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Transformative pathways towards good governance in high seas fisheries

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The principle of high seas fishing freedom, while historically significant, has increasingly revealed systemic shortcomings amid accelerating globalization and technological advances in fisheries. Over centuries, high seas fisheries governance has evolved from unregulated exploitation to managed operations, yet substantial challenges persist in achieving sound governance. Key issues include deficiencies in legal frameworks, insufficient international cooperation, inadequate regional fisheries management, and rampant IUU fishing. Guided by the Sustainable Development Goals and the UN Ocean Decade, this study proposes a governance transformation pathway through legislative and practical approaches, advocating strengthened legal frameworks and enhanced international cooperation across multiple levels to facilitate the transition from unrestricted fishing freedom to sustainable governance, engaging sovereign states, regional organizations and corporate entities in this process.

KEYWORDS

ocean good governance, freedom of high seas fishing, fishery resources, pathway analysis, shared responsibility

Introduction

According to the principles of international law, the activities of any state on the high seas are free (The high seas are defined as all parts of the sea that are not included in the exclusive economic zone, the territorial sea, or the internal waters of a state, nor in the archipelagic waters of an archipelagic state. In simpler terms, the high seas are the maritime areas that lie beyond the jurisdiction of any single country. They are considered a global commons, accessible to all states for peaceful purposes, such as navigation, overflight, scientific research, and fishing. This definition is primarily codified in Part VII of the United Nations Convention on the Law of the Sea.). It is rooted in the broad recognition of the freedom of the seas in international law and constitutes the core and foundation of the high seas regime. Among these freedoms, fishing freedom is a traditional high seas liberty, permitting vessels of all nations to engage in fishing activities freely in the high seas, areas beyond the jurisdiction of any state. The principle of freedom of fishing on the high seas is open to all nations. Although the principle of freedom of fishing on the high seas has held significant historical importance, with the acceleration of

globalization and advancements in fishing technology, it has gradually revealed a series of challenges. Researching the governance of high seas fishing is not only theoretically beneficial in addressing legal concerns regarding the current methods and effectiveness of high seas fisheries governance but also contributes to the improvement of multilateral conservation mechanisms and the sustainable development of high seas fisheries management. (Guggisberg, 2019a; 2019b).

Initially, the freedom of fishing on the high seas, as part of the principle of maritime freedom, embodied the concept of liberty—that all nations had the right to engage in fishing activities in international waters without restriction by other states. This freedom was rooted in the idea of shared natural resources belonging to all humankind (Chen et al., 2023). However, with the advent of the Industrial Revolution, advancements in fishing technology led to intensified exploitation of marine resources, necessitating a reevaluation of ocean resource management. Coastal states began asserting sovereignty over adjacent marine areas, reflecting the expansion of the concept of state sovereignty into the maritime domain. This not only challenged the principle of freedom but also highlighted the tension between sovereignty and liberty, as well as the growing struggle over fishing resource rights (Cogliatibantz, 2018). Consequently, conflicts of interest among coastal states led to negotiations and even wars, underscoring the dynamic evolution of international law in addressing new challenges in global ocean governance (Dieter, 2014).

The current major dilemmas facing the principle of freedom of fishing on the high seas can be summarized as the following four points:

First, the legal and institutional framework remains inadequate. The public nature of marine resources demands that the international community transcend the interests of individual nations and jointly assume the responsibility for their management and protection. However, the absence of a supranational public authority leads to fragmented governance among sovereign states, resulting in a collective action dilemma that hinders the formation of effective cooperative mechanisms to address marine governance challenges. Specifically, in the governance of the high seas, their “terra nullius” (no one’s land) characteristic makes them a focal point for resource competition. Illegal fishing, unregulated deep-sea mining, and other exploitative activities have caused severe damage to marine biodiversity and ecosystems. Exploring how to establish effective international cooperation mechanisms while respecting national sovereignty—thereby jointly safeguarding and managing the oceans as a shared resource for all humanity—is not only a political and legal challenge but also an ethical and philosophical pursuit (Chang, 2020). Currently, international law primarily regulates fishing activities on the high seas through treaties such as the United Nations Convention on the Law of the Sea (UNCLOS). However, these legal and institutional frameworks prove inadequate in addressing the complexities of modern fisheries and emerging challenges. For instance, UNCLOS provides only broad principles for high-seas fishing, lacking detailed implementation rules and operational standards. Divergent interpretations and uneven enforcement among states further undermine the effectiveness of these legal

provisions. To achieve sound governance, existing laws and institutions must undergo continuous revision and refinement (Wang, 2020). This includes introducing more precise implementation guidelines and promoting unified standards and coordinated cooperation in enforcement across nations.

Second, the lack of coordination in international cooperation. As global problems continue to worsen and governance deficits accumulate, comprehensive governance requires a unified and coordinated mechanism to address global marine issues (PFO, 2023). However, in reality, governance measures are fragmented, with various institutions acting independently. This fragmentation is manifested not only in the multiplicity and dispersion of governance mechanisms but also reflects the limitations of international law and institutions in addressing global issues. Although the UN system is endowed with authority to promote international cooperation and safeguard global public interests, in areas like fisheries management, it involves numerous institutions such as UNESCO, UNEP, FAO and its Committee on Fisheries (Wang, 2016). These institutions each promote their own governance solutions and projects, lacking necessary coordination and integration, often resulting in dispersed and overlapping actions. In addition to these global governance measures, there remain numerous regional governance activities, such as Regional Fisheries Management Organizations (Howard, 2013). However, these regional institutions can generally only operate within their specific jurisdictions, appearing inadequate when facing trans-regional high seas fisheries issues and failing to achieve effective cross-regional coordination and good governance. This fragmentation of governance measures not only weakens the efficiency and effectiveness of global ocean governance, but also makes sustainable management of marine fishery resources more challenging. Therefore, there is an urgent need to strengthen inter-institutional coordination and cooperation, promote the integration of governance mechanisms and rules, in order to establish a more efficient and coordinated good governance system for the entire high seas, thereby more effectively addressing the complex problems facing global marine fisheries.

