Global Fisheries, Local Losses: Ocean Grabbing Through Power Imbalances

Micaela Soldi

A thesis

submitted in partial fulfillment of the

requirements for the degree of

Master of Marine Affairs

University of Washington

2025

Committee:

Erendira Aveces-Bueno

David Fluharty

Program Authorized to Offer Degree:

Marine and Environmental Affairs

University of Washington

Abstract

Global Fisheries, Local Losses: Ocean Grabbing Through Power Imbalances

Micaela Soldi

Chair of the Supervisory Committee:

Erendira Aceves-Bueno

Marine and Environmental Affairs

As industrial fishing fleets expand globally, competition over marine resources has intensified, often to the detriment of coastal communities. Scholars have used the concept of "ocean grabbing" to critique the appropriation of marine space and benefits by powerful actors, but existing frameworks focus narrowly on spatial and resource exclusion, overlooking more subtle forms of dispossession. This thesis rethinks ocean grabbing through a comparative analysis of three fisheries: tuna in Senegal, totoaba in Mexico, and squid in Peru. These cases reveal that ocean grabbing is not just about access, but also about who controls the benefits and bears the costs. To remain analytically useful, the framework must be expanded to account for the redistribution of benefits and burdens, the role of governance failures in enabling appropriation, and the structural inequalities that allow powerful actors to operate with impunity. Broadening the framework in this way enhances its relevance for analyzing modern fisheries conflicts and for advocating more equitable and accountable ocean governance.

TABLE OF CONTENTS

List of Figures

List of Tables

ACKNOWLEDGEMENTS

First and foremost, I would like to thank my family for their unwavering support, encouragement, and belief in me throughout this entire journey. Your constant presence, from both near and far, has carried me through the challenges and made the milestones all the more meaningful.

I would also like to thank my advisors, Dr. Eréndira Aceves-Bueno and Dr. David Fluharty, for their thoughtful mentorship and for continually pushing me to sharpen my ideas and deepen my analysis. Your feedback and support have shaped this project in more ways than I can count.

I am sincerely thankful to the Graduate School of Equity and Excellence and to the School of Marine and Environmental Affairs for funding my two years at the University of Washington. Your support made this opportunity possible, and for that, I am deeply appreciative.

Finally, I would like to acknowledge all of the professors and courses I've taken at UW, which have been instrumental in shaping my academic growth and professional identity. Each class, conversation, and challenge has left a lasting mark on my thinking and approach to marine and environmental issues.

DEDICATION

For my mom, whose love is in everything I do and whose dream this always was. Even though she's not here to see this moment, I carry her with me in every step I take.

And for my dad, who shared his passion with me from the very beginning. His love for the ocean became mine, and his guidance has shaped not just this thesis, but the person I've become.

Chapter 1. INTRODUCTION

Since the 1960s, global seafood consumption has doubled, prompting industrial fishing fleets to expand into international waters and the exclusive economic zones (EEZs) of other countries to meet rising demand (FAO 2020). Many economically affluent countries have transferred their own crises of overfishing to the periphery, contributing to migration flows towards developing countries (Doerr 2016). Some economically affluent nations have increasingly relied on distant-water fishing (DWF) to access valuable fish stocks abroad, driven by technological capacity, pursuit of high-value species, and government subsidies that offset operational costs (Hausheer 2013; Yozell and Shaver 2019; Pew Charitable Trusts 2022). Today, five countries—primarily China, Taiwan, Japan, South Korea, and Spain, account for 90% of global DWF activity (Yozell and Shaver 2019).

The expansion of DWF has been fueled by coastal stock depletion, rising global demand, government subsidies, and technological advances (Sala et al. 2018; Gutiérrez et al. 2020; Swartz, Sala, et al. 2010). DWF fleets often exploit weak governance and enforcement in less economically powerful nations, targeting rich fishing grounds at the expense of host coastal nation fishing industries and subsistence fisheries and the health of marine ecosystems. (Stäbler et al. 2022a; Klein et al. 2021). A study of 172 countries found that 76% fish outside their own EEZs, mostly in less-effectively managed areas, with 95% fishing in the high seas and 45% in other countries' EEZs (Klein et al. 2021).

While rising demand has driven DWF expansion, government subsidies often make it financially viable by supporting vessel construction, fuel costs, and infrastructure (Skerritt et al. 2023). Most

subsidies are considered harmful, distorting markets, encouraging overfishing, increasing carbon emissions, and disproportionately impacting small-scale fishers (Kaczynski 1979; Sumaila et al. 2019; Machado et al. 2021; Gallic and Cox 2006). Between 20% and 37% of harmful subsidies support fishing beyond national waters (Skerritt et al. 2023). Since 1950, heavily subsidized fleets have expanded their reach from 60% to over 90% of the world's oceans, with China, the European Union (EU), the U.S., South Korea, and Japan leading global subsidy distribution (Tickler et al. 2018). Depleted fisheries and growing seafood demand in Europe and Asia have further pushed these fleets into the waters of developing nations (Bonfil et al. 1998; Pauly et al. 2002; Swartz, Sala, et al. 2010).

A significant disparity exists between where fish are caught and where they are consumed, causing fish to be transported to and consumed primarily in affluent, industrialized countries (Swartz, Sumaila, et al. 2010). In certain countries, foreign fleets engage in fishing activities at levels that surpass those of the host nation (Gianni and Simpson 2005). This geographical expansion of the global fishing industry often comes at the cost of the host fishing nation, resulting in serious social, economic, and ecological consequences, as documented by multiple researchers (White et al. 2022; Watson et al. 2017; Pauly, Watson, and Alder 2005; Gagern and van den Bergh 2013)

Wealthy nations that dominate global seafood production exert influence over developing nations reliant on seafood for nutrition and economic development. Their power is reinforced through strategic fishing supply chain investments in these nations (Office of Naval Intelligence 2021; Klein et al. 2021). As global seafood consumption is projected to rise 18% by 2030 according to the FAO (2020), major suppliers will likely gain even greater market control and influence.

Numerous studies have linked distant water fishing to Illegal, Unreported, and Unregulated (IUU) fishing activities (Tickler et al. 2018; Belhabib et al. 2020; Abbott, Willard, and Xu 2021). However, it is important to recognize that unsustainable and unethical fishing practices cannot always be classified as illegal, unreported or undocumented because they often occur through legal agreements, strategies, or by exploiting loopholes. Many developed nations take advantage of poor governance and weak resource management in developing countries, leveraging their political and economic power to appropriate the host nation's resources (Fanjul and Fraser 2003; Boullenois and Jordan 2024; Corporate Europe Observatory 2023).

Previous scholars have characterized these resource appropriation events using the concept of ocean grabbing (also referred to as blue grabbing (Hill 2017) or fish grabbing (Stäbler et al. 2022). Ocean grabbing describes the appropriation or exploitation of ocean spaces and resources by entities that are relatively powerful compared with and at the expense of local communities, small-scale fishers, and the environment (Bennett, Govan, and Satterfield 2015). These dynamics often result not only in resource capture but in the dispossession of traditional users, whose access, control, and benefits from marine resources are eroded through distant or opaque decision-making processes. Ocean "grabs" are often used to describe conservation initiatives, policies, or actions that divert resources away from communities due to economic interests, raising significant ethical, social, and environmental concerns. The term was adapted from the concept of land grabbing, which describes space and resource appropriation on land (GRAIN 2008).

Given its origin, the concept of ocean grabbing effectively describes the appropriation of physical space. However, applying a concept initially developed for terrestrial resources to

marine environments reveals certain limitations. Tenure in marine systems is inherently difficult to define due to several factors. Marine systems are interconnected, with resources moving across vast and undefined spaces. Additionally, fisheries management in areas like the high seas is complex, and existing international agreements and organizations often fall short in effectively regulating and protecting these areas and the resources found within them.

The concept of ocean grabbing is commonly used to analyze initiatives and policies such as deep sea mining (Owusu et al. 2023), marine protected areas (Hill 2017), rights-based approaches (Foley and Mather 2019), aquaculture (Knott and Neis 2017), coastal development projects (Franz et al. 2023) and tourism (Benjaminsen and and Bryceson 2012). However, when resource appropriation is not spatial and refers to more nuanced dynamics between the fishing nation and the host nation, the current framework of ocean grabbing falls short.

The global fisheries industry is marked by a significant power imbalance between relatively wealthy fishing nations able to subsidize DWF and the developing countries that have jurisdiction over valuable marine resources within their EEZ. Although these host nations hold jurisdiction over their waters, they often lack the political and economic leverage needed to negotiate equitable agreements with more affluent countries. This disparity allows economically powerful nations to exploit weaker enforcement and management systems in developing regions, leading to unsustainable fishing practices. As a result, wealthy nations reap the economic benefits, while host countries are left with the environmental degradation, loss of livelihoods, and threats to food security (Stäbler et al. 2022b; Watson et al. 2017; Gegout 2016).

Ocean grabbing is a complex issue that involves more than just powerful actors restricting access to marine resources. Through a literature review, I identify regulatory loopholes, like coercive

diplomacy and fisheries subsidies, that affluent countries exploit to support unsustainable fishing. This research examines three case studies, the tuna fishery in Senegal, the totoaba fishery in Mexico, and the squid fishery in Peru, to evaluate whether current framework of ocean grabbing captures the complexities of global fishing and trade. The research explores how ocean grabbing can emerge through intricate, multi-actor networks across national and transnational scales, rather than as a simple binary phenomenon.

This thesis aims to assess whether the existing ocean grabbing framework by Bennett, Govan, and Satterfield (2015) can be expanded to better capture the complex patterns of resource redistribution in fisheries, especially in regions with geopolitical tensions. The research explores how the current ocean grabbing framework addresses these complexities and whether the distribution of fisheries resources is equitable or favors certain actors. By analyzing existing definitions, case study patterns, and framework limitations, the goal is to develop a more comprehensive, globally relevant understanding of ocean grabbing.

Chapter 2. METHODOLOGY

Using a mixed-methods review approach, this thesis examines how ocean grabbing manifests across different fisheries, specifically the tuna fishery in Senegal, the totoaba fishery in Mexico, and the squid fishery in Peru. It evaluates whether these cases align with the Bennett, Govan, and Satterfield (2015) framework and whether it captures the multi-scalar dynamics of global fisheries. The analysis explores how factors like regulatory loopholes, geopolitical pressures, global markets, and governance weaknesses shape resource redistribution patterns, and considers how the framework might be expanded to reflect these complexities.

2.1 ANALYTICAL FRAMEWORK: OCEAN GRABBING

To guide the analysis of ocean grabbing across the three case studies, this research draws on the conceptual framework proposed by Bennett, Govan, and Satterfield (2015). Their framework identifies three key criteria for evaluating if an initiative constitutes ocean grabbing: (1) whether a reallocation of ocean space or resources has occurred; (2) whether good governance processes have been employed; and (3) whether the initiative has undermined human security, livelihoods, or social–ecological well-being of prior resource users or rights-holders.

These criteria emphasize not only the spatial and material outcomes of marine resource redistribution but also the quality of the decision-making processes and the broader impacts on affected communities in coastal states. Good governance is characterized by transparent, inclusive, and accountable decision-making processes that respect existing laws and recognize the rights of local stakeholders. It ensures that affected communities can participate meaningfully

in fisheries management, access information, and influence outcomes. By aligning with local priorities and ensuring equitable distribution of benefits and burdens, good governance promotes legitimacy, social justice, and sustainable resource management. **Figure 1**, adapted from Bennett, Govan, and Satterfield (2015), provides a visual guide for determining whether an initiative may be considered ocean grabbing based on these sequential criteria:

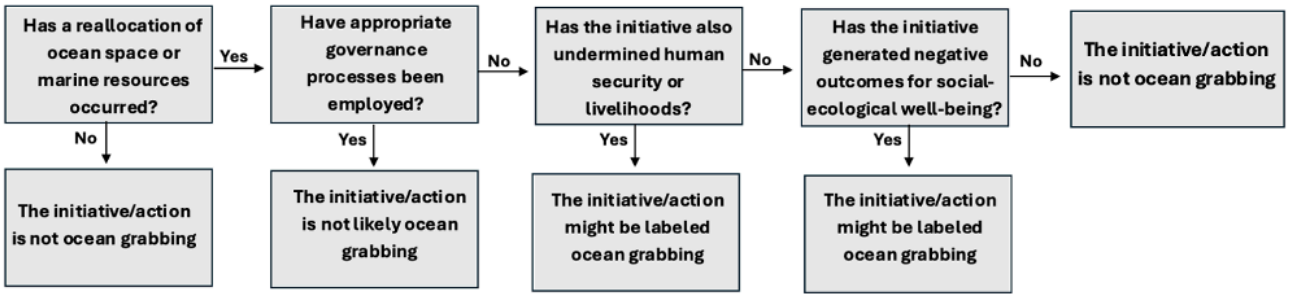

Figure 1. Deciding whether an initiative is ocean grabbing. Adapted from Bennett, Govan, and Satterfield, 2015.

To test this framework, I evaluate three case studies: the tuna fishery in Senegal, the totoaba fishery in Mexico, and the squid fishery in Peru, against this framework. This approach assesses whether the observed processes align with the definition of ocean grabbing and critically examines the framework's ability to capture the full complexity of contemporary global fisheries. I identify where the framework is effective, where it may be insufficient, and how it might be expanded or refined to better reflect the intricate and often multi-scalar dynamics at play today.

2.2 Mixed-methods, Semi-structured, Case Study Analysis

This research follows a mixed-methods review approach (Grant and Booth, 2009), combining a systematic literature review with qualitative case study analysis of frameworks for ocean grabbing across three distinct geographical contexts: Senegal, Mexico, and Peru. It integrates both outcome and process studies, using the review to identify correlations between existing literature and gaps where key aspects are missing. This approach enables a comprehensive analysis of both theoretical and practical dimensions of the research topic.

While my main focus was on published academic articles, I also utilized secondary sources such as newspaper and magazine articles, essays, published theses, reports, and policy briefs to gather the insights needed to address my research questions. Most of these data were obtained online using the Google Scholar search engine, with keywords related to the concepts of ocean grabbing and the specific fisheries in the three case study countries: Senegal, Mexico, and Peru. The keywords included: *ocean grabbing, blue grabbing, marine resource appropriation, fisheries governance, IUU fishing, distant-water fleets, fishing agreements, tuna fishery Senegal, totoaba trade Mexico, and Chinese squid fleet Peru.*

2.3 Selection of case study descriptive essays

This thesis analyzes three case studies: the tuna fishery in Senegal, the totoaba fishery in Mexico and the squid fishery in Peru. These fisheries were deliberately selected for their differences in geographic region, species targeted, and stage of development. This intentional diversity allows for the identification of broader global patterns and recurring mechanisms of ocean grabbing that transcend specific contexts and operate across multiple scales. Each country is highly productive

in fisheries yet vulnerable to IUU fishing and ranks low on governance indicators, creating conditions that enable resource appropriation and exploitation (The Global Initiative against Transnational Organized Crime, 2023; World Bank Group, 2024).

The case studies were selected not only for their analytical relevance but also for data availability and the familiarity of the researcher and thesis committee with these fisheries, allowing for a deeper contextual understanding. The chosen cases represent a range of fishery conditions: from the nearly extinct and highly restricted totoaba fishery in Mexico, to the rapidly expanding squid fishery in Peru, and to the long-established, geopolitically complex tuna fishery in Senegal. This diversity allows examination of how ocean grabbing operates across different temporal scales and power dynamics, from emerging to mature fisheries, shaped by transnational agreements and geopolitical factors. This thesis explores how access to, benefits from, and control over marine resources are allocated and contested across different contexts.

2.3.1 *Case Study Descriptive Essays of Fisheries and Context*

The case studies presented in this thesis, Senegal, Mexico, and Peru, are best understood as descriptive essays rather than strictly systematic or directly comparable analyses. Each essay offers an in-depth overview of a unique fishery, focusing on its ecological, political, and socio-economic context. The focus is on highlighting key elements relevant to understanding the mechanisms of ocean grabbing and their consequences for local fishing communities. While the structure of each essay follows a similar progression, context, mechanisms, and impacts, the aim is not to apply a uniform analytical framework, but to allow each case to reflect its particular dynamics. This approach enables a grounded and context-sensitive examination of ocean resource appropriation across different settings.

A central objective of this thesis is to identify and analyze the mechanisms through which powerful actors engage in ocean grabbing. By mechanisms, I refer to the specific tools, processes, or strategies used to appropriate, reallocate, or consolidate control over marine resources. These mechanisms may be legal, political, economic, or discursive in nature, and can include formal fishing agreements, subsidy structures, regulatory loopholes, opaque licensing systems, or international trade and enforcement dynamics.

Understanding these mechanisms is essential to tracing how access and benefits are redistributed, often away from local or small-scale fishing communities and toward more powerful state or corporate interests. Rather than focusing solely on outcomes, this approach highlights the means by which ocean grabbing is enacted, exposing the systems and structures that enable resource dispossession in different geopolitical and institutional contexts.

For Senegal, I focus on:

- An overview of the national fishing industry and the role of bilateral fishing agreements.
- The country's governance challenges, especially regarding tuna fisheries management and the discrepancy between reported and actual catches.
- Issues surrounding data transparency, foreign influence, and future outlooks for fisheries sustainability.

For Mexico, I emphasize:

- The historical trajectory of the totoaba fishery and its parallels to China's bahaba fishery.
- The growing role of global trade and organized crime, including the methods used by criminal networks and the international smuggling of swim bladders.

- Institutional weaknesses and the evolving motivations of fishers and buyers under the pressures of illegality and high market value.

For Peru, I describe:

- The development of the jumbo squid fishery and the growing influence of China's distant-water fleet.
- The impacts of domestic governance challenges, the informal economy, and the geopolitical expansion of Chinese fishing activities.
- Key mechanisms such as subsidy-driven competition, regulatory evasion, and weaknesses and loopholes in high seas management.

Chapter 3. Case Study Descriptive Essays

The following section presents three descriptive case studies, Senegal, Mexico, and Peru, that illustrate how ocean grabbing manifests in distinct fisheries and governance contexts. Each case explores the fishery's background, the specific mechanisms used to appropriate or reallocate marine resources, and the resulting impacts on local fishing communities. Together, these cases provide grounded insights into the diverse forms and consequences of ocean grabbing across regions.

3.1 Case Study Essay: Tuna Fishery in Senegal

In the case of Senegal, I provide an overview of the country's fishing industry and the role of bilateral fishing agreements, followed by an exploration of the key governance challenges affecting tuna fisheries and foreign access to resources. I then examine the mechanisms underlying these issues, including discrepancies in catch reporting, data transparency, and questions of power and influence, before concluding with an analysis of the broader consequences for Senegal's fisheries and future prospects.

3.1.1. Introduction

Senegal's current socioeconomic and political landscape is deeply shaped by its colonial past, particularly under French rule. French influence began in the 18th century with coastal settlements that gradually expanded through military force, coerced treaties, and trade-driven occupation, culminating in Senegal becoming part of the French Empire by the early 20th century (Belhabib et al. 2014; Wooten, n.d.). As the capital of French West Africa, Senegal experienced intense cultural and political integration with France until gaining independence in

1960 (Esposito, Sonn, and Voll 2015). Despite independence, French influence remains strong, economically, politically, and culturally, with France still serving as Senegal's largest trading partner and French companies contributing significantly to the country's GDP (2017). However, there has been a growing movement toward reducing these colonial legacies and asserting national autonomy (Barker 2012; Ekanem 2025).

3.1.1.1. Overview of Senegal's Fishing Industry

Senegal's unique geographic conditions, including a strong seasonal upwelling and an expansive continental shelf, have made it one of the largest producers of fisheries catches by volume in West Africa (Pramod and Pitcher 2006). It ranks as the second-largest fish producer in West Africa, with annual catches averaging around 450,000 metric tons. The fisheries sector contributes approximately 3.2% to Senegal's GDP and 10.2% of its exports, while also providing employment for over 600,000 people (Bousso 2022). The sector is also crucial to household-level food security, providing approximately 43% of the population's animal protein intake (FAO 2023; (EFJ 2022). A significant portion of this workforce is engaged in artisanal fishing, which accounts for more than 80% of Senegal's national fish production (WWF, n.d.).

Senegal's fisheries involve a diverse set of actors across two sectors: the artisanal and the industrial large-scale fishery. The artisanal sector is especially important to the coastal economy, with over 12,800 wooden pirogues, 80% of them motorized, targeting pelagic species like sardines, anchovies, mackerel, and tuna within the country's EEZ (Wabnitz et al. 2023). Alongside them, Senegal's domestic industrial fleet, composed of 158 vessels, fishes both within the national EEZ, in international waters, and in neighboring EEZs. These vessels mostly catch demersal species intended for export and operate across three sub-sectors: trawlers (targeting

small demersal and pelagic species like shrimp, bonga and sardinella), tuna boats, and sardine fishers (EJF 2020; Bousso 2022). This group also includes vessels that have been reflagged to Senegal, with unclear ownership or national affiliation (Belhabib et al. 2013).

