10/25
ARBEIDSNOTAT
WORKING PAPER

Distributional Outcomes and Governance in Marine Fisheries: A Review of the Economics Literature

Corbett Grainger
Linda Nøstbakken
Mads F. Wold
Jake Erickson

SNF
Samfunns- og næringslivsforskning AS
Centre for Applied Research at NHH

SNF
SAMFUNNS- OG NÆRINGSLIVSFORSKNING AS

- er et selskap i NHH-miljøet med oppgave å initiere, organisere og utføre eksternfinansiert forskning. Norges Handelshøyskole og Stiftelsen SNF er aksjonærer. Virksomheten drives med basis i egen stab og fagmiljøene ved NHH.

SNF er ett av Norges ledende forskningsmiljø innen anvendt økonomisk-administrativ forskning, og har gode samarbeidsrelasjoner til andre forskningsmiljøer i Norge og utlandet. SNF utfører forskning og forskningsbaserte utredninger for sentrale beslutningstakere i privat og offentlig sektor. Forskningen organiseres i programmer og prosjekter av langsiktig og mer kortsiktig karakter. Alle publikasjoner er offentlig tilgjengelig.

SNF
CENTRE FOR APPLIED RESEARCH AT NHH

- is a company within the NHH group. Its objective is to initiate, organize and conduct externally financed research. The company shareholders are the Norwegian School of Economics (NHH) and the SNF Foundation. Research is carried out by SNF's own staff as well as faculty members at NHH.

SNF is one of Norway's leading research environment within applied economic administrative research. It has excellent working relations with other research environments in Norway as well as abroad. SNF conducts research and prepares research-based reports for major decision-makers both in the private and the public sector. Research is organized in programmes and projects on a long-term as well as a short-term basis. All our publications are publicly available.

SNF Working Paper No. 10/25

Distributional Outcomes and Governance in Marine Fisheries: A Review of the Economics Literature

Corbett Grainger
Linda Nøstbakken
Mads F. Wold
Jake Erickson

SNF Project No. 10030:
DistRes – Distribution and resource rent in fisheries

The project is financed by The Research Council of Norway
(Project No.: 295197)

CENTRE FOR APPLIED RESEARCH AT NHH
BERGEN, DECEMBER 2025
ISSN 2704-0380 (Online)

Distributional Outcomes and Governance in Marine Fisheries: A Review of the Economics Literature

Corbett Grainger* Linda Nøstbakken† Mads F. Wold‡
Jake Erickson§

Abstract

Distributional consequences are central to fisheries governance, yet they remain underdeveloped in much of the economics literature. While reforms such as rights-based management, quota allocation, and spatial regulation have been widely studied with respect to efficiency and stock recovery, comparatively little attention has been paid to how these policies redistribute income, rents, rights, and risks across heterogeneous resource users. This paper provides a critical review of the economics literature on distributional outcomes in marine capture fisheries. Using a systematic Web of Science search covering the period 2010–2025 (through mid-October 2025) and a structured screening protocol, we identify a full corpus of distribution-relevant studies and a restricted subset published in leading economics-oriented journals. We argue that this pattern reflects both methodological path dependence in fisheries economics and an implicit treatment of distribution as an institutional rather than an economic object.

*University of Wisconsin–Madison, CESifo, *and* SNF–Centre for Applied Research at NHH.
†Statistics Norway *and* SNF–Centre for Applied Research at NHH.
‡Center for Economic Research at NTNU.
§University of Wisconsin–Madison.

1 Introduction

Distributional consequences of natural resource governance play a central role in policy debates, yet they remain underdeveloped in much of the economics literature. In fisheries, governance reforms such as rights-based management, quota allocation, spatial regulation, and conservation policies have been extensively analyzed with respect to efficiency, stock recovery, and aggregate economic surplus. By contrast, less attention has been paid to how these policies redistribute income, rents, rights, and risks across different groups of resource users.

This omission is consequential. Fisheries governance almost inevitably involves the allocation or reallocation of access rights to a valuable common-pool resource, making distribution an inherent feature of policy design rather than a secondary concern. Moreover, distributional outcomes are central to the political economy of fisheries management: resistance to reform, regulatory persistence, and policy reversals are often driven by perceived or actual distributional effects rather than by changes in aggregate surplus. Finally, emerging challenges such as climate change, spatial shifts in fish stocks, and increasing concentration in seafood markets operate through explicitly redistributive channels, even when policies are motivated by sustainability or efficiency objectives.

This paper provides a critical review of the economics literature on distributional outcomes in marine capture fisheries. Rather than attempting to survey the full interdisciplinary literature on equity or justice, we deliberately focus on contributions grounded in resource economics and published in leading economics and general science journals. In this view, distributional impacts can occur through the incidence of income, rents, and risk across heterogeneous agents (within and beyond the harvesting sector) but also through channels such as resource access and participation. The objective is not to catalog all studies that mention distribution in fisheries, but to assess what the core economics literature actually tells us about distributional mechanisms and, equally importantly, what is left unexplored. We do not assess the normative desirability of alternative distributional outcomes, nor do we review the broader justice- or governance-oriented literature.

The paper proceeds as follows. Section 2 describes the systematic screening and corpus construction. Section 3 characterizes aggregate patterns in how distribution is treated across the literature. Section 4 reviews distributional mechanisms in the restricted economics-oriented corpus. Section 5 concludes with implications for future research.

2 Methodological approach

This review builds on a systematic search of the Web of Science database covering the period 2010–2025. The initial search targeted fisheries and other common-pool resource sectors using keywords related to governance, policy, and resource economics. The objective was to identify studies that analyze how governance mechanisms in common-pool resources affect economic distributional outcomes.

