



**CeDePesca**

**Centre for Development and Sustainable Fisheries  
Yucatán Office– México**

## **PROPOSAL FOR ESTABLISHING A NEW FISHERY MANAGEMENT SYSTEM FOR GROUPER AND ASSOCIATED SPECIES OF THE CAMPECHE BANK**

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Elaborated by CeDePesca technical team with the collaboration of Sea-Delight and Atlántida del Sur, and contributions from fishermen leaders, federal and state officials and researchers, as part of a Fisheries Improvement Project.



## Introduction

This proposal arises from the consideration and involvement of participants in various meetings held in Yucatan with representatives of fishermen, scientists, authorities, resource managers, among others, to analyze and generate a comprehensive proposal for the management of the grouper and associated species fishery of the Campeche Bank.

Herein is comprised of two parts.

The first is a summary of the most important characteristics that define the red grouper and associated species fishery in Yucatan. It does not seek to address particular situations affecting it, but rather speak to generalities and current problems.

The second part is our vision, in reference to the actions and the comprehensive proposals that we believe may change the current trend of the fishery and achieve its recovery in the mid to long term. A brief discussion of some of the proposals that have been presented in different forums is also presented.

It is important to emphasize that **no single action by itself guarantee the success** towards sustainability of the fishery. It is necessary to implement a Comprehensive Plan or Program that can be evaluated each year and that also has simple mechanisms for re-direction if necessary.

## The red grouper and associated species fishery

### First Part: General characteristics of the fishery

The specifications for the use of grouper species and associated species in federal waters of the Gulf of Mexico and the Caribbean Sea are defined in the Revision of NOM-065-PESC published last August 14, 2014. This regulation identifies 18 species of grouper and 16 associated species.

This fishery is used as the basis of income when the fisheries that generate higher income such as the octopus, lobster, and sea cucumber are not in season.

This fishery is sequential, composed of two sub-fleets or sub-fisheries. Until recently, it also operated a third fleet (the Cuban one).

1. Sub-fishery or coastal fleet (artisanal)
2. Semi-industrial sub-fishery or off shore fleet



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The United States of America is the main market for export, being the largest customer for both fresh and frozen products.

*Current Management Strategies*

- Limitation on issuance of permits for commercial fishing according to the National Fisheries Chart.
- Temporary one month closure in the states of Yucatan, Campeche, and Quintana Roo (February 15 to March 15), regularly since 2007 (DOF 14/02/07).
- Imposition of type and hook sizes according to the Revision of NOM-065-PESC, published last August 14, 2014 (starting from 2010).
- Minimum size of catch for red grouper (since 2010) established based on the recommendation of INAPESCA, currently set at 36.3 cm TL
- Establishment of catch quota for Cuban fleet (which it's currently not operating).
- Since November 2014 there is a Management Plan for Red Grouper and Associated Species officially approved, which does not introduce any substantial change to the previous management scheme.

*Sub-fishery or coastal fleet (artisanal)*

- This fraction of the fishery mainly captures juveniles since its fishing zone coincides with the area of growth of the population. Thus, there is a widespread non-compliance of the minimum fish size regulation established in the NOM-065-PESC-2007, and penalties for such non-compliance are not enforced, except the difficulty to export these small sizes to the main market which is the United States and therefore receiving very low prices for them. Notwithstanding, this "market penalty" does not inhibit the catch of small fishes precisely because it is not avoidable for the area of operation.
- Small sizes of red grouper and associated species are sold in large cities in Mexico through a marginal network and within Yucatán mainly to restaurants and small shops.
- It is estimated that there are about 5,000 small boats in Yucatan, although it has been mentioned that could actually be nearly 6,000.
  - Of these, 3,100 boats have licenses to capture finfish, in addition to a demand for 527 new permits by May 2014 (Alcántar, 2014). If the INAPESCA would authorize such permits, there would be 3,627 legalized boats for the grouper fishery.
  - The National Fisheries Chart (created by INAPESCA in 2012) recognized 4,400 small vessels participating in the fishery.
  - From 2006 to 2010 the government of the State of Yucatan conducted a census, registering all existing fishing vessels in the state and providing them with plates. There are currently 4,633 vessels registered with plates.
  - This leaves us of at least 400 vessels without permission, or plates, or any registration, all having entered fishing operations after 2010.