In 2019, the artisanal fleet landed 320,982 tonnes within Senegal's EEZ, while the industrial fleet captured 908,860 tonnes in total, 121,292 tonnes from Senegalese waters, 3,574 tonnes from the high seas, and the remainder from neighboring EEZs (Bousso 2022; Wabnitz et al. 2023). It is important to note that these figures should be treated with caution, as research has documented significant discrepancies between official catches and reconstructed estimates due to systematic misreporting in Senegal's fisheries data collection (Belhabib et al. 2013; 2014). Additionally, foreign fleets, primarily operating under bilateral fishing agreements such as Sustainable Fisheries Partnership Agreements (SFPAs), also extract significant volumes from Senegal's waters.

Among Senegal's most valuable marine resources are tropical tunas, including skipjack (Katsuwonus pelamis), yellowfin (Thunnus albacares), and bigeye tuna (Thunnus obesus). These migratory species are central to the country's industrial and artisanal fishing activities and play a vital role in export earnings and domestic consumption. Tuna is caught for local and international consumption with the main exports being shipped to the EU, where demand for high-quality protein continues to rise (Monterey Bay Aquarium Seafood Watch 2023; "Senegal Tunas," n.d.). Senegal exports various forms of tropical tuna including frozen, fresh, and preserved skipjack, yellowfin, and bigeye. However, its main export is frozen fish, which makes up over 90% of its fish exports (Monterey Bay Aquarium Seafood Watch 2023).

The tuna fishery is a focal point of international fishing access agreements. Senegal hosts numerous foreign fleets engaged in legal tuna fishing within its waters, alongside the country's own fleet, which operates both within and beyond the nation's EEZ. Foreign fleets, particularly those from the EU, Asian and Eastern Europe cause competition between foreign and domestic fleets (Belhabib et al. 2014). Many of these fleets operate in Senegalese waters through negotiated arrangements (SFPAs) that allow them to catch significant volumes of tuna in exchange for compensation and capacity-building promises (Wabnitz et al. 2023). However, the terms and impacts of these agreements, on local fishers, marine ecosystems, and the national economy, remain deeply contested (Gorez 2023).

3.1.1.2 Bilateral Fishing Agreements

In bilateral fishing agreements, both the fishing and host countries have elements they can leverage. Developing countries with limited management resources but abundant marine resources can use access fees as a bargaining tool when establishing fishing agreements within their EEZs, which can be essential for their economic and institutional development(Nichols et al. 2015). However, as a result of the host nation's limited negotiating power, they often agree to inadequate fishing agreement regulations (Standing 2008). When negotiating fishing agreements, relatively economically affluent countries (such as the EU and China) often utilize power tactics with host nations by leveraging the promise of donor funds or threatening their withdrawal as a means to influence access agreements (Mwikya 2006)

While fishing agreements offer potential for economic development, diplomatic and economic pressures in these negotiations often result in access fees that are too low and unsustainable for

the ecosystem, trapping countries in inequitable agreements (Nichols et al. 2015; Pincombe 2021). Many documented cases show that host nations do not receive fees that reflect the true value of their resources due to this power imbalance, compounded by limited institutional capacity to enforce agreements and weaknesses in fisheries management that permit illegal and unsustainable practices, such as underreporting and minimal fines (Kaczynski and Fluharty 2002; Le Manach et al. 2013). While the countries signing the agreements capitalize on the host country's weak bargaining power and enforcement capabilities, this approach to unequal agreements can foster dependency on foreign aid (Nichols et al. 2015).

3.1.1.3 Key Issues

Key issues in Senegal's fisheries management include the rapid motorization of the artisanal fishing sector, unregulated issuance of fishing licenses, weak fisheries governance, limited monitoring capacity, corruption, and increasing market demand (Brans and Ferraro 2012; EJF 2023; Garcia and Dione 2024). Overcapacity in the sector leading to overfishing and IUU fishing, paired with unreliable and insufficient data, has been a major contributor to a current fisheries crisis (Belhabib et al. 2014; Gutierrez et al. 2024; Bousso 2022). All of these challenges include, but are not limited to, the tuna fishery.

In this case study, I will examine Senegal's fisheries governance through the lens of its tuna fishery, focusing on international fishing agreements and the broader geopolitical dynamics that shape them. Specifically, I explore how governance structures, both domestic and international, influence who gains access to Senegal's tuna resources, and more importantly, how the benefits and consequences of these agreements are distributed, raising critical questions about equity, sovereignty, and sustainability in ocean resource management.

3.1.2 Mechanisms

3.1.2.1 Senegal's Fisheries Governance Crisis

Senegal's fisheries governance is characterized by institutional weakness, opaque licensing systems, and systemic corruption that undercut legal frameworks (Diedhiou and Yang 2018; Standing 2008). Despite adopting multiple management policies over the past two decades, including the 1998 Fisheries Act, vessel monitoring systems (VMS), Marine Protected Areas (MPAs), and fisher registration programs, enforcement remains weak. Surveillance is limited by inadequate resources, declining aerial inspections, and inconsistent sea patrols, allowing illegal and unsustainable practices to persist (Diedhiou and Yang 2018).

The introduction of VMS in 2005 initially reduced infractions in prohibited zones, but fundamental monitoring challenges remain. Foreign vessels, especially those continuing to operate after expired agreements, exploit these weaknesses, while compliance among domestic actors is also low (Diedhiou and Yang 2018). Institutional coordination failures further hinder enforcement. Corruption is entrenched in the system, particularly in the fishing license allocation process. High-level officials have been implicated in the illicit sale of permits to foreign fleets, including foreign vessels linked to IUU fishing (FTC 2023). The Fisheries Ministry relies heavily on inspection data to allocate licenses yet lacks records on enforcement outcomes. Inspectors often tolerate infractions due to political, cultural, or clientelist pressures, especially when violators are well-connected. Social and political instability concerns further discourage rigorous enforcement (Brans and Ferraro 2012)

The limited transparency and weak oversight enable widespread illegal fishing (Diedhiou and Yang 2018). Foreign vessels routinely underreport gross tonnage, evade license fees, and engage in unauthorized transshipment operations within Senegal's EEZ (Daniels et al. 2016). Even when caught, sanctions are minimal and inconsistently applied. A 2017 study found that one-third of 2,306 documented violations went unpunished, with the most common infraction, underreporting fishing effort, sanctioned only 19% of the time. Fines are often as low as $1,000 USD, offering little deterrence (Doumbouya et al. 2017).

Fines are negligible compared to vessel operational costs, essentially functioning as a minor "cost of doing business" rather than a meaningful penalty (Sarpong 2023). Corruption further weakens the system, with documentation of vessel crews bribing Senegalese Fisheries Ministry officials when caught fishing illegally (Fessy 2014). These governance challenges, ranging from corruption and weak enforcement to limited transparency, pervade the entire Senegalese fisheries sector and also extend into the management of the tuna fishery.

3.1.2.2 Tuna Fisheries Management

Senegal is a member of the International Commission for the Conservation of Atlantic Tunas (ICCAT), which oversees tuna conservation in the Atlantic (NOAA Fisheries 2024). According to the latest ICCAT data, skipjack and yellowfin stocks are not overfished or undergoing overfishing, while bigeye is overfished but not currently overfishing, indicating some recovery potential (ICCAT 2025). Senegal's tuna management includes regulating industrial landings in the Port of Dakar, registering artisanal fleets, banning driftnets, enforcing port State measures, vessel tracking via VMS, and deploying onboard observers (Sarr et al. 2023). While these align

with national and regional strategies, their effectiveness is hampered by weak enforcement and persistent governance issues.

3.1.2.3 Foreign Fishing Agreements

Senegal's complex web of foreign fishing agreements, particularly with the EU and China, adds another layer of governance challenge. The EU's SFPAs, first signed with Senegal in 1979, permit access to Senegalese waters and resources in exchange for financial payments (Englander and Costello 2023; Popescu 2020). This allows EU vessels, primarily French and Spanish, to fish in Senegalese waters legally under established limits on fish access in exchange for financial contributions. Under these agreements, EU countries are bound by regulations delineated in a framework, which mandates sustainable fishing practices (European Commission, n.d.; European Union 2019; EU IUU Fishing Coalition 2022).

The SFPA between Senegal and the EU is referred to as a Tuna Fishery Agreement or Tuna Focused Agreement (Thorpe et al. 2022). It allows the EU fleet to target primarily tuna, including skipjack, yellowfin, and bigeye tuna, as well as a limited quantity of demersal species like black hake (Merluccius poli and Merluccius senegalensis). Vessels operating under this agreement include freezer tuna seiners, pole-and-line vessels, longliners, and, to a more restricted extent, bottom trawlers targeting demersal species (European Union 2019). Under the 2020–2024 protocol, the EU was allowed to deploy up to 28 tuna seiners, 10 pole-and-line vessels, 5 longliners, and 2 trawlers for hake (Popescu 2020) in West African environments.

These vessels operate under defined quotas, ranging from 10,000 to 14,000 tons annually for tuna and around 1,700 tons for hake. In return for access to these resources, the EU pays Senegal a financial contribution of approximately €1.7 million per year. This includes an access fee (around €800,000 to €1 million annually) and sectoral support funds (around €900,000 per year)

aimed at improving Senegal's fisheries governance, scientific research, maritime surveillance, and community-based fisheries development (Popescu 2020). Under the terms of these fishing agreements, foreign tuna vessels are required to land their catches in Senegalese ports in order to encourage the domestic processing sector. In most cases, the entire catch must be offloaded locally, although freezer vessels are only obligated to land a portion of their haul (European Union 2024b).

Despite being framed as a win-win for sustainable fishing and economic development, SPFAs have been criticized by civil society groups and researchers in Senegal. Many argue that the EU benefits disproportionately from the deal, often extracting valuable marine resources at relatively low cost (Wetzels, Kaller, and Tall 2025; Carver 2024b). Research has shown these agreements often disproportionately benefit the EU and its fishing fleets, while offering limited long-term economic or development advantages to the coastal state (Kaczynski and Fluharty 2002). Enforcement of the agreement's terms is also a challenge; there is limited capacity to monitor EU vessels effectively, and concerns have been raised over the ecological strain caused by industrial fishing in waters shared with artisanal fleets (Diedhiou and Yang 2018; Benavides 2018).

The most recent protocol expired in November 2024 and was not renewed, with the EU citing Senegal's insufficient cooperation in combating IUU fishing, particularly due to weaknesses in the country's monitoring, control, and surveillance systems (European Union 2024a). From the Senegalese perspective, there was also growing resistance to renewing the agreement, as many considered its terms unfair, contributing to stock depletion and marginalizing local fishers. Critics highlighted the unequal compensation, the narrowing focus onto tuna and the exclusion of broader resource concerns (Carver 2024b)

First-hand accounts from fishermen claim that Senegal's fish stocks are declining, with many partly attributing the problem to SFPAs and foreign illegal activities. According to a 2023 report, these fishermen reported a 58% drop in catches between 2012 and 2019, with many blaming foreign fleets for the depletion (Garcia and Dione 2024; Marotte 2024). Research found that Senegalese small-scale fishers have adapted to declining domestic fish stocks by expanding their operations into neighboring countries' waters, while continuing to land their catches in Senegal, with foreign illegal fishing activities identified as a significant contributing factor to this depletion (Belhabib and Koutob,et al. 2015). With respect to tuna specifically, skipjack and yellowfin tuna are not considered overexploited. The bigeye tuna stock in the Atlantic Ocean is overfished; however, it makes up less than ten percent of Senegal's catch of tropical tuna (Monterey Bay Aquarium Seafood Watch 2023; ICCAT 2025).

Senegal has also entered into bilateral fishing agreements with Asian countries, with a significant presence from China (Belhabib, Sumaila et al. 2015). In contrast to SPFAs, where foreign-flagged vessels fish within Senegal's EEZ, Senegal's fishing agreements with China are typically structured as joint ventures, where foreign vessels are reflagged to the host country (EJF 2023; Greenpeace 2015). These agreements are often negotiated with companies rather than governments, creating greater potential for uncertainty and corruption (Belhabib, Sumaila et al. 2015).

A 2015 report revealed that the state-owned China National Fisheries Corporation (CNFC) operated 12 vessels flying the Senegalese flag through so-called "joint ventures" with companies named Senegal Armement S.A. and Senegal Pêche. However, the report alleged that these ventures were not genuine partnerships, as CNFC was found to own 100% of the shares. The

vessels were also accused of underreporting catch and vessel sizeto avoid higher licensing fees (Greenpeace 2015).

3.1.2.4 Catch and Value Discrepancy

In Senegal, the financial returns from EU fishing agreements have long been criticized as inadequate given the value of the catch. Under recent protocols, European companies paid Senegal around $90 per ton of tuna caught in 2019, while earning approximately $1,687 per ton at first sale, a stark disparity even when factoring in additional EU support for fisheries monitoring, infrastructure, and safety (Englander and Costello 2023). This discrepancy highlights inequality in the distribution of benefits between the two players. Though this support is intended to strengthen local capacity, critics argue that the overall compensation remains far below the true value of Senegal's marine resources (Carver 2024b).

Alternatives to EU arrangements, such as shifting access to Chinese or other foreign fleets, may offer even less value. Historically, Chinese fleets have paid access fees amounting to just 4% of the first-sale price of fish, compared to the EU average of 8% across the West African region. Despite their differences, both the EU and China extract significant volumes of fish from West African waters while paying relatively modest fees, leading to an ongoing extraction of wealth with limited local reinvestment (Belhabib and Sumaila et al. 2015).

Although the gap between access fees and market value raises serious equity concerns, proponents of international fishing agreements often point to indirect benefits. In Senegal, for instance, many EU vessels employ local crew members, and over 70% of the catch is reportedly processed domestically. EU officials claim that pole-and-line tuna vessels offload directly to local facilities such as the SCASA tuna cannery in Dakar, contributing to employment and industrial development (European Union 2024b).

However, interviews with local fishers and processors challenge these claims. In practice, only a small share of the tuna caught by EU vessels or Senegalese bait boats with European investment ties reaches domestic processors. Dakar's two primary canneries, SCASA and CONDAK, are frequently under-supplied, often operating at volumes far below capacity. Instead, much of the catch is exported, particularly to Spanish processing companies, thereby bypassing local value chains (Failler et al. 2024).

While downstream activities associated with pole-and-line tuna fishing in Senegal, such as freezing, canning, packaging, and marketing, generate an estimated $2.12 million annually, the distribution of this value remains uneven. Senegal captures only 32% of the added value, while the EU retains approximately 50% (Failler et al. 2024). This limited domestic share is attributed to the minimal integration of EU-caught fish into Senegal's own processing and marketing sectors. Most tuna exports leave the country after basic preparation, such as freezing or partial transformation into loins, resulting in missed opportunities for domestic value addition (Failler et al. 2024). The EU's financial contributions to Senegal for tuna access are comparable to those made to other West African countries. According to Thorpe et al. (2022), the EU pays Senegal approximately €0.12–0.13 per tonne, which aligns with regional norms.

Overall, despite potential indirect benefits, evidence shows these gains are often limited and unevenly distributed (Kaczynski and Fluharty 2002). A lack of transparency, such as undisclosed licensing terms and unclear landing data, makes it difficult to evaluate the true economic value Senegal receives. This lack of transparency, what policy analysts call information asymmetry, weakens Senegal's negotiating position and may result in access agreements that undervalue its marine resources. Further analysis is needed to assess the profit margins of EU vessels and whether current payments offer fair compensation.

3.1.2.5 Reliability and Transparency of Data

Numerous studies have identified significant discrepancies between Senegal's officially reported fisheries catch data and independently reconstructed estimates, suggesting widespread misreporting. Much of the actual catch is knowingly excluded from data submitted to the Food and Agriculture Organization (FAO), resulting in records that are both biased and incomplete (Belhabib et al. 2014). These discrepancies are particularly pronounced in data associated with foreign fleets, most notably Chinese, but also European, whose actual fishing activities often far exceed what is officially reported (Belhabib and Sumailaet al. 2015).

This persistent underreporting undermines transparency in fisheries governance and impairs effective decision-making at both the national and international levels. Since global fisheries assessments and policy responses often rely on FAO data, gaps and inaccuracies stemming from countries like Senegal contribute to distorted understandings of stock status, effort trends, and management needs.

Compounding the problem of inaccurate reporting is the lack of clarity surrounding vessel ownership. Foreign fleets frequently reflag their vessels under the Senegalese flag to evade formal licensing agreements and national oversight. This practice enables foreign operators to access local waters under the guise of domestic status, bypassing regulatory restrictions while maintaining control over resource extraction (Failler et al. 2024).

Reflagged vessels play a pivotal yet opaque role in the global tuna trade. While tuna caught through EU SFPAs accounts for only a small proportion of the EU's total tuna imports, the bloc's overall influence is magnified through control of vessels registered to third countries. These

reflagged operations obscure the real scope of European involvement in global tuna extraction and complicate accountability (Thorpe et al. 2022).

A 2023 investigation revealed that half of the 100 bottom trawlers flying Senegal's flag were in fact controlled by foreign beneficial owners, with Spanish firms most prominently represented (EJF 2023). Although Senegalese law stipulates that reflagged fishing vessels must be majority-owned by local actors, with at least 51% of capital held by Senegalese partners, this legal requirement is often circumvented through joint ventures and opaque ownership structures that mask true control (Gorez 2024).

These practices not only weaken national sovereignty over marine resources but also create major enforcement challenges. The lack of transparency around both catch volumes and vessel ownership leaves Senegal vulnerable to resource appropriation, limits its ability to recover fair economic returns, and diminishes the credibility of its fisheries data in international policy forums.

3.1.2.6 Power and Influence

EU fishing agreements in Senegal are typically based on financial payments such as direct access fees and sectoral support, while Chinese agreements are more opaque, often involving indirect infrastructure development, debt relief, or military aid (Belhabib, Sumaila et al. 2015). China's increasing role as Africa's top creditor for infrastructure projects, such as through the Belt and Road Initiative (BRI), raises concerns about its influence on resource access and governance (Pincombe 2021). These agreements tend to lack transparency, with inflated costs and unsustainable debt burdens, while also fostering corruption (Standing 2008). China's practices in fishing and infrastructure contradict its claims of mutual development. In contrast, while EU

agreements may include financial support for monitoring and scientific research, Chinese agreements generally do not (Belhabib, Sumaila et al. 2015). Despite these concerns, countries like Senegal often prioritize the short-term financial benefits from foreign fishing access, even though these agreements lack transparency and fail to address long-term sustainability due to insufficient data on fish stocks (Belhabib, Sumaila et al. 2015).

Many African countries rely on the EU not only for fishing access fees and sectoral support, but also for preferential trade arrangements that allow products like canned tuna to enter European markets tariff-free. However, these benefits come with strings attached: to meet EU rules of origin, countries often need to export fish caught by EU vessels. As a result, agreements like the SFPAs are seen as essential for maintaining export flows, particularly in countries without processing facilities. This system disproportionately benefits European industrial fishing companies while reinforcing unequal power dynamics (Carver 2024b). This is a clear example of the EU leveraging its geopolitical and economic power to secure access to natural resources in a weaker nation like Senegal, ultimately subsidizing its own industry at the expense of local resource control.

3.1.2.7 Future outlook

For many years, a lack of transparency in Senegal's fisheries sector made it difficult for local fishers and civil society to know which vessels were legally operating in the country's waters. A shift occurred in April 2024 with the election of President Bassirou Diomaye Faye, who promised to reform the fishing sector and increase transparency. Within a month, his government issued an authorization list naming 132 vessels permitted to fish in Senegalese waters. About half bearing Chinese names, suggesting strong foreign influence, and another 26 which were

linked to Spanish companies, despite being registered under Senegal's flag (Gorez 2024). The move was widely praised by advocates of sustainable fishing, and communities like Kayar reported a noticeable decline in foreign trawlers at sea. Local leaders see this transparency as a sign of how much illegal activity has been taking place, often to the detriment of artisanal fishers (Manneh 2024; Wetzels, Kaller, and Tall 2025).

The future of fisheries in Senegal includes initiatives aimed at sustainable management. Senegal has committed to sustainable practices by signing a fisheries subsidies agreement with the World Trade Organization (WTO) and launching a Fisheries Improvement Project (FIP) for pole-and-line tuna, involving collaboration between local and international stakeholders to meet Marine Stewardship Council (MSC) standards (Oirere 2024b; World Trade Organization 2024). Newly elected President Faye has proposed shifting artisanal fishing zones by 20 km to protect against foreign encroachment and announced plans for artificial reef projects to restore marine habitats. He also signed a sustainable fishing charter, committing to better stock management, EU fishing audits, and allocating oil and gas revenue to the fishing sector, reflecting a strong focus on sustainability and community benefits (Oirere 2024a).

