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Implementation of the FAO Port State Measures Agreement in Combating IUU Fishing in West Africa: The Case of Nigeria

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Abstract

Illegal, Unreported, and Unregulated (IUU) fishing threatens marine resources, food security, and governance in West Africa, where an estimated 37% of fish harvests are illicit. The FAO Port State Measures Agreement (PSMA), adopted in 2009, is the first binding international treaty to combat IUU fishing by restricting port access, mandating inspections, and promoting information sharing. Nigeria's accession in October 2022 was a milestone for regional compliance, closing a critical enforcement gap within the Fisheries Committee for the West Central Gulf of Guinea (FCWC). This study applies a governance implementation framework, grounded in institutional and compliance theory, to assess Nigeria's progress through legal alignment, institutional capacity, and operational readiness. Content analysis of legislation, policy documents, and institutional arrangements shows early reforms, including a draft Fisheries Bill, designation of entry ports, and pilot inspections. However, significant challenges remain: outdated laws, limited inspectorate resources, fragmented interagency coordination, and weak integration with FAO's Global Information Exchange System (GIES). Nigeria is therefore positioned as a proactive but capacity-limited PSMA Party. Sustained reforms, institutional investment, technological modernization, and stronger regional cooperation are essential to operationalize commitments, strengthen fisheries governance, and enhance West Africa's deterrence against IUU fishing.

Keywords: Fisheries, port, illegal, unreported, inter-agency.

INTRODUCTION

Illegal, Unreported, and Unregulated (IUU) fishing is a persistent global challenge that undermines marine conservation, fisheries governance, and food security (ATLAFCO/COMHAFAT, 2018). It is estimated that IUU fishing accounts for 11–26 million tonnes of catch annually, valued between US$10–23.5 billion, representing almost one-fifth of the global fish harvest (Stop Illegal Fishing, 2019). The impacts extend beyond ecological degradation to economic and social dimensions, threatening livelihoods, destabilizing domestic markets, and eroding the sustainability of fish stocks (Widjaja et al., 2020). West Africa has emerged as one of the regions most severely affected by IUU fishing. Studies suggest that up to 37% of fish caught in the region may be unauthorized, leading to annual economic losses estimated at US$9 billion (Alfonso et al., 2022). This not only weakens artisanal fishing enterprises but also undermines food and nutritional se-

curity in coastal communities dependent on small pelagic species, which are dietary staples for millions of people. Ecologically, IUU fishing accelerates biodiversity loss, reduces stock recovery, and disrupts ecosystem resilience, deepening the region's vulnerability (FAO 2004).

The transboundary nature of IUU fishing complicates mitigation efforts, as rogue vessels exploit maritime boundaries, weak governance, and regulatory loopholes (Petrossian & Pezzella, 2022). Recognizing this, the Food and Agriculture Organization (FAO) adopted the Agreement on Port State Measures (PSMA) in 2009, which entered into force in 2016 (FAO 2016a). The PSMA is the first legally binding international treaty dedicated exclusively to combating IUU fishing. Its central strategy is to deny port access and services to offending vessels, thereby preventing illicit catches from entering legal markets (FAO 2022a). Member States are obligated to adopt measures such as prior vessel notification, standardized inspections, denial of port services in cases of violations, and inter-State information sharing (Pew 2017). These mechanisms directly address the economic incentives driving IUU fishing while reducing opportunities for illicit landings.

Nigeria's accession to the PSMA in October 2022 marked a pivotal step in regional fisheries governance. As Africa's most populous nation and a major coastal State with one of the continent's largest fish markets, Nigeria's ports are critical in the West African fight against IUU fishing (SIF 2022a). Its accession closed a significant enforcement gap, aligning the country with regional and global frameworks while contributing to Sustainable Development Goals (SDG 14: Life Below Water; SDG 2: Zero Hunger; and SDG 16: Peace, Justice, and Strong Institutions). However, accession alone is insufficient. Effective implementation requires comprehensive legal reforms, institutional coordination, adequate inspection capacity, and sustained regional collaboration (Okafor-Yarwood, 2020).

Despite the PSMA's global significance, limited empirical work has examined its operationalization in West Africa, and Nigeria in particular. Existing literature has largely emphasized the treaty's normative and global ambitions (Okafor-Yarwood, 2020; Petrossian & Pezzella, 2022), with less focus on practical implementation challenges in resource-constrained contexts. This study addresses this gap by critically assessing Nigeria's PSMA implementation, focusing on domestic enforcement, institutional capacity, and regional cooperation. Anchored in institutional and compliance theories (Scott, 2014; Tallberg, 2002), it contributes to understanding how international agreements are domesticated in developing countries. The findings hold strong policy relevance, offering evidence-based recommendations to strengthen Nigeria's role in regional fisheries governance and contribute to the global fight against IUU fishing.

