

# **PERTH SEAWATER DESALINATION PLANT**

## **REPORTING IN ACCORDANCE WITH THE PERTH SEAWATER DESALINATION PLANT MARINE MONITORING AND MANAGEMENT PLAN**

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## INTRODUCTION

In accordance with the Perth Seawater Desalination Plant's (PSDP) Marine Monitoring and Management Plan (MMMP), the Water Corporation submits this report to the Office of Environmental Protection Authority (OEPA) as per Section 7.

Near Sea Bed Loggers were deployed on the 29<sup>th</sup> April 2011 at two sites – North and South. At each site, dissolved oxygen sensors were placed at 0.2m and 0.5m above the seabed in order to establish whether any empirical relationships exist between dissolved oxygen saturation at the two depths.

The coordinates and plotted locations of the sites are provided in Figure 2 and Attachment 8 of the MMMP. Data will continue to be collected fortnightly for a minimum of 6 months.

Dissolved oxygen saturation data was collected at continuous 30 minute intervals between 25/5/11 to 17/6/11 and is provided in this report. Due to storm events occurring within this period, for occupational health and safety reasons data was unable to be downloaded until 17 June 2011.

## RESULTS

Dissolved oxygen saturation measured at 0.2m and 0.5m above the seabed at North and South NSDO sites are graphed in Appendix A and Appendix B respectively.

In summary, the difference in dissolved oxygen saturation recorded between the two depths is presented below:

**Table 1: Summary of NSDO Data 25/5/11 – 17/6/11**

|              | <b>Average Difference<br/>0.5m – 0.2m</b> | <b>Maximum Difference</b> | <b>Time of Maximum Difference</b> |
|--------------|---|---------------------------|-----------------------------------|
| <b>North</b> | 0.06%                                     | -4.4%                     | 25/05/2011 11:00am                |
| <b>South</b> | -0.81%*                                   | -6.6%                     | 7/06/2011 23:30pm                 |

\*Negative values represent DO% saturation being greater at 0.2m than 0.5m above seabed

## DISCUSSION

At North NSDO site, the dissolved oxygen saturation at 0.2m tracked within  $\pm 1\%$  of that measured at 0.5m for the majority of the time (Figure 1(b)). In approximately half the instances, the dissolved oxygen saturation was greater at 0.2m ASB than at 0.5m ASB. This is reflected in the calculated average difference in dissolved oxygen between the two depths of 0.06%.

At South NSDO site, the dissolved oxygen saturation at 0.2m ASB was higher than at 0.5m ASB in 80% of instances. For the majority of the time, dissolved oxygen saturation was up to 2% higher at 0.2m than at 0.5m above the seabed, with a calculated average difference of -0.81% (Figure 2(b)).

Comparing dissolved oxygen measured between the two sites, both displayed similar trends. However during the period 31 May 2011 to 4 June 2011, dissolved oxygen at South site was generally 5% less than at North site.

## **CONCLUSION**

Over the period 25/5/2011 to 17/6/2011, dissolved oxygen measured at 0.2m and 0.5m above the seabed tracked closely at both sites, with an average difference of less than 1%. At North site, dissolved oxygen saturation was higher at 0.2m ASB for half the time, whereas at South site this was 80% of the time.

