



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration

National Marine Fisheries Service
P.O. Box 21668
Juneau, Alaska 99802-1668

November 10, 2015

Dan Hull, Chairman
North Pacific Fishery Management Council
605 West 4th Avenue, Suite 306
Anchorage, Alaska 99501

Re: Review of an Exempted Fishing Permit application to test fish in Bering Sea crab closure areas by AKSC vessels

Dear Chairman Hull:

On October 2, 2015, NMFS received an application from Mr. John Gauvin on behalf of the Alaska Seafood Cooperative (AKSC) for an exempted fishing permit (EFP). We are providing the application to the U.S. Coast Guard, the State of Alaska, and the North Pacific Fishery Management Council (Council) as required by 50 CFR 600.745(b)(3)(i) and 50 CFR 679.6(c)(2). This EFP would allow operators of up to five AKSC non-pelagic trawl catcher/processors to test fish in two subareas of the Bering Sea that are closed to trawl directed fisheries: Reporting Area 516 of Zone 1 closed to all trawl gear and the Red King Crab Savings Area (RKCSA) closed to non-pelagic trawl gear. If issued, this permit would allow AKSC to collect data on crab bycatch rates during commercial fishing operations (targeting mostly flatfish) inside the Area 516 seasonal closure, the RKCSA, and adjacent areas that are currently open to non-pelagic trawling. Issuance of EFPs is authorized by the Fishery Management Plan for Groundfish of the Bering Sea and Aleutian Islands Management Area and its implementing regulations at 50 CFR 679.6, Exempted Fisheries.

The applicant developed the EFP in cooperation with NMFS and Alaska Fisheries Science Center (AFSC) staff. On October 30, 2015, the AFSC found the EFP application constitutes a valid fishing experiment appropriate for further consideration.

The principle objective of the EFP is to evaluate whether flatfish and other groundfish trawling in the above-mentioned closed areas under the existing prohibited species catch (PSC) allowance for crab would result in reduction to PSC rates for crab or other species, or a change in overall catch of target species compared with the status quo. The study conducted under this EFP would begin in early February 2016 and end by mid-May 2016. EFP fishing would begin again in late January 2017 and end by mid-May 2017.



Under the EFP, sea samplers will census crab catches of all tows by EFP vessels inside and in adjacent areas outside the RKCSA and Area 516. The census data will record size and sex of each individual. Temperature and depth data will be collected for each tow along with fishing operational information such as tow speed and tow length. AKSC will compare catch rates on different EFP vessels when fishing in similar areas to evaluate the degree to which individual differences in a specific vessel are impacting catch rates.

To avoid affecting observer sampling duties, the census will be conducted in a manner that is completely separate from current observer sampling protocols. To accomplish this, the crab census will occur after all the catch passes over the vessel's flow scale and the observer has completed all sampling of unsorted catch for all Bering Sea EFP hauls.

AKSC vessels authorized by this EFP would be exempt from, at minimum, the following regulations:


1. closure to directed fishing by trawl gear in Reporting Area 516 of Zone 1 in the Bering Sea Subarea from March 15 through June 15, at § 679.22(a)(2).
2. closure to directed fishing by non-pelagic trawl gear in the RKCSA at § 679.22(a)(3).
3. that the operator of each vessel, after allowing for sampling by an observer, return all prohibited species, or parts thereof, to the sea immediately, with a minimum of injury, regardless of its condition at § 679.21(b)(2)(ii).

Under the EFP, the AKSC would be limited to the AKSC's Amendment 80 groundfish allocation. The amount of red king crab PSC accrued by the AKSC and under the EFP would not exceed the AKSC's 2016 or 2017 red king crab allowance. All other crab limits and halibut mortality limits will continue to apply to the EFP activities, and are subject to review and approval by NMFS.

After reviewing the proposed EFP in relation to NOAA Administrative Order (NAO) 216-6, NMFS has preliminarily determined that the proposed EFP research would not have a significant effect on the human environment. Specifically, the proposed action would qualify for a Categorical Exclusion under section 5.05b and 6.03d.4 because it is a minor change and indistinguishable from 2016 and 2017 Amendment 80 groundfish fisheries with no effect the environment and for which any cumulative effects are negligible.

We are initiating consultation with the Council by forwarding the application, as required by 50 CFR 679.6(c)(2). We understand that you have scheduled Council review of the proposed project at the Council's December 2015 meeting. Please notify Mr. John Gauvin of the AKSC of your receipt of the application and invite him to appear before the Council during the December meeting in support of the application. We will publish a notice of receipt of the application in the *Federal Register* with a brief description of the proposal.

