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Recent Advances and Progress in Governance Strategies for Sustainable Coastal Fisheries in Nigeria

Yetunde Eniola Agbeja*
Reader, Department of Aquaculture and Fisheries, University of Ibadan, Ibadan, Nigeria

***Abstract*: Nigeria's coastal fisheries are vital to national food security, employment, and economic resilience, yet they face mounting challenges including overfishing, habitat degradation, and weak governance. This paper critically examines recent developments in fisheries governance, with a focus on strengthening legal frameworks, community co-management, policy reform, and the integration of technology. It highlights the establishment of the Federal Ministry of Marine and Blue Economy and the ongoing revision of the Sea Fisheries Act and National Fisheries Policy (2025–2029) as pivotal steps toward modernized governance. Community-based approaches, exemplified by initiatives in Cross River and the Niger Delta, are fostering greater stakeholder participation and compliance. Technological innovations, such as vessel monitoring systems and digital data collection, are enhancing transparency and enforcement. However, persistent challenges—such as corruption, limited capacity, and climate impacts—continue to hinder progress. The paper concludes with targeted policy recommendations to institutionalize co-management, integrate traditional knowledge, and improve inter-agency coordination, setting a roadmap for sustainable and inclusive coastal fisheries governance in Nigeria.**

***Keywords*: Coastal Fisheries, Fisheries Governance, Fisheries Law, Policy Reform, Sustainable Fisheries.**

1. Introduction

Nigeria's coastal fisheries are crucial to the nation's food security, economy, and the wellbeing of its coastal communities. Bordered by the Gulf of Guinea in the Atlantic Ocean, Nigeria has approximately 853 km of coastline and an Exclusive Economic Zone (EEZ) extending 200 nautical miles offshore. Nine states (Lagos, Ogun, Ondo, Edo, Delta, Bayelsa, Rivers, Akwa Ibom, and Cross River) lie along this coastline, hosting diverse fishery resources, from the brackish mangrove creeks of the Niger Delta to the marine waters off Lagos. These regions support a range of fishing activities, including artisanal and industrial fisheries, as well as aquaculture. Nigeria's coastal waters are part of the Guinea Current Large Marine Ecosystem (GCLME), one of the world's most productive marine ecosystems, providing livelihoods for millions and contributing significantly to local diets and economies [1].

Artisanal fisheries, the most widespread form of fishing, involve small-scale, subsistence-based operations using traditional methods like nets, traps, and hook-and-line. These fishers primarily operate in shallow waters of estuaries, mangroves, lagoons, and nearshore coastal areas. This sector is vital for food security and economic sustainability, supporting millions of coastal residents.

Nigeria's industrial fisheries sector, although still developing, holds significant potential for the national economy [2]. These capital-intensive operations target high-value species such as shrimp, tuna, and pelagic fish, requiring substantial investments in vessels, technology, and infrastructure. Focused on both domestic and international markets, industrial fisheries help reduce reliance on imported seafood and contribute to Nigeria's integration into the global seafood trade. Operating in the deeper offshore waters of the country's EEZ, these fisheries offer the promise of sustainable, high-yield production through modern management practices.

Aquaculture, or fish farming, has emerged as an increasingly important component of Nigeria's coastal fisheries. Primarily focused on freshwater and brackish water systems, species such as tilapia, catfish, and shrimp are farmed to supplement domestic fish production, reduce reliance on imports, and address the growing demand for fish.

However, these resources face significant pressures from overfishing, illegal fishing, pollution, and climate change. Despite the abundance of resources, Nigeria's total fish production (around 1.1–1.2 million metric tons annually) falls short of the national demand of over 3 million tons, leading to billions of dollars' worth of seafood imports [3]. This growing reliance on imports reflects not only rising domestic demand but also governance challenges in managing fisheries for sustainable yields and self-sufficiency.

Environmental pressures such as coastal erosion, erratic ocean conditions, pollution, and insecurity exacerbate these challenges. Overfishing, destructive fishing practices, and habitat degradation have led to declining fish stocks. For example, the Niger Delta's mangrove nurseries, once abundant, have been severely degraded by oil spills, pollution, and coastal development [4], [5]. These environmental threats, compounded by ineffective governance, have undermined sustainability.

*Corresponding author: eniolagbeja@yahoo.com

Historically, Nigeria's fisheries governance has been characterized by weak enforcement, fragmented oversight, and outdated legal frameworks. The Sea Fisheries Act of 1992 [6], the primary national fisheries law, remains largely unchanged despite growing issues like illegal fishing and habitat loss [7]. This regulatory gap, along with poor coordination among federal, state, and community authorities, has led to open-access exploitation and resource depletion, with small-scale fishing communities often excluded from decision-making processes, weakening compliance and marginalizing traditional knowledge.

In response, there has been renewed momentum toward improving fisheries governance. The creation of the Federal Ministry of Marine and Blue Economy in 2023 underscores the sector's growing political priority. A comprehensive review of fisheries policy and legislation is underway, including the drafting of a new National Fisheries and Aquaculture Policy (2025–2029) and a revised Fisheries Act. These reforms aim to address modern challenges such as illegal fishing, traceability, and climate resilience, while aligning with global best practices. There is also an increasing focus on inclusive and participatory management, with initiatives like the FAO's Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries promoting collaboration between fishers, government agencies, and other stakeholders.

