observed (Amarasinghe 1988). Amarasinghe (1987) has shown that intense fishing maintaining a minimum mesh size for gill net at 102 mm did not result in over exploitation in Pimburettewa, another Sri Lankan reservoir. Hence, for optimum utilisation of *O. mossambicus*, the minimum landing size should be maintained at or above 20 cm through restriction of mesh size at 102 mm.

7.1 NONCONVENTIONAL FISH RESOURCES

The Nelligudda reservoir has a piscine fauna, members of which do not grow beyond 15 cm in length and some species that reach only 7-10 cm length. Some of the species that are abundant but underexploited in this category are *Puntius sarana*, *Labeo boggut*, *Rasbora daniconius*, *Salmostoma bacaila* and *Puntius ticto*. According to Sirisena and De Silva (1987), catches of minor cyprinid species by weight in experimental gill net surveys exceeded 50% in Sri Lankan reservoir. Based on these surveys, they observed that the potential catch of minor cyprinid exceeded that of *O. mossambicus*. Schiemer and Hofer (1983) found some minor cyprinid species abundant in a reservoir that has been intensely exploited for *O. mossambicus*. Observation made in the Sri Lankan reservoirs with multimeshed gillnets indicated that the gillnets below 30 mm mesh size did not catch sizable numbers of young or pre-recruits of *O. mossambicus* (De Silva and Sirisena 1987). Therefore, introduction of gill nets with mesh size less than 30 mm is unlikely to have detrimental effect on *O. mossambicus* and hence, the commercial fishery. Observation of limited dragnet catches indicate that substantial minor cyprinid resource exist in Nelligudda reservoir and the resource has potential to support a viable fishery. More or less uniformity of the gear (50-100 mm gill nets) has prevented optimum utilisation of the available resource in Nelligudda reservoir. The introduction of small-meshed gill nets on a commercial scale must be subjected to strict management control. The use of small meshed gill nets in areas within littoral zone or adopting them as seines would
undoubtedly have undesirable effects on the existing fishery. The exploitation of minor cyprinids must be carried out in stages under strict management control.

7.2 **EFFECT OF STRATIFICATION AND MIXING ON OUPÉ**

During the period of stratification, a partial mixing resulting in the depression of thermocline led to a decline in OUPÉ (for e.g. March 2, April 6 and 13, late May 1994). On the contrary, high catches were observed when the thermocline was nearer to the surface (February 27, March 23, April 28, 1994). This was due to the concentration of fish in the epilimnion (when the hypolimnion was anoxic) and hence were more amenable to nets. Reduced catches during mixing would be due to the dispersal of the fish in the water column.

7.3 **TOTAL FISH PRODUCTION**

The monthly landings of fish ranged from a low of around 200 kg/ha (May 1995) to a high of around 30,000 kg/ha/month (July 1994). Consistently high catches were recorded during the period June to October 1994 followed by sharp decline thereafter. The total fish harvested during the period February 1994 to January 1995 was around 113,976 kg (=9,498 kg/month) and was 32, 713 kg (=2,726 kg/month) during September 1994 to August 1995. Average fish production based on these values was 2444 kg/ha/year and is an indication of the high productivity of the reservoir.

7.4 **TRANSFER EFFICIENCY**

Assuming that a 10% of wet weight of fish is carbon (Gulland 1970), the transfer efficiency between gross primary production and fish production was 2.9% in Nelligudda reservoir. The transfer efficiency recorded for a few Indian lakes and reservoirs were 0.44% in Rihand reservoir (Singh and Desai 1980), 0.24% in Nagarjunasagar (Pathak 1979) and 0.43% in Sankey tank (Ayyappan 1990). The transfer efficiency observed in tropical eutrophic Lake
George was 1.5% and for some of the African Lakes, the values ranged from 0.4 to 2.88% (see Melack 1976). For IBP lakes and reservoirs, the efficiencies ranged from 0.1 to 1.6% (Blazka et al. 1980). High transfer efficiency observed in the Nelligudda reservoir was primarily due to the overwhelming dominance of herbivores and negligible proportion of carnivores.