The initial search yielded a large and heterogeneous corpus spanning multiple disciplines and journal outlets. To screen this corpus, we implemented a structured decision protocol based on titles, abstracts, and available metadata. Papers were retained for further analysis only if they satisfied three necessary conditions. First, the paper had to address policies or governance mechanisms related to resource ownership, allocation, or economic regulation in a common-pool resource sector. Second, it had to analyze economic distributional outcomes, defined as income, rents, allocation of harvesting or property rights, employment, wages, or equity–efficiency trade-offs. Third, the analysis had to be grounded in a resource economics or policy perspective, rather than a purely biological, ecological, technical, or conceptual framework.

To implement this screening consistently across a large number of candidate papers, we employed a large language model (LLM) as a screening assistant. The model was provided with explicit instructions specifying the inclusion and exclusion criteria, the definition of distributional outcomes, and the relevant resource sectors. For each paper, the model evaluated the title, abstract, and keywords and returned structured responses indicating whether the paper satisfied each criterion, whether it should be retained for full review, the sector studied, and a short textual rationale for the decision. The LLM was used solely to replicate a deterministic coding protocol

at scale; no judgment, synthesis, or weighting was delegated to the model.

The use of an LLM in this context serves a limited and clearly defined purpose. The model operationalizes predefined screening rules in a consistent manner, analogous to a trained research assistant applying a coding protocol. All screening decisions were retained in a structured format that allows for inspection, validation, and reclassification if needed. The LLM was not used to interpret results, assess methodological quality, or draw substantive conclusions. All prompts, classification rules, and outputs are available upon request.

The output of this screening procedure defines the *full screened corpus*. We first analyze this full corpus to document aggregate patterns in publication outlets, analytical focus, and the treatment of distributional outcomes across the literature as a whole. This step provides a systematic characterization of how distribution is addressed in the broad body of research that meets formal relevance criteria.

In a second step, we refine the corpus to focus on contributions most relevant for environmental and resource economics. Specifically, we restrict the core analysis to papers published in leading economics and economics-adjacent journals (hereafter, economics-oriented outlets), including the *Journal of the Association of Environmental and Resource Economists*, the *Journal of Environmental Economics and Management*, *Marine Resource Economics*, *Environmental and Resource Economics*, *Land Economics*, and the *Proceedings of the National Academy of Sciences*. High-visibility general-interest and heterodox outlets, including *Nature*, *Nature Sustainability*, *Ecological Economics*, and *PLOS ONE*, are considered selectively, while the broader interdisciplinary literature is retained only for aggregate characterization. In addition, we include the *Review of Environmental Economics and Policy*, "REEP" in the restricted corpus. While REEP does not publish original empirical identification, it plays a central role in synthesizing and framing evidence in environmental and resource economics, and several distribution-relevant fisheries contributions appear in this outlet.[1]

This two-stage procedure, in which a systematic relevance-based screening is

[1]General interest economics journals were also included in the search but we found no articles in these journals that match our search criteria.

followed by journal-based refinement, allows us to separate questions of topical relevance from questions of disciplinary standards. It ensures transparency in how the literature is identified, while enabling a focused assessment of what the core economics literature contributes to the analysis of distributional outcomes in fisheries governance.

3 Analysis of the literature

This section analyzes the literature identified through the systematic screening procedure described in Section 2. The analysis proceeds in two steps. First, we examine the full screened corpus of fisheries papers that satisfy the relevance criteria for distributional outcomes and economic or policy analysis. This provides a broad characterization of how distribution is framed and treated across the literature as a whole. The purpose of this section is thus diagnostic rather than evaluative.

Second, we restrict attention to a much smaller subset of papers published in leading economics-oriented journals. This restricted corpus reflects the body of work most closely aligned with the analytical standards of environmental and resource economics, and therefore most relevant for assessing what the core economics literature contributes to the understanding of distributional outcomes in fisheries governance. Because disciplinary standards shape what is measured and modeled, patterns in the restricted corpus are particularly informative about the limits of economic analysis.

Together, these steps allow us to distinguish between patterns that characterize the broader interdisciplinary literature and those that emerge within economics-oriented outlets, and to motivate a closer examination of specific distributional mechanisms in the latter.

3.1 The full screened corpus: scope, outlets, and treatment of distribution

We begin by examining the full corpus of papers that satisfy the screening criteria for relevance to fisheries, economic or policy analysis, and distributional outcomes. This

corpus represents the set of studies that explicitly address how fisheries governance affects economic outcomes for different groups of resource users, as identified through the systematic screening of the Web of Science dataset.

The screened literature spans a wide range of journal outlets. A substantial share of the retained papers is published in interdisciplinary and policy-oriented journals, including *Marine Policy*. Within this literature, distributional concerns are most often framed in terms of access to fishing opportunities, differential impacts of governance reforms across groups, and questions of who benefits from institutional change (e.g., Crona et al., 2016). These studies typically emphasize governance arrangements, institutional interactions, and stakeholder categories, rather than economic incidence at the level of individuals or firms.

Despite the explicit focus on distribution, the analytical treatment of distributional outcomes in the full corpus is uneven. Many studies motivate their analysis using concerns about equity, inclusion, or fairness, but rely primarily on descriptive evidence or qualitative indicators when assessing economic impacts. Distribution is frequently discussed in terms of participation, access, or broad categories of beneficiaries, while direct measurement of income, rents, or welfare incidence across heterogeneous agents remains limited. In contrast to economics-oriented studies, most papers in this corpus do not attempt to trace distributional effects through prices, wages, or asset values.

When economic outcomes are quantified, the focus is often narrow. Several papers emphasize aggregate or group-level outcomes–such as overall participation, sectoral composition, or broad categories of winners and losers, rather than tracing how governance reforms affect the distribution of income or rents within fisheries. Labor outcomes, including wages and employment relationships, are rarely treated as explicit economic margins, even when labor is central to the distributional narrative.