Technological advancements, such as vessel monitoring systems and improved data collection, are enhancing governance. This paper examines Nigeria's fisheries governance frameworks, focusing on policy reforms, stakeholder engagement, and technology integration. It highlights ongoing challenges, including capacity gaps, corruption, and environmental threats, while providing examples of both successes and challenges in coastal states. Finally, it offers policy recommendations to consolidate recent gains and address remaining weaknesses, ensuring the long-term sustainability of Nigeria's coastal fisheries.

2. Methodology

This study employed a qualitative research approach. The study used a desk-based research approach, combining policy analysis, theoretical exploration, and literature review.

A. The Nigerian Fisheries Governance Frameworks

Nigeria's fisheries are regulated by the Federal Department of Fisheries (now under the Ministry of Marine and Blue Economy) and the Sea Fisheries Act of 1992. This law and its subsidiary regulations (governing vessel licensing, gear restrictions, closed areas, etc.) have become dated and insufficient for current needs [8]. In practice, limited funding and heavy reliance on the Navy for patrols have weakened federal enforcement of rules. Efforts to update the legal framework are in progress as part of the reforms noted above.

Coastal state governments each have fisheries departments that manage artisanal fisheries and implement federal regulations in their waters. In states like Lagos, rapid urban development has encroached on designated reserve zones and degraded fish habitats despite those protections. At the community level, traditional institutions and fisherfolk associations often enforce informal rules (such as community-agreed closed seasons or gear restrictions) that supplement official laws [9]. These customary systems are valuable in areas where government oversight is limited, though they are not yet formally integrated into the national governance framework. Table 1 summarises the notable stakeholders in Nigeria's Coastal Fisheries Governance and the roles they play.

Nigeria's fisheries governance also involves regional and international dimensions [1]. The country collaborates with its neighbors through bodies like the West Central Gulf of Guinea Fisheries Committee and ECOWAS to coordinate management and combat IUU fishing (for example, via the EU-funded PESCAO program [10]). Internationally, Nigeria has committed to instruments such as the FAO Code of Conduct for Responsible Fisheries and the Port State Measures Agreement to align with global best practices. Fulfilling these commitments – by incorporating their provisions into domestic law and strengthening inter-agency coordination for enforcement – remains an ongoing task alongside the national reforms.

B. Recent Advances in Governance Strategies

The following section explores on going concerted effort to modernize and align the fisheries sector with global standards, addressing longstanding challenges such as outdated legislation, environmental degradation, and unsustainable fishing practices.

1) Community Participation and Co-Management

Community-based fisheries management (CBFM) emphasizes the involvement of local fishers in managing their fisheries resources, as they are best suited to understand the ecological and socio-economic dynamics of their areas. Nigeria's fisheries governance is undergoing a significant shift toward greater community participation and co-management of resources. Engaging small-scale fishing communities in decision-making is widely seen as leading to more effective and equitable outcomes; fishers involved in making the rules tend to be more compliant and contribute valuable local knowledge [11]. In line with international best practices, Nigeria has begun embracing community-based management approaches. Stakeholders and experts have championed the adoption of the FAO's Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries, a global instrument that emphasizes protecting the rights of fisherfolk and collaborative governance [12]. This push is starting to translate into concrete efforts on the ground: local co-management committees and fisher associations are increasingly involved in crafting rules and in monitoring and reporting on fisheries.

Several coastal states have piloted formal co-management arrangements that illustrate the benefits of community engagement. The Niger Delta Fishermen's Association (NDAFA), under the Artisanal Fishermen Association of Nigeria (ARFAN), plays a critical role in CBFM in the Niger Delta. NDAFA contributes to sustainability and empowers local communities through various efforts. NDAFA advocates for sustainable fishing practices, promoting environmentally

friendly gear and methods that prevent overfishing and protect biodiversity. The association educates fishers on fish size limits, seasonal closures, and breeding habitat protection, helping reduce the impact of overfishing [13]. Additionally, NDAFA addresses environmental degradation caused by oil exploration and gas flaring, pushing for accountability from oil companies and advocating for the restoration of aquatic ecosystems vital to fishers' livelihoods [14]. The association also supports capacity building, collaborating with NGOs like PIND to train fishers in fisheries management, safety, and This training helps fishers make informed decisions, crucial for successful CBFM [15]. NDAFA further advocates for inclusive governance, ensuring fishers' voices are heard in the development of policies, such as fishing quotas and seasonal closures, ensuring they are active participants in management strategies.

In a region plagued by competition for dwindling resources and illegal fishing, NDAFA fosters dialogue and acts as a mediator among fishers, government agencies, and other stakeholders to resolve conflicts, promoting social cohesion and effective CBFM [13]. In addition, NDAFA promotes alternative livelihoods to reduce dependence on overexploited fisheries, ensuring communities can thrive even as they transition to more sustainable practices.

