Norton Sound red king crab stock assessment

Appendix A: History of Acceptable Biological Catch buffers and buffer justifications

Caitlin Stern[1,2] and Katie Palof[1]
[1]Alaska Department of Fish and Game
[2]caitlin.stern@alaska.gov

May 2026

Table 1: History of Acceptable Biological Catch (ABC) buffers and buffer justifications for the Norton Sound red king crab stock. Source: Crab Stock Assessment and Fishery Evaluation (SAFE) Report Introductions, https://www.npfmc.org/library/safe-reports/.

Year	ABC buffer	Justifications
2021	40%	- status of the stock (few legal males in the system) - Overfishing limit based on legal crab rather than retained size of crab
2022	40%	- natural mortality and size-at-maturity are borrowed from other stocks - impact of seasonal movement on survey estimates - uncertainty in stock vs. survey areas - shortage of discard data on which to base estimates of total catch mortality - absence of standardized CPUE for 2020 and 2021 - discrepancies in Alaska Department of Fish & Game and National Oceanic and Atmospheric Administration Northern Bering Sea survey estimates - some parameters at bounds - overestimation of proportion of large crab - very high natural mortality in largest size class - retrospective patterns - new information on barren females in surveys not presented
2023	30%	- same justifications as for 2022 with the exception of the concern about information on barren females, which was not mentioned in 2023
2024	30%	- natural mortality and size-at-maturity are borrowed from other stocks - impact of seasonal movement on survey estimates - uncertainty in stock vs. survey areas - lack of information about discards - overestimation of the abundance of the largest male crab - use of a higher natural mortality value for larger males in order to correct for this overestimation rather than using a size-independent natural mortality - retrospective pattern in model-estimated mature male biomass
2025	30%	- natural mortality and size-at-maturity are borrowed from other stocks - impact of seasonal movement on survey estimates - uncertainty in stock vs. survey areas - shortage of discard data on which to base estimates of total catch mortality - estimates of total catch mortality rely on ad hoc methods to estimate discards - overestimation of the proportion of large crab - whether high estimate for M in largest size class is reasonable remains unresolved