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- Around 15,000 fishermen participate in the fishery.
- Landings are not properly registered but estimated through a kind of laundering in the commercialization system. This is caused in part by the large number of participating vessels without proper registrations and by the capture of small sizes that cannot be included in the registry.
- There is a degree of decay of traditional cooperatives; new smaller and weaker cooperatives arose, and private independent operators of multiple licenses have increased. This situation adds a difficulty to management efforts.
- The social impact of this fishery is very large in coastal communities in the state due to the duration of the fishing season and because it is a traditional activity, among others. This creates a resistance to any restrictions on the operation of the fleet and the need to create alternatives for subsistence of the sector in case such restrictions are necessary.

*Sub-fishery semi-industrial or off-shore fleet*

- The sub-fishery operates in the area where adult fish are present, which is farthest from the coast, and therefore the non-compliance of the minimum size is smaller.
- There are 522 boats participating, which represent direct employment for 2,500 people.
- Most boats belong to important businesses in the port of Progress and some are members of cooperatives or belong to small entrepreneurs.

**Second Part: CeDePesca's Proposal**

Our proposal is based on recognizing the realities and limitations of the fishery, which involve little knowledge of some of the species involved as well as budgetary constraints and the inherent lack of regulation compliance. No matter what the proposals and / or how effective they theoretically could be, none of these may work unless the level of compliance is improved.

To do this, given the big number of stakeholders and the territorial extent of the fishery, it is necessary to involve coastal communities in a system of co-operation, transferring part of the decisions and the responsibility for compliance to these communities. According to Caddy & Agnew, successful recovery plans mainly rely on the establishment of formal arrangements between players for following compliance and on these plans being based on tenure rights (i.e. community or individual quota or territorial use rights). Once the management plan is initiated, there should be clear rules for making timely decisions without debate.



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### Description

- The artisanal sub-fishery bases 95% of its catch on juveniles below the first maturity average size  $L_{50}$  (INAPESCA, 2014; Brulé, 2014).
- The semi-industrial sub-fishery bases most of its catch on adult individuals (INAPESCA, 2014).
- There is widespread overfishing both of juveniles and adults. According to the 2012 National Fishery Charter, the fishery is deteriorating.
- There is little information on associated species, some of which could also be over-exploited.
- Many of the established regulations are not met.

### Immediate objectives

- Stabilize and then starting the recovery of red grouper biomass
- Get biological information about associated groupers and snappers
- Get information about other impacts on the ecosystem
- Have in place a realistic and credible rebuilding plan

### Long term objectives

- Have the main species fluctuating around a biological target reference point and none at or under the limit reference point
- Have an understanding of other impacts on the ecosystem
- Have in place a sound management plan, including harvest control rules and a comprehensive research plan.

*PROPOSAL #1.* Establish independent total annual catch quotas of grouper for each sub- fishery, based on a precautionary approach, and estimated based on a rebuilding of the stock to a target reference point in about 10 years.

1. Knowing the level of overall biomass relative to their biological reference points, and current fishing mortality at age (total, and as effect of each sub-fishery), we need to understand what would be the desirable level of fishing mortality at age in order to recover the stock to a safe level within a reasonable period such as 10 years.
2. Since the coastal sub-fishery target juveniles, it is necessary to determine what level of fishing mortality is biologically acceptable for these specimens, in order to enable the desired recovery, and establish these measures within the Management Plan.
3. Similarly, fishing mortality must be estimated for adult fish caught by the operation of the offshore fleet fishing.



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As a result, annual catch limits for each fleet will be established without trying to change the current exploitation pattern.