Study Method

The study employs a qualitative content analysis of legal, policy, and institutional documents related to Nigeria's fisheries governance and its accession to the PSMA. This includes an examination of national legislation, regulatory frameworks, official government reports, and international policy instruments. The analysis is complemented by an institutional review, focusing on the roles, mandates, and coordination mechanisms of relevant enforcement agencies. Together, these approaches enable a systematic assessment of policy intent, legal alignment, and institutional capacity, providing a comprehensive understanding of Nigeria's progress and challenges in implementing the PSMA.

The analysis is anchored in a governance implementation framework, which is particularly appropriate for this case as it emphasizes the interplay between legal alignment, institutional capacity, and operational readiness. This framework provides a structured lens for assessing how Nigeria translates its PSMA commitments into practice. By situating the study within a multi-level gover-

nance perspective, the method captures the interdependence of national, regional, and international enforcement dynamics, an essential consideration for addressing a transboundary challenge such as IUU fishing.

IUU Fishing in West African Waters

West African waters are widely recognized as a global epicenter of IUU fishing, experiencing some of the highest levels of unauthorized exploitation of fish stocks worldwide (Alfonso et al., 2022). The region's abundant fisheries, such as, tuna, sardines, demersal species, and shrimp; attract fleets from across the globe, while enforcement capacity across vast maritime areas has historically remained weak (FAO, 2011). A 2018 analysis estimated that about 40% of all global IUU fishing incidents occur in West Africa, with approximately 37% of fish harvested in the region being illicit or unreported (Alfonso et al., 2022). These activities are believed to cost West African economies up to USD 9.4 billion annually when illicit trade and related impacts are considered. Countries such as Ghana, Senegal, Nigeria, Sierra Leone, and Liberia are among the hardest hit, as IUU fishing undermines legitimate livelihoods and depletes pelagic stocks that are central to food security.

West African waters remain particularly vulnerable to distant-water fleets from Europe and East Asia engaging in non-compliant night-time fishing, misreporting of catches, and unauthorized transshipment at sea, as well as regional industrial vessels that encroach on closed areas or artisanal zones (SIF et al., 2017).

The persistence of IUU fishing is driven by structural factors: limited budgetary allocations for at-sea patrols, staffing shortages, inadequate inspection equipment, and the absence of digital integration with systems such as the Global Information Exchange System (GIES). These challenges are compounded by weak governance, regulatory loopholes, and instances of corruption, which create space for non-compliant operators (Paes, 2022). Nigeria exemplifies these vulnerabilities. Its waters have long suffered incursions by foreign trawlers and unauthorized industrial operators, while enforcement agencies operate with chronic resource constraints (Agbeja, 2016). In 2021, the IUU Fishing Index ranked Nigeria among the worst-performing countries globally, placing it in the bottom tier for both exposure to IUU fishing and effectiveness of response (Global Initiative Poseidon, 2021). This ranking underscore Nigeria's vulnerability and the inadequacy of its control measures. Given that nearly one-third of West Africa's total fish catch is lost to IUU fishing, robust implementation of port State measures is widely regarded as one of the most cost-effective strategies to dismantle "safe havens" for illicit landings. Denying port access to non-compliant or unauthorized vessels, enforcing standardized inspections, and enhancing regional information-sharing are critical steps to strengthen deterrence capacity.

Adoption of the PSMA in West Africa: The Case of Nigeria West African nations have increasingly turned to the FAO Port State Measures Agreement (PSMA) as a strategic response to fisheries crises. By 2022, most coastal states in the region had become Parties to the Agreement, committing to harmonized port controls. Within the Fisheries Committee of the West Central Gulf of Guinea (FCWC); comprising Ghana, Togo, Liberia, Benin, Côte d'Ivoire, and Nigeria; all six countries had ratified or acceded to the PSMA.

Nigeria's accession in October 2022, as the 73rd Party globally and the 27th African State, was particularly significant. Prior to this milestone, Nigeria represented a major gap in regional port coverage, as illicit catches could be redirected to its ports when neighboring states denied access. With Nigeria's accession, experts observed that it would become far more difficult for IUU operators to exploit regulatory inconsistencies, as port denial in one FCWC state would now effectively apply across the subregion (SIF, 2022a). Table 1 presents the timeline of PSMA participation among FCWC members.

Table 1: Fisheries Committee for the West Central Gulf of Guinea (FCWC) Countries' Participation in the PSMA (as of 2022).

Country	PSMA Ratification/Accession
Ghana	Nov 2016 (Party)
Togo	Dec 2016 (Party)
Liberia	May 2019 (Party)
Benin	June 2019 (Party)
Côte d'Ivoire	Sep 2019 (Party)
Nigeria	Oct 2022 (Party)

Source: FCWC, 2022a; SIF, 2022a.

