

Pollock in Perspective

**A gap analysis of recent economic
reports commissioned by the
Alaska Pollock sector**

Prepared by the
Alaska Marine Community Coalition and Ocean Conservancy



ALASKA MARINE
COMMUNITY COALITION



Contents

EXECUTIVE SUMMARY	5
-------------------------	---

I. Introduction	5
-----------------------	---

Overview of the APFA-Commissioned Reports	5
---	---

II. Context and Limitations of the APFA Reports.....	5
--	---

Commissioning and Bias	5
------------------------	---

Ownership and Economic Distribution: Measuring Who Truly Benefits	6
--	---

Government Support and Public Investment	7
--	---

Structural Dependence Without Retention	9
---	---

III. Key Areas Missing from the Report	9
--	---

Stakeholder Representation	9
----------------------------	---

Equity and Access	10
-------------------	----

Ecological Context	10
--------------------	----

Economic Responses	11
--------------------	----

Overlooked Industries	12
-----------------------	----

IV. Working Toward a Holistic Assessment	13
--	----

Recognizing System Diversity	13
------------------------------	----

Ecological-Economic Integration	13
---------------------------------	----

Modeling Adaptation and Resilience	13
------------------------------------	----

Community Roles in Sustainable Management	14
---	----

V. Summary of Key Findings	15
----------------------------------	----

VI. Conclusion	16
----------------------	----

VII. References	17
-----------------------	----

EXECUTIVE SUMMARY

With more coastline than all other U.S. states combined and proximity to highly productive marine environments in the Gulf of Alaska and Bering Sea, Alaska's fisheries shape local economies, livelihoods and cultures throughout the state.

Alaskan fishing communities and commercial, sport, and subsistence harvesters are increasingly voicing concerns regarding trawl impacts to the seafloor, bycatch, and ocean ecology.¹ In response to these concerns, the Alaska Pollock Fishery Alliance (APFA), a pollock industry coalition, commissioned two reports in 2025 highlighting the economic significance of the pollock fishery in Alaska: *The Importance of the Alaska Pollock Fishery to Alaska's Transportation and Fuel Networks*,² and *The Economic Contribution of the Alaska Pollock Fishery*.³ This paper reviews and responds to those APFA-commissioned reports and evaluates pollock fishery economics through the lens of Alaska's small-boat and community-based fisheries.

This paper reviews and responds to APFA-commissioned reports and evaluates pollock fishery economics through the lens of Alaska's small-boat and community-based fisheries.

The APFA reports emphasize the role of the industrial pollock fleet in supporting Alaska's shipping, fuel, and air service infrastructure, as well as its contributions to economic output and employment. However, the reports fail to consider the interdependence of economic, social, and ecological sustainability necessary for long-term fishery productivity in Alaska. In reality, value cannot be measured solely by harvest volume and production, or by siloed infrastructure components. Like its marine ecosystems, Alaska's fishing fleets are highly diverse, varying widely by target species, vessel size, gear type, and homeport. It is this inherent diversity that, in turn, supports a resilient and sustainable maritime economy and ecosystem, built on a foundation of varied fleet types, local ownership, community participation, and ecological sustainability. **We recognize that the APFA reports are intentionally focused on the pollock sector's role, and not as a comprehensive analysis of coastal Alaska; however, the magnitude of the fishery and the reports' potential impact on major policy outcomes means it is critical to examine where the presented information falls short of providing real value assessment.**

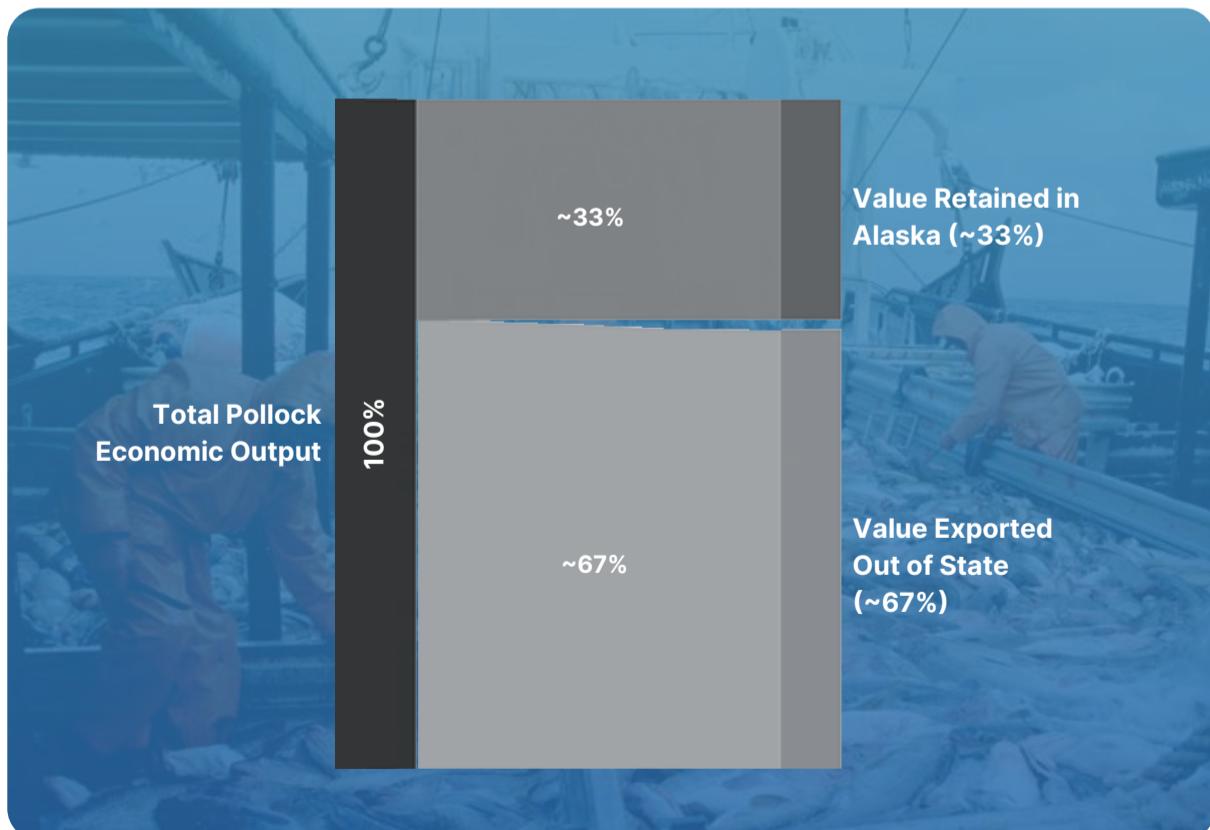
This paper discusses the methods, assumptions and exclusions in the APFA reports and charts a more realistic and holistic path forward for future economic analyses, grounded in community-based fisheries and ecosystem science in Alaska. Specific concerns discussed in this report include:

- The papers incorrectly infer that the statistics generated represent an optimal benefit to Alaska and Alaskans, presuming that those contributions are both significant and irreplaceable. However, the vast majority of the revenue generated by the pollock sector leaves Alaska; only 29% of labor income, 38% of jobs, and roughly one-third of total economic output generated by pollock stays in Alaska.³ This economic structure does not maximize benefits to Alaskan communities or to the fisheries that depend on healthy marine ecosystems for their livelihoods and long-term viability.