*PROPOSAL # 2.* To successfully implement the above proposal, the following measures for the semi-industrial fleet are suggested:

1. Establishment of quotas per vessel based on the history of landings, storage capacity or engine power, or a combination of these. This will help to avoid a “race for fish” and removal of boats will be favored.
2. Catch quota may be unified when they are allocated to several boats belonging to a single owner or when owners of several boats are associated. This will encourage the reduction of fishing capacity as owners withdraw the obsolete vessels and leave the most efficient ones, seeking higher returns for the allocated quota.
3. Establishment of mandatory logbooks submitted upon landing, and landings certification to monitor compliance of this fraction of annual catch quota.

*PROPOSAL #3.* To successfully implement Proposal #1, the following measures applicable to the artisanal fleet are suggested:

1. Regularization of existing boats by granting, for the first and last time, finfish permits according to the proposal made by the Social Sector of Yucatan, represented by the Regional Federation of Fisheries Cooperatives of the Central, East and West areas of the State of Yucatan and in relation to the recovery of the grouper fishery in the state. The proposal requires the completion of a census of vessels currently engaged in this fishing activity and based thereon, permissions are granted subject to the following limitations:
  - a. The licensee and / or cooperative already have permits for finfish and / or octopus for other boats.
  - b. Licensees have a clean record with CONAPESCA or have not committed any serious offense.
  - c. A visual check is needed to confirm the existence of the boat intending to get a permit.
  - d. After this rule is approved and implemented, immediate detention of any non-registered boat must be enforced with collaboration of stakeholders.
  - e. Prohibition of construction of new fishing vessels unless it is proven that they will replace an existing vessel of equal or greater size and power.
2. Establishment of a legal system that imposes to shipyards that they can only deliver new or repaired boats to their customers when they have proved having the corresponding fishing license and other legal documents needed.
3. Catch quotas will be assigned only to cooperatives and licensees. Individual fishermen will only have access via these fishery organizations. These quotas will be allocated based on catch history of associated vessels, the storage capacity or engine power or a combination



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of these factors. Cooperatives will allocate these quotas amongst their members based on a criteria defined by their assembly, and they will be responsible for its compliance.

4. Establish a maximum engine horsepower of 85 H. P. for small vessels (as listed in the amendment to the NOM-065-PESC-2007).

*PROPOSAL 4.* Establishment of spatial-seasonal closures in breeding areas and sensitive habitats, controlled by Vessel Monitoring System (VMS), particularly in Alacranes Reef and Northern Shallows.

*PROPOSAL 5.* Extension of the existing closure period from one month to two months (January 15-March 15), accompanied by a support fund for fishermen.

1. We believe that whereas it is not an ideal measure to maintain a fund for financial support of fishermen, this measure seems to already have a good level of acceptance among the fishing industry, which is advantageous. The implications the closure may have on other species which form part of this fishery may be important given the large number of species that are also in a reproductive stage during this time of year.

*PROPOSAL 6.* Establishment of measures to control sport and recreational fishing.

1. Close the Alacranes Reef and Northern Shallows to sport and recreational fishing from January 15 to April 15.
2. Mandatory use of VMS
3. Strengthen Alacranes Marine Park surveillance staff and monitoring of recreational activities from Alacranes Lighthouse facilities.
4. Mandatory registration of catches
5. Sport fishing can only land one fish per angler. Other fish caught must be returned alive to the sea.
6. Establishment of fines and legal actions applicable to non-compliance of this regulation.
7. Fines applicable to sports and recreational fishing will serve to develop a fund that is usable for the Management Plan expenses and / or a Social Fund for Fishermen.

*PROPOSAL 7.* Establishment of a traceability system for the supply chain.

1. Each sale, processing and transport operation of fishery products, either for local market or export, must have a source document allowing its traceability to the vessel or association responsible for the landing. This document should be available during any inspection procedure and its lack will result in severe penalties.
2. Each buyer (except the final consumer) is legally responsible for the origin of the product marketed and for loading their purchasing data and sales on a website (TBD) in which fish



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accounts per vessel/association balances are established to verify that assigned annual quotas are not surpassed.

3. Based on this data, the fisheries authority shall notify each vessel owner of both large and small vessels' association when they have completed 80% of the annual quota in order to preventing surpassing this quota.
4. To buy, transport and sell fish from this fishery, a permit for commercialization and transport is required. These permits shall be recorded. Lack of such permit will be severely penalized.

