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COASTAL CULTURES RESEARCH

RIGHTING THE SHIP

Restoring Local Fishing Access and Opportunity in Bristol Bay Salmon Fisheries


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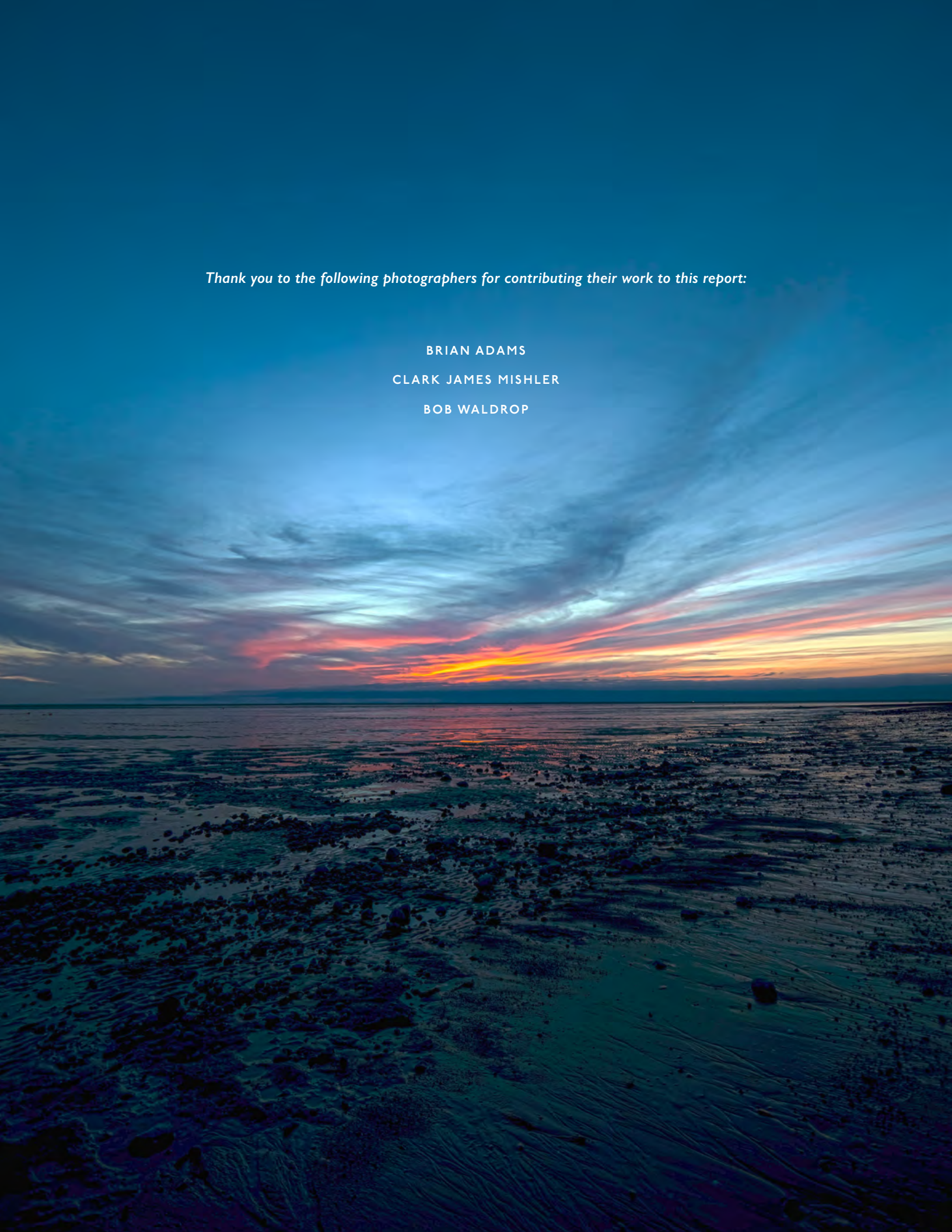

Thank you to the following photographers for contributing their work to this report:

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The Nature Conservancy's vision for Bristol Bay is a flourishing regional economy built on the protection and sustainable use of the region's most renewable resource: salmon. Our vision directly aligns with the Bristol Bay Vision Statement: "We welcome sustainable economic development that advances the values of Bristol Bay people. Our future includes diverse economic opportunities in businesses and industries based largely on renewable resources." To advance this vision, TNC prioritizes collaboration and science to protect the Bristol Bay watershed and build a resilient, sustainable, diverse economy based on equitable access to commercial fishing opportunities and conservation of Bristol Bay's critical ecosystem.

ACKNOWLEDGEMENTS

This report is the most recent in a long history of reports on the subject of limited entry's impact on rural and Alaska Native fishing communities and livelihoods. With hope, the next one destined to tackle this topic will bring promising news of a solution or set of solutions that works for the people of Bristol Bay. A number of people shared input and thoughtful guidance over the course of writing this report. A sincere thanks to Paula Cullenberg, Reid Magdanz, Gunnar Knapp, Terry Gardiner, Bob Waldrop, Norm Van Vactor, Steve Langdon, Jesse Coleman, Danielle Ringer, Andria Agli, and Justin Larkin, along with others, for their time and respective contributions to finding a way forward. Several residents of the Bristol Bay region, especially regional advisors who guide TNC's broader work in Bristol Bay, have also graciously supported and improved this work. Recognizing that all errors are my own, it's been an honor.

EXECUTIVE SUMMARY

A large scientific literature, spanning decades, describes the ways in which Alaska's Limited Entry System disproportionately disadvantages rural and Alaska Native fishing families and communities (Apgar-Kurtz 2015; Carothers 2010; Coleman 2020; Cullenberg et al. 2017; Donkersloot et al. 2020a; Kamali 1984; Koslow 1986; Langdon 1980, 1982, 2016; Meredith 2018; Petterson 1983; Reedy 2008, 2009, 2010).

A good portion of this research focuses on the Bristol Bay region in southwest Alaska. This region has experienced a 50% decline in local permit holdings, and in the number of permit holders under the age of 40, since the State of Alaska began limited entry into commercial salmon fisheries in 1975 (Donkersloot and Carothers 2016). More broadly, statewide rural local permit holdings have experienced a net loss of -2,459 permits since 1975, while urban and nonresident permit holdings have experienced net gains (Gho et al. 2019). These shifts in who has access to Alaska's commercial fisheries represent a yet-to-be fixed policy failure of the State. Until policy is fixed, an enormous economic loss to rural regions and the State will continue. In recent decades, the effect on the lives of Alaska Native people and their communities has been significant given the primary role that local permit holders play in providing direct and indirect benefits to their local economies (Watson et al. 2021).

This report presents policy options for sustaining rural fishery participation and strengthening Alaska rural economies that have been disenfranchised under the current limited entry system. It plots a general course forward to support the Bristol Bay region and the State in advancing carefully tailored solutions to one of Alaska's longest standing resource problems. Specific consideration of Bristol Bay is motivated by the fact that, perhaps more than any other region, Bristol Bay is the site of considerable efforts aimed at correcting shortcomings of the limited entry system. To date, these efforts have resulted in limited success. Recent regulation changes in Bristol Bay salmon fisheries have resulted in unintended and detrimental consequences. Loan programs have fallen short in shoring up village livelihoods and economies. As such, the region offers insights into what measures might work and which might continue to fall short in the realm of improving rural fisheries access in Alaska.

Specifically, this paper summarizes and explains: 1) why and how Alaska's Limited Entry Program disproportionately negatively impacts rural and Alaska Native fishing communities; 2) why previous efforts to address this issue have been insufficient, including legal, political, economic, and cultural challenges; and 3) the rationale, legal contexts, and potential framework for solutions to move forward. Policy options presented here provide supplemental forms of access and help to prevent fishing opportunity from migrating or being sold away from fishing communities over time. Potential solutions include fishery trusts, apprentice permits, small-scale access provisions, and a new class of locally designated permits. These provisions align with recommendation #1 from the ***Turning the Tide*** report: ***Explore supplemental forms of access to commercial fishing that are not market-based to facilitate new entry and provide diversification opportunities*** (Cullenberg et al. 2017). Court rulings and key legal considerations that frequently come into play when attempting to introduce policy measures designed to better serve rural fishermen and communities are also reviewed.

A host of financial and economic inequities have been documented as germane to how Limited Entry continues to disproportionately negatively impact rural and Alaska Native fishing communities. These include limited access to financing for permit purchases; a lack of earnings, credit, and credit history; higher borrowing costs; lower personal wealth; limited experience with debt, credit, and financial management; and limited access to and knowledge of capital markets and financing options (Cullenberg et al. 2017; Knapp 2011). These inequities bookend the community sustainability crises playing out in rural Alaska. On the one hand, rural fishermen face greater obstacles when attempting to buy into fisheries managed under transferable access rights (due to lack of access to capital, credit, etc.). On the other, ***they face greater pressure to sell*** (Meredith 2018). This pressure stems from limited forms of household financial wealth in villages. In times of crisis, households are faced with difficult decisions which weigh immediate cash needs against continued fishery participation. These scenarios are especially detrimental to the long-term sustainability of village economies because fisheries often represent the primary private source of cash employment and income (Knapp 2014). Such stark differences in financial circumstance reinvigorate initial concerns that the creation of a freely transferable system which treats fishing rights as a fully alienable, individualized commodity is ill-suited to meet the policy objective of supporting rural fishery participation.

Local vessels participating in Bristol Bay salmon fisheries also tend to be smaller-scale and less capitalized than nonlocal vessels. Nonlocal and nonresident vessels consistently outpace local vessels in harvest levels, vessel earnings, vessel size/value/capacity/technology (e.g., fuel and refrigeration capacity), and vessel age (Gho 2020; Knapp 2014). Overall, local fishermen invest in, profit from, and fish differently than nonlocal fishermen. These differences signify a potential need for small-scale access

solutions that can better serve local permit holders who earn significantly less from fishing than nonlocals but are more dependent on the fishery for their cash incomes (Koslow 1986; Kamali 1984; see also Langdon 1981). The commercial salmon fishery represents the primary private source of cash employment in the region's mixed cash-subsistence economy, even while Bristol Bay residents have the lowest average earnings per permit fished (Knapp 2014:121).

More broadly, the value of Bristol Bay salmon fisheries is leaving the State. In 2017, nonresidents of the State took home 62% of gross earnings from the drift fishery, and 40% from the setnet fishery (Gho 2018). This is especially problematic because where permit holders live matters most when it comes to how and where fishing dollars circulate and multiply (Waston et al. 2021). Watson et al. (2021:20) note that "each dollar increase of resident catch results in an increase of 1.54 dollars of annual gross income for the community, [and that the] primary channel through which spillover effects take place" is the residence of permit holders versus where fish are delivered or landed.

