Photo: Oceana/Christian Braga

OCEANA

5th EDITION

FISHERY AUDIT

BRAZIL 2024

SUMMARY OF RESULTS

FISHERY AUDIT - BRAZIL 2024

THE STATE OF FISHERIES AMID CLIMATE CHANGE

SUMMARY OF RESULTS

The global scale of fishing today is as vast as the challenge of ensuring its long-term viability. Fishery resources, on which the activity depends, are becoming increasingly scarce.

92.3 MILLION
TONS OF FOOD WERE PRODUCED BY CAPTURE FISHERIES WORLDWIDE IN 2022

87% OF THIS PRODUCTION
CAME FROM MARINE FISHING

40% OF CATCHES
ORIGINATED FROM SMALL-SCALE FISHING

THE ACTIVITY GENERATES AROUND **34 MILLION** DIRECT JOBS

CAPTURE FISHERIES ACCOUNTS FOR A FIRST-SALE VALUE OF **US$ 157 BILLION**

SOURCE: FAO, 2024

Ensuring that fish stocks are exploited within safe biological is—or at least should be—the primary responsibility of governments and Regional Fisheries Management Organizations (RFMOs), particularly in countries and regions highly dependent on fishing.

However, despite notable progress in fisheries management in many parts of the world (Hilborn *et al*., 2020), the path to sustainability remains long, and current trends are moving in the opposite direction.

1970s:

10% OF FISH STOCKS WERE OVERFISHED

2020s:

40% OF FISH STOCKS ARE OVERFISHED

SOURCE: FAO, 2024

Photo: *Oceana/Marcos Jatahy*

Reversing this situation depends on several interconnected elements working in concert. **Effective fisheries management is grounded in robust data and information**. Without these, managers and society lack the benchmarks needed to guide the balanced use of resources and, most importantly, to determine how much can be sustainably harvested from each stock. **It is equally essential to translate scientific knowledge into regulations** by establishing technically based measures that control fishing pressure on natural resources and reduce it whenever necessary. **Enforcing these rules is also crucial, as illegal fishing is often linked to other criminal activities, such as forced labor and human trafficking** (Hendharto, 2018; Selig *et al.*, 2022).

All these efforts require investment, commitment, and political will, making fisheries management an inherently complex endeavor.

OVERFISHING: WHAT IS IT?

Overfishing occurs when the harvest of fish exceeds the capacity of fish stocks—or populations—to replenish what has been caught. Depleted stocks can no longer sustain previous levels of productivity, and fishing activity falls far below what would be considered optimal.

In more severe cases, fish populations decline so drastically that entire fisheries collapse. Some have never recovered, such as the emblematic case of Atlantic cod (*Gadus morhua*), which has remained heavily overfished since the 1990s.

While society—or at least those concerned—struggles to reverse the global overfishing crisis, a new factor is emerging, making this scenario even more complex: the climate emergency.

Global temperatures continue to rise each year. The oceans, which absorb most of the sun's radiation, are becoming increasingly warmer. The melting of polar ice is altering ocean currents. Rainfall patterns are shifting. Natural events are becoming more extreme and more frequent.

It is no longer enough to understand only the biology, ecology, and dynamics of the species targeted by fishing within a static system based on past observations. **The climate emergency demands a forward-looking perspective from both policymakers and society, presenting the difficult challenge of anticipating how fishery resources and ecosystems will respond to a rapidly changing environment—one that no longer behaves as it did just a few years ago—and of planning ahead to prevent even more severe crises.**

2024 was the worst year for fishing for us, because of climate factors. I've been fishing since 1997, and I've never seen anything like it. The sea starts to rise a lot—it floods here and there—and everything in the streams, the streets, and along the beach gets swept away. It's one thing for the fish to be there; it's another for the sea to give us the conditions to fish—and that's where the climate factors come in. With the sea more violent and full of debris, we can't fish.