Beyond FCWC states, other West African nations such as Senegal, Sierra Leone, The Gambia, and Cape Verde have also become PSMA Parties (FAO, 2016c). This broad uptake reflects an emerging regional consensus on port State measures as a cost-effective deterrent. However, ratification is only the first step; sustained impact depends on effective domestic implementation; an area where Nigeria's performance remains at an early stage.

Implementation of the PSMA in Nigeria

This study applies a governance implementation framework, incorporating a multi-level governance perspective to assess institutional coordination, operational capacity, and compliance mechanisms. Nigeria's PSMA implementation requires concerted action across multiple agencies and governance levels, making institutional effectiveness central to achieving meaningful outcomes. These dimensions are informed by institutional theory, which emphasizes how rules and structures confer legitimacy, and by compliance theory, which underscores how institutional authority and enforcement design shape adherence to international agreements (Scott, 2014; Tallberg, 2002).

As Africa's most populous country, with an 853 km coastline and a large exclusive economic zone (EEZ), Nigeria plays multiple roles in fisheries governance; as a coastal State, flag State, port State, and market State. Effective implementation of the PSMA is therefore particularly critical. Not only do foreign fishing vessels call at Nigerian ports, but the country's high demand for fish, much of it met through imports of pelagic species, creates additional vulnerabilities, making Nigeria an attractive target for the landing of illicit catches (SIF, 2022b).

• Legal Alignment Upon accession, Nigeria initiated a review of its domestic fisheries legislation to ensure consistency with PSMA requirements. The principal law, the Sea Fisheries Act of 1992, is outdated and does not provide for modern Monitoring, Control, and Surveillance (MCS) systems or port State measures. In response, a new Fisheries Bill was drafted in 2022 to replace the 30-year-old law. This bill (still under parliamentary debate) incorporates PSMA provisions such as mandatory inspections, advance vessel notifications, and enhanced penalties for IUU fishing infractions, thereby laying the foundation for domestication of the Agreement (EFD, 2022). In parallel, Nigeria has introduced complementary administrative measures, including a Vessel Monitoring System (VMS) and requirements for Bycatch Reduction Devices (BRDs) and Turtle Excluder Devices (TEDs) in trawl fisheries (FCWC, 2022b). These initiatives represent incremental progress toward aligning national fisheries governance with international best practices.

• Institutional Capacity Nigeria's PSMA implementation hinges on effective inter-agency

coordination. Under Article 7 of the PSMA, Parties are required to designate specific ports for foreign vessel entry (FAO, 2016a). Nigeria has advanced plans to designate Apapa (Lagos) and Port Harcourt as official entry points, a step that signals political commitment to enforcement. The Federal Department of Fisheries (FDF), under the Federal Ministry of Agriculture and Rural Development, is mandated to lead inspections, while enforcement measures such as vessel detention or denial of entry depend heavily on the support of the Navy and Marine Police. Customs and Immigration officers play complementary roles in verifying vessel documentation and crew credentials, while the Nigerian Maritime Administration and Safety Agency (NIMASA) and Port Authorities oversee broader maritime operations.

To formalize this collaboration, an Inter-Agency National Working Group (NWG) on IUU fishing has been proposed as a central platform for coordination (NIMASA, 2021). However, the absence of clear mandates, standardized operating procedures (SOPs), and reliable budgetary support has constrained institutional effectiveness. These gaps underscore that while Nigeria has signaled commitment to PSMA implementation, stronger inter-agency frameworks remain essential for operational coherence.

• Operational Readiness Despite accession in October 2022, Nigeria's PSMA operationalization remains at an early stage. A fully functional Advance Request for Entry into Port (AREP) system had not been established at the time of accession, leaving vessels to rely on non-standardized entry protocols without regulatory backing. This weakens inspectors' ability to conduct risk-based assessments prior to port entry. Similarly, dedicated fisheries monitoring units and inspection facilities at Apapa and Port Harcourt ports had not yet been set up, limiting the effectiveness of port controls.

Capacity-building efforts are underway. Nigeria has begun conducting initial inspections of foreign fishing vessels under the PSMA framework. Though modest, these served as experiential training for inspectors. To support these efforts, technological tools such as Vessel Viewer, a mobile application developed by TM-Tracking, have been introduced. This system integrates vessel identity, flag, ownership, and tracking history using AIS and VMS inputs, providing inspectors with better data for risk-based inspections. Regional training programs have also helped familiarize officers with digital tools and inspection protocols (SIF, 2022b).

