



# The role of universities in supporting the SDGs

Human capacity development, knowledge production, and innovation



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TRANSBOUNDARY RIVER BASINS CONFERENCE IN THE GUIANAS  
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# Introduction

## SDG 6 – Clean Water and Sanitation

Ensure universal access to clean water and sanitation by 2030.

- **Target 6.1:** Achieve universal and equitable access to safe drinking water for all.
- **Target 6.2:** Provide adequate sanitation and hygiene services, with special attention to vulnerable groups.

Water is essential for both global and regional sustainability, being particularly relevant for the preservation of the Amazon and the well-being of populations in Amapá.





# Global and Regional Challenges of SDG 6

Despite advances, significant challenges remain in achieving the targets:

## Globally

Millions still lack access to safe drinking water and adequate sanitation.

## In Brazil

Water supply has expanded, but sanitation infrastructure remains deficient in many regions, particularly in the North and Northeast.

## In Amapá

Water management is critical due to the vast extent of water bodies and the lack of infrastructure in rural and riverside areas.



# Brazil's Progress on SDG 6 Targets

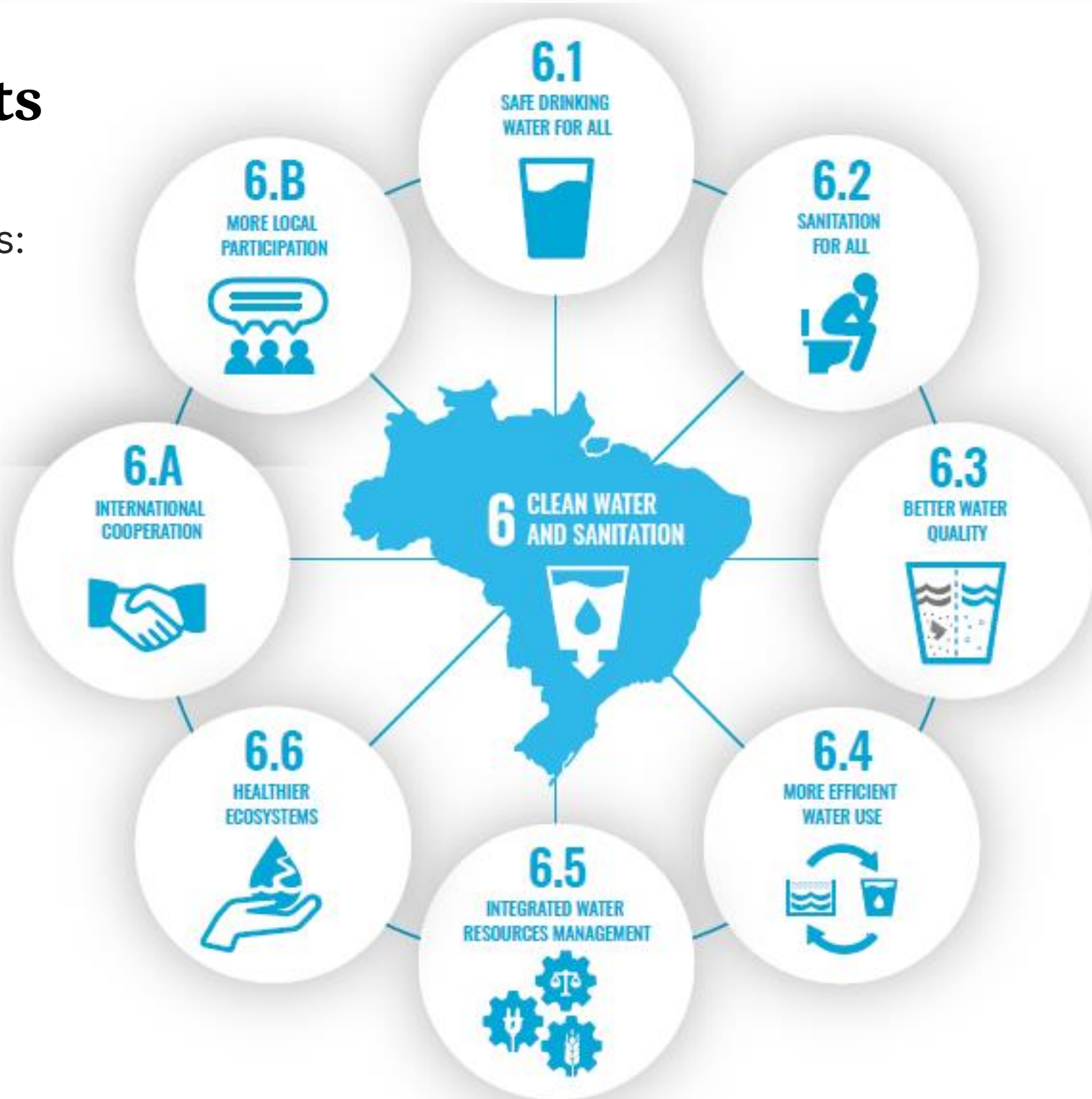
According to ANA, Brazil has made significant progress:

