

Topic 1

Ancient Lakes

Keywords: Ancient lake, Endemic species, Lake Baikal, Lake Tanganyika, Paleolakes Biwa

1. What are Ancient Lakes?

In 1950 the term “ancient lake” was first used to specify certain lakes with a variety of species specific to them. These unique lakes are very rare but share a common property – having exceptionally long age (more than 100,000 years) - suggesting the possibility of speciation and the development of endemic species within each lake.

2. Lakes Baikal and Tanganyika

Lake Baikal in Siberia and Lake Tanganyika in Africa are the best known examples of ancient lakes. Lake Baikal is the deepest and sixth largest, and oldest freshwater lake in the world, while Lake Tanganyika is the second deepest, fifth largest and second oldest. Both lakes harbor more than 2,000 species of animals and the proportion of endemics is very high.

The Lake Baikal fauna is characterized by the Baikal Seal, amphipod crustaceans, sculpins and many others. The whitefish Omul is the most important fishery resource in the lake. Well-known examples of the Lake Tanganyika fauna include ostracod crustaceans, thiarid snails, and cichlid fishes among others. Dried Tanganyika Sardine or Dagaa is



Fig. T1-1 The underwater “forest” of the endemic sponge is unique to Lake Baikal.



Fig. T1-2 Located in the rift valley, Lake Tanganyika is dominated by the rocky shore.

widely distributed as an important protein resource.

3. Lake Biwa, a Unique Ancient Lake

Before the formation of Lake Biwa, there had been several fossil lakes sequentially formed around the present Lake Biwa, the first of which was formed about 4 million years ago. This history of lakes is a unique feature of the Lake Biwa region in contrast to many of the ancient lakes situated within rift valleys.

Lake Biwa is much smaller in size, has a shorter history, and is inhabited by a smaller number of species both for native animals (more than 1,000) and endemics (ca. 60) in comparison with other, “giant” ancient lakes such as Lakes Baikal and Tanganyika. It is fortunate that a lake with such a long history should exist in a small island country. In addition, Lake Biwa has an ancient human history of cultural association with the lake environment. Lake Biwa can be regarded as an “ancient” lake not only biologically but also culturally.

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