Submitted by Alaska Department of Fish and Game.

May 18, 2017

Tanner Crab Harvest Strategy Substitute Language.

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

(a) In the Bering Sea District, the commercial C. bairdi Tanner crab fishery **will not** open if an analysis of preseason survey data indicates the **upper bound of the 95 percent confidence interval for the estimated biomass of mature female crab at the time of the survey is below** 40 percent of the long-term average (**1982-2016**) of estimated mature female crab biomass in the **Bering Sea District**.

(b) If preseason survey data indicates **upper bound of the 95 percent confidence interval for the estimated biomass of mature female crab at the time of the survey** is at or above 40 percent of the long-term average of mature female crab biomass in the **Bering Sea District**, the department shall establish a separate total allowable catch level for that portion of the Bering Sea District east of 166° W. long. and for that portion west of 166° W. long. under the provisions of (d) and (e) of this section.

(c) If the commercial C. bairdi Tanner crab fishery in the Bering Sea District did not open the previous season because the **mature female** threshold requirement specified in (a) of this section was not met, the total allowable catch level as computed under (d) and (e) of this section, shall be reduced by one-half the following season if the minimum threshold requirements specified in (a), (d), and (e) are met.

(d) In that portion of the Bering Sea District east of 166° W. long., and under the restrictions of (f) and (g) of this section, the total allowable catch level shall be established based on one of the following:

(1) if B_E is less than 25 percent of $B_{E(1982-2016)}$, the fishery will not open;

(2) if the mature female threshold in (a) has been met but falls within the 95 percent confidence interval for the estimated biomass of mature female crab at the time of the survey, the total allowable catch will be computed as follows:

(A) if $B_E/B_{E(1982-2016)}$ for mature males is at or above 100%;

(B) then the total allowable catch will be computed as (0.9) x $(B_E/B_{E(1982-2016)} - 1)) \times C_{E,MSY}$, or, (0.9) x $C_{E,MSY}$, whichever is less;

(C) if criteria in (A) and (B) of this section not are met, the fishery will not open.

(3) if the mature female threshold in (a) has been met and is below the lower bound of the 95 percent confidence interval for the estimated biomass of mature female crab at the time of the survey, the total allowable catch will be computed as follows:

(A) if B_E is at least 25 percent but not greater than 100 percent of $B_{E,(1982-2016)}$, the total allowable catch will be computed as (0.9) x $(B_E/B_{E(1982-2016)}) \times C_{E,MSY}$; or

(B) if B_E is greater than 100 percent of $B_{E(1982-2016)}$, the total allowable catch will be computed as $(0.9) \times C_{E,MSY}$.

(e) In that portion of the Bering Sea District west of 166° W. long., and under the restrictions of (f) and (g) of this section, the total allowable catch level will be established based on one of the following:

(1) if B_W is less than 25 percent of $B_{W(1982-2016)}$, the fishery will not open;

(2) if the mature female threshold in (a) has been met but falls within the 95 percent confidence interval for the estimated biomass of mature female crab at the time of the survey, the total allowable catch will be computed as follows:

(A) if $B_W/B_{W(1982-2016)}$ for mature males is at or above 100%;

(B) then the total allowable catch will be computed as $(0.9) \times (B_W/B_{W(1982-2016)} - 1) \times C_{W,MSY}$, or, $(0.9) \times C_{W,MSY}$, whichever is less;

(C) if criteria in (A) and (B) of this section not are met, the fishery will not open.

(3) if the mature female threshold in (a) has been met and is below the lower bound of the 95 percent confidence interval for the estimated biomass of mature female crab at the time of the survey, the total allowable catch will be computed as follows:

(A) if B_W is at least 25 percent but not greater than 100 percent of $B_{W,(1982-2016)}$, the total allowable catch will be computed as $(0.9) \times (B_W/B_{W(1982-2016)}) \times C_{W,MSY}$; or

(B) if B_W is greater than 100 percent of $B_{W(1982-2016)}$, the total allowable catch will be computed as $(0.9) \times C_{W,MSY}$.

(f) Notwithstanding (b) - (d) of this section, the total allowable catch for

(1) that portion of the Bering Sea District east of 166° W. long. may not exceed 50 percent of the estimated biomass of male C. bairdi Tanner crab, that are 127 millimeters (five inches) or greater in carapace width, including the lateral spines, discounted by fishery selectivity, that would survive in the absence of fishing mortality until the estimated mean time of mating; and

(2) that portion of the Bering Sea District west of 166° W. long. may not exceed 50 percent of the estimated biomass of male C. bairdi Tanner crab that are 127 millimeters (five inches) or greater in carapace width, including the lateral spines, discounted by fishery selectivity, that would survive in the absence of fishing mortality until the estimated mean time of mating.

(g) Notwithstanding (d) - (f) of this section, in implementing this harvest strategy, the department shall consider the reliability of 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 **and to maintain consistency with the Board's Policy on King and Tanner Crab Resource Management**.

