A REVIEW OF PROGRAMS AND POLICIES TO ADDRESS ACCESS CHALLENGES IN ALASKA FISHERIES
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TURNING THE TIDE:

How can Alaska address the 'graying of the fleet' and loss of rural fisheries access?

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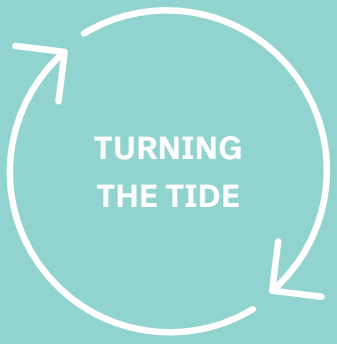
Executive Summary



Alaska is facing a growing problem of fisheries access. Since limited entry programs were implemented in state commercial fisheries, permit holdings by rural residents local to their fisheries have declined by 30%.[1] Some regions like Bristol Bay have lost over 50% of their local rural permits.[2] In federal fisheries, the trend is similar with small rural communities in the Gulf of Alaska experiencing over a 50% decline in individual fishing quota (IFQ) holdings.[3] Of the permits that do remain in rural Alaska, increasingly older fishermen[4] hold them. In 1975, young fishermen (age 40 and under) held about 50% of all rural local permits. By 2016, that proportion had nearly been cut in half. The average fisherman today is over 50 years old, a decade older than the average fisherman of a generation ago.[5] This "graying of the fleet" and loss of local access to commercial fisheries in several important fishery regions in the state threatens the healthy succession of fishing as an economic and cultural mainstay in Alaska's communities, and creates a public policy concern for Alaska.

1 Gho and Farrington 2017. https://www.cfec.state.ak.us/RESEARCH/17-1N/CFEC%2017-1N_EXEC.pdf
2 Ibid.
3 NOAA. https://alaskafisheries.noaa.gov/sites/default/files/reports/ifq_community_holdings_95-15.pdf
4 Following convention in Alaska's fisheries, we use the terms "fishermen" and "fisherman" as nongendered terms. They are used to collectively refer to all ages and all genders.
5 Gho and Farrington 2017. https://www.cfec.state.ak.us/RESEARCH/17-1N/CFEC%2017-1N_EXEC.pdf

permit holdings by rural residents local to their fisheries have declined by

30%

average age of fisherman today

50+ YEARS OLD

The geographic and demographic shifts in access to Alaska fisheries are the result of several factors. In our study of fishing communities in Bristol Bay and the Kodiak Archipelago, we found that **privatizing fisheries access (i.e., the need to purchase permits and quota)** has created large financial and other barriers to entry into commercial fisheries for the next generation of fishermen and has especially impacted small rural fishing communities.

First and foremost, privatization of fisheries access has resulted in **increased financial capital and risk** needed to enter into fisheries. Costs and associated risks of entry into most state and federal fisheries are prohibitive for many young or new fishermen seeking to make fishing a career or diversify into new fisheries. Other financial challenges include: **mixing fishing with other, often times limited, local jobs; lack of stable markets increasing risk; and lack of experience managing debt and small businesses.**

Limited entry and individual quota programs, by generating individualized, saleable fishing rights, led to a contraction of fishing fleets in communities where fishing rights have been sold or migrated away, thus affecting future generations' access to fishing in other ways. In our study, rural youth identified a host of social barriers to accessing fishing, including: **lack of exposure to commercial fishing; lack of experience, knowledge, and family connections to fishing; discouragement from pursuing fishing as a career; and substance abuse and related problems in communities.**

Our research findings are consistent with others across the globe that conclude young people, small-scale fishermen, and rural communities need improved access to commercial fisheries where access has been privatized. Alaska has undertaken multiple efforts to address the barriers to entry and upward mobility in commercial fisheries, but in total they have fallen short of stemming the outflow of permits from rural fishing communities and stimulating entry into the industry by new Alaska fishermen.

In this review, we summarize efforts currently underway in Alaska, as well as those in other nations and U.S. fisheries to address access problems. We conclude by discussing the applicability of different programs to Alaska and make a set of specific policy recommendations. **From our research and a review of international efforts to sustain local fishery access, we have developed the following recommendations:**

TURNING THE TIDE: RECOMMENDATIONS

RECOMMENDATION ONE

Explore supplemental forms of access to commercial fishing that are not market-based to facilitate new entry and provide diversification opportunities.

Nonmarket forms of access allow for a low-cost, low-risk means of participating in commercial fisheries. Iceland provides two examples of such programs, including: 1) limited community quota freely accessible for fishing community residents and 2) quota-free fisheries restricted by landings and season *(p. 25)*. Other examples include recruitment quotas available to fishermen under the age of 30 in Norwegian fisheries *(p. 26)* and student licensing in the Maine lobster fishery *(p. 28)*. The creation of fishery trusts, which hold and lease access rights to fishermen, are also a new form of access that have emerged to address some of the barriers associated with privatized fisheries *(p. 29)*. Nonmarket access provides an opportunity for participants to gain experience, learn fishing skills, and/or earn fishing income without the financial burden and risks of purchasing market-based access rights.

RECOMMENDATION TWO

Establish youth permits or student licenses and mentorship or apprenticeship programs to provide young people with exposure to and experience in fishing and a pathway to ownership.

Mentorship and apprenticeship programs in Alaska would formalize exposure to fishing occupations and provide the training and skill development necessary for advancement that have been constrained under privatization. Apprenticeships and student licenses have been used to regulate entry and promote ethical fishing practices in the Maine lobster fishery *(p. 30)* and to provide training in harvesting and financial support for vessel and gear purchases by new participants in the Prince Edward Island lobster fishery in eastern Canada *(p. 28)*. Though the aims of apprenticeship programs may vary, programs designed specifically to provide opportunities for young people to gain exposure to fishing, build knowledge and skills, and pathways to advancement in fishing careers hold potential for increasing entry into the fishing industry by Alaska youth.

RECOMMENDATION THREE

Develop mechanisms to protect and diversify community-based fishing access, including provisions to protect local access and wider use of super-exclusive registration in state fisheries.

Securing fishing access and benefits in rural communities protects small-scale fishing opportunities and is essential to the long-term sustainability of Alaska fishing communities. Programs which have served to protect small-scale, local and rural access to fisheries have been implemented in Alaska's state fisheries *(p. 20)*, Alaska's offshore federally managed fisheries through the Community Development Quota and Community Quota Entity programs *(p. 21)*, Atlantic Canada *(p. 27)*, and several fisheries in Scandinavia (Norway, Iceland, and Denmark). Norway for example, has implemented a number of measures including an open access fishery for small-scale vessels and provisions to protect access for Norway's Indigenous Sámi population *(p. 27)*.

RECOMMENDATION FOUR

Support local infrastructure to maintain local fisheries.

Another salient theme to emerge from this study is the need to support local infrastructure in Alaska fishing communities that benefits fishermen, processors and local businesses. Seafood processors play a critical role in coastal Alaska, providing a market for fish, employment and capital for growth and investment. Local government's support of infrastructure such as cold storages and industrial parks that house welders, mechanics, boat builders, and other services were frequently mentioned as critical to thriving local and regional fishing economies. These types of services were described as a means to increase the value of fisheries through extending fishing seasons and seafood processing employment, and supporting and providing for offseason employment opportunities through services frequently offered only seasonally.

RECOMMENDATION FIVE

Establish a statewide Fishing Access for Alaskans Task Force to review and consider collaborative solutions to reverse the trend of the graying fleet and loss of fishing access in rural Alaska.

We recommend that a statewide Fishing Access for Alaskans Task Force be established to take steps toward implementation of the priorities identified in the Governor's 2014 transition report on fisheries.[6] The task force would focus in more detail on the multifaceted problem of fisheries access and develop potential and appropriate solutions. Similar to the current Mariculture Task Force, this could be established by Administrative Order with a zero fiscal note. By seeking out qualified Alaskans to identify, understand and creatively pursue specific solutions, Alaska has the opportunity to provide pathways to entry for the next generation of commercial fishermen and slow or reverse the loss of fishing opportunities and benefits from coastal Alaska.

We invite you to view our full project description and results on our project website: http://fishermen.alaska.edu/

[6] https://gov.alaska.gov/administration-focus/transition-2014/

Introduction

Commercial fisheries are the economic, social, political, and cultural drivers of life and work in many of Alaska's coastal communities. In 2015-2016, 56,800 workers were directly employed by Alaska's seafood industry generating $2.0 billion in labor income.[7] Community art, monuments, festivals, job fairs, regulatory forums, and an annual Alaska Salmon Day illustrate the importance of commercial fisheries to the identities and livelihoods of Alaskans living across our state.

[7] Alaska Seafood Marketing Institute (ASMI). 2017. The economic value of Alaska's seafood industry. Prepared by McDowell Group. See https://www.alaskaseafood.org/wp-content/uploads/2015/10/AK-Seafood-Impacts-September-2017.pdf

In many Alaska towns and villages, however, commercial fishing economies and cultures are changing. These changes are evident in the ongoing loss of fishing permits and quota from Alaska's rural fishery-dependent communities and in the increasing age of fishing permit holders today.[8] Alaska's rural fishing communities have experienced a net loss of nearly 2,500 locally held commercial fishing permits since the state began limiting entry in 1975. This loss represents over 30% of permits originally issued to local residents of Alaska's rural fishing communities and is the net result of permits being transferred into and out of these communities (a 2.5% net loss), migrating into or out of communities with their owners (a 15.9% net loss)[9] or being cancelled by the state (a 11.9% net loss) *(see Figure 1)*.[10]

FIGURE 1

Net permit movement by residency category, all fisheries, 1975-2016

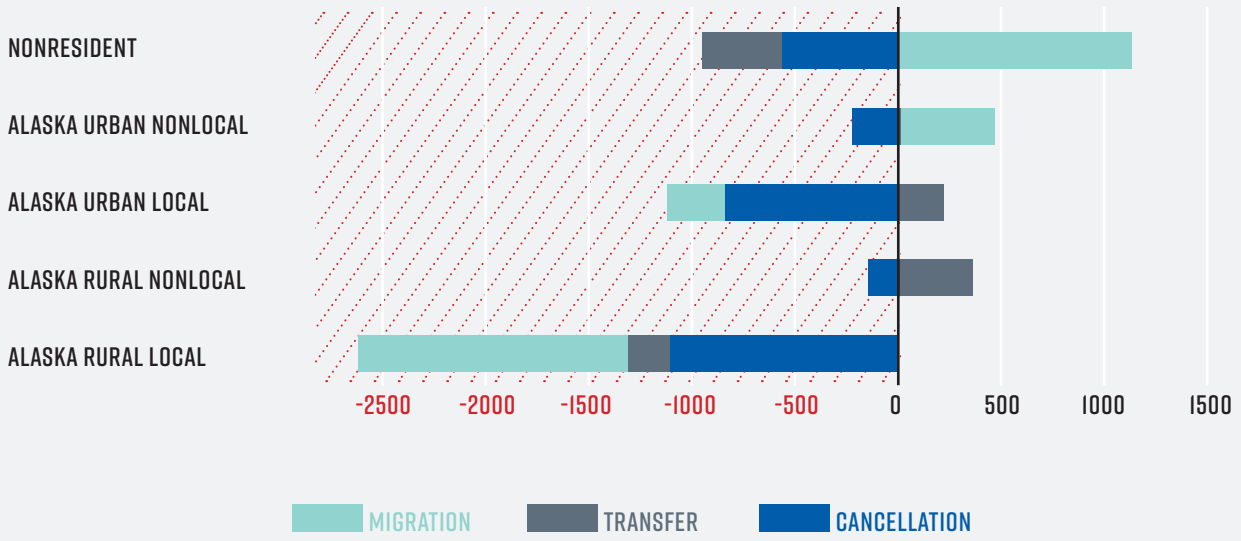


Figure 1. Net permit movement by residency category for all state limited entry fisheries from 1975 to 2016. Residency categories are Alaska Rural Local (ARL), Alaska Rural Nonlocal (ARN), Alaska Urban Local (AUL), Alaska Urban Nonlocal (AUN), and Nonresident (NR). Migration refers to the movement of people with permits, transfer includes sales between residency categories, and cancellation includes nontransferable permit cancellations, administrative and criminal revocations, and other actions. Data from the State of Alaska Commercial Fisheries Entry Commission 2017 permit transfer study Appendix C, available at *www.cfec.state.ak.us/RESEARCH/17-1N/17-1N.htm.*

