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China's ratification of the agreement on port state measures to prevent, deter and eliminate illegal, unreported and unregulated fishing: driving factors, challenges and possible pathways

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Following years of preparatory efforts and evaluation, China formally acceded to the Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (PSMA) on April 16, 2025, marking a new advancement in its ongoing campaign against IUU fishing and the conservation of marine fisheries. This study examines China's potential contents for joining the PSMA, identifies implementation challenges, and proposes actionable solutions to amplify its role as a responsible fisheries nation within the PSMA framework. Findings indicate that China's accession aligns with its national agenda to modernize distant-water fisheries under the "ecological civilization" paradigm, aiming to bolster its influence in global fisheries governance, strengthen multilateral cooperation, and advance contributions to sustainable use of fishery resources. The analysis reveals persistent challenges in four domains: (1) incomplete domestic legal frameworks to meet PSMA obligations; (2) insufficient port-state management systems and enforcement capacities; (3) fragmented international coordination mechanisms; and (4) structural gaps between industrial expansion and sustainability goals. To address these, the study advocates a dual-track strategy. Domestically, priorities include legal and institutional reforms to harmonize with PSMA requirements, enhanced capacity building, and industry modernization. Internationally, China should lead in establishing regional port-state coordination platforms, institutionalize data-sharing partnerships, and promote equitable rulemaking within PSMA. These measures would enhance compliance while advancing China's dual objectives of fostering sustainable fisheries and solidifying its role as a responsible global fishing contributor.

KEYWORDS

PSMA, port state, ecological civilization, IUU fishing, international cooperation

Introduction

The Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (PSMA), adopted under the auspices of the Food and Agriculture Organization (FAO), entered into force on 5 June 2016. As of 2025, the PSMA has garnered 82 contracting parties and 108 signatory states, establishing itself as the foremost international legal instrument in contemporary global fisheries governance to combat Illegal, Unreported and Unregulated (IUU) fishing (FAO, 2025b). The agreement mandates port states to implement rigorous measures—including inspections, documentation verification, and port access denials—to curtail the flow of IUU-derived catches into domestic and international markets. By targeting the logistical and economic channels enabling IUU activities, the PSMA seeks to advance the sustainable utilization of marine biological resources and safeguard marine ecosystems.

The PSMA has been proven effective in reducing the risk of ports of parties being used for IUU fishing and, to some extent, curbing IUU fishing globally (Hosh et al., 2025). However, inaction by non-parties has at times undermined efforts under the PSMA framework (Hosch et al., 2023). Many countries are being urged to participate in this international agreement to contribute to better regional and international fisheries governance (Bethel et al., 2021). China has made significant efforts to combat IUU fishing and has achieved tangible results (Yu and Chang, 2023). China was previously encouraged to participate in the PSMA progress to enhance the global effort to curb IUU fishing, though its hesitation was not without reason, particularly given its status as a developing State and its significant reliance on fisheries (He, 2024).

On 17 March 2025, following extensive domestic deliberations and preparatory measures, China deposited its instrument of accession to the FAO Director-General. Pursuant to its provisions, the PSMA took effect for China on 16 April 2025. This accession intersects with contentious debates in international relations, environmental policy and maritime law, and has generated significant debate within Chinese policymaking circles and international forums. Proponents frame China's participation as a strategic commitment to multilateral marine governance, reinforcing its role in upholding the global fisheries order and enhancing port-state oversight to protect marine resources (FAO, 2025a). Conversely, skeptics question the timing and sincerity of China's accession, casting doubt on its capacity and political will to enforce the Agreement's requirements (Richards, 2025). Central to these discussions are three unresolved issues: (1) the alignment of China's motivations with its national fisheries strategy; (2) its institutional and operational capacity to implement PSMA obligations; and (3) the balance between national interests and global conservation imperatives. While existing scholarship reflects divergent perspectives on the feasibility and implications of China's accession, China's final decision of accession has obviously added key background and new perspectives to these discussions.

In view of this, this study seeks to analyze the drivers behind China's accession, evaluate the practical challenges of compliance, and propose pathways for effective implementation in a timely manner. The article falls under qualitative policy research, conducted based on credible texts such as literature and official statements and proceeds as follows. Section 2 examines the endogenous and exogenous factors motivating China's accession, including its evolving capacity to regulate IUU fishing, ambitions to shape global fisheries governance, and pressures to address reputational risks linked to its distant-water fleet practices. Section 3 assesses the post-accession challenges confronting China, spanning policy-legal harmonization, institutional capacity-building, international cooperation mechanisms, standardization gaps, and industry adaptation. Section 4 explores responsive strategies to address these challenges and fulfill PSMA obligations. The analysis concludes that while China's accession aligns with its maritime strategy and signals a recalibrated approach to IUU fishing, effective implementation will necessitate comprehensive legal reforms, enhanced enforcement mechanisms, sustainable fishery industry, and proactive engagement with international stakeholders.

