Annex B

Monitoring Results

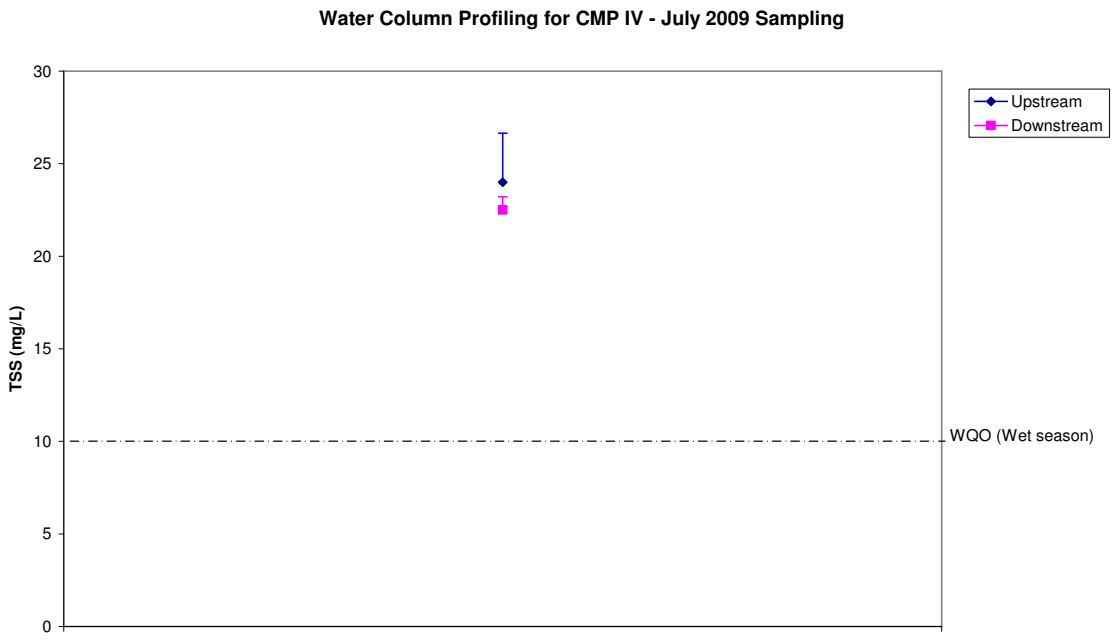

Figure 1: Total Suspended Solids (mean ± SD) during Water Column Profiling for CMP IV in July 2009.

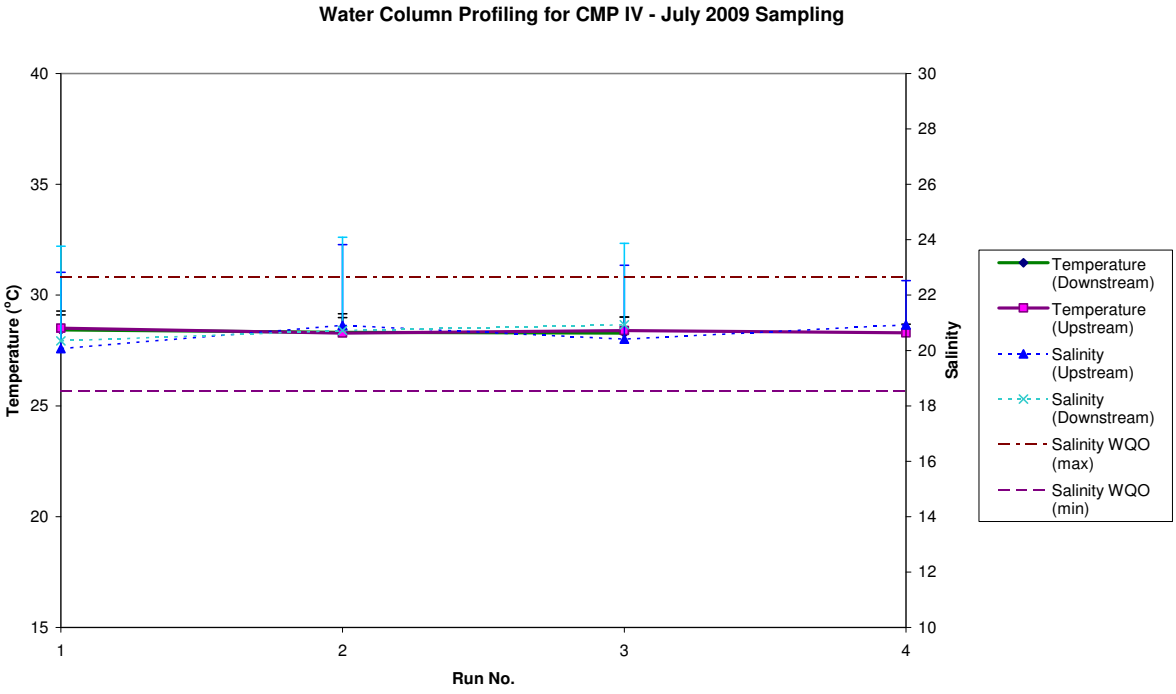

Figure 2: Salinity and Temperature (mean ± SD) during Water Column Profiling for CMP IV in July 2009.

