Appendix B: Risk Table Summary for Aleutian Islands Golden King Crab

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The following is a synthesis and interpretation of the most recent ecosystem and socioeconomic information available for Aleutian Islands Golden King Crab from the Aleutian Islands Ecosystem Status Report (Ortiz & Zador 2024) and unpublished information available through the September 2025 Crab Plan Team meeting eAgneda. This information may be helpful for evaluating risk table score levels and is organized below by the proposed risk table categories. The following online NOAA sources of environmental information were also used: Aleutian Islands daily satellite Sea SurfaceTemperature (SST) and Marine Heatwave Status (Lemagie and Callahan 2026), Coral Reef Watch SST (Skirving et al. 2020 updated for 4/13/2026 90-day global animation), North American Multi-Model Ensemble (NMME) Forecast 3-month mean spatial anomalies Becker et al. 2022 updated for 4/13/2026) and ENSO Status and Prediction (CPC/NCEP, April 20, 2026). There is no Ecosystem and Socioeconomic Profile (ESP) for golden king crab in the Aleutian islands.

Category Summary:

The summarized results of the risk table for Aleutian Islands Golden King Crab are in the table below.

Assessment-related Considerations	Population Dynamics Considerations	Ecosystem Considerations	Fishery-informed Stock Considerations
Level 1: Normal	**Level 1:** Normal	**Level 1:** Normal	**Level 1:** Normal
The AIGKC stock assessment remains to be solely informed by fishery dependent data. *The latest assessment did not resolve poor fit to EAG fishery CPUE data and the associated retrospective pattern in MMB. This is a recurring issue (~2021) likely related to changing fleet dynamics and fishing behavior not captured in CPUE standardization.*	*MMB in the WAG appears to be rebounding following increased recruitment. MMB and recruitment in the EAG remain stationary over time.* *Stock status is at 96% B_{MSY} proxy.* *The stock-specific indicators related to natural mortality and growth suggest no additional concerns.*	*Warm conditions above average, conditions similar to 2025 so far. Warmer than average SST predicted for late summer and fall, potentially faster growth. While temperatures have been increasing they remain within a suitable thermal range*. *Although some prey and structural epifauna have been decreasing across the chain, others have been increasing,*	*CPUE in the EAG decreased from 2024/25, but remains high relative to the time series. CPUE in the WAG underwent a considerable increase from 2024/25. The spatial footprint of WAG fishery was lower than in past years, so it is unclear if increased CPUE is due to population increase or a change in fishing behavior, or both.*

		particularly in the EAG. Groundfish predators have been decreasing. The combined effect of prey, potential predators, and habitat seems to be more favorable in the EAG, but WAG conditions still seem to be close to normal.	

Population Dynamics Considerations:

Risk Level 1: Normal

- Mature Male Biomass (MMB): Estimated MMB in the EAG is on a decreasing trend from a recent high point, but the time series appears stationary since the early 2000s. MMB in the WAG has increased since 2023/24.
- Recruitment: Estimated recruitment has been decreasing slowly in the EAG, but as with MMB, the time series appears stationary. Recruitment in the WAG appears to be increasing from a time series low in 2021. Note that recruitment trends are highly uncertain in the last ~4 years of the model.

Ecosystem Considerations:

Risk Level 1: Normal

Ecosystem indicators are organized into several categories to capture the scope of considerations available in ESR report:

- Distribution:
    - No information available
- Environmental Processes:
    - Larval golden king crab temperature**,** SST temperature this year within temperature range so far, similar to 2025. In 2025 some months had SSTs 3 to 9°C, but within GOA documented SST at the time of Long and Van Sant (2016). Lower temperatures are still within the 3 to 5°C range, assumed not to affect larvae growth. SST since 2013-14 has remained above the mean across the Aleutian Islands chain(Ortiz and Zador ESR, 2024). Note that golden king crab larvae are lecithotrophic and it is unclear how high they reach in the water column before settlement.
    - Temperatures have increased from the near average SST in 2024 and 2026 looks similar so far to 2025. SST has remained above the 1985-2014 average across the Aleutian chain since 2014, even when cooler conditions are observed. Bottom temperatures have also remained above average since 2014 (ESR:

