



November 30, 2021

Mr. Simon Kinneen, Chairman
North Pacific Fishery Management Council
1007 West Third, Suite 400
Anchorage, AK 99501

RE: Comment on Agenda Item D1 (RKCSA Expansion)

Dear Chairman Kinneen and Council Members:

The Alaska Bering Sea Crabbers (ABSC) is a trade association representing the majority of independent crab harvesters who commercially fish for king, snow (opilio), and Tanner (bairdi) crab with pot gear in the Bering Sea and Aleutian Islands (BSAI) Crab Rationalization Program. We appreciate the opportunity to comment on Agenda Item D1 – Red King Crab Savings Area Extension.

We appreciate the Council and NMFS' time to analyze [ABSC's emergency action request from October 2021](#) to expand the Red King Crab Savings Area by shifting the northern boundary northward by one-half of a degree (30 nautical miles) of latitude to encompass a concentration of female red king crab observed there during the most recent NMFS trawl survey. We also appreciate that section 6.4 of the analysis highlights that the emergency action request meets all three criteria for emergency action and that the Council could take action at this meeting. Given the analysis, **we urge the Council to approve this action to protect an area of consistently higher bycatch rates of Bristol Bay red king crab (BBRKC) and to implement it before the January 20, 2022, start of the BSAI groundfish fisheries.** This action will help protect the BBRKC stock at a time of serious conservation concern with critically low female abundance levels.

As noted in ABSC's October request,

In light of the steep decline in abundance of female red king crab observed by the 2021 Eastern Bering Sea (EBS) trawl survey and subsequent closure of the directed red king crab fishery, we are asking for limited, short-term emergency action to expand the Red King Crab Savings Area (RKCSA) closure to bottom trawling to protect female Bristol Bay red king crab (BBRKC). Combined with closure of the directed fishery, this requested action is expected to provide immediate conservation benefits to the stock and reduce the potential of a continued closure of the directed crab fishery next year. We also urge the Council to begin examining longer-term actions to improve conservation and management of all BSAI crab stocks and to shift to a more dynamic, adaptive approach.

ABSC is very concerned about the health of the Bristol Bay red king crab stock and urge the Council to take immediate management actions to help this stock rebound. In addition to our October emergency action request to the Council, ABSC sent a letter to the Secretary of

Commerce on November 15, 2021, alerting the Secretary to our request, highlighting concerns over the timing, and requesting implementation by January 20, 2022, if approved by the Council (letter attached). ABSC's letter pointed out high red king crab bycatch by the bottom trawl sector early in the year at a vulnerable time when red king crab are molting and mating from January through June/July¹ each year. A time which may cause disproportionate impacts on the stock.

According to the BSAI King and Tanner Crab Fishery Management Plan, Section 8.2.5 Fishing Seasons, *"fishing seasons for the directed crab fishery are used to protect king and Tanner crabs during the molting and mating portions of their life cycle. Normally the fisheries have been closed during these sensitive periods to protect crab from mortality caused by handling and stress when shells are soft..."* However, this same principle has not been applied to trawl fisheries that encounter the crab stock with a much larger footprint² and paired with unaccounted for unobserved fishing mortality during this sensitive period of molting and mating for crab.

Expanding the RKCSA provides immediate conservation benefits to the stock

Based on the analysis, ABSC recognizes the emergency action may not increase the chances of a directed crab fishery in 2022 as we had hoped. However, that should not minimize the more important point for the overall health of the BBRKC stock that expanding the RKCSA provides immediate conservation benefits for the stock in a time of critical low abundance of mature females by closing an area *"that has experienced a consistent rate of higher RKC [red king crab] bycatch than the rest of the BS [Bering Sea]"* ([Council analysis](#), p.25). The analysis in Table 4 shows higher rates of red king crab bycatch in the expansion area as opposed to the entire Bering Sea in general, by nearly double on average and in each year from 2016-2021. Appendix 2 further supports that the expansion area would protect BBRKC from areas of high bycatch as noted by the darker shaded hotspot squares on the map, particularly if visualized within an overlay of Zone 1 as the management area for BBRKC.

Further, expanding the RKCSA is an important management response occurring with a suite of management responses and should not be considered as an independent action. Paired with closure of the directed crab fishery, lower trawl prohibited species catch (PSC) limits for BBRKC in 2022, and other voluntary industry actions by fixed gear sectors to reduce BBRKC bycatch as described at the October Council meeting, expansion of the RKCSA provides an important additional area-based tool for reducing bycatch and impacts to the stock. While the analysis did not discuss these cumulative impacts, together these actions provide important and immediate conservation benefits to the stock by reducing direct and indirect fishing pressure and providing some temporary habitat protections. Together these actions provide greater benefits to the stock

¹ See BSAI King and Tanner Crab Fishery Management Plan (p. 45-46, 103, 106, 124, 126)

² Bottom trawl has a much larger footprint on the seafloor and on crab and their habitat than pot gear. [Rose et al., 2014 \(NPRB Project 1117\)](#) estimates commercially targeted crab species inhabit 85-90% of the seafloor area swept by the flatfish bottom trawl sectors. The fishing effects model provides information to estimate the footprint for all gears at over 32,000 nm² of bottom contact in the Bering Sea ([Smeltz et al., 2019](#)). The footprint of fixed gear is a fraction of mobile gear, like bottom trawl. For comparison, the footprint for crab pot gear is estimated to be less than 1nm², estimated by the number of pot pulls from Alaska Department of Fish and Game Management Reports and the size of the pot (7'x7' for all crab except golden king crab at 6.5'x 6.5'). Using the highest year for each of the BSAI crab fisheries since rationalization in 2005, the total annual footprint by crab pots is less than 1 nm².

than what is considered in the analysis and the benefits of immediate emergency action when BBRKC is at a serious conservation concern outweigh the normal full rulemaking process. For the longer-term conservation of the stock, the Council work under the [discussion papers for BBRKC](#) will chart a path forward. Later in this letter, ABSC encourages progress on those.

The analysis shows minimal to no impacts on bycatch for halibut, snow crab, and bairdi. For halibut, the additional closed area shows a 0.01 difference in bycatch rates in the expansion area versus the entire Bering Sea (Table 6), providing little to no difference in impacts. For snow crab, this action shows minimal to no impacts given this action would primarily shift yellowfin fisheries out of the expansion area into other areas within and around Zone 1 where snow crab bycatch is low as shown in Figure 9. The areas of higher snow crab bycatch by flatfish fisheries around the Pribilofs are farther away and would not likely increase as a result of displacement from this action. ABSC notes it would be helpful for the analysts to provide an appendix of snow crab bycatch hotspots for all years, 2016-2021, like was done for halibut and other crab species, to get a better picture of potential snow crab impacts over time.

