

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

FROM: DR BEN STOBART (SARDI AQUATIC SCIENCES)

SUBJECT: 2021 GIANT AUSTRALIAN CUTTLEFISH POPULATION ESTIMATE

DATE: 7 JULY 2021

KEY ISSUES

- This Advice Note presents the Giant Australian Cuttlefish population estimate for the 2021 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 of Giant Australian Cuttlefish aggregation along the Point Bonython Peninsular during 2021 spawning season.

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 2021. As in previous years, the 2021 survey was done in June to coincide with the peak spawning period. The estimates of cuttlefish abundance 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 remained variable, but relatively high, from 2015-2021, 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. The recent estimates of abundance indicate that the population has increased substantially from historic low observed in 2013. While abundance in 2021 was the lowest value in the last seven years, Giant Australian Cuttlefish abundance remained relatively high and similar to the mean from 1998-2019 of 110,271.

The biomass of the spawning aggregation remained above 70 t from 2015 to 2020, with peaks of 165.2 t in 2016 and 140.5 t in 2020 (Figure 1). In 2021, biomass was relatively low (63.1 t) and the 5th lowest value on record. Similar to 2017-2020, the average size (mantle length) of female (148 mm) and male (177 mm) cuttlefish in 2021 remained below the long-term averages of 172 mm and 196 mm, respectively (Figure 2). The sex ratio in 2021 remained dominated by males, with approximately 7 males for every 1 female (~14% 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.

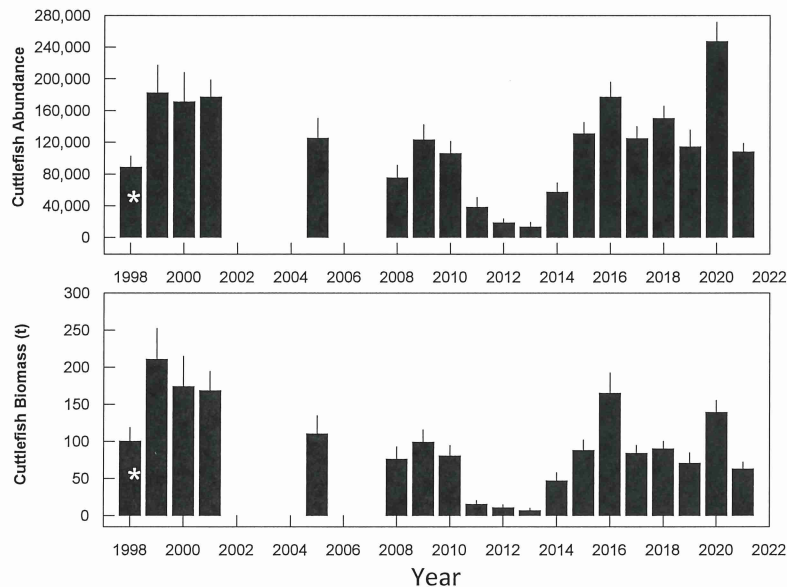


Figure 1. Annual peak estimates (June survey) of total abundance and biomass (\pm SD) of Giant Australian Cuttlefish aggregating around Point Lowly during peak spawning from 1998 to 2021. *Population was heavily fished. Historic data obtained from Hall and Fowler (2003).

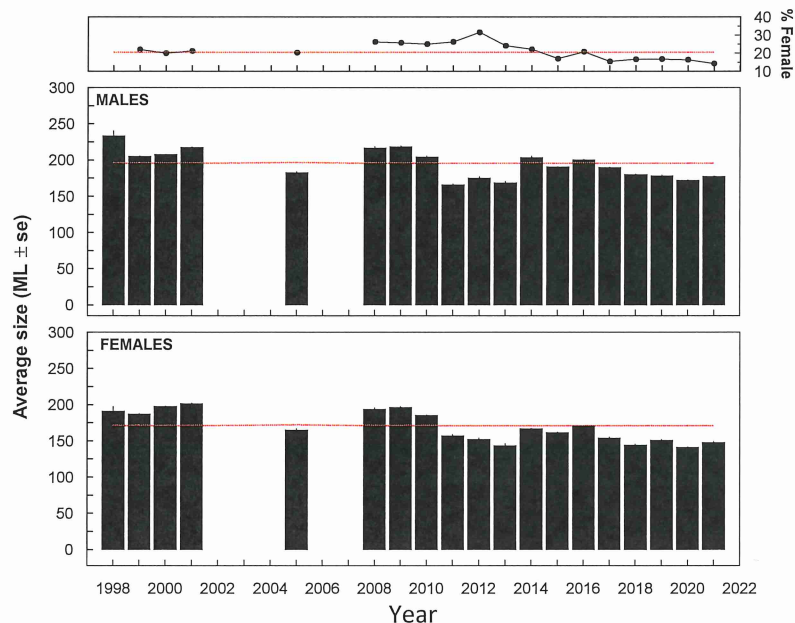


Figure 2. The population sex ratio presented as the percentage of females (top). The average size of Giant Australian Cuttlefish (\pm SE) for males (middle) and females (bottom) from 1998 to 2020. The red lines represent the overall average.

Dr Mike Steer
Research Director, Aquatic 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.