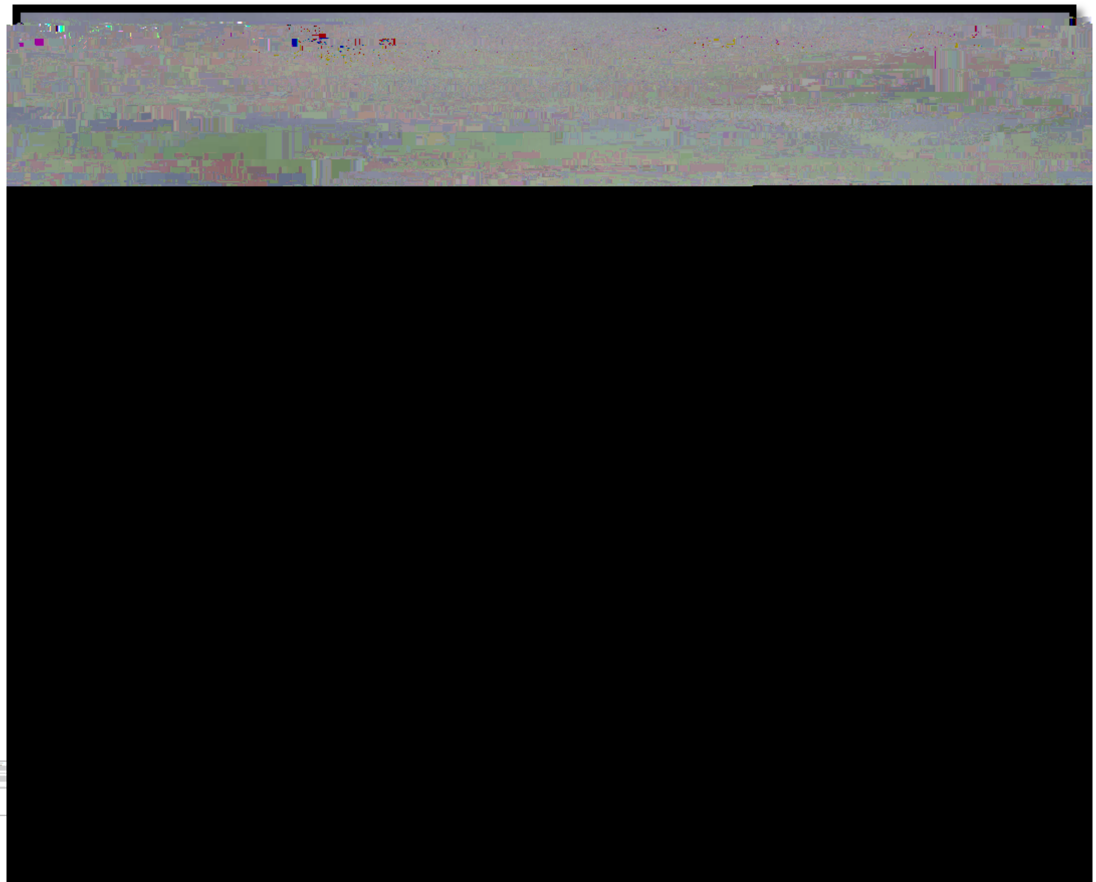
How is the salinity s24/785ke Kate



Contents

Executive Summary

- The aim of this research was to answer the following questions; how is the salinity of Lake Kate Sheppard (LKS) affected by its inflows and outflows? Are these salinity conditions favourable for Inanga spawning?

- Avon-Ōtākaro Network (AvON) is interested in LKS as a possible mahinga kai site due to its suitability for īnanga spawning. Salinity is a dominant factor that