For bairdi, while this stock is currently not at a conservation concern so impacts from the action could be considered minimal, it is at lower historic levels which raises some concern. We recognize that the expansion of the RKCSA could put some additional pressure on bairdi in the western area of Zone 1 and between the RKCSA and the Pribilof Islands Conservation Area. For example, we flag that 2020 appears to be a high year of bycatch rates and dispersed non-pelagic trawl effort in this area between the RKCSA and the Pribilof Islands as shown in the appendices to the analysis. For bairdi, as for all crab stocks, this larger effort with higher bycatch rates in a given year is particularly troubling if it is happening during times and in areas where crab are molting and mating. This could be having a disproportionate impact on the status of crab stocks. The groundfish observer program ran a pilot project collecting shell condition during trawl fisheries this past year. While we have not yet seen the results of that project, we encourage groundfish observers to continue collecting this important shell condition data to better inform timing and location of crab molting and mating.

ABSC appreciates that section 6.4 of the analysis highlights that the emergency action request meets all three criteria for emergency action and that the Council could take action at this meeting. Further, we offer more context around the following statement under criteria 3 (p.24) for immediate benefits outweighing the normal, full rulemaking process:

It is more likely that fishing effort of the NPT fishery would shift in response to the closure of the proposed expansion area. This could result in increases in bycatch of BBRKC and other bycatch species as the fleet moves effort, potentially into areas with higher mature female BBRKC bycatch rates within the Bristol Bay stock area.

While we agree the additional closure will shift fishing effort, it should not increase bycatch of red king crab in other areas of Zone 1 where BBRKC are at a conservation concern because of the lower 32,000 PSC limit for trawl beginning in 2022. Combined with the additional closure of the expansion area, the lower PSC limit should keep bycatch of BBRKC lower throughout Zone 1 while also protecting a key area of higher abundance female red king crab and historically higher bycatch rates.

Examine longer-term actions to improve conservation and management of all BSAI crab stocks

In ABSC's October emergency action request, we also urged the Council to begin examining longer-term actions to improve conservation and management of all BSAI crab stocks and to shift to a more dynamic, adaptive approach. We appreciate the [Council's October motion under Agenda Item E1](#) for three discussion papers to do just that for BBRKC. We encourage the Council to get those papers scheduled on the Council's agenda for an upcoming Council meeting as soon as possible given the conservation concern of BBRKC. We also recognize that the recent overfished declaration for snow crab will begin a rebuilding plan process for that stock. ABSC provided some comments for considerations in that process under Agenda Item C3 (BSAI Groundfish) at this meeting. As stakeholders, crabbers look forward to contributing towards solutions in the snow crab rebuilding plan to ensure longevity and sustainability in Alaska's crab fisheries. As the Council moves through this body of work, ABSC requests that the Council and those involved keep an eye to the big picture and look for consistency across all crab stocks and how best to manage BSAI crab to build resilience in these stocks. In doing so, all fishing sectors, all managers, all communities, and all stakeholders will need to come to the table to work through difficult scenarios on how best to balance all our interests so we can all share access to Alaska's resources.

In closing, ABSC urges the Council to approve this action to protect an area of consistently higher bycatch rates of Bristol Bay red king crab (BBRKC) and to implement it before the January 20, 2022, start of the BSAI groundfish fisheries. This action will help protect the stock at a time of serious conservation concern while further work continues to improve conservation and management of all crab stocks to build resilience.

Thank you for considering our comments.

Sincerely,



Jamie Goen
Executive Director
Alaska Bering Sea Crabbers
jamie@alaskacrabbers.org

ATTACHMENT: ABSC letter to the Secretary of Commerce

ATTACHMENT



The Honorable Gina Raimondo
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Alaska Regional Administrator
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November 15, 2021

RE: Request Before the North Pacific Council for Emergency Action to Expand the Red King Crab Savings Area to Protect Bristol Bay Red King Crab

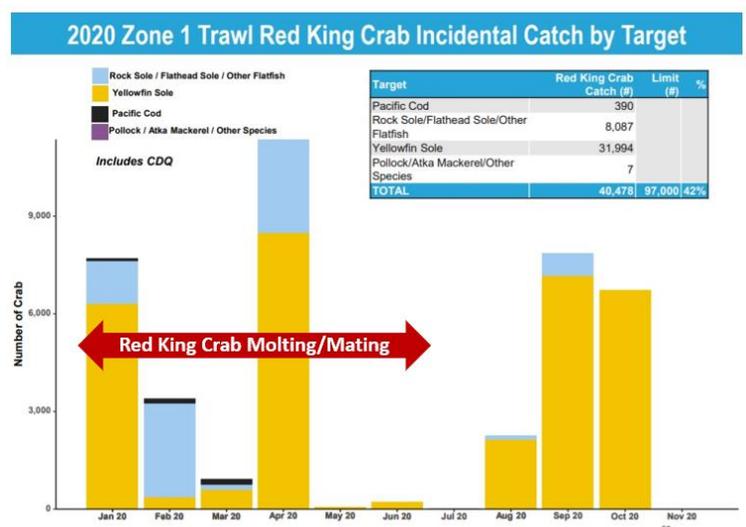
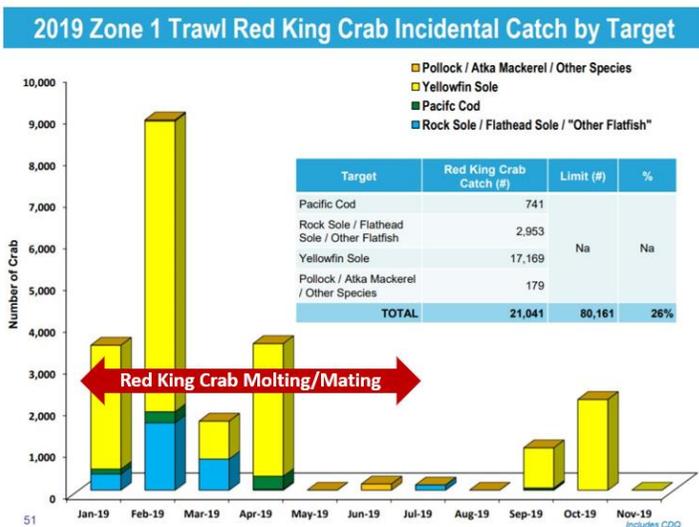
Dear Secretary Raimondo, Administrator Spinrad, Assistant Administrator Coit, and Regional Administrator Balsiger:

The Alaska Bering Sea Crabbers (ABSC) is a trade association representing the majority of independent crab harvesters who commercially fish for king, snow (opilio), and Tanner (bairdi) crab with pot gear in the Bering Sea and Aleutian Islands (BSAI) Crab Rationalization Program.

In light of the steep decline in abundance of female red king crab observed by the 2021 Eastern Bering Sea (EBS) trawl survey and subsequent closure of the directed red king crab fishery, we are asking for limited, short-term emergency action to be implemented by January 20, 2022, to expand the Red King Crab Savings Area (RKCSA) closure to bottom trawling to protect female Bristol Bay red king crab (BBRKC). The requested expansion is narrowly targeted, covering only about 1% of the area open to bottom trawling where an abundance of female red king crab were recently observed in the annual trawl survey. Combined with closure of the directed fishery and other voluntary industry actions, this requested action is expected to provide immediate conservation benefits to the stock and reduce the potential of a continued closure of the directed crab fishery next fall. **While this action is under review by the North Pacific Fishery Management Council (Council), we ask that you work to expedite the process as much as possible so that, if approved, the emergency action could be in place by January 20, 2022.**

This emergency action was initially requested by ABSC at the Council’s October 2021 meeting ([ABSC comment under Agenda Item E1, Oct 2021](#)) and is attached. The [Council motion](#) from October directed staff to analyze the request and the Council scheduled a decision at their upcoming December 2021 meeting. ABSC continues to track this request through the Council process and brings it to your attention now due to concerns over timing.