For more than 45 years, the State has neglected to advance workable solutions to prevent and restore lost fisheries access in rural fishing communities. These locales are highly dependent on fisheries for employment, income, and cultural identity. Other economic opportunities are very limited. Bristol Bay is home to the largest and most valuable wild salmon fishery on the planet, yet local communities are unable to gain meaningful access to it. This is a tragedy and it is the result of poor public policy. New and narrowly tailored solutions are greatly needed to restore and sustain viable rural and small-scale fishing ways of life that underpin healthy rural communities.

This report presents policy options for sustaining rural fishery participation and strengthening Alaska rural economies that have been disenfranchised under the current limited entry system. It plots a general course forward to support the Bristol Bay region and the State in advancing carefully tailored solutions to one of Alaska's longest standing resource problems.

A large scientific literature, spanning decades, describes the ways in which Alaska's Limited Entry System disproportionately disadvantages rural and Alaska Native fishing families and communities (see Apgar-Kurtz 2015; Carothers 2010; Coleman 2019; Cullenberg et al. 2017; Donkersloot et al. 2020a; Kamali 1984; Koslow 1986; Langdon 1980, 1985, 2016; Meredith 2018; Petterson 1983; Reedy 2007, 2008, 2010).

A good portion of this research focuses on the Bristol Bay region in southwest Alaska. This region has experienced a 50% decline in local permit holdings, and in permit holders under the age of 40, since the State of Alaska began limiting entry into commercial salmon fisheries in 1975 (Donkersloot and Carothers 2016). More broadly, statewide rural local permit holdings have experienced a net loss of -2,459 permits since 1975, while urban and nonresident permit holdings have experienced net gains (Gho et al. 2019; see also Table 1). These shifts in who has access to Alaska's commercial fisheries represent a yet-to-be fixed policy failure of the State, and an enormous economic loss to rural regions and the State given the primary role that local permit holders play in providing direct and indirect benefits to their local economies (Watson et al. 2021).

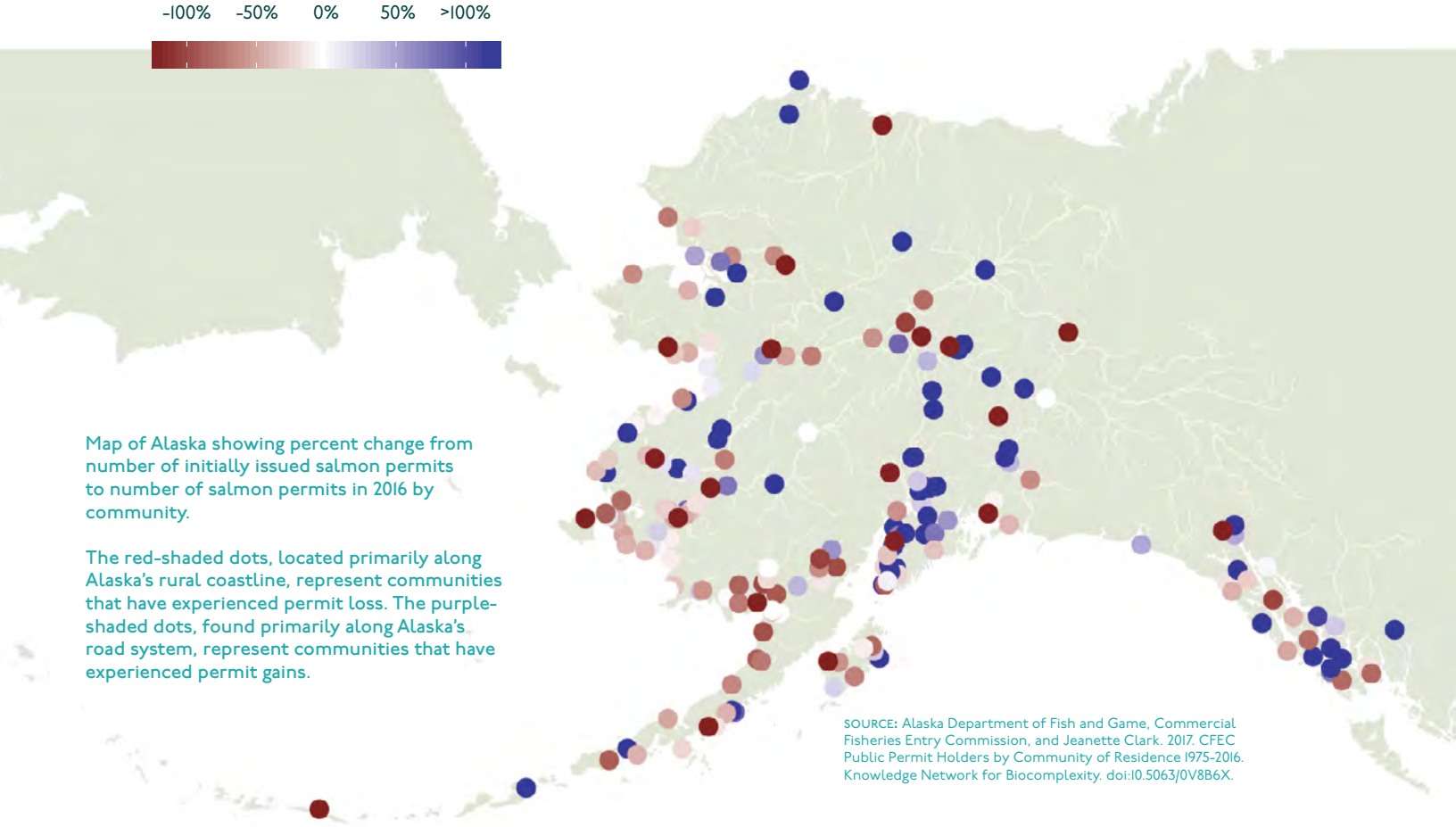
Since implementing Alaska's Limited Entry Program, legislators, researchers, and rural and Alaska Native community leaders and fishermen[1] have grappled with the consequences of creating a freely transferable permit system (i.e., permits that can be gifted, inherited, and/or bought and sold on the open market). Among the earliest and most pervasive policy concerns is how free transferability impacts fishery participation in rural and Alaska Native fishing communities (CFEC 1975; Kamali 1984; Knapp 2011; Langdon 1980, 1990; Rodgers and Kreinder 1980).

For more than 45 years, the State has neglected to advance workable solutions to prevent and restore lost fisheries access in rural fishing communities that have high dependence on fisheries for employment, income, and cultural identity, etc., and limited alternative economic opportunities.

[1] The term fisherman is commonly used and strongly preferred by both men and women who participate in Alaska fisheries. It is used in this report in place of gender-neutral terms such as fisher or fisherfolk.

Rural permit loss, coupled with the 'graying of the fleet' in Alaska fisheries, has received renewed attention in recent years (Coleman et al. 2019; Ringer et al. 2018; Shriver et al. 2014). In 2016, these entwined trends featured prominently in two statewide workshops: ***Fisheries Access for Alaskans***, organized by Alaska Sea Grant (Cullenberg 2016); and ***Long-Term Challenges Facing Alaska Salmon Dependent Communities***, organized by the Center for Salmon and Society at the University of Alaska Fairbanks. These trends also formed the basis of a comprehensive report in 2017, '***Turning the Tide: How can Alaska address the 'graying of the fleet' and loss of rural fisheries access?***' (Cullenberg et al. 2017). ***Turning the Tide*** outlines five recommendations based on a global review of what other fishing regions have done to mitigate the consequences of adopting transferable access rights as a management tool. Most recently, the State of Alaska Salmon and People (SASAP)

FIGURE 1. **PERCENT CHANGE FROM NUMBER OF INITIALLY ISSUED SALMON PERMITS TO NUMBER OF SALMON PERMITS IN 2016**



Map of Alaska showing percent change from number of initially issued salmon permits to number of salmon permits in 2016 by community.

The red-shaded dots, located primarily along Alaska's rural coastline, represent communities that have experienced permit loss. The purple-shaded dots, found primarily along Alaska's road system, represent communities that have experienced permit gains.

SOURCE: Alaska Department of Fish and Game, Commercial Fisheries Entry Commission, and Jeanette Clark. 2017. CFEC Public Permit Holders by Community of Residence 1975-2016. Knowledge Network for Biocomplexity. doi:10.5063/0V8B6X.

project analyzed and synthesized statewide data documenting the extent, impacts, and necessity of addressing these enduring community sustainability concerns in Alaska fisheries management (see Figure 1) (see also https://alaskasalmonandpeople.org).

This report presents policy options for sustaining rural fishery participation and strengthening Alaska rural economies that have been disenfranchised under the current limited entry system. It plots a general course forward to support the Bristol Bay region and the State in advancing carefully tailored solutions to one of Alaska's longest standing resource problems.

Specifically, this report reviews existing literature, legislation, and related data and expertise to identify potential options for the region and State to consider to 'right the ship' and restore commercial fisheries access in Alaska rural and Alaska Native fishing communities. Key objectives include addressing: 1) why and how Alaska's Limited Entry Program disproportionately negatively impacts rural and Alaska Native fishing communities; 2) why previous efforts to address this issue have been insufficient, including legal, political, economic, and cultural challenges; and 3) the rationale, legal contexts, and overarching framework for solutions to move forward.

The primary focus of this report is on the Bristol Bay region, but what is happening in Bristol Bay is not unique. Several high-value commercial salmon fisheries in Alaska are marked by rising participation among urban Alaskans and nonresidents (see Table 1).[2] This rural-to-urban outflow of fishing rights robs rural Alaska of its economic base, erodes rural economic opportunity, degrades rural infrastructure, and negatively impacts coastal community health, fishing heritage, and food security (see Holen 2014; Knapp 2014; Reedy 2008, 2010; Reedy and Maschner 2014). Specific consideration of Bristol Bay is motivated by the fact that, perhaps more than any other region, Bristol Bay is the site of considerable efforts aimed at correcting shortcomings of the limited entry system. To date, these efforts have resulted in limited success. As such, the region offers insights into what measures might work and which might continue to fall short in the realm of improving rural fisheries access in Alaska.

[2] Alaska Rural Local (ARL) refers to an Alaska resident of a rural community which is local to the fishery for which the permit applies (Gho et al. 2019).

TABLE 1. CHANGE IN ALASKA RURAL LOCAL (ARL) PERMIT HOLDINGS IN SELECT SALMON FISHERIES IN ALASKA, 1975-2018

ARL HOLDINGS | TOTAL PERMITS

Note: Cancelled permits are not included in this table.

