

Recreational Fishing and Territorial Management in Indigenous Amazonia

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Abstract.—At least 73% of Brazilian indigenous lands suffer one or more pressures or territorial threats, and 55% of federal conservation units do not have approved management plans. These protected areas encompass more than 40% of the Brazilian Amazonia. Official governmental management programs are not adequately supported and lack consistent monitoring and surveillance. Protected areas are under immense pressure from mining and commercial fishing and, more recently, from recreational fishing tourism. Even though recreational fishing in these areas is legally possible, it has been initiated without due consultation with the affected communities, disregarding the International Labor Organization's Indigenous and Tribal Peoples Convention (No. 169). Also, recreational fishing is being undertaken in a competitive model with no assessments of feasibility or assurance of socioenvironmental benefits. The community-based project of recreational fishing tourism implemented in the Marié River resulted from an cross-sectoral partnership supported by government and nongovernmental organizations based on the indigenous communities' interest to develop an economic activity to ensure quality of life. The partnership also developed a joint monitoring and management program to protect the livelihoods and collective interests of indigenous peoples with emphasis on food security. The recreational fishing tourism in the Marié River became an opportunity for the indigenous communities to lead the governance, management, and conservation of their traditional territory.

Introduction

At approximately 710,000 km², the Negro River basin is the largest basin of black water in the world. The peculiar color is due to a specific geochemistry and low levels of sediments, nutrients, and pH. These features result in a river of low biomass with very high species diversity, with more than 450 fish species identified of which 40 species are endemic (ISA 2009). Characterized by a wide variety of upland and floodplain forest landscapes (Goulding et al. 1988), the basin has been managed by traditional systems of use, according to the indigenous knowledge of the people who have

inhabited the region for more than 3,000 years (Cabalar and Ricardo 1998). The basin is one of the most conserved in Amazonia, with less than 1% deforestation due to several factors related to environmental characteristics, a history of traditional occupation of low impact, and, more recently, the recognition of protected areas (PAs) for 62% of its length (Raisg 2015)¹. Protected areas are localities with relevant socioenvironmental importance and, therefore, are supported by a specific legal statute relative to their management and use. These areas are created under the principle of conservation and tenure rights regarding sustainable use or full protection (Federal Law No. 9,985/2000,

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¹ For further information, see RAISG, <http://raisg.socioambiental.org/>.

cross-sectoral forums among government agencies, indigenous communities, and fishing sectors to develop fishery management proposals. Participatory surveys and workshops were promoted to develop recommendations for zoning areas and regulating fishing activities (Alves et al. 2012). Despite the State of Amazonas' governmental responsibility to ensure sustainable fisheries, none of the public policies or managing measures was implemented. Both recreational and small-scale commercial fisheries occur haphazardly, without fish stock assessments, monitoring, or surveillance.

The pressure on fish stocks has reduced the availability of resources and stimulated the advancement of recreational fishing in other preserved and protected areas, such as the Marié River, indigenous land in the transition zones between the middle and upper Negro River. The recreational fishing tourism in the Marié River started illegally through negotiations and cash payments to some indigenous leaders, dragging communities into the competition between tourism companies over exclusivity of the fishing area (Barra and Crepaldi 2014).

Despite conflicts, the Marié River provided an opportunity to set an innovative model of inland fisheries management once land rights were defined. Fishery management in the Marié River was developed under a community-based project of recreational fishing tourism.

Based on this case study, this paper discusses recreational fishing tourism on indigenous lands and traditional territories as an example of low-impact activities that might provide an opportunity for long-term monitoring and management of PAs, with emphasis on food security and livelihood assurance.

Indigenous Lands' Legislation and Challenges for Management

The Brazilian federal government has the tenure rights of the indigenous lands, but the indigenous peoples are entitled to the permanent holding of the land and the exclusive use of the assets derived from soil, rivers, and lakes within these territories (Constitution of the Federative Republic of 1988, articles 231 and 232). It is the Brazilian government's responsibility to

enhance local culture, traditions, organizations, and livelihoods, and to support initiatives headed by the indigenous peoples to promote the well-being of their communities.

The National Policy for Environmental and Territorial Management of the Indigenous Lands (PNGATI; Brazil 2012) regulates the insertion of economic activities and tourism in indigenous lands if these activities contribute to the territory administration and to the sustainability of families, provided that (1) they are of collective interest, (2) they are environmentally safe, and (3) the livelihoods and cultural traditions are respected. The PNGATI recognizes the right of the indigenous communities to promote economic activities and establish partnerships, settling previous doubts that stemmed from the Federal Constitution and the Statute for Indigenous People (Federal Law No. 6,001/1973).

