

An Overview of Twenty Years of Fishery Management in the Dominican Republic

Una Visión General de Veinte Años de Gestión de la Pesca en la República Dominicana

Un Aperçu de Vingt ans de Gestion des Pêches en République Dominicaine

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ABSTRACT

A general view of improvements and challenges of the fisheries management in the Dominican Republic is presented. The shift in organizational structure and movements among government ministries is analyzed and the threads and strengths defined. Modernization of fisheries law and regulations, adoption of regional integrated regulations and close seasons, increased participation of fisheries stakeholders in fisheries management and inclusion of fishers and their families in social security schemes has allowed the improvement of fisher's quality of life. By another hand, limitations on monitoring, control and surveillance has posed a threat in fisheries long-term sustainability. We discussed that the up-to-date fisheries strategy and probable adoption of international treaties on Port states Measures provides a hope for sustainability of fisheries resources for the use and enjoyment of present and future generations.

KEYWORDS: Fisheries, management, law, Dominican, micro-credits

INTRODUCTION

Fisheries in the Dominican republic is mainly artisanal and low scale but some semi-industrial fishery takes place offshore Puerto Plata at Silver and Navidad Banks. Preliminary results of the first national fishers census indicates that coastal fishers amounted near 15,000 in number (oficina Nacional de Estadísticas, *In Press*) but CODOPESCA estimations of in-land fishers accounted for near 1,000, meaning a population of some 16,000 fishers in the Dominican Republic

Fisheries represents the main source of income in many poor coastal communities. Traditionally, the main fishery resources are: Caribbean spiny lobster, spotted lobster, queen conch, demersal and pelagic fish, and locally important resources such as marine shrimp and diamond-back squid in the country's North-East coast.

During the last decade fishery has shifted to target new resources such as glass eel and sea cucumber due to its high value in international markets. Nevertheless, both resources are under regulatory regimes: there is a six month glass eel fishery close-season and currently there is also in place a temporal ban in sea cucumber fishery and trade.

Invasive species also became fishery resources: the marine lionfish, *Pterois volitans* in some cases accounts up to 30% of landings in some types of fishery and the freshwater catfish *Clarias batrachus* and armoured catfish, *Pterygoplichthys* are also being caught.

There exists a growing interest to develop pelagic fisheries targeting tuna and tuna-like species and to develop and strengthen value chains for some particular fisheries such as mahi mahi, *Coryphaena hippurus* and diamond-back squid, *Thysanoteuthis rhombus*.

The purpose of this paper is to show that fishery and aquaculture are strategically important for economic growth and development in the Dominican Republic.

METHODS

The present review has being made through analysis of papers, local, national and international reports, and data and information found in databases, including those at NOAA and CODOPESCA.

RESULTS

Fishery: A strategically important sector

In the Dominican republic fishery accounts for less than 0.3 % Global Domestic Product. The annual mean production is near 14,000 MT. It is an activity that provides direct employment for near 16,000 fishers and indirectly employ more than 80,000 persons. But the real value of the fishery in the country is that provides a source of income, economic opportunities, and social and cultural well-being for coastal communities.

The main exported fishery products are the following: Caribbean spiny lobster, dolphinfish, tuna and tuna-like species, snappers and *Anguilla rostrata*'s glass eesl, being the main market the United States and Asia. Imports accounts for more than 60% of total consumption. From year 2000 to 2019, exports of fishery products from the Dominican Republic to USA accounted for 7,066, 803 Kg, valued in USD\$7,565,4028. Annual mean volume and value of fishery products exported to USA was 353,340.15 kg and USD\$3,782,701.4, respectively (source: NOAA Fisheries Database).

History of fisheries management

The use of fishery resources as source of income and food has a long history in the Dominican Republic but fishery

exploitation grew up in the past 3 decades. In terms of management, before year 2000, the fishery department operated under the Ministry of Agriculture. During the decades of the 80's and 90's there was a boom in fisheries management and research mainly due to the establishment of the German-Dominican project PROPESCAR-SUR which promoted the development of artisanal coastal fisheries in the Southwestern part of the country. For that time, also the fishery department administered an aquaculture center at Nigua, San Cristobal.

In year 2000 the Ministry of Environment was created by mandate of the Environment and Natural Resources Law (Law 64-00). The Fisheries Directorate then was located under the framework of the Vice-ministry for Coastal and Marine Resources. The Fisheries Department has the responsibility for administering fisheries and aquaculture centers: Centro de Desarrollo Pesquero (CEDEP) at Samana Bay, and two aquaculture hatcheries and tilapia grow-out farms: Hatillo at Cotui and Estación Modelo de Producción Acuicola (EMPA) in Azua, the last one was supported and partially managed by the Taiwan Mission.

In 2004 the Law of Fishing and Aquaculture (Law No. 307-04, December 3, 2004) was enacted based on special provisions made by article 148 of Law 64-00. In its chapter II, the Law 307 gave the mandate to create the Dominican Council for Fisheries and Aquaculture, an independent agency, with legal and budgetary autonomy to manage the country's fishery and aquaculture activities. CODOPESCA has the responsibility for regulating, developing, promoting, and overseeing fishery and aquaculture harvest, extraction and research of the aquatic biotic resources, with jurisdiction in the whole country.

