Assessing the Social-Ecological Dimensions of Dungeness Crab Fishery Closures in Southeast Alaska from Analysis of Public Records

Rondi Nordal

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Committee:

Anne H. Beaudreau

Erendira Aceves-Bueno

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School of Marine and Environmental Affairs

University of Washington

Abstract

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Rondi Nordal

Chair of Supervisory Committee:

Anne H. Beaudreau

School of Marine and Environmental Affairs

Spatial management of marine resources is of growing interest at local, national, and international scales. This can take many forms, from small local fishery closures to large marine protected areas (MPAs), and encompass a range of use and access regulations. For example, Territorial Use Rights for Fisheries (TURFs) and other forms of spatial management allowing for partial-use of protected areas have been used as ways to secure food security and to increase sustainable fishery yields through community access. The objective of this research was to document spatial closures for Dungeness crab (*Metacarcinus magister*) fisheries as proposed through the BOF over the past 14 years to better understand the ecological, social, and policy conditions that led to proposed closures and their outcomes. These closures were proposed through the Alaska Board of Fisheries (BOF) process, which allows members of the public and community organizations to propose changes to fisheries management and regulation. We

conducted a thematic analysis of publicly available records from BOF meetings from 2006 through 2022 to understand the characteristics of these closures, community perceptions, and how they fit into broader spatial management trends. First, we reviewed meeting records for proposals related to Dungeness crab closures and identified 41 relevant proposals. We then refined this list to 18 key proposals for thematic analysis that represented a variety of geographic areas in Southeast Alaska, a range of proposal outcomes, and focused on geographic areas with a longer history of spatial management that could be tracked through the BOF process over multiple years. The public meeting records related to these proposals were transcribed and analyzed using qualitative content analysis. From the content analysis of meeting records, we identified six major themes: (1) Changes in proposal strategies over time; (2) Community identity and insider/outsider dynamics; (3) Differences in representation among fishery groups; (4) Role of closures in enabling or constraining local access; (5) Spatial management as a flexible tool; and (6) Challenges arising from data limitations. These themes indicate social needs, rather than ecological concerns, leading the justification of proposals and being a primary point of discussion around the value and impact of closures for local communities and for Alaska as a whole. The future of the Southeast Alaska Dungeness crab fishery faces uncertainties in the face of changing social and ecological conditions. Improved knowledge sharing among fishers and management bodies may help to better anticipate and respond to social-ecological change, and address challenges in ways that center community needs.

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Introduction

Spatial management of marine resources is a growing focus, in light of global and national initiatives to protect and restore marine ecosystems. Recent initiatives include the Kunming-Montreal Global Biodiversity Framework adopted during the United Nations' 2022 Biodiversity Conference which aims to protect 30% of the global ocean by 2030 (UN Development Programme, 2022; Convention on Biological Diversity, 2024) and the Biden Administration's "America the Beautiful" Initiative (Biden-Harris Administration Outlines "America the Beautiful" Initiative, 2021), which include goals to protect habitats and species through spatial management of marine areas. Though these high-profile projects are often associated with large no-take marine protected areas (MPAs), spatial management and conservation can take many forms. According to the IUCN, a protected area is defined as "a clearly defined geographical space, recognized, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem

services and cultural values" (Dudley, 2008. p. 8). This definition recognizes that spatial management methods are diverse, encompassing different scales, levels of fishing activity allowed, permanence of the areas, types of enforcement, and management structures (Dudley, 2008). Spatial management in marine ecosystems can vary extensively, from large government-managed no-take zones to areas that are self-declared by Indigenous communities and allow for cultural uses that contribute to conservation (Dudley, 2008; Frid et al. 2016; Villaseñor-Derbez, 2019).

Spatial management approaches can have tangible benefits for both ecosystem functions and fisheries, but the social-ecological outcomes vary and depend on many factors, including the design of spatial closures. Decades of ecological research have documented benefits of MPAs for biodiversity conservation, protection of critical habitat for key life stages, increased biomass, and even mean organism size (Russ and Alcala, 1996; McClanahan et al., 2007; Halpern and Warner, 2002; Griffin et al., 2020). Small closures can be beneficial to sedentary benthic species with a small home range, such as shellfish, and are more easily enforced than larger closures (Rojo et al., 2019; Villaseñor-Derbez et al., 2019). However, MPAs can result in spatial displacement of fishing that reduces fish biomass along the outside edges of MPA boundaries (McClanahan et al., 2007; Ohayon et al., 2023). Benefits of MPAs for fisheries (e.g., through 'spillover' of fish into areas open to fishing) have been equivocal (Hillborn et al., 2004). Large closures, which are expected to provide the strongest ecosystemic benefits (Wilhelm et al., 2014; Edgar et al., 2014; Toonen et al., 2013), may require more careful planning to ensure that they are enforceable, and that they will not negatively affect fishers outside the closure (Hilborn et al., 2004). Large MPAs, and ones that occur in prime fishing areas, have the potential to significantly affect fisheries in the short term through displacement of effort, supply chain disruption, and fishers leaving the

fishery for other opportunities (Sen, 2010; Stevenson et al., 2013; Murawski et al., 2005; Smith et al., 2010). Further, as the climate changes, spatial management approaches will need to be responsive to species range shifts and habitat loss increase over time (Carr et al., 2020). Therefore, networks of small, well-managed, and flexible closures could be a promising way to achieve conservation and fishery goals (Rojo et al., 2019).

Spatial closures that allow partial or limited use can also help to improve equitable access to fishing grounds for small-scale fishers. For example, Territorial Use Rights for Fisheries (TURFs) networks and other forms of spatial management allowing for partial-use of protected areas have been used as ways to secure food security and to increase sustainable fishery yields (Frid et al., 2016; Burns et al., 2020; Nomura et al., 2017; Aceves-Bueno et al., 2023). These fishery management frameworks emphasize the role of local stewardship and the benefits to subsistence and small-scale fishers where monitoring and fisheries assessment is limited (Frid et al., 2016; Aceves-Bueno et al., 2023). Some also focus specifically on protecting fishery access for Indigenous communities, such as small-scale closures in British Columbia, Canada, that exclude commercial shellfish harvest (Frid et al., 2016). Spatial management approaches have been also used occasionally for shellfish fisheries in Southeast Alaska, USA, with the motivation of preserving local subsistence and personal use harvest for benthic species, including Dungeness crab, shrimp, and sea cucumber (ADF&G, 2015). Over the last twenty years, more than 60 limited-use shellfish closures have been proposed to the state fishery management body—the Alaska Board of Fisheries (BOF)—but the outcomes of these regulatory proposals have been variable. Understanding the social-ecological context and outcomes of these proposals for shellfish fishery closures will help to elucidate the role of spatial management as a tool for multi-use shellfish fisheries in Alaska.

This study builds on existing research exploring spatial management strategies for small-scale fisheries, through the lens of commercial and recreational shellfish fishery closures in Southeast Alaska. Based on the number of closure proposals aimed at protecting fishing access for subsistence harvest, and given the high proportion that failed in the BOF process, there is an unmet need for understanding perceptions around the spatial management of shellfish and its efficacy for local communities. The objective of this research was to document spatial closures for Dungeness crab (*Metacarcinus magister*) fisheries as proposed through the BOF over the past 14 years to better understand the ecological, social, and policy conditions that led to proposed closures and their outcomes. Dungeness crab were selected as the species of interest for this study due to the large number of closure proposals relative to other species. We performed a qualitative content analysis of public meeting records to characterize the discourse and broader themes around spatial management that emerged from BOF deliberations and public comment. This synthesis offers additional insights into the application of spatial management to support Indigenous food security and sovereignty.

Study fishery background

Shellfish harvest has been ongoing for thousands of years by Tlingit and other Indigenous peoples across the Southeast Alaska region. Current fishery sectors include subsistence, personal use, sport, and commercial. Subsistence fishing is a designation for residents of rural areas who harvest for personal consumption (ADF&G, 2024n, ADF&G, 2024a). Under subsistence eligibility criteria, both Alaska Native and non-native residents may harvest under subsistence designated areas (i.e., less densely populated communities; ADF&G, 2024m). Under state law, the BOF must provide for subsistence use prior to commercial and sport access (e.g., through Customary and Traditional Use Determination for particular stocks; ADF&G, 2024f). Personal

use falls under roughly the same regulations and refers to the harvest for personal consumption by Alaska residents including in areas designated as “non-subsistence” due to socioeconomic factors that suggest a lower priority for subsistence needs (ADF&G, 2024a; ADF&G, 2024j). Recreational, or sport, fishing regulations can be differentiated according to state resident status and whether fishing is guided (employing a charter or fishing guide) or unguided. Residence status is defined as having lived for 12 consecutive months in the state and not claiming residency in any other state, territory, or country (ADF&G, 2024l). A sport fishing license is required and the license fee is higher for non-residents.

