

# **PERTH SEAWATER DESALINATION PLANT**

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

**1<sup>st</sup> June 2011**



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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 11/5/11 to 25/5/11 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 11/5/11 – 25/5/11**

	<b>Average Difference 0.5m – 0.2m</b>	<b>Maximum Difference</b>	<b>Time of Maximum Difference</b>
<b>North</b>	-0.05%	6.4%	22/05/2011 9:30am
<b>South</b>	-1.0%*	9.3%	24/05/2011 8:00pm

\*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  $\pm 2\%$  of that measured at 0.5m for the majority of the time (Figure 1(b)). Of note, between 13/5/2011 - 20/5/2011, the majority of readings showed DO% saturation up to 2% greater at 0.2m above sea bed. This reversed between the 20/5/2011 – 25/5/2011 where DO% saturation was typically up to 2% greater at 0.5m above sea bed. This variation resulted in the calculated average difference in DO% saturation of -0.05% between the two depths over the fortnight (the negative value representing an average 0.05% DO saturation greater at 0.2m above sea bed).

At South NSDO site, the dissolved oxygen saturation at 0.2m was measured consistently higher, on average 1.0%, than that at 0.5m above the seabed. For the majority of the time, dissolved oxygen saturation was up to 2% higher at 0.2m than at 0.5m above the seabed (Figure 2(b)).

Comparing dissolved oxygen measured between the two sites, some localisation was demonstrated with low dissolved oxygen recorded at South site around the 24/5/11. At the same time, dissolved oxygen at North site was recorded around 90% saturation. A decrease to around 75% dissolved oxygen saturation was recorded on the 22/5/11.

## **CONCLUSION**

Over the period 11/5/2011 to 25/5/2011, dissolved oxygen measured at 0.2m and 0.5m above the seabed tracked closely at both sites. Both sites demonstrated higher DO% saturation at 0.2m above sea bed for a significant proportion of the time.