## Target 6.1

About 97.4% of the Brazilian population uses safely managed drinking water services.

## Target 6.2

Basic sanitation, though improved, still leaves 72.2% of the population with safe access, especially in rural areas.





# Integrated Water Resources Management

## Target 6.5

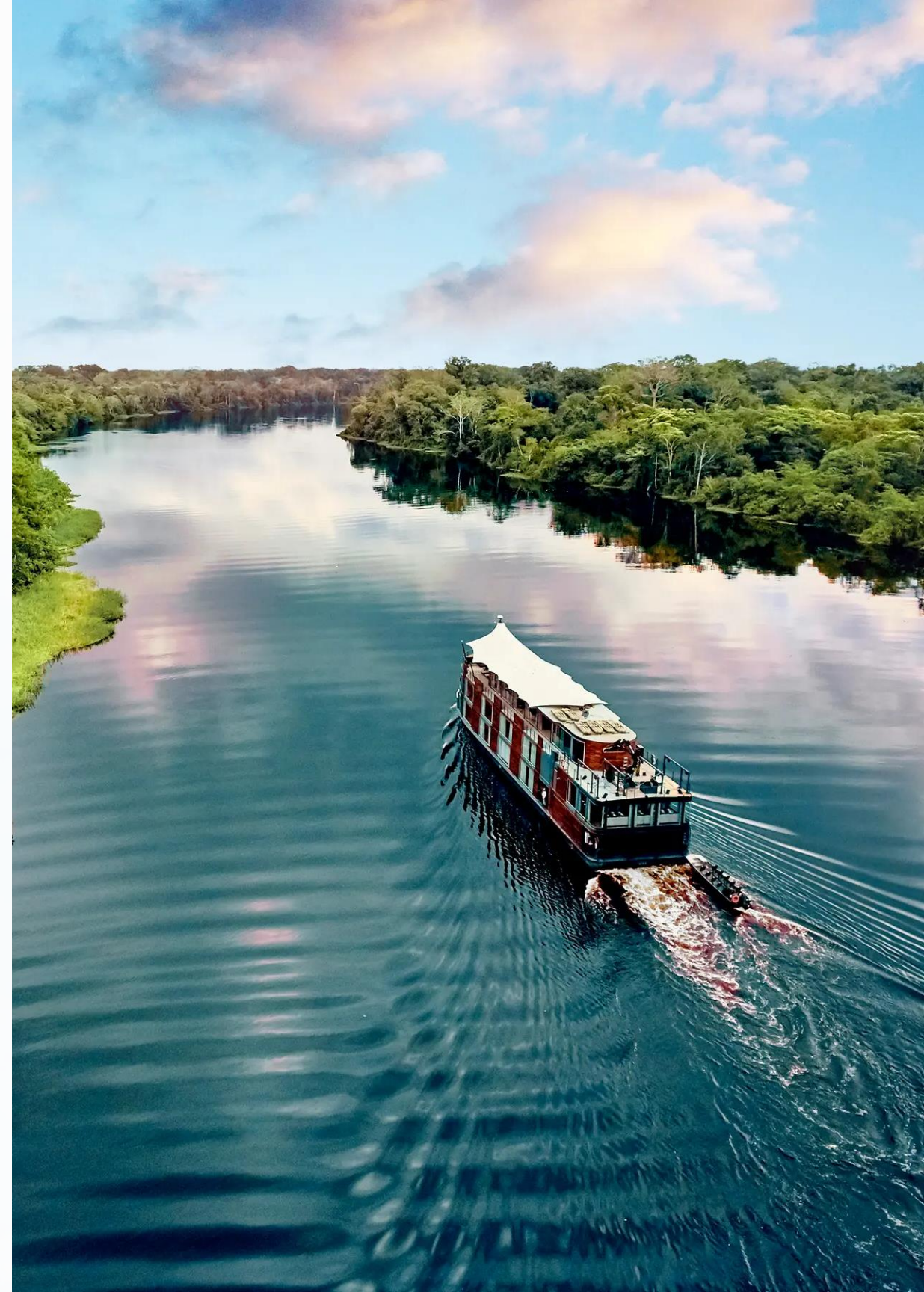
Implement integrated water resources management (IWRM). o Brazil has already achieved 62% coverage of its transboundary water resources under cooperation agreements