3.1.3 Consequences

The EU's fishing agreements with Senegal, particularly those focused on tuna, have produced far-reaching consequences for the livelihoods of coastal communities. Although these agreements are framed as instruments of international cooperation and economic development, they often prioritize European seafood supply chains and fleet sustainability over the well-being of Senegalese fishers. Artisanal fishing communities, long the backbone of Senegal's coastal

economy, are increasingly marginalized as EU vessels gain access to stocks that overlap with those targeted by local fishers.

Species such as yellowfin and skipjack tuna, pursued by both foreign and artisanal fleets, create direct competition over increasingly limited resources. As local catches decline, artisanal fishers are forced to venture further offshore to sustain their livelihoods, an unsustainable shift that has driven some to operate illegally in neighboring countries' waters where they risk fines, vessel confiscation, and even violent confrontation (Belhabib et al. 2014). The pressure on small-scale fishers has also pushed some to abandon traditional species such as sardinella, vital for local consumption, in favor of high-value exports, thereby weakening national food security (DuBois and Zografos 2012).

Local organizations representing local fishers have raised serious concerns about the expanded access granted to EU fleets and the lack of robust enforcement mechanisms. Industrial fishing operations, including those targeting tuna, are frequently under-monitored and contribute significantly to stock depletion, directly undermining the incomes and food security of coastal communities (Belhabib, Sumaila et al. 2015). The absence of transparency and local participation in the negotiation of these bilateral agreements has fostered widespread mistrust and a growing sense of exclusion among artisanal fishers, fueling demands for increased civil society engagement in fisheries governance (Gaye 1996).

While these agreements generate short-term revenue for the Senegalese government, local fishers argue that they risk long-term ecological degradation and socioeconomic decline unless sustainability, fairness, and community input are prioritized (Gaye 1996). Although SFPAs include EU-funded investments in Senegal's artisanal sector and fisheries management systems,

many fishers contend that such measures are ineffective when fish stocks are already too depleted to sustain their operations (Popoviciu 2024). Moreover, limited monitoring and enforcement capacity prevents Senegal from fully managing foreign fleets, diminishing potential benefits such as local processing and broader economic value retention (Belhabib, Sumaila et al. 2015).

IUU fishing further exacerbates these challenges. Many foreign fleets operate with little oversight, often encroaching on artisanal fishing zones, especially at night, leading to the loss of fishing gear and pirogues (Doumbouya et al. 2017). The economic costs are substantial: under-reporting alone caused an estimated loss of $2 billion across West Africa between 2010 and 2015, with 30% attributed to Eastern Europe and Russia, 20% each to Western Europe and China, 9% to flags of convenience, and 21% to unidentified vessels. In total, West African nations lost an estimated $24.6 billion to IUU fishing during that six-year period, nearly half from unauthorized vessels (Doumbouya et al. 2017).

The social toll is equally profound. As industrial vessels operate with apparent impunity, trust between local communities and the government continues to erode. Fishers and fish processors struggle to maintain their incomes amid shrinking resources, while the broader promise of sustainable development remains unfulfilled (Belhabib et al. 2014). Without fundamental reforms in how these agreements are negotiated, monitored, and enforced, EU access to Senegal's tuna resources risks deepening inequality, compromising food security, and weakening the resilience of coastal livelihoods.

3.2 Case Study Essay: Totoaba Fishery in Mexico

This case study on Mexico opens with the historical context of the bahaba and totoaba fisheries, tracing how global trade and organized crime shaped the emergence of a high-value black market for totoaba to replace the Chinese market for overfished bahaba. I then focus on the mechanisms that allowed the illicit totoaba trade to flourish, including institutional weaknesses in Mexican fisheries management, the takeover for trade by organized crime, the development of trafficking networks, and the motivations driving fishers and buyers. Finally, I assess the ecological and social consequences that have followed, particularly the devastating impact on the vaquita porpoise.

3.2.1 *Introduction*

In China, fish maw, or the swim bladder of fish, is a highly prized culinary delicacy associated with wealth, prestige, and honor. It is commonly served at special occasions and often presented as a gift. Fish maw can also be processed into different products or even purchased as an investment (Sadovy de Mitcheson et al. 2019; Earth League International 2018). Over the past several decades, rising incomes and urbanization have fueled a growing demand for seafood delicacies, including fish maw (Barron et al. 2014). The rarest and most expensive variety is the maw, derived from the Chinese bahaba (*Bahaba taipingensis*), a giant yellow croaker discovered in native to China's coastal waters, including the Yangtze and Pearl River estuaries, as well as areas off Hong Kong and Macau (Earth League International 2018).

3.2.1.1 The Rise and Fall of the Bahaba and Totoaba Fisheries

The bahaba became critically endangered within 70 years of its discovery due to overfishing. In the 1930s, annual landings in Hong Kong reached 50 tonnes, but by the 1990s, excessive fishing and increased capacity had reduced its population to rare, isolated catches(Cheung 2011). Its fishery collapsed by the mid-20th century, and in Hong Kong, where it has long disappeared, it was declared commercially extinct in 1997 (Pitcher, Watson, and Courtney 1997). The overexploitation of Chinese fish maw has led to increased reliance on international sources for dried seafood (Earth League International 2018).

Meanwhile, on the other side of the globe, Mexico harbored a resource strikingly similar to the bahaba, setting the stage for a perfect storm. The Upper Gulf of California (UGC) is home to the endemic totoaba (*Totoaba macdonaldi*), a species remarkably similar to the Chinese bahaba (Earth League International 2018). During the 1920s, the United States and Mexico agreed to promote a market for the entire totoaba, leading to the establishment of a commercial fishery (Cisneros-Mata, Montemayor-López, and Román-Rodríguez 1995).

During this same period, Chinese immigrants settled in Baja California as part of a significant migration wave that began in the late 19th century, with many fleeing to the United States to avoid persecution in China and others seeking better economic opportunities (Earth League International 2018). These circumstances led prospectors to the UGC, where they took interest in the totoaba and began commercializing its swim bladder, recognizing its high value (Sanjurjo-Rivera et al. 2021). Initially consumed by local immigrant communities, the totoaba swim bladder later became a prized export to China and Chinese communities in California, where it was used in coveted soups (Flanagan and Hendrickson 1976).

The fishery grew fast in the 1930s and 1940s, with catches of 1,200 metric tons nearly every year from 1935 to 1947 (Würsig, Jefferson, and Silber 2024). This was initially driven by local and export demand for swim bladders, and later by the U.S. market for totoaba meat (Cisneros-Mata, Montemayor-López, and Román-Rodríguez 1995). However, by the 1970s, overfishing, bycatch, and competition from the shrimp fishery led to the collapse of totoaba stocks.

In response, Mexico banned totoaba fishing in 1975, and the species was listed as endangered internationally. Yet this protection proved insufficient when China's bahaba populations plummeted from overexploitation, creating a surge in demand for an alternative. Mexico's totoaba became the ideal substitute, triggering increased illegal fishing pressure in the UGC despite the longstanding ban (Earth League International 2018). Other reasons behind the surge in totoaba demand include the expansion of China’s middle class and the impact of the 2008 global financial crisis, which reportedly led consumers in China to treat totoaba bladders and similar high-value goods as safer investment options (Earth League International 2018).

3.2.1.2 Global Trade, Organized Crime, and the Vaquita Crisis

This shift in Chinese market demand came at a significant cost to Mexico, as the illegal exploitation of totoaba not only threatened the species itself but also placed immense economic, social, and environmental pressure in the region (Boilevin, Crosta, and Hennige 2023). Mexican Criminal cartels have capitalized on the illicit trade of totoaba swim bladders, establishing sophisticated smuggling networks that transport these dried organs to Asian black markets, where large dried aged bladders sell from US$1,500 to US$20,000/kg (Belhabib, Le Billon, and Wrathall 2020; Rojas-Bracho, Gulland, and Smith 2025). It is worth noting that a recent study

has identified an emerging consumption market in the United States, primarily driven by Chinese resident communities(Oyanedel et al. 2024).

Totoaba bladders are among the most lucrative items in the illegal wildlife trade, often called "the cocaine of the sea" due to their sky-high market value and persistent demand despite fishing bans in Mexico (Pressly 2021; Aceves-Bueno, Read, and Cisneros-Mata 2021). This has fueled corruption and violence in the region, undermining conservation efforts despite increased surveillance by Mexican authorities (Belhabib, Le Billon, and Wrathall 2020; IUCN Cetacean Specialist Group 2016). Consequently, the surge in illegal totoaba fishing has devastated the vaquita porpoise population through gillnet bycatch, driving this endemic marine mammal to the brink of extinction. With fewer than 10 vaquita individuals remaining, this represents a tragedy compounded by the fact that local economies in the UGC heavily rely on fisheries that intersect with vaquita habitats (CIRVA 2019; Sanjurjo-Rivera et al. 2021; Jaramillo-Legorreta et al. 2019).

3.2.2 *Mechanisms*

Fisheries in the region operate within a complex socio-ecological context marked by significant institutional deficiencies that enable illegal fishing and organized crime infiltration. These systemic issues have created conditions where criminal networks have progressively expanded their control in the totoaba fishery from trafficking to dominating the entire totoaba supply chain.

3.2.2.1 Institutional and Governance Challenges

Organized crime has progressively infiltrated regional fisheries, exploiting institutional weaknesses to establish control throughout the entire totoaba supply chain. These systemic weaknesses include poor inter-agency coordination, misaligned policies, limited capacity, weak

enforcement, and corruption - all of which undermine conservation efforts and create environments where illegal activities flourish (Boilevin, Crosta, and Hennige 2023; Cisneros-Mata 2020; Sanjurjo-Rivera et al. 2021).

Criminal organizations have evolved from merely trading with fishers to exercising comprehensive control over fisheries operations. They maintain extensive networks that regulate harvests, manipulate prices, and dominate distribution channels through intimidation and violence (Oyanedel et al. 2024). By supplying fishing gear and financing poaching operations, these groups create cycles of debt that leave fishers dependent on illegal activities (Oyanedel et al. 2024; Sanjurjo-Rivera et al. 2021).

Operating through corruption and coercion, these criminal networks have significantly weakened governance structures and enforcement capabilities (Sanjurjo-Rivera et al. 2021) . Their operations span multiple levels, from local fishers to high-level financiers, and cross international boundaries through sophisticated smuggling routes connecting Mexico to markets primarily in China via Hong Kong and transit countries including the United States (Oyanedel et al. 2024).

The transnational nature of these criminal enterprises poses substantial enforcement challenges, compounded by diplomatic complexities where source, transit, and destination countries fail to coordinate effectively. Despite the existence of conservation plans and international agreements, limited political will, inadequate funding, and poor coordination between agencies have allowed organized crime to maintain its grip on regional fisheries, causing environmental devastation and undermining legal economic activities (Oyanedel et al. 2024).

3.2.2.2 Organized Crime's Progressive Takeover

Organized crime networks are increasingly taking control of both legal and illegal fisheries throughout Mexico's entire supply chain. What began as traders dealing directly with Mexican fishers has evolved into criminal organizations controlling totoaba trade from catch to retail (Boilevin, Crosta, and Hennige 2023; Felbab-Brown 2022).

These cartels exploit institutional weaknesses by exerting control over fishers, cooperatives, processing plants, and restaurants, often using violence to enforce compliance. They establish extensive spy networks, regulate fishing harvests, manipulate processing prices, and dominate resale channels, forcing fishers to sell below market rates and monopolizing high-value species (Earth League International 2018; Oyanedel et al. 2024).

3.2.2.3 Criminal Methods of Operation

Criminal groups further entrench their influence by supplying gear and financing poaching operations, leaving many fishers deeply indebted and dependent. This dependency creates a cycle that makes it increasingly difficult for fishers to break away from illegal fishing practices or comply with regulations (Earth League International 2018).

These organizations operate through systematic corruption and intimidation, coercing officials to enable and protect their trafficking networks. This corruption significantly weakens governance structures, obstructs conservation efforts, and hampers the enforcement of environmental and fisheries laws (Earth League International 2018).

3.2.2.4 International Dimensions and Trafficking Networks

The UGC has become central to a global market driven by demand for totoaba swim bladders in Hong Kong and mainland China. This international demand, combined with pressures from Chinese traffickers working with Mexican drug cartels, intensifies poaching, illegal fishing, and corruption in the region. Multiple hierarchical levels exist within totoaba trafficking operations, involving actors ranging from local fishers (often recruited or coerced) to high-level financiers and transnational smugglers. The sophisticated nature of these trafficking networks has significantly eroded institutional capacity to combat illegal fishing and wildlife crime (Oyanedel et al. 2024).

The emerging and growing involvement of the United States not just as a smuggling route but also as a consumer market, demonstrates that the issue extends beyond China as the sole destination market. The expansion to U.S. markets has implications for customs enforcement, market regulation, and international coordination efforts. The transnational nature of these operations involves customs agents across range, transit, and consumer countries, with corruption chains facilitating movement across borders (Oyanedel et al. 2024).

CITES trilateral group meetings between Mexico, the United States, and China represent formal attempts to address the international dimensions of the trafficking network. However, diplomatic challenges persist, as the Chinese government has largely positioned wildlife trafficking and poaching as Mexico's responsibility, denying their role regarding smuggling operations. Former Mexican diplomats indicate that wildlife smuggling is not prioritized in China-Mexico diplomatic relations, creating a significant barrier to effective international cooperation (Felbab-Brown 2022)

The growing complexity of these international trafficking networks, now spanning multiple markets and jurisdictions, continues to challenge institutional capacity for effective enforcement and wildlife protection.

3.2.2.5 Motivations of Fishers and Buyers

According to Oyanedel et al. (2024), participation in illegal totoaba fishing stems from various motivations: primarily economic incentives, but also social identity, conformity to community norms, the thrill of high-risk activities, and pressure from cartels. From an economic standpoint, excluding external pressures from organized crime, depends on three factors: expected financial gains, the severity of penalties, and the likelihood of being caught and prosecuted (Sanjurjo-Rivera et al. 2021).

Research shows that the potential profits from IUU fishing greatly outweigh the risks, suggesting that penalties must be substantially raised to deter illegal activity (Sumaila, Alder, and Keith 2006). For fishers in the UGC, the high market value of totoaba swim bladders combined with minimal enforcement makes illegal fishing highly appealing to fishers. Penalties are low, and arrest and conviction rates are sporadic, undermining deterrence (Felbab-Brown 2020; Procuradoria Federal de Protección al Ambiente 2019). The low deterrence and high expected payoffs not only encourage local fishers to continue illegal activities but also attract poachers from other regions (Sanjurjo-Rivera et al. 2021).

Fishers earn between $3,500 and $5,000 per kilogram of totoaba swim bladder (dried). A fraction of the retail value but an extraordinary income compared to legal fishing activities they otherwise engage in (Earth League International 2018). A single night of illegal fishing, with a catch of just a few totoabas, can yield more than a year's earnings from legal activities. This

temptation makes it difficult for even otherwise honest fishers to resist, making economic motives the main driver of illicit totoaba fishing (Oyanedel et al. 2024; Sanjurjo-Rivera et al. 2021; Aceves-Bueno, Read, and Cisneros-Mata 2021).

Economic incentives drive all participants in the totoaba supply chain, not just the local fishermen. Intermediate actors, who connect fishers to final sellers, are particularly attracted to the trade's financial rewards, especially given the low enforcement risks and opportunities for "easy money."(Oyanedel et al. 2024). Sellers at the end of the chain prioritize maximizing profits while also focusing on building and retaining a loyal, exclusive clientele. Consumers, on the other hand, are motivated by the swim bladders' perceived health benefits and their value as status symbols (Earth League International 2018)

3.2.2.6 Protection Measures

The decline of the totoaba prompted several conservation measures by Mexican authorities, including a commercial fishing ban in 1975, its designation as endangered in 1994, and the implementation of a permanent gillnet ban in 2015 to address the vaquita's decline. Despite their significance, these measures proved ineffective (Oyanedel et al. 2024; Sanjurjo-Rivera et al. 2021). In 2023, Mexico presented a comprehensive action plan addressing illegal fishing and trade, including international collaborations with the U.S. and China. The plan emphasizes permanent monitoring, timely reporting of seizures, INTERPOL involvement, and the formation of a Trilateral Contact Group to combat illegal trade. These measures reflect shared accountability across source, transit, and destination countries in tackling totoaba trafficking (Oyanedel et al. 2024; CITES 2023).

3.2.3 *Consequences*

The resurgence of illegal small-scale gillnet fishing for totoaba in the UGC has led to unsustainable bycatch of the vaquita, the world's most critically endangered marine mammal (Rojas-Bracho and Taylor 2021; Sanjurjo-Rivera et al. 2021). This porpoise, also endemic to the region, is being pushed to extinction, with illegal totoaba fishing recognized as the sole factor driving its decline (Rojas-Bracho, Reeves, and Jaramillo-Legorreta 2006). Vaquita populations are plummeting by nearly 50% annually, with the most recent acoustic survey estimating only 10 individuals remaining (Jaramillo-Legorreta et al. 2019; CIRVA 2019). Efforts to protect the vaquita in Mexico face major challenges, including corruption, weak enforcement, and rising violence. Conservation measures have sparked violent protests, with community leaders targeted for cooperating with authorities (Felbab-Brown 2017).

The decline of the vaquita has also caused increased tensions within communities, some fishers see the vaquita's extinction as a way to lift fishing restrictions, while others worry about potential sanctions and economic repercussions. Many argue that conservation policies imposed by foreign interests jeopardize their livelihoods, viewing the gillnet ban as overly restrictive and government compensation as insufficient (Felbab-Brown 2017).

In addition to the imminent extinction of the vaquita, the rise in illegal fishing has fueled violence both within and between fishing communities. Onshore, fishermen have observed a significant increase in violence as rival groups of outsiders vie for control over totoaba trafficking, with violent encounters being common between authorities and local fishers (Aceves-Bueno, Read, and Cisneros-Mata 2021). Social conflicts have escalated to extreme

outcomes, including fishing boats being set on fire and individuals being killed over their involvement in the trade (Zabludovsky 2013; C4ADS 2017).

3.3 Case Study Essay: Squid Fishery in Peru

In the case of Peru, I begin by tracing the development of the jumbo squid fishery and the rising influence of China's distant-water fleet in the Southeast Pacific. I then examine the intersecting challenges posed by domestic governance shortcomings, the informal nature of much of the artisanal sector, and the broader geopolitical expansion of Chinese fishing activities. This is followed by an analysis of the key mechanisms driving current dynamics in the fishery, including subsidy-driven competition, regulatory evasion, and structural weaknesses in high seas management. I conclude with a discussion of the consequences for Peru's marine sovereignty, artisanal fishing livelihoods, and long-term sustainability.

3.3.1 *Introduction*

The jumbo squid (*Dosidicus gigas*) fishery in the South Pacific represents one of the most dynamic and complex marine resource management challenges in the region. This highly migratory species spans the coastal waters and High Seas from Chile to Ecuador, creating a transboundary resource that crosses both national jurisdictions and international waters (CALAMASUR, n.d.). Over the past three decades, the fishery has transformed dramatically from a relatively small-scale operation to a globally significant industry. Currently, multiple nations target this resource, with Peru emerging as a leading producer through its artisanal fleet and China developing extensive distant-water fishing operations in adjacent international waters (Lemos 2021).

Jumbo squid fishing spans the South Pacific with governance split between the South Pacific Regional Fisheries Management Organization (SPRFMO) in international waters and national authorities within EEZs (SPRFMO, n.d.-a). The resource's presence near Peru's 200-mile boundary creates significant interactions between international and domestic fisheries. This creates governance challenges as domestic and foreign fleets operate under different management regimes. Reports from Peru's Ministry of Production and SPRFMO indicate that Chinese vessels now dominate the international fleet operating outside Peru's EEZ, while Korean and Japanese vessels, once present in small numbers, have reported no squid fishing activity in the region for three or more years (Ministerio de Producción 2024; SPRFMO 2024a). This case study will focus specifically on the relationship between Asian fleet squid fishing in international waters and Peru's national fleet.

3.3.1.1 Context of Jumbo Squid Fishery in Peru

Peru is one of the world's leading fishing nations, with its economy and coastal communities heavily reliant on marine resources. Among these, the jumbo squid stands out as a key species, supporting one of the country's most important fisheries. Along the entire Peruvian coast, there is great abundance of this squid from 10 miles from shore to beyond 500 miles offshore (Csirke et al. 2018). At the national level, jumbo squid constitutes Peru's second most important fishery after anchovy, both in terms of landing volume and foreign exchange earnings. These landings are primarily processed into various frozen products destined for international markets, with China serving as the dominant export destination, and the EU following in second place (MINCETUR 2023). In 2021 alone, Peru exported 370,889 tons of squid to China (Mar del Perú 2023; Arroyo et al. 2023).