We recognize that the APFA reports are intentionally focused on the pollock sector's role, and not as a comprehensive analysis of coastal Alaska; however, the magnitude of the fishery and the reports' potential impact on major policy outcomes means it is critical to examine where the presented information falls short of providing real value assessment.

- The papers ignore the extreme ecological and cultural impacts and costs of removing millions of pounds of pollock from Alaska's marine waters each year, including bycatch and habitat impacts.
- Both APFA reports are commissioned by the pollock industry and are framed to promote a single-sector narrative that exaggerates the role of pollock in Alaskan communities and industries and minimizes the contributions of other sectors. Thus, these papers must be considered sector economic reports, not holistic economic analyses.
- Evaluating scenarios based on the complete closure of the pollock fishery is unrealistic and exaggerates risk. Both reports incorrectly assume that pollock economic contributions depend entirely on maintaining current scale and production levels. By ignoring the far more likely scenario of iterative change over time, the papers present a false dichotomy between outcomes.
- The reports depict a system in which Alaska relies on the pollock fleet but fails to recognize or place value on the pollock fleet's real dependence on the health and vitality of Alaska's communities, workforce, and ecosystems. A more balanced approach would incorporate the contributions of small-boat fisheries, mixed-species harvesting, Tribal entities, and year-round community economies that coexist alongside pollock.

**Economic Scale vs.
Local Retention in the
Alaska Pollock Fishery**



I. Introduction

Overview of the APFA-Commissioned Reports

This report examines the limited analytical lens through which the studies were commissioned and framed.

The McKinley Research report, *The Importance of the Alaska Pollock Fishery to Alaska's Transportation and Fuel Networks*, evaluates the role of the pollock industry in regional transportation businesses, including marine cargo shippers, fuel distributors, and passenger airlines. The study relies on data from the National Marine Fisheries Service (NMFS) and Alaska Department of Fish and Game, as well as 20 interviews conducted with individuals described as "subject matter experts" from various related industries.

The report concludes that Alaska pollock comprises approximately 7% of Alaska's outbound shipping volume, 43% of marine statewide cargo export volume (excluding oil tankers, bulk ore, and lumber vessels), and roughly 30% of passenger air traffic between Anchorage and Unalaska. The report then details potential economic impacts associated with a complete closure of the pollock fishery, based on interviews. Although a complete pollock fishery closure is an exaggerated risk scenario, the report concludes that such a closure could theoretically result in increased prices for fuel, transport, cargo, and passenger air service in Alaska.

The Northern Economics report, *The Economic Contribution of the Alaska Pollock Fishery*, quantifies the economic contribution of Alaska pollock fisheries to the national and Alaska, Washington, and Oregon state economies. This report explores employment, income, and business sales resulting from Alaska pollock fishery harvesting and processing activities in 2023, providing a snapshot of time using both interviews and NMFS data. The study found that in 2023, an estimated 2,869 Alaskans were employed in the Alaska pollock fishing industry, and Washington State had the highest total labor income and economic output effects by region or state. Across the U.S., labor income effects alone were estimated to be over \$1.5 billion.

As noted in both reports, the pollock industry undoubtedly plays an important role in the Alaska and national economies; however, the APFA-commissioned reports exhibit biases. Given that the sector itself commissioned the reports, the reports' conclusions must be interpreted with an awareness of an APFA agenda. Both reports strive to frame the pollock fleet as an "Alaska-first fishery" whose operations are maximally beneficial to Alaska communities and fisheries. But as is detailed below, the scope of the analysis is narrow and fails to consider broader ecosystem issues, ownership, economic distribution, and retention.

This paper is not intended as a critique of the technical methods used in either report. Rather, it examines the limited analytical lens through which the studies were commissioned and framed. Both reports apply established economic modeling approaches appropriately within their defined scope; however, the scope itself reflects a narrow, sector-centered perspective that prioritizes industrial pollock production over broader questions of community resilience, value retention, ecological interaction, and equitable access. As a result, the conclusions reached are constrained not by methodological flaws, but by the boundaries of the questions the reports were designed to answer.

II. Context and Limitations of the APFA Reports

Commissioning and Bias

The McKinley Research Group and Northern Economics reports were commissioned by the APFA, an industry coalition representing the largest companies involved in harvesting, processing, and exporting Alaska's pollock. Recognizing the commissioning source is essential because it influences the questions asked, the assumptions made, and the perspective through which the results are viewed and reported. Both studies aimed to highlight the economic importance of the pollock fishery. However, neither adopts a neutral or comprehensive view that considers pollock within the broader maritime economy or Alaska's coastal communities, nor incorporates definitions of success

A more balanced approach would recognize the contributions of small-boat fisheries, mixed-species harvesting, Tribal entities, CDQ initiatives, and year-round community economies that coexist alongside pollock.

and sustainability important to other stakeholders. Much like single-species fisheries management, single-sector economic analysis fails to capture the reality and needs of Alaska communities and ecosystems.

The transportation and fuel report emphasizes the pollock fleet as the backbone of the state's shipping, fuel, and air service infrastructure, while the economic contribution report describes pollock as a significant contributor to economic output and employment in Alaska and nationwide. Together, they promote a single-sector narrative where pollock is the central pillar of Alaska's fisheries economy. Their assessments of freight movement, fuel demand, employment, and sales provide insights into the scale of industrial activity. They primarily equate scaled volume with scaled benefits.

The reports rely on metrics such as tons landed, freight moved, and fuel consumed without considering how benefits are identified or distributed, how long-term wealth is maintained, or how dependence on a single industry affects Alaska's resilience. Importantly, the reports do not describe whether and how Alaskans and other Alaska fishery stakeholders can access that service infrastructure. In reality, much of the service infrastructure depicted in the analyses is not accessible to independent fishing businesses or small-scale processors – particularly in shipping and distribution – either because of cost-prohibitive structures designed for volume, or because of limited physical access to transportation channels. Without assessing risk or access alongside it, it is not possible to assume those infrastructure resources represent a net benefit to Alaska.

The reports analyze policy scenarios; however, the design limits their usefulness for guiding policy. The transportation and fuel report focuses solely on a complete closure of the pollock fishery, presenting an extreme outcome rather than a range of realistic transition options. It hinges on a non-existent yes/no argument rather than a framework for strategic policy priorities. The economic contribution report, although not explicitly framed as scenario analysis, similarly suggests that economic contribution depends upon maintaining scale and continuous production. In both cases, change is viewed as a complete loss, and prioritizing diversification beyond pollock is seen as a risk, overlooking practical adaptation strategies such as quota adjustments, improved gear performance standards, infrastructure innovation, expanded regional processing, small-scale processing, accessible shipping mechanisms, or prioritized small-boat and community-based economies.

