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Dr. Sherri Dressel, and Dr. Franz Mueter – Co-Chairs
Scientific and Statistical Committee
North Pacific Fishery Management Council
1007 West Third, Suite 400
Anchorage, AK 99501

March 25, 2024

Subject: Comments to SSC on D3 Research Priorities

Dear Dr. Dressel, Dr. Mueter, and SSC members:

I am a retired fisheries professor at the College of Fisheries and Ocean Sciences, University of Alaska Fairbanks. Since 2021, I have been a science advisor providing scientific advice to the Bering Sea Fisheries Research Foundation, a non-profit research foundation formed in 2003 by voluntary participants within the Bering Sea crab industry. BSFRF's ongoing mission is to conduct or support collaborative research to improve scientific understanding and management of Bering Sea crab stocks.

Many excellent suggestions about research priorities were proposed by the SSC subgroup, plan teams, and stakeholders. The attention to crab research priorities is warranted, given the dire status of some of the BSAI crab stocks. I am highly supportive of the recommended top-ranked crab-related priorities by the SSC subgroup:

- *#2 Quantify the magnitude of fishing gear impacts on crab and their associated benthic habitat and develop fishing gear innovations where needed.*
- *#6 Continue to acquire basic life history information with an emphasis on improved estimates of size/age at maturity to advance understanding of the mechanisms for how maturity changes over space and through time.*
- *#7. Increased understanding of the spatial distribution, habitat requirements, and movement of crabs relative to life history events and fishing.*
- *#10 Norton Sound Red King Crab case study.*
- *#11 Improve surveys in untrawlable habitat, particularly for rockfish, Atka mackerel, sculpins, and snow crab.*
- *#12 Improve discard mortality rate estimates for scallops, crab, and groundfish stocks by gear types.*
- *#19 Physiological responses of crab to climate stressors.*

I would advocate moving one proposal outside the top 10 into the top 10 – namely, #12 Improve discard mortality rate estimates for scallops, crab, and groundfish stocks by

gear types. The rationale is that current assumptions about discard mortality rate currently constrain both the total allowable catches in crab fisheries and the crab PSCs in groundfish fisheries. More accurate estimates of discard mortality have the potential to lead to meaningful benefits to both crab and groundfish fisheries.

Finally, the SSC subgroup provided very good recommendations about lumping and splitting of the many research priority recommendations. However, some lumping decisions are tricky as they can be generalized to the degree that the emphasis on important sub-priorities may not be obvious to those preparing research proposals. For example, one priority, # 2 *Quantify the magnitude of fishing gear impacts on crab and their associated benthic habitat and develop fishing gear innovations where needed*, is very rich and embodies at least three important BSFRF priorities, as provided by Scott Goodman of BSFRF at the February SSC meeting:

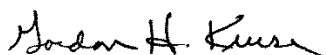
1. Effects of bottom contact by pelagic trawl vessels on crab on the seafloor
2. Condition of derelict crab pots and their effects on crabs
3. Modified crab pots to reduce bycatch of female and sublegal male crab

First, while research on effects of any gear type on crab and their habitats would be welcome, pelagic trawling is a top priority as this is the second largest fishery in the world and the largest fishery in the US by volume and its impacts may be masked by large mesh panels in the lower sections of the trawl that allow impacted crabs and other benthic organisms to pass through the net without showing up in the codend. Second, crab pots are required to have escape rings allowing sublegal crabs to exit pots and they are required to have cotton twine that rots with time allowing all crabs to exit pots to minimize ghost fishing. It is time for a critical examination of derelict pots to determine the extent to which these existing gear requirements are working as planned. Last, additional modifications to crab pots, such as additional large-mesh panels, could provide for easier egress of females and sublegal males from pots, thus reducing handling and discard mortality.

Two alternative ways to deal with these important sub-priorities could be to split these out as separate priorities or to leave them bundled as a single priority (as in #2) but add some parenthetical examples listing these sub-priorities (e.g., pelagic trawl vessels, derelict crab pots, and modified crab pots to reduce bycatch) to make these important sub-priorities clear to potential research proposers.

Again, thanks to the SSC and its subgroup for their work on this important issue.

Sincerely yours,



Gordon H. Kruse, Ph.D.
Professor Emeritus