5 AAC 34.816. Bristol Bay red king crab harvest strategy.

(a) In accordance with 5 AAC 34.080, the Bristol Bay red king crab fishery shall be managed based on the following harvest strategy:

(1) the **threshold level** of abundance is **8,400,000 mature female** red king crab and **14,500,000 pounds of effective spawning biomass**; the Bristol Bay red king crab season may open only if analysis of preseason survey data indicates that the population of red king crab exceeds both of these indices of stock reproductive potential; the Bristol Bay red king crab season will not open if preseason survey data indicates that the population is at or below either of these two indices;

(2) if the Bristol Bay red king crab season is open under (1) of this subsection and the effective **spawning biomass is at least 14,500,000 pounds, but less than 34,750,000 pounds**, the number of legal male red king crab available for harvest will be no more than 10 percent of the mature male red king crab abundance or no more than 50 percent of the legal-sized male red king crab abundance, whichever is less;

(3) if the Bristol Bay red king crab season is open under (1) of this subsection and the effective spawning biomass is at least **34,750,000 pounds, but less than 55,000,000 pounds**, the number of legal male red king crab available for harvest will be no more than 12.5 percent of the mature male red king crab abundance or no more than 50 percent of the legal-sized male red king crab abundance, whichever is less;

(4) if the Bristol Bay red king crab season is open under (1) of this subsection and the effective spawning biomass is **55,000,000 pounds or more**, the number of legal male red king crab available for harvest will be no more than 15 percent of the mature male red king crab abundance or no more than 50 percent of the legal-sized male red king crab abundance, whichever is less;

(5) when applying this harvest strategy, the department shall consider the reliability of the estimates of abundance of red king crab, other factors necessary to be consistent with sustained yield principles, and the best scientific information available.

(b) For the purpose of this section,

(1) "effective spawning biomass" means the estimated biomass of mature female red king crab that the population of mature male red king crab could successfully mate in a given year;

(2) "mature female red king crab" means female red king crab that are 3.5 inches (90 mm) or more in carapace length;

(3) "mature male red king crab" means male red king crab that are 4.7 inches (120 mm) or more in carapace length.

5 AAC 35.517. Bering Sea C. opilio Tanner crab harvest strategy.

(a) In the Bering Sea District, the commercial C. opilio Tanner crab fishery may **open only if** the department's analysis of preseason survey data indicates the population of C. opilio Tanner crab

   (1) contains an estimated spawning biomass of **at least 25 percent of Bmsy**;

   (2) repeated 6/10/2010.

(b) **If** the estimated spawning biomass of C. opilio Tanner crab is

   (1) **at least 25 percent of Bmsy, but less than Bmsy**, the total allowable catch will be (Fmsy /3+(Bt-0.25 x Bmsy) x 0.417 x Fmsy /(0.75 x Bmsy)) x 100 percent of the estimated mature male biomass or 58 percent of exploited legal males, whichever is less;

   (2) **at or above Bmsy,** the total allowable catch will be (0.75 x Fmsy) x 100 percent of the estimated mature male biomass or 58 percent of the exploited legal males, whichever is less.

(c) In implementing this harvest strategy, the board directs the department to use the best scientific information available and to consider the reliability of estimates of C. opilio Tanner crab, the manageability of the fishery, and any other factors the department determines necessary to be consistent with the sustained yield principles.

(d) For the purposes of this section,

   (1) "Bmsy" means the population biomass of mature male and female C. opilio Tanner crab that could produce maximum sustained yield under prevailing environmental conditions;

   (2) "Bt" means the biomass of mature male and female C. opilio Tanner crab in a given year;

   (3) "estimated mature male biomass" means the estimated biomass of all morphometrically mature male C. opilio Tanner crab;

   (4) "estimated spawning biomass" means the estimated biomass of all morphometrically mature male C. opilio Tanner crab and all morphometrically mature female C. opilio Tanner crab;

   (5) "exploited legal males" means 100 percent of the new-shell male C. opilio Tanner crab that are at least 102 millimeters (four inches) in width of shell, plus a percentage of old-shell male C. opilio Tanner crab that are at least 102 millimeters in width of shell estimated at the time of the survey; the percentage of old-shell male C. opilio Tanner crab will be based on the expected fishery selectivity for old-shell verses new-shell male C. opilio Tanner crab;

   (6) "Fmsy" means the fishing mortality of the mature male C. opilio Tanner crab stock that could produce maximum sustained yield under prevailing environmental conditions.