Third, the management role of regional fisheries organizations needs urgent enhancement. With advancing fishing technologies and growing human demand, the protection of high seas fisheries resources has become increasingly pressing. In this context, Regional Fisheries Management Organizations (RFMOs) have emerged to play a vital role in conserving high seas fisheries resources, particularly in managing transboundary or internationally located fish stocks. In the transition from freedom of fishing on the high seas to good governance of high seas fishing, these organizations, while crucial to global fisheries management, face challenges that may hinder the realization of sound governance (Hyun, 2013). Member states, driven by competing economic and political interests, often compromise—balancing short-term economic gains against long-term considerations. Within RFMOs, economically powerful nations exert significant influence, prioritizing their interests at times at the expense of sustainable management practices (Caddell, 2018). For instance, fisheries management in the Arctic and Southern Oceans has drawn

multilateral attention, yet political competition and sovereignty claims may undermine the protection of these fragile ecosystems. Similarly, the management of Atlantic bluefin tuna has repeatedly sparked disputes due to conflicts of economic interest among member states. From the perspective of marine governance theory, the disagreements within the International Commission for the Conservation of Atlantic Tunas (ICCAT) over setting annual catch quotas for Atlantic bluefin tuna reflect the trade-offs and conflicts among nations regarding resource utilization, environmental protection, and economic development. Such divisions not only reveal underlying interest conflicts but also highlight the challenge of pursuing sustainability and equity within the global community. Some nations frequently advocate for higher catch quotas to safeguard their fisheries' economic interests, while others, along with environmental groups, push for lower quotas based on scientific advice to ensure the sustainability of bluefin tuna populations (Warner, 2019). These conflicts of interest sometimes result in catch quotas being set above levels recommended by scientific bodies—demonstrating the delicate balance these states must strike between economic interests and sustainability when addressing international demands for bluefin tuna conservation (Oanta, 2016).

Fourth, rampant IUU fishing on the high seas impedes the achievement of good governance. According to FAO reports, global fish catches in recent years have fluctuated between approximately 90 to 93 million tons annually, with the vast majority originating from marine sources. Marine fisheries are estimated to sustain the livelihoods of 12% of the world's population. However, this global industry and the health of the marine ecosystems supporting it are currently under threat, particularly as IUU (Illegal, Unreported, and Unregulated) fishing activities undermine efforts by fishermen and industry stakeholders worldwide to manage marine resources sustainably, effectively, and equitably. FAO statistics indicate that IUU fishing on the high seas results in annual economic losses ranging from \$12 to \$23 billion. These figures underscore the significant impact of IUU fishing on global fisheries resources, as well as the threats it poses to marine ecosystems and global food security. Recent 2021 investigations reveal that nearly 11% of U.S. seafood imports and over 13% of marine catches originate from IUU fishing (USITC, 2021). An estimated 500,000 tons of illegally caught seafood enter the EU market annually, with West African coastal waters identified as a hotspot for illegal fishing activities (EO, 2024). When reported total catches are combined with estimated illegal and unreported catches, they exceed current official figures by up to 40% (Negm, 2020). The IUU Fishing Risk Index, jointly developed by Poseidon Aquatic Resource Management Ltd. (a global fisheries and aquaculture consultancy) and the Global Initiative Against Transnational Organized Crime, provides risk assessments for IUU fishing across different regions and countries. This index systematically evaluates nations through multidimensional metrics, assessing their vulnerability to IUU fishing, its prevalence, and response measures, thereby highlighting both high-risk and low-risk areas (Abrego et al., 2003).

Good Ocean Governance refers to the establishment of effective management and regulatory mechanisms to ensure the protection,

rational development, and sustainable utilization of marine resources. The core principles of Good Ocean Governance include: Rule of law (legal frameworks ensuring compliance); Stakeholder participation (inclusive decision-making processes); Equity and compatibility (fair resource distribution and policy coherence); Accountability (clearly defined responsibilities); Transparency (open access to information and governance processes). The author adopts this theoretical framework due to its significant guiding role in addressing high seas fisheries governance challenges and its broader implications for global governance reform. By applying Good Ocean Governance principles, this study seeks to promote sustainable fishing practices and enhance international cooperation in marine resource management.

Therefore, in light of the challenges analyzed above, this paper aims to explore solutions to these dilemmas and chart a sustainable development pathway.

Constructing a goal-oriented guiding framework for good governance in high seas fishing

In the era of globalization, fostering a sense of global responsibility is one of the crucial tasks we must strive to achieve. To realize good governance in high seas fishing, it is imperative to adopt a genuinely responsible attitude and approach. Good governance of high seas fishing is vital for the development and management of global fisheries, while the establishment and implementation of responsibility represent the core essence and elevation of the theory of ocean governance. Internalized values and principles of responsibility are of paramount importance, as they can enhance trust among diverse stakeholders, facilitate productive consultations, and promote wise and sincere dialogue. Moreover, this shared sense of responsibility at the international level helps address global complexities and the multifaceted challenges associated with the evolving landscape of global governance (Wyman, 2008).

