



Community Conservation
Research Network



Analysis of the recreational fishing in Ascension Bay in a social-ecological system context

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Introduction

- Recreational fishing is a very important economic activity in México. (Contribution US\$2 Billions)
Offshore fisheries produce the highest revenues for this activity (Billfish)
- **Inshore fisheries** are very important but have been poorly studied, despite their economic importance in coastal communities
- Anglers from abroad recognize **Ascension Bay as one of the best places** for fly fishing in saltwater (Grand slam IGFA records)
- The site presents great opportunities to catch the “**permit**” (*T. falcatus*), the most elusive fish for fly-fishing anglers




Area of study

- Ascension Bay is located inside the **Sian Ka'an Biosphere Reserve (MPA)**
- **Punta Allen** is the nearest Fishing village of 650 inhabitants
- The bay has **~740 km²**: shallow waters, sea floor with sand and sea grass beds, surrounded by mangroves, and protected by a coral reef barrier



Punta Allen livelihoods

- The main Livelihood in Punta Allen is based on the Spiny Lobster fishery, followed by Tourism activities in two categories: Boat trips and Fly fishing




Spiny lobster fishery

- Lobster fishing Cooperative: Example of a **right-based management system** and **TURF**
- Certified with the eco-labeling of **MSC** in 2012



Boat trips

- Tourist Cooperatives offer: **Eco tours** to observe sea turtles, dolphins, birds watching and snorkeling in the coral reef.



Fly fishing fishery

- Cooperatives offer: **Fly fishing Guide services** & boat trips on the bay
- Lodges offer: **All-inclusive packages**
- **Only catch and release are allowed**

90% USA Anglers

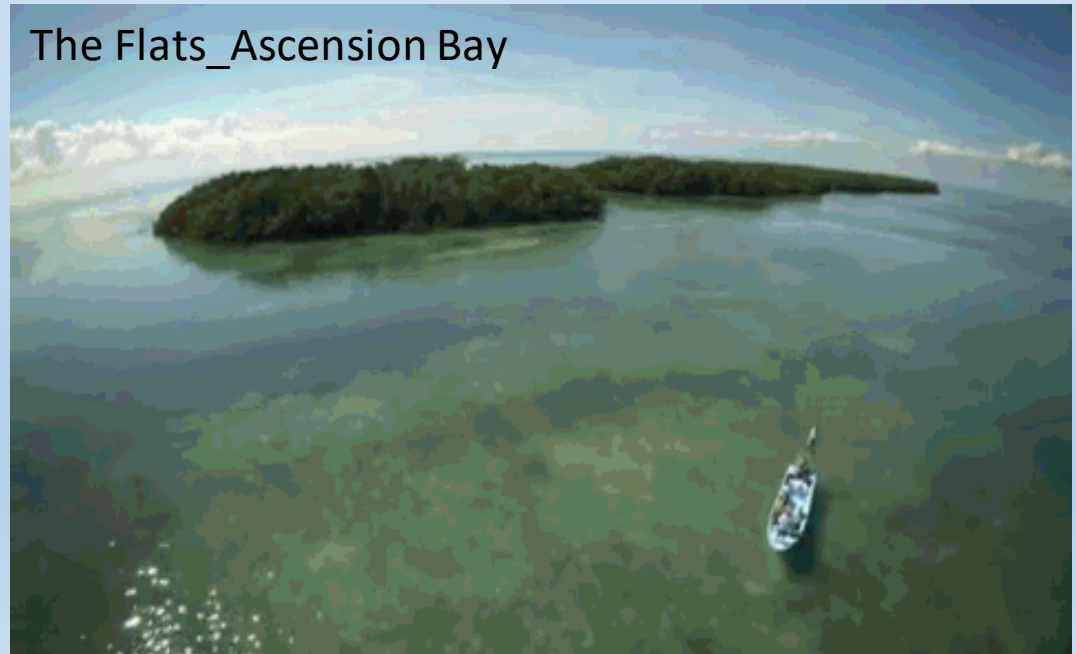
Importance of fly fishing in Punta Allen