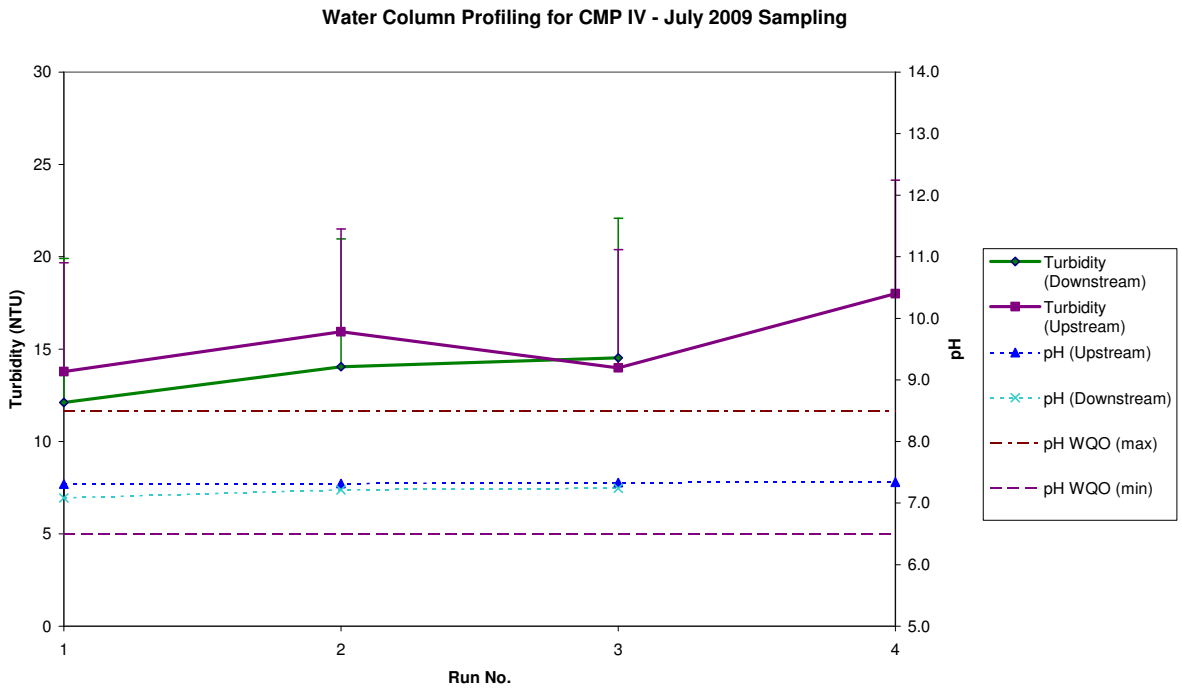

Figure 3: Turbidity and pH (mean ± SD) during Water Column Profiling for CMP IV in July 2009.