Commercial pot fisheries started in the 1930s and commercial Dungeness crab harvests have fluctuated since the 1960s (Stratman et al., 2014). Commercial fishing is currently managed under a limited entry permit system (Stratman et al., 2014). The contemporary commercial Dungeness crab fishery is relatively small, with 150-264 permits since the 1985-1986 season, with catch ranging from 1.9 to 7.3 million pounds of crab (ADF&G, 2024b, ADF&G, 2024k). Regulations for Dungeness crabs include size restrictions (e.g., minimum harvestable size of crab is 6.5 inches across the carapace), selective harvest of males, and the requirement of standardized escape rings on pot gear (ADF&G, 2024b; ADF&G, 2024a; ADF&G, 2024c).

State fisheries for Dungeness crab are managed by the BOF, composed of seven members with three year terms appointed by the state governor and intended to represent a range of user groups and geographic regions (ADF&G, 2024e). The Alaska Department of Fish and Game (ADF&G) implements and enforces regulations set by the BOF and performs fishery and biological monitoring (ADF&G, 2024h). The BOF holds annual meetings throughout Alaska communities to evaluate regulatory proposals and provide a forum for fisheries discussions (ADF&G, 2024e). Regulatory proposals may be submitted by a member of the public, an

organization, a Tribal government, or ADF&G; they are considered for each region of the state once every three years for a variety of fisheries and stocks (ADF&G, 2024e). Advisory Committees (ACs) also act as a forum or intermediary for local communities to discuss fisheries issues and regulation and convey concerns and recommendations to the BOF (ADF&G, 2024d; Gordon et al., 2022). ACs receive funding from the state to send a representative to regional BOF meetings to report on key issues (Krupa et al., 2018).

Dungeness crab are characterized as "shellfish" for management purposes along with a suite of other crustaceans, clams, and urchins (ADF&G, 2015; Hebert, 2014). There is relatively little fishery-independent data for Dungeness crab in Southeast Alaska to assess their population status or the effects of spatial closures (ADF&G, 2024g). ADF&G conducted Dungeness crab surveys from 2000 to 2004 to better understand crab populations and life history variability, but no surveys have been conducted since that time (ADF&G, 2024g). Due to biology and life history characteristics, Dungeness crab are difficult to robustly assess and there is no active stock assessment program. Rather, ADF&G relies on the "3-S system" that manages by size, sex, and season (ADF&G, 2024g).

Methods

Data acquisition and management

We used publicly available BOF records as the primary data source for this study, including meeting summaries, regulatory proposals, and audio recordings of oral testimony and board deliberation (ADF&G, 2024i). From this source, we filtered for relevant meetings by selecting "Southeast and Yakutat Crab and Shellfish" and years with known meetings. We examined records for six BOF meetings in Southeast Alaska over fourteen years (2006-2022) to

identify proposals pertaining to shellfish closures. For the years 2006 and 2009, only written documents were available online, so audio recordings of the meetings were requested from the ADF&G Boards Support Section (K. Tibbles, personal communication, September 2023). For the years 2012, 2015, 2018, and 2022, both written documents and audio files were available online through the BOF Meeting Information webpage (ADF&G, 2024i).

First, we reviewed each meeting agenda to identify proposals related to spatial fishery closures that excluded commercial or sport fishing of Dungeness crab. These included both proposals that would close a new area or reopen a previously closed area. For each proposal, we cataloged the location, proposer, focal fishery, proposed regulation change, justification, and outcome (i.e., whether the proposal carried, carried on the amendment, failed, failed on the amendment, or was not assessed and designated as "no action" by the BOF). For project scoping purposes, we selected a subset of 18 proposals for thematic analysis that represented a variety of geographic areas in Southeast Alaska, a range of proposal outcomes, and focused on geographic areas with a longer history of spatial management that could be tracked through the BOF process over multiple years. For this subset, a list of relevant audio segments that included relevant public comments and Board deliberation was identified and used as a guide for recording and transcribing targeted sections of each meeting. Relevant meeting segments were recorded from their online streaming or audio file location using the videoconferencing platform Zoom, which auto-generated transcripts. Transcripts were reviewed and edited for clarity and accuracy before and during use in analysis.

Content analysis

A qualitative content analysis was performed on transcripts from the 18 selected proposals to identify salient themes (Creswell and Creswell, 2023) in the public discourse around proposed spatial closures for Dungeness crab. This approach allowed us to draw out broader themes related to fisher and manager perspectives on spatial management beyond what is expressed in the language of the formal proposals and results of the final BOF vote for each proposal. A codebook (Table 1) was developed after an initial round of inductive coding and review of transcripts, expanding upon preliminary codes generated during the collation of the proposals. The transcripts were reviewed twice in full by the lead author and coded using ATLAS.ti software. Codes were discussed and refined iteratively among members of the author team (RN, AB). Once no new codes were identified, we examined the coded text to characterize prominent themes within the discussion among fishery participants and managers regarding use of small fishery closures for Dungeness crab in Southeast Alaska.

Results

Summary of proposals

The initial review of proposals from 2006 to 2022 yielded a total of 41 Dungeness crab proposals related to area closures (Appendix Table A.1). These reflected a variety of proposed regulations, including commercial area closures, sport area closures, and commercial area reopening. Reasons for submitted proposals ranged from efforts to increase food security and fishing access to addressing concerns about low crab abundance.

The subset of 18 Dungeness proposals (out of the total 41) selected for in-depth content analysis showed similar variation in proposed regulations, locations, proposer demographics, and proposal outcomes. Among the 18 analyzed proposals, 16 were to close waters to commercial or sport fishing and two were to reopen previously closed waters to commercial fishing (Table 2). Together, the proposals included seven locations throughout Southeast Alaska, including one that encompassed the entire region (i.e., Area A; Figure 1). Proposers included ACs, fishing associations, community groups, individuals, and Tribal governments. All possible outcomes (carry, carry by amendment, fail, fail by amendment, or no action) were represented in these 18 proposals.

Overview of salient themes

From the content analysis of meeting records, we identified six major themes that are detailed below: (1) Changes in proposal strategies over time; (2) Community identity and insider/outsider dynamics; (3) Differences in representation among fishery groups; (4) Role of closures in enabling or constraining local access; (5) Spatial management as a flexible tool; and (6) Challenges arising from data limitations. "Changes in proposal strategies" reflects the varying approaches taken and justifications for closures. "Community identity and insider/outsider dynamics" reflect cohesion within community identities and discourse related to "insider" or "outsider" status with respect to fishery access. "Differences in representation among fishery groups" includes discussion of differences in which particular group identities were represented among the proposers and those providing oral testimony at BOF meetings. "Role of closures in enabling or constraining local access" refers to ways in which closures aimed to protect or inhibit use of small areas by particular groups. "Spatial management as a flexible tool" reflects the role

of closures as an adaptive management tool, and "Challenges arising from data limitations" describes management and monitoring issues resulting from a lack of biological and/or fishery data.

Theme 1. Changes in proposal strategies over time

Over a 14-year period, 6 of the 7 locations in which closures were proposed (Figure 1) were the subject of more than one regulatory proposal over multiple Board cycles (17 of 18 proposals; Table 2). In the multi-year cases analyzed, the proposers and/or proposal strategies shifted over time. These shifts were largely characterized by changes in the particular fishery sector targeted for the closure. For example, a failed proposal that aimed to close both commercial and sport fishing was later amended to remove sport and was passed with only a commercial sector exclusion (Proposals 282 in 2006, 154 in 2009, and 146 in 2012; Table 2). Another example is a set of 3 proposals for Area A (Table 2), representing all of Southeast Alaska, that aimed to add sport limitations to areas that already had commercial closures. These proposals were put forward by an AC in 2006, a fishing association in 2009, and an individual in 2012, suggesting that the proposed closures had some degree of support among various stakeholders; however, they all failed with no subsequent attempts after 2012 (Table 2). Members of the public testifying at BOF meetings sometimes referenced past proposals and how they had been adapted based on feedback from ADF&G staff and previous outcomes at BOF meetings. A commercial fisher who spoke at the 2006 BOF meeting explained:

> "In the last Board cycle, we had a proposal similar to this that did not list the areas. It was opposed by the Sport Fish department because it would have closed all of Southeast, they

felt. So we went back and listed the areas specifically that we wanted close to sport fishing that was left out of the proposal" (Proposal 282, 21 February 2006, Ketchikan).

