

## 1. Introduction

Northland Regional Council (NRC) engaged NIWA to assist in achieving its goal “to prevent deterioration in water quality and loss of biodiversity value in Northland lakes”. The baseline report (Champion et al. 2005) has been updated annually with the 2009 update:

- Re-surveying the Waitahora Lagoon and Lakes Ngakaketa North, Morehurehu, Te Kahika, and Rotokawau (Waipapakauri), with vegetation descriptions, ecological observations, and LakeSPI.
- Re-surveying Lake Swan and establishing baseline assessment protocol as this lake was scheduled for invasive weed eradication using grass carp.
- Rapid assessment of Lake Heather submerged vegetation prior to initiation of a grass carp eradication programme.
- Weed surveillance monitoring of Lakes Ngatu, Waiporohita, Kai-iwi, Taharoa, Waikere and Humuhumu (all at-risk, high priority water bodies). Lake Rotokawau (Pouto) was not accessible due to maize cropping.

This report presents a summary of information gathered on each of the 80 lakes surveyed up to and including April 2009. The region is divided into four geographical areas: Aupouri; Karikari, Central & East Northland; Kai-iwi lakes & North Dargaville; and Pouto Peninsula. Information includes vegetation descriptions (submerged and wetland), the LakeSPI method of assessing lake condition, records of water birds, fish and macroinvertebrates. Ecological and lake condition changes were identified by comparison with previous surveys and major threats to the current lake condition are identified. Finally, management recommendations are presented for each lake.

Assessment of biosecurity risks posed by freshwater pest plants is discussed, with recommendations for monitoring and control.

This report presents a ranked inventory of lakes of high ecological value based on available ecological and water quality data. Data gathered on the lakes was analysed and used to prioritise the lakes for future monitoring, and to make recommendations on which lakes need to be monitored, for what purpose and what frequency, to assist managers aiming to preserve, protect and enhance water quality and ecological values.

The core information in this report is a living document to be further added to and modified as further information comes to hand, or if lake values change. This information is key for the NRC Lakes Strategy as it is essential for managers to rapidly respond to new incursions or other identified threats and monitor responses to past management initiatives.