Sincerely,


for James W. Balsiger, Ph.D.
Administrator, Alaska Region

Enclosures:
EFP Application
AFSC memorandum of approval of the experimental design



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Alaska Fisheries Science Center
7600 Sand Point Way N.E.
Seattle, Washington 98115-6349

October 30, 2015

MEMORANDUM FOR: James W. Balsiger
Administrator, Alaska Region

FROM: Douglas P. DeMaster *Douglas DeMaster*
Science and Research Director, Alaska Region

SUBJECT: Exempted Fishing Permit (EFP) Application from
Alaska Seafood Cooperative for 2016/2017 test
Fishing in Red King Crab Savings Area and
516 Closure Area.

AFSC staff has reviewed the referenced Exempted Fishing Permit (EFP) application from the Alaska Seafood Cooperative. The proposed research is well described in this request. This is a good example of a project to work with a motivated fishing sector to ensure that appropriate management tools are in place. We therefore recommend approval of this request for an EFP. Reviewer comments are attached; applicant should address reviewers' concerns.

Attachment

cc: F/AKC1 – J. Napp
F/AKR - J. Hartman



RACE Div. Comments

The proposed EFP by John Gauvin on behalf of the Alaska Seafood Cooperative, has generally sound objectives and a clear study design. This project is a pilot study to determine if the fishery bycatch rates can be lower inside two closure areas than outside those areas. This project does not have a survey design to test for statistically measurable differences in bycatch in and outside of the closure areas so the results specific to bycatch rates will be subject to fishing behavior (location, depth, vessel, and gear). Additional data on the biological status of the bycatch (size, condition, and reproductive status) will also not be representative of the entire closure area but will be representative of the actual bycatch experienced by the fishery in 2016 and 2017. As such, this project is a good first step in determining if the fishery can fish flatfish in the closure areas with a reduced bycatch rate of crab and potentially halibut than in the currently open areas. A negative result (more bycatch inside the closure area) will suggest that the closure area may be important for protecting high densities of mature crab whereas a positive result will suggest that further quantitative studies should be conducted to assess the density and biomass of mature crabs inside and outside the closure areas potentially reconsidering the closures. It should be noted that the importance of the closure areas may change with changing stock size and environmental conditions and will need to be considered in future studies before the closure are could be redefined. The project methodology proposed is sound and includes an observer familiar with crab and a full assessment of all crab in and adjacent to the closure area. The reporting objectives to NMFS, NPFMC, and other industry groups is good but AFSC staff recommend that additional information be available after year one. After the completion of the first year and prior to the 2nd year of fishing, a report detailing the crab catch by species, sex, size, shell condition, and reproductive status by location (latitude and longitude) and date should be provided to AFSC so that an assessment of bycatch inside the closure area relative to outside the closure area can be made. While the caps will safeguard overall catches of mature crab it will be important to make sure, for instance, that ovigerous females are disproportionately being removed. Data from both inside the closed area and outside the area should be provided. The AFSC also reiterates the concerns expressed by the NPFMC that project take place as early as possible in the proposed study period to avoid mortality of mating crabs likely to be encountered towards the end of the proposed time period in May. The methodology for measuring size, determining shell condition, and reproductive status will be provided by AFSC. Also, if this project is approved, AFSC will provide temperature loggers that can be fixed to fishing gear for assessment of temperature relative to crab capture rates. AFSC staff will work with Mr. Gauvin to oversee methodology for temperature logger placement and data collection. Overall this is a good example of a project to work with a motivated fishing sector to ensure that appropriate management tools are in place.

FMA Div. Comments

We have the following comments regarding the Red King Crab Savings Area Exempted Fishing Permit application.

Under the catch handling and data collection procedures, Point 8) Participating vessels will provide a sampling area for the sea samplers sufficient for them to conduct their sampling duties "without negatively affecting the work area for the observers". The sentence should readconduct their sampling duties outside of the designated observer sampling station.

Point 9) states that sea samplers will be recording shell condition for all crab encountered as well as egg condition and clutch fullness when encountering mature female crab. Point 4 under this same heading does stipulate that sea samplers will have the same training and qualifications as NMFS certified groundfish or State of Alaska crab observers. We do not train groundfish observers to collect this type of data, so not currently collected by our groundfish observers when they encounter crab in their species composition samples. Might want to clarify who will be training the sea samplers to collect these data points.

Point 13) requests that sea samplers have access to NPGOP gear in a manner similar to the current halibut deck sorting EFP. The halibut deck sorting EFP requires sea samplers to drop off their safety and sampling gear along with groundfish data and their logbook prior to deploying as a sea sampler on one of the vessels participating in this EFP. John may have made this request to address the scenario of an observer deploying from training/briefing in Seattle with our gear but starting their contract as a sea sampler in Dutch. In this situation we did agree that we would issue gear to sea samplers upon leaving training in Seattle, but that they would need to turn in their gear to the FMA field office in Dutch Harbor if deploying as a sea sampler. The FMA gear policy requires that any sea samplers not employed as North Pacific observers obtain their own equipment when deploying as sea samplers. We have communicated at length about this issue with the observer providers and John Gauvin.

