

PROTECTING ENDANGERED FISH SPECIES THROUGH MUSIC IN THE CARIBBEAN

PROTEGENDO ESPÉCIES DE PEIXES EM PERIGO ATRAVÉS DA MÚSICA NO CARIBE

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Submitted: 03 June 2017

Accepted: 28 September 2017

Published: 17 November 2017

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Abstract: Changing attitudes towards wildlife is challenging, particularly in developing countries where local communities strongly depend on natural resources to survive. Here I present a case study from a small island located in the Colombian Caribbean where a team of biologists used local culture, music in particular, as the main tool to introduce and disseminate a message for the conservation of parrotfish, a threatened fish species. With the help of national and local governments, international non-profit organizations, and community leaders, a campaign for the protection of parrotfish was implemented. The heart of the campaign was ‘The Parrotfish Song’ made in the traditional music of the island, and recorded by a popular singer. Surveys implemented after the campaign took place, indicated the success of music as a tool for changing attitudes, as local communities were aware of the importance of parrotfish and showed their willingness to conserve the species.

Keywords: coral; parrotfish; music; communication; Caribbean.

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Resumo: As mudanças de atitudes em relação à vida selvagem são desafiadoras, particularmente nos países em desenvolvimento onde as comunidades locais dependem fortemente dos recursos naturais para sobreviverem. Aqui, apresento um estudo de caso de uma pequena ilha localizada no Caribe colombiano, onde uma equipe de biólogos usou a cultura local, a música em particular, como a principal ferramenta para apresentar e divulgar uma mensagem para a conservação do *parrotfish*, uma espécie de peixe ameaçada. Com a ajuda de governos nacionais e locais, organizações internacionais sem fins lucrativos e líderes comunitários, foi realizada uma campanha para a proteção do peixe. O coração da campanha foi *The Parrotfish Song* feita com a música tradicional da ilha e gravada por um cantor popular. O monitoramento feito após a campanha indicou o sucesso da música como ferramenta para mudar as atitudes, já que as comunidades locais estavam cientes da importância do *parrotfish* e demonstraram sua vontade de conservar a espécie.

Palavras-chave: coral; *parrotfish*; música; comunicação; Caribe.

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<https://doi.org/10.53930/27892182.dialogos.2.102>

INTRODUCTION

The Colombian Caribbean looks like any other beach paradise, golden sand, ocean painted in all the shades of blue, and forests safeguarding a vast diversity of fauna and flora. Nevertheless, Colombia is pretty special in the latter, as it is the third most biodiverse country in the world. A diverse mosaic of landscapes, such as coastal lagoons, mangrove forests, coral reefs, seagrass meadows, and wetlands, occur throughout the Caribbean coastline of the country, which extends for 1,600 km. Despite this great variety of landscapes, most tourists will choose the emblematic Cartagena and nearby islands as their first choice to visit when traveling to the Caribbean. And it is not by fluke; Cartagena is one of the few cities that allows you to travel in time and space to visit the times of pirates and the Spanish colonial era that arrived with Cristobal Colón. Cartagena's Spanish castles, historical architecture and narrow streets decorated with colourful flowers pouring from balconies, are complemented by the sights of a blue ocean and the exotic promise of an archipelago made up of coralline islands. These islands can be reached only via a short trip by boat.

The beauty and importance of this archipelago was recognized by the Colombian government in 1977, when it was proclaimed the first national natural park of Colombia and received the name of 'Rosario and San Bernardo Coral Natural National Park.' (Hereafter referred as the Rosario and San Bernardo National Park). The park spans 1,200 km², it has X islands, and protects mangroves, tropical dry forests, and 68 km² of coral reefs. Tourists come to Cartagena and the Rosario and San Bernardo National Park from abroad or from the landlocked capital of Colombia, Bogota, to enjoy the charm of the colonial city, as well as the sun and the sea (many *Bogotanos* will be seeing the sea for the first time). Generally, tourists take one-day trip to the Rosario and San Bernardo National Park, as part of an 'all-inclusive plan' set by tourist operators where one fixed fee covers boat transport to the islands, entry fee to the park, and lunch in a local restaurant. Fees can vary widely depending on the luxury of the transportation and the restaurant visited. Either coming from abroad or from within Colombia, the most popular dish

on the menu is, unsurprisingly, fresh fish. Despite the wide range of seafood available, the culinary speciality of the islands consists in a relatively simple dish containing whole fish fried, coconut rice, plantain, and salad. The most sought-after fish is snapper, as it is one of the few names of fish that tourists associate with edibility. Snapper is therefore advertised everywhere. However, reports of overfishing and depletion of snapper populations in this area are increasingly common, so restaurants fulfil the high demand of snapper by replacing it with other less known species, such as parrotfish. By taking advantage of the tourist's poor ability to distinguish between fish species once the fish has been fried and served on the plate, restaurants and hotels have managed to deal with the high influx of tourists.