[8] Donkersloot, R. and C. Carothers. 2016. The Graying of the Alaskan Fishing Fleet. Environment: Science and Policy for Sustainable Development. 58(3): 30-42; State of Alaska 2012, HCR18 – Commercial Fisheries Programs, http://www.legis.state.ak.us/PDF/27/Bills/HCR018C.PDF

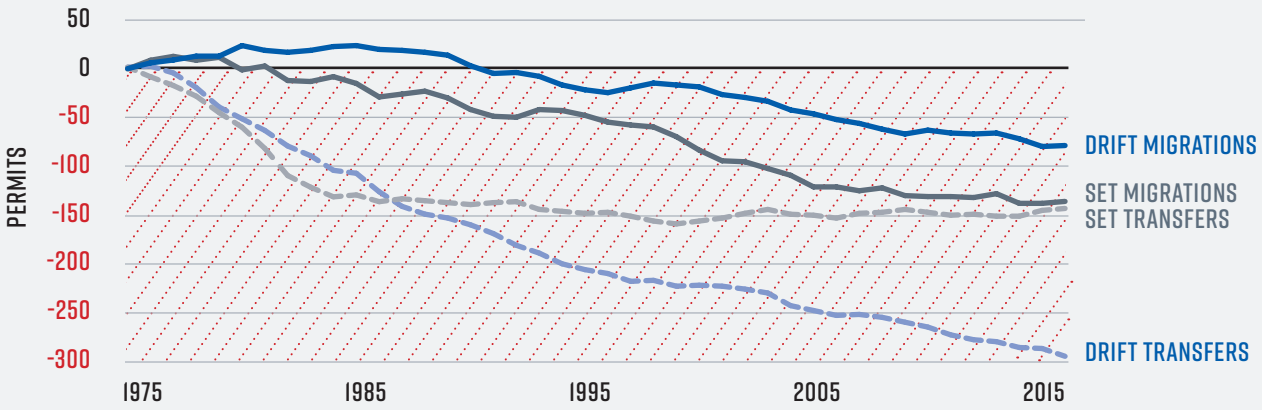
[9] Statewide, salmon power troll and hand troll fisheries account for 38% of the net loss of rural local permits due to migration of permit holders (505 of the 1309 permits).

[10] Cancellations includes administrative revoke, criminal revoke, forfeit, buyback, lapsed, relinquish, reconsider (total = 2,882). Gho and Farrington 2017. https://www.cfec.state.ak.us/RESEARCH/17-1N/CFEC%2017-1N_EXEC.pdf

These aggregate numbers can obscure local trends; for example, one might conclude that permit outflow by transfer or sale is not a major issue facing rural fishing communities given the net loss of only 2.5% of permits. However, in some regions like Bristol Bay, permit transfer has resulted in a large loss of local access. Of the 692 local rural salmon drift and setnet permits lost to the Bristol Bay region between 1975 and 2016, over 60% (439 permits) have been transferred or sold out of the region *(see Figure 2)*. Similar trends are evident in the smaller Southeast salmon seine fishery where permit transfers account for more than 60% (30 of 49 permits) of the loss of rural local permits. In other fisheries, Alaska rural local residents have gained permits by transfer, for example in the salmon power troll fishery (net gain of 128 permits) and the Cook Inlet drift fishery (gain of 75 permits).

FIGURE 2

How permits have left Bristol Bay communities, 1975-2016



TOTAL NET MOVEMENT
from Alaska rural local to non-local

MIGRATIONS -217 **TRANSFERS -439**

Figure 2. Cumulative net Alaska Rural Local (ARL) permit movement in the Bristol Bay drift (blue lines) and set gillnet (grey lines) fisheries from 1975 to 2016. Permit movements are cumulative migrations (solid lines) or transfers (dashed lines) from the ARL category to Alaska Urban Nonlocal, Alaska Rural Nonlocal, and Nonresident categories. Data from the State of Alaska Commercial Fisheries Entry Commission 2017 permit transfer study Appendix C, available at *www.cfec.state.ak.us/RESEARCH/17-1N/17-1N.htm*.

Alaska's urban communities local to their fisheries have also lost permits over time (a total net loss of 23% of permits). Some geographic areas have gained permits, including Alaska rural residents not local to the fisheries they participate in (29% gain), Alaska urban residents not local to the fisheries they participate in (32% gain), and nonresidents of Alaska (7.5% gain) (*see Figure 3*).

FIGURE 3

Percent of initial issuees and 2016 year-end permit holdings by residency category, all fisheries

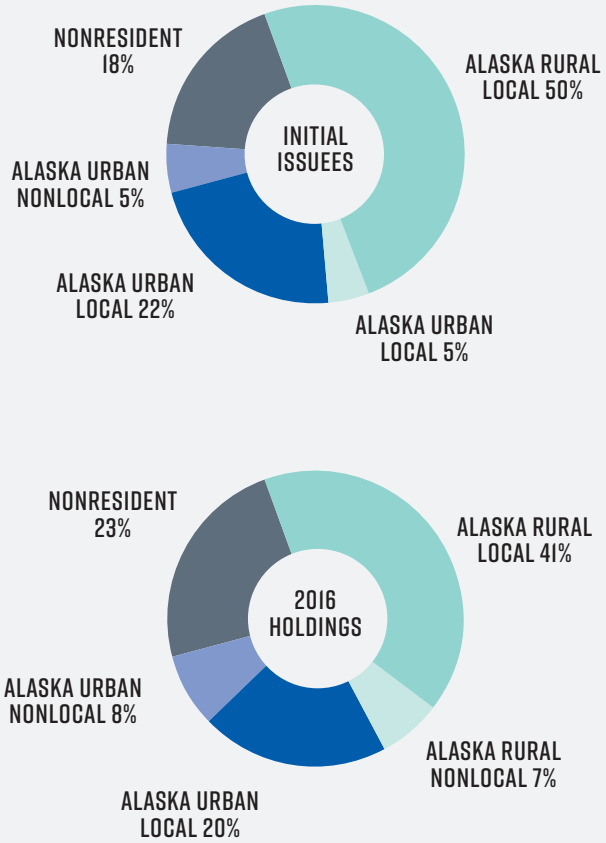


Figure 3. Distribution of permit holdings among residency categories at initial issuance (top) and at the end of 2016 (bottom) for all state fisheries. Figure adapted from the State of Alaska Commercial Fisheries Entry Commission 2017 permit transfer study executive summary, available at *www.cfec.state.ak.us/RESEARCH/17-1N/CFEC%2017-1N_EXEC.pdf*.

Permit cancellations have also contributed to declines in local fishery participation among rural and urban Alaskan communities. Cancellations may occur for any of several reasons, though most cancellations are attributable to the failure to renew a permanent permit for two consecutive years (forfeit), a voluntary permit buyback program (buyback), or the death of a nontransferable permit holder (lapse). For Alaska rural local permit holders, the total number of cancellations is roughly proportional to the number of permits they were initially issued and the number that they held in 2016 (about 40%). However, over the last 20 years, ARLs have experienced a rapid increase in permit cancellations–mainly due to forfeit, lapse, and relinquishment–while cancellations among other resident categories have increased by much smaller margins. Between 1975 and 1995, the average number of cancellations among ARLs was 11, but during the period 1996 to 2016, that number had jumped to 42 *(see Figure 4)*. The trends in permit cancellations and their effect on local fishery participation is yet to be fully understood, but like transfers and migrations, cancellation of a permit means that it is no longer available to fishermen trying to enter the industry.

FIGURE 4

Cumulative permit cancellations by residency category, 1975-2016

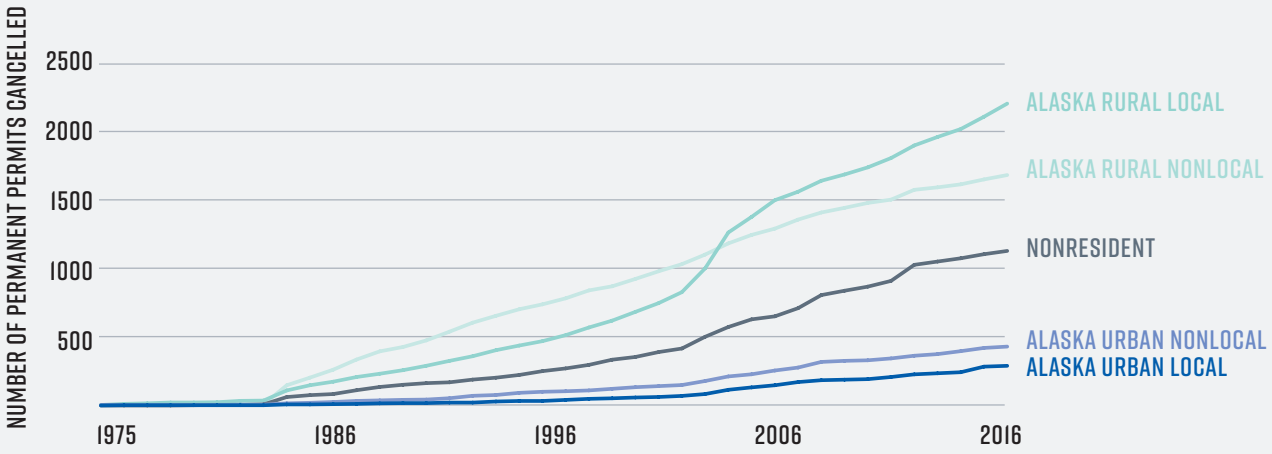


Figure 4. Data from the State of Alaska Commercial Fisheries Entry Commission 2017 permit transfer study Appendix C, available at *www.cfec.state.ak.us/RESEARCH/17-1N/17-1N.htm*

While a quarter of all state permits are held by nonresidents of the state, the increase in permits among this group is not due to sale as is commonly assumed (net transfers or sales of permits have decreased nonresident holdings by 12.7%),[11] but rather to the migration of permit holders out of the state (resulting in an influx of 1,131 permits or a 37% increase for this group due to migration). Bristol Bay salmon fisheries account for 21% of total nonresident net gains in permit holdings due to migration of permit holders since 1975. Salmon power troll and hand troll salmon fisheries account for another 21% meaning these fisheries make up 42% of nonresident net gains in permit holdings due to migration.[12]

FIGURE 5

Net transfer versus net migration in all limited entry fisheries combined between 1975 and 2016

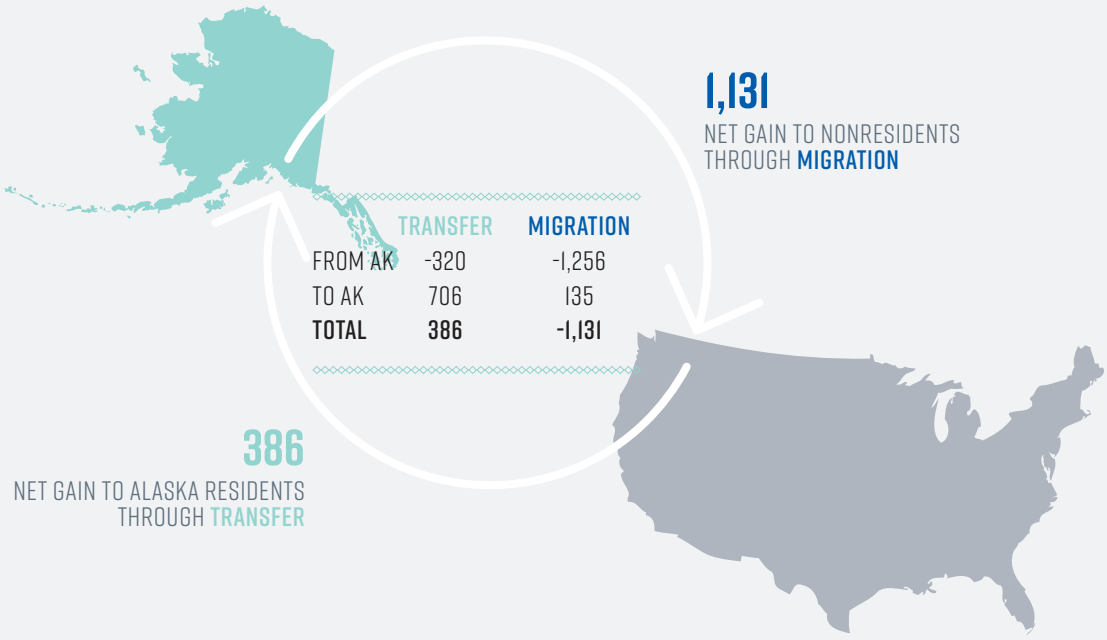


Figure 5. Net permit gain for Alaska residents and nonresidents due to migrations and transfers for all fisheries combined from 1975 to 2016. Data from the State of Alaska Commercial Fisheries Entry Commission 2017 permit transfer study Appendix C, available at *www.cfec.state.ak.us/RESEARCH/17-1N/17-1N.htm.*

