



September 29, 2022

Mr. Simon Kinneen, Chair  
North Pacific Fishery Management Council  
107 West 3<sup>rd</sup> Ave., Suite 400  
Anchorage, Alaska 99501

Dear Mr. Kinneen:

This letter is to inform the North Pacific Fishery Management Council (Council) that the National Marine Fisheries Service received the enclosed request from the Alaska Bering Sea Crabbers to undertake emergency rulemaking under section 305(c)(1) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) to close the Red King Crab Savings Area and the Red King Crab Savings Subarea to all fishing gears from January 1, 2023 to June 30, 2023.

We would like to provide the Council with an opportunity to review and provide input on this request. If the Council does not choose to review this request, we will independently review it consistent with section 305(c)(1) of the MSA.

Sincerely,

Jonathan M. Kurland  
Regional Administrator

Enclosure

cc: Mr. David Witherell, NPFMC





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September 28, 2022

RE: Petition for Emergency Action to Close the Red King Crab Savings Area and Subarea to All Fishing Gear

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

The Alaska Bering Sea Crabbers<sup>1</sup> (ABSC) request that you approve a limited, short-term emergency action to **close the Red King Crab Savings Area (RKCSA) and Red King Crab Savings Subarea (RKCSS) to all fishing gears from January 1, 2023 to June 30, 2023** to protect Bristol Bay red king crab (BBRKC) and their habitat at a time of historically low crab abundance. We are seeking direct action by the Secretary of Commerce pursuant to 16 U.S.C. § 1855(c)(1) on grounds that an emergency exists for which interim measures are necessary to address, and because time is of the essence to take action prior to the start of Bering Sea fisheries in January 2023 that could impact crab and their habitat.

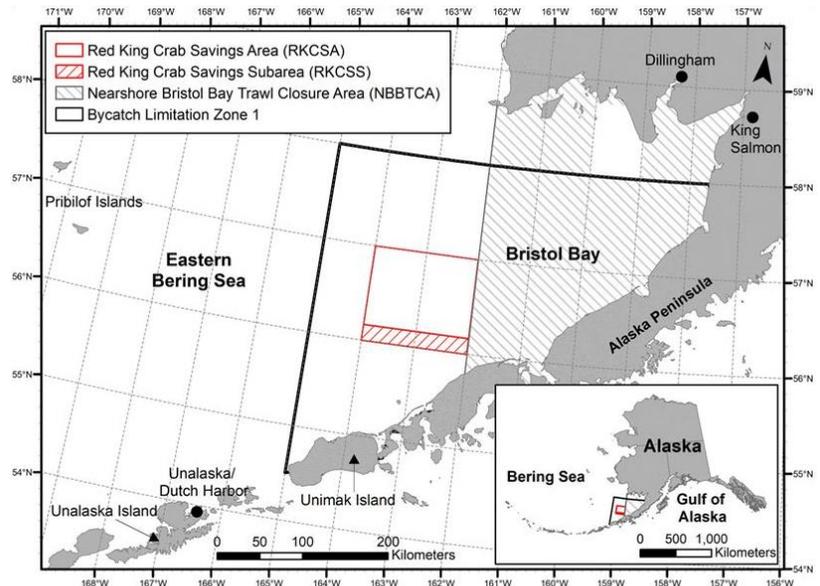
The directed fishery for Bristol Bay red king crab is expected to be closed for the second year in a row in 2022 because of low crab abundance and conservation concerns. This emergency action

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<sup>1</sup> Alaska Bering Sea Crabbers 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.

would provide additional protections for red king crab and their habitat in 2023.<sup>2</sup> The primary purpose of this action is not to increase the chance of a directed crab fishery next year, but to protect Bristol Bay red king crab and their habitat from fishing impacts in an area known to be important for the stock at a critical period in the crab life cycle, in order to help the stock rebuild and produce optimum yield over the long-term. The Council’s Crab Plan Team recently recommended that *“further consideration of habitat protections is a matter of urgency given the depressed condition of most crab stocks.”* (CPT minutes, Sep 2022, p.26)

The RKCSA is already closed year-round to bottom trawl gear to protect Bristol Bay red king crab (BBRKC) and crab habitat from fishing impacts. In addition, in years like this one when the directed fishery is closed, the RKCSS, an additional area to the south of the RKCSA, is also closed year-round to bottom trawl to protect crab and crab habitat. Figure 1 provides a map of these closed areas.



**Figure 1.** Proposed area to be temporarily closed to all fishing gear in red king crab savings area and red king crab savings subarea.

This proposed action would enhance protections for BBRKC in these areas by prohibiting all bottom contact fishing gears (pelagic trawl, pot gear, and longline as well as bottom trawl) during the first half of 2023. All fishing gears have impacts on crab and/or crab habitat to varying degrees either from bycatch of crab or habitat impacts from fishing gear bottom contact. Taking fishing pressure off BBRKC and crab habitat in areas known to be important for BBRKC during this time of low abundance is a necessary action to help this stock recover.

BSAI groundfish fisheries open in January and operate during a vulnerable time when red king crab are molting and mating from January through June/July<sup>3</sup>. Fishing-related mortality for crab is higher when crab are molting and mating because their shells are soft, providing less protection from interactions with fishing gear and when being handled on deck if captured (Donaldson and Byersdorfer, 2005; Section 8.2.5 of the BSAI Crab FMP). Fishing impacts to the stock may therefore be more intensive during this period of the year. Donaldson and Byersdorfer, 2005, state that crab are vulnerable during molt cycles and that there are unknown effects from *“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.”* Protections

<sup>2</sup> ABSC provided comments to the North Pacific Fishery Management Council under [Agenda Item E1 in Oct 2021](#), [Agenda Item D1 in Dec 2021](#), and [Agenda Item D1 in Apr 2022](#) on protections for BBRKC in the near-term and longer-term that are herein incorporated by reference.

<sup>3</sup> See BSAI King and Tanner Crab Fishery Management Plan (p. 45-46, 103, 106, 124, 126)

for red king crab early in the year are therefore critical, especially when, as now, the crab stock is at a low level that presents conservation concerns. Thus, we urge you to implement this emergency action by January 1, 2023.

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 footprint<sup>4</sup> and paired with unaccounted for unobserved fishing mortality during this sensitive period of molting and mating for crab. A recent Council Discussion Paper (Sep 2022) noted, however, that: *“Given what is known about mate/molt timing and the trends in RKCSA use by the groundfish sectors, it may be that the most effective seasonal closures occur when [BB]RKC are most physically vulnerable.”*<sup>5</sup>

In this letter, we provide information on the status of BBRKC, the continued importance of the RKCSA/RKCSS, new information on fishing impacts in the savings areas, and an assessment of the emergency action criteria.

### Bristol Bay red king crab at historic lows

The Bristol Bay red king crab stock has declined to historic low levels in recent years warranting extra protections. The recent draft [NMFS-AFSC Survey Tech Memo](#) from the 2022 summer trawl survey notes, *“compared with historic values the male population remains low across all size classes ...”* and *“female abundance across all size classes remains low compared with historic values...”* ([NMFS-AFSC Survey Tech Memo, 2022](#), p.10, 11) Figure 2 below depicts this historic low in the time series. For males, recent lows have not been seen since the 1980s and, for females, since the mid-1990s.