3.3.1.2 Evolution of Peru's Squid Fishery Management

Peru's jumbo squid fishery has undergone major changes since its start. Though first recorded in 1964, commercial fishing began in 1990, initially led by Japanese and Korean fleets serving Asian markets (Rubio Rodríguez and Salazar Céspedes 1992; Benites Rodríguez and Valdivieso Milla 1986). Early regulations favored these foreign fleets, disadvantaging local operators (Paredes and De la Puente 2014). A shift began in 2001, when new policies imposed higher fees on foreign vessels and required them to sell to Peruvian processors. These changes reduced foreign competition and supported the rise of domestic artisanal fishing by simplifying access for small boats and making industrial conversions costly (Paredes and De la Puente 2014).

The definitive transition came in 2011 with Peru's Fishery Management Plan for squid, effectively reserving the fishery exclusively for Peruvian artisanal fishermen through two key mechanisms: larger-scale fishing vessels in Peruvian fleets require comprehensive assessments proving no harm to artisanal operations, while foreign vessels face even stricter conditions requiring both these assessments and proof of surplus resources (Mar del Perú 2023). None has been conducted to date. These stringent requirements have created a de facto monopoly for Peru's artisanal fishing sector within the EEZ.

Peru's artisanal squid fleet has grown significantly, now involving over 11,000 fishers operating more than 3,000 small vessels (<15m) with low-technology equipment, landing approximately 500,000 tons annually (Salazar Céspedes, Giampietri Rojas, and Alarcon Vélez 2018; FIP, n.d.). However, high informality (60-75%) suggests these figures underestimate the true scale (Ministerio de Producción 2016). Global squid fishing effort increased by an estimated 68% during 2017-2020 (Poortvliet 2023). Peru was historically the largest producer (49% of global

catch between 2013-2017, compared to China's 32% and Chile's 17%), but in 2022, China overtook Peru as the world's leading jumbo squid fishing nation with 512,000 tons caught (CALAMASUR, n.d.).

In 2024, Peru’s jumbo flying squid fishery experienced its most severe collapse in 25 years, driven by environmental stressors, suspected illegal fishing, and regulatory shortcomings. Catches dropped 70% in the first half of the year compared to 2023, causing an estimated $300 million economic loss and a projected 40–50% drop in value, severely impacting artisanal fishing communities (Fundación Andrés Bello 2024; Molinari 2024b).

The scarcity has driven dramatic price increases for this typically affordable protein source. Traditionally, squid sold for 3–4 soles per kilogram (approximately $0.81–$1.08 USD/kg). After the 2024 crisis, prices surged to 12–18 soles per kilogram ($3.24–$4.86 USD/kg), with some reports approaching 30 soles ($8.10 USD/kg). This price surge has effectively removed what was once an accessible protein source from the diets of many low-income Peruvian families, creating a genuine food security concern (Ezerskii 2025).

3.3.1.3 China's Distant-Water Fishing Fleet and Squid fishing in the High Seas

China has become the world's leading jumbo squid fishing nation, consistent with its broader status as the global fishing leader with the largest industrial DWF fleet (European Parliament 2023). Following domestic coastal squid depletion, China expanded to high seas operations, developing an unparalleled deep-water fleet exceeding 2,900 vessels in recent decades (Arkhipkin et al. 2015). China’s DWF benefits from state subsidies and support networks that allow prolonged operations at sea (Global Fishing Watch 2022). With this government support,

their fleet now operates across all global oceans at a scale surpassing the entire fishing capacity of some nations near their own territorial waters. This industrial-scale expansion represents a strategic growth in China's fishing capacity and global reach. China's share of global catch grew dramatically from 5% (1980-1989) to 17% (2010-2019) while global catches remained flat, indicating China's increasing capture of the world's marine resources (European Parliament 2023).

The Chinese DWF fleet is frequently associated with IUU fishing despite official efforts to improve compliance with international regulations and increase participation in RFMOs (Gutierrez et al. 2020; Shen and Huang 2021). This reputation stems from the fleet's enormous size, opaque bilateral agreements with coastal nations, and ineffective oversight. The complex governance structure China's DWF operates under also plays a role. The system often produces contradictory outcomes due to competing priorities, national sustainability goals conflict with food security concerns, economic ambitions, and competition between provinces for jobs and tax revenue (EJF 2022; Shen and Huang 2021). For example, China's fishing subsidies heavily propel unsustainable fishing practices, particularly for their DWF (Oceana 2021).

By 2019, Chinese DWF accounted for 50-70% of total high seas squid catch (Abbott, Willard, and Xu 2021). This rapid rise has generated social, environmental, and geopolitical concerns in coastal fishing states due to alleged involvement in IUU fishing and exploitation of regulatory gaps in squid fisheries to harvest unsustainable quantities while evading monitoring and accountability mechanisms (Montecalvo et al. 2023; Goodman 2022; Arkhipkin et al. 2023).

3.3.1.4 Weaknesses in High Seas Squid Management

The High Seas squid fishery is managed by the SPRFMO, one of several RFMOs, international bodies tasked with facilitating intergovernmental cooperation and enforcing binding legal measures to manage and conserve fish stocks (Haas et al. 2020). RFMOs play an increasingly important role in global fisheries governance, influencing WTO subsidy rules and agreements under UNCLOS. For DWF nations, RFMO membership is crucial, as non-members risk trade sanctions for noncompliance or involvement in IUU fishing (Webster 2017). Full members can actively shape regulatory frameworks to align with their economic interests; while cooperating non-members must follow existing rules without influence. China's strategic decision to join RFMOs as full members in key regions reflects its intent to protect and advance its commercial fishing interests (Blomeyer et al. 2012).

The management of the jumbo flying squid fishery in the high seas, particularly within the SPRFMO Convention Area, faces several significant challenges. One of them being that despite the squid being a straddling stock, the SPRFMO does not manage it as such. Straddling stocks are typically defined under the 1995 UN Fish Stocks Agreement as fish populations that move between the EEZs of coastal states and the adjacent high seas, requiring cooperative management between states and regional fisheries bodies (UNFSA, n.d.).

While *D. gigas* is a straddling stock, its management within the SPRFMO Convention Area primarily focuses on High Seas fisheries outside EEZs. The lack of a unified, straddling stock approach creates challenges, as effective management would require greater coordination between High Seas and EEZ fisheries, particularly in stock assessment and conservation measures (Arkhipkin et al. 2023). For example, the SPRFMO currently lacks a unified

management framework. Without unified data sharing between coastal states and High Seas fleets, and in the absence of standardized reporting obligations, assessing the species' overall abundance remains difficult, weakening the scientific basis for management decisions (Carver 2024a).

In response to the challenge of cooperative management, regional groups like the Committee for the Sustainable Management of the Southern Pacific Jumbo Flying Squid (CALAMASUR) have formed. Representing stakeholders from Peru, Ecuador, Chile, and Mexico, CALAMASUR advocates for conservative management measures, comprehensive monitoring programs, and the development of robust stock assessment models. Their involvement underscores the importance of collaborative efforts in achieving sustainable fisheries management ("CALAMASUR: Nosotros," n.d.).

Despite CALAMSUR's efforts, the management of the jumbo flying squid under the SPRFMO remains weak and fragmented, and the Chinese DWF represents a big challenge to meaningful governance of this high seas fishery (Arkhipkin et al. 2023). Regional Fisheries Management Organizations (RFMOs) often face limited enforcement capabilities, particularly when dealing with uncooperative or opaque states, as their compliance mechanisms rely heavily on member-reported data (Hosch 2019; Pew Charitable Trusts 2025).

The management challenges with China's DWF targeting squid stem from both its geopolitical posture and the nature of the fishery itself; a poorly regulated, low-margin resource targeted on the High Seas (Montecalvo et al. 2023). To sustain profitability, Chinese companies have been accused of catching unsustainable volumes of squid, underreporting distant water catches, and

evading monitoring efforts, all while relying on heavy state subsidies, further undermining transparency and regional trust (Goodman 2022; Alberts 2020; Myers et al. 2022).

The jumbo squid fishery has grown rapidly, from just 6 vessels in 1990 to 575 by 2020, driven by rising global demand, especially for cephalopods, the fastest-growing seafood trade product (SPRFMO 2022b; Ligabue 2022). However, management efforts have lagged behind this growth. Stock assessment is particularly challenging due to the species' short life cycle, varied phenotypes, and wide migration, and no consensus has been reached on a reliable model within the SPRFMO Scientific Committee (Arkhipkin et al. 2023; SPRFMO, n.d.-b). Although a stock assessment framework is in development, progress is slow, hindered by resistance from key member states to adopt measures that could limit High Seas fishing (Arkhipkin et al. 2023; SPRFMO 2022a).

An analysis performed by Global Fishing Watch shows that effective management of jumbo squid also relies on transparency and compliance (Global Fishing Watch 2022). However, instances of vessels manipulating AIS data, underreporting catches, and resisting regulatory monitoring complicate monitoring, control, and surveillance efforts, exacerbating the risk of IUU fishing (Urbina, McKenzie, and Schvartzman 2024; Davidson 2023; Welch et al. 2022). Proposals for stricter management measures, such as mandatory observer programs and limits on total allowable catches, have faced resistance within the SPRFMO (Molinari 2022).

Lastly, the current quota allocation system used by the RFMO, which is based on historical fishing activity, favors countries like China with large, long-standing distant water fleets. As a result, China is positioned to receive the largest share of High Seas squid quotas. In contrast, Peru's artisanal fleet, which rarely fishes beyond its 200-mile zone and has only recently begun

registering vessels with the RFMO, lacks the fishing history needed to secure a meaningful quota. These dynamic risks deepening existing inequalities (Cox 2009; Davis et al. 2022).

However, it is important to acknowledge that granting exclusive rights to the artisanal fleet has created logistical challenges for fishing both within and beyond the 200-mile limit, ultimately weakening Peru's position against the subsidized and efficient Chinese distant-water fleet. While this decision was driven by social and labor considerations to support the large artisanal fishing community, it has resulted in limitations that place Peruvian fishers at a distinct disadvantage.

At the 2024 SPRFMO committee meeting, Chile presented an updated stock assessment for jumbo flying squid, finding that the 2023 stock status is highly uncertain. Based on the most reliable scenario, the recommended Total Allowable Catch (TAC) ranges from 874,000 to 963,000 tons, though the scientific committee warns that these figures should be interpreted cautiously due to significant uncertainties in the underlying data and model performance (SPRFMO 2024b). In 2023, a total of 522 Chinese squid jigging vessels operated within the Convention Area, landing approximately 494,000 metric tons of jumbo flying squid (SPRFMO 2024a). There is no available SPRFMO data on how much squid Peruvian vessels caught in the High Seas; however, at the domestic level, Peru's Ministry of Production (PRODUCE) set the national squid quota at 499,683 tons for 2024 (Plataforma del Estado Peruano 2024).

During the latest SPRFMO meeting the Scientific Committee recommended developing new management strategies for jumbo flying squid and urged coastal Members to share data for more transparent assessments. CALAMASUR expressed concern about inconsistent data-sharing practices, noting that while jack mackerel data is successfully shared without compromising sovereignty, similar collaboration isn't happening for squid (SPRFMO 2025). Addressing the

aforementioned challenges requires coordinated international efforts to enhance data collection, enforce compliance, and implement precautionary management measures, ensuring the long-term sustainability of the jumbo flying squid fishery in the High Seas and adjacent EEZ's.

3.3.2 *Mechanisms*

By late 2022, a large Chinese distant-water fleet of 444 vessels (plus 3 unidentified) was fishing just outside Peru's Exclusive Economic Zone, targeting the same stock of jumbo squid sought by Peru's artisanal fishers (Global Fishing Watch 2020). This has created an unequal playing field, as China's industrial fleet benefits from state subsidies and support networks that allow prolonged operations at sea (Global Fishing Watch 2022). The imbalance in capacity and resources puts Peruvian fishers at a disadvantage both in markets and under regulations. Moreover, Chinese vessels' use of Peruvian ports without adhering to satellite monitoring rules complicates enforcement and raises serious concerns about IUU fishing, threatening the sustainability of the shared resource (Medrano Marin 2024; Molinari 2024a; Global Fishing Watch 2022; Miranda 2024)

3.3.2.1 Domestic Turbulence: Governance and Informality in Peru's Squid Fishery

Despite contributing 9-15% of Peru's fisheries sector GDP and generating substantial export revenue, Peru's jumbo squid fishery operates largely within the informal economy due to significant governance weaknesses (Gozzer-Wuest et al. 2022). This informality creates multiple interconnected challenges.

The fishery has experienced unchecked fleet expansion despite regulatory efforts, with official data showing a 52% growth in artisanal squid vessels from approximately 3,000 in 2012 to at least 4,555 by 2023 (Ministerio de Producción 2012; IMARPE 2024) . This expansion paradoxically occurred amid increasingly stringent vessel construction prohibitions in Peru. Many vessels operate outside the legal framework, being built in unregulated local shipyards. llegal construction continues. Vessel owners cannot access formal financing due to their informal status, forcing reliance on informal moneylenders charging exorbitant interest rates (around 270% annually) (Gozzer-Wuest et al. 2022).

The regulatory framework failed to anticipate the need for artisanal fishers to use larger vessels as jumbo squid distribution shifted due to oceanographic changes, prey availability, fishing pressure, and possible alterations in population structure (IMARPE 2022). This oversight, combined with weak monitoring and enforcement, led to widespread non-compliance and uncontrolled vessel construction (Mar del Perú 2023)

Efforts to address the resulting crisis through formalization in fisheries regulations have been largely ineffective. Key initiatives, such as the 2016 Pilot Program for Strengthening Artisanal Fishing (cooperatives) and the 2018 Fisheries Formalization System (Siforpa II), have struggled with implementation. Four years into the cooperative program, formalization remains incomplete due to administrative bottlenecks within the Peruvian Maritime Authority and the Ministry of Production (Mar del Perú 2023). This ongoing bureaucratic inertia perpetuates informality, hampers sustainable management, and underscores the urgent need for strengthening coordinated monitoring, control, and surveillance.

Although fishing may be conducted informally, processing and export activities operate legally, leading to imbalances in bargaining power that put fishers at a disadvantage in the market. Additionally, Peruvian fishers experience sharp price drops (up to 60%) when supply increases, unlike their Chilean counterparts who have institutional protection through co-management arrangements (Mar del Perú 2023).This widespread informality stems fundamentally from governance failures, including overregulation, corruption, lack of transparency, insufficient government support, and limited investment in research and development.

3.3.2.2 The Evolving Geography of Chinese Squid Fishing

By late 2022, it was estimated by global fishing watch that the DWF fishing for jumbo squid off of Peru's EEZ comprised a total of 447 vessels; 444 Chinese of which were flagged to China and 3 with unknown identity (Global Fishing Watch 2020). This DWF operates primarily in international waters just outside Peru's 200-nautical-mile EEZ. For many years, the fleet would fish along the 200 nm border line, right along the EEZ boundary. However, as shown on Figure 3 below, starting in 2022, the Chinese fishing fleet began maintaining a distance of approximately 50 nautical miles (about 90 kilometers) from Peru's EEZ. Some suggest this change is the result of diplomatic pressure and government directives rather than biological or oceanographic factors (Schvartzman 2022).

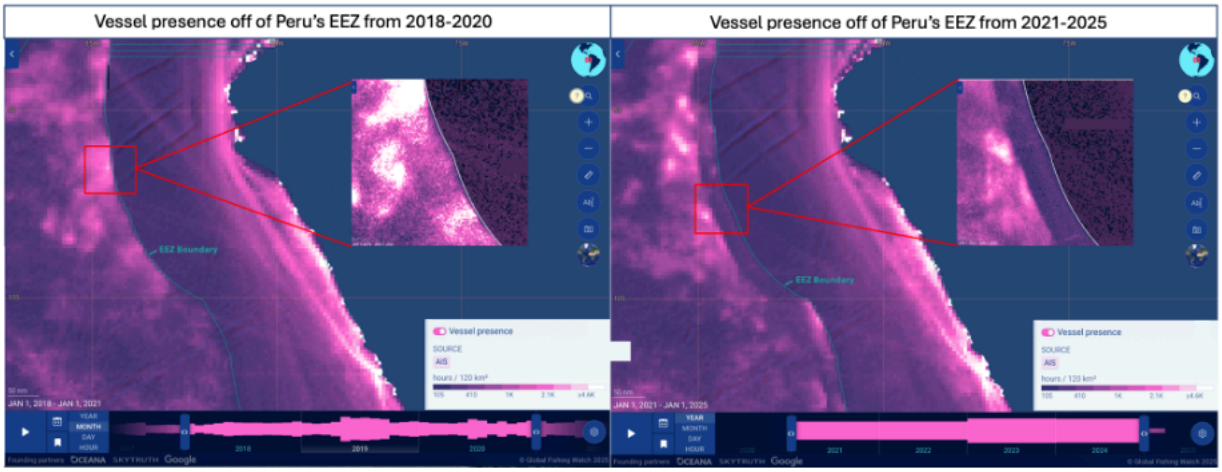

Figure 2. Spatial distribution of vessels along Peru's EEZ boundary in 2018-2020 versus 2021-2025. Adapted from © Global Fishing Watch.

3.3.2.3 Illegal Tactics and Regulatory Evasion

Although most of China's DWF operates outside Peru's jurisdiction, reports confirm that some vessels engage in IUU fishing within Peru's Exclusive Economic Zone, targeting squid and causing economic, environmental, and regulatory harm (MariTimes Crimes 2025; Medrano Marin 2024). Chinese vessels have used identity manipulation to evade detection, with 47 squid boats sharing the same Maritime Mobile Service Identity (MMSI), allowing one vessel to fish in Latin America while its duplicate appeared in Chinese waters (Lemos 2021). Some vessels also broadcast false locations, turn off tracking systems, and illegally enter Peruvian waters to overfish (Salazar Herrada 2024). Discrepancies in transshipment data further indicate widespread monitoring evasion, with China reporting 2,930 squid transshipments while AIS tracking confirmed only 1,039, and many events likely occurred with tracking systems disabled (Lemos 2021).

In late 2024, Peru authorized military action against illegal fishing vessels and mandated that foreign vessels operating in the EEZ install the Satellite Tracking System for Fishing Vessels (SISESAT) (MariTimes Crimes 2025). However, enforcement remains weak, and regulatory loopholes continue to enable exploitation of Peruvian waters by China's DWF fleet. Chinese vessels frequently use Peruvian ports for services such as refueling, resupply, and crew changes, often without complying with satellite monitoring requirements, creating economic ties while complicating regulatory enforcement (Molinari 2024a). In 2025, China signed the Port State Measures Agreement (PSMA), signaling intent to combat IUU fishing (FAO 2025). Yet, without ratification, China is not legally required to implement or enforce the agreement's provisions, limiting the effectiveness of its commitment.

3.3.2.4 The Subsidy-Driven Imbalance in Squid Fishing Competition

The competition between Peru's artisanal squid fishers and China's DWF fleet highlights a stark power imbalance in global fisheries. Despite operating in close proximity, sometimes separated by just a single nautical mile, the two fleets exist in vastly different realities. China's extensive subsidies heavily favor its industrial distant-water operations, while Peru seeks to protect its artisanal fishing sector and their rights over the squid fishery. It is important to note that artisanal fishing rights are not recognized under international law, but rather are rights allocated domestically by the coastal state within its EEZ.

China's subsidies to its DWF fleet create a fundamentally unequal playing field. While China's overall fisheries subsidies reached approximately $4.16 billion USD in 2019, a disproportionate share flows to its distant-water operations. Although the DWF accounts for only 22% of China's total catch, it receives approximately 49% of fisheries subsidies, with 80% of these classified as

"harmful" capacity-enhancing subsidies that encourage overcapacity and overfishing (Oceana 2021). Under the WTO Agreement on Fisheries Subsidies harmful subsidies include: Subsidies to IUU Fishing, Subsidies to Overfished Stocks and/or Subsidies Contributing to Overcapacity and Overfishing (WTO, n.d.). These subsidies take multiple forms, including direct vessel construction support, fuel subsidies, tax exemptions, and preferential loans that allow Chinese vessels to operate profitably in areas where unsubsidized operations would be economically unviable.