Central park in Punta Allen

Objective

- To identify the Stakeholders that intervene in the co-management of the recreational fishery in the Ascension bay and analyze the factors that determine the dynamics of the socio-ecological systems



Methodology

Data collection

- **Participant observation process:** To understand the stakeholders and processes related with governance
 - **Snowball technique:** To identify the leaders from the community and earn their trust
- **Socio-economic surveys:** To know the perception of anglers and fishing guides about the activity, and estimate the economic impact of the recreational fishing on the community
- **Logbooks of cooperatives:** Vessels concessions, number of transactions per month



Background

- **Co-management** has been studied focused on the lobster fishery in Punta Allen
 - Fishing cooperative implemented **collective agreements** and had effective Self-enforcement of rules
- **Social-ecological system** has been recognized between fishing and tourism sectors
 - Communities are **dependent upon the Mesoamerican Barrier Reef** system (Mahahual-Punta Allen-Xcalak)
 - **Governance into the communities** is fundamental to reduce conflicts



(Cochran, 1998; Seijo, 1993; Defeo and Castilla, 2005; Arce-Ibarra, et al. 2017).

Stakeholder agreements for fly fishing

- In 2013, stakeholders and MPA promote *Agreements for a better catch and release fishery* → (Code of Conduct for fly fishing)

Locals developed co-management systems for fly fishing, with the participation of:

- Cooperatives for fly fishing and eco tourism
- Lodge managers
- MPA managers (Secretary of Environment)



Agreements for a better catch and release fishery

1. Do not invade areas for recreational fishing
2. Use artificial lures
3. Participate in the monitoring of species
4. Protection and care of nature
5. Appropriate manipulation of species
6. Being professional at work
7. Do not use fishing nets
8. Minimum distance between boats of 500 m
9. Minimum distance of boats in transit of 150 m
10. Maximum speed of 4 knots

The Social-ecological Systems

- The resources, users and governance systems, **interact** in a SES
- Knowing the interaction in the SES allows to distinguish the basic processes to satisfy the demand of **ecosystem goods and services**
- The **analysis allows** to identify sustainable management policies, overcome conflicts between users, detect changes in the ecosystem and improve the resilience
 - *There is no unique way to analyze social-ecological systems*