An important exception within the screened corpus consists of a small number of applied economics studies that explicitly analyze employment and remuneration effects of rights-based management. These contributions, primarily published in *Marine Resource Economics*, examine how individual fishing quotas affect employment levels and crew compensation, highlighting labor-market adjustments that are largely absent from the broader governance literature (e.g., Abbott et al., 2010).

Overall, the full screened corpus highlights a literature that takes distribution seriously as a motivation for studying fisheries governance, but that often treats distributional outcomes implicitly or descriptively rather than as explicit economic objects. This pattern motivates a closer examination of how distribution is handled in economics-oriented outlets, where analytical conventions and standards differ substantially from those in the broader governance literature.

3.2 Research questions, empirical contexts, and trends

Before turning to a closer examination of how distributional outcomes are analyzed in the economics-oriented literature, it is useful to document what questions researchers choose to study, in which empirical contexts, and how these choices have evolved over time. This subsection draws on the full screened corpus to characterize the distributional research agenda in fisheries governance at a more aggregate level.

The screened literature exhibits a strong concentration around a limited set of research questions. Most papers that satisfy the distributional screening criteria focus on governance reforms related to access and rights allocation, including rights-based management, quota systems, and regulatory design. In these studies, distributional concerns are typically framed in terms of who gains or loses access to fishing opportunities, how participation changes following reform, or how benefits are distributed across broad stakeholder categories.

Throughout the study period, rights-based management and access dominate as the primary framing through which distribution is examined. Attention to allocation and consolidation increases notably after the late 2010s, reflecting growing concern about concentration and access under transferable rights. By contrast, relatively few studies pose research questions that place income incidence, labor-market outcomes, or downstream value capture at the center of the analysis. Even in recent years, these topics remain secondary to governance- and access-oriented questions.

As a result, the dominant research questions emphasize institutional change and access, while economic distribution in the narrow sense–income, wages, and rents accruing to heterogeneous agents–receives comparatively little direct attention.

The empirical contexts studied in the screened literature are similarly uneven. A substantial share of distribution-focused research examines small-scale or mixed fisheries, often motivated by concerns about equity, inclusion, and vulnerability. These studies frequently emphasize community-level outcomes, participation, and access, reflecting the salience of distributional issues in settings where livelihoods are closely tied to fisheries. This pattern helps explain why income incidence remains under-studied: dominant research questions do not require it.

A large fraction of the literature falls into a mixed or unspecified scale category, capturing studies that span multiple fleet segments or that analyze governance reforms without clearly distinguishing between small-scale and industrial fisheries. Among studies with clearly defined settings, small-scale fisheries account for a growing share of distribution-focused research, while large-scale industrial or offshore fisheries remain comparatively rare. This asymmetry persists despite the importance of industrial fisheries for aggregate rents and employment. Together, these findings suggest that distributional analysis in fisheries is most often pursued in contexts where equity concerns are salient and explicitly framed, rather than in settings where economic stakes in terms of aggregate rents and employment are largest. From an economic perspective, this is striking, given that industrial fisheries account for a disproportionate share of rents and capitalized asset values.

The geographic distribution of studies further reinforces this asymmetry. A significant fraction of the screened literature focuses on developing-economy contexts or on fisheries in the Global South, where distributional concerns are closely linked to poverty, livelihoods, and food security. Studies explicitly framed in developing-economy contexts increase over time, particularly after the mid-2010s.

By contrast, studies set in OECD or high-income countries are more likely to emphasize efficiency, stock recovery, or aggregate performance, with distribution entering only implicitly or through limited channels. This divergence in geographic focus implies that distribution is often treated as a context-specific concern, rather than as a general feature of fisheries governance that warrants systematic economic analysis across settings.

Examining the screened corpus over time reveals a gradual increase in attention

to distributional issues since the early 2010s. References to equity, access, and distributional impacts become more frequent in titles and abstracts over time, particularly after the mid-2010s. This increased salience has not been accompanied by a proportional increase in studies that provide explicit economic measurement of distributional outcomes.

Instead, recent years have seen growth in synthesis-oriented and interdisciplinary contributions that highlight distributional concerns at an aggregate or conceptual level, often published in review or agenda-setting outlets. By contrast, the number of economics-oriented empirical studies that estimate income, wage, or rent incidence remains small. This pattern suggests that while distribution has become more prominent in the discourse on fisheries governance, it has yet to be fully integrated into the core empirical toolkit of fisheries economics.

The treatment of distribution in the fisheries literature is shaped as much by researchers' choices of research questions and empirical contexts as by methodological constraints. The following subsection turns to a closer examination of how distributional outcomes are conceptualized and measured within the restricted economics-oriented literature, conditional on these prevailing research questions and empirical contexts.

4 Insights from the Economics Literature on Distribution in Fisheries

This section turns from aggregate characterization of the literature to closer examination of a selected set of contributions drawn from the restricted corpus. The objective is not to provide exhaustive summaries of individual papers, but to examine how distributional outcomes are conceptualized, modeled, and measured in economics-oriented studies of fisheries governance that explicitly engage with distribution.

The papers reviewed here are drawn from leading field journals and synthesis-oriented outlets that survive both the relevance-based screening

and the journal-based refinement. As such, they reflect the analytical approaches through which distribution enters the economics literature on fisheries, as well as the limitations of these approaches. Across subsections, distribution enters economics through three analytically distinct but interconnected channels: (i) the assignment and tradability of rights, (ii) market-mediated price and bargaining effects, and (iii) the institutional structure of property regimes.

