

## 9 Pribilof Islands golden king crab

In accordance with the approved schedule, the Pribilof Islands golden king crab assessment is conducted triennially with the previous assessment in 2017. Therefore, a full stock assessment was conducted in 2020 with results to be applied for the 2021–2023 specifications. Additional information listed below summarizes the 2020 assessment.

### *Fishery information relative to OFL and ABC setting*

The Pribilof Islands golden king crab fishery began in the 1981/82 season but is currently managed by calendar year. The directed fishery mainly occurs in Pribilof Canyon on the continental slope. Peak directed harvest was 388 t by 50 vessels during the 1983/84 season; fishery participation has since been sporadic and retained catches vary from 0 to 155 t. A guideline harvest level (GHL) was first established in 1999 at 91 t and the fishery was managed with a GHL of 68 t from 2000 to 2014, and reduced to 59 t in 2015. Discarded (non-retained) catch has occurred in the directed golden king crab fishery, the eastern Bering Sea snow crab fishery, the Bering Sea grooved Tanner crab fishery, and in Bering Sea groundfish fisheries. Estimates of annual total fishery mortality during 2001–2019 due to crab fisheries range from 0 to 73 t. Estimates of annual fishery mortality during 1991/92–2019 due to groundfish fisheries range from negligible to 9 t. Total fishery mortality in groundfish fisheries during the 2019 crab fishing year was 4 t.

### *Data and assessment methodology*

There is no assessment model for this stock. Fish ticket and observer data are available, size-frequency data from samples of landed crabs, and pot lifts sampled during the fishery, and from the groundfish fisheries. Much of the directed fishery data are confidential due to low participation levels. A random effects model for moving toward a Tier 4 assessment was explored; however, several model aspects needed better documentation to understand the model. The CPT was encouraged by these efforts and would like to see future development of this model in 2021.

### *Stock biomass and recruitment trends*

There is no stock biomass data used in this Tier 5 assessment.

### *Tier determination/Plan Team discussion and resulting OFL and ABC determination*

The CPT is recommending that the stock no longer be assessed triennially under Tier 5, but instead be managed under Tier 5 for the 2021 fishing year and that it be re-evaluated for Tier 4 at the May 2021 CPT meeting. The CPT concurs with the author's recommended status quo OFL of 93 t and an ABC of 70 t. The ABC was derived by applying a 25% buffer of the OFL,  $ABC = 0.75 * OFL$ , the same buffer that was used from 2017–2020. The 2021 OFL calculation is the same as recommended by the SSC for 2013–2020:

$$OFL_{2021} = (1 + R_{2001-2010}) * RET_{1993-1998} + BM_{NC,1994-1998} + BM_{GF,1992/93-1998/99}$$

where,

- $R_{2001-2010}$  is the average of the estimated annual ratio of lb of bycatch mortality to lb of retained in the directed fishery during 2001–2010.
- $RET_{1993-1998}$  is the average annual retained catch in the directed crab fishery during 1993–1998.

- $BM_{NC,1994-1998}$  is the estimated average annual bycatch mortality in non-directed crab fisheries during 1994–1998.
- $BM_{GF,1992/93-1998/99}$  is the estimated average annual bycatch mortality in groundfish fisheries during 1992/93–1998/99.

*Status and catch specifications (t) of Pribilof District golden king crab. Shaded values are new estimates or projections based on the current assessment. Other table entries are based on historical assessments and are not updated except for total and retained catch.*

Calendar Year	MSST	Biomass (MMB)	GHL	Retained Catch	Total Catch	OFL	ABC
2017	N/A	N/A	59	Conf.	Conf.	93	70
2018	N/A	N/A	59	Conf.	Conf.	93	70
2019	N/A	N/A	59	Conf.	Conf.	93	70
2020	N/A	N/A	59			93	70
2021		N/A				93	70

N/A = not available  
 Conf. = confidential

*Status and catch specifications (million lb) of Pribilof Aleutian Islands golden king crab. Shaded values are new estimates or projections based on the current assessment. Other table entries are based on historical assessments and are not updated except for total and retained catch.*

Calendar Year	MSST	Biomass (MMB)	GHL	Retained Catch	Total Catch	OFL	ABC
2017	N/A	N/A	0.13	Conf.	Conf.	0.20	0.15
2018	N/A	N/A	0.13	Conf.	Conf.	0.20	0.15
2019	N/A	N/A	0.13	Conf.	Conf.	0.20	0.15
2020	N/A	N/A	0.13			0.20	0.15
2021		N/A				0.20	0.15

N/A = not available  
 Conf. = confidential