A critical gap lies in data management and information-sharing. Inspection reports, vessel records, and photographic evidence remain fragmented across paper files and unlinked databases, slowing analysis and follow-up. Nigeria has yet to integrate fully into the FAO Global Information Exchange System (GIES), the central platform for sharing PSMA inspection results and alerts on IUU vessels. Without real-time data exchange, responses to suspicious vessels are delayed and repeat offenders may exploit loopholes (SIF, 2022c; per. com. FDF, 2022). Recognizing this vulnerability, Nigeria is collaborating with FAO to join GIES while also developing a national PSMA information system. Figure 1 illustrates Nigeria's institutional process for PSMA implementation.

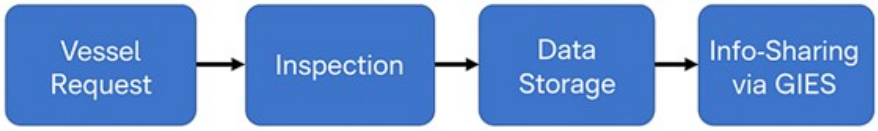

Figure 1: Nigeria's Institutional process for PSMA

Enforcement Challenges and Capacity Gaps

Nigeria's enforcement challenges mirror those common across developing states, but are compounded by domestic governance limitations. Inspection coverage at ports remains far below the PSMA's recommended minimum threshold (ADF, 2021), primarily due to a shortage of trained inspectors and competing administrative responsibilities. Inspection quality is also inconsistent: preparation is often inadequate, documentation incomplete, and evidence handling unreliable. Unless addressed through structured training, standardized checklists, and reporting templates, these weaknesses could erode the credibility of Nigeria's inspection regime.

Stakeholder compliance has posed difficulties as well. Vessel agents, fishing companies, and port officials have been slow to adapt to new requirements such as advance entry requests and mandatory inspections. While communication and awareness campaigns have begun, sustained outreach is needed to ensure compliance across the sector.

A further risk lies in corruption and undue influence, a challenge widely reported across West Africa. Operators may attempt to bribe officials to overlook violations, undermining enforcement credibility. Mitigation measures include rotating inspection personnel, enhancing accountability mechanisms, and embedding transparency measures into port operations. Innovative practices, such as piloting body-worn cameras during inspections, could also enhance accountability. Encouragingly, Nigeria's fisheries authority has acknowledged these risks and signaled intent to integrate anti-corruption safeguards into broader governance reforms.

Taken together, these challenges highlight that Nigeria's PSMA implementation, though politically endorsed, requires significant improvements in infrastructure, personnel training, and transparency mechanisms before it can serve as an effective tool against IUU fishing. Nonetheless, Nigeria's accession and early reforms position it among the more proactive states in the region as of 2022, with potential to consolidate a leadership role if implementation gaps are addressed. Table 2 summarizes Nigeria's progress across six core PSMA implementation areas, highlighting both institutional advancements and ongoing operational gaps.

Comparative Experiences

Comparative experiences from other PSMA Parties provide useful benchmarks for Nigeria as it consolidates implementation. Namibia was among the early African adopters of the PSMA and has consistently invested in strengthening Monitoring, Control, and Surveillance (MCS) capacity. By 2020, Namibia had already designated ports for foreign fishing vessels, embedded observer schemes, and tied licensing systems directly to port inspection procedures (Namibia SDGs VNR Report, 2021; Cremers et al., 2021). The country also integrated catch documentation schemes into its enforcement system, ensuring that port inspections were backed by verifiable information on catch origin and legality. This combination of structural reforms and transparent monitoring demonstrates how effective port controls can be embedded within broader fisheries governance frameworks. For Nigeria, Namibia's experience highlights the importance of linking port State measures to licensing and documentation systems, and ensuring that observers play a role in verifying compliance.

On a global level, Norway represents a best-practice model. As one of the earliest ratifiers of the PSMA, Norway developed a comprehensive risk-based inspection regime supported by its Directorate of Fisheries and Coast Guard. By 2018, Norway had fully operationalized mandatory advance notification requirements, digitalized inspection reporting, and systematic coordination with regional fisheries management organizations (RFMOs) such as NEAFC (NFD, 2018; Hutniczak et al., 2019). Norwegian enforcement agencies

now conduct hundreds of vessel inspections annually, targeting high-risk vessels identified through intelligence and coordination with EU partners. The Norwegian model shows how digital integration, real-time information-sharing, and intelligence-led enforcement can transform port State measures into an effective deterrent against IUU fishing.

For Nigeria, these comparative experiences illustrate feasible pathways: • From Namibia, the lesson is to embed port controls within national licensing and catch documentation systems, ensuring traceability and transparency. • From Norway, the lesson is to institutionalize risk-based inspections, digital reporting, and regional coordination so that enforcement resources are deployed efficiently and consistently.