Another set of proposals for Coffman Cove showed a change in proposers' strategies between 2009 and 2022 (Table 2). The initial proposal in 2009, submitted by an individual, focused on excluding the commercial sector from an area and failed. In 2022, this was revisited in the form of two proposals put forward by an AC, one that would close commercial fishing and another that would close sport fishing in the same area. These more recent proposals focused on the dual impacts of the two sectors on local access to crab. However, only the closure that excluded sport fishing was ultimately passed. Proposals for areas near Klawock showed a similar trend, but favored a commercial closure instead. Two sport closures proposed in 2018 either failed (Proposal 57) or were not assessed based on similarity to the one prior (Proposal 58). A 2022 commercial closure for the same area put forward by an AC was passed on amendment.

Whale Pass is another example of the approach of submitting separate commercial and sport closure proposals (Table 2). A community group proposal to close commercial crabbing failed in 2015, but both commercial and sport closure proposals submitted by an AC passed in 2022. This area had been closed to commercial crabbing prior to 2006 and reopened in 2009 through a proposal put forward by a fishing association. The Whale Pass area is the most dynamic of the areas assessed in this study in terms of changes in spatial management.

Theme 2. Community identity and insider/outsider dynamics

A recurring theme in the discussion of proposed closures was a distinction drawn between "insiders" and "outsiders" to the communities, fisheries, and the State of Alaska. Language used by meeting participants reflected that residents of the communities benefiting

from the closures or, more broadly, Alaska residents were seen as "insiders." In contrast, commercial crabbers, charter operators harvesting in the local bays, or more often non-residents from the Lower 48 participating in guided charter and unguided sport fishing were viewed as "outsiders." Many proposals aimed to exclude outsiders in order to protect community access to marine resources. The commercial Dungeness crab fleet in Southeast Alaska is small, and in some cases, proposals would affect as few as one known commercial crabber in a given area.

Despite a tension between local residents and the commercial crabbers they often aimed to exclude, the two parties sometimes demonstrated similar stances against other outsiders. Several AC and fishing group representatives, as well as local residents, have argued that charter operators and out-of-state sport fishers take advantage of commercial area closures to continue fishing, despite a “commercialized” model of sport fishing in which guides are paid by clients. In 2012, an AC representative argued that “if there really is a conservation concern, we want to get crab in the hands of Alaska residents, and close down the commercial fishery. For that, we should also close down the non-resident participation, and actually reserve those crab for the residents of the State of Alaska” (Proposal 146, 15 January 2012, Petersburg).

Another example of this tension or perceived competition was evident in the testimony of a commercial crabber in 2009 who said that in relation to an area they fished for many years, they “never had a problem withpersonal use fisherman. The problem I ran into, and I don’t like targeting a specific group, but I’ve had serious problems with the charter” (Proposal 157, 22 January 2009, Petersburg). However, there is some support for the charter industry as a result of the revenue that fishing tourism brings to the state and local communities with charter lodges. In 2006, a BOF member provided insight into the value that the charter industry, and out-of-state fishers, bring to the region:

> "I've said it before, it looks like I'll have a chance to get to say again. The whole purpose of the sport fishing industry is to bring people here to enjoy themselves, not necessarily haul out a total load of fish, but to enjoy the experience, pull a pot, see it done, boil one for lunch, and enjoy the experience. It seems to me like we could have a much more rational approach to limiting a harvest and limiting a perception of loss of opportunity for the residents without attacking [charter fishing] without a real logical progression here. And to me, this is not logical to stop a fishing issue when there doesn't seem to be any biological issue. We have a social issue" (Proposal 282, 24 February 2006, Ketchikan).

Compared to commercial, the charter industry was not as well represented in the oral testimony. Hence, less insight could be drawn about their perceptions of this insider/outsider dynamic and how they fit into discussions around closures supporting community needs. Still, they did not seem to have any overt opposition to commercial crabbing in areas where they harvest, as there were not any proposals from the study period proposing a commercial closure by charter interests or charter fishers advocating for commercial closures.

Theme 3. Differences in representation among fishery groups in testimony

In the proposal and testimony records, the fishing sector affiliations of closure proposers and speakers were skewed towards particular groups. Proposals were submitted by a variety of groups including ACs (n=6), individuals (n=6), fishing associations (n=4; one of these was jointly submitted with a community group and one with an individual), Tribal government (n=2), and community groups (n=2) (Figure 2). Half of the proposers (n=9) were present and spoke on behalf of their submitted proposal(s). Many of the proposals without their proposers speaking failed to carry (n=7); however, some proposals (n=3) still failed to carry even with the proposer

present and providing testimony. The dominant group identity of people testifying, as declared at the beginning of their comment, was AC members (n=19), followed by commercial crabbers (n=11), general public (n=8), fishing associations (n=8), guided sport fishers (n=3), and personal use fishers (n=1) (Figure 2). There were no speakers who identified themselves as unguided sport or subsistence users.

In terms of the fishery sectors discussed in testimony for the 18 analyzed proposals, commercial fishing was most often mentioned, followed by personal use, subsistence, and guided sport with similar occurrence. Unguided and unspecified sport sectors were the least commonly referenced in testimony. The nature of these comments was most frequently related to how the proposed closures would yield benefits or costs to particular groups. Most proposals (n=11) were related to closing or reopening areas to commercial fishing so it would be expected to see the most discussion around this sector, followed by guided sport (n=7). Members from all group identities talked about most or all of the fishery sector groups, though not always equally (Figure 3). Among AC members who testified, the commercial fishery sector was mentioned most frequently (n=19), followed by sport (n=14), and subsistence (n=8). Among guided sport participants who testified, commercial (n=5) and guided sport (n=2) sectors were most commonly discussed. Members of fishing associations who testified most frequently mentioned commercial (n=7), personal use (n=6), and unspecified sport (n=5) sectors. Members of the public most frequently mentioned the guided sport (n=5) and subsistence (n=4) sectors.

Theme 4. Role of closures in enabling or constraining local access

Most of the closure proposals used justifications related to meeting community needs, rather than reasons related to conservation. Meeting participants discussed closures as a way to

address concerns about low harvest levels for personal use and subsistence fishers, navigational and safety issues related to high pot density near their communities, depletion of crab populations after commercial seasons, and inability to travel greater distances to avoid areas with high use by commercial fishers. In 2009, a fishing association representative explained that "these areas were closed, not for conservation of the resource, but to provide local Alaskans from that community an area to fish. Let's leave that for the local Alaskans by passing this proposal, and making sure that the closures meet what the intent was for" (Proposal 154, 22 January 2009, Petersburg).

In public testimony and within the text of most of the proposals, it was noted that communities have a hard time catching crab during and after the commercial Dungeness crab season. The commercial operators set more pots than personal use and subsistence fishers, fishing at a high capacity for a short season. Meeting participants commented that despite personal use and subsistence fishers having fishing access year-round, there are periods where the biomass of legal size crabs is not sufficient for meeting community food needs. An AC representative in 2022 highlighted how a commercial crabber "comes in in the fall and drops his pots, and then many of the locals can't catch a crab there for almost 6 weeks afterwards" (Proposal 204, 14 March 2022, Anchorage).

Across multiple proposals, participants noted that the density of commercial crab pots in local bays posed a navigation hazard for boats and seaplanes. One proposal also noted that the density of commercial pots made navigation and accessing subsistence crabbing areas more difficult for residents by boat. An AC representative and charter operator commented in 2022 how buoy density can impact navigation, describing how "a float plane crashed into a navigational aid in the bay because it was allegedly dodging all the crab pots. There were so

many pots and fishermen, and it's difficult for the locals" (Proposal 204, 13 March 2022, Anchorage).

