

PERTH SEAWATER DESALINATION PLANT

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

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Prepared by:

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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 29th 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 (ASB) 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 was collected fortnightly for 6 months. On the 8th of August the Water Corporation formally requested that the NSDO data collection frequency be reduced to monthly intervals and this request was granted.

Dissolved oxygen saturation data was collected at continuous 30 minute intervals between 11 August 2011 and 8 September 2011, and is provided in this report.

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 11/8/11 – 8/9/11

	Average Difference 0.5m – 0.2m	Maximum Difference	Time of Maximum Difference
North	1.88%	9.3%	02/09/2011 06:00
South	2.8%	17.5%	29/08/2011 17:00

DISCUSSION

At North NSDO site, the dissolved oxygen saturation at 0.2m tracked within $\pm 2\%$ of that measured at 0.5m for the majority of the time (Figure 1(b)). During this sampling period the dissolved oxygen saturation was higher at 0.5m with the maximum difference being 9.3%.

At South NSDO site, the dissolved oxygen saturation at 0.5m was up to 17.5% higher than at 0.2m ASB, with an average difference between the two depths of less than 3% (Figure 2(b)).

Both sites showed lower dissolved oxygen levels during late August and early September with the low dissolved oxygen being observed at South NSDO for 3 days. During this period the dissolved oxygen saturation was quite variable which accounts for the large differences observed between the 0.2 and 0.5 m NSDO loggers at both North and South sites.

CONCLUSION

Over the period 11 August 2011 to 8 September 2011, dissolved oxygen measured at 0.2m and 0.5m above the seabed at North NSDO had an average difference of 1.88%. At South NSDO the average difference between dissolved oxygen measured at 0.2m and 0.5m ASB was 2.8%. In general the dissolved oxygen saturation was higher at 0.5m ASB.