SE Purse Seine, S01A	1975	147 (33%)	419
	2018	99 (31%)	315
	Net shift:	BY TRANSFER: -28	BY MIGRATION: -10
PWS Purse Seine, S01E	1975	184 (69%)	267
	2018	96 (36%)	267
	Net shift:	BY TRANSFER: -50	BY MIGRATION: -38
PWS Drift, S03E	1975	354 (66%)	537
	2018	229 (43%)	536
	Net shift:	BY TRANSFER: -58	BY MIGRATION: -67
PWS Setnet, S04E	1975	21 (70%)	30
	2018	4 (14%)	29
	Net shift:	BY TRANSFER: -13	BY MIGRATION: -4
Kodiak Purse Seine, S01K	1975	77 (20%)	384
	2018	30 (8%)	375
	Net shift:	BY TRANSFER: -14	BY MIGRATION: -31
Kodiak Setnet, S04K	1975	44 (23%)	188
	2018	14 (7%)	188
	Net shift:	BY TRANSFER: -9	BY MIGRATION: -21
AK Pen Purse Seine, S01M	1975	102 (83%)	121
	2018	61 (51%)	119
	Net shift:	BY TRANSFER: -26	BY MIGRATION: -14
AK Pen Drift, S03M	1975	99 (61%)	162
	2018	31 (19%)	161
	Net shift:	BY TRANSFER: -59	BY MIGRATION: -9
AK Pen Setnet, S04M	1975	98 (84%)	116
	2018	76 (68%)	111
	Net shift:	BY TRANSFER: 12	BY MIGRATION: -32
BB Drift, S03T	1975	712 (39%)	1875
	2018	336 (18%)	1863
	Net shift:	BY TRANSFER: -298	BY MIGRATION: -76
BB Setnet, S04T	1975	660 (63%)	1041
	2018	346 (36%)	970
	Net shift:	BY TRANSFER: -132	BY MIGRATION: -147

SOURCE: Gho and Strong. 2019. A Review of the Original Nineteen Limited Salmon Fisheries, 1975-2018. CFEC Report Number 19-5N, (Tables 3-5 and 3-7); Gho et al. 2019. Changes in the Distribution of Alaska's Commercial Fisheries Entry Permits, 1975-2018, CFEC Report 19-2N, (Table 3-1).

Free transferability and fishing livelihood impacts

Limiting entry into Alaska fisheries was spurred by a mounting crisis in the 1960s brought on by poor salmon returns, declining ex-vessel revenues, and a rising number of nonresident fishermen. A key objective of the Limited Entry Act that finally passed in 1973 was to keep fishing rights in the hands of Alaskans dependent on fisheries, especially rural residents with limited alternative economic opportunities (Knapp 2011).

The 1972 constitutional amendment which paved the way for limiting entry in Alaska fisheries was explicit in identifying the program as designed to "prevent economic distress among fishermen and those dependent upon them for a livelihood" (Alaska Constitution VIII:15). Implementing the legislation quickly exposed the gulf between the Act's express objective and the policy mechanism (i.e., transferable permits) identified to achieve it (Petterson 1983).

The designers of Alaska's limited entry program intended for the program to support a 'stable economic base in the relatively isolated fishing communities where fisheries occur' (Kamali 1984:2). Transferable permits were identified as the preferred management tool for achieving this in part because transferability allows permits to be passed down from generation to generation. Free transferability was meant to ensure that fishermen could operate in a 'business-like manner,' and allowed fishermen 'to enter and exit fisheries at times opportune to them' (CFEC 1975:4). Several studies show how incompatible this thinking was and is in the context of rural and Alaska Native fishing livelihoods (Langdon 1985; Petterson 1983). For example, Meredith's (2018:33) recent economic analysis of local Bristol Bay permit holders demonstrates how transferable permits can undermine the sustainability of rural fishing operations which are often differentially constrained. The author found that exit decisions and permit sales of local permit holders more often "occur under duress" as opposed to well-timed or propitious endeavors (ibid). That is, rural fishermen more often sell permits under pressure of immediate cash needs due to family- or community-based cash constraints that are less common among urban-based or nonresident fishermen (Knapp 2011, 2014).

By 1983, there were 288 fewer salmon permits held by Alaska Natives in the Bristol Bay region constituting a 21% decline since 1975. Bristol Bay represented the largest absolute drop in number of Alaska Native permit holders in the State at the time (Kamali 1984).

Free transferability was also identified as preferable to alternatives because it avoided creating a closed class of fishermen, and minimized government interference (CFEC 1975). Perhaps most importantly, free transferability passed constitutional muster where prior attempts had failed.[3] In these ways, the benefits of free transferability outweighed the consequences felt primarily by rural and Alaska Native fishing communities. Similar to outcomes documented elsewhere at the time,[4] Alaska's limited entry system displaced many rural and Alaska Native fishing families and established new and rising barriers to entry currently contributing to the graying of the fleet.

By 1983, there were 288 fewer salmon permits held by Alaska Natives in the Bristol Bay region constituting a 21% decline since 1975.[5] Bristol Bay represented the largest absolute drop in number of Alaska Native permit holders in the State at the time (Kamali 1984). The State of Alaska no longer tracks Alaska Native permit holdings. Instead, the Commercial Fisheries Entry Commission (CFEC) tracks permit holdings by residency categories with the Alaska Rural Local (ARL) category serving as a proxy of sorts (see ICC 2020). Still, in Bristol Bay and across coastal Alaska, the loss of Alaska Native permit holdings is apparent in the large loss of permits from Alaska Native fishing villages.

Between 1976-2016, the villages of Angoon (Tlingit), Kake (Tlingit), Metlakatla (Tsimshian), and Hydaburg (Haida) suffered the greatest loss of local salmon permit holdings in the Southeast region (a loss of more than 60% each).[6] The Alutiiq fishing villages of Ouzinkie (-71%) and Old Harbor (-61%) in the Kodiak Archipelago suffered similar declines. Finally, nearly a dozen Bristol Bay communities experienced a more than 60% decline in salmon permit holdings, with Lake Iliamna villages especially impacted (CFEC 2012). The Yup'ik, Dena'ina, and Aleut salmon fishing communities of Pilot Point, Levelock, Egegik, Ekwok, Pedro Bay and Nondalton in Bristol Bay respectively lost more than 75% of local permit holdings (see Figure 2).[7]

[3] For example, efforts to close fishing districts to nonresidents of the state in the 1960s were deemed unconstitutional (Petterson 1983).

[4] At the time of Limited Entry, the State of Alaska considered the impacts documented in British Columbia salmon fisheries. British Columbia's limited entry program resulted in increasing license values and declining participation among First Nations fishermen with vessels fished by First Nations declining from 15% to 8% in the first few years of the program (CFEC 1975:5). These consequences were thought to be avoidable in Alaska in part because pre-limited entry trends in Alaska showed a tendency toward increasing fishery participation among Alaska residents, including Alaska Natives (ibid.). The State also erroneously anticipated that the development of tools such as a revolving loan fund (to counter rising permit costs associated with creation of a freely transferable permit) would prevent similar scenarios playing out in Alaska.

[5] This includes a 24% decline in setnet permits held by Alaska Natives (n = 137), and a 19% decline in drift permits (n = 151) (Kamali 1984).

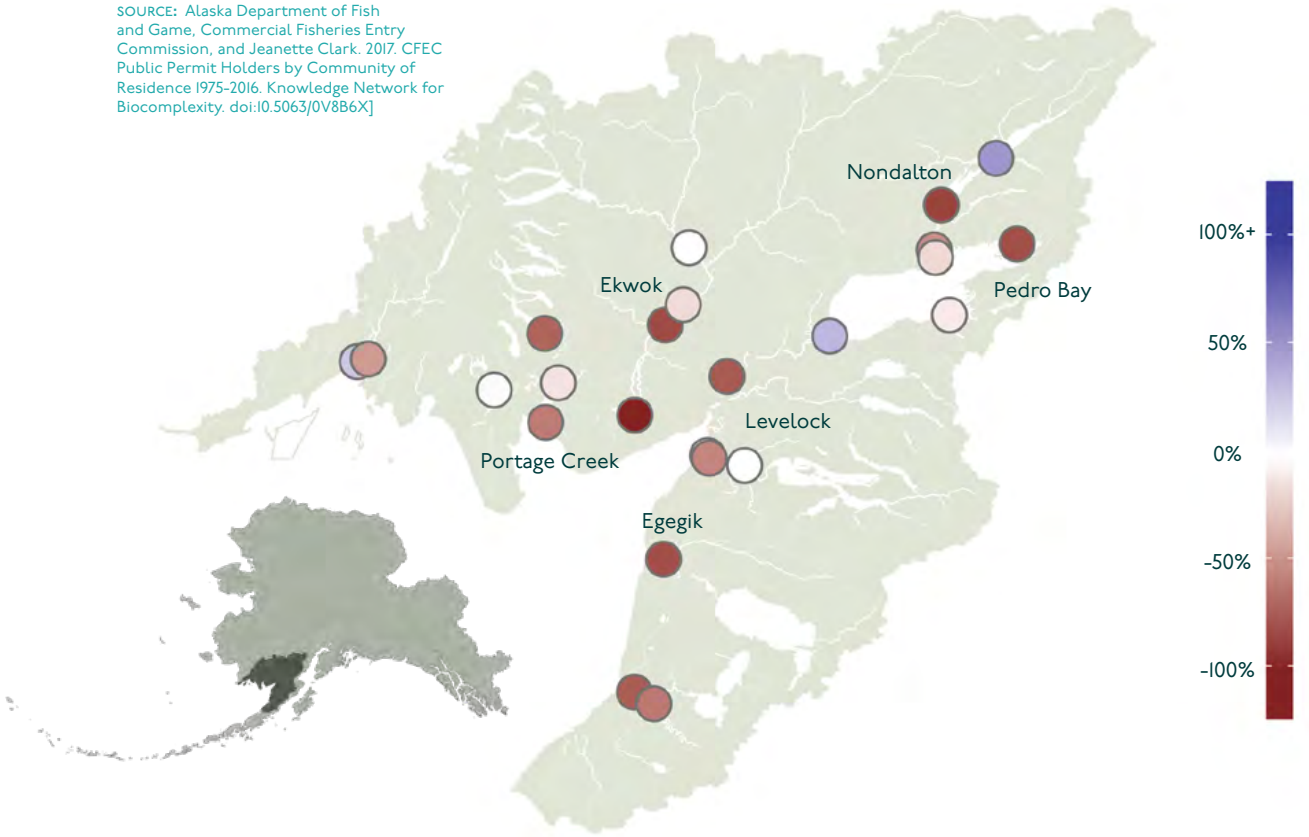
[6] See Alaska Department of Fish and Game, Commercial Fisheries Entry Commission, and Jeanette Clark. 2017. CFEC Public Permit Holders by Community of Residence 1975-2016. Knowledge Network for Biocomplexity. doi:10.5063/0V8B6X

[7] For maps of all regions of Alaska, see https://pages.github.nceas.ucsb.edu/NCEAS/sasap-maps/commercial_permits.html

A recent analysis of change in permit holdings among shareholders of the Bristol Bay Native Corporation (BBNC) sheds additional light on the issue (BBNC 2021).[8] Overall, BBNC shareholders (both local and nonlocal) have experienced a 38% decline in setnet and drift permit holdings between 1980-2018 (1147 to 716 permits), ***however*** in-region (i.e. local) shareholder setnet and drift permit holdings have suffered a greater loss of 47% (1001 to 531 permits). This decline in local shareholder permit holdings can be compared to local nonshareholder permit holdings that have experienced a much smaller decline of 17% (209 to 174 permits). A notable dimension of the loss of BBNC shareholder permit holdings is found in the loss of women shareholders participating in the setnet fishery. For example, in 1980, 70% of setnet permits (356 out of 507) held by BBNC shareholders were held by women. By 2019, the percentage had dropped to 48% (177 out of 367 permits) (ibid.). Overall, men's share of setnet permit holdings has increased (405 to 636 permits), with particular gains among nonshareholder men who saw a 76% increase in setnet permit holdings between 1980-2019 (254 to 446 permits).

