

SHORT COMMUNICATION

# Range extension of the Whitefin Swellshark *Cephaloscyllium albipinum* (Scyliorhinidae) and possible implications for its conservation status

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## INTRODUCTION

Eight species of swellsharks, genus *Cephaloscyllium*, occur in Australian waters, with four occurring in Western Australia. The Reticulate Swellshark *C. hiscosellum* White & Ebert, 2008 and Speckled Swellshark *C. speccum* Last, Séret & White, 2008 are endemic to northern Western Australia. The Whitefin Swellshark *C. albipinum* Last, White & Motomura, 2008 and Draughtboard Shark *C. laticeps* (Duméril, 1853) have southern Australian distributions including south-eastern Western Australia.

*Cephaloscyllium albipinum* is a large swellshark known from southern Australia from Batemans Bay in New South Wales (35°39'S) to off Eucla in the Great Australian Bight, Western Australia, including Tasmania (Figure 1). It is a deeper dwelling species than its sympatric congener *C. laticeps*, occurring at depths of 125–555 m vs. less than 60 m depth in the latter species (Last and Stevens 2009). Off Western Australia, *C. albipinum* is only known from one adult male (CSIRO CA 3325) collected off Eucla (33°17'S, 128°23'E) in 1981 (Last et al. 2008). Based on its current distribution, *C. albipinum* has been assessed as Critically Endangered by the IUCN *Red List of Threatened Species* since its entire depth and geographic range has been subjected to intensive trawling as part of the Southern and Eastern Scalefish and Shark Fishery (SESSF) over several decades, which is still ongoing (Pardo et al. 2019). While species-specific data are not available, a population reduction of more than 80% over the past three generations has been inferred (Pardo et al. 2019).

The presence of a swellshark-like egg case collected from off Albany in the fish collection of the Western Australian Museum prompted the authors to investigate whether any swellsharks are observed in fisheries operating in this region.

## MATERIALS AND METHODS

The primary author contacted staff at the Department of Primary Industries and Regional Development (DPIRD) in Western Australia to request images of any sharks caught in deep water fisheries off the Albany region. Within several weeks, a fisher supplied images of a large swellshark caught in a commercial giant crab trap at a depth of 260 m (Figure 2). The fisher stated that they are 'not that rare' and can get a couple a month in their traps. This fisher is now retired but was previously fishing with an 80-pot license. Following these image records, a request for specimens was made and soon after the authors were notified by DPIRD that they had two frozen swellshark specimens provided by the fisher.

The frozen specimens were taken to the Western Australian Museum and then sent to the Australian National Fish Collection for preservation and subsequent examination. The two specimens were thawed, photographed, tissue (muscle) sample taken, registered, and then fixed in 10% formalin prior to stepping up into 70% ethanol for long-term preservation. The two specimens were compared with the original description of *C. albipinum* (Last et al. 2008). Subsamples of the muscle sample were submitted

for sequencing of commonly used mitochondrial DNA markers, i.e. cytochrome oxidase subunit 1 (*COI*) and NADH dehydrogenase subunit 2 (*ND2*), to assist with verifying species identification.