APPENDIX A: NSDO North

Near Seabed Dissolved Oxygen: North 11/8/11 - 08/9/11

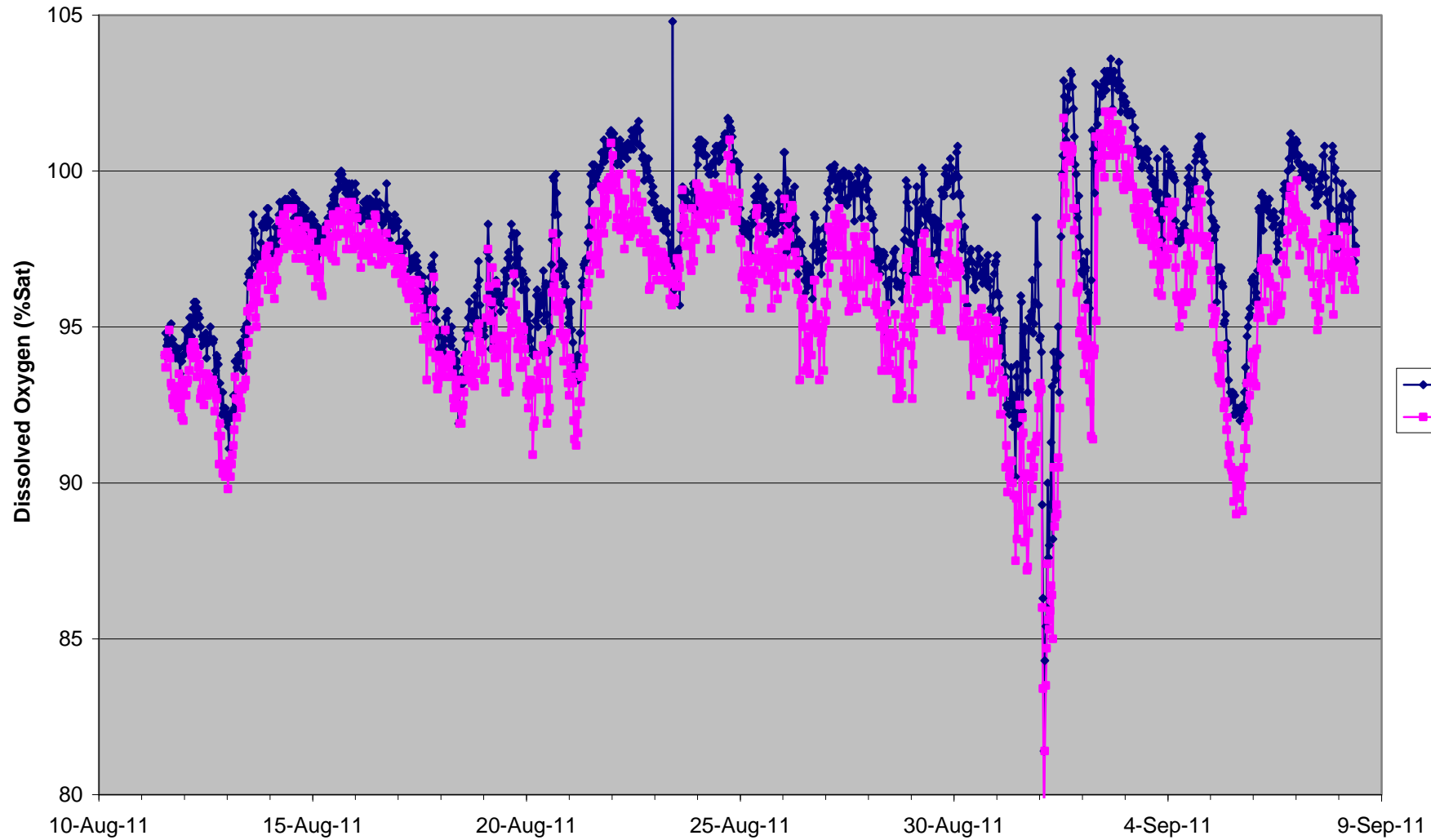


Figure 1(a): Near Seabed Dissolved Oxygen: North 11/8/11 - 8/9/11

