Southern Calamari (*Sepioteuthis australis*)

Stock Structure and Biology

Southern calamari are genetically similar in Victorian waters and thus considered a single stock with phenotypic variation. Southern calamari live for less than 1 year and grow to 55 cm mantle length (ML). Maturity (50 percent) is reached at 3 to 6 months at 15-20 cm ML (LML = 27cm TL). Calamari grow quickly and are moderately fecund. The main spawning period is spring/summer in inshore coastal regions with eggs laid in seagrass and reef algal habitats.

Management/Assessment Unit

The Victorian southern calamari population supports commercial fisheries in Corner Inlet. There are also recreational fisheries in Port Phillip Bay, Corner Inlet, Western Port and coastal waters. This report considers the Victorian population calamari a state-wide stock.

Summary of the Assessment

Corner Inlet

For this assessment, the status of the Corner Inlet southern calamari population was evaluated using:

- Nominal CPUE for commercial fishery haul seine in Corner Inlet. Catch rates from Port Phillip Bay in recent years are potentially biased due to discarding of calamari in favour of more valuable species due to a combined TAC and are therefore no longer assessed. The performance of the haul seine CPUE biomass proxy was assessed in relation the specified reference level and limit point using the reference period 1979–2015 for the haul seine fishery.
- Nominal CPUE for recreational fishers targeting calamari in Port Phillip Bay. The performance of the recreational CPUE biomass proxies was assessed in relation to the average and minimum values of standardised CPUE during reference period.
- Commercial catch, and effort data.
- Calamari size composition from surveyed samples of recreational fishery catches.

This assessment found:

- *Fishing pressure* – Commercial catches of calamari are almost entirely taken by seine nets with landings averaging ~45 t state-wide during the past 5 years, and slightly higher at 47 t in 2021/22. Prior to the 1990s squid jig was also important, but effort by squid jig has virtually ceased (see Appendix 2). There has been a decline in seine effort in all bays and inlets with Corner Inlet (CI) now accounting for most of the commercial catch and seine effort following the closure of the Western Port (WP) commercial fishery in 2009 and the Port Phillip Bay (PPB) commercial net fishery in 2022 [Bell et al. 2023]. As a result, state-wide commercial landings have declined by over 60 per cent from a peak period during the early 2000s [Bell et al. 2023]. Southern Calamari are targeted by recreational fishers in bays and inlets, and coastal waters, throughout the state, although there is no current information on landings.

- *Biomass* – Catch rates by commercial seine nets in Corner Inlet have been around, or above, historic highs since 2017/18 in Corner Inlet. Recreational catch rates from creel surveys have been relatively consistent since 2004, though declined in 2020/21 before returning to around average in 2021/22 (Figure 64).

Stock status summary: There has been decreasing commercial seine effort in most fisheries, which is associated with buy outs in Port Phillip Bay and Western Port and a transfer of effort in Corner Inlet from seining to mesh netting (see Appendix 2). This decreasing seine effort is not associated with declining southern calamari catch rates. Given southern calamari only live for a maximum of one year, the available stock within any given year is largely reflective of annual spawning success and interannual changes in catch rate likely reflect this aspect of their population biology. There is no evidence to suggest recruitment impairment and in the context of their biology, and the relatively low level of fishing pressure, the stock is expected to remain sustainable into the future.