1.0 Introduction

LKSI is an anthropogenic lake created for flood mitigation

Zhang & Carrick (2014) examined LKS as

4.0 Results

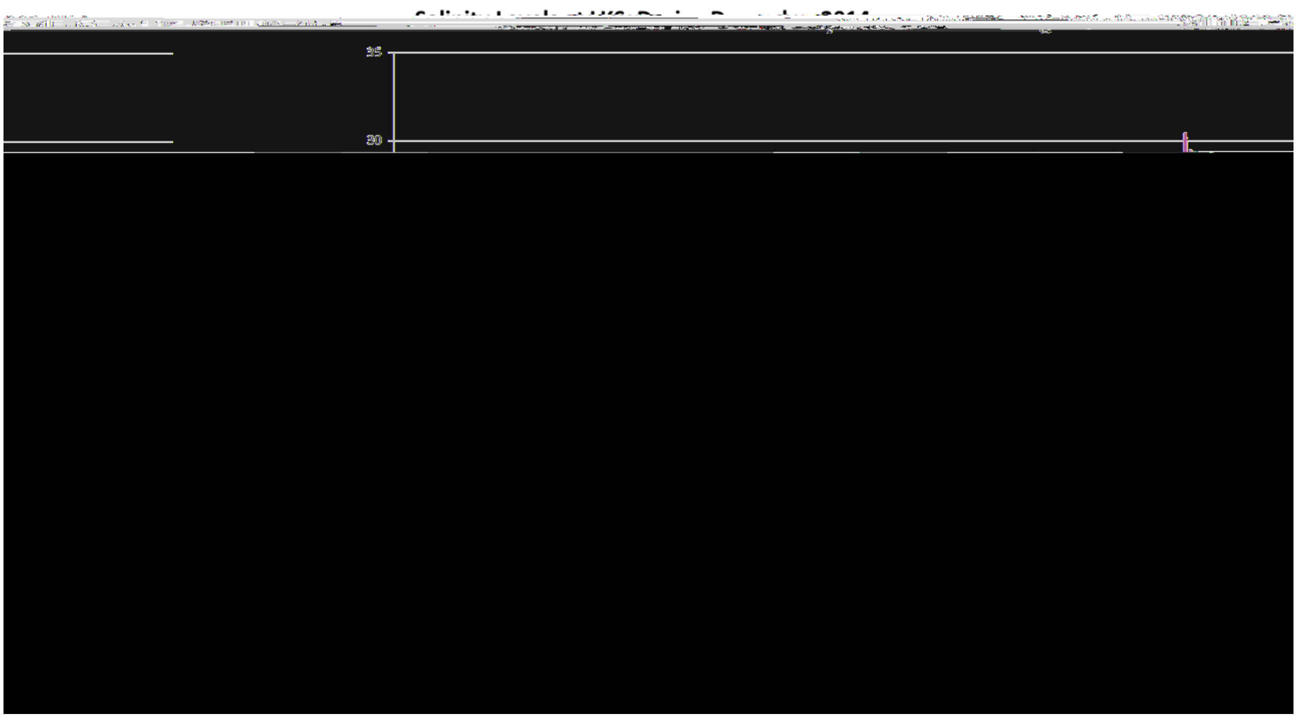