[11] Permit cancellations account for another 17% decrease in permit holdings since initial issuance for nonresidents of Alaska.
[12] Gho and Farrington. 2017. https://www.cfec.state.ak.us/RESEARCH/17-1N/CFEC%2017-1N_EXEC.pdf

Of the permits that do remain in rural Alaska, increasingly older fishermen[13] hold them. In 1975, young fishermen (age 40 and under) held about 50% of all rural local permits. By 2016, that proportion had nearly been cut in half. Some vital fishing regions of the state have experienced a dramatic decrease in young permit holders. In the rural villages of the Kodiak Archipelago, for example, there's been over an 80% decrease in young salmon seine permit holders creating a crisis for community sustainability.[14] The average fisherman today is over 50 years old, a decade older than the average fisherman of a generation ago.[15]

The geographic and demographic shifts in access to Alaska fisheries are the result of several factors. In our study of fishing communities in Bristol Bay and the Kodiak Archipelago, we found that **privatizing fisheries access (i.e., the need to purchase permits and quota)** has created large financial and other barriers to entry into commercial fisheries for the next generation of fishermen and has especially impacted rural fishing communities.

First and foremost, privatization of fisheries access has resulted in **increased financial capital and risk** needed to enter into fisheries. Costs and associated risks of entry into most state and federal fisheries are prohibitive for many young or new fishermen seeking to make fishing a career or diversify into new fisheries. Other financial challenges include **mixing fishing with other, often times limited, local jobs; lack of stable markets increasing risk; and lack of experience managing debt and small businesses.**

Limited entry and individual quota programs, by generating individualized, saleable fishing rights, led to a contraction of fishing fleets in communities where fishing rights have been sold or migrated away, thus affecting future generations' access to fishing in other ways. In our study, rural youth identified a host of social barriers to accessing fishing, including: **lack of exposure to commercial fishing; lack of experience, knowledge, and family connections to fishing; discouragement from pursuing fishing as a career; and substance abuse and related problems in communities.**

The ongoing loss of locally held permits in Alaska, whether by sale, migration, or cancellation by the state, suggests the need to develop specific provisions to ensure access to fishery resources remains in Alaska fishing communities for the long-term. The "graying of the fleet" in some important fishery regions in the state threatens the healthy succession of fishing as an economic and cultural mainstay in Alaska's communities. Together, they create an important public policy concern for Alaska.

We invite you to view our full project description and results on our project website: http://fishermen.alaska.edu/

[13] Following convention in Alaska's fisheries, we use the terms "fishermen" and "fisherman" as nongendered terms. They are used to collectively refer to all ages and all genders.
[14] CFEC data provided for our analysis in this study. Donkersloot, R. and C. Carothers. 2016. The Graying of the Alaskan Fishing Fleet. Environment: Science and Policy for Sustainable Development. 58(3): 30-42
[15] Gho and Farrington. 2017. https://www.cfec.state.ak.us/RESEARCH/17-1N/CFEC%2017-1N_EXEC.pdf


STUDY REGIONS
KOKHANOK
TOGIAK
DILLINGHAM
NAKNEK
SOUTH NAKNEK
KING SALMON
BRISTOL BAY
KODIAK ARCHIPELAGO
OUZINKIE
KODIAK
OLD HARBOR
GULF OF ALASKA

TURNING THE TIDE: OPTIONS FOR ALASKA

What can Alaska do to stem the contraction of rural access to fishing and the graying of the fleet to ensure fishing remains a livelihood opportunity in Alaska for generations to come?

We present examples of in-state, national, and international programs and policies designed to encourage and facilitate entry into commercial fisheries. These policy provisions, alternative management structures and training/mentorship programs provide models and opportunities for state and federal managers to consider when looking to better facilitate entry into the industry for Alaska's fishing communities and the next generation of Alaska fishermen. We thank the presenters and participants at the Fishing Access for Alaska, Charting the Future workshop hosted by Alaska Sea Grant and numerous partners in Anchorage in 2016 where many of these examples were discussed.[16]

[16] Cullenberg, P. (editor). 2016. Fisheries Access for Alaska–Charting the Future: Workshop Proceedings. Alaska Sea Grant, University of Alaska Fairbanks, AK-SG-16-02, Fairbanks. http://doi.org/10.4027/faacfwp.2016,

We first briefly review state and federal fisheries management systems and legal frameworks in order to understand possible alternatives and solutions. Next we highlight some of the current efforts in Alaska to address: 1) the cost and financial risk of entry, 2) other financial challenges, and 3) social and educational challenges. We review state loan programs, educational and training initiatives, state and federal fishery policy measures, as well as more targeted programs in place in specific regions.[17]

Following review of Alaska programs, we provide a national and global review of policy responses and programs in place in fishery-dependent regions around the world, many of which are specifically designed to provide entry opportunities to new and young fishermen and promote rural, small-scale, and/or Indigenous peoples' fishing opportunities. Examples reviewed include alternative licensing systems, special provisions within rights-based allocation regimes (e.g., catch share or Individual Transferable Quota (ITQ) programs), youth training initiatives and educational programs, among others.

Finally, we identify gaps in Alaska's efforts and make suggestions, supported by our research findings, as to which alternatives may be feasible and produce positive results within the bounds of state and federal regulatory frameworks.

[17] This review is not exhaustive. For example, there are many design provisions included in the current management of federal fisheries off Alaska that attempt to support small-scale and community-based fishing that we do not discuss in-depth in this review. These include: owner-on-board provisions (for the next generation of quota holders) and restrictions on quota transfers between vessel class sizes in the halibut and sablefish fisheries, crew and skipper shares in Bering Sea/Aleutian Island crab fisheries, and quota set-asides for the jig sector in the Gulf of Alaska, among others (e.g., consolidation caps). While these provisions contribute to supporting entry opportunities and communities, they have been unable to sufficiently stem the outmigration of fishing access from rural Alaska or reverse aging trends. It is clear that additional programs are needed to ensure that fishing remains a viable economic source in Alaska rural fishing communities.

The State of Alaska and the federal government manage commercial fisheries from zero to three nautical miles (nm) and three to 200 nm offshore, respectively.[18] In state waters, the limited entry permit program regulates access to most commercial fisheries, although certain fisheries remain open-access (i.e., the number of permits in the fishery is not limited).

Limited entry was implemented by voter referendum and a constitutional amendment in 1972 in response to biological and economic failures in state salmon fisheries in the preceding decades. Earlier attempts to limit entry into state fisheries were thwarted by a No Exclusive Right of Fishery provision in the state constitution, which states, "no exclusive right or special privilege of fishery shall be created or authorized in the natural waters of the State" (Alaska Constitution VIII: 15). Section 15, Article 8 of the state constitution was amended to expressly allow for the limitation of fishery access "for the purposes of resource conservation, to prevent economic distress among fishermen and those dependent upon them for a livelihood." In 1975, fishermen in 19 fisheries were allocated limited entry permits based on their documentable fishing history (i.e., gear licenses or fish tickets from sales of commercially caught fish), reliance on or availability of alternative occupations, and their economic dependence on commercial fishing income. Additional limited entry programs were implemented in future years. Today there are 65 commercial fisheries managed by area and species under Alaska's limited entry program. Limited entry permits are transferable on the open market, meaning they may be sold or gifted to another person. Limited entry permits cannot be held by nonpersons, such as corporations, communities, or other entities, and permit holders must actively participate in the harvest of fish delivered under their permit. Leasing permits is not allowed, except for medical emergencies.

Federal regulations, not specific to commercial fisheries, also have significant impacts on how state fisheries are managed. The Federal Interstate Commerce Clause prohibits state governments from discriminating against residents of other U.S. states, which has the effect of keeping Alaska's state-managed fisheries open to all U.S. citizens.

Commercial fisheries in waters three to 200 miles offshore of Alaska are federally managed. Federal fisheries are guided by a few key pieces of legislation, chief among them the Magnuson-Stevens Fishery Management and Conservation Act (MSA). Federal fisheries management, through the MSA, is guided by National Standards, of which three are particularly relevant to issues of fishing community stability and access to fishing opportunities. They are: management actions must not discriminate between residents of different states and allocations and privileges established by Fishery Management Council actions must be equitably distributed (Standard 4); management actions shall, where practicable, promote economic efficiency of commercial

[18] There are few exceptions to this binary; notably, there is a tribal commercial fishery managed by the Metlakatla Indian Tribe in southeastern Alaska.

fisheries (Standard 5); economic and social factors must be considered in Council decision-making processes to the extent practicable, and to minimize negative economic impacts on fishing communities when preventing overfishing and rebuilding overfished stocks (Standard 8).

The 2006 MSA reauthorization also included new language authorizing mechanisms to distribute fishing access rights to communities (see Sections 303A(c)(3)), a mechanism prohibited in state fisheries due to the inability of nonpersons to hold state fishing permits. To date, no regional Council has utilized these provisions.[19] The authorization of community-held fishing rights "appear[s] to have been driven by Congress' interest in supporting small-scale and community-based operations," given the tendency for these operations to be disproportionately negatively impacted by privatized access programs.[20]

Federal fisheries are increasingly managed under some form of a privatized access program. There are currently five such programs in place in the North Pacific, including the halibut and sablefish IFQ program (1995), American Fisheries Act pollock cooperatives program (1999), Bering Sea Aleutian Island (BSAI) crab rationalization program (2005), Bering Sea nonpollock groundfish ("Amendment 80" fleet) trawl fishery (2008), and Gulf of Alaska Rockfish Program (2010). While there are some exceptions in some fisheries and in some regions, generally the "boots-on-deck" provision of Alaska state fisheries is not mandated in federal privatized-access fisheries. Absentee ownership and leasing of access rights for profits have been major critiques of these programs in Alaska.[21]

A number of studies show that transforming fishery access rights into a market-based commodity in both state and federal fisheries off Alaska has changed fishery systems with largely negative impacts to small-scale fishermen, nonowners, young and new fishery entrants, and rural and Indigenous communities.[22] There is a growing body of research that demonstrates that these management systems have contributed to the graying of the fleet and the alienation of fishing rights from longstanding fishing communities and cultures around the world.[23] The state of Alaska and other fishing regions and countries across the globe have developed a number of programs and initiatives to address some of the challenges to access and entry created under these management systems.

[19] Donkersloot, R. 2016. Considering Community Allocations: Power and the Politics of Enclosure in the Gulf of Alaska. Marine Policy 74:300-308.

[20] Stoll, J. S., and M. C. Holliday. 2014. The Design and Use of Fishing Community and Regional Fishery Association Entities in Limited Access Privilege Programs. Available at: http://spo.nmfs.noaa.gov/tm/

[21] Szymkowiak, M. and A. Himes-Cornell. (2015). Towards Individual-Owned and Owner-Operated Fleets in the Alaskan Halibut and Sablefish IFQ Program. Maritime Studies 14(1):1-19; Donkersloot, R. and C. Carothers. Beyond privatization: rethinking fisheries stewardship and conservation in the North Pacific. Chapter 12 in Levin, P. S. and M. R. Poe (eds), Conservation for the Anthropocene Ocean: Interdisciplinary science in support of nature and people. Elsevier Academic Press. Pinkerton E. and D. Edwards. 2009. The elephant in the room: the hidden costs of leasing individual transferable fishing quotas. Marine Policy 33:707–13.