These limitations reveal a common pattern: Both reports analyze Alaska's maritime economy primarily through the lens of industrial pollock production, rather than emphasizing economic and fleet diversification⁵⁻⁶ or shared prosperity. They depict a system in which Alaska relies on the externally controlled pollock fleet, but not one in which the fleet depends on the inherent vitality of Alaska's communities, workforce, and ecosystems. A more balanced approach would recognize the contributions of small-boat fisheries, mixed-species harvesting, Tribal entities, CDQ initiatives, and year-round community economies that coexist alongside pollock. While it is reasonable to provide the economic elements of the pollock fleet as a standalone sector report, it is misleading to assess the fleet's value to Alaska without also acknowledging the cost of Alaska's full fisheries context.

Ownership and Economic Distribution: Measuring Who Truly Benefits

While the previous section discussed how the reports frame pollock's economic importance, an equally significant limitation is that neither study considers who benefits economically from this level of production. Both reports highlight the size of the pollock sector but do not transparently discuss how much of its value remains in Alaska. Much of the harvesting and processing capacity is owned by vertically integrated companies based outside the state;⁷ the economic picture presented does not reveal where revenue is generated, how it is spent, or where long-term wealth accumulates.

Independent research has long shown substantial value leakage from Alaska's fisheries due to nonresident ownership and a predominantly nonresident labor force. NOAA's 2025

For Alaska, the question isn't whether the pollock industry creates economic activity. The real question is whether the current ownership and distribution systems align with Alaska's long-term goals and prosperity, including ecological, economic, and cultural losses.

technical memorandum, "Who Benefits from Alaska Fisheries?," found that only 29% of pollock fishery-generated household income goes to Alaska households, indicating that most financial benefits flow to other states and regions where parent companies and workers are based.⁴ This is not a minor discrepancy. It reflects a structural transfer of wealth generated in Alaska's waters to outside economies.

The economic contribution report modeling yields similar conclusions specific to the pollock sector: only 29% of labor income, 38% of jobs, and roughly one-third of total economic output produced by the pollock fishery stays in Alaska. Within the processing sector, the monetary value leaving Alaska is exceptionally high: 71% of the labor income generated by the seafood processing sector leaves the state, the highest among major Alaska industries, while harvesting-related work exports nearly 40% of its labor income. Those percentages also don't account for the cost of creating that opportunity through ecosystem, community, and industry trade-offs. These figures show that while the pollock fishery generates measurable economic activity, most of the income from that activity does not benefit Alaska households, support local businesses, or foster long-term community growth.

This has direct implications for how policymakers and the public should interpret both reports' findings. When statewide economic contributions are presented without specifying where income is earned or reinvested, benefits to Alaska communities can be exaggerated. The reports quantify economic value but not economic retention. They record scale without demonstrating whether or how that scale yields lasting benefits for the communities that host the industry and bear its environmental and logistical costs.

For Alaska, the question isn't whether the pollock industry creates economic activity. The real question is whether the current ownership and distribution systems align with Alaska's long-term goals and prosperity, including ecological, economic, and cultural losses. Without analyzing value retention, local procurement, community reinvestment, and other values, it's impossible to determine if the pollock sector supports sustainable economic prosperity for Alaska's communities. Any future assessment aiming to accurately reflect the pollock fishery's contribution to the state's economy must consider where the benefits are realized and by whom.

Government Support and Public Investment

Neither report thoroughly examines the role or the quantitative scale of public investment and government support in shaping and sustaining the economic performance of the pollock sector. This omission is significant because the pollock fishery has substantially benefited from federal and state policies that reduce risk, stabilize markets, and support industry consolidation. These investments include not only direct subsidies, but also the allocation of public resources through access rights, infrastructure investments and federal seafood procurement. Without recognizing these supports, the reports portray the pollock fleet as a largely self-sustaining economic engine, independent of public intervention or subsidy-like mechanisms. They also overlook the foundational reality: the resource belongs to the public, not the fleet, and their respective definitions of value and success are both subjective and independent of one another. So we're missing two important calculations from within the community lens – the quantified public investment in the economic success being reported, and the qualitative assessment of what that success is actually worth to the communities in question.

One clear example of public investment is the implementation of the American Fisheries Act (AFA) of 1998, which included a federally supported capacity reduction program for the pollock fleet. Under this program, about \$90 million was paid to owners of large catcher-processors to permanently remove vessels from the fishery, with financing provided through federal loan mechanisms.⁸ This public investment fundamentally transformed the structure of the pollock fleet by reducing competition, increasing efficiency, and stabilizing returns for remaining participants. While often framed as management reform, this program functioned as a substantial public investment that permanently increased the private value of select enterprises by profound margins by limiting access and concentrating harvest privileges.

PUBLIC INVESTMENT vs. PRIVATE RETURN IN THE ALASKA POLLOCK FISHERY

Public investment supports sector stability, while returns are primarily captured by nonresident ownership and labor.



In addition to structural programs, the pollock sector has benefited from ongoing federal market support through large-scale purchases by the U.S. Department of Agriculture. Recently, the USDA has committed tens of millions of dollars annually to purchase Alaska pollock products for food aid and nutrition programs, with announced purchase levels reaching \$50 million and solicitations suggesting potential purchases of up to \$100 million.⁹ These purchases serve as direct subsidies by stabilizing demand, supporting prices, and absorbing surplus production during periods of weak private markets. Neither report considers how this form of public subsidy influences the economic contribution figures attributed to pollock, nor do they examine the opportunity costs of directing public funding toward a single industrial fishery and the impact of not investing those funds in the diversified fisheries that support Alaska's fishing communities more directly. It is critical to examine the degree of public subsidy underpinning the pollock fleet to provide an accurate cost-benefit assessment of the relationship between pollock and place.

State of Alaska support further reinforces the pollock fleet's economic position, though it is similarly unexamined in both reports. The state has made long-term investments in port infrastructure, harbors, ferry terminals, road systems, and energy facilities that support industrial-scale fishing operations (among other community systems), including pollock processing and transport. Many of these investments are financed through general obligation bonds, state capital budgets, and maintenance programs that serve multiple users but are heavily utilized by large-volume industrial fleets. In addition, state-funded workforce programs, seafood marketing initiatives, and economic development agencies contribute to the pollock sector's competitiveness in global markets. While these investments are often justified as broadly beneficial, neither report attempts to allocate or attribute state support by fishery, scale, or level of local value retention.

More generally, the pollock fishery depends on publicly funded systems that extend well beyond direct subsidies. Federal and state fishery management, stock assessment, observer coverage, enforcement, navigation infrastructure, port and harbor maintenance, and energy systems all represent ongoing public investments that sustain industrial-scale fishing.¹⁰ Although the pollock fleet does pay cost recovery fees, these fees only offset a portion of total public expenditures and do not encompass the entire scope of taxpayer-supported infrastructure and governance that enables large-scale operations.

By failing to account for cumulative government support and subsidies, the AFPA overstates the extent to which pollock-related economic activity reflects independent market performance. This omission also leads to an uneven comparison with small-boat fisheries and community-scale processors, which often receive less targeted public support while retaining a larger share of value locally. A more complete economic

assessment would clearly distinguish between market-driven contributions and those supported or stabilized by public policy, helping policymakers better evaluate how public investments align with Alaska's long-term goals for community resilience, economic diversification, and stewardship of shared marine resources.