Figure3: Graphshowingthe averagewind speedvaluesduringdata collection

Figure4: rainfall data for August2015.Dueto the weatherstation being

Figure

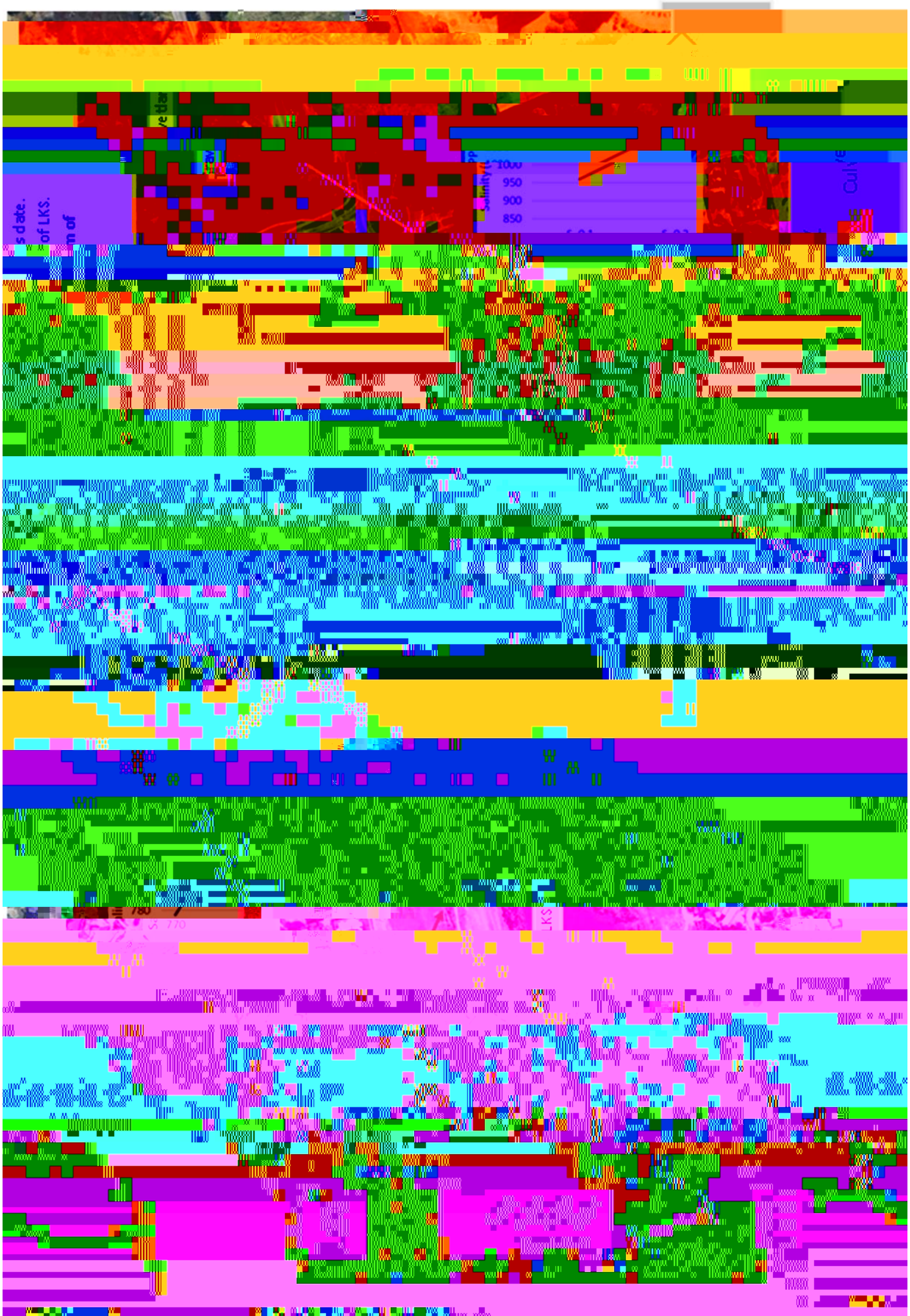


Figure7: Lowtide two daysof rainfall.