A frequent comment made about these closures was that they are highly localized. These closures are in bays and inlets near small, rural communities where the travel distance to other crabbing areas would be prohibitive in small boats. Closing areas for exclusive use of local communities ensures access for fishers that lack the equipment or financial resources to travel longer distances. In 2006, as BOF members were deliberating the merits of Proposal 282, one responded to the other, affirming the motivations behind these closures for ensuring access and opportunity to local residents:

> "As [another BOF member] stated, most of the areas are located next to communities.I think that this just provides an additional opportunity for those folks residing in those communities who probably, a lot of them don't have the type of gear that they can travel long-distanceto participate in the personal use. Whereas I think that, generally speaking, the charter boat industry has better equipment that can move further away from the communities to participate. It's not like we're closing the whole Area A off. It's a fairly small area in comparison to the total Area A" (Proposal 282, 24 February 2006, Ketchikan).

Another reason that many people supported these small closures was that some nearby communities are economically depressed and residents are unable to readily travel to larger towns or cities to buy food and other goods. Some communities rely on subsistence harvest to meet their nutritional needs. In 2022, a member of the public offered an illustration of this issue, saying, "I'm not sure if any of you have been to Prince of Wales; cost of living there is really high. Crab and many other species that a lot of these people need to sustain them is really

important to harvest on their own. Not having to utilize the really expensive grocery stores there" (Proposal 200, 14 March 2022, Anchorage). This support for local access seemed to be more prevalent among people with first-hand experience living in these communities or who more broadly recognize the importance of supporting subsistence and personal use fishing as a way of life and under state regulation.

Some critiqued the proposals as overly exclusionary or unnecessary for meeting local subsistence needs. For instance, a commercial crabber who also fished for personal use off-season highlighted that commercial activity "does not impede my ability to access crab. I went out and set pots before the big game last week, caught plenty of crab to feed the family and my guests" (Proposals 71 and 78, 21 January 2015, Wrangell). The same individual later commented that "the general public has 365 day a year access to the resource. I do not believe they are hindered from gathering whatever subsistence or personal use or sport fish they need to gather" (Proposals 71 and 78, 21 January 2015, Wrangell). Another reason for opposing some closures was their perceived impact on entry into the fishery by young people. This last point was recounted by a commercial fisherman in BOF testimony:

> "In Wrangell, we have a number of young men that have started their fishing careers or paid for their college careers by going to the [commercial] entry-level, the gateway fishery of Dungeness crab. Buying a 75 pot permit, they've built skiffs up in our high school shop classand then fish those skiffs in the summer. And you know that if you sit back and look at it regionally, you can't do that in Ketchikan. Kids can't do that in Sitka. Kids can't do that in Juneau. And it's because those areas are closed. They're closed in the summer when the kids are out of school or they're closed permanently. And every time you lop off an area it just compresses [the commercial fishery]. Not only does it compress

people down into a smaller and smaller area to fish, but it has some devastating effects on future fishermen. You know I'm old enough now that it's not going to probably affect me that much, but really, for the generations coming up. It really will" (Proposals 71 and 78, 21 January 2015, Wrangell).

Theme 5. Spatial management as a flexible tool

Though some closures have been in place for extended periods of time, and may commonly be thought of as permanent, they are flexible management tools that can be reversed if a need arises. This was demonstrated through the dynamic nature of some closures. Two proposals out of the 18 assessed were aimed at repealing a prior closure in order to re-establish commercial access (Proposals 155 and 156 from the 2009 BOF meeting). Proposal 155 was to reopen commercial crabbing in Whale Pass and was submitted by the Southeast Alaska Fishermen's Alliance, a group that represents the interests of commercial fishers participating in Southeast Alaska fisheries. This proposal suggested reopening the area for the fall fishery season, citing less competition with local residents who primarily live there in the summer. In 2006, a commercial crabber argued that the goal of the Whale Pass closure was being compromised by charter fishing and that the area should be reopened. They described how "an area inWhale Pass was closed, and there are three [charter] lodges that operate in that area, and it has created a little honey hole for them where commercial groups cannot go in there, but they are able to provide crab for their clients" (Proposal 282, 21 February 2006, Ketchikan).

Proposal 156 was to reopen commercial crabbing in Chaik Bay, put forward by the Southeast Alaska Fishermen's Alliance and an individual commercial fisherman after a closure was put in place in 2006. This proposal argued that the closure area was not adequately

protecting local personal use and subsistence needs in light of charter utilization. The proposers argued that the area should not arbitrarily be closed to commercial use if sport interests were continuing to have impacts on the area. A BOF member who was present during the 2006 meeting in which the closure passed described their reasoning for reopening the area, saying, "as a member of that 2006 Board that did believe we were doing something significant for local community, I can now see that it probably was not workable and hasn't proven to be an effective tool to allow the community access they don't have in other areas. So I will be supporting this proposal as well" (Proposal 156, 26 February 2006, Ketchikan).

Despite the repealing of past BOF decisions in the form of reopening closed areas, BOF members often made decisions that considered precedent set by previous boards. In 2012 during BOF deliberation about a proposed closure which would have closed sport fishing in areas already closed to commercial harvest, a BOF member recognized that members of the past boards considered the unique histories and economic values of a given fishery and stated that "for me at this time to take a blanket view of this, and just totally close it down and just override everything all the past boards did, I don't think I can do that" (Proposal 146, 19 January 2012, Petersburg).

Theme 6. Challenges arising from data limitations

The Southeast Alaska Dungeness crab fishery is relatively data-limited. Public comments suggested a lack of regularly conducted evaluations of subsistence harvest use and needs, insufficient recreational reporting, and fishery-independent quantitative assessment. During the 2022 meeting, one BOF member talked about how, in the case of Klawock, some of the subsistence harvest data they relied on was from 1997, saying that they "recognize this data is

pretty dated" (Proposal 200, 15 March 2022, Anchorage), despite it being the only data available at the time. It is also possible that the amount of crab considered "enough" for subsistence is not well understood or quantified. In 2015, an ADF&G staff member reported that based on surveys in 2013, Hoonah residents "said that they were not getting enough crab for subsistence needs" (Proposal 78, 22 January 2015, Wrangell). From this statement, it is unclear to what extent the harvest had been insufficient and what the ideal harvest level is for supporting community needs.

Another concern expressed in relation to harvest was the lack of accurate sport harvest reporting and accounting. In 2009, a commercial fishing association representative stated: "One thing that is becoming very apparent, that will be needed, is accurate accounting of recreational fish. We could not have sustainable fisheries in the future if we don't know what's being removed, and then set appropriate catch limits for the other fisheries" (22 January 2009, Petersburg). This issue ties into broader concerns around the lack of fishery-independent data. For the Southeast Alaska Dungeness crab fishery, commercial harvest is used as a proxy for abundance. In 2009, an AC representative commented that "one of the interesting things is, the only way for ADF&G to get stock information is through the commercial fisheries. You know, in the reporting statistics, and when you close an area you certainly never have that information again" (Proposal 157, 22 January 2009, Petersburg). They argued that the proposed commercial closures would result in less data for that area.

Discussion

Using 14 years of BOF meeting records, we found a rich and detailed dialogue on the social, ecological, and policy dimensions of Dungeness crab fishery closure proposals. Key themes identified through qualitative content analysis of the proposals include an emphasis on

preserving local access to the fishery, complex social dynamics among user groups, differences in representation by various user groups throughout the public process, concerns around inequitable impacts of closures, and concerns around the quality and quantity of data for managing the fishery. These themes indicate social needs, rather than ecological concerns, leading the justification of proposals and being a primary point of discussion around the value and impact of closures for local communities and for Alaska as a whole.

Spatial management as a mechanism for local access

A common thread through all of these proposals is the desire to meet or protect the needs of local communities, particularly rural, Alaska Native communities off the road system. Conservation issues related to Dungeness crab were sometimes discussed in the record, but not as an explicit or sole purpose for the closures. Examples of similar applications of spatial management in small-scale fisheries exist around the world, and provide a reference for ways that management systems can work to meet local needs. These are generally characterized by restricting access to commercial and outsider groups as a way to protect exclusive rights to an area or to support subsistence harvest by local or Indigenous communities (Villaseñor-Derbez, 2019; Burns et al., 2020; Frid et al., 2016). A common form of limited use areas is a TURF system that focuses on spatial allocation of access rights that emphasize the role of local stewardship in data poor fisheries (Nomura et al., 2017; Aceves-Bueno et al., 2023). TURFs may start as informal agreements or fishing cooperatives, but become formalized management systems with support from NGOs and government (McCay, 2017). These set up a framework of limited use areas that reserve access for local fishers and cooperatives as a way to prevent overharvesting but retain some fishing activity to support local communities and economies

(McCay, 2017). An example of small scale management more closely resembling the Southeast Alaska closures is described by Frid et al. (2016), where four First Nations in British Columbia, Canada, declared commercial and sport Dungeness crab closures in response to declining catch rates as a way to provide priority for subsistence. They compared these closures to open control sites to test the effects of the closure, finding that the spatial closures reversed fishery-induced declines in abundance and body size (Frid et al., 2016). The Dungeness crab closures in Southeast Alaska provide another example of community-forward management in small-scale fisheries.

