

Geochemistry of the Rotorua lakes – processes and impacts



THE UNIVERSITY OF
WAIKATO
Te Whare Wānanga o Waikato

Adam Hartland
University of Waikato



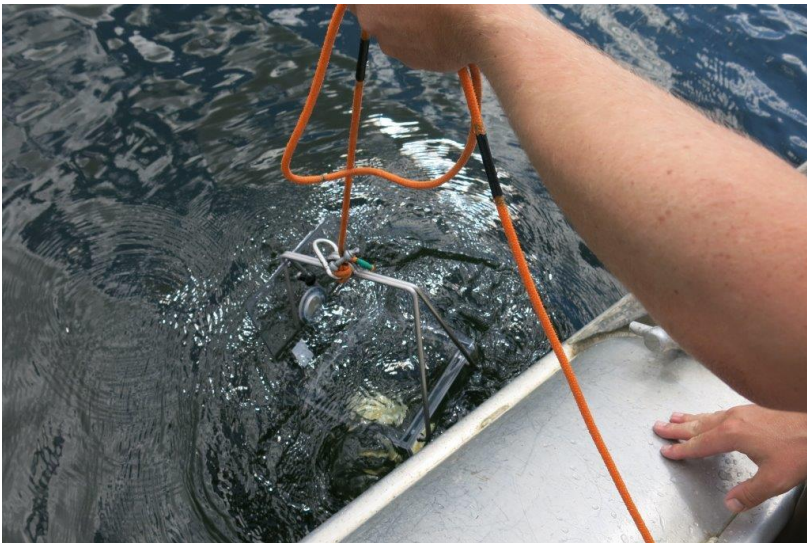
2014

Introduction

- Lakes must be viewed as coupled biological and geochemical systems
- Biogeochemical processes continually operate leading to high spatial and temporal complexity
- Our challenge is to understand these processes to better manage our lake systems

Research and teaching activities

- 2 years of data generated by Waikato 3rd Year students
- Intensive field and laboratory work has targeted Lake Okaro and Ngapouri