In stark contrast, Peru's squid fishery operates exclusively through small-scale artisanal vessels without comparable government support. Despite contributing 9-15% of Peru's fisheries sector GDP, the Peruvian fleet consists primarily of informal operations with limited access to credit, technology, and formal market structures (Gozzer-Wuest et al. 2022). These vessels are less than 15 meters long with storage capacities of 3-12 tons, restricting both catch volume and sea autonomy. They employ rudimentary jigging lines with lures mimicking squid's natural prey and rely on bright artificial lights to attract squid, while being required to return to port regularly, unlike their Chinese counterparts (BCN 2015).

In stark contrast to Peru’s small, low-tech artisanal squid jigging vessels, Chinese squid fishing vessels operate as part of a highly industrialized distant-water fleet that contrasts with Peru’s small, low-tech artisanal jigging boats. Equipped with automatic jigging machines and powerful lighting systems, Chinese vessels fish more efficiently and at a much larger scale (Zhou, Chen, and Zhang 2003). Their network includes large support vessels for fuel and supplies, refrigerated container ships that store massive quantities of squid at sea, and small but highly automated jigging boats that require minimal crew (A. Arkhipkin et al. 2015; Zhou, Chen, and Zhang 2003;

Myers et al. 2022). This advanced infrastructure enables near-continuous fishing and highlights the vast disparity between the two fleets.

The Chinese fleet benefits from extensive support vessel networks that allow them to remain at sea for extended periods. Carrier vessels facilitate at-sea transshipment of catch and resupply of essentials, eliminating the need to return to port. This operational advantage, combined with the financial cushion provided by government subsidies, allows Chinese vessels to outcompete Peruvian fishers who experience severe price volatility when supply increases (Global Fishing Watch 2022). Studies have shown that while prices paid to Peruvian fishers can drop by up to 60% during high supply periods, Chinese exporters maintain stable prices across supply levels thanks to their subsidized operational model (Gozzer-Wuest et al. 2022).

Although providing national subsidies for fishing is not inherently illegal, the WTO Agreement on Fisheries Subsidies establishes critical limitations to prevent their misuse. The agreement specifically prohibits subsidies that enable IUU fishing, the exploitation of overfished stocks, or fishing activities in unregulated high seas areas (World Trade Organization 2022). These types of subsidies contribute directly to overfishing and fleet overcapacity, allowing operations that would otherwise be economically unviable to persist, like the case of China's DWF (Sala et al. 2018; Kang 2016).

Eliminating subsidies for DWF is crucial for preventing the depletion of fish stocks both in the High Seas and within national jurisdictions, especially as these fleets often operate in areas where governance and monitoring are weak (Sumaila, Alder, and Keith 2006). For low-income countries that rely on fish for food security and local livelihoods, the consequences are especially severe. Research suggests that general increases in fishing capacity, fueled by broad subsidies,

are likely to spill over into poorly regulated fisheries (University of British Columbia 2023).These subsidies distort trade and disproportionately harm vulnerable sectors, particularly small-scale and artisanal fishers, who lack the state support and operational scale to compete fairly (Crispino 2019).

In 2023, China formally accepted the 2022 WTO Agreement on Fishery Subsidies and stated it will discontinue subsidies to distant-water fishing companies that fail to meet the agreement's criteria (Godfrey 2024). The specific subsidies being canceled are those violating Article 4.1, which prohibits subsidies for fishing involving overfished stocks, and Article 5.1, which prohibits subsidies for fishing in unregulated international waters (World Economic Forum 2023).

3.3.2.5 China's Expanding Maritime Influence in Peru

China has established significant economic and strategic influence in Peru, most notably through the development of the Chancay Port, built by the state-owned company COSCO, which secured a 30-year operating right. This mega port is widely viewed as part of China's broader strategy to control critical sectors in Latin America and dominate global supply chains of strategic minerals like copper, of which China already accounts for 70% of Peru's exports(Nicholls 2025). As the primary destination for Peru's seafood exports, China also holds sway over national fisheries policy. The Chancay Port is poised to become a major trade hub linking China and Latin America, further enhancing China's control over Peru's maritime infrastructure. This raises concerns about Peru's ability to enforce fishing regulations, especially given China's dominant role in the distant-water squid fishery operating near and within Peruvian waters (The Maritime Executive 2024; O'dea 2024).

3.3.3 *Consequences*

The massive growth of the Chinese distant water fishing fleet has created significant challenges for Peruvian artisanal squid fishers, threatening both their livelihoods and the sustainability of the resource on which they depend. The global squid fishery is facing a critical and worsening crisis marked by rapid stock depletion, as industrial fishing intensifies despite scientific warnings of population declines across species and regions. This trend threatens both ecological sustainability and the fishery's future, exemplifying a classic "tragedy of the commons." (Seto et al. 2023).

In 2024, Peru's jumbo squid fishery suffered its worst collapse in 25 years, with catches down 70% and a $300 million loss, deeply affecting artisanal fishers (Molinari 2024).

Two main explanations have emerged for the squid shortage in Peru. Artisanal fishing groups claim that over 300 Chinese distant-water fishing vessels are illegally operating in Peruvian waters with their satellite tracking systems turned off, fishing under the pretext of repairs or supply runs (SWI 2024). On the other hand, Peru's Ministry of Production attributes the decline to warming waters from the 2023–2024 El Niño event, which they say caused the squid to disperse. Critics argue that with the end of El Niño and the onset of La Niña conditions, which are typically favorable for squid, this explanation is flawed (Hooker 2024). No scientific study has yet confirmed whether the stock decline is due to environmental factors, illegal fishing, or a combination of both.

The crisis is further complicated by a significant gap in scientific monitoring, as no research cruise specific to jumbo flying squid has been conducted in Peruvian waters since 2019 (Molinari 2024b). This lack of data hampers the establishment of evidence-based management practices or reliable forecasts for the fishery. Social tensions have also escalated. In September 2024, the Regional Government of Piura held a meeting with representatives from at least twelve artisanal fishing associations. These groups have threatened strikes and blockades at Peru's main commercial ports unless Minister of Production, Sergio González Guerrero, takes immediate action to enforce the requirement that all foreign vessels use Peru's satellite monitoring system (SWI 2024).

The economic impacts of Chinese DWF are not limited to short-term crises but also create long-standing consequences due to the power imbalance between subsidized, highly industrialized vessels and artisanal vessels competing for the same resource. In Peru, artisanal squid fishers face a 60% drop in prices when landings increase, while exporters maintain stable prices, leveraging the minimal bargaining power of the fishers (Gozzer-Wuest et al. 2022).

Chinese DWF vessels benefit from government subsidies and superior infrastructure, such as better storage and processing capabilities, while Peruvian artisanal vessels must sell their catch immediately at often unfavorable prices. This vulnerability is compounded by Peruvian fishers' reliance on informal moneylenders, leading to debt traps that further weaken their position. Moreover, Chinese vessels can access international markets directly or through their own processing networks, while Peruvian fishers are forced to sell through intermediaries, reducing their profit margins (Gozzer-Wuest et al. 2022).

Fishers in coastal developing nations are increasingly frustrated as valuable fish stocks migrate from their regulated EEZs into adjacent unregulated high seas, where industrial fleets, often foreign, exploit them. These countries frequently lack the resources to effectively prevent illegal fishing in their waters, which further entrenches existing power imbalances (Seto et al. 2023; Moreno Custodio 2021). Research specifically highlights the case of Peru, where unregulated foreign fishing poses a serious threat to squid stocks that are crucial for sustaining local employment and livelihoods (Moreno Custodio 2021; IMARPE 2022). Additionally, industrial fishing just outside national jurisdictions causes ecological strain and deepens socioeconomic tensions, as local communities see potential national resources extracted without benefit.

Chapter 4. Assessment

My literature review found that ocean grabbing has often been linked to the rise of blue growth, with many initiatives initially framed as sustainable development but later criticized as covers for resource exploitation (Barbesgaard 2016; Bennett et al. 2020). Existing literature tends to focus on specific policies and the appropriation of physical space, but this narrow approach may overlook more subtle forms of resource appropriation, particularly when it is not overtly illegal or tied to formal policy. Notably, I found very limited case studies that examined ocean grabbing at the international scale; most scholarship has focused on national initiatives or actions, leaving a gap in understanding how transboundary and global dynamics contribute to appropriation.

While data availability varied across case studies, consistent patterns emerged. Senegal offered the most comprehensive documentation, though some critical materials were inaccessible due to language and catch misreporting issues. In Mexico and Peru, academic sources were more limited, requiring reliance on NGO reports and investigative journalism. Despite these limitations, the comparative approach revealed shared themes of exclusion, governance failure, and unequal distribution of benefits, underscoring the relevance of rethinking how ocean grabbing is identified and understood.

4.1 Assessment Relative to Ocean Grabbing Framework

Based on Bennett, Govan, and Satterfield's (2015), the first criteria that must be met for something to constitute ocean grabbing is the reallocation of ocean space or resources. Although the authors don't explicitly define "reallocation", this concept can be understood through the

various means and examples of reallocation outlined in the article. In the context of the ocean grabbing framework, when the authors refer to the "reallocation of ocean space or resources," they are referring to the process by which a more dominant or economically powerful actor gains access to and control over marine resources or ocean spaces that were previously used or managed by a less powerful group, typically local or small-scale fishers. The authors also highlight that a key feature of these ocean grabs is their adverse impact on previous resource users and/or rights holders, especially marginalized and vulnerable coastal communities such as small-scale fishers and traditional landowners.

4.1.1 *Senegal*

Senegal's fisheries illustrate a clear case of ocean grabbing, where foreign industrial fleets, through EU and Chinese agreements, gain access to tuna stocks used by local fishers. These agreements have led to the reallocation of marine resources, increased competition, and encroachment into artisanal fishing zones. Senegal's fisheries governance falls short of good governance standards. While EU agreements reference sustainability and transparency, they are poorly enforced and misaligned with Senegalese aspirations for sustainable and equitable fisheries. Chinese agreements are even less transparent, often excluding public oversight. Both lack inclusive, participatory processes, leaving coastal and marginalized communities without the information or capacity to engage. Equity is undermined as foreign interests take precedence over local needs, with no mechanisms to ensure fair benefit sharing or redress. Widespread catch misreporting and weak institutional oversight further erode transparency and accountability.

The impacts on coastal communities have been significant: stock depletion, reduced access to traditional fishing grounds, loss of livelihoods, and growing distrust in institutions. Export-driven

fishing priorities have also undermined local food security. In this context, the ocean grabbing framework proved well-suited for analysis. It effectively captured how international power asymmetries through fishing agreements drive resource appropriation at the expense of local users. Senegal's case serves as a textbook example of ocean grabbing, illustrating how external actors leverage imbalanced governance structures to exploit marine resources, leaving coastal communities to bear the social and ecological costs

4.1.2 *Mexico*

The totoaba fishery represents an atypical form of ocean grabbing where Mexican fishers harvest a native species in their own waters, but external market/economic forces forces drive the exploitation. Chinese demand for totoaba swim bladders, after depleting their own supply, creates a high-value black market that incentivizes unsustainable fishing practices. This economic pressure, combined with organized crime's growing control over the trade, fishers, and local authorities, has undermined effective fisheries management. While local fishers physically extract the resource, they operate under the influence of and primarily for the benefit of external interests, creating a power imbalance that challenges traditional definitions of ocean grabbing but still results in resource appropriation through market forces rather than territorial or resource control.

The case highlights severe governance failures, marked by a lack of transparency, accountability, and inclusive decision-making. External market forces and organized crime distort local resource use and exclude marginalized communities from equitable participation. As a result, the costs of illegal fishing fall disproportionately on local fishers, who face depleted stocks, economic precarity, and threats to their safety and rights. Overall, the case illustrates how weak governance

and external economic pressures concentrate power and wealth, undermining human security, eroding traditional livelihoods, and accelerating environmental degradation. Even without formal reallocation, these dynamics fulfill the criteria of ocean grabbing through exclusion, inequity, and unsustainable exploitation.

The totoaba fishery in Mexico exemplifies ocean grabbing through benefit inequality rather than resource reallocation. While local fishers do the harvesting, profits primarily flow to criminal networks and international buyers, leaving communities to bear the environmental and social costs. This aligns with Bennett, Govan, and Satterfield's (2015) framework focusing on negative impacts to prior resource users, as these communities face exclusion from governance while shouldering the consequences of illegal fishing. This case, therefore, does constitute ocean grabbing, but current frameworks, with their emphasis on the reallocation of space and resources, are too narrow to fully capture it. Because there is no clear reallocation in the traditional sense, the totoaba case risks falling outside existing classifications, highlighting the need to expand the concept to include unjust redistributions of benefits and burdens.

4.1.3 *Peru*

The Chinese distant water fishing operations near Peru's EEZ represent a sophisticated form of ocean grabbing that, like the Mexico case study, challenges traditional frameworks focused on resource reallocation. While Chinese vessels are technically fishing legally in international waters, they're strategically positioned at "mile 201", just beyond Peru's jurisdiction, to intercept the straddling stock of jumbo flying squid that moves between boundaries. This positioning allows them to effectively grab resources without territorial violation, demonstrating how ocean grabbing can occur through market mechanisms and power imbalances rather than direct

appropriation. China's massive subsidies create an artificially competitive fleet that can operate at a loss if necessary, while Peruvian artisanal fishers must generate immediate profits to survive.

The poor governance aspects of Bennett, Govan, and Satterfield's (2015) framework are clearly present, as SPRFMO management lacks unified data sharing, standardized reporting obligations, and effective enforcement, particularly when vessels manipulate AIS data or resist monitoring. Meanwhile, Peruvian fishers are excluded from meaningful participation in High Seas management decisions, with quotas based on historical catch favoring industrial Chinese operations. The consequences of this market-based grabbing severely undermine livelihoods, the third criterion of ocean grabbing, with 70% catch declines, $300 million in economic losses, and dramatic price increases that threaten food security. China's strategic influence extends beyond fishing to include infrastructure control through its 30-year operating rights to the Chancay Port, further consolidating its power over Peru's maritime economy and exacerbating the vulnerability of coastal communities.

While competitive overfishing by industrial fleets, particularly subsidized Chinese vessels, plays a significant role in the observed catch declines, it is important to recognize the complex interplay of environmental changes, social dynamics, and economic pressures affecting the fishery. Factors such as oceanographic shifts like El Niño events also contribute to stock declines, making simplistic attributions insufficient. In this context, enhanced monitoring, including unified data sharing and standardized reporting, becomes essential, not only to enforce regulations but to accurately understand and respond to these multifaceted challenges. Without robust monitoring systems, governance is not properly equipped to address the intricate

social-environmental-economic interactions shaping the fishery's sustainability and the livelihoods of coastal communities.

Regarding domestic governance in Peru, the focus on supporting artisanal fisheries does reflect a commitment to social inclusion and protecting the livelihoods of small-scale fishers, which can be seen as an element of good governance in terms of equity and participation. However, this emphasis has not been matched by sufficient investment in scientific research, monitoring, and enforcement capacity. The result is a governance system that struggles to effectively regulate and manage fisheries, leaving gaps that undermine sustainability and enforcement, particularly when facing challenges from subsidized distant-water fleets. So, while the artisanal focus supports community inclusion, the overall domestic governance remains weak in key areas essential for effective fisheries management.

Bennett, Govan, and Satterfield's (2015) framework, while valuable, may not fully capture this nuanced form of ocean grabbing because it occurs through economic mechanisms rather than physical reallocation, takes place in international waters while targeting resources that straddle boundaries, and maintains power imbalances through subsidies and market control rather than territorial or resource claims. This case demonstrates how ocean grabbing has evolved beyond simple resource appropriation to include benefit capture and burden shifting. The Chinese fleet extracts economic value from a shared resource while externalizing environmental and social costs to Peruvian communities, despite technically operating within legal frameworks of high seas fishing. This more complex conceptualization of ocean grabbing acknowledges that controlling benefits from marine resources, rather than physically controlling the resources

themselves, can be equally devastating to coastal communities and deserves recognition within expanded frameworks of ocean grabbing.

4.2 Reframing Ocean Grabbing: A More Inclusive and Adaptive Framework

4.2.1 *Rigid Definitions and Evolving Forms of Appropriation*

The ocean grabbing framework, as outlined by Bennett, Govan, and Satterfield (2015), offers a strong foundation for analyzing fisheries conflicts, particularly in contexts like Senegal where clear reallocation, poor governance, and livelihood effects through foreign exploitation align with its core criteria. However, the Mexico and Peru case studies reveal that the current framework, with its emphasis on resource reallocation, is too binary to account for the evolving and more complex dynamics shaping today's fisheries.

In these cases, power is exerted not through territorial or resource control but through economic mechanisms, criminal networks, and distorted market forces that lead to benefit capture and burden shifting, outcomes just as harmful to coastal communities. If the case studies were analyzed strictly through the lens of the existing ocean grabbing framework, only the Senegal case would meet all of the required criteria; the Peru and Mexico cases would fall outside the classification because reallocation does not occur in the traditional sense.

This is illustrated in Table 1, where I indicate which of Bennett, Govan, and Satterfield's (2015) criteria are fulfilled by each case. While the framework effectively flags governance failures and inequities, its rigid definition of reallocation risks overlooking critical forms of appropriation that operate legally or indirectly. To remain relevant and useful in an increasingly globalized and

market-driven ocean economy, the framework must evolve to encompass these subtler, but equally damaging, patterns of exclusion, disempowerment, and benefit concentration

		Senegal	Peru	Mexico
Has there been a reallocation of marine space or resources?		Yes	No	No
Has "good governance" been employed?	Transparent	No	No	No
	Inclusive	No	No	No
	Accountable	No	No	No
Does it undermine human security or livelihoods?		Yes	Yes	Yes
Does it generate negatiive ouotcomes for socio-ecological well-being?		Yes	Yes	Yes

Table 1. Summary of Case Studies Relative to Bennett et al. 2015 Framework and Contribution to Expanded Framework for Ocean Grabbing.

As such, future conceptualizations of ocean grabbing should shift their focus from reallocation of resources to the redistribution of benefits and burdens, recognizing that control over outcomes, rather than just territory or resources, is central to how appropriation occurs.

4.2.2 *Institutional Blind Spots and Power Imbalances*

Bennett, Govan, and Satterfield's (2015) ocean grabbing framework assumes the presence of functioning institutions at the local level capable of protecting the rights of resource users or mediating conflicts. However, in each of the cases examined, such institutions are either too weak, too under-resourced, or too politically constrained. In some contexts, these governance gaps are a result of broader geopolitical and economic power imbalances; in others, they stem from the internal organization of fisheries systems in developing countries, where informality, marginalization, and fragmentation are common. The current framework does not fully account for these foundational imbalances in governance capacity and authority. It focuses on formal

decision-making processes and visible reallocations, overlooking how deeper structural inequalities allow external actors to benefit from ocean resources without facing accountability or resistance.

To better capture these realities, an expanded ocean grabbing framework must incorporate not only the outcomes of redistribution, but also the underlying power relations and institutional voids that enable and sustain appropriation in the first place.

4.2.3 *Reallocation and Governance: A Circular Relationship*

Bennett, Govan, and Satterfield's (2015) ocean grabbing framework presents reallocation as the initial step in identifying potential cases of ocean grabbing, followed by an evaluation of the quality of governance in place. This governance evaluation determines whether there is transparency, accountability, and inclusivity in the decision-making processes, which are assumed to prevent or mitigate any potential grabs. However, case studies from this thesis reveal a more complex interaction between (re)allocation and governance: in many instances, the quality of governance is not a separate, neutral element that follows reallocation; rather, it is often the very mechanism that perpetuates and enables the reallocation itself.

In the Senegal, Mexico, and Peru cases, weak governance structures sometimes create the conditions that allow the appropriation of marine resources to happen in the first place, and also continue to allow it to happen. The failure of institutions to implement and enforce rules, and the absence of meaningful stakeholder engagement, are not simply consequences of reallocation; they are integral to the process. In other words, bad governance is the vehicle that makes the "grabs" possible. By overlooking this circular relationship, the framework misses critical insights

into how reallocation often occurs through the absence or failure of governance itself. It also neglects the difficulty to generate change in the direction of good governance.

To address this, the ocean grabbing framework must reconsider the role of governance, not as a static outcome, but as a dynamic, foundational driver that can facilitate or obstruct resource appropriation.

Chapter 5. Conclusion

While Bennett, Govan, and Satterfield's (2015) ocean grabbing framework provides a valuable starting point for identifying and analyzing inequities in global fisheries, the case studies in this thesis demonstrate that its current formulation is too narrow to fully capture the diverse and evolving ways appropriation occurs. The emphasis on clear-cut reallocation of resources overlooks more subtle but equally harmful processes. In cases like Mexico and Peru, power is exercised not through overt control of space or stocks, but through market manipulation, geopolitical leverage, and systemic governance failures that disproportionately impact coastal communities. These dynamics reveal that ocean grabbing is not always a matter of who holds the rights to fish, but rather who controls the benefits and bears the costs.