Given the higher bycatch of red king crab early in the year by the groundfish bottom trawl fishery which starts January 20 during the vulnerable period for red king crab that molt and mate from January through June/July¹ each year. The figures below are from NMFS BSAI Inseason Management Report to the Council for [2019](#) and [2020](#), slides 51 and 50 respectively, with the red graphic added to show the red king crab molting and mating period. These figures show that protections on red king crab early in the year are important, especially when, as now, the crab stock is at a low level that presents conservation concerns.



According to the BSAI King and Tanner Crab Fishery Management Plan, Section 8.2.5 Fishing Seasons, “fishing seasons for the directed crab fishery are used to protect king and Tanner crabs during the molting and mating portions of their life cycle. Normally the fisheries have been closed during these sensitive periods to protect crab from mortality caused by handling and stress when shells are soft...” However, this same principle has not been applied to trawl fisheries that encounter the crab stock with a much larger footprint² and paired with unaccounted for

¹ See BSAI King and Tanner Crab Fishery Management Plan (p. 45-46, 103, 106, 124, 126)

² Bottom trawl has a much larger footprint on the seafloor and on crab and their habitat than pot gear. [Rose et al., 2014 \(NPRB Project 1117\)](#) estimates commercially targeted crab species inhabit 85-90% of the seafloor area swept by the flatfish bottom trawl sectors. The fishing effects model provides information to estimate the footprint for all gears at over 32,000 nm² of bottom contact in the Bering Sea ([Smeltz et al., 2019](#)). The footprint of fixed gear is a fraction of mobile gear, like bottom trawl. For comparison, the footprint for crab pot gear is estimated to be less than 1nm², estimated by the number of pot pulls from Alaska Department of Fish and Game Management Reports

unobserved fishing mortality during this sensitive period of molting and mating for crab. Attached we provide further information and references on the impacts of bottom trawling on crab and crab habitat.

The Council is scheduled to take action on ABSC's emergency action request on December 15, 2021. However, that does not leave much time to get regulations in place before the January 20 start of the groundfish fishery, especially given the federal holidays at the end of the year. We ask that you work to expedite the process as much as possible so that, if approved, the emergency action could be in place by January 20, 2022, when the groundfish bottom trawl fishery opens.

We recognize that given the closed directed crab fishery, by regulation, trawl bycatch limits (called prohibited species catch (PSC) limits) will be at the lowest allowable level in 2022 and that an additional area to the south of the Red King Crab Savings Area will close. However, we are concerned that these measures are not enough given the 2021 NMFS summer trawl survey showed the crab further north and northwest than previous years and partially outside the north end of the RKCSA. In addition, the lower PSC limit should create an incentive to move off crab but may not be enough to protect vulnerable life stages and habitat.

In our attached letter, we also urge the Council to begin examining longer-term actions to improve conservation and management of all BSAI crab stocks and to shift to a more dynamic, adaptive approach. While we are asking the managers to act, we are also taking voluntary industry actions to further reduce crab bycatch in both directed crab fisheries and in other fisheries. ABSC is looking at all sectors and every angle to help BSAI crab stocks rebound.

Thank you for considering our request to expediate this emergency action, if approved, to take effect by January 20, 2022. We are in an unprecedented time in the history of BSAI crab fisheries. We need bold management actions like this temporary expanded closed area while continuing to improve the science to help BSAI crab stocks rebound.

Sincerely,



Jamie Goen
Executive Director
Alaska Bering Sea Crabbers
jamie@alaskacrabbers.org

ATTACHMENTS:

ABSC's Emergency Action Request to Council

Additional Information on Impacts of Trawl on Crab and Crab Habitat

and the size of the pot (7'x7' for all crab except golden king crab at 6.5'x 6.5'). Using the highest year for each of the BSAI crab fisheries since rationalization in 2005, the total annual footprint by crab pots is less than 1 nm².

**ATTACHMENT:
ABSC's Emergency Action Request to Council**



September 29, 2021

Mr. Simon Kinneen, Chairman
North Pacific Fishery Management Council
1007 West Third, Suite 400
Anchorage, AK 99501

RE: Comment on Agenda Item E1 (Staff Tasking)

Dear Chairman Kinneen and Council Members:

The Alaska Bering Sea Crabbers (ABSC) is a trade association representing the majority of independent crab harvesters who commercially fish for king, snow (opilio), and Tanner (bairdi) crab with pot gear in the Bering Sea and Aleutian Islands (BSAI) Crab Rationalization Program. We appreciate the opportunity to comment on Agenda Item E1 – Staff Tasking. Our comments under this agenda item build from our comments under Agenda Item C1 (BSAI Crab) at this meeting and are herein incorporated by reference.

In light of the steep decline in abundance of female red king crab observed by the 2021 Eastern Bering Sea (EBS) trawl survey and subsequent closure of the directed red king crab fishery, we are asking for limited, short-term emergency action to expand the Red King Crab Savings Area (RKCSA) closure to bottom trawling to protect female Bristol Bay red king crab (BBRKC). Combined with closure of the directed fishery, this requested action is expected to provide immediate conservation benefits to the stock and reduce the potential of a continued closure of the directed crab fishery next year. We also urge the Council to begin examining longer-term actions to improve conservation and management of all BSAI crab stocks and to shift to a more dynamic, adaptive approach.