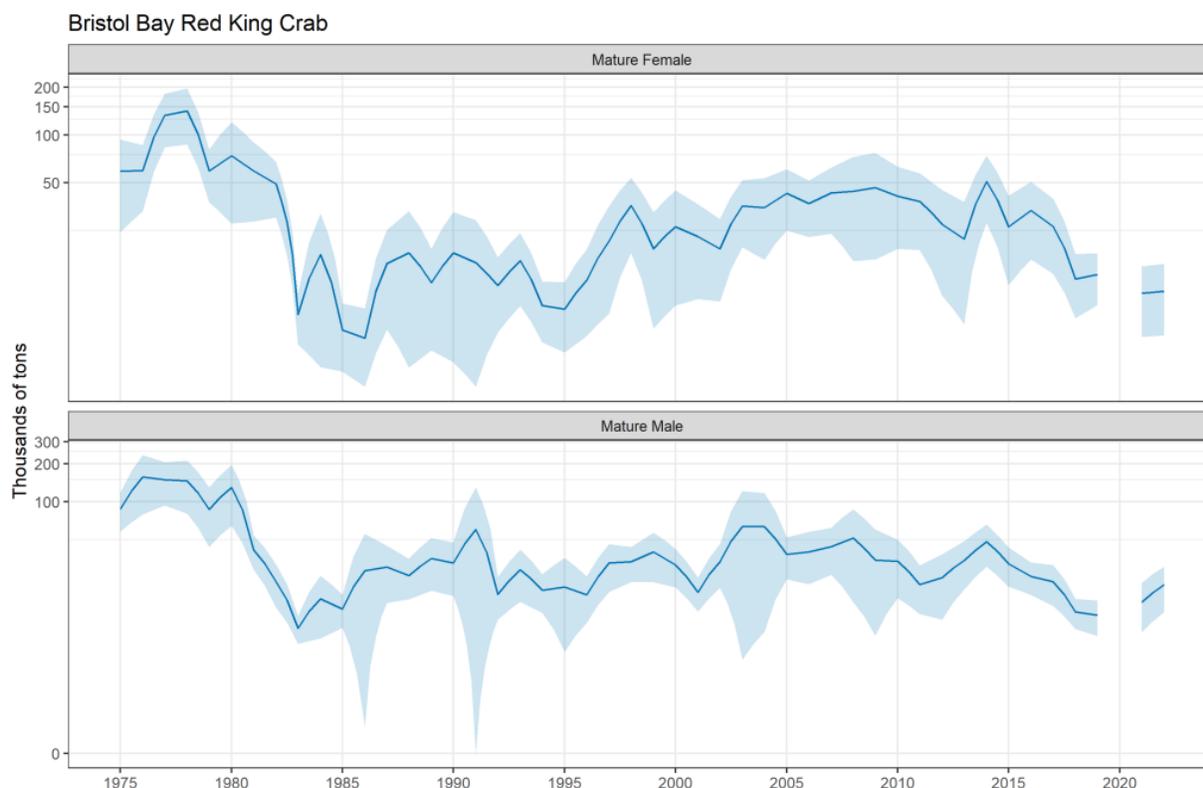
With BBRKC at historic low abundance levels, the directed crab fishery was closed last season for the first time in 25 years and the Eastern bairdi fishery was not opened to further protect BBRKC. Like the previous closures in 1994 and 1995, the Alaska Department of Fish and Game (ADFG) closed the directed crab fishery because the number of female red king crab was below the conservation threshold level of 8.4 million crab. In 1995, recognizing the dire situation with the

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<sup>4</sup> Trawl has a much larger footprint on the seafloor and on crab and their habitat than fixed gear like pot and longline. The fishing effects model provides information to estimate the footprint for all gears at over 32,000 nm<sup>2</sup> 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 1nm<sup>2</sup>, leaving likely over 30,000 nm<sup>2</sup> of footprint from trawl gear. The crab pot gear footprint is 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').

<sup>5</sup> NPFMC/NMFS, Bristol Bay Red King Crab Expanded Information, September 21, 2022 (Discussion Paper) at 16. The Discussion Paper notes uncertainty due to presently available information. But “the Secretary can act when the available science is incomplete or imperfect, even where concerns have been raised about the accuracy of the methods or models employed.” *North Carolina Fisheries Ass’n v. Gutierrez*, 518 F. Supp. 2d 62, 85 (D.D.C. 2007).

BBRKC stock at such low levels, the Council took emergency action to create closed areas and to reduce allowable crab bycatch levels to take pressure off the stock from other fishing gears.



**Figure 1.** Historical biomass of mature female and mature male (carapace length  $\geq 120$  mm) red king crab (*Paralithodes camtchaticus*) in the Bristol Bay District. In years when a subset of stations in Bristol Bay were resampled, the resample stations replace data from the original stations for females only. Light blue area indicates  $\pm 95\%$  CI. Note that Y-axis is plotted on a log scale. (from Fig.7 in [NMFS-AFSC Survey Tech Memo, 2022](#))

The purpose and need statement from the Environmental Assessment (EA) for Amendment 37 to the Fishery Management Plan for the Groundfish Fishery of the Bering Sea and Aleutian Islands (BSAI) Area, which analyzed creating the RKCSA/RKCSS, is relevant again today. “Red king crab stocks are at their lowest level since the fishery was closed after the first stock collapse in 1983. In 1994 and 1995, Bristol Bay was closed to red king crab fishing because the female threshold (8.4 million) was not reached. In addition, the annual trawl surveys indicated little prospect for increased recruitment of mature males or females, and low female spawning biomass.” While the RKCSA/RKCSS continue to be important for BBRKC, which we cover in the next section of this letter, the recent decline in abundance shows that additional protections are now needed in light of the stock’s status, increasing fishing effort in the savings areas, and growing uncertainty due to changing ocean conditions.

Once again, BBRKC is at historic low levels and, unlike in 1994-1995, the Council has not taken additional actions to compliment the state closure of the directed crab fishery beginning in 2021 (Appendix A).

As the co-managers of the crab resource, ADFG provided guidance last fall on what could help BBRKC ([ADFG TAC-setting presentation 2021](#), slide 116). ABSC's recommendations to the Council in our [April 2022 ABSC comment letter](#) under Agenda Item D1 (BBRKC Management, Biology and Gear Impact), herein incorporated by reference, aligned with guidance from managers and information in the Council's April 2022 BBRKC Discussion Paper. ABSC's April 2022 comments provided management recommendations to protect females, optimize mating opportunities by protecting broodstock (concentrations of mature males and mature females), protect crab during vulnerable molting/mating times, and protect important habitats. Protecting red king crab broodstock at times of low abundance is critically important to rebuild the stock toward achieving long-term optimum yield. This emergency action request seeks a temporary, narrow action that would create immediate additional conservation benefits for the stock in line with guidance from ADFG.

### Red King Crab Savings Area continues to be important

The RKCSA/RKCSS closure was first implemented in 1995 to protect female Bristol Bay red king crab from bycatch in bottom trawl gear<sup>6</sup> at a time when female crab abundance was below a conservation threshold that closes the directed crab fishery. The next year, the RKCSA/RKCSS closure was permanently implemented in regulation<sup>7</sup> as a year-round closure for bottom trawl to protect adult BBRKC and crab habitat, along with several other measures to reduce crab bycatch.

In the EA for Amendment 37 to the Fishery Management Plan for the BSAI Groundfish Fishery that analyzed the permanent closure, the EA acknowledged that "*unobserved impacts of trawling on softshell crab may impact crab rebuilding and future crab harvests by pot fisheries*" (NPFMC Amendment 37 EA 1996, p.1). Ultimately, the North Pacific Fishery Management Council recommended, and NOAA Fisheries implemented, a year-round closure to bottom trawling because it provided "*the maximum protection of crab and habitat*" (NPFMC Amendment 37 EA 1996, p.2). The Council analysis back in 1996 recognized the importance of protecting crab at times of low abundance, of protecting molting and mating crab, and of protecting habitat. In addition, the EA acknowledged that unobserved fishing mortality from trawling may impact crab

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<sup>6</sup> 60 FR 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.").

<sup>7</sup> 61 FR 65985 (Dec. 16, 1996) ("NMFS implements Amendment 37 to the Fishery Management Plan for the Groundfish Fishery of the Bering Sea and Aleutian Islands Area (FMP). The implementing regulations for Amendment 37 close portions of Bristol Bay, make adjustments to the prohibited species catch limit for red king crab in Zone 1 of the Bering Sea, and increase observer coverage in specified areas related to the trawl closures. These measures are necessary to protect the red king crab stocks in Bristol Bay, which have declined to a level that presents a serious conservation problem for this stock. They are intended to accomplish the objectives of the FMP.")

rebuilding and future directed crab fisheries. Recognizing this, the Council and NOAA Fisheries took action to close the RKCSA/RKCSS as an area known to be important to crab.

The RKCSA and RKCSS continue to be important to Bristol Bay red king crab. The Amendment 37 EA provides distribution data on red king crab showing the RKCSA provides substantial habitat for mature red king crab (p.13). While BBRKC distribution varies from year to year, those data are corroborated by the summer NMFS trawl survey (Figures 23 and 25 below with RKCSA/RKCSS added and drawn in red) each year where concentrations of BBRKC continue to find refuge and use habitat in this important area.