At the international level, shared values play a crucial role in addressing global complexities and the multifaceted challenges inherent in the evolving governance paradigm. This contemporary landscape of fragmented globalization increasingly engages diverse private and non-state actors alongside traditional state entities (UNGC, 2023). These fundamental values and principles serve not as superficial concepts, but rather as essential foundations for: (1) formulating binding obligations; (2) establishing effective governance mechanisms; and (3) developing legitimate institutional frameworks.

The transition from uncontrolled exploitation to good governance in high seas fisheries necessitates the establishment of binding obligations, effective governance mechanisms, and a legitimate institutional framework, which together form the institutional foundation for high seas fisheries governance. First, binding international obligations are crucial for addressing the

“tragedy of the commons.” The current predicament in high seas fisheries stems from the lack of enforcement mechanisms, leading to a race to fish under the principle of “freedom of the high seas.” Transforming voluntary norms into treaty-based obligations, such as the compliance procedures of Regional Fisheries Management Organizations (RFMOs), can effectively curb free-riding behavior and enhance the credibility of states’ conservation commitments. Second, effective governance mechanisms reduce transaction costs in managing distant-water fisheries. For instance, cooperative enforcement mechanisms combat Illegal, Unreported, and Unregulated (IUU) fishing, with practices like those of the Northeast Atlantic Fisheries Commission demonstrating significant reductions in IUU catches. Finally, a legitimate institutional framework strengthens the governance system’s fairness and inclusivity. This requires not only hard-law regulations to clarify rights and obligations but also soft-law approaches to foster a culture of responsibility, particularly addressing developing countries’ equitable claims in resource allocation to prevent diminished institutional effectiveness due to legitimacy deficits. These three dimensions are mutually reinforcing, collectively paving the way for high seas fisheries to evolve from theoretical “freedom” to practical “good governance”.

The United Nations sustainable development goals provide a macro-level direction

At the United Nations Sustainable Development Summit held in 2015, 193 member states jointly approved 17 Sustainable Development Goals (SDGs) aimed at guiding global development from 2015 to 2030. These goals cover three major areas: economic, social, and environmental, and are designed to steer countries towards the path of sustainable development. Among them is Goal 14 (Life Under Water), which focuses on the conservation and sustainable use of oceans and marine resources to promote sustainable development. Throughout history, oceans have served as vital channels for trade and transportation, and managing this crucial global resource is a major aspect of building a sustainable future (Tsoumanis, 2020). The vastness of the oceans and their importance to the Earth’s life support systems are not merely natural phenomena but also significant objects of human legal and moral considerations. Covering nearly three-quarters of the Earth’s surface and accounting for 97% of all water resources, oceans occupy 99% of the Earth’s bio-developable space. They are home to nearly 200,000 species and hold the world’s largest protein resources, making them a valuable “blue granary” bestowed upon humanity by the Earth (Agarwal, 2022). However, in today’s context of over-exploitation by humans, it is crucial to consider how to make good use of this blue granary, especially in terms of high seas fishing. It is imperative to avoid predatory fishing practices simply because the high seas are not under the jurisdiction of any country, which touches upon the establishment and optimization of good governance rules for high seas fishing, a topic explored in this paper.

However, substantive divergences persist in national interpretations and implementations of sustainable development principles. The theoretical framework of marine governance

underscores two critical dimensions: the incorporation of value pluralism, and the integration of ethical considerations in policy formulation. While economic expansion remains a primary national objective for most states, this study contends that exclusively econometric approaches risk neglecting both the inherent ecological worth of marine systems and fundamental questions of distributive justice (Stojanovic and Farmer, 2013).

SDG 14 (“Life Below Water”) substantively incorporates several fundamental elements of marine governance theory, reflecting its multidimensional approach to ocean stewardship. The theory’s emphasis on justice and equity principles finds concrete expression in this goal through three principal mechanisms: First, the goal formally recognizes the dual aspects of rights and responsibilities in marine resource governance. It establishes that all states, communities and individual stakeholders possess both the entitlement to benefit from marine resources and the corresponding obligation to protect the marine environment. This balanced approach specifically mandates the creation of equitable opportunities for developing nations and marginalized groups in marine resource utilization, thereby operationalizing principles of distributive justice in practical ocean governance (Kohona, 2013). Second, SDG 14 reinforces the universal applicability of legal norms while emphasizing cooperative responsibility. It explicitly calls upon all nations to implement existing international maritime legal frameworks, particularly the United Nations Convention on the Law of the Sea (UNCLOS), while also complying with relevant international environmental agreements. This dual legal emphasis strengthens the normative foundation for global marine governance. Third, and most significantly, the goal transcends conventional environmental protection objectives by embodying an integrated governance model that synthesizes four critical principles: (1) environmental sustainability, (2) social equity, (3) global cooperation, and (4) legal accountability. This comprehensive framework requires policymakers to simultaneously consider ecological boundaries, socioeconomic development needs, transnational collaboration mechanisms, and compliance enforcement when formulating marine policies.

The implementation of SDG 14 thus represents more than mere environmental conservation - it constitutes an applied manifestation of marine governance theory that demands holistic, balanced approaches to achieve truly sustainable development outcomes (Piselli and Pavoni, 2017). By requiring the international community to systematically integrate environmental, social and economic factors in policy design and execution, the goal establishes a practical pathway for realizing the theoretical ideals of just and effective ocean governance (Andrew, 2008).

