

Fisheries co-management and sustainability: contributions to the economy of artisanal fisheries and food security

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“Managing artisanal fishing in Paraty (RJ) can not only guarantee the sustainable resource exploration, but also keep the fisher population away from the current increase of urban density and local slums (favelas). In this context , the fishing management can avoid, in the future, social conflicts as violence, health and nutrition problems.”

(“Diagnóstico socioambiental da pesca artesanal em Paraty”. IBIO/FIFO; 2010: 13).

1st)

Defining issues that contribute to the local economy and food security in the context of Paraty artisanal fisheries

- a) How are the most selling fish resources extracted in Paraty?
- b) How are these resources traded?
- c) What are the subsidies that fishermen can give to these resource management?
- d) What proposals can be left to manage these resources?

2nd) Economic fishing chain

Artisanal Fishing & Marketing: from the extraction to the final consumer. :
extraction, storage, consumption and sale

Fishery resource: snook “*robalo*” (*Centropomus* spp.)

- One of mostly sold species with high commercial value in Paraty;
- Secondary data about ethnoecology and ecology;
- Specialized fishing technology: “*Cerco ao Robalo*” (Seine for fish & Diving: its a kind of fish-net which associates two traditional methods: net *lance* and diving).

Study area: Tarituba community in the north of Paraty

- There is a group of fishermen specialized at snook fishing and the impacts of this fishing technology needs to be locally studied and evaluated so that future sustainability measures can be done.

Methods

1st) Survey of Secondary Data

- a) Book: “*Ecologia da pesca artesanal na Baía de Ilha Grande (RJ)*”;
- b) FAPESP project: field data and interviews about fishermen ethnoecology, catch and ecology (mainly in relation to the reproduction data of snooks);
- c) Guideline of Marine Stewardship Council certification (mainly in relation to steps & indicators);
- d) Feasibility study for closed snook fishing.

2nd) Field Research

- a) Observation and fishing trips;
- b) Monitoring the fish markets (“*peixaria*”) in Paraty and interviews with owners of fish markets;
- c) Interviews with snooks fishermen about this subject (practice, market, problems, improvements, etc).

Ethnoecology of snook (n=206)

(Begossi *et al*; 2010)

15% of interviewees: Snooks decreases in number and size and other fishes which eat invertebrates are increasing

Hypothesis of
overfishing

can justify the carnivorous predators
withdrawal from the local
environment.

Economics of local fishing in Paraty (n=206)

- a) 85% Sell their catch.
- b) There are four major fish markets in the city
- c) Snook is a resource reserved for sale (69%).



Hypothesis: the **reduced availability** of this resource and its **high price** justify this reality.

TARITUBA COMMUNITY (n=19)

1. 69% live exclusively on fishing;
2. Average income higher than in other communities in Paraty;
3. These fishermen search for a target-species of high commercial value with specialized fishing technology: seine for fish (“*cerco do robalo*”)

Hypothesis: the **major average income** of Tarituba community is related to the **special technology** for snook fishing

Fishermen production (n= 23)

Preliminary field study (in January 2009 and July 2010)

| Production destination | Payment | Variations described |
|-------------------------------|------------------------|---|
| middlleman (Who are they?) | payment cash or varied | Preference to receive in cash, even if the price is lower |
| fish market | varied payment | In general, first they sell at the fish market and after pay the fishermen (around a month later) |
| local restaurants | payment cash | high cost to the final consumer comparing to the first sale price |
| direct consumers | payment cash | rare mostly in the summer |
| consumption | | rare |

Three important questions for future analysis about preliminary reading & field research

- a) Does the fishing management aggregate benefits to each part in the economic chain? Is it possible mainly in relation to the resource extractors (fishermen)?
- b) Can some improvements such as closed seasons, closed season incomes or fishing certification add value to the economic chain in Paraty?
- c) How to persuade the fishermen so that they are able to practice the fishing co-management in the region?

Summary

- 1) The reduced availability of snooks
- 2) The local economic importance of snooks;
- 3) The hypothesis of its overfishing;

All these factors give importance to this research and raise analysis for future suggestions to the artisanal fishing management.