Risk table application for BSAI crab stocks

Sept 2024

Risk table

TOPIC	COMMENT	SCORE
Assessment	Biology good Reference points bad Fits to large males bad Jittering bad	Increased concern (2)
Population dynamics	Large males downward trajectory Recent population collapse Potential for density dependence in terminal molt	Extreme concern (3)
Environmental/ecosystem	ESP indicators mostly neutral	Normal (1)
Fishery performance	CPUE on a long-term downward trend since rationalization Fishery closure	Extreme concern (3)

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Draft Risk Table Evaluation in 2024 (App D)

Assessment-related considerations	**Population dynamics considerations**	**Environmental/ecosystem considerations**	**Fishery Performance**
Strong retrospective pattern in MMB (high Mohn's rho) Stable GMACS reference model since 2018 **Conclusion: Level 2, increased concern**	- Low, recent recruitment (last 10+ years) - Unknown reasons behind recruitment failure - Potential shifting spatial distributions - Low mature female abundance the last few years **Conclusion: Level 2, increased concerns**	- Steady decline in bottom water pH in last two decades - Predation risk higher for juvenile crab (i.e. sockeye salmon) - Poor larval feeding conditions due to competition and low chlorophyll *a* - Slight increase in mature females with empty clutches **Conclusion: Level 1, Normal**	- Fishery closure 21/22 and 22/23 - 23/24 CPUE was similar to last open season 20/21 - Bycatch at recent average levels **Conclusion: Level 1, Normal**

Sept/Oct 2023 recommended ABC = 80% of max ABC (20% buffer).

Proposed Risk Table Levels of Concern for 2024

	Assessment-related considerations	*Population dynamics considerations*	*Environmental/ecosystem considerations*	*Fishery Performance*
Level 1: No Concern	Typical to moderately increased uncertainty/minor unresolved issues in assessment.	Stock trends are typical for the stock; recent recruitment is within normal range.	No apparent environmental/ecosystem concerns, or a few minor concerns with uncertain impacts on the stock.	No apparent fishery/resource-use performance and/or behavior concerns, or a few minor concerns with uncertain impacts on the stock.
Level 2: Increased concern	Substantially increased assessment uncertainty/ unresolved issues, such as residual patterns, substantial retrospective bias.	Stock trends are unusual; abundance increasing or decreasing faster than has been seen recently, or recruitment pattern is atypical.	Several indicators showing adverse signals relevant to the stock but the pattern is not consistent across all indicators.	Several indicators showing adverse signals but the pattern is not consistent across all indicators.
Level 3: Severe Concern	Severe problems with the stock assessment; very poor fits to data; high level of uncertainty; very strong retrospective bias. Assessment of questionable reliability.	Stock trends are extremely unusual; very rapid changes in stock abundance, or highly atypical recruitment patterns compared to previous patterns.	Multiple indicators showing consistent and strong adverse signals a) across the same trophic level as the stock, and/or b) up or down trophic levels (i.e., predators and prey of the stock) that are likely to impact the stock. Potential for cascading effects on other ecosystem components.	Multiple indicators showing consistent and strong adverse signals a) across different sectors, and/or b) different gear types.