

Draft C1 SSC Report October 2020



C-1 Crab Harvest Specifications

Overfishing Status

- The SSC received an update on the 2019/2020 status of off-cycle stocks from the CPT
- **Overfishing did not occur in 2019/2020** for:
 - Aleutian Islands golden king crab,
 - Pribilof Islands red king crab,
 - Pribilof Islands blue king crab,
 - Pribilof Islands golden king crab (total 2019/2020 catch is confidential),
 - Western Aleutian Islands red king crab

C-1 Crab Harvest Specifications

Bristol Bay Red King Crab

- The **SSC recommends** model 19.3 – agree with authors and CPT
- The SSC agrees with the author and CPT that:
 - The stock is in Tier 3b
 - The stock is not overfished, overfishing did not occur
- **OFL = 2.14 kt (4.72 M lbs), ABC = 1.61 kt (3.54 M lbs)** – agree with authors and CPT, includes a 20% buffer (model uncertainty) plus 5% buffer (uncertainty associated with loss of 2020 survey); total buffer size = 25%
 - **20% buffer (model uncertainty)** – same as last year; accounts for uncertainty with model overestimation of 2018 and 2019 NMFS bottom trawl survey biomass, retrospective patterns, and distribution shifts associated with recent environmental conditions

C-1 Crab Harvest Specifications

Bristol Bay Red King Crab - Continued

- **5% buffer (uncertainty associated with loss of 2020 survey) – based on:**
 - Main analyses: retrospective analyses both with and without terminal year survey, and sensitivity of assessment to hypothetical high and low 2020 survey (25th and 75th percentiles of the multiplicative residuals)
 - Results: additional uncertainty introduced by the cancelled 2020 survey is ~5%
 - Rationale: uncertainty whether declining stock trend continued through 2020 and uncertainty about the current stock status relative to the overfished condition

C-1 Crab Harvest Specifications

Eastern Bering Sea Snow crab

- The **SSC recommends** model 20.1 (last year's model with revised trawl data – disagree with authors' and CPT's preferred model)
- The SSC agrees with the author and CPT that:
 - The stock is in Tier 3a
 - The stock is not overfished, overfishing did not occur
- **OFL = 95.4 kt (210.32 M lbs), ABC = 71.55 kt (157.74 M lbs)** – include a 20% buffer (model uncertainty) and an additional 5% buffer for uncertainty with loss of 2020 survey
 - **20% buffer (model uncertainty)** – accounts for uncertainty with concerns about model misspecification, recruitment uncertainty, importance of retrospective patterns, etc.

C-1 Crab Harvest Specifications

EBS Snow Crab - Continued

- **5% additional buffer for uncertainty associated with loss of 2020 survey** – based on:
 - Main analyses: retrospective analyses both with and without terminal year survey, and sensitivity of assessment to hypothetical high and low 2020 survey (25th and 75th percentiles of the multiplicative residuals)
 - Results: these analyses don't apply to SSC recommended model
 - Rationale: the stock is increasing, but additional buffer is added due to additional uncertainty without 2020 survey given the large incoming recruitment. This uncertainty is increased by known model issues (high retrospective pattern, highly uncertain recruitment).

C-1 Crab Harvest Specifications

St. Matthew Island Blue King Crab

- The **SSC recommends** model 16.0 – agree with authors and CPT
- The **SSC agrees** with the author and CPT that:
 - The stock is in Tier 4b
 - The stock is overfished, overfishing did not occur
- **OFL = 0.05 kt (0.112 M lbs), ABC = 0.04 kt (0.08 M lbs)**, includes a 25% buffer (model uncertainty) and no additional buffer for uncertainty with loss of 2020 survey; total buffer size = 25%
 - **25% buffer (model uncertainty)** – correction from last year; accounts for uncertainty with: (1) data limitation, (2) strong retrospective patterns, and (3) inconsistencies between the ADF&G pot survey and the AFSC bottom trawl survey.

C-1 Crab Harvest Specifications

St. Matthew Island Blue King Crab

- **No additional buffer for uncertainty associated with loss of 2020 survey** – based on:
 - Main analyses: retrospective analyses both with and without terminal year survey, and sensitivity of assessment to hypothetical high and low 2020 survey (25th and 75th percentiles of the multiplicative residuals)
 - Results: additional uncertainty introduced by the cancelled 2020 survey is small
 - Rationale: additional uncertainty introduced by the cancelled 2020 survey is small

C-1 Crab Harvest Specifications

Eastern Bering Sea Tanner Crab

- The **SSC recommends** model 20.07 (last year's model now with BSFRF side-by-side survey data – agree with authors and CPT)
- The **SSC agrees** with the author and CPT that:
 - The stock is in Tier 3b
 - The stock is not overfished, overfishing did not occur
 - **OFL = 21.13 kt (46.58 M lbs), ABC = 16.90 kt (37.26 M lbs)** – agree with CPT, includes a 20% buffer (model uncertainty) and no additional buffer for uncertainty with loss of 2020 survey; total buffer size = 20%
 - **20% buffer (model uncertainty)** – same as last year; accounts for uncertainty with concerns about model misspecification, model convergence, parameters hitting bounds, ongoing retrospective patterns, etc. – no change in these concerns

C-1 Crab Harvest Specifications

EBS Tanner Crab - Continued

- **No additional buffer for uncertainty associated with loss of 2020 survey** – based on:
 - Main analyses: retrospective analyses both with and without terminal year survey, and sensitivity of assessment to hypothetical high and low 2020 survey (25th and 75th percentiles of the multiplicative residuals)
 - Results: additional uncertainty introduced by the cancelled 2020 survey is small
 - Rationale: additional uncertainty introduced by the cancelled 2020 survey is small and, while estimates of incoming large year class are highly uncertain, this does not have management implications since these crab are neither mature nor legal sized¹⁰

C-1 Crab Harvest Specifications

Buffer Summary

Stock	Tier	2019/20 ABC buffer	2020/21 ABC buffer		Total
			Base	Additional due to missed 2020 survey	
Bristol Bay red king crab	3	20%	20%	5%	25%
EBS snow crab	3	20%	20%	5%	25%
St. Matt blue king crab	4	20%	25%	0%	25%
EBS Tanner crab	3	20%	20%	0%	20%