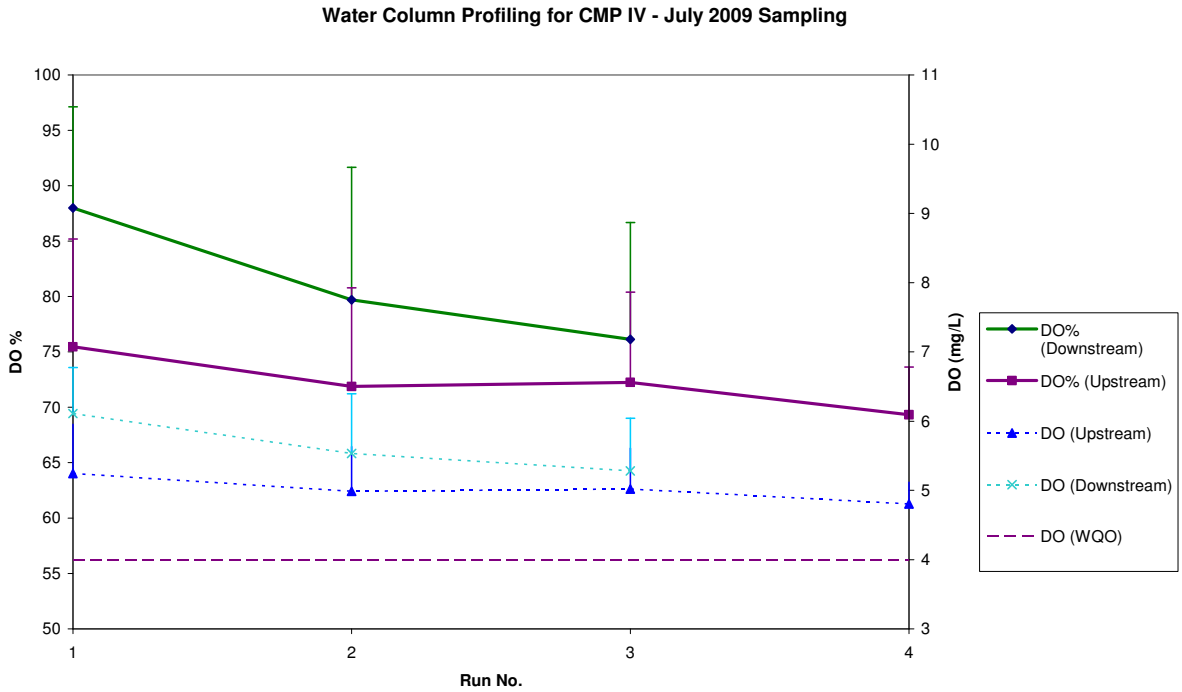

Figure 4: Dissolved Oxygen (mean ± SD) during Water Column Profiling for CMP IV in July 2009.

Source: H:\Team\EM\GMS Projects\0103262 CEDD EM&A for CMP at Sha Chau (2009 - 2013)\06 Contract Submission (LAM)\ 06.9 Water Column Profiling\July 2009

Date: 18/11/2009

Environmental Resources Management

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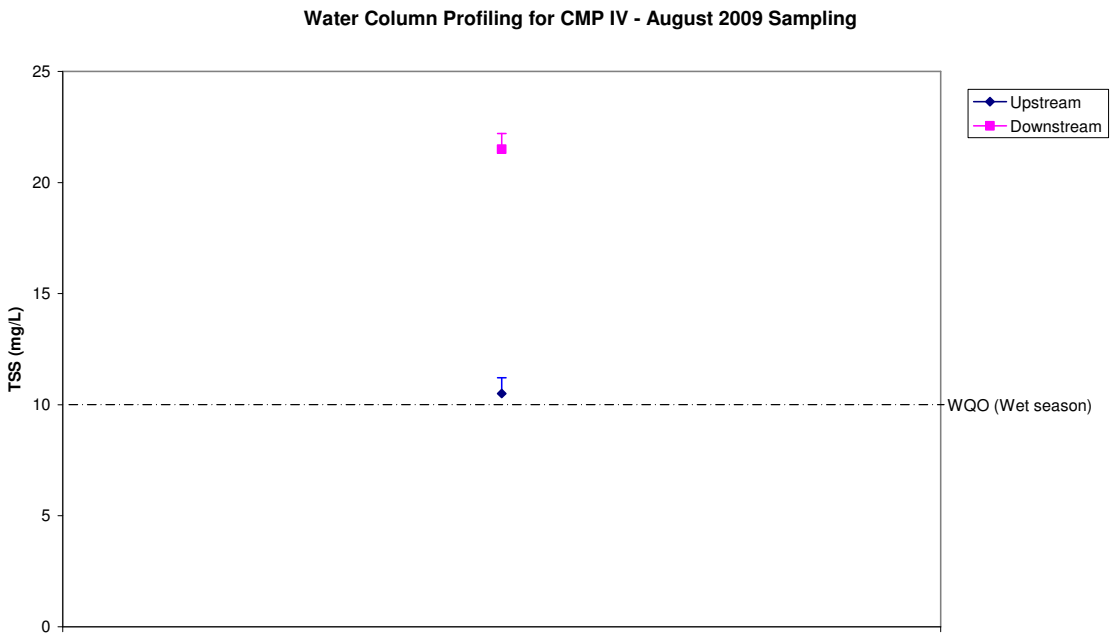

Figure 5: Total Suspended Solids (mean ± SD) during Water Column Profiling for CMP IV in August 2009.