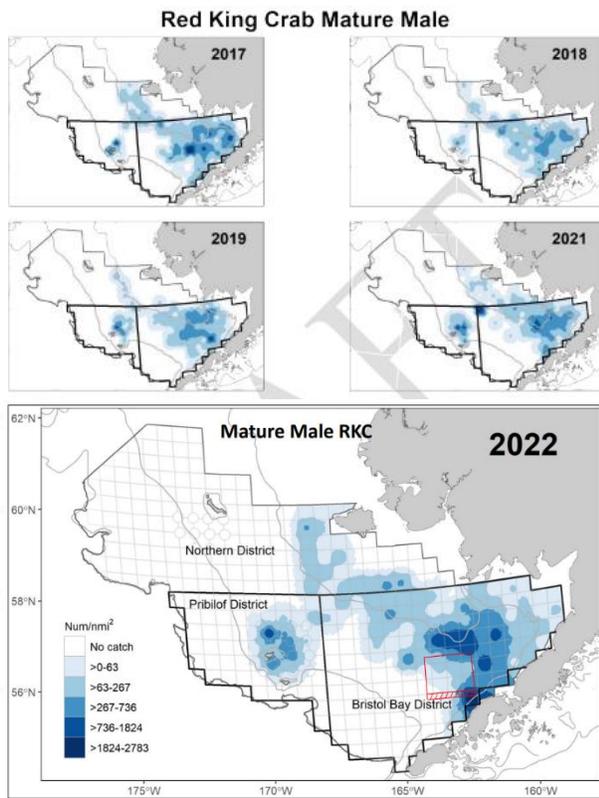


Figure 23. -- Estimated total density of mature-sized ( $\geq 120$  mm carapace length) male red king crab (*Paralithodes camtschaticus*) for the past five survey years. Outlined areas depict management districts.

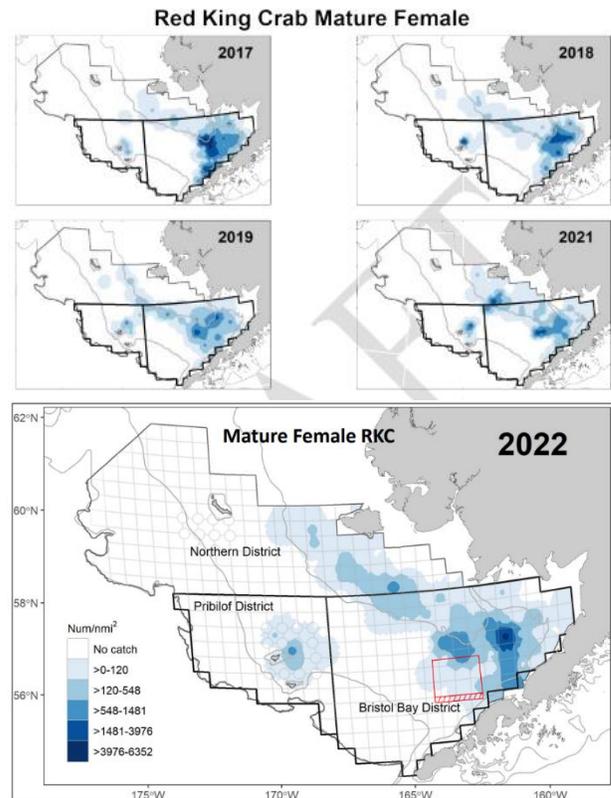
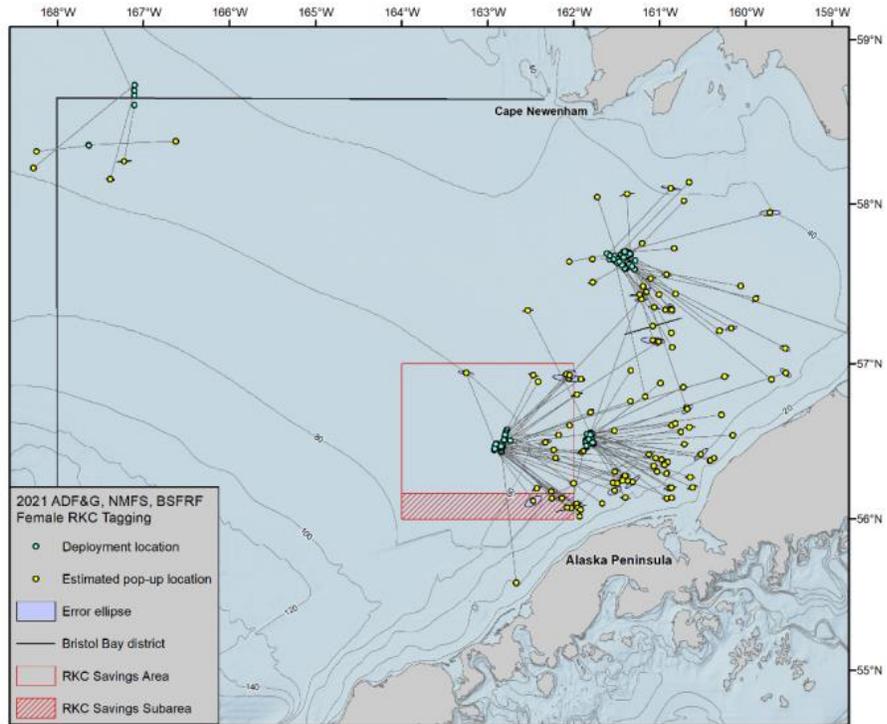


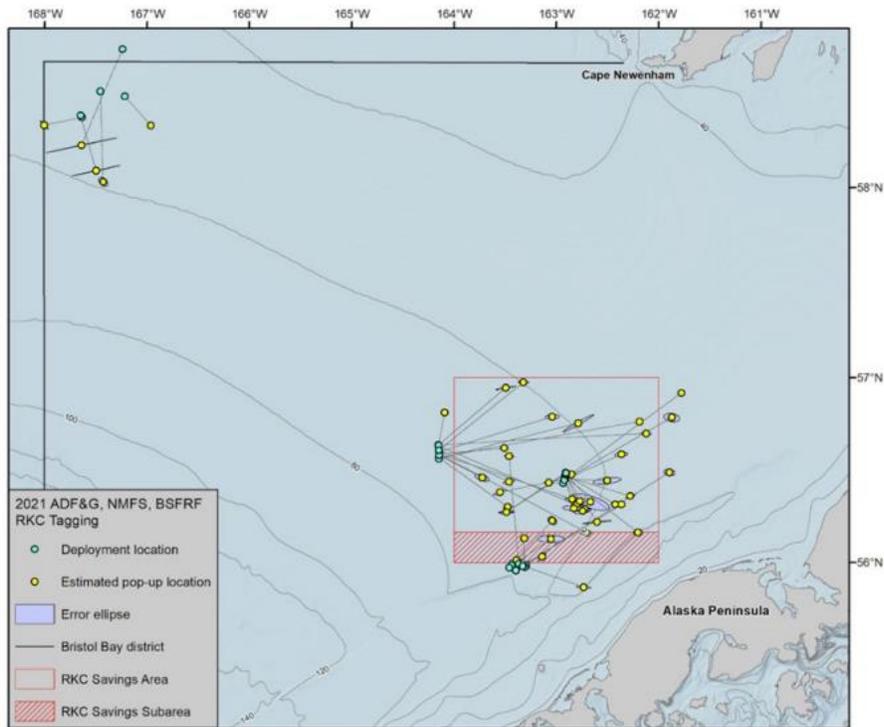
Figure 25. -- Estimated total density of mature female red king crab (*Paralithodes camtschaticus*) for the past five survey years. Outlined areas depict management districts. In years when a subset of stations were resampled, the resample stations replace data from the original stations.

In addition, more recent winter tagging studies ([NPFMC BBRKC Expanded Discussion Paper](#), Sep 2022, Figures 3-1 & 3-2) and fall fishery data (Zacher et al., 2018) show the RKCSA and RKCSS continue to be an important refuge for Bristol Bay red king crab and their habitat even at other times of year than the summer trawl survey.

Figures 3-1 and 3-2 below show winter tagging studies with the fall deployment locations of tags shown in green and the winter/spring pop-up shown in yellow. Figure 3-1 shows female crabs tagged in and east of the RKCSA/RKCSS moved in a generally easterly direction (E, NE, SE) by spring when the tags popped up. Figure 3-2 shows male crabs tagged west and south of the RKCSA/RKCSS moved into the closed box with a general easterly movement in winter.



**Figure 3-1** Movement of female crab from fall (November 2021) to spring (late-April/early-May 2022) based on pop-up satellite tag results from the ADFG/NMFS/BSFRF study



**Figure 3-2** Movement of male crab from fall (November 2021) into winter (January 2022) based on pop-up satellite tag results from the ADFG/NMFS/BSFRF study

Zacher et al., 2018, adds further insight into crab movement in the fall in cooler versus warmer years, with more westerly movement in warm years. Figure 7 below from Zacher et al. 2018, shows persistent areas with high catch of red king crab from 2005-2016 overlaid with the RKCSA/RKCSS.

The best available science shows the RKCSA/RKCSS continue to be important for BBRKC and their habitat. Given the current low status of the stock, further protections are necessary to help rebuild the stock so that the fishery can achieve optimum yield over the long-term. This action would take the existing closure a step further on a temporary basis by closing the area to all gears with bottom contact and that may catch BBRKC as bycatch or affect habitat.

