Community-Based Sport Fishing as a Sustainable Development Path in Remote Regions in Developing Countries

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Study area

Mariuá: World’s largest freshwater archipelago
Barcelos

- Municipio-County
- 122,000 sq km
- 30,000 inhabitants
- County Seat has about 12,000 people
- Ribeirinho Communities
  - Closest community is 3 hours by 15 hp, usually 3 to 8 hours between communities
  - Fish is primary source of protein
  - Small scale agriculture (chickens, pigs, manioc (cassava), fruit, peppers, tomatoes, etc.)
  - Some extractivism
Ribeirinho communities

- Education through fourth grade
- Some have health clinics
- Medical boats make a circuit
- Satellite telephones powered by solar cells for emergencies
- Fast boats for extraction of medical emergencies
- Army aids in most remote areas
- Electricity from gasoline or diesel generators. Generally sufficient fuel for 1 to 2 hours per night.
Fuel is huge issue

- No ability to freeze fish or produce ice
- Ability to power pumps in wells
- Need gasoline for boat motors, processing manioc and chain saws.
- Fuel is expensive—more than 2 dollars per liter
- Limited access to radio and television.
Current income activities

• Aquarium fish, principally cardinal tetra
• Camu-camu fruit
• Piaçava fiber
• Working for wages (sport fishing, agriculture)
• Manioc
• Not much timbering takes place, but there is a risk of expansion
Chief Problems

• Market power of padröes
  – Limited
  – Access to exporters
  – Ability to move perishable products (live aquarium fish, frozen fruit)

• Lack of value added
Current sport fishing market

- Focuses on Peacock Bass
- Hotel Boats run by firms from São Paulo, Manaus and the US
- Serves wealthy sports fishers from the US, Japan and southern Brazil
- $5000 per week
- Some jobs for locals as guides and cooks
What’s wrong with this

• The ribeirinhos have lived in harmony with the aquatic/forest ecosystem for generations.
• Outside of the city of Barcelos, there is virtually no deforestation.
• The ecosystem is highly intact in terms of the flow of ecological services.
• The ribeirinhos have been the guardians of the ecosystem but receive none of the economic rents associated with the flow of ecological services.
Two solutions

• System of voluntary payment for ecological services for clientes of hotel boats
• Develop a community-based sport fishing program where money accrues directly to the communities.
Not just a question of income, but social justice

• Outsiders exploiting resources and earning the rent.
• Access to less of the benefits of modern society
Community-based program

• Focus on middle class from North America, Japan, Europe and Brazil.
• Look at sports-fishing embedded in a program of multi-objective ecotourism
• At the same time, a voluntary system of payments for ecological services with the big sport fishing firms
• Zoning of fisheries with fallow areas
• Catch and release with some exceptions for catfish
Why is this better

- Only indirectly competing with big sport fishing firms.
- Higher value added than extractive products, as the service is delivered in the area of the communities.
- Communities earn rents
- Communities provide inputs (food, housing, labor)
Issues

• Mechanism for bookings
• Cultural and Language Training
• Culinary Training
• Governance
• Lodging
• Logistics
• Sewage and trash
• Energy
Where do we go from here

• Research on coupled natural and human dynamics
• Ability to assess results
• Generalize research to other areas
Coupled dynamics, exogenous change, and policy
Environmental Quality Model (correlative)

Changes in Policy

Tucunaré Population Dynamics
Predator-Prey model

External changes

Community (or individual) welfare
Random Utility Model (choice-modeling probability function)

Levels of attributes
(Logit probability model)
(Hazard model)

Allocation of time
(household Production model)

Changes in Policy

External changes

Tucunaré Population Dynamics
Predator-Prey model
Project implementation

• Seed money for pilot project (any volunteers to be Guinea Pigs?)
• Government sponsorship
• Corporate sponsorship
THANKS--QUESTIONS?