[22] Langdon, S. 1980. Transfer Patterns in Alaskan Limited Entry Fisheries, Final Report for the Limited Entry Study Group of the Alaska State Legislature; Lowe, M. and C. Carothers, eds. 2008. Enclosing the Fisheries: People, Places, and Power. American Fisheries Society, Symposium 68, Bethesda, MD; Chambers, C. and C. Carothers. 2016. Thirty years after privatization: A survey of Icelandic small-boat fishermen. In press in Marine Policy. 10.1016/j.marpol.2016.02.026; Koslow, A. 1986. Limited Entry Policy and Impacts on Bristol Bay Fishermen, in: S. Langdon, ed., Contemporary Alaskan Native Economies (Lanham, MD: University Press of America, 1986), 47-62; Peterson, J.S. 1983. Limited Entry and the Native American Fisherman: A Case Study of the Bristol Bay, Alaska salmon fishery. Anchorage, ADF&G, Division of Subsistence, Report on File NSF Grant # DAR-7917582

[23] Donkersloot, R. and C. Carothers. 2016. The Graying of the Alaskan Fishing Fleet. Environment: Science and Policy for Sustainable Development. 58(3): 30-42; McCay, B.J. 2004. ITQs and Community: An Essay on Environmental Governance. Review of Agricultural and Resource Economics 33(2):162-170; McCormack, F. 2012. The Reconstitution of Property Relations in New Zealand Fisheries. Anthropological Quarterly 85(1):171-201; Olson, Julia. 2011. Understanding and Contextualizing Social Impacts from the Privatization of Fisheries: An Overview. Ocean & Coastal Management 54(5): 353–363; Pinkerton E. and D. Edwards. 2009. The elephant in the room: the hidden costs of leasing individual transferable fishing quotas. Marine Policy 33:707–13; Carothers, C. 2015. Fisheries privatization, social transitions, and well--being in Kodiak, Alaska. Marine Policy 61: 313-322. doi:10.1016/j.marpol.2014.11.019; Carothers, C. 2010. Tragedy of commodification: Transitions in Alutiiq fishing communities in the Gulf of Alaska. Maritime Studies (MAST) 90(2): 91-115; Pinkerton, E. and R. Davis. 2015. Neoliberalism and the politics of enclosure in North American small-scale fisheries. Marine Policy 61:303-312; Winder, G.M. 2018. Fisheries, quota management and quota transfer: rationalization through bio-economics. Springer.

ADDRESSING CHALLENGES TO ENTRY INTO COMMERCIAL FISHERIES

In Alaska

In this section we provide an overview of a range of current programs and policy provisions in Alaska designed to support Alaskan access to commercial fisheries.

Access to Financial Capital: Addressing Economic Barriers

"Alaska residents have far more options available to them than other states. The rationalization and consolidation of the Alaska fisheries over the years have resulted in them becoming more stable from a financing perspective, and as a result there are many lenders ready and willing to lend to the industry. My experience would suggest that we do not have a lack of financing options–if anything we may have a lack of qualified applicants." Lea Klingert, President, Alaska Commercial Fishing and Agriculture Bank, January 12, 2016

Alaska Commercial Fishing and Agriculture Bank (CFAB) President Lea Klingert states that a *lack of qualified applicants* is a key hurdle in overcoming the financial barrier to permit and quota ownership in Alaska. Lack of credit, poor credit history, or other legal issues have been identified elsewhere as a particular challenge in rural Alaska.[24] In Bristol Bay, for example, lack of experience with debt, credit and financial management, paired with other financial, cultural, geographic, and language barriers, and the importance of subsistence activities in the mixed economies of rural Alaska are key historical and contemporary considerations in understanding why banks loaning to Alaska fishermen may have a lack of qualified applicants.[25] In part, this lack of credit history has led to some of the following programs.

Alaska Commercial Fishing Loan Program

The *Commercial Fishing Revolving Loan Fund* is administered by the Alaska Division of Economic Development, Department of Commerce, Community, and Economic Development (DCCED). The purpose of the fund is to "promote Alaskan ownership, the development of predominantly resident fisheries, and facilitate the continued maintenance of commercial fishing gear and vessels by providing long-term, low interest loans." In 2016, the loan program was nearly fully utilized with about 90% lent out. DCCED makes approximately 200 loan commitments a year, although this number can vary widely year-to-year. DCCED does not track loans by region or rural residency. Approximately half of all loan borrowers are under the age of 40.[26]

[24] Langdon, S. 1980. Transfer Patterns in Alaskan Limited Entry Fisheries, Final Report for the Limited Entry Study Group of the Alaska State Legislature; Carothers, C. 2010. Tragedy of commodification: Transitions in Alutiiq fishing communities in the Gulf of Alaska. Maritime Studies (MAST) 90(2): 91-115; Knapp, G. 2011. Local Permit Ownership in Alaska Salmon Fisheries. Marine Policy 35:658-666; Apgar-Kurtz, B. 2015. Factors Affecting Local Permit Ownership in Bristol Bay. Marine Policy 56:71-77

[25] Ruby, A. and R. Heyano. 2016. Efforts to Regain Permits: Successes and Challenges in Bristol Bay. In: Fisheries Access for Alaska–Charting the Future: Workshop Proceedings, ed. P. Cullenberg. Alaska Sea Grant, University of Alaska Fairbanks, AK-SG-16-02, Fairbanks. http://doi.org/10.4027/faacfwp.2016, 73-80; Apgar-Kurtz, B. 2015. Factors Affecting Local Permit Ownership in Bristol Bay. Marine Policy 56:71-77

[26] DCCED representative, personal communication, Aug 2, 2016

The fund specifies general requirements. Eligible borrowers must be a resident of Alaska for the past two years, not owe past-due child support, and must be in compliance with IRS filing requirements. Loans may be used to purchase limited entry permits, federal quota share, vessels or gear, or fund vessel upgrades, product quality improvements, engine fuel efficiency improvements, or tax obligations. The program offers a maximum 15-year term with a $400,000 cap on any individual's total loan amount. *www.commerce.alaska.gov/web/ded/FIN/LoanPrograms/CommercialFishingLoanProgram.aspx*

Community Quota Entity Revolving Loan Fund

This fund, also managed by the Alaska DCCED, provides long-term low interest loans to recognized Community Quota Entities (CQEs) for the purchase of halibut and sablefish individual fishing quota (IFQ). The quota is then leased to resident fishermen to provide access to the fisheries. The intent of the CQE program (see below) and the loan fund are to reverse the outmigration of quota from small, rural communities. To date, the CQE Revolving Loan Fund has been underutilized with DCCED making only one loan in the amount of $170,000 (another application is currently pending as of August 2017). The program did not come into effect until IFQs had consolidated and increased dramatically in price making the purchase of IFQs largely out of reach for most CQEs. *www.commerce.alaska.gov/web/ded/FIN/LoanPrograms/CommunityQuotaEntity.aspx*

Commercial Fishing and Agriculture Bank

The Alaska Commercial Fishing and Agriculture Bank (CFAB) is a private, member-owned finance cooperative generally limited to lending to Alaska residents. CFAB is the only private entity in Alaska that can take a lien on a limited entry permit. CFAB was created in the mid-1980s to fill what was at that time a lack of options for financing for the Alaska commercial fishing industry. In addition to direct financing, CFAB offers two options that allow for transitional financing as a means of entry into fishing. *www.cfabalaska.com*

CFAB Participation Loan

A participation loan allows the seller, or someone else such as a family member not involved in the transaction, to participate in the loan. The participant is a co-lender with CFAB. They own a portion of the loan and can thereby set the terms on their portion of the loan. This can be advantageous to both parties as it is assumed that the seller/participant is more familiar with the borrower and will have more knowledge from which to determine the borrower's capacity for the loan. It also can provide the seller/participant with a source of revenue during the transition. CFAB provides documentation expertise, loan servicing, lien perfection/permits, arms-length transaction, and collection of loan payments.

CFAB Vessel Operation Loan Over Time

The existing vessel owner can sell a percentage of the vessel/operation over time to the buyer, such as a crewmember or family member. The incremental purchase can be financed by the bank or paid by the buyer. If financed by the bank, the seller must be agreeable since it is likely the item being purchased will be used as collateral to secure the loan. This can provide tax savings to the seller and a way for the seller to phase out of the business over time. It is also a way for the buyer to phase in a little bit

at a time. It provides the buyer with time to run his/her own operation and develop a track record, which will assist him/her in getting financing down the road. Note that this can be done for the vessel and gear but not for a limited entry permit.

Bristol Bay Economic Development Corporation's Permit Loan Program

The Bristol Bay Economic Development Corporation (BBEDC), the region's CDQ (see below), launched its Permit Loan Program in 2008, with a target goal of returning 7 to 15 permits to residents of the region per year. The program partners with CFAB and the Alaska Division of Economic Development as lenders, and aims to provide eligible Bristol Bay residents with benefits and assistance with purchasing a limited entry salmon permit through a loan.[27]

BBEDC's Permit Loan Program was created to slow and reverse the exodus of salmon limited entry permits from the region by addressing some of the challenges residents face when borrowing money due to limited access to capital, few alternative income sources, and poor or no credit, among others. Program participants must be residents of the region, provide tax returns, have fishing experience and a salmon market, and be without legal issues. BBEDC enhances residents' ability to purchase and successfully operate a commercial salmon fishing business by providing financial and technical services including financial guarantee, down payment grants, interest and sweat equity assistance, principal reduction assistance, technical assistance, and financial training.

To date, BBEDC has assisted 33 regional residents with purchasing a permit and invested roughly $1.7 million in loan guarantees since 2008.[28] The program's success is limited but growing. BBEDC's original goal (set in 2008) of returning at least seven permits per year was ambitious. BBEDC finally reached the goal of returning seven permits in 2013. At the start of 2016, however, there were more than 25 applicants going through the program suggesting increasing success, though challenges remain. Roughly half of the applicants in the program are directed to one of BBEDC's partner organizations for assistance with financial planning or other financial issues that need to be addressed prior to entering the program. *www.bbedc.com*

Alaska Sustainable Fisheries Trust Local Fish Fund

Launched in 2014, the Local Fish Fund was created as a financing mechanism that allows new and young fishermen to mitigate some of the high cost and risk associated with purchasing fishing rights. The program also provides retiring fishermen with a more flexible exit strategy. The broad goals of the fund are: provide a clear path to ownership for independent, entry-level fishermen; provide competitive loan terms; overcome barriers through shared risk and shared gains and provide modest returns while minimizing risk of capital loss.[29] The program connects socially and environmentally conscious investors (i.e., loan participants) who are willing to share the risk with new fishermen that may need assistance with purchasing fishing quota and permits. The Local Fish Fund provides equity arrangements that allow transition from retiring fishermen to new entrants in the fishery. For example, all loan participants share quota share

[27] Ruby, A. and R. Heyano. 2016. Efforts to Regain Permits: Successes and Challenges in Bristol Bay. In: Fisheries Access for Alaska–Charting the Future: Workshop Proceedings, ed. P. Cullenberg. Alaska Sea Grant, University of Alaska Fairbanks, AK-SG-16-02, Fairbanks. http://doi.org/10.4027/faacfwp.2016, pp. 73-80

[28] Ibid.

