**Are the RKC Savings Area and Area 516 Management Measures Actually Improving the Management of Trawl Bycatch of Crab Species?**

With the race for fish ended and replaced with individual vessel limits for target and bycatch species, A.80 fishermen now have more of an ability to fish “when and where” it makes sense in order to catch their fish while minimizing crab and halibut bycatch. Despite this, we feel that full achievement of the potential for cleaner fishing remains limited due to the outdated “old regime” regulations such as closed areas like the RKC Savings Area and Area 516. A.80 fishermen believe these may actually serve more to limit their ability to move away from areas with relatively high bycatch rates than provide the protections they were originally envisioned back before A.80 was in place.

Because AKSC fishermen cannot fish inside these areas (part or full time depending on the regulations), the actual bycatch rates that would occur inside the closures remain unknown. Our Coop captains do report finding clean fishing at the borders of the closures, or just before/after closures kick in seasonally, implying actual bycatch within the areas may be lower than the surrounding open areas. Specifically, in the ‘10 minute strip’ portion of the RKC Savings Area, RKC bycatch rates are often lower in the northern extent of the strip than in the southern part. Fishermen feel this occurs because crab move down through the area earlier in the spring, more quickly than the spawning aggregations of targeted rocksole. If this is correct, then the logical strategy would be to fish north of the RKC migrations as they move south. This is prevented, however, by the closure of the RKC Savings Area even though the intent is to provide protection to RKC.

Similarly, Area 516 regulations close bottom trawling from March 15 through June 1st. In the majority of years since the formation of our cooperative, this regulation has caused our fishermen to stop fishing Area 516, where crab and halibut bycatch has been quite low, and move their fishing operations to alternative areas where crab and halibut rates can be higher.

A.80 fishermen pay close attention to crab bycatch at all times. When rates increase, fishermen examine the gear to make sure there is nothing out of adjustment; if the gear is not out of adjustment, then they are certain the area has a higher abundance of crab and they need to move their operations to alternative areas. Once at the new fishing location, they make a series of short tows to confirm that the new location does actually have sufficient abundance of target species as well as lower crab and halibut abundance. Thus, A.80 fishermen feel this provide them the tools they need to fish wherever it makes sense, and if that were within the current closed areas mentioned above, they could make rational choices on a fast turnaround basis to fish within the closures or not depending on the bycatch rates they encounter.

**The case for conducting a project to evaluate ways to better manage bycatch in A.80 fisheries and collect data to help evaluate the effectiveness of selected closed areas:**

Discussions a few years ago between captains from our Coop and the crab industry indicated some willingness to consider changes to area protection/crab cap management that might benefit both sectors. While that earlier effort stalled, we now feel that a “demonstration project” developed collaboratively between the Alaska Seafood Cooperative and the Alaska Bering Sea Crabbers would inform the issues discussed above and improve crab bycatch management in A.80 fisheries. This project could also increase communication and cooperation between the two organizations that could help pave the way to jointly craft solutions to other crab bycatch management issues in the future.

At this time, the only evidence we have is bycatch rate information derived from observer data on species composition and groundfish catches from flow scale weights. But all tows are observed on A. 80 boats and fishermen monitor their bycatch rates on a time and location-specific basis as part of how they pay attention to their bycatch performance. While this is based only on “suggestive evidence”, we are compiling it so we can discuss it with the crab industry as we consider the current closures and other ideas to improve crab bycatch avoidance tools available to our sector.

Additionally, some concrete information could be collected from the closed areas to inform fishermen and managers. Accordingly, a field experiment could provide data to test the concepts and assumptions about the flatfish fishery’s ability to be responsive to crab bycatch rate information. The key would be to collect the data from fishing operations both inside and outside the areas in a manner that will allow for meaningful comparisons. These details for how to collect the data would be developed in the design of the experiment, along with the specifics of how the data on crab catches would be collected (e.g., whole-haul accounting of crab catch for fine scale comparisons) to allow valid comparisons of bycatch rates and possibly some index of relative abundance of crab inside and outside the closures. Data collections could also include sex and size data for crab taken as bycatch. These data would expand the benefits of the demonstration project beyond just evaluating whether AKSC fishermen can reduce their bycatch with access to the closed areas. Specifically, the added information on crab size and sex could help inform whether the original intended purpose of the closures is in fact still valid (e.g., protection of female RKC within the RKC Savings Area).

It is important to keep in mind, however, that this information would not be a substitute for a true abundance survey that would be a more scientific approach to answering the question of difference in crab abundance by sex inside versus outside the closed areas. Presently there is no way to do a survey during the timeframe relevant to when flatfish fisheries occur. The field experiment described above could, however, help inform the design of a systematic abundance survey and it may be possible in the future to incorporate such a dedicated survey effort into the design of the demonstration project work that is described here.

To accomplish all the objectives of the demonstration project EFP, the inclusion of an independent scientific advisor in the design phase and throughout would be important to help ensure the project accomplishes its objectives.

At this stage in our thinking, we envision this project would be conducted through an exempted fishing permit, or EFP. EFPs can be the best approach (as opposed to vessel charters etc.) for applied research where it is important that the setting and incentives closely approximate regular fishing conditions. The EFP would allow the project to employ fishing or catch handling procedures that would not otherwise be allowed in the regular fishery. The permit essentially provides an “exemption” to the rules, subject to the conditions of the permit. EFP applications sometimes include a request for additional catch allocations of target and/or bycatch species but this particular EFP would NOT require any additional allocations. Not asking for catches above the annual specifications makes the application approval process simpler and should speed up the timeline for permit approval.

