat heterogeneous. Some countries have been working and recording certain progress for several decades; while in others, no clear progress is observed. It seems necessary to move forward in a more homogeneous way, given that these countries share coastal ecosystems divided by political-administrative limits. The examples in Central America and the Caribbean are numerous. Other countries also share coastal ecosystems such as the Tumbes mangroves between Peru and Ecuador, the Rio de la Plata estuary between Argentina and Uruguay, or the lagoon systems of Brazil and Uruguay. It is also necessary for action to be more determined due to the urgency implied by the continuous loss of coastal natural capital. It cannot be forgotten that a large part of the population and most dynamic cities, as well as the most important productive areas, are coastal.

The analyzed products (Policies, Regulations, Institutions and Instruments) of the past two decades present an opportunity. Some LAC countries have a fairly consolidated ICZM background. This is especially

interesting for the proposal of policies with international cooperation between countries that share ecosystems, language and culture. Some of the failed international initiatives that took place in the late 1990s (IADB in 1998 and ECLAC in 1999) for the development of ICZM Programs in LAC, could be revived. At present, two decades later, a considerable number of countries are confronting the need to deal with the management of their coastal zones, but they have limited means and little institutional capacity.

The opportunities mentioned are also reinforced by the international agenda. It seems that both the inclusion of the marine environment and adaptation to climate change are issues that fit well with ICZM programs for LAC. Furthermore, at present there are a good number of national institutions responsible for ICZM. These could serve as coordinating bodies within each country before an international initiative.

Also within each country there are movements and phenomena that help the development of ICZM projects. The process of territorial decentralization of decision-making, the improvement of cooperation between public institutions, or the progressive strengthening of the non-governmental sector, are examples of issues that would favor the progress of ICZM in LAC.

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