The national policy is also reinforcing this bottom-up paradigm. The draft National Fisheries and Aquaculture Policy (2025–2029**)** explicitly calls for empowering small-scale fishers with the tools and support needed to participate meaningfully in resource management. It proposes providing training, technical assistance, and access to credit/financing for fishing communities, as well as encouraging alternative livelihoods beyond fishing [16]. This emphasis aligns with the principles of the FAO guidelines and seeks to integrate traditional knowledge and community norms into formal management. For instance, policymakers and researchers recognize that local customs – such as community-declared sanctuary zones or taboos on overfishing – and the involvement of groups like women's fish-processing associations can enhance fisheries governance [17]. By respecting indigenous practices and actively involving those who have historically been marginalized (including women and youth), Nigeria is gradually moving from a top-down regulatory approach to a more inclusive, bottom-up governance model.

These co-management efforts are still evolving and not yet uniform across all coastal communities, but they represent important progress. For the first time, many small-scale fishers and community stakeholders are gaining a voice in how local fisheries are managed. This greater sense of ownership is expected to improve compliance and stewardship of the resources [18]. In summary, Nigeria's experience with community-based co-management – from local forums like those in the Niger Delta to national policy reforms – suggests that engaging fishing communities as true partners can lead to more sustainable and equitable outcomes in fisheries governance.

2) Technological Innovations for Monitoring and Management

Modern technology is increasingly being applied to Nigerian fisheries governance, equipping managers with new tools to monitor fishing activities and enforce regulations more effectively. One major development is the deployment of electronic monitoring and surveillance systems to combat IUU fishing. Nigeria has begun installing vessel monitoring systems (VMS) and other tracking devices on licensed industrial fishing vessels, enabling regulators to follow the movements of trawlers in real time and detect incursions into prohibited inshore zones. Through regional initiatives like "Improved regional fisheries governance in western Africa" (PESCAO) [19], Nigerian officers have received training in advanced Monitoring, Control, and Surveillance (MCS) techniques, and

Table 1
Notable stakeholders in Nigeria's coastal fisheries governance and their roles

Stakeholder Group	Primary Governance Roles	Recent Developments/Notes
Federal Government (Ministry & Dept. of Fisheries)	Sets national fisheries policy and regulations; licenses industrial vessels; oversees enforcement in federal waters (EEZ); leads international cooperation on fisheries issues.	Created a dedicated Ministry of Marine and Blue Economy in 2023; currently revising the Sea Fisheries Act to modernize regulations and align with global standards. (NIMASA, 2023)
State Governments (Coastal States)	Manage artisanal and inshore fisheries within state waters; implement federal policies locally; issue permits for small-scale fishers; enforce rules on gear and seasons at the state level.	Some states (e.g. Lagos) have introduced local fisheries policies and regulations, though enforcement capacity and effectiveness vary. (Lagos State, 2023)
Local Communities (Artisanal fishers, associations, traditional leaders)	Develop and follow community-based rules for resource use (e.g. customary closed seasons, restricted areas); participate informally in enforcement and conflict resolution; increasingly involved in co-management initiatives.	Growing involvement through co-management forums (e.g. the Niger-Delta Fishermen's association) where community leaders share in decision-making. Traditional knowledge is being recognized as an input in the new policy framework.
Industrial Fishing Sector (Companies & Trawler owners)	Harvest fish in offshore and some inshore areas under federal licenses; expected to comply with regulations on gear, catch limits, and exclusion zones; can provide input via industry associations.	Nigeria ratified PSMA in 20233 and there are ongoing consultations for law and policy reform; subject to new monitoring requirements (e.g. mandatory vessel tracking and stricter port inspections under PSMA)
Civil Society & Academia (NGOs, fishers' cooperatives, research institutes)	Conduct research and provide data for policy (stock assessments, socio-economic studies); raise awareness and advocate for sustainability; assist in capacity-building and community organization.	Collaborate in developing Fisheries Policy (e.g. WorldFish, IFPRI); promoting adoption of FAO small-scale fisheries guidelines; implementing community-based conservation and livelihood projects.
Enforcement Agencies (Navy, Coast Guard, Marine Police)	Patrol coastal waters and enforce fisheries laws; intercept illegal fishing vessels; work with fisheries officers in monitoring, control, and surveillance (MCS) operations.	Establishment of the Nigerian coast guards in 2021. Enhancing inter-agency coordination through programs like PESCAO; adopting new surveillance technology (VMS, satellite monitoring) to improve IUU detection. (UN,2020)

the country has benefited from intelligence-sharing with partners to identify illegal fishing in the Gulf of Guinea [10]. Close cooperation between the European Fisheries Control Agency (EFCA), regional bodies, and national authorities has already helped intercept illicit fishing operations and deter would-be violators in recent years [20]. Furthermore, Nigeria's ratification of the Port State Measures Agreement (PSMA) in 2022 has led to the introduction of stricter port controls and digital catch documentation systems to prevent illegally caught fish from entering the supply chain. Vessels suspected of IUU fishing can now be denied entry to Nigerian ports or subjected to thorough inspections, bolstering the overall enforcement toolkit.

Technology is also being leveraged to improve data collection and inform management decisions. Recognizing that reliable statistics are the backbone of effective governance, the new Ministry of Marine and Blue Economy has prioritized establishing a robust, centralized fisheries data system to capture information on fish landings, fishing effort, and stock status. Plans include a unified database for reporting catches (with mobile applications for officers to log data at landing sites), which will enable more timely and accurate stock assessments and policy responses [21]. This initiative addresses a long-standing gap; historically, patchy and outdated statistics have hampered management and obscured the true status of fish stocks [22]. Better data infrastructure and use of analytic tools will allow managers to set quotas or adjust regulations based on evidence, and to monitor trends such as declining catch-per-unit-effort as early warning signs.