Dependence without local retention is unsustainable. It risks tying essential infrastructure to a sector that does not proportionally benefit the communities or ecosystems that support it.

Structural Dependence Without Retention

Both reports contend that Alaska's transportation, fuel, processing, and logistics systems mainly depend on the pollock sector. They explain that the large scale of pollock supports the viability of freight routes, keeps air service in remote communities, and maintains the infrastructure needed for the broader maritime economy. Although pollock activity clearly influences these systems, the reports assume reliance without examining whether this dependence creates shared stability or increases Alaska's vulnerability.

Neither study considers how diversification or shared-use models could strengthen these systems, reduce volatility, or promote innovation in regional logistics. These studies are by-design focused only on naming the benefits of pollock's contribution to status quo, not the vulnerabilities, the viable options for improvement, or the contributions from other sectors. However, small-boat fleets, mixed-species processors, local freight operations, mariculture ventures, and tourism all generate demand that supports ports, harbors, and transportation networks. Yet, these sectors are seen as peripheral to industrial trawl activity rather than as partners in shared infrastructure. This narrow view and its assumptions discourage exploration of future paths in which infrastructure remains sustainable as fleet composition, market conditions, or management strategies evolve, including under changing climate scenarios; and it dismisses the pivotal question around whether that dependence represents a net benefit or risk. Statewide, coastal communities have weathered major economic impacts due to recent upheavals in the processing sector, including the loss of critical utilities dependent upon ongoing local processor use.¹¹ The risk of depending upon a large, consolidated sector for essential infrastructure is all too real for Alaska communities.

The high proportion of economic benefits exported outside Alaska also reveals a deeper structural issue. Alaska may rely heavily on the pollock sector to support its logistics and energy systems, but the economic benefits of that reliance are not retained locally. This creates a situation in which Alaska bears the logistical and environmental risks and costs of relying on a single industry, while much of the financial gain flows elsewhere. Dependence without local retention is unsustainable. It risks tying essential infrastructure to a sector that does not proportionally benefit the communities or ecosystems that support it.

A more balanced report would recognize that the stability of Alaska's maritime economy depends not on concentration but on diversification, shared access, and the ability of multiple users, big and small, to participate in and support the infrastructure that keeps coastal Alaska functioning. Recognizing these shared systems would help policymakers, communities, and industry leaders consider a wider range of strategies for resilience, rather than relying solely on industrial scale to ensure long-term stability.¹²

III. Key Areas Missing from the Report

Stakeholder Representation

One of the main issues in both reports is the narrow range of perspectives shaping the conclusions. The analyses depend on a limited number of interviews, all with representatives from large industrial operators involved in harvesting, processing, shipping, and fuel supply. The reports excluded small-boat fishermen, Tribal organizations, Community Development Quota (CDQ) groups, municipal leaders, or local harbor voices from contributing viewpoints. As a result, the reports offer a top-down, industry-focused view of Alaska's fisheries economy that overlooks how coastal communities experience and interact with maritime economies and infrastructure. It makes assumptions about the benefits to communities without verifying those assumptions with diverse community voices. This gap matters because the reports make broad claims about statewide

Small-boat fisheries are crucial to resilience by supporting family-owned businesses, maintaining local food systems, and preserving cultural identity in many coastal and tribal communities.

impacts but exclude the very people and institutions responsible for maintaining ports, managing local transportation, and supporting year-round economic activity in Alaska's coastal regions. Without these perspectives, the analyses give an incomplete and skewed picture of how Alaska's fisheries economy actually operates.

The reports neglect the social and cultural factors that support community resilience in Alaska. Fishing communities are driven not only by economic output but also by intergenerational knowledge, local ownership, diversified livelihoods, and strong social networks that help communities adapt to change. Small-boat fisheries are crucial to resilience by supporting family-owned businesses, maintaining local food systems, and preserving cultural identity in many coastal and tribal communities. By ignoring these aspects, the reports limit their understanding of resilience to maintaining industrial operations, rather than exploring the broader community's capacity to handle shocks, adapt to ecological shifts, and sustain working waterfronts over time. A more comprehensive assessment would recognize that resilience depends not only on scale but also on participation, place-based knowledge, and communities' ability to remain active stewards of Alaska's marine resources.

Importantly, that narrow industry-economics view is the primary subject matter of both studies; they were never intended to assess community resilience broadly. However, because they draw sweeping conclusions about that resilience, about the net benefit of pollock to Alaska, and are presented as a case for status quo policy and operation, the omission of a more holistic view is profoundly problematic.

Equity and Access

Equity and ownership are mainly absent from the reports' analyses of Alaska's maritime infrastructure. Both studies equate economic importance with volume and logistical activity, but neither investigates where value is created, who controls key assets, or who ultimately benefits from the pollock fleet's scale. Much of the pollock fleet operates within vertically integrated corporate structures that oversee harvesting, processing, transportation, and export under a single ownership. These setups focus on efficiency, while wages, local procurement, and taxes account for only a small share of the total value generated. By viewing industrial benefits as equal to public benefits, the reports conceal the outcomes that determine whether economic activity yields lasting gains for coastal communities.

The reports also treat infrastructure as neutral, rather than as systems shaped by ownership, policy decisions, and access rules. Ports, fuel depots, cold storage, and freight services are shared systems, yet their design and pricing often favor large, capitalized operators over independent fishermen and small processors. The analyses do not examine whether smaller operators can afford or reliably access the infrastructure on which pollock activity depends, nor do they explore how consolidation affects availability, competition, or resilience at the community level. By ignoring these questions, the reports fail to consider who is included and excluded from the economic benefits of pollock infrastructure. Volume alone does not guarantee resilience, and infrastructure lacking equitable access cannot support the long-term health of Alaska's working waterfronts.

Ecological Context

Pollock is a forage fish in the Bering Sea that drives ecosystem dynamics both as a key predator and prey for other fish, seabirds and marine mammals. From 1977-2024, the pollock fishery has removed an average of 1.2 million metric tons of pollock from the Bering Sea per year.¹³ For context, 1.2 million metric tons of pollock each year could fill roughly 59,000 semi trucks, which could in turn span over 782 miles, or more than the distance from Anchorage to Utqiagvik. While pollock stock status is assessed annually, the impacts of removals of this magnitude from an ecosystem are not easily quantified and are therefore not well understood or addressed at any level in either report. In a singular resource of this magnitude, multi-generational ecological sustainability is tied inextricably to economic outlook and stability.

All fishing gears have impacts on the marine ecosystem; however, trawling is recognized as one of the most intense forms of widespread benthic disturbance throughout the world.

There are a few key indicator species that can shed light on the potential impacts of massive pollock removals on the ecosystem. Northern fur seals, an important subsistence species in the Pribilof Islands, are heavily reliant on pollock in their diet, and numerous publications have linked declines in northern fur seals in the Pribilofs to nutritional limitation. Northern fur seals are central place foragers and with foraging ranges known to directly overlap with areas of intense fishing effort from the pollock fleet from June — October each year.¹⁴⁻¹⁵ Similarly, Steller sea lions and common murres rely on pollock as prey at various life stages and have experienced moderate to severe declines throughout the last 20 years. Indigenous knowledge systems in the Bering Sea region have long described these predator-prey relationships and ecosystem changes, often preceding formal stock assessments and modeling.¹⁶

Seabirds and marine mammals are an important subsistence resource in Bering Sea communities. Any studies that assess the economic role of the pollock fleet should address the socio-cultural and economic costs associated with potential reductions in access to subsistence resources, such as northern fur seals, associated with pollock removals.