As an overall comment, this EFP has not asked to increase the AM 80 PSC limits for crab or halibut while fishing in the RKC savings area or the no trawl zone. In addition, the EFP is requesting that "species composition sampling by the normal AM 80 observers will be used to track the target and PSC catches of participating vessels against their AM 80 allowances". This approach may place additional pressure on the observers to enter and submit their data because the vessel will want to track their PSC catch rates on a near real time basis.

Alternatively, the sea samplers are conducting a census on all encountered crab for each tow along with the other biological data they collect, which could be submitted as the actual crab encountered for PSC as opposed to extrapolation from the observers species composition sample. The EFP application asks for these vessels to be exempted from regulations requiring prohibited species from being returned to the sea immediately for the extra crab data, but is not using the exemption as an opportunity to complete a census on the Prohibited spp.

Application for an exempted fishing permit to conduct a limited flatfish fishery inside the Red King Crab Savings Area and Area 516 closures to evaluate potential for reducing crab and other PSC bycatch

Date of Application: October 2015 (Revised from AFSC comments November 2015)

Requested permit dates:

February 1 through May 15, 2016 and January 20 through May 15, 2017

Signature of Applicant:



Applicant Information:

Alaska Seafood Cooperative, 4241 21st Avenue W., Suite 302, Seattle, WA 98199
Telephone: 206 462 7682, Fax: 206 462 7691
Principle Investigator: John R. Gauvin, Fisheries Science Projects Director, Alaska Seafood Cooperative
Telephone: 206 660-0359, 206 462-7684
Email: gauvin@scanet.com

EFP vessel information: If approved, up to five Alaska Seafood Cooperative (AKSC) member vessels would be authorized to participate in this EFP. Prior to the final issuance of this permit, AKSC will provide a list of the vessels selected for the EFP including a list of alternate vessels in the event that one or more of the selected vessels are unable to participate.

Statement of Purpose:

This EFP proposes to collect data on crab bycatch rates during commercial fishing operations on five groundfish fishing vessels (targeting mostly flatfish) inside the Red King Crab Savings Area (RKCSA), the Area 516 seasonal closure, and adjacent areas that are currently open to non-pelagic trawling. The principle objective of the EFP is to evaluate whether flatfish and other groundfish trawling in the above-mentioned closed areas under the existing bycatch caps would increase or decrease bycatch rates and the overall catch of managed crab species in the status quo fishery. Many flatfish fishermen feel that access to these closed areas could actually result in lower crab and possibly halibut bycatch usage.

While principally focused on crab bycatch rate comparisons, other pertinent information on managed crab species from inside the closures and adjacent areas in the winter and spring months (e.g. sex and size) will be collected. Additionally, EFP vessels will install sensors provided by the Alaska Fishery Science Center's (AFSC) Kodiak laboratory to collect

temperature data to collect critical information on preferred habitat conditions for managed crab species.

Assuming our preferred timing for approval and issuance of the permit, EFP activities would occur from February through May 15, 2016 and again from January 20 through May 15, 2017.

This project is expected to help crab and groundfish scientists/managers, industry, and the interested public better understand tradeoffs for maintaining or modifying current closure areas. No additional crab catch allowances are requested for this EFP and participating vessels will operate in the EFP using their own Amendment 80 allowances while fishing inside and outside the closures.

The EFP data will be analyzed following each of the two EFP field seasons and a short summary of preliminary findings will be provided to NMFS/NPFMC at those times. AKSC will also hold a meeting between commercial crab fishermen, their trade association representatives, and participating EFP flatfish captains to discuss the preliminary results following each field season. A comprehensive draft final report will be prepared following no later than six months following the completion of the two field seasons. That report will detail the objectives, methods, and findings. Potential recommendations for any future research or modifications to crab bycatch management measures will also be made, as appropriate, in consultation with the commercial crab industry input. The permit holder will be available to present the findings at a NPFMC (Council) meeting if requested. The draft final report will be modified based on feedback from NMFS and the Council and its advisory bodies and following that, the report will be submitted to NMFS and the Council in final form.

Background:

The RKCSA was implemented in 1999 and the Area 516 has been in place even longer (effective date of the Area 516 seasonal closure is not known at this time). Since the late 1990s, changes in the stock status and distribution of the major Bering Sea crab stocks have occurred, as seen in the annual trawl surveys and stock assessments. Bycatch avoidance incentives/practices for Bering Sea flatfish fisheries have also evolved over the same period, mainly due to the Council's approval of Amendment 80 (2008).

