CHAPTER 1

INTRODUCTION

Fish are the most diverse of the vertebrate taxa and are distributed in a range of aquatic environments (Bone and Marshall, 1983; De Silva et al., 2007). Freshwater fishes constitute over 40% of the total recorded species of fish.

More than 20% of the freshwater fish species are at risk of extinction, making them the world’s most threatened vertebrates after amphibians (Moyle and Leidy, 1992; Bruton, 1995). This is because freshwater habitats are rare, covering about only 1% of the earth’s surface (Leveque et al., 2008) and have undergone unprecedented levels of modification and change (Saunders et al., 2002). As a consequence, the global freshwater biodiversity is declining more rapidly than the terrestrial biodiversity (Ricciardi and Rasmussen, 1999). The main threats to freshwater fishes are due to habitat alteration, pollution, overexploitation and introduction of non-native species causing their global decline (Lopez-Rojas and Bonilla-Rivero, 2000; Dudgeon, 2000, 2003; Rodriguez, 2001; Cambray, 2003; Dominguez-Dominguez et al., 2005; Nguyen et al., 2006).

Habitat destruction and introduction of non-native species that have turned invasive has dramatically changed many ecological communities, hence, contributed to the elimination and in some cases extinction of many freshwater fishes in North America and elsewhere (Williams et al., 1993; Orians, 1995; Forester and Machlis, 1996; Findlay and Houlanhan, 1997; Dextrase and Mandrak, 2006). Therefore, conservation of freshwater habitats and the associated fauna has increasingly become a priority (Allan and Flicker, 1993; Richter et al., 1997).
It is imperative to inventory freshwater fishes at both local and regional level, so that the conservation status of species can be ascertained and the nature and magnitude of threat identified (Pethiyagoda, 1994; Dudgeon, 2000). On the other hand, understanding the ecology, behavior, life history, population dynamics and habitat use by fish communities is essential for conservation and management (Johnston, 1999).

The Andaman and Nicobar islands, lying off S. E. Asia form part of the Indo-Burma biodiversity hotspot (Myers, 1990) and harbour a rich biodiversity of Indo-Malayan affinity. Freshwater fishes are little known and some of the earliest studies were by Day (1870, 1875-1878), Hora (1925), Mukerji (1935), Herre (1939, 1941), Koumans (1940) and Sen (1975), which were not exhaustive and mostly restricted to particular groups. Herre (1939) who had conducted the most comprehensive survey recorded 112 species of freshwater and littoral fish. The most recent study was of a collection of fishes from a single stream (Rajan, 2000). However, these studies have not measured the conservation status of the fish species and the threats that they face.

Therefore I conducted a survey of the freshwater fish species in the Andaman group of islands between North Andaman (12°95’ N and 92°86’ E) and Little Andaman (10°40’ N and 92°45’E) to record the distribution and abundance of species, assess habitat preferences, to estimate patterns of diversity at different scales and identify threats. With this information the conservation status of particular species can be ascertained and the potential threats identified.