To remain analytically useful and responsive to the realities of today's ocean markets, the ocean grabbing framework must be broadened. It should account for the redistribution of benefits and burdens, the role of weak or complicit governance as a mechanism of appropriation, and how deeper systems of inequality allow powerful outsiders to take advantage of these resources without facing consequences. A more inclusive and adaptive framework would not only better reflect the complexity of modern fisheries conflicts but also serve as a more effective tool for advocating equity, accountability, and justice in ocean governance.

Finally, further research is needed to refine and expand the ocean grabbing framework by applying it to a wider range of cases, particularly those operating at international scales. Much of the current literature focuses on national-level initiatives, leaving a gap in our understanding of how global economic systems and transnational actors contribute to ocean grabbing. Bridging

this gap is essential to developing governance solutions that are grounded in the lived realities of affected communities.

BIBLIOGRAPHY

Abbott, Joshua K., Daniel Willard, and Jintao Xu. 2021. “Feeding the Dragon: The Evolution of China’s Fishery Imports.” *Marine Policy* 133 (November):104733. https://doi.org/10.1016/j.marpol.2021.104733.

Aceves-Bueno, Erendira, Andrew J. Read, and Miguel A. Cisneros-Mata. 2021. “Illegal Fisheries, Environmental Crime, and the Conservation of Marine Resources.” *Conservation Biology* 35 (4): 1120–29. https://doi.org/10.1111/cobi.13674.

Alberts, Elizabeth Claire. 2020. “New Evidence Suggests China’s ‘Dark’ Vessels Poached in Galápagos Waters.” *Mongabay Environmental News*, October 9, 2020. https://news.mongabay.com/2020/10/new-evidence-suggests-chinas-dark-vessels-poached-in-galapagos-waters/.

Arkhipkin, A. I., Ch. M. Nigmatullin, D. C. Parkyn, A. Winter, and J. Csirke. 2023. “High Seas Fisheries: The Achilles’ Heel of Major Straddling Squid Resources.” *Reviews in Fish Biology and Fisheries* 33 (2): 453–74. https://doi.org/10.1007/s11160-022-09733-8.

Arkhipkin, Alexander I., Rodhouse ,Paul G. K., Pierce ,Graham J., Sauer ,Warwick, Sakai ,Mitsuo, Allcock ,Louise, Arguelles ,Juan, et al. 2015. “World Squid Fisheries.” *Reviews in Fisheries Science & Aquaculture* 23 (2): 92–252. https://doi.org/10.1080/23308249.2015.1026226.

Arroyo, Maria Belen, Alejandro Perez, Magali Estrada, Gianfranco Huaman, and Franklin Vega. 2023. “La voraz demanda china por el calamar en aguas sudamericanas.” *Ojo Público*, February 6, 2023, sec. Ambiente. https://ojo-publico.com/4280/la-voraz-demanda-china-por-el-calamar-aguas-sudamericanas.

Barker, J. Paul. 2012. “A Rentier Class: Economic Aspects of the Colonial Legacy in Senegal.” Fatih University. https://www.e-ir.info/2012/06/07/a-rentier-class-economic-aspects-of-the-colonial-legacy-in-senegal/.

Barron, Christopher, Sarah Clark, Michael Clayton, Jerod Myers, and Wei Chun Julia Tang. 2014. “China’s Luxury Seafood Demand and Mexico’s Fisheries.” CapLog Reports Volume 1.0. Cap Log Group, LLC.

BCN. 2015. “El Aparejo de Pesca Potera.” Biiblioteca del Congreso Nacional de Chile. https://www.camara.cl/verDoc.aspx?prmID=33599&prmTIPO=DOCUMENTOCOMISION#:~:text=2.-,Embarcaciones%20artesanales%2C%20operaci%C3%B3n%20mecanizada,la%20l%C3%ADnea%20de%20las%20poteras.

Belhabib, Dyhia, William W. L. Cheung, David Kroodsma, Vicky W. Y. Lam, Philip J. Underwood, and John Virdin. 2020. “Catching Industrial Fishing Incursions into Inshore Waters of Africa from Space.” *Fish and Fisheries* 21 (2): 379–92. https://doi.org/10.1111/faf.12436.

Belhabib, Dyhia, Viviane Koutob, Nassirou Gueye, Lamine Mbaye, Christopher Mathews, Vicky W. L. Lam, and Daniel Pauly. 2013. "Lots of Boats and Fewer Fishes: Catch Reconstruction for Senegal, 1950-2010." Working Paper #2013-03. Working Paper Series. The University of British Columbia. https://www.researchgate.net/publication/285128306_Lots_of_boats_and_fewer_fishes_catch_reconstruction_for_Senegal_1950-2010.

Belhabib, Dyhia, Viviane Koutob, Aliou Sall, Vicky W. Y. Lam, Dirk Zeller, and Daniel Pauly. 2015. "Counting Pirogues and Missing the Boat: Reply to Chaboud et al.'s Comment on Belhabib et al. 'Fisheries Catch Misreporting and Its Implications: The Case of Senegal.'" *Fisheries Research* 164 (April):325–28. https://doi.org/10.1016/j.fishres.2014.09.016.

Belhabib, Dyhia, Viviane Koutob, Aliou Sall, Vicky WY Lam, and Daniel Pauly. 2014. "Fisheries Catch Misreporting and Its Implications: The Case of Senegal." *Fisheries Research* 151:1–11. https://doi.org/10.1016/j.fishres.2013.12.006.

Belhabib, Dyhia, Philippe Le Billon, and David J. Wrathall. 2020. "Narco-Fish: Global Fisheries and Drug Trafficking." *Fish and Fisheries* 21 (5): 992–1007. https://doi.org/10.1111/faf.12483.

Belhabib, Dyhia, U. Rashid Sumaila, Vicky W. Y. Lam, Dirk Zeller, Philippe Le Billon, Elimane Abou Kane, and Daniel Pauly. 2015. "Euros vs. Yuan: Comparing European and Chinese Fishing Access in West Africa." *PLOS ONE* 10 (3): e0118351. https://doi.org/10.1371/journal.pone.0118351.

Benavides, Lucia. 2018. "A Rise in Foreign Industrial Trawlers off the Coast of Senegal Is Causing Local Fishermen to Lose Their Livelihoods." *Marketplace*, April 19, 2018. https://www.marketplace.org/story/2018/04/19/rise-foreign-industrial-trawlers-coast-senegal-causing-local-fishermen-lose-their.

Benites Rodríguez, Carlos, and Violeta Valdivieso Milla. 1986. "Resultados de La Pesca Exploratoria de 1979/80 y Desembarque de Cefalópodos Pelagicos En El Litoral Peruano." Boletin IMARPE 10(5). Instituto del Mar del Peru. https://repositorio.imarpe.gob.pe/handle/20.500.12958/1055.

Benjaminsen, Tor A., and Ian and Bryceson. 2012. "Conservation, Green/Blue Grabbing and Accumulation by Dispossession in Tanzania." *The Journal of Peasant Studies* 39 (2): 335–55. https://doi.org/10.1080/03066150.2012.667405.

Bennett, Nathan James, Hugh Govan, and Terre Satterfield. 2015. "Ocean Grabbing." *Marine Policy* 57 (July):61–68. https://doi.org/10.1016/j.marpol.2015.03.026.

Blomeyer, Roland, Ian Goulding, Daniel Pauly, Antonio Sanz, and Kim Stobberup. 2012. "The Role of China in World Fisheries." Policy Department B: Structural and Cohesion Policies. Euopean Parliament Directorate-General for Internal Policies. https://www.europarl.europa.eu/meetdocs/2009_2014/documents/pech/dv/chi/china.pdf.

Boilevin, V., A Crosta, and S.J. Hennige. 2023. “Addressing Illegal Transnational Trade of Totoaba and Its Role in the Possible Extinction of the Vaquita.” *Journal of International Wildlife Law & Policy* 26 (2): 104–34. https://doi.org/10.1080/13880292.2023.2229637.

Bonfil, Ramon, Gordon Munro, Hreidar Tor Valtysson, Miriam Wright, David Preikshot, Nigel Haggan, D. (Daniel) Pauly, Ussif Rashid Sumaila, and Tony J. Pitcher. 1998. “Distant Water Fleets : An Ecological, Economic and Social Assessment.” Fisheries Centre. University of British Columbia. https://doi.org/10.14288/1.0074783.

Boullenois, Camille, and Austin Jordan. 2024. “How China’s Overcapacity Holds Back Emerging Economies.” Rhodium Group.

Bousso, Mamadou. 2022. “Fisheries and Aquaculture in Senegal.” SG2022-0015. USDA Foreign Agricultural Service. https://apps.fas.usda.gov/newgainapi/api/Report/DownloadReportByFileName?fileName=Fisheries%20and%20Aquaculture%20in%20Senegal_Dakar_Senegal_SG2022-0015.pdf#:~:text=With%20an%20annual%20catch%20rate%20of%20450%2C000,and%20closely%20followed%20by%20Ghana%20(344%2C000%20MT).&text=Fish%20exports%20in%202020%20were%20predominantly%20frozen,4.3%20percent%20and%20fish%20meal%202.6%20percent.

Brans, Marleen, and Gianluca Ferraro. 2012. “International Agreements and the Salience of Domestic Politics: Locus, Focus and Gradus. The Case of Fisheries Policy Reforms in China and Senegal.” *Journal of Comparative Policy Analysis* 14 (1): 9–25. https://doi.org/10.1080/13876988.2011.646817.

C4ADS. 2017. “Hooked: How Demand for a Protected Fish Lined the Pockets of Mexican Cartels & Sunk the Future of an Endangered Porpoise Species.” C4ADS. https://c4ads.org/wp-content/uploads/2022/04/Hooked-C4ADS.pdf.

CALAMASUR. n.d. “The Jumbo Flying Squid Fishery.” CALAMASUR. Accessed May 5, 2025. https://www.calamasur.org/en/la-pesqueria.

“CALAMASUR: Nosotros.” n.d. CALAMASUR. Accessed May 7, 2025. https://www.calamasur.org/en/quienes-somos.

Carver, Edward. 2024a. “Critics Push for More Transparency at RFMOs That Govern High Seas Fishing.” *Mongabay Environmental News*, January 31, 2024. https://news.mongabay.com/2024/01/critics-push-for-more-transparency-at-rfmos-that-govern-high-seas-fishing/.

Carver, Edward. 2024b. “To Renew or Not to Renew? African Nations Reconsider EU Fishing Deals.” *Mongabay Environmental News*, May 17, 2024. https://news.mongabay.com/2024/05/to-renew-or-not-to-renew-african-nations-reconsider-eu-fishing-deals/.

Cheung, William W. L. 2011. “A Vanishing Resource – The Tale of the Chinese Bahaba.” The International Programme on the State of the Ocean.

CIRVA. 2019. “Report of the Eleventh Meeting of the Comité Internacional Para La Recuperación de La Vaquita (CIRVA).” La Jolla, California: Comité Internacional para la Recuperación de la Vaquita. https://iucn-csg.org/wp-content/uploads/2024/04/CIRVA-11-Final-Report-6-March.pdf.

Cisneros-Mata, Miguel A. 2020. “Evaluación de La Población de Totoaba Macdonaldi.” 978-607-8274-19–2. Instituto Nacional de Pesca y Acuacultura.

Cisneros-Mata, Miguel A., Gabriela Montemayor-López, and Martha J. Román-Rodríguez. 1995. “Life History and Conservation of Totoaba Macdonaldi.” *Conservation Biology* 9 (4): 806–14. https://doi.org/10.1046/j.1523-1739.1995.09040806.x.

CITES. 2023. “Seventy-Seventh Meeting of the Standing Committee Geneva (Switzerland), 6–10 November 2023.” Summary Record SC77 SR. Convention on International Trade in Endangered Species of Wild Fauna and Flora.

Corporate Europe Observatory. 2023. “The Dirty Truth about the EU’s Hydrogen Push | Corporate Europe Observatory.” March 10, 2023. https://corporateeurope.org/en/dirty-truth-about-EU-hydrogen-push.

Cox, Anthony. 2009. “Quota Allocation in International Fisheries.” OECD Food, Agriculture and Fisheries Papers No. 22. Paris: Organisation for Economic Co-operation and Development.

Crispino, Michael. 2019. “5 Ways Harmful Fisheries Subsidies Impact Coastal Communities | Stories | WWF.” World Wildlife Fund. November 21, 2019. https://www.worldwildlife.org/stories/5-ways-harmful-fisheries-subsidies-impact-coastal-communities.

Csirke, Jorge, Juan Argüelles Torres, Ana Renza Paola Alegre Norza Sior, and Patricia Ayón Dejo. 2018. “Biology, Population Structure and Fishery of Jumbo Flying Squid (Dosidicus Gigas) in Peru.” Boletin IMARPE 33(2). Instituto del Mar del Peru. https://repositorio.imarpe.gob.pe/handle/20.500.12958/3239.

Daniels, Alfonso, Miren Gutiérrez, Gonzalo Fanjul, Arantxa Guereña, Ishbel Matheson, and Kevin Watkins. 2016. “Western Africa’s Missing Fish.” Overseas Development Institute. https://digitalcommons.fiu.edu/cgi/viewcontent.cgi?article=2006&context=srhreports.

Davidson, Helen. 2023. “China’s Moratoriums on Fishing Do ‘Nothing to Protect Squid.’” *The Guardian*, August 10, 2023, sec. Environment. https://www.theguardian.com/environment/2023/aug/10/china-moratoriums-on-fishing-do-nothing-to-protect-squid.

Davis, Ruth A., Quentin Hanich, Bianca Haas, Andrés M. Cisneros-Montemayor, Kamal Azmi, Katherine L. Seto, Wilf Swartz, Pedro C. González-Espinosa, Mathieu Colléter, and Timothy J. H. Adams. 2022. “Who Gets the Catch? How Conventional Catch Attribution Frameworks Undermine Equity in Transboundary Fisheries.” *Frontiers in Marine Science* 9 (March). https://doi.org/10.3389/fmars.2022.831868.

Diedhiou, Idrissa, and Zhengyong Yang. 2018. “Senegal’s Fisheries Policies: Evolution and Performance.” *Ocean & Coastal Management* 165 (November):1–8. https://doi.org/10.1016/j.ocecoaman.2018.08.003.

Doerr, Florian. 2016. “Blue Growth and Ocean Grabbing: A Historical Materialist Perspective on Fisheries in East Africa.” International Institute of Social Studies (ISS).

Doumbouya, Alkaly, Ousmane T. Camara, Josephus Mamie, Jeremias F. Intchama, Abdoulie Jarra, Salifu Ceesay, Assane Guèye, et al. 2017. “Assessing the Effectiveness of Monitoring Control and Surveillance of Illegal Fishing: The Case of West Africa.” *Frontiers in Marine Science* 4 (March). https://doi.org/10.3389/fmars.2017.00050.

DuBois, Carolyn, and Christos Zografos. 2012. “Conflicts at Sea between Artisanal and Industrial Fishers: Inter-Sectoral Interactions and Dispute Resolution in Senegal.” *Marine Policy* 36 (6): 1211–20. https://doi.org/10.1016/j.marpol.2012.03.007.

Earth League International. 2018. “Operation Fake Gold.” Confidential Intelligence Brief. https://earthleagueinternational.org/wp-content/uploads/2018/07/EAL-Operation-Fake-Gold-Final.pdf.

EJF. 2020. “New Trawlers with History of Illegal Fishing Threaten Senegalese Fishers.” Environmental Justice Foundation. April 22, 2020. https://ejfoundation.org/news-media/new-trawlers-with-history-of-illegal-fishing-threaten-senegalese-fisheries.

EJF. 2022. “The Ever-Widening Net: Mapping the Scale, Nature and Corporate Structures of Illegal, Unreported and Unregulated Fishing by the Chinese Distant-Water Fleet.” Report. Environmental Justice Foundation. https://ejfoundation.org/resources/downloads/The-Ever-Widening-Net-2022-final.pdf.

EJF. 2023. “At the Tipping Point: How Bottom Trawling Is Precipitating the Collapse of Senegal’s Artisanal Fisheries.” Environmental Justice Foundation.

“EJF in Action: Revealing Illegal Fishing in Senegalese Waters.” 2022. Environmental Justice Foundation. December 15, 2022. https://ejfoundation.org/news-media/ejf-in-action-revealing-illegal-fishing-in-senegalese-waters.

Ekanem, Solomon. 2025. “Senegal Set to Rename Streets, Buildings in Move to Erase French Colonial Legacy.” *Business Insider Africa*, February 6, 2025, sec. lifestyle. https://africa.businessinsider.com/local/lifestyle/senegal-set-to-rename-streets-buildings-in-move-to-erase-french-colonial-legacy/hbc5tl4.

Englander, Gabriel, and Christopher Costello. 2023. “A Fish Cartel for Africa.” *Nature Communications* 14 (1): 7124. https://doi.org/10.1038/s41467-023-42886-z.

Esposito, John, L, Tamara Sonn, and John Voll O. 2015. “Senegal: Democracy and the Postcolonial State | Islam and Democracy after the Arab Spring | Oxford Academic.” In *Islam and Democracy after the Ara Spring*, 149–73. Oxford University Press. https://academic.oup.com/book/6730/chapter-abstract/150812989?redirectedFrom=fulltext#no-access-message.

EU IUU Fishing Coalition. 2022. “Analysis of the EU Fishing Fleet’s Implementation of the SMEFF Regulation: Reflagging Behaviours.” The Environmental Justice Foundation, Oceana, The Nature Conservancy, The Pew Charitable Trusts and WWF. https://www.iuuwatch.eu/wp-content/uploads/2022/05/EU-IUU-Coalition-Reflagging-Study-EN.pdf.

European Commission. n.d. “Senegal - European Commission.” Accessed May 2, 2025. https://oceans-and-fisheries.ec.europa.eu/fisheries/international-agreements/sustainable-fisheries-partnership-agreements-sfpas/senegal_en.

European Parliament. 2023. “Chinese Distant Water Fishing Fleet.” European Parliament. https://www.europarl.europa.eu/RegData/etudes/BRIE/2023/747900/EPRS_BRI(2023)747900_EN.pdf.

European Union. 2019. “Agreement on a Sustainable Fisheries Partnership Between the European Union and the Republic of Senegal.” European Union. https://faolex.fao.org/docs/pdf/eur139024.pdf.

European Union. 2024a. “Expiry of the Protocol Implementing the Fisheries Agreement between Senegal and the European Union | EEAS.” *European Union*, December 11, 2024. https://www.eeas.europa.eu/delegations/senegal/expiry-protocol-implementing-fisheries-agreement-between-senegal-and-european-union_en?s=117.

European Union. 2024b. “Questions Relating to Sustainable Fishing Agreements between the European Union and Senegal | EEAS.” May 16, 2024. https://www.eeas.europa.eu/delegations/senegal/questions-relating-sustainable-fishing-agreements-between-european-union-and-senegal_en?s=117.

Ezerskii, Por Tomás. 2025. “Ministerio de la Producción inicia crucero para evaluar el estado de la pota en el litoral peruano.” *infobae* (blog). January 9, 2025. https://www.infobae.com/peru/2025/01/09/ministerio-de-la-produccion-inicia-crucero-para-evaluar-el-estado-de-la-pota-en-el-litoral-peruano/.

Failler, Pierre, Grégoire Touron-Gardic, Juliana Arias Hansen, Alexandre Rodriguez, Sonia Doblado, Øystein Hermansen, Jónas R. Viðarsson, Andy Forse, and Benjamin Drakeford. 2024. “Tuna: Investigations of Value Addition and Potential EU Investments in Tuna Fisheries in Africa.” *Sustainable Economies* 2 (2): 107–107. https://doi.org/10.62617/se.v2i2.107.

Fanjul, Gonzalo, and Arabella Fraser. 2003. “Dumping Without Borders: How US Agricultural Policies Are Destroying the Livelihoods of Mexican Corn Farmers.” Oxfam International. https://policy-practice.oxfam.org/resources/dumping-without-borders-how-us-agricultural-policies-are-destroying-the-livelih-114471/.

FAO. 2020. “The State of World Fisheries and Aquaculture 2020.” FAO. https://doi.org/10.4060/ca9229en.

FAO. 2023. “Coastal Fisheries Initiative in Senegal.” FAO Coastal Fisheries Initiative. March 24, 2023. https://doi.org/10.4060/cc4472fr.

FAO. 2025. “China Becomes Party to the PSMA.” Food and Agriculture Organization of the United Nations Agreement on Port State Measures (PSMA). April 16, 2025. https://www.fao.org/port-state-measures/news-events/detail/en/c/1736611/.

