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EDITED BY

Ines Lopez Ercilla,
Comunidad y Biodiversidad (COBI), Mexico

REVIEWED BY

Bikash Koli Dey,
Hongik University, Republic of Korea

*CORRESPONDENCE

Danielle Ringer
✉ djringer@alaska.edu

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Charting a new course: ungraying the fleet and comprehensively supporting fishing livelihoods and communities

Danielle Ringer^{1*}, Rachel Donkersloot² and Courtney Carothers³

¹College of Fisheries and Ocean Sciences, University of Alaska Fairbanks, Kodiak, AK, United States,

²Coastal Cultures Research, Aniak, AK, United States, ³College of Fisheries and Ocean Sciences, University of Alaska Fairbanks, Anchorage, AK, United States

This article provides perspectives on the graying of the fleet and research efforts to understand it in Alaska fisheries, discusses recent abrupt multifaceted challenges faced by Alaskan fishermen, and compares divergent public perceptions and support programs for farmers and fishermen in the United States. Equity concerns have seen a resurgence in academic and policy realms and the graying of the fleet is now a common example of distributional inequity, yet despite in-depth research attention on the issue, few substantive programmatic modifications have been made to address it in Alaska. Aging trends in United States fisheries have typically been framed as one of changing aspirational preferences. Research suggests coastal youth do desire and highly value fishing careers, but structural and financial barriers limit opportunities for new generations. The precarity of the fishing industry was highlighted in 2023 with sudden global seafood market instability, rising interest rates and operating costs, destabilized geopolitical tensions, and hastening climate change impacts. This recent industry turmoil disproportionately impacts those on the margins and adds an additional layer of complexity to addressing graying of the fleet trends. Unlike in fisheries, there are numerous federal programs to support young farmers and the agricultural industry. This paper calls for proactive and comprehensive measures to stabilize and support fishing communities and the viability of next generation pathways amidst recent fishing industry market turmoil and longer term inequities in fishery governance.

KEYWORDS

graying of the fleet, privatization, coastal livelihoods, fishing communities, Alaska seafood, commercial fishing, fishermen

1 Introduction

More than a decade ago we launched a multi-sited, multi-methods research project to better understand the 'graying of the fleet' in Alaska fisheries (Donkersloot and Carothers, 2016; Cullenberg et al., 2017; Ringer et al., 2018; Coleman et al., 2019; Donkersloot et al., 2020b; Donkersloot, 2021). At the time, aging trends in commercial fishing fleets in Alaska and elsewhere were generating public and policy concerns about fishing livelihood and community sustainability (Cramer et al., 2018). Demographic changes in fishing participation throughout the state represented an overall decline of Alaskan youth becoming owner-operators of fishing businesses and posed challenges for the sustainability

of culturally important fishing economies and traditions (Ringer et al., 2018). In 2012, the Alaska State Legislature passed a resolution stating that the graying of the fleet was a pressing area of concern for the entire state (State of Alaska, 2012). In response, the Graying of the Fleet study began in 2014 to better understand and address this problem. Our ethnographic, youth-focused study was based on years of research, more than 130 interviews with diverse groups of fishermen, and a survey of more than 800 middle and high school students in Bristol Bay and Kodiak—two of Alaska's vital fishing regions. The project garnered attention in academic, policy, and public domains resulting in myriad presentations, news stories, and invitations to address decision-making bodies, such as the Alaska State Legislature, North Pacific Fishery Management Council, and House of Commons of Canada. Despite continued high interest in the topic, and a strong desire by many decision-making bodies to address well-documented barriers to entry, the average age of commercial fishermen in Alaska has continued to increase. In 1980, the median age of state limited entry permit holders defined as rural and local was 39 years. By 2012 the median age had increased to 51 years. Despite research focus and media attention, the trend has continued. In 2022, the most recent year for which data is available, the median age had increased to 55 years (see Table 4–03 in Johnson, 2023).¹

