

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



Presentation to IIFET Conference  
July 7-11, 2014, Brisbane, Australia

James R. Kahn  
Environmental Studies / Economics Dept  
Washington and Lee University  
Lexington, VA, USA  
and  
Graduate Program in Fishery Sciences  
Federal University of Amazonas  
Manaus, Amazonas, Brasil



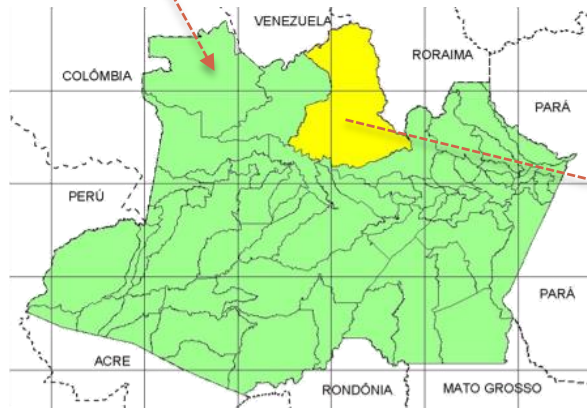
# Collaborators

- Carlos Freitas
- Larry Hurd
- Alex Rivas



# 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, tomatos, 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

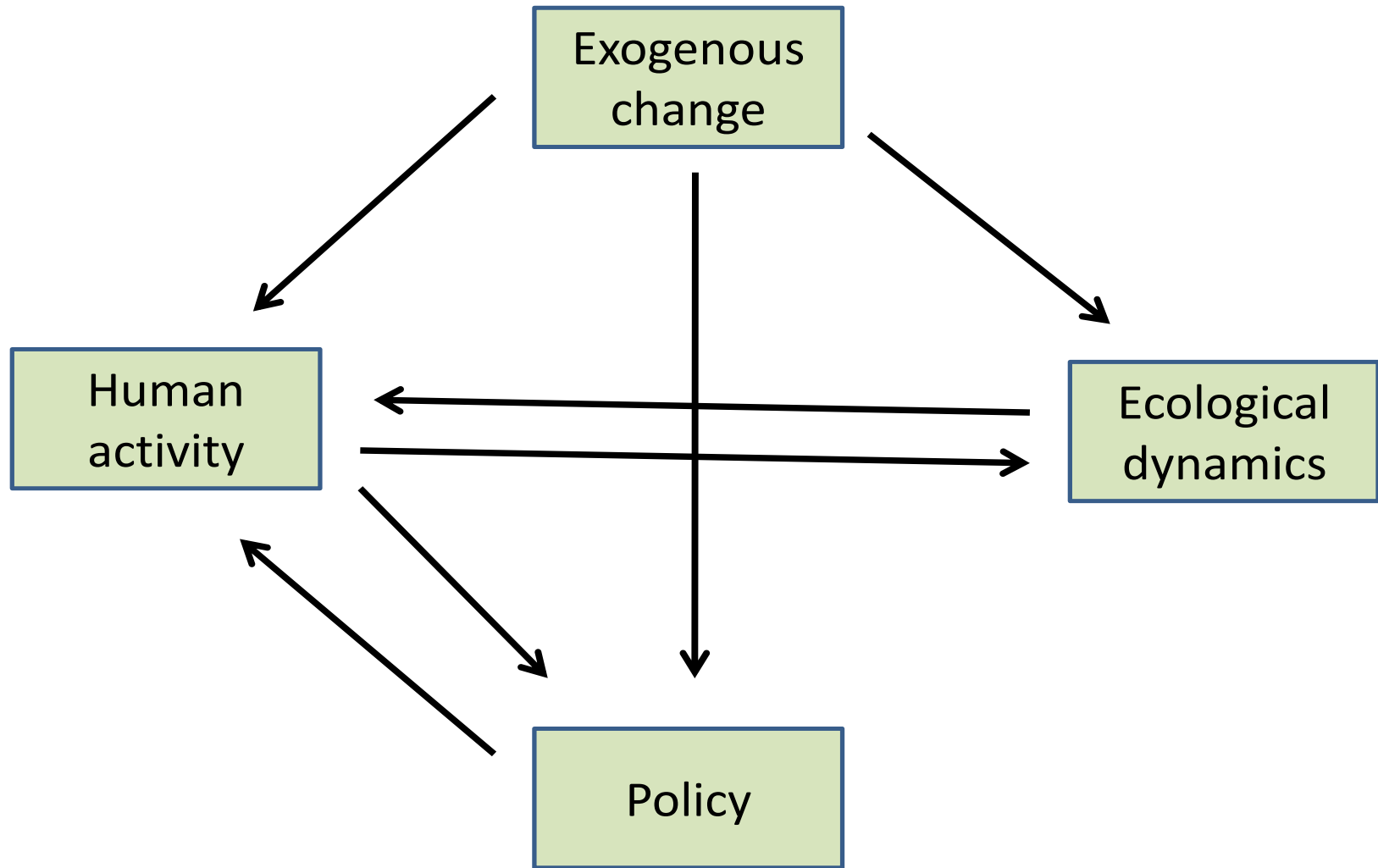


# Where do we go from here

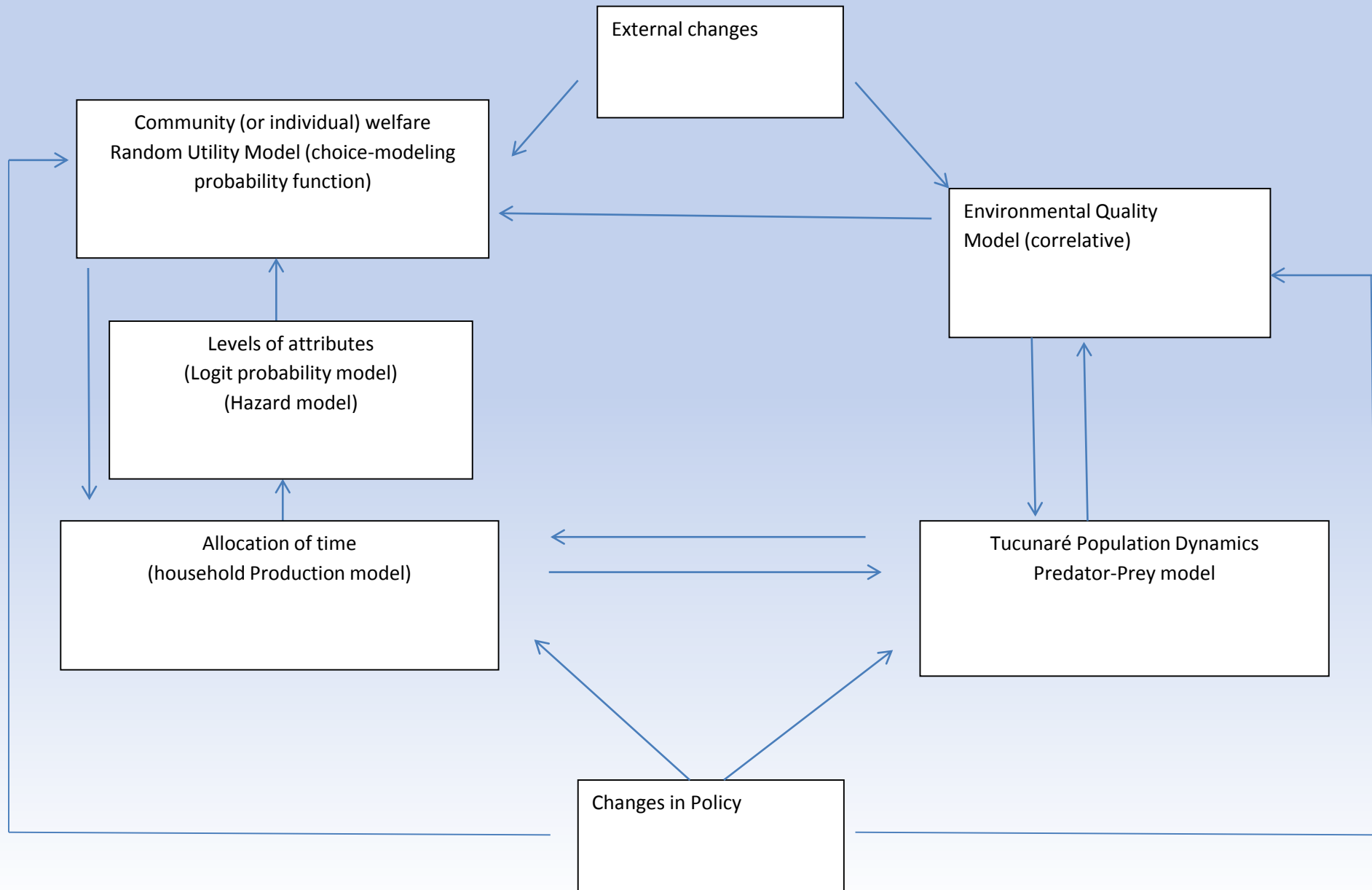
- Research on coupled natural and human dynamics
- Ability to assess results
- Generalize research to other areas



# Coupled dynamics, exogenous change, and policy









# Project implementation

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



# THANKS--QUESTIONS?