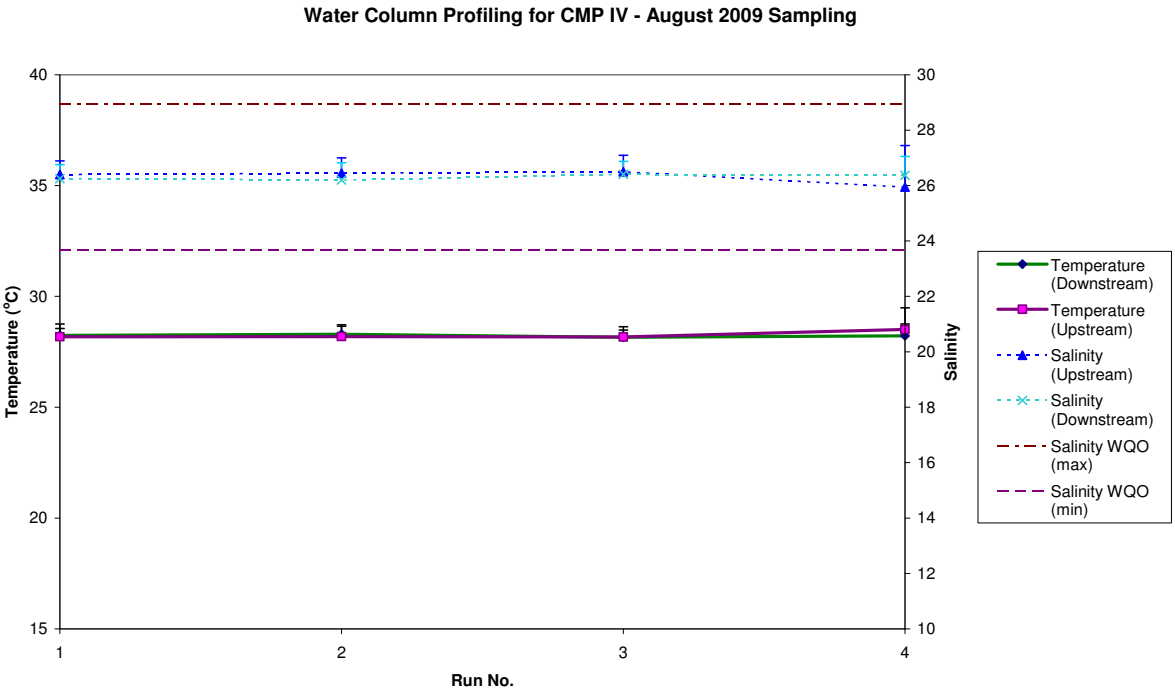

Figure 6: Salinity and Temperature (mean ± SD) during Water Column Profiling for CMP IV in August 2009.

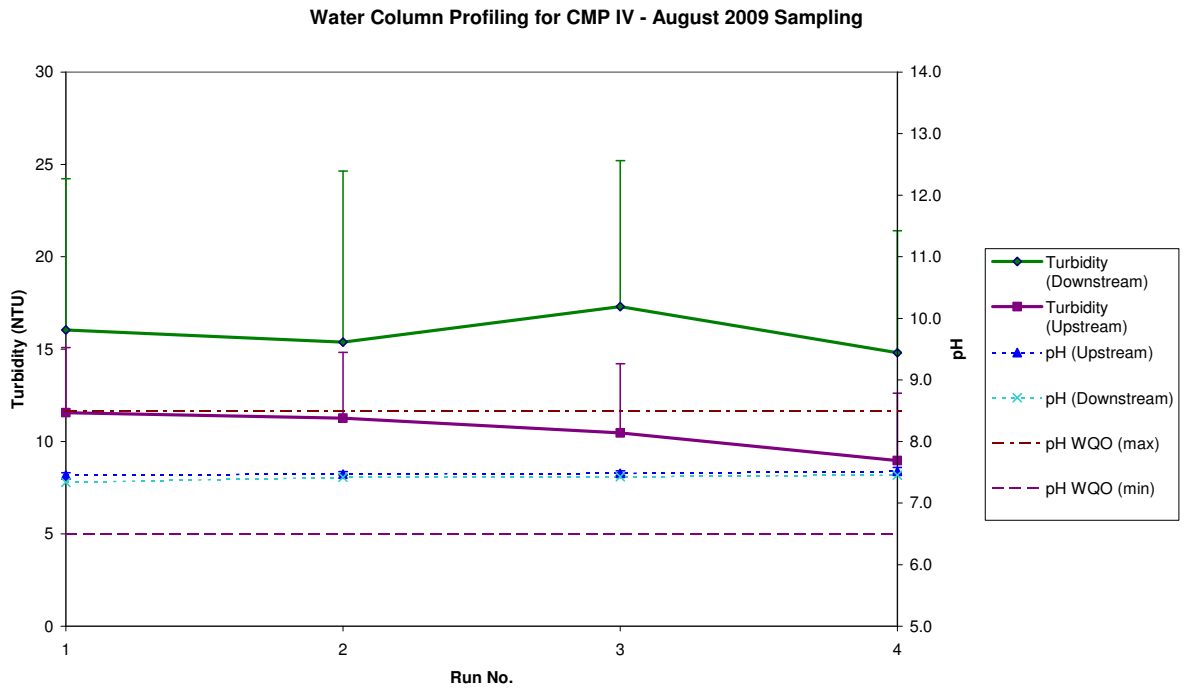

Figure 7: Turbidity and pH (mean ± SD) during Water Column Profiling for CMP IV in August 2009.