(h) In this section,

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

(2) "$B_{E(1982-2016)}$" means the mean value of the biomass of male C. bairdi Tanner crab in the portion of the Bering Sea District east of 166° W. long. that are more than 112 millimeters in carapace width annually estimated for the time of the preseason survey for the period **1982-2016**;

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

(4) "$B_{W(1982-2016)}$" means the mean value of the biomass of male C. bairdi Tanner crab in the portion of the Bering Sea District west of 166° W. long. that are more than 102 millimeters in carapace width annually estimated for the time of the preseason survey for the period **1982-2016**;

(5) "$C_{E,MSY}$" means the catch biomass of male C. bairdi Tanner crab in the portion of the Bering Sea District east of 166° W. long. that are 127 millimeters (five inches) or greater in carapace width, including the lateral spines, resulting from fishing on the estimated mature male biomass at the estimated mean time of mating at the full-selection F_{MSY} rate or a proxy for the F_{MSY} rate;

(6) "$C_{W,MSY}$" means the catch biomass of male C. bairdi Tanner crab in the portion of the Bering Sea District west of 166° W. long. that are 127 millimeters (five inches) or greater in carapace width, including the lateral spines, resulting from fishing on the estimated mature male biomass of C. bairdi Tanner crab at the estimated mean time of mating at the full-selection F_{MSY} rate or a proxy for the F_{MSY} rate;

(7) "mature female crab" **are determined based on observed morphology of the abdominal flap at the time of the survey.**

Current Tanner Crab Harvest Strategy.

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

(a) In the Bering Sea District, the commercial C. bairdi Tanner crab fishery may open only if an analysis of preseason survey data indicates that the population at the time of the survey is at or above 40 percent of the long-term average (1975 - 2010) of mature female crab biomass in the Eastern Subdistrict.

(b) If preseason survey data indicates that the population at the time of the survey is at or above 40 percent of the long-term average of mature female crab biomass in the Eastern Subdistrict for the second consecutive year, the department shall establish a separate 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. under the provisions of (c) and (d) of this section. If the commercial C. bairdi Tanner crab fishery in the Bering Sea District did not open in the previous season because the threshold requirements specified in (a) of this section were not met, the 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 computed under (c) and (d) of this section, shall be reduced by one-half.

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

(1) if BE is less than 25 percent of BE, (1975-2010), the fishery will not open;

(2) if BE is at least 25 percent but not greater than 100 percent of BE, (1975-2010), the total allowable catch will be computed as $(0.9) \times (BE/BE, (1975-2010)) \times CE,MSY$; and

(3) if BE is greater than 100 percent of BE,(1975-2010), the total allowable catch will be computed as $(0.9) \times CE,MSY$.

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

(1) if Bw is less than 25 percent of BW,(1975-2010), the fishery will not open;

(2) if Bw is at least 25 percent but not greater than 100 percent of BW,(1975-2010), the total allowable catch will be computed as $(0.9) \times (BW/BW,(1975-2010)) \times CW,MSY$; and

(3) if Bw is greater than 100 percent of BW,(1975-2010), the total allowable catch will be computed as $(0.9) \times CW,MSY$.

(e) Notwithstanding (b) - (d) of this section, the total allowable catch for

(1) that portion of the Bering Sea District east of 166° W. long. may not exceed 50 percent of the estimated biomass of male C. bairdi Tanner crab, that are 127 millimeters (five inches) or greater in carapace width, including the lateral spines, discounted by fishery selectivity, that would survive in the absence of fishing mortality until the estimated mean time of mating; and

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(2) that portion of the Bering Sea District west of 166° W. long. may not exceed 50 percent of the estimated biomass of male C. bairdi Tanner crab that are 127 millimeters (five inches) or greater in carapace width, including the lateral spines, discounted by fishery selectivity, that would survive in the absence of fishing mortality until the estimated mean time of mating.

(f) Notwithstanding (b) - (e) of this section, in implementing this harvest strategy, the department shall consider the reliability of 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.

(g) In this section,

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

(2) "BE,(1975-2010) means the mean value of the biomass of male C. bairdi Tanner crab in the portion of the Bering Sea District east of 166° W. long. that are more than 112 millimeters in carapace width annually estimated for the time of the preseason survey for the period 1975 - 2010;

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

(4) "BW,(1975-2010)" means the mean value of the biomass of male C. bairdi Tanner crab in the portion of the Bering Sea District west of 166° W. long. that are more than 102 millimeters in carapace width annually estimated for the time of the preseason survey for the period 1975 - 2010;

(5) "CE,MSY" means the catch biomass of male C. bairdi Tanner crab in the portion of the Bering Sea District east of 166° W. long. that are 127 millimeters (five inches) or greater in carapace width, including the lateral spines, resulting from fishing on the estimated mature male biomass at the estimated mean time of mating at the full-selection FMSY rate or a proxy for the FMSY rate;

(6) "CW,MSY" means the catch biomass of male C. bairdi Tanner crab in the portion of the Bering Sea District west of 166° W. long. that are 127 millimeters (five inches) or greater in carapace width, including the lateral spines, resulting from fishing on the estimated mature male biomass of C. bairdi Tanner crab at the estimated mean time of mating at the full-selection FMSY rate or a proxy for the FMSY rate;

(7) "mature female crab" means for

(A) that portion of the Bering Sea District that is east of 166° W. long., a female C. bairdi Tanner crab that is more than 84 millimeters in carapace width; and

(B) that portion of the Bering Sea District that is west of 166° W. long., a female C. bairdi Tanner crab that is more than 79 millimeters in carapace width.