

# CASE STUDY

## Towards A Sustainable Bonefish Recreational Fishery at Los Roques Archipelago National Park

Implementing Organization: Fundación Científica Los Roques, Venezuela

GRANT NUMBER: SIDA QCL-2324-3474-2661-2271.



Submitted by: The Gulf and Caribbean Fisheries Institute, Inc.

GCFI Tracking Number: SGF2007\_SSF\_04

## Executive Summary

### Fundación Científica Los Roques (FCLR)

This case involved an exchange between an international recreational fishing guide from Miami (USA) and fishermen from Los Roques, Archipelago in order to take advantage of the knowledge and experience of this fishing guide on the management and conservation of bonefish fishery, specifically in the context of the collaborative efforts between scientist and local stake holders. The following objectives were predefined:

**Objective 1:** Exchange of experiences and promotion of sustainable recreational fishing practices among local recreational fishing guides, with the participation scientists and experienced guides from USA and Venezuela.

**Objective 2:** Simple baseline estimation of bonefish population size in Los Roques Archipelago, including training and active participation of local recreational fishing guides and other stakeholders.

**Objective 3:** Generate and promote a Recreational Bonefish Fishery Management Plan, with the active participation of scientists, current recreational fishing guide and other stakeholders.

**Objective 4:** Promote recreational fishery as an economical alternative among current artisanal fishermen, throughout motivational talks lead by experienced guides from USA and Venezuela and current local fishing guides.

The following outputs were achieved:

1. International recreational fishing guide, Captain. Joe Gonzalez from Miami (USA) traveled to Los Roques from June 22<sup>nd</sup> to 28<sup>th</sup>, 2008 to participate in workshops designed to developing recreational fishing guide opportunities in the Los Roques National Park..
2. Two workshops were held at Los Roques with the participation of Cap. Joe Gonzalez, local fishing guides and scientists.
3. Exchange of experiences in the field between Cap. Gonzalez, local fishing guides and scientist.
4. Training on tagging bonefish was also conducted.
5. Survey among participants was conducted to evaluate the workshop (see survey results in the Appendix 1).
6. Fifty percent of the local fishing guides participated in all the activities.
7. Information about the biology of the bonefish, was provided, more than 80% of local fishermen expressed that they had learned very much from the exchange.

8. Most of the fishing guides were well-motivated to participate in the workshops, and expressed their interest in participating in other workshops and collaborating with scientist.
9. Fishing guides and scientist agreed to conduct the census in October 2008.
10. Scientist met with the local National Park authorities to discuss the Bonefish Recreational Fishery Management Plan.
11. A documentary film about the project will be produced and presented this year at Los Roques Archipelago National Park and in the Gulf and Caribbean Fisheries Institute Meeting in Guadeloupe.
12. Trip participants will be presenting the results of the project at the Gulf and Caribbean Fisheries Institute Meeting in Guadeloupe, in November 2008 (abstract is included in Appendix 2).
13. As a result of this exchange, the principle investigators of this project were awarded a research grant by Bonefish and Tarpon Unlimited to start a bonefish tagging program with the local recreational fishing guides of Los Roques Archipelago National Park.

## Analysis of the Environment

Activities were examined solely within the marine environment and specifically within Los Roques Archipelago National Park. The environment included examination of activities within the guide fishing sector as well as inputs from scientists from Universidad Simon Bolivar and FCLR. Over the past decade, LRA has become one of the most popular recreational fishing destinations in the Caribbean for bonefish, receiving an annual average of 400 anglers. This recreational fishery provides an important income to the local economy and since 1992 some artisanal fishermen have successfully migrated to this alternative economical activity (Debrot and Posada, 2005); others have expressed their interest in moving towards this livelihood but expressed the need to receive additional information before making a final decision. Despite the economic potential for this sustainable alternative to artisanal fishing, there are no regulations directly oriented to bonefish that guarantee a sustainable recreational fishery in this protected ecosystem with the exception of catch and release requirements (e.g., seasonal closure, bag limits, etc).

## The Experience

The vision of this experience was to develop sustainable fishing practices as well as alternatives to fishing in order to sustain livelihoods in artisinal fishing communities in

the Los Roques Archipelago National Park. These communities have already determined that alternative livelihoods were an appropriate and desirable approach to address the overfishing and lack of management for conservation of their marine resources. This exchange was an opportunity to validate and increase the leadership capacity of local fishermen from Los Roques, and to introduce many of them to an alternative fishing activity that allows a sustainable exploitation of bonefish and increases the livelihoods for the local guide fishermen and, therefore, the local economy.