# APPENDIX A: NSDO North

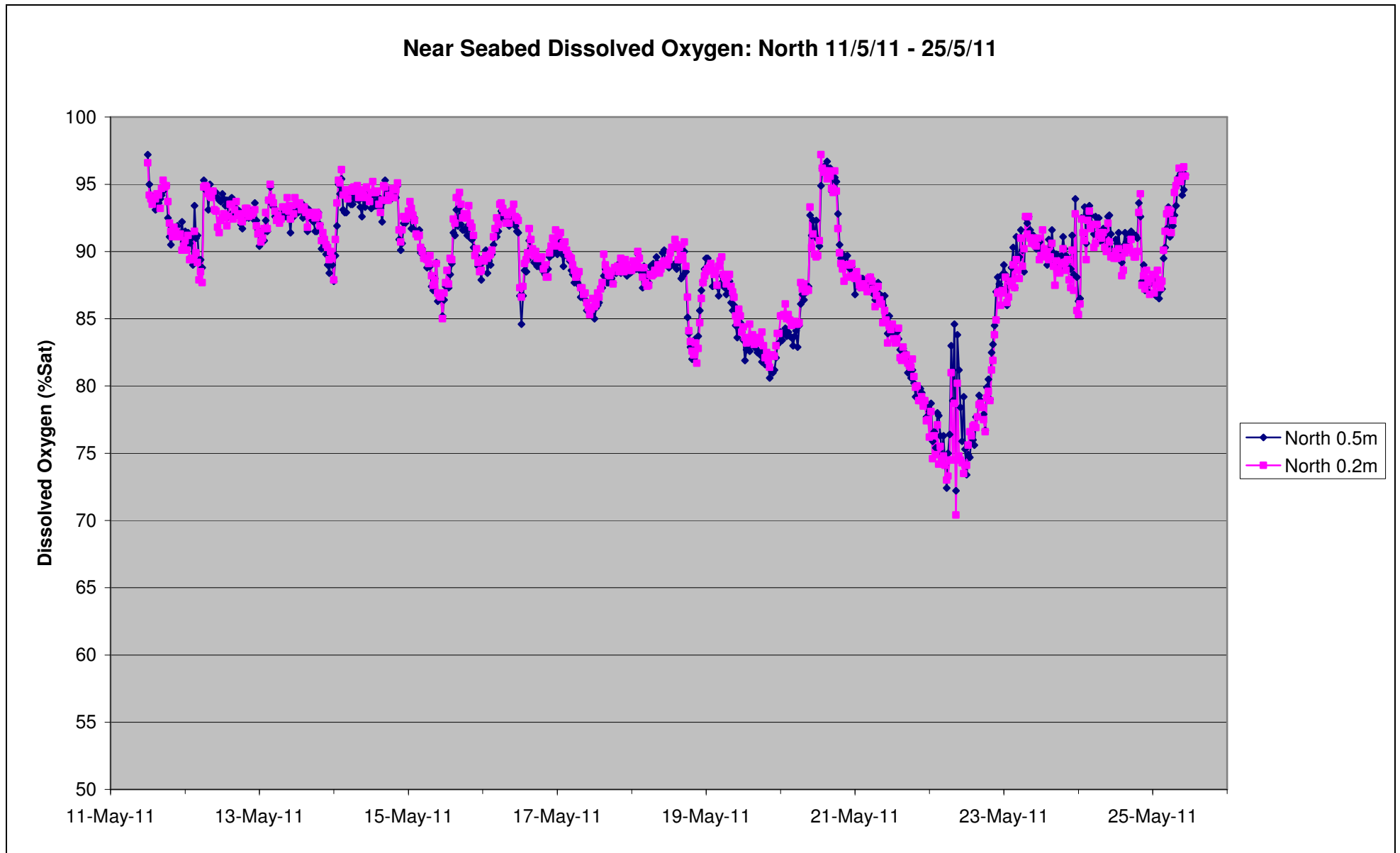


Figure 1(a): Near Seabed Dissolved Oxygen: North 11/5/11 – 25/5/11

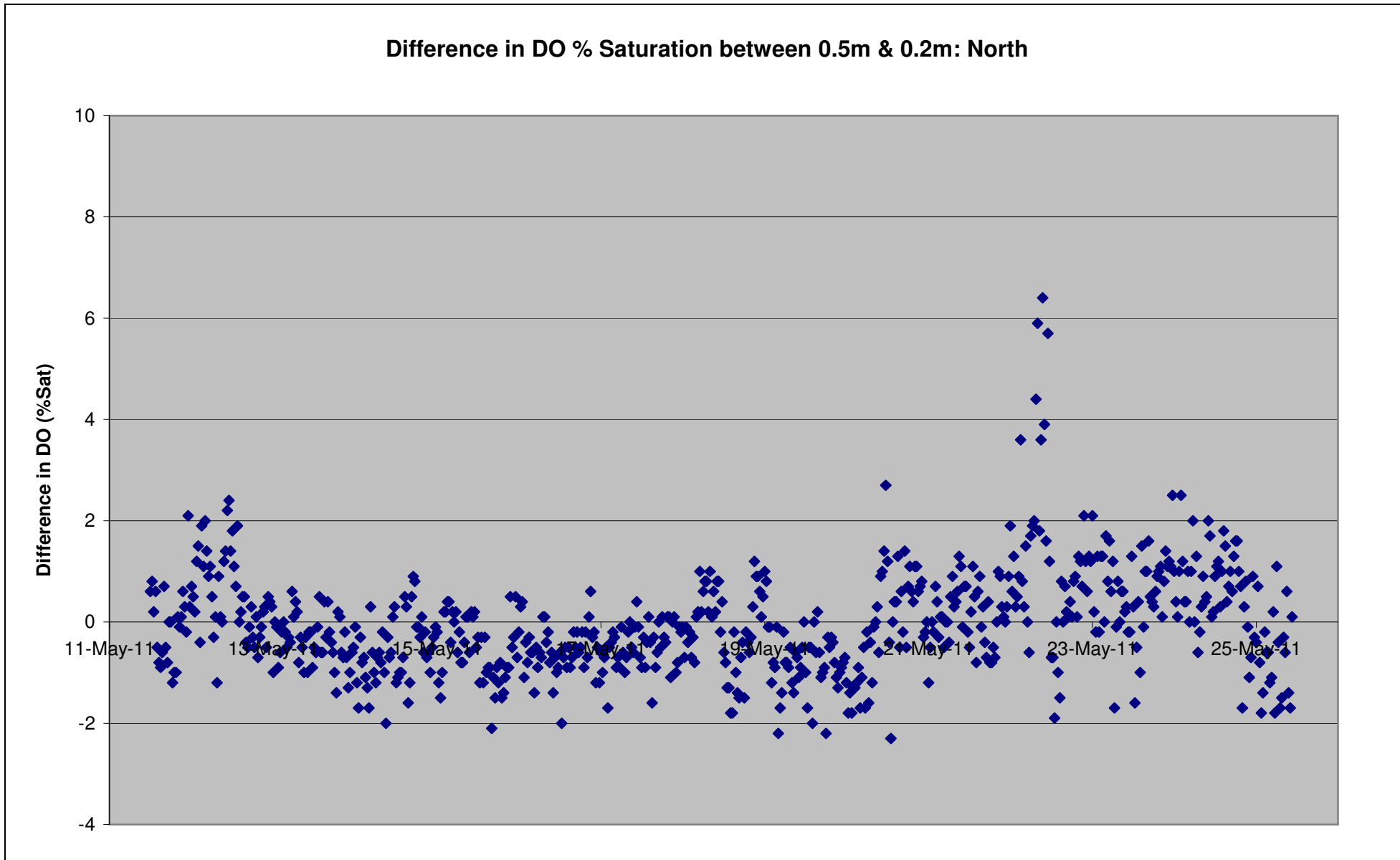


Figure 1(b): Difference in Near Seabed Dissolved Oxygen at North Site (0.5m – 0.2m)