4.1 Rights-based management and distributional outcomes

A central theme in the economics literature since 2010 is that rights-based management (RBM)–including individual transferable quotas (ITQs), community allocations, and related harvest rights–reconfigures how rents, risks, and opportunities are allocated among participants in marine capture fisheries. When harvesting rights are formalized and made durable, they alter not only aggregate profitability and stock trajectories but also the *distribution* of economic outcomes across vessel classes, crew, processors, regions, and other user groups. Recent work makes these distributional channels explicit, documenting how institutional design governs the division of benefits and burdens within the sector (Birkenbach et al., 2019; Costello and Grainger, 2018).

A foundational mechanism is that RBM transforms informal or contested claims into *tradable assets*, generating capitalized gains for initial right-holders. Grainger and Costello (2016) show that the transition to property rights creates substantial wealth transfers determined by eligibility rules and historical participation. Observed post-reform outcomes therefore reflect not only market behavior but also the initial allocation of rights, which governs who captures windfall gains and who must subsequently purchase access.

A second mechanism operates through labor markets. Abbott et al. (2010) demonstrate that IFQs in U.S. crab fisheries shifted the division of rents toward quota owners and away from crew, even as industry-level profitability improved. While consolidation reduced employment, remaining crew benefited from longer seasons and safer working conditions, illustrating how RBM can simultaneously stabilize labor outcomes and redistribute income from labor to capital.

Distributional effects also arise through *vertical relationships*. Guldin and Anderson (2018) show that catch shares in the Pacific whiting fishery altered bargaining conditions between harvesters and processors. Longer seasons and improved delivery timing raised ex-vessel prices and harvesters' revenue shares, while processors faced higher input costs and idle capacity. This evidence highlights that RBM redistributes surplus not only within fleets but also along the supply chain.

RBM further generates heterogeneous responses that translate into uneven gains. Birkenbach et al. (2024) show that vessels adjust targeting and timing differently across fleet segments under catch shares, leading to divergent revenue trajectories even under a uniform rights regime. Differences in technology, spatial access, and risk tolerance thus become distributional mechanisms in their own right. At the same time, design constraints intended to protect smaller operators–such as quota blocking or vessel-class restrictions–can impose measurable efficiency costs, revealing explicit equity–efficiency trade-offs embedded in program architecture (Kroetz et al., 2015, 2022). Related theoretical work shows that when heterogeneity is high, consolidation pressures are inherent to RBM, as maintaining participation alongside ecological and economic objectives is feasible only under restrictive conditions (Péreau et al., 2012).

Evidence from mature ITQ systems illustrates how assetization governs the long-run division of rents. Gunnlaugsson et al. (2020) show that in Iceland, substantial rents emerged only after full rationalization and were subsequently shared among initial quota holders, active firms, and the state. Although many early recipients realized windfall gains by selling quotas, active firms continued to capture a significant share of rents, highlighting a distributional channel that persists long after initial allocation.

The most detailed evidence on within-fishery redistribution comes from Abbott et al. (2022). Using vessel-level panel data from the Bering Sea crab fisheries, they show that ITQs reallocated surplus away from captains, crew, and active vessel owners toward quota lessors. Labor income inequality declined as pay stabilized and cross-vessel dispersion narrowed, while capital returns were compressed from above. The reform also shifted risk exposure, reducing income volatility for workers while increasing it at the vessel level. These results provide rare quantitative evidence that

RBM reshapes both the level and distribution of economic gains among labor, capital, and quota holders.

Finally, instrument choice itself can have distributional consequences. Jensen et al. (2024) show that alternative regulatory instruments, such as taxes versus ITQs, differentially affect vessel groups through changes in incentives and risk exposure, making instrument choice part of the distributional calculus of governance.

The evidence indicates that rights-based management has distributional implications extending well beyond efficiency gains and stock recovery. RBM systematically reshapes bargaining power, access, and risk-sharing within and beyond fleets, while program design choices can amplify or mitigate these effects. At the same time, distribution typically enters economic analysis through narrow but policy-relevant margins. Even the most detailed studies rarely recover full income or welfare incidence across heterogeneous agents, underscoring a key limitation of the existing literature.

4.2 Allocation, consolidation, and access

Distributional concerns arise most directly at the point where access rights are first defined. Whereas the previous subsection examined how rents, risks, and bargaining positions evolve once rights-based systems are in place, this subsection focuses on the allocation and access mechanisms that determine who can participate in the fishery and who is positioned to benefit as institutions mature. Across empirical settings, the literature shows that initial allocations, eligibility rules, transferability constraints, and the design of trading institutions exert first-order influence on exit patterns, consolidation trajectories, and the long-run distribution of resource rents. These mechanisms operate prior to market interaction, shaping participation and opportunity sets.

Within the economics literature, these issues are treated most systematically in work on catch-share programs and ITQs. Birkenbach et al. (2019) synthesize global experience and show that distributional outcomes emerge from the interaction of initial allocations, transferability constraints, and fleet heterogeneity. Measures

intended to protect smaller operators–such as limits on trading, use-it-or-lose-it rules, or restrictions across gear types–often have perverse effects by constraining adjustment margins, particularly in multispecies fisheries. As a result, firms with diversified quota portfolios or better access to capital are advantaged, accelerating consolidation even under ostensibly equity-oriented designs.

Formal modeling reinforces this point. Grainger and Costello (2016) show that the initial allocation of quota largely determines subsequent consolidation as fisheries transition from limited entry to ITQs. When access becomes capitalized, less productive or financially constrained operators tend to exit, while those able to acquire quota expand. Generous grandfathering slows attrition by providing assets that can be sold or leveraged, whereas leaner allocations hasten exit and narrow entry pathways. Similar dynamics arise outside rights-based management: Crona et al. (2016) document how exposure to global seafood markets selectively advantages capitalized actors, producing uneven exit and concentration through market integration rather than formal quota trading.