## Development

Approximately 40 participants were trained in the field methodology in a half-day activity by Cap. Joe Gonzalez, who had previously participated in four bonefish population censuses in Florida. This census methodology will allow scientists to determine population trends over the subsequent years and help ensure a sustainable population. After conducting a consultation process, a Management Plan proposal will be presented to the community for its approval. This consultation process included one workshop (one day) with local stakeholders to discuss the management and conservation strategies for the bonefish recreational fishery. Finally, after analyzing the data derived from the workshops and the population census, a Management Plan for the recreational bonefish fishery will be presented in a meeting with the community and other stakeholders for its approval and promotion.

From June 22<sup>nd</sup> 2008 to June 28<sup>th</sup> 2008, two workshops were held at Los Roques with the participation of Cap. Joe Gonzalez an international recreational fishing guide. Participants in the workshops included local fishing guides and scientists. Experiences were exchanged and there was a great deal of interaction in the field throughout the week. Fifty percent of the local fishing guides participated in all the activities. Although expectations about the outcomes from the workshops were not high among the local fishing guides, and none of them had previously received any information about the biology of the bonefish, more than 80% expressed that they had learned 'very much' from the exchange. Most of the fishing guides were well motivated to participate in the workshops, and expressed their interest in participating in other workshops and collaborating with scientists.

In order to develop a baseline on the abundance of bonefish in LRA, a simple population census was conducted following the methodology proposed by Ault et al. (2005), with the active participation of several members of Los Roques community, including the Ecological School Brigade, scientists, professional guides, and the Park's authorities (INAPESCA, INPARQUES, National Guard). The census took place in one day of field work, and covered the entire archipelago platform. In addition, a video of the activity was produced and will be used to disseminate the information among fishers in the region.

## Important Aspects for Decision Making

The project has exceeded expectations since we accomplished most of the programmed activities and perhaps more importantly, created an effective communication channel between local fishing guides and scientists. Local fishing guides

were very enthusiastic about starting a bonefish tagging program and we planned and started to coordinate the bonefish population visual census.

#### Pending Questions or Tasks

1. Are the authorities of Los Roques Archipelago National Park in favor of adapting these alternatives?
2. Are all the users of this resource in favor of these activities? Does the private sector support and encourage these activities?
3. Does the local community and other stakeholders support these activities?
4. Can reasonable incomes be achieved using these practices?
5. How will these new fishing alternative will be marketed?
6. How can other stakeholders (including government officials, hotel operators, tourist operations, etc.) be incorporated into this process.

## Annexes

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### Annex 1.

#### Background of the case

Bonefish, *Albula vulpes*, is a common species in coastal marine environments along the coast of Venezuela (southern Caribbean Sea) and particularly in Los Roques Archipelago National Park (LRA) (Cervigón, 1991), where large schools inhabit the waters of this marine-protected area.

Over the past decade, LRA has become one of the most popular recreational fishing destinations in the Caribbean for bonefish, receiving an annual average of 400 anglers. This recreational fishery provides an important income to the local economy and since 1992 some artisanal fishermen have successfully migrated to this alternative economical activity (Debrot and Posada, 2005), while others have expressed their interest to carry out such change, but request additional information to take a final decision. On the other hand, despite this economic importance and potential as an alternative livelihood for artisanal fishermen, there are no bonefish directly oriented regulations that guarantee a sustainable recreational fishery in this protected ecosystem, farther from a catch and release fishing method (i.e., seasonal closure, bag limits, etc).

*Exchange of Experiences and Promotion of Sustainable Recreational Fishing Practices:* Exchange of experiences and promotion of sustainable recreational fishing practices among local recreational fishing guides will be developed as a one-day workshop with the participation of scientists (Juan M. Posada and Denise Debrot) and two renowned bonefish fishing guides from USA (Cap. Joe Gonzalez) and Venezuela (Cristobal Yrazabal). Power-point presentations will be offered in the areas of expertise of each speaker. An audience of 25 recreational fishing guides is expected. The impact of the workshop will be measured using an opinion poll specially designed for such purpose (before and after).

