The Nangal Reservoir is one of the important reservoirs of the Punjab state, and the Gobindsagar that of the Himachal Pradesh. These reservoirs (Figs. 1 and 2) at the foot of the Shivalik hills were formed due to the construction of dams across the river Sutlej for the purpose of irrigation, power generation and flood control.

The river Sutlej, with a catchment area of 47,900 square kms, rises in south-western Tibet in Rakas Tal Lake (which receives water from Manasarowar Lake lying just to the east) at an elevation of more than 4,600 metres. The river passes through Himachal Pradesh. The Gobindsagar dam has been constructed near the Bhakra village. The river then enters Punjab. The Nangal barrage has been formed near the Nangal village. This dam is about 13 kms downstream of the Gobindsagar dam. The river travels further and receives the Beas river on its north bank. At Hussainewala it enters Pakistan and joins the Chenab river west of Bahawalpur.

The Nangal town has a longitude of 76° 30' east and latitude of 31° 20' north. The Nangal barrage with a length of 305 metres was completed in July 1954. The water stored
in the reservoir is used to feed the Nangal hydel channel irrigation network. The hydel channel is 238 kms long and the irrigational benefit is being shared by the states of Punjab, Haryana and Rajasthan. The length, maximum breadth, and maximum depth of the reservoir are about 3 kms, 500 metres, and 40 metres respectively. Its average depth is 7 metres, although at some places it is not more than 3 metres deep. The water level fluctuates from 1/2 metre to about 3 metres every day and depends upon three factors: (a) discharge of water from the Gobindsagar Reservoir, (b) discharge from the reservoir to the hydel channel and (c) discharge to the river down-stream beyond the Nangal dam. There is a heavy growth of weeds in the reservoir especially that of *Charya* sp. and *Hydrilla* sp. The temperature of water ranges between 17° to 22°C and generally the water is quite clear. Maximum transparency was 150 cms by Secchi disk in the month of April. In July, the water was quite turbid due to rains and maximum transparency was 20 cms only. The current is moderate and the bottom is either sandy or clayish with detritus.

The Gobindsagar Reservoir is the deepest reservoir in India. A number of seasonal streams join the reservoir forming its different arms; of these, the Lunkhar, Sir, Gambhar, Gamroala and Ali are the main ones. The dam has a length of 518 metres, is 225.5 metres high and its construction was completed in June 1958. The Bhakra village, where the dam has been constructed has a longitude of 70° 20' east and
latitude of 31° 10' north. The maximum level to which water can be stored is 515.11 metres above mean sea level and at that level the reservoir occupies an area of 16838.7 ha.

The maximum depth of the reservoir is about 165 metres, minimum is 2 to 3 metres and the average depth varies from 40 to 70 metres. In this reservoir, 366 towns and villages have been submerged in addition to large forest tracts, rocks, boulders, etc. (Jhingran, 1975). The by-banks of the reservoir are quite deep. Water-saturated logs of timber float down the river Sutlej. The water level changes periodically. During the months from June or July to September the water level rises at a rate of about 0.5 to 2.0 metres daily, whereas after the monsoons it falls almost at the same rate.

The Lunkhar is a seasonal rainfed stream forming one of the important arms of this reservoir (Fig. 2). It is the biggest of the five streams which drain into the reservoir. During August and September, due to monsoons the depth of Lunkhar reaches 120-150 metres. However, the minimum depth varies from 2-3 metres and the average depth from 25-50 metres. There is no growth of weeds and the water level changes periodically. The water in this part of the reservoir is warmer as compared to the water in the river Sutlej. The temperature ranges between 20° to 29.5° C and generally the water is quite clear. Maximum transparency was 160 cms by Secchi disk in the month of January when the
Water was least disturbed. In July, it was quite turbid due to rains and the maximum light penetration was 6 oms. The current is slow and the bottom is clayish with a lot of silt and detritus.