“United Nations decade of ocean science for sustainable development” initiative provides specific goals from an ocean perspective

At the 72nd United Nations General Assembly in 2017, a resolution was adopted to designate 2021–2030 as the “United

Nations Decade of Ocean Science for Sustainable Development” (hereinafter referred to as the “Ocean Decade”). The establishment of the Ocean Decade has enhanced scientific understanding of marine ecosystems and aims to promote more equitable and sustainable future development. This requires all sectors of society to recognize humanity’s role as part of Earth’s ecosystem and our responsibility to maintain its balance, thereby advancing the implementation of the 2030 Agenda for Sustainable Development (Thea, 2016). The Ocean Decade Implementation Plan - a highly participatory and inclusive process - builds upon existing achievements to take action across regions, sectors, disciplines and generations to address ten key challenges, while uniting all partners in collective action. Both the Ocean Decade and its Implementation Plan demonstrate the international community’s efforts to provide science-based solutions for ocean management at global to local levels within the framework of the United Nations Convention on the Law of the Sea. (UNCLOS) (OCEANDECADE, 2023).

The “Ocean Decade” initiative represents a concerted global effort to advance scientific research and innovation for the sustainable management of marine resources, while operationalizing several core tenets of ocean governance theory (Yuan, 2018). This initiative manifests through two principal dimensions: First, it institutionalizes an integrated management paradigm that combines interdisciplinary research methodologies. Specifically, the Ocean Decade: Promotes comprehensive approaches to address complex marine environmental and resource utilization challenges; Embodies the holistic, systems-oriented perspective central to ocean governance theory; and Requires policymakers to simultaneously consider legal frameworks, socioeconomic factors, environmental impacts, and societal dimensions when developing marine policies (UNISM, 2023). Second, the initiative establishes mechanisms for global cooperation and knowledge exchange. Through: Creating transnational scientific research networks; Facilitating multilateral dialogue on marine environmental challenges; and implementing the provisions of UNCLOS regarding states’ rights and obligations in marine scientific research. The Ocean Decade’s governance framework, working in concert with UNCLOS mandates, fosters an enabling environment for implementation by: Strengthening institutional partnerships; Enhancing funding mechanisms; Promoting policy dialogue; Establishing clear accountability measures (Kirk, 2015).

This integrated approach ensures that scientific innovation directly informs policy development while maintaining alignment with international legal frameworks and governance best practices.

In today’s global governance deficit environment, more attention should be paid to how to achieve a transformation in high seas fishing patterns through the theory of ocean good governance (OCEANDECADE, 2023). Global governance issues reflect the divergence of the international community at the moral and ethical level. When some countries adopt an “inward-looking” strategy, focusing mainly on their own interests rather than global public goods, it leads to a deficit in global governance mechanisms, which is particularly evident in the field of global ocean governance (Augusto et al., 2020). The theory of ocean good governance emphasizes the principles of global justice and equality, arguing that members of the international community should share the

responsibility of protecting global public goods, rather than placing a disproportionate burden on some countries. The existence of global governance, trust, and development deficits indicates that the international community faces significant challenges in achieving equitable and sustainable development. Countries should place greater emphasis on the goal of good governance in high seas fishing, and through specific pathways of good governance in high seas fishing, maintain high seas fishery resources and seek a sustainable path for high seas fishing (Qureshi, 2018).

The United Nations Sustainable Development Goals (particularly SDG 14 - Life Below Water) and the UN Decade of Ocean Science for Sustainable Development (2021-2030) serve as important conceptual anchors for resolving the four governance challenges identified in our analysis. At a philosophical level, they help reconcile competing interests through their emphasis on intergenerational equity and common heritage principles, while their implementation mechanisms suggest practical approaches for overcoming the fragmentation in current governance regimes.

Improve the legal and institutional framework

Legislative and judicial mechanisms serve as crucial instruments in facilitating the transition from the traditional principle of high seas fishing freedom to a modern paradigm of good governance in high seas fisheries. While these legal approaches are not without limitations, the establishment of a robust and well-structured legal and institutional framework remains essential for achieving meaningful governance reform. Through systematic improvements to existing laws and the development of more effective regulatory systems, the international community can progressively realize the shift toward sustainable and equitable high seas fisheries management.

Call on more countries to introduce domestic laws related to IUU fishing on the high seas

IUU fishing exists in all regions, types, and scales of fisheries. This paper focuses on the issue of IUU fishing on the high seas, therefore only discussing IUU fishing activities in the high seas, particularly unregulated fishing (Roza, 2007), which refers to fishing activities conducted in areas or targeting specific fish stocks without applicable conservation and management measures, and not in conformity with the state’s responsibilities for the conservation of marine living resources under international law (FAO, 2018). The high profits of IUU fishing are astonishing. According to a report by the non-governmental organization Global Financial Integrity, which investigates illicit financial flows, IUU fishing is the sixth most profitable criminal economy in the world, with estimated revenues ranging from 3.6 billion to 20.17 billion USD. Such enormous profits have given rise to the persistent occurrence of IUU fishing. IUU fishing is not only a violation of existing marine

management and conservation measures but also a serious infringement on the principles of shared and equitable utilization of marine resources (DIALOGOAMERICAS, 2021). It undermines collective efforts aimed at achieving long-term sustainability of marine ecosystems and poses unfair competition to law-abiding fishermen, impairing their livelihoods and the well-being of their communities (Telesetsky, 2020).

At present, many fishing nations worldwide have established domestic laws and regulations to combat Illegal, Unreported, and Unregulated (IUU) fishing. However, some countries—due to limited regulatory capacity, low prioritization of fisheries management, or political and economic factors—have yet to develop dedicated domestic legislation targeting IUU fishing, or their existing laws contain significant gaps. For instance, certain small island states and developing nations, such as Pacific Island countries (e.g., Kiribati, the Marshall Islands, Nauru, and Tuvalu), heavily depend on fisheries resources but have weak domestic legal frameworks. They primarily rely on the regulatory measures of regional fisheries management organizations (RFMOs) and lack independent IUU fishing legislation. Similarly, some coastal African states (e.g., Guinea-Bissau, Sierra Leone, and Liberia) face constraints in fisheries management capacity, with lax law enforcement and even tolerance of “flag of convenience” vessels operating in their waters. These countries often lack clear punitive provisions against IUU fishing. The above demonstrates that the domestic enforcement against IUU fishing still requires significant improvement (Yu and Quan, 2022).