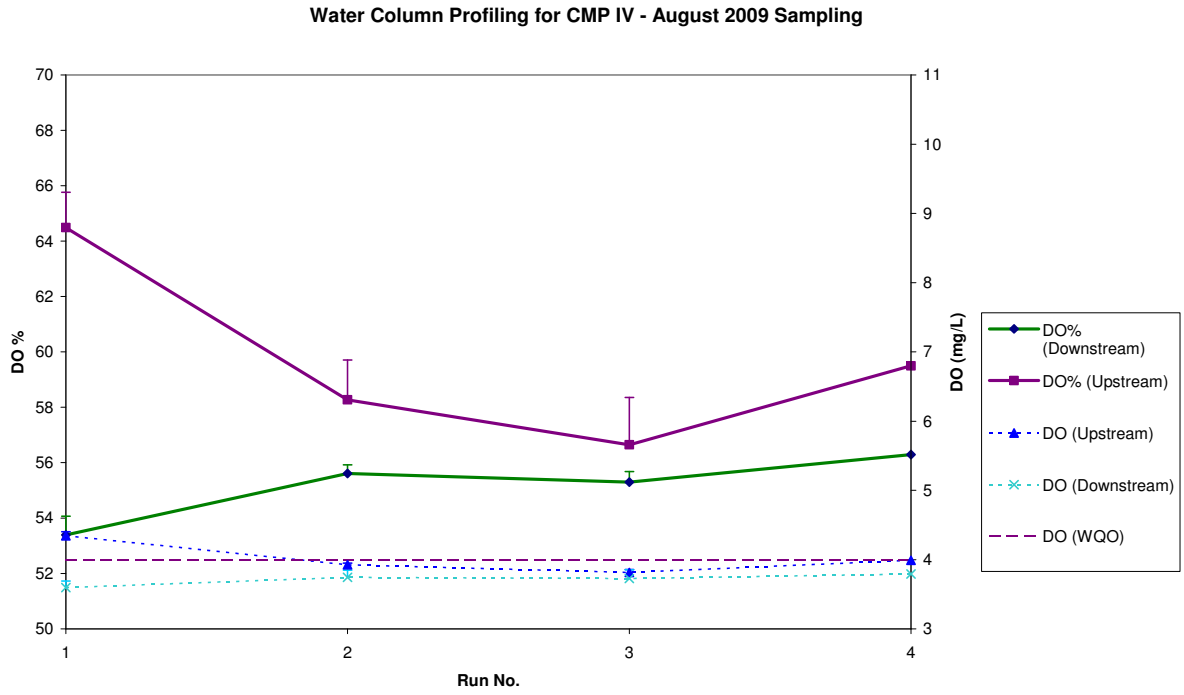

Figure 8: Dissolved Oxygen (mean ± SD) during Water Column Profiling for CMP IV in August 2009.

Source: H:\Team\EM\GMS Projects\0103262 CEDD EM&A for CMP at Sha Chau (2009 - 2013)\06 Contract Submission (LAM)\06.9 Water Column Profiling\August 2009

