

Genetics for conservation and fisheries: Population structure and connectivity of *Octopus mimus* along the Peruvian coast

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The Peruvian marine ecosystem is considered as one of the most productive in the world. Therefore, it is important for fisheries locally and globally. *Octopus mimus* is one of the main benthic resources in artisanal fisheries along the Peruvian coast, being important for local and international markets. The species *O. mimus* is distributed along the Southeast Pacific Ocean from northern Peru to central Chile. However, regarding recent studies, the distribution of this species is not yet fully known. *Octopus mimus* has been related to *O. hubbsorum* from Mexico, probably being the same species, and some individuals in Ecuador were genetically identified as *O. mimus*. Therefore, there could be only one population along the east Pacific coast or different metapopulations.

The biological traits of *O. mimus*, such as pelagic and benthic life stage, makes it a good model for connectivity research. One of the aims of a Marine Protected Area (MPA) is to preserve the demographic connectivity and *O. mimus* is considered for conservation in three MPAs in Peru. The connectivity processes influence the genetic structure, persistence and maintenance of genetic diversity. Due to this, it is important to ensure the connectivity of *O. mimus* populations. To achieve this aim, we will analysis the population structure using the mitochondrial cytochrome C oxidase subunit 1 (COI) gene and microsatellites as markers.

Arm tips of 168 Individuals of *O. mimus* were collected from fishermen at seven sites along the Peruvian coast. DNA was extracted using the salting-out method and PCR was done using universal COI primers (HCO2198 and LCO1490). The DNA sequences will be analysed in order to determinate whether there is gene flow among *O. mimus* populations and to provide basic information to assess octopus fishery and improve the management of MPAs in Peru.

Keywords: COI; Marine Protected Areas; Gene flow; Genetic structure