

Biological sampling program for Argentine shortfin squid in 2024

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To understand the basic biological information and population structure of Argentine shortfin squid in the Southwest Atlantic, a sampling program was designed in 2023 and conducted in 2024 fishing season for Taiwanese squid-jigging fishery. Two sampling vessels were arranged to assist with sampling the squid during fishing season.

The squid was classified into commercial category based on body weight on board. Thus, the sampling was designed to collect the highest numbers of the category of the squid which may represent the dominant composition of the squid in the sampling day. The squid was frozen at about -20°C after classification. The fishing vessels are scheduled to arrive the Cienjhen fishing port in Kaohsiung in June or July (One vessel has arrived on 3rd June 2024). The squid samples will be transported to the laboratory at the National Taiwan Ocean University in Keelung City for examination.

The following measurements will be taken during process of the samples, mantle length, body weight, sexual maturity stage and weight of reproductive organs. The statoliths of each squid will be removed and preserved in micro-tubes. In addition, a piece of muscle (~5 g) will be preserved for further analysis. The size composition and maturation of the squid during the fishing season will be analyzed. The spawning seasons and areas will be inferred by occurrence of the mature individuals. The lifespan and hatching dates will be estimated after age determination using statolith microstructure.

A total of 596 squid were measured in 2024. The squid were collected from the FICZ waters, except January. The sex ratio was dominant by females for every month. The average ML and BW of the squid were increasing during January–May. The ML-BW relationship was significantly different between sexes. The females reached mature stage in May, while the males reached in April. The ML at maturity was 310 mm and 252 mm for females and males, respectively. The age determination by statolith microstructure are examined and will be analyzed in 2025.

These results may support essential information to the population structure of the Argentine shortfin squid in the Southwest Atlantic, particularly within the Falkland Islands Interim Conservation Zone (FICZ). In addition, life history traits (e.g. growth rate, size at maturity) and population structure of the squid are substantial information for stock assessment models and management measures of the fisheries.