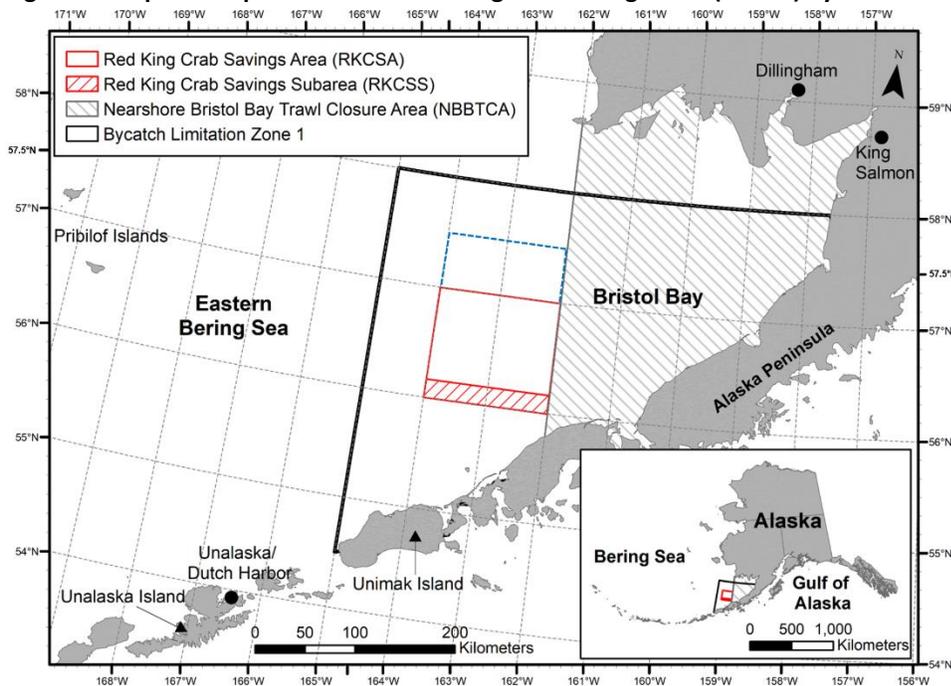
EMERGENCY ACTION REQUEST

We urge the Council to consider emergency action to expand the RKCSA by shifting the northern boundary northward by one-half of a degree (30 nautical miles) of latitude to encompass a concentration of female red king crab recently observed there during the 2021 EBS trawl survey. This area would be closed to bottom trawling consistent with the current regulations for the RKCSA and to keep this action narrow as previously analyzed for the adjacent closure. This would provide immediate conservation benefits to the stock and reduce the potential for future closures of the directed fishery.

This action is consistent with the Council's response the last time the Bristol Bay red king crab fishery was closed in 1994. At that time, the Council responded by requesting emergency action to close the RKCSA to bottom trawling to protect female red king crab and other measures to

address crab bycatch.¹ The Council should follow that precedent now. The map below, Figure 1, depicts the requested expansion (in blue).

Figure 1. Proposed expansion of the Red King Crab Savings Area (RKCSA) by one-half of a degree northward



Emergency action is warranted to address “recent, unforeseen events or recently discovered circumstances” that “present[] serious conservation or management problems in the fishery.”² That standard is met here. As in 1994, the number of female red king crab has declined to a level that presents a serious conservation problem for the stock and resulted in the closure of the directed fishery. “Mature female abundance estimates in 2021 declined by 25% from 2019 and were well below the 20-year average...”³ There was no EBS trawl survey in 2020 due to COVID. Emergency action is needed to provide further protections for red king crab and help avoid directed fishery closures and associated economic losses and community impacts in future years.

¹ 60 Fed. Reg. 4866 (Jan. 25, 1995) (“NMFS has determined that an emergency exists in the groundfish fisheries being conducted in the Bering Sea and Aleutian Islands (BSAI) management area. The number of female red king crab in Bristol Bay has declined to a level that presents a serious conservation problem for this stock. To protect Bristol Bay area red king crab, NMFS is implementing by emergency rule a trawl closure in an area of Zone 1 in the Bering Sea (BS). NMFS is also implementing changes to observer-coverage requirements that will aid the monitoring of red king crab bycatch in the BS flatfish trawl fisheries conducted outside of the closure area in Zone 1.”).

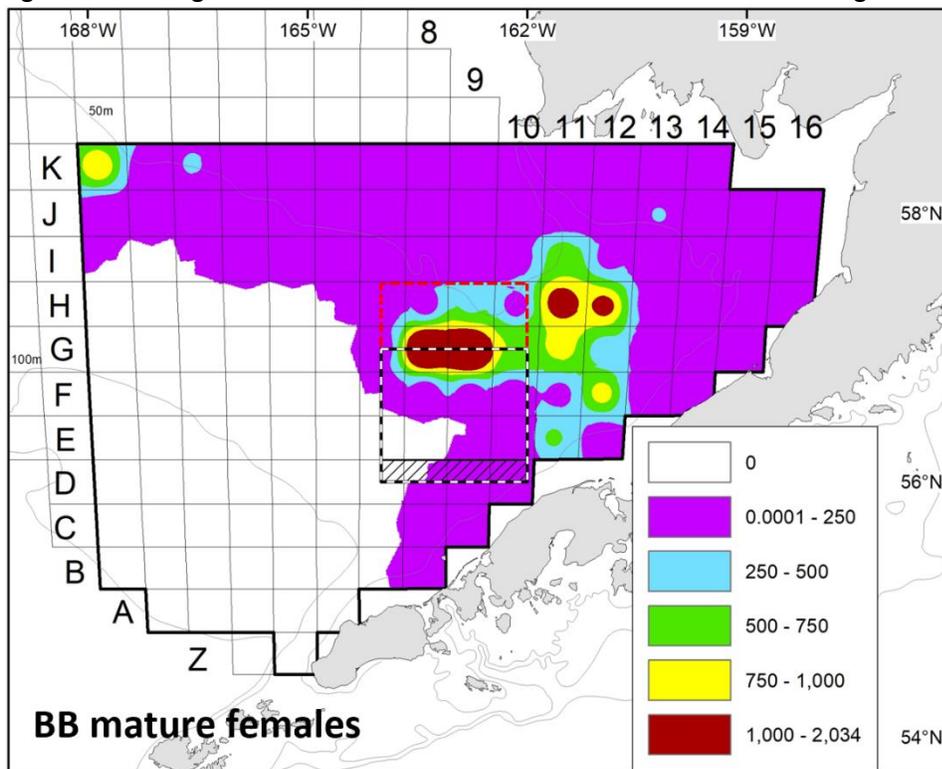
² NMFS Policy Guideline for the Use of Emergency Rules, Procedure 01-101-07 (Aug. 21, 1997) (“Emergency Rule Guidance”) at 2-3. See also 16 U.S.C. § 1855(c) (providing authority for the Council to request and for NMFS to promulgate regulations where “an emergency exists” or “interim measures are needed to reduce overfishing”).

³ NOAA Technical Memorandum NMFS-AFSC, The 2021 Eastern Bering Sea Continental Shelf Trawl Survey: Results for Commercial Crab Species (Sept. 3, 2021) at 10.

While the RKCSA and other closures⁴ remain important for red king crab, given changing ocean conditions, moving crab, and the continued downward trend of mature female abundance, it is clear from the 2021 EBS trawl survey and closure of the directed BBRKC fishery that the protected area should be expanded to provide additional protections for red king crab.

Results from the 2021 EBS trawl survey show the highest abundance estimates for female BBRKC are partly within the designated savings area and partly to the Northeast, within the Nearshore Bristol Bay Trawl Closure, an area closed to all trawling (Figure 2). Figure 2 also shows high female BBRKC density just to the North of the RKCSA. This area of high female crab abundance north of the RKCSA is currently open to all trawling with high effort by flatfish fisheries in 2020 (Figure 4). Closing the area that is half a degree latitude to the north would provide protection for the female high abundance areas based on the most recent information. In addition, as provided in ABSC's comment letter under Agenda Item C1, the center of distribution for both male and female red king crab has been moving north in recent years. In addition, a half degree closed area to the north of the RKCSA would provide protection for the high abundance area of legal male king crab identified from the 2021 EBS trawl survey (Figure 3).