*Bonefish Population Census:* In order to set a baseline on the abundance of bonefish in LRA, a simple population census will be conducted following the methodology proposed by Ault et al. (2005), with the active participation of several members of Los Roques community, including the Ecological School Brigade, scientists, professional guides, and the Park's authorities (INAPESCA, INPARQUES, National Guard). The census will take place in one day of field work, and will cover the entire archipelago platform. An approximate of 40 participants will be trained in the field methodology in a half-day activity by Cap. Joe Gonzalez, who has successfully participated in four bonefish population census in Florida. This simple methodology will allow us to determine population trends over the following years.

*Management Plan for the Bonefish Recreational Fishery:* A Management Plan proposal will be presented to the community for its approval, after conducting a consultation process. This consultation process includes one workshop (one day) with local stakeholders to discuss the management and conservation strategies for the bonefish

recreational fishery. Finally, after analyzing the data derived from the workshops and the population census, a Management Plan for the recreational bonefish fishery will be presented in a meeting with the community and other stakeholders for its approval and promotion.

*Promoting Recreational Fishery:* One-day workshop will take place at Gran Roque, with the participation of artisanal fishermen from different villages (Isla Fernando, Cayo Pirata, Crasqui and Gran Roque) and will be coordinated in collaboration with Los Roques Artisanal Fishermen's Association. Motivational talks will be offered by fishing guides, particularly by former artisanal fishermen, whom will have the opportunity to comment about the positive aspects of their new livelihoods and the responsibilities related to providing this kind of services. An audience of 15 artisanal fishermen is expected. The impact of the workshop will be measured using an opinion poll specially designed for such purpose (before and after).

Annex 2. Photographs of the Exchange



Cap. Joe Gonzalez and local fishing guides



Denise Debrot, talking to local fishing guides about the results of her bonefish research



Workshop with participants tagging the first bonefish during the exchange.



Second workshop among local fishing guides and scientists.

Appendix 1: Survey used to collect opinion polls about the workshop.

**Estimado amigo:**

Estamos realizando una evaluación sobre la vinculación del pescador artesanal en la pesca deportiva del pez ratón en el Parque Nacional Archipiélago Los Roques, así como del desarrollo actual de esta pesquería, por lo que quisiéramos que amablemente nos conteste usted las siguientes preguntas:

1) Nombre: \_\_\_\_\_ 2) \_\_\_\_\_ Edad: \_\_\_\_\_  
\_\_\_\_\_

3) Lugar de Origen: \_\_\_\_\_

4) Años dedicados a la pesca artesanal: \_\_\_\_\_

5) ¿Tiene usted algún familiar que sea guía de pesca deportiva del pez ratón?  
\_\_\_\_\_

6) ¿Le interesaría a usted conocer los detalles de esta pesquería?  
\_\_\_\_\_

7) ¿Le gustaría a usted aprender y dedicarse a ser guía de pesca deportiva?  
\_\_\_\_\_

8) ¿Dejaría de ejercer la pesca artesanal?  
\_\_\_\_\_

9) ¿Que dificultades ve usted en esto de dedicarse al oficio de guía de pesca deportivo?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

10) ¿Ha mejorado o empeorado su calidad de vida con el aumento del turismo en Los Roques?  
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\_\_\_\_\_

Appendix 2. Abstract accepted for presentation at the 2008 Gulf and Caribbean Fisheries Institute Meeting in Guadeloupe.

**Promoting a sustainable bonefish recreational fishery: a collaborative effort between fishing guides and scientists**

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Bonefish, *Albula vulpes*, is a highly valuable game fish that supports economical important recreational fisheries throughout the wider Caribbean Sea. Since 1998, the University of Miami Rosenstiel School of Marine and Atmospheric Science is running a bonefish research program that involves the active participation of recreational fishing guides. To date, more than 4,000 bonefish have been tagged and an annual bonefish population census has been conducted for the past five years in South Florida. A similar research program is being developed at Los Roques Archipelago National Park, a location considered one of the most popular recreational fishing destinations in the Caribbean for bonefish. With the economical support from the UNEP-Caribbean Environmental Program, a knowledge exchange initiative between fishing guides and scientists was conducted at the archipelago in June, 2008. Workshops, seminars, open discussions and field trips were conducted during five days of intensive activities in order to inform the local fishing guides about the scientific findings on the biology and population dynamics of this species in the area, provide training on tagging and visual census methodology, and exchange ideas on the sustainable use of this important resource. Similar programs could be conducted in other location within the region to promote the co-responsibility in the resources management.

Key words: recreational fishery, bonefish, tag and recapture, Los Roques, Venezuela