

Annex E: Pest Fish Survey results

The pest fish survey was undertaken as a requirement of the consent conditions for the fish pass on the Hōkio Weir (Photo 1). Horizons was required to identify changes in the abundance, composition and size structure of pest fish species present in Lake Horowhenua as a result of the fish pass installation. This project also formed part of the work programme for the Te Mana o Te Wai project and was a collaboration between the Lake Trust, Horizons Regional Council and Niwa.

Gill net surveys were carried out in April 2017, prior to the installation of the fish pass, and during April and May 2018, a year post-completion of the fish pass.

Across 2017 and 2018, the main fish species captured in the gill nets were perch (2,420) and goldfish (266), with lower numbers of mullet (30) and rainbow trout (2) recorded. The perch were predominately large adult fish ranging between 350 and 500 mm and the goldfish population were predominately between 150 and 200 mm.

Monitoring indicated that populations of the main pest fish species recorded in Lake Horowhenua (perch, goldfish and koi carp) are all below the threshold density of 50 kg per hectare specified by consent conditions. Based on the current population structure and biomass of perch and goldfish there is no evidence to suggest that the abundance of these species within Lake Horowhenua has increased since 2017 as a direct result of the fish pass installed at Hokio weir.

Although koi carp are a difficult species to capture and all fishing methods will underestimate their abundance, the continued difficulty in capturing koi carp within Lake Horowhenua since 2013 suggests this species remains at densities below those known to cause adverse ecological impacts. It should also be noted that once resident in a lake, perch, goldfish and koi carp will readily breed and form self-sustaining populations. In this regard, changes in abundance and size structure can naturally occur independent of immigration into the system via the fish pass at Hokio weir.