[29] Behnken, L. 2016. Alaska Sustainable Fisheries Trust Local Fish Fund–Investing in Alaska's Fishing Future. In: Fisheries Access for Alaska–Charting the Future: Workshop Proceedings, ed. P. Cullenberg. Alaska Sea Grant, University of Alaska Fairbanks, AK-SG-16-02, Fairbanks. http://doi.org/10.4027/faacfwp.2016, pp. 127-132.

value gain and annual fishing revenue generated by the quota share. The program also reduces risks associated with standard financing options that require fixed payments (that do not take into account resource and market fluctuations) by basing payments on ex-vessel revenue. Still in its infancy, the Fund has completed two transactions on quota share and another on the transfer of a limited entry permit. *www.thealaskatrust.org*

Alaska Sea Grant FishBiz Project

Alaska Sea Grant Marine Advisory Program agents and the Alaska FishBiz website are resources in the state for fishermen who are interested in getting into fishing, expanding their business or retiring out of their business. FishBiz is a resource portal that includes tools related to starting, managing, diversifying and planning for exit and includes a wide range of tools such as pro-forma templates, information about insurance, taxes, crew payments, and planning for quota or permit sales. In addition, Marine Advisory Program agents are available to individuals for consultation on their business concerns. *http://fishbiz.seagrant.uaf.edu/*

Fishery Management Measures that Support Alaskan and Local Access to Fisheries

Community Development Quota Program

The Western Alaska Community Development Quota (CDQ) program is perhaps the most well-known fisheries access program in Alaska and serves as a global example of how embedding resource wealth and access in communities can support local fishing economies and livelihoods. First implemented in 1992, the CDQ program was created as part of the rationalization of Bering Sea pollock fishery. At the time, the program allocated 7.5% of the pollock resource to western Alaska communities, many of which are economically disadvantaged, geographically isolated and largely Alaska Native. Today the CDQ program has grown to include a 10% allocation of all BSAI quotas for groundfish, halibut, and crab. There are six CDQ groups encompassing 65 villages in western Alaska. CDQ entities use royalties from Bering Sea fisheries to advance regional economic development through investments in local industry, part ownership of offshore vessels, infrastructure and education. In the Pacific halibut fishery, the CDQ program also provides fishing opportunity for CDQ residents who actively fish the CDQ halibut allocation. As discussed here in the context of Bristol Bay and Norton Sound, the CDQ program provides many benefits to eligible communities and residents, one of which is increased access to state fisheries.

Community Quota Entities

The loss of sustained participation by rural fishing-dependent communities in their historic fisheries was a primary motivating factor for the North Pacific Fishery Management Council's development of the Community Quota Entity (CQE) program for halibut and sablefish IFQ fisheries.[30] This program was implemented in 2004 to enable small rural fishing communities in the Gulf of Alaska (and later the Aleutian Islands) to establish nonprofit corporations called CQEs that can purchase and hold halibut and sablefish quota share. CQEs then lease the quota share to local residents to fish. CQEs are now also eligible to receive and purchase charter halibut limited access permits and receive groundfish limited license permits for the Pacific cod fishery.[31]

[30] Fields, D. 2016. CQE Program Description. In: Fisheries Access for Alaska–Charting the Future: Workshop Proceedings, ed. P. Cullenberg. Alaska Sea Grant, University of Alaska Fairbanks, AK-SG-16-02, Fairbanks, http://doi.org/10.4027/faacfwp.2016, pp. 109-112

[31] IFQ program review report. 2016. https://www.npfmc.org/wp-content/PDFdocuments/halibut/IFQProgramReview_417.pdf

As of 2017, over half of eligible communities have formed the necessary nonprofit CQEs, but only three CQEs have purchased quota share (Old Harbor in 2006; Ouzinkie in 2011, and Adak in 2014).[32] The community holdings are very small, less than 0.5% of the total allowable catch for the IFQ fisheries.[33] The program has not yet been successful in bringing back the sustained participation of rural communities in the Gulf of Alaska in these fisheries. Based on a review of the CQE Program in 2010, the Council determined that lack of participation in the CQE Program can be attributed to limited availability of quota share for transfer, increased market prices for halibut and sablefish quota, and limited viable options for financing quota transfer.[34]

Super-Exclusive Status - Examples from Norton Sound King Crab and Togiak Salmon Fisheries

The Norton Sound red king crab fishery was designated as a super-exclusive fishery in 1993 by the Alaska Board of Fisheries to address "conservation, management and allocation concerns of the BSAI crab resources in the face of depressed stocks, increased fleet participation, capitalization and efficiency."[35] Prior to this, a nonlocal, highly capitalized, distant-water fleet dominated the fishery. The Board noted that the National Standards of the MSA were not being met and that the status quo was preventing economic stability to coastal communities and to segments of the industry wishing to concentrate their dependence on the Norton Sound summer red king crab fishery.

The super-exclusive designation, along with support from the local CDQ entity, Norton Sound Economic Development Corporation, has transformed the fishery into a local, small-scale fishery by excluding participants in the Norton Sound fishery from any other federally managed king crab fishery.[36] This change not only created direct employment opportunities for local residents but also contributed to the local economy. For example, in 1992, only one vessel from western Alaska participated in the fishery compared to 39 in 1995. Support industries also developed in the region in response to the localization of the fleet. Today the fishery is 100% harvested (and processed) by residents of the Norton Sound region.[37]

The Togiak District of the Bristol Bay salmon fishery in southwest Alaska, is also a super-exclusive registration area. Permit holders fishing in the other four Bristol Bay salmon fishing districts cannot fish in the Togiak district before July 27. The Togiak district is a small fishery and generally runs are later than other fishing districts in Bristol Bay. The super-exclusive designation has helped enable the local fleet to catch the bulk of the harvest in their home district by limiting the ability of other permit holders to move into Togiak opportunistically. The lower volume in Togiak has enabled increased quality measures enhancing the value to the participants.

32 https://alaskafisheries.noaa.gov/sites/default/files/reports/17cqenamescontacts.htm
33 Ibid.
34 Ibid. The 2010 CQE Program review is available at: http://www.npfmc.org/wpcontent/PDFdocuments/halibut/CQEreport210.pdf; See also: Langdon, S. J. 2008. The Community Quota Program in the Gulf of Alaska: A Vehicle for Alaska Native Village Sustainability? Pp. 155–194 in Enclosing the Fisheries: People, Places, and Power: American Fisheries Society Symposium 68, ed. M. Lowe and C. Carothers. Bethesda, MD: American Fisheries Society; Carothers, C. 2011. Equity and access to fishing Rights: Exploring the Community Quota Program in the Gulf of Alaska. Human Organization 70(3): 713-723.
35 Natcher, B., J. Greenberg, and M. Herrmann. 1999. Impact Analysis of Changes in Fishery Regulations in the Norton Sound Red King Crab Fishery. Arctic 52:1: 33-39.
36 Ibid.
37 Rhodes, T. 2016. The Success Story of the Norton Sound Red King Crab Fishery. In: Fisheries Access for Alaska–Charting the Future: Workshop Proceedings, ed. P. Cullenberg. Alaska Sea Grant, University of Alaska Fairbanks, AK-SG-16-02, Fairbanks, http://doi.org/10.4027/faacfwp.2016, pp. 105-108.

Bering Sea Crab Fisheries: Right Of First Offer for Crew

The 2005 rationalization of Bering Sea crab fisheries resulted in rapid consolidation of the fleet, loss of crew jobs, and rising cost of entry.[38] The crab IFQ program permits quota leasing, allowing individuals who were allocated crab quota (IFQ holders) to remain onshore and lease their quota to working (active) fishermen. The North Pacific Fishery Management Council has raised concerns about active participation, high quota leasing rates, and the impacts of these on crew compensation and upward mobility.[39] In response to these concerns, industry participants established measures in 2012 to support active participation and crew-to-captain transitions in these crab fisheries.

The Right of First Offer program works by breaking quota share into smaller (and thus more affordable) blocks and making it available for crew to purchase prior to coming on the open market. Eligible crewmembers are given priority in purchasing 10% of (nonexempt) quota share on the market as a right of first offer.[40] Crew are typically pre-approved and have 15 days to accept the offer, after which other active fishermen (e.g., captains, vessel owners) receive second priority offer to purchase the remaining 90%. Crew are notified of sale offerings in advance via a website that also facilitates quota sales, tracks transfers, and monitors compliance. The Right of First Offer program serves as a mechanism to support active participation and facilitate upward mobility in crab fisheries, but market challenges, especially low turnover of quota share due to quota prices, remain a factor in the program's impact.[41]

Programs to Support Fishing Experience for Young Alaskans

Limited Entry Educational Permits

Limited Entry Educational permits were created under the Limited Entry system established in 1974. The Commercial Fisheries Entry Commission (CFEC) was given statutory authority to issue educational permits to accredited educational institutions in Alaska, who are training young people at least of middle school age.[42]

Educational permits are an underutilized teaching tool in the state. To date, the CFEC has only issued educational permits to 10 institutions. The Cordova High School is often mentioned as having operated a successful program for a number of years. The program had a classroom component and an at-sea component that placed students on working vessels for the season. Other schools include Akiachak, Dillingham, Togiak, Tuluksak and the Bristol Bay Borough, all of which were issued permits in the late 1980s and early 1990s.

[38] Knapp, G. 2006. Economic Impacts of BSAI Crab Rationalization on Kodiak Fishing Employment and Earnings and Kodiak Businesses. A Preliminary Analysis. ISER Publication, University of Alaska Anchorage. Available at: http://www.iser.uaa.alaska.edu/people/knapp/personal/Knapp_Kodiak_Crab_Rationalization_Preliminary_Report.pdf; Knapp, G. and M. Lowe. 2007. Economic and Social Impacts of BSAI Crab Rationalization on the Communities of King Cove, Akutan and False Pass. Report prepared for Aleutians East Borough, City of King Cove. ISER Publication, University of Alaska Anchorage. Available at: http://www.iser.uaa.alaska.edu/people/knapp/personal/pubs/Knapp_&_Lowe_AEB_Crab_Rationalization_Final_Report_November_2007.pdf

[39] NPFMC. 2015. Workplan for the 10-year review of the Bering Sea / Aleutian Island crab rationalization program. Report to the SSC (April 2015); NPFMC. 2010a. Executive Summary: 5 year review of the crab rationalization program for Bering Sea Aleutian Island crab fisheries, pp. 1-24. December 28, 2010. Available at: http://www.npfmc.org/wp-content/PDFdocuments/catch_shares/Crab/5yearSummaryCrab911.pdf

[40] Examples of exempt transactions include: quota share sales made in connection with a foreclosure or sales made under a court order; direct sales to crew; sales made in connection with sale of a vessel or as part of a BSAI crab fishing business; and sales made between affiliated businesses.

[41] For more information on ROFO program see: http://www.npfmc.org/wp-content/PDFdocuments/catch_shares/Crab/CrabCoops/ACE.pdf; https://www.adn.com/business/article/laine-welch-graying-alaskas-crab-industry/2014/10/20/;

[42] Twomley, B. 2016. Educational Entry Permits and Emergency Transfers. In: Fisheries Access for Alaska–Charting the Future: Workshop Proceedings, ed. P. Cullenberg. Alaska Sea Grant, University of Alaska Fairbanks, AK-SG-16-02, Fairbanks, http://doi.org/10.4027/faacfwp.2016, pp. 93-96

The McCann Treatment Center in Bethel is currently the only institution in the state using an educational permit.[43] The McCann Treatment Center is a 14-bed all-male residential treatment facility for Alaska youth between the ages of 10 and 18. The treatment program focuses on culturally competent services, including traditional subsistence and food gathering activities, and the active participation of a full-time Elder Counselor. As part of this program, students work with two instructors and a skiff to harvest, process and distribute fish to the community. Through the program, students provide fish to local elders, community gatherings, and other local facilities (e.g., adult care homes). Students that participate in these programs can count their participation toward state loan eligibility.[44]

Information about Limited Entry Educational Permits can be found by contacting the Commercial Fisheries Entry Commission. *www.cfec.state.ak.us*

Alaska Young Fishermen's Summit

The Alaska Young Fishermen's Summit is a three-day professional development conference for new entrants in commercial fisheries. Offered by Alaska Sea Grant every two years, the Summit provides three days of intensive training in the complexities of running a fishing operation: marketing, business management, risk management, regulatory processes, and understanding the science impacting fisheries management. The Summit features prominent industry and state leaders as speakers and mentors, and has energized young fishermen to network with peers from throughout the state. Participants practice public speaking, learn about the fisheries regulatory process in Alaska, and collaborate on solutions to issues of importance to their industry. Over 350 young fishermen from 58 different communities across Alaska have attended since 2006. *www.marineadvisory.org/ayfs*

Alaska Young Fishermen's Network

A fairly new initiative is the Alaska Young Fishermen's Network (AYFN), hosted by the Alaska Marine Conservation Council. Founded on principles of mentorship, engagement, stewardship, accountability and community health, the AYFN aims to better support the next generation of Alaska fishermen. The Network strives to create opportunities for young fishermen to develop new skills and connections, build resilient businesses, and actively participate in policy and community decision-making processes. AYFN is in the process of building a statewide steering committee and regional chapters to help guide the activities of this growing effort. *www.akyoungfishermen.org*

Young Fishermen's Development Act

House Resolution 2079, the Young Fishermen's Development Act was modeled after the USDA's Beginning Farmer and Rancher Development Program. The Young Fishermen's Development Act is national legislation that will provide federal funding for training and educational programs for the next generation of commercial fishermen. Currently no such program exists for the commercial fishing industry. The bill was introduced in the House by AK Representative Don Young and MA Representative Seth Mouton in April 2017 and in the Senate by Alaska Senators Sullivan and Murkowski, among others.[45]

[43] This program was last issued an educational permit in 2015.
[44] Ibid.
[45] http://www.akmarine.org/bill-to-establish-national-young-fishermens-program-introduced/

HOW OTHER REGIONS ARE ADDRESSING CHALLENGES TO ENTRY AND RURAL ACCESS IN FISHERIES

Encouraging the next generation of fishermen is not just an Alaskan problem, but a national and global concern as well. Privatization of fishing access has led to a range of programs addressing new entry and rural access concerns in New England, Greenland, Iceland, British Columbia, Norway, among others. Some of the programs or policies discussed below may be adaptable to Alaska.