Empirical evidence from quota reforms illustrates how transferability provisions shape consolidation. In the Norwegian coastal cod fishery, allowing quota transfers increased vessel exit and quota concentration, with smaller and older vessels disproportionately leaving and inequality in quota holdings rising over time (Abe et al., 2024). Cross-country contrasts underscore the role of institutional design. In Iceland, grandfathered and increasingly tradable quotas enabled extensive consolidation, with many initial recipients exiting through sales while remaining firms expanded and captured a share of long-run rents (Gunnlaugsson et al., 2020). In the Faroe Islands, by contrast, restrictions on permanent transfers prevented market-driven restructuring, limiting consolidation but also constraining rent generation and adjustment (Danielsen and Agnarsson, 2020). Together, these cases illustrate how differences in allocation rules and transferability constraints produce sharply divergent access and consolidation outcomes.

Theoretical work highlights that allocation rules also shape exit opportunities beyond the fishery. Noack et al. (2018) show that tradable quotas can relax wealth constraints and facilitate labor reallocation in a dual economy by enabling quota

holders to finance migration or education. Unequal initial allocations accelerate this process by endowing some households with sufficient assets to exit, concentrating access among remaining participants. Although focused on long-run development, the analysis underscores how allocation and transferability govern who can leave, under what conditions, and how access becomes concentrated over time.

Evidence from mature ITQ systems further illustrates how access design creates new claimant groups. Abbott et al. (2022) document rapid consolidation in the Bering Sea crab fisheries, alongside the emergence of inactive quota holders who lease out shares. Ownership caps, eligibility rules, and cooperative structures shaped who could acquire quota and which vessels became dependent on leased access, generating persistent differences in participation and returns. This illustrates how observed post-ITQ outcomes are inseparable from the institutional architecture governing initial allocation and subsequent trading.

When initial allocations become misaligned with contemporary fishing activity, incremental trading may be insufficient. Bichler et al. (2019) describe how a centralized combinatorial exchange in New South Wales reallocated quota from inactive to active fishers, overcoming transaction costs and portfolio fragmentation that hindered decentralized adjustment. By explicitly designing the trading institution, policymakers enabled consolidation where needed while preserving political legitimacy, illustrating that access can be reshaped through institutional innovation when markets alone fail.

Finally, allocation challenges also arise where property rights are incomplete. Holzer and McConnell (2014) show that when access is rationed through regulatory instruments rather than markets, sectoral allocations depend on access probabilities rather than marginal valuations. In such settings, optimal allocations are embedded in management design itself, underscoring that who harvests is determined by institutional structure rather than willingness to pay.

This literature shows that allocation and access rules are central determinants of consolidation, exit, and long-run distributional outcomes. Yet important gaps remain. Few studies trace how these structural changes translate into income, wage, or intracommunity welfare outcomes over time, and evidence on intergenerational access remains limited. Moreover, while global market integration can mimic or

amplify consolidation effects typically associated with catch shares, its interaction with formal rights allocation is still poorly understood.

4.3 Market-mediated and supply-chain distribution

A smaller but analytically important strand of the economics literature examines distributional outcomes that arise through market-mediated channels. In this work, fisheries governance affects prices, revenues, and the division of surplus along the supply chain, redistributing economic returns even when aggregate rents increase. Unlike allocation mechanisms, these effects operate through contracts, bargaining relationships, and market structure, which are rarely observed directly and therefore difficult to model explicitly. As a result, most studies infer distributional effects from changes in prices, revenue shares, or lease rates following policy reform.

A central finding is that rights-based management can redistribute surplus between harvesting and downstream sectors by altering the timing, quality, and reliability of supply. Guldin and Anderson (2018) provide a benchmark analysis of this mechanism in the Pacific whiting fishery. They show that catch shares lengthened seasons and improved product quality, raising ex-vessel prices and increasing harvesters' share of product value. Processors, by contrast, faced higher input costs and idle capacity, which reduced margins and accelerated consolidation. These results demonstrate that governance reforms can reallocate surplus along the supply chain even when total rents increase, and that downstream sectors may bear adjustment costs unless explicitly protected through quota allocations or contractual arrangements.

Recent work highlights that regulations altering harvest timing, product form, storage opportunities, or contracting environments reshape value capture along the supply chain, even when stock status and aggregate rents improve (Smith, 2023). From this perspective, prices, bargaining arrangements, and market access are not secondary outcomes but central determinants of who ultimately benefits from management reform. Distributional analysis therefore requires attention to market structure and institutional detail well beyond the harvesting decision itself.

Market-mediated redistribution can also arise through changes in bargaining

structure rather than harvest incentives alone. Peña-Torres et al. (2019) analyze the allocation of collective quotas to fishers' organizations in Chile's Austral hake fishery. By enabling collective bargaining against a highly concentrated buying sector, the reform increased ex-vessel prices in regions where coordination was effective. Importantly, these gains occurred without changes in biological outcomes or total catch, indicating that governance reforms can redistribute rents by reshaping bargaining power rather than by increasing efficiency.

Labor markets provide a further channel for market-mediated redistribution. Abbott et al. (2010) show that catch shares in the Bering Sea crab fisheries reduced crew employment through consolidation but stabilized earnings and improved working conditions for remaining workers. At the same time, part of the resource rent was capitalized into quota values and transferred from labor to quota owners through lease payments embedded in share contracts. This represents a redistribution from labor to capital mediated by market institutions rather than explicit policy design, and illustrates how contractual norms condition who ultimately pays for access to newly created assets.

