

Mesozoic fishes from Chile

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Abstract

Fossil fishes are known from few Chilean localities ranging from the Paleozoic to the Quaternary. Among these, the Jurassic localities of the Cordillera de Domeyko in northern Chile are outstanding because of the presence of basal teleosts among a diversified fish fauna. In addition, preservation is of special quality including soft tissue structures.

Perleidiforms are reported for the first time from the Triassic of Chile (Quebrada San Pedrito). Recently, numerous small proleptolepid teleosts, belonging to a new genus, were recovered from Sinemurian localities of Quebrada La Carreta, as well as a new coelacanth from a Sinemurian locality at Vaquillas Altas (the first record from Chile). The proleptolepids represent at least two forms. They differ from the European proleptolepids in size of the maxilla and jaw dentition. They add important new information on the neurocranium, hyoid arch, and pectoral girdle. Several teleostean species and a few halecostomes are known from the Oxfordian of Cerritos Bayos, Quebrada del Profeta, and Sandón. Most teleosts represent endemic groups. The pachycormiforms, pycnodontiforms, and semionotiforms have not been studied in detail but apparently correspond to taxa that have a cosmopolitan distribution. The earliest record of a pachyrhizodontoid fish is reported from the Upper Jurassic locality Termas del Flaco in central Chile. The first record of aspidorhynchiforms in Chile is reported from the Lower Cretaceous of Lomas Negras near Calama in northern Chile; differences in the predeontary and opercular bones do not permit us to assign this material to any known genus.

Introduction

The greatest quantity and diversity of fossil vertebrates collected in Chile are from Mesozoic sediments (GASPARINI 1979). This statement also is true for fishes. Outside the Mesozoic Chilean fishes are known only from one Paleozoic fish from Quebrada Sipico, close to the Salar de Atacama, northern Chile (RICHTER & BREITKREUZ 1997) and isolated fish scales and teeth of undetermined palaeoniscoids from the Carboniferous of Quebrada Chinchas (BELL 1985), and from several Miocene ostariophysan and percormorph teleosts from the Lonquimay and río Queuco areas, south-central Chile (CHANG et al. 1978, ARRATIA 1982a, RUBILAR & ABAD 1990, RUBILAR 1994, ARRATIA & CIONE 1996, AZPELICUETA & RUBILAR 1997, 1998).

The initial research on fossils of Chile was conducted by non-paleontologists, by zoologists and geologists. The first publication in which Chilean fossil fishes are mentioned is by the naturalist PHILIPPI (1887). The remains are from Tertiary and Quaternary deposits mainly containing shark teeth. The next publication on fossil fishes is by OLIVER SCHNEIDER (1936). He described material from the Upper Cretaceous of Quiriquina Island and from the shore near Concepción, south-central Chile. He mentioned shark teeth and teleostean fragments together with plesiosaurs. Most early finds were made by geologists during geological surveys. The geologist BIESE (1957, 1958, 1961) reported Late Jurassic and Cretaceous fishes (also crocodiles, ichthyosaurs, and plesiosaurs) from northern Chile. More recently, several well-preserved fossil fishes, mainly teleosts, were described by the authors from the Upper Jurassic of Cordillera de Domeyko (see Appendix). Numerous specimens from that region remain undescribed.

The best preserved and best known fossil fishes from Chile are those from the Oxfordian localities of Cordillera de Domeyko. However, there are other Mesozoic localities bearing fossil fishes that will be presented here. All these localities, with but two exceptions, are marine.

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