Data on the distribution of managed crab species within and around the crab closure areas in the winter and spring (when rock sole and yellowfin sole fishing takes place) do not exist presently and the distribution of crab during the winter and spring relative to the closure area has not been evaluated since implementation of the closures. Recent annual trawl surveys show that Bristol Bay RKC stock is currently concentrated mainly east of the RKCSA (mostly in the Bristol Bay closure), at least in summer when the surveys occur. RKC are known to move seasonally in response to changes in water temperature and ice edges, and the summer Bering Sea trawl survey

may not be reflective of crab biomass locations during the winter and spring when flatfish fisheries are occurring.

From the perspective of flatfish fishermen, the RKCSA and 516 closures limit the ability of the Amendment 80 sector to follow the dense schools of target flatfish species as they make seasonal movements across the eastern portion of the Bering Sea shelf. From the sector's experience, bycatch is minimized when fishing concentrates on dense aggregations of target species, allowing for shorter towing times and cleaner results.

Bycatch is also minimized when a fishery is highly incentivized to reduce bycatch. Amendment 80 vessels have operated under individual bycatch limits since 2008. The sector's fishermen now carefully monitor their crab and other PSC bycatch rates and move vessels to alternative grounds when rates spike. They also share crab and halibut bycatch data and employ test tows to evaluate a new fishing location to ensure that bycatch rates are low before they make any commercial scale tows. Using these tools, AKSC fishermen have consistently stayed well under their crab catch allowances since the start of Amendment 80.

Conceptually, closed areas would reduce the Amendment 80 sector's ability to avoid bycatch if red king and other crabs are in fact less abundant in the closures relative to open areas at times when fishermen would fish inside the closures. To evaluate the potential for that to be the case, data collected by groundfish observers on Amendment 80 flatfish vessels fishing adjacent to and inside a portion of the closures were compiled (see table below). These data are relevant because some flatfish fishing occurs in the southern portion of the RKCSA, the area commonly referred to as the 10-mile strip. Flatfish fishermen can access this area in years when the RKC stock is above a regulatory abundance threshold.

The table below provides annual RKC bycatch rates across all AKSC member vessels that fished for rocksole and yellowfin sole from 2008 to 2015. Looking at the differences in rates from year to year it is evident they are quite variable. Overall, however, it appears that on average from 2008-2015 RKC bycatch rates for AKSC vessels (number per MT of groundfish) in the 10 minute strip are actually pretty similar for the period compared to the two statistical areas adjacent to the RKCSA. Of note, however, is that rates inside the 10 minute strip were actually dramatically lower in some years, particularly for fishing in the yellowfin sole target in Statistical Area 516 and 509. This could be indicative of times when fishing inside the closure areas would make sense and lower bycatch usage could be achieved in this manner.

In considering these data, however, it is also important to keep in mind that the table compares bycatch rates in the relatively small 10-minute strip area (ten minutes of latitude and two degrees of longitude or approximately 680 square nautical miles) to a comparatively broad adjacent area. Rates in portions of the large statistical area adjacent to the 10 minute strip actually vary considerably by location. Some specific portions of the area adjacent to the RKCSA have had

bycatch rates that are considerably higher than the average for the overall statistical area. So potential for achieving lower rates inside the RKCSA could actually be larger than ones seen on average in the table. One must also keep in mind, however, that the “inside” rates in the table actually only cover the portion of the RKCSA and relative abundance of RKC in the portion of the RKCSA north of the 10 minute strip may differ.

Inside/Outside Red King Crab Savings Area Rates - # RKC/MT groundfish								
Year	Stat Area 509				Stat Area 516			
	RockSole		Yellowfin		RockSole		Yellowfin	
	Inside	Outside	Inside	Outside	Inside	Outside	Inside	Outside
2008	0.5	0.3	0.2	1.0	1.1	1.5	0.0	15.1
2009	0.5	1.1	0.2	0.4	1.5	2.1	0.6	0.4
2010	0.4	0.5	0.2	0.3	1.0	0.8	1.5	0.4
2011	0.4	0.3	0.1	0.2	0.7	0.5	0.1	0.7
2012	0.3	0.2	0.0	0.1	0.4	0.4	0.0	0.2
2013	0.2	0.2	0.1	0.1	0.4	0.1	0.2	0.2
2014	0.4	0.3	0.0	0.2	0.7	0.4	3.1	2.6
2015	0.1	0.1	0.0	0.0	0.5	0.6	0.3	0.1
Average	0.3	0.3	0.1	0.3	0.8	0.7	0.4	0.4

Note: Average in each column is sum of all RKC 2008-20015/sum of all groundfish 2008-2015

