

Biological and molecular analysis of bullet tuna, *Auxis rochei* from Southern, Western and North-western coasts of Sri Lanka

D.R. Herath^{1,2*}, A.A.D.G.U. Amarakoon¹, J.A.C. Prasad¹, H.A.C.C. Perera¹ and G.H.C.M. Hettiarachchi²

¹National Aquatic Resources Research and Development Agency (NARA), Crow Island, Colombo 15, Sri Lanka

²Department of Chemistry, Faculty of Science, University of Colombo, Colombo 3

Neritic tuna and tuna-like species are economically very important as food fish in Sri Lanka. Bullet tuna, *Auxis rochei*, is one of the 5 species of neritic tuna caught in Sri Lankan waters. The bullet tuna catch contributes about 40% to the total neritic tuna catch of Sri Lanka. This study was undertaken as little information is available on the biological and molecular aspects of bullet tuna of Sri Lanka. Eighty-two (82) bullet tuna fish (62 females and 20 males) samples were collected from Chilaw, Negombo, Beruwela, Dodanduwa, Galle and Weligama during the period of May 2016 to April 2017. The length weight (L-W) relationship was $W=0.004 L^{3.4}$ for the samples collected. This suggests a healthy growth in their natural environment. The stomach content analysis revealed that *A. rochei* are non-selective feeders, feeding on any prey item available in the surrounding waters. The major prey item was seen to be fish (44.8%), followed by the combination of fish and shrimp (27.6%), shrimp (24.1%) and the combination of shrimp and cephalopod (3.5%). The most common prey fish was found to be anchovies. The fecundity for the analyzed samples ranged from 22,333 to 79,703 eggs. As there is confusion in the identity of the bullet tuna species found in Indian Ocean, DNA barcoding was carried out for 9 randomly selected samples. The mitochondrial cytochrome oxidase I (COI) region sequences confirmed that the species found in Sri Lanka is *Auxis rochei* with 99.6% similarity. Other *A. rochei* sequences from India, Indonesia and Taiwan downloaded from the NCBI database were compared with the 9 sequences used in the study. The neighbour joining tree created for all these sequences showed that the Sri Lankan *A. rochei* shows a very close relationship to *A. rochei* found in the other Indian Ocean countries.

Keywords: *Auxis rochei*, bar coding, bullet tuna, feeding

*Corresponding author - email: deishini.herath@yahoo.com