

The effects of instream barriers on the distribution of migratory marine-spawned fishes in the lower reaches of the Sundays River, South Africa

RJ Wasserman¹, OLF Weyl^{2*} and NA Strydom¹

¹Department of Zoology, Nelson Mandela Metropolitan University, PO Box 1600, Port Elizabeth 6000, South Africa

²South African Institute for Aquatic Biodiversity (SAIAB), Private Bag 1015, Grahamstown 6140, South Africa

Abstract

The distribution and abundance of migratory marine-spawned fish species was investigated in the lower reaches of the warm temperate Sundays River, Eastern Cape, South Africa. Fish were collected above and below manmade instream barriers using multi-meshed gill net fleets, 12 mm mesh fyke nets and 1 mm mesh fyke nets. Sampling was undertaken twice in the winter and twice in the summer of 2009. Of the 2 764 fish caught, marine-spawned species contributed 42.3%. Freshwater mullet *Myxus capensis* and Cape moony *Monodactylus falciformis* were the dominant marine-spawned species at most sites and were capable of surmounting almost all instream barriers. The longitudinal distribution of these species did, however, vary by size class, with the largest individuals being recorded the furthest upstream. The longfin eel *Anguilla mossambica* was the only species sampled above all instream barriers, including the 4 m high Cleveland Weir. The giant mottled eel *Anguilla marmorata* was found in low numbers at sites closer to the estuary headwaters. Other marine-spawned species, including *Liza tricuspidens* and *Mugil cephalus* (Mugilidae), *Argyrosomus japonicus* (Sciaenidae), *Lithognathus lithognathus* and *Rhabdosargus holubi* (Sparidae), were sampled in low numbers from the site directly below the first instream barrier only, suggesting that this first barrier restricted the access of these species to upstream environments. Freshwater non-native fishes contributed 41.7% to the total catch by numbers. The potential impact of the non-native species as predators and competitors on marine-spawned species in the study area is discussed.

Keywords: migration, catadromous, eel, mullet, weir, invasive fishes