Daniel da Veiga,
artisanal fisherman from Rio Grande do Sul, Brazil

Photo: *Agência Brasil/Rafa Neddermeyer*

WHAT DO WE ALREADY KNOW?

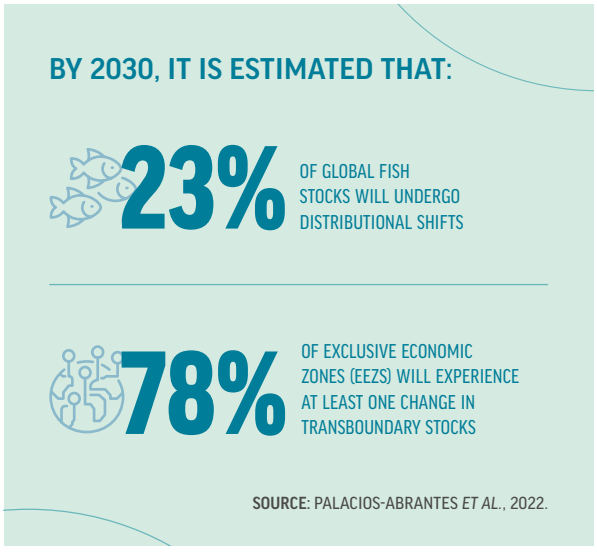
Rising water temperatures and shifting current patterns have significantly changed the distribution of marine species. Scientists have coined the term "tropicalization" to describe the phenomenon associated with the expansion of the warm-water belt from the Equator and the tropics toward the poles.

The principle behind tropicalization is that species have an optimal temperature range for survival. **As warm waters move toward the poles, species less tolerant to heat tend to migrate to cooler waters found in temperate and polar regions. Warm-water species, in turn, expand their distribution** (Cheung *et al*., 2009; McLean *et al*., 2021).

There is now evidence of this phenomenon in all the world's oceans, including along the Brazilian coast. Researchers have already identified significant changes, noting that **demersal fishing catches in southern Brazil are warming.** In other words, over the years, fishing fleets have been landing an increasing proportion of species found in warmer waters, while species associated with colder waters have become increasingly scarce. This trend is directly linked to the warming of bottom waters in the country's southeastern and southern regions (Perez and Sant'Ana, 2022).

Evidence also shows **the Southwest Atlantic is one of the world's warming hotspots**—an area expected to heat at levels above the global average (Hobday and Pecl, 2014). As a result, this tropicalization effect is likely to intensify, particularly along Brazil's southeastern and southern coasts, reducing the presence of heavily exploited stocks in these regions, such as the Brazilian codling (*Urophycis brasiliensis*), Argentine hake (*Merluccius hubbsi*), and Argentine squid (*Illex argentinus*). These species are expected to increasingly concentrate in the colder waters off Uruguay and Argentina (Perez and Sant'Ana, 2022).

Furthermore, a recent report found that under **scenarios of high greenhouse gas emissions and rising global temperatures, fish production in most countries is expected to decline by more than 10% by the middle of this century** (Blanchard and Novaglio, 2024). If emissions and global warming continue to intensify, production declines of more than 30% are projected for at least 48 countries or territories by the end of this century.



Despite the inherent uncertainties and limitations, these studies and models clearly indicate that climate change will negatively impact fisheries and fishery resources across much of the planet. Beyond that, people who depend on fishing—along with their communities—are already facing the consequences of the climate emergency.

In 2024, Brazil witnessed unprecedented flooding in the state of Rio Grande do Sul. Lagoa dos Patos, a coastal lagoon that drains several watersheds at the epicenter of the floods, reached historic flow levels and overflowed, affecting dozens of coastal communities that suffered severe economic damage and countless intangible losses.

I lost so much in my house—all the furniture and the freezer. And there are still people receiving aid and donations who continue to struggle because fishing hasn't improved to this day, and the entire Colônia community depends on it. Everything that happened, and continues to happen, is related to climate change.