FIGURE 2. **MAP OF BRISTOL BAY REGION SHOWING PERCENT CHANGE FROM NUMBER OF INITIALLY ISSUED SALMON PERMITS TO NUMBER OF SALMON PERMITS IN 2016 BY COMMUNITY**

SOURCE: Alaska Department of Fish and Game, Commercial Fisheries Entry Commission, and Jeanette Clark. 2017. CFEC Public Permit Holders by Community of Residence 1975-2016. Knowledge Network for Biocomplexity. doi:10.5063/0V8B6X]



[8] This analysis is specific to BBNC shareholders and does not include Alaska Natives that are nonshareholders, including descendants of shareholders. Preliminary data is presented here and will form the basis of a future publication.

SECTION 3.0 ENDURING AND DIFFERENTIAL IMPACTS TO RURAL AND ALASKA NATIVE FISHING COMMUNITIES

From the outset, the differential impacts of limited entry on Alaska Native villages were apparent. For starters, the application process for a limited entry permit marginalized certain kinds of fishermen including rural, Alaska Native, and small-scale fishermen (Langdon 1980; Koslow 1986).

At the time, it was well understood that the commercial and customary (subsistence) harvest of fishing resources was the major source of economic livelihood in many Alaska Native communities (Kamali 1984). Yet a key problem with the application process was that it was modeled after a 'non-rural fisherman' in that it assumed that all fishermen were highly efficient, full-time fishermen, fully entrenched in the market economy, who "maintain written records of income, [with] sufficient education to comprehend a complex application process" (Koslow 1986:60).

The permit application process was based on a points system (or hardship ranking system) with scoring criteria based in part on economic dependence on the fishery, reliance and availability of alternative occupations, and past participation in the fishery defined narrowly between 1969-1972 (Alaska Statutes, Sec. 16.43.250).[9] The points system was designed to favor rural participation but deficient in many ways.

At the time, it was well understood that the commercial and customary (subsistence) harvest of fishing resources was the major source of economic livelihood in many Alaska Native communities (Kamali 1984). Yet a key problem with the application process was that it was modeled after a 'non-rural fisherman'...

Langdon (1985:28) notes "many who were eligible were not contacted. Because of the poor salmon runs, many did not participate in the fishery in 1971 and 1972, years which were given heavy weighting by the CFEC in awarding permits. Many lacked the necessary records to prove their participation. Many fished in partnership arrangements between two men, and the [CFEC] determined that only those that purchased the State's gear license would get permits." Carothers (2010) further shows how the application process failed to account for the "economic pluralism of rural fishermen and the mixing

[9] The Limited Entry Act authorized creation of the Commercial Fisheries Entry Commission (CFEC). CFEC was tasked with determining levels within the point system where persons would experience only "minor economic hardship" if excluded from an initial permit allocation. Persons ranked at or below the 'minor economic hardship' level received nontransferable permits, while persons who ranked above the minor economic hardship level received transferable permits (Gho et al. 2019). A nontransferable permit cannot be sold or passed down and expires when the permit holder no longer participates in the fishery.

of commercial and subsistence engagements," noting that such flexible practices characteristic of rural fishing were detrimental to permit qualification (see also Reedy 2008; Stariwat 2008).

These shortcomings were exacerbated by language and cultural barriers, poor outreach, and misinformation. In Bristol Bay, these factors contributed to roughly 30% of Bristol Bay residents eligible to apply for a limited entry permit not doing so (Petterson 1983:318). The degree of misinformation and inadequate rural outreach also prompted legal challenges, including Wassillie v. Simon which, in 1988, resulted in the issuance of an additional 275 Bristol Bay drift permits to rural Alaskans. In the setnet fishery, so few individuals applied for permits that CFEC issued setnet permits to applicants scoring zero points on the hardship ranking system. These applicants were issued nontransferable permits. More than 100 Bristol Bay residents received nontransferable permits in the setnet fishery (Gho et al. 2019).

Fundamental cultural disconnects encompass another pertinent dimension of the ways in which limited entry differentially impacts Alaska Native fishing livelihoods and communities. Langdon (1985:42) summarizes tensions emerging in the newly limited and increasingly competitive fishery as an "extremely uncomfortable time in which [Bristol Bay Yup'ik] fishermen are wracked by principles of appropriate fishing by which they have been raised and fished according to most of their lives coming into conflict with survival in their fishery, i.e. making enough to cover the boat payment, pay some bills, and put food on the table for the winter" (see also Coleman 2019).

… a deeper understanding of community and cultural fishing motivations and practices is central to ensuring that the benefits of hard-fought solutions reach intended recipients, which has not always been the case.

Petterson (1983) describes this tension as a policy failure to consider the cultural characteristics of rural Alaska Native fishermen, including the strong, non-competitive, and egalitarian ethic of Alaska Native peoples in Bristol Bay. These early analyses resonate with more recent scholarship highlighting the tendency for Alaska Native fishermen to approach fishing as a 'livelihood practice' versus profit-maximizing endeavor (BBEDC 2009; Carothers et al. 2021; Donkersloot et al. 2020a, 2020b; Stariwat 2008). As a livelihood practice, the goal is 'needs based' in that one does not desire to harvest as much as possible, but rather to harvest what one needs to "obtain a sufficient livelihood to maintain their village existence" (Langdon 1985:49) – for example, catching as much as one needs to make it through to the next season. This isn't to say that enterprising, competitive, and profit-driven fishing operations are wholly absent from rural communities and fisheries.[10] The point is to

[10] Langdon (1985) describes some of the regional differences in fishing practices within the Bristol Bay region.

recognize how and why some Alaska Native and rural fishermen continue to participate in local fisheries as a small-scale, mixed-economy, culturally meaningful practice. This is an especially important consideration when thinking about viable solutions to rural fisheries access loss. A deeper understanding of community and cultural fishing motivations and practices is central to ensuring that the benefits of hard-fought solutions reach intended recipients, which has not always been the case.

3.1 Financial Constraints and Economic Barriers

A 1975 CFEC report to the Alaska State Legislature identifies the primary disadvantage of free transferability as increasing entry costs to 'undesirably high' levels creating barriers to entry for those that did not receive permits through initial allocation (CFEC 1975:4; see also Fraser 1979). The solution was a state loan program that was "designed to assist all state residents in purchasing permits… [but, by] 1980, 86% of loan participants were urban Alaskan residents. Participants were required to provide collateral and meet the debt service from their fishing income alone. During this period, no Bristol Bay residents participated in this program." (Apgar-Kurtz 2015:72) Regrettably, the State's subsidized loan program inadvertently played a role in permit transfers from rural to urban residents because urban fishermen were more likely to obtain state subsidized loans than rural fishermen (Focht and Schelle 1984 cited in Kamali 1984:3; see also Coleman 2019).

Economic inequities bookend the community sustainability crises playing out in rural Alaska. On the one hand, rural fishermen face greater obstacles when attempting to buy into fisheries managed under transferable access rights (due to lack of access to capital, credit, etc.). On the other, they face greater pressure to sell.

A host of financial and economic inequities have been documented as germane to how Limited Entry continues to disproportionately negatively impact rural and Alaska Native fishing communities. These include limited access to financing for permit purchases; a lack of earnings, credit, and credit history; higher borrowing costs; lower personal wealth; limited experience with debt, credit, and financial management; and limited access to and knowledge of capital markets and financing options (Cullenberg et al. 2017; Knapp 2011).

Economic inequities bookend the community sustainability crises playing out in rural Alaska. On the one hand, rural fishermen face greater obstacles when attempting to buy into fisheries managed under transferable access rights (due to lack of access to capital, credit, etc.). On the other, they face greater pressure to sell (see Meredith 2018). This pressure stems from limited forms of household financial wealth in villages. In times of crisis, households are faced with difficult decisions which weigh immediate cash needs against continued fishery participation. These scenarios are especially

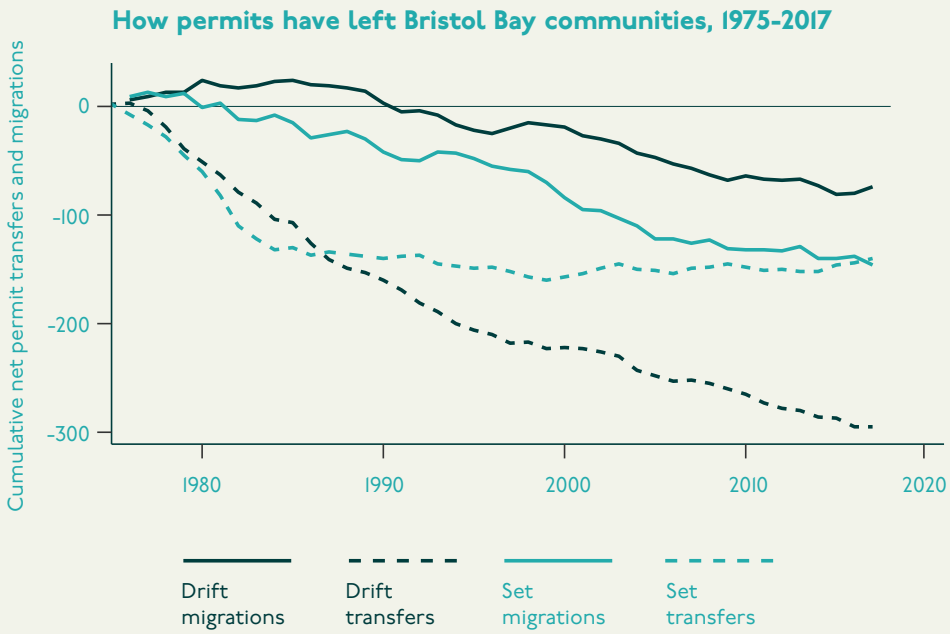
detrimental to the long-term sustainability of village economies because fisheries often represent the primary private source of cash employment and income (Knapp 2014). Such stark differences in financial circumstance reinvigorate initial concerns that the creation of a freely transferable system which treats fishing rights as a fully alienable, individualized commodity is ill-suited to meet the policy objective of supporting rural fishery participation.