In the Gulf of Guinea region, technological innovation is reaching the community level as well. Various programs have introduced affordable tools like GPS and mobile apps to coastal fishing communities, allowing fishers to communicate and report illegal activities or environmental changes to authorities in real time [23]. In Lagos, modern fiberglass boats with engines and GPS fish-finders were provided to artisanal fishers to improve their safety and extend their fishing range offshore [24]. By enabling these fishers to venture further out (and thereby reducing competition in the crowded inshore waters) while maintaining navigational safety, such technology can both improve livelihoods [25] and support compliance with inshore exclusion zones. Overall, the adoption of these technological solutions – from satellite-based vessel tracking by regulators to simple mobile communications among local fishers – is moving Nigeria's fisheries governance toward a more transparent, information-driven regime. The ongoing reforms to the Fisheries Act are expected to institutionalize many of these innovations by mandating vessel tracking, electronic catch reporting, and traceability systems, ensuring that technology use in management is sustained and backed by law.

3) Policy Reforms and Institutional Innovations

At the policy and institutional level, Nigeria is in the midst of significant reforms aimed at modernizing and strengthening fisheries governance. A cornerstone of these advances is the elevation of fisheries and ocean affairs to a higher political profile with the creation of the Federal Ministry of Marine and Blue Economy in 2023. By moving the fisheries portfolio out of the agriculture ministry into a dedicated marine ministry, the government signaled a commitment to more coordinated oversight and investment in the sustainable use of coastal and marine resources. The new ministry's remit spans beyond fisheries management to encompass the broader "blue economy" – an integrated approach linking fisheries with marine transportation, tourism, environmental protection, and climate change adaptation [26].

Under this renewed political will, Nigeria's longstanding fisheries policies and laws are being overhauled. The Sea Fisheries Act – unchanged since 1992 – is undergoing a comprehensive revision. In recent times, a national stakeholder workshop in Lagos brought together trawler owners, artisanal fisher representatives, the Nigerian Navy, academics, and officials to review a draft Fisheries Bill and a new Fisheries Management Plan [27]. Officials openly acknowledged that the existing law is outdated and inadequate – for example, it lacks clear provisions on emerging issues like climate change, ecosystem-based management, modern surveillance technologies, and appropriate penalties for illegal fishing. The impending legislation is designed to fill these gaps, aligning Nigeria's legal framework with international standards such as the FAO Code of Conduct and incorporating obligations under agreements like PSMA. Once finalized, the revised Bill is slated for fast-track approval by the Federal Executive Council, reflecting high-level commitment to establishing a stronger regulatory foundation [26]. Crucially, the new law is expected to impose significantly tougher sanctions for violations (deterrent fines and vessel forfeitures), provide legal backing for community co-management, and formalize requirements for monitoring and transparency.

In tandem with legal reform, Nigeria has formulated a new National Fisheries and Aquaculture Policy (2025–2029) that sets an ambitious course for the sector's sustainable development. This policy – developed in collaboration with international partners such as the WorldFish Center and the International Food Policy Research Institute – aims to bridge Nigeria's fish supply-demand gap through both conservation and production measures [15]. Key objectives include substantially increasing domestic fish output (for example, boosting aquaculture production to over 1.3 million metric tons by 2029 and improving yields from artisanal and industrial fisheries), reducing post-harvest losses by 50%, and enhancing fish consumption per capita to improve nutrition. Importantly, the policy emphasizes sustainability; it promotes ecosystem-based management and climate-resilient practices, such as protecting critical habitats (mangroves, estuaries) and encouraging the use of selective, eco-friendly fishing gear. It also calls for strengthening value-chain infrastructure (cold storage, processing facilities) to maximize the economic benefits of fisheries while easing pressure on wild stocks. Social inclusion is a prominent theme, as the policy seeks to empower women and youth in coastal communities with training, credit, and organizational support, recognizing their vital roles in fisheries and related enterprises. Notably, the process of crafting this policy was itself participatory; draft

policies were vetted in workshops that included government agencies, fishing industry groups, academics, and civil society, leading to a broader consensus and buy-in [17]. This collaborative approach to policy-making is a marked departure from past top-down methods and is expected to facilitate smoother implementation on the ground.

Nigeria is also exploring innovative partnerships and financing mechanisms to support these governance improvements. The government has shown openness to working with non-state actors – for instance, partnering with NGOs and community organizations for mangrove restoration, and with development agencies to fund alternative livelihood projects for fishers. Ideas such as issuing "blue bonds" or seeking carbon credits for habitat conservation are being discussed as ways to channel new resources into sustainable fisheries initiatives [28]. While still at an early stage, these efforts indicate a more creative and inclusive approach to governance, one that recognizes that government, communities, and the private sector all have roles to play in achieving sustainability.

C. Challenges to Effective Fisheries Governance

The following section addresses some challenges that undermine its potential and hinder long-term sustainability. Addressing these challenges is crucial to ensure the future viability of Nigeria's fisheries, necessitating comprehensive reforms in governance structures, stakeholder collaboration, and environmental stewardship.