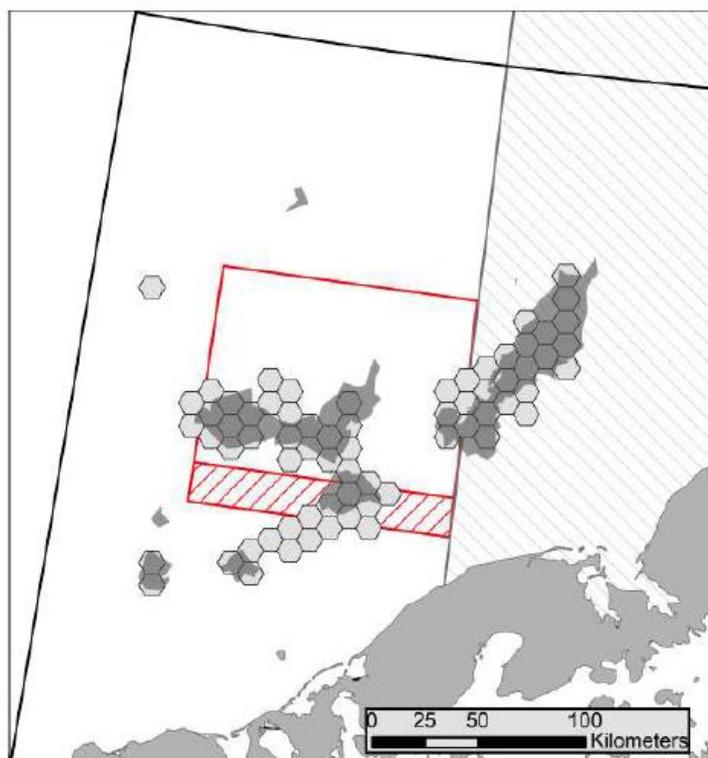


Fig 7. Persistent hot spots and high catch areas for red king crab over 2005–2016. Irregular polygons are hot spots (Getis-Ord,  $G_i^*$ ; Fig 4) that persisted in those areas for at least two years and hexagonal polygons had a high crab catch ( $\geq 20,00$  crab caught; Fig 6) for at least two years. Areas with restrictions on trawling are outlined in red or gray and described in Fig 1.

### Impacts of Fishing in the Red King Crab Savings Area

The RKCSA/RKCSS was closed to bottom trawl beginning in 1995 to reduce impacts on the ocean floor and crab as a benthic species “for increased protection of adult red king crab and their habitat” (NPFMC Amendment 37 EA 1996, p.9). Now, with BBRKC again at a level of conservation concern with female abundance below the 8.4 million animal threshold paired with increasing effort by other fishing gear with bottom contact in the RKCSA/RKCSS and increasing uncertainty due to climate change, additional protections are warranted. The requested emergency action would prohibit all fishing gears in the RKCSA/RKCSS during the first half of 2023, including the

directed crab pot fishery, to give BBRKC and their habitat a chance to rebound. The action would apply to pelagic trawl gear, pot, and longline gear because they all have bottom contact to varying degrees impacting crab and disturbing crab habitat.

### Pelagic Trawl

For pelagic trawl, while the observed bycatch of crab is minimal, the footprint on the bottom, the growing area swept in the RKCSA/RKCSS, and the unobserved fishing mortality has the potential to be significant given the size of the gear, information presented recently at the NPFMC showing significant time on bottom, and the gear configuration where encountered crab are unlikely to make it into the codend to be observed.

Pelagic trawl gear was not included in the original action in 1995 and the supporting analyses do not explain why. Presumably, it was because at the time pelagic gear was believed to have minimal bottom contact. The Council's Crab Plan Team recommended the following to the Council in their minutes from September 1995 which infers in the last sentence that pelagic trawl gear is exempt from the closure if it is defined in a way that keeps it off the bottom and includes effective monitoring to ensure the gear is off bottom.

#### Red King Crab Protection Area

The team reviewed an analysis of alternative trawl closure areas designed to protect red king crab by reducing bycatch. The team wished to convey the following points to the Council.

1. An area closure will reduce red king crab bycatch.
  - ✓ the emergency rule closure in place last year did reduce bycatch.
  - ✓ the EA/RIR projects bycatch reductions in all alternatives to the status quo.
2. The team has conservation concerns for red king crab.
  - ✓ trawl fisheries remove 0.75% to 1.5% of the mature crab stock each year, in addition to natural mortality that removes 25% of the stock annually.
  - ✓ the Bristol Bay red king crab stock is depressed and stable.
  - ✓ trawl fisheries occur during the molting and mating period.
  - ✓ trawling may impact crab habitat and may have unseen detrimental effects on non-retained crab.
  - ✓ the Board of Fisheries instituted conservation measures in 1993.
3. Trawl fisheries are impacted under all alternatives to the status quo.

Regarding a specific alternative, the team noted that:

1. net benefits (\$) to the nation were similar among all alternatives; and
2. alternative vary greatly in predicted red king crab bycatch.

*A motion was made that any alternative closure area should be made year-round (Griffin/Pengilly motion passed 8-1).*

A motion was made to recommend Alternative 3, and allow pelagic trawling within the area as long as pelagic trawling is defined and monitored (Griffin motion, no vote taken).

Later, the definition of pelagic trawl gear was changed and bottom trawling for pollock was prohibited. Amendment 57 to the BSAI Groundfish Fishery Management Plan prohibited the use of bottom trawls in the BSAI pollock fishery in 1999, only allowing pelagic trawl. The Final Essential Fish Habitat (EFH) Environmental Impact Statement (EIS) (April 2005) stated on p.2-3 that *"Part of the rationale for this regulation [to prohibit the use of bottom trawls for pollock] was that it would reduce the adverse effects of trawling on habitat and would simultaneously reduce bycatch."*

However, information suggests that pelagic trawl gear is not fished entirely off the seabed. The Final EFH EIS states in Section 3.4.3.1.2 on p.3-153 that “*pelagic trawls are frequently fished on the bottom in areas with smooth floors,*” such as the entire Eastern Bering Sea shelf. Because large pollock are known to school near the seafloor, there is incentive to fish on or near the bottom to catch larger fish, at least in the Bering Sea where the bottom substrate tends to be smooth and less likely to damage gear. Honkalehto et al. 2009 on p.iii found that “*walleye pollock vertical distribution indicated that 93% of adult biomass was within 40 m of the seafloor.*” The BBRKC Discussion Paper (April 2022) evaluates bottom contact by pelagic trawl gear and states on p.27:

*Zagorski (2016) addresses the pollock industry’s ability to develop trawl gear that complies with regulations prohibiting the use of the elevating discs, bobbins and rollers that are common in non-pelagic trawls while efficiently capturing pollock near the seafloor, avoiding salmon, crab, and halibut, and minimizing adverse impacts on benthic habitats. The author cites previous work noting that adult pollock aggregate on or near the seafloor – particularly during the daytime – that pelagic trawls are not optimal for capturing pollock near the seafloor, and that variable seafloor contact increases the potential for benthic impacts.*

The Final EFH EIS on p.3-166 describes potential effects of pelagic trawl gear on habitat, and how the gear design is not likely to capture benthic organisms like crab it encounters and damages, leading to unobserved mortality.

*The effects from pelagic gear being fished on the bottom have not been specifically studied, and there are some important differences from bottom trawls that must be considered in assessing likely habitat impacts. Pelagic trawls used off Alaska are generally designed to fish downward, with the entire net fishing deeper in the water column than the doors. Pelagic doors are not designed to contact the seafloor. Pelagic trawls are pulled downward by weights attached to the lower wing ends, producing several hundred pounds of downward force. If the trawl is put in firm contact with the seafloor, most of this weight will be supported by the bottom, producing narrow scour tracks. Pelagic trawl footropes used in Alaska are most commonly made of steel chain, with some use of steel cable. Thus, their effects on habitat will have more similarity to tickler chains or small-diameter trawl footropes than to the large diameter, bobbin-protected, footropes used in Alaska bottom trawls. Small footrope diameter will reduce the height that sediments are suspended into the water column, but make penetration of the sediment when bumps and ridges are encountered more likely. Animals anchored on or in the substrate would be vulnerable to damage or uprooting by this type of footrope. The very large mesh openings in the bottom panels of these trawls make it very unlikely that animals not actively swimming upward in reaction to the net will be retained and hence removed from the seafloor, though they may be displaced a short distance or damaged in place.*

More recently, new information provided at the Council’s April 2022 meeting through Agenda Item D1 and the [BBRKC Discussion Paper](#) showed a substantial increase in area swept by pelagic trawl in the RKCSA and RKCSS since 2014, much of that during the pollock “A” season (starting in January) which as noted above occurs while crab are vulnerable in a soft shell condition due to

molting and mating. (Figure 4.4 in the BBRKC Discussion Paper, shown below; see also Table 1-2).