Date: 18/11/2009

Environmental Resources Management

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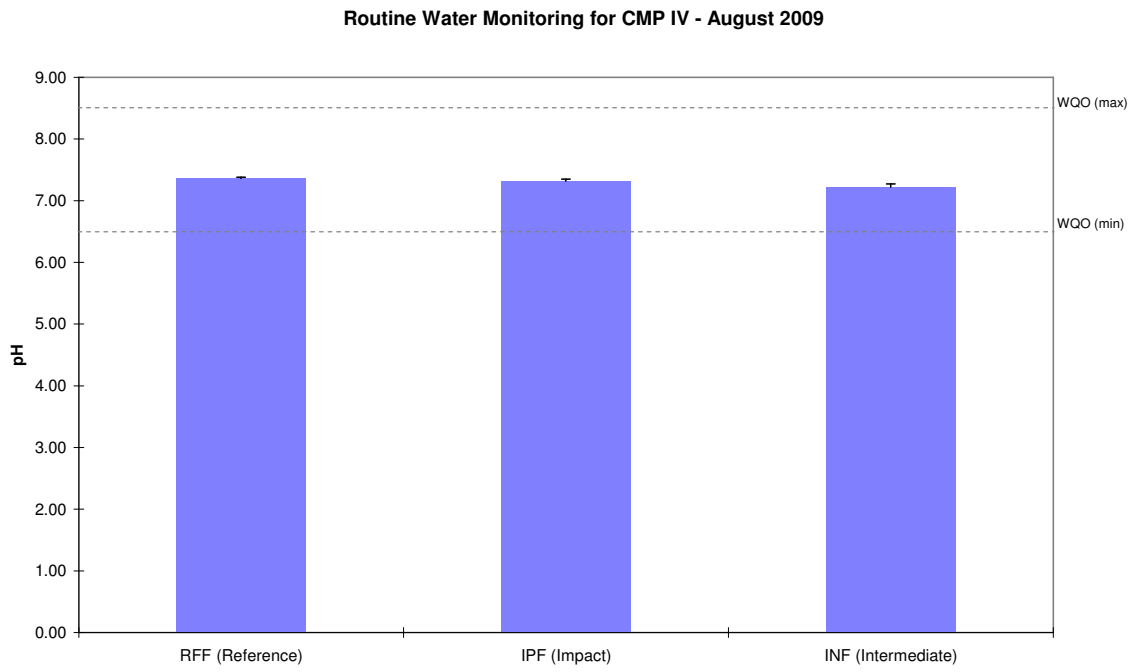

Figure 9: Level of pH (mean ± SD) during *in-situ* measurements for Routine Water Quality Monitoring for CMP IV in August 2009.

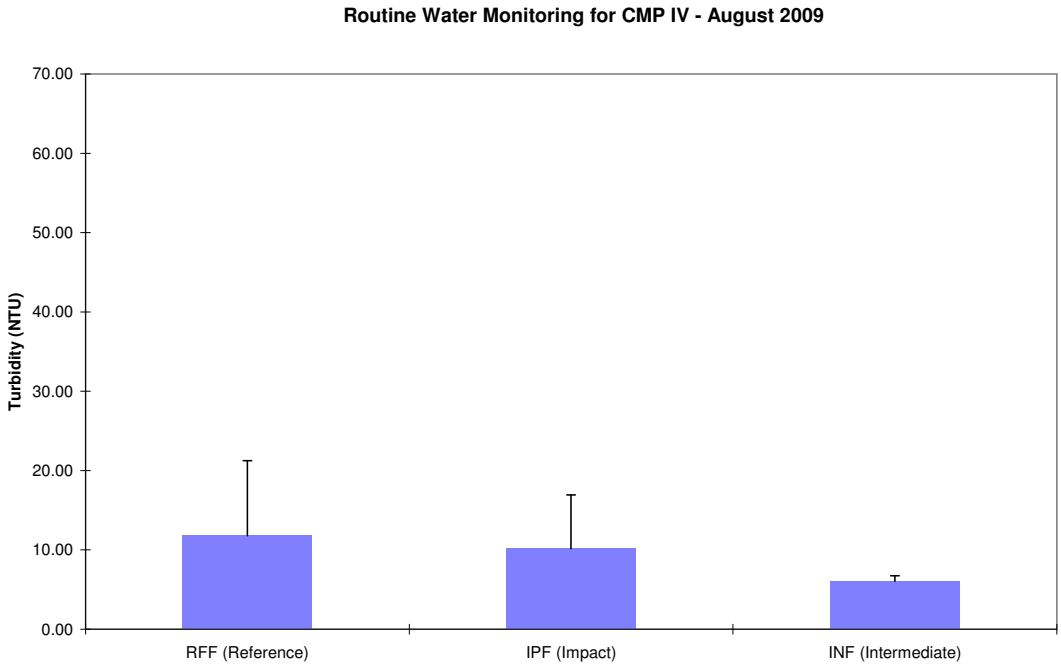

Figure 10: Level of Turbidity (mean ± SD) during *in-situ* measurements for Routine Water Quality Monitoring for CMP IV in August 2009.