Difference in DO % Saturation between 0.5m & 0.2m: North

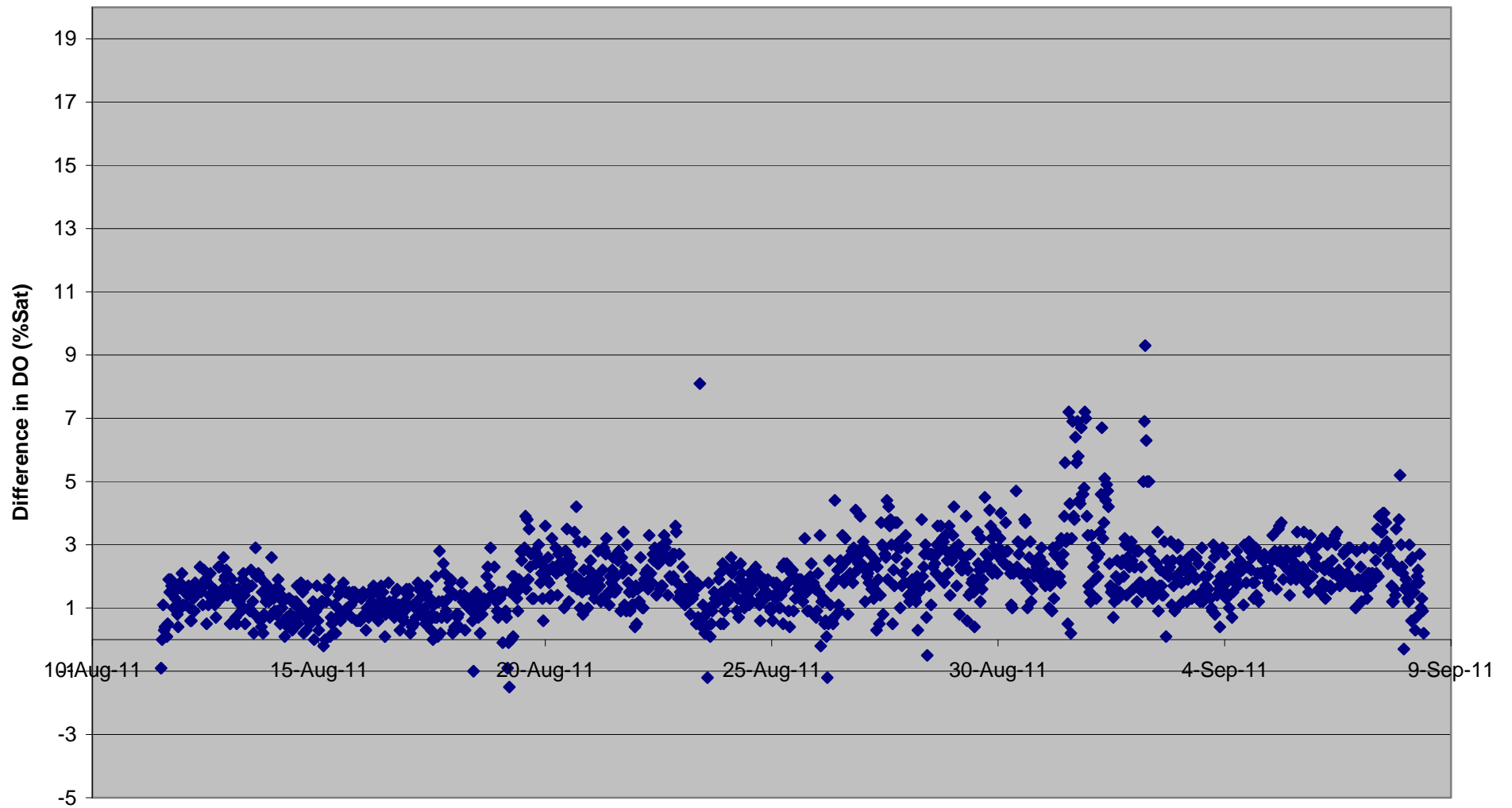


Figure 1(b): Difference in Near Seabed Dissolved Oxygen at North Site (0.5m – 0.2m)