Despite the benefits to local subsistence and personal use fishers who retain access to limited use areas, there are consequences for excluded user groups, such as guided sport and commercial fishers. An ongoing concern in many fisheries in Alaska and elsewhere is a phenomenon called the "graying of the fleet," a trend in commercial fishing characterized by an aging population without new and younger entrants taking over permits (Donkersloot and Carothers, 2016; Cramer et al., 2018). Complex socio-economic factors, such as the high cost of entry, migration of permits from rural residents to non-residents, and lack of youth engagement, drive this trend (Donkersloot and Carothers, 2016). Closures may exacerbate existing barriers by creating an additional challenge to participation for young adults wanting to enter the commercial fishery. This provides additional context for why the commercial industry and their representatives were often staunchly opposed to more area closures in Southeast Alaska.

Representation in state fishery management

Though the oral testimony used for this study is rich in detail, only the perspectives of participants in the public meetings are revealed in our results. Not all sectors were represented in meetings. Members of ACs and commercial fishers most often testified, followed by members of

the public and fishing associations. Little to no testimony was provided by personal use, subsistence, and unguided sport fishers. Additionally, only half of the proposers were present in the testimony record, with the majority of those absent being individuals, Tribal government, and community groups. Proposals without their proposers advocating for them had lower success compared to those who had vocal proposers.

Our findings may reflect broader issues related to equitable representation in decision-making and the public process of Alaska fishery management (Krupa et al. 2020, Gordon et al. 2022, Scalisi et al. 2024). Based on a wider review of BOF records, Krupa et al. (2020) showed that certain groups are better represented and have more success in passing regulatory proposals. They found that Alaska government entities submitted a minority of BOF proposals that made up the majority of those that carried (Krupa et al. 2020). Though they group ACs with other public entities, it is worth noting that ACs are authorized by state statute (AS 16.05.260) to act as intermediary bodies between the agency and user groups and that ACs have more institutional support in the form of longer time limits for testimony at BOF meetings and consultation with ADF&G staff than other groups might (ADF&G, 2024d).

Many of the proposals submitted aimed to protect subsistence access for rural communities, yet voices of Alaska Native harvesters were rare in the public record. Issues of representation for Indigenous communities in Alaska's resource management systems have been well documented (Krupa et al., 2020; Green et al., 2022; Walsey and Brewer, 2018). Barriers to participation in the BOF and other regulatory processes can arise from technological and financial barriers, such as limited internet access and lack of funding for time and travel, as well as structural inequalities in settler institutions that disadvantage Alaska Native communities (Walsey and Brewer, 2018; Wilmer et al., 2024). Furthermore, while subsistence priority is

encoded in the Alaska state law, it does not explicitly prioritize Alaska Native food sovereignty. Legal definitions of subsistence focus on food security and physical access to harvest; however, this view of subsistence, and the way in which it is enacted in fish and wildlife management, is at odds with broader conceptualizations of customary and traditional use by Indigenous people (Wilmer et al., 2024). For Alaska Native communities, harvest is not only for acquiring food, but for preserving a way of life and cultural practices that bring communities and generations together (Wilmer et al., 2024).

Data needs for Dungeness crab management revealed in BOF records

Testimony of fishers to the BOF indicated broader ecological and social concerns that compound with closures, primarily impacting the commercial fishery. Many fishers discussed scientific uncertainty as a cause for concern, due to the lack of fishery-independent data and stock assessments, as well as a loss of catch data resulting from commercial closures. Stock assessment is notoriously difficult for shellfish, such as crabs, due to the inability to determine accurate ages needed for age-structured models (Punt et al. 2013). Size-structured models used for crab stocks can be affected by variations in size at maturity and reproductive timing (Punt et al. 2013; Olson, 2016). Given these difficulties, crab management relies more on biomass-based models that utilize commercial catch data managed by size, sex, and season regulations (Olson, 2016). In addition, early life history data are limited. In other regions, light traps are used to monitor Dungeness crab larvae (Porter et al., 2008; Shanks et al., 2010). Implementing these in Southeast Alaska would be more logistically challenging, as the geographic and oceanographic conditions in Southeast Alaska are more complex than in many other places that light trap networks have been deployed (Herter and Eckert, 2008). Southeast Alaska could follow the

example set by the Pacific Northwest Crab Research Group and Sentinels of Change to establish a volunteer-run region-wide light trap network (Pacific Northwest Crab Research Group, 2024).

Research is also needed to understand effects of climate and ecological change on crab populations, including the impacts of climate change on Dungeness crab in Southeast Alaska and adaptive management strategies to mitigate these impacts. Dungeness crabs are vulnerable to decreased oxygen, decreased pH, and warming waters that could impact larval dispersal, recruitment, and adult biomass (Berger et al., 2021; Rasmuson et al., 2022). Harmful algae blooms, a phenomena expected to become more frequent with climate change, closed the Dungeness fishery in California in the 2015-2016 fishing season (Mao and Jardine, 2020).

An important ecological driver in Southeast Alaska unrelated to climate change is the reintroduction of sea otters (*Enhydra lutris*) in 1960. Sea otters have had negative impacts on Southeast Alaska dive fisheries for sea cucumber in some areas (Larson et al., 2013). Past research from Pitcher & Imamura (1990, p 16) showed a "tentative negative correlation between the abundance of crabs and the abundance and length of occupancy of sea otters in the general area of the index sites." BOF testimony from commercial crabbers suggests the same. A commercial crabber noted sea otter impacts when discussing broader concerns around displacement caused by the accumulation of area closures, stating, "we've lost so much area over the years, not only to area closures but also to sea otters, that we're getting pretty condensed" (13 February 2022, Anchorage). The flexibility of closures, as shown in cases of reopening, might be a tool for adaptive management where the locations and extents of closed areas can change over time according to climate change and sea otter-induced stressors on the fishery.

Strengths and limitations of public records analysis

This study serves as an example of how analysis of public records can help to better understand the social dimensions of fisheries, and adds to a growing literature exploring this approach in Alaska fisheries (Krupa et al. 2018; Krupa et al. 2020; Szymkowiak and Steinkruger, 2023). The dataset used here captures the perspectives of multiple user groups and stakeholders alongside the BOF members and ADF&G staff who provide technical support during meetings. A limitation of our analysis was the act that oral testimony does not fully capture all commentary related to the evaluated proposals; thus, the results would be strengthened through inclusion of written comments in the analysis. Though this study focused narrowly on Southeast Alaska Dungeness crab fisheries, the broader themes that emerged reflect issues related to fishery access and spatial management in fisheries worldwide (Aceves-Bueno et al., 2023; Frid et al., 2016).

Analysis of public records in resource management has a wide range of applications outside of academic research. This approach has the potential to provide more succinct summaries of the historical record on recurring issues that could help inform decision-makers or members of the public interested in learning more about past proposals to aid in development of new ones. However, public records only capture perspectives of fishery participants who are engaged in the public process. In addition, public records do not capture dialogues happening outside of the meetings that may substantially influence outcomes. Informal conversations between fishers and decision-makers can be influential in conveying ideas to BOF members, as noted by a BOF member who said, “During the break, we had some–we had some conversation with some of the commercial fleet. And it looks like there might be room for a compromise within those discussions” (Proposal 78, 21 February 21, 2015, Ketchikan).

Conclusions

The future of the Southeast Alaska Dungeness crab fishery faces uncertainties in the face of changing social and ecological conditions. As expressed in the testimony, there are many questions around whether sufficient data are being collected for subsistence and recreational harvest alongside concerns about losing commercial data from closed areas. Fishers and members of the public advocated for improvements in the data collected for the various sectors, suggesting the potential for developing collaborative research with local communities to address data needs. Shellfish managers in Southeast Alaska will need to account not only for existing concerns regarding fishery access, but also for pressures resulting from climate change. Beyond Alaska, there is a growing interest in finding ways to better involve small-scale fishers in decision-making processes and to expand the capacity for co-management and co-production of research with historically underrepresented communities (Kockel et al., 2020; Freitas et al., 2020; Michalena et al., 2020; Yang and Pomeroy, 2017; Reid et al., 2020). Improved knowledge sharing among fishers and management bodies may help to better anticipate and respond to social-ecological change, and address challenges in ways that center community needs.