1) Corruption and Mismanagement

Persistent corruption and mismanagement continue to undermine fisheries governance in Nigeria. Enforcement of regulations has often been compromised by corrupt practices – for example, bribes or political influence being used to circumvent fishing rules. There are cases of illegal operators bribing officials to ignore violations or obtain fraudulent licenses, leading to a culture of impunity. Lax penalties under the old legal regime exacerbated this problem: fines for infractions were so low (only a few hundred Naira in some cases) that offenders treated them as a trivial cost of doing business [6],[8]. This lack of deterrence, combined with weak oversight, allowed illegal, unreported, and unregulated fishing to proliferate in many areas.

Institutional weaknesses and under-resourcing have also contributed to mismanagement of the fisheries. For years, the fisheries administration lacked the manpower and equipment for adequate surveillance – patrol boats went without fuel, and many coastal areas saw little to no enforcement presence. Data collection and research were similarly neglected due to funding constraints, meaning decisions were not always evidence-based. Regulations were not regularly updated to respond to changing conditions, and coordination among agencies (for example, between fisheries officers, navy, and police) was often poor [29]. These gaps in governance capacity meant that even well-intentioned policies on paper were not effectively implemented in practice.

Addressing these issues is critical to any successful reform. The current governance improvements – such as overhauling the legal framework to include tougher sanctions and closing loopholes – are partly aimed at reducing opportunities for corruption. Likewise, moving fisheries oversight to a dedicated ministry and allocating more resources for enforcement and monitoring are steps intended to improve accountability. However, achieving real change will require continued political will and a "zero tolerance" approach to corruption at all levels. This could include instituting independent audits of fisheries enforcement, increasing transparency (for instance, publicly reporting arrests and violations), and ensuring that officials who violate trust are sanctioned. Building a professional, well-equipped fisheries management corps – with proper incentives and training – is also essential to eliminate the mismanagement of the past. In summary, curbing corruption and mismanagement is a foundational challenge: without progress on this front, other governance improvements may yield only limited results.

2) Limited Stakeholder Engagement and Compliance

Another major challenge has been the historically limited engagement of stakeholders – especially artisanal fishers and coastal communities – in formal governance, which has led to gaps in compliance and trust. For decades, fisheries regulations in Nigeria were largely formulated and enforced in a top-down manner. Small-scale fishing communities had little to no say in setting rules like catch limits or seasonal closures, even though these rules directly affected their livelihoods [29]. This lack of inclusion often resulted in resentment or apathy; many local fishers did not buy into the legitimacy of regulations that they saw as imposed from above, and thus felt less compelled to follow them.

A related issue is the poor communication and awareness surrounding fisheries rules. In numerous coastal villages, fishers have been inadequately informed about official regulations or the reasons behind them. Extension services were limited, and language or literacy barriers meant that many artisanal fishers did not fully understand policies that were written in English or bureaucratic terms. Consequently, non-compliance sometimes arose simply from ignorance of the law or misunderstandings, rather than deliberate defiance.

Trust between local communities and government authorities has been weak as well. In some regions – notably the Niger Delta – there is deep-rooted distrust due to a history of neglect and environmental harm (such as oil pollution) that communities attribute to government or outside companies [4]. Fishers in these areas often doubt that officials have their best interests at heart. A striking example is that many Niger Delta fishers prefer to rely on the military Joint Task Force for dealing with illegal fishing or security issues, rather than local fisheries officers, because they perceive the latter as ineffective or corrupt. When fishers lose faith in the authorities meant to regulate them, they are more likely to take matters into their own hands or ignore regulations altogether.

Improving stakeholder engagement is therefore both a challenge and a necessity. The recent moves toward co-management and involving fishers in decision-making (discussed earlier) aim to mend this rift, but changing long-established attitudes will take time. In the interim, focused

efforts are needed to build trust. This includes ensuring that new regulations are seen to apply equally to all (for instance, that industrial vessels are truly kept out of the inshore artisanal zone). It also involves better communication; translating rules into local languages, utilizing community radio and meetings to explain policies, and demonstrating how sustainable practices will benefit communities in the long run. The government must show responsiveness to local concerns – for example, by providing alternative livelihoods or compensation when conservation measures restrict fishing activities. Over time, as fishers see that their knowledge is valued and their input has real impact on policy, their willingness to comply with regulations should increase. In short, fostering genuine participation and partnership with stakeholders is an ongoing challenge, but it is essential for improving compliance and making governance measures on paper work in reality.

3) Environmental and Climate Challenges

Nigeria's coastal fisheries are also challenged by environmental degradation and climate change; factors largely outside the direct scope of fisheries management, yet profoundly affecting its outcomes. Decades of habitat destruction and pollution have severely impacted the coastal and marine ecosystems that fish depend on. In the Niger Delta, for instance, widespread oil exploration and spills have devastated mangrove forests and estuaries, which serve as crucial nursery grounds for many fish and shellfish. These mangroves – the largest in Africa – have been reduced and contaminated, leading to declines in species that breed or feed in them. Additionally, industrial pollution (such as untreated sewage and chemical runoff) and solid waste have degraded water quality along Nigeria's coast, contributing to fish kills and the loss of sensitive habitats. Human development activities like dredging, sand mining, and land reclamation for urban and infrastructure projects have further altered coastal landscapes and water flows, often to the detriment of fisheries. Vital breeding areas – lagoons, floodplain pools, seagrass beds – have been drained or eroded in some locations [30].