Quota and permit markets themselves can generate uneven distributional outcomes. Holland (2010) and Holland (2016) show that in multispecies fisheries, binding bycatch constraints and heterogeneous quota portfolios create substantial variation in lease prices, favoring vessels with diversified holdings or superior avoidance technology. Helgesen (2022) further shows that imperfect competition in quota markets–arising from dominant lessors or vertical integration–can raise lease prices above competitive levels, redistributing surplus from active harvesters to quota owners. These studies highlight that quota markets do not distribute access symmetrically: financial capacity, portfolio composition, and market position systematically shape who can adjust and who captures value.

Price effects themselves are heterogeneous. Birkenbach et al. (2020) and Birkenbach et al. (2023) show that catch shares raise ex-vessel prices on average, but that gains vary widely across species and fisheries depending on demand elasticity, product form, and market integration. Vessels capable of managing harvest timing, storage, and multispecies portfolios capture disproportionate revenue gains,

embedding technological and organizational capacity as implicit distributional mechanisms.

The studies reviewed here indicate that market-mediated distribution operates through multiple margins–prices, bargaining power, labor contracts, quota markets, and portfolio constraints–and can generate substantial redistribution even when aggregate rents increase. At the same time, most studies isolate individual channels rather than tracing the joint determination of surplus division across harvesters, quota owners, processors, labor, and communities. As a result, while the evidence clearly establishes markets as central to distributional outcomes in fisheries governance, comprehensive incidence analysis along the supply chain remains largely absent from the economics literature.

4.4 Property regimes and broad redistribution

A smaller set of agenda-setting contributions examines distributional outcomes at a broader institutional level, focusing on property regimes rather than on specific policy instruments. In this work, distribution arises not primarily through explicit allocation rules or market transactions, but through the structure of access, exclusion, and claims embedded in alternative property regimes. By defining who is a legitimate claimant to the resource, property regimes shape economic outcomes across groups, regions, and time horizons.

One important insight is that open-access regimes do not invariably produce severe inequality or overuse. Under specific conditions–spatially diffuse resources, high user mobility, and limited scope for exclusion–open regimes can approximate an ideal free distribution in which users self-sort across space and gains are relatively equalized. Moritz et al. (2018) show that in such settings, open access can support both sustainability and relatively egalitarian outcomes without formal exclusion. However, this equilibrium is fragile. Increased market integration, capital intensity, or population pressure can destabilize it, allowing more powerful actors to appropriate disproportionate shares and triggering both overuse and rising inequality.

In contrast, the introduction of secure and transferable rights tends to concentrate

benefits even as it improves aggregate efficiency. A foundational mechanism is the transformation of access privileges into capitalized assets. Grainger and Costello (2016) formalize this process in a dynamic model of the transition from limited entry to ITQs, showing that the initial allocation of rights largely determines who captures the present value of future resource rents. Once harvesting rights become durable and tradable, expected profits are capitalized into asset values, generating large wealth transfers to initial recipients. Distributional outcomes are therefore shaped primarily by eligibility rules and allocation formulas rather than by subsequent market interaction.

Synthesizing global experience, Birkenbach et al. (2019) emphasize that "who gets what" is a central tension in rights-based management. Rationalization typically creates clear winners–often efficient vessels and initial quota holders–and losers, including displaced crew and small-scale operators. Because access costs reflect global market values, quota-based systems can redirect rents away from local participants unless supplemented by community allocations, ownership restrictions, or gradual phase-ins. Costello and Grainger (2018) generalize this point, arguing that distributional outcomes are intrinsic to property-regime design rather than unintended side effects. Once rights are defined, the resulting distribution of wealth and opportunity tends to persist long after biological and economic conditions have changed.

Property regimes also redistribute through their interaction with external shocks. Climate-driven stock shifts can undermine established allocations, creating new winners and losers across regions and sectors. Kourantidou et al. (2024) document how warming in Arctic fisheries risks reallocating harvests away from Indigenous subsistence users toward commercial entrants under static quota systems. When property regimes lack adaptive mechanisms, environmental change can destabilize previously accepted distributions of rights and rents, intensifying distributional conflict.

Distribution under property regimes extends beyond individual participants to communities and regions. Using a regional general-equilibrium model for Kodiak, Alaska, Seung (2024) show that rationalization through catch shares increased

aggregate efficiency but reduced local employment and population as consolidation shifted income toward non-resident quota owners. These results underscore that distributional effects operate at multiple spatial scales: a policy can increase total wealth in a fishery while simultaneously weakening the economic base of fishing-dependent communities.

Finally, weak or incomplete property regimes can be equally redistributive. In poorly governed open-access contexts, Crona et al. (2016) show how large-scale industrial fleets can appropriate resources at the expense of small-scale fishers, generating de facto transfers of access and income. Here, the absence of secure local rights allows capital, mobility, and political influence to determine outcomes, often with regressive effects. These cases illustrate that both privatization and the lack of effective property rights can generate substantial redistribution, albeit through different mechanisms.

Across these contributions, property regimes shape distributional outcomes through access, exclusion, assetization, and adaptability to change. While these studies provide powerful institutional insights, they rarely quantify income, rent, or welfare incidence in a strict economic sense. As a result, property-regime choice emerges as one of the most consequential yet little empirically measured determinants of distribution in fisheries governance, highlighting a fundamental gap between institutional design and economic incidence analysis.

4.5 Insights and remaining gaps

The close reading of the restricted economics-oriented literature reinforces and sharpens the patterns identified in the aggregate analysis. When distributional outcomes are analyzed explicitly in fisheries economics, they enter through a limited set of analytically tractable channels: the assignment and tradability of rights, market-mediated price and bargaining effects, and the structure of property regimes. Across these domains, the literature provides compelling evidence that fisheries governance can generate substantial redistribution even when aggregate efficiency and stock outcomes improve.