As of June 2015, a federal normative for tourism on indigenous lands (FUNAI Normative No. 3 of 2015) was approved for the development of activities according to a community-based model and after performing the required socioenvironmental impact studies. The indigenous communities are autonomous and will define the activities that are permitted in their traditional territory. The Federal Indian Affairs Agency (Fundação Nacional do Índio; FUNAI) and other government agencies are in place for supporting, instigating, and following the activities to assure socioenvironmental security and the respect of collective and tenure rights.

According to the recent legislation, recreational fishing tourism, although legal, may be implemented only if it aligns with the interests of indigenous communities and is preceded by research that studies the potential impacts of fishing.

The government is responsible for the management and support of traditional and indigenous communities to assure sustainable use of the PAs. These correspond to more than 40% of the Brazilian Amazonia. However, it costs approximately US\$200,000 annually to manage a PA in Amazonia². The official management pro-

² According to the Amazon Region Protected Areas Program of the Ministry of the Environment (www.mma.gov.br/port/sca/arpa/).

grams are not adequately supported. At least 73% of Brazilian indigenous lands suffer from some kind of pressure or territorial threat while 55% of federal conservation units do not have approved management plans (Raisg 2012).

Considering that natural resource conservation is not a priority for the Brazilian government, tourism provides an opportunity to generate income to invest in natural resources monitoring, indigenous land management, and surveillance and to be used for improving communities' infrastructure. In this sense, economic activities of low impact and high aggregate value, such as recreational fishing tourism, may contribute to the conservation of these areas.

The Marié River Experience

The Marié River is an important traditional usage area comprised of 15 indigenous communities and more than 250 families that value food security, cultural traditions, and stable livelihoods. The area is also central for economic activities such as small-scale commercial fishing (Barra and Crepaldi 2014).

The diet of the Negro River peoples is based on fish, as a main source of protein, and manioc, a tuber (Begossi 2004). The traditional knowledge responsible for management of fishing resources was deeply affected by colonial occupation since the 18th century, forcing migration to support the rubber trade (Cabalar and Ricardo 1998). Fish shortages increased when high-impact fishing gears were introduced, along with increased commercial fishing pressure and illegal natural resource-use activities like mining.

To assure that the rights of indigenous peoples were recognized and to deal with the new required dynamics, indigenous communities created nongovernmental representative organizations in the 1980s and 1990s. These associations operated similarly to a parliamentary system that brought leaders together to discuss and make decisions for the collective well-being. The first indigenous organization created in the Negro River basin was the Association of Indigenous Communi-

ties of the Lower Rio Negro, which represents the communities that traditionally use the Marié River.

However, the lack of public policies and basic human rights, such as health and education, and the absence of management and conservation programs allow external pressure over indigenous communities and the natural resources. In the search for a better quality of life, the indigenous leaders are pushed to negotiate with external stakeholders without any guarantee of sustainability of the proposed economic activities, often resulting in restricted or individual benefits. It is in this context that recreational fishing was initiated in the Marié River in 2010.

Providing excellent recreational fishing³, the Marié River was invaded by companies that operated without any socioenvironmental management plans. These companies signed illegal and simultaneous contracts with multiple indigenous leaders in search of exclusivity of the fishing area. Conflicts emerged among the indigenous communities and the situation was denounced to the Federal Prosecution Service (Ministério Público Federal; MPF).

In 2013, after a successful coordinated effort by FUNAI and the Brazilian Army, the recreational fishing companies were removed from the indigenous land. Subsequently, MPF published a recommendation to prohibit any recreational fishing activity in Marié River until FUNAI and the Brazilian Institute of Environment and Renewable Natural Resources (IBAMA, Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis) performed socioenvironmental impact studies that evaluated the viability of the activity. This judicial action was crucial to the regulation process once the government agencies do not have the necessary financial and human resources to promote management in Amazonia (Barra and Crepaldi 2014).

At this point, an intersectorial strategy involving indigenous organizations, their part-

³ The International Game Fish Association world record of the Speckled Peacock Bass (also known as Speckled Paven) *Cichla temensis* was caught in the Marié River.

ners, and government agencies was initiated to promote fisheries and regulate the recreational fishing tourism. The Marié River's indigenous communities assembled and evaluated the suitability and feasibility of recreational fishing as an economic alternative for their sustainability.

The Federal Indian Affairs Agency established technical cooperation with IBAMA and ISA to work with the indigenous organizations and communities to regulate the recreational fishing, observing four ongoing steps:

- Consultancy: broad consulting to understand and support communities' interest to permit recreational fishing tourism (or any other economic alternative) in their territory, assuring active and collective participation in the decision making.
- Socioenvironmental studies: assessment of fish stocks and evaluation of the suitability and feasibility of recreational fishing under an integrated management plan of the indigenous lands, carried out by communities and according to their livelihoods.
- Monitoring and evaluation: implementation of continuous and participatory monitoring programs of the activity for adjustments during the entire process.
- Intersectorial cooperation: technical cooperation and commitments established among communities, government agencies, and other partners to promote a community-based project.