Figure 2. Red king crab mature female abundance - 2021 NMFS Eastern Bering Sea trawl survey



⁴ The RKCSA is closed year-round to bottom trawling to protect red king crab habitat and molting/mating crab. In addition, the Nearshore Bristol Bay Trawl Closure, east of 162° W. long., is closed to all trawl gear year-round, except that trawling may occur in the Togiak subarea from April 1 to June 15. This area is closed to protect juvenile red king crab habitat. Finally, NMFS Reporting Area 516 closes from March 15 – June 15 each year to all trawling. See the Attachment on BSAI Crab Closed Areas for a full description of which areas are closed to which gear types.

Figure 3. Red king crab legal male abundance – 2021 NMFS Eastern Bering Sea trawl survey

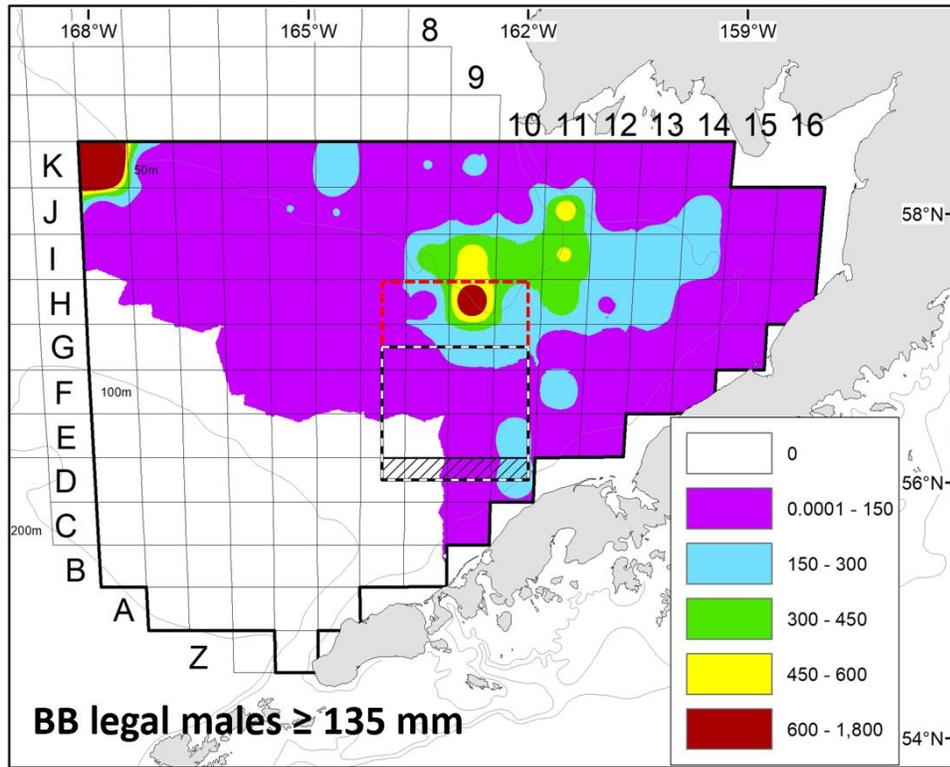
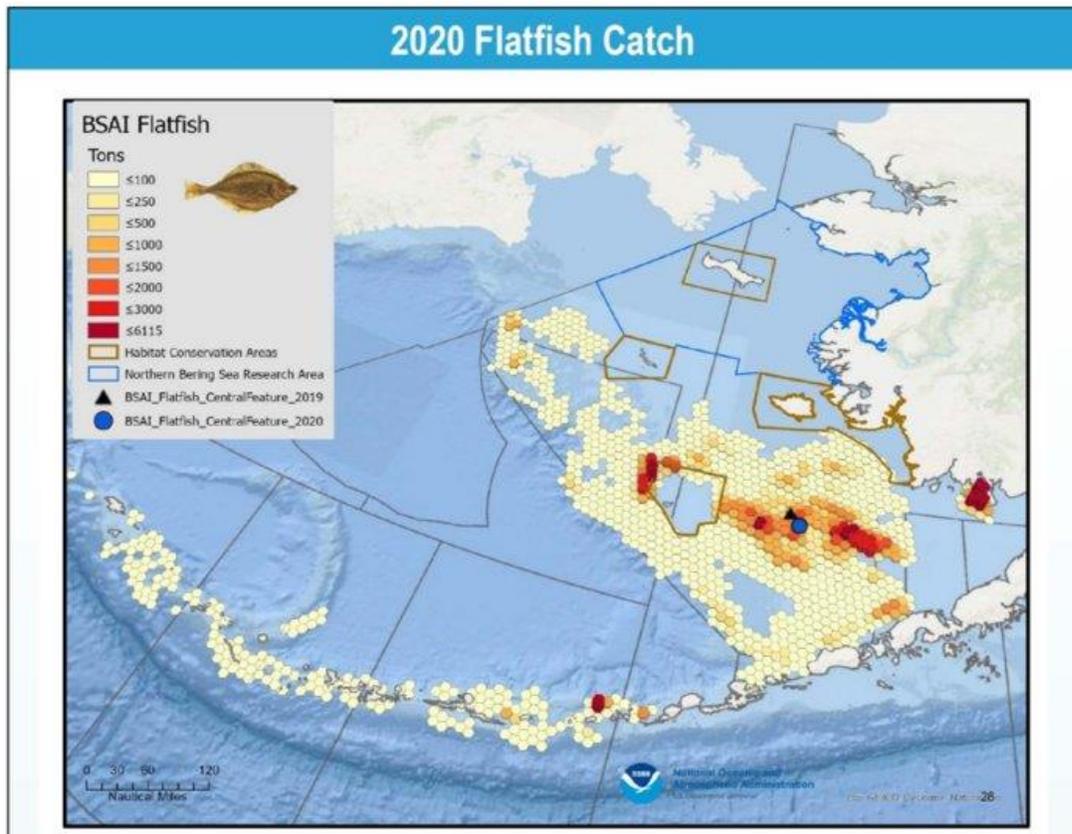


Figure 4. BSAI Flatfish Catch in 2020 – [NMFS Inseason Management Report](#)



There is additional value in protecting king crab in times when there is a conservation concern due to low female abundance. We know that the current observer sampling method on trawl vessels poorly estimates crab bycatch in times of low crab abundance as described recently in the cod trawl analysis, “...even extremely large samples of a haul provide relatively imprecise estimates of catch for very rare species, such as red king crab.” ([BSAI Pacific Cod Trawl Catcher Vessel LAPP](#), Agenda Item C4, Sep 2021 Council meeting, Section 2.9.3.4, p.308) Recent research also shows the current sampling method tends to estimate poorly in times of low crab abundance (Lescher et al., 2021). Paired with concerns over unaccounted for crab bycatch mortality from unobserved fishing mortality⁵, a slight northward expansion of the RKCSA would provide additional protections for female red king crab where they are most abundant in Bristol Bay.

Providing these protections through emergency action, paired with the directed crab fishery closure and voluntary industry actions discussed below, gives the stock the best chance at rebounding over the next year to levels that would allow for us all to be fishing again, creating a better balance among Alaska’s fishing sectors and maximizing benefits to communities while keeping Alaska’s fisheries sustainable. We recognize this emergency request is a short-term solution for immediate conservation benefits and provide longer-term items for consideration below.