Within the fisheries sector, certain unsustainable practices have compounded the ecological stress. The use of dynamite or poison for fishing, although illegal, has occurred sporadically in the past, causing significant damage to coral reefs and river ecosystems. However, a more widespread issue is the use of undersized mesh nets, which capture juvenile fish before they have the chance to reproduce. In certain communities, the practice of catching small fish or shrimp for immediate profit has become common, jeopardizing future fish stocks. These practices, driven by economic need and lack of enforcement, pose a serious challenge to sustaining fisheries yields.

Climate change is an emerging threat multiplier on top of these existing issues. The Nigerian coast is experiencing changes that affect fisheries: rising sea levels and coastal erosion are shrinking estuarine nursery areas and inundating some fishing communities; changing ocean temperatures and currents are shifting the distribution and seasonality of fish stocks (fishermen report that some species have become harder to find or now migrate at different times); and more frequent extreme weather events (heavy storms, floods) are damaging fishing infrastructure and making offshore fishing more dangerous [5], [31]. Coastal communities have noted irregular rainfall and storm patterns that disrupt traditional fishing calendars. The overall effect is increased uncertainty as fishers can no longer rely on historical patterns to predict resource availability, complicating management efforts.

These environmental and climate challenges greatly complicate governance because they require solutions beyond the fisheries sector alone. Even the best fisheries regulations cannot by themselves restore a fishery if the habitat is destroyed or the broader environment is deteriorating. Therefore, an integrated approach is needed. Nigeria will have to link its fisheries governance with stronger environmental protection measures – for example, enforcing anti-pollution laws, rehabilitating mangroves (which can be a win-win by storing carbon and boosting fish nurseries), and regulating coastal development through an Integrated Coastal Zone Management (ICZM) framework. Likewise, climate adaptation strategies must be incorporated: this could include developing early-warning systems and shelter infrastructure for fishing communities to cope with storms, or promoting livelihood diversification (such as aquaculture or value-added fish processing) to reduce vulnerability when wild catch is low. On the management side, flexible and adaptive regulations (like dynamic seasonal closures that can adjust based on climate conditions each year) may be required as climate impacts intensify. In sum, environmental degradation and climate change present formidable challenges that lie at the intersection of multiple governance domains. Tackling them will require multi-sector collaboration and long-term planning, but doing so is crucial – otherwise, gains made in fisheries management could be nullified by external environmental shocks.

D. Examples of Governance Initiatives

1) Governance Challenges in Lagos State

Lagos State – Nigeria's most urbanized coastal region – illustrates the difficulties of managing fisheries amid intense development pressures. The state's fisheries authorities (a Fisheries Unit under the Ministry of Agriculture [32]) oversee artisanal and coastal fishing within Lagos waters and have introduced measures such as seasonal closures. On paper, these strategies aim to conserve fish stocks and habitats. In practice, however, Lagos's rapid urban expansion and pollution have continued to undermine the sustainability of its fisheries. Coastal development projects – from land reclamation for housing estates to port construction – have led to the clearance of mangroves and disruption of tidal wetlands, directly eliminating important breeding and nursery areas for fish and shrimp [33]. Industrial and domestic pollution in metropolitan Lagos further degrade water quality in lagoons and nearshore areas, contributing to fish stock declines [34]. Artisanal fishers in Lagos also face competition and gear conflicts with larger commercial vessels. Despite regulations reserving the first five nautical miles for small-scale fishers (Sea fisheries Act, 1992), illegal incursions by industrial trawlers are a recurring problem, in part due to enforcement challenges. These trawlers not only capture fish that local communities depend on but often damage

artisanal nets in the process. Meanwhile, the commercialization of the Lagos waterfront has in some cases displaced traditional fishing communities from their landing sites – for example, land reclamation for upscale real estate in some coastal parts of Lagos has resulted in fisherfolk losing access to the shore without adequate resettlement [35], [36].

Overall, the Lagos case underscores that fisheries governance cannot succeed in isolation from broader land-use planning and environmental management. Even though Lagos State has a comprehensive fisheries policy and is relatively better resourced than other states, its coastal fisheries continue to decline because rules on paper are overwhelmed by the reality of habitat loss and urbanization. Effective governance in such a context will require harmonizing fisheries objectives with urban development plans – for instance, carving out and protecting remaining critical habitats (like portions of mangrove creeks) from further development, and strictly enforcing pollution control in industries [37]. Lagos is beginning to move in this direction by engaging environmental agencies and urban planners in dialogues about the marine ecosystem. Additionally, efforts to involve local fishing communities in decision-making are underway, so that policies are better tailored to on-the-ground conditions. Without such integrated and participatory approaches, however, the experience of Lagos shows that local fisheries measures may have limited impact.

