1. River Systems

As rivers in Japan are classified by the long, narrow land area and steep landform, the parts of rivers are short and changes of river beds are steep in general. Rivers depend upon transpiration where they pass through forests, from mountains, and flow into the sea. The river system is well-developed throughout the country, and the regional differences in river system density are large. The area of drainage basin of a river is generally small.

River discharge is greatly influenced by climate and shows great annual variations. By district, the discharge is largest in the Pacific Coastal districts, where the rainy season is prolonged. It is largest in or near the Japanese Sea. In general, it is large in the delta areas of rivers during the rainy season, and small in the hilly regions during the winter. The discharge of rivers in Hokkaido becomes temporarily small from June to July.

Many artificial changes are carried out on the Japanese rivers for the purpose of water supply, irrigation, and flood control, such as the construction of dams in the mountains, reservoirs of rivers courses on the plains, construction of locks, and so on.

[Harvest Points of the Legend and Map Compilation]

3. Main Lakes

There are more than 660 lakes in Japan, a country of violent volcanic activity and tectonics. The number of lakes formed as a result of volcanic activity is large, and accounts for many of the mountain lakes. Among these volcanic lakes are Okama on Mt. Daisen and Benten-ike on Mt. Kirishima, which are crater lakes, Toothama-ike and Makino-ike, which are other lakes in the Kirishima area, and Taisetsu-ike and Makino-ike, which are former lakes formed by lava flows. These lakes are generally deep and highly oligotrophic with high transparency. There are also many shallow lakes on the coast.

Most lakes on the plains were formed by erosion and sedimentation of rivers. Lake Toya in Hokkaido Prefecture is a large lake formed by flood flow which overran the lake bed of a volcano and is called "Ogata". Many present lakes formed in minor valleys of rivers exist on the lower reaches of major rivers. Lake Inawashiro, Lake Toya and Toho Numa are lakes formed when and after the flood caused by a major stream closed the valley exit of a tributary. Lakes on plains are generally shallow and eutrophic with low transparency.

Shallow lakes which were formed by the development of lakes and rivers and have been isolated from the sea are called "Lagoons", most of which are brackish.

Apart from the above there are many others such as those formed by depression formation by tectonics, for example, Biko-ike and Homma-ike, and these formed at the bottom of calderas damming valleys. Few lakes formed by glacial erosion can be found in Japan, these existing are very small.

Lakes lying north of the fine line formed by Ashi-ike and Biko-ike generally freeze during winter, whereas large, deep lakes such as Taisetsu-ike, Tanayama-ike, Taisetsu-ike, Toya-ike and Inawashiro-ike do not freeze.

2. Major Rivers

[MAJOR RIVERS (1989)]

[Graph showing the names and lengths of major rivers in Japan]

[Diagram showing the discharge of major rivers (Average for 1977-1985)]

[Map showing the drainage basin of major rivers (Compiled from Geographical Survey Institute data)]

2. Lake Types

[Harvest lake types lakes whose amount of organic nutrients is in harmony, and show no great variation in production content. They are divided into mesotrophic, eutrophic, and oligotrophic lakes according to the quantity of nutrients and production. A eutrophic lake is commonly found among shallow lakes on plains. The water color is green yellow and the transparency is generally lower than five meters. An oligotrophic lake is commonly found in deep lakes. A eutrophic lake has features that are more like rivers. A fisherman lake type lake whose nutrient components are not harmonized and which show a large variation in production content, containing only limited species. This type can be divided into various types according to the components which disperse nutrients. From lakes, oligotrophic lakes are still, and are common in active volcanic regions. Hydrogenic lakes are rich in hydrogen, poor in nutrients and are found in alpine regions or upland regions on plains north of Aomori Prefecture. They have lower water color and soil moisture. Shallow lake types lakes on which fish live and whose water temperature generally exceeds 28°C are also found. This map shows lakes whose average depth exceeds 28°C are also found.]

[Source: Geographical Survey Institute: 1/250,000 scale Topographic Map
Geographical Survey Institute: 1/250,000 scale Regional Map
Japan River Association: Handbook of Rivers, 1986
Geographical Survey Institute: 1/50,000 scale Lakes Chart
Geographical Survey Institute data]