Driving factors

China's decision to join the PSMA was essentially driven by a renewed understanding of its national interests and its concept of participation in global ocean governance, and was the result of a combination of upgrading of its industrial structure, innovation in its strategic concepts, and response to international pressure. This has enabled it to overcome concerns about the possible impact of the PSMA on the efficiency of China's fisheries industry. Through technological empowerment, improved regulations and multilateral cooperation, China expects to move from "high-volume" fishing to "high-quality" fishing, and to strive for a voice in global ocean governance that is commensurate with its contributions.

Structural industry transformation and capacity building

To contextualize China's accession to PSMA, it is imperative to consider the broader structural shifts within its economy and the strategic repositioning of its fisheries sector. A critical determinant lies beyond the immediate fishing industry: China's evolving economic trajectory, marked by a transition toward high-value industries and sustainable development paradigms. The PSMA's requirements—stricter port-state controls, enhanced regulatory compliance, and measures to exclude IUU-derived catches from markets—inevitably impose operational and financial costs on fisheries, particularly in nations with underdeveloped regulatory frameworks (Shen and Huang, 2021). For China, where over 17 million livelihoods depend on fisheries, predominantly in

traditional or small-scale operations (Fisheries Administration Bureau of China, 2024), debates over the PSMA's economic implications have centered on balancing modernization imperatives with socioeconomic stability. Concerns persist that stringent compliance could disrupt labor-intensive segments of the sector, underscoring the tension between global conservation norms and domestic welfare priorities.

Notably, China's recent economic strategy has prioritized structural transformation, emphasizing high-quality growth over quantitative expansion (State Council Information Office of China [SCIO], 2022). Safeguarding ecological civilization progress has become a significant factor in China's decision-making processes: it is reflected not only in the international commitments made by senior Chinese leadership but also in a series of concrete policy documents (Xue et al., 2023). This paradigm shift has diminished the relative economic weight of offshore and pelagic fisheries, redirecting policy focus toward innovation-driven, eco-efficient industries (Chu, 2024). Within this framework, the fisheries sector has undergone a strategic realignment: abandoning resource-intensive practices in favor of modernization, scale-driven efficiency, and ecological sustainability (SCIO, 2023).

Central to this transformation is technological innovation, which has emerged as a linchpin for enhancing regulatory compliance and global competitiveness. Pilot initiatives in some coastal provinces, such as sensor-equipped "smart netting" systems for real-time monitoring of aquatic ecosystems exemplify China's pursuit of a diversified blue economy. China has built integrated platforms such as the "Cultivating the Sea No.1" combine fisheries and tourism, generating an average of 500,000 kilowatt-hours of electricity annually and saving 400,000 yuan in costs. Such projects not only optimize resource efficiency, but also align with international standards, positioning China's fisheries as both economically viable and environmentally responsible.

The development of China's fisheries industry has undergone a profound transformation of its industrial structure and the upgrading of its comprehensive capacity in recent years, a process that has been reflected not only in the modernization of technology and the standardization of management, but also through the improvement of policies and regulations and the strengthening of enforcement and supervision. Concurrently, institutional reforms have fortified the sector's capacity to meet PSMA obligations. China has intensified its legislative and regulatory framework for fisheries governance, instituting vessel-capacity controls, seasonal fishing moratoria, and science-based aquaculture protocols to mitigate marine degradation (SCIO, 2023). China is also in the process of revising its Fisheries Law, with regard to the strict management of fisheries fishing and the improvement of the fishing intensity control system, which stipulates that the State shall determine the control indexes for fishing vessels and nets in accordance with the principle of compatibility between fishing capacity and the amount of fisheries resources that can be harvested, and that it shall take full account of the needs of the modern fisheries industry in terms of its development and management (The National People's Congress of China, 2024).