2) Collaborative Management in Cross River State

In contrast to Lagos, Cross River State presents a more promising example of governance innovation through effective stakeholder collaboration in fisheries management. Cross River's coastal fisheries, which include estuaries and nearshore waters along the Atlantic, have historically supported numerous small-scale fishing communities. However, by the mid-2010s, serious concerns arose about overfishing, declining catches, and tensions between artisanal fishers and industrial shrimp trawlers operating near the coast. In response, the Government of Cross River State, in collaboration with the United Kingdom Partnership for Climate Transition (UK-PACT), launched the Aquaculture Livelihood Support Project for Mangroves and Fisheries-Dependent Communities in the Southern Senatorial Districts, specifically targeting Esuk Mba-Akpabuyo Local Government Area [38]. This project represents a shift toward co-management and alternative livelihood programs aimed at reducing the pressure on natural resources. By partnering with international organizations such as the Food and Agriculture Organization [39], Cross River State has implemented initiatives that focus on sustainable mangrove management and strengthening the value chain within fishing communities. These programs aim to decrease reliance on mangroves for fishing and fuel, empower women and youth, and ensure long-term economic and environmental sustainability.

The co-management approach in Cross River has yielded several positive outcomes, particularly in terms of both ecological and social improvements. By empowering local communities and sharing management responsibilities, the approach has led to a more predictable and equitable fishing environment. Fishers now report increased confidence in the enforcement of rules and greater involvement in decision-making processes. Early evidence suggests a recovery in commercially important species such as croakers and shrimp, with reduced destructive fishing practices contributing to this positive shift [39].

Collaborative management is not a one-size-fits-all solution and must be tailored to local contexts, Cross River's experience offers a compelling proof of concept. It underscores the significance of trust-building and collaboration between government authorities and local communities. By ensuring that all stakeholders have a stake in rule-making and enforcement, Cross River has demonstrated that fisheries governance can be more effective, resilient, and sustainable.

E. Policy Recommendations for Improvement

Building on the analysis above, several key actions are recommended to consolidate recent progress and address the remaining challenges in Nigeria's coastal fisheries governance:

1) Strengthening Legal Frameworks

a. Finalize and Implement the Fisheries Law Reform

Enacting the revised Fisheries Act should be treated as a national priority. The new law must introduce robust provisions for sustainable management; including stricter penalties for illegal fishing, clear jurisdictional roles, and requirements for monitoring and reporting – and these provisions should be enforced without exception. In particular, significantly increase fines and sanctions to deter IUU fishing (e.g. empower courts to impose hefty fines well above the economic gain from illegal catches, and to seize vessels for egregious offenses). Strengthening the legal framework also means legally empowering co-management: the law should formally recognize community-based management plans or committees and integrate them into the governance structure, so that local rules have legal standing and communities have defined rights and responsibilities in management. Furthermore, ensure that Nigeria's international commitments (such as the PSMA and other relevant treaties) are fully incorporated into domestic regulations – for example, make it a legal requirement that foreign fishing vessels document their catches and comply with PSMA protocols before using Nigerian ports.

b. Boost Enforcement Capacity and Coordination Under the New Legal Framework

Laws on paper will only be effective if enforcement improves. The government should invest in a dedicated fisheries enforcement unit, such as designating a specific division within the newly formed Coast Guards [40] or strengthening the existing unit by providing more patrol vessels, surveillance equipment (radar, satellite Vessel Monitoring Systems), and training for officers. Clear accountability measures must be embedded within the enforcement process. Each officer's responsibilities should be clearly defined, and their performance monitored regularly to ensure transparency and reduce corruption. Enhanced inter-agency coordination is essential: establish formal collaboration mechanisms (e.g., joint task forces or information-sharing platforms) linking the Navy, Marine Police, and fisheries inspectors, so they can work together on coastal patrols and

crackdown operations. The legal framework should clarify each agency's enforcement powers to avoid gaps or overlaps, and also include clear procedures for oversight and accountability to ensure that agencies operate in a coordinated and efficient manner. Additionally, consider setting up special courts or legal processes for fisheries and environmental cases—this could expedite the prosecution of violators and ensure that judges handling these cases are knowledgeable about fisheries issues. As part of capacity-building, anti-corruption measures within enforcement agencies are critical. For instance, the rotation of enforcement personnel to different posts could prevent collusive relationships, while strict penalties for officers caught taking bribes will reinforce ethical standards. By solidifying the law and pairing it with a well-resourced, transparent enforcement system, Nigeria can create a governance environment where illegal fishing and mismanagement are much less likely to thrive.

2) Enhancing Stakeholder Participation

a. Institutionalize Co-Management and Stakeholder Inclusion at All Levels of Governance

Building on the positive steps already taken, Nigeria should formally establish co-management committees or advisory councils that include stakeholder representatives. At the community level, support the formation of local fisheries management committees that involve traditional leaders, active fishers (men and women), fish processors, and local government officials. These committees can be tasked with developing local plans (e.g. rules on mesh sizes, seasonal closures adapted to local ecology) which, once vetted for consistency with national laws, could be recognized by authorities. At state and national levels, create forums or councils where artisanal and industrial fishing representatives, scientists, and government regulators regularly meet to discuss management decisions. For instance, a National Small-Scale Fisheries Advisory Council could be formed under the new ministry, ensuring that policymaking at the top includes voices from coastal communities.

b. Improve Education, Communication, and Mutual Trust

To bring stakeholders into the governance process as true partners, efforts must be made to educate and inform. Expand outreach programs that translate fisheries science and regulations into local dialects and user-friendly formats. Fisheries officers (possibly in partnership with NGOs or cooperative leaders) should hold periodic community meetings to explain new policies, answer questions, and gather local feedback. This two-way communication helps demystify regulations and gives communities a sense that their concerns are heard. Incorporating traditional knowledge – for example, inviting elder fishers to share observations on environmental changes or historical fishing patterns during planning meetings – can both enrich management and validate the role of local stakeholders. Additionally, strengthen and legalize the role of fishers' cooperatives and unions. These groups, if empowered, can serve as bridges between government and fishing communities, helping disseminate information and encouraging compliance among their members.