APPENDIX B: NSDO South

Near Seabed Dissolved Oxygen: South 11/8/11 - 08/9/11

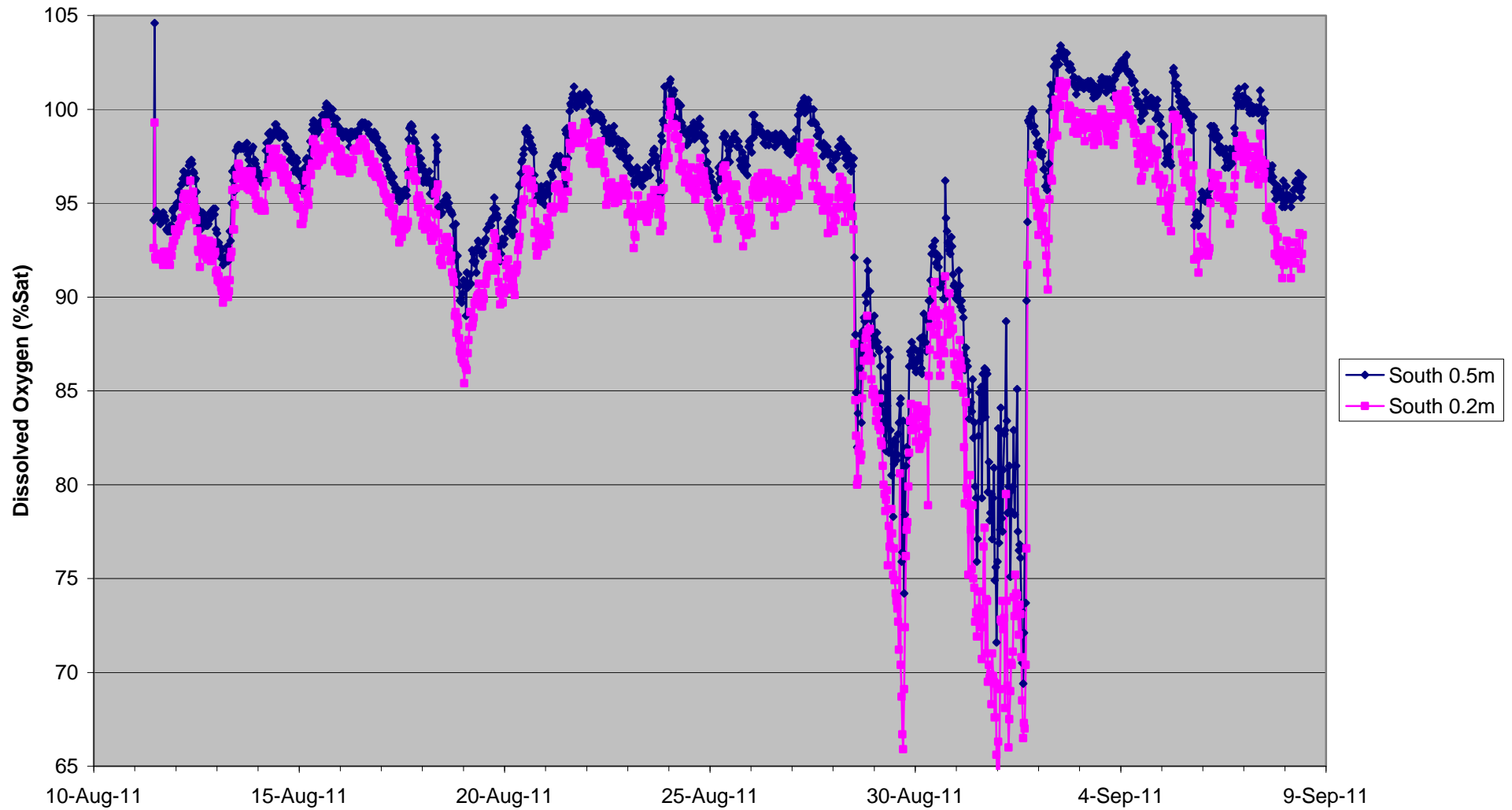


Figure 2(a): Near Seabed Dissolved Oxygen: South 11/8/11 – 8/9/11

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

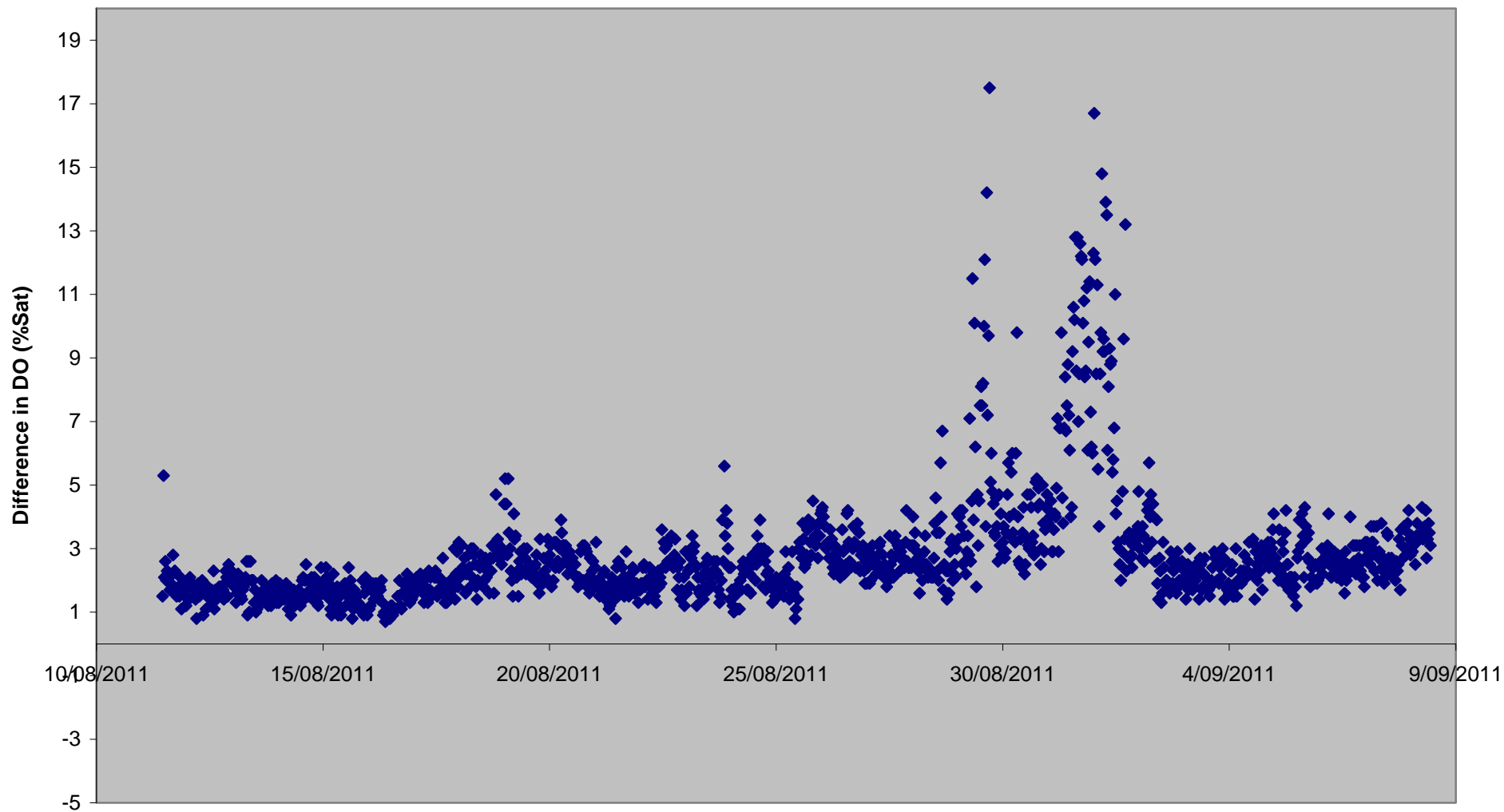


Figure 2(b): Difference in Near Seabed Dissolved Oxygen at South Site (0.5m – 0.2m)