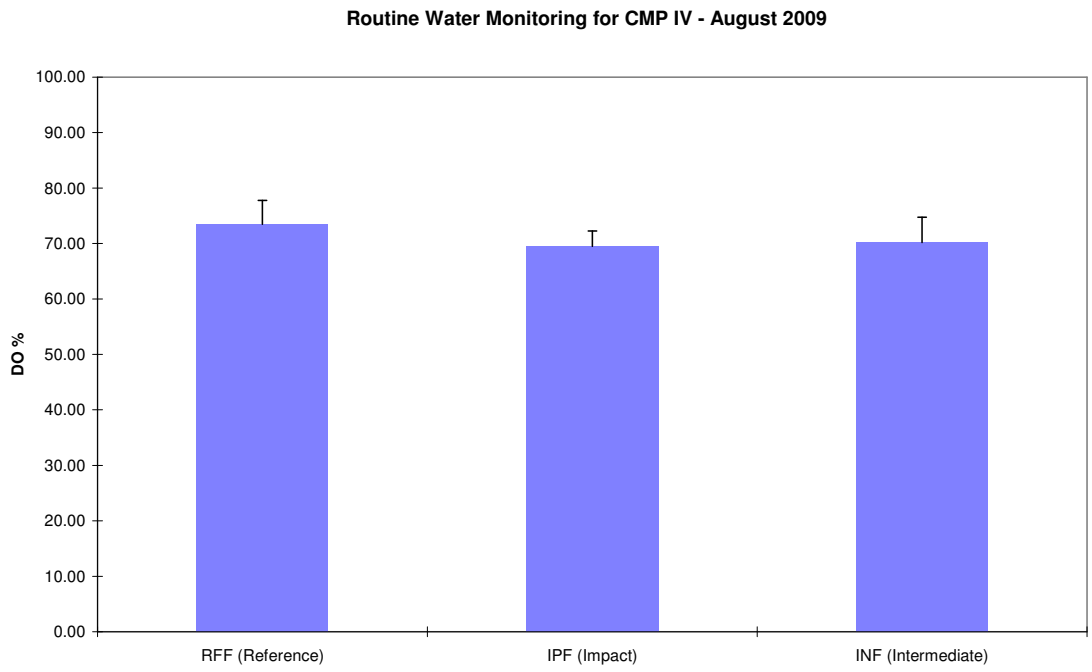

Figure 11: Level of Dissolved Oxygen (% mean ± SD) during *in-situ* measurements for Routine Water Quality Monitoring for CMP IV in August 2009.

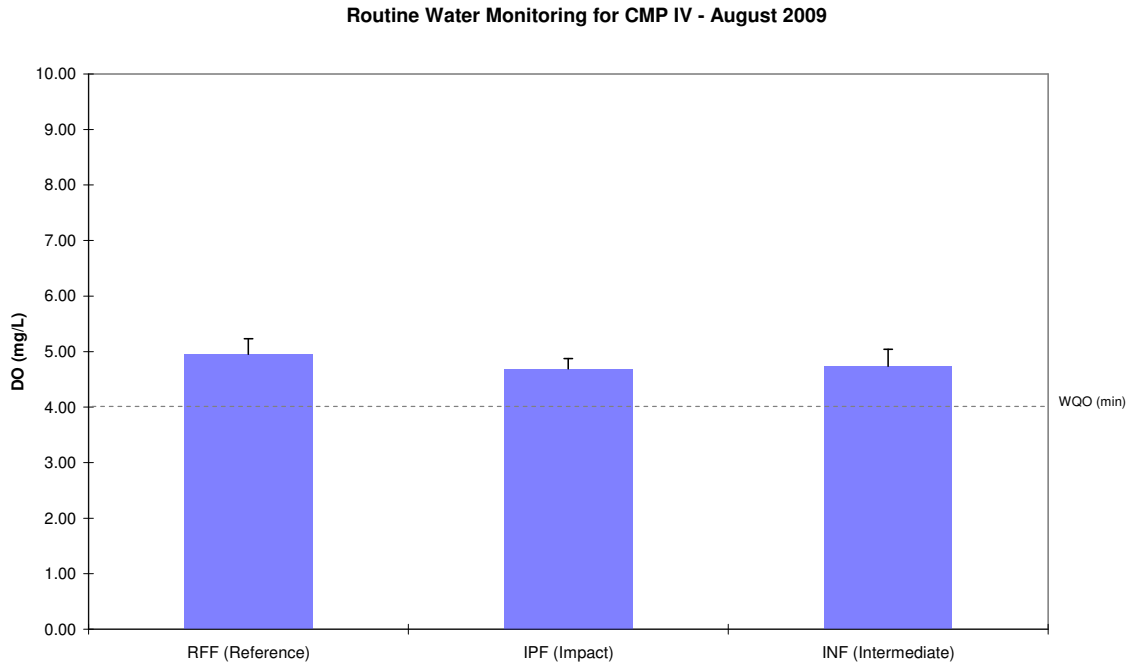

Figure 12: Concentration of Dissolved Oxygen (mg/L mean ± SD) during *in-situ* measurements for Routine Water Quality Monitoring for CMP IV in August 2009.

