

## STABLE ISOTOPE ANALYSIS TO DETERMINE TROPHIC RELATIONSHIPS IN THE SPENCER GULF, SOUTH AUSTRALIA

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### ABSTRACT

A study of the food web in the Spencer Gulf, South Australia has been undertaken with the primary aim of determining the effect of discarding 1000 tons per year of by-catch from a prawn fishery. Previously, food web studies involved extensive analysis of gut contents **but** recently the use of stable isotope ratios has shown to be effective in helping to characterise food web structure and assign species groups to trophic levels. By using the stable isotopes  $^{13}\text{C}$  and  $^{15}\text{N}$  we determined the trophic position of the dominant filter feeding bivalves *Trichomya hirsuta* and *Equichlamys bifrons*, the blue crab *Portunus pelagicus* and the prawn *Penaeus latisulcatus*. In addition, gut samples from a deposit feeding holothurian and gut samples from the two bivalves are compared. The paper describes the preliminary results of this work and discusses some problems associated with using stable isotope ratios in food web analysis.