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 (EXPMMB) 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 (1982-2018), EXPMMB will be 0.05;

> (2) if **MFB is at least 25 percent but not greater than 100 percent** of MFB(1982-2018), EXPMMB will be computed as (((MFB FB(1982-2018) - 0.25)/0.75) x 0.15) + 0.05, with slope m and intercept b;

>> (A) the EXPMMB slope 'm' is computed as (((((MFB FB(1982-2018) - 0.25)/0.75) x 0.15) + 0.05) - 0.05)/0.75;

>> (B) the EXPMMB intercept 'b' is computed as 0.05 - (m x 0.25); (3) if MFB is greater than 100 percent of MFB(1982-2018), EXPMMB 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 BE is **less than 25 percent** of BE,(1982-2018), the fishery will not open;

> (2) if BE is **at least 25 percent but not greater than 100 percent** of BE,(1982-2018), the total allowable catch will be ((m x BE/BE,(1982-2018)) + b) x BE or 50 percent of ELME, whichever is less;

> (3) if BE is **greater than 100 percent** of BE(1982-2018), the total allowable catch will be computed as EXPMMB x BE or 50 percent of ELME, 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 BW is **less than 25 percent** of BW,(1982-2018), the fishery will not open;

> (2) if BW is **at least 25 percent but not greater than 100 percent** of BW,(1982-2018), the total allowable catch will be computed as ((m x BW/BW,(1982-2018)) + b) x BW or 50 percent of ELMW, whichever is less;

> (3) if BW is **greater than 100 percent** of BW,(1982-2018), the total allowable catch will be computed as EXPMMB x BW or 50 percent of ELMW, 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 use the best scientific information available and consider all sources of uncertainty as necessary to avoid overfishing.

(e) In this section,

> (1) "EXPMMB" 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(1982-2018)" means the mean value of the biomass of mature female C. bairdi Tanner crab in the entire surveyed portion of the Bering Sea estimated at the time of the preseason survey for the period 1982-2018;

(4) "BE" 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 at the time of the preseason survey;

(5) "BE,(1982-2018)" 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 at the time of the preseason survey for the period 1982-2018;

(6) "ELME" 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 preseason 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) "BW" 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 at the time of the preseason survey;

(8) "BW,(1982-2018)" 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) "ELMW" 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 preseason 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.

5 AAC 34.612. Harvest levels for golden king crab in Registration Area O.

In accordance with 5 AAC 34.080, the Aleutian Islands Area golden king crab fishery shall be managed based on the following harvest strategy:

(a) In that portion of the Registration Area O **east of 174° W.** long., the total allowable catch level shall be established as follows:

(1) if MMAE is **less than 25 percent** of MMAE(1985-2017), the fishery will not open;

(2) if MMAE is **at least 25 percent but not greater than 100 percent** of MMAE(1985-2017), the number of legal male golden king crab available for harvest will be computed as (0.15) x (MMAE/MMAE(1985-2017)) x (MMAE) or 25 percent of LMAE, whichever is less; and

(3) if MMAE is **greater than 100 percent** of MMAE(1985-2017), the number of legal male golden king crab available for harvest will be computed as (0.15) x (MMAE) or 25 percent of LMAE, whichever is less.

(b) In that portion of the Registration Area O **west of 174° W**. long., the total allowable catch level shall be established as follows:

(1) if MMAw is **less than 25 percent** of MMAw(l985-2017), the fishery will not open;

(2) if MMAw is **at least 25 percent but not greater than 100 percent** of MMAw(l985-2017), the number of legal male golden king crab available for harvest will be computed as (0.20) x (MMAw/MMAw(l985-2017)) x (MMAw) or 25 percent of LMAw, whichever is less; and

(3) if MMAw is **greater than 100 percent** of MMAw(l985-2017), the number of legal male golden king crab available for harvest will be computed as (0.20) x (MMAw) or 25 percent of LMAw, whichever is less.

(c) In implementing this harvest strategy, the department shall consider the reliability of abundance estimates of golden king crab, the manageability of the fishery, and other factors the department determines necessary to manage consistent with sustained yield principles, and shall use the best scientific information available and consider all sources of uncertainty as necessary to avoid overfishing.

(d) In this section,

(1) MMAE means the abundance of male golden king crab in the portion of the Registration Area O east of 174° W. long., that are greater than or equal to 111 millimeters in carapace length estimated by the stock assessment model for the time prior to the start of the fishery;

(2) MMAE(1985-2017) means the mean value of the abundance of male golden king crab in the portion of the Registration Area O east of 174° W. long., that are greater than or equal to 111 millimeters in carapace length estimated by the stock assessment model for the time prior to the start of the fishery for the period 1985 - 2017;

(3) LMAE means the abundance of male golden king crab in the portion of the Registration Area O east of 174° W. long., that are greater than or equal to 136 millimeters in carapace length estimated by the stock assessment model for the time prior to the start of the fishery;

(4) MMAw means the abundance of male golden king crab in the portion of the Registration Area O west of 174° W. long., that are greater than or equal to 111 millimeters in carapace length estimated by the stock assessment model for the time prior to the start of the fishery;

(5) MMAw(l985-2017) means the mean value of the abundance of male golden king crab in the portion of the Registration Area O west of 174° W. long., that are greater than or equal to 111 millimeters in carapace length estimated by the stock assessment model for the time prior to the start of the fishery for the period 1985 - 2017;

(6) LMAw means the abundance of male golden king crab in the portion of the Registration Area O west of 174° W. long., that are greater than or equal to 136 millimeters in carapace length estimated by the stock assessment model for the time prior to the start of the fishery.