Active stakeholder participation also helps in conflict resolution. As recommended by stakeholders themselves, establishing grievance redress mechanisms is important. This could be as simple as a committee at the local or state level that mediates disputes (such as those between trawlers and artisanal fishers) or handles complaints about enforcement behavior. Knowing there is a fair forum to resolve issues can reduce tension and encourage people to follow due process rather than resorting to confrontation. Finally, build the capacity of stakeholder representatives so they can engage effectively. This might involve training community members in leadership skills, basic fisheries management concepts, and participatory decision-making techniques. When stakeholders are well-prepared, their input in governance is more constructive and the partnership with government becomes more equal. In summary, enhancing participation means not only giving stakeholders a seat at the table, but also ensuring they are informed, capable, and genuinely influential in the decisions that affect their lives.

3) Integrating Traditional Knowledge and Practices

a. Utilize Indigenous Knowledge and Customary Practices in Management Strategies

Many coastal communities in Nigeria have traditional practices that historically helped conserve resources – for example, some communities observe sacred days when fishing is not allowed, or protect certain species they consider culturally important. Rather than disregarding these practices, governance strategies should seek to integrate them where appropriate. Conduct participatory research to document local ecological knowledge: elders and experienced fishers often know spawning areas, seasonal migration patterns, or signs of stock stress that scientific surveys might miss. This information can improve management measures (for instance, identifying key nursery habitats that should be designated as protected areas).

b. Incorporate Traditional Management Measures into Formal Regulation

If a community has a longstanding rule, such as a seasonal ban during fish breeding months, the government can support it by providing legal backing or resources (like monitoring assistance or community education during the closure). By aligning formal regulations with sustainable aspects of customary systems, compliance is likely to be high because the community already believes in the practice. The new fisheries policy should explicitly include provisions to respect and integrate customary use rights – for instance, acknowledging traditional fishing zones that communities manage and ensuring that development projects or commercial licenses do not infringe on these zones without consultation. Moreover, involve traditional authorities in enforcement and outreach. Village chiefs or clan heads often command respect and can be powerful allies in encouraging rule adherence. Some communities have successfully operated volunteer "river guards" or analogous groups who, with the blessing of local leaders, discourage outsiders from illegal fishing in their waters. Formal governance can recognize these groups (even provide them with basic training or support) and channel their efforts into the wider enforcement network. Culturally, showing

respect for traditional practices builds goodwill and trust, which, as noted, is essential for any governance success. This integration of traditional and scientific management approaches creates a more holistic framework – one that is culturally attuned, locally accepted, and reinforced by generations of experience. It's also a way to preserve valuable cultural heritage within the management of modern fisheries. Going forward, Nigeria should aim for a management regime where data from modern science and data from traditional observation both inform decisions, and where laws protect not only fish stocks but also the rights and stewardship roles of the communities that have historically depended on those stocks.

Each of these recommendations – strengthening legal frameworks, deepening stakeholder participation, and integrating traditional knowledge – is interrelated and mutually reinforcing. Together, they provide a roadmap for building a governance system that is robust, inclusive, and adaptive. By updating and enforcing laws, involving the people who depend on the resources, and drawing on time-tested local wisdom, Nigeria can create the enabling conditions for sustainable coastal fisheries. Implementing these changes will require continued commitment, capacity-building, and perhaps most importantly, the patience to allow new governance arrangements to take root. The reward, however, will be well worth it healthier fish populations, improved livelihoods for coastal communities, and the safeguarding of a vital resource for future generations.

3. Conclusion

Nigeria's coastal fisheries are at a pivotal turning point. The recent governance reforms – new policies, laws, institutions, and technologies – offer an opportunity to reverse the decline of fish stocks and secure the benefits these fisheries provide. Moving forward, it is crucial for Nigeria to maintain momentum in implementing these reforms. The new Fisheries Act and Policy must be backed by action on the ground – from better enforcement in the creeks and along the coast, to ongoing dialogue and collaboration with those who rely on the sea. Continuous monitoring and evaluation should accompany these efforts so that strategies can be refined in response to what works and what doesn't.

Sustainable fisheries governance is an ongoing process, not a one-time achievement. As climate change and economic pressures evolve, Nigeria's governance structures will need to remain flexible and forward-thinking. Strengthening regional cooperation through bodies like the FCWC and ECOWAS can amplify Nigeria's efforts, since fish populations and fishing fleets cross national boundaries. Domestically, fostering a culture of compliance and stewardship – where all stakeholders understand the long-term stakes and cooperate to protect fisheries – is perhaps the most important goal. If these efforts continue, Nigeria can set its coastal fisheries on a path to recovery and resilience. In doing so, the country will secure vital nutrition and livelihoods for its people, preserve marine biodiversity in its waters, and contribute to the wider goal of a sustainable blue economy. The progress made thus far is encouraging; with sustained effort and commitment, Nigeria's coastal fisheries can become a success story of how governance innovation leads to ecological and economic renewal.

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