Policy and governance challenges in managing transboundary fisheries resources.

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Introduction

The management of transboundary fisheries resources presents complex policy and governance challenges that test the capabilities of national governments, regional organizations, and international institutions alike. These fisheries, which straddle the exclusive economic zones (EEZs) of two or more countries or migrate between EEZs and the high seas, defy simple jurisdictional boundaries. Examples include highly migratory species such as tuna, swordfish, and sharks, as well as shared fish stocks in semi-enclosed seas like the Mediterranean, the Baltic, and the South China Sea. Managing these resources sustainably requires cooperation across political, legal, and institutional boundaries—something that is often easier said than done. The absence of coherent and enforceable governance frameworks for many transboundary fisheries has led to overexploitation, conflict among states, and missed opportunities for equitable economic development [1].

One of the fundamental challenges in managing transboundary fisheries is aligning national interests with collective responsibilities. Coastal states often prioritize their sovereign rights to exploit resources within their EEZs, particularly when those resources are vital for food security, employment, and foreign exchange earnings. However, the behavior of fish stocks—migrating across borders or into the high seas—means that actions taken by one country inevitably affect others. Without effective coordination, unilateral fishing by one state may undermine conservation efforts by another. For example, when a fish stock is recovering due to stringent quotas imposed by one country, neighboring countries might be tempted to increase their own harvests to capitalize on the improved stock health, a situation known as "free-riding." This creates a classic tragedy of the commons scenario, in which the absence of collective action results in the depletion of shared resources [2].

Regional Fisheries Management Organizations (RFMOs) are the main institutional mechanism designed to address transboundary fisheries governance. These bodies bring together countries with interests in a particular fishery to set rules on catch limits, gear types, fishing seasons, and other conservation measures. While RFMOs represent a step toward cooperative management, they face numerous limitations. Decision-making processes in RFMOs are often slow and politically driven, with consensus-based rules that allow a single country to block reforms. Scientific advice, though central to RFMO operations, is sometimes ignored in favor of short-term economic or political considerations. Moreover, compliance and enforcement mechanisms are weak, with limited surveillance capacity and minimal sanctions for non-compliance. This has led to uneven adherence to RFMO decisions and, in some cases, the continued decline of key fish stocks [3].

Illegal, unreported, and unregulated (IUU) fishing exacerbates the governance challenge. Transboundary fisheries are especially vulnerable to IUU activities due to the difficulty of monitoring vast ocean areas and the jurisdictional ambiguities that arise in international waters. Rogue vessels may exploit gaps in enforcement by operating under flags of convenience, avoiding detection, and falsifying catch records. The presence of IUU fishing undermines legitimate management efforts, creates unfair competition, and contributes significantly to stock depletion. Combating IUU fishing requires enhanced international cooperation on surveillance, data sharing, port state measures, and legal enforcement—areas where capacity and political will often fall short [4].

Another dimension of the governance challenge involves equity and fairness in resource allocation. Countries with varying levels of dependence on fisheries, different economic capacities, and diverse fishing technologies bring divergent perspectives to the negotiating table. Small island developing states (SIDS), for instance, may lack the capacity to fully exploit their tuna resources but rely on license fees from distant-water fishing nations. Ensuring that these states receive fair benefits from transboundary fisheries requires policy frameworks that consider historical catch levels, developmental needs, and ecological sustainability. However, reaching agreement on equitable allocation formulas is often contentious and time-consuming, with disagreements stalling meaningful action [5].

Climate change further complicates the governance of transboundary fisheries. As ocean temperatures rise, fish stocks are shifting their ranges poleward and into deeper waters. This geographic redistribution disrupts historical fishing patterns and alters the balance of access rights among countries. A species that once formed the basis of one country's fishery may migrate into the waters of another, triggering disputes over entitlement and compensation. Existing legal frameworks, such as the United Nations Convention on the

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***Received:** 03-Jun-2025, Manuscript No. AAJFR-25-166876; **Editor assigned:** 04-Jun-2025, PreQC No. AAJFR-25-166876(PQ); **Reviewed:** 18-Jun-2025, QC No AAJFR-25-166876; **Revised:** 21-Jun-2025, Manuscript No. AAJFR-25-166876(R); **Published:** 28-Jun-2025, DOI:10.35841/ aajfr -9.3.275*

***Citation:** While C. Policy and governance challenges in managing transboundary fisheries resources. J Fish Res. 2025;9(3):275.*

Law of the Sea (UNCLOS), do not fully account for the dynamic nature of fish distributions under climate stress. As a result, there is an urgent need to adapt governance systems to account for climate-induced changes in fish stock location and productivity [6].