Under NMFS policy guidance, emergency action may be justified in several circumstances where following the usual regulatory process would “result in substantial damage or loss to a living marine resource, habitat, fishery, industry participants or communities.”⁶ Emergency action may be appropriate to prevent overfishing or “serious damage to the fishery resource,” to “prevent significant direct economic loss or preserve a significant economic opportunity that otherwise might be foregone,” or to “prevent significant community impacts.”⁷

All of those circumstances are present here. Expanding the RKCSA would help prevent serious damage to the crab fishery resource from bottom trawling in areas of high female crab abundance north of the current RKCSA boundary. The closure of the BBRKC fishery this year will cause over \$30M in direct economic losses to crab harvesters alone, without counting downstream impacts including impacts to processors and communities. Protecting female crab would help avoid similar closures and economic losses and community impacts in future years.

The Council requested and NMFS approved emergency action to close the RKCSA to bottom trawling in 1995 for these very reasons. That closure, subsequently made permanent, has helped but evidently is insufficient to protect female crab now given the results of the 2021 EBS trawl survey and closure of the directed fishery.

We recognize an emergency action request must go through the NOAA Fisheries’ emergency rulemaking process, including independent analysis by NOAA Fisheries. We also recognize that the specifics of the emergency action may evolve based on that analysis and Agency

⁵ See [ABSC comment letter on unobserved fishing mortality](#), including published material, at the Feb 2021 Council meeting under Agenda Item C4 (Crab PSC).

⁶ Emergency Rule Guidance at 2.

⁷ Id.

determinations. Given the level of conservation concern for female red king crab and the importance of the crab industry to Alaska's coastal communities and the economy, we urge the Council to start this process by requesting emergency action to protect female red king crab while we still have time to act.

OTHER NEAR-TERM ACTIONS

As we learned under Agenda Item C1, two of three major Bering Sea crab stocks have reached a level of conservation concern. Bristol Bay red king crab (BBRKC) is closed for the first time in 25 years and Bering Sea snow crab stocks have unexpectedly plummeted, seemingly overnight, and are expected to be declared overfished. Many factors are likely playing a role – changing ocean conditions, direct and indirect fishing pressure, and predator/prey/competitor dynamics. We have more control over some of these factors than others. While we know changing environmental conditions are likely playing a role and there is little we can do about it, there are other factors playing a role that we can and should do something about to help build climate resilient fisheries, to help our stocks rebound, and to help our fishing communities. Fishery managers and decision-makers should focus on the things we do have control over: fishing pressure (both direct and indirect/bycatch) and area protections.

In a changing world with rapidly changing crab stock status and species on the move, we need to be more responsive, adaptive, and flexible. We need to build a roadmap to climate-ready or climate-resilient fisheries – which will require more adaptive and flexible management processes and continued focus on research with increased collaboration. It should not take 6-8 years to get a regulation changed, or 10 years of studies before taking a management step. For crab, those timelines will be too late. This is not a time to maintain the status quo while we do more research. We need to be thinking both short-term and long-term for both management actions and research to build a roadmap and to help crab stocks rebound and build resilience. It is going to take thinking outside the box and changing how the Council and agencies do business.

What is happening with crab stocks is a wake-up call. This is the time to **TAKE BOLD ACTION NOW** through an emergency rule to help crab stocks rebound while we continue to gather research and refine our approach in the years to come.

The Alaska Department of Fish and Game (ADFG) took bold action to close our BBRKC directed fishery to reduce the impacts on female crab even though our fishery targets male crab with limited interaction with females and the male population was up slightly. We trust the state's harvest strategy and understand we need to protect the females to keep the stock in balance. We expect our Bering sea snow crab fishery to be greatly reduced to take directed fishing pressure off the stock. Our directed fisheries have the biggest fishing impact on the stock and these actions are necessary at a time when stocks are at a level of conservation concern. We plan to continue communications and coordination with ADFG and the State of Alaska to help crab stocks rebound and encourage more coordination between the State and Federal system and the Council on your shared management responsibility for crab.

Given the level of conservation concern for both of these crab stocks, we are also asking that all sectors reduce their fishing impacts on crab through voluntary industry actions. We reached out to representatives from all sectors requesting the following:

- **All Sectors –**
 - Avoid the Red King Crab Savings Area (RKCSA) and Red King Crab Savings Subarea (RKCSS) from Oct 2021 – Dec 2022.
 - Report and avoid crab hotspots - "move on"
 - Share best handling practices to help reduce crab mortality by reducing time on deck and carefully returning to the water
- **Directed Crab Fisheries** - Reduce bycatch by testing increased mesh sizes and soak times, avoiding areas of high female abundance, exploring retention of multispecies quota.
- **Other Pot Fisheries** - Testing gear designs to reduce crab bycatch in Pacific cod and halibut pots through a NOAA grant. [An update](#) was provided at the Feb 2021 Council meeting under Agenda Item B1 reporting lab results which were promising. Field testing during the pot cod B season just wrapped up in September and preliminary results should be available soon.

LONGER-TERM ACTIONS

In addition to the actions above, the Council should also begin work on examining a suite of longer-term actions that would improve conservation of all BSAI crab stocks. This includes non-regulatory actions, development of a rebuilding plan for the Bering Sea snow crab stock, and work on discussion papers to explore other conservation improvements.

A. Non-regulatory actions

1. Increase the priority for observers capturing additional crab biological data. Require observers across all sectors to collect shell condition, chela height for snow and bairdi crab, and note any unusual characteristics (bitter crab, scuffed carapace).
2. Explore an Exempted Fishing Permit (EFP) to allow deck sorting of king crab on Amendment 80 vessels.
3. Develop a methodology and include an estimate of unaccounted for crab bycatch from unobserved fishing mortality for all gears to include in crab total mortality estimates, including reporting area swept for all gears and estimated time on bottom for pelagic trawl.⁸
4. Continue to support work of the ecosystem and climate committees, research, and work described under Agenda Items B4 (NOAA Climate and Fisheries Initiative (CFI) and Action Plans) and D2 (Alaska Climate Integrated Modeling (ACLIM) Project) at this meeting to better understand rapidly

⁸ See [ABSC comment letter on unobserved fishing mortality](#), including published material, at the Feb 2021 Council meeting under Agenda Item C4 (Crab PSC).

changing conditions, moving stocks, and shifting predator/prey/competitor relationships.

B. Discussion Papers – *applies to all crab stocks but could parallel snow crab rebuilding plan work*

1. Minimize bottom contact by pelagic trawl gear in crab protected areas. Closed areas are intended to protect crab and their habitat. Trawl gears with contact on the bottom should be prohibited. For pelagic gear, the simple fact that crab appear in pollock nets and in a zone that it closed to protect crab is concerning and an indicator of bottom contact. Bottom sensors or other technology should be explored to minimize such contact.
2. Create more flexible, responsive closed areas, such as an area West of the RKCSA in warm years and temporal closures when crab are molting/mating.
3. Evaluate crab boundaries used for the survey, stock assessment, PSC limits, and fishery.

