



Mercury Contamination: The Threat that Entwines People and Biodiversity

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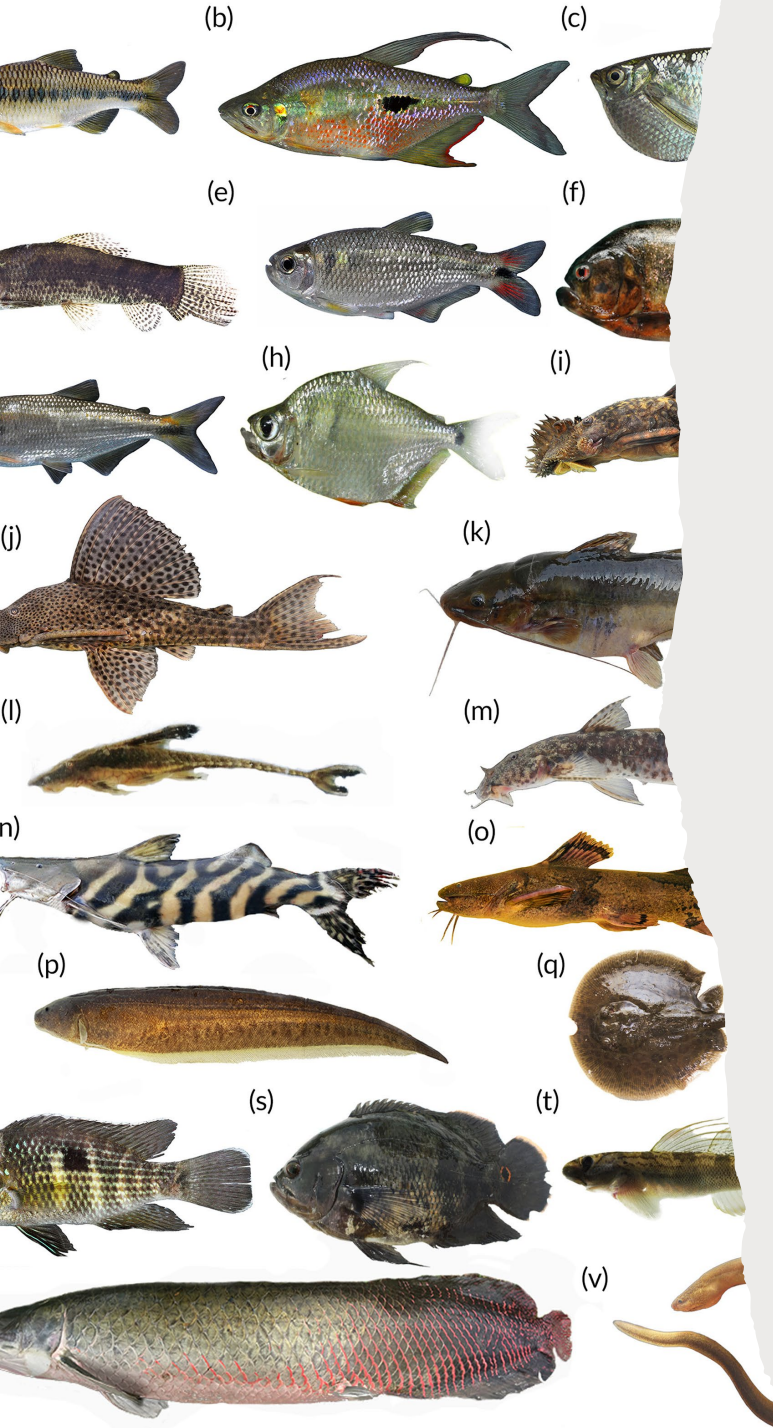
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Freshwater Fish Biodiversity

- Food for millions
- Livelihood for billions
- Micronutrient diversity linked to species diversity



