Pribilof Island Golden King Crab 2023 Assessment

CPT May 2023

Response to Comments, 2023

CPT: "*The CPT recommends using M = 0.22 yr^{-1} or another value consistent with the AIGKC assessment, in future Tier 4 models to be considered when more data becomes available.*"

Done.

CPT: "*The CPT recommends revising the terminology used for M in Appendix B to an exploitation rate.*"

Done.

Tier 5 Approach

$$\mathrm{OFL} = (1 + R)RET + BM_{NC} + BM_{GF}$$

R = average of the estimated ratio of bycatch mortality to retained catch in the directed fishery during 2001-2010

RET= average annual retained catch in the directed crab fishery during 1993-1998

BM_{NC}= estimated average bycatch mortality in non-directed crab fisheries during 1994–1998 (snow/grooved Tanner)

BM_{GF}= estimated average bycatch mortality in groundfish fisheries during 1992/93-1998/99.

Tier 4 Approach (Appendix A)

The Tier 4 OFL is calculated using the F_{OFL} control rule (SAFE Intro):

$$F_{OFL} = \begin{cases} 0, & \frac{MMB}{B_{MSY}} \geq 0.25 \\ M\left(\frac{MMB}{B_{MSY}} - \alpha\right)(1-\alpha)^{-1}, & 0.25 < \frac{MMB}{B_{MSY}} < 1 \\ M, & MMB > B_{MSY} \end{cases}$$

- M = 0.18 yr^{-1} or 0.22 yr^{-1}
- B_{MSY} = mean predicted MMB from 2002 – 2016
- $\mathrm{OFL} = (1 - e^{-F_{OFL}})MMB_{proj}$

Tier 4/5 Approach (Appendix B)

Following the 2010 GOA spiny dogfish assessment

$$F_{\mathrm{OFL}} = E = M; \quad \mathrm{OFL} = B \times E$$

B = Average observed slope survey MMB from 2002 – 2016

M= 0.18 yr^{-1} or 0.22 yr^{-1}

ABC = 25% buffer

Overall Specifications

Tier	B_{MSY}	M	MMB	B/B_{MSY}	F_{OFL}	OFL	ABC
5						94.7	71.1
4 (23.0)	507	0.18	521*	1.03	0.18	85.9	64.4
4/5		0.18	517			93.1	69.8
4 (23.0)	507	0.22	509*	1	0.22	100.4	75.3
4/5		0.22	517			113.7	85.3

*projected to Feb 15