Quantifying the pollock fleet's impact on bycatch species in the Bering Sea is arguably more straightforward than assessing the implications of pollock removals on predator/prey ecology. The sheer volume of pollock removals (over 1 million metric tons each year) results in high bycatch totals for a number of groundfish, crab, and salmon species. For instance, the pollock fleet catches more salmon as bycatch than all other federal fleets combined. Since 1991, the pollock fishery has caught over 6.3 million chum salmon and over 1 million Chinook salmon as bycatch.¹⁷ Nearly half of Chinook salmon caught as bycatch in the Eastern Bering Sea pollock fishery originated from and would have returned to Western Alaskan rivers and communities.¹⁸

At the same time, Western Alaska has experienced a dramatic decline in Chinook salmon since 2011 and a more recent decline in chum salmon since 2020.¹⁹ Communities in Norton Sound and the Kuskokwim have faced reduced access to salmon for subsistence and traditional ways of life, while communities along the Yukon have been forced to deal with a complete moratorium on Chinook harvests from 2024 to 2030. The magnitude of loss of culture and food security for Western Alaska communities cannot be economically quantified but should be considered in any economic narrative that discusses pollock fishing activities in Alaska. Alaska Native Nations are not only impacted users but sovereign governments with inherent rights, laws, and stewardship responsibilities for these ecosystems.

All fishing gears have impacts on the marine ecosystem; however, trawling is recognized as one of the most intense forms of widespread benthic disturbance throughout the world. Bottom trawling has significant adverse impacts to seafloor and benthic ecosystem function by reducing the density of organisms that cycle nutrients results, reducing the density of faunal biomass with each pass, impacting biogeochemical cycles, impairing nutrient fluxes and damaging biogenic bottom structure necessary for bottom dwelling fish through various life stages.²²⁻²⁸ In Alaska, the current definition of "pelagic" trawling allows for high bottom contact rates by the pollock fishery in the Bering Sea, Aleutian Islands (BSAI), and Gulf of Alaska (GOA). This includes important habitat areas closed to bottom trawling that provide Essential Fish Habitat (EFH) for more than 25 species of commercially important groundfish and remains another primary concern associated with bottom contact in the pollock fleet.²⁹

Economic Responses

The economic contribution report analysis used an input-output (I-O) model to estimate the total employment and economic output contributed by the Alaska pollock industry. Such a model is appropriate for capturing the economic contribution of an industry or region. However, a key drawback of these models is their inability to account for systemic adjustment or response. At a high level, I-O models map linkages between economic sectors in a region and then track how changes in spending in one sector – in this case, the pollock industry – spread through this map. This mapping, however, treats those linkages as frozen in place and unable to change. The rigidity of prices and the inability to model substitution among other production inputs or commodities in supply

Even in the most extreme and unlikely scenario of a complete pollock closure, as modeled in the economic contribution report, the value of other commodities would still adjust. Supply chains would change, consumers and end users would adapt, and global seafood markets would shift.

chains are recognized constraints in I-O models.³⁰ Significant changes to a sector, such as drastic changes in catch, will drive changes in relationships between sectors. In response, human behavior will adapt, markets and supply chains will react, and the resulting prices for both fish and associated inputs will adjust to these fluctuations.

Without accounting for such changes, an economic model will inflate the estimated loss in revenue resulting from decreased catch. This is another critical omission, as the reports' conclusions hinge around the presumed catastrophic impact of any reduced harvest, a conclusion that relies on a model lacking any of the market and community adaptation that would most certainly occur.

Analyses that account for such adjustments have previously been conducted for several Alaska fisheries, including the pollock industry. Seung et al. (2021) found that the economic loss from the 80% reduction in Pacific cod TAC in 2018 was offset by 15% through the resulting price increase.³¹ In another study, Seung & Iannelli (2016) showed that price increases would likewise partially offset the economic impact of a reduction in pollock catch; for example, a 22% decrease in catch would only result in a 9% loss of revenue in the harvesting sector, and a 13% loss in the processing sector.³² Without taking such market responses into account, estimates of the economic impact of reduced pollock landings will almost certainly be misleading.

Even in the most extreme and unlikely scenario of a complete pollock closure, as modeled in the economic contribution report, the value of other commodities would still adjust. Supply chains would change, consumers and end users would adapt, and global seafood markets would shift. Previous consumers of pollock, for example, would substitute other fish, driving up demand (and therefore prices) in those fisheries. While the transportation and fuel report suggests increased costs to consumers, it does not model the changes in demand that might offset those costs, especially if other Alaska fisheries experience a price benefit.

The implicit assumption presented in these economic reports is that other fisheries and local economies in Alaska, the US, and globally are static, and will not react through seafood markets, trade, prices, and production innovation. Not only is this an extremely unrealistic scenario, it also neglects Alaska's history of adaptive resilience. Failing to account for such responses and limiting the scope impact to just the pollock sector is very likely to overstate the overall economic impact to Alaska.

Overlooked Industries

Both reports focus almost exclusively on the pollock sector when describing Alaska's ports, transportation, and logistics networks, overlooking other industries that rely on and help sustain the same systems. Tourism, mariculture, and local freight operations all rely on shared infrastructure such as harbors, fuel, barging, and air service, often providing steady, year-round demand. Alaska's tourism industry alone generated approximately \$5.6 billion in total economic output, supported by more than 48,000 jobs statewide in 2023-2024, much of it concentrated in coastal communities that share ports and transportation networks with commercial fisheries.³³ By leaving out these sectors, the reports present an incomplete picture of Alaska's maritime economy and reinforce the misconception that industrial fishing is the only driver of infrastructure sustainability.

These overlooked industries also contribute to community resilience in ways that differ fundamentally from large-scale industrial fisheries. Tourism, mariculture, and local freight tend to be locally owned and place-based, allowing a greater portion of economic value to be retained within coastal communities and reducing the amount lost to outside regions. NOAA's maritime economy data establish that tourism and recreation account for nearly half of all marine economy employment in Alaska, reflecting the large diversity of users who rely on working waterfronts and shared logistics systems.³⁴ While these sectors may generate less volume than industrial pollock, they often provide stronger local retention of wages, services and reinvestment. Ignoring their role limits the ability to assess diversification opportunities. It reinforces a misleading conclusion that Alaska's infrastructure depends primarily on a single industrial fishery, rather than on a broader mix of industries that collectively sustain coastal economies.

IV. Working Toward a Holistic Assessment

Recognizing System Diversity

Alaska's maritime economy depends on a diverse network of fleets, industries, and communities rather than any single fishery or business model.