Policy Implications

Nigeria's accession to the PSMA in 2022 closed a major gap in the Fisheries Committee for the West Central Gulf of Guinea (FCWC) region, but the country's progress across legal, institutional, and operational dimensions remains uneven. The policy implications are twofold: First, domestic reforms must be accelerated. Swift passage of the new Fisheries Bill is essential to give inspectors clear legal authority and to codify PSMA provisions such as advance port entry requirements, inspection mandates, and sanctions for non-compliance. Investments in inspection infrastructure; dedicated monitoring units at Apapa and Port Harcourt, cold storage facilities, and digital reporting systems are needed to translate legal commitments into operational capacity. In parallel, structured training programs, peer-learning with experienced PSMA countries, and anti-corruption safeguards will strengthen enforcement credibility. Second, Nigeria must deepen regional and international cooperation. With all FCWC members now party to the PSMA, there is an opportunity to harmonize denial-of-entry protocols and coordinate joint inspections. Active engagement in the West Africa Task Force (WATF), collaboration with INTERPOL and FAO, and integration into global systems such as the FAO Global Information Exchange System (GIES) will ensure that Nigeria not only benefits from shared intelligence but also contributes to closing loopholes exploited by IUU operators. Taken together, these measures would position Nigeria not only as a compliant PSMA Party but also as a regional frontrunner in port State controls. By aligning domestic reforms with international best practices, Nigeria can reinforce its national fisheries governance, strengthen regional deterrence capacity, and contribute to global efforts to safeguard marine resources against IUU fishing.

Regional Cooperation and Capacity-Building Efforts

Given the transnational nature of IUU fishing, Nigeria's ability to operationalize the PSMA effectively depends heavily on regional cooperation and collective enforcement. No single coastal State in West Africa has the capacity to patrol its EEZ or enforce port controls in isolation; thus, Nigeria's progress must be situated within the broader architecture of subregional and continental cooperation. Through the West Africa Task Force (WATF); established under the Fisheries Committee for the West Central Gulf of Guinea (FCWC) in 2015; Nigeria collaborates with Benin, Togo, Ghana, Côte d'Ivoire, and Liberia to share intelligence on vessel activities, licenses, and reported infractions. National working groups in each member State serve as the operational backbone of this system, ensuring that sanctioned vessels are flagged across the subregion and denied safe harbor (SIF, 2022a). The WATF has facilitated joint investigations and coordinated port controls, helping Nigeria and its neighbors to close enforcement loopholes historically exploited by IUU operators.

Table 2: Nigeria's Progress in Implementing Key PSMA Provisions.

Implementation Area	Measures Undertaken / Planned	Current Gaps / Challenges
Legal Framework	Drafted a new Fisheries Bill (2022) to replace the 1992 Act; includes PSMA provisions such as port inspections, AREP, and stronger IUU penalties (EFD, 2022).	Bill still under debate; outdated law remains in force, limiting enforcement powers.
Policy Reforms	Introduced Vessel Monitoring System (VMS); mandated Bycatch Reduction Devices (BRDs) and Turtle Excluder Devices (TEDs) in trawl fisheries (FCWC, 2022b).	Limited enforcement of compliance; gaps in integration of VMS with port inspection protocols.
Designated Ports	Plans to designate Lagos (Apapa) and Port Harcourt as official PSMA ports (FAO, 2016a).	No dedicated "fisheries monitoring zones" or inspection hubs within ports as at the time of this study.
Advance Notification (AREP)	Developing AREP system to require vessels to submit identity, catch, authorization, and port history before entry.	No fully implemented AREP system; ad-hoc or informal notifications still common.
Inspection Capacity	Conducted initial inspections under PSMA framework; training supported by regional partners.	Limited trained inspectors, inconsistent procedures, and absence of standardized SOPs.
Information Sharing	Member of FCWC and West Africa Task Force; participates in regional vessel information exchange.	No centralized national PSMA database; not yet fully integrated into FAO Global Information Exchange System (GIES).

Technical support from FCWC partners such as Trygg Mat Tracking (TMT) and Stop Illegal Fishing (SIF) has further strengthened Nigeria's ability to conduct vessel history verification and undertake risk-based inspections. TMT's use of Automatic Identification System (AIS) and Vessel Monitoring System (VMS) data, combined with historical records of vessel ownership and behavior, has enabled inspectors in Nigeria to better identify high-risk vessels before they enter port (SIF, 2017).

Nigeria has also benefited from donor-supported capacity-building initiatives. The EU-funded PESCAO project has delivered training workshops, regional patrol exercises, and the deployment of analysts to strengthen maritime domain awareness across ECOWAS countries. Similarly, the Intelligence-Led Fisheries Port Controls initiative, developed by Global Fishing Watch in collaboration with TMT, has provided analytical tools that integrate AIS data with catch documentation and licensing records to support real-time decision-making (Paes, 2022).