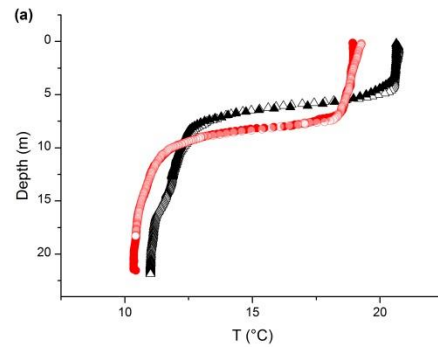
Water sampling



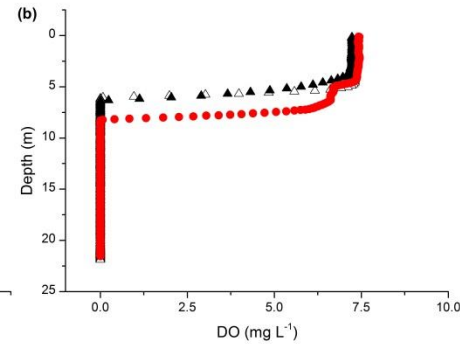
2014 students

Lake physiochemical profiles

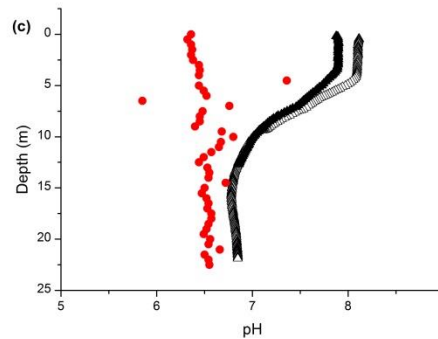
Temperature



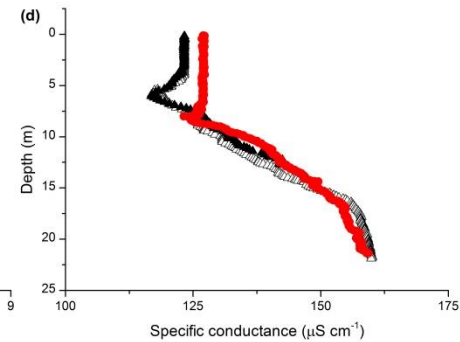
Dissolved oxygen



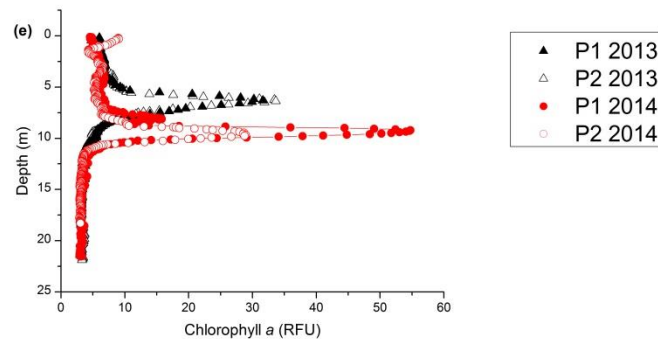
