

Quantitative indicators to track changes on fish abundance based on fishers' knowledge in the Tapajos River, Brazilian Amazon

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Photo: Pedro Peixoto



Research Project: Linking sustainability of small-scale fisheries, fishers' knowledge, conservation and co-management of biodiversity in large rivers of the Brazilian Amazon



PEER Cycle 4

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Mekong



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Tapajos

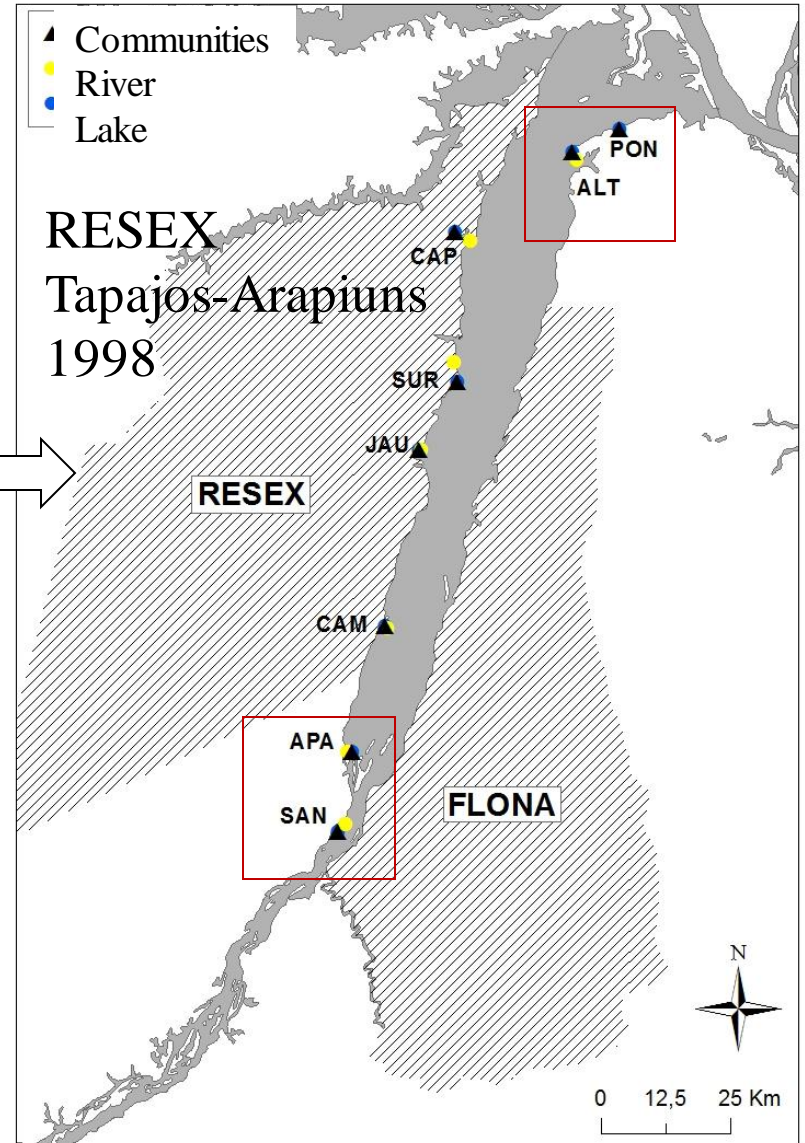


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Tapajós River



- 8 fishing communities, 4 inside X 4 outside (red squares)
Extractive Reserve (RESEX): comparison

Main goal: 5 quantitative indicators to track changes on fish availability from fishers' knowledge (interviews)



- 1) Fish size:** indicated in a tape
- 2) Temporal trends on fish abundance:** increased, same or decreased
- ✓ 3) Composition of catches:** species of fish cited (**already presented**)
- 4) Biomass of fish caught (kg)**
- 5) Catch per unit of effort (CPUE) of fish caught:** $\text{kg/h} \times n$ of fishers