## The Oiapoque Basin

The Oiapoque Basin, on the border between Brazil and French Guiana, still lacks an operational agreement for shared management, which is essential for improving water management in the region.

6.5.1 The indicator aims to identify the degree of IWRM implementation in a country. The 4 sections are:

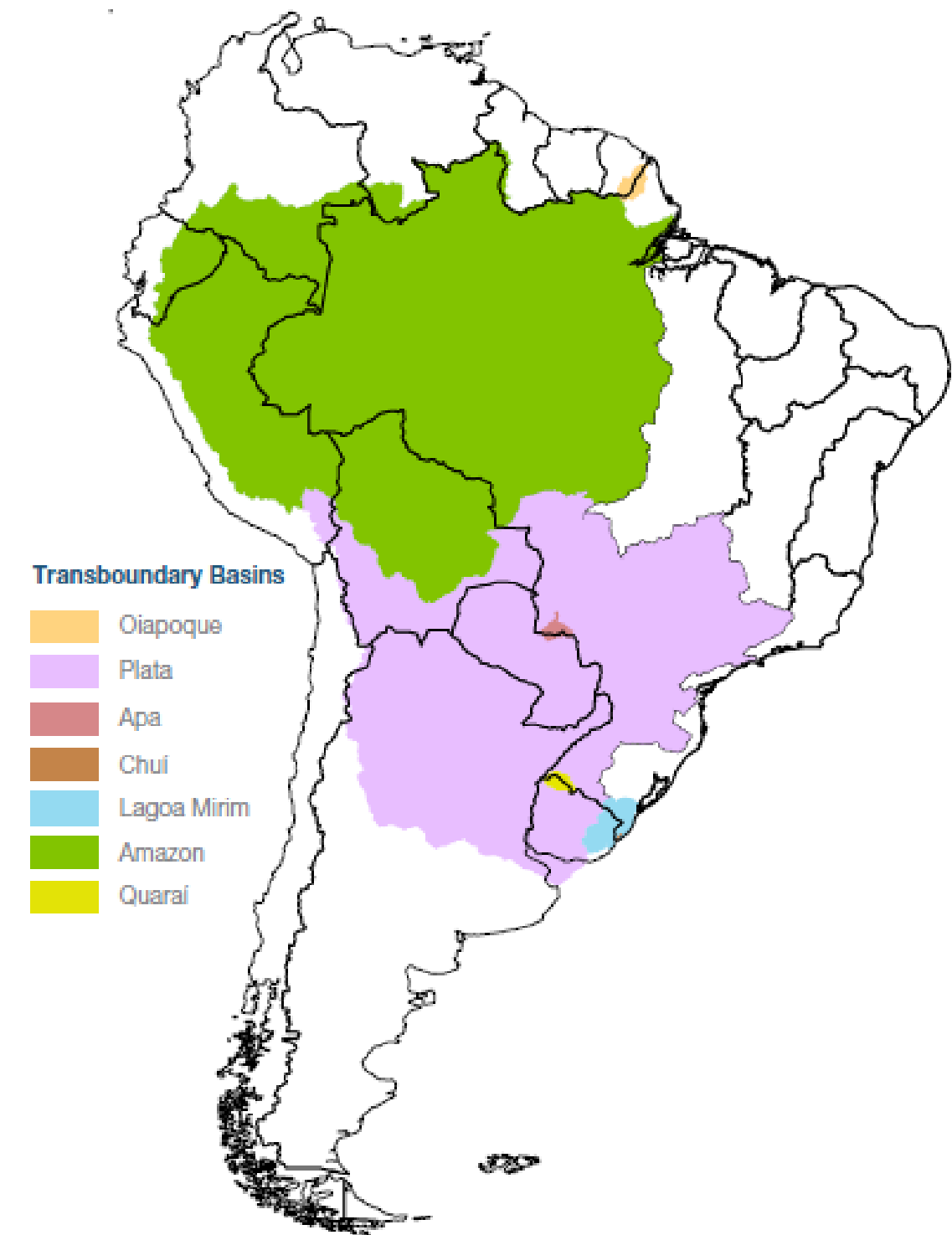
1. Enabling environment for integrated management
2. Institutions and participation
3. Management instruments
4. Financing