In recent decades, whether through legally binding international documents or regional legislation, the issue of IUU fishing has been explicitly or implicitly addressed. Examples include the Agreement on Port State Measures, the International Plan of Action to Prevent, Deter and Eliminate IUU Fishing, and EU Regulation No. 1005/2008 (EU IUU Regulation) (EC, 2008). For instance, the EU IUU Regulation includes measures to prevent vessels on the blacklist from entering EU ports and markets (Guggisberg, 2019a). In another example, in 2016, the US Traceability Program to Combat Illegal Fishing and Seafood Fraud came into effect. This regulation expands the traceability procedures for imported seafood, collecting all detailed data involving every link in the commercial distribution chain, with the aim of ensuring the traceability of seafood products. It can be seen from this that individual countries can introduce domestic laws and utilize the coercive power of domestic law enforcement agencies to constrain the profit-making aspects of IUU fishing, increase penalties, and strengthen regulatory mechanisms, with the goal of reducing IUU fishing (Donovan, 2023).

Promote the ratification and entry into force of the WTO agreement on fisheries subsidies as soon as possible

In June 2022, the WTO’s 12th Ministerial Conference adopted the Agreement on Fisheries Subsidies and its Protocol, announcing the opening of the Protocol for acceptance by members (Chandran, 2023). For the Agreement on Fisheries Subsidies to enter into force, two-thirds of member states must deposit their “instrument of acceptance” with the WTO. The conclusion of this agreement reflects the global

community’s shared commitment to the sustainable management of marine resources (WTO, 2025). As of July 24, 2025, according to the latest data, the WTO Agreement on Fisheries Subsidies has been ratified by 106 member states (with Argentina submitting its instrument of acceptance on July 22, 2025). Since the agreement requires approval from two-thirds (111) of WTO members to enter into force, formal implementation still awaits ratification by 5 more countries (WTO, 2025). The acceptance and ratification process of the Agreement on Fisheries Subsidies demonstrates the formation of global consensus and the role of law and policy in promoting environmental sustainability. With more and more WTO members accepting this agreement, it showcases the international community’s joint efforts and commitments towards sustainable development and environmental protection (Warner, 2019).

The Agreement on Fisheries Subsidies embodies several key principles in the governance of high seas fishing, facilitating the transition from freedom of high seas fishing to good governance of high seas fishing. Firstly, by limiting and phasing out harmful subsidies for fishing activities, the agreement helps reduce overfishing. These subsidies, including fuel subsidies, subsidies for new vessel construction, and subsidies for fishing equipment, all encourage fishing vessels to increase their fishing intensity, leading to the depletion of fish stocks (Lo and Wang, 2021). Secondly, through the implementation of the agreement, countries need to re-examine and adjust their own fisheries management policies to comply with international regulations. This demonstrates the international community’s shared responsibility for the sharing and protection of high seas resources and emphasizes the crucial role of international cooperation in safeguarding global public interests (MFAPRC, 2023). Furthermore, Article 7 of the agreement stipulates the establishment of a fisheries financing mechanism to provide targeted technical assistance and capacity-building to help developing and least developed country members implement the agreement (Yu and Liu, 2024). The agreement’s special and differential treatment for developing and least developed country members reflects the application of the principle of equity, ensuring that global governance measures promote sustainable development while also addressing the specific needs and challenges of different members in the global economy.

In conclusion, the section on improving the legal and institutional framework directly addresses the first critical issue identified in the preceding analysis. It examines how to enhance the current principle of high seas fishing freedom – which has become increasingly incompatible with contemporary international realities – through systematic legal restructuring and institutional development. The discussion explores pathways for establishing more rational governance mechanisms to facilitate the transition toward sound governance of high seas fisheries.

Strengthen international cooperation at various level

International cooperation constitutes an essential component in advancing good governance of high seas fisheries, enabling nations

to overcome the limitations imposed by territorial boundaries and collectively address both the challenges and opportunities inherent in high seas fishing activities. By fostering multi-level collaboration among diverse stakeholders, this cooperative approach facilitates the sustainable utilization of marine resources while ensuring the long-term ecological integrity of global marine ecosystems (Pattberg, 2005).

Coordinate and strengthen the role of regional fisheries management organizations

As outlined in the Introduction, current regional fisheries management organizations (RFMOs) exhibit jurisdictional overlaps and coordination gaps in their governance scope. Within these organizations, economically powerful nations often exert disproportionate influence, leading to preferential consideration of their interests - potentially at the expense of sustainable management practices (ICIJ, 2024). These shortcomings are particularly evident in the fisheries management regimes of the Arctic Ocean and Southern Ocean, as well as in RFMOs governing species such as Atlantic bluefin tuna.