Strategic alignment in global ocean governance engagement

China's accession to the PSMA is strategically embedded within its broader vision for global maritime governance, particularly its pursuit of a "maritime community with a shared future" and the Belt and Road Initiative (BRI) (Hu and Jin, 2021). By ratifying the Agreement, China signals its intent to deepen engagement in multilateral ocean governance frameworks and amplify its influence in shaping international norms. This move aligns with its geopolitical calculus amid escalating tensions with the United States and allied nations, which have sought to curtail China's global integration through economic decoupling strategies and the politicization of maritime activities under the "China threat" narrative (Zhang, 2021). In response, China has prioritized maritime cooperation as a countermeasure to diplomatic isolation and a safeguard for its strategic sea lane security. Initiatives such as the 21st-Century Maritime Silk Road and the proposed "blue partnership" network exemplify this approach (Wang and Zhang, 2023), positioning multilateral treaties like the PSMA as instrumental platforms for fostering collaborative governance.

Scholarly analyses posit that the PSMA and China's maritime initiatives share convergent objectives, including enhancing regional connectivity, advancing sustainable development, and institutionalizing cooperative mechanisms (Chen and Xue, 2025). The PSMA's focus on combating IUU fishing addresses a globally recognized challenge—resource depletion and ecological degradation—while creating avenues for technical and financial collaboration. Many PSMA signatories, particularly developing states, face capacity gaps in implementing port-state controls, offering China opportunities to leverage its growing expertise in fisheries management, surveillance technologies, and port infrastructure development. Through such cooperation, China not only strengthens its role in global fisheries governance but also cultivates diplomatic goodwill, reinforcing the PSMA as a conduit for both ecological and geopolitical gains (Wang and Zhang, 2023).

Concurrently, with the enhancement of its comprehensive capacity in the field of oceans and seas, China's accession reflects its ambition to secure rule-shaping authority commensurate with its contributions to global ocean governance, in order to influence international rule development and thus safeguard its own interests (Han and Jiao, 2022). Therefore, exerting influence within international mechanisms is considered a necessary way to achieve this goal. By aligning with the PSMA, China seeks to project itself as a responsible stakeholder in pelagic fisheries, enhancing its institutional legitimacy while influencing the evolution of international norms to reflect its interests.

Additionally, As articulated in policy documents such as the White Paper on China's Pelagic Fishing Development (2020), the nation has progressively redefined its fisheries strategy, emphasizing quality-driven growth, regulatory rigor, and zero tolerance for IUU fishing (SCIO, 2022). This shift is underpinned by socioeconomic transformations: declining reliance on fisheries for employment and GDP has enabled a recalibration of priorities toward long-term

sustainability over short-term extraction. China's reduced economic and social dependence on fisheries has given it the space to consider the path towards the sustainable development of fisheries and possible alternatives (Jiang et al., 2025), underscoring China's recalibrated approach to balancing socioeconomic imperatives with ecological stewardship—a duality increasingly central to its global governance agenda.

International forum pressures and fisheries compliance

China's decision to accede to the PSMA is inextricably linked to mounting international scrutiny of its fisheries practices (Cai, 2024). Over the past two decades, China's distant-water fishing fleet has undergone unprecedented expansion, emerging as the world's largest in both vessel numbers and catch volume (UN, 2025; FAO, 2022). This growth contrasts sharply with global trends, where many traditional fishing states have adopted catch reductions and marine spatial closures to address over-exploitation. Critics argue that China's insufficient regulatory oversight has exacerbated the depletion of offshore fish stocks, while its fleet's increasing presence in foreign exclusive economic zones (EEZs) and high seas regions has raised concerns over ecological sustainability and equity in resource access (Shi, 2023). Such critiques have positioned China as a focal point in international debates on IUU fishing, compelling it to seek mechanisms to legitimize its fisheries operations and demonstrate adherence to global norms.

Acceding to the PSMA provides China with a strategic avenue to rebut allegations of noncompliance. By formalizing its commitment to port-state measures, China aims to reframe its role from a perceived contributor to IUU fishing challenges to a proactive enforcer of sustainable practices. This aligns with its broader effort to showcase compliance with international law, particularly the United Nations Convention on the Law of the Sea (UNCLOS), and to counter narratives of ecological negligence. Notably, even prior to PSMA accession, Chinese vessels docking in foreign ports were subject to inspections under UNCLOS and regional frameworks. However, non-membership in the PSMA created a regulatory asymmetry, exposing Chinese fleets to sanctions by PSMA parties without reciprocal mechanisms for dispute settlement. Ratification thus serves to harmonize China's obligations with global port-state practices, mitigating legal and operational vulnerabilities.