# APPENDIX A: NSDO North

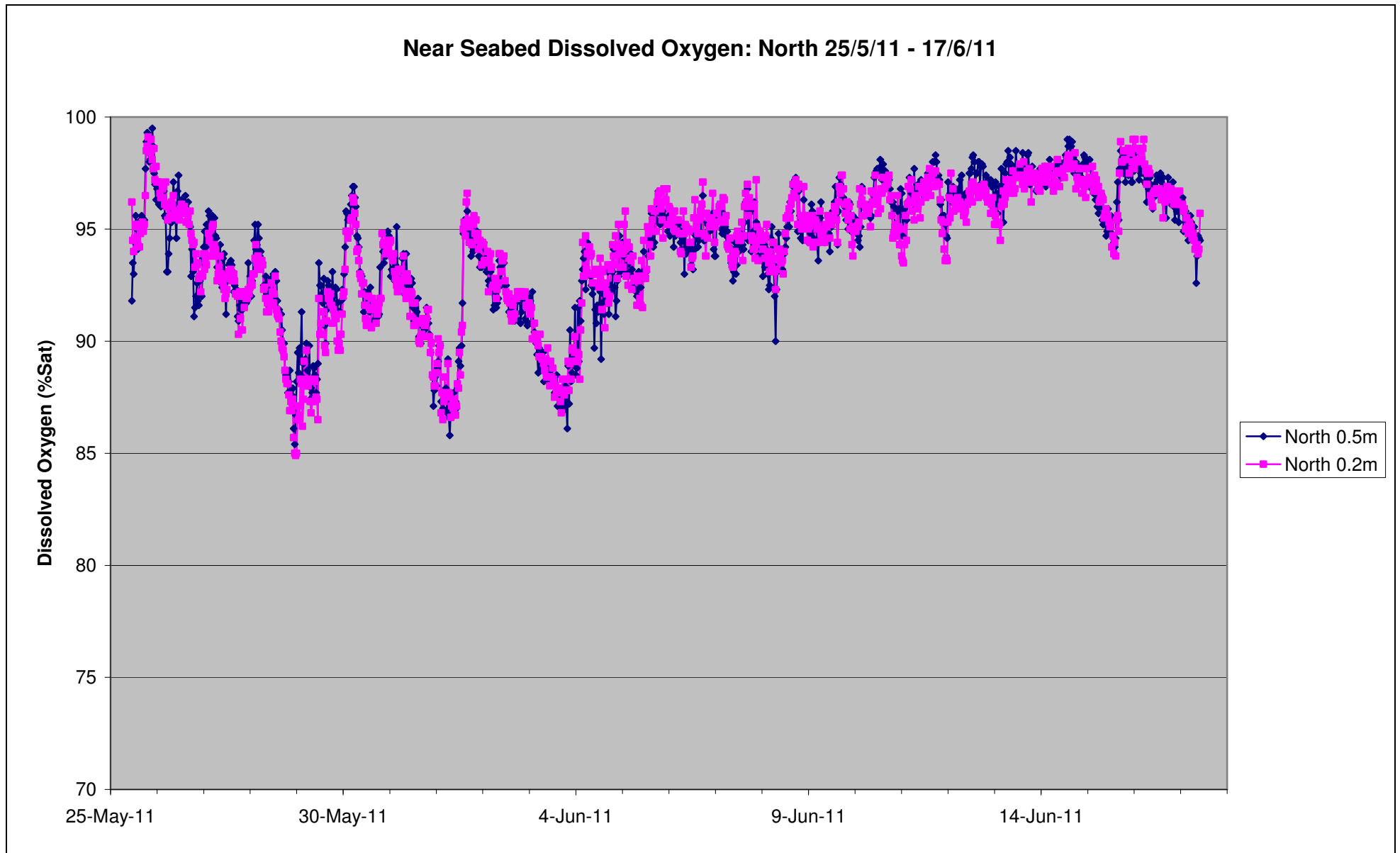


Figure 1(a): Near Seabed Dissolved Oxygen: North 25/5/11 – 17/6/11