Previous research on these trends has revealed two central points. First, the privatization of fisheries access, including catch shares and limited entry programs, creates and entrenches deep inter-and intra-generational inequities (e.g., Carothers, 2011; Olson, 2011; Breslow, 2015; Pinkerton and Davis, 2015; Donkersloot, 2021; Steinkruger and Szymkowiak, 2023). The social, cultural, and community losses and impacts of these programs are experienced primarily by new and young fishermen, and rural and Indigenous fishing communities (NASEM, 2021). Contrary to common narratives that young people do not seek out fishing careers, our research showed that young people highly value fishing livelihoods but perceive often insurmountable barriers to entry without family ties or substantial external financial support (e.g., Coleman et al., 2019; Donkersloot et al., 2020b; Donkersloot, 2021; NASEM, 2021). The institutionalization of these barriers threatens the social reproduction of fishing livelihoods and community well-being, as well as local and regional food security (Szymkowiak and Rhodes-Reese, 2022).

Secondly, we stress that although social science research can help identify the nature of the graying of the fleet problem, research and science alone are ill-equipped to fix it (Gregory et al., 2023), as evidenced by continued aging trends in the fishing industry. An “ungraying” of the fleet will require meaningful policy changes that will be difficult to attain without a strong commitment to the goal of intergenerational equity. However, we acknowledge that it is difficult to address entrenched systemic inequities during times of crisis. In this perspective piece, we center recent disruptions to Alaska's seafood

industry to discuss potential ways forward given renewed attention on equity and environmental justice concerns in sustainable governance (e.g., NOAA Fisheries, 2023). We frame this conversation by considering differences in the ways in which farmers and fishermen are supported in the United States as food providers and harvester. We present this discussion with some urgency given recent turmoil in global seafood markets that are impacting both new and longtime fishermen in myriad ways.

2 Equity and sustainable fishery governance

Marine conservation increasingly recognizes equity and well-being as policy goals integral to successful governance. We view marine conservation and fishery sustainability broadly as stewardship of sustainable people-place connections (Donkersloot and Carothers, 2017; Donkersloot et al., 2020a). The shift in thinking about successful fishery governance as sustaining both ecological and cultural diversity has gained traction in the North Pacific given renewed attention on equity in fisheries (NASEM, 2021; NOAA Fisheries, 2023). In 2023, NOAA Fisheries released their first-ever Equity and Environmental Justice Strategy. Among the priorities for the agency responsible for sustainable management of United States fisheries is a more equitable distribution of opportunities and benefits, including a focus on generational equity and the incorporation of equity and environmental justice considerations in resource allocations (NOAA Fisheries, 2023).

To date, efforts to address the graying of the fleet and loss of access experienced in many rural and Indigenous fishing communities in Alaska have concentrated largely on loan programs and workforce development and training opportunities (see Cullenberg et al., 2017; Donkersloot, 2021). Many of these innovative programs have been implemented by regional organizations or small nonprofits with limited grant funds and capacity constraints. Despite such entities devoting significant resources to the goal of helping new and young fishermen overcome high barriers to entry, these programs have had limited success. Recognizing the need for greater support, many of these same organizations were instrumental in the passage of the Young Fishermen's Development Act (H.R. 1240, S. 496) in 2020. The Act established the first-ever national program to train, educate, and support the next generation of commercial fishermen in the United States. The program was modeled after the Beginning Farmer and Rancher Development Program that launched in 2008 with \$19 million in direct fundings to address the ‘graying of the farm.’ Since then, nearly \$150 million has been invested in new farmer training projects across the nation (NSAC, 2024). In 2022, the Young Fishermen's Development Act received funding for the first time when Congress directed \$1 million to support training and apprenticeship programs for the nation's next generation of commercial fishermen. We cite this as progress and a positive step forward in sustaining our fishing heritage and economies but note the disparity in funding as one example of larger differences in federal support for farmers and fishermen in the United States. These differences are not new, but they reemerged as a topic of concern and opportunity for systemic transformation in 2023 when Alaska seafood markets abruptly collapsed.