Geopolitical pressures further incentivized accession. Coastal states such as Chile and Argentina have imposed stringent restrictions on Chinese fishing activities in adjacent waters, citing ecological harm and regulatory gaps (Marinez, 2020; Pelcastre, 2024). While the legality of these measures remains contested, their proliferation underscores the reputational and operational risks faced by China's distant-water fleet. Concurrently, escalating U.S.-China strategic competition has amplified Beijing's imperative

to counter diplomatic isolation. The Biden administration's emphasis on alliance-based maritime governance and the Trump-era "decoupling" agenda have intensified China's need to stabilize bilateral ties and secure cooperative pathways (Ten, 2022), as well as stabilize its relations with other countries through various channels and to safeguard its own development and the normal conduct of international trade. Within this context, fisheries governance has transcended its technical dimensions to become a geopolitical instrument. PSMA accession enables China to position itself as a collaborative actor within a widely ratified multilateral framework, counterbalancing U.S.-led narratives of Chinese unilateralism (FAO, 2025a). This seemingly irrelevant factor may have been the key to the Chinese government's decision.

China's ratification of the PSMA reflects a calculated response to intersecting ecological, legal, and geopolitical pressures. By aligning with the agreement, China seeks to mitigate reputational risks, harmonize its regulatory practices with global standards, and leverage multilateralism to navigate an increasingly contentious international order.

China's compliance risks after joining the PSMA

IUU fishing is a global issue that requires joint efforts from all countries. China and the world are a community of shared future; only through concerted efforts and cooperation can we effectively prevent free-riding and significantly improve the effectiveness of the PSMA. China's accession to the Agreement demonstrates its commitment to international fisheries governance and its responsibility as a major country, while also facing dual challenges of domestic compliance and international cooperation.

National legislation update in response to joining the PSMA has not been completed

The transposition of international legal obligations into domestic legislation constitutes a fundamental prerequisite for countries to fulfill obligations under the PSMA and ensure its effective implementation. However, divergent national adaptations of the PSMA's provisions have introduced inconsistencies in enforcement, undermining the uniformity of port state measures (Onoora, 2018). For instance, within the EU, disparities in inspection protocols, penalty severity, and digital interoperability among member states, exacerbated by decentralized governance structures, have created enforcement asymmetries (European Court of Auditors [ECA], 2022). These discrepancies risk incentivizing "port shopping" by non-compliant vessels seeking lenient jurisdictions (Pew Charitable Trust [Pew], 2023). To address such challenges, the FAO has developed legislative templates, technical guidelines, and capacity-assessment tools to harmonize domestic

frameworks with PSMA requirements, thereby translating treaty obligations into actionable national policies (Hosch et al., 2023; Swan, 2016; Pew, 2017).

In China, while existing fisheries legislation broadly governs fishing activities, critical gaps persist in aligning domestic laws with the PSMA's specific mandates. Foremost among these is the ongoing revision of China's Fisheries Law, initiated in 2019 following the National People's Congress Standing Committee's inaugural enforcement review. A revised draft, intended to internalize PSMA obligations, was submitted for deliberation in December 2024 (Feng, 2025). However, the absence of a definitive enforce time has left port state measures in a legislative vacuum. Key definitional misalignments further exacerbate this challenge. The PSMA's expansive scope—encompassing all fishing-related vessels and port facilities (FAO, 2016), including offshore terminals for transshipment or refueling—exceeds traditional definitions under Chinese law, which lacks precise legal delineations for such terms. This ambiguity risks operational loopholes, particularly in regulating support vessels integral to IUU fishing networks.

Moreover, sector-specific regulations remain outdated. The 2020 Regulations on the Management of Distant-Water Fisheries (Ministry of Agriculture and Rural Affairs of China [FARA], 2020) focus narrowly on corporate oversight, omitting port-state controls for distant-water fleets. The PSMA's rigorous stipulations—covering port access, inspection protocols, information exchange, and service denials—necessitate granular updates to China's regulatory framework, including standardized procedures for port authorization, inspection criteria, and penalty mechanisms. Additionally, the absence of binding technical guidelines and industry standards hinders the operationalization of PSMA obligations, particularly in digitizing port inspections and ensuring interagency data sharing.

The broader challenge lies in ensuring that international norms are not merely transposed but contextualized within China's legal and operational realities. For example, one specific obligation in the PSMA may need several ministries to manage collaboratively. This requires reconciling the PSMA's prescriptive mandates with domestic enforcement capacities, while addressing jurisdictional complexities across China's decentralized port authorities. Without such adaptations, the risk of fragmented implementation persists, undermining both China's compliance trajectory and the PSMA's global efficacy.