## Indicator 6.5.2: Proportion of Transboundary Water Basins and Aquifers with an Operational Arrangement for Water Cooperation.

This indicator assesses the progress of shared management of Transboundary Water Resources through the monitoring of agreements signed between countries over time

- (I) Existence of a common body, mechanism, or joint commission (e.g. a river basin organization) for transboundary cooperation;
- (II) existence of regular formal communications between the countries in the form of meetings (either at the political or technical level) at least once a year;
- (III) existence of a joint water management plan or definition of common objectives;
- (IV) existence of regular data and information sharing at least once a year.



Transboundary river basins and areas in the Brazilian territory that are subject of an operational arrangement



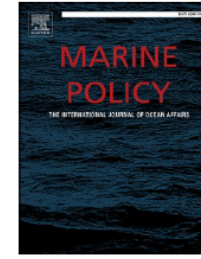


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### Value chain dynamics and the socioeconomic drivers of small-scale fisheries on the amazon coast: A case study in the state of Amapá, Brazil

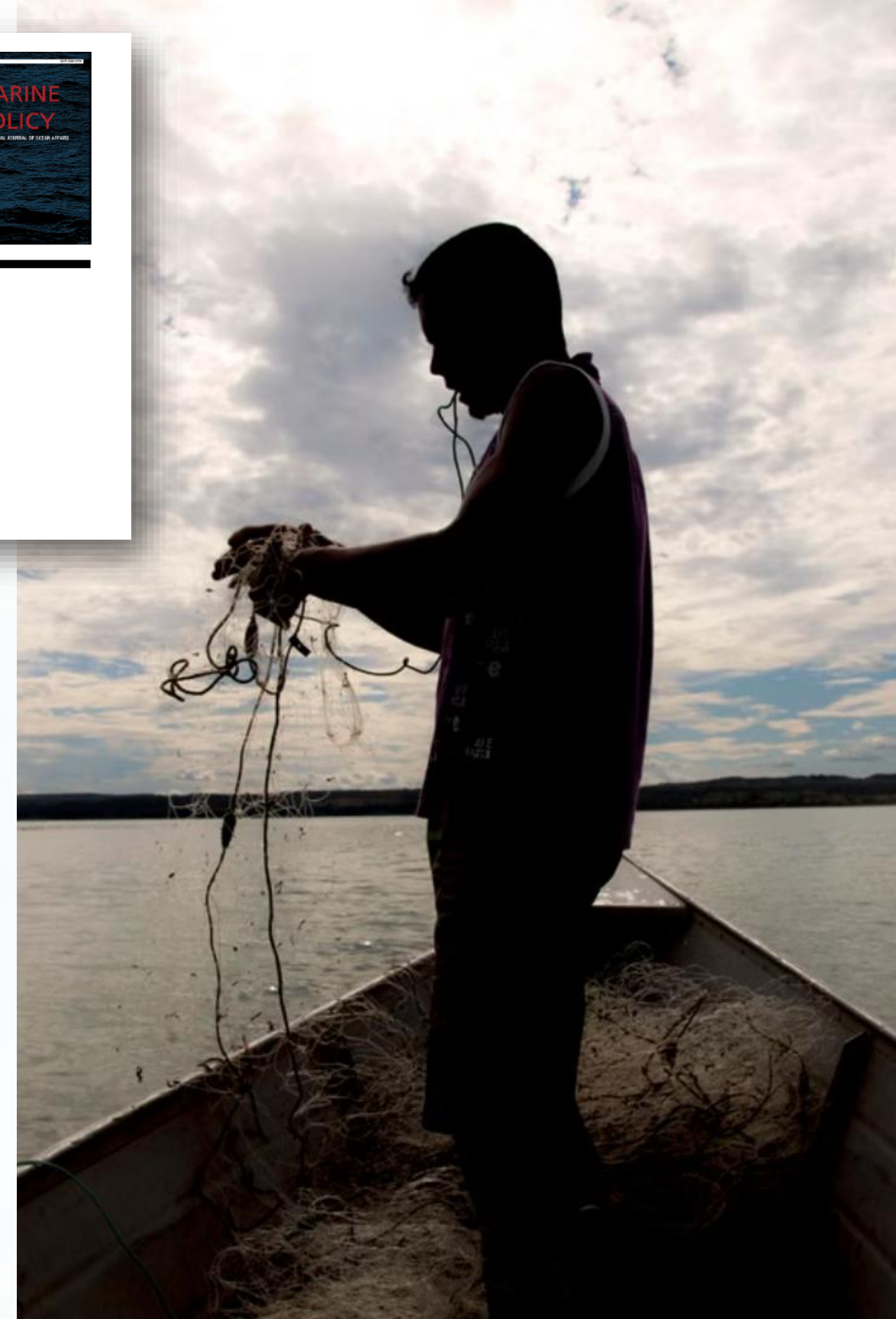
Érica Antunes Jimenez<sup>a,\*</sup>, Marilu Teixeira Amaral<sup>b</sup>, Pauliana Leão de Souza<sup>b</sup>,  
Maria de Nazaré Ferreira Costa<sup>c</sup>, Alex Souza Lira<sup>a</sup>, Flávia Lucena Frédou<sup>a</sup>

# Socioeconomic Dynamics

Explores small-scale fisheries on the coast of Amapá, focusing on the socioeconomic vulnerabilities of fishers and the value chain.

The trade in swim bladders, with high demand in the Chinese market, is one of the main pressures on fish resources.

