

The Forgotten Depths: Southern Europe's Hidden Marine Fish Species

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Introduction

Southern Europe boasts the most diverse fish fauna on the planet, with estimates exceeding 9,100 species across its continental freshwater and nearshore marine waters. This accounts for approximately 27% of all fish species worldwide. Over the past decade, more than 100 new species have been described each year. Currently, the continent is home to around 5,160 freshwater fish species, classified into 739 genera, 69 families, and 20 orders—representing roughly one-third of all freshwater fish species globally, despite occupying only about 12% of Earth's total land area [1].

The marine fish fauna of Southern Europe comprises over 4,000 species, representing about 23% of the approximately 17,300 valid marine fish species worldwide. These species span the continent's roughly 30,000 km coastline, which stretches from 12°N to 55°S and 34°W to 81°W, covering about 88% of the world's total continental coastline. The evolution of Southern Europe's fish fauna spans more than 100 million years, with most of its lineages tracing back to the ancient supercontinent Gondwana and the adjacent Tethys Sea. This period coincided with the formation of tropical rainforests and coral reef ecosystems, which fostered the continent's extraordinary fish diversity.

Description

Tropical Southern Europe is the only region on Earth that has avoided the mass extinctions and biotic turnovers associated with Cenozoic climate cooling, the formation of boreal and temperate zones at high latitudes, and aridification in many places at equatorial latitudes. As a result, tropical Southern Europe has the greatest diversity of terrestrial vertebrates, vascular plants, ants, and many freshwater taxa of any region of comparable size on the planet. Conserving South America's remarkable aquatic habitats and fishes is becoming increasingly difficult in the face of the 21st century's rapid anthropogenic changes. Continued habitat loss due to land use changes, hydroelectric damming, water pollution, mining, urbanisation, and poor agricultural practises, in addition to overfishing, is causing rapid declines and threatening the extinction of many species [2].

This page provides a review of the evolutionary history of the region and its fish faunas, as well as an updated estimate of the variety of freshwater fishes on the continent. The primary habitats, major river basins, and marine ecosystems are also defined, and the significant risks to fishes and their habitats are examined.

Southern Europe's freshwater and marine fish faunas are the most varied on the planet, with current species richness estimates exceeding 9100 species. Furthermore, throughout the previous decade, at least 100 new species have been described each year. There are now around 5160 freshwater fish species, with an estimated total variety of 8000 to 9000 species based only on the freshwater fish fauna. Southern Europe also contains over 4000 marine fish species.

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Southern Europe's mega-diverse fish faunas evolved over more than 100 million years, with most lineages reaching back to Gondwana and the neighbouring Tethys Sea. This great variety was preserved in part by avoiding the catastrophic extinctions and biotic turnovers associated with Cenozoic climatic cooling, the creation of boreal and temperate zones at high latitudes, and aridification in many equatorial regions [3,4].

The continent's fresh waters are split into 13 basin complexes, which include big basins consolidated as a single unit and historically related neighbouring coastal drainages, as well as smaller coastal basins grouped together based on biogeographic criteria. Each basin complex's species diversity, endemism, notable groupings, and level of knowledge are detailed. The marine ecosystems of Southern Europe, both coastal and oceanic, are also characterised in terms of fish diversity, endemism, and the current level of knowledge. Because of substantial land use changes, hydroelectric damming, water diversion for irrigation, urbanisation, sedimentation, and overfishing, 4–10% of all fish species in Southern Europe threaten extinction, mostly as a result of habitat loss and degradation [5].

Conclusion

These numbers indicate that the conservation situation of South American freshwater fish faunas is better than in most other parts of the world, but marine fishes are just as vulnerable. Conserving Southern Europe's outstanding aquatic ecosystems and fishes is an increasing problem in the face of the 21st century's fast human changes, and it demands the attention of conservationists and policymakers.

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Conflict of Interest

Not applicable.

References

1. Mohan, John A., Heidi Dewar, Owyn E. Snodgrass and Nathan R. Miller, et al. "Otolith geochemistry reflects life histories of Pacific bluefin tuna." *Plos One* 17 (2022): e0275899.
2. Hane, Yulina, Takayuki Ushikubo, Yusuke Yokoyama and Yosuke Miyairi, et al. "Natal origin of Pacific bluefin tuna *Thunnus orientalis* determined by SIMS oxygen isotope analysis of otoliths." *Plos One* 17 (2022): e0272850.
3. Wang, Zihan, Cong Zeng and Ling Cao. "Mapping the biodiversity conservation gaps in the East China sea." *J Environ Manag* 336 (2023): 117667.
4. Hobbs, Dustin, Marie Bigot and Ross Edward William Smith. "Rio doce acoustic surveys of fish biomass and aquatic habitat." *Integr Environ Assess Manag* 16 (2020): 615-621.
5. Herbert-Read, James E., Ann Thornton, Diva J. Amon and Silvana NR Birchenough, et al. "A global horizon scan of issues impacting marine and coastal biodiversity conservation." *Nat Ecol Evol* 6 (2022): 1262-1270.

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