Iceland

Iceland's individual transferable quota (ITQ) program was first implemented on an experimental basis in the early 1980s, and expanded to most commercial fisheries by 1990. Following this paradigm shift was the loss of locally held fishing rights, and consolidation of quota among few boat owners and corporatized fishing companies.[46]

Community Quota

To address the negative impacts felt by coastal communities as a result of the ITQ program, the Iceland Ministry of Fisheries created a community quota system in 2003 in which fishermen are given shares of quota to be landed in their home port. The total allocation to the community quota program is small; in 2015 it was less than 2% of the cod total allowable catch. Community quota was initially awarded to municipalities to distribute to local fishermen, but later changed to be awarded directly to fishermen through an application process. It is primarily utilized by current fishermen and does not act as a community ownership or new entry program.[47] Icelandic fishing communities are also granted the right of first refusal on the sale of vessels and quota to buyers outside the community. The community may then purchase the vessel and its associated quota at market rates.[48]

Coastal Fishing (Quota-Free Fishery)

In response to a ruling by the United Nations Human Rights Committee that stated the Icelandic ITQ system violated the human right to work, a coastal fishing program was created by the Icelandic government in 2009. The program allows residents of coastal communities in four regions to use up to four jig machines to harvest up to 650 kg of cod, saithe, and rockfish for 14 hours per day, four days per week, May through August, without purchasing ITQs. Approximately 550 to 750 boats participate in this fishery nationwide. Boats are not able to participate in the coastal fishery while fishing ITQs, but some quota owners do participate in this fishery when

[46] Chambers, C. and C. Carothers. 2016. Thirty years after privatization: A survey of Icelandic small-boat fishermen. In press in Marine Policy. 10.1016/j.marpol.2016.02.026

[47] Chambers, C. 2016. Iceland's Experience: Community Quota and Coastal Fishing. . In: Fisheries Access for Alaska–Charting the Future: Workshop Proceedings, ed. P. Cullenberg. Alaska Sea Grant, University of Alaska Fairbanks, AK-SG-16-02, Fairbanks, http://doi.org/10.4027/faacfwp.2016, pp. 141-144

[48] U.S. General Accounting Office Report to Congressional Requesters. February 2004. Individual Fishing Quotas: Methods for Community Protection and New Entry Require Periodic Evaluation. Report number GAO-04-277. Washington, D.C.

not fishing their ITQs (in 2012 Chambers estimated that about 14% of the boats participating in coastal fishing also owned ITQs).[49]

Norway

Norway's coastal fleet has been managed under a quota system since 1990 when an Individual Vessel Quota (IVQ) system was introduced in response to declining cod stocks in the North Atlantic.[50] Since then, Norway has implemented a range of measures designed to ensure fleet diversity and small-scale fishing opportunities, particularly in fishery dependent Sámi communities in northern Norway. Measures include restrictions on quota transferability and leasing, quota set-asides intended for small-scale fishermen and young vessel owners, and special provisions for Sámi regions.[51]

Limits on Transferability

Unlike Iceland, Norway's IVQ system has strict limitations on quota transfers. Norway's coastal fleet was divided into five subgroups based on vessel length in the transition to a quota-based management program. Quota cannot be transferred between subgroups. To prevent geographic concentration of quota, the program also prohibits transferring quota between counties unless the vessel owner moves to a different county. Quota cannot be severed from a vessel (i.e., bought/sold as a separate commodity), and can only be transferred between vessels if the original vessel permanently leaves the fishery.[52]

The system also includes a provision that allows for only 80% of the quota to be transferred. The remaining 20% is redistributed within the vessel subgroup. For example, in 2010, fishery managers created *recruitment quota* to provide greater opportunity for young vessel owners (see below). Quota leasing is also prohibited in Norway's IVQ program. These measures were implemented to ensure fleet diversity, support small-scale fishing operations and prevent some of the well-documented consequences of ITQ systems, including consolidation of quota ownership and wealth, and the rapid rise in quota value that often occurs when fishing rights are treated as an asset.[53]

Recruitment Quota

Recruitment quota was created in Norway in 2010. Young fishermen under the age of 30 can apply for recruitment quota at no cost. Recruitment quota has been issued primarily for cod, haddock, and saithe fisheries north of 62 degrees north latitude, but also some mackerel and herring fisheries. In years past, the amount of quota issued to young fishermen was based on vessel length and the allocation to each subgroup within the coastal fleet. In 2015, quotas were allocated according to the length of the vessel, up to 15 meters. For 2016, recruitment quotas were only allocated according to the amount issued to the small boat group (i.e., vessels up to 11 meters in length), regardless of the boat length of the applicant. Recruitment quota cannot be sold.

Eighty-four young fishermen in Norway received recruitment quota between 2010-2016, and only 2 of these 84 fishermen have left the fisheries.[54] Generally speaking, the program has been well

[49] Chambers, C. 2016. Iceland's Experience: Community Quota and Coastal Fishing. . In: Fisheries Access for Alaska–Charting the Future: Workshop Proceedings, ed. P. Cullenberg. Alaska Sea Grant, University of Alaska Fairbanks, AK-SG-16-02, Fairbanks, http://doi.org/10.4027/faacfwp.2016, pp. 141-144

[50] Norway's coastal fleet was earlier defined as vessels up to 28 meters in length though this was not a definition formally adopted by fishery authorities. The upper limit for the fleet is now redefined as vessels with up to 500 cubic meters of cargo capacity.

[51] Eythorsson, E. 2016. A Milder Version of ITQs? Post-ITQ Provisions in Norway's Fisheries. In: Fisheries Access for Alaska–Charting the Future: Workshop Proceedings, ed. P. Cullenberg. Alaska Sea Grant, University of Alaska Fairbanks, AK-SG-16-02, Fairbanks, http://doi.org/10.4027/faacfwp.2016, pp. 145-148

[52] Ibid.

[53] Ibid.

[54] Eythorsson, E., personal communication, Sept 29, 2016

received by young fishermen wanting to enter the industry. Several fishermen who have received recruitment quota have been able to develop their fishing business with more vessels and more quota, although some have had difficulty financing new vessels since recruitment quota cannot be a part of the collateral for credit.

Open Group Fishery

In addition to the five subgroups noted above, Norway's coastal fleet also includes an 'open group' fishery intended to provide fishing opportunity for small-scale fishermen who did not qualify for an initial allocation of cod quota under the IVQ system. Participants in the open group fishery are restricted to small-scale vessel owners (i.e., vessels under 11 meters in length) who have an annual nonfishing income of less than roughly $40,000 USD.[55]

Provisions to Protect Indigenous Access

There are also special provisions within the open group fishery aimed specifically at improving access for Norway's Indigenous Sámi population. These include an annual set-aside of 3,000 tons of cod quota that is available only to open group fishermen living in Sámi districts. When the Norwegian government created a commercial red king crab fishery in 2002, opportunity within the open group fishery expanded to allow small-scale fishermen living in Sámi districts (e.g., eastern Finnmark) greater access to the resource. Since 2008, these open group fishermen have exclusive access to the fishery through an annual allocation of crab quota.[56] This access is especially noteworthy as these fishermen were originally excluded from the crab fishery because only fishermen that had caught and delivered a certain amount of cod in east Finnmark could apply for a crab fishery license.

This management regime, which favors small-scale fishermen, seems to be the most important reason for the revival of some fjord fisheries since 2010.[57] The Sámi Parliament also played an important role in fisheries governance and establishing protections for small-scale fishermen through political initiatives, such as additional cod quota for small-scale fishermen, and business and financial support. The Sámi Parliament was created in 1989, around the same time as the cod crisis in the North Atlantic. Broderstad and Eythorsson (2014) note that "it is likely that Sámi Parliament involvement, in the form of economic support and engagement in fisheries policies, has played a major role in preventing the complete elimination of small-scale fisheries from these [northern Norway] fjords. Without their involvement, the fisheries in these communities might have passed a political economic tipping point and ceased to exist."

Canada

Atlantic Shrimp Fishery "Adjacent to the Resource" Allocation

The Atlantic Canadian shrimp fishery is an example of how fisheries management can achieve social goals through community allocations and embedding resource rights in rural fishery dependent regions.[58] In the late 1990s, the northern shrimp fishery total allowable catch (TAC) expanded significantly offering new fishing opportunities. Fishery managers and stakeholders identified 'adjacency to the resource' as a

[55] Ibid.
[56] Broderstad, E.G. and E. Eythorsson 2014. Resilient communities? Collapse and recovery of a social-ecological system in Arctic Norway. Ecology and Society 19(3):1. http://dx.doi.org/10.5751/ES-06533-190301
[57] Ibid.
[58] Foley, P., C. Mather and B. Neis. 2015. Governing enclosure for coastal communities: Social embeddedness in a Canadian shrimp fishery. Marine Policy 61: 390-400; Foley, P., C. Mather and B. Neis. 2013. Fisheries Allocation Policies and Regional Development: Successes from the Newfoundland and Labrador Shrimp Fishery. The Harris Centre, Memorial University.

significant principle to help guide decisions in how to equitably allocate the shrimp resource.

Community-based organizations in three remote coastal regions in Newfoundland and Labrador received allocations. Similar to western Alaska's CDQ program, these organizations use their allocated use rights to earn royalties from offshore industrial interests and in turn reinvest royalties to develop an inshore owner-operator fishery, local fish processing capacity, and to diversify local and regional economies.[59] The shrimp allocations played a key role in the economic and social sustainability of these remote coastal places, especially in the wake of devastating groundfish moratoria of the early 1990s.

Prince Edward Island Future Fisher Program

Prince Edward Island's Future Fisher Program provides mentoring and financial support to new entrants in their local lobster fishery. Canada's Department of Agriculture and Fisheries oversees the program. Support consists of mentorship and training opportunities regarding lobster fishery and interest rebates on loans secured to buy a vessel and gear. The loan rebate reduces costs for approved applicants for three consecutive years with a maximum of $3,000 per year ($9,000 in total). Eligible applicants must be at least 18 years old, hold an A class lobster license that was obtained after January 2009, and be a resident of Prince Edward Island. The program aims to support the next generation of fishermen in the region and to provide structural support to enable new entrants to become successful and knowledgeable industry participants.