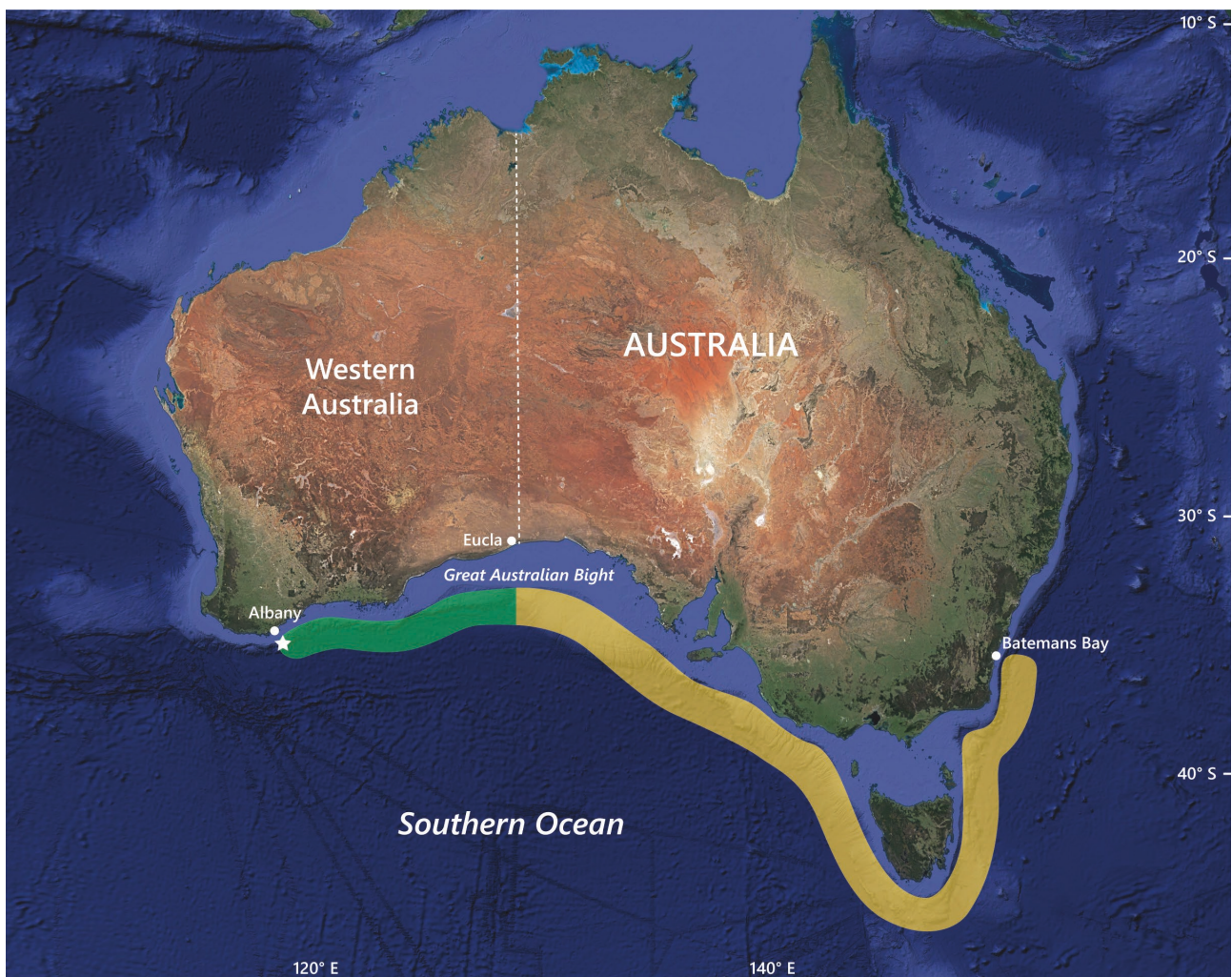
Collection data for the two specimens is as follows: commercial King Crab gear (Southern Rock Lobster pots), south-east of Albany, Western Australia, 35°19.3'S, 118°23.4'E, 260 m depth, collected 6 August 2022 by L. Matthews. One specimen was a 919 mm TL adolescent male, registered as CSIRO H 8957-01; second specimen was a 791 mm TL female, registered as WAM P.35569-001.

## RESULTS AND DISCUSSION

The two swellsharks from off Albany agreed well with the type specimens of *C. albipinnum* from southeastern Australia. The characteristic arrangement of dark blotches and saddles on the upper half of the body was consistent with the known colour pattern of *C. albipinnum*. The large size of the adolescent male specimen, i.e. 919 mm TL,

is much larger than the size at maturity for males provided for *C. albipinnum* in Last and Stevens (2009), i.e. by 700 mm TL. However, males examined by Last et al. (2008) were still immature at 762 mm TL and the smallest adult male was 895 mm TL. Thus, a size at maturity of between 895 and at least 920 mm TL is likely for this species and the size at maturity of 700 mm TL proposed by Last and Stevens (2009) appears to be an underestimate. The *ND2* and *COI* sequences also confirmed these specimens as being *C. albipinnum* (G. Naylor, Florida Museum of Natural History; and S. Appleyard, CSIRO, pers. comm.).

The collection of these two *C. albipinnum* from southeast of Albany represents a ~950 km westward range extension for this species into southern Western Australian waters (Figure 1). Anecdotal information from the crab fisher suggests they were caught regularly, i.e. a couple per month using 50–80 pots, thus there are likely reasonable numbers in this region and not just extraneous records. Swellsharks caught were released alive during normal fishing operations. This substantial



**FIGURE 1** Geographic range of *Cephaloscyllium albipinnum* in southern Australia. Yellow highlighted range is the previous known range; green highlighted range is the extended distribution based on the new records (white star) (Image © Google 2023, SIO, NOAA, U.S. Navy, NGA, GEBCO).



FIGURE 2 *Cephaloscyllium albipinnum* adolescent male 919 mm TL (CSIRO H 8957-01) caught south-east of Albany in 260 m depth. A) lateral view; B) dorsal view.

range extension needs to be factored into future national and international conservation assessments for this species. It is possible that this range extension expands the distribution of this species out of the more heavily exploited regions and may therefore result in downgrading of the current IUCN Red List assessment of Critically Endangered.

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