Felbab-Brown, Vanda. 2017. “The Vanishing Vaquita and the Challenges of Combating Wildlife Trafficking.” Brookings. June 5, 2017. https://www.brookings.edu/articles/the-vanishing-vaquita-and-the-challenges-of-combating-wildlife-trafficking/.

Felbab-Brown, Vanda. 2020. “Saving the Vaquita Marina and the Urgency of This Fall.” *Brookings*, October 12, 2020. https://www.brookings.edu/articles/saving-the-vaquita-marina-and-the-urgency-of-this-fall/.

Felbab-Brown, Vanda. 2022. “Something Fishy: Wildlife Trafficking from Mexico to China.” *Brookings*, March 8, 2022. https://www.brookings.edu/articles/something-fishy-wildlife-trafficking-from-mexico-to-china/.

Fessy, Thomas. 2014. “The Unequal Battle over West Africa’s Rich Fish Stocks.” *BBC News*, January 9, 2014, sec. Africa. https://www.bbc.com/news/world-africa-25660385.

FIP. n.d. “Peru Jumbo Flying Squid - Jig.” Fishery Improvement Project Progress Tracking Database & Tools. Accessed May 5, 2025. https://fisheryprogress.org/fip-profile/peru-jumbo-flying-squid-jig.

Flanagan, Christine A., and John R. Hendrickson. 1976. “Observations on the Commercial Fishery and Reproductive Biology of the Totoaba, Cynoscion Macdonaldi, in the Northern Gulf Of California.” Fishery Bulletin 74(3). NOAA Fisheries.

Foley, Paul, and Charles Mather. 2019. “Ocean Grabbing, Terraqueous Territoriality and Social Development.” *Territory, Politics, Governance* 7 (3): 297–315. https://doi.org/10.1080/21622671.2018.1442245.

Franz, Tobias, Diana Gómez, C. Julián Idrobo, and Olga Corzo. 2023. “Development and Well¯being: Maritime Infrastructure and Ocean Grabbing on the Colombian Pacific Coast.” *Latin American Perspectives*, 94582-. https://doi.org/10.1177/0094582X231176782.

FTC. 2023. “Fishy Networks: Uncovering the Companies and Individuals behind Illegal Fishing Globally.” Financial Transparency Coallition.

Fundación Andrés Bello. 2024. “Peru Loses $300 Million to Illegal Fishing by Chinese Fleets.” *Fundación Andrés Bello Centro de Investigacion Chino Latinoamericano* (blog). August 26, 2024. https://fundacionandresbello.org/en/news/peru-🇵🇪-news/peru-loses-300-million-to-illegal-fishing-by-chinese-fleets/.

Gagern, Antonius, and Jeroen van den Bergh. 2013. “A Critical Review of Fishing Agreements with Tropical Developing Countries.” *Marine Policy* 38 (March):375–86. https://doi.org/10.1016/j.marpol.2012.06.016.

Gallic, Bertrand Le, and Anthony Cox. 2006. “An Economic Analysis of Illegal, Unreported and Unregulated (IUU) Fishing: Key Drivers and Possible Solutions.” *Marine Policy* 30 (6): 689–95. https://doi.org/10.1016/j.marpol.2005.09.008.

Garcia, Horaci, and Ngouda Dione. 2024. “Senegal’s Fishermen Head for Spain as Fish Stocks Dwindle at Home.” *Reuters*, March 22, 2024, sec. Africa. https://www.reuters.com/world/africa/senegals-fishermen-head-spain-fish-stocks-dwindle-home-2024-03-22/.

Gaye, Dao. 1996. “Around the Negotiation Table.” Presented at the Meeting of the EU-ACP Fisheries Agreements Monitoring Group, Brussels, November.

Gegout, Catherine. 2016. “Unethical Power Europe? Something Fishy about EU Trade and Development Policies.” *Third World Quarterly* 37 (12): 2192–2210. https://doi.org/10.1080/01436597.2016.1176855.

Gianni, Matthew, and Walt Simpson. 2005. “The Changing Nature of High Seas Fishing: How Flags of Convenience Provide Cover for Illegal, u.” World Wildlife Fund International. https://www.wwf.eu/?24357/The-Changing-Nature-of-High-Seas-Fishing-How-Flags-of-Convenience-provide-cover-for-illegal-unreported-and-unregulated-IUU-fishing.

Global Fishing Watch. 2020. “Jumbo Squid Fishery in the Southeast Pacific Ocean.” *Global Fishing Watch* (blog). December 21, 2020. https://globalfishingwatch.org/jumbo-squid-fishery-southeast-pacific-ocean/.

Global Fishing Watch. 2022. “Analysis of the Southeast Pacific Distant Water Squid Fleet.” Fleet Analysis GFW-2022-FA-SQUID2021. Global Fishing Watch. https://globalfishingwatch.org/wp-content/uploads/GFW-2022-FA-SQUID2021-.docx.pdf.

Goodman, Joshua. 2022. “South America Squid Left Exposed amid Surge in China Fishing | AP News.” *AP News*, January 28, 2022. https://apnews.com/article/business-china-south-america-squid-f4092351b2c070d515e87fb408c7d01d.

Gorez, Beatrice. 2023. "'It Takes Two to Tango' – EU Fishing Partnerships Agreements Must Become More Attractive to Partner Countries." Coalition for Fair Fisheries Arrangements. October 2, 2023. https://www.cffacape.org/publications-blog/it-takes-two-to-tango-eu-fishing-partnerships-agreements-must-become-more-attractive-to-partner-countries.

Gorez, Beatrice. 2024. "Publication of the List of Vessels Authorised to Fish in Senegal: 'The Fight for Transparency in Fisheries Is Only Beginning.'" *Coalition for Fair Fisheries Arrangements*, May 14, 2024. https://www.cffacape.org/news-blog/in-an-attempt-to-promote-transparency-the-senegalese-ministry-of-fisheries-published-a-list-of-boats-authorised-to-fish-in-senegalese-waters.

Gozzer-Wuest, Renato, Enrique Alonso-Población, Stefany Rojas-Perea, and Rubén H. Roa-Ureta. 2022. "What Is at Risk Due to Informality? Economic Reasons to Transition to Secure Tenure and Active Co-Management of the Jumbo Flying Squid Artisanal Fishery in Peru." *Marine Policy* 136 (February):104886. https://doi.org/10.1016/j.marpol.2021.104886.

GRAIN. 2008. "Seized: The 2008 Landgrab for Food and Financial Security." October 24, 2008. https://grain.org/en/article/93-seized-the-2008-landgrab-for-food-and-financial-security.

Greenpeace. 2015. "Africa's Fisheries' Paradise at a Crossroads." Greenpeace. https://archivo-es.greenpeace.org/espana/Global/espana/2015/Report/oceanos/Summary%20report_Eng.pdf.

Gutiérrez, Miren, Alfonso Daniels, Guy Jobbins, Guillermo Gutiérrez Almazor, and César Montenegro. 2020. "China's Distant- Water Fishing Fleet." ODI Global.

Gutierrez, Miren, Alfonso Daniels, Guy Jobbins, and Guillermo Gutierres Alzamor. 2020. "China's Distant- Water Fishing Fleet Scale, Impact and Governance." Overseas Development Institute. https://www.researchgate.net/publication/341823076_China's_distant-_water_fishing_fleet_Scale_impact_and_governance.

Gutierrez, Miren, Alberto Lemma, Guillermo Gutierrez, and César Montenegro. 2024. "Fishy Business: Estimating the Impact of Irregular and Unsustainable Fishing of Distant-Water Fishing Fleets in Ecuador, Ghana, Peru, the Philippines and Senegal." ODI Global. https://odi.org/en/publications/impacts-of-iuu-dwf-senegal/.

Haas, Bianca, Jeffrey McGee, Aysha Fleming, and Marcus Haward. 2020. "Factors Influencing the Performance of Regional Fisheries Management Organizations." *Marine Policy* 113 (March):103787. https://doi.org/10.1016/j.marpol.2019.103787.

Hausheer, Justine. 2013. "Ask Dr. Pauly: What Are Distant-Water Fishing Fleets, and How Do They Affect Overfishing?" Oceana USA. October 21, 2013. https://usa.oceana.org/blog/ask-dr-pauly-what-are-distant-water-fishing-fleets-and-how-do-they-affect-overfishing/.

Hill, Alice. 2017. “Blue Grabbing: Reviewing Marine Conservation in Redang Island Marine Park, Malaysia.” *Geoforum* 79 (February):97–100. https://doi.org/10.1016/j.geoforum.2016.12.019.

Hooker, Yuri. 2024. “Opinión | ¿Qué está pasando con la pota?” *Oceana Peru* (blog). September 27, 2024. https://peru.oceana.org/blog/opinion-que-esta-pasando-con-la-pota/.

Hosch, Gilles. 2019. “China Bottom of Illegal Fishing Index.” *Dialogue Earth* (blog). April 15, 2019. https://dialogue.earth/en/ocean/7568-china-worst-country-illegal-fishing-index/.

ICCAT. 2025. “Report for Biennial Period, 2024-25.” PART I (2024)-Vol. 2. International Commission for the Conservation of Atlantic Tunas.

IMARPE. 2022. “Situación Del Calamar Gigante Durante El 2021 y Perspectivas de Pesca Para El 2022.” Callao, Peru: Instituto del Mar del Peru. https://cdn.www.gob.pe/uploads/document/file/3392195/Informe%20calamar%20gigante%20perspectivas%20pesca.pdf?v=1657572959.

IMARPE. 2024. “Cuarta Encuesta Estructural de La Pesquería Artesanal En El Litoral Peruano, ENEPA IV 2022-2023.” Informe Ejecutivo. Programa Presupuestal 0095 – “Fortalecimiento de La Pesca Artesanal.” Callao, Peru: Instituto del Mar del Peru. https://cdn.www.gob.pe/uploads/document/file/6908889/5966295-cuarta-encuesta-estructural-de-la-pesqueria-artesanal-en-el-litoral-peruano-enepa-iv-2022-2023.pdf?v=1725902106.

IUCN Cetacean Specialist Group. 2016. “Seventh Meeting of the Comité Internacional Para La Recuperación de La Vaquita Caracol Museo de Ciencias y Acuario.” In . Ensenada, Mexico: IUCN Cetacean Specialist Group. https://www.iucn-csg.org/wp-content/uploads/2010/03/CIRVA-7-Final-Report.pdf.

Jaramillo-Legorreta, Armando M., Gustavo Cardenas-Hinojosa, Edwyna Nieto-Garcia, Lorenzo Rojas-Bracho, Len Thomas, Jay M. Ver Hoef, Jeffrey Moore, Barbara Taylor, Jay Barlow, and Nicholas Tregenza. 2019. “Decline towards Extinction of Mexico’s Vaquita Porpoise (Phocoena Sinus).” *Royal Society Open Science* 6 (7): 190598. https://doi.org/10.1098/rsos.190598.

Kaczynski, Vlad M., and David L. Fluharty. 2002. “European Policies in West Africa: Who Benefits from Fisheries Agreements?” *Marine Policy* 26 (2): 75–93. https://doi.org/10.1016/S0308-597X(01)00039-2.

Kaczynski, Wlodzimierz. 1979. “Joint Ventures in Fisheries between Distant-Water and Developed Coastal Nations: An Economic View.” *Ocean Management* 5 (1): 39–48. https://doi.org/10.1016/0302-184X(79)90012-X.

Kang, Rashid. 2016. “China’s Distant Water Fishing Fleet Growing Unsustainably.” *Dialogue Earth* (blog). December 6, 2016. https://dialogue.earth/en/uncategorized/594-china-distant-water-fishing-fleet/.

Klein, Carissa, Caitlin Kuempel, Reg Watson, Marta Coll, Lida Teneva, and Camilo Mora. 2021. "Global Fishing and Seafood Trade Burdens Places with Ineffective Fisheries Management." https://doi.org/10.21203/rs.3.rs-611352/v1.

Knott, Christine, and Barbara Neis. 2017. "Privatization, Financialization and Ocean Grabbing in New Brunswick Herring Fisheries and Salmon Aquaculture." *Marine Policy*, Neoliberalism and global small-scale fisheries, 80 (June):10–18. https://doi.org/10.1016/j.marpol.2016.10.022.

Le Manach, Frédéric, Christian Chaboud, Duncan Copeland, Philippe Cury, Didier Gascuel, Kristin M. Kleisner, André Standing, U. Rashid Sumaila, Dirk Zeller, and Daniel Pauly. 2013. "European Union's Public Fishing Access Agreements in Developing Countries." Edited by David Hyrenbach. *PLoS ONE* 8 (11): e79899. https://doi.org/10.1371/journal.pone.0079899.

Lemos, Nancy De. 2021. "Squid Smarts: 5 Things You Need to Know about Jumbo Squid Fishing in the Southeast Pacific Ocean." *Global Fishing Watch* (blog). July 14, 2021. https://globalfishingwatch.org/article/squid-smarts-jumbo-squid-in-the-pacific-ocean/.

Ligabue, Fernanda. 2022. "Squids in the Spotlight: Unregulated Squid Fisheries Are Headed for Disaster." GP1SWZFC. https://www.greenpeace.org/static/planet4-international-stateless/2022/03/e13337d8-squids-in-the-spotlight.pdf.

Machado, Fábio Luiz Vargas, Vinícius Halmenschlager, Patrízia Raggi Abdallah, Gibran da Silva Teixeira, and Ussif Rashid Sumaila. 2021. "The Relation between Fishing Subsidies and CO2 Emissions in the Fisheries Sector." *Ecological Economics* 185 (July):107057. https://doi.org/10.1016/j.ecolecon.2021.107057.

Manneh, Mustapha. 2024. "Senegal's Fishing Vessel List a 'Leap Forward' for Transparency." *Dialogue Earth* (blog). July 12, 2024. https://dialogue.earth/en/ocean/senegals-fishing-vessel-list-declared-a-leap-forward-for-transparency/.

Mar del Perú. 2023. "Pota." *Mar del Perú* (blog). May 23, 2023. https://mardelperu.pe/articulos_wikipesca/principales-pesquerias-marinas-en-el-peru/pota/.

MariTimes Crimes. 2025. "Peru Cracks Down on Chinese Illegal Fishing." *MariTimes Crimes* (blog). February 13, 2025. https://maritimescrimes.com/2025/02/13/peru-cracks-down-on-chinese-illegal-fishingperu-illegal-fishing-crackdown-military-enforcement/.

Marotte, Adran. 2024. "Senegal Looks to Aquaculture as Fish Stocks Dwindle." *Phys Org News*, October 3, 2024. https://phys.org/news/2024-10-senegal-aquaculture-fish-stocks-dwindle.html#google_vignette.

Medrano Marin, Hernán. 2024. “Pesca ilegal: el impacto de la flota china en la pota peruana y el llamado de alertas.” *El Comercio*, September 29, 2024. https://elcomercio.pe/lima/sucesos/embarcaciones-chinas-en-mar-de-peru-la-polemica-por-su-ingreso-a-puertos-peruanos-pesca-ilegal-de-pota-y-evasion-de-controles-por-que-subio-el-precio-de-la-pota-marina-de-guerra-barcos-chinos-noticia/?ref=ecr#google_vignette.

MINCETUR. 2023. “Mincetur: Corea del Sur y Japón figuran entre los principales compradores de pota peruana.” *Ministerio de Comercio Exterior y Turismo*, June 18, 2023. https://www.gob.pe/institucion/mincetur/noticias/779232-mincetur-corea-del-sur-y-japon-figuran-entre-los-principales-compradores-de-pota-peruana.

Ministère de l’Europe et des Affaires. 2017. “France and Senegal.” France Diplomacy - Ministry for Europe and Foreign Affairs. September 11, 2017. https://www.diplomatie.gouv.fr/en/country-files/senegal/france-and-senegal-65144/.

Ministerio de Produccion. 2016. *Disposiciones Generales Para El Fortalecimiento de La Pesca Artesanal En Las Cadenas Productivas.*

Ministerio de Produccion. 2024. “Política Nacional De Pesca: Delimitación y Enunciación Del Problema Público. Estructuración de Problema Público.” Entregable 1. Peru: Ministerio de Produccion Dirección General De Políticas Y Análisis Regulatorio En Pesca Y Acuicultura. https://cdn.www.gob.pe/uploads/document/file/7212103/6173676-entregable-n-1-politica-nacional-de-pesca%282%29.pdf.

Ministerio de Produccion, INEI. 2012. “I Censo de La Pesca Artesanal Del Ámbito Marítimo 2012.” Ficha Tecnica. Lima, Peru: Ministerio de Produccion and Instituto Nacional de Estadística e Informática.

Miranda, Francisco J. 2024. “La cuestión china y la pesca peruana en alta mar.” *Foro Hispano Americano de Intercambio de Informacion sobre Temas de Mar* (blog). June 24, 2024. https://www.oannes.org.pe/editorial/la-cuestion-china-y-la-pesca-peruana-en-alta-mar/.

Molinari, Christian. 2022. “SPRFMO Risks ‘Non-Cooperative’ Consideration in Fight against IUU, CALAMASUR Warns.” *SeafoodSource*, February 16, 2022. https://www.seafoodsource.com/news/environment-sustainability/sprfmo-risks-non-cooperative-consideration-in-fight-against-iuu-calamasur-warns.

Molinari, Christian. 2024a. “IUU Vessels Continue to Dock in Peru as Government Prepares Decree to Curtail Practice.” *SeafoodSource*, July 11, 2024. https://www.seafoodsource.com/news/supply-trade/iuu-vessels-continue-to-dock-in-peru-despite-governmental-decree-on-the-horizon.

Molinari, Christian. 2024b. “Peru’s Giant Squid Fishery Facing ‘Worst Crisis in History.’” *SeafoodSource*, December 5, 2024. https://www.seafoodsource.com/news/supply-trade/peru-s-giant-squid-fishery-facing-worst-crisis-in-history.

Montecalvo, Isabella, Philippe Le Billon, Chris Arsenault, and Milko Schvartzman. 2023. "Ocean Predators: Squids, Chinese Fleets and the Geopolitics of High Seas Fishing." *Marine Policy* 152 (June):105584. https://doi.org/10.1016/j.marpol.2023.105584.

Monterey Bay Aquarium Seafood Watch. 2023. "Tropical Tuna Risk Profile: Senegal, Fishing and Processing." SEAFOOD SOCIAL RISK TOOL V2. Monterey Bay Aquarium SeafoodWatch & Sustainable Fisheries Partnership. https://www.seafoodwatch.org/globalassets/sfw/pdf/projects/ssrt/risk-profiles/tropical-tuna/published/seafood-watch-tropical-tuna-ssrt-risk-profile-senegal-2023.pdf.

Moreno Custodio, Leslie. 2021. "Artisanal Squid Fishing in Peru Threatened by International Fleets." Latin America's Environmental Policies in Global Perspective. Wilson Center.

Mwikya, Stephen Mbithi. 2006. "Fisheries Access Agreements: Trade and Development Issues." Geneva, Switzerland: International Centre for Trade and Sustainable Development. https://doi.org/10.7215/NR_IP_20060401.

Myers, Steven Lee, Agnes Chang, Derek Watkins, and Claire Fu. 2022. "How China Targets the Global Fish Supply." *The New York Times*, September 26, 2022, sec. World. https://www.nytimes.com/interactive/2022/09/26/world/asia/china-fishing-south-america.html.

Nicholls, Sabina. 2025. "China pone en jaqué a Perú – PARTE III." *Diálogo Américas* (blog). March 3, 2025. https://dialogo-americas.com/es/articles/china-pone-en-jaque-a-peru-parte-iii/.

Nichols, Rachel, Satoshi Yamazaki, Sarah Jennings, and Reg A. Watson. 2015. "Fishing Access Agreements and Harvesting Decisions of Host and Distant Water Fishing Nations." *Marine Policy* 54 (April):77–85. https://doi.org/10.1016/j.marpol.2014.12.019.

NOAA FIsheries. 2024. "International Commission for the Conservation of Atlantic Tunas | NOAA Fisheries." NOAA. International. November 26, 2024. https://www.fisheries.noaa.gov/international-affairs/international-commission-conservation-atlantic-tunas.

Oceana. 2021. "China's Fisheries Subsidies Propel Distant-Water Fleet." Oceana. https://oceana.org/reports/chinas-fisheries-subsidies-propel-distant-water-fleet/.

O'dea, Christopher R. 2024. "China's Port in Peru Marks Dangerous New Era." *Hudson Institute* (blog). November 27, 2024. https://www.hudson.org/trade/chinas-port-peru-marks-dangerous-new-era-christopher-odea.

Office of Naval Intelligence. 2021. "Foreign Governments' Use of Their Distant Water Fishing Fleets as Extensions of Their Maritime Security Forces and Foreign Policies." https://www.oni.navy.mil/Portals/12/reading_room/20210616_Congressional%20Report_Final%20-%20%2019AUG21.pdf#:~:text=Chinese%20DWF%20vessels%20have%20long%20endurances%20and,which%20also%20provide%20food%20and%20other%20supplies.