Co-management and increased government support are recommended to ensure the sustainability of fisheries and food security.





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### International trade of Amazon fish byproducts: Threats and opportunities for coastal livelihoods

Érica Antunes Jimenez<sup>a,\*</sup>, Roberta Sá Leitão Barboza<sup>b</sup>, Jamile da Silva Garcia<sup>c</sup>, Ellen Cristina da Silva Correa<sup>b</sup>, Marilu Teixeira Amaral<sup>d</sup>, Flávia Lucena Frédou<sup>e</sup>

## Value Chains in Small-Scale Fisheries

Focuses on the international trade of fish by-products, particularly swim bladders.

Most exports are destined for China, with a significant increase in export volumes between 2012 and 2020.

Inadequate exploitation and lack of effective regulation threaten the sustainability of local fisheries.







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### Understanding changes to fish stock abundance and associated conflicts: Perceptions of small-scale fishers from the Amazon coast of Brazil

Érica Antunes Jimenez<sup>a,\*</sup>, Roberta Sá Leitão Barboza<sup>b</sup>, Marilu Teixeira Amaral<sup>c</sup>,  
Flávia Lucena Frédou<sup>a</sup>

## Sustainability and Conflicts

Analyses fishers' perceptions of declining fish stocks and conflicts related to resource use.

Lack of adequate regulation and invasion of fishing territories were identified as key conflict drivers.

Implementing a more inclusive and cooperative management with local fishers is recommended.