Alaska's maritime economy depends on a diverse network of fleets, industries, and communities rather than any single fishery or business model. Industrial pollock operations, small-boat fisheries, mariculture, tourism, freight, and coastal processing facilities all interact within shared systems of ports, fuel supply, labor, and transportation. This diversity is intentional; it forms the foundation of Alaska's economic resilience. Several studies have shown a direct link between fishing diversity and the resilience of Alaska's fishing livelihoods and local economies.³⁵⁻³⁶⁻³⁷ When multiple sectors participate in and support shared infrastructure, the system is better positioned to withstand environmental variability, market shifts, and regulatory changes without placing excessive risk on any single community or industry.

True economic strength goes beyond assessing the level of activity; it involves how value is kept and circulated within Alaska's communities. Focusing solely on gross output or total employment as indicators of economic "importance" misses this crucial point. Pollock clearly provides money, jobs, and influence, but these benefits are only sustainable when they support local ownership, community investment, and shared access to infrastructure, and must be viewed in the context of the risks of large-scale removals of an important prey species, bycatch and habitat impacts. By highlighting value retention alongside production, policymakers and stakeholders can better identify which sectors, when working together, foster long-term prosperity and community stability, leading to policies that strengthen a diverse, locally rooted maritime economy for Alaska's future.

Ecological-Economic Integration

Alaska's fisheries do not operate as isolated economic units. They are interconnected biologically through shared ecosystems and economically through the communities, infrastructure, and markets that rely on them. Industrial pollock operations, small-boat fisheries, subsistence harvests, and coastal processors all depend on the same marine environment and are influenced by changes in species abundance, habitat condition, and ecosystem dynamics. Any assessment of economic importance that views fisheries as separate or independent systems overlooks these essential connections.

Sustainable fisheries management requires considering ecological tradeoffs alongside economic outcomes. Bycatch, habitat disturbance and shifts in prey availability have consequences that go beyond the pollock sector, impacting salmon, halibut, crab and other fisheries that support small-boat fleets and coastal communities, as well as marine mammals, seabirds, and Alaska Native peoples and cultures. When these impacts reduce the productivity or reliability of different fisheries, they create real economic costs – costs that are seldom reflected in single-fishery economic analyses. Overlooking these tradeoffs can lead to policies that prioritize short-term gains for one sector while undermining long-term value across the entire fisheries economy.³⁸

Economic resilience is especially weakened when ecosystem impacts disproportionately affect fisheries that hold a higher share of local value. Salmon, halibut, and crab fisheries often support resident fishermen, local processing industries, and community-based economies that circulate income within Alaska. When ecological damage to these fisheries decreases their productivity or viability, the resulting losses are directly felt by Alaska households and communities. An integrated ecological-economic approach would recognize that safeguarding ecosystem health is not only an environmental priority but also an economic one, crucial for maintaining the fisheries that directly strengthen Alaska's local economies.

Modeling Adaptation and Resilience

The complexity and interconnected dynamics of Alaska's local economies demand that any economic modeling used to inform the future must reflect that reality. While there is value in understanding the current economic output of an industry, such as the analysis

Bycatch, habitat disturbance and shifts in prey availability have consequences that go beyond the pollock sector, impacting salmon, halibut, crab and other fisheries that support small-boat fleets and coastal communities, as well as marine mammals, seabirds, and Alaska Native peoples and cultures.

conducted in the economic contribution report, that type of modeling provides only a snapshot in time and place. Understanding the current economic footprint of the Alaska pollock industry is useful contextual knowledge, but it is inappropriately used if future allocation or harvest level decisions are based on those outputs. Such models are unable to shed light on the impacts – and effectiveness – of future policy choices Alaska may face, such as gradual quota adjustments, bycatch reduction, renewable fuel use, or changes to regional processing.

As Alaska's fisheries continue to adapt and innovate over time, more dynamic economic models that incorporate economic responses are critical to navigating future pathways. As discussed above in this report, price changes, substitution among fisheries, supply chain shifts, and community-level multipliers may all fundamentally change the outputs and interpretations of economic analyses. Modeling approaches capable of such insights – such as bioeconomic modeling – have been continually developed over the past few decades, and are both widely available and regularly used in policy decisions already. For instance, the NOAA Alaska Fisheries Science Center regularly conducts detailed economic modeling to the benefit of fisheries management in Alaska.

Community Roles in Sustainable Management

Alaska's coastal communities are not passive recipients of maritime economies and infrastructure; they are its primary stewards. Local governments, harbor authorities, and fishing fleets are responsible for maintaining ports, managing access, and sustaining the public works systems that allow Alaska's maritime economy to function across seasons and market cycles. These responsibilities extend beyond physical infrastructure. Communities also carry inherent responsibility for the local marine ecosystems that support fisheries, balancing economic activity with long-term ecological health through local knowledge, monitoring, management, and adaptive practices. In this way, public infrastructure and ecological stewardship are inseparable: ports, fuel systems, and working waterfronts exist to support fisheries that depend on healthy ecosystems, and communities are accountable for both.

Small-boat fisheries and community-scale processors play a central role in this dual stewardship. These operations are deeply embedded in place, providing local employment, maintaining active working waterfronts, and operating at scales that are closely tied to ecosystem conditions. Because they are locally owned and labor-intensive, they typically retain a greater share of economic value within Alaska, strengthening community economies and supporting public investments in harbors, docks, and processing facilities. Their dependence on ecosystem health also reinforces stewardship incentives, as long-term viability is directly linked to sustainable management of shared marine resources.

Including community perspectives and locally grounded data in economic assessments, therefore, improves not only economic accuracy but governance outcomes. Communities understand how infrastructure is used and maintained, how ecological conditions affect economic activity, and how public investments perform over time. Incorporating this knowledge allows policymakers to evaluate infrastructure spending and fisheries management together, rather than in isolation, and to prioritize investments that enhance long-term resilience, ecological sustainability, and equitable access. Framing communities as maritime stewards acknowledges that Alaska's maritime economy is sustained not just by capital and volume, but by public responsibility, local knowledge, and the ongoing work of maintaining both ecosystems and the infrastructure built to support them.

To accurately reflect Alaska's fisheries economy and the realities of coastal community resilience needs, these economic assessments and their policy- and market-facing conclusions needed to have taken a broader, more inclusive approach. The following section summarizes the major gaps in research, modeling, and analysis inherent in these two studies.

V. Summary of Key Findings

First, these analyses do not include a broad enough range of stakeholders in data collection and interpretation to draw any reliable conclusions around the scale of community benefits or the realities of associated risk. Tribes, CDQ organizations, small-boat fishermen, independent processors, harbor authorities, and municipal governments all play vital roles in supporting Alaska's maritime economy. These perspectives offer essential insights into how infrastructure is used, maintained, and shared at the community level. Without these voices, the reports lack the accurate data and qualitative assessment of local employment, infrastructure access, and economic resilience needed to make realistic conclusions about statewide impacts and the lived experience of Alaska's coastal communities.

Second, the economic importance of the pollock fishery is assessed almost entirely as a factor of volume and gross output. It does not provide data on the value retained within Alaska, or a cost benefit analysis of that output. To draw realistic conclusions about overall economic impact, analyses must track where economic benefits go by looking at wages paid to Alaska residents, local procurement, tax payments, and reinvestment in community infrastructure. Adding leakage analysis—such as labor income retention, nonresident ownership of vessels and processing facilities, and dependence on imported inputs—would have given a clearer picture of how much economic activity actually benefits Alaska households and local economies. Without these measures, large-scale industrial activity may seem beneficial on paper but provide limited long-term value to the state.