Bycatch rates for inside the Area 516 closure to outside (essentially before and after the closure) are somewhat harder to compare than for fishing inside the 10 minute strip and outside the RKCSA. This is because flatfish fishing (mostly for yellowfin sole) occurs prior to the 516 closure in the portion of the area that are open to flatfish trawling (prior to March 15) but rates for vessels leaving the area when it closes reflect fishing for deeper water flatfish species such as flathead. RKC bycatch rates for fisheries in deeper water than the normal depth range for RKC would be expected to be inherently lower. For this reason, a before and after type of rate analysis was not undertaken for this application. Flatfish captains do, however, generally report low bycatch rates in the portion of Area 516 prior to when the seasonal closure forces them to relocate to other fishing areas. This can be seen in the above table in the column for yellowfin sole RKC bycatch rates inside Area 516. Yellowfin sole is typically the target species in that area when the 516 closure occurs.

The discussion above is probably best seen as “suggestive evidence” that the closure areas may not be accomplishing their intended purpose and that allowing captains the flexibility to access the area when it makes sense could achieve savings in red king crab and possibly other PSC relative to status quo. Under this scenario, bycatch caps alone might be sufficient for managing

crab bycatch. This would allow fishermen to select fishing areas with the highest target catch rates and lowest PSC rates from the overall area occupied by their target species.

To get at the actual differences between inside the closures and adjacent areas, a dedicated effort to collect information on bycatch rates inside and adjacent to the closed areas would be needed. This would provide a more comprehensive basis to evaluate whether crab and other PSC rates and target species are higher or lower in the closed areas. It would also provide information to fishermen about the feasibility of fishing in the area. Additionally, data on sex and size of crab that are caught in the closed areas and how this compares to adjacent areas would help inform managers and stakeholders on the value of the closed areas. This is important for crab management objectives as well as increasing the scientific knowledge about crab distribution during a non-survey time of year. Finally, temperature data collected at this time of year would enable crab scientists look at crab distribution and bycatch on a finer spatial basis and in the context of thermal fronts and ice edges that occur during the time period for this EFP.

EFP Design

This EFP is specifically designed to be a small-scale “pilot study” to collect bycatch rate information and other data on a limited number (five) of flatfish vessels permitted to fish inside the closures. For context, the five vessels that would participate in this EFP comprise approximately 20% of the Amendment 80 fleet (by number) so the EFP represents a relatively small portion of the fleet.

Given the unknowns of fishing inside areas that have remained closed for more than 15 years, the EFP is specifically designed to be low-risk in terms of implications to crab populations. EFP participants would utilize their existing target species and PSC allowances for the EFP. This prevents an increase over what is currently analyzed under the annual groundfish specifications from the project because the PSC allowances for the participating AKSC vessels have already been accounted for in the annual specifications and total annual bycatch amounts are incorporated into stock assessment models. Most importantly, if EFP participants are able to effectively follow flatfish schools, then crab and other bycatch could actually be reduced relative to what would have occurred without the EFP.

The EFP would be in place over two winter/spring seasons to increase the chance that data collections will take place in different environmental conditions which are expected to affect crab and flatfish abundance/location.

To ensure data are available for valid comparisons of catch rates inside and outside the closures, participating vessels would fish both inside and in adjacent areas outside the closure areas (as proportionally as possible) over the course of their Zone 1 rock sole and yellowfin sole fishing each year of the EFP.

Any non-pelagic trawl fishing inside the closed areas requires an exemption from current regulations and this type of temporary exemption is typically granted through an exempted fishing permit instead of a change in the regulations. AKSC has demonstrated the ability to collect credible and informative data through EFPs.

While clearly not the same as a survey in terms of sampling design and comprehensiveness, the EFP is designed to be informative in terms of providing better data to consider crab distribution, etc. at a time when no systematic data are available for this purpose. Given that EFP vessels will be engaged in commercial fishing, however, results should be considered in the context of providing useful inferences about distribution/abundance of crab inside and outside the closures. In that context, one of the chief limitations to this study is that data will only be collected where flatfish fishing occurs. Also, EFP fishermen will be seeking high flatfish catch rates and minimal crab bycatch in operations both inside and outside the closures. A survey would collect data differently, likely with a stratified random sampling approach covering the entire area.

To address some of the limitations of collecting data from flatfish vessels engaged in fishing, the EFP includes steps to make the data more rigorous and less subject to variability that is not from differences in crab abundance. A systematic protocol will be used to collect information on crab bycatch rates on the participating EFP vessels. Participating vessels will carry additional data collection personnel (sea sampler(s)) during all EFP operations to fully account for crab catches (census of each managed crab species) in the closure areas and adjacent areas. These sea samplers will be individuals with the same training/certification as groundfish or crab fishery observers. The principle duties of sea samplers will be to separate crab by species and then count and measure individual animals and determine sex, assess shell condition, egg condition, preserving clutches from ovigerous females, other duties. This may require the use of crab fishery specific observers or other observers that have been specifically trained for these duties.