pH



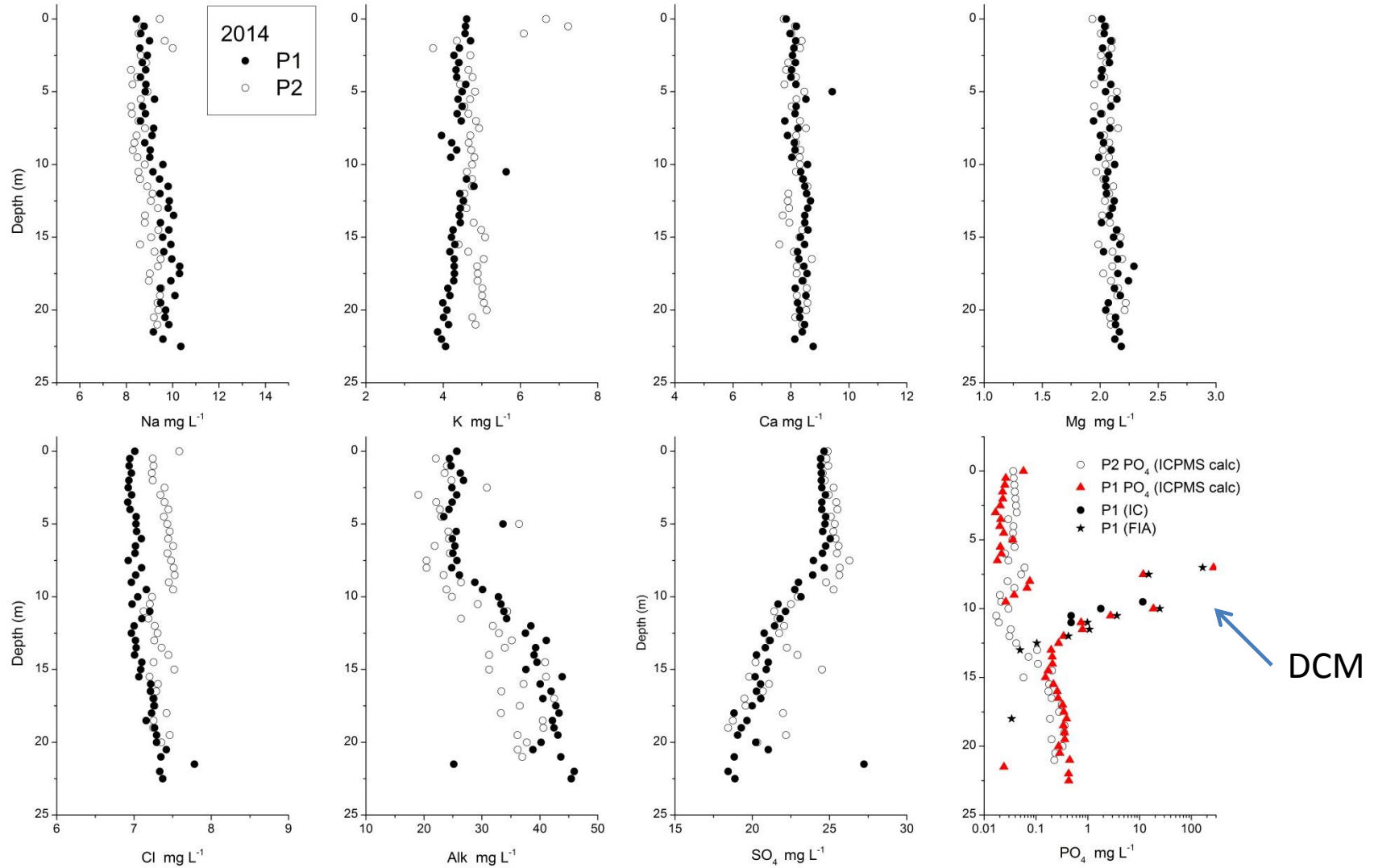
Specific conductance



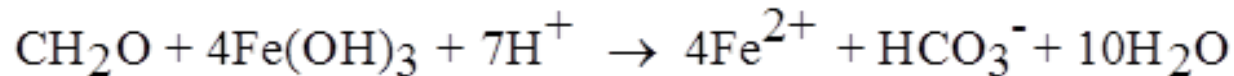
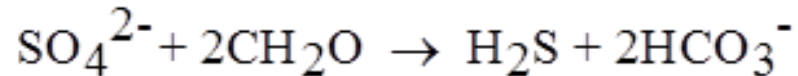
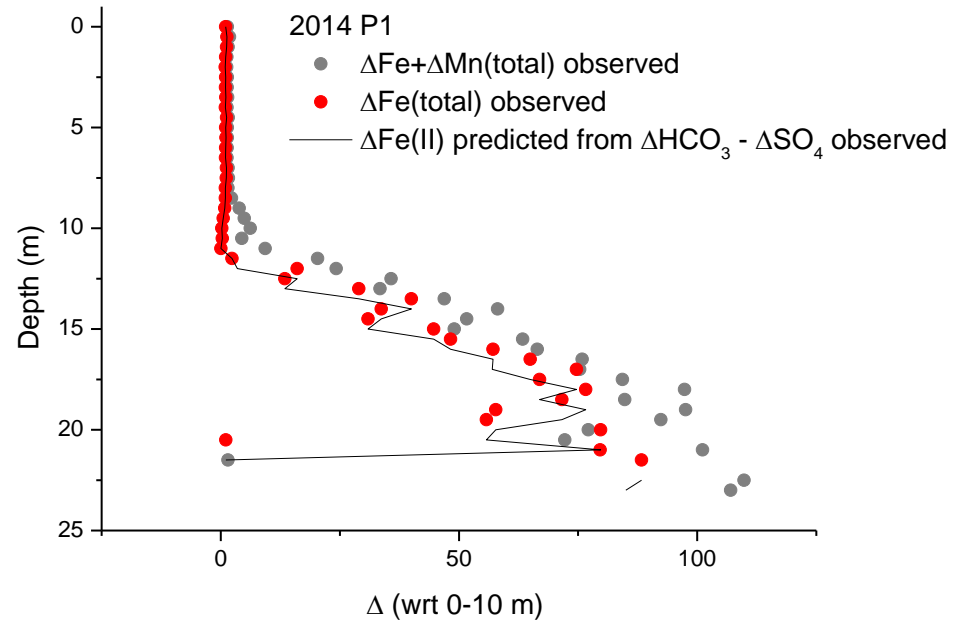
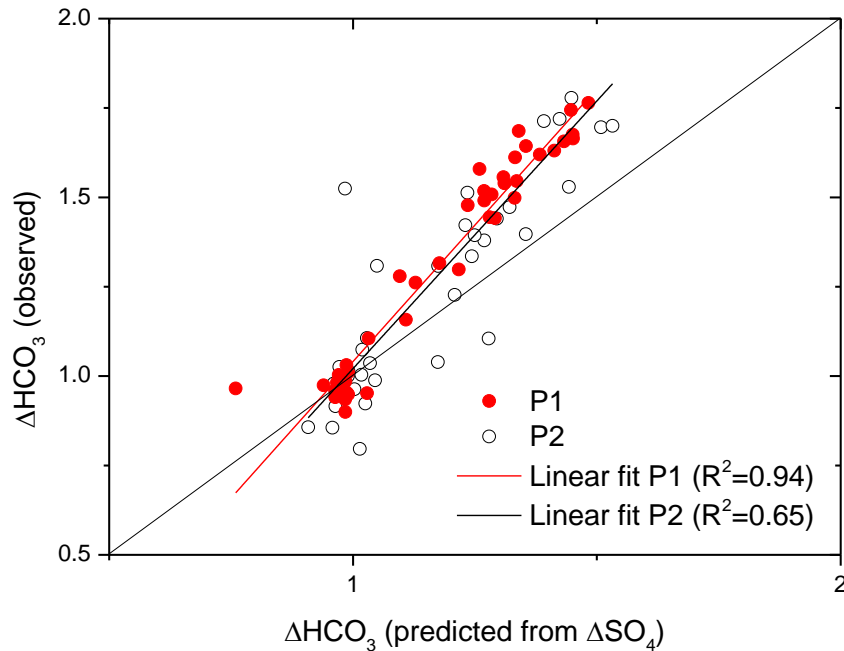
Chlorophyll a
(fluorescence)