Global Biotic Mercury Synthesis database

Taxa Group of Interest to Human Health*	Taxonomic Unit	Sample Size	Percent >Threshold
Tuna (commercial)	Species	(n=9)	67%
Billfish	Species	(n=7)	71%
Sharks	Families	(n=24)	88%
Marine Fish–Mediterranean Sea	Families	(n=35)	69%
Marine Fish–Caribbean Sea	Families	(n=39)	64%
Freshwater Fish–African	Families	(n=16)	19%
Freshwater Fish–South America	Families	(n=30)	53%
Freshwater Fish–Asia	Families	(n=31)	39%
Freshwater Fish–North America	Families	(n=25)	48%
Seabirds–Arctic and Subarctic	Species	(n=20)	30%
Marine Mammals–toothed whales	Species	(n=38)	100%
* Taxa identified by the Minamata Convention: fish, sea turtles, birds, and marine mammals.			

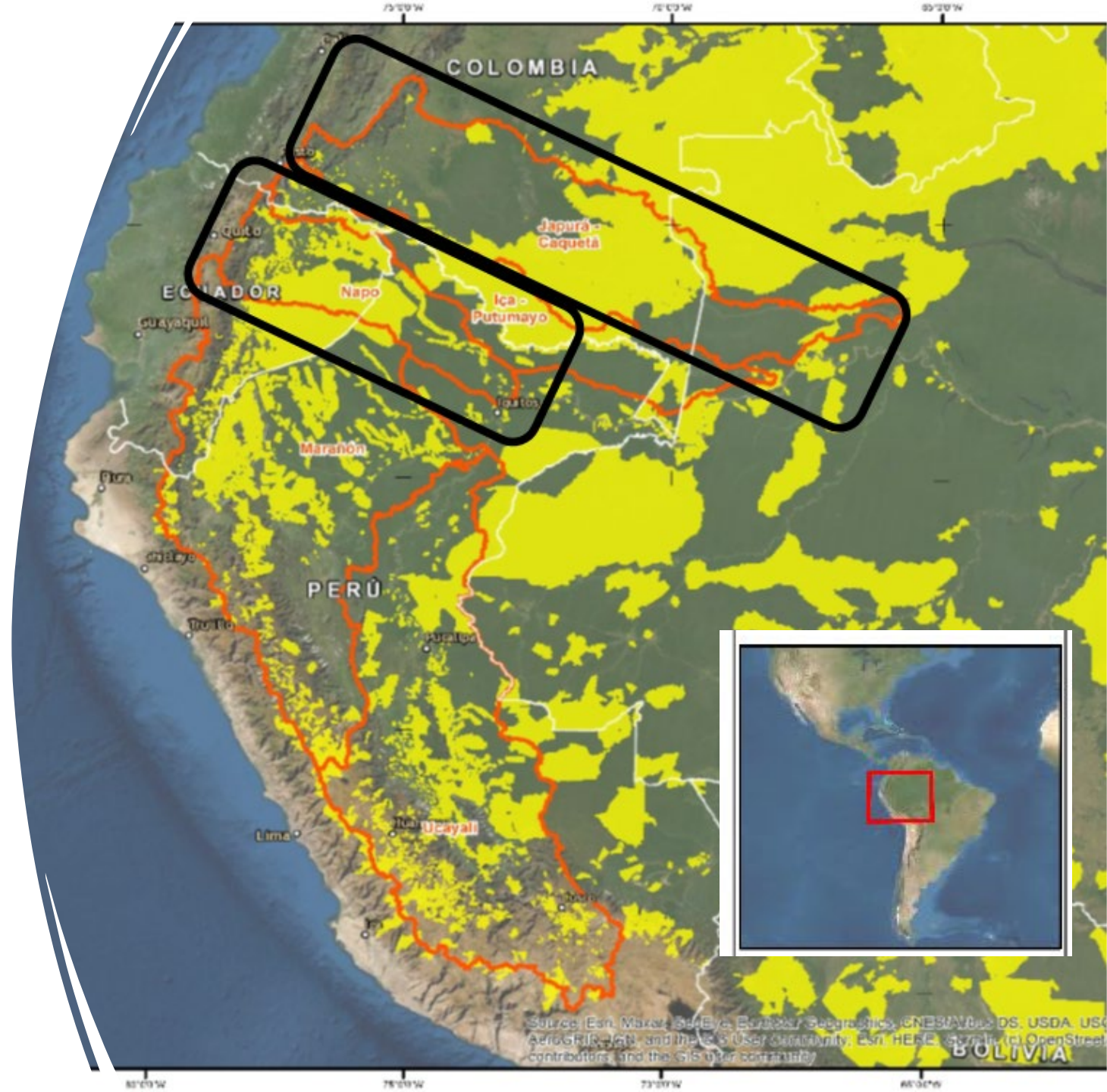
Sampling Regions		Fish	Sea Turtles	Birds	Marine Mammals
Continents	Africa		N/A		
	Antarctica		N/A		
	Asia		N/A		
	Australia		N/A		
	Europe		N/A		
	North America		N/A		
	South America		N/A		