3.2 Local and Nonlocal Trends and Characteristics in Bristol Bay Salmon Fisheries

Local participation in Bristol Bay salmon fisheries has primarily declined as a result of permit transfers and migration of permit holders. Figure 3 shows how the setnet and drift fishery are losing locally held permits through migration, but overall, permit transfers account for the greatest loss of locally held permits over time (net loss of 220 permits compared to 435 permits through transfer). Figure 3 also shows how the region has been unable to recover from the initial exodus of permits that occurred in the early years of limited entry.

FIGURE 3. **CHANGE IN LOCAL PERMIT HOLDINGS IN BRISTOL BAY SALMON SETNET AND DRIFT FISHERIES AS A RESULT OF PERMIT TRANSFERS AND THE MIGRATION OF PERMIT HOLDERS, 1975-2017**

SOURCE: Donkersloot et al. 2020a



TOTAL NET LOSS:

Transfers -435

Migrations -220

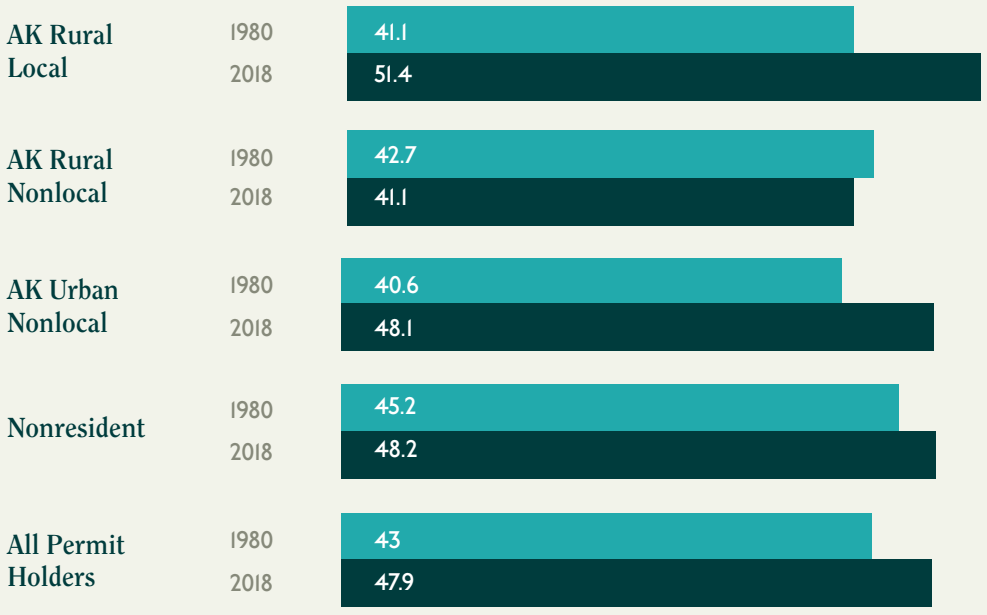
In the drift fishery, local permit holdings declined from 38% to 18% of the total number of permits between 1975-2018, (from 712 to 336 permits). In the setnet fishery, local permit holders declined by 48%; from 63% to 36% of the total number of permits (from 660 to 346 permits) (Gho et al. 2019). Combined, residents of the region now

hold less than one-quarter of Bristol Bay salmon drift and setnet permits. This loss is coupled with the rising average age of fishermen.

In 2018, the mean age for Bristol Bay drift permit holders was 47.9 years, up from 43 years in 1980 (Gho et al. 2019). Table 2 shows that the mean age for local drift permit holders is higher than the overall mean, while the mean age for nonresident permit holders is lower (51.4 years compared to 48.2 years). Similar age differences are evident in the setnet fishery. Table 3 shows the mean age of setnet permit holders has increased from 35.8 years to 45.5 years since 1980. Local setnet permit holders in 2018 are on average older than nonresident permit holders, 46.7 years compared to 43.5 years. These trends suggest that there are young(er) people entering into Bristol Bay salmon fisheries, they're just, more often than not, from outside the State.

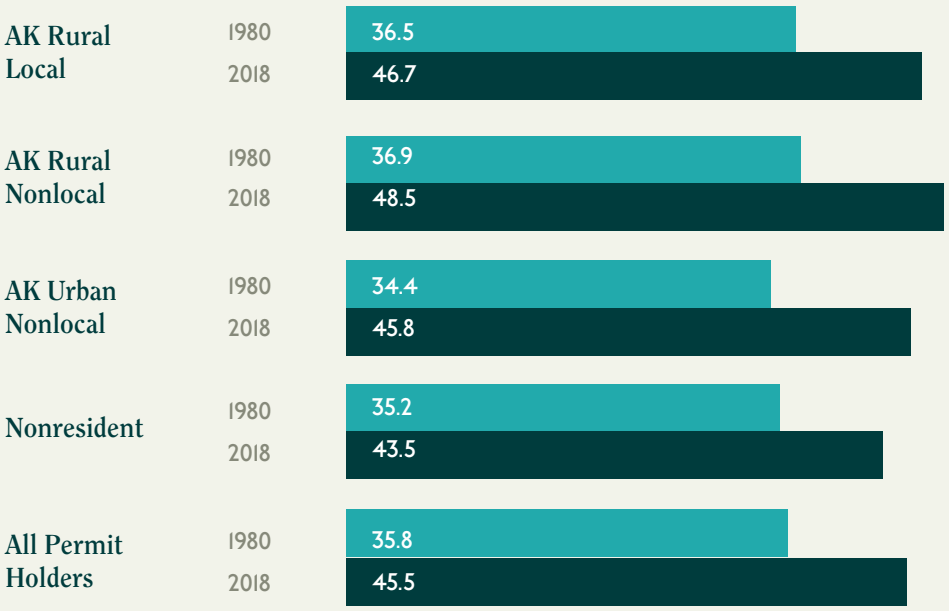
Fishery access and aging trends are not the only ways in which local and nonlocal participation in Bristol Bay salmon fisheries differ. Local vessels tend to be smaller-scale and less capitalized than nonlocal vessels. Nonlocal and nonresident vessels

TABLE 2: **MEAN AGE CHANGE BY RESIDENCY CATEGORY IN THE BRISTOL BAY SALMON DRIFT FISHERY, 1980-2018**



SOURCE: Gho et al. 2019

TABLE 3: **MEAN AGE CHANGE BY RESIDENCY CATEGORY IN THE BRISTOL BAY SALMON SETNET FISHERY, 1980–2018**



SOURCE: Gho et al. 2019

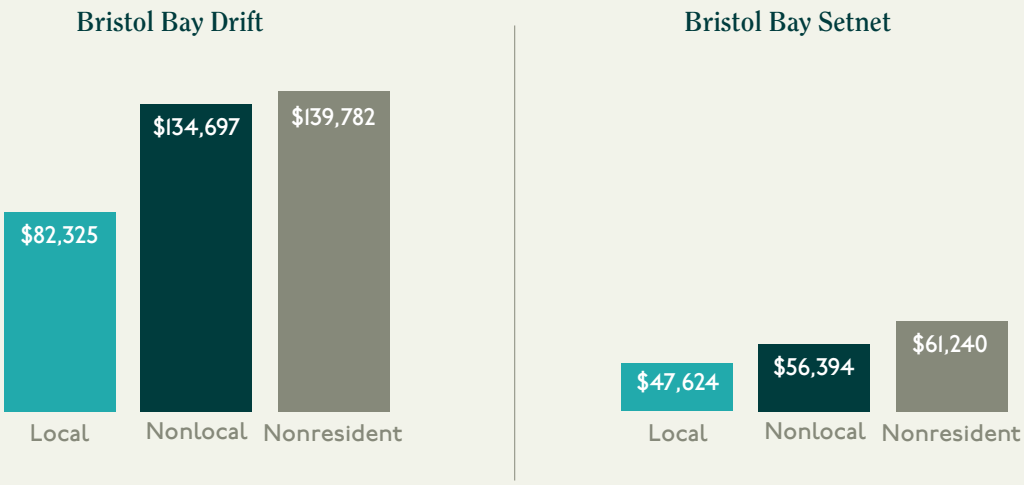
consistently outpace local vessels in harvest levels, vessel earnings, vessel size/value/capacity/technology (e.g., fuel and refrigeration capacity), and vessel age (Gho 2020; Knapp 2014). Overall, local fishermen invest in, profit from, and fish differently than nonlocal fishermen.

Local vessels tend to be smaller-scale and less capitalized than nonlocal vessels. [...] These differences signify a potential need for small-scale access solutions that can better serve local permit holders who earn significantly less from fishing than nonlocals, but are more dependent on the fishery for their cash incomes.

These differences signify a potential need for small-scale access solutions that can better serve local permit holders who earn significantly less from fishing than nonlocals but are more dependent on the fishery for their cash incomes (see Table 4; see also Koslow 1986; Kamali 1984; see also Langdon 1981). In fact, the commercial salmon fishery represents the primary private source of cash employment in the region's mixed cash-subsistence economy, even while Bristol Bay residents have the lowest average earnings per permit fished (Knapp 2014:121).[ll]

[ll] Abrahamson (2011) notes that the sockeye salmon harvest generates 60% of self-employment income in the region.

TABLE 4: **AVERAGE GROSS EARNINGS BY RESIDENCY CATEGORY IN BRISTOL BAY SALMON FISHERIES, 2017**



SOURCE: Gho 2018

These trends and characteristics provide an important reference frame for understanding the full implications of early concerns that "inefficient operators would be under pressure to sell their permits to more successful fishermen" (CFEC 1975). These concerns failed to prompt safeguards for the primarily rural and Alaska Native fishing operations facing new barriers and challenges to participating in an increasingly competitive and capitalized fishery. Instead, these operations were reframed as 'inefficient,' and their contributions of myriad economic, social, and cultural benefits to their communities undervalued.

How much fishery income has been lost to Bristol Bay and the State as a result of local permit loss? How much more fishery income might be circulating through local households and communities if local permit holdings had not been cut in half since implementation of limited entry? Appendix A draws on recent CFEC data on fishery earnings to explore this question as a what-if scenario that assumes a 50% increase in local drift and setnet permit holdings for the years 2000-2017. A 50% increase is a conservative target and represents roughly half of the actual loss of local permits that has occurred between 1975-2018. A 50% increase in drift permits for these years equals on average 170 additional drift permits. For the setnet fishery, a 50% increase puts on average 156 more permits in local hands each season. This increase in local permit holdings adds an additional $12.4 million in resident gross earnings per salmon season ($8.1 million in drift dollars, and $4.3 million in setnet dollars) (see Appendix A). In the drift fishery, this equates to 170 more households bringing in $48,000 in gross fishery earnings each year. In the setnet fishery, it equates to 156 additional local families bringing in an average $28,000 in gross fishing income per year.