¹ We note Gho (2024) has questioned if aging trends in fisheries merely mirror aging trends within Alaska or nationally. While trends in median age have also risen for the general population in Alaska from 26 in 1980 to 36 years in 2022 (U.S. Department of Commerce, 1982; U.S. Census Bureau, 2022) and nationally from 30 in 1980 and 39 in 2022 (U.S. Department of Commerce, 1983; U.S. Census Bureau, 2023), these trends are not as pronounced as noted above for rural local fishing permit holders in Alaska.

3 Discussion: fishermen need comprehensive support

The 2023 commercial salmon season in Alaska erupted with an array of new challenges that have continued to intensify. Unanticipated fishing industry shifts coalesced with domestic and international factors including: a seafood market downturn since the COVID-19 pandemic, collapse of the chum salmon market, surplus of available pink salmon, international geopolitical tensions, rising operation and inflation costs, and corporate processor restructuring (Ess, 2023; Maxwell, 2023; White, 2024a,b). These interconnected factors have depressed salmon markets and affected nearly every species of wild harvest seafood that supports Alaska; industry experts describe these conditions as not being seen for decades (ASMI, 2023) and some are calling these unprecedented times. Those tied to the fishing industry in Alaska are concerned that the scale of new stressors has created a perfect storm where fishermen at all career stages face diverse hardships. Less than a year after the initial market shocks, some fishermen are seeking more stable employment opportunities, such as in the construction sector, due to the exacerbated livelihood precarity that disproportionately impacts fishermen operating at the margins, especially young, new, small-scale, and low-income fishermen. It is also possible that the current disruptions could deter familial support for youth seeking entry-level fisheries employment.

The 2023 season highlighted the need for broader support for new and current fishermen and ignited debates about longtime disparities between how fishermen and farmers are supported across the country. The public perception of farmers in America elicits notions of the “rural idyll,” with hard-working farmers portrayed as good stewards and essential to national food security (e.g., Wachenheim and Rathge, 2000; Harrington, 2018). This same view is not often extended to commercial fishermen who are frequently depicted akin to wild sea cowboys without similar societal approval (Robinson et al., 2021; The Human League, 2021). The stigmatization of commercial fishermen and inaccurate generalizations underscores the need for a more nuanced understanding that acknowledges the role played by fishermen in sustaining seafood supply, community-based fishermen as stewards, and the social and cultural importance of fishing livelihoods in Alaska and other fishing-dependent places.

The crisis currently playing out offers an opportunity to explore how agricultural food providers are supported through trying times and how such programs may be expanded to offer fishermen similar risk-reduction benefits. Strategies can be specifically created for the needs of fishermen and fishing communities as they adapt to increasing uncertainty driven by shifting markets and stressors described above, as well as climate change (e.g., Szymkowiak and Rhodes-Reese, 2022). While there has been recent focus on workforce development training in the seafood industry, much more support is needed to address structural financial and cultural barriers that exist to entering and moving up in the industry. In the United States Department of Agriculture’s (USDA) latest Science and Research Strategy, Secretary Tom Vilsack pointed to a pivotal moment in national agriculture centering issues of climate change, community prosperity, and the need for fostering resilience in food supply chains (U.S. Department of Agriculture, 2023). As climate change will likely intensify the graying of the fleet (Haugen et al., 2021), it makes sense to combine national efforts focusing on fishing and farming support given the many similarities between these food providers.

The United States Farm Bill is a federal legislative package passed roughly every 5 years that works to secure the nation’s food supply with comprehensive funding that includes risk management tools, such as crop insurance, market development, support for beginning farmers and ranchers, as well as agricultural research and trade development (Farm Bureau, 2024). Alaskan Congressional leadership has focused on ways to incorporate seafood into federal food-related policies, such as in 2018 when United States Senator Dan Sullivan authored an amendment requiring only American-caught seafood to be served in school meal programs. He is also currently working to push the *National Seafood Supply Act* legislation forward that would give fishermen access to USDA loans, ensure fair labeling of foreign-sourced seafood products, and establish an Office of Seafood Policy and Program Integration to provide for coordination of seafood policies across the USDA. Broadening proponents for these types of efforts will allow policy-makers to develop an inclusive national food provider framework that not only addresses current fishing and farming challenges, but also bolsters national food security by relieving some of the risk facing seafood and agriculture operations.