The scope of the Fisheries Law extends to all harvesting activities and / or the extraction of biological marine resources carried out in marine areas under the sovereignty or jurisdiction of the Dominican Republic for national and foreign flags vessels fishing in the country's waters. CODOPESCA also oversees development of aquaculture but at sea and inland waters and has responsibility for monitoring, control and surveillance of fishery and aquaculture activities nation-wide.

Currently, CODOPESCA has established 10 branches or stations for the purposes of administration, research, extension, technical support and fishing services and the development of aquaculture in the zones with the greatest fishery potential including the coastal provinces and one station at Santiago, inland.

Stations for service and fishery administration offices of CODOPESCA

- i) Montecristi
- ii) Puerto Plata
- iii) Santiago
- iv) María Trinidad Sánchez
- v) Samaná-Sánchez
- vi) Miches-Sabana de la Mar
- vii) San Pedro-Romana-La Altagracia
- viii) Santo Domingo
- ix) San Cristóbal-Peravia-Azua-San Juan
- x) Barahona-Pedernales.

National Regulatory Framework for Fisheries and Aquaculture

The main legal instrument for fisheries and aquaculture management is Fisheries Law 307-04 and decree 40-13 which declares the development of fishery and aquaculture as "high national priority" and gives the mandates to create a micro-credit to support artisanal fishers. Other regulations include close seasons, fisheries exclusion areas, catch and export limits and banning on catch of certain species. The regulations currently in force are permanent (corals, sea turtles, manatee, ciguatoxic species of fish, sharks and rays) or temporal (lobsters, queen conch, marine and land crabs, Aguilla's glass eels, sea cucumber).

CODOPESCA as Integral Part of the Regional Governance Machinery

Since 2013, Dominican Republic is a formal member of the Central America Integration System (SICA) and a member of the Organization of the Fisheries and Aquaculture Sector of Central America Ithmus and the Dominican Republic (OSPESCA). As a formal member of OSPESCA, the country must comply with actions and decisions made by the ministers because, according to the year 1991's Tegucigalpa Protocol the "Ministers decisions are mandatory" for all SICA members. The formal members of OSPESCA are Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panamá, and the Dominican Republic.

The aim of OSPESCA is to promote the development of sustainable fisheries and aquaculture in the region, as part of the process of the Central America Integration, as an integral part of the "Policy for the integration of the Fisheries and Aquaculture of the Central America Ithmus".

At the political level, the Dominican Republic as a sit at the Council of Ministers, at the executive level participate at the Committee of Vice-ministers. At scientific and technical levels CODOPESCA participates at the Commission of Directors of Fisheries and also at permanent and specialized working groups, such as:

- i) Fisheries and aquaculture Policy (GTPP)
- ii) Harmonization of Fisheries Regulations (GANP)
- iii) Sharks and Highly Migratory Species (GTEAM)
- iv) Aquaculture (GRUTAC)
- v) Fisheries (GTPES)
- vi) Climatic variability on fisheries and aquaculture

Also, the country has national focal points in fisheries communication, gender and fisheries registry (SIRPAC). Some of the model regulatory actions are:

- i) Integrated register system for fisheries and aquaculture.
- ii) Management of the Caribbean Spiny Lobster.
- iii) Regional System for Satellite Monitoring and
- iv) Control of fishing vessels.
- v) Code of ethic for responsible fisheries and aquaculture.
- vi) Banning of shark finning practice.
- vii) Turtle excluder devices (TED) regulation
- viii) Regional work plan for prevention, control and eradication of diseases in shrimp culture
- ix) Regulation for biological sustainability of the

- whale shark
x) Prevention, control and eradication of IUU fishing

Some of the main projects and programs which had contributes to fisheries management in Dominican Republic are presented in Table 1.

Fisheries management challenges in the past 20 years

Many of the fisheries challenges still remain in the Dominican Republic's fisheries. There is necessary to improve the knowledge of all the stakeholders, in particular the decision-makers, on the need to maintain the importance of small scale fisheries as a corner stone for food security in coastal communities and as a source of employment, trade, and traditions of the coastal and inland communities who live from fisheries resources.

Both, fisheries managers and stakeholders along the whole fishery management chain must recognize that many traditional fishery stocks are fully or over exploited; with just a few known resources considered to be under-utilized. De la Cruz (2015) expressed that fish landed only covers 30% of fish consumption, while Medina (2018) indicated that fish landings have decreased by 50% in the last two decades.

Also, emerging fisheries activities are targeting species that were not frequently caught such as the bottom flying fish, *Dactylopterus volitans*, American eel (glass eel), and hand-collected small mollusks such as burgao (West Indian Top Shell), *Cittarium pica*. Lionfish fishery management plan is also encourage to be implemented (Mateo and Lysenko 2013).