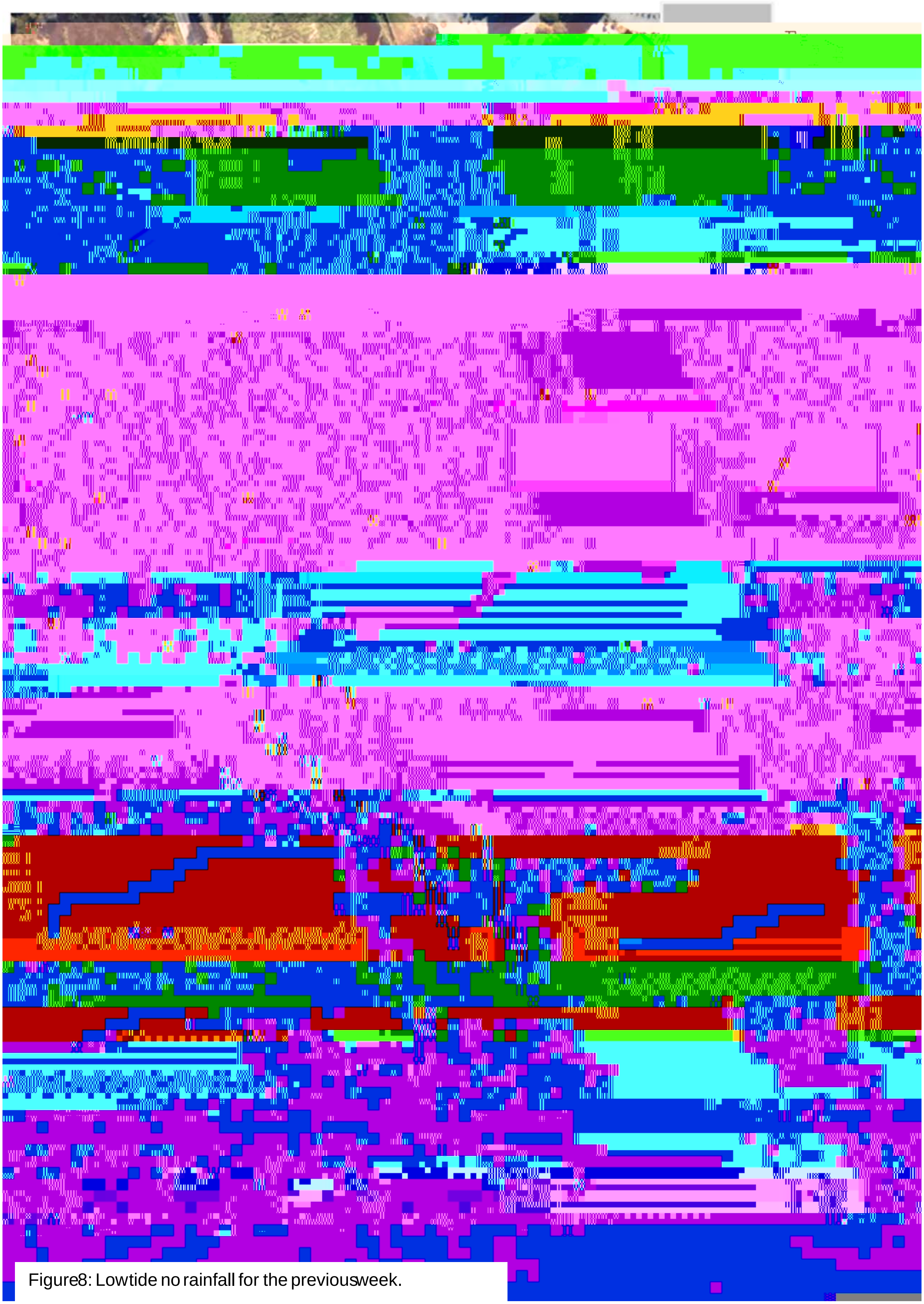


Figure8: Lowtide no rainfall for the previousweek.