Alessandra Oxley,
artisanal fisherwoman from Rio Grande do Sul, Brazil

Photo: *Agência Brasil/Bruno Peres*

Photo: *Agência Brasil/Rafa Neddermeyer*

In Brazil's Amazon region, equally unprecedented events have affected riverside communities—not due to excess water, but because of an absolute lack of it. The historic drought that struck the world's largest rainforest between 2023 and 2024 caused major rivers to dry up, leaving residents without drinking water, transportation, access to essential services, or one of their main sources of food and livelihood: fishing.

This drought has disrupted various aspects of traditional communities' lives because when there's no water, there's a lack of everything. 2023 was bad, 2024 was even worse, and we're anxious about what 2025 will bring. The Amazon is already facing the challenges of climate change.

Josana Pinto da Costa,
artisanal fisherwoman from Pará, Brazil

Beyond the humanitarian crisis, extreme weather events like these will also exacerbate the chronic impacts on fisheries. The excess of freshwater in the Lagoa dos Patos estuary (state of Rio Grande do Sul) will certainly affect fishing activity in the area for some time. Species such as pink shrimp, mullet, whitemouth croaker (*corvina*), and sole depend on brackish-water lagoons for their development.

In the Amazonian rivers of northern Brazil, the drought caused the mass death of several fish species vital to local fisheries. Migration cycles (*piracemas*) and spawning were likely disrupted, which is expected to decrease the future abundance of many species and, consequently, reduce availability for local fishers.

Without accurate data on the number of fishers, their production, fishing areas, income, and other information of the value chain, governments and policymakers cannot adequately prepare to confront crises that are expected to become increasingly frequent and severe. Given the varied—and highly concerning—situations observed, **adaptation and mitigation strategies for the fishing sector and its communities must become central components of public policies designed to address the impacts of climate change on fisheries. This will be the dividing line between success and failure in adapting fisheries and their value chains.**

It appears that, despite the mounting evidence of the climate emergency and its effects on Brazil's ecosystems and fisheries, **quantitative assessments of natural fish stocks remain an exception**. Since Oceana began publishing the Fisheries Audit, in 2020, it has consistently observed that **monitoring covers only about half of all fisheries in the country**. Moreover, the vast majority of fisheries and fleets continue to be **governed by outdated, static regulations** whose control mechanisms are not adapted to the sustainable extraction potential of fish stocks from year to year, harvest to harvest, or season to season.

Without systematic data collection, monitoring, prediction, and adaptation, it is impossible to generate even minimally reliable estimates of how stocks are responding to fishing pressure—let alone understand how they will behave in a rapidly changing environment.

Photo: *Oceana/Marcos Jatahy*

MAIN RESULTS

The 5th edition of **Brazil's Fishery Audit** presents comparative analyses of fisheries management in the country during 2024, based on the evaluation of indicators and criteria grouped into four categories: Public Budget, Fisheries, Fish Stocks, and Transparency.

With the launch of a new government plan covering the period 2024–2027, the Ministry of Fisheries and Aquaculture (MPA) budget for the 2024 fiscal year was R$350.7 million (around US$65 million*), representing an 85% increase over the previous year. Despite this rise, the amount still places the Ministry among the second smallest **in the entire federal government.** During the year, 39% of the total budget was executed, with only R$32 million (around US$5.9 million*) invested in core management tasks such as fisheries monitoring.