4 Conclusion

This article reflects on years of scientific research on the graying of the fleet in Alaska fisheries and discusses progress made at the federal level to improve intergenerational equity in fisheries. We emphasize the importance of a multifaceted approach to the challenges currently facing fishermen, as educational initiatives alone will not address the distributional inequities documented in Alaska fisheries today. Recent shocks to the industry present a perfect storm of concerns surrounding how to address global dynamics that impact local livelihood viability in Alaska’s fishing communities. Moreover, if Alaska wants to “ungray the fleet,” policy-makers must be prepared to address the structural inequities of privatized fishery management programs. This will be challenging and controversial in part because what is fair and what is sustainable is often up for debate. Despite the continued uptick in aging trends and the more recent turmoil of 2023, we point to opportunities for change moving forward as potential bright spots. For one, equity is currently included alongside sustainability when it comes to identifying management goals and outcomes. Secondly, the recent turmoil in Alaska’s seafood industry may serve as a rallying point for developing more holistic support for fishermen. Lastly, there are well-established farming programs in place that we can learn from and potentially apply to fisheries to improve the resiliency of our food systems, economies, and communities.

There is opportunity to chart a new course for the industry by acknowledging the unique challenges faced by fishermen in today’s cultural, economic, and ecological climate. We suggest paying special attention concerning the high cost of fisheries access rights and the difficulty of diversifying into alternative fisheries during market downturns. We call for more comprehensive and equitable fishery policy approaches and the development of programs that situate American fishermen as food providers. Through innovative solutions and systemic support at multiple levels, the fishing industry will not only weather the current storm, but also move toward a more resilient and sustainable future.

Data availability statement

Publicly available datasets were analyzed in this study. This data can be found here: <https://seagrant.uaf.edu/research/projects/summary.php?id=1002>.

Ethics statement

The studies involving humans were approved by University of Alaska Fairbanks Institutional Review Board. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

Author contributions

DR: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Writing – original draft, Writing – review & editing. RD: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Supervision, Writing – original draft, Writing – review & editing. CC: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Software, Supervision, Writing – original draft, Writing – review & editing.

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References

ASMI (2023). Extraordinary circumstances. Alaska seafood marketing institute, ASMI Board of Directors. Available at: <https://www.nationalfisherman.com/alaska/extraordinary-circumstances>. (Accessed on February, 17 2024)

Breslow, S. J. (2015). Accounting for neoliberalism: “social drivers” in environmental management. *Mar. Pol.* 61, 420–429. doi: 10.1016/j.marpol.2014.11.018

Carothers, C. (2011). “Addressing rural livelihood and community well-being in Alaska’s fisheries” in *North by 2020: Alaskan perspectives on changing circumpolar systems*. eds. A. L. Lovecraft and H. Eicken (Fairbanks, AK: University of Alaska Press), 377–387.

Coleman, J., Carothers, C., Donkersloot, R., Ringer, D., Cullenberg, P., and Bateman, A. (2019). Alaska’s next generation of potential fishermen: a survey of youth attitudes towards fishing and community in Bristol Bay and the Kodiak archipelago. *Mar. Stud.* 18, 47–63. doi: 10.1007/s40152-018-0109-5

Cramer, L., Flathers, C., Caracciolo, D., Russell, S. M., and Conway, F. (2018). Graying of the fleet: perceived impacts on coastal resilience and local policy. *Mar. Pol.* 96, 27–35. doi: 10.1016/j.marpol.2018.07.012

Cullenberg, P., Donkersloot, R., Carothers, C., Coleman, J., and Ringer, D. (2017). Turning the tide: how can Alaska address the ‘graying of the fleet’ and loss of rural fisheries access? A review of programs and policies to address access challenges in Alaska fisheries. Available at: <https://seagrant.uaf.edu/bookstore/pubs/M-215.html>

Donkersloot, R. (2021). Righting the ship: Restoring local fishing access and opportunity in Bristol Bay salmon fisheries. July, 2021. Coastal cultures research. Available at: https://www.nature.org/content/dam/tnc/nature/en/documents/RightingTheShip_elec_2021.pdf