***SOME POINTS TO CONSIDER***

- 1) Up to a 10% surpass of the annual quota will be permissible, which will be deducted in absolute values from the quota the following year but will not represent a permanent loss. A surpass greater than 10% will represent definitive losses of quotas of equal proportion, that will be reallocated among the other actors in the respective sub-fishery.
- 2) Catch and effort information of the associated species will be systematically collected with the aim of progressively establish biological reference points and catch limits for these species.
- 3) Information about vulnerable species will be collected in order to determine eventual mitigation measures.
- 4) Develop a strong work on education, outreach and awareness through the value chain to achieve understanding and support for management measures
- 5) We consider priority to establish a mechanism for greater participation among the producers and the competent authorities of the three levels of government that, together, allow CONAPESCA to do a more effective job
- 6) Establish a coordinated (State and Federal Ministries and Authorities) and cost-effective program for land and sea inspection and for which surveillance at sea should be based on satellite monitoring and onshore control would focus on processing plants, transportation and trade (domestic market and exports).
- 7) The management process should be transparent and participatory and include a joint review process between Federal, State, Municipal, and Local Authorities, and include a broad representation of the industry and fishermen.

**Review of some of the proposals which have been presented in other forums:**

There have been several proposals for managing the fishery, which are being discussed below:





*1. Withdrawal of vessels from the semi-industrial and artisanal fleets:*

The idea is to reduce fishing effort. While the measure may be practicable and is enforceable to the largest fleet, there is no guarantee that the small vessels which have been withdrawn will not re-enter or that new boats enter into the fishery. Furthermore, variability in technological advances, the number of fishing days, the number of hooks, number of sets / travel, among others, prevents the number of vessels to act as a good measure to establish the fishing effort (Salas, et al. Various papers).

While the measure would help to decrease during a set time frame a given number of industrial vessels engaged in the fishery, so far manufacturers have not committed to establish a number of boats ready to retire. Hence, we consider that this measure alone would not be able to take the fishing effort to acceptable limits. Instead, combined with a quota system, it could be effective.

*2. Increase closure periods*

Given the facts that the fishery is multi-specific, the grouper reproductive peak has been determined to comprise at least one more month, and the extension may also protect spawning of associated species (Brule, et. Al.), extending the closure seems a very useful measure. However, while protecting the spawning season is important, this measure alone does not guarantee that once reproductive success has been secured, a sufficient number of juveniles will be recruited to the fishery, since along this process the sources of mortality seems to be very high. On the other hand, there's also a need for financial resources to ensure a subsidy to those who must stop fishing, especially in the artisanal fleet, in addition to prohibit all forms of marketing of red grouper and associates in the local markets.

*3. Modify minimum size*

Many fisheries in the world operate WITHOUT size limit, and in fact for species that do not survive the massive capture and subsequent discard, the minimum size does not generate any advantage for conservation and conversely, discarding and under-reporting is favored. For some crustaceans and bivalve mollusks is different because these species survive high-grading discards.

*4. Establish a minimum circular hook size*

This measure would aim to achieve an increase in the average size of capture. However, it is a very difficult measurement to control. Moreover, if a good level of compliance is achieved- which does not seem feasible,- catches of the artisanal fleet will be substantially reduced, creating a social problem that should be permanently addressed.



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5. *Establish an exclusion zone for fishing in depths less than 10 m*

This measure aims to achieve the same effect as above: increase the average catch size. However, the smaller fleet does not have VMS and is very difficult to establish a system of coastal surveillance to the extent of the area involved and to keep under control 6000 boats. Not to mention that to limit an area of less than 10 meters deep is too complex for vessels without echosounder.

Furthermore, the characteristics of the artisanal fleet of not having a deck prevents equipment from being left on board when in the dock, and therefore would be impossible to monitor every time you go to sea with this VMS equipment. Instead, mandatory VMS could be useful for the safety of navigation, an important problem in the region, and for research about the dynamics of the fleet.

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