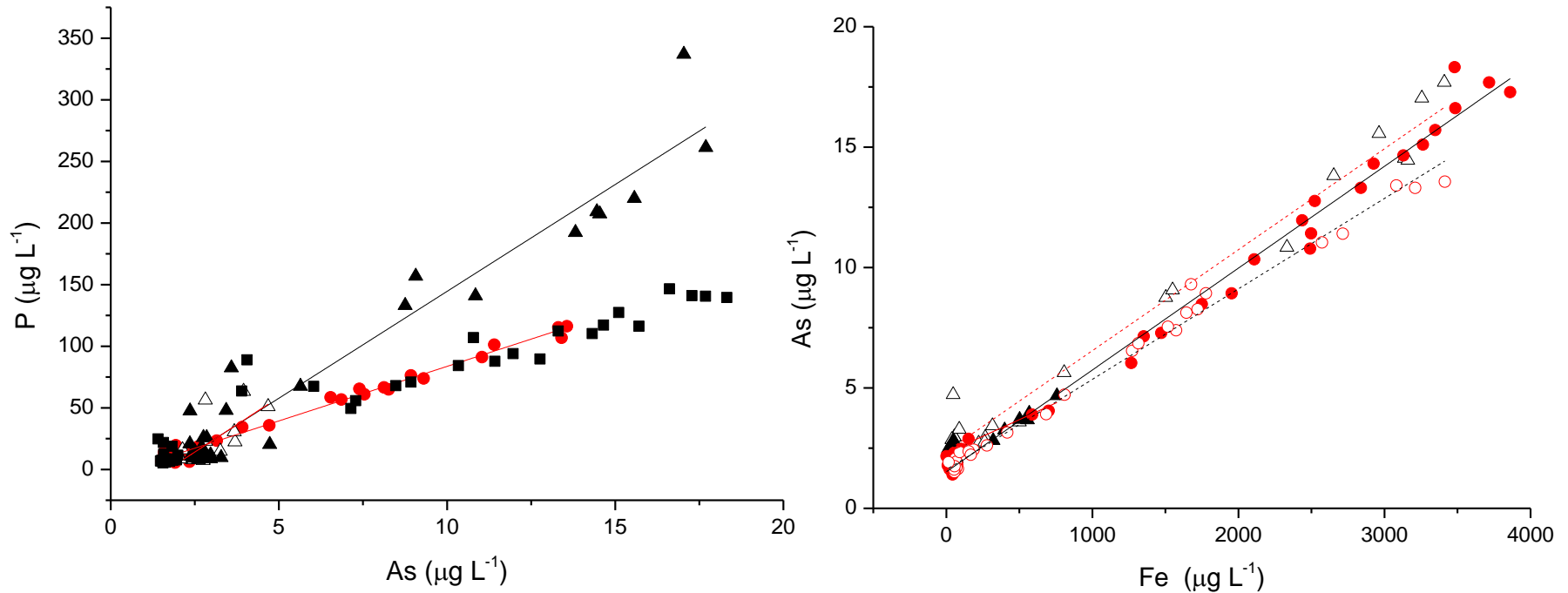
Major ions



Evidence for hypolimnetic iron cycling



Coupling between Fe + P and As?