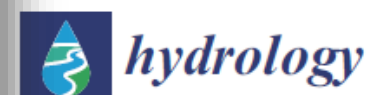


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ANIMAL SCIENCE





## Spatial distribution, host specificity, and affinity of Branchiura for surface and macrohabitat types in fish species from the Brazilian Amazon

DRIELLY O. FERREIRA, MARCOS S.B. OLIVEIRA, PAULO MEJIA, MARCOS TAVARES-DIAS & MARCELA N. VIDEIRA



Article

## Modeling the Impacts of Sea Level Rise Scenarios on the Amazon River Estuary

Jonathan Luz P. Crizanto <sup>1</sup>, Carlos Henrique M. de Abreu <sup>2,3</sup>, Everaldo B. de Souza <sup>4</sup>  
 and Alan C. da Cunha <sup>1,3,5,\*</sup>

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Ecological Economics

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Analysis

## Sustainability indicators for the integrated assessment of coastal small-scale fisheries in the Brazilian Amazon

Érica Antunes Jimenez<sup>a,\*</sup>, Júlio Guazzelli Gonzalez<sup>a</sup>, Marilu Teixeira Amaral<sup>b</sup>,  
Flávia Lucena Frédou<sup>a</sup>

# Sustainability and Conflicts

Uses the Rapfish method to assess the sustainability of coastal fisheries in the Amazon, identifying deficiencies in ecological, economic, and institutional dimensions.

The study concludes that most fisheries are unsustainable and suggests strengthening governance and expanding monitoring initiatives.



# Impacts of Plastic Pollution on Amazonian Wildlife

Reports the first record of birds using discarded fishing materials for nest construction.

Observations along the Amazon coast show species like the Yellow-rumped Cacique and Great Kiskadee incorporating plastic into their nests, highlighting the impact of pollution on regional biodiversity.

The study suggests the need for further research and conservation measures to mitigate the effects of plastic pollution.

Baseline

Plastic nests: The first record of the Yellow-rumped Cacique (*Cacicus cela*) and the Great Kiskadee (*Pitangus sulphuratus*) building nests with discarded fishing material on the Amazon Coast

Raquelina Monteiro<sup>a,b,\*</sup>, Emarielle Coelho Pardal<sup>a,b</sup>, Marcelo Andrade<sup>a,c</sup>, Dayene Santiago Mendes<sup>a,d</sup>, Carine Gomes Moraes<sup>a,c</sup>, José Raimundo Salustiano Da Silva<sup>a,d</sup>, Marcus Emanuel Barroncas Fernandes<sup>a,d</sup>







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## Marine Pollution Bulletin