Notably, this timing of intensified trawling in the RKCSA/RKCSS overlaps with a downward trend in the BBRKC stock over that same time period (Figure 1-1 in the BBRKC Discussion Paper, shown below).

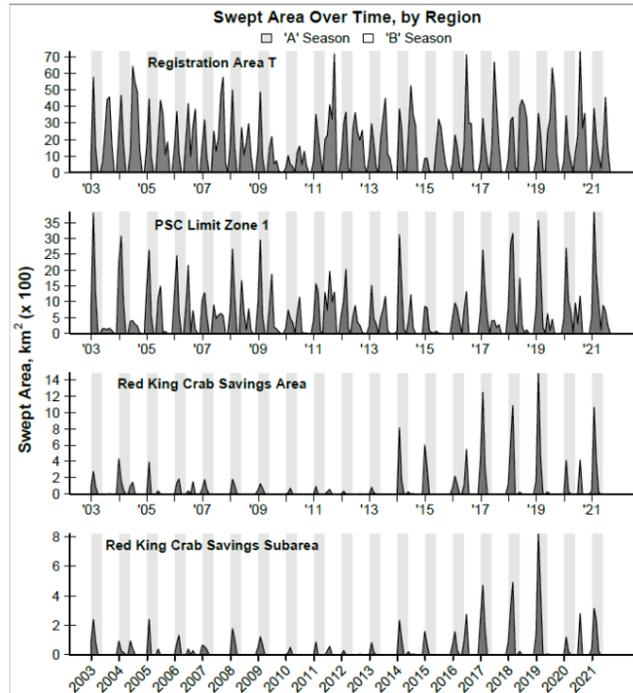


Figure 4.4 Estimated pelagic trawl swept area within four management areas of interest, by month (x-axis), 2003-2021. Grey and white vertical bands represent the pollock “A season” (Jan-May) and “B season” (June-Nov). Note the difference in y-axis scale across the four areas. (Source: APU FAST Lab)

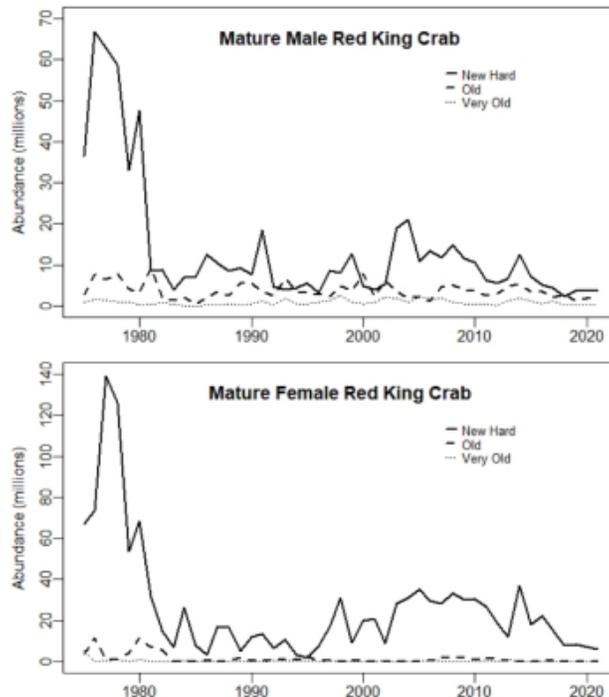


Figure 1-1 Time series of mature male ( $\geq 120$  mm CL) and female (actual maturity) Bristol Bay red king crab abundance by shell condition, 1975-2021 (Zacher et al. 2021).

The Figure 4-2 from the Council’s BBRKC Discussion Paper (April 2022) below provides a visual of the pelagic trawl area swept in the RKCSA/RKCSS showing most of the closed area has been fished between 2003-2021. The previous Figure 4-4 would put much of that effort in the RKCSA/RKCSS since 2014. In the Council’s [BBRKC Expanded Discussion Paper](#) (Sep 2022), Table 1-2 shows pelagic trawl gear has increased effort in the RKCSA/RKCSS in recent years with 7% and 13% for 2021 and 2022, respectively, coming from inside the RKCSA/RKCSS compared to the rest of the Bering Sea. Much of this effort is happening during the pollock A-season which corresponds to the Jan-Jun molting and mating time period for crab (Table 1-3). The BBRKC Expanded Discussion Paper shows the average catch inside the RKCSA/RKCSS has increased by approximately 500% between the time periods 2003-2013 and 2014-2021 (Table 1-4).

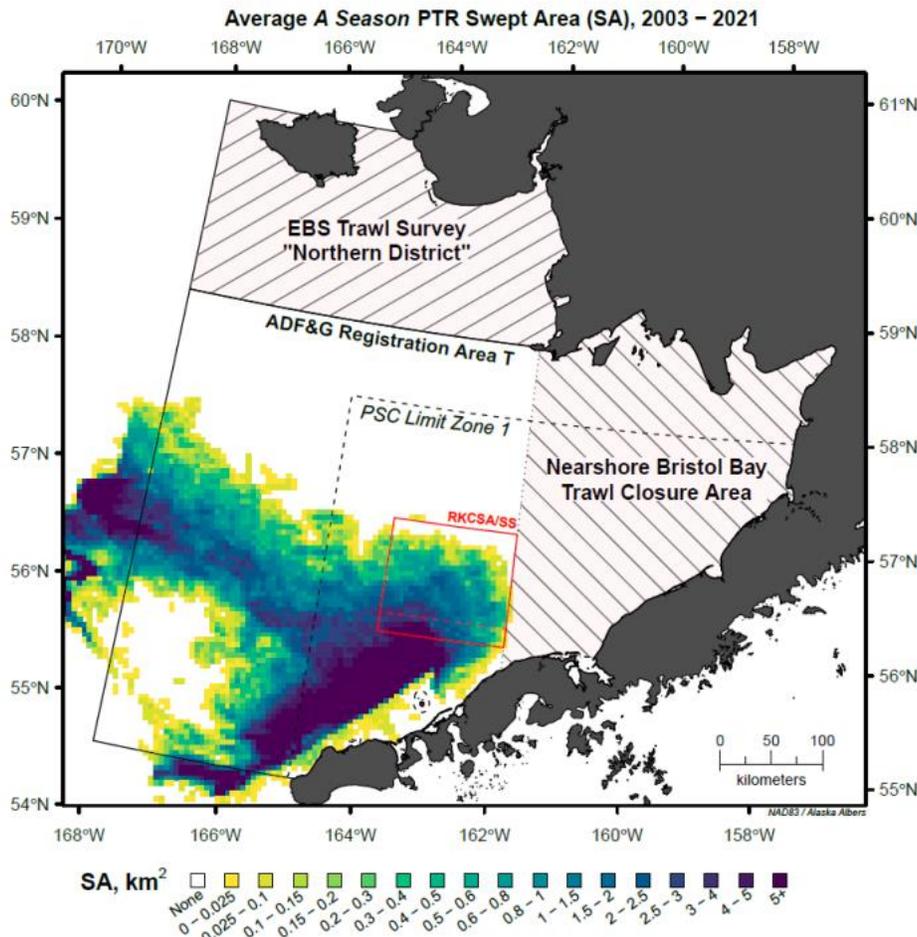


Figure 4-2 Estimated pelagic trawl swept area (SA) in the eastern Bering Sea. 5 km grid cells represent SA by pollock “A season” (Jan-May), averaged across all available years, 2003-2021. (Source: APU FAST Lab)

In addition, the BBRKC Discussion Paper (April 2022) indicates that pelagic trawl gear is on the bottom 70-90% of the time for pollock catcher/processors during A Season, and 80% to 100% of the time during B Season (p.26).

*The contact adjustment for a Bering Sea pelagic trawl CV tow is drawn from a range spanning 0.2 to 0.6 with a median of 0.4. In other words, actual bottom contact would*

*be estimated at a value between 20% and 60% of the raw area swept, where raw area swept is a function of tow length and adjusted nominal width. The contact adjustment for pelagic CPs is drawn from a higher range. During the A Season the contact adjustment for CPs is drawn from 0.7 to 0.9, reflecting an assumption that pelagic gear is on bottom at least 70% of the time. During the B Season the range is from 0.8 to 1.0.*

In other words, pelagic trawls deployed by catcher vessels are on the bottom 40% on the time on average for the raw area swept by the gear, while for pelagic catcher-processors the gear is on the bottom 85% of the time on average. This time on bottom, paired with gear that has footropes and heavy chains that could dig into the mud, could be having significant unknown effects on crab and crab habitat. Moreover, pelagic trawl gear is designed with forward mesh that can be 100 feet wide, large enough to accommodate the wingspan of a Boeing 737 jet. The gear is unlikely to bring up crab on deck to be observed, as described at p.3-166 of the EFH Final EIS.