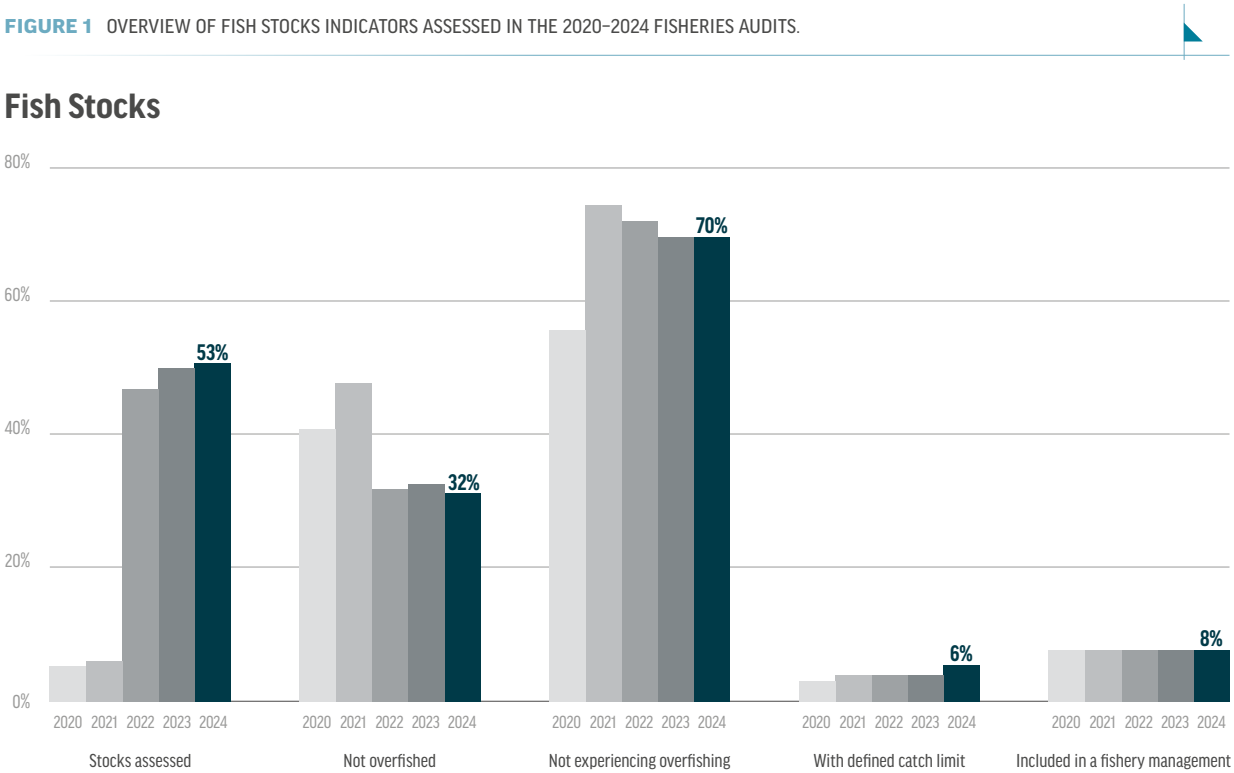
The effects of this limited execution are reflected in the other indicators evaluated in the Fishery Audit. Although these indicators have shown progress over the years, they have now reached a plateau—reflecting the absence of structural measures capable of driving meaningful change in Brazil's fisheries management framework.

The situation of fish stocks remained similar to that of previous years **(Figure 1). Only slightly more than half (53%) of the marine and estuarine species targeted by commercial fishing in the country have updated assessments of stock status**. These assessments were made possible by research projects published in 2022, linked to academic initiatives supported by intermittent funding, the results of which have not yet been incorporated into the management measures adopted by the federal fisheries authority.

Based on the available data, the findings are alarming: **68% of assessed stocks are overfished.** Meanwhile, the adoption of management tools that could help reverse this scenario remains minimal—**94% of stocks still lack of catch limits, and 92% lack a management plan.**