Sampling intensity	
Very High	
High	
Medium	
Low	
Very Low	

*Evers et al. 2024. Global Mercury Concentrations in Biota: Their Use as a Basis for a Global Biomonitoring Framework. Ecotoxicology 2024.

Andean Amazon – Ecuador and Colombia

- Ecuador
 - 11 Indigenous nations cover 60% of territory
- Colombia
 - 62 Indigenous nations cover 50% of territory
- 1200 fish species – many endemics
- Isolated, little state presence and low governance
- Front lines of new ASGM activity

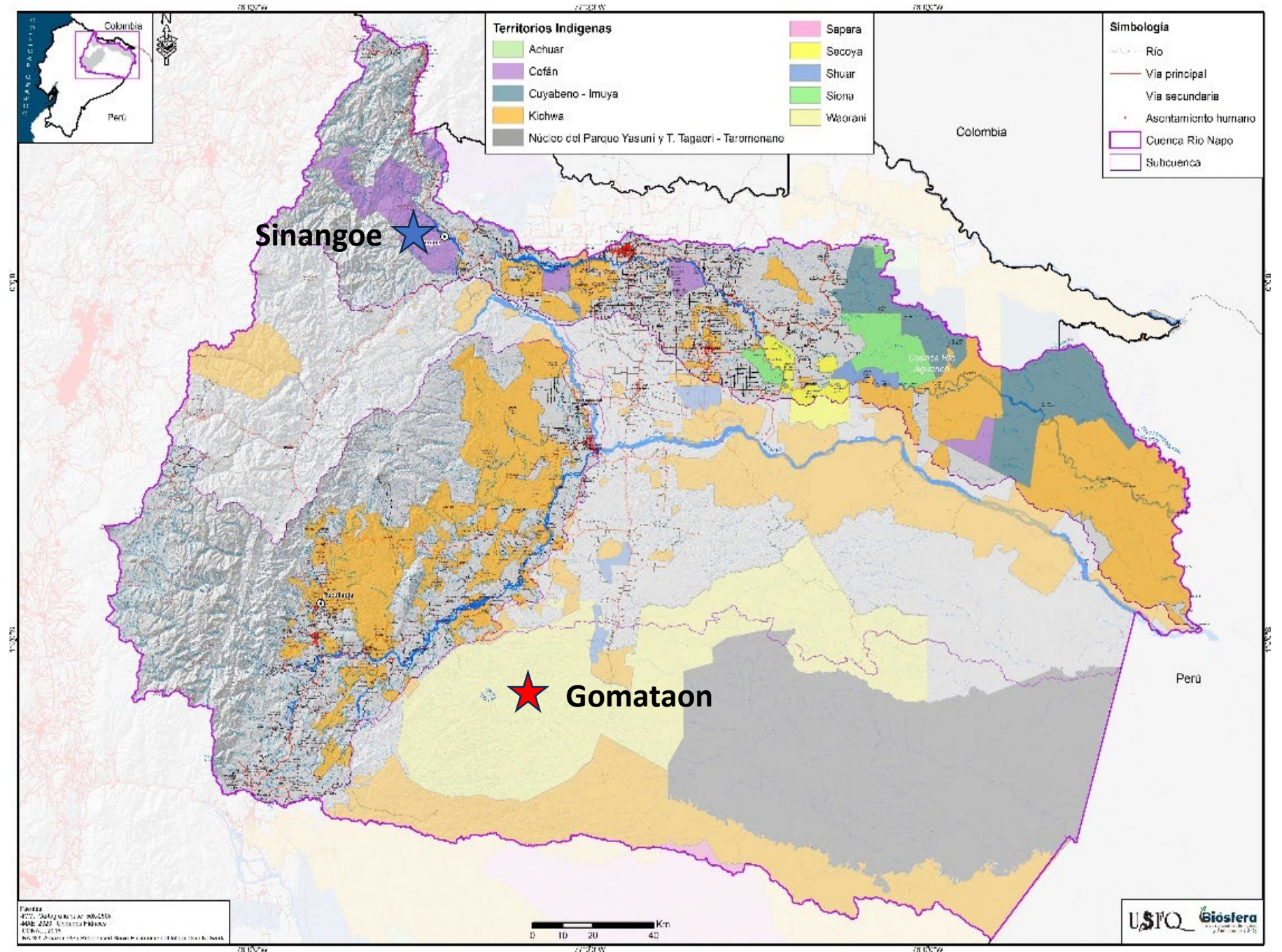


Study question

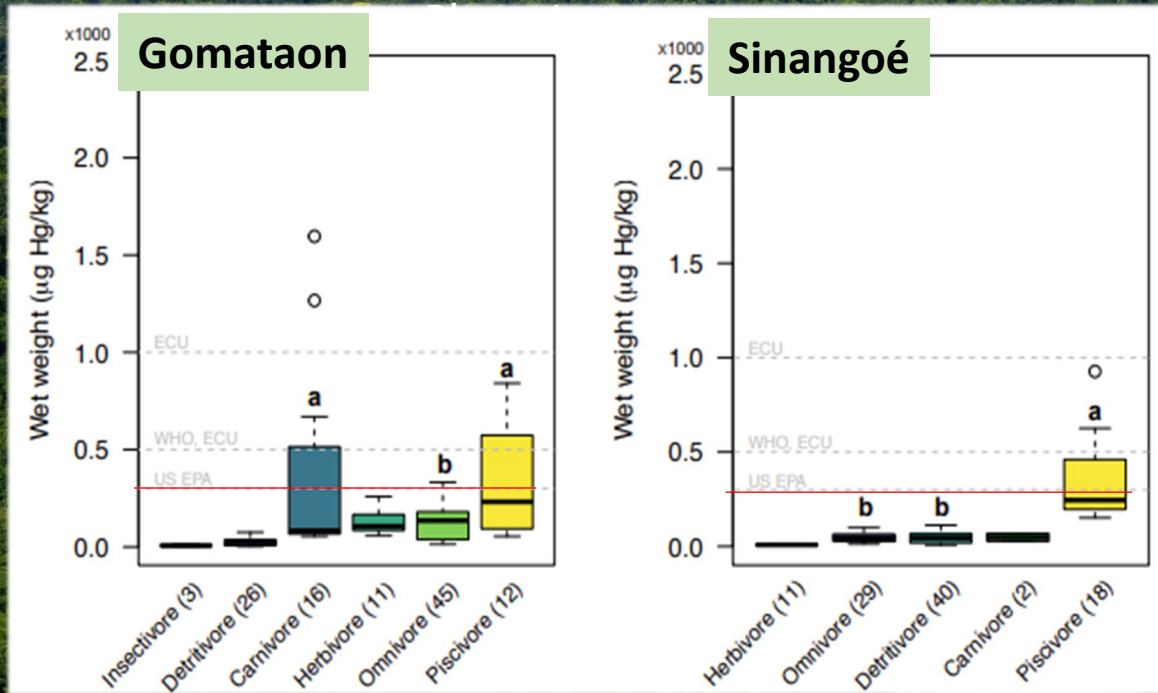
What is the current baseline of mercury contamination in fish in the Andean Amazon, and how can we use that information to support community-led efforts to protect their food security and fish biodiversity?



