AGEING *CENTROSCYMNUS CREPIDATER* FROM TASMANIAN WATERS USING THE SECOND DORSAL SPINE

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EXTENDED ABSTRACT ONLY- DO NOT CITE

The golden dogfish, *Centroscymnus crepidater* (Family Squalidae) is a common bycatch species of the south-east trawl fishery of southern Australia. It inhabits depths greater than 250 meters and is most common between 650-1000 metres. Pups are born at approximately 30 cm total length, TL. Maximum length attained is 101cm and 88cm TL for females and males respectively. One hundred per cent of males are mature at 75 cm TL compared to 89cm TL for females.

Elasmobranch ageing is primarily conducted by examination of the vertebral centra although most squalid species possess spines immediately anterior to each dorsal fin that may be used to estimate age. The white-spotted dogfish, Squalus acanthias spines possess a very distinct banding pattern formed by pigment on the outer enamel surface used for ageing. Deepwater dogfish do not possess this pigment pattern as the enamel layer is greatly reduced and only covers the posterior tip of the spine. All ageing studies on deepwater dogfish to date have been based on the banding pattern found in transverse sections of the spine. *Centroscymnus crepidater* also possess these bands within the inner dentine.

A new technique to enhance a banding pattern on the external surface has been developed. The banding pattern is formed by a lack of synchrony between upward growth of the spine and the formation of the mantle (outer spine). During periods of slower growth the mantle material is thick and a

build up of material can be easily seen. To enhance those areas of fast growth the internal cartilage rod is removed and the spine is stained with a derivative of alizarin red. The spine is then lightly sanded with fine abrasive paper. A banding pattern can then be easily seen under a low magnification.

Spine morphometrics of total spine length (TSL), external spine length (ESL) and external spine width (ESW) were collected from each spine prior to cleaning with hot water and a clean scalpel. Majority (>75%) of the spine is embedded within the body. Pups are born with fully formed spines and are generally 19mm TSL. Soft spines have been found in pups of 9cm TL.

At least 500 C. crepidater specimens will have been collected over an 18 month period. To date 370 animals have been dissected and over 150 have been aged, the conference presentation will hopefully include over 200 age estimates.

The external band numbers increase with total animal length (figure 1) and vary between sex suggesting they are associated with growth. The greatest number of bands found to date is 54 from the spine (figure 2) of a 99cm TL female.

Figure 1. The relationship between external band number and total length, between sexes of *Centroscymnus crepidater* specimens, n = 102.

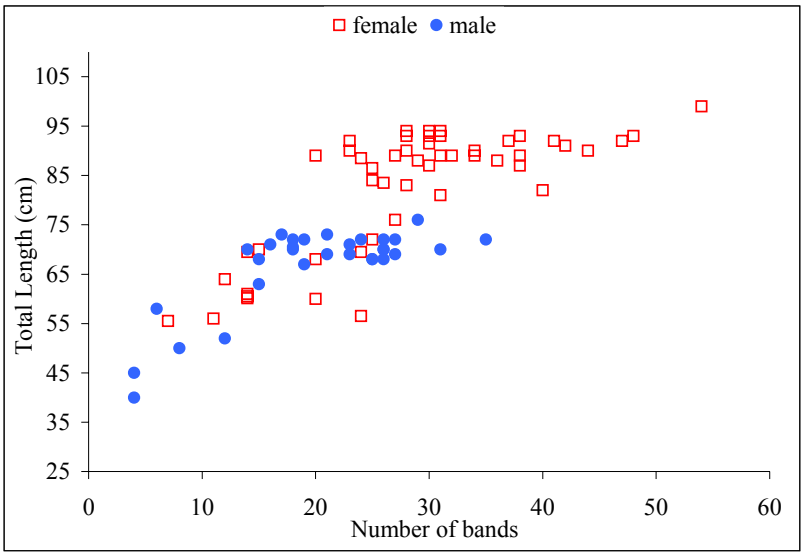

Figure 2. The second dorsal spine of a 99cm TL female *Centroscymnus crepidater* showing the external banding formation observed once stained and sanded.

External surface band numbers will be compared with those found in the inner dentine through sectioning. Each spine will be 'plugged' with plasticine and embedded in fibreglass resin. Transverse sections 500-600µm wide will be mounted on microscope slides and examined using emersion oil under 40-400 x magnification.