

# Mesozoic fish faunas of China

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## Abstract

The information on the geographical and geological occurrences and composition of Mesozoic fish faunas of China summarized in this paper shows successive changes of major groups of actinopterygians through Mesozoic from faunas dominated by comparatively primitive actinopterygians in Triassic and Jurassic to faunas dominated by primitive teleosts in Late Jurassic to Early Cretaceous, then to those dominated by “euteleosts” in the “Middle Cretaceous”. The Triassic and Jurassic fish faunas have certain cosmopolitan character. The Late Jurassic to Early Cretaceous fish faunas from different areas of China are of a complex nature. The northern *Lycoptera* fauna exhibits striking endemism; the southeastern *Mesoclupea* fauna is similar to those of Brazil and West Africa; and the northwestern pholidophoriform *Siyuichthys* fauna has a not quite certain relationship with the contemporaneous one from Victoria, Australia. The “Middle Cretaceous” fish fauna from northeastern China shows again more or less cosmopolitan feature.

## Introduction

The first scientifically studied fossil fish from China, *Lycoptera davidi* (SAUVAGE 1880), is among the Mesozoic ones though the fish was then referred to the genus *Prolebias* and the age was designated as Tertiary (TUNG 1923, CHANG & SHEN 1992). From then on 106 species belonging to 73 genera from more than 100 localities have been reported. Among them those from the Upper Jurassic to/Lower Cretaceous have been most extensively excavated and intensively studied, whereas those from the Lower Triassic to Middle Jurassic are sporadic finds and the Upper Cretaceous ones are mainly known from the northeastern part of China.

The geographical distribution of Mesozoic fishes of China is, conceivably, related to the paleogeographical background of the area. As suggested by WANG et al. (1985), at the beginning of the Triassic period the paleogeographic outline of China was “sea in the south and land in the north”, retaining the main features of Late Permian; and the structural trend was, on the whole, east-west oriented (Fig. 1). The tectonic and paleogeographic pattern underwent considerable changes during the Mesozoic Era, as the result of the Indosinian movement. Starting from Late Triassic, the Early Triassic configuration was gradually replaced by the formation of an overall landmass by withdrawal of sea from the southern part to the southwest (Fig. 2). Differences between north and south switched to differences between east and west. While the western part continued to show an east-west oriented structural trend the tectonic pattern of the eastern region shifted to an obvious NE-SW one. The Paleo-Qinling and Dabie Mountains played a substantial role as a barrier, or at least as a partial barrier, between the north and south in the eastern region of China during Late Triassic and later (Figs. 3, 4). Within this framework the following brief survey of Chinese Mesozoic fishes is presented.

Though a résumé of Jurassic fish distribution, including that of China, was already given in SCHAEFFER & PATTERSON (1984), the detailed information of all Mesozoic fishes from China, i.e. the occurrences, taxa, horizons, main associated fossils where available, and location of specimens, is summarized in the following section of this paper. The data are presented in chronological sequence starting from the Early Triassic, following localities numbered succeedingly through the text and in the figures. The spelling of names of authors, localities, and stratigraphic units appears differently in the earlier and later papers due to the change of the way of romanization of the Chinese language in the mainland of China in 1979 from the Wade-Giles system to Pinyin (Chinese phonetic alphabet) system. To avoid confusion, the names of

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