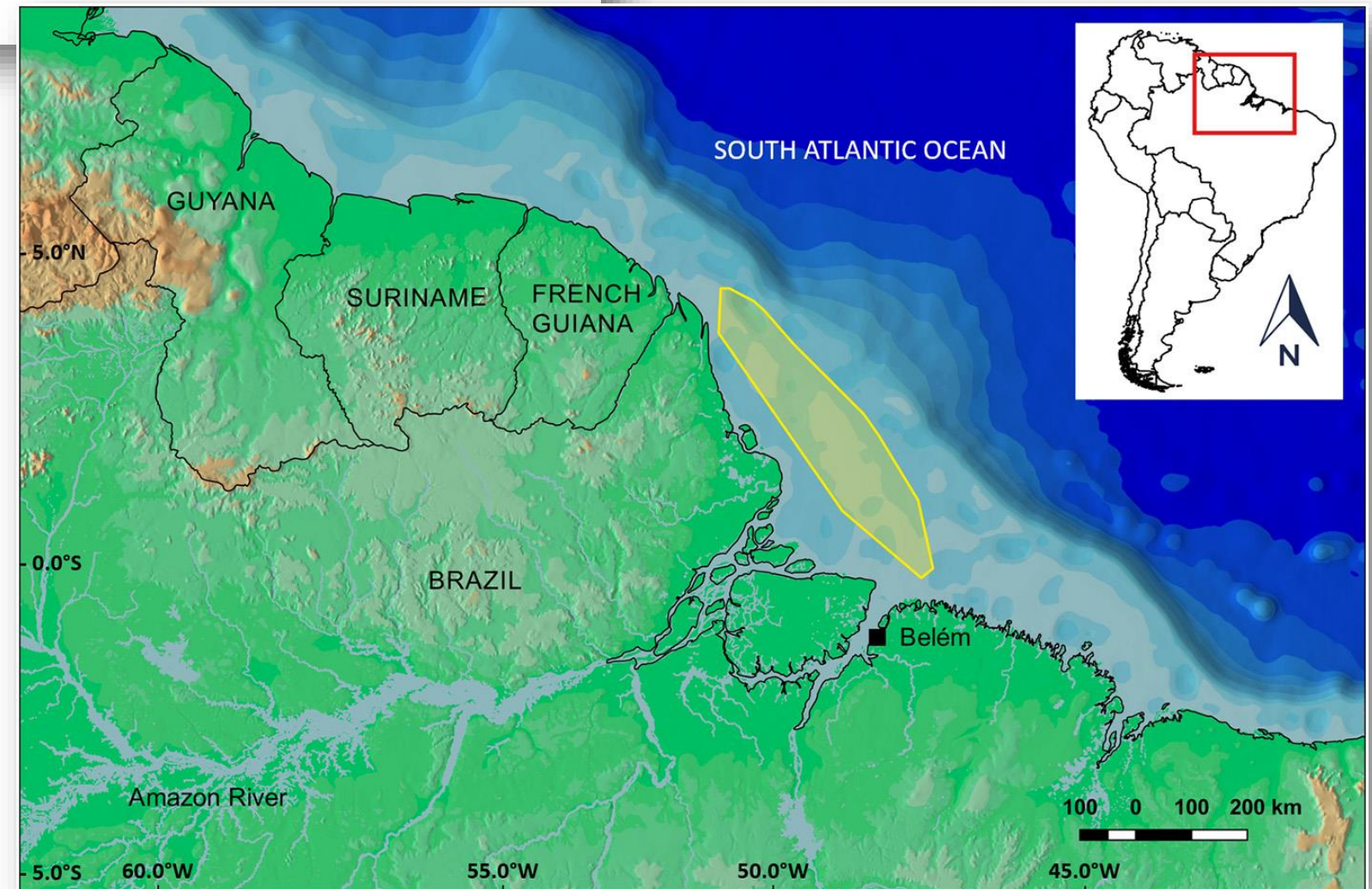
journal homepage: [www.elsevier.com/locate/marpolbul](http://www.elsevier.com/locate/marpolbul)



### First evidence of microplastic ingestion by fishes from the Amazon River estuary



Tamyris de Souza e Silva Pegado<sup>a,\*</sup>, Kurt Schmid<sup>a</sup>, Kirk O. Winemiller<sup>b</sup>, David Chelazzi<sup>c</sup>,  
Alessandra Cincinelli<sup>c,d</sup>, Luigi Dei<sup>c,d</sup>, Tommaso Giarrizzo<sup>a</sup>





# Contribution of Scientific Production in Amapá

Scientific production in Amapá has played an important role in advancing the SDG 6 targets



## Research on water quality

Research on water quality and the impacts of human action has helped implement innovative solutions for water management



## Practical and technological solutions

Local science not only identifies problems but also proposes practical solutions, such as using new technologies for ecosystem monitoring and restoration.



# The Role of the University of the State of Amapá

UEAP has stood out in training professionals and producing scientific knowledge aimed at sustainable water management:



## Research groups

Research groups dedicated to the health of aquatic organisms and the quality of water resources have directly contributed to advancing SDG 6 targets.



## Strategic Partnerships

The university works in partnership with local government and non-governmental organizations to develop public policies focused on water preservation and sustainable use.



# Extension activities



Educational activities with communities (SDGs)





# Challenges and Recommendations

## Main challenges

- Insufficient funding for sanitation and water infrastructure projects.
- Lack of integration among the various sectors involved in water management.

## Recommendations

- Promote more inter-institutional partnerships between universities, government, and civil society.
- Increase public and private funding for research and technological innovation in sanitation and water management.
- Strengthen cross-border cooperation with French Guiana for the management of shared basins.



# Conclusion

SDG 6 is essential for sustainable development, and science plays a key role in achieving these targets.

- The importance of integrating academia, governments, and civil society is crucial for addressing challenges effectively and sustainably.
- Scientific production and UEAP's engagement are key to creating innovative solutions for water management challenges in Amapá.



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