



Annotated checklist of eels (orders Anguilliformes and Saccopharyngiformes) from Taiwan

HSUAN-CHING HO^{1,2}, DAVID G. SMITH³, JOHN E. MCCOSKER⁴, YUSUKE HIBINO⁵, KAR-HOE LOH⁶, KENNETH A. TIGHE³ & KWANG-TSAO SHAO^{7,*}

¹National Museum of Marine Biology & Aquarium, Pingtung, Taiwan

²Institute of Marine Biology, National Dong Hwa University, Pingtung, Taiwan

³Smithsonian Institution, Museum Support Center, Suitland, MD, U.S.A.

⁴California Academy of Sciences, San Francisco, U.S.A.

⁵Fisheries Research Laboratory, Mie University, Mie, Japan

⁶Institute of Ocean and Earth Sciences, University of Malaya, Malaysia

⁷Biodiversity Research Center, Academia Sinica, Taipei, Taiwan

*Corresponding author. E-mail: zoskt@gate.sinica.edu.tw

Abstract

An annotated checklist of eels, orders Anguilliformes and Saccopharyngiformes, occurring in Taiwanese waters is presented. The checklist is the result of a series of systematic studies conducted by the authors in the past few years. The eel fauna of Taiwan is one of the richest in the world with a total of 206 species in 74 genera and 13 families in Anguilliformes and a single species in Saccopharyngiformes. The most species-rich families are the Muraenidae with 71 species, followed by the Ophichthidae with 60 species, the Congridae with 29 species, and the Synphobranchidae with 17 species. Moreover, three genera and 42 species have been described based on at least one type specimen collected from Taiwan. Of these, 36 species are recognized as valid and 23 species are known only from Taiwanese waters at present. Historical records of all Taiwanese eel species are reviewed by examining the original descriptions and figures, vouchers, as well as the recently collected specimens, where available. This represents the first detailed checklist of eels from Taiwanese waters.

Key words: Taxonomy, elopomorpha, Anguilliformes, Saccopharyngiformes, Taiwan

Introduction

Taiwan has a rich and diverse fish fauna. The island is located on the Tropic of Cancer, resulting in a unique mixture of tropical and temperate species. The fishes of Taiwan have been studied over the years by many ichthyologists, both foreign and domestic. The history of ichthyology in Taiwan was summarized by Ho & Shao (2011), and that of taxonomy of anguilliform eels is summarized in the present special issue (Ho *et al.*, 2015a).

The first assessment of the eel fauna of Taiwan was compiled by Chen & Weng (1967), who recognized 10 families with 65 species, and included four newly described species. Chen & Yu (1986) increased the number to 87 species and in a comprehensive book "*Fishes of Taiwan*", Shen *et al.* (1993) recognized 9 families and 108 species. In the past two decades, 17 eel species were described from Taiwan (Ho & Shao, 2011; Ho *et al.*, 2015a). The Taiwan Fish Database (Shao, 2015) currently lists 13 families with 168 species of eels. However, many taxonomic problems remain and many groups need further study. Among these groups are the eels of the order Anguilliformes.

During the course of their systematic studies on the eels of Taiwan, the contributors to this volume examined many specimens previously collected and deposited in fish collections in Taiwan and elsewhere. They also made new collections from around the island and exchanged information on the taxonomic results. As a result, many new species were discovered and many previously described species were recorded from Taiwan for the first time (McCosker *et al.*, 2009, 2012; Hibino *et al.*, 2012; Ho *et al.*, 2013); more are waiting to be described.