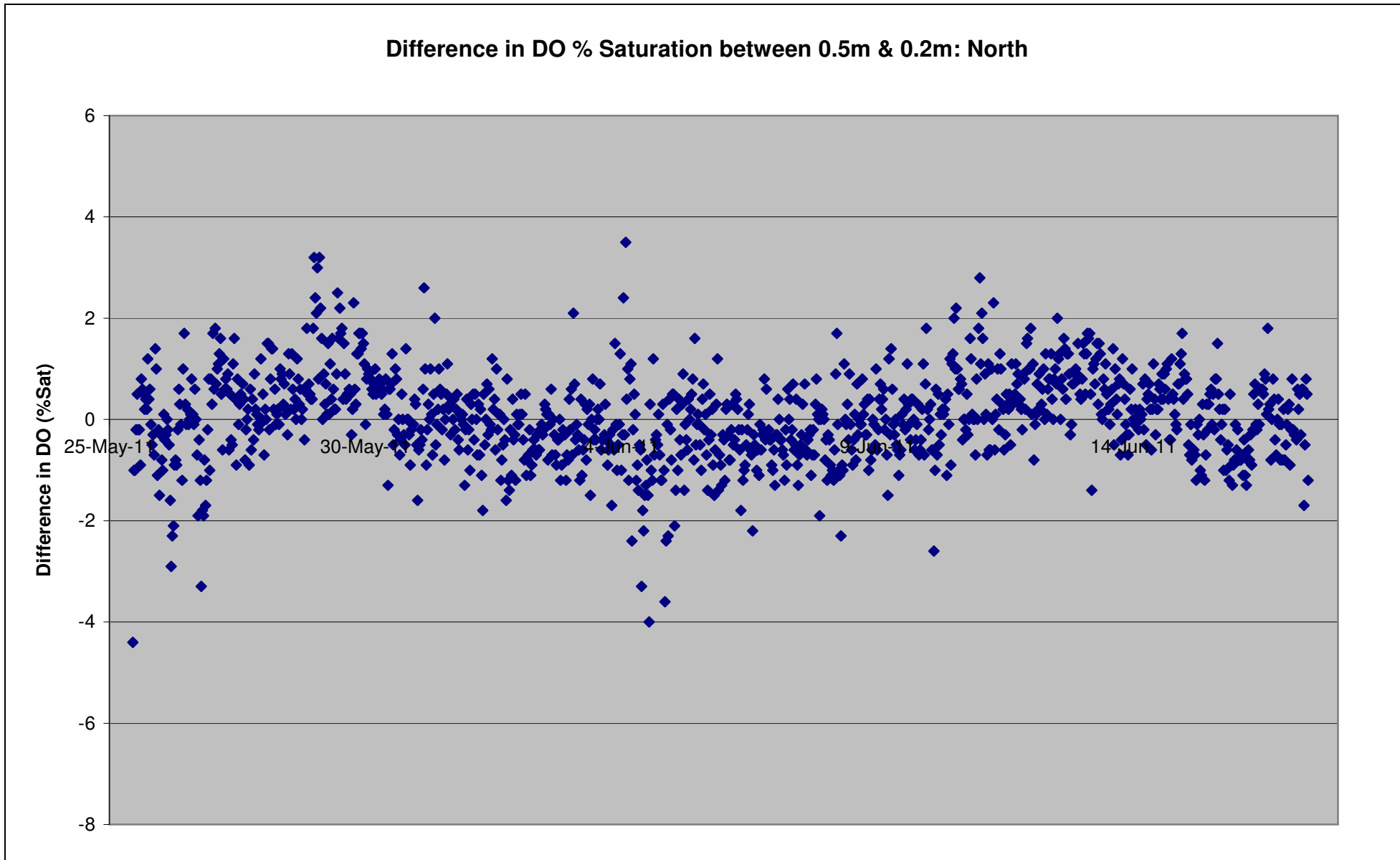


Figure 1(b): Difference in Near Seabed Dissolved Oxygen at North Site (0.5m – 0.2m)