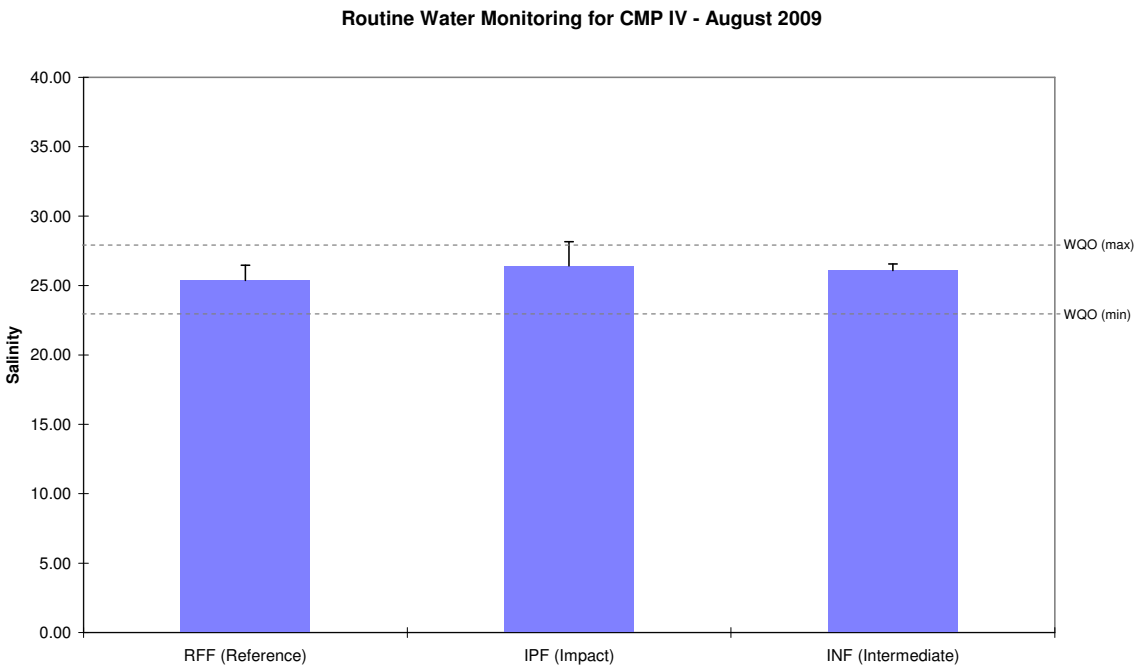

Figure 13: Level of Salinity (mean ± SD) during *in-situ* measurements for Routine Water Quality Monitoring for CMP IV in August 2009.

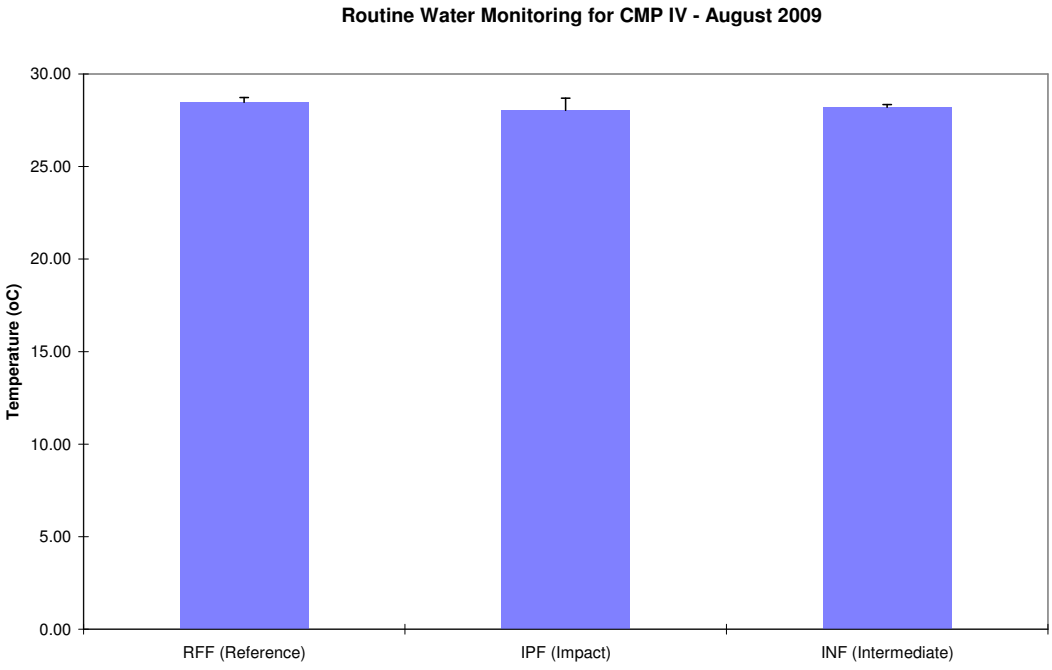

Figure 14: Temperature (mean ± SD) during *in-situ* measurements for Routine Water Quality Monitoring for CMP IV in August 2009.