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Table 1. A summary of the major code groups, code group definitions, and specific codes used during analysis.

Code Group	Description	Codes
Alternative Measures	Amendments, compromises, or alternative ways to address the issue of continued closures	Compromise; Formal Amendment; Proposed Expansion; Fishing Permit Reduction
Ecological Concerns	Comments noting low biomass or ecosystem interactions that negatively impact the fishery	Low Crab Biomass; Habitat Issues; Sea Otter Predation
Economic and Management Concerns	Characteristics of the fishery that affect or motivate fishers	Value of the Fishery; Fishing Season Limitations
Final Vote	The final vote by the BOF following deliberation	Pass; Pass as Amended; Fail; No Action
Fishing Sector	The fishing sector being discussed	Commercial; Sport; Subsistence; Personal Use
Group Identity	What role or sector they identify with within the fishery	Commercial; Sport; Subsistence; Personal Use; Fishing Association Representative; Advisory Committee Representative; ADF&G Staff; General Public
Position	Comments about the level of someone's position on a proposal	Support; Oppose; Neutral
Proposals	An indicator for when a specific proposal of interest is mentioned or being discussed	Year and proposal number for each of the 18 proposals
Social Concerns	Motivations that might affect someone's position on a proposal	Barriers to Entry in Commercial Fishery; Within-Sector Competition; Between-Sector Competition; Meeting Community Needs; Insider/Outsider Dynamics

Table 2. Summary table of 18 priority proposals ordered by location and proposal year. The 'Result' column indicates the proposal outcome as carry (C), carry on amendment (CA), no action taken (NA), failed (F), or failed by amendment (FA). 'Votes' shows the number of votes in favor of (first number) and votes opposed to (second number) carrying the proposal as submitted or amended.

Location	Year	Proposal number	Proposer	Proposer type	Proposer testimony	Proposed action	Sector(s) excluded	Result	Votes
Area A	2006	282	Wrangell Advisory Committee	AC	N	close	sport	F	NA
Area A	2009	154	Southeast Alaska Fishermen's Alliance	fishing association	Y	close	sport	F	NA
Area A	2012	146	Brennon Eagle	individual	Y	close	sport	F	NA
Chaik Bay	2006	273	Daniel D. Failoni	individual	N	close	commercial	CA	NA
Chaik Bay	2009	156	Pete Rody, Southeast Alaska Fishermen's Alliance	individual, fishing association	Y	reopen	commercial	C	NA
Coffman Cove	2009	157	Bryce R. Bucker	individual	N	close	commercial	F	NA
Coffman Cove	2022	205	East Prince of Wales Fish and Game Advisory Committee	AC	Y	close	commercial	FA	2/3
Coffman Cove	2022	204	East Prince of Wales Fish and Game Advisory Committee	AC	Y	close	sport	C	4/1
Hoonah	2015	78	Hoonah Indian Association	tribal government	N	close	commercial	CA	7/0

Klawock	2022	200	Klawock Fish and Game Advisory Committee	AC	Y	close	commercial	CA	5/0
Klawock	2018	57	Tom & Brenda Leask, Byron Vaughn Skinna Jr.	individual	N	close	sport	F	1/6
Klawock	2018	58	Klawock Tribe	tribal government	N	close	sport	NA	0/7
Taku Harbor	2006	277	Chris Donek and Carl Rosier	individual	N	close	commercial	F	NA
Taku Harbor	2012	161	Juneau Yacht Club & Territorial Sportsmen Inc.	community group, fishing association	N	close	commercial	F	NA
Whale Pass	2009	155	Southeast Alaska Fishermen's Alliance	fishing association	Y	reopen	commercial	C	NA
Whale Pass	2015	71	Whale Pass Community Association	community group	N	close	commercial	F	0/7
Whale Pass	2022	207	East Prince of Wales Fish and Game Advisory Committee	AC	Y	close	commercial	C	4/1
Whale Pass	2022	206	East Prince of Wales Fish and Game Advisory Committee	AC	Y	close	sport	C	4/1

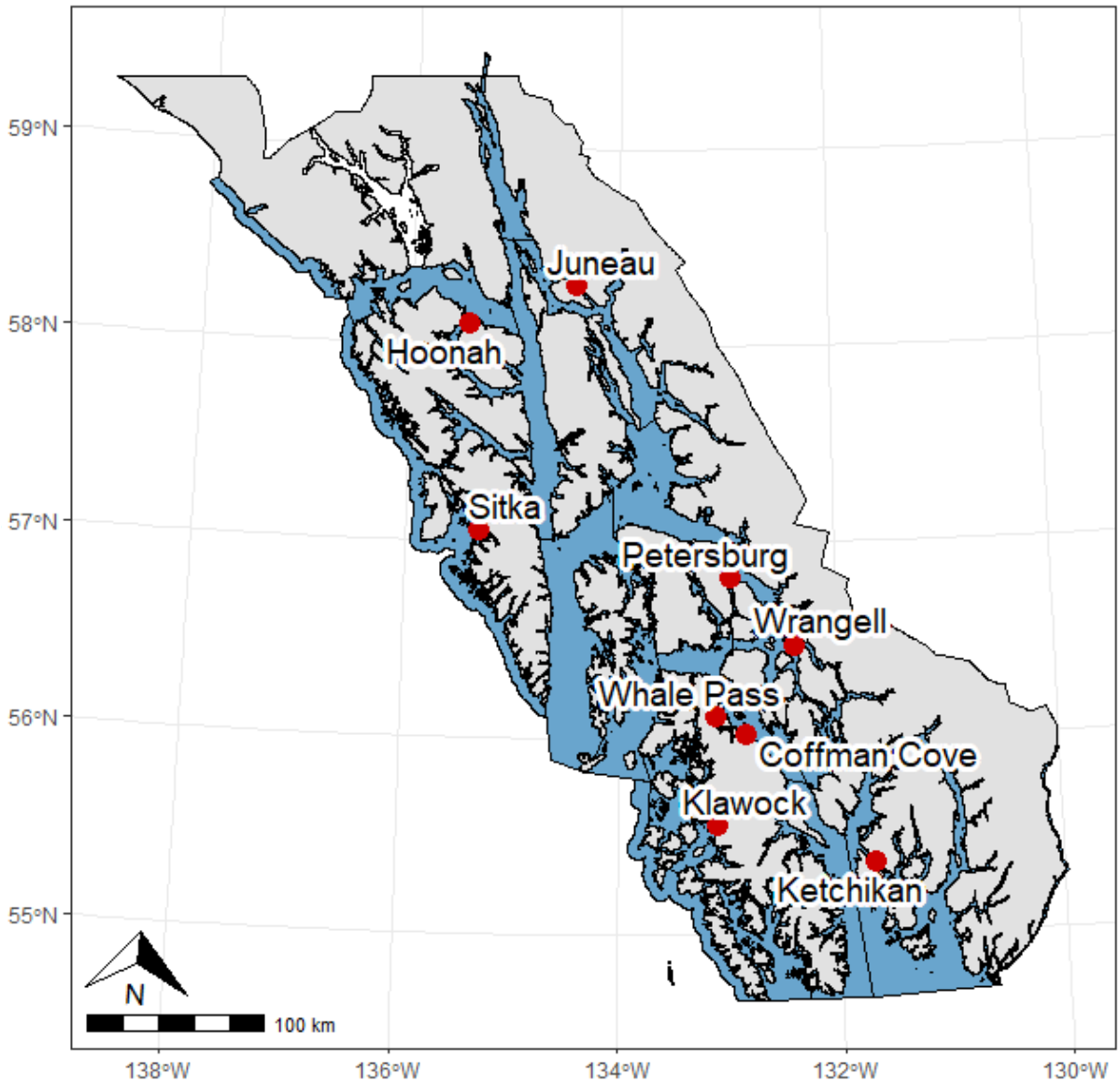

Figure 1. Map of the study area, showing place names of major cities and those referenced in Alaska Board of Fisheries public meeting records and regulatory proposals for Dungeness crab fishery closures.

