

THE LIVING PLANET INDEX (LPI) FOR MIGRATORY FRESHWATER FISHES 2024 UPDATE

EXECUTIVE SUMMARY



INTRODUCTION

Migratory fishes move across vast basins spanning from small headwater streams to the largest of rivers - in some cases across the width of entire continents, often returning to the exact stream in which they were born. These extraordinary species form the basis for food and livelihoods for millions of people around the world.

Despite centuries of resilience against natural challenges, fish migrations have been disrupted by human interference, leading to massive population declines. Nearly a third of all freshwater species are threatened with extinction, and migratory fishes are disproportionately threatened compared to non-migratory fishes.

This threat is driven by the loss of free-flowing rivers, barriers such as dams, overexploitation, and the relentless pressure of climate change, which is irreversibly altering habitats, the timing and quantity of water availability, and migration patterns.

This report provides an update on trends in migratory freshwater fish populations globally and underscores the urgent need for conservation efforts that prioritize restoring free-flowing rivers and enhancing habitat connectivity. By highlighting regional differences and understanding the drivers behind population dynamics, it provides critical insights for conservation efforts worldwide.

KEY FINDINGS

The index reports on population trends of 284 monitored freshwater fish species, representing 1,864 populations (Figure 1). **Globally, the index shows a decline of -81% between 1970 and 2020, or an annual decline of 3.3%.**

This downward trend has been consistent over the last 3 decades. In terms of global species trends, 65% of species have declined on average, while 31% have increased.

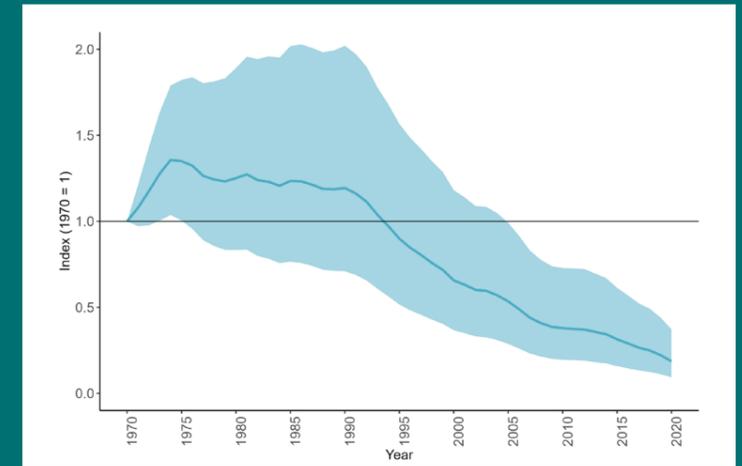


Figure 1: Index of abundance for 1,864 monitored populations of 284 species of migratory freshwater fishes, showing a decline of -81% between 1970 and 2020

Regional declines (Figure 2) are particularly marked in **Europe (-75%)** and **Latin America and the Caribbean (-91%)**, although freshwater migratory fish populations are declining in all regions, with

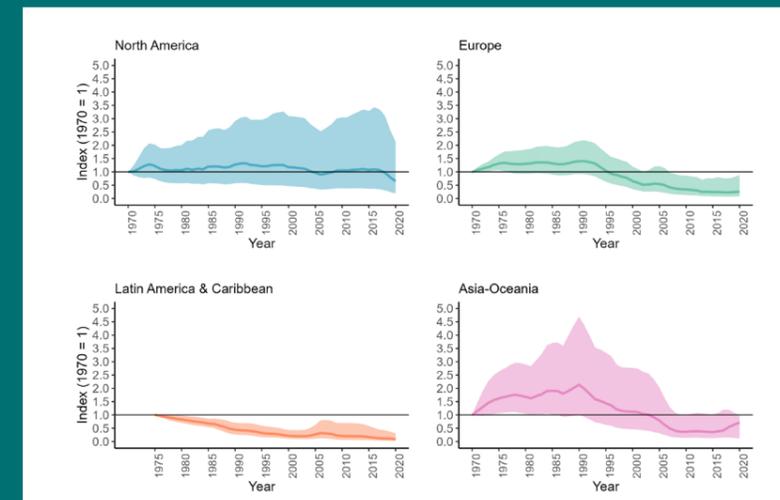


Figure 2: Indices of abundance for monitored migratory freshwater fishes between 1970 and 2020 for different regions

less severe declines in **North America (-35%)** and **Asia-Oceania (-28%)**, and limited data for Africa.

Populations with documented local threats show a trend of 96% decline, but populations with uncertain local threat status are also declining. Populations with no local threats present show the only increasing trends since 1970.

THREATS

The most reported threat for populations with local threats is habitat degradation, change, and loss (50% of all reported cases), followed by exploitation. This is broadly the same for all regions. Other important threats to migratory freshwater fishes such as pollution and climate change are not often cited.