Department coordination mechanism is still in the process of being refined

The enforcement of PSMA necessitates robust interagency coordination among fisheries, customs, maritime, and coast guard authorities, alongside integrated information-sharing systems to track and intercept non-compliant vessels. The PSMA obligates contracting parties to harmonize port management and fisheries administration functions, ensuring alignment with treaty-mandated protocols. Concurrently, designated ports must possess adequate inspection capacities—including personnel, facilities, and

procedural frameworks—to enforce vessel inspections and manage port entries effectively. These requirements compel states to pursue dual reforms: modernizing port and fisheries governance systems while enhancing institutional capabilities to meet PSMA compliance standards.

Globally, fragmented interdepartmental coordination remains a pervasive (World Economic Forum, 2019). Many nations, particularly developing states, lack streamlined communication channels and real-time monitoring, control, and surveillance (MCS) systems, impeding cross-agency data exchange (FAO, 2023b). Chronic shortages of qualified port inspectors and under-resourced facilities further exacerbate implementation gaps (Pew, 2023). For instance, Indonesia—despite ratifying the PSMA in 2018—operationalizes only four compliant ports out of 578 fishing ports in this country due to decentralized infrastructure, limited enforcement personnel, and insufficient vessel-tracking mechanisms. This spatial concentration risks displacing IUU activities to non-compliant ports, undermining the agreement's efficacy (Client Earth, 2023). Challenges persist in harmonizing port facility standards, data interoperability, and integrated law enforcement frameworks, as noted in FAO assessments. To address these systemic gaps, the FAO launched its Global Capacity Development Programme in 2017, providing technical cooperation (TCPs) to strengthen national strategies, legislative reviews, and MCS systems, while delivering targeted training on port inspections and fisheries law compliance (FAO, 2023a).

China's context reflects both institutional advantages and persistent challenges. Its high-volume ports, managed by specialized agencies such as customs, maritime affairs, and fishery administration, operate under significant operational demands. While interdepartmental information-sharing mechanisms and joint decision-making frameworks exist, bureaucratic silos hinder seamless cooperation. For example, real-time catch monitoring and reporting systems are managed by the fishery administrations, while the information regarding the fish vessels and crews is reported to the port and custom authorities, so that relevant database are remaining disjointed, perpetuating gaps in holistic oversight. Deficiencies in standardized management processes and enforcement capacity further constrain compliance with PSMA's rigorous inspection protocols (An et al., 2025).

Technical and human resource limitations compound these institutional barriers. China's ports require advanced inspection technologies—such as electronic monitoring systems and DNA-based catch verification tools—to meet PSMA's demands. However, uneven distribution of skilled inspectors, outdated equipment, and delayed integration of emerging innovations (e.g., intelligent marine technologies) into inspection workflows reveal critical capacity shortfalls (Lv, 2023). China's marine transportation sector has prioritized green and intelligent technologies, their application in port inspection regimes lags, underscoring misalignment between industrial advancements and PSMA implementation priorities. Targeted investments, aligned with FAO's capacity-building frameworks, are essential to bridge these gaps and ensure adherence to international standards.

Deficiencies in catch traceability systems and international coordination

The effective identification of IUU fishing activities at ports necessitates robust, end-to-end catch traceability systems capable of verifying vessel histories, including prior violations, voyage routes, and licensing validity. While the PSMA mandates the establishment of information-sharing mechanisms with regional states, fisheries management organizations (RFMOs), and international treaties, it omits prescriptive guidelines for operationalizing such frameworks. This ambiguity leaves contracting parties struggling to verify data from vessels flagged under non-Parties and to authenticate operator-submitted documentation, undermining risk assessment accuracy and resource prioritization for high-risk inspections.

At the international level, efforts to combat IUU fishing hinge on interoperable data systems and multilateral enforcement coordination. RFMOs have instituted measures such as IUU vessel blacklists, port state responsibility protocols, and regional catch documentation schemes. However, critical gaps persist in aligning these initiatives with PSMA standards, particularly in harmonizing advance notification requirements, port entry denials, inspection thresholds, and training benchmarks (Patterson, 2021). The FAO's Global Information Exchange System (GIES), designed to centralize inspection outcomes, port admissions, and enforcement actions, represents a pivotal step toward bridging these gaps (Responsible Seafood Advocate, 2022). Yet its efficacy remains contingent on universal adoption and standardized data inputs by member states and RFMOs, challenges compounded by inconsistent compliance and technical capacity disparities (FAO, 2023c).