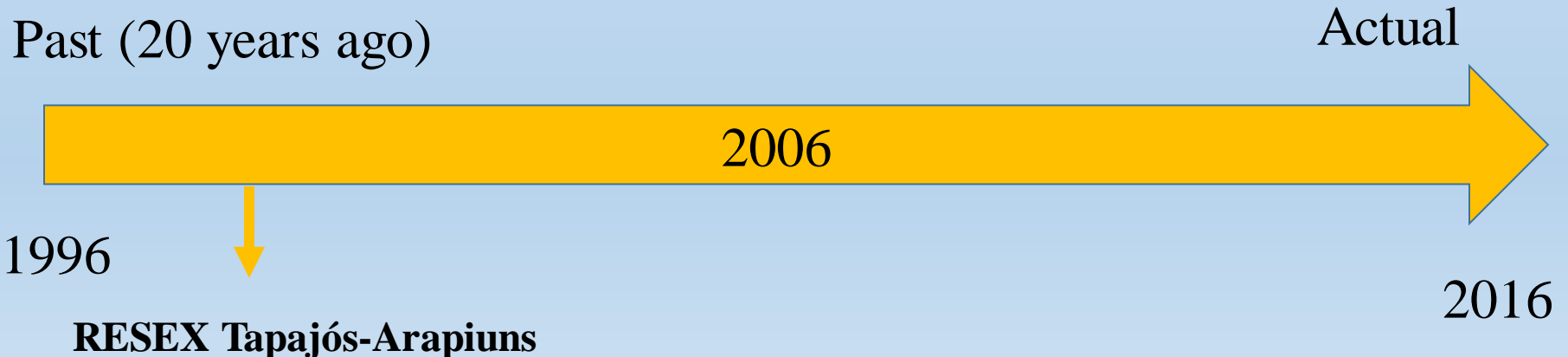
Methods

- ✓ Interviews with fishers: standard questionnaire with 31 questions addressing fishing practices, socioeconomic issues, local knowledge, management
- ✓ Snow-ball sampling: 161 fishers interviewed, 10 to 20 fishers in each studied community