The Convention on Migratory Species (CMS) reported that a staggering 97% of CMS-listed

fishes are at risk of extinction. The primary causes behind these declines are the fragmentation of rivers and the blockage of migration routes, primarily due to dams and other river barriers.

Although the largest threat is habitat loss and degradation, managed populations are predominantly regulated through fisheries-related management, which does not address the underlying problem.

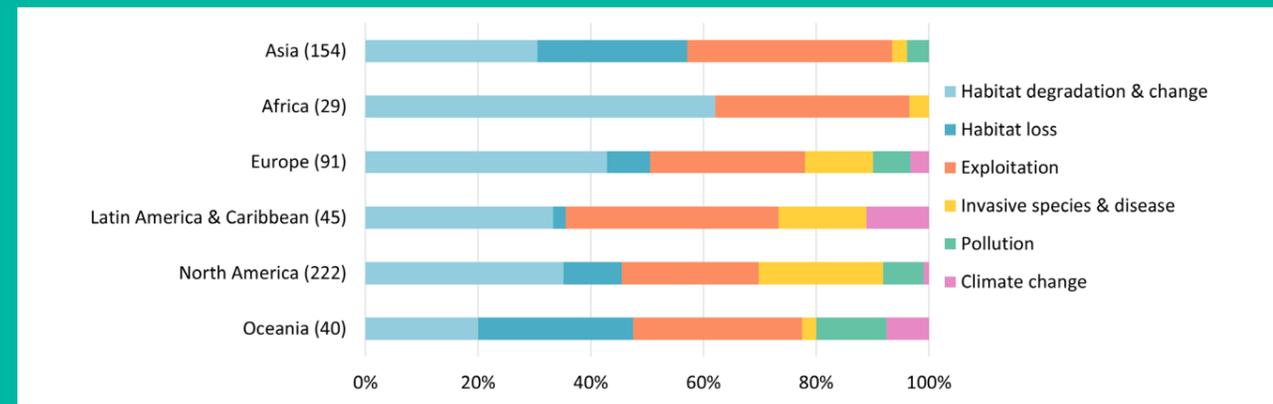


Figure 3: Distribution of threats for monitored migratory freshwater fishes for different regions. Information on local threats was taken directly from the data sources of the populations and coded into broad categories based on the IUCN Threats Classification Scheme used by the Red List

- There is a **lack of free-flowing rivers in Europe**, with a high degree of fragmentation by dams and an estimated **1.2 million barriers**¹. The few rivers not affected by barriers contain very few remaining viable populations of migratory fishes.
- **Latin America and the Caribbean**: This region hosts the **largest freshwater fish migration** in the world. Unfortunately, it has also seen the **steepest decline** as dams, mining, and water diversion have fragmented or degraded rivers and habitats across the region.
- In **North America**, declines since 1970 have been less severe. However, many migratory fish populations likely experienced a decline prior to 1970 due to high levels of **river fragmentation** and

- changes in water flows. Historical exploitation, particularly post-European settlement, has also affected many species.
- **Asia-Oceania** shows modest declines but continues to face threats from **exploitation and habitat loss**, particularly from **hydroelectric expansion plans**. The Mekong, one of the world's most biodiverse river systems, has experienced significant declines in fish species², suggesting a potential underestimation.
- In **Africa**, **data limitations** make it difficult to determine trends conclusively. However, existing data point to **habitat degradation, fragmentation, exploitation**, and other threats affecting migratory species.

RECOMMENDATIONS

This report provides an overview of trends and drivers of change, but more quantitative analyses and data are needed. Where populations of freshwater migratory fishes are improving, insights can be gained for reversing negative trends and conserving these species and their habitats.

Outlined below are top-level recommendations.

- Strengthening monitoring efforts: support the implementation of long-term programs and prioritize representative migratory fish species monitoring across diverse ecoregions;
- Improve representation in databases, particularly from less well-represented regions like Asia, Africa, and South America;
- Protect and restore free-flowing rivers through basin-wide planning and other measures that are in line with the EU Biodiversity strategy for 2030 of restoring 25,000 km of rivers and the Freshwater Challenge's goal of restoring 300,000 km of rivers and 350 million hectares of wetlands globally;
- The Global Swimways initiative identifies and prioritizes key river migration routes that are important for ecologically, culturally, and economically important fish species. It highlights the collaborative efforts of international river basin authorities in addressing this critical issue;



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- Address existing threats by understanding the intricate link between fish species' life-history traits and external pressures, such as efforts to restore environmental flow regimes or restore river connectivity via targeted barrier removal;
- Promote and undertake expanded international cooperation for the conservation of freshwater migratory fishes, including adding more freshwater migratory fish species to the Convention on Migratory Species (CMS) and the establishment of additional regional agreements under CMS;
- Promote public and political engagement alongside targeted funding for research and conservation actions for freshwater migratory fishes. Such efforts could help restore and protect fish populations for future generations.



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¹ Belletti et al. 2020; Parasiewicz et al. 2023; Garcia de Leaniz et al. 2019
² Chevalier et al. 2023