Donkersloot, R., Black, J., Carothers, C., Ringer, D., Justin, W., Clay, P., et al. (2020a). Assessing the sustainability and equity of Alaska salmon fisheries through a well-being framework. *Ecol. Soc.* 25:18. doi: 10.5751/ES-11549-250218

Donkersloot, R., and Carothers, C. (2016). The graying of the Alaskan fishing fleet. *Env: Sci and Pol. for Sus. Devel.* 58, 30–42. doi: 10.1080/00139157.2016.1162011

Donkersloot, R., and Carothers, C. (2017). Beyond privatization rethinking fisheries stewardship North Pacific - 2017, *Documents from Environmental Organizations*. vol. 237. Available at: https://digitalcommons.library.umaine.edu/maine_env_organizations/237

Donkersloot, R., Coleman, J., Carothers, C., Ringer, D., and Cullenberg, P. (2020b). Kin, community and diverse rural economies: rethinking resource governance for Alaska rural fisheries. *Mar. Pol.* 117:103966. doi: 10.1016/j.marpol.2020.103966

Ess, C. (2023). Economic storm hits Alaska’s fishing industry 2023 salmon harvest dips, prices dive. National Fisherman Available at: <https://www.nationalfisherman.com/alaska/economic-storm-hits-alaska-s-fishing-industry-2023-salmon-harvest-dips-prices-dive>. (Accessed February, 20 2024)

Farm Bureau (2024). Farm bill Available at: <https://www.fb.org/issue/farm-policy/farm-bill>. (Accessed February 01 2024)

Gho, M. (2024). *Inflated concerns over the graying of Alaska’s Bristol Bay commercial salmon fleet. Alaska marine science symposium*. AK: Anchorage.

Gregory, R., Halteman, P., Kaechele, N., and Satterfield, T. (2023). Methods for assessing social and cultural losses. *Science* 381, 478–481. doi: 10.1126/science.ad12206

H.R. 1240 (2020). United States public law no.116-289. Available at: <https://www.congress.gov/116/bills/hr1240/BILLS-116hr1240enr.pdf> (Accessed January 12, 2024)

Harrington, L. M. B. (2018). Alternative and virtual reality: agriculture and the countryside as embodied in American imagination. *Geo. Rev.* 108, 250–273. doi: 10.1111/gere.12245

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

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Haugen, B. I., Cramer, L. A., Waldbusser, G. G., and Conway, F. D. (2021). Resilience and adaptive capacity of Oregon's fishing community: cumulative impacts of climate change and the graying of the fleet. *Mar. Pol.* 126:104424. doi: 10.1016/j.marpol.2021.104424

Johnson, R. (2023). *Changes in the distribution of Alaska's commercial fisheries entry permits, 1975–2022*. Alaska: Alaska Commercial Fisheries Entry Commission.

Maxwell, L. (2023). Alaska's largest seafood processor announces restructuring of operations, including selling processing plants. Alaska's news source. Available at: <https://www.alaskasnewssource.com/2023/12/15/alaskas-largest-seafood-processor-announces-restructuring-operations-including-selling-processing-plants/> (Accessed on February 22 2024).

NASEM (2021). *The use of limited access privilege programs in mixed-use fisheries*. National Academies of sciences, engineering, and medicine. Washington, DC: The National Academies Press.

NOAA Fisheries (2023). NOAA fisheries. Equity and environmental justice strategy. Available at: <https://www.fisheries.noaa.gov/s3/2023-05/NOAA-Fisheries-EEJ-Strategy-Final.pdf> (Accessed April, 14 2024).

NSAC (2024). Cultivating the next generation: an evaluation of the beginning farmer and rancher development program. Available at: <https://sustainableagriculture.net/publications/bfrdp/> (Accessed on April 14 2024).