Howard and Laman, 2024) and are influenced by tidal currents and waves, which vary along the chain (Cassalho et al. 2026).
    - ENSO-neutral conditions favored through April-June 2026 (80% chance). In May - July 2026, El Niño is likely to emerge (61% chance) and persist through at least the end of 2026 (CPC/NCEP, 2026), which would bring warmer temperatures in winter to the Aleutian Islands than those seen in the recent La Niña winters, potentially shortening the larval development period of golden king crab (Long and Van Sant, 2016).
    - NMME forecast also shows warm temperature anomalies, particularly west of 174°W but temperatures are expected to stay within golden king crab's thermal range (Paul, 1999).
- Prey:
    - Benthic Community: some species like shrimp and sea stars, which golden king crab feeds on, have decreased across the shelf, but others, like sponges have increased, more so east of 174°W (eastern Aleutians). The trends would suggest prey items are still available to juvenile and adult golden king crab, particularly east of the 174°W (ESR:Friedman et al. 2024 and Conrath et al. 2024).
- Predators:
    - Apex foragers: Total biomass of apex predators has been slowly decreasing across the Aleutian chain. This includes Pacific cod, large flatfish such as Pacific halibut, and large sculpins (ESR: Ortiz 2024). Too little is known about predation on juvenile or adult golden king crab to speculate how groundfish biomass may influence this stock.
- Habitat:
    - Structural fauna: several species of coral, part of golden king crab's preferred habitat, have been decreasing, particularly in the western Aleutians. Other structural fauna, such as sea pens, have been increasing particularly in the eastern Aleutians (ESR: Conrath et al. 2024) The total effect of habitat will be easier to evaluate once the results of the coral assessment across the Aleutians is finalized.

Fishery-informed Stock Considerations:

Risk Level 1: Normal

- Catch Per Unit Effort (CPUE): CPUE in the EAG decreased from 2024/25, but remains high relative to the time series. CPUE in the WAG underwent a considerable increase from 2024/25. The spatial footprint of WAG fishery was lower than in past years, so it is unclear if increased CPUE is due to population increase or a change in fishing behavior, or both (Figure 1). Note that standardized observer CPUE data are used as the primary index of abundance in the assessment model.

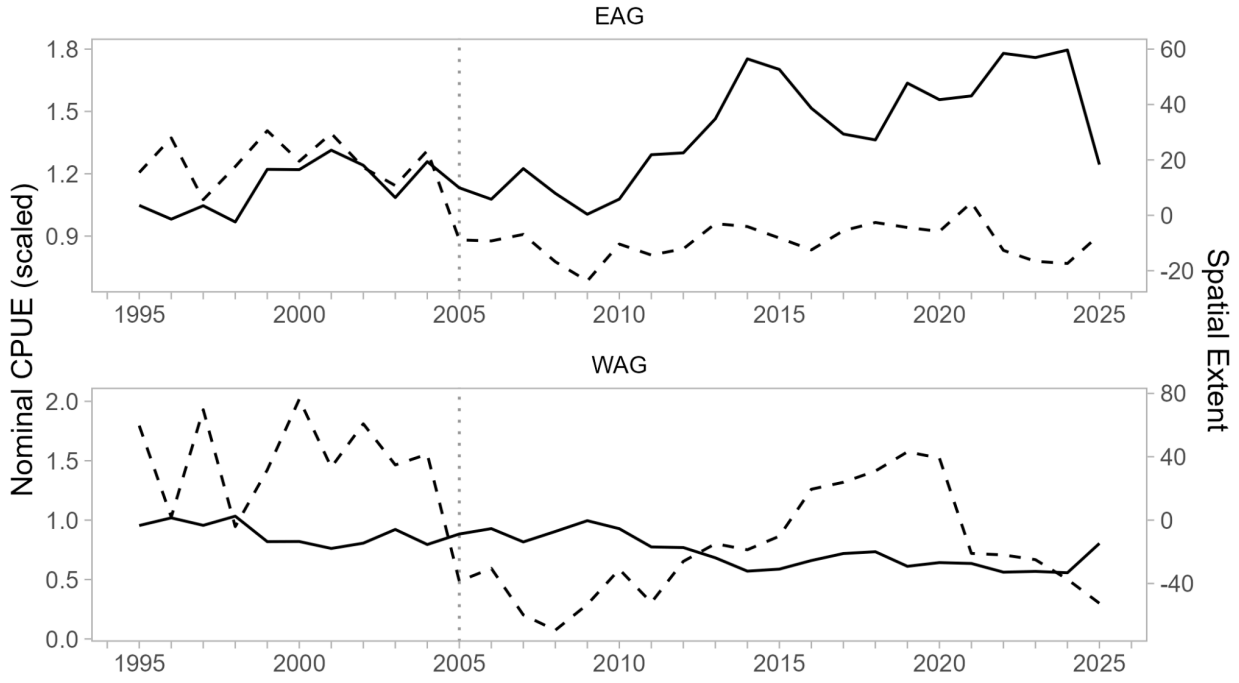

Figure 1. Nominal CPUE (crab per pot scaled; solid line) in comparison to a spatial extent index of the fishery (dotted line): mean-centered average pairwise distance (km) between observer pots.

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