

**ADVICE TO:** PIRSA FISHERIES AND AQUACULTURE (PROF. GAVIN BEGG – EXECUTIVE DIRECTOR)

**FROM:** DR BEN STOBART (SARDI AQUATIC SCIENCES)

**SUBJECT:** 2022 GIANT AUSTRALIAN CUTTLEFISH POPULATION ESTIMATE

**DATE:** 23 JUNE 2022

### KEY ISSUES

- This Advice Note presents the Giant Australian Cuttlefish population estimate for the 2022 spawning season.

### BACKGROUND

The Giant Australian Cuttlefish is an iconic species of South Australia, that aggregates annually off Point Lowly. It is important to have a robust assessment of its status on an annual basis to inform fishery management. This advice note provides estimates of abundance and biomass that are provided to PIRSA Fisheries and Aquaculture annually.

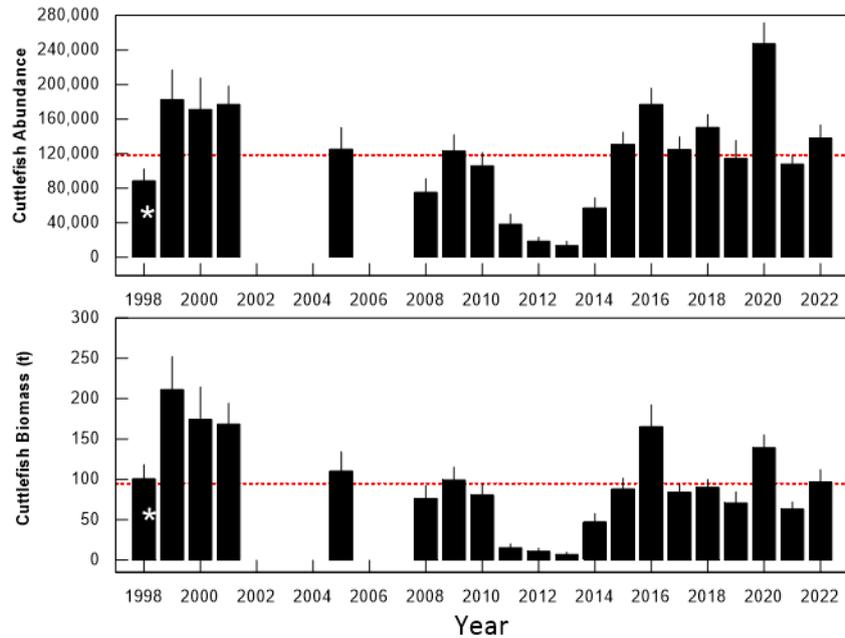
Standard survey methodology (Steer et al. 2013) was used to determine annual estimates of Cuttlefish abundance and biomass of the Point Lowly spawning aggregation in 2022. As in previous years, the 2022 survey was done in June to coincide with the peak spawning period. The cuttlefish abundance estimates are a more robust population estimate than biomass because biomass is dependent on size and cuttlefish sizes are estimated *in-situ* by divers with varying levels of experience, and estimates are no longer verified by capturing individual cuttlefish.

### RESULTS/DISCUSSION

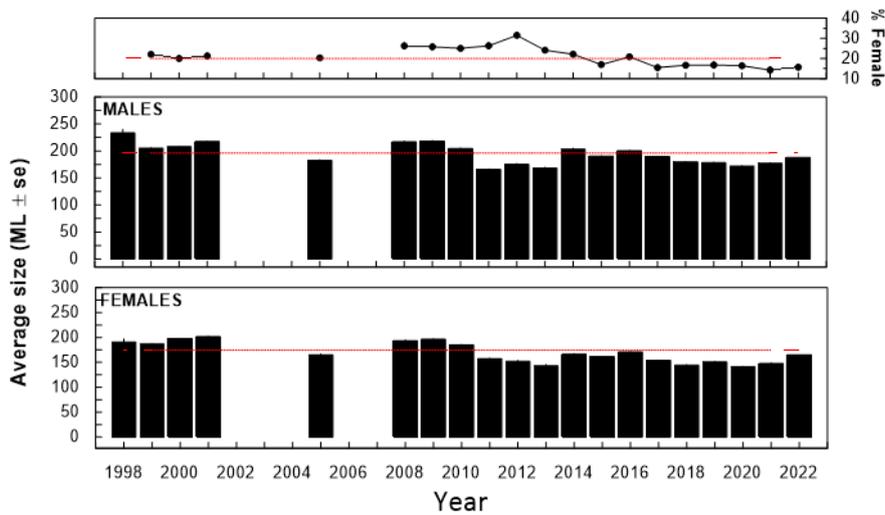
Giant Australian Cuttlefish abundance was variable, but relatively high, from 2015-2022, with annual estimates consistently exceeding 100,000 cuttlefish and the 2020 estimate of 247,146 Cuttlefish being the highest on record (Figure 1). Between 2020 and 2021, abundance decreased 56% to 107,847, but has increased 28% in 2022 to 137,999, a value above the average abundance over the 24 years of surveys. The recent estimates of abundance indicate that the population has increased substantially from the historic low observed in 2013 and has remained relatively high over the past eight years.

Except for 2021 (63.1 t), the biomass of the spawning aggregation remained above 70 t from 2015 to 2022, with peaks of 165.2 t in 2016 and 140.5 t in 2020 (Figure 1). The biomass in 2022 was also relatively high (96.6 t). The average size (mantle length) of female (165 mm) and male (188 mm) cuttlefish increased between 2021 and 2022, with females equalling and males remaining below the long-term averages of 175 mm and 196 mm, respectively (Figure 2). The sex ratio in 2022 remained dominated by males (~16% females; Figure 2).

Giant Australian Cuttlefish population strength is intrinsically linked to environmental processes that are highly variable and impact both development and growth. This is reflected in the last thirteen consecutive survey years, where both abundance and biomass have fluctuated considerably over short time scales.



**Figure 1.** Annual peak estimates (June survey) of total abundance and biomass ( $\pm$  SD) of Giant Australian Cuttlefish aggregating around Point Lowly during peak spawning from 1998 to 2022. \*Population was heavily fished. Historic data obtained from Hall and Fowler (2003). The red dashed lines represent the overall average between 1998 and 2022.



**Figure 2.** The population sex ratio presented as the percentage of females (top). The average size of Giant Australian Cuttlefish ( $\pm$  SE) for males (middle) and females (bottom) from 1998 to 2022. The red dashed lines represent the overall average between 1998 and 2022.

**Dr Mike Steer**  
**Research Director, Aquatic and Livestock Sciences**

**Disclaimer**

PIRSA and its employees do not warrant or make any representation regarding the use, or results of the use, of the information contained herein as regards to its correctness, accuracy, reliability and currency or otherwise. PIRSA and its employees expressly disclaim all liability or responsibility to any person using the information or advice. Use of the information and data contained in this Advice Note is at the user's sole risk. If users rely on the information, they are responsible for ensuring by independent verification its accuracy, currency or completeness.

**References**

Steer, M.A., Gaylard, S. and Loo, M. (2013). Monitoring the relative abundance and biomass of South Australia's Giant Cuttlefish breeding population. Final Report for the Fisheries Research and Development Corporation. South Australian Research and Development Institute (Aquatic Sciences), Adelaide. SARDI Publication No. F2013/000074-1. SARDI Research Report Series No. 684. 103pp.