Regional Fisheries Management Organizations (RFMOs) possess significant potential to strengthen their governance authority and compliance oversight through targeted institutional reforms (Fife, 2019). Specifically, progressive RFMOs have begun implementing digital compliance monitoring systems that integrate real-time data collection, automated analysis (Joyeeta, 2016), and standardized reporting mechanisms. These technological advancements are complemented by the formalization of compliance benchmarks and the establishment of graduated sanctions for non-compliance, thereby enhancing both procedural transparency and regulatory accountability. To optimize governance outcomes, compliance committees must adopt a dual-focused operational strategy: proactively identifying emerging implementation challenges while systematically tracking longitudinal compliance patterns. This requires the development of evidence-based intervention protocols and rigorous post-assessment procedures to ensure corrective measures effectively mitigate recurrent violations (Valentin et al., 2019). Furthermore, RFMOs should prioritize administrative efficiency by transitioning compliance documentation and reporting to centralized digital platforms, thereby reducing bureaucratic redundancies and operational costs for member states (Wyman, 2018). Crucially, inter-organizational synergy must be cultivated through multilateral knowledge-sharing frameworks. Compliance committees should spearhead collaborative initiatives to harmonize regulatory standards, align monitoring methodologies, and establish unified compliance databases across RFMOs. Such coordinated efforts not only improve information interoperability but also create mutually reinforcing accountability mechanisms within the global fisheries governance architecture (Hutchins, 2021).

Some RFMOs are already at the forefront of cooperation. For example, the Western and Central Pacific Fisheries Commission (WCPFC) has important cooperative relationships, with the Pacific Islands Forum Fisheries Agency (FFA) being a key partner. The FFA is an organization composed of independent Pacific island countries that share common fisheries interests in the Pacific region (OLSRSG, 2018). WCPFC closely coordinates with the FFA, and FFA members are also members of WCPFC. Another important partner of WCPFC is the Secretariat of the Pacific Community (SPC), whose Oceanic Fisheries Programme serves as the scientific service provider and data manager for WCPFC (WCPFC, 2023). This relationship ensures that there is no duplication of effort in collecting and processing scientific data on fisheries activities in the region. This connection can promote exchanges and cooperation among various RFMOs, allowing them to share resources and improve work efficiency. This model will also enhance tacit cooperation among management organizations, working together to promote the healthy and positive development of high seas fisheries.

The enhanced operational capacity of Regional Fisheries Management Organizations (RFMOs) manifests critical dimensions of marine governance theory through two fundamental operational paradigms (Karavias, 2018). Firstly, the sustainability imperative is concretely operationalized through RFMOs' statutory mandate to regulate the exploitation of transboundary fishery resources within their jurisdictional purview. This institutional function directly embodies the intergenerational equity principle central to marine governance theory - specifically, the ethical obligation to preserve marine resource regeneration capacity while satisfying contemporary utilization demands (Swan, 2020). Secondly, RFMOs exemplify the global co-governance framework through their transnational management of highly migratory fish stocks. This cross-jurisdictional regulatory mechanism actualizes the theory's core tenet of shared responsibility, establishing a operational model where coordinated state actions supersede fragmented national approaches. The organizations' constitutive mechanisms - particularly their multilateral decision-making protocols and compliance monitoring systems - provide institutionalized channels for implementing the theory's requirements for collaborative problem-solving and burden-sharing in addressing transboundary marine challenges (Piselli and Pavoni, 2017).

Improve the high seas marine protected area system

In 1962, the World Conference of National Parks first proposed the concept of marine protected areas (CMDRC, 2022). In 1988, the International Union for Conservation of Nature (IUCN) clarified its goal to achieve the long-term protection and restoration of marine ecosystems and promote the utilization of marine resources (Pereira and Berger, 2018). The complex ecosystems in areas beyond national jurisdiction are often considered the world's last "global

commons,” including the water column and seabed of the high seas. While no single country bears full responsibility for managing these areas, they account for 40% of the Earth’s surface, 64% of the ocean surface, and nearly 95% of the ocean’s volume (GEF, 2022). However, due to the lack of a unified legal framework and the complexity of national interests in international waters, the establishment of marine protected areas faces more challenges. This highlights the importance of global governance and international cooperation, requiring the international community to work together to protect and manage these marine areas beyond national jurisdiction through the formulation and implementation of international laws.

As of 2025, the global coverage of marine protected areas stands at 9.61%. The world’s oceans can be divided into areas within national jurisdiction (national waters) and international waters (areas beyond national jurisdiction, or ABNJ). In national waters, where dedicated legal systems exist, governments can more easily establish marine protected areas (Sun, 2025). In ABNJ, however, the complex existing legal framework makes the creation of marine protected areas more challenging. As a result, the percentage of marine protected areas established within national waters is significantly higher than in ABNJ. National waters account for 39% of the global ocean, and currently, 22.53% of these waters are designated as protected areas. In contrast, only 1.45% of ABNJ, which constitutes the remaining 61% of the global ocean, is identified as protected. International discussions are currently underway to identify ways to streamline the process of establishing marine protected areas in ABNJ (MPA, 2025). However, in terms of the practice of fishing systems in high seas protected areas, the adherence to the principle of freedom of fishing on the high seas and the current situation where only a few countries participate in the construction of high seas protected areas reveal a challenge in global governance: how to find a balance between national interests and global common interests?

The management measures of the four high seas marine protected areas involve varying degrees of fishing restrictions. Although the four high seas marine protected areas have certain restrictions on contracting parties, exceptions are allowed (Wang, 2019). For example, the conservation measures of the South Orkney Islands Southern Shelf Marine Protected Area reflect the application of the precautionary principle and the sustainability principle in practical marine management. These measures prohibit all types of fishing activities in designated areas, except for scientific research for monitoring purposes or as recommended by the Scientific Committee, embodying a management approach based on scientific and ethical considerations (CM, 2009). However, in emergencies involving the safety of life at sea, the prohibitions in this conservation measure do not apply (Zhang N. G, 2024). In January and February 2018, Japanese whaling ships, under the guise of scientific research on minke whales, conducted a five-week killing spree within the Ross Sea Marine Protected Area, slaughtering at least 50 minke whales (CMDRC, 2022). Although the Commission for the Conservation of Antarctic Marine Living Resources agreed to establish the Ross Sea as a marine protected area, it did not strictly control whaling activities in the Ross Sea Marine Protected

Area, giving Japan an opportunity to exploit the situation (Hou and Jing, 2025).

