Philippine Journal of Science
139 (1): 43-50, June 2010
ISSN 0031 - 7683

A Pilot Study on the Genetic Variation of Eastern Little Tuna (*Euthynnus affinis*) in Southeast Asia

Mudjekeewis D. Santos[1,2,*], Grace V. Lopez[1], and Noel C. Barut[1]

[1] Marine Fisheries Research and Development Division, National Fisheries Research and Development Institute, 940 Quezon Ave., Quezon City 1103 Philippines
[2] Department of Biology, School of Science and Engineering, Ateneo de Manila University, Katipunan Ave., Quezon City 1108 Philippines

Eastern little tuna or kawakawa (*Euthynnus affinis*) is one of the commercially important tunas in the Philippines and in the Southeast Asian region. Therefore, its sustainability needs to be ensured by effective management. Unfortunately, knowledge on the stock structure of this migratory species in the region, needed for management, is unclear. Here, we studied its genetic population structure using a 300 bp mitochondrial DNA control region (D-loop) marker. Thirty-five samples collected in five areas around the Philippines (Aparri, Palawan, Cagayan de Oro, Tawi-Tawi, and Davao) and thirteen from Peninsular Malaysia (Pangkor Island, Penang) were sequenced and analyzed. Forty five haplotype sequences were homologous (99%) to each other while three (all from Malaysia) were divergent (80%) sequences indicating misidentification. Haplotype distribution, low overall F_{ST} value and non-concordant phylogeographic grouping of the haplotypes indicated that eastern little tuna is panmixing in Southeast Asia.

Key Words: control region, Philippines, population genetics, stock identification

INTRODUCTION

Eastern little tuna or kawakawa, *Euthynnus affinis* (Cantor 1849), a small epipelagic, migratory, neritic tuna is one of the major commercial tuna species being caught worldwide. Its production has steadily increased from 20,000 tons in 1950 to about 280,000 tons in 2006 (FAO 2009). In the Philippines, eastern little tuna remains an important commercial fish species being landed in the country in terms of volume (BAS 2006). Majority of eastern little tuna caught by the commercial fisheries of the country is exported in processed/ canned form because there is no existing fresh or dried export market. On the other hand, catches from municipal fisheries goes directly to the domestic market for local consumption. The eastern little tuna population is relatively healthy in spite of the fact that many of the country's fishery resources have already shown signs of overexploitaton and decline (Barut et al. 2003; Barut et al. 1997).

Because of its commercial importance and migratory nature, eastern little tuna should be properly studied and managed to ensure its sustainability. To do this, the structure of its stock in the Philippines and in Southeast Asia needs to be elucidated. It is extremely important to know whether 2 or more local communities or, on a regional scale, countries, share one stock of eastern little tuna do that collaborative type of management strategy has to be initiated. A stock consists of randomly interbreeding members whose genetic integrity persists whether they remain spatially and temporally isolated as a group or whether they alternately segregate breeding and otherwise mix freely with members of other unit stocks of the same species. Population or stock structuring could therefore refer to whether or not the total stock or population exhibit subpopulations or sub-set breeding

*Corresponding author: mudjiesantos@gmail.com