These are small-scale fishing dollars at work that add up to power rural economies and provide for local families. They provide substantive indirect and cumulative economic benefits beyond what's presented here, as well as social and cultural benefits that are often unaccounted for in fishery analyses (e.g., generational connections to place and culture) (Donkersloot 2020b). For example, Watson et al. (2021:20) analyze how fishing dollars circulate and multiply in communities noting that "each dollar increase of resident catch results in an increase of 1.54 dollars of annual gross income for the community." Importantly, the authors note that the "primary channel through which spillover effects take place" is the residence of permit holders versus where fish are delivered or landed. Put simply, where permit holders live matters most when it comes to how and where fishery benefits flow and grow.

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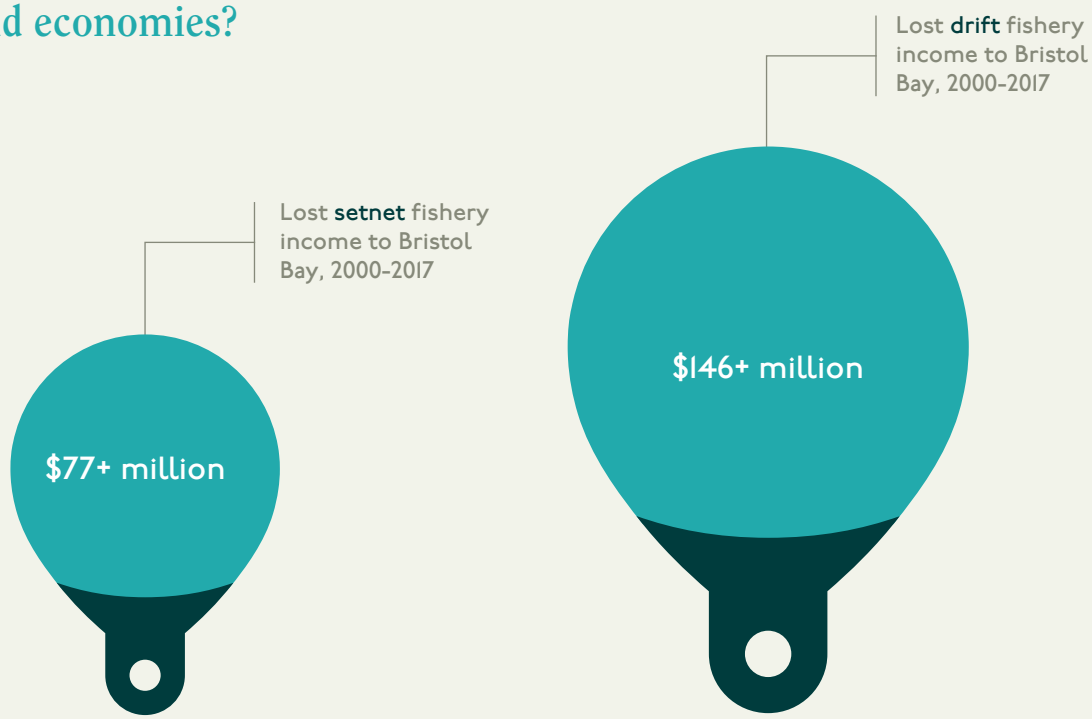
What if local permit holdings had been 50% higher in recent years? How much more fishery income would be circulating through local households and economies?



Several programs, services, and regulations have been implemented to promote entry opportunity and support local, rural, and small boat fisheries access in Alaska. Cullenberg et al. (2017) provide a summary of many of these programs, including loan programs, educational programs, and Board of Fisheries regulations (e.g., super-exclusive areas, gear and/or vessel size limits etc.). Constitutional and statutory constraints limit the design of these programs, for example, solutions based on residency requirements have been deemed unconstitutional (see McDowell v. State, 785 P.2d 1 (Alaska 1989)).

The Alaska State Legislature has attempted to reduce economic barriers to entry into commercial fisheries by increasing or eliminating caps on loan amounts (see for example HB 261 in 2012; HB 121 in 2014; HB 56 in 2018). The Legislature has also conveyed support for workforce development programs, and other resources intended to encourage Alaskan participation in fisheries and assist young Alaskans in entering commercial fisheries (see for example HCR 18 in 2012; HCR 10 in 2015-2016).

4.1 Fishery regulations and unintended consequences

Iverson (2016) describes several regulations adopted by the Alaska Board of Fisheries (BOF) designed to support local, small boat participation in Alaska fisheries, but recent regulation changes in Bristol Bay commercial salmon fisheries have had unintended consequences exacerbating the very issues the regulations sought to improve.[12]

In 2004, the BOF allowed dual permit operations in the Bristol Bay salmon drift fishery. The regulation change allows for two permit holders to fish from a single vessel with additional gear.[13] The motivation behind this regulation was to reduce the transfer of permits to nonresidents and encourage new entrants since fishing from and sharing

[12] Iverson (2016) highlights exclusive/superexclusive registration as examples of regulations that enhance local access. Similar to exclusive registration, the Togiak fishing district in Bristol Bay enjoys a special designation that prevents permit holders fishing in the other four Bristol Bay salmon fishing districts from fishing in the Togiak district before July 27. This date of transfer limitation protects the traditional fishery there against the influx of nonlocal fishing vessels and allows the community fleet to catch the bulk of the harvest in their home district without competition from vessels that might move into Togiak opportunistically. This may be one reason that Togiak has not suffered local permit loss similar to other communities in Bristol Bay (Donkersloot 2020a).

[13] Dual permit operations are allowed to fish 200 fathoms of gear compared to 150 fathoms allowed for single operation vessels.

operating costs with an existing vessel would potentially help offset high permit costs (Gho 2020).

Gho (2020:21) describes how the dual permit program ***has*** attracted new entrants as intended, ***however***, "the percentage of new entrants is lower (often much lower) for local new entrants than for new entrants who are nonlocal or nonresident. Overall, the rate of new entrants for locals is approximately half the rate of new entrants for nonlocal or nonresident permit holders." Strikingly, since allowing dual permit operations in 2004, nonresidents account for 58% of new entrants into the drift fishery. The share of drift permits owned by Alaska residents has declined from 63% to 45% (ibid).

Similar impacts were documented in the Bristol Bay setnet fishery following passage of HB 286 (2002) and HB 251 (2006) in the Alaska State Legislature. HB 286 allows a person to hold two permits, although only one permit can be fished. The intent of this statute was to allow Alaskans to retain permits until they could be transferred to other Alaskans rather than sold to nonresidents (Gho 2020). The passage of HB 251 allowed the BOF to grant a person who holds two permits additional fishing opportunity. Notably, when a similar regulation change was proposed in the 1990s, it was presented primarily as a fleet reduction tool, and not an appropriate permit retention tool. In fact, one of the identified drawbacks to the regulation was increased demand for permits resulting in "some individual Alaskans most dependent upon their local fisheries sell[ing] their entry permits" (CFEC 1998:24).

The BOF authorized permit stacking in the Bristol Bay setnet fishery in 2010 (CFEC 2012b). Although the regulation sunset in 2012, available data shows that permit stacking reallocates harvests across residency classes in Bristol Bay fisheries, with nonlocals and nonresidents primarily benefiting from the regulation (CFEC 2012b:13). Permit stacking also reduced opportunity for new entrants into the setnet fishery. In 2011, the rate of new entrants dropped to a historic low of 6% (ibid.)

4.2 The limits of loan programs

The current suite of fishery loan programs available in the State has proven to be valuable and well utilized programs for many Alaskan fishermen (see for example Cullenberg et al. 2017). In rural villages in Bristol Bay however, loan programs often remain inaccessible and unable to meaningfully improve local fisheries access. In 2008, Bristol Bay's Community Development Quota (CDQ) entity launched its own loan program designed specifically to serve residents of the Bristol Bay watershed.

The Bristol Bay Economic Development Corporation's (BBEDC) Permit Loan Program provides grant assistance to local residents in an effort to achieve greater parity with nonlocal fishermen in access to financing. The program does not require participants to repay funds unless they fail to meet certain conditions during the life of the loan (e.g., residency, mandatory financial counseling and training, active participation in the fishery).

The initial years of BBEDC's Permit Loan Program were marked by limited success. It took the organization more than six years to reach what they had set for a first-year goal: assisting seven residents in acquiring a salmon limited entry permit (Ruby and Heyano 2016). Since then, BBEDC has revised the program to increase participation which has resulted in a higher number of participants. By the end of 2019, 60 Bristol Bay residents had acquired permits through BBEDC's Permit Loan Program (Donkersloot et al. 2020a). Despite progress, a BBEDC representative recently described their efforts as getting them "halfway to zero" in that the program has been unable to reverse the out-migration of permits from the region. Also notable, 65% of program participants are Dillingham residents, a hub community in the region, suggesting that despite the generous terms, the region's smaller villages remain unable to avail themselves of the program (ibid.).

The program also remains hamstrung by a low number of applicants who qualify financially. Ruby and Heyano (2016) note that roughly half of all applicants to the program are diverted to a third party for assistance with financial planning, credit recovery, or legal issues. Finally, there is no real way to prevent the potential out-migration of permits that have returned to the region through BBEDC's efforts. Once

a permit is fully paid for and a person has exited the loan program, there is nothing to prevent that person from selling the permit or moving away from the region. This last point in particular underscores the need for the region and State to begin to look more seriously at new policy provisions that protect community access for the long-term.

SECTION 5.0 THE NEED FOR NEW SOLUTIONS

New solutions are clearly needed to restore and sustain viable rural and small-scale fishing ways of life that underpin healthy rural communities. Recent regulation changes have resulted in detrimental consequences. Loan programs have fallen short in shoring up village livelihoods and economies. Improving access to financing is not enough to counter the short- and long-term community impacts of transferable access rights. Policy options presented here provide supplemental forms of access and help to prevent fishing opportunity from migrating or being sold away from fishing communities over time.

Many fishing nations and regions have adopted similar policy provisions to maintain and improve rural, small-scale, and Indigenous access to fisheries managed under transferable access rights.

Prominent examples from Norway, Iceland, Maine, California, and eastern Canada include community use rights, youth permits and quota, fishery trusts/permit banks, set-asides for rural regions, and special provisions for small-scale and Indigenous fishermen (see Cullenberg 2016; Cullenberg et al. 2017; Foley and Mather 2016; Foley et al. 2014, 2015). In each case, fishery policy- and decision-makers aimed to recreate opportunity for specific groups of people and communities that had been greatly diminished by commodifying the right to fish. These provisions differ in specific ways, but share the underlying attribute of effectively anchoring fishing access and providing affordable entry opportunity. The benefits of these provisions are documented abroad (see for example Broderstad and Eythórsson 2014), but there is also a valuable example found in Metlakatla located along the southern border of Alaska.