At the national level, fragmented governance structures can also hinder effective transboundary fisheries management. Ministries of fisheries, environment, trade, and foreign affairs may have overlapping mandates and conflicting priorities, leading to incoherent policy implementation. Coordination between national and regional authorities is often inadequate, resulting in gaps in enforcement and poor data integration. Additionally, lack of stakeholder involvement—particularly from small-scale fishers, coastal communities, and indigenous groups—weakens the legitimacy and effectiveness of governance frameworks. Inclusive, participatory governance approaches that incorporate diverse voices and local knowledge are essential for building trust and fostering compliance with shared rules [7].

Data and science are critical to the management of transboundary fisheries, yet significant gaps persist in data collection, sharing, and standardization. Countries may be reluctant to share catch and effort data due to concerns over competitiveness, sovereignty, or diplomatic sensitivity. Differences in methodologies, definitions, and reporting systems hinder the ability to develop comprehensive stock assessments and to implement ecosystem-based management. Strengthening regional and global data-sharing platforms, investing in scientific capacity, and promoting transparency are key steps toward evidence-based governance [8].

Dispute resolution is another major policy concern. When disagreements arise over access, quotas, or conservation measures, there is often no clear or effective mechanism for resolving them. Some RFMOs offer mediation or arbitration options, but these are rarely used. International legal institutions such as the International Tribunal for the Law of the Sea (ITLOS) and the Permanent Court of Arbitration provide recourse for states in conflict, but their rulings are not always binding or enforced. Developing pre-agreed frameworks for dispute resolution, including third-party mediation and joint scientific assessments, could help prevent conflicts and facilitate cooperative outcomes [9].

Despite these challenges, there are examples of successful transboundary fisheries governance that offer valuable lessons. The Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR) is often cited for its science-based management and ecosystem approach, though it too faces political and compliance issues. The Pacific Islands Forum Fisheries Agency (FFA) and the Parties to the Nauru Agreement (PNA) have made notable progress in coordinating tuna management, enforcing vessel monitoring systems, and securing greater economic benefits for member states. These cases highlight the importance of regional solidarity, strong leadership, and the alignment of conservation and development goals.

To improve the governance of transboundary fisheries, several policy recommendations emerge. First, strengthening the legal and institutional frameworks for regional cooperation is essential. This includes updating RFMO mandates to include ecosystem-based and climate-resilient management approaches. Second, enhancing compliance through improved monitoring, control, and surveillance (MCS) systems, including satellite tracking, electronic reporting, and international observer programs, is critical. Third, ensuring equitable access and benefit-sharing requires transparent negotiation processes, capacity-building support for less developed states, and consideration of social and economic factors in quota allocations. Fourth, fostering political commitment at the highest levels, including through diplomatic channels and international forums such as the FAO and UN, can help sustain momentum for cooperative action [10].

Conclusion

Ultimately, managing transboundary fisheries resources is not just a technical or legal challenge—it is a test of international solidarity and political will. The stakes are high: failure to govern these resources effectively will result in ecological degradation, economic losses, and social disruption, particularly for vulnerable coastal communities. Success, on the other hand, can ensure the long-term sustainability of marine ecosystems, the equitable distribution of benefits, and the peaceful coexistence of nations with shared interests. As fish continue to move across human-made boundaries, so too must governance systems evolve to reflect the interconnectedness of the ocean and the societies that depend on it.

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Citation: *While C. Policy and governance challenges in managing transboundary fisheries resources. J Fish Res. 2025;9(3):275.*