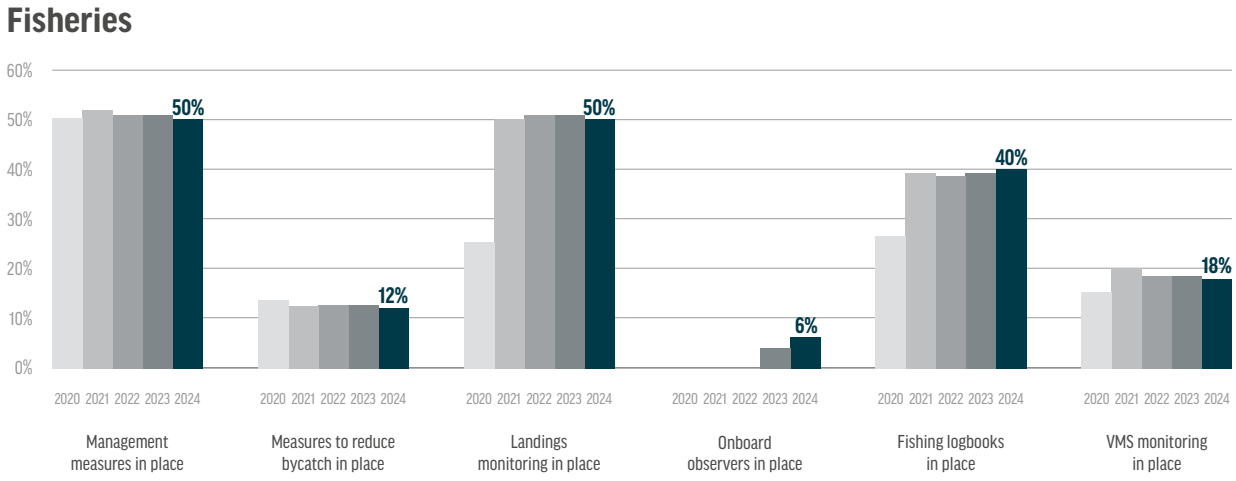
* *VALUES BASED ON THE AVERAGE EXCHANGE RATE FOR THE YEAR.*

FIGURE 1 OVERVIEW OF FISH STOCKS INDICATORS ASSESSED IN THE 2020–2024 FISHERIES AUDITS.



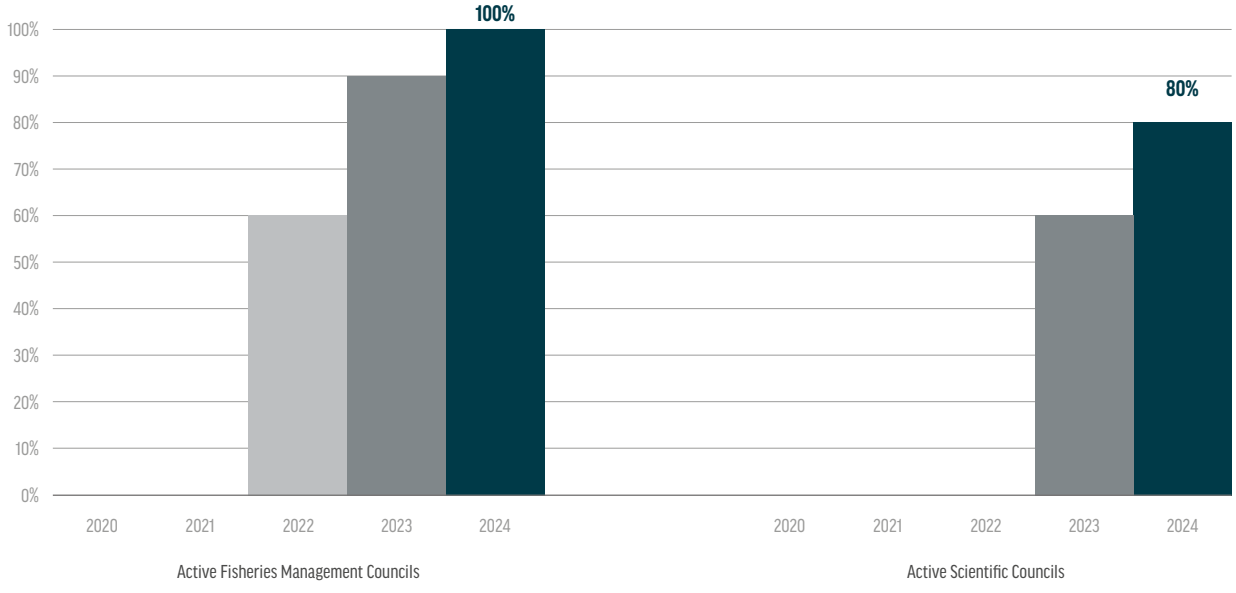
The indicators related to Fisheries also remained stable compared to previous editions **(Figure 2). Half of Brazil's fisheries (50%) lack adequate management measures**, most of which are concentrated in the North and Northeast regions. This highlights the **severe regional disparities that persist in the management of fishing activities** across the country.

