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Specialization Area: Ocean Observation
Research Area: 1.4 Biological Oceanography



PhD project: The ecological role and trophic relations of seasonal cohorts of the Patagonian Squid (*Doryteuthis gahi*) in the marine ecosystem of the Falkland Islands

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Summary: *Doryteuthis gahi*, also known as the Patagonian squid, is a commercially important species in the waters of the Patagonian shelf ecosystem and the Falkland Islands, located in the southwestern Atlantic Ocean. The species has two seasonal spawning cohorts: one in the austral summer (ASC) and the other in the austral winter (SSC). This thesis used stomach content analysis to investigate the ecology of *D. gahi's* seasonal cohorts, which involved examining the contents of the squid's stomach to identify the types of prey consumed. This method has revealed that *D. gahi* feeds on a wide range of prey items, including fish, crustaceans, and cephalopods, ontogenetic diet change and differences between cohorts. Another method was stable isotope analysis, which involved analysing the isotopic composition of the squid's muscle and gladius tissue to determine its trophic niche and position, and to detect differences between the cohorts. It was found that different cohorts and size groups have different isotopic niches.

An ecopath model quantifying energy flows between different species in the ecosystem will reveal the important role of *D. gahi* as a predator and prey in the ecosystem. Overall, research on *D. gahi* has provided valuable insights into the ecology and trophic relationships of this species within the Patagonian shelf ecosystem. Such information can be used to inform management and conservation efforts aimed at maintaining the health and sustainability of this important ecosystem.