Due to its role in coastal and inland communities proper financial arrangements are to be made to ensure that the National Strategy for Fishery and Aquaculture as well as the micro-credit for sustainable fishery and aquaculture development and growth are fully operational. The soft loans being delivered by the Fondo Especial para el Desarrollo Agropecuario (FEDA) by compromises made by the Dominican President to small fishery and aquaculture associations has relieved the economic situation of the poorest coastal fisheries communities. In the last seven years, more than 10,000 Dominican fishers have received medical insurance and by the end of 2019, more than 38 projects in 17 provinces had being supported, according to the official webpage of the country's Presidency (Presidencia de la Republica 2019).

The Dominican Republic through its fisheries authority should seek strengthening of regional cooperation to improve fisheries and aquaculture policy, research, education and also to get a greater impact on fisheries related negotiations in international *fora*. Also human, institutional capacity must be strengthened for CODOPESCA being able to fulfill its mandate. In other hand, the development and implementation of fisheries management plans are needed for particular fisheries resources such as conch, lobster, shrimp fisheries as well as for recreational and sport fishery.

Key Priorities Areas for Management

- i) Strengthening fisheries governance & management to effectively regulate fishing capacity & harvesting, prevent overfishing and ensure that fishery stocks are within biologically sustainable

Table 1. Fisheries related project supported by partner agencies and collaborators (Source: CODOPESCA)

Year	Project	Area	Sponsors
1980	Fishing Development in the Dominican Republic	Nation-wide	Fisheries Development Limited/ INDOTEC
1987-1995	Promotion of artisanal coastal fishery at the South littoral	Southwest coast	GTZ/SEA and German cooperation
1992-1996	Involvement of fisheries communities in the co-management of fishing resources in Samana Bay	Samana Bay	FORD Foundation / CEBSE
1993	Parks in peril: The East National Park	Higuey-La Romana	TNC/MAMMA/PRONATURA
1993-1996	Biodiversity inventory and characterization of communities around Samana Bay and Peninsula	Samana	HELVETAS/CEBSE
1993-1997	Integrating communities to Jaragua National Park management	Pedernales, Jaragua National Park	HELVETAS/ Grupo Jaragua
1995-1998	Conservation and management of the marine coastal biodiversity in the DR	Montecristi, Samana, Pedernales	PNUD, ONAPLAN, CEBSE, Grupo Jaragua, CIBIMA
2000	Integrated Caribbean Regional Agriculture and Fisheries Programme	Nation-wide	EU/Caribbean Regional Fisheries Mechanism/ Department of Fisheries
2000-2003	Fishing and ecological research on lobster	Azua, Samana	ECOMAR
2005	Fishery community-based management in Jaragua National Park	Pedernales	Univerity of Laval / CFRM / Grupo Jaragua
2013	Strengthening fisheries management in ACP countries: ACP Fish2	Nation-wide	EU / ACP/CFRM
2012-2014	Fortalecimiento Institucional del CODOPESCA	Nation-wide	SERNAPESCA-CHILE
2014-2015	Intercambio de experiencias CODOPESCA-ITP	Perú	CODOPESCA- Instituto Tecnológico de la Producción (ITP)

- limits.
- ii) Production of science and evidence –based decision-making in fisheries and aquaculture.
- iii) Combating illegal fishing that jeopardizes efforts on sustainable fisheries management, while strengthening monitoring, control and surveillance systems and adoption of the Port State Measure Agreement.
- iv) Improve trade capacity & competitiveness.
- v) Building partnerships and fostering regional cooperation for fishery and aquaculture.
- vi) Stakeholder involvement, public awareness, ensuring visibility of women contribution to the fishery sector
- vii) Protect marine environment, ecosystems, and critical habitats that support fisheries resources while strengthening resilience of marine ecosystems and fisheries communities to climate change and climate variability.
- viii) Complete a nation-wide fishery census (both, marine and in-land fisheries) and aquaculture as basic information for a improved data collection sampling plan, research and management.

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Figure 1. Fishery officer getting landing data from a typical fish vendor place.



Figure 2. Fishing boats at Palmar de Ocoa landing site, Dominican Republic

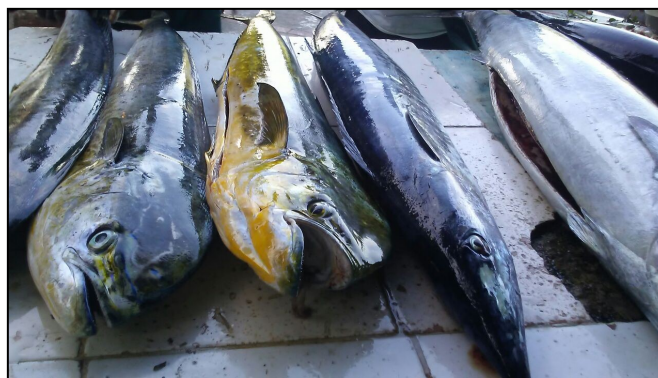


Figure 3. Pelagic fish caught at Fish Aggregating Devices off Santo Domingo.