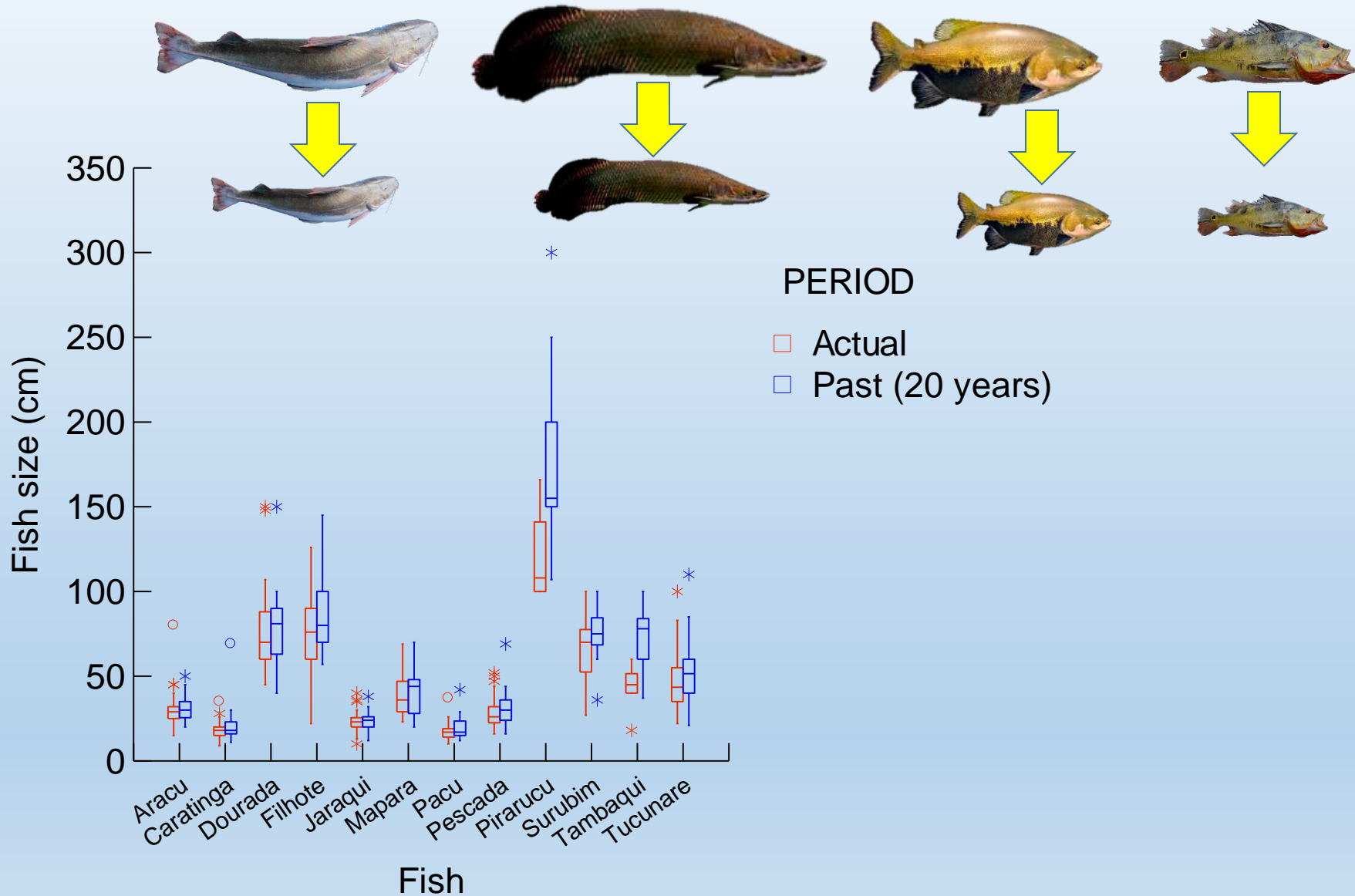


Questions about fish:

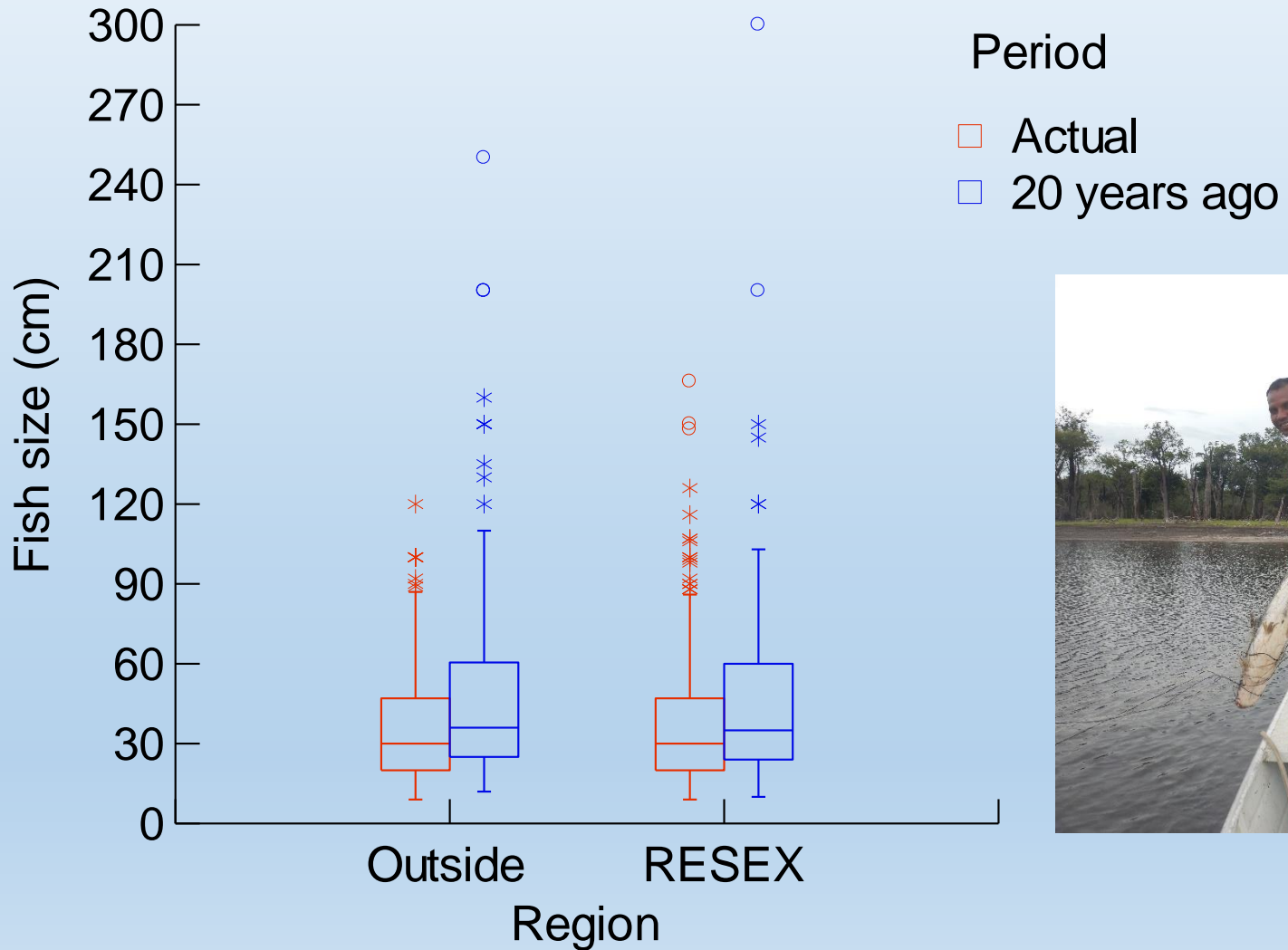
- 1) Which are the most caught fish species (list 5)?
- 2) Which is the average size of these fish (show in a metric tape)?
- 3) Do you think that the abundance of these fish has increased, decreased or remained the same over the last 20 years?
- 4) How much fish (kg) do you regularly catch?
- 5) How many hours you take to catch this amount of fish and with how many people?



1) Fish size: citations of size estimates for 12 commercial fish species (or groups of species) in both time periods