Crab are moving around in atypical ways where certain boundaries may no longer be appropriate. See ABSC comment under C1 for more details. In addition, catch of crab throughout the stock's range should count toward PSC limits. For example, Zone 1 RKC incidental catch from trawl vessels in 2021 amounted to 40,478 animals while total RKC trawl bycatch, to include incidental catch inside and outside of Zone 1, where the stock appears to be shifting to, was higher in 2021 (61,818 animals), leaving 21,340 crab that were not counted towards PSC limits.

4. Develop crab PSC limits or encounter rates that are based on current information on crab stocks and modern fishing practices and that create an incentive to avoid crab and reduce bycatch.

For snow crab, the PSC limit has a floor in regulation of 4.350 million animals. However, given the conservation concern of the stock at low levels triggering overfished status, the calculated PSC without a floor would be 1.459 animals.

5. Evaluate dynamic or adaptive closed area boundaries that shift periodically based on environmental triggers or scientific data.

For example, if there is evidence that specific crab stocks shift based on bottom temperature, shifting closed areas based on bottom temperatures. Or, ADFG annually reviews an area around the Pribilof Islands to close to crab fishing based on where crab need to be protected and it shifts periodically while the federal Pribilof Islands Habitat Conservation Zone (PIHCZ), implemented in 1995 to protect blue king crab habitat, has remained static.

6. Numbers 4 & 5 should be evaluated together for how best to incentivize bycatch reduction (PSC/encounter rates versus closed areas versus a mix) with a dynamic, flexible, adaptive management system that creates meaningful incentives to reduce crab bycatch while maximizing operational efficiency of fleets in a changing environment.

7. Review whether observer coverage is adequate across federal and state fleets in the Bering Sea and whether bycatch accounting is best available, especially in times of low crab abundance.

For example, is there adequate observer coverage on pot gear fisheries? For trawling, we know that subsampling poorly estimates crab bycatch in times of low crab abundance, when it matters most. Should whole haul sampling or another more thorough method be required on trawl vessels in times of low crab abundance if not deck sorting?

Thank you for considering our comments. We are in an unprecedented time in the history of BSAI crab fisheries. This is not a time for business as usual but a time for bold action to help BSAI crab stocks rebound and a time for the fishing industry, managers, and scientists to come together to chart a better path forward during these uncertain times.

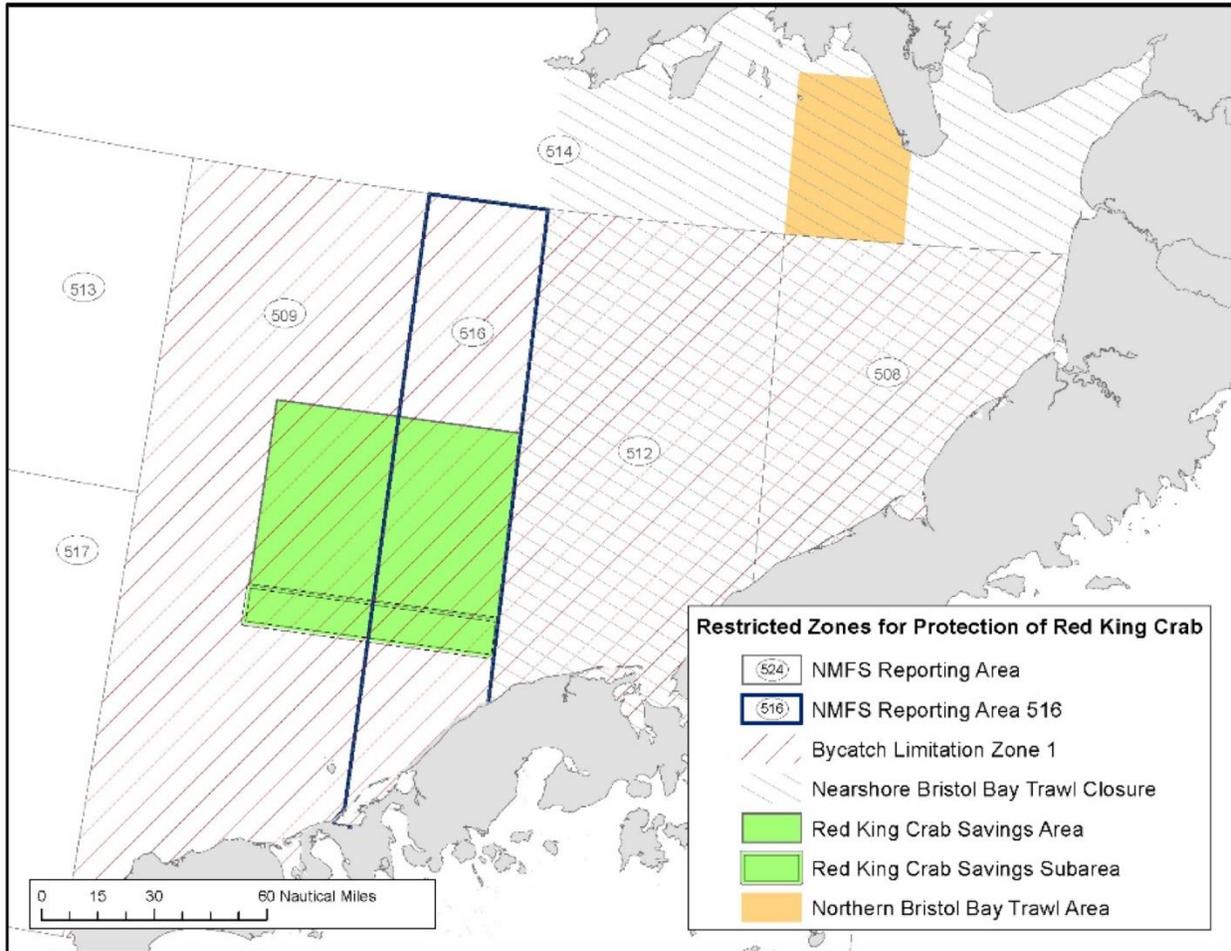
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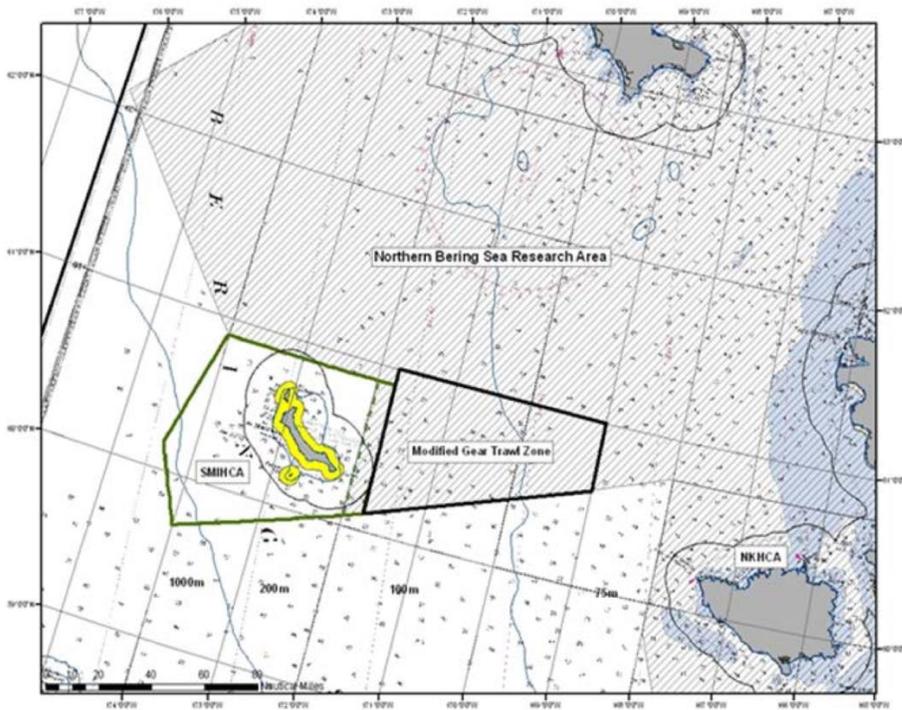
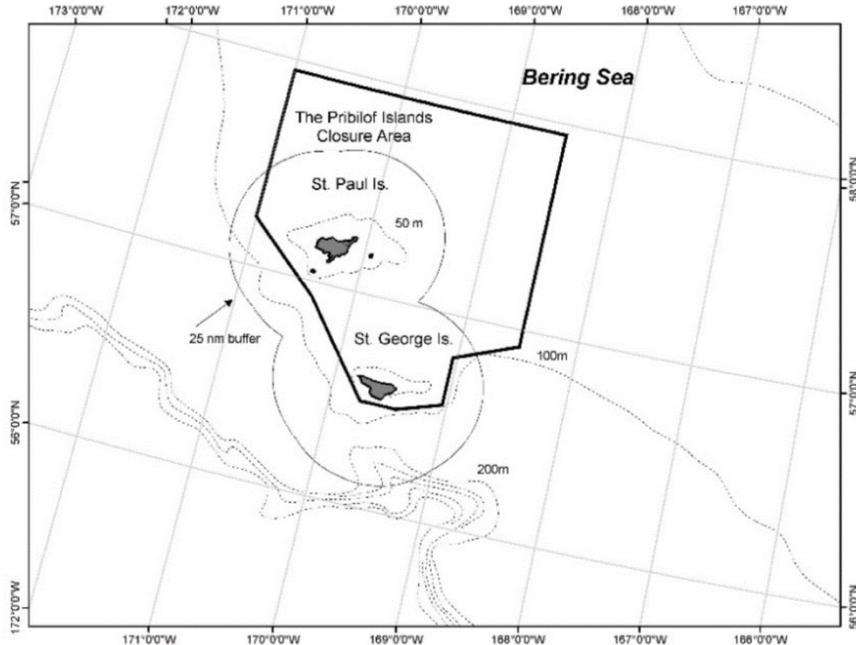
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ATTACHMENT: BSAI Crab Closed Areas