Beyond the FCWC, Nigeria participates in continental and global enforcement frameworks. Engagement with the Sub-Regional Fisheries Commission (SRFC) in West Africa has created additional channels for intelligence exchange, while cooperation with INTERPOL's Fisheries Crime Working Group has expanded Nigeria's ability to investigate organized networks behind IUU fishing. The Nigerian Navy's participation in the Yaoundé Code of Conduct (YCC) patrols, covering the Gulf of Guinea maritime security architecture has further strengthened regional interception capacity, particularly in cases of transshipment

at sea and illegal incursions (UN, 2022).

Despite these gains, Nigeria's role in regional enforcement has not yet reached its full potential. Current participation remains reactive rather than proactive, with limited resources for leading joint operations or systematically sharing inspection data. To maximize its influence, Nigeria must align domestic reforms such as the establishment of the Advance Request for Entry into Port (AREP) system and digital integration with the Global Information Exchange System (GIES); with regional platforms. Doing so would enable Nigeria not only to benefit from intelligence provided by its neighbors but also to contribute meaningfully to harmonized denial-of-entry protocols and joint enforcement strategies.

In summary, addressing Nigeria's institutional and operational gaps will require sustained investment, regional alignment, and adaptive governance strategies. Lessons from international peers, such as Namibia's integration of licensing, observer schemes, and catch documentation into its port inspection regime and Norway's long-standing risk-based inspection system supported by digitalized reporting and advance notification procedures (FAO, 2020; NFD, 2018; Hutniczak et al., 2019), underscore the value of structured planning, institutionalized procedures, and stakeholder engagement. For Nigeria, success in these areas would not only enhance domestic fisheries governance but also position the country as a regional model for PSMA implementation in West Africa, thereby reinforcing collective deterrence against IUU fishing. These institutional and operational gaps are not unique to Nigeria; similar constraints are observed across the subregion.

Recommendations and Policy Implications

Building on the governance implementation framework and informed by a multi-level governance perspective, this section evaluates Nigeria's institutional readiness and identifies strategic priorities for PSMA operationalization. Recommendations are designed as actionable measures, while policy implications interpret their regional and global significance. The analysis draws on national policy reviews, regional workshop reports, and secondary literature on fisheries enforcement in West Africa, ensuring empirical grounding and methodological transparency. Finally, Nigeria could capitalize on emerging innovations in artificial intelligence (AI)–based anomaly detection. By analyzing AIS and VMS data patterns, AI tools can flag unusual vessel behaviors such as "going dark," irregular course changes, or suspicious transshipment events, that may indicate IUU activity. Integrating such predictive analytics into inspection planning would allow inspectors to focus resources on the highest-risk vessels, thereby improving efficiency and deterrence capacity. Summarily, technological modernization; anchored in interoperability, security, and predictive analytics offers Nigeria a transformative opportunity to strengthen PSMA enforcement, enhance regional intelligence sharing, and position itself as a leader in digitalized fisheries governance in West Africa. To complement these recommendations, Table 3, 4 and 5 outlines key digital tools for strengthening PSMA enforcement in Nigeria, highlighting their functions, potential applications, and the gaps they are designed to address. Strengthen Stakeholder Engagement and Transparency Compliance will depend heavily on engaging vessel operators, ship agents, importers, and port officials. Awareness campaigns and targeted workshops can build understanding of new procedures, while publishing inspection outcomes and sanctions would enhance accountability. Partnerships with NGOs and civil society can extend monitoring, and anonymous reporting mechanisms would help curb corruption while strengthening trust in fisheries governance. Deepen Regional and International Cooperation Sustained regional cooperation is strategically significant within West Africa's enforcement architecture. Nigeria should remain an active member of the West Africa Task Force (WATF) and the Fisheries Committee for

the West Central Gulf of Guinea (FCWC), promoting joint inspections and harmonized denial-of-entry protocols to prevent "port hopping," where IUU vessels exploit weak regulatory seams between jurisdictions. With all FCWC states now Parties to the PSMA, Nigeria is uniquely positioned to champion the development of a regional protocol for harmonized PSMA implementation, possibly under the FCWC or the African Union's fisheries governance initiatives. Nigeria's role as both a major coastal State and a high-demand market State makes its contribution pivotal to such frameworks. As a coastal State, Nigeria's extensive EEZ and busy ports represent significant entry points for foreign vessels; as a market State, its reliance on fish imports magnifies its influence over regional seafood flows. These dual roles provide leverage for Nigeria to catalyze collective enforcement standards across West Africa. Practical measures could include synchronized AREP systems across FCWC ports, ensuring that a denial of entry in one country automatically triggers alerts across the subregion. Nigeria can also propose regional joint inspection task forces, modeled after similar EU and NEAFC initiatives, where teams of inspectors operate together under shared SOPs. Additionally, by expanding data interoperability with FCWC's Regional Monitoring Centre in Ghana, Nigeria could strengthen its ability to track and intercept repeat offenders across multiple jurisdictions. Beyond West Africa, Nigeria should deepen cooperation with continental and global platforms. Engagement with the Sub-Regional Fisheries Commission (SRFC) and the African Union's Policy Framework and Reform Strategy (PFRS) could situate Nigeria as a leader in advancing Africa-wide port State measures. Internationally, collaboration with INTERPOL's Fisheries Crime Working Group and FAO's GIES platform would help Nigeria access intelligence on transnational operators and embed its port controls within the global enforcement chain. Lessons from Norway's integration with NEAFC or Namibia's use of coordinated patrols show that embedding PSMA implementation within broader security and trade frameworks increases both legitimacy and enforcement reach. Finally, Nigeria can use its diplomatic weight to advocate at global forums (FAO COFI, WTO negotiations on fisheries subsidies, UN Oceans conferences) for increased technical and financial assistance to developing States implementing PSMA. By linking its domestic reforms to regional enforcement and international diplomacy, Nigeria can transform from a reactive player into a regional anchor of compliance, strengthening deterrence against IUU fishing while advancing its Blue Economy agenda.