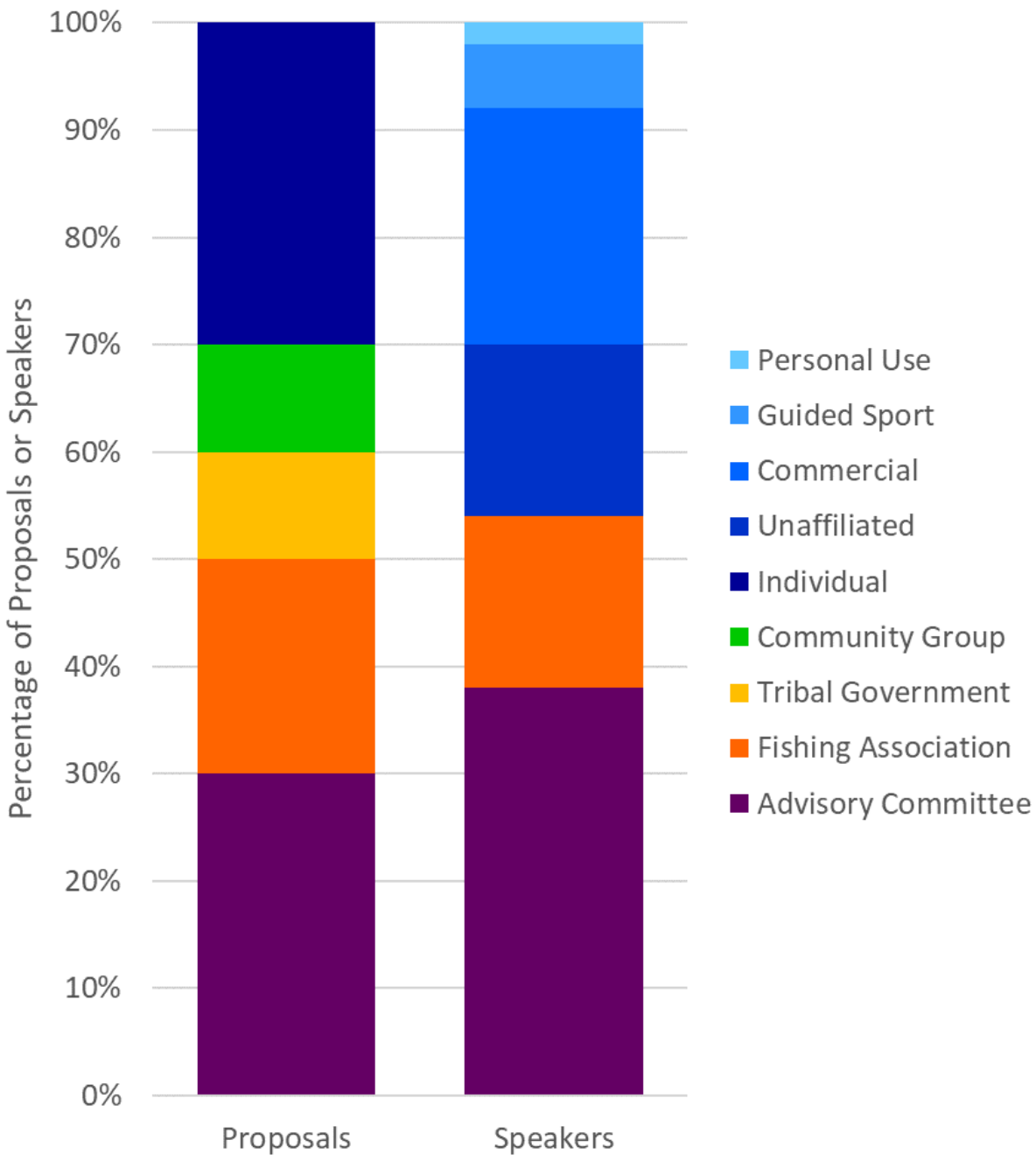

Figure 2. Proportion of proposals submitted by group according to those listed in the submission (left bar), and proportion of speakers by self-declared group identity (right bar). Speakers identified themselves by name and relation to the fishery at the start of their public comment. Individual proposers were not differentiated by group identity, whereas individuals providing oral testimony are broken out according to their stated group identity (blue shades in right bar).

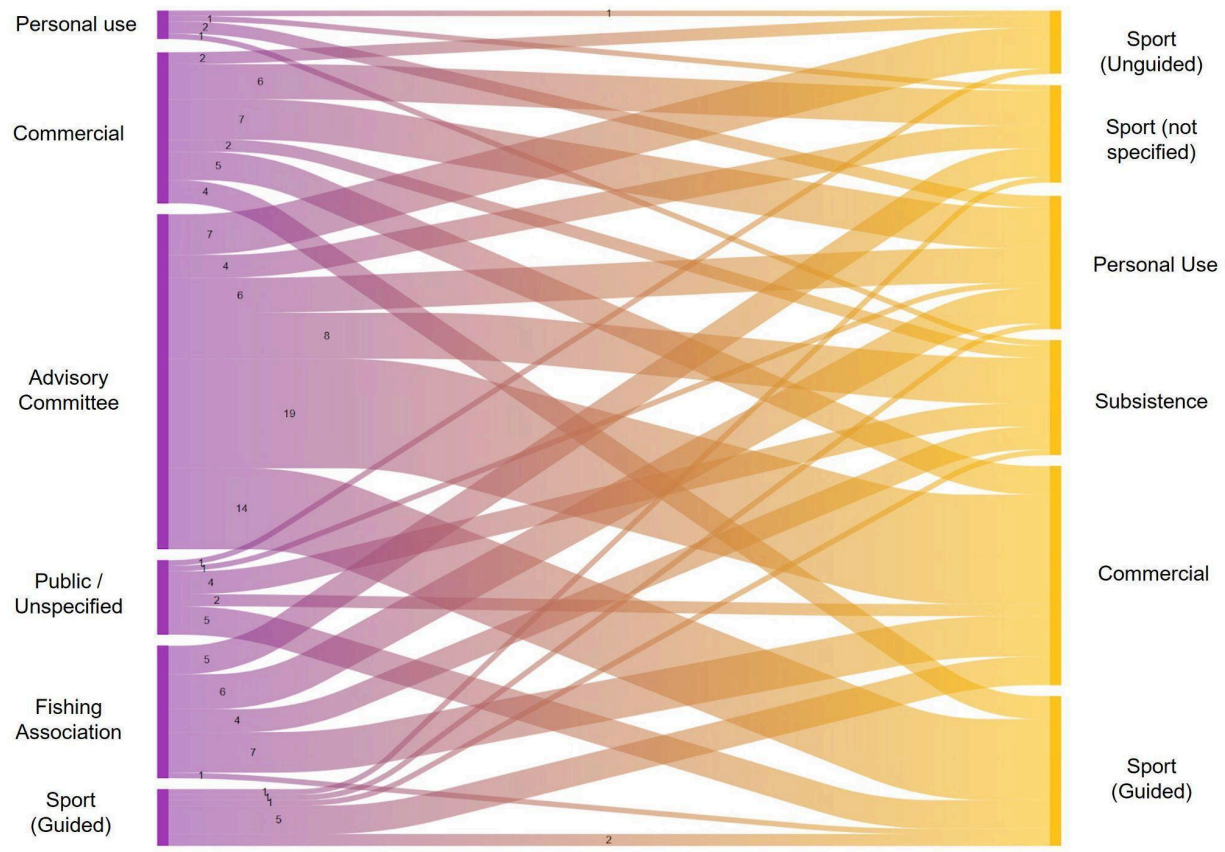

Figure 3. A Sankey diagram showing the relationship between the frequency of comments from different group identities of people providing oral testimony (left) and the fishery sectors they discuss in their comments (right) for 18 proposals to the Alaska Board of Fisheries. The widths of connective ribbons are scaled proportionally to the number of co-occurrences (signified by number labels) between group identities of speakers and groups discussed by speakers.

Appendix. Inventory of proposals for shellfish closures to the Alaska Board of Fisheries, 2006-2022.

Table A.1. A summary table of all 63 shellfish proposals catalogued in the initial stage of review.