The results confirmed the high potential for recreational fishing and fisheries interaction to respect and to preserve the indigenous livelihoods (Barra and Crepaldi 2014). The process of consultancy and associated workshops were important steps to improve communities' governance over their traditional territory, especially considering (1) the fishing management plan identified the areas and rules for the different fishing activities with emphasis on cultural traditions, food security, and conservation; and (2) the protocols defined to assure all decisions were made according to collective interests.

Previous studies of tourism activities on indigenous lands have identified that any ini-

tiative should be a component of an integrated management plan that ensures community benefits and respects livelihoods (Silva 2008; Irving 2010). In spite of the complexity of promoting intercommunity agreements, the external threats and pressure over resources might be transformed into an incentive to meet and discuss proposals.

The sociocultural perspective encompasses the socioeconomical dynamics of fishing and how recreational fishing would impact it. In this sense, during broad community meetings and family surveys, the elements of the fisheries management plan were discussed to strengthen customary rules, to incorporate new elements for managing recreational fishing tourism, and to ensure that the plan was a feasible economic alternative for collective development (Barra and Crepaldi 2014).

A term of reference with all required criteria was formulated by the indigenous communities and their organizations with technical support to call for proposals from operators interested in conducting tourism in partnership. The innovative project started in 2014 with a community-enterprise contract that contemplates and finances

- collective investments in the communities, and a hiring and capacity-building program of local labor;
- maintenance of a comanagement program that involves the monitoring of the fishing activities and surveillance of the territory;
- restricted scale for a low-impact operation (i.e., fly-fishing catch and release); and
- annual evaluation expeditions accompanied by appropriate government agencies.

The community-based project of recreational fishing tourism in the Marié River improved indigenous governance over their territory because the activity promoted surveillance and fisheries monitoring under the management plan implemented by the indigenous organization. After 2 years of the project, fish stocks are recovering, as reported by the indigenous leaders. Also, environmental balance is confirmed by IBAMA (Crepaldi and Machado 2014, 2016). From the social perspective, communities are improving their

collective infrastructure and a few indigenous families that previously moved into urban areas looking for a better quality of life have returned to their communities.

Final Considerations

Clear territorial rights are crucial for participatory fishing management and to promote agreements when conflicts arise. Also, engaging indigenous and traditional people in fish monitoring programs promotes continuous data collection, which otherwise would be impracticable in Amazonia. In this sense, recognizing PAs are strategic for conservation.

The Marié River case study highlights the importance of participatory processes that actively involve stakeholders so that the commitments and responsibilities are shared from the beginning. This is not enough to avoid issues or difficulties as indigenous communities adapt socially and economically for tourism. Therefore, it will ensure that the challenges are identified and measured, regarding the adequate time for each stage of the process to achieve the conditions for effective comanagement under all perspectives.

Once the assessment studies are performed and the indigenous communities understand all aspects of recreational fishing tourism, it is necessary to develop programs for monitoring and comanagement. Despite a possible partnership with government agencies, these programs must be adequately funded and independent from governmental programs, which are restrictive and highly sensitive to the political context.

Sustainable economic activities must promote (1) the interest and continuous participation of the indigenous communities during the whole process, (2) the involvement of governmental agencies, (3) the necessary studies to assure the socioenvironmental feasibility of the activity, and (4) the development of the activities as part of the integrated management plan of the territory, which includes monitoring and surveillance measures. To ensure those aspects are incorporated, specific mechanisms should be developed by the stakeholders that respect livelihoods and

proper social organization frameworks of the indigenous communities.

Strategic initiatives that promote traditional livelihoods and economic prosperity under communities' governance structures are promising for long-term monitoring and management of PAs (Barra and Crepaldi 2014). In this sense, recreational fishing community-based tourism may contribute to fish stocks' conservation, thus ensuring food security and the sustainability of indigenous communities in Amazonia.

Acknowledgments

The Socioenvironmental Institute (Instituto Socioambiental; ISA) is a nongovernmental organization registered under Brazilian law as a public interest civil society organization. ISA was founded in 1994 with the purpose of developing solutions for social and environmental problems, especially related to the well-being of indigenous and other traditional people. ISA promotes cross-sectoral partnerships and produces research, implements projects and programs for socioenvironmental sustainability, valuing the cultural and biological diversity of Brazil. This chapter has important contributions from Ana Paula Caldeira Souto Maior, a lawyer from ISA, and Daniel Crepaldi, an analyst from IBAMA. The ISA and IBAMA have performed the impact studies in the Marié River in cooperation with FUNAI and still work in partnership with indigenous communities on management of the project.

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