FIGURE 2 OVERVIEW OF FISHERIES INDICATORS ASSESSED IN THE 2020–2024 FISHERIES AUDITS.



The Transparency category showed the most significant improvement in 2024 compared to previous years, as **all social participation forums held meetings during the year**, achieving 100% compliance with this indicator for the first time. However, the lack of publicly available information on the meetings of scientific and technical advisory forums remains a challenge **(Figure 3).**

FIGURE 3 OVERVIEW OF TRANSPARENCY INDICATORS ASSESSED IN THE 2020–2024 FISHERIES AUDITS.



SUMMARY OF RESULTS – BRAZIL'S 2024 FISHERY AUDIT

PUBLIC BUDGET	RESULT
Annual budget (2024)	R$ 350.7 million (around US$65 million)*
Annual budget execution rate	39%
Future budget (2025)	R$ 273.2 million (around US$50.6 million)*

FISHERIES	RESULT
% of fisheries fully subject to management measures	50%
% of fisheries fully required to adopt measures to reduce or mitigate bycatch	12%
% of fisheries fully covered by landings monitoring	50%
% of fisheries with onboard monitoring	6%
% of fleet legally required to submit logbooks	40%
% of fleet legally required to be tracked by VMS	18%

FISH STOCKS	RESULT
% of fish stocks with known status	53%
% of fish stocks with known status that are overfished ($B < B_{MSY}$)	68%
% of fish stocks with known status that are experiencing overfishing ($F > F_{MSY}$)	30%
% of fish stocks with defined catch limits	6%
% of fish stocks included in a fishery management plan	8%

TRANSPARENCY	RESULT
% of active Fisheries Management Councils	100%
% of active Scientific Councils	80%
Records of Councils publicly available	Partially meet
Annual fishing production reports publicly available	Not meet
Data on fishers and fishing vessels publicly available	Meet
Information on the status of fish stocks publicly available	Partially meet

* *VALUES BASED ON THE AVERAGE EXCHANGE RATE FOR THE YEAR.*

WHAT CAN BE DONE?

1. Fund research to project future scenarios for fish stocks, fisheries, and ecosystems based on climate and oceanographic changes.
2. Structuring a program for regular fish stocks assessments.
3. Develop a national plan for fisheries statistics, engaging a network of institutions and professionals.
4. Expand monitoring programs for fishing activities to include Brazil's North and Northeast regions.
5. Incorporate research findings into medium- and long-term fisheries management planning, along with tools for adapting to the climate emergency.
6. Resume onboard monitoring and data collection, restructuring, and modernizing the National Program of Onboard Observers (Probordo).
7. Approve and enact Bill 4789/2024, which establishes the National Policy for Sustainable Fisheries Development. This policy is designed to combat illegal, unreported, and unregulated fishing; promote sustainable practices; advance social justice; empower fisherwomen; and apply fisheries science in the management of marine resources.
8. Establish an autonomous agency dedicated to overseeing the core functions of fisheries management, thereby reducing institutional instability.

Oceana remains firmly committed to monitoring and evaluating fisheries management. Brazil's Fishery Audit continues to serve as a key instrument in supporting more efficient and transparent management, ensuring that public resources are used effectively for the benefit of fishing communities and the conservation of marine ecosystems.

Photo: *Oceana/Rodrigo Gorosito*

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