Crab bycatch data will be collected under the procedures of the EFP specified below for all trips by the EFP vessels during weeks of the year covered by the EFP for any of the fishing trips done in the area covered by the EFP (see description of EFP area below).

A full census of crab catches will be collected by the sea samplers for all tows by EFP vessel inside and in adjacent areas outside the RKC Savings/516 Areas. Taking a census avoids the problem of high expected variability for assessment of tow by tow bycatch rates. This results from sample size limitations for observers working in multispecies groundfish fisheries such as flatfish. While observer sampling in these fisheries designed to be random to avoid bias, practical limitations affect the size of the sample collected. Observers typically collect a total sample weight of approximately 300 kg in several subsamples from a given tow and flatfish hauls typically range in weight from 20 to 40 MT. This means that sample size of roughly 1.5% to 0.75%.

Using a census of crab catches for purposes of the EFP allows the project to reduce the imprecision associated with comparisons of haul-specific catch rates. This is important because crab can be a very minor component of the total catch and their occurrence in flatfish hauls can be infrequent. In this regard, collecting a census of crab catch by species is expected to greatly improve the strength of catch rate comparisons for this project.

Vessel-specific factors such as ground gear, horsepower, or towing characteristics are known to affect bycatch rates. To help ensure differences in bycatch rates are as attributable as possible to differences in relative abundance rather than fishing gear used, the vessels participating in the EFP will keep their ground gear configuration as constant as possible during the EFP. This involves refraining from making changes to the footrope they select for the EFP and maintaining the gear to have the same set back, fishing line, bridles, doors and other relevant components of the trawl for the duration of their activities during this EFP. Careful documentation of doors, bridles, sweep lengths, and other ground gear components will be done by the participating vessel captains at the outset and throughout the EFP. This is needed to ensure that if any of the above components become loose, stretched, or damaged during the EFP, repairs will be made in a manner that comes closest to establishing the same gear configuration that was in use at the start of the EFP. The length of sweep is the only component that will require adjustment when boats change fishing depths. This is needed to ensure the gear fishes consistently.

To ensure the data collected are useful for comparing bycatch rates inside and in the adjacent area outside the closures, each EFP vessel will fish inside and outside as proportionally as possible on an overall basis as well as within trips whenever possible. This is important because vessel-specific catch rates are expected to be the most useful for catch rate comparisons and dividing the fishing as evenly as possible on a trip-specific basis will help ensure the data are still relevant as factors change over the season. Factors outside the control of fishermen such as ice extent and distribution of target flatfish species will affect the ability of the EFP vessels to fish proportionally within individual trips. As a condition of signing for the EFP, however, captains will agree to distribute effort as proportionally as possible given the factors that are under their control.

In the analysis phase of this EFP, we will look at catch rates on different EFP vessels when fishing proximally to each other to evaluate the degree to which “vessel effects” on catch rates are present in the data. Depending on what is found in this stage of the analysis, we may be able to include comparisons in bycatch rates between different EFP vessels. This would increase our ability to compare rates over time because it would expand the data spatially for comparisons of catch rates over time.

No additional bycatch allowances are requested for this EFP. The five authorized EFP vessels will operate using the normal Amendment 80 crab and halibut bycatch allowances available through their company’s participation in the AKSC. These allowances will apply to all EFP and

non-EFP fishing during the year. Total AKSC catch is capped by an annual allocation and each AKSC member company has an annual cap on crab bycatch for each crab species managed by caps (Zone 1 *C. bairdi*, Zone 2 *C. bairdi*, RKC, and *C. opilio* inside the COBLZ). Companies then assign these allowances to their EFP and non-EFP vessels as needed but cannot exceed them and must acquire more from other AKSC member companies in the event that they reach their company-specific allowances and wish to continue fishing. However, total AKSC catch is capped by an annual allocation.

The information collected about bycatch and target catch rates is intended to allow for a comprehensive look at bycatch rates inside and outside the closed areas. To provide other useful information about the feasibility of fishing in the closed areas, the EFP holder will conduct informal interviews of participating captains. Questions for these interviews will enquire into tradeoffs of fishing in the areas if regulations were changed to allow access to some or all of the closures. The interviews will also be asked about ancillary factors such as encounter rates with derelict crab pots, groundfish catch rates, degree to which bycatch avoidance efforts are needed inside the closures (relative to outside), and other factors of interest to understand the potential for modifications to the closures to address both bycatch reduction objectives and fishing efficiency. Additionally, the meetings conducted between flatfish captains and participants in the commercial crab industry (including trade association representatives) will be used to gather and understand the crab industry's thoughts and perspectives on the information collected.