5.1 Metlakatla example

Established in 1915, the Tsimshian Fisheries Reserve is a part of the Annette Islands Reserve.[14] The Reserve is unique in Alaska in that the tribe controls the waters around the island out to 3,000 feet offshore.[15] The Reserve is the largest tribally managed salmon fishery in the United States.

The tribal fishery employs 250 people in the community, and in 2016, reported fish landings by 17 purse seine vessels and 74 drift gillnet vessels totaling roughly 1.9 million salmon with an ex-vessel value of $4.1 million (Langdon 2019a).

Langdon (2019a) provides comparative demographics from other Southeast Alaska villages to show that while other villages have declined in population by at least 10% since 2000, Metlakatla's population has remained steady. In addition, while the poverty rate in Metlakatla is 7.7%, it is at least 15% in all of the other Alaska Native villages in Southeast (ibid.). Langdon also describes a high level of social capital in Metlakatla that includes pride in identity as a fisherman, and aspiration and desire by young people to enter the fishery and become captains, noting that "these kinds of capital have been deeply eroded in other villages."

It is in the interest of the State to recognize that sustaining fishing opportunity in places like Bristol Bay is fundamental to sustainable fisheries management and good public policy.

The Metlakatla example serves as a model for what a fishing village can look like when people have rights to their local resource base that cannot be sold or migrate away. It represents a compelling counterexample to commentary that tends to surface in defense of the status quo. Such commentary generally places the problem of lost fisheries access with rural and Alaska Native communities themselves rather than with the management system. Past efforts to find solutions to the loss of rural fisheries access in Alaska have elicited dismissive comments suggesting that the real problem is that no one wants to live in rural Alaska anymore. Trends documented on the Annette Islands Reserve offer a persuasive response to such claims and suggest that people tend to go (or stay) where there is opportunity. It is in the interest of the State to recognize that sustaining fishing opportunity in places like Bristol Bay is fundamental to sustainable fisheries management and good public policy.

[14] See https://alaskasalmonandpeople.org/region/southeast-alaska/

[15] This includes 50 streams that produce pink salmon and 34 that produce chum salmon on the reservation (Langdon 2019a).

This section presents potential new solutions to consider to improve fisheries access and opportunity in the Bristol Bay region. Potential solutions include fishery trusts, apprentice permits, small-scale access provisions, and a new class of locally designated permits. These provisions align with recommendation #1 from the ***Turning the Tide*** report: ***Explore supplemental forms of access to commercial fishing that are not market-based to facilitate new entry and provide diversification opportunities*** (Cullenberg et al. 2017). This section also reviews court rulings and key legal considerations that frequently come into play when attempting to introduce policy measures designed to better serve rural fishermen and communities.

FISHERY TRUSTS

Fishery trusts have been established in east and west coast fisheries of the United States as a tool to help new fishermen enter the industry by lowering capital barriers to entry.[16] A recent bill introduced in the Alaska State Legislature sought to pilot Regional Fishery Trusts in select regions of the State with the goal of providing affordable 'stair-step' opportunity into commercial fisheries. HB 366 proposed establishing fishery trusts as new entities authorized to hold a (limited) number of limited entry permits that would be available for lease by individuals who meet specific eligibility criteria.

HB 366 received favorable legal reviews concerning the bill's constitutionality (LAA 2016), but certain elements remained controversial for some stakeholders. For one, allowing nonpersons (i.e., fishery trust entities) to hold limited entry permits conjured up myriad Pandora's Box scenarios leading to corporate control of Alaska fisheries. Additionally, the idea of allowing permits to be leased was off-putting to some who upheld limited entry's active participation requirement as the linchpin to ensuring that the benefits of fishing remain in the hands of working fishermen. After more than three years HB 366 stalled out, but the merit of a fishery trust should be reevaluated. Trusts have worked well for other US fishing regions struggling with the similar challenges. Moreover, although the concept proved politically difficult, legal

[16] See for example: https://capecodfishermen.org/fisheries-trust; https://montereybayfisheriestrust.org/mission; https://www.morrobaycommunityquotafund.org

analyses of the bill indicated that fishery trusts were a tool that could potentially pass constitutional muster (ibid.).

This report does not delve into detail on how a trust might operate in the Bristol Bay region given the robust analysis of HB 366 on record, but in evaluating whether a trust is a tool that should be reconsidered for Bristol Bay, attention should be given to the following questions: will a trust provide for meaningful opportunity (i.e., number of permits available for lease)?; will eligibility requirements fairly and narrowly enough target individuals most in need of assistance?; and finally, is a trust an accessible tool that can adequately serve Bristol Bay's smaller villages (e.g., affordable lease rates; application and lease requirements; outreach capacity; etc.)? One of the known challenges of establishing fishery trusts is securing the capital needed to 'fund' the trust (through permit purchases). Bristol Bay should be well-positioned to overcome this particular challenge due to anticipated support by regional organizations, such as Bristol Bay's CDQ entity, that have a track record for investing in improving local fisheries access. Other potential solutions to consider that capture the benefits of a fishery trust while avoiding some of the perceived risks (e.g., nonperson permit ownership) are discussed below.

APPRENTICE PERMITS

Apprentice permits represent a new tool that require authorization of a new class of nontransferable permits. A limited number of apprentice permits would be created and available for use by individuals who meet eligibility criteria. Apprentice permits would function similarly to CFEC interim use permits, but designated specifically to sustain entry opportunity for individuals that face higher barriers to entry.

Apprentice permits are modeled after Norway's Recruitment Quota program that was launched in 2010 to support entry opportunity for young fishermen. Eligible participants in Norway's Recruitment Quota program are limited to young fishermen under the age of 30 who can apply to use the quota at no cost (Eythórsson 2016). For Alaska fisheries, qualification

for an apprentice permit could be based on a points system similar to the hardship ranking system used during the initial allocation of limited entry permits. Points could conceivably be based on factors such as age (e.g., under 40 years), income level, fishery dependence, alternative occupation, and past fishing participation (or lack of), etc. Scoring criteria could favor rural participation while not requiring a residency requirement.

Qualifying individuals would apply to CFEC for an apprentice permit at minimal cost (e.g., fees could be set to cover administrative costs). There would be limits on the number of years an individual is eligible to use an apprentice permit. CFEC, or perhaps some other entity, would be required to play a role in program administration and oversight as apprentice permits would eventually revert back to the pool to be reissued to the next eligible applicant. In this way, apprentice permits are similar to fishery trusts in that both serve to sustain entry opportunity over time, but anticipate participants phasing out of the permit class and into full permit ownership. An apprentice permit program may have more political support than fishery trusts because it avoids leasing, and supports younger fishermen in particular. In evaluating whether an apprentice permit class should be explored further it is worth thinking about implications for beginner fishermen related to acquiring a vessel, securing a market, and managing other start-up and operating costs. This permit class could incorporate additional elements, incentives, or requirements to better support early career fishermen in successfully transitioning out of the program (e.g., a partner organization could provide mandatory training modules or cohort mentorship on business planning, market/buyer relationships, vessel maintenance, insurance, etc.).

SMALL-SCALE ACCESS PROVISIONS

Small-scale access provisions have been introduced in Iceland and Norway to ensure fleet diversity and small-scale fishing opportunity in fisheries managed under Individual Transferable Quota (ITQ) systems (Chambers 2016; Chambers and Carothers 2017). Small-scale access provisions in Alaska fisheries could provide protections for smaller-scale fishing operations that are currently unable to participate in local fisheries due to difficulty accessing current loan and financing programs. These provisions would remove the barrier of needing to purchase a permit, and require differentiating between vessel classes and/or fishing operations that qualify for small-scale provisions.

Small-scale provisions could be linked to eligibility criteria similar to the apprentice permit class, and defined by additional conditions such as vessel characteristics, caps on harvest amounts or annual revenue, and potential limits on gear, openers/fishing times, and restricting use to certain fishing districts or areas (see FN12). Small-scale access provisions in other fishing regions tie program eligibility to criteria targeting communities

and demographic groups such as rural residents, and low-income, small-boat, and/or Indigenous fishermen. For example, eligible participants in Norway's open group fishery are restricted to small-scale vessel owners (i.e., vessels under 11 meters in length) who have an annual non-fishing income of less than roughly $40,000 USD (Eythórsson 2016). There are also special place-based provisions within Norway's 'open group' fishery aimed specifically at improving access for Norway's Indigenous Sámi population. These include annual set-asides of fishing quota available only to open group fishermen living in Sámi districts. These provisions have been cited as the most important reason for the revival of some fjord fisheries since 2010 (Broderstad and Eythórsson 2014).

In Bristol Bay, this type of provision would allow individuals/vessels that meet necessary requirements to catch a capped harvest amount without purchasing a limited entry permit. Small-scale access provisions could provide village livelihood opportunity, but in evaluating whether it is a workable solution in the context of Bristol Bay salmon fisheries one would need to consider a number of issues. If not properly controlled, these provisions could give way to a dilettante fishery or misused by individuals already well positioned in the fishery. For example, Iceland's community quota and quota-free fishery have been cited as being used by current quota holders rather than providing for new entrants (Chambers 2016).

LOCALLY DESIGNATED PERMITS

Creating locally designated permits may be a more durable solution than others described above. This solution effectively creates a two-permit system for Bristol Bay salmon fisheries by reclassifying permits as 'local' and 'nonlocal.' Maine has a similar type of program in place for its island communities. Maine's Island Limited Entry Program works parallel to the larger limited entry program that mainland fishermen participate in. The island system is meant to ensure that the number of local lobster licenses appropriate for the needs of Maine's island communities remains in the island communities (Gilbert 2016). Applying this type of program to the Bristol Bay region would require redesignating permits as local and nonlocal and identifying an appropriate number of permits for each permit class. Both local and nonlocal permits could be freely bought, sold, and gifted, but permits designated as local could only be held by residents of the watershed. If a resident moved out of the region and would like to continue to fish, they would need to sell their local permit and acquire a nonlocal permit within a certain period of time. This kind of provision doesn't exclude nonlocal or nonresident fishery participants or eliminate transferability, but it does limit transferability in such a way as to maintain a portion of permits in the region in perpetuity.

Certainly each of the policy solutions presented here raise difficult political and constitutional questions, not least of which is how to address current inequities in the management system without harming established interests. Similarly, there may be other solutions that should be brought forward in a collaborative space and transparent, solutions-oriented process designed to refine and advance dialogue around meaningful reform.

The proportion of apprentice, small boat, or locally designated permits available compared to total permits available in a fishery will be a deciding factor in whether these types of solutions are constitutionally valid and politically tenable. Creating supplemental forms of access does not necessarily run counter to efforts to identify and achieve optimum numbers, or reduce fishing effort or the total amount of gear employed in a fishery.[17] Options to fund a new pool of permits include a range of alternatives. One option that would allow for the current number of total permits to remain the same would entail a partial or quasi-buyback program. A buyback could potentially be self-funded through the creation of agreements between non-profits, foundations, or other entities that could finance purchasing permits from fishermen wishing to exit the fishery with the condition that the permit will be converted to a different class. This would allow CFEC to convert 'full access' permits to one of the permit classes described above, or facilitate the reclassification of permits to increase the number of locally designated permits.