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NMFS Reporting Area 516 : March 15 – June 15 closure to all trawling
Nearshore Bristol Bay Trawl Closure : Year-round closure to all trawling
Red King Crab Savings Area : Year-round closure to nonpelagic trawling
Red King Crab Savings Subarea : Area may be opened to nonpelagic trawling by the NMFS Alaska Regional Administrator in consultation with the Council at the December Council meeting. Regulations state that the limit specified for red king crab bycatch in this area will not exceed an amount equivalent to 25 percent of the red king crab PSC allowance for Zone 1 and will be based on the need to optimize the groundfish harvest relative to red king crab bycatch. NOTE: If the BBRKC directed fishery does not open, the RKCSS will not be available for nonpelagic trawling in the following year.
Northern Bristol Bay Trawl Area : Open to trawling from April 1 st – June 15 th



Pribilof Islands Habitat Conservation Zone (PIHCZ): Year-round closure to nonpelagic trawling, as well as closure to directed fishing for Pacific cod and Pacific halibut using pot gear

St Matthew Island Habitat Conservation Area (SMIHCA): Year-round closure to nonpelagic trawling

ATTACHMENT: Additional Information on Impacts of Trawl on Crab and Crab Habitat

Non-pelagic (or bottom) trawling in Alaska's Bering Sea has both direct and indirect impacts to crab and their habitat. The direct effects of bottom trawling include scraping (displacement), ploughing, and compression of sediments, sediment resuspension, and physical damage (scattering, removal, mortality, or destruction) to benthic organisms through the capture and discarding process ([Eayers et al., 2020](#)). Meanwhile, indirect effects include post-fishing damage or mortality of benthic organisms (observed and unobserved) and long-term change in habitat complexity and community structure ([Eayers et al., 2020](#)).

The spatial scale of mobile fishing gear, such as bottom trawls, is incredibly vast across the Bering shelf, and the frequency of disturbances as gear is towed and re-towed over the same area makes it difficult for benthic ecosystems to rebuild ([Watling and Norse, 1998](#)). This is particularly concerning when [Rose et al., 2014 \(NPRB Project 1117\)](#) estimates commercially targeted crab species inhabit 85-90% of the seafloor area swept by the flatfish bottom trawl sectors. Gear modifications, such as raised sweeps, have shown to help reduce the bottom trawl footprint on the seafloor ([Rose et al., 2013](#)), yet recent studies by [Lomeli et al., 2019](#) have shown that there may still be a risk associated with higher profile benthic species, such as crab, and that these direct and indirect impacts from mobile fishing gear on soft-shell crab are poorly understood.

All crab that are caught in any fishery besides the directed crab fishery are required to be discarded at sea. Some, but generally not all, of those discards subsequently die, which is known as discard mortality or bycatch mortality. Through the handling and release process, these crab are exposed to processes and conditions that can contribute to physical and physiological stress and consequent injury and death ([Alverson et al., 1994](#)). Discard mortality is estimated for both directed and non-directed fisheries, informed from discard mortality studies ([Stevens 1990](#); [Stoner et al., 2008](#); [Yochum et al., 2015](#)). Though not exact, this research still produces a best estimate of how we understand and document discard mortality on discarded crabs from different fisheries. There is another, more obscure source of fishing-related mortality that is poorly understood ([Rose et al., 2013](#)) and not represented in stock assessments and management, known as unobserved fishing mortality. The Magnuson-Stevens Fishery Conservation and Management Act National Standard 9 Guidelines on bycatch define unobserved mortality as "*fishing mortality due to an encounter with fishing gear that does not result in capture of fish (i.e., unobserved fishing mortality)*" ([50 CFR 600.350\(c\)\(1\)](#)). Unobserved fishing mortality presents a large data gap and difficult source of mortality to quantify. Crab species are particularly vulnerable to this type of mortality due to their physiology that prohibits them to move quickly out of the way of mobile fishing gear ([Donaldson and Byersdorfer, 2005](#)). These interactions on the seafloor between crab and fishing gear, in particular, widespread trawl nets, foot ropes and chains, large mesh net sections prior to cod end, sweeps and doors, have unknown effects, especially during molt cycles when crabs are particularly vulnerable ([Donaldson and Byersdorfer, 2005](#)).