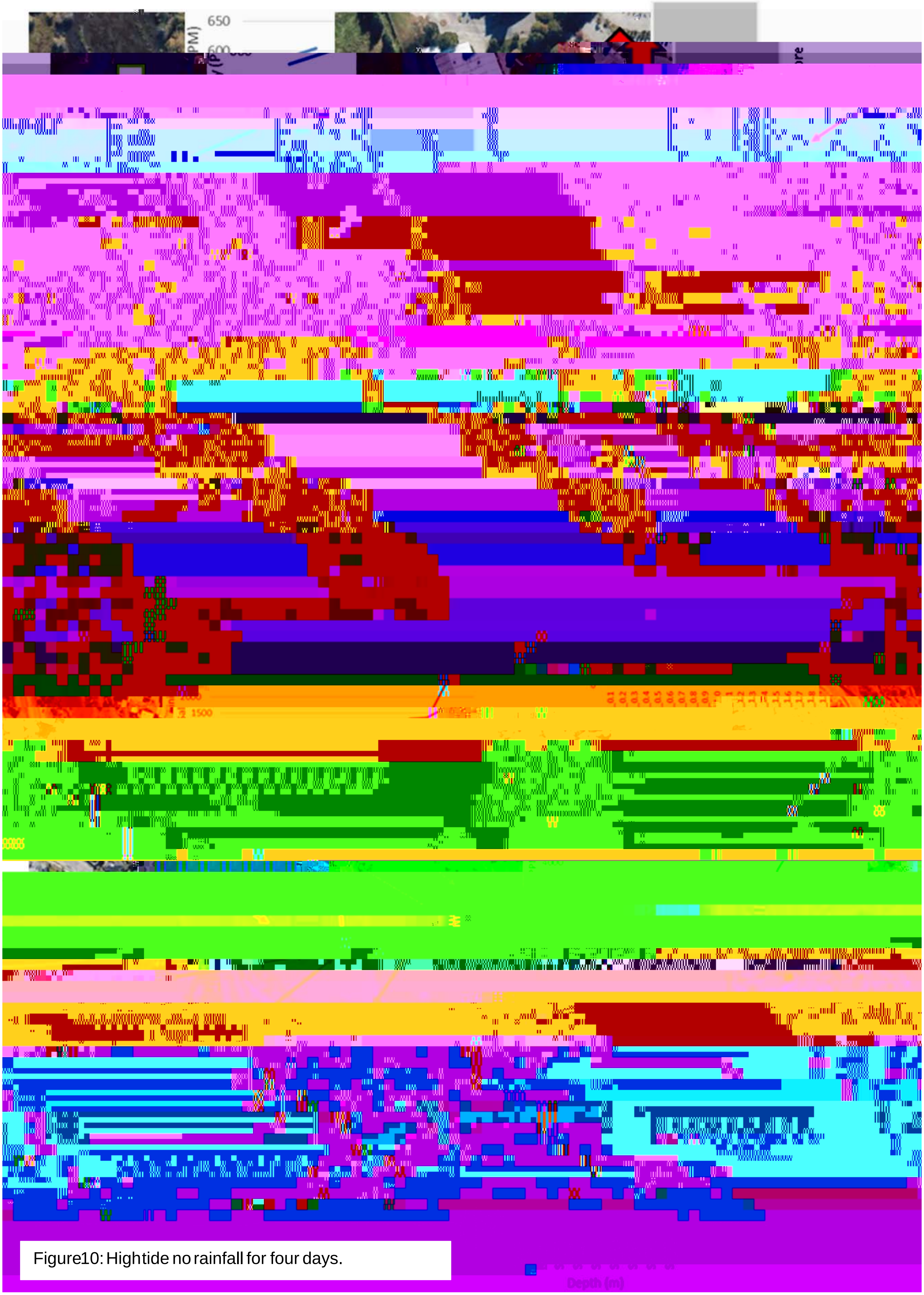


Figure10: Hightide no rainfall for four days.

Results have been obtained from the processed spot testing data.

A S Louie,

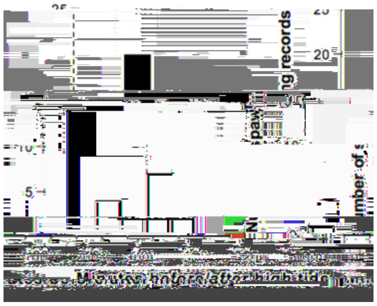


Figure 11: Graph showing the onset of spawning relative to high tide. Retrieved from Richard & Taylor, (2002.)

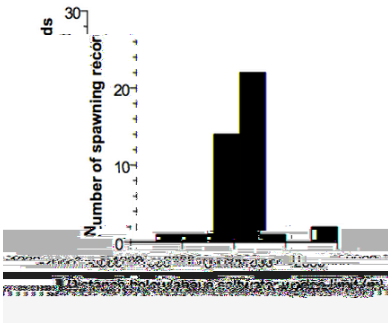


Figure 12: Graph showing the relationship between the spawning locations and proximity to the salt water wedge. Retrieved from Richard & Taylor, (2002).