Summary of Recommendations and Policy Implications

Nigeria's accession to the PSMA represents a strong political commitment, yet major gaps remain in operationalizing its provisions. Strengthening implementation requires legal reform, institutional coordination, technological modernization, and deeper regional cooperation. The following summary highlights key recommendations, supported by evidence-based tables.

Nigeria's Progress in Implementing PSMA Provisions

Recommendations Matrix

Regional Cooperation and Capacity-Building Efforts

Policy Implications

- **Nationally:** Strengthened enforcement and institutional clarity will close compliance gaps and protect Nigeria's fisheries sector.

Table 3: Nigeria's Progress in Implementing Key PSMA Provisions

Implementation Area	Measures Undertaken / Planned	Current Gaps / Challenges
Legal Framework	Drafted Fisheries Bill (2022) with PSMA provisions (inspections, AREP, IUU penalties).	Bill still under debate; outdated 1992 law limits enforcement powers.
Policy Reforms	Introduced Vessel Monitoring System (VMS); mandated BRDs and TEDs in trawl fisheries.	Limited enforcement of compliance; weak VMS-port inspection integration.
Designated Ports	Plans to designate Lagos (Apapa) and Port Harcourt as official PSMA ports.	No dedicated fisheries monitoring or inspection hubs.
Advance Notification (AREP)	Developing system to require pre-arrival vessel data (identity, catch, authorization, port history).	No fully implemented AREP system; notifications still ad-hoc.
Inspection Capacity	Conducted pilot inspections with regional training.	Few trained inspectors; inconsistent procedures; no standardized SOPs.
Information Sharing	Active in FCWC and WATF; exchanges vessel data regionally.	No centralized national PSMA database; weak FAO GIES integration.

Table 4: Recommendations Matrix for Nigeria's PSMA Operationalization

Priority Area	Key Actions	Expected Outcomes
Legal Framework	Pass revised Fisheries Act; embed PSMA provisions.	Legal clarity, enforceable sanctions, aligned mandates.
Interagency Coordination	Establish National Working Group (FDF, Navy, Customs, NIMASA, Ports, Immigration).	Coordinated inspections, intelligence-sharing, reduced overlap.
Risk-Based Inspections & AREP	Launch phased digital AREP platform; focus on high-risk vessels.	Efficient resource use; early detection of IUU vessels.
Inspectorate Capacity	Expand training; recruit/cross-train; upgrade infrastructure.	Skilled inspectors; consistent inspections; stronger deterrence.
Technology & Data Systems	Centralized PSMA database; integrate with FAO GIES & FCWC; adopt AI anomaly detection.	Interoperability, faster vessel verification, predictive enforcement.
Stakeholder Engagement	Awareness campaigns; publish sanctions; anonymous reporting mechanisms.	Increased compliance, transparency, reduced corruption.
Regional & International Cooperation	Harmonize AREP and denial-of-entry across FCWC; joint inspections; engage FAO/AU/INTERPOL.	Regional deterrence, stronger global enforcement links.

Table 5: Digital Tools for Strengthening PSMA Enforcement in Nigeria

Digital Tools	Functions
Centralized PSMA Database	Integrates vessel licensing, inspection reports, and sanction records, interoperable with FAO's Global Record of Fishing Vessels and GIES.
AIS & VMS Monitoring	Provides real-time tracking of vessel positions and activities; critical for detecting unauthorized entry or transshipment.
Cloud-Based Data Platforms	Replace fragmented legacy systems with secure, interoperable databases accessible across agencies.
Data Security Measures	Encryption and access controls safeguard sensitive inspection and ownership data against misuse.
AI-Based Anomaly Detection	Predictive analytics flag suspicious behaviors (e.g., "going dark," irregular routes, transshipment patterns), enabling targeted risk-based inspections.
Integrated Command Linkages	Digital connection of port-level inspection data to FDF and Navy headquarters ensures faster enforcement follow-up.