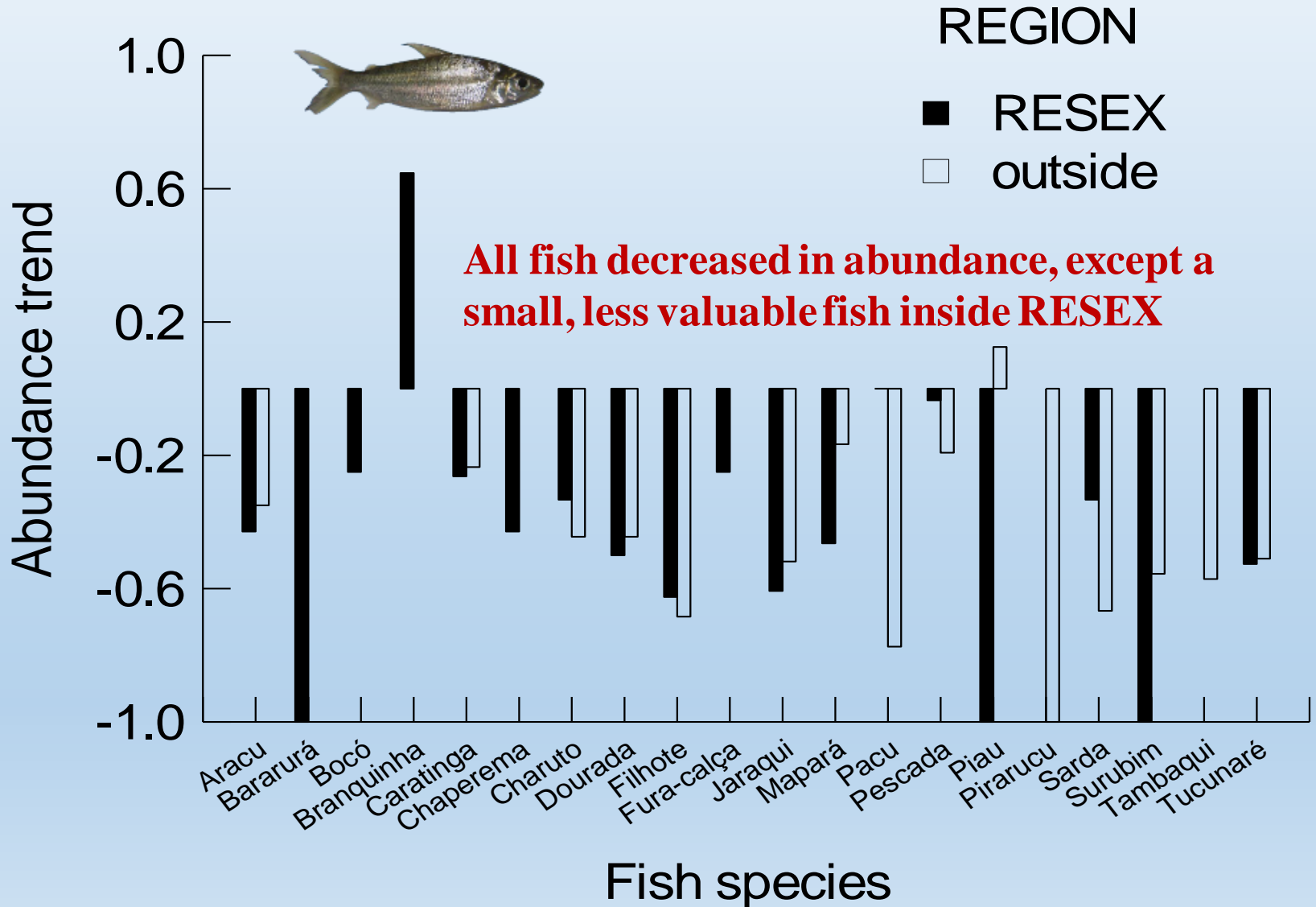


Larger fish in the past, no difference between RESEX and outside