The practice of high seas marine protected areas is still in its developmental stage, but this is precisely what the theory of ocean good governance is concerned about. First and foremost, the principle of freedom of fishing on the high seas should be appropriately prohibited in high seas marine protected areas to maximize their effectiveness. Currently, the high seas marine protected area system is a comprehensive conservation measure, not specifically designed for fisheries, so how to develop high seas fisheries within high seas marine protected areas has been one of the key directions for future development (Guggisberg, 2020). Although the BBNJ Agreement has reached agreement on the text, the official convention has not yet entered into force. Management measures for high seas marine protected areas should still strictly regulate long-arm jurisdiction and apply soft law as much as possible to safeguard the interests of all parties (Scovazzi, 2004). Despite the adoption of the Kunming-Montreal Global Biodiversity Framework in December 2022, which sets the goal of protecting at least 30% of the global ocean by 2030, the current coverage of high seas marine protected areas is not high, and existing high seas management mechanisms cannot provide sufficient protection for high seas organisms. The BBNJ Agreement will fill the gaps in existing high seas management mechanisms by establishing a mechanism for the establishment of protected areas in areas beyond national jurisdiction, making it possible to achieve the “30 by 30” target (Ros, 2017).

Promoting sustainable fisheries certification and ecolabeling

In modern high seas fisheries governance, sustainable fisheries certification and ecolabeling are important tools aimed at promoting the sustainable use of fishery resources and providing consumers with transparent information about the origin of fishery products and fishing practices. Strengthening such certification and labeling can contribute to the transition from freedom of high seas fishing to good governance of high seas fishing.

For example, the Marine Stewardship Council (MSC) is one of the most well-known sustainable fisheries certifications, awarding certifications and ecolabels to fisheries that meet its environmental standards (MSE, 2022). Its standards focus on assessing the impact of fisheries on target species, their impact on ecosystems, and the effectiveness of fisheries management (Telesetsky, 2017). Friend of the Sea is another international certification program that evaluates and certifies the sustainability of wild and farmed fisheries, based on principles such as reducing environmental impact (FOS, 2023), protecting marine biodiversity, complying with catch quotas, and reducing bycatch waste. The Global Aquaculture Alliance (GAA) primarily focuses on aquaculture, but its Best Aquaculture Practices (BAP) certification also has an indirect impact on the overall sustainability goals of high seas fisheries governance (Lee and Connelly, 2006). This certification covers the entire supply chain, from feed production to farming, processing, and transportation,

ensuring that farming activities have minimal negative environmental and social impacts (Roderburg, 2011). The Earth Island Institute's "Dolphin Safe" label is a certification specifically for tuna fisheries, ensuring that the fishing process does not harm dolphins, and helps consumers choose tuna products that are not caught using methods harmful to dolphins (Housman and Zaelke, 1992).

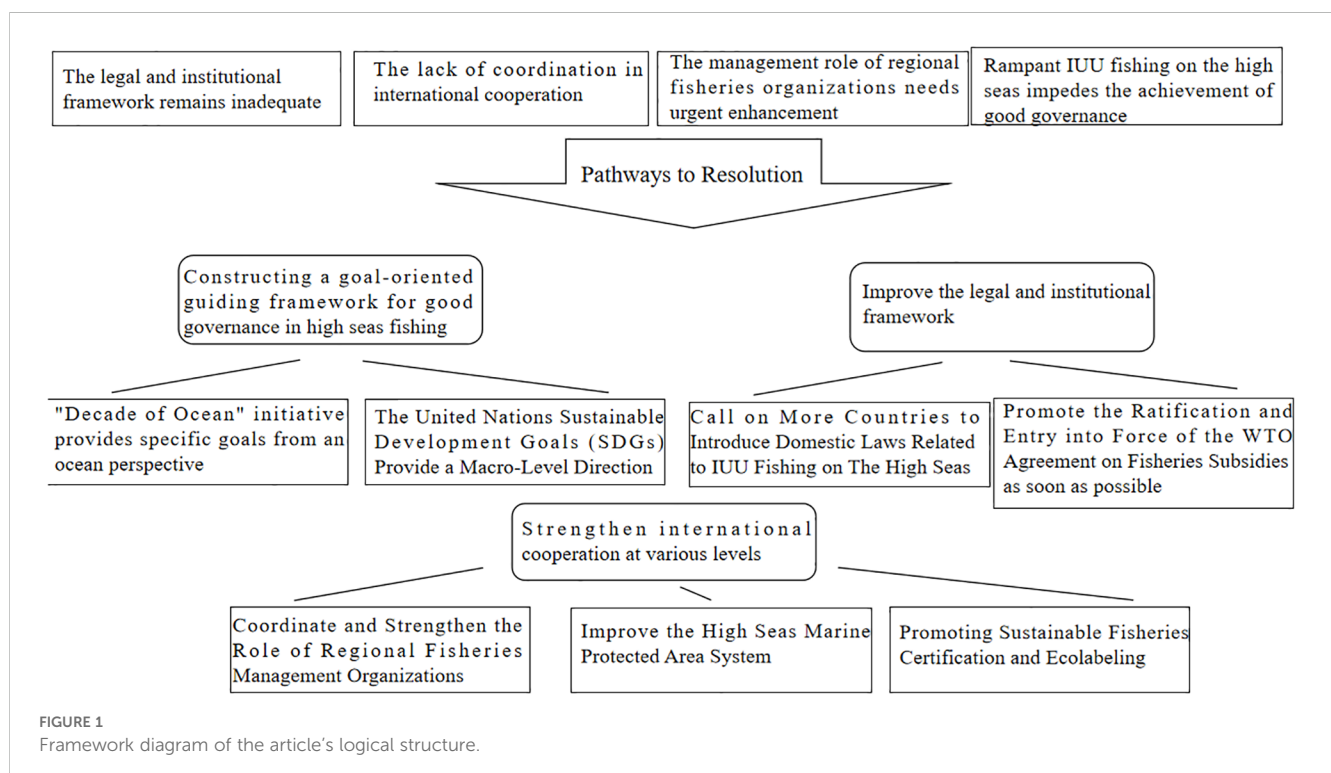
Sustainable fisheries certification and ecolabeling have played a crucial role in promoting the transition towards good governance in high seas fishing, primarily through the following aspects: Firstly, sustainable fisheries certification typically requires that fishing activities meet a range of environmental and social standards. Certification bodies usually conduct regular audits of certified fisheries to ensure their continued compliance with certification standards. This oversight mechanism enhances the accountability of fishing enterprises and promotes better management practices. Secondly, by obtaining sustainable fisheries certification, fishery products can gain higher market recognition and competitiveness. Consumers are increasingly inclined to purchase products with ecolabels, prompting fishing companies to adopt more environmentally friendly practices in their fishing methods and resource management in order to gain and maintain market share. Additionally, it can enhance the brand image and reputation of fishing enterprises, further encouraging them to engage in good governance practices to maintain their certification status (Anyogu et al., 2021).