The indirect effects of trawling such as crushing crab and degradation of habitat have long been flagged as an unquantified impact and a concern for crab as a benthic species (Armstrong et al. 1993; Witherell and Pautzke, 1997). These were primary concerns that led to the original creation of the RKCSA/RKCSS. Those same concerns now apply to pelagic trawl given recent information about time on bottom, the harmful effects of such gear when on bottom, and recent intensity of fishing with pelagic trawl inside the RKCSA/RKCSS.

Impacts on crab from unobserved fishing mortality are currently not included in bycatch mortality estimates and could have management or conservation implications if closed areas, prohibited species catch limits, stock assessments, and other stock management do not properly address it in management. Unobserved fishing mortality is defined in the Magnuson-Stevens Fishery Conservation and Management Act National Standard 9 Guidelines on bycatch 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)). NOAA Fisheries’ [National Bycatch Reduction Strategy](#) states “*bycatch means discarded catch of marine species and unobserved mortality due to a direct encounter with fishing vessels and gear.*”

Unobserved fishing mortality of crab that encounter some part of fishing gear and are not captured to be observed on deck is currently unaccounted for in bycatch mortality estimates even though there is a growing amount of evidence available that could be used to estimate unobserved fishing mortality.<sup>8</sup> This requires attention because trawl effort inside the savings areas is growing over the same period when the BBRKC stock has declined. Counting unobserved fishing mortality as natural mortality may be obscuring a source issue and confounding stock assessment and conservation efforts. Given the bottom contact footprint of mobile gears and the inability of crab to move out of the way especially when crab are in soft shell condition, unobserved fishing mortality has the potential to be significant. Indeed, pelagic trawl gear has the potential to have larger impacts on habitat and unobserved fishing mortality than bottom

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<sup>8</sup> For more information on the growing evidence available to estimate unobserved fishing mortality, see [ABSC’s comment letter to the Council](#), Agenda Item D1, April 2022, #7 on p.10. Also see the [Bering Sea Fisheries Research Foundation’s presentation](#) to the Council’s Crab Plan Team, Sep 2022, slide 14-16.

trawl given the size of the gear, time on bottom, chains and footrope, lack of bobbins, and gear configuration with large forward meshes where crab are unlikely to make it into the codend to be observed. Rose et al. 2013 provides some insights noting the chain footropes from pelagic trawl have bottom contact and differ in impacts from raised footropes.

*Pollock trawls must meet a number of requirements that allow them to be considered “pelagic” trawls, but this fishery commonly has been fished with substantial seafloor contact. Because regulations disallow any protective bobbins, none of the crab mortality estimates for gear components examined in our study can be used to estimate mortalities used for the pollock fishery, where chain footropes are used. The differences we found in mortality rates between different gear components indicate that changes in the specific gear configurations could improve or worsen crab mortality rates. The rates found here should not be applied to trawls with substantially different ground gear (e.g., chain footropes used in the Bering Sea pollock fishery). Component-specific mortality differences also present an opportunity to reduce crab mortality through identification of less damaging footrope configurations that sustain effective capture of target species.*

Further, the impacts on crab habitat and habitat disturbance for crab as a benthic species from bottom contact by pelagic trawl gear and other bottom contact gears are known to happen but are poorly understood. The Final EFH EIS on p.3-166 notes that the habitat impacts from bottom contact by pelagic gear are more similar to small footrope bottom trawl gear that digs into the substrate and can damage animals on the bottom or uproot anchored ones.

Claims that “pelagic” trawl gear does not contact the bottom<sup>9</sup> are unfounded given the available information discussed above.

The RKCSA/RKCSS closure was created to protect BBRKC and their habitat from impacts of bottom trawling. With the information that pelagic trawl gear is not truly pelagic and has substantial bottom contact that could be particularly damaging to crab and crab habitat due to the nature of the gear, combined with the increase of area swept in the RKCSA/RKCSS beginning in 2014 as depicted in Figure 4-4, the pelagic trawl fishery should be prohibited from the RKCSA/RKCSS in keeping with the original intent of this important closed area to protect BBRKC and crab habitat.

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<sup>9</sup> At-Sea Processors Association website states “Pollock ... are harvested using “midwater” trawl nets that are not dragged along the ocean floor.” <https://www.atsea.org/read-more> and “Pollock Fishing Has Minimal Impact on the Habitat. ... The fishing nets do not drag along the ocean bottom. In fact, federal regulations prohibit “bottom trawling” for pollock.”

<https://static1.squarespace.com/static/5a625f328a02c7a950486d60/t/5aa08aa54192022702834a0c/1520470698279/pollock+fishery+description.pdf>

The BSAI pollock fishery is MSC certified. MSC describes pelagic trawl on their website as “Midwater trawls have no contact with the seabed.” <https://www.msc.org/what-we-are-doing/our-approach/fishing-methods-and-gear-types/pelagic-trawls>

Final EFH EIS states in Section 3.4.3.1.2 on p.3-153 that pelagic trawl “are special types of otter trawls that are fished entirely off the seabed”, but the same EIS also recognizes frequent bottom contact by pelagic trawl gear (p.3-153).

Pot Cod Gear

While pot cod fisheries have a minimal footprint of bottom contact and expected minimal unobserved fishing mortality, they have periodic higher bycatch of BBRKC. Figures A3-3 and A3-4 from the Council’s [Crab PSC Analysis \(Feb 2021\), Appendix 3](#), blue line marked “POT,” shows years of higher male and female BBRKC bycatch.

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Figure A3-3

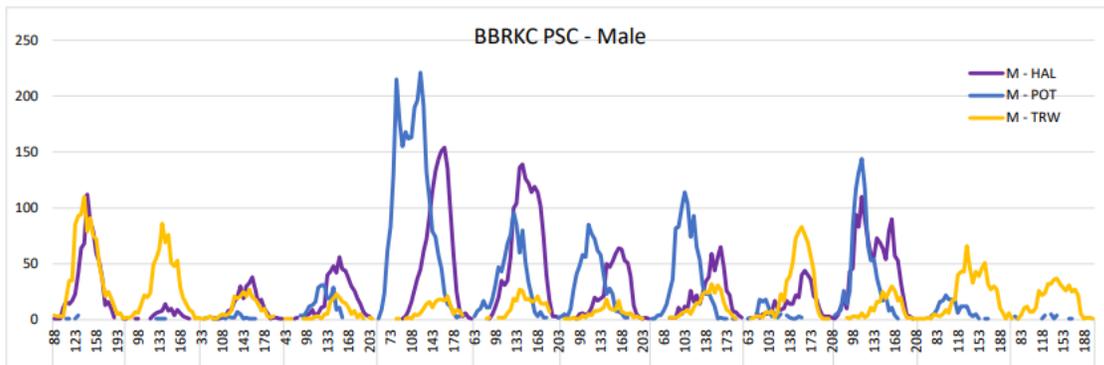
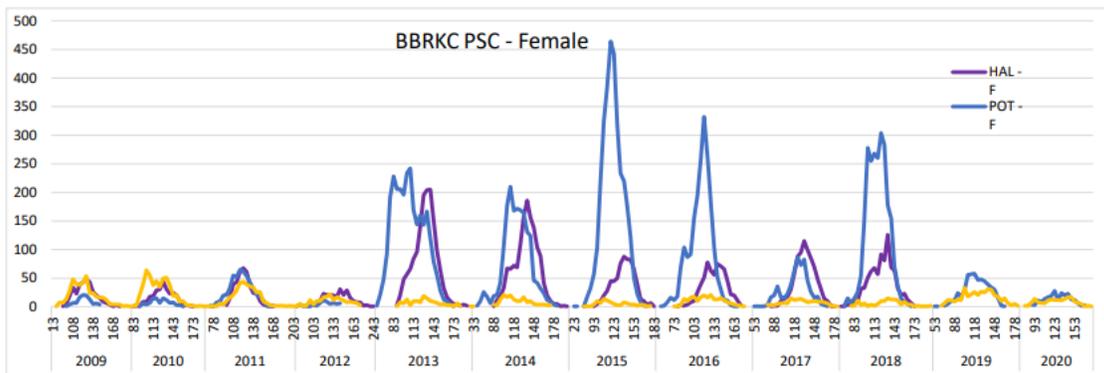


Figure A3-4



In recent years, bycatch of BBRKC has been reduced through the use of new pot gear designs for tunnel entrances. Many vessels have moved to “sock tunnels” to reduce crab bycatch in pot cod and halibut fisheries. A current NOAA Fisheries Bycatch Reduction Engineering Program (BREP) grant (NA19NMF4720212, NA20NMF4720270) is underway to test different pot tunnels and ramps to reduce crab bycatch in cod and halibut pots in the Bering Sea. [Preliminary results](#) were reported to the Council in February 2022.

