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The deep-sea strawberry squids (family Histioteuthidae) are a globally distributed and ecologically important family that makes up the majority of the diet of important large predators, including the Pygmy Sperm Whale (*Kogia breviceps*) - although little else is known about their overall ecology (Beatson, 2007b). Braid and Bolstad (2019) have identified that three species in Aotearoa New Zealand waters represent species complexes, revealing three species that are potentially new to science (*Histioteuthis aff. bonnellii*, *H. aff. eltaninae*, and *H. aff. atlantica*). Understanding the ecological role and diversity of all marine species in Aotearoa New Zealand is vital in a shift away from the Quota Management System and towards ecosystem-based fisheries management.

The overall aim of this project is to increase understanding of the systematics and ecology of the family Histioteuthidae. This will be accomplished through three aims. First, three species from Aotearoa will be described using integrative taxonomic methods (analysis of both genetic and morphological traits), in order to fully understand the biodiversity of this family in Aotearoa New Zealand. Second, a stable isotope analysis (SIA) of the beaks, combined with descriptions and regression equations, will be undertaken for species that have a sufficient sample size. SIA will enable understanding of the trophic level and habitats of species, while beak equations will help to identify the size of the eaten squid obtained from the stomachs of predators. Third, stomach contents will be analysed using DNA barcoding to allow for a detailed understanding of the diet of these squids. Being able to identify species and their distribution patterns is required for understanding their role in the marine trophic web as both predator and prey. This understanding is essential for monitoring ecosystem health as the ocean is impacted by anthropogenic pressures.

#### **Keywords**

Cephalopod Systematics; Oegopsida; genetics; taxonomy; stable isotope analysis

#### **References**

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