Sources: Adapted from FAO (2022); SIF (2022b); Paes (2022).

- **Regionally:** Nigeria can anchor harmonized PSMA implementation within FCWC, reducing IUU "port hopping."
- **Globally:** Active diplomacy through FAO, AU, and INTERPOL positions Nigeria as a leader in fisheries governance and strengthens its Blue Economy agenda.

In summary, the implications of these policy recommendations extend beyond Nigeria: • For West Africa: Effective PSMA implementation will close enforcement loopholes that IUU operators exploit, strengthening collective deterrence and reducing "port shopping." Nigeria's leadership is pivotal in catalyzing harmonized enforcement across the FCWC region. • For Global Fisheries Governance: Nigeria's reforms contribute to the legitimacy of the PSMA as a global instrument, aligning domestic enforcement with international obligations and embedding West Africa within global compliance networks. • For Sustainable Development Goals: o SDG 14 (Life Below Water): Stronger port controls protect marine biodiversity and rebuild fish stocks. o SDG 2 (Zero Hunger): Securing legal fish supplies enhances food and nutrition security for millions reliant on small pelagic species. o SDG 16 (Peace, Justice, and Strong Institutions): Transparent, accountable port enforcement reduces corruption and strengthens institutional legitimacy. • For the Blue Economy: By securing marine resources against illicit exploitation, Nigeria lays the foundation for sustainable economic growth in fisheries, trade, and maritime security.

Limitations and Future Research Opportunities A key limitation of this study lies in the availability and scope of data. At the time of analysis, there were no official datasets or systematically compiled enforcement statistics on Nigeria's PSMA implementation. Moreover, scholarly research on the operationalization of the PSMA in West Africa remains limited, given the relatively recent adoption of the Agreement in the region. Consequently, the study relied on supplementary sources such as NGO reports, institutional websites, and policy briefs to provide contextual evidence and bridge information gaps. These limitations also underscore an important research opportunity. By systematically consolidating avail-

able institutional and non-academic evidence, this study contributes a baseline analysis of Nigeria's PSMA implementation and highlights areas requiring deeper empirical investigation. Future research could build on this foundation by generating primary data through interviews, field studies, or case-level enforcement statistics, thereby enriching scholarly understanding of how international fisheries agreements are domesticated in resource-constrained contexts.

CONCLUSION

Nigeria's accession to the FAO Port State Measures Agreement (PSMA) in 2022 represents a landmark commitment by one of West Africa's largest coastal, port, and market States to combat IUU fishing. The country has taken commendable early steps, including designating entry points, piloting inspections, and participating in regional intelligence-sharing through the WATF. These actions underscore Nigeria's recognition that port controls are a frontline defense against IUU fishing and a vital step toward safeguarding marine resources and food security. Yet, Nigeria's experience also illustrates the formidable challenges developing States face in translating international commitments into practice. Outdated legislation, fragmented interagency coordination, limited inspection capacity, and resource constraints have slowed effective implementation. Encouragingly, reforms are underway, including updating the Fisheries Act, piloting AREPs, and developing standardized inspection procedures. Regional initiatives, donor assistance, and technical cooperation are helping bridge capacity gaps, particularly in intelligence analysis and inspector training. Although measurable impacts, such as denied port access, prosecutions, or reduced IUU activity, are still emerging, the long-term benefits are significant. Denying port access directly undermines the profitability of IUU operators, while harmonized enforcement reduces "port shopping" and strengthens deterrence. Over time, these measures will contribute to healthier fish stocks, improved food security, and stronger livelihoods for artisanal fishing communities. Looking ahead, Nigeria's leadership in regional fisheries governance will depend not only on consolidating domestic reforms but also on its ability to catalyze harmonized enforcement across West Africa. The PSMA offers a transformative framework, yet its success will hinge on sustained investment, institutional coordination, and adaptive policy implementation. Importantly, Nigeria must leverage its dual role as a major coastal State and market State to anchor regional deterrence strategies, ensuring that its reforms resonate beyond its borders. More broadly, effective PSMA implementation will reinforce Nigeria's emerging role as a regional leader in fisheries governance, strengthen collective deterrence against IUU fishing, and advance progress toward the Blue Economy agenda and global development priorities; particularly SDG 14 (Life Below Water), SDG 2 (Zero Hunger), and SDG 16 (Peace, Justice, and Strong Institutions). By aligning domestic reforms with regional cooperation and global governance mechanisms, Nigeria can transform from a reactive enforcer into a proactive architect of sustainable fisheries governance in West Africa.

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