# APPENDIX B: NSDO South

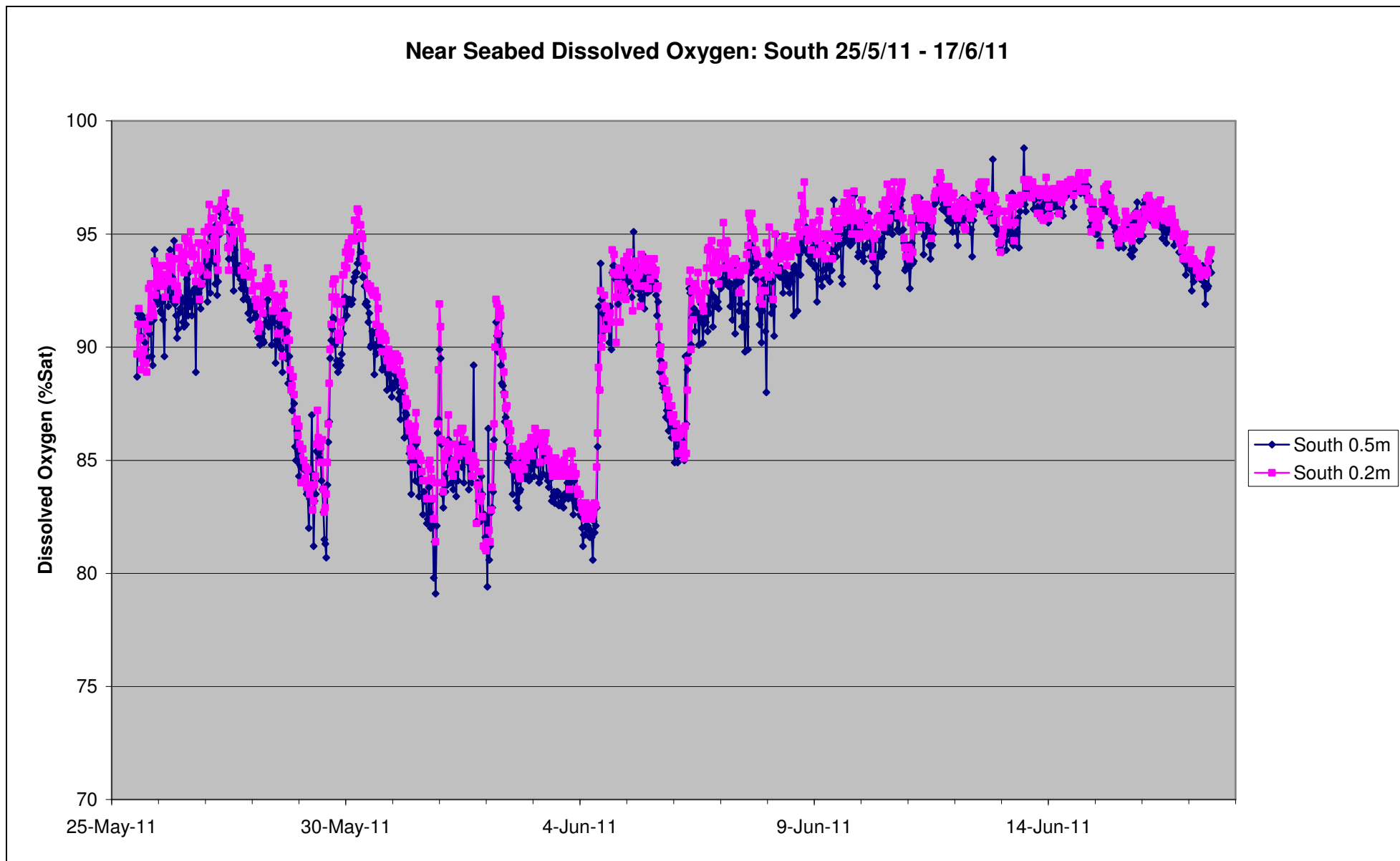


Figure 2(a): Near Seabed Dissolved Oxygen: South 25/5/11 – 17/6/11

### Difference in DO % Saturation between 0.5m & 0.2m: South

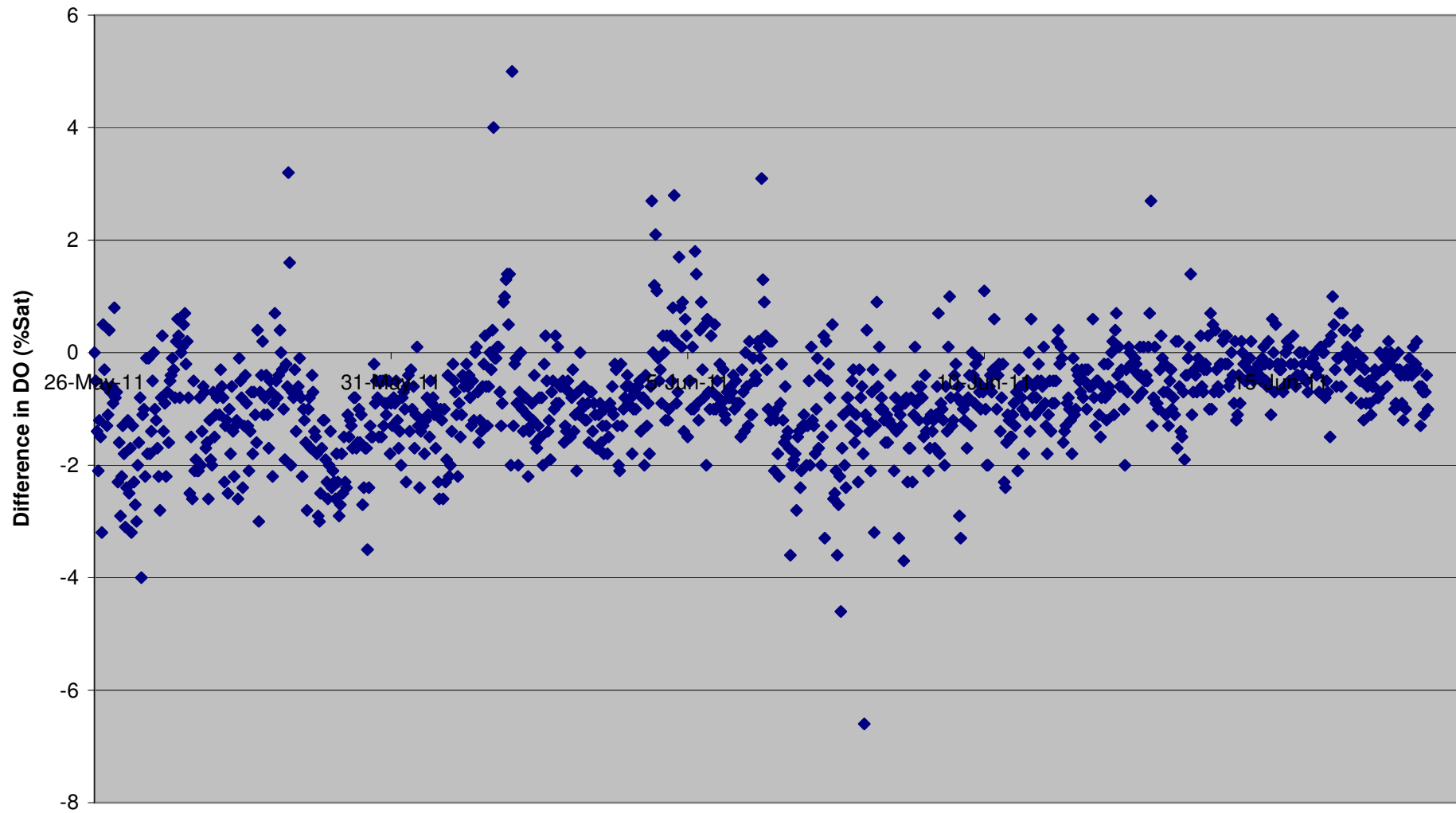


Figure 2(b): Difference in Near Seabed Dissolved Oxygen at South Site (0.5m – 0.2m)