China's context illustrates both progress and persistent systemic hurdles. With over 2,000 fishing ports, manual verification of vessel documentation is impractical, necessitating risk-based inspection strategies informed by shared intelligence. China has established bilateral frameworks—such as its fishery committees with Russia, cooperative agreements with Vietnam in the Beibu Gulf, and joint enforcement mechanisms with South Korea—that demonstrate nascent regional collaboration (MARA, 2021; Trung, 2019; Amer and Li, 2020; International Collective in Support of Fish workers, 2020). However, these efforts remain geographically fragmented and lack integration into broader PSMA-aligned networks. For instance, data-sharing protocols for port entry denials or suspected IUU vessels are hindered by incompatible formats, language barriers, and underdeveloped institutional channels. Furthermore, engagement with RFMOs and distant-water fishing nations remains limited, constraining the scalability of China's anti-IUU initiatives.

To align with PSMA obligations, China may need to institutionalize standardized electronic catch documentation, adopt GIES-compatible data formats, and expand multilateral partnerships beyond its immediate periphery. This requires harmonizing domestic traceability systems—such as integrating vessel monitoring system (VMS) data with port inspection records—and fostering interoperability with RFMO platforms. Such steps would mitigate current reliance on localized

cooperation models while addressing systemic gaps in information completeness and timeliness, which remain critical barriers to global IUU enforcement efficacy.

Unclear inspection procedures and enforcement standards

The implementation of PSMA is complicated by interpretive ambiguities in its provisions, which grant port states significant discretion in defining key terms such as “sufficient proof” “clear justification” and “clear grounds for believing” (e.g., Articles 9.4, 11.1, and 18.1). This lack of operational specificity undermines uniform enforcement and risks inconsistent application across jurisdictions (FAO, 2009). This lack of harmonized guidelines undermines consistency in enforcement and complicates risk assessment processes, which rely on access to comprehensive and reliable vessel data—including historical compliance records, voyage trajectories, and catch documentation. Many contracting parties, particularly those in the Global South, lack the technical and institutional capacity to systematically collect, verify, or share such information, exacerbating systemic gaps in enforcement efficacy.

The PSMA's broad textual framing further enables protectionist misuse. The agreement's generalized language permits port states to exploit interpretive flexibility, imposing disproportionate inspection burdens such as excessive documentation requirements or unilaterally stringent verification standards for catch origins and fishing methods. Such practices, often justified as anti-IUU measures, can function as de facto trade barriers, disproportionately disadvantaging exporters States. For example, Chinese distant-water fleets face heightened scrutiny in foreign ports, including unwarranted detentions, extraordinary audits, or politicized inspections under the pretext of combating IUU fishing (Li and Li, 2024). For Example, in February 2024, the US Coast Guard boarded a Chinese fishing vessel to conduct an IUU fishing exclusion inspection based on the enforcement authority granted by unilateral criteria without justification (Needham, 2024). These actions inflate compliance costs, provoke trade frictions, and threaten China's fishery export markets. Conversely, China's own enforcement authorities must reasonably inspect under international trade law to avoid accusations of discriminatory or non-tariff barriers.

Besides, China faces challenges in harmonizing PSMA obligations with its predominantly domestic-focused port operations. Over 99% of port entries in China involve Chinese-flagged vessels (Young, 2025), including returning distant-water fleets, yet the PSMA's primary emphasis on foreign vessels leaves regulatory ambiguities in addressing IUU activities by national fleets abroad. However, as stipulated in Article 20 of the PSMA, parties should control IUU fishing by their domestic vessels using measures that are at least as effective as those applied to foreign vessels, but there is no requirement that the approaches must be the same (Selig et al., 2025). Clarifying the legal framework for such scenarios is critical to preempting critiques of selective enforcement or procedural opacity.

Pathways to addressing China's challenges in implementing the PSMA

Clarifying the legal framework for such scenarios is critical to preempting critiques of selective enforcement or procedural opacity. To effectively respond to the above challenges, China needs to take a series of comprehensive measures from multiple aspects such as legislation, institutional reforms, capacity building and international cooperation to comprehensively enhance its capacity of implementing the PSMA.

Enhancing the Chinese legal and regulatory framework and international rule development

To align with the PSMA, China must systematically revise and enhance its existing fisheries legislation to integrate the Agreement's core provisions and obligations into domestic law. Critical priorities include explicitly delineating port management responsibilities for foreign fishing vessels, standardizing inspection protocols, and specifying penalties for non-compliance. To expedite implementation, the development of specialized operational guidelines and procedural manuals is recommended. Legal reforms should institutionalize interdepartmental coordination mechanisms, clarify information-sharing pathways, and establish unified inspection criteria and methodologies. A comprehensive "blacklist" system for vessels violating regulations should also be codified to promote enforcement of the regulations. Furthermore, robust public communication and outreach initiatives, including educational programs and professional training workshop, should assist the legislation process. These efforts will strengthen institutional capacity, foster compliance with updated legal frameworks, and cultivate a culture of adherence to international obligations.