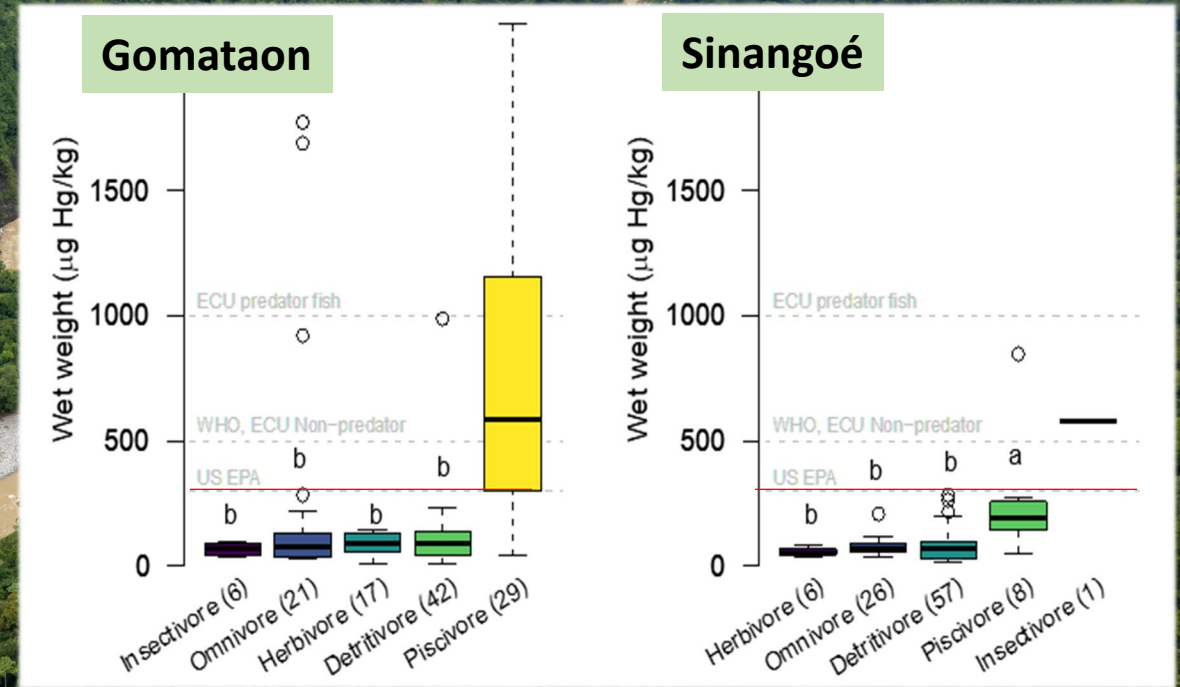
Napo Basin, Ecuador



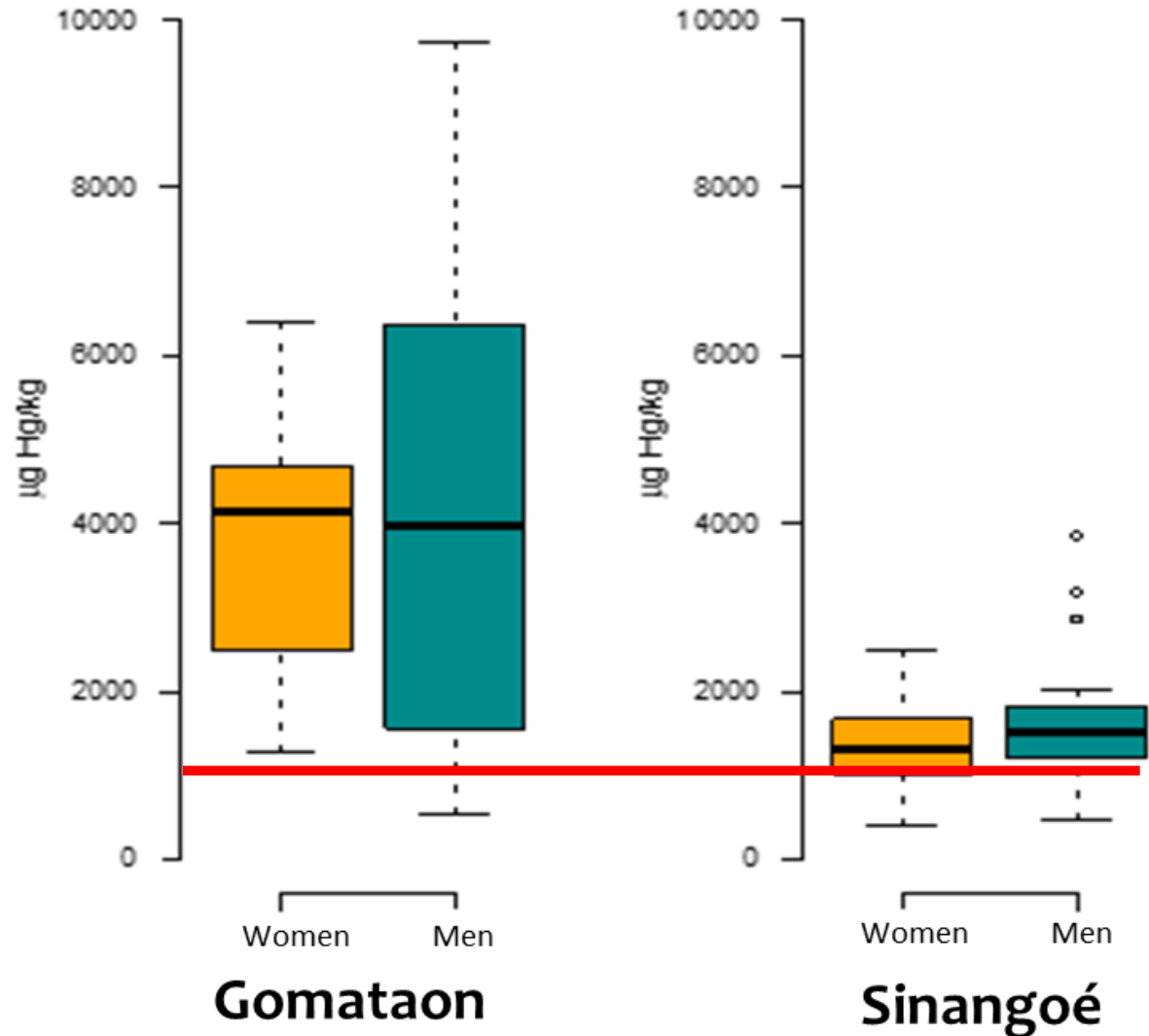
February 2022



April-May 2023



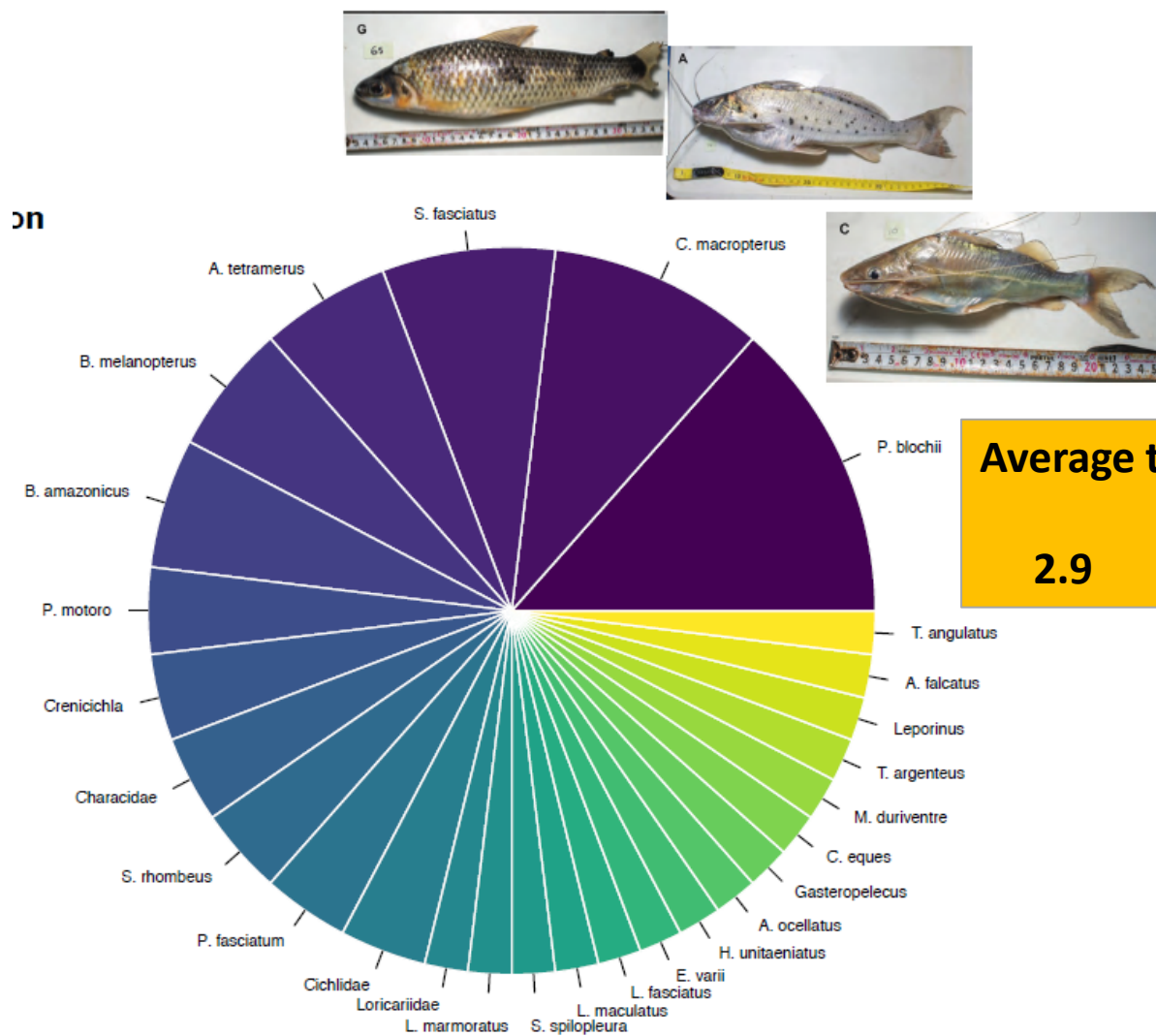
Hair Hg



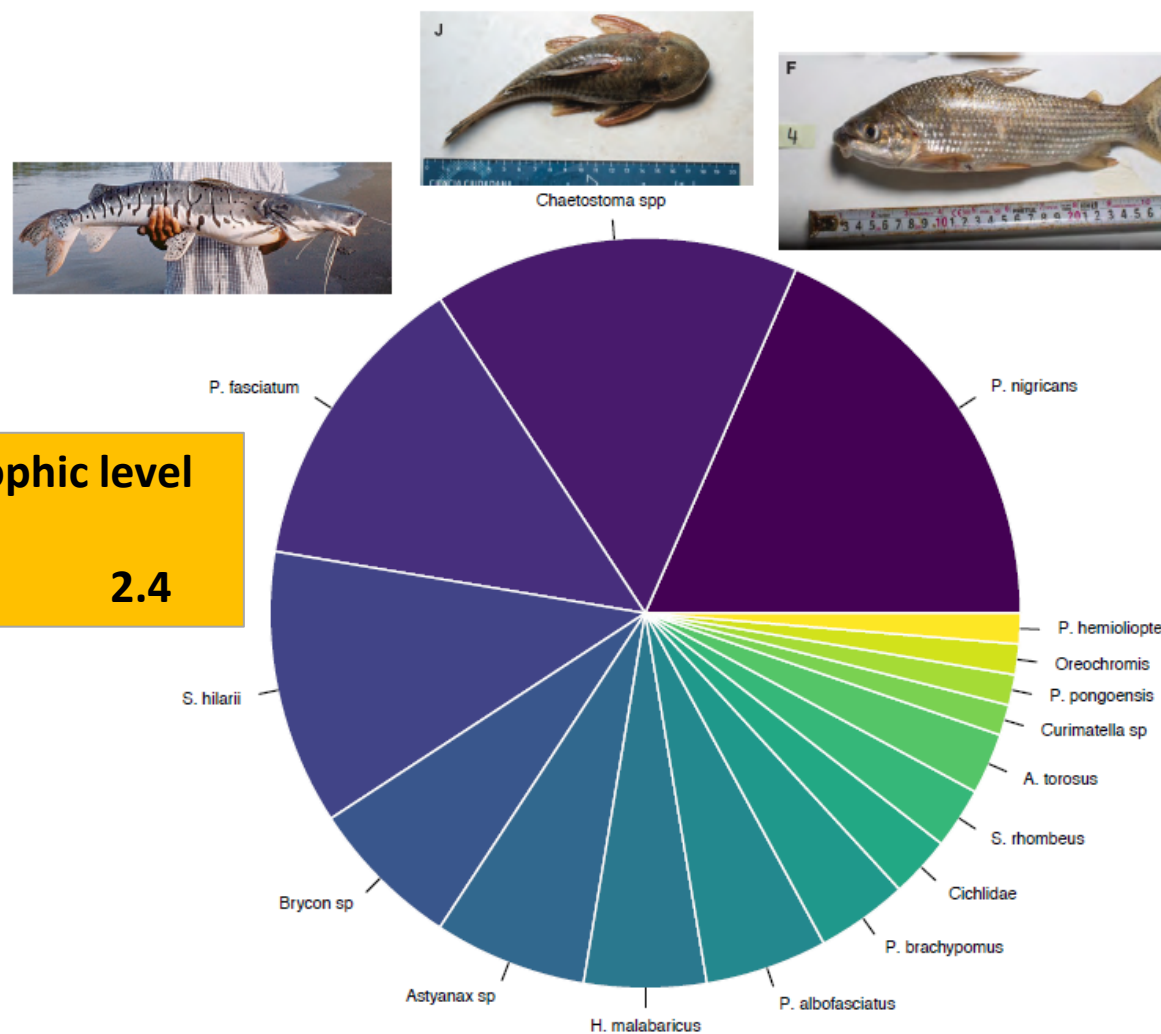
	Gomataon	Sinangoe
Community members (M/F)	30	200
Fishing frequency		
Daily	0	0
Weekly	100%	85%
Monthly	0	15%
Fish consumption frequency		
Daily	0	29%
Weekly	100%	43%
Monthly	0	28%

Local Surveys – most consumed species

• Gomataon



• Sinangoé



What to consume?

★★★
Best choice

Herbivores,
detritivores,
insectivores

★★
Good choice

Omnivores
piscivores

★
best to avoid

piscivores



Choosing the best options for a low-mercury diet

Bocachico



Sábalo



Ratón



Carachamas



Sardinas



Sardinas



Barbudo



Vieja



Dorada



Bagre



Guanchinche



Pica



Pintadillo



Bagre



Confounding factors

- Differential ecosystem processing of Hg
- Hg sources: multiple, varied, unknown
- Many migratory fish, fish of different sizes
- Variation in fish consumption among families, among communities, and over time