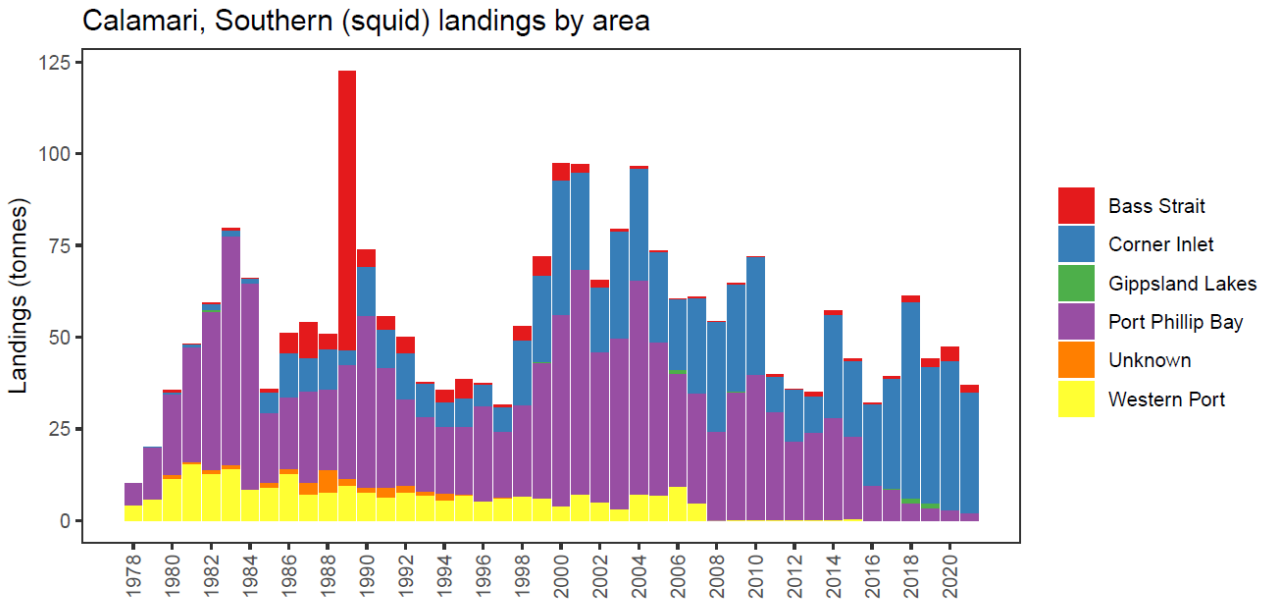

Figure 62 Total commercial catches of southern calamari by area in Victorian waters, 1978–2021/22 financial years.