Olson, J. (2011). Understanding and contextualizing social impacts from the privatization of fisheries: an overview. *Ocea. Coast. Manag.* 54, 353–363. doi: 10.1016/j.ocecoaman.2011.02.002

Pinkerton, E., and Davis, R. (2015). Neoliberalism and the politics of enclosure in North American small-scale fisheries. *Mar. Pol.* 61, 303–312. doi: 10.1016/j.marpol.2015.03.025

Ringer, D., Carothers, C., Donkersloot, R., Coleman, J., and Cullenberg, P. (2018). For generations to come? The privatization paradigm and shifting social baselines in Kodiak, Alaska's commercial fisheries. *Mar. Pol.* 98, 97–103. doi: 10.1016/j.marpol.2018.09.009

Robinson, L. M., van Putten, I., Cavve, B. S., Longo, C., Watson, M., Bellchambers, L., et al. (2021). Understanding societal approval of the fishing industry and the influence of third-party sustainability certification. *Fish Fish.* 22, 1213–1226. doi: 10.1111/faf.12583

State of Alaska (2012). HCR 18 – commercial fisheries programs. Available at: https://www.akleg.gov/basis/Bill/Detail/27?Root=HCR18#tab1_4 (Accessed on January, 05 2024).

Steinkruger, A., and Szymkowiak, M. (2023). Examining the evolution of access to Alaska's halibut IFQ fishery. *Ocea. Coast. Manag.* 242:106706. doi: 10.1016/j.ocecoaman.2023.106706

Szymkowiak, M., and Rhodes-Reese, M. (2022). A livelihoods assessment of new entrants within the US fisheries agriculture continuum. *J. Rur. Stud.* 95, 15–25. doi: 10.1016/j.jrurstud.2022.07.024

The Human League (2021). What is the fishing industry and why is it bad? Facts and statistics. Available at: <https://thehumaneleague.org/article/fishing-industry> (Accessed on February 12 2024)

U.S. Census Bureau (2022). Populations and people. 2022 American community survey 1-year estimates Available at: <https://data.census.gov/profile/Alaska?g=040XX00US02#populations-and-people> (Accessed on February, 22 2024)

U.S. Census Bureau (2023). America is getting older. Press release number CB23-106 Available at: <https://www.census.gov/newsroom/press-releases/2023/population-estimates-characteristics.html> (Accessed February, 22 2024)

U.S. Department of Agriculture (2023). Research, education, and economics. USDA science and research strategy 2023–2026: cultivating scientific innovation. United States Department of Agriculture. Available at: <https://www.usda.gov/sites/default/files/documents/usda-science-research-strategy.pdf> (Accessed on January 23 2024)

U.S. Department of Commerce (1982). *1980 census of population. Volume 1. Characteristics of the population. Chapter B general population characteristics. Part 3 Alaska. PC80-1-B2*. Washington D.C.: U.S. Government Printing Office.

U.S. Department of Commerce (1983). *1980 census of population. Volume 1. Characteristics of the population. Chapter B general population characteristics. Part 1 United States summary. PC80-1-B1*. Washington, D.C.: U.S. Government Printing Office.

Wachenheim, C. J., and Rathge, R. W. (2000). Societal perceptions of agriculture. *Agribus. App. Eco. Report* 449. doi: 10.22004/ag.econ.23541

White, C. (2024a). Trident drops out of National Fisheries Institute over Russian fish ban. National Fisherman. Available at: https://www.nationalfisherman.com/seafoodsource/trident-drops-out-of-national-fisheries-institute-over-russian-fish-ban?mkt_tok=NzU2LUZXSi0wNjEAAAGQvVp5kNpQP6WicIS9jPaBQlC5DSczNLuHSKabecYOBzsrwnIggTiOp09HdeoSqKbhF2YFrj1AsuQ8VZwWaMBYm3fHqzm5bjTtEWfCJYR0s8XQ7FY. (Accessed on 23 January 2024).

White, C. (2024b). OBI Seafoods shuttering Larsen Bay plant on Alaska's Kodiak Island for 2024 salmon season. SeafoodSource Available at: <https://www.seafoodsource.com/news/processing-equipment/obi-seafoods-shuttering-larsen-bay-plant-on-alaska-s-kodiak-island-for-2024-salmon-season> (Accessed on February 05 2024).