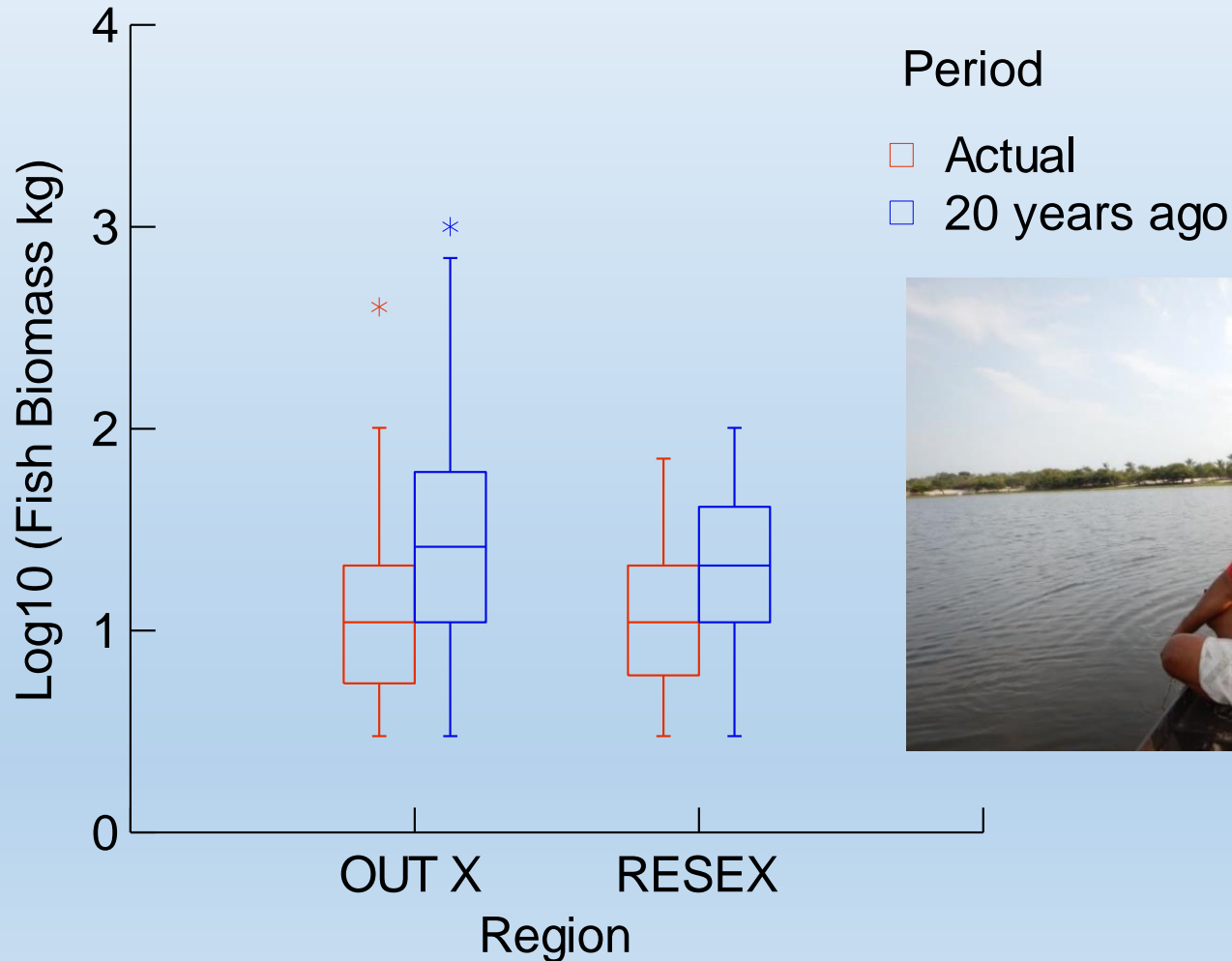


2) Comparison of abundance trends, for each fish species:

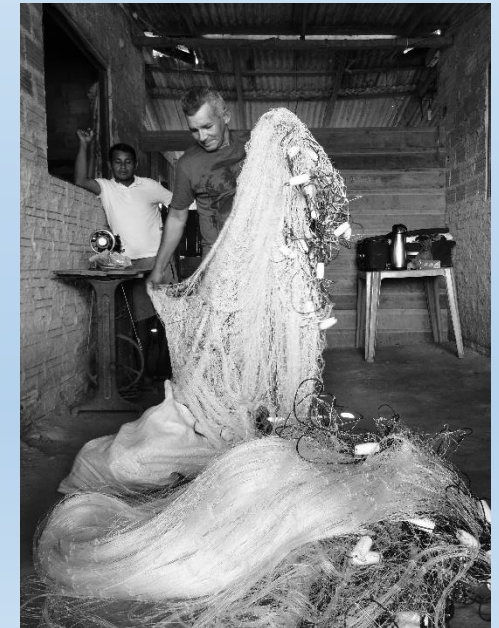
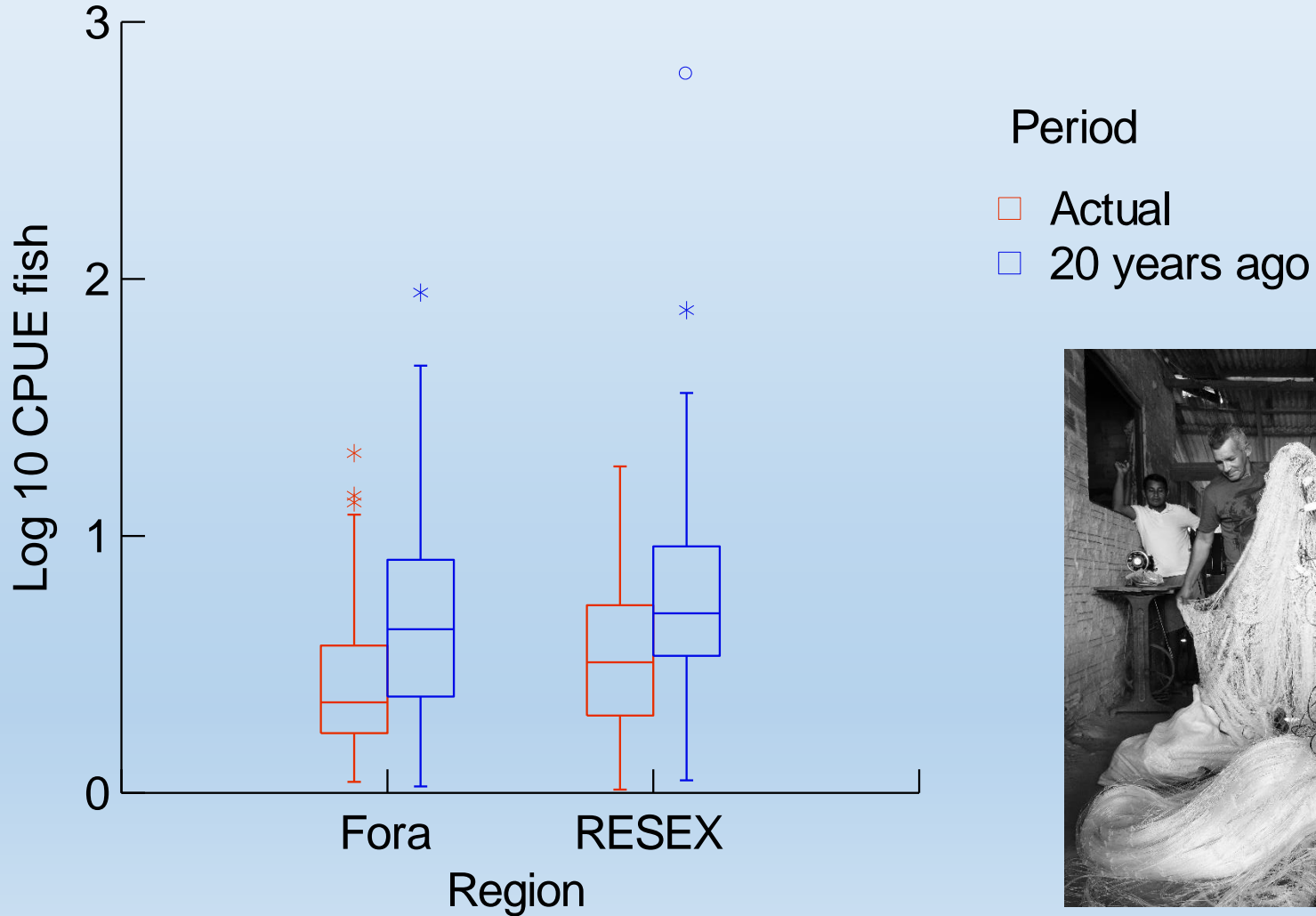
Increased = +1, Same = 0, Decreased = -1 (X proportion of fishers)



4) Biomass of fish caught (kg): more fish in the past, no difference between RESEX and outside (OUT X)



5) CPUE: higher CPUE in the past, no difference between RESEX and outside (“Fora”)



Biomass, CPUE and temporal trends indicated same patterns
Temporal change, few effects of RESEX

Indicators	Temporal change?	Influence of RESEX?
Fish composition of catches	No	No
Temporal abundance trends	Yes	No
Fish size	Yes	No
Biomass of fish caught	Yes	No
CPUE of fish caught	Yes	No

We made 16 meetings with fishers in all fishing communities to discuss some of the results of the research.



Photo: Daiana Schneider

Acknowledgments

- To fishers for their cooperation
- To USAID for funding the research
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- To you by your attention



Questions??



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