THE CORALS AND FISH

Parrotfish, are a family of fish present in all the tropical areas of the world's oceans (Randall, 1963). These herbivorous fish species inhabit coral reefs and feed on algae by using their characteristic big and strong teeth (Bruggemann, Van Oppen, & Breeman, 1994). Their 'beak-like' teeth and vibrant and colourful bodies inspired the name of *parrot-fish* (Image 1). Besides their aesthetic value and attraction for tourists who seek the beauty of the coastal ocean, parrotfish play an important role in coral reef ecosystems. Corals are very slow growing organisms that take centuries to develop into complex structures that serve as home to many organisms such as fish, crustaceans and molluscs. Corals need light, space, and clear water with few nutrients to be able to thrive (Littler & Littler, 2007). Therefore, corals compete with other organisms, algae in particular, for space in the seabed. In contrast to corals, algae grow very quickly and thrive in turbulent waters with high nutrient loads (Lapointe, Bedford, Littler, & Littler, 2007; Vroom, Page, Kenyon, & Brainard, 2006). When algae grow uncontrollably to the point of dominating the reef, studies have shown that reef functionality and diversity decrease (Bellwood, Hughes, Nyström, & Folke, 2004; T. P. Hughes, 1994), which in turn, reduce the quality of ecosystem services that coral reefs provide to our

society (Moberg & Folke, 1999). Parrotfishes' role in the reef is crucial, as they keep algae abundance under control, which clears space on the rock surface for corals to grow and ultimately contribute to the health of the whole ecosystem (Mumby, 2006; 2009). An abundant population of parrotfish translates into a healthy reef that provides countless benefits to coastal communities in the form of ecosystems services (Hughes, Bellwood, Folke, McCook, & Pandolfi, 2007). When coral reefs are healthy, benefits to humans have been valued globally at \$9.9 trillion USD per year (Costanza et al., 2014).



Image 1. A stoplight parrotfish (*Sparisoma viride*) showing their characteristic teeth that resemble the beak of a parrot.

Historically, coral reefs in the Colombian Caribbean have been affected by pollution, sedimentation, overfishing, dynamite fishing, and coral mining during the 1980s (Camargo et al., 2009). Nowadays, sedimentation, pollution and overfishing are major problems in the Cartagena area. All these stressors cause different impacts in the ecosystem, but they also have synergistic effects that can produce long lasting damages (Hughes et al., 2003). For example,

reefs receiving polluted water discharges with high concentration of nutrients will experience an increase in the abundance of algae, but if this reef has also suffered from overfishing, parrotfish populations will not be strong enough to control the algae. This situation will lead to the domination of algae over corals, affecting the overall health and functionality of the ecosystem.

THE SOCIAL CONTEXT

Fishing is the main livelihood in the islands of the National Park, and along with tourism, represents the base of the local economy. Islands have been inhabited for centuries by local afro-descendants and indigenous Colombians (hereafter referred as *natives*, as they refer to themselves) that have been dependent on natural resources since long before the protection scheme was established. Despite their proximity to Cartagena, these communities are characterized by low income, lack of access to fresh water, sanitation, health and education, and scarce access to other capitals beyond natural capital (Camargo et al., 2009).

For the first 25 years of the national park, a command and control, top-down management approach was established by the central government of Colombia. Under this regime the extraction of marine resources was prohibited even within traditional fishing areas, ignoring the historical livelihoods of locals (López Angarita, Moreno-Sánchez, Maldonado, & Sánchez, 2014). However, the Colombian government introduced in the late 1990s a new policy called ‘Social Participation for Conservation’, which promoted the engagement of local communities in the national parks of Colombia through environmental education programs and capacity building (López Angarita et al., 2014). Yet, these efforts of social inclusion of local communities have weakened recently, following conflicts and tensions between the communities and authorities, involving coastal development, tourism, and land tenure (Durán, 2009).

Music was an important channel of expression, freedom, and solace for slaves in the Caribbean (Giraldo Barbosa & Vega Casanova, 2014). In local communities of the islands music is still the centre of their culture. Specifically, the genre of folk music and dance called ‘Champeta’ is the most popular and what most natives identify with. The origin of Champeta dates

back to the 1960s as form of expression for the marginalized communities of afro-descendants in the Caribbean coast of Colombia (Abril & Soto, 2004). The word *Champeta* is defined as a small machete or knife, but it was used despicably by the economic elite to refer to people from the poorest sectors of Cartagena, who listened and danced to African and Caribbean music (Cueto Quintero, 2016). Therefore, the term was associated with slavery, blackness, and mistreatment (Abril & Soto, 2004). For these communities Champeta was the way to declare their cultural independence from the white upper class and to protect their ethnic identity (Cueto Quintero, 2016). The dance that accompanies Champeta has also been used as means of resistance, by defying the socially acceptable conventions of gender, conduct, and sexuality (Giraldo Barbosa & Vega Casanova, 2014). Through its highly erotic and seductive movements, Champeta dance disturbs the conservative norms established by the social elites. Through time, Champeta's fascinating rhythm and hypnotic dance slowly permeated into all sectors of society through music festivals, parties and radio, becoming very popular all over the country. In the islands inside the Rosario and San Bernardo National Park, Champeta is heard at all hours, every day of the week; it is the signature of the islands, danced and sung by all ages (Image 2).