In addition, several pot cod organizations have been working with their fishermen for the past couple of years asking them to voluntarily avoid the RKCSA/RKCSS and to report areas with high bycatch of red king crab so that other fishermen can avoid it (called hotspot reporting).

## Longline gear

Longline gear has a minimal footprint of bottom contact and is expected to have minimal unobserved fishing mortality. However, longline gear has at times had some levels of BBRKC bycatch (Figures A3-3 and A3-4 from the Council's [Crab PSC Analysis \(Feb 2021\), Appendix 3](#), purple line marked "HAL" (hook-and-line)). To protect as many BBRKC as possible and their habitat given the low stock status, longline gear is included in this emergency action request along with all other gears with bottom contact.

The Council's April 2022 BBRKC Discussion Paper, in Section 4.5 - Bottom Contact by Other Gear Types, describes estimated bottom contact from longline gear using information from an Australian study (Welsford et. Al. 2014). Page 31 of the BBRKC Discussion Paper states:

*The hook-and-line study identified line shear and hooking that could impact structure-forming invertebrates. Such impacts might relate to crab as they rely on structure for safety after molting. The average lateral line movement in Welsford et al. was 6.2 meters, and virtually all lateral movement occurred during deployment or retrieval. The documentation behind the FE gear parameter table noted that lateral line movement can result from currents or from captured fish. Bycatch of sessile benthos (e.g., sponges, corals) are sometimes observed in the Alaska longline fishery so it is known that seafloor interactions do occur.*

## Meets Emergency Action Criteria

This emergency action request to close the RKCSA/RKCSS to all fishing gears from January 1, 2023 to June 30, 2023 (with an extension for another six months) to protect BBRKC and their habitat at a time of historically low crab abundance meets the criteria for emergency action under NMFS Procedure 01-101-07 (Aug. 21, 1997).

### **Criteria 1 on recent, unforeseen, or recently discovered circumstances.**

This request meets criteria 1 because the BBRKC stock has recently dropped below a conservation threshold, a recent event or recently discovered circumstance. In addition, this request meets criteria 1 because recently discovered information is available on bottom contact and area swept by pelagic trawl in areas closed to protect crab and crab habitat from impacts of trawl gear on bottom in the RKCSA/RKCSS.

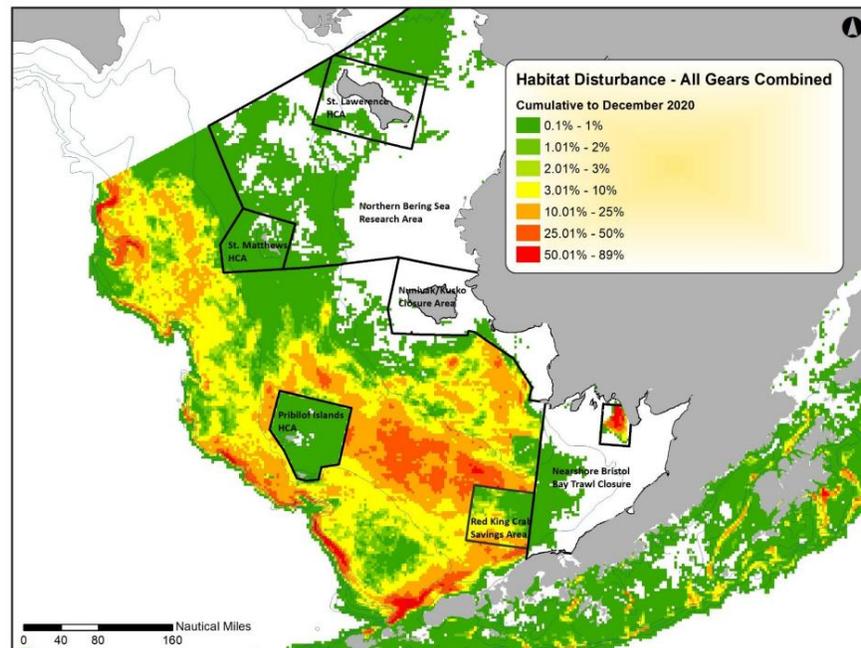
Although the BBRKC stock is not presently considered overfished under Magnuson-Stevens Act standards, the stock is nevertheless at historic low levels of abundance. Given the recent low abundance of Bristol Bay red king crab dropping below conservation threshold beginning in 2021, there is heightened need to protect BBRKC and crab habitat in areas important to the stock. The directed crab fishery for BBRKC was closed for the first time in 25 years last year, along with closure of Eastern bairdi crab fishery to help protect co-occurring BBRKC. Even with these closures and reduced fishing pressure last year, the most recent scientific information from the NMFS summer trawl survey shows BBRKC female abundance continues to be below the 8.4

million animal conservation threshold ([BBRKC Stock Assessment and Fishery Evaluation](#), Council's Crab Plan Team, Sep 2022). The RKCSA continues to be an important area of crab habitat and BBRKC refuge (NPFMC Amendment 37 EA 1996; Zacher et al., 2018) and should be further protected from fishing impacts at times of low crab abundance.

The amount of time that pelagic trawl gear is on the bottom and the increased area swept with pelagic trawl gear in the RKCSA/RKCSS since 2014 as recently brought forth in the Council's [BBRKC Discussion Paper](#) in April 2022, paired with the original intent of the RKCSA/RKCSS to protect crab and crab habitat from fishing impacts (NPFMC Amendment 37 EA 1996) is a recently discovered circumstance.

In addition, other areas closed to protect crab are closed to both bottom and pelagic trawl, recognizing that pelagic trawl contacts the ocean floor and has impacts on crab and crab habitat. For example, the EA to implement the Pribilof Islands Habitat Conservation Zone states, *"to insure compliance while providing the maximum protection to the habitat, the Council decided at its April 1994 meeting to include all trawl gear in this prohibition."* (NPFMC Amendment 21a EA 1994, p.38) Later, the Pribilof Islands Habitat Conservation Zone was amended to also prohibit pot gear from fishing in the area to reduce bycatch of Pribilof Island blue king crab, an overfished species (79 FR 71344, Dec 2, 2014). The Nearshore Bristol Bay Trawl Closure is closed to all trawling (pelagic and bottom trawl) to reduce impacts on habitat for juvenile red king crab (NPFMC Amendment 37 EA 1996).

As shown in Figure 3 below, the Pribilof Island Habitat Conservation Zone and Nearshore Bristol Bay Trawl Closure which both exclude all trawling (bottom and pelagic) have less habitat disturbance than the RKCSA. The Pribilof Islands Habitat Conservation Zone also prohibits pot gear fishing while the Nearshore Bristol Bay Trawl Closure allows it.



**Figure 3.** Bering Sea habitat disturbance for all gears combined through Dec 2020. [EFH Fishing Effects Model](#), slide 7, CPT Jan 2022

### **Criteria 2 on serious conservation or management problems.**

This request meets criteria 2 because the continued decline of the mature female BBRKC biomass presents a serious conservation concern in the fishery...[and] because the closure of the fishery represents a serious management concern affecting fishermen, support businesses, and fishing communities.

### **Criteria 3 on immediate benefits outweighing normal rulemaking process.**

This request meets criteria 3 because BBRKC population abundances are currently at historic low levels as shown in Figure 2 which warrants immediate conservation action to protect crab and crab habitat. The BBRKC stock is at a level of “serious conservation concern” according to both state and federal managers. Time is of the essence for protecting this stock. Waiting year(s) to go through the normal rulemaking process adds undue risk to the BBRKC crab stock at a time when every crab counts for the survival of the stock and its ability to rebuild and achieve optimum yield over the long-term. To build resilient fisheries and keep stocks sustainable, these additional protections are warranted now, especially when current measures have proven insufficient to stop the downward trajectory over 12 years and led to closure of the directed fishery. Taking no additional action to address bycatch and further protect habitat may delay recovery of the stock and further devastate fishing communities, small fishing businesses, and new entrants into the Crab Rationalization Program. The directed BBRKC fishery is closed, with annual economic losses exceeding \$40 million dollars. The fishery and the people that depend on it are suffering; this fishery needs all the protections that managers can provide. The benefits of this action of protecting important areas for BBRKC and crab habitat from fishing impacts at a time of critical low stock levels outweigh the normal rulemaking process.