The basic approach to the experiment would be for the Alaska Seafood Cooperative to apply for an EFP jointly with the Alaska Bering Sea Crabbers. One provision in the permit would allow AKSC member vessels to utilize the same RKC cap allowances its vessels are currently allowed to catch under A.80 allocations within an expanded area allowed as part of the EFP (e.g., the expanded area would include the RKC Savings Area and Area 516). For the experimental fishing done within the RKC Savings Area, for example, the approach would be that the current overall cap on RKC catch (approximately 25K RKC for all flatfish fishing within the area) would still be in place but that cap would be applied to the overall RKC Savings Area instead of just the 10 minute strip under the current regulations. The intent would be that the experiment would not result in any increase in RKC catch inside or outside of the RKC Savings Area, rather the participating vessels would have a greater area in which they could chose to fish in order to validate whether they can lower their bycatch rates and possibly conduct their fisheries with lower numbers of RKC overall. Details of how this would be structured would need to be worked out.

In addition to the details described above, the EFP application would need a description of the purpose and need for the project, objectives of the study, and a description of methods. The description would need to include details on the experimental design, data analysis, and report writing and dissemination of the findings that will be done as part of the project. Specifics about access to the closed areas and protocols for data collection inside and outside the closed areas would also be included.

Ideally, all of the details of the EFP would be developed jointly and cooperatively between the crab industry and AKSC with scientific input from an independent source. The intent would be to start by generating a list of what each group wants to get from the project. From there we could develop specific objectives and methods for the work. The EFP application would be submitted to the Alaska Region of NMFS which would then seek the NPFMC’s input on the application. The NPFMC would likely have its SSC and AP review the application before the Council makes its recommendations on approval to NMFS.

**Issues affecting the timeline for this EFP and fieldwork timing**: From AKSC’s perspective, we would like to move expeditiously on this EFP recognizing that we need to garner the support of the crab industry and we want the methods to be sound. The process for review of exempted fishing permits is as follows. Applications for permits are made to the Regional Office of NMFS and their policy is to request that the Alaska Fishery Science Center provide a letter of comment on the scientific aspects of the application. The policy of the Alaska Region is also to request input from the North Pacific Council on the permit application, including comment from its Science and Statistical Committee on the scientific aspects of the application. Based on past experience, when an EFP application requests additional fishing not covered by the annual catch specifications the agency has usually opted to prepare an environmental assessment (EA) to evaluate the effects of the action. This is a large endeavor and it typically means that the timeline for obtaining an EFP is a year to a year and one-half, assuming the application is complete, well-written, addresses a relatively high priority for the Council and stakeholders, and meets the scientific review standards. When an EFP application is more narrowly focused on requesting an exemption from a regulation (without additional catch allowances) to enable a project to learn something that is recognized to be important to fishery managers and stakeholders, the timeline can be considerably shorter. In our experience, this specifics of how long approval will take for this type of EFP application will depend on how well written and complete the application is, the relatively priority for the Council and stakeholders, and the availability of NMFS staff to review the application and draft the permit. The fastest turn-around time for this type of EFP from our experience, assuming it meets all the standards is probably 6 to 9 months given the existing workload of NMFS staff.

Given that the application for this project application would not request additional fish or crab bycatch allowance outside of the normal annual specifications and catch allowances for the vessels that would be involved, this probably means the shorter timeline of the two is the expectation. This assumes we submit a complete and well-drafted application. Depending on the workload level of the AK regional office, it may be possible to have the permit in hand for 2015 fieldwork but we might not have the permit in hand on January 20th when trawl fisheries open. Streamlining what is requested in the application, being clear that it is a pilot study of industry’s ability to conduct fishing in the areas of interest with existing bycatch allowances and individual and cooperative agreement bycatch management incentives would be important. Keeping the scope focused on the main objectives of evaluating feasibility and collecting some useful information for trailing research projects would be key. Adding a lot of bells and whistles with scientific ideas and concepts that are not well fleshed out or fully integrated into the project design would likely slow things down because it would probably burden the scientific review process at the AFSC and SSC.

**Description of methods for the EFP project**

Objective 1: Assessing feasibility of flatfish fishing by AKSC vessels and possible savings in bycatch cap usage from fishing in the RKC Savings Area and the Area 516 closure with existing RKC bycatch allowances.

Method of collecting information for assessment: Census of RKC and other managed crab catches for AKSC vessels fishing inside and outside closures. Target species catch rates rigorously recorded in tons per hour per target species with any short wiring time removed from the analysis. There would be an agreement among participating vessels administered through the AKSC for each to fish part of the time inside the closed area, the remainder of the time outside. This might be done through some sort of agreed upon rotation or randomized selection process. Participating vessels would agree to hold their footrope and net rigging and materials constant over duration of their fishing inside and outside the study areas. For economic feasibility, consider collaborating with a social scientist with experience in systematically interviewing captains and crew to solicit information about economic feasibility and practicality of operating in the closed areas under the bycatch and economic constraints.

Objective 2: Collect basic information on crab taken as bycatch in closed area and open areas adjacent to the closures

Methods: Each participating vessel will, under the supervision of the field project managers assigned to this project (and the two observers on each vessel, to the degree they are allowed to be involved in the fieldwork), collect size and sex data on managed crab species catches inside and outside the study area during the EFP project.

Objective 3: Collection of key environmental information inside and outside closed areas during the EFP project

Participating vessels will install temperature recorders during the EFP. Additionally, project managers will work with selected EFP vessels to attach a NOAA camera system to the net headrope or other net components as directed. This system is expected to collect information about crab “mounding” behavior or lack thereof which is of interest in conjunction with temperature data.