5.4 Further Research

- More salinity profiles of the water should be collected throughout LKS at high and low tides, especially during autumn, when īnanga spawn to observe season trends.
- Continuous data is needed to gain a clearer understanding of how the salinity profiles evolve with the change

6.0 Limitations

- It was difficult to determine when the logger had reached the bottom of the lake at locations due to poor visibility and drag from water flow.
- Malfunctions with the RBR CTD and CT2X recorders limited the expanse of the final data sets, preventing the collection of any continuous data throughout the time of this research. Two CTD recorders were found to be faulty when organising available equipment at the start to the project. These recorders were sent away for inspection and repairs, however these recorders were not fixed in time for implementation in the field. A catastrophic failure of a CT2X recorder meant four weeks of continuous data was lost. Water had infiltrated the recorder, consequently damaging and corrupting the hardware inside (figure 13). With recording devices limited already, the loss of this valuable data was a cruel setback. As a group it was decided that data from previous years could be used replacing this lost data.

Figure 13: Picture shows the top cap of the CT2X that failed, allowing water into the unit. The spring for the battery circuit is rusted, indicating that the equipment had failed a week or more before we realised.

- No previous experience with equipment meant valuable time had to be used to understand the basics before going into the field. Although this meant we lost a week of data collection, this was needed to ensure the data was collected correctly.
- Time was the biggest limitation while conducting this research project. Attempting to have all data collection, data processing and reporting done within twelve weeks was challenging. If there was a longer deadline, the expanse and quality of data would have been a lot better. This would therefore allow for more accurate conclusions to be made.
- Weather conditions when taking spot measurements in the field [illegible] affected depth recordings. Some days the recorders have measured a minimum depth of 0.[illegible]m, which is incorrect. This could be an atmospheric effect or due to the sensor not being calibrated correctly.
- and Accurate climate data of the LKS area has [illegible] ta[illegible] bee[illegible] and to

A S

9.0 References

Avon-Otakaro Network. (2013). Our Charter. Retrieved October 7, 2015, from Avon-Otakaro Network: http://www.avonotakaronetwork.co.nz/about-us/charter.html

Barr, E.,

Figure A.4: An Odyssey CTD logger was used to measure continuous data however due to misinterpreted tag times the equipment was not installed at true low tide thus the equipment was not placed deep enough and data wasn't collected at low tide.

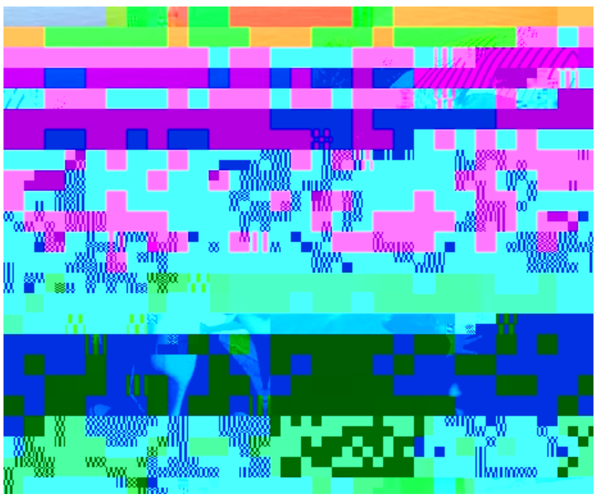


Figure A.5: Installation of the first CT2X logger beside the jetty in LKSA waratah was driven into the lake floor with the logger secured to it. This provided reassurance that the logger want move around, and makes it difficult for members of the public to interfere.

Figure A.6: Individual waypoints can be seen on the screen of the GPS, location order was recorded in a notebook.

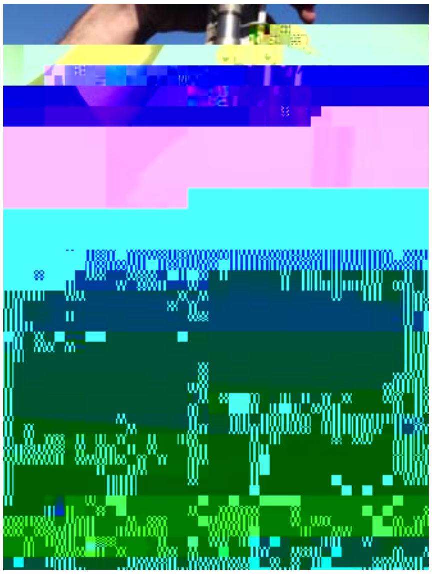


Figure A.7: The CT2X logger that was stationed at the dock. This is the same unit that was damaged.