**Submitted at the request of Board Member Israel Payton by the Alaska Department of Fish and Game**

March 9, 2020

Repeal and readopt substitute language (HCR4_1) for Proposal 261:

**5 AAC 35.508 Bering Sea District C. bairdi Tanner crab harvest strategy.**

(a) In the Bering Sea District, the department shall establish a separate *C. bairdi* Tanner crab total allowable catch level for that portion of the Bering Sea District that is east of 166° W. long., and for that portion that is west of 166° W. long., as described in (b) and (c) of this section. The maximum exploitation on mature male biomass ($EXP_{MMB}$) in both areas will be established by an analysis of preseason survey mature female biomass (MFB) data as follows:

(1) if MFB is less than 25 percent of $MFB_{(1982\text{-}2018)}$, $EXP_{MMB}$ will be 0.05;

(2) if MFB is at least 25 percent but not greater than 100 percent of $MFB_{(1982\text{-}2018)}$, $EXP_{MMB}$ will be computed as $(((MFB/MFB_{(1982\text{-}2018)} - 0.25)/0.75)\times0.15)+0.05$, with slope $m$ and intercept $b$;

(A) the $EXP_{MMB}$ slope "$m$" is computed as $(((((MFB/MFB_{(1982\text{-}2018)} - 0.25)/0.75)\times0.15)+0.05) - 0.05)/0.75$;

(B) the $EXP_{MMB}$ intercept "$b$" is computed as $0.05 - (m \times 0.25)$;

(3) if MFB is greater than 100 percent of $MFB_{(1982\text{-}2018)}$, $EXP_{MMB}$ will be 0.20.

(b) In that portion of the Bering Sea District that is east of 166° W. long., and under the restrictions of (d) of this section, the total allowable catch level shall be established as follows:

(1) if $B_E$ is less than 25 percent of $B_{E,(1982\text{-}2018)}$, the fishery will not open;

(2) if $B_E$ is at least 25 percent but not greater than 100 percent of $B_{E,(1982\text{-}2021)}$, the total allowable catch will be $((m \times B_E/B_{E,(1982\text{-}2018)}) + b) \times B_E$ or 50 percent of $ELM_E$, whichever is less;

(3) if $B_E$ is greater than 100 percent of $B_{E,(1982\text{-}2018)}$, the total allowable catch will be computed as $EXP_{MMB} \times B_E$ or 50 percent of $ELM_E$, whichever is less.

(c) In that portion of the Bering Sea District that is west of 166° W. long., and under the restrictions of (d) of this section, the total allowable catch level shall be established as follows:

(1) if $B_W$ is less than 25 percent of $B_{W,(1982\text{-}2018)}$, the fishery will not open;

(2) if $B_W$ is at least 25 percent but not greater than 100 percent of $B_{W,(1982\text{-}2021)}$, the total allowable catch will be computed as $((m \times B_W/B_{W,(1982\text{-}2018)}) + b) \times B_W$ or 50 percent of $ELM_W$, whichever is less;

(3) if $B_W$ is greater than 100 percent of $B_{W,(1982\text{-}2018)}$, the total allowable catch will be computed as $EXP_{MMB} \times B_W$ or 50 percent of $ELM_W$, whichever is less.

(d) Notwithstanding (a) – (c) of this section, in implementing this harvest strategy, the department shall consider the reliability of the estimates of *C. bairdi* Tanner crab, the manageability of the fishery, and other factors the department determines necessary to be consistent with sustained yield principles and to use the best scientific information available and consider all sources of uncertainty as necessary to avoid overfishing.

(e) In this subsection,

(1) "$EXP_{MMB}$" means the maximum exploitation rate on mature male *C.bairdi* Tanner crab biomass as determined in (a) of this section;

(2) "MFB" means the biomass of mature female *C.bairdi* Tanner crab in the entire surveyed portion of the Bering Sea estimated for the time of the preseason survey;

(3) "$MFB_{(1982\text{-}2018)}$" means the mean value of the biomass of mature female *C.bairdi* Tanner crab in the entire surveyed portion of the Bering Sea estimated for the time of the preseason survey for the period 1982-2018;

(4) "$B_E$" means the biomass of male *C.bairdi* Tanner crab in the portion of the Bering Sea District that is east of 166° W. long. that are more than 112 mm carapace width estimated for the time of the preseason survey;

(5) "$B_{E,(1982\text{-}2018)}$" means the mean value of the biomass of male *C. bairdi* Tanner crab in the portion of the Bering Sea District that is east of 166° W. long. that are more than 112 mm carapace width estimated for the time of the preseason survey for the period 1982-2018;

(6) "$ELM_E$" means 100 percent of the new-shell male *C. bairdi* Tanner crab in the portion of the Bering Sea District that is east of 166° W. long. that are at least 127 mm (five inches) carapace width, including lateral spines, plus a percentage of old-shell male *C. bairdi* Tanner crab that are at least 127 mm carapace width estimated at the time of the survey; the percentage of old-shell male *C. bairdi* Tanner crab will be based on the expected fishery selectivity for old-shell versus new-shell male *C. bairdi* Tanner crab;

(7) "$B_W$" means the biomass of male *C. bairdi* Tanner crab in the portion of the Bering Sea District that is west of 166° W. long. that are more than 102 mm carapace width estimated for the time of the preseason survey;

(8) "$B_{W,(1982\text{-}2018)}$" means the mean value of the biomass of male *C. bairdi* Tanner crab in the portion of the Bering Sea District that is west of 166° W. long. that are more than 102 mm carapace width estimated for the time of the preseason survey for the period 1982-2018;

(9) "$ELM_W$" means 100 percent of the new-shell male *C. bairdi* Tanner crab in the portion of the Bering Sea District that is west of 166° W. long. that are at least 127 mm (five inches) or greater carapace width, including lateral spines, plus a percentage of old-shell male *C. bairdi* Tanner crab that are at least 127 mm CW estimated at the time of the survey; the percentage of old-shell male *C. bairdi* Tanner crab will be

based on the expected fishery selectivity for old-shell versus new-shell male *C. bairdi* Tanner crab.