Another option that could justify the piloting of a provision to assess its feasibility before moving forward with a more permanent solution could be to base the number of available permits on a fishery's permit latency rate. In the Bristol Bay drift fishery, the 5-year average permit latency rate (2014-2018) is 6% (roughly 120 permits) (Gho and Strong 2019). In the Bristol Bay setnet fishery, the 5-year average permit latency rate is 10% (roughly 97 permits). Additionally, more than 100 nontransferable setnet permits have been cancelled (by end of 2018). In the drift fishery, there has been a 20% reduction in gear in the water since dual permit operations were authorized in 2004 (Gho 2020:19). These factors may provide justification for testing a provision in advance of full implementation, but it is likely that the more lasting approach is a permit buyback that provides for permit reclassification.

[17] CFEC is directed to determine optimum numbers of permits for limited entry fisheries based on a balance of three standards: economic, conservation, and fishery management concerns. These standards can be summarized as: 1) maintaining an economically healthy fishery that is 2) prosecuted in an orderly, efficient manner consistent with sound fishery management techniques, and that 3) avoids serious economic hardship to those currently engaged in the fishery, considering other economic opportunities reasonably available to them (CFEC 2004:11). To date, optimum numbers have only been established for three fisheries, including the Bristol Bay salmon drift gillnet fishery.

6.1 Legal considerations: state and federal law concerns

A number of state and federal constitutional provisions come into play when attempting to limit entry, and restore access, in Alaska fisheries. State law concerns focus primarily on the No Exclusive Right of Fishery provision in the Alaska constitution, as well as the Common Use section. The No Exclusive Right of Fishery (Article VIII:15) section states: ***No exclusive right or special privilege of fishery shall be created or authorized in the natural waters of the State***. The 1972 constitutional amendment added: ***This section does not restrict the power of the State to limit entry into any fishery for purposes of resource conservation, to prevent economic distress among fishermen and those dependent upon them for a livelihood and to promote the efficient development of aquaculture in the State***.

The Common Use section of the Alaska Constitution (Article VIII:3) states: ***Wherever occurring in their natural state, fish, wildlife, and waters are reserved to the people for common use***. The common use clause has been interpreted by the courts to strongly protect public access to natural resources (Owsichek v. State, 763 (Alaska 1988)). This clause ensures that "the natural resources of the State belong to the State, which controls them as a trustee for the people of the State" (ibid.). In this way, the State acts as "trustee of the natural resources for the benefit of its citizens" (Herscher v. State, Department of Commerce, 586 (Alaska 1977)).

A number of legal challenges and court rulings on whether Alaska's Limited Entry Program violates these sections of the Alaska Constitution have found Limited Entry to be constitutional, albeit narrowly. These rulings are based on the 1972 constitutional amendment and findings that the specific limited entry system adopted by the State represented the '***least possible impingement on the common use reservation and on the no exclusive right of fishery clause***' (State v. Ostrosky 667 P.2d at 1191). This suggests that viable solutions be as narrowly tailored as the original Act, and not 'unreasonably impinge on common use any more than is necessary to regulate entry into fisheries' (Johns v. CFEC, 758 P.2d at 1266).

FEDERAL LAW CONCERNS

Federal law concerns center on the commerce clause, privileges and immunities clause, and equal protection clause. The federal commerce clause limits the power of States to erect barriers against interstate trade. Importantly, this limitation isn't absolute and states retain authority to regulate matters of legitimate local concern (Maine v. Taylor, 477 US (1986)). The burden falls on the State to demonstrate both that the statute 'serves a legitimate local purpose and could not be served as well by nondiscriminatory means' (LAA 2010).

A state violates the federal privileges and immunities clause of the US constitution by denying a nonresident equal treatment with respect to a fundamental right or privilege that is essential 'to the promotion of interstate harmony' (Supreme Court of New Hampshire v. Piper, 470 US (1985)). A state may however discriminate against nonresidents if it can show: 1) that there is a substantial reason for the difference in treatment (Supreme Court of New Hampshire v. Piper, 470 US L.Ed.2d at 213); and 2) that the discrimination practiced against nonresidents bears a substantial relationship to the State's objective (LAA 2010:3). To satisfy the second requirement, the State must be able to demonstrate that the imposition of a residency, or other requirement, is the least restrictive means available to alleviate the problem posed by nonresidents (ibid.).

EQUAL ACCESS AND PROTECTION: STATE AND FEDERAL CLAUSES

Harrison (2018:133) summarizes the equal access clauses of the Alaska constitution as requiring "resource laws and regulations [to] have… a reasonable basis for distinctions they make among various users; they must put everyone on an equal footing within a group of users; and they may not prevent anyone from belonging to a particular user group." The Uniform Application section (Article VIII:17) of the State constitution requires that: ***Laws and regulations governing the use or disposal of natural resources shall apply equally to all persons similarly situated with reference to the subject matter and purpose to be served by the law and regulation***.

Similar language is included in the equal protection clause of the US constitution which requires the State of Alaska to treat 'similarly situated' persons the same unless there is a valid reason for making a distinction. Such distinctions cannot be based on race, religion, or alienage, but consideration for other categories and classifications in the context of Alaska fisheries, such as age, income level, historical dependency, opportunity for alternative occupations, etc. should be examined. Equal access and public trust concepts have been upheld as the pillars of natural resource policy since statehood, but clearly not everyone finds themselves on equal footing. Alaska's fishery management system has created an environment in which Alaska's longtime fishing villages can't survive. The value of Alaska salmon fisheries is leaving the State. New and narrowly tailored access provisions are greatly needed.

SECTION 7.0 SUMMARY

This report presents provisions that aim to provide entry opportunity, and support for rural and small-scale fishing livelihoods in Alaska fisheries. In places like Bristol Bay, where local fishing operations may not always be profit-maximizing but rather based on subsistence livelihoods and cultural values embedded in fishing ways of life, a supplemental or non-market based form of access to commercial fishing should be seriously and carefully considered. The State of Alaska must acknowledge the full weight of this problem for rural Alaska as a problem for the State, and commit to set right a system that harms rural fishing livelihoods and ways of life.

Rural fisheries access cannot be sufficiently preserved with the suite of tools available under current law. Legal interpretations have constrained efforts to ensure that the State's natural resources benefit its citizens leaving open the question of whether the State constitution allows for the kinds of solutions that are actually going to work. In 2017, 62% of gross earnings from the drift fishery, and 40% from the setnet fishery, left the State as nonresident earnings (Gho 2018). Bristol Bay is home to the largest and most valuable wild salmon fishery on the planet. It is a tragedy that local communities are unable to gain meaningful access and participate in this world-renowned fishery. Decades of ideas and efforts to address the erosion of rural fisheries access have been stalled by a host of barriers (see Langdon 2015, 2019b). Special kinds of provisions should be considered to solve such persistent problems in Alaska fisheries management. Such provisions could be piloted in Bristol Bay before expanding into other regions.

Forty-five years after the first limited entry permits were issued, the State of Alaska has the benefit of hindsight, and the playbook of lessons learned and gains made in other fishing regions that are ahead of Alaska on this front. It's time to catch up.

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APPENDIX A. WHAT-IF SCENARIO: LOST DRIFT FISHERY INCOME TO BRISTOL BAY, 2000-2017

YEAR	PERMITS	50% INCREASE	AVERAGE LOCAL GROSS EARNINGS	LOST DRIFT INCOME
2000	436	218	$ 45,867.00	$ 9,999,006.00
2001	401	201	$ 21,628.00	$ 4,336,414.00
2002	311	156	$ 15,433.00	$ 2,399,831.50
2003	363	182	$ 28,641.00	$ 5,198,341.50
2004	356	178	$ 39,590.00	$ 7,047,020.00
2005	364	182	$ 46,217.00	$ 8,411,494.00
2006	363	182	$ 51,107.00	$ 9,275,920.50
2007	344	172	$ 51,420.00	$ 8,844,240.00
2008	341	171	$ 47,051.00	$ 8,022,195.50
2009	306	153	$ 58,580.00	$ 8,962,740.00
2010	325	163	$ 62,803.00	$ 10,205,487.50
2011	332	166	$ 55,067.00	$ 9,141,122.00
2012	326	163	$ 47,446.00	$ 7,733,698.00
2013	317	159	$ 53,262.00	$ 8,442,027.00
2014	322	161	$ 68,292.00	$ 10,995,012.00
2015	311	156	$ 38,514.00	$ 5,988,927.00
2016	297	149	$ 60,137.00	$ 8,930,344.50
2017	305	153	$ 82,325.00	$ 12,554,562.50
Average	340	170	$ 48,521.11	**$ 8,138,243.53**
Total				**$ 146,488,383.50**

SOURCE: Gho 2018:22 (Table 1-16)
Adjusted for inflation to 2017 dollars using U.S. Bureau of Labor Statistics Consumer Price Index.

APPENDIX A. WHAT-IF SCENARIO: LOST SETNET FISHERY INCOME TO BRISTOL BAY, 2000-2017

YEAR	PERMITS	50% INCREASE	AVERAGE LOCAL GROSS EARNINGS	LOST SETNET INCOME
2000	370	185	$ 23,207.00	$ 4,293,295.00
2001	335	167	$ 14,907.00	$ 2,496,922.50
2002	288	144	$ 10,431.00	$ 1,502,064.00
2003	299	150	$ 18,941.00	$ 2,831,679.50
2004	295	148	$ 14,180.00	$ 2,091,550.00
2005	305	152	$ 22,961.00	$ 3,501,552.50
2006	315	158	$ 21,769.00	$ 3,428,617.50
2007	307	154	$ 26,859.00	$ 4,122,856.50
2008	307	154	$ 28,020.00	$ 4,301,070.00
2009	303	151	$ 31,261.00	$ 4,736,041.50
2010	298	149	$ 40,402.00	$ 6,019,898.00
2011	300	150	$ 36,534.00	$ 5,480,100.00
2012	299	150	$ 28,853.00	$ 4,313,523.50
2013	313	157	$ 27,408.00	$ 4,289,352.00
2014	314	157	$ 44,133.00	$ 6,928,881.00
2015	320	160	$ 22,432.00	$ 3,589,120.00
2016	325	163	$ 39,161.00	$ 6,363,662.50
2017	319	160	$ 47,624.00	$ 7,596,028.00
Average	312	156	$ 27,726.83	**$ 4,327,011.89**
Total				**$ 77,886,214.00**

SOURCE: Gho 2018:37 (Table 2-15)
Adjusted for inflation to 2017 dollars using U.S. Bureau of Labor Statistics Consumer Price Index.

THE NATURE CONSERVANCY

COASTAL CULTURES RESEARCH

2021