Geographical Area of operations for this EFP

To help ensure the assessment of the differences in crab bycatch rates between the rates in the closure areas and in adjacent areas are meaningful, it is critical to define what is meant by "adjacent" to the closures. The goal is to include only areas where useful comparisons will be made. For comparability reasons, the adjacent areas against which rates inside the closures will be assessed need to be the same general depths and types of substrates as the ones found in the RKCSA and Area 516 closures. These are the depths and substrates that are typical of the Bering Sea inner shelf; typical of the area where red king crab and possibly *C. bairdi* (with an emphasis on RKC which is the underlying objective of the crab closed areas of interest for this EFP) are found. For example, comparing crab bycatch rates inside the closures to rates in areas on the slope where Arrowtooth flounder fishing occurs would probably be fairly meaningless for rate comparisons because RKC are not commonly found at depths typical of Arrowtooth flounder.

After considering on this issue, we propose that the areas adjacent to the RCK and 516 closures be those areas within NMFS Statistical Areas 509 and 516 that are not part of the closures. To illustrate how the geographical extent of the EFP was arrived at, it is useful to consult the figure from Part 679 of the groundfish fishing regulations which is reproduced below. The figure

- 4) **Collect temperature data during the EFP to improve the collective understanding of preferred habitat for managed crab species during the time period relevant to the EFP.**
- 5) **Work in conjunction with the BSAI commercial crab sector to use the EFP to ensure mutually beneficial fisheries management solutions should the EFP data suggest that changes to existing closed areas are worth further examination.**

EFP catch handling and data collection procedures

For purposes of in-season accounting and management of the participating AKSC vessels, tracking and accounting for target and PSC species during the EFP will be done using the exact same Amendment 80 procedures and data as currently occurs. Species composition sampling by the normal Amendment 80 observers will be used to track the target and PSC catches of participating vessels against their Amendment 80 allowances.

To avoid affecting observer sampling duties, expanded crab data collection will occur after the catch passes over the vessel's flow scale and the observer has had the opportunity to sample unsorted catch for all Bering Sea EFP hauls.

Crab data collections will occur as follows:

1. In a suitable location on the conveyor belts after the vessel's flow scale, crew members will remove all crab (including any parts of crab) of all species from each haul.
2. Crab will be placed in a tote or other suitable designated container provided by the EFP vessel for the sole purpose of collecting all crab from each haul.
3. The haul number will be indicated on the tote/container using a system developed at the start of the EFP by the sea samplers, observers, and the factory foreman and other responsible crew members.
4. Sea samplers will have the same training and qualifications as NMFS certified groundfish observers and supplemental training in crab shell condition and egg clutch fullness by a trainer with expertise in this area.
5. Sea samplers will be employed through the observer provider companies authorized to provide observers for the regular Amendment 80 fisheries or companies providing crab fishery observers.
6. Any crab or crab parts collected by observers during their normal sampling duties needs to be accounted for in the census of crab for purposes of this EFP. This shall be done through a procedure worked out with the vessels' groundfish observers to set aside any crab that come up in the observer's sample so that it can be included in the census once the observers have finished with the work on that haul.
7. A short briefing to explain the EFP procedures and data collection protocols will be done on EFP vessels at the outset of the EFP and when new observers begin on EFP vessels. The sea sampler in charge of EFP data collections on the vessel will conduct this briefing.
8. Participating vessels will provide an additional work area for the sea sampler(s) that is sufficient for them to conduct their duties without negatively affecting the work area for observers.

9. After all crab are collected from a haul, the sea sampler on duty will separate the crab by species and count and record the number of crab by species. Sea samplers will also record length, sex, and shell condition for each crab. For mature females, egg clutch condition and fullness will also be recorded.
10. Using the normal chute used on the vessel to return PSC to the water, sea samplers will discard the crab from each haul following their data collections
11. Sea samplers will record their data on data sheets developed by the EFP holder. Sea samplers will enter their data onto spreadsheets also developed by the EFP holder. Samplers will perform data quality checks of all data following procedures developed by the EFP holder. Data will be periodically transmitted to the EFP holder by the sea samplers.
12. Data collected by sea samplers are not for in-season catch accounting and will be used only for the purpose of the data analysis for the EFP.
13. All equipment needed for the sea samplers to perform their duties will be provided by the EFP holder and participating vessel. Note Alaska Seafood Cooperative is responsible for providing all safety equipment required for sea samplers, including survival suits.