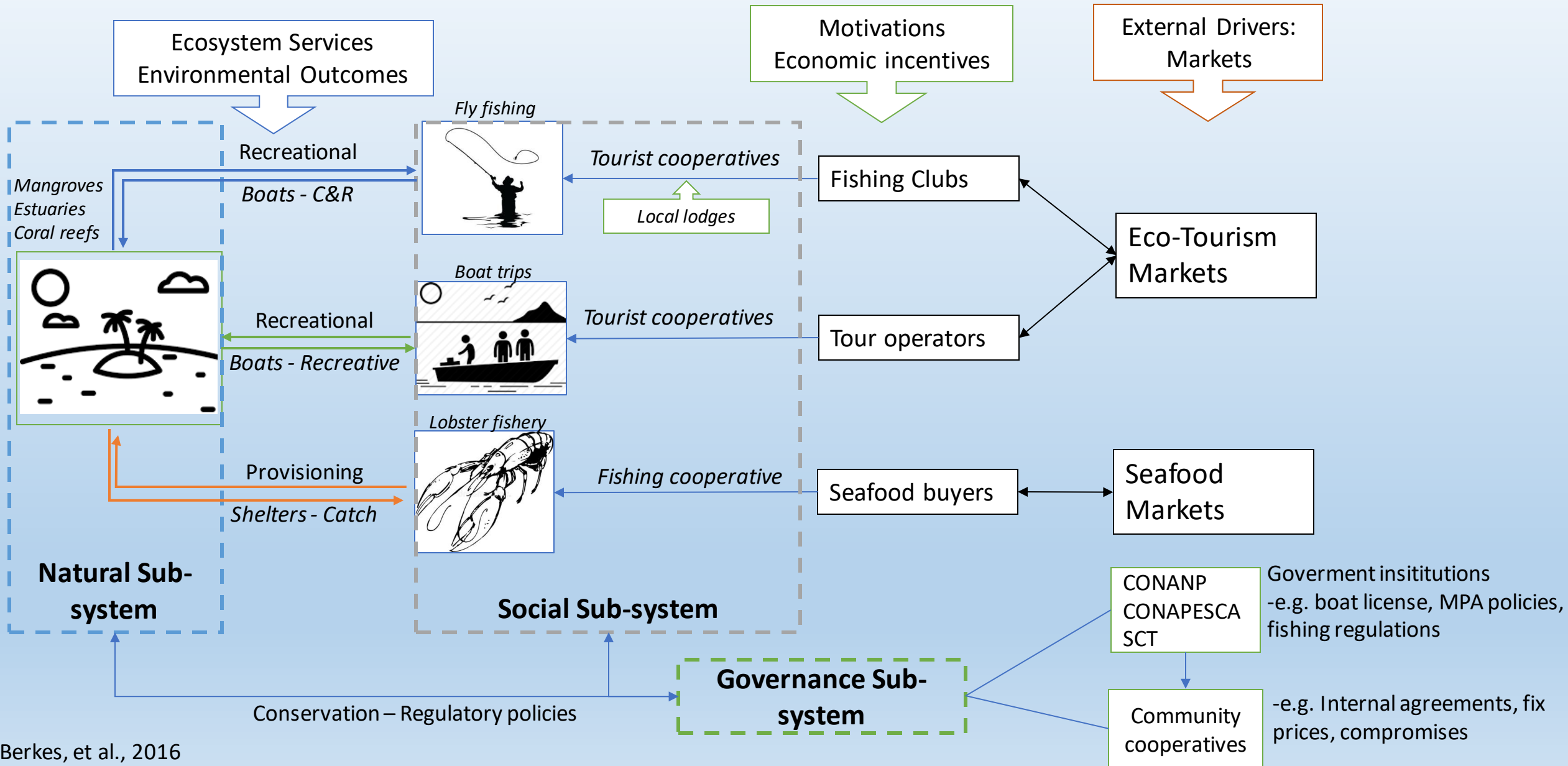
Main components: Subsystems

- **Natural subsystem** (*provide ecosystem services*)
- **Social subsystem** (*users, communities*)
- **Governance subsystem** (decision-making in a participatory co-management)