Third, the reports do not incorporate ecological or cross-fishery considerations in calculations of contribution, cost and overall confidence interval. Instead, they treat pollock as an isolated system. Bycatch, habitat impacts, and ecosystem health directly affect other fisheries and local communities – financially and culturally. Including ecological indicators in economic models would provide an understanding of tradeoffs critical to making a comprehensive value assessment. Without that context, we risk drawing conclusions that prioritize policies around short-term gains at the expense of long-term sustainability. Separating environmental and economic factors falls short of representing the interconnectedness of Alaska's marine systems.

Fourth, the collapse-based narrative featured in both studies forces an assessment of an implausible scenario – one in which the only options are status quo or full closure. By focusing solely on extreme scenarios the reports deliberately ignore the more realistic scenarios on the table, such as varied management and investment options, incremental harvest or fishery changes, innovations around bycatch reduction, diversification of waterfronts, fleets and markets, or expansion of community-scale processing. By relying on catastrophic scenario analysis and static input-output models, the reports present incomplete and profoundly improbable outcomes. When determining community impact and priorities around either status quo or change, the pollock fishery must be presented within the full context of the community's economic reality, and assessment must include price fluctuations, substitution effects, and behavioral responses from industry and communities.

Fifth, the studies ignore and therefore discount the importance of equitable access to and fiscal responsibility for shared infrastructure as a measure of value to communities. Ports, fuel systems, cold storage, and transportation networks are often publicly funded or regulated and should serve a wide range of users. When they are either privately funded or come with inherent access barriers, their gross value cannot be translated to value to the community. Infrastructure planning and investment must ensure that small-boat fleets, local processors, and emerging sectors are not priced out or excluded through consolidation or preferential treatment. Infrastructure dependence tied to a single private industry is not a net benefit, and local infrastructure that is not inherently shared infrastructure does not support resilience. That imbalance is a direct reality in Alaska's fisheries ports, assessment of which would have yielded different conclusions than those presented in these studies.

When economic value stays within Alaska through local ownership, resident employment, and reinvestment in working waterfronts, it strengthens communities that can adapt to ecological changes, market fluctuations, and policy shifts.

Addressing these shortcomings would provide a more straightforward path to accurate analysis and sustainable policy. That could be achieved by acknowledging system diversity, tracking value retention, incorporating ecological realities, and emphasizing shared access and local benefits, better aligning Alaska's fisheries economy with the long-term interests of its people, communities, and marine ecosystems.

VI. Conclusion

The Alaska pollock fishery is undeniably an important part of the state's maritime economy. Its scale supports infrastructure, provides jobs, and impacts national and global seafood markets. Recognizing this importance is vital. At the same time, scale alone does not determine economic resilience. Alaska's strength has never depended on a single fishery or business model, but on the interaction of many fleets, communities, and ecosystems working together along the state's coastline.

A resilient fisheries economy depends on two primary sources: productive capacity and value retention. Industrial pollock is part of the first, while small-boat fisheries, community-scale processors, tourism, mariculture, and local freight are critical to the second. When economic value stays within Alaska through local ownership, resident employment, and reinvestment in working waterfronts, it strengthens communities that can adapt to ecological changes, market fluctuations, and policy shifts. Conversely, when value leaks out through external ownership and nonresident labor, dependence can quickly turn into vulnerability.

The analyses discussed in this technical review highlight the need for a broader understanding of economic "importance." While measuring gross output and employment provides valuable information, that output alone is not enough. A more complete picture requires considering who benefits, how ecosystems are impacted, and whether infrastructure access and public investments serve a diverse range of users. Alaska's future will be strongest when economic policies align with ecological health, diversified livelihoods, and fair access to shared systems.

Looking ahead, Alaska has an opportunity to shape a fisheries economy that reflects its values and long-term interests. By embracing diversity across sectors, integrating ecological realities into economic planning, and prioritizing investments that keep value circulating within communities, the state can build an economy that is both productive and resilient. The goal is not to diminish the role of industrial pollock, but to include it within a broader framework that recognizes the contributions of all who depend on Alaska's waters and ensures that the benefits of those resources remain with the people and places that sustain them.