Responsibilities of EFP vessel captains/mates and crews

Captains and mates of participating vessels will:

1. Record all tows as EFP tows in the logbook whether inside or outside the closed areas for any Bering Sea flatfish hauls during the time when the EFP is in place.
2. Record as "inside" in the EFP spreadsheet used for purposes of the EFP any tow that fishes inside the RKCSA or 516 closures
3. Provide set and haulback locations for all Bering Sea groundfish hauls during the EFP
4. Make a drawing/diagram of the ground gear they will use for the EFP before starting EFP operation each year and list the ground gear, trawl doors, bridles, sweep lengths components and configurations that will be used for the EFP
5. Agree to maintain the gear in the configuration selected by the captain for the EFP and agree to repair/adjust the gear to restore it to the original configuration if it becomes worn, damaged, or otherwise not in the condition at the outset of the EFP
6. For each target fishery (e.g. rock sole, yellowfin sole) during the EFP, fish inside and outside the closures in as proportionally equal manner as possible. Note: if factors such as the ice edge or relatively high bycatch rates for crab inside the closures are encountered, participating vessels will not be required to fish in equal proportion inside the closed areas.
7. Provide sufficient room and facilities for the sea sampler(s) to collect the EFP data
8. Abide by the EFP data collection plan developed in consultation with the EFP holder for each EFP vessel

Project management responsibilities for the permit holder

As permit holder, AKSC, through its principal investigator John Gauvin and other authorized personnel, are responsible for:

1. Ensuring that EFP procedures are followed correctly and data integrity meets the needs of the EFP. This will be accomplished mainly through communications with sea samplers hired for the project and regular review of the data provided by the samplers.
2. In consultation with each EFP vessel and Dr. Robert Foy of the Alaska Fishery Science Center, develop an EFP data collection plan for each EFP vessel. This plan will list the specific handling procedures by crew members for the collection of crab on each EFP haul, where crab will be stored for each haul, and the number of sea samplers needed on the vessel to ensure crab collections are done correctly, work schedules for sea sampler(s), and other items specific to the collection of data during the EFP.
3. AKSC will remain in regular communication with vessel captains and mates to review any problems with the gear or fishing procedures or the data collection practices/protocols. AKSC and participating vessels and sea samplers will work out solutions to any problems that occur.
4. AKSC will, if necessary send a field project manager on an EFP trip to develop procedures to ensure that data quality is achieved.
5. In the event that an EFP vessel is unable or unwilling to follow the procedures of the EFP, AKSC can remove the vessel for the list of authorized EFP vessels. At its discretion AKSC can elect to start another approved EFP vessel in the place of the one that was removed for the EFP or opt not to do so.

Exemptions to the Amendment 80 and other regulations needed for this EFP:

1. EFP vessels will need to be exempted from the closures during the active period of the EFP
2. EFP vessels will need to be exempted from the regulation that requires PSC species to be returned to the water as soon as possible (while allowing the PSC to be available to observers)
3. EFP will need the allowance to request that the EFP vessel's regular observers assist the project by placing any crab in their samples into the specific tote or other container used to collect the crab marked for that specific tow. Procedures for doing this will be developed by the sea sampler and the observers on the vessel prior to fishing operations on all EFP trips.

Provisions for public release of data and information from EFP and required content for interim and final EFP reports:

Interim reports following each field season will describe the general outcome in terms of meeting the data collection objectives of the EFP and summarize the number of Bering Sea fishing days and catches of EFP vessels inside and outside the closures including catches of managed crab species and other PSC inside and outside. Preliminary information on size and sex as well as other biological data on crab taken as bycatch in the closed areas will be provided in the interim reports to the degree it is available. The permit holder will also provide a preliminary assessment of the feasibility of fishing inside the closures relative to outside during that field season based on communications with vessel captains.

For the draft final report, the permit holder will analyze the bycatch rate data by the following metrics: by number of animals, by size and sex category, per hour of tows, per distance towed, and per ton of groundfish catch. The primary comparison analysis will be based on same vessel catch rates inside and outside the closed areas. If the analysis shows that catch rates for different EFP vessels operating in the same area/ time are sufficiently consistent, then comparisons based on catch rates by different EFP vessels will also be included in the analysis.

During the analysis of data from the EFP, the permit holder will consult with Alaska Fishery Science Center personnel on methods used to make inferences about catch rates and relative crab density and abundance differences. Methods for any statistical analysis will also be developed in consultation with AFSC. Data on sex and size of crab by species and egg condition for mature females will be put into tables as well as presented in charts using standard GIS program formats. The permit holder will incorporate in the final report any information that NMFS generates from the temperature and ecosystem data according to NMFS' direction.

The feasibility assessment for the final report will be based on informal interviews with EFP captains, member company personnel responsible for managing operations, and members/representatives of the commercial crab fishery. The conclusions on feasibility will attempt to summarize the general consensus from the overall set of interviews.