New Zealand

Annual Catch Entitlement (ACE)

The New Zealand Quota Management System (QMS) was implemented in 1986 to transition from "open season" fisheries to a defined individual transferable quota (ITQ) system with goals to enhance sustainability through conservation of stocks and economic efficiency within the nation's fleets.[60] New Zealand's commercial ITQs come from the overall Total Allowable Commercial Catches (TACCs), which is determined by the Total Allowable Catch (TAC) that provides allowances for customary, recreational and fishing-related mortality allocations. Quota may be owned by fishermen, processors, investors, and others.[61] Though the QMS implementation resulted in decreased commercial participation by part-time fishermen, there has since been additional programs and overall extensive systematic modifications.[62]

Implemented in 2001, annual catch entitlements (ACE) represent a tool aimed to separate long-term ownership of fisheries from annual harvesting rights.[63] ACE is calculated based on the TACC and annually quota holders receive their amount based on their percentage holdings.[64] In an effort to move from criminal offenses to economic incentives commercial fishermen must limit their harvests to ACE holdings and must purchase additional ACE from other holders if harvests exceed initial ACE or they face paying the deemed value of any excess catch.[65] Some entities hold ACE without fishing intent, but rather to provide it for sale for those needing to balance actual harvests against their own ACE limits. Quota owners may harvest,

[59] Ibid.
[60] Stewart, J., and P. Callagher. 2011. "Quota Concentration in the New Zealand Fishery: Annual Catch Entitlement and the Small Fisher." Marine Policy 3 (5):631–646.
[61] Ibid.
[62] McCormack, F. 2012. The Reconstitution of Property Relations in New Zealand Fisheries. Anthropologica Quarterly, 85(1), 171-201.
[63] Ibid.
[64] Dewees, C. 1998. Effects of Individual Quota Systems on New Zealand and British Columbia Fisheries. Ecological Applications 8(1):133-S138.
[65] Soboil, M.L., & Craig A. 2008. Self governance in New Zealand's developmental fisheries: deep sea crabs. In: Townsend R, Shotton R, Uchida H, editors. FAO Fisheries Technical Paper 504: case studies in fisheries self-governance. Rome: FAO

trade or sell their quota and are also able to sell their current ACE without relinquishing long-term ownership. The ACE system therefore enables nonquota owning fishermen to acquire short-term rights to harvest.[66] Though the ITQ system has resulted in consolidated ownership of deep-water species quota and overall ACE, the ACE system appears to be a driving factor in the increased participation of small-scale fishing operations operating within inshore fisheries.[67]

US Outside of Alaska

The Cape Cod Fishery Trust

Fishery trusts are another mechanism that have emerged in response to the social and economic consequences of privatizing access to fisheries. Fishery trusts aim to anchor access to communities or regions and provide entry opportunities for fishermen through affordable lease rates.

The Cape Cod Fisheries Trust (CCFT) was created through a partnership between the Cape Cod Commercial Fishermen's Alliance and the Community Development Partnership following a shift in management of the scallop and groundfish fisheries to a form of catch shares. The Community Development Partnership works to help (fishing) businesses with financial management. As a team, the two entities operate the trust and deliver a suite of financial services and economic development initiatives to support local fishermen.

CCFT started buying quota from retiring fishermen in 2008 in order to lease it to resident fishermen at a reduced rate, typically at 50% of the market value. CCFT now owns more than six million pounds of quota in scallop, surf clam and groundfish fisheries. The trust also offers business planning and technical assistance to fishermen who want to buy quota to help them build more successful businesses. The aim is for fishermen to become self-sufficient so that over time the trust will hold less quota as individual fishermen are better situated to purchase fishing rights and grow their business independently. More than a dozen trusts have emerged in recent years in response to catch share programs, including trusts operated by the Gloucester Fishing Community Association, Gulf of Mexico Reef Fish Shareholders' Alliance, and the Morro Bay Community Quota Fund. *https://ccft.fishhub.org/*

Maine Lobster Programs

Lobster makes up close to 74% of commercial fisheries landings in Maine, with a harvest of 130 million pounds and an ex-vessel value of $533 million in 2016. The Maine lobster industry is conducted by owner-operator, mostly day-boat operations. There are about 5,000 license holders. It is a year-round fishery but about 80% of landings are between July and November.[68] Maine began limiting entry into the fishery in 1997. Since then, all participants have to have held a license in the prior calendar year, or qualify through the student or apprenticeship programs. Lobster licenses are nontransferable (i.e., they cannot be leased, sold, transferred or gifted).

The Maine coastline is divided into seven Lobster Management Zones that are managed by geographic governance committees called Zone Councils. Zones may be "open" or "closed." Currently, only one zone is open (Zone C). For closed zones, entry is based on an exit-to-entry

[66] McCormack, F. 2017. Sustainability in New Zealand's Quota Management System: A Convenient Story. Marine Policy, 80, 35-46.
[67] Stewart, J., and P. Callagher. 2011. "Quota Concentration in the New Zealand Fishery: Annual Catch Entitlement and the Small Fisher." Marine Policy 3 (5):631–646.
[68] Gilbert, D. 2016. Maine's Lobster Licensing Program. In: Fisheries Access for Alaska–Charting the Future: Workshop Proceedings, ed. P. Cullenberg. Alaska Sea Grant, University of Alaska Fairbanks, AK-SG-16-02, Fairbanks, http://doi.org/10.4027/faacfwp.2016, pp. 139-140

ratio of 3:1 or 5:1. In addition to recommending exit-to-entry ratios for their zone, Zone Councils have the authority to vote on some management issues, such as trap limits and fishing days and times.

Island Limited Entry

The Maine Island Limited Entry Lobster program is an island specific entry program that was designed to maintain a number of local lobster licenses appropriate for the needs of Maine's island communities and the local lobster resource. Island residency is a requirement to hold a license.[69] The program gives islands the authority to develop their own entry program independent of the exit-to-entry ratio in their zone. It grants islands their own fishing territory (out to 3 miles) within each zone. The program also operates on an extended season and island licenses are subject to a lower trap limit (400 compared to 800 traps for a full commercial license). Five of Maine's 13 year-round island communities are currently in the Island Limited Entry Program (one is in the process of exiting).[70] Island lobster license holders may vote for their island to be part of the Island Limited Entry Program, and a two-thirds vote in favor is required. The number of new island licenses each year uses a 1:1 exit-to-entry ratio.
www.maine.gov/dmr/scienceresearch/species/lobster/limitedentry.html

Lobster Student Licensing and Apprenticeship Programs

The Lobster Apprenticeship Program is one of the only ways that new lobster fishermen can enter the fishery in Maine. The apprenticeship program was created at the same time as Lobster Limited Entry, because the industry wanted to preserve the traditional method of access for young people growing up on the coast of Maine. To become a lobsterman, a person must complete the apprenticeship program that includes fishing 200 days and/or 1,000 hours over a minimum of two years. Passing boating safety training is mandatory.

An apprentice can have up to three sponsors. A sponsor must have held a license for a minimum of five years. Apprentices do not fish their own traps; instead they ask their captain to participate in the apprenticeship and then start logging hours. Apprentices enroll with the state (the state funds the program and confirms hours). The apprenticeship program was initially associated with an educational program that included educational units on safety, rules and regulations, civic process and ecology. The legislature chose not to fund the educational component. An apprentice must have their log signed by a sponsor and local Marine Patrol Officer, and submit them every 250 hours, within 30 days of the last day logged. The program works well in the open zone (Zone C) but not in closed zones, as people are put on waiting lists for up to six years to enter into the fishery as a full license holder.
www.maine.gov/dmr/scienceresearch/species/lobster/documents/ApprenticeBrochureApril2012WEB.pdf

To qualify for a student license, an individual must be a full-time student and between the ages of 8 and 22. Students can fish up to 150 traps and must log 1,000 hours onboard by their 18th birthday (or 22nd if attending college). If students complete the program prior to their 18th or 22nd birthday, their entry into the zone is not dependent on retiring trap tags (like nonstudent apprentices) Said differently, student license holders are exempt from waiting lists. (Their move to a full license holder is not counted against those on

[69] Fishermen must live and fish from the island for a minimum of eight years before being able to take the license off the island.
[70] Gilbert, D. 2016. Maine's Lobster Licensing Program. In: Fisheries Access for Alaska–Charting the Future: Workshop Proceedings, ed. P. Cullenberg. Alaska Sea Grant, University of Alaska Fairbanks, AK-SG-16-02, Fairbanks, http://doi.org/10.4027/faacfwp.2016, pp. 139-140

the waiting list). Between 2001 and 2011, a total of 847 new lobster licenses have been issued. Of those, roughly half were issued to students. There is strong support for the student license program and the role it plays in communities, but issues of fairness and excessive wait times have compelled the Maine legislature to revisit these programs to address shortcomings and inequities.[71] There are also concerns that some students under 18 have left high school early to allow them to put in enough time to earn a commercial license under the student provision.[72]

Eastern Maine Skippers Program

The Eastern Maine Skippers Program (EMSP) was created in 2012 through collaboration between the nonprofit the Penobscot East Resource Center (PERC) and the Deer Isle Stonington High School. Recently PERC announced that it changed its name to Maine Center for Coastal Fisheries and today the program's approach focuses on collaboration with eight fishing community high schools along Maine's coast. This regional program aims to prepare students and young prospective commercial fishermen through trainings that provide the needed skills to become successful fishermen. Students in the program learn from local fishermen, teachers and community leaders in the classroom and on the water. Fisheries curriculum covers a broad topical range including fisheries governance, business planning, public speaking and maritime safety. The program strives to produce graduates who are prepared to become flexible, skilled and knowledgeable commercial fishermen who have attained leadership skills and industry expertise in order to serve as advocates for their fisheries and communities.

www.coastalfisheries.org/programs/eastern-maine-skippers-program/

[71] http://www.maine.gov/dmr/science-research/species/lobster/eligibility.html
[72] Ibid.

Alaska's Fishing Future: Recommendations

The participation in commercial fisheries by coastal Alaskans, now and in the future, is fundamental to the ongoing health of the state's fishing communities, economies and cultures.

Ongoing programs in our state to maintain the next generation of Alaskan fishermen include financing opportunities, regional management efforts in some areas, and few structured opportunities for exposure to the industry. However, given the continuing trend of an aging fleet and decline in locally held permits, Alaska's programs and tools are not successfully addressing the graying of the fleet and loss of rural access.

Interviews with community members and young fishermen for the Graying of the Fleet research project and our review of global efforts point to potential solutions to consider. Below, we discuss five recommendations that could contribute to reversing the trend of the graying of the fleet in Alaska. They include:

1. Explore supplemental forms of access to commercial fishing that are not market-based to facilitate new entry and provide diversification opportunities.
2. Establish youth permits or student licenses and mentorship or apprenticeship programs to provide young people with exposure to and experience in fishing that provide a pathway to ownership.
3. Develop mechanisms to protect and diversify community-based fishing access, including provisions to protect local access and wider use of super-exclusive registration in state fisheries.
4. Support local infrastructure to maintain local fisheries.
5. Establish a statewide Fishing Access for Alaskans Task Force to review and consider collaborative solutions to reverse the trend of the graying fleet and loss of fishing access in rural Alaska.

Recommendations:

RECOMMENDATION ONE

Explore supplemental forms of access to commercial fishing that are not market-based to facilitate new entry and provide diversification opportunities.

Some fishermen and community members highlighted the need to create an access opportunity for new entrants that did not involve purchase on the open market – examples elsewhere include Norway's recruitment quota, Maine's lobster apprenticeship/license program, or leased access through the Cape Cod Fisheries Trust. Diversification challenges for current young fishermen were also repeatedly mentioned, particularly in the Kodiak region. Though some youth are bucking the trend and obtaining salmon limited entry permits, many noted that today fishermen cannot survive off of one fishery and that access to multiple fisheries throughout the year to maintain successful businesses and remain in fishing communities.

Elders interviewed also discussed the idea of an elder-youth permit. This would protect elders from needing to fully sign away permits to the next generation when there may be concerns about youth readiness. Family trusts were also mentioned. Trusts would allow family members to be cosigners and share ownership until the younger generation is ready. Contracts or sweat-equity arrangements were also identified as a possible way to bind captains and crew together in a plan for transfer of ownership. This would require some sort of mechanism to transfer less than 100% of fishing rights.

"Right now, three of my grandkids, they really want to go out and participate in the fishery, but they can't without a permit." *Bristol Bay fisherman, May 2015*

"[You] better have understanding parents or a really friendly uncle willing to loan you enough money to do it. There's no really realistic way for anybody of any age that you would even consider young, to own enough collateral for a bank to consider giving them such a high-risk loan… At one point in time it was pretty much anybody that [had] a skiff and wanted to go fishing could. And now regulations changed so much that there's not really any point, unless you happen to have an extra half a million dollars kicking around." *Kodiak region fisherman, February 2015*

"IFQs have priced themselves out of people's reach and there's so much uncertainty about payoff. Derby days are done; now it's more of a business decision to fish." *Kodiak region community member, June 2014*

"I would like to see some sort of halibut or black cod, some of these IFQ fisheries, I would like to see a portion of that fishery that is in some sort of community pool, some way that you can access that fish in a way that makes it profitable. So that people could diversify more, we're having trouble finding fisheries to diversify in. If guys could just access some halibut without financially impaling themselves I think that would be great, because you could do it on a real small scale and with a very minimal investment. Operationally you can be very profitable at it, but not if you have to lease your rights or buy your rights. There's really no way for small-scale fishermen to make a profit at it." *Kodiak region fisherman, May 2014*

"I think we need to come up with a different type of program that individuals cannot sell a permit–they get to use a permit, pay a tax to the state to use it, and when they're done using it, it goes back to the state, and somebody else in the region gets to use it." *Bristol Bay fisherman, February 2016*

RECOMMENDATION TWO

Establish youth permits or student licenses and mentorship or apprenticeship programs to provide young people with exposure to and experience in fishing and a pathway to ownership.