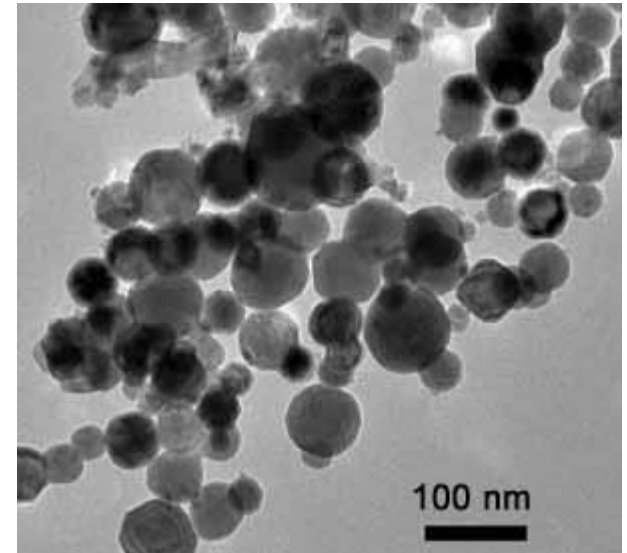
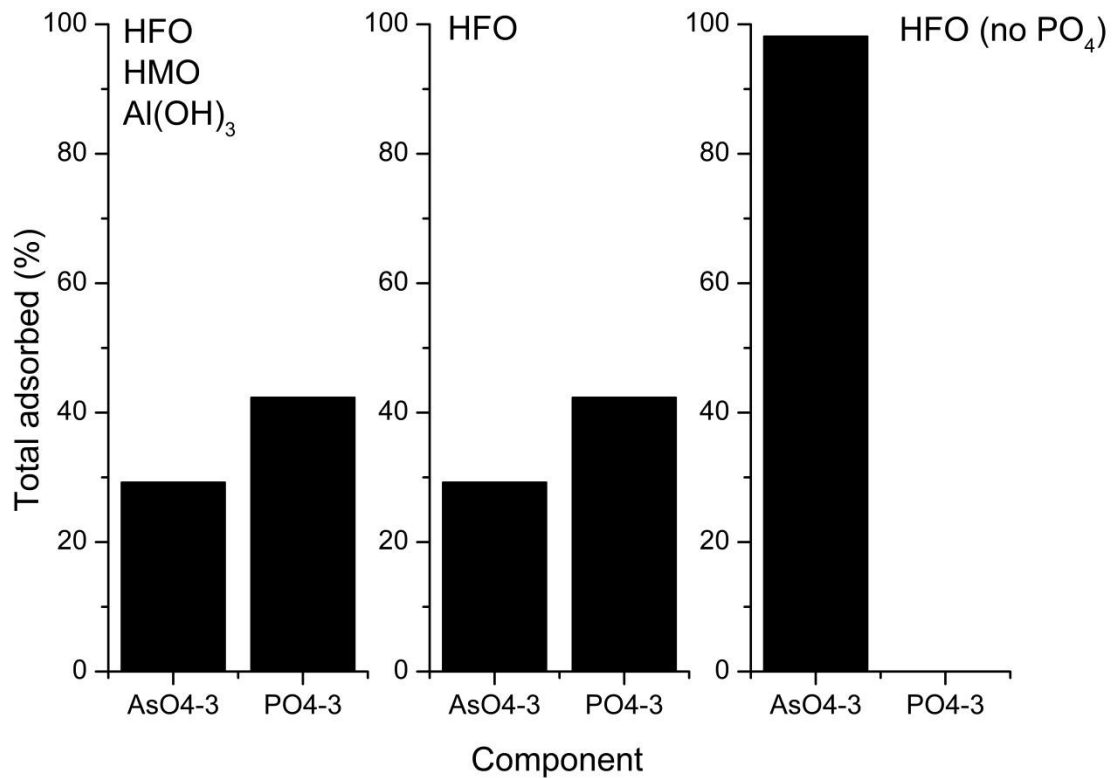
Chemical form of phosphorus:



Chemical form of arsenic:



A potential mechanism



Summary

- Apparent coupling between iron, arsenic and phosphorus in Lake Ngapouri
- Potential role of colloidal substances to be investigated
- This work informs our broader understanding of phosphorus cycling in lakes and its bioavailability

Thanks for your attention