Location	Year	Proposal number	Proposer	Proposer type	Species	Action	Sector(s) excluded	Result	Votes
Echo Cove	2006	272	Nick Yurko	individual	Dungeness	close waters	commercial	F	NA
Chaik Bay	2006	273	Daniel D. Failoni	individual	Dungeness	close waters	commercial	CA	NA
Funter Bay	2006	274	Funter Bay Alliance	community group	Dungeness	close waters	commercial	F	NA
Taiya Inlet	2006	275	City of Skagway	local government	Dungeness	close waters	commercial	F	NA
Taku Harbor	2006	277	Chris Donek and Carl Rosier	individual	Dungeness	close waters	commercial	F	NA
Registration area A	2006	282	Wrangell Advisory Committee	AC	Dungeness	close waters	sport	F	NA
Section 3-B	2006	297	Southeast Alaska Regional Dive Fisheries Association	fishing association	sea cucumber	reduce close waters	commercial	CA	NA
Hidden Falls	2006	298	Southeast Alaska Regional Dive Fisheries Association	fishing association	sea cucumber	reopen waters	commercial	C	NA
Taiya Inlet	2006	256	City of Skagway	local government	shrimp	close waters	commercial	F	NA
Registration area A	2006	268	Wrangell Advisory Committee	AC	shrimp	close waters	commercial	C	NA

registration area A	2009	154	Southeast Alaska Fishermen's Alliance	fishing association	Dungeness	close waters, sport	sport	F	NA
Twelve-mile arm, Whale Pass	2009	155	Southeast Alaska Fishermen's Alliance	fishing association	Dungeness	reopen waters	commercial	C	NA
Chaik Bay	2009	156	Pete Rody, Southeast Alaska Fishermen's Alliance	individual, fishing association	Dungeness	reopen waters	commercial	C	NA
Coffman Cove	2009	157	Bryce R. Bucker	individual	Dungeness	close waters	commercial	F	NA
Wrangell Narrows	2009	158	Steve Burrell	individual	Dungeness	close waters	commercial	F	NA
Naukati Bay	2009	159	Larry Wilkinson	individual	Dungeness	close waters	commercial	F	NA
Clover Pass	2009	196	Southeast Alaska Regional Dive Fisheries Association	fishing association	sea cucumber	reopen waters	commercial	C	NA
Sukoi Island	2009	144	Steve Burrell	individual	shrimp	close waters	commercial	F	NA
Cache Island, Area A	2012	141	Naha Conservation	community group	Bottomfish and Shellfish	close waters, create Marine Conservation Zone	commercial, sport, personal use, subsistence	F	0/7
Behm Canal, Area A	2012	142	Naha Conservation	community group	Bottomfish and Shellfish	close waters, create Marine	non-residents	F	0/7

						Conservation Zone			
Naha Bay, Area A	2012	143	Naha Conservation	community group	Bottomfish and Shellfish	close waters, create Marine Conservation Zone	non-residents	NA	NA
Cedar Island, Area A	2012	144	Naha Conservation	community group	Bottomfish and Shellfish	close waters, create Marine Conservation Zone	non-residents	NA	NA
Area A, under 5 AAC 32.150	2012	146	Brennon Eagle	individual	Dungeness	close waters, sport	sport	F	NA
Taku Harbor	2012	161	Juneau Yacht Club & Territorial Sportsmen Inc.	community group	Dungeness	close waters	commercial	F	NA
Swanson Harbor	2012	162	Juneau Yacht Club & Territorial Sportsmen Inc.		Dungeness	close waters	commercial	F	NA
Excursion Inlet, District 14	2012	163	Haines Borough	local government	Dungeness	close waters	commercial	F	NA
Ketchikan	2012	164	Ketchikan Guided Sportfish Association	fishing association	Dungeness	close waters	commercial	F	NA

Sitka Sound Special Use Area	2012	198	Alaska Department of Fish and Game	ADF&G	Razor clam	close waters	subsistence	CA	NA
Skagway	2012	172	Taiya Inlet Watershed Council	NGO	Shrimp	close waters	commercial	F	NA
Cache Island, Area A	2015	113	Naha Conservation	community group	bottomfish, and shellfish	close waters, marine reserve	commercial, sport, personal use, subsistence	F	0/7
Area A, Tenakee Inlet, Sitka Sound, Port Althrop	2015	69	Peter Roddy	individual	Dungeness	reopen waters	commercial	F	0/7
Hetta Inlet	2015	70	Anthony Christianson Hydaburg LAC Chairman	AC	Dungeness	close waters	commercial	F	0/7
Whale Pass	2015	71	Whale Pass Community Association	community group	Dungeness	close waters	commercial	F	0/7
Frederick Sound	2015	72	Steve Burrell	individual	Dungeness	close waters	commercial	F	0/7

Frederick Sound	2015	73	Steve Burrell	individual	Dungeness	close waters	commercial	NA	
Big Bear/Baby Bear Marine Park near Sitka	2015	74	Larry Edgerton & Charlene Foley	individual	Dungeness	close waters	commercial	F	0/7
Angoon	2015	75	City of Angoon	local government	Dungeness	close waters	commercial	CA	0/7
Colt and Horse Islands, near Juneau	2015	76	Ron and Nan Schonenbach	individual	Dungeness	close waters	commercial	F	0/7
Portland Island and Point Lena, near Juneau	2015	77	Ron and Nan Schonenbach	individual	Dungeness	close waters	commercial	F	0/7
Hoonah	2015	78	Hoonah Indian Association	tribal government	Dungeness	close waters	commercial	CA	7/0
Chilkat Inlet	2015	79	John Norton	individual	Dungeness	close waters	commercial	F	0/7
District 8 near Petersburg	2015	107	Steve Burrell	individual	shrimp	close waters	commercial - pot	F	0/7
Twelvemile Arm	2018	56	Hollis Community Council Inc.	community group	Dungeness	close waters	commercial	CA	5/2
Klawock	2018	57	Tom & Brenda Leask, Byron Vaughn Skinna Jr.	individual	Dungeness	close waters	sport	F	1/6

Klawock	2018	58	Klawock Tribe	tribal government	Dungeness	close waters	sport	NA	7/0
Yakutat	2018	59	Alaska Department of Fish and Game	ADF&G	Dungeness	close waters	sport	CA	6/1
varied	2018	87	Southeast Alaska Regional Dive Fisheries Association	fishing association	Sea cucumber	reopen waters	commercial	F	0/7
11-A	2018	75	Nick Yurko	individual	Shrimp	reopen waters	commercial	F	0/7
11-A	2018	83	Greg Gallant	individual	Shrimp	close waters	commercial	F	0/7
District 2, Kasaan Bay and Hollis	2018	84	Hollis Community Council Inc.	community group	Shrimp	expand closed waters	commercial	F	0/7
Klawock	2022	200	Klawock Fish and Game Advisory Committee	AC	Dungeness	close waters	commercial	CA	5/0
Sitka Sound Special Use Area	2022	201	Sitka Fish and Game Advisory Committee	AC	Dungeness	expand closed waters, season	commercial	NA - Sitka AC voted down the prop	5/0
Tenakee Inlet	2022	202	Peter Roddy	individual	Dungeness	reduce closed waters	commercial	F	3/2

Merrifield Bay and Port Protection	2022	203	Peter Roddy	individual	Dungeness	reopen waters	commercial	F	1/4
Coffman Cove	2022	204	East Prince of Wales Fish and Game Advisory Committee	AC	Dungeness	close waters	sport	C	4/1
Coffman Cove	2022	205	East Prince of Wales Fish and Game Advisory Committee	AC	Dungeness	close waters	commercial	FA	3/2
Whale Pass	2022	206	East Prince of Wales Fish and Game Advisory Committee	AC	Dungeness	close waters	sport	C	4/1
Whale Pass	2022	207	East Prince of Wales Fish and Game Advisory Committee	AC	Dungeness	close waters	commercial	C	4/1
Kasaan Bay	2022	208	East Prince of Wales Fish and Game Advisory Committee	AC	Dungeness	close waters	commercial	F	1/4
Sukwaan Strait	2022	210	Anthony Christianson	individual	Dungeness	close waters	commercial	CA	4/1
Hydaburg area of 3-A	2022	177	Hydaburg LAC, Anthony Christianson	AC	Shrimp	close waters		F	0/6
Kasaan Bay	2022	178	East Prince of Wales Fish and Game Advisory Committee	AC	Shrimp	expand closed waters	commercial	F	0/6

Twelve-Mile Arm	2022	179	East Prince of Wales Fish and Game Advisory Committee	AC	Shrimp	expand closed waters	commercial	NA	6/0