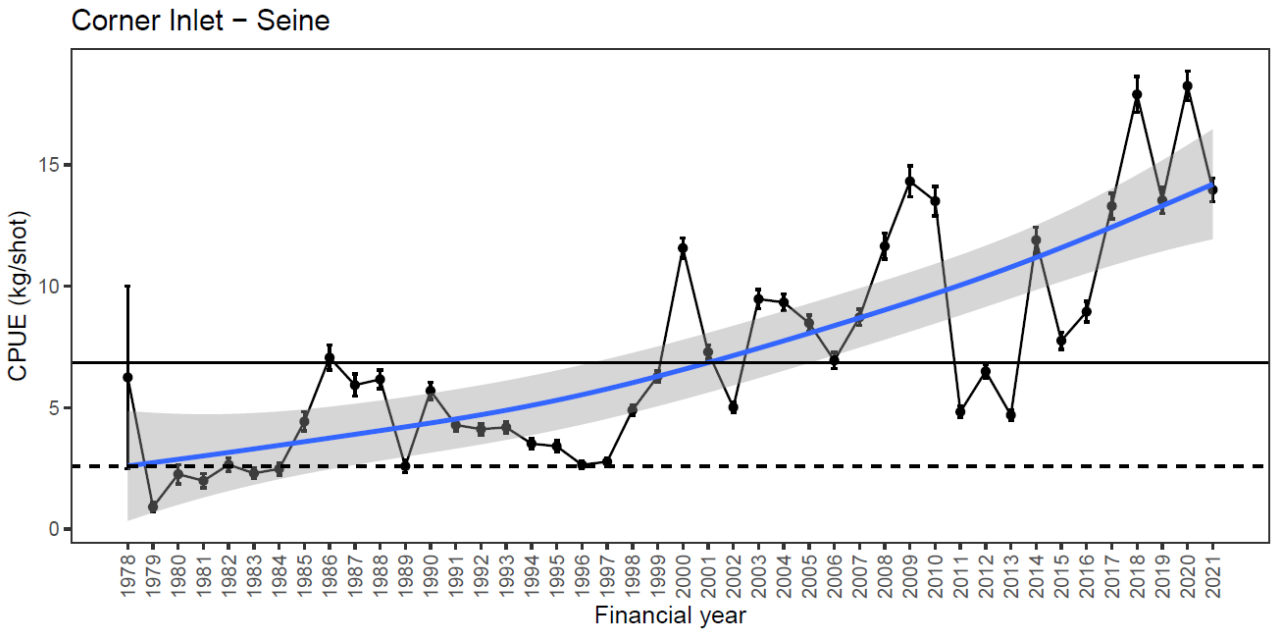

Figure 63 Southern calamari nominal catch-per-unit-effort (CPUE) (±SE) for (a) Port Phillip Bay haul seine, and (b) Corner Inlet haul seine (1978–2021 financial years). Horizontal black line is the mean CPUE during the reference period (1985–2015) and the dashed black line is the minimum CPUE within the reference period. Blue line is a generalised additive model (GAM) of the nominal CPUE trend with the shaded grey area representing the 95% confidence interval of the GAM.

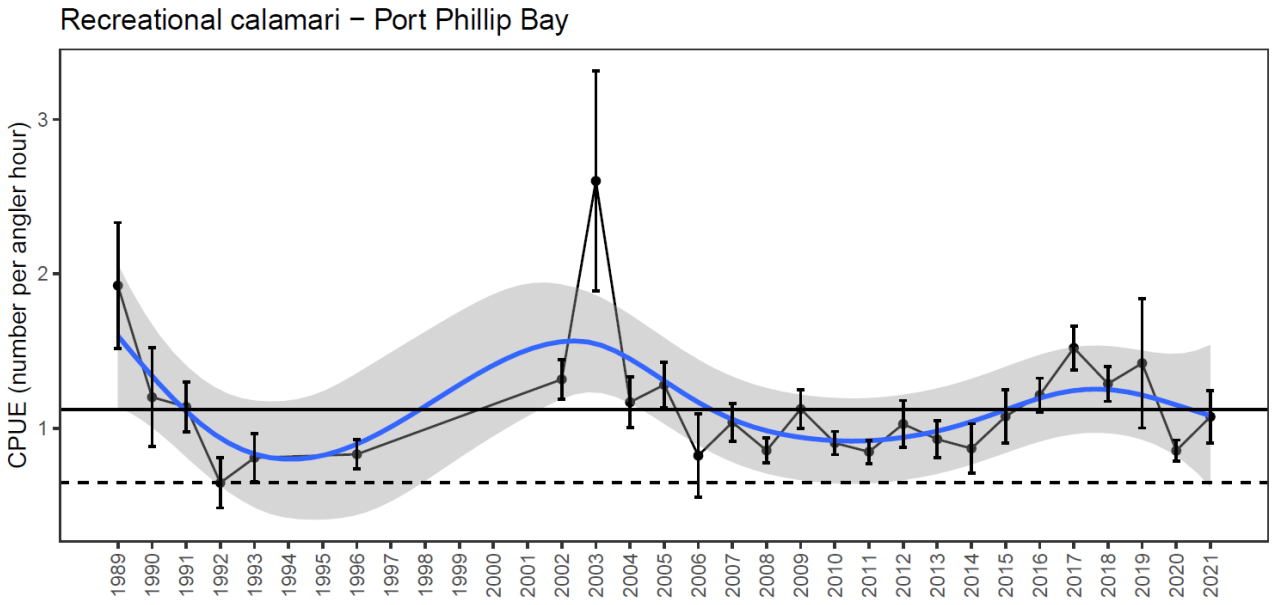

Figure 64 Southern calamari nominal catch-per-unit-effort (CPUE) (±SE) for the Port Phillip Bay recreational fishery from boat ramp creel surveys (financial years 2004–2016). Horizontal black line is the mean CPUE during the reference period (1989–2021) and the dashed black line is the minimum CPUE within the reference period. Blue line is a generalised additive model (GAM) of the nominal CPUE trend with the shaded grey area representing the 95% confidence interval of the GAM.