At the same time, distribution rarely appears as a primary object of analysis within the economics-oriented fisheries literature. Instead, it is typically examined through narrow margins that are closely tied to the institutional features of specific reforms. Studies of rights-based management document how assetization, labor reallocation, and heterogeneous responses reshape the division of rents within fisheries, but they seldom recover full income or welfare incidence across heterogeneous agents. Work on allocation and access highlights the central role of initial rights assignment and transferability constraints in driving consolidation and exit, yet offers limited evidence on how these structural changes translate into longer-run income, wage, or intergenerational outcomes. Research on market-mediated distribution establishes that prices, bargaining power, and quota markets are central to "who gets what," but typically isolates individual channels rather than tracing surplus division along the supply chain. Finally, contributions on property regimes underscore that institutional design choices embed persistent distributive consequences, even as they remain largely disconnected from formal incidence measurement.

Despite these contributions, important gaps remain in the economics literature. First, there is little systematic evidence on income and welfare incidence across all claimant groups–vessel owners, quota holders, crew, processors, and communities–within a unified analytical framework. Second, dynamic distributional questions remain underexplored: how distribution evolves as quota markets mature, as consolidation proceeds, or as environmental and market conditions change. Third, interactions across channels are rarely studied. Allocation rules, market structure, and property regimes are typically analyzed in isolation, despite strong theoretical reasons to expect their distributional effects to be jointly determined. Finally, distributional outcomes beyond the harvesting sector–particularly along the supply chain and across regions–remain weakly integrated into core bioeconomic models.

Overall, the literature reviewed here demonstrates that distributional consequences are not peripheral to fisheries governance, but central to its economic and political economy implications. Yet the analytical tools of fisheries economics have so far incorporated distribution primarily as an institutional or secondary consideration rather than as an explicit economic outcome. Bridging this gap–by integrating

distributional incidence more fully into empirical and theoretical analysis–represents a key frontier for future research in the economics of fisheries governance.

5 Conclusions

This review highlights a persistent disconnect between the central role of distribution in fisheries governance and the way distribution is treated in the economics literature. While fisheries institutions inevitably allocate access, rents, and risks, dominant analytical frameworks in environmental and resource economics have tended to prioritize efficiency, stock recovery, and aggregate surplus, often abstracting from distributional heterogeneity among resource users.

The analysis shows that this imbalance reflects not only methodological constraints but also systematic choices of research questions and empirical contexts. Distributional issues are most often examined in small-scale and developing-economy fisheries, where equity concerns are explicit, while large-scale industrial fisheries remain comparatively understudied from a distributional perspective despite their importance for aggregate rents, employment, and political economy. As a result, key margins such as income incidence, intra-fishery inequality, and downstream value capture remain weakly integrated into economic analysis.

By combining a systematic screening of the literature with a focused review of economics-oriented contributions, this paper clarifies both what the core economics literature reveals about distributional mechanisms in marine capture fisheries and where its limitations lie. Across the full corpus, distribution is frequently invoked as a motivation for studying governance reforms but is often treated implicitly or descriptively. Within the restricted economics-oriented literature, distribution enters more explicitly, yet typically through narrow channels–most notably labor markets, access and participation, and sectoral redistribution along the supply chain.

These findings point to clear priorities for future research. Greater attention to labor outcomes, contractual arrangements, and market structure would substantially enrich the economic analysis of fisheries governance. More broadly, advancing the study of distribution will require extending existing empirical and theoretical

frameworks to incorporate richer heterogeneity, institutional detail, and interactions between governance and markets.

By documenting where and how distribution enters the economics literature–and where it does not–this review provides a foundation for future work that more fully integrates efficiency and distribution in the analysis of common-pool resource governance. Doing so is essential not only for equity and policy design, but for the analytical completeness and credibility of fisheries economics as a discipline.

Use of artificial intelligence tools

Artificial intelligence (AI)–based tools were used as supporting research aids during both the literature search and the writing process for this manuscript. AI assistance was employed to support the systematic screening of the Web of Science database, to help organize and synthesize large bodies of literature, and to assist in drafting, editing, and condensing text.

The AI tools were used as analytical and language-support instruments and were not used to generate original research questions, conduct independent evaluation of evidence, perform data analysis, or draw substantive conclusions. All decisions regarding inclusion and exclusion of studies, interpretation of results, framing of arguments, and final wording were made by the authors.

All AI-assisted outputs were critically reviewed, edited, and verified by the authors, who take full responsibility for the accuracy, originality, and integrity of the manuscript.

References

Abbott, J. K., Garber-Yonts, B., and Wilen, J. E. (2010). Employment and remuneration effects of IFQs in the Bering Sea/Aleutian Islands crab fisheries. *Marine Resource Economics*, 25(4):333–354.

Abbott, J. K., Leonard, B., and Garber-Yonts, B. (2022). The distributional outcomes

of rights-based management in fisheries. *Proceedings of the National Academy of Sciences*, 119(2):e2109154119.

Abe, K., Nøstbakken, L., and Wold, M. F. (2024). Quota consolidation in Norwegian coastal fisheries. *Environmental and Resource Economics*, 87(5):1295–1326.

Bichler, M., Fux, V., and Goeree, J. K. (2019). Designing combinatorial exchanges for the reallocation of resource rights. *Proceedings of the National Academy of Sciences*, 116(3):786–791.

Birkenbach, A. M., Cojocaru, A. L., Asche, F., Guttormsen, A. G., and Smith, M. D. (2020). Seasonal harvest patterns in multispecies fisheries. *Environmental and Resource Economics*, 75(3):631–655.