Oirere, Shem. 2024a. “Senegal Proposes Review of International Fisheries Agreements, Threatening Future of EU Access Deal.” *SeafoodSource*, June 5, 2024. https://www.seafoodsource.com/news/environment-sustainability/senegal-proposes-review-of-international-fisheries-deals-to-safeguard-its-marine-resources.

Oirere, Shem. 2024b. “Senegalese Tuna Fishery Becomes First in West Africa to Secure MSC Certification.” *SeafoodSource*, December 26, 2024. https://www.seafoodsource.com/news/supply-trade/senegalese-tuna-fishery-becomes-first-in-west-africa-to-secure-msc-certification.

Owusu, Victor, Eric Tamatey Lawer, Moses Adjei, and Michael Ogbe. 2023. “Impact of Offshore Petroleum Extraction and ‘Ocean Grabbing’ on Small-Scale Fisheries and Coastal Livelihoods in Ghana.” *Maritime Studies* 22 (2): 17. https://doi.org/10.1007/s40152-023-00307-3.

Oyanedel, Rodrigo, Erendira Aceves-Bueno, Lucia Davids, and Miguel Ángel Cisneros-Mata. 2024. “An Assessment of Potential Interventions to Reduce the Totoaba Illegal Trade Market.” *Conservation Biology* 38 (5): e14356. https://doi.org/10.1111/cobi.14356.

Paredes, Carlos, and Santiago De la Puente. 2014. “Situación Actual de La Pesquería de La Pota (Dosidicus Gigas) En El Perú y Recomendaciones Para Su Mejora.” Proyecto MEDIANO BREVE CIES PM-T1. Consorcio de Investigacion Economica y Social. https://cies.org.pe/investigacion/situacion-actual-de-la-pesqueria-de-la/.

Pauly, Daniel, Villy Christensen, Sylvie Guénette, Tony J. Pitcher, U. Rashid Sumaila, Carl J. Walters, R. Watson, and Dirk Zeller. 2002. “Towards Sustainability in World Fisheries.” *Nature* 418 (6898): 689–95. https://doi.org/10.1038/nature01017.

Pauly, Daniel, Reg Watson, and Jackie Alder. 2005. “Global Trends in World Fisheries: Impacts on Marine Ecosystems and Food Security.” *Philosophical Transactions of the Royal Society B: Biological Sciences*, January. https://doi.org/10.1098/rstb.2004.1574.

Pew Charitable Trusts. 2022. “Most Long-Distance Fishing in Foreign Waters Dominated by Only a Few Governments.” May 27, 2022. https://pew.org/3G40M92.

Pew Charitable Trusts. 2025. “How the International Community Regulates Fisheries Across the Ocean.” *Pew Charitable Trusts* (blog). February 24, 2025. https://pew.org/3QuE9R5.

Pincombe, Morgan. 2021. “Casting a Neocolonial Net.” The Project on International Peace and Security. College of William & Mary.

Pitcher, Tony J, Reg Watson, and Anthony Courtney. 1997. “Assessment of Hong Kong’s Inshore Fishery Resources.” University of British Columbia Fisheries Centre.

Plataforma del Estado Peruano. 2024. “PRODUCE establece en 499 683 toneladas la cuota del recurso pota para el año 2024.” *Plataforma del Estado Peruano*, May 29, 2024. https://www.gob.pe/institucion/produce/noticias/963311-produce-establece-en-499-683-toneladas-la-cuota-del-recurso-pota-para-el-ano-2024.

Poortvliet, Dave. 2023. “Data Advances Understanding of Global Squid Fishing Fleets.” *Global Fishing Watch* (blog). March 23, 2023. https://globalfishingwatch.org/article/data-advances-understanding-global-squid-fishing-fleets/.

Popescu, Irina. 2020. “EU Fisheries Agreement with Senegal.” European Parliment. https://www.europarl.europa.eu/RegData/etudes/ATAG/2020/659323/EPRS_ATA(2020)659323_EN.pdf.

Popoviciu, Andrei. 2024. “Senegal’s Fishermen Pin Hopes on New President to Help Them Fill Their Nets | Poverty and Development | Al Jazeera.” *Aljazeera*, March 30, 2024. https://www.aljazeera.com/features/2024/3/30/senegals-fishermen-pin-hopes-on-new-president-to-help-them-fill-their-nets.

Pramod, Ganapathiraju, and Tony J. Pitcher. 2006. “An Estimation of Compliance of the Fisheries of Senegal with Article 7 (Fisheries Management) of the UN Code of Conduct for Responsible Fishing.” In *Evaluations of Compliance with the UN Code of Conduct for Responsible Fisheries*. Isheries Centre Research Reports, 14(2). University of British Columbia, Fisheries Centre. https://www.researchgate.net/publication/274066429_An_Estimation_of_Compliance_of_the_Fisheries_of_Senegal_with_Article_7_Fisheries_Management_of_the_UN_Code_of_Conduct_for_Responsible_Fishing.

Pressly, Linda. 2021. “‘Cocaine of the Sea’ Threatens Critically Endangered Vaquita.” *BBC News*, May 12, 2021. https://www.bbc.com/news/world-latin-america-57070814.

Procuradoria Federal de Proteccion al Ambiente. 2019. “Esfuerzos para la Protección de la Vaquita Marina y la Totoaba.” *Gobierno de Mexico*, November 19, 2019. http://www.gob.mx/profepa/es/articulos/esfuerzos-para-la-proteccion-de-la-vaquita-marina-y-la-totoaba?idiom=es.

Rojas-Bracho, Lorenzo, Frances M. D. Gulland, and Cynthia R. Smith. 2025. “A Field Effort to Capture Critically Endangered Vaquitas Phocoena Sinus for Protection from Entanglement in Illegal Gillnets.” *ResearchGate*, April. https://doi.org/10.3354/esr00931.

Rojas-Bracho, Lorenzo, Randall R. Reeves, and Armando Jaramillo-Legorreta. 2006. “Conservation of the Vaquita Phocoena Sinus.” *Mammal Review* 36 (3): 179–216. https://doi.org/10.1111/j.1365-2907.2006.00088.x.

Rojas-Bracho, Lorenzo, and Barbara Taylor. 2021. “Vaquita.” *IUCN SSC Cetacean Specialist Group* (blog). August 2021. https://iucn-csg.org/vaquita/.

Rubio Rodríguez, Juan, and Carlos Martín Salazar Céspedes. 1992. “Prospeccion Pesquera Del Calamar Gigante (Dosidicus Gigas) a Bordo Del Buque Japonés Shinko Maru 2.” Informe 103. Instituto del Mar del Peru. https://repositorio.imarpe.gob.pe/handle/20.500.12958/318.

Sadovy de Mitcheson, Yvonne, Allen Wai-lun To, Nga Wing Wong, Hiu Yin Kwan, and Wing Sum Bud. 2019. “Emerging from the Murk: Threats, Challenges and Opportunities for the Global Swim Bladder Trade.” *Reviews in Fish Biology and Fisheries* 29 (4): 809–35. https://doi.org/10.1007/s11160-019-09585-9.

Sala, Enric, Juan Mayorga, Christopher Costello, David Kroodsma, Maria L. D. Palomares, Daniel Pauly, U. Rashid Sumaila, and Dirk Zeller. 2018. “The Economics of Fishing the High Seas.” *Science Advances* 4 (6): eaat2504. https://doi.org/10.1126/sciadv.aat2504.

Salazar Céspedes, Carlos Martín, Luis Alejandro Giampietri Rojas, and Julio Alarcon Vélez. 2018. “Guidelines for the Adaptation and Development of a Peruvian Fleet Specializing in the Capture of Jumbo Flying Squid Dosidicus Gigas.” Boletin IMARPE 33(2). Instituto del Mar del Peru. https://repositorio.imarpe.gob.pe/handle/20.500.12958/3241.

Salazar Herrada, Esteban. 2024. “Barcos ilegales chinos han generado pérdidas por más US$300 millones para todos los peruanos.” *Infobae* (blog). August 25, 2024. https://www.infobae.com/peru/2024/08/25/barcos-ilegales-chinos-han-generado-perdidas-por-mas-us300-millones-para-todos-los-peruanos/.

Sanjurjo-Rivera, Enrique, Sarah L. Mesnick, Sara Ávila-Forcada, Oriana Poindexter, Rebecca Lent, Vanda Felbab-Brown, Andrés M. Cisneros-Montemayor, et al. 2021. “An Economic Perspective on Policies to Save the Vaquita: Conservation Actions, Wildlife Trafficking, and the Structure of Incentives.” *Frontiers in Marine Science* 8 (August). https://doi.org/10.3389/fmars.2021.644022.

Sarpong, Gideon. 2023. “The Dark Seas of Deception: Unmasking EU Fisheries in West Africa’s Troubled Waters.” Pulitzer Center. November 27, 2023. https://pulitzercenter.org/stories/dark-seas-deception-unmasking-eu-fisheries-west-africas-troubled-waters.

Sarr, Ousmane, Kindong ,Richard, Tian ,Siquan, Sow ,Fambaye Ngom, Ka ,Momar, and Ousmane Niang and Seye. 2023. “Diagnosis of the Senegalese Marine Fisheries Profile during the Last Two Decades: A Perspective toward Fisheries Management,” April, 197–215.

Schvartzman, Milko. 2022. “Disclosed: Changes in China’s High Seas Fishing Patterns « Milko Schvartzman.” *Seafood Media Group* (blog). NNov 2022. https://seafood.media/fis/worldnews/worldnews.asp?l=e&country=0&special=&monthyear=&day=&id=120821&ndb=1&df=0.

“Senegal Tunas.” n.d. MSC International. Accessed May 2, 2025. https://www.msc.org/what-we-are-doing/pathway-to-sustainability/west-africa/senegal-tunas.

Seto, Katherine L., Nathan A. Miller, David Kroodsma, Quentin Hanich, Masanori Miyahara, Rui Saito, Kristina Boerder, Masaki Tsuda, Yoshioki Oozeki, and Osvaldo Urrutia S. 2023. “Fishing through the Cracks: The Unregulated Nature of Global Squid Fisheries.” *Science Advances* 9 (10). https://doi.org/10.1126/sciadv.add8125.

Shen, Huihui, and Shuolin Huang. 2021. “China’s Policies and Practice on Combatting IUU in Distant Water Fisheries.” *Aquaculture and Fisheries* 6 (1): 27–34. https://doi.org/10.1016/j.aaf.2020.03.002.

Skerritt, Daniel J., Anna Schuhbauer, Sebastian Villasante, Andrés M. Cisneros-Montemayor, Nathan J. Bennett, Tabitha G. Mallory, Vicky W. L. Lam, et al. 2023. “Mapping the Unjust Global Distribution of Harmful Fisheries Subsidies.” *Marine Policy* 152 (June):105611. https://doi.org/10.1016/j.marpol.2023.105611.

SPRFMO. 2022a. “10th Commission Meeting.” In *Commision Meeting*. https://www.sprfmo.int/meetings/comm/10th-commission-2022.

SPRFMO. 2022b. “10th Meeting of the Scientific Committee.” In *Squid Information Held by the Secretariat*. Vol. SC10-SQ01_rev2. Seoul, Korea.

SPRFMO. 2024a. “12th Scientific Committee Meeting.” Meeting Report. Wellington, New Zealand: SPRFMO. https://www.sprfmo.int/assets/Meetings/02-SC/12th-SC-2024/SC12-Report_rev2-18Feb2025.pdf.

SPRFMO. 2024b. *Conservation and Management Measure on the Management of the Jumbo Flying Squid Fishery*.

SPRFMO. 2025. “13th Annual Meeting Report.” In *Commision Meeting*. Santiago, Chile.

SPRFMO. n.d.-a. “About the SPRFMO.” SPRFMO. Accessed May 5, 2025. https://www.sprfmo.int/about/.

SPRFMO . n.d.-b. “Squid Science.” Accessed May 7, 2025. https://sprfmo.int/science/squid/?utm_source=chatgpt.com.

Stäbler, Moritz, Jonas Letschert, Marie Fujitani, and Stefan Partelow. 2022. “Fish Grabbing: Weak Governance and Productive Waters Are Targets for Distant Water Fishing.” *PLOS ONE* 17 (12): e0278481. https://doi.org/10.1371/journal.pone.0278481.

Standing, André. 2008. “Corruption and Industrial Fishing in Africa.” U4 ISSUE 2008:7. U4 Anti-Corruption Resource Centre. https://www.cmi.no/publications/file/3188-corruption-andindustrial-fishing-in-africa.pdf.

Sumaila, U. R., J. Alder, and H. Keith. 2006. “Global Scope and Economics of Illegal Fishing.” *Marine Policy* 30 (6): 696–703. https://doi.org/10.1016/j.marpol.2005.11.001.

Sumaila, U. Rashid, Naazia Ebrahim, Anna Schuhbauer, Daniel Skerritt, Yang Li, Hong Sik Kim, Tabitha Grace Mallory, Vicky W. L. Lam, and Daniel Pauly. 2019. “Updated Estimates and Analysis of Global Fisheries Subsidies.” *Marine Policy* 109 (November):103695. https://doi.org/10.1016/j.marpol.2019.103695.

Swartz, Wilf, U. Rashid Sumaila, Reg Watson, and D. Pauly. 2010. “Sourcing Seafood for the Three Major Markets: The EU, Japan and the USA.” *Marine Policy* 34 (6): 1366–73. https://doi.org/10.1016/j.marpol.2010.06.011.

Swartz, Wilf, Enric Sala, Sean Tracey, Reg Watson, and Daniel Pauly. 2010. “The Spatial Expansion and Ecological Footprint of Fisheries (1950 to Present).” *PLOS ONE* 5 (12): e15143. https://doi.org/10.1371/journal.pone.0015143.

SWI. 2024. “Asociaciones peruanas alertan de crisis en pesca de calamar por presencia de buques chinos.” *Swiss Radio International* (blog). September 19, 2024. https://www.swissinfo.ch/spa/asociaciones-peruanas-alertan-de-crisis-en-pesca-de-calamar-por-presencia-de-buques-chinos/87583161.

The Maritime Executive. 2024. “China’s Navy Could Use Peru’s New Mega-Port.” *The Maritime Executive* (blog). November 5, 2024. https://maritime-executive.com/article/china-s-navy-could-use-peru-s-new-mega-port.

Thorpe, Andy, Oystein Hermansen, Iain Pollard, John Isaksen, Pierre Failler, and Grégoire Touron-Gardic. 2022. “Unpacking the Tuna Traceability Mosaic – EU SFPAs and the Tuna Value Chain.” *Marine Policy* 139 (May):105037. https://doi.org/10.1016/j.marpol.2022.105037.

Tickler, David, Jessica J. Meeuwig, Maria-Lourdes Palomares, Daniel Pauly, and Dirk Zeller. 2018. “Far from Home: Distance Patterns of Global Fishing Fleets.” *Science Advances* 4 (8): eaar3279. https://doi.org/10.1126/sciadv.aar3279.

UNFSA. n.d. “The United Nations Fish Stocks Agreements.” *Unted Nations Division for Ocean Affairs and the Law of the Sea* (blog). Accessed May 7, 2025. https://www.un.org/oceancapacity/UNFSA.

University of British Columbia. 2023. “Harmful Fisheries Subsidies Are Leading to More Fishing Vessels Chasing Fewer Fish, Resulting in Adverse Environmental and Societal Impacts.” *ScienceDaily* (blog). May 1, 2023. https://www.sciencedaily.com/releases/2023/05/230501112122.htm.

Urbina, Ian, Pete McKenzie, and Milko Schvartzman. 2024. “Taking Over from the Inside: China’s Growing Reach Into Local Waters | China: The Superpower of Seafood | The Outlaw Ocean Project.” *The Outlaw Ocean* (blog). August 4, 2024. https://www.theoutlawocean.com/investigations/china-the-superpower-of-seafood/taking-over-from-the-inside-chinas-growing-reach-into-local-waters/.

Wabnitz, Colette C C, Sarah J M Harper, Khady Sané Diouf, Charlotte Karibuoye Said, Allison Cutting, Aliou Sall, Gianluigi Nico, et al. 2023. “Gender and Fisheries - The Republic of Senegal.” Country Fact Sheet. Ocean Risk and Resilience Action Alliance (ORRAA). https://oceanrisk.earth/wp-content/uploads/2023/05/Senegal_factsheet.pdf.

Wang, Kaiwen, Matthew N. Reimer, and James E. Wilen. 2023. “Fisheries Subsidies Reform in China.” *Proceedings of the National Academy of Sciences* 120 (26): e2300688120. https://doi.org/10.1073/pnas.2300688120.

Watson, Reg A., R. Nichols, V. W. Y. Lam, and U. R. Sumaila. 2017. “Global Seafood Trade Flows and Developing Economies: Insights from Linking Trade and Production.” *Marine Policy* 82 (August):41–49. https://doi.org/10.1016/j.marpol.2017.04.017.

Webster, D.G. 2017. *Beyond the Tragedy in Global Fisheries*. MIT Press. https://mitpress.mit.edu/9780262534734/beyond-the-tragedy-in-global-fisheries/.

Welch, Heather, Tyler Clavelle, Timothy D. White, Megan A. Cimino, Jennifer Van Osdel, Timothy Hochberg, David Kroodsma, and Elliott L. Hazen. 2022. “Hot Spots of Unseen Fishing Vessels.” *Science Advances* 8 (44): eabq2109. https://doi.org/10.1126/sciadv.abq2109.

Wetzels, Hans, Remy Kaller, and Borso Tall. 2025. “European Fishing Boats Hurt West Africa’s Future.” *Pulitzer Center*, April 2, 2025. https://pulitzercenter.org/stories/european-fishing-boats-hurt-west-africas-future.

White, Easton R., Merrill Baker-Médard, Valeriia Vakhitova, Samantha Farquhar, and Tendro Tondrasoa Ramaharitra. 2022. “Distant Water Industrial Fishing in Developing Countries: A Case Study of Madagascar.” *Ocean & Coastal Management* 216 (February):105925. https://doi.org/10.1016/j.ocecoaman.2021.105925.

Wooten, Stephenn. n.d. “French in West Africa.” University of Illinois. French in West Africa. Accessed May 2, 2025. https://www.africa.upenn.edu/K-12/French_16178.html.

The World Bank Group. 2024. “Worldwide Governance Indicators Interactive Data Access.”

http://info.worldbank.org/governance/wgi/Home/Reports

World Economic Forum. 2023. “China Formally Accepts WTO Agreement on Harmful Fisheries Subsidies.” *World Economic Forum* (blog). June 28, 2023. https://www.weforum.org/stories/2023/06/amnc23-china-formally-accepts-wto-agreement-on-harmful-fisheries-subsidies/.

World Trade Organization. 2022. “Agreement on Fisheries Subsidies. Draft Ministerial Decision Of 17 June 2022.” In . Vol. 22–4711. Geneva, Switzerland: World Trade Organization. https://www.wto.org/english/news_e/news22_e/wtmin22w22.pdf.

World Trade Organization. 2024. “Barbados, Dominica, Senegal, Uruguay Formally Accept Agreement on Fisheries Subsidies,” February 14, 2024. https://www.wto.org/english/news_e/news24_e/ffm_14feb24_e.htm.

Würsig, Bernd, Thomas Jefferson, and Gregory Silber. 2024. “Vaquita: Beleaguered Porpoise of the Gulf of California, México.” *ResearchGate* 12(2):187-206 (December). https://doi.org/10.12933/therya-21-1109.

WWF. n.d. “West African Marine Ecoregion Project: Supporting Local Fisheries | WWF.” Accessed April 29, 2025. https://wwf.panda.org/discover/knowledge_hub/where_we_work/west_africa_marine/project/artisanal/.

Yozell, Sally, and Amanda Shaver. 2019. “Shining a Light: The Need for Transparency across Distant Water Fishing.” Stimson Center. https://www.stimson.org/2019/shining-light-need-transparency-across-distant-water-fishing/.

Zabludovsky, Karla. 2013. “Quest for Illegal Gain at the Sea Bottom Divides Fishing Communities.” *The New York Times*, March 20, 2013, sec. World. https://www.nytimes.com/2013/03/20/world/americas/quest-for-illegal-gain-at-the-sea-bottom-divides-fishing-communities.html.

Zhou, Yingqi, Xinjun Chen, and Xiangguo Zhang. 2003. “The Measurement of Fishing Capacity in Chinese Fisheries and Related Control Practices.” FAO FISHERIES TECHNICAL PAPER 445. Rome, Italy: FAO Knowledge Repository. https://www.fao.org/4/y4849e/y4849e0j.htm.