Study participants highlighted the need for education and exposure to the fishing industry through educational and mentorship programs. Many highlighted the need for these types of programs to focus on youth as young as middle-school age to ensure that young people today perceive opportunity in the industry. Some of the programs reviewed here were linked to regulatory changes, for example an apprenticeship program linked to a youth permit, while others were linked to mandatory financial training. These types of educational opportunities were discussed as fundamental to (re)generating interest, work ethic and appreciation for the fishing lifestyle, resource and livelihood. Examples suggested by project participants include: creating a mentorship program that would track and support a cohort of local youth through a multi-year process; developing an educational program on how to operate a successful operation; developing a program where recruiters visit local high schools and help connect interested crew with high quality captains; and creating local or regional versions or chapters of the Alaska Young Fishermen's Summit to provide targeted and fishery specific training and knowledge.

"The most important thing a young person interested in fishing can do is seek out a mentor–

someone who has been in the industry for a substantial period of time. Availing yourself of that experience is priceless. The best thing a person can do before they talk to a lender is to have a good perspective on the particular fishery they want to engage in. The State of Alaska publishes permit values, quartile tables showing how much you can expect to make, and brokers websites can give you the average price of a vessel. Once you know the potential income, cost, and guidance from your mentor on potential expenses, you are ready to begin a conversation with a lender. If your lender is the State, you can contact us anytime during the process and we will work with you." *Jim Andersen, Loan Manager, Department of Commerce, Community and Economic Development*

Suggestions for educating the next generation were broad based including not only the practical fishing skills and related business and financial knowledge, but also the need for cultural messaging and incorporating fishing concepts into curriculum (i.e., culturally relevant curriculum, math in cultural context, etc.).

Both Maine and Prince Edward Island in Canada use education and training as a state-run link to incentivize new entry. Considering creative ways to use the state's established Educational Limited Entry Permit system as a possible means to incentivize education as well as mentors might be a useful pathway for Alaska.

"You don't see the younger kids as much anymore. All of me and my buddies, [in] high school, we always–even starting in junior high–almost all my buddies, we had fishing jobs. And now as a captain (besides some of the owners that have their sons), you don't see a lot of 14-, 15-, 16-year-old crewmembers anymore. And I think that some of that is probably with the school systems and some of that is lack of desire from the kids, too. All of us were driving new pickups and had our spending money but it was because like I said, most of the families, somebody in the families were fishing. It was pretty commonplace." *Kodiak region fisherman, September 2014*

"A lot of kids in the village here, they're not experienced. I mean, they didn't grow up fishing like I did and so you get to be, you know, 16, 18 years old and you have no experience." *Bristol Bay fisherman, February 2015*

"Making sure people know about opportunity and have support all the way through. I think some sort of financial counseling would be great. Because my first year when I had to write a huge check to the IRS, that hurt. I don't think I had any idea how much of our income goes to self-employment tax and all of that. So that would have been really nice to know beforehand. Yeah, I think probably just financial counseling. And maybe creating a business plan." *Bristol Bay fisherman, April 2015*

"In terms of advancing between crew and owner-operator and captain I think it's kinda hard now because boats are worth so much and there's all these liability issues with leasing out boats. People used to be crewmembers and find a boat to lease and they'd do that for a few years and they'd buy their own boat or something like that. I think that intermediate step doesn't really exist anymore. So either you're a crewmember or you take this major financial leap to buying your own boat." *Kodiak region fisherman, May 2014*

RECOMMENDATION THREE

Develop mechanisms to protect and diversify community-based fishing access, including provisions to protect local access and wider use of super-exclusive registration in state fisheries.

Alternately, fishing access could be anchored to a region or community, like Norway's district quotas or Canada's Atlantic shrimp fishery embedded allocation. The purpose of these programs is to create fishing access that cannot migrate or be sold away from a fishery dependent community.

Super-exclusive registration in the state serves to create a single zone for fisheries, and has shown to "localize" fisheries facing pressure from more diversified fishermen. In effect, this method, used by the Alaska Board of Fisheries, has resulted in fisheries operated primarily by local residents, resulting in a decline in the trend of less local participation. Langdon (2015) further highlights concrete possibilities for creating local, community-based fishing opportunities in the context of utilizing 'forgone harvests' (biologically available surplus fish and shellfish that are not harvested for a variety of reasons).[73]

Other ideas proposed by project participants included amending or replicating the Capital Construction Fund to apply to crewmembers by allowing crew (versus only permit holders) to save tax-free earnings from fishing in an account that could be put toward the purchase of vessel. There are currently very few if any programs that provide incentives to crew to buy into a fishery. Individual Development Funds were also discussed in this context.

At the time of writing, there is a proposed HB 188 in the Alaska State Legislature that would create regional fisheries trusts in some state fisheries. The trust would lease access to local residents who may be deterred by the high price of entry. Whether this and other options are compatible with Alaska's state constitution will need to be explored in development of each program.

"I don't think they should have taken [fishing access] away from these coastal communities, cause that's the one thing we do, is fishing. Like Old Harbor had 400 people that lived here, right now I don't think we have 150 people, cause there's no way to make any money. Cause the fisheries have been taken away from us. And our kids are going to school and a lot of people are moving out cause there's no jobs, so we're losing all our people. They should be able to go harvest what they want, and go sell them and survive. People just want to survive. They're happy if they make enough money to survive through the winter and it's sad." *Kodiak region fisherman, May 2015*

"With halibut, if you buy quota, basically quota is priced according to the most efficient harvesters and their returns. So unless you're going to make a major investment where you can get that same return, it doesn't make sense to buy it. You're basically buying an overvalued asset. It doesn't really work on the small-scale anymore." *Kodiak region fisherman, May 2014*

RECOMMENDATION FOUR

Support local infrastructure to maintain local fisheries.

Another salient theme to emerge from this study is the need to support local infrastructure in Alaska fishing communities that benefits fishermen, processors and local businesses. Seafood processors play a critical role in coastal Alaska, providing a market for fish, employment and capital for growth and investment. Local government's support of infrastructure such as cold storages and industrial parks that house welders, mechanics, boat builders, and other services were frequently mentioned as critical to thriving local and regional fishing economies. These types of services were described as

[73] Langdon, S. 2015. Foregone harvests and neoliberal policies: Creating opportunities for rural, small-scale, community-based fisheries in southern Alaskan coastal villages. Marine Policy 61:347-355.

a means to increase the value of fisheries through extending fishing seasons and seafood processing employment, and providing for offseason employment opportunities through services frequently offered only seasonally.

"I think that it'd be really cool to get a little cannery here again. Just do the CQE (community quota entity) program, the halibut that the city has here. They can process their halibut here and get that shipped out. That'd be really good money, do like halibut and cod. That would create jobs around here. People would be able to use their skiffs to go cod jigging and they'd create some jobs for people to work in the processing plant." *Kodiak region fisherman, May 2015*

"I think it would be nice to have a town-owned cold storage." *Kodiak region fisherman, May 2014*

"There's opportunity for growth in the direct marketing realm but one of the limitations in Kodiak is the market. People can get traction and go fishing so there's lots of young energy to capture, but the power of processors is limiting. Other places have had cooperative cold storage – have to do these infrastructure things to support young fishermen and their ideas." *Kodiak region community member, June 2014*

"I'd like to see a fisherman owned co-op that owns cold storage. I'd like to see a lot more small mom and pop operations and I'd like to see more marketability. I think it's sustainable for a lot longer, I think it makes ex-vessel value go up tremendously." *Kodiak region fisherman, February 2015*

"This is a fishing town but [it has] no public cold storage or crane, [there's a] lack of public infrastructure." *Kodiak region fisherman, May 2015*

"There are seasonal employment opportunities, but I think those should actually be expanded to year-round. We have this huge influx of people who come in to do the mechanicing, the welding, the fiberglassing, the net hanging–you name it. But I think that if we were smart, we'd set those up to be year-round occupations out here. Where a person could make a decent living doing any one of those things, and instead of cramming four months of sixteen, eighteen hour days in–spend all winter doing eight hours a day doing welding and come home to your family and get a good paycheck." *Bristol Bay region fisherman, March 2015*

RECOMMENDATION FIVE

Establish a statewide Fishing Access for Alaskans Task Force to review and consider collaborative solutions to reverse the trend of the graying fleet and loss of fishing access in rural Alaska.

We recommend that a statewide Fishing Access for Alaskans Task Force be established to take steps toward implementation of the priorities identified in the Governor's 2014 transition report on fisheries[74] and focus in more detail on the multifaceted problem of fisheries access and develop potential and appropriate solutions. Similar to the current Mariculture Task Force, this could be established by Administrative Order with a zero fiscal note. By seeking out qualified Alaskans to identify, understand and creatively pursue specific solutions, Alaska has the opportunity to provide pathways to entry for the next generation of commercial fishermen and slow or reverse the loss of fishing opportunities and benefits from coastal Alaska.

[74] https://gov.alaska.gov/administration-focus/transition-2014/

Conclusion

The *Graying of the Fleet* research project has outlined the problems of access facing fishing communities and the next generation of Alaska's fishermen. The average age of fishing permit and quota holders is growing statewide. Fishing permits and quota are leaving coastal communities, which reduces opportunities for youth to enter the fisheries. This loss of opportunity for residents in communities with few alternative employment options, as well as the need for fishing income to support subsistence activities has grave implications for the future of these communities.

The reasons for the growing age of Alaska fishermen are complex and differ by fishery. Similarly, the means to turn this trend around are complex and involve legal, financial, regulatory and community analysis. Our research findings paired with a review of current in-state programs suggest that these are largely peripheral fixes contributing to small improvements in the crisis in access affecting Alaska fisheries.

In January 2016, Alaska Sea Grant with a number of partners from around the state convened a workshop titled "Fishing Access for Alaska, Charting the Future." Over 100 Alaskans attended from across the state and spent two days discussing the issue. At the end of the workshop, discussion groups contributed to answering the question "what will success look like?" Their visions of the future included:

- *Coastal Alaska has thriving, stable, inter-generational participation in local fisheries. Communities can support fishing businesses with infrastructure and amenities that make people want to stay.*

- *Growth in number of fishermen and vessels residing in coastal communities. Permits and quota increasingly held by residents of local communities.*

- *Clear processes for young people to enter fisheries into ownership-level careers and clear provisions for transition of those retiring from the fishery.*

Our research and review of programs and policies implemented in other fishing regions around the world experiencing similar challenges suggests that success will require creative diligence to turn the tide on fishing access in Alaska. The programs reviewed here have helped to bolster local fishing economies and support new and rural fishermen in overcoming the sometimes impassable barriers to entry into commercial fisheries. Today they are equally fundamental to the health of Alaska fishing communities and serve as potential pathways forward in helping recreate local fishing opportunities and recapture some of the benefits currently leaving Alaska in the form of fishing rights, income and livelihood. Much is at stake in the succession on access rights in Alaska fisheries. As one project participant explained,

> "[Fishing is a] part of who we are… I would like to see opportunity for that… just being involved in that cycle. It gives people something to look forward to in the summertime. You're part of something a lot bigger, –you know, you go down and work hard, you may not make all of your money in the year, but it's self-sufficiency and reliance… I would like to see an opportunity for that –because it's such a big part of our history and our culture, I think it's part of who we are and I think it gives people a sense of identity. If kids don't have the opportunity to at least try fishing and experience [fishing], then either our identity is changing or we're losing it." *Bristol Bay region fisherman, March 2015*

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