Birkenbach, A. M., Kaczan, D. J., Smith, M. D., Ardini, G., Holland, D. S., Lee, M.-Y., Lipton, D., and Travis, M. D. (2023). Do catch shares increase prices? evidence from US fisheries. *Marine Resource Economics*, 38(3):203–228.

Birkenbach, A. M., Lee, M.-Y., and Smith, M. D. (2024). Counterfactual modeling of multispecies fisheries outcomes under market-based regulation. *Journal of the Association of Environmental and Resource Economists*, 11(3):755–796.

Birkenbach, A. M., Smith, M. D., and Stefanski, S. (2019). Taking stock of catch shares: lessons from the past and directions for the future. *Review of Environmental Economics and Policy*, 13(1):130–139.

Costello, C. and Grainger, C. A. (2018). Property rights, regulatory capture, and exploitation of natural resources. *Journal of the Association of Environmental and Resource Economists*, 5(2):441–479.

Crona, B. I., Basurto, X., Squires, D., Gelcich, S., Daw, T. M., Khan, A., Havice, E., Chomo, V., Troell, M., Buchary, E. A., et al. (2016). Towards a typology of interactions between small-scale fisheries and global seafood trade. *Marine Policy*, 65:1–10.

Danielsen, R. and Agnarsson, S. (2020). In pursuit of the three pillars of sustainability in fisheries: A Faroese case study. *Marine Resource Economics*, 35(2):177–193.

Grainger, C. A. and Costello, C. (2016). Distributional effects of the transition to property rights for a common-pool resource. *Marine Resource Economics*, 31(1):1–26.

Guldin, M. and Anderson, C. M. (2018). Catch shares and shoreside processors: A costs and earnings exploration into the downstream sector. *Marine Resource Economics*, 33(3):289–307.

Gunnlaugsson, S. B., Saevaldsson, H., Kristofersson, D. M., and Agnarsson, S. (2020). Resource rent and its distribution in Iceland's fisheries. *Marine Resource Economics*, 35(2):113–135.

Helgesen, I. S. (2022). ITQs, market power, and efficiency loss. *Marine Resource Economics*, 37(4):409–435.

Holland, D. S. (2010). Markets, pooling and insurance for managing bycatch in fisheries. *Ecological Economics*, 70(1):121–133.

Holland, D. S. (2016). Development of the pacific groundfish trawl IFQ market. *Marine Resource Economics*, 31(4):453–464.

Holzer, J. and McConnell, K. (2014). Harvest allocation without property rights. *Journal of the Association of Environmental and Resource Economists*, 1(1/2):209–232.

Jensen, F., Hansen, L. G., and Nielsen, R. (2024). A welfare gain from switching to taxes? the Danish cod fishery in the Kattegat. *Land Economics*, 100(2):353–369.

Kourantidou, M., Hoagland, P., and Bailey, M. (2024). Navigating Nunatsiavut's Arctic charr: a simultaneous commercial and subsistence fishery with many unknowns. *Marine Resource Economics*, 39(3):243–261.

Kroetz, K., Nøstbakken, L., and Quaas, M. (2022). The future of wild-caught fisheries: Expanding the scope of management. *Review of Environmental Economics and Policy*, 16(2):241–261.

Kroetz, K., Sanchirico, J. N., and Lew, D. K. (2015). Efficiency costs of social objectives in tradable permit programs. *Journal of the Association of Environmental and Resource Economists*, 2(3):339–366.

Moritz, M., Behnke, R., Beitl, C. M., Bliege Bird, R., Chiaravalloti, R. M., Clark, J. K., Crabtree, S. A., Downey, S. S., Hamilton, I. M., Phang, S. C., Scholte, P. S., and Wilson, J. A. (2018). Emergent sustainability in open property regimes. *Proceedings of the National Academy of Sciences*, 115(51):12859–12867.

Noack, F., Riekhof, M.-C., and Quaas, M. (2018). Development in a dual economy: The importance of resource-use regulation. *Journal of the association of environmental and resource economists*, 5(1):233–263.

Peña-Torres, J., Dresdner, J., Quezada, F., and Luzardo, I. (2019). Collective share quotas and the role of fishermen's organizations in ex-vessel price determination. *Marine Resource Economics*, 34(4):361–385.

Péreau, J.-C., Doyen, L., Little, L. R., and Thébaud, O. (2012). The triple bottom line: Meeting ecological, economic and social goals with individual transferable quotas. *Journal of Environmental Economics and Management*, 63(3):419–434.

Seung, C. K. (2024). Does factor mobility matter? a general equilibrium analysis of a fishery rationalization. *Marine Resource Economics*, 39(2):123–144.

Smith, M. D. (2023). Economics of aquatic foods: combining bioeconomics and market analysis to inform regulations that deliver value. *Marine Resource Economics*, 38(4):305–327.

Distributional consequences are central to fisheries governance, yet they remain underdeveloped in much of the economics literature. While reforms such as rights-based management, quota allocation, and spatial regulation have been widely studied with respect to efficiency and stock recovery, comparatively little attention has been paid to how these policies redistribute income, rents, rights, and risks across heterogeneous resource users. This paper provides a critical review of the economics literature on distributional outcomes in marine capture fisheries. Using a systematic Web of Science search covering the period 2010–2025 (through mid-October 2025) and a structured screening protocol, we identify a full corpus of distribution-relevant studies and a restricted subset published in leading economics-oriented journals. We argue that this pattern reflects both methodological path dependence in fisheries economics and an implicit treatment of distribution as an institutional rather than an economic object.

SNF

Samfunns- og næringslivsforskning AS
Centre for Applied Research at NHH

Helleveien 30
NO-5045 Bergen
Norway

P +47 55 95 95 00
E snf@snf.no
W snf.no

Trykk: MAKE!Graphics - avd. Bergen