In summary, strengthening international cooperation at different levels can directly address the three high seas fishing freedom issues identified earlier: insufficient coordination in international cooperation, the urgent need to improve the management effectiveness of regional fisheries organizations, and

rampant IUU fishing hindering good governance. The three sound governance pathways proposed in this section—enhancing the role of regional fisheries management organizations through coordination, improving the high seas protected area system, and promoting sustainable fishery certification and eco-labeling—can each address these problems from different perspectives. (Figure 1).

Conclusion

The transition from freedom to good governance in high seas fishing constitutes a crucial imperative for the modernization of the global ocean governance system. This transformation relies on the establishment and implementation of systematic pathways. Through three dimensions—goal orientation, legal refinement, and deepened cooperation—this paper systematically outlines a framework for the governance transition of high seas fisheries. First, the United Nations Sustainable Development Goals (SDGs) and the "Ocean Decade" initiative provide value-based guidance and scientific foundations for high seas governance, emphasizing ecological conservation, equitable resource distribution, and international collaboration as core principles. Second, the improvement of legal and institutional frameworks serves as the cornerstone of governance transformation. This includes strengthening domestic legislation to combat IUU (Illegal, Unreported, and Unregulated) fishing, advancing the ratification of the Fisheries Subsidies Agreement to curb overfishing, and leveraging the BBNJ Agreement (Agreement on Biodiversity Beyond National Jurisdiction) to address gaps in high seas marine protected area (MPA) regimes. Finally, multi-tiered international



cooperation is pivotal to overcoming governance deficits. Enhancing the efficacy of RFMOs, optimizing high seas MPA systems, and promoting sustainable fishery certifications are essential to reconciling national interests with global public goods (Cao, 2025).

This study provides a governance framework with practical value for key stakeholders in high seas fisheries management. It offers policymakers and government agencies a theoretical foundation and policy tools for negotiations and legal reforms. For Regional Fisheries Management Organizations (RFMOs), it delivers a roadmap for modernizing decision-making, enforcement, and integrating ecological principles. International organizations like the FAO, CBD, and WTO can use its insights to develop guidelines, promote policy synergy, and inform negotiations on subsidies and trade measures. Non-governmental organizations and academia can leverage the findings to advocate for reform, monitor implementation, and further research. Finally, the fishing industry can adopt the framework to prepare for future regulations, implement best practices, and gain a competitive market advantage through sustainability certifications. This ensures the research is actionable and accessible for all entities working to improve global fisheries governance.

This article primarily summarizes and analyzes four existing issues concerning fishing on the high seas. The approaches to addressing these problems are structured around three interconnected perspectives, which exhibit a progressive relationship: from goal establishment (strategic planning), to legal safeguards (institutional development), and finally to cooperative advancement (implementation level). This systematic pathway—objectives, institutions, and execution—facilitates a gradual transition from freedom of fishing on the high seas to effective governance.

Current practices reveal that despite incremental progress through legal instruments and governance mechanisms, challenges such as legal fragmentation, insufficient enforcement, and geopolitical competition persist. Future efforts must prioritize the harmonization of international legal norms, strengthen science-based decision-making, and foster a global governance ethos to shift high seas fisheries governance from a “laissez-faire” model to a “shared responsibility” paradigm. This will ultimately achieve long-term objectives of ecological sustainability, equitable resource utilization, and the protection of global marine commons. (Zhang Z. H, 2024) Only by transcending short-term interests and adhering to the principle of “common but differentiated responsibilities” can nations realize the vision of good governance in the high seas—a shared heritage of humankind.

While this study provides a systematic analysis of high seas fisheries governance issues, it still exhibits certain limitations, particularly in its insufficient exploration of power imbalances between distant-water fishing nations and developing coastal states, as well as its predominantly theoretical discussion of emerging legal frameworks such as the BBNJ Agreement. Future research could therefore place greater emphasis on: investigating the policy integration of technological solutions like AI monitoring and blockchain traceability, and examining the synergistic mechanisms between fisheries governance and broader marine

policies such as biodiversity conservation. Such in-depth studies would contribute significantly to refining the implementation pathways for sustainable governance of the high seas.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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