# APPENDIX B: NSDO South

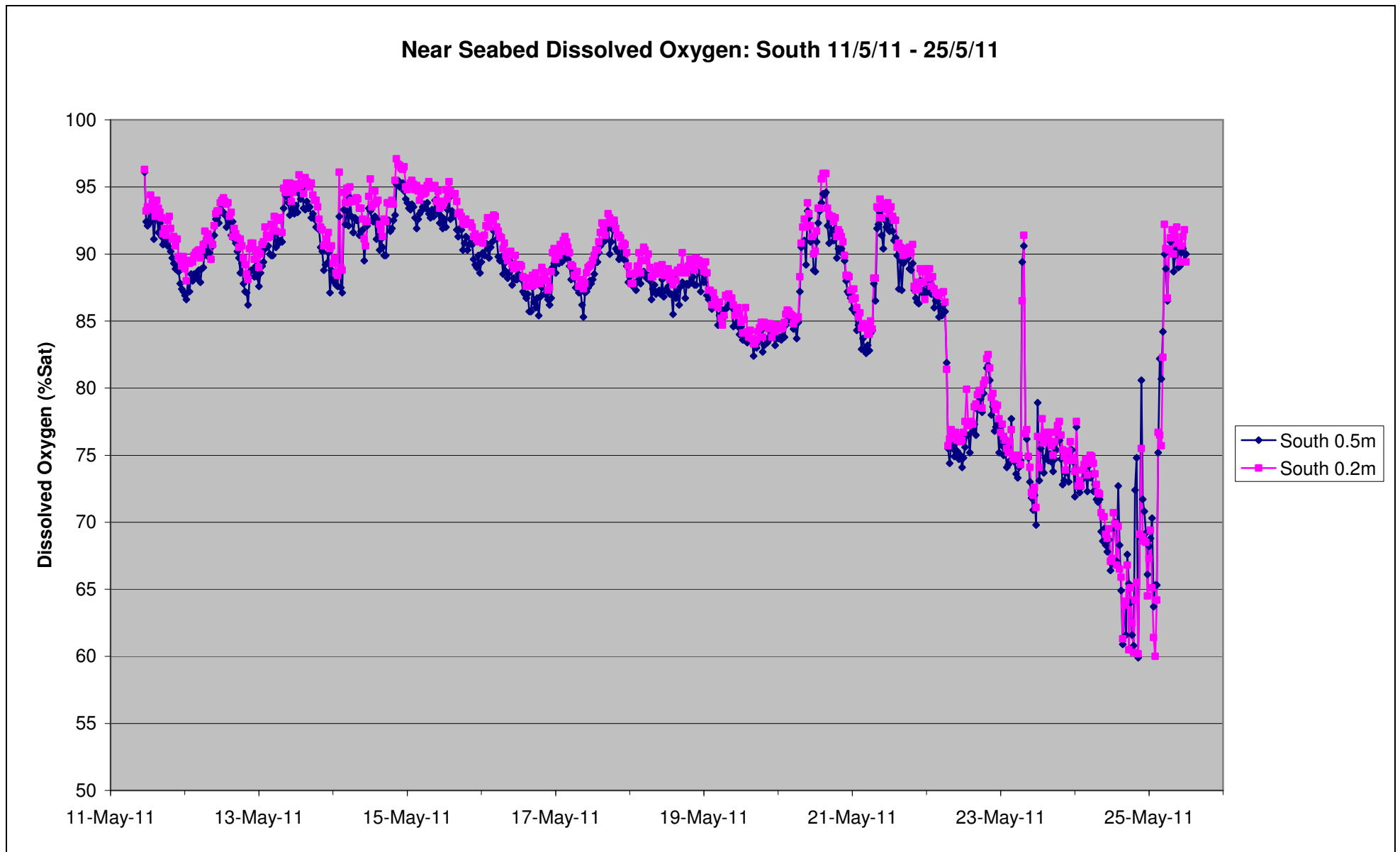


Figure 2(a): Near Seabed Dissolved Oxygen: South 11/5/11 – 25/5/11