VII. References

1. Jean Gordon, H. S., & Bayes, D. (2024, December 5). Uniting against trawls scraping the ocean's bottom protects Alaska's fisheries. *Alaska Beacon*.
2. McKinley Research Group. (2025). The Importance of the Alaska Pollock Fishery to Alaska's Transportation and Fuel Networks. *The Alaska Pollock Fishery Alliance*.
3. Northern Economics. (2025). The Economic contribution of the Alaska Pollock Fishery. *The Alaska Pollock Fishery Alliance*.
4. Seung, C. K. (2025). Who benefits from Alaska fisheries? *NOAA National Marine Fisheries Service, Alaska Fisheries Science Center*.
5. Sampson, G. S., Moore, J. W., & Essington, T. E. (2023). Fleet diversity dampens the effects of environmental variability in U.S. West Coast fisheries. *Ecological Economics*, 213, 107766. <https://doi.org/10.1016/j.ecolecon.2023.107766>
6. Abbott, J. K., Haynie, A. C., & Reimer, M. N. (2021). Portfolio effects in fisheries: U.S. evidence on risk-spreading through fleet diversification. *Proceedings of the National Academy of Sciences*, 118(9), e2014626118. <https://doi.org/10.1073/pnas.2014626118>
7. U.S. Justice Department of Justice, Antitrust Division. (2000, February 29). Response to Pollock Conservation Cooperative's Request for Business Review Letter.
8. Fishing Capacity Reduction Program for the Bering Sea and Aleutian Islands American Fisheries Act Pollock, 85 F.R. 12908 (2020, March 03). <https://www.federalregister.gov/documents/2020/03/05/2020-04473/fishing-capacity-reduction-program-for-the-bering-sea-and-aleutian-islands-american-fisheries-act>
9. Strout, N. (2025, January 21). USDA to purchase USD 50 million worth of Alaska pollock. *Seafood Source*.
10. Fisheries of the Exclusive Economic Zone Off Alaska; Bering Sea and Aleutian Islands Management Area; Cost Recovery Fee Notice for the Western Alaska Community Development Program and Trawl Limited Access Privilege Programs, 90 F.R. 56134-56136 (2025, December 05). <https://www.federalregister.gov/documents/2025/12/05/2025-21965/fisheries-of-the-exclusive-economic-zone-off-alaska-bering-sea-and-aleutian-islands-management-area>
11. National Fisherman. (2024, October 24). Alaska fishing industry sees nearly 7000 job cuts.
12. FAO, Duke University, & WorldFish. (2023). Illuminating hidden harvests: The contributions of small-scale fisheries to sustainable development. *Food and Agriculture Organization of the United Nations*. <https://www.fao.org/3/cc0461en/cc0461en.pdf>
13. Ianelli, J., Hnkalehto, T., Wassermann, S., McCarthy, A., Steinessen, S., McGillard, C., & Siddon, E. (2024). Assessment of walleye pollock in the eastern Bering Sea. *North Pacific Fishery Management Council*.
14. Divine, L., Williams, M. J. P., Davies, J., & LeVine, M. (2022). A synthesis of Laaquadan (Northern Fur Seal) community surveys and commercial fishery data in the Pribilof Islands Marine Ecosystem, Alaska. *Journal of Marine Science and Engineering*, 10(4), 467. <https://doi.org/10.3390/jmse10040467>
15. McHuron, E. A., Luxa, K., & Pelland, N. A. (2020). Practical application of a bioenergetic model to inform management of a declining fur seal population and their commercially important prey. *Frontiers in Marine Science*, 7, 597973. <https://doi.org/10.3389/fmars.2020.597973>
16. North Pacific Fishery Management Council & National Marine Fisheries Service. (2019). Bering Sea Fishery Ecosystem Plan. *North Pacific Fishery Management Council*.
17. National Marine Fisheries Service. (2025). Fisheries Catch and Landings Report in Alaska. *National Oceanic and Atmospheric Administration*.
18. Barry, P., D'Amelio, K., Whittle, J., Musbach, J., Cornett, J., Whitney, J., & Larson, W. (2024). 2023 Genetic Stock Composition Analysis of Chinook Salmon from the Prohibited Species Catch of the Bering Sea and Gulf of Alaska Walleye Pollock Trawl Fishery. *North Pacific Fishery Management Council*.
19. Kuskokwim River Inter-Tribal Fish Commission. (2025) 2025 End of Season Summary.
20. Kaiser, M. J., Ramsay, K., Richardson, C. A., Spence, F. E., & Brand, A. R. (2000). Chronic fishing disturbance has changed shelf sea benthic community structure. *Journal of Animal Ecology*, 69(3), 494-503. <https://doi.org/10.1046/j.1365-2656.2000.00412.x>
21. Pitcher, C. R., Hiddink, J. G., Jennings, S., Collie, J. S., McConaughey, R. A., Mazor, T., ... & Parma, A. M. (2022). Trawl impacts on the relative status of biotic communities of seabed sedimentary habitats in 24 regions worldwide. *Proceedings of the National Academy of Sciences*, 119(2). <https://doi.org/10.1073/pnas.2109449119>
22. Olsgard, F., Schaanning, M. T., Widdicombe, S., Kendall, M. A., & Austen, M. C. (2008). Effects of bottom trawling on ecosystem functioning. *Journal of Experimental Marine Biology and Ecology*, 366(1-2), 123-133. <https://doi.org/10.1016/j.jembe.2008.07.036>
23. Bradshaw, C., Jakobsson, M., Brüchert, V., Bonaglia, S., Mört, C. M., Muchowski, J., Stranne, C., & Sköld, M. (2021). Physical disturbance by bottom trawling suspends particulate matter and alters biogeochemical processes on and near the seafloor. *Frontiers in Marine Science*, 8. <https://doi.org/10.3389/fmars.2021.683331>
24. Hiddink, J. G., Jennings, S., Sciberras, M., Szostek, C. L., Hughes, K. M., Ellis, N., Rijnsdorp, A. D., McConaughey, R. A., Mazor, T., Hilborn, R., & Collie, J. S. (2017). Global analysis of depletion and recovery of seabed biota after bottom trawling disturbance. *Proceedings of the National Academy of Sciences*, 114(31), 8301-8306. <https://doi.org/10.1073/pnas.1618858114>
25. Pusceddu, A., Bianchelli, S., Martín, J., Puig, P., Palanques, A., Masqué, P., & Danovaro, R. (2014). Chronic and intensive bottom trawling impairs deep-sea biodiversity and ecosystem functioning. *Proceedings of the National Academy of Sciences*, 111(24), 8861-8866. <https://doi.org/10.1073/pnas.1405454111>
26. Pauly, D., Christensen, V., Guénette, S., Pitcher, T. J., Sumaila, U. R., Walters, C. J., Watson, R., & Zeller, D. (2002). Towards sustainability in world fisheries. *Nature*, 418, 689-695. <https://doi.org/10.1038/nature01017>
27. Zhang, W., Porz, L., Yilmaz, R., Wallmann, K., Spiegel, T., Neumann, A., Holtappels, M., Kasten, S., Kuhlmann, J., Ziebarth, N., & Taylor, B. (2024). Long-term carbon storage in shelf sea sediments reduced by intensive bottom trawling. *Nature Geoscience*, 17, 1268-1276. <https://doi.org/10.1038/s41561-024-01581-4>
28. Zaleski, M., Smeltz, T. S., Rheinsmith, S., Pirtle, J. L., & Harrington, G. A. (2022) 2022 Evaluation of Fishing Effects on Essential Fish Habitat. *North Pacific Fishery Management Council*.
29. North Pacific Fishery Management Council. (2024). Unobserved Fishing Mortality Working Group.
30. Akbari, N., Faille, P., Pan, H., Drakeford, B., & Forse, A. (2023). The impact of fisheries on the economy: A systematic review on the application of general equilibrium and input-output methods. *Sustainability*, 15(7), 6089. <https://doi.org/10.3390/su15076089>
31. Seung, C. K., Waters, E. C., & Barbeaux, S. J. (2021). Community-level economic impacts of a change in TAC for Alaska Fisheries: A multi-regional Framework assessment. *Ecological Economics*, 186, 107072. <https://doi.org/10.1016/j.ecolecon.2021.107072>
32. Seung, C., & Ianelli, J. (2016). Regional economic impacts of climate change: A computable general equilibrium analysis for an alaska fishery. *Natural Resource Modeling*, 29(2), 289-333. <https://doi.org/10.1111/nrm.12092>
33. Alaska Travel Industry Association. (2024). *Tourism Works for Alaska*.
34. NOAA Office of Ocean Management. (2022). *NOAA Regional and State Report on the U.S. Marine Economy*.
35. Cline, T. J., Schindler, D. E., & Hilborn, R. (2017). Fisheries portfolio diversification and turnover Buffer Alaskan fishing communities from abrupt resource and market changes. *Nature Communications*, 8(1). <https://doi.org/10.1038/ncomms14042>
36. Holland, D. S., Kasperski, S., & Abbott, J. K. (2025). Contract and sustain: Evaluating the results of progressive implementation of limited entry and catch shares in West Coast and Alaska Fisheries over four decades. *Canadian Journal of Fisheries and Aquatic Sciences*, 82, 1-16. <https://doi.org/10.1139/cjfas-2024-0271>
37. Sethi, S. A., Reimer, M., & Knapp, G. (2014). Alaskan fishing community revenues and the stabilizing role of fishing portfolios. *Marine Policy*, 48, 134-141. <https://doi.org/10.1016/j.marpol.2014.03.027>
38. National Research Council. (2006). *Dynamic Changes in Marine Ecosystems: Fishing, Food Webs, and Future Options*. National Academies Press.

Prepared by the
Alaska Marine Community Coalition and Ocean Conservancy



**ALASKA MARINE
COMMUNITY COALITION**