TOURISM, PARROTFISH AND CHAMPETA

The high levels of tourism in Rosario and San Bernardo National Park have increased the demand for fish and have triggered the reduction of commercial fish populations. Tourist operators have responded by replacing commercial fish with less valuable fish such as parrotfish to fulfil their seafood demand. The increase of fishing pressure on parrotfish species is risky for local reefs as they are already impacted by pollution and sedimentation. If parrotfish populations decrease, the reef may be overrun with algae, so a healthy parrotfish population is crucial to the future of the Rosario and San Bernardo National Park. This important ecological role of parrotfish is not known to the local communities and tourists. In response, a multidisciplinary team of biologists and economists implemented a project aimed at

understanding the conservation status of parrotfish and raising awareness about the importance of this fish species with local communities and tourists. The project, called the ‘parrotfish conservation project’, ran between 2008 and 2011, supported by national and local governments, international non-profit organizations, and community leaders.

The project involved multiple activities to achieve its main goal, including i) building a baseline knowledge of local parrotfish populations using biological; ii) identifying the scale and characteristics of the parrotfish fishery by gathering socioeconomic indicators; iii) increasing community awareness about the important functional role of parrotfish in coral reefs by conducting educational activities and campaigns.



Image 2. A Champeta dancing at a local school.

USING CULTURE AS A LEARNING TOOL

Given the history between environmental authorities and the local communities, some natives have negative attitudes towards conservation policies, particularly when they impose a prohibition of a given fishing gear, or a species. Therefore, any effort to change the attitude of locals towards wildlife was likely to be met with resistance. Activities developed during the project to raise awareness of the community regarding the role of parrotfish were designed with the objective of exchanging knowledge between natives and the scientists, these included: i) workshops and talks with fishermen; ii) art workshops and talks in local schools; iii) theatrical plays with the local schools; iv) sport events (football for adults, softball for kids); v) snorkelling activities with children and eco-guides, and vi) underwater guides and posters for parrotfish identification distributed along the island. Parallel activities included educational campaign for tourists. Booklets and posters with key information about parrotfish were distributed in tourism centres, ports, diving shops, hotels, and restaurants of Cartagena and the Rosario and San Bernardo National Park. Additionally, talks during high season in tourism boats were given before tourists departed to the islands.

The heart of the project was the ‘Parrotfish Song’, a Champeta whose lyrics explain the importance of parrotfish using local dialogue. The song was recorded by a popular singer of the genre and it was performed live during a community concert (Image 3), and then aired through the radio and a video was posted online.

The project found a major lack of knowledge about parrotfish not only by tourists but also by locals (from the city and local communities). Most tourists had never heard about parrotfish before but were inclined to support its protection after learning about them. 39 fishermen responded to a survey at the end of the project to determine the effectiveness of the raising awareness activities. 35% of fishermen admitted to having learned about the importance of parrotfish from the project; 100% expressed the importance of conserving them; 89% were willing to stop fishing parrotfish; and 77% proposed to prohibit parrotfish capture as a method to protect it.

The song was particularly successful at delivering the message because it showed locals that the project's main priority was to value and celebrate local culture, values and livelihoods. Therefore, communities were committed to all the activities related to the project, and embraced the new information with clear learning intentions during its entire duration.



Image 3. Famous Champeta singer, Charles King, performing the Parrotfish song to the local communities.

Following intensive awareness-raising activities developed as part of this study, the community started to recognize the vital ecological role of parrotfish in coral reef systems, and are suggesting a redrafting of the fishing legislation by the environmental authorities, in order to recognise and incorporate the traditional fishing rights of human communities living within the Rosario and San Bernardo National Park. The key to sustainable management of these areas is to work with local communities to enhance or supplement their livelihoods, to allow for reduced pressure on reef resources. Tourism is one potential avenue for this, but must be informed and on a scale appropriate to the resource.

ACKNOWLEDGEMENTS

I would like to thank all the colleagues who participated in the parrotfish conservation project and allowed this dream project to happen. If you are interested in the results please access the final report here:

<http://www.conservationleadershipprogramme.org/project/parrotfish-protecte-d-coral-reefs-colombia/> or visit the blog <http://conservaciondelpezloro.blogspot.com/>

To listen and dance to the parrotfish Champeta search for the song 'El Pez Loro' by Charles King in online.

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