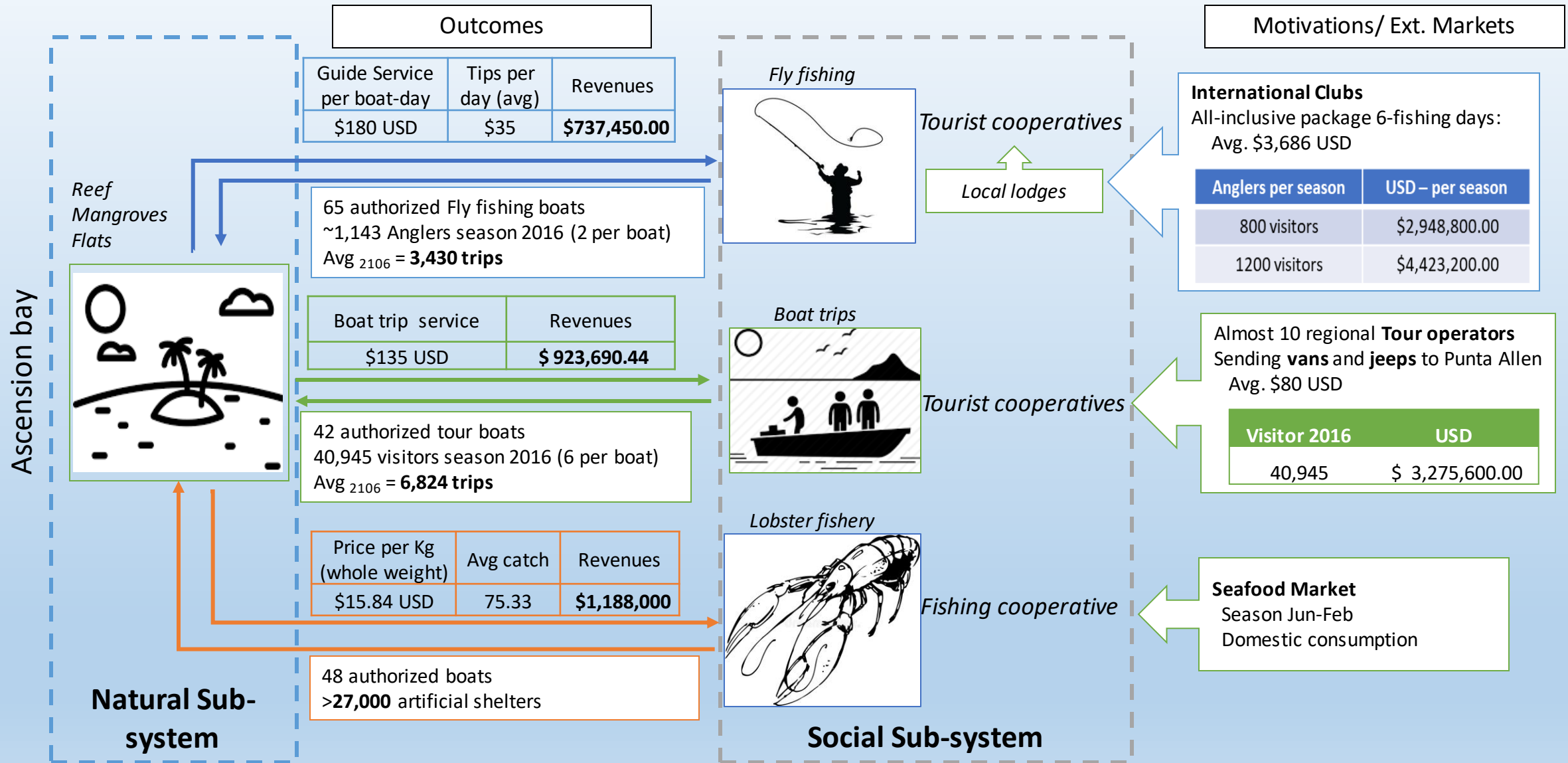
“Recreational fisheries are a complex adaptive social-ecological system”

(Arlinghaus *et al.*, 2013)

The Social-Ecological System: Conceptual model



The exchange between the natural and social system



Some conflicts detected in SES

- **Non-compliance with the code of conduct** for tourist activities; **boat trip** → **fly fishing** (*e.g. speeding, invade fishing areas, increasing traffic*)
- **More lodges have obtained concessions** to operate fly fishing boats, which is seen as a threat by local guides (Employ guides for less)
- **Distribution of the permit is unknown**, therefore the fisheries of other communities **do not have restrictions to catch** it, despite its high value for recreational fishing (negative externalities).
- **Trust in MPA authorities has decreased**, due to a growth of tourist infrastructure of private firms and increased number of boat concessions to private lodges



Final remarks

- The local governance is based on **collective decisions**. The factors that intervene in the **co-management** are historical traditions
- It will be important **to improve the agreements** between stakeholders (Review the *code of conduct*)
- Studies of biology, distribution and economic valuation of **permit** are needed to include it as an **exclusive specie for sport fishing**
- In 2017 Cooperatives agreed to **set the price to the lodges in US dollars instead of Mexican pesos** (\$260 USD per trip-day), No matter the currency exchange-rate. *Revenues could be greater than boat trips*

ACKNOWLEDGMENT



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CCRN www.communityconservation.net
Anglers, Local guides and friends of Punta Allen