



## Crab Plan Team Research Priorities REPORT

December 1, 2023 and January 12, 2024

Committee Members in attendance:

Katie Palof, <b>Co-Chair</b> (ADF&G-Juneau)	Erin Fedewa (AFSC-Kodiak)
Mike Litzow, <b>Co-Chair</b> (AFSC-Kodiak)	Ethan Nichols( ADF&G- Dutch Harbor)*
Sarah Rheinsmith, <b>Coordinator</b> (NPFMC)	Ginny Eckert (UAF/CFOS-Juneau)
André Punt (Univ. of Washington)	Krista Milani (NMFS- Dutch Harbor)
Ben Daly (ADF&G-Kodiak)	Tyler Jackson (ADF&G-Kodiak)
Brian Garber-Yonts (AFSC-Seattle)	William Bechtol (UAF-Homer)
Cody Szuwalski (AFSC–Seattle)	William Stockhausen (AFSC-Seattle)
	Vacant, quantitative expert

\*indicates members who participated remotely

### Research Priorities- Voting & Rationale

Research priorities were addressed by the CPT in two steps. The CPT first met virtually on December 1, 2023 with a focus on pre-prioritization of research priorities that were to be voted on during the January CPT meeting. The goal of the December meeting was to refine the list of existing, new, and team member submissions to approximately 10 top priorities. A presentation was provided by Nicole Watson (NPFMC staff) regarding the research priority process, a checklist of responsibilities for the Plan Teams, and background information and resources relevant to research priorities, such as the [website](#) and Research Priorities [eAgenda](#). Prior to the meeting, CPT members were asked to provide staff and the co-chairs a list of their top five, unranked priorities as a way to focus the discussion of the pre-prioritization meeting.

A description of the prioritization process for the meeting was provided by Katie Palof. Additional clarity was provided regarding the critical ongoing monitoring topics being seen as separate from the top 5 list of research priorities that will be provided to the SSC at the February 2024 Council meeting, as well as a supplementary list of priorities deemed important but not included in the final top 5 list. The supplementary list will be an amalgamation of priorities not included in the final CPT top 5 (as determined at this meeting) but critical to ongoing monitoring.

Members were given the opportunity to discuss the top priorities that were submitted in advance of the December meeting from the existing and new submissions, providing rationale for their selections and identifying key considerations. Several members noted the need for annual surveys of Northern Bering Sea stocks, for research priorities to allow/inform management actions, and the need to consider priorities that were seen as important during the previous review. Additional comments for each of the top research priorities were compiled into the

Google sheet. During this discussion, priorities were identified that warranted inclusion in the draft top 10 voting list for January.

Table 1: New submissions from CPT members were discussed, including (not listed in ranked order):

Research ID	Title
CPT001	Early life history population bottlenecks
CPT002	Better characterize "spawning stock" currency: MMB vs egg production index vs ??
CPT003	Improved maturity estimation and reproductive potential characterization for crab
CPT004	Evaluate fishing gear impacts on crab, benthic communities and essential fish habitat
CPT005	Annual monitoring survey in the NBS
CPT006	Develop and evaluate global climate models (GCMs) or other projection models to assess climate change impacts on biology (recruitment, growth, spatial distributions, and benthic productivity), and to evaluate management strategies under different climate, ecological, and economic conditions.

Public testimony by Gary Stauffer (BSFRF), Scott Goodman (BSFRF), and Cory Lescher (ABSC) highlighted the need to consider ecosystem dynamics; the connection between maturity, reproduction and execution of the fishery; the utilization of research and findings by managers; and the need for seasonal EFH species descriptions for all life stages of crab.

After discussions and public testimony, the draft top 10 voting list was reviewed, and additional consideration was given to priorities that had not been included in this list. Priorities deemed critical ongoing monitoring were compiled into a separate list for communication to the SSC.

Table 2: Research priorities included on the top 10 list for voting in January (not listed in any ranked order):

Research ID	Title
148	Spatial distribution, habitat requirements, and movement of crabs relative to life history events and fishing
167	Alternative approaches to acquire fishery-independent abundance data for unsurveyed crab stocks.
223	Develop and evaluate global climate change models (GCM) or down-scaled climate variability scenarios to assess impacts to recruitment, growth, spatial distributions, and benthic productivity.
225	Develop projection models to evaluate management strategies under varying climate, ecological, and economic conditions and evaluate impacts to managed resources and coastal communities.
532	Natural mortality estimation for crab stocks
715	Physiological responses of crab to climate stressors

731	Norton Sound Red King Crab case study
CPT001	Early life history population bottlenecks
CPT003	Improved maturity estimation and reproductive potential characterization for crab <i>Combines CPT002, N008, and 592.</i>
CPT004	Evaluate fishing gear impacts on crab, benthic communities and essential fish habitat
CPT005	Annual monitoring survey in the NBS
CPT006	Develop and evaluate global climate models (GCMs) or other projection models to assess climate change impacts on biology (recruitment, growth, spatial distributions, and benthic productivity), and to evaluate management strategies under different climate, ecological, and economic conditions. <i>Combines 223 and 225</i>

Table 3: Critical and ongoing monitoring research priorities included for consideration and communication to the SSC (not listed in any ranked order):

Research ID	Title
145	Continuation of State and Federal annual and biennial surveys
189	Develop stock-specific ecosystem indicators and incorporate into stock assessments
226	Monitor the economic effects from fishery policy changes on coastal communities.
367	Continue to improve crab stock assessment methodology with respect to uncertainty
611	Collection of socio-economic information
612	Maintain observer program
735	Fishery monitoring and catch accounting

Descriptions of these priorities are included in the CPT Pre-prioritization supplementary document, found on the [CPT eAgenda](#).

The CPT recognizes the need to address stocks of greatest concern and has captured these needs in these prioritization lists.

The voting [results](#) identified the top five priorities in rank order: 148, CPT004, CPT003, 715, and CPT001 (Table 4). The CPT agreed to include the bottom five that were not selected in the vote as priorities in the supplemental list to advance to the SSC (Table 5). The CPT agreed that the rationale for the top five priorities is that they will each provide information needed to address a number of pressing fishery management issues under current climate conditions, and that this rationale could be included in the list moving forward.

Following the CPT vote, Scott Goodman provided additional public comment from BSFRF, indicating that they are updating their own list of research priorities and will share those with the

CPT and SSC in the future. Goodman mentioned CPT003 to highlight the need for research on all aspects of maturity, as well as the contribution of skip molt males to reproduction.

Table 4: CPT Top 5 Research Priorities in ranked order.

Research ID	Title
148	Spatial distribution, habitat requirements, and movement of crabs relative to life history events and fishing
CPT004	Evaluate fishing gear impacts on crab, benthic communities, and essential fish habitat
CPT003	Improved maturity estimation and reproductive potential characterization for crab. <i>Combines CPT002, N008, and 592.</i>
715	Physiological responses of crab to climate stressors
CPT001	Early life history population bottlenecks

Table 5: CPT research priorities that were not ranked in the Top 5, but still warrant being a priority for ongoing research.

Research ID	Title
167	Alternative approaches to acquire fishery-independent abundance data for unsurveyed crab stocks.
532	Natural mortality estimation for crab stocks
731	Norton Sound Red King Crab case study
CPT005	Annual monitoring survey in the NBS
CPT006	Develop and evaluate global climate models (GCMs) or other projection models to assess climate change impacts on biology (recruitment, growth, spatial distributions, and benthic productivity), and to evaluate management strategies under different climate, ecological, and economic conditions. <i>Combines 223 and 225</i>