Compared to the fishable grounds in the Bering Sea, this action would close a small area fished with pelagic trawl, pot, and longline gears, but should not affect those fleets’ ability to land their allocations. As described above, the RKCSA/RKCSS represents about 5% of the pelagic trawl area swept, most of which occurs during the pollock A-season when crab are molting and mating. In addition, this action is not expected to increase BBRKC mortality outside of the closed area due to displaced effort. For pelagic trawl gear, this is because there is less overlap with BBRKC distribution (as shown in Figures 23 and 25 above from the [Draft NMFS-AFSC Survey Tech Memo 2022](#)) and pelagic trawl fishing grounds (as shown by the area swept in Figures 4-1 through 4-3 in the BBRKC Discussion Paper, Apr 2022) south and southwest of the RKCSA/RKCSS.

Concern over displacement of effort increasing bycatch of other species, like halibut, salmon, herring, and bairdi crab should be minimal unless those species are endangered or at a level of conservation concern like BBRKC, snow crab, some salmon species and some marine mammals.

The Council and other bodies will be engaged in future work to assess the causes and potential solutions for the crash of the red king crab stock. This emergency action is intended to provide some additional measure of temporarily protection for BBRKC and their habitat while that other work gets underway.

## Conclusion

This action would enhance protections in an important area for crab and crab habitat from fishing impacts. We know from recent winter tagging studies (Figure 3-8 in the BBRKC Discussion Paper, Apr 2022), fall fishery data (Zacher et al., 2018), and the summer NMFS trawl survey that the RKCSA and RKCSS continue to be important and provide protection for the BBRKC stock. Given the current low status of the stock, further protections are necessary. This action would create closed areas for all gears with bottom contact—pelagic trawl, pot gear, and longline gear—beginning January 1 that align with existing closures for bottom trawl.

Thank you for considering our request for emergency action. We are in an unprecedented time in the history of BSAI crab fisheries. We need bold management actions like this temporary closure that applies to all fishing gears while continuing to improve the science to help BSAI crab stocks rebound.

Sincerely,



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*Alaska Bering Sea Crabbers*  
[jamie@alaskacrabbers.org](mailto:jamie@alaskacrabbers.org)

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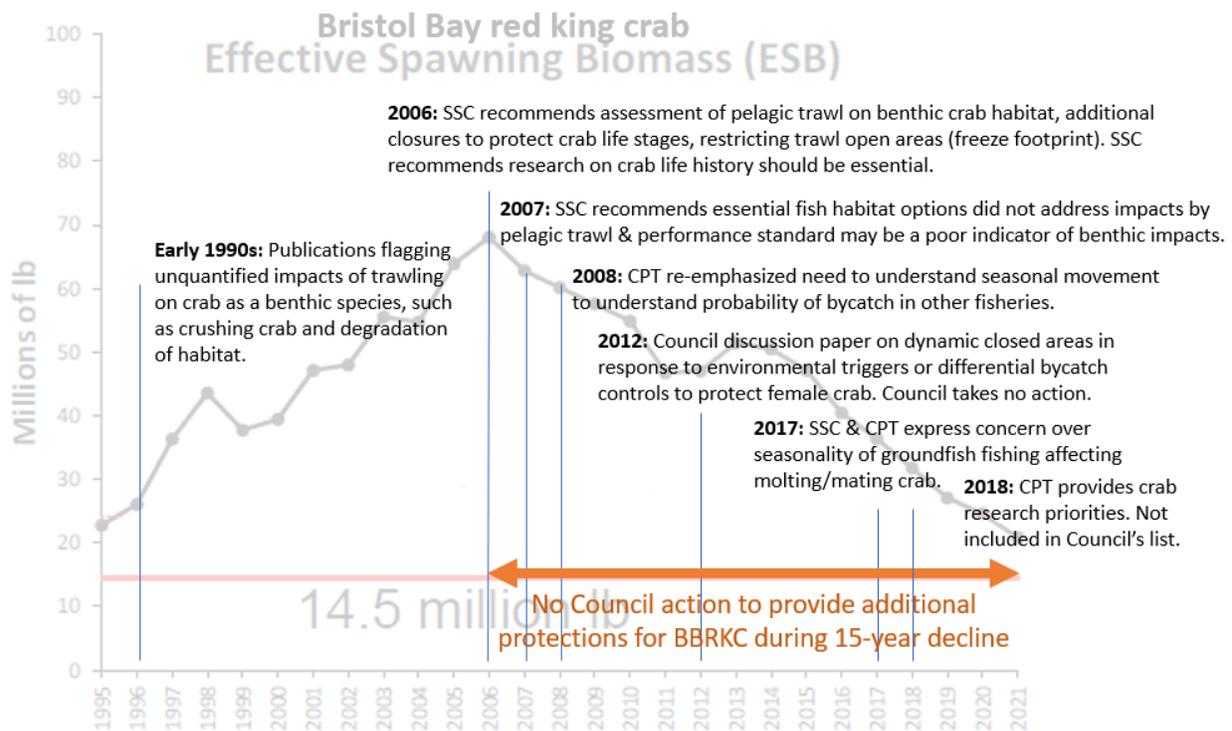
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Appendix A



- April, 2006 D5: SSC notes that continued research on crab life history should be considered essential, including but not limited to improving the understanding of seasonal movements and natural mortality through tagging, mark recapture studies.
- June, 2006 D2: The SSC recommends that the Council should broaden consideration of alternatives to consider a wider array of potentially meaningful measures than currently envisioned. Specifically, analyses should consider these alternatives pertaining to crab: 1) restricting open areas to areas traditionally fished with trawls, 2) additional closures corresponding to special areas that may emerge from the analysis of crab life history stages and 3) The SSC also supports an assessment of the effects of pelagic trawl gear on benthic habitats, as advised in a letter to the Council from the Alaska Regional Office of NMFS (June 1).
- Feb, 2007 D4: The SSC noted that the suite of options does not address impacts on EFH by pelagic trawl gear, the analysis should include a review of the current performance standard based on the number of crab captured, which, given the design and placement of large mesh on pelagic trawls, may be a poor indicator of effect on benthic habitats.
- June, 2008 C6: Recommendations from the Crab Plan Team were provided at its May 2008 meeting, including Expanded Ecosystem Studies: Climate change and fish communities. Changes in ocean temperature and acidity may affect managed species and lower trophic levels. For instance, if recent changes in ice cover and temperatures in the Bering Sea persist, they may have profound effects on marine communities. Additionally, the CPT re-emphasized the need to improve understanding of seasonal movements, stock structure, natural mortality and harvest rates of crabs through mark recapture studies with emphasis on snow and Tanner crab stocks. In addition, improved understanding of seasonal movements of species without surveys or with a short time series of existing survey data are needed to assess the probability of incidental capture in other fisheries.
- Feb, 2012 C4: BBRKC expanded discussion paper - The Council also directs staff to expand the discussion paper to consider the efficacy of closure areas, as well as include management closures that the Council may want to consider to address potential risks to crab recruitment in cold vs. warm years. The discussion

paper should also examine options for dynamic management in response to environmental triggers, or differential bycatch controls to protect female crab.

- June, 2017 C-7: The CPT and SSC expressed concerns over the seasonality of groundfish fishing and how that impacts mating and molting of red king crab caught as bycatch. Additionally, the CPT outlined these concerns regarding crab bycatch to the SSC:
  - The plan team continues to have concerns regarding red king crab bycatch in the groundfish fisheries and recommends that this issue be put forward as a research priority.
  - Reevaluate the goals of bycatch caps. PSC caps are so large they aren't limiting the effects on crab they are only limiting impacts on groundfish trawl fisheries. The plan team believes that if the trawl fishery ever reached the PSC limit for king crab, it would cause irreparable damage to the crab population.
  - Missing pelagic trawl component from model estimates. Investigate gear interaction with king crab.
  - Increase communication with Pollock trawl fleet on impacts of gear interactions with crab population.
- June, 2018 C-3: To assist with the Council's goal to highlight top priorities, the CPT identified five research topics as having the highest priority for 2018, however, there was no mention of the following identified research priorities in the Council's agenda item D-6, research priorities:
  - 1) Spatial distribution and movement of crabs relative to environmental variability, life history events, and fishing
  - 2) Develop management strategy evaluations that incorporate changing climate and economic conditions and impacts to coastal communities
  - 3) Genetics, population dynamics, and management implications of hybridization between Tanner and snow crab in the Bering Sea
  - 4) Maturity estimates for Bering Sea and Aleutian Island crab stocks
  - 5) Develop spatially-explicit stock assessment models