Internationally, China should proactively engage in shaping global legal norms by contributing its expertise and insights. Ambiguities within the PSMA, such as jurisdictional conflicts concerning domestic legal applicability to nationally flagged vessels engaged in IUU activities overseas, warrant further scrutiny. China should advocate for harmonized enforcement standards and resist the politicization of port state measures, adhering to the PSMA prescription regarding implementation of its provisions in good faith, refrain from rights abuse, and ensure transparent, non-discriminatory application. China is positioned to actively engage in PSMA review mechanisms, compliance evaluations, and subsequent rulemaking dialogues. Additionally, strengthening judicial cooperation through multilateral judicial assistance mechanisms will enhance cross-border enforcement capabilities, enabling coordinated action against port measures. By promoting coordinated enforcement criteria and enhancing procedural transparency, China can facilitate multilateral consensus on port state jurisdiction, ensuring the Agreement's equitable and effective implementation across regions.

Building harmonized management system and improving capacity for enhanced compliance

Building on China's existing PSMA coordination mechanism among the department of Ministry of Agriculture and Rural Affairs, Ministry of Foreign Affairs, Ministry of Industry and Information Technology, Ministry of Transportation, General Administration of Customs, National Immigration Administration (MARA, 2025), the country should refine inter-agency coordination frameworks to strengthen cross-departmental oversight and enforcement capacities. This entails establishing vertically integrated coordination systems spanning central and local governance levels. Given China's extensive coastline and numerous ports, strategic designation of priority ports for PSMA implementation is critical. By concentrating resources on designated ports, China can develop specialized capacities for inspecting foreign fishing vessels, thereby ensuring effective compliance with the Agreement while generating actionable insights for future expansion to additional ports.

Clear guidelines should delineate inspection protocols, documentation standards, evidence collection and preservation methods, and procedures for addressing violations. Such standardization will enhance the transparency and efficacy of enforcement while fostering synergies among judicial, administrative, and civil oversight mechanisms. This integrated approach aligns with the broader objective of harmonizing domestic and international maritime governance frameworks, thereby establishing a comprehensive enforcement ecosystem to combat IUU fishing. China should also consider its legal interpretations of PSMA provisions, ensuring that port inspections balance ecological governance with trade equity.

Substantial investments in advanced technological infrastructure are imperative to modernize port inspection systems. Upgrading inspection equipment, digital monitoring platforms, and data analytics tools—including AIS, satellite remote sensing, and electronic catch documentation schemes (e-CDS)—will improve the efficiency and precision of vessel inspections. Concurrently, China should actively disseminate its technical expertise in PSMA implementation to other signatory states while engaging in capacity-building initiatives led by the FAO and RFMOs. Participation in such multilateral programs will facilitate knowledge exchange, enabling China to adopt international best practices while strengthening its own compliance capabilities.

Establishing information sharing and deepening international cooperation

Effective implementation of the PSMA hinges on robust information-sharing mechanisms and multilateral collaboration. Establishing a national IUU fishing information platform represents a pivotal strategy to streamline data exchange,

integrating functionalities such as AIS surveillance, e-CDS, and catch origin verification systems. Such a platform would enable management authorities to utilize advanced data analysis and risk assessment models for dynamic evaluation of vessel activities and catch compliance. To amplify its impact, China should synchronize this domestic mechanism with global frameworks such as the FAO's GIES and RFMOs. This entails the timely sharing of suspected IUU vessel data, inspection outcomes, and enforcement actions, while proactively accessing international databases to enhance monitoring precision. In this way, capacity be well-positioned to utilize the information effectively to help manage foreign flagged vessels entering their ports efficiently and help better surveillance as well as decision.

Within RFMOs where China holds membership, the country is well-positioned to advocate for harmonizing regional port state control standards with PSMA requirements. For example, China can advocate in RFMOs such as the WCPFC that its port state measures be coordinated with the relevant provisions of the PSMA in terms of inspection rates, enforcement and penalties, and promote RFMOs' information sharing with the PSMA. Prioritizing cross-border data interoperability and cooperative enforcement protocols will ensure consistent application of port state measures across jurisdictions. Furthermore, China should capitalize on the PSMA as a strategic avenue to deepen cooperation with neighboring states, particularly in Southeast Asia (FAO, 2024). Institutionalizing regular ministerial dialogues and joint working groups could facilitate knowledge transfer in areas such as catch certification, supply chain traceability, and IUU risk mitigation, drawing lessons from the EU's collaborative frameworks (ECA, 2022). Technical and operational partnerships might include sharing port inspection methodologies, co-developing surveillance technologies, and establishing regional information-sharing platforms, in order to promote the cooperation among parties to deal with the investigation of foreign vessels. By providing technical assistance, modern monitoring infrastructure, and capacity-building programs—aligned with initiatives such as the Global Development Initiative, the Maritime Silk Road, and South-South Cooperation—China can contribute substantively to global maritime governance as a provider of international public goods (Yu and Chang, 2023).

Advancing transformational modernization of the fisheries sector

Transformational change towards a ecological friendly fisheries sector is the fundamental way to response to the risk of joining the PSMA. To achieve systemic modernization, a multi-dimensional policy framework must prioritize regulatory enforcement, technological innovation, supply chain transparency, and market-driven structural reforms within the fisheries sector.

Robust oversight mechanisms are critical to curbing IUU fishing. This necessitates institutional upgrades, including the integration of real-time VMS, standardized electronic catch reporting protocols, and harmonized port state controls.

Augmenting at-sea surveillance through satellite tracking and coordinated patrols, coupled with escalated penalties for non-compliance, will deter illicit activities. Simultaneously, mandating comprehensive fishing logbooks and third-party audits of landing data can close procedural loopholes that enable IUU practices.

Transitioning to sustainable harvesting requires incentivizing industry-wide adoption of science-driven technologies and practices. Fiscal policies and technical subsidies should target the development of selective gear modifications, bycatch reduction devices, and spatial-temporal closures to mitigate ecosystem impacts. By embedding chain-of-custody documentation from catch to consumer, a digitized, blockchain-enabled traceability system enhance regulatory accountability while enabling buyers to verify product legality. This transparency not only disincentivizes IUU-derived products but also strengthens market access for certified sustainable seafood, fostering consumer confidence and premium pricing.

Strategic public interventions must drive the sector's structural transformation. Policy tools—including decommissioning grants for outdated vessels, tax incentives for fleet modernization, and R&D funding for low-impact gear technologies—can accelerate sustainable practices. Concurrently, scaling certification programs (e.g., Marine Stewardship Council) and investing in value-added processing infrastructure will elevate the economic viability of legal catches. These measures, combined with circular economy principles in post-harvest operations, reduce systemic IUU risks while positioning fisheries as competitive players in global sustainability-certified markets.

Conclusion

In recent years, China's distant-water fishing activities, characterized by its leading global fleet size and catch volumes, have drawn scrutiny regarding its commitment to fisheries conservation. Nevertheless, China has demonstrated resolute efforts to promote sustainable fisheries resource management, mirroring its proactive stance in climate change action. Its zero-tolerance policy toward IUU fishing is not merely a response to international pressure but a strategic imperative driven by domestic priorities. These include economic restructuring, sustainable development imperatives, and the pursuit of global leadership in fostering a shared ecological future for humanity.

China's accession to PSMA presents both challenges and transformative opportunities. Domestically, ratification aligns with the nation's institutional and industrial modernization agenda. Synergies between economic reforms, technological advancement, and regulatory strengthening have reframed PSMA compliance from a contested obligation into a coherent strategy. This underscores China's dual ambition: enhancing the global competitiveness of its maritime sector while adhering to international sustainability standards. Internationally, PSMA ratification reflects China's calibrated navigation of ecological, legal, and geopolitical pressures. By harmonizing its practices with global norms, China aims to address reputational risks, align with

multilateral governance frameworks, and assert leadership in a multilateralism.

As a developing nation, China shares implementation challenges common to many PSMA signatory states, including fragmented legal frameworks, interagency coordination gaps, inadequate enforcement technologies, and underdeveloped international cooperation mechanisms. Addressing these requires not only domestic reforms—such as refining legislation, upgrading port-state monitoring systems, and standardizing enforcement protocols—but also robust multilateral collaboration under the PSMA framework. Strengthening information-sharing platforms, harmonizing inspection standards, and co-investing in capacity-building initiatives are critical to fortifying port-state measures against IUU fishing. By advancing these dual pathways, China can reinforce its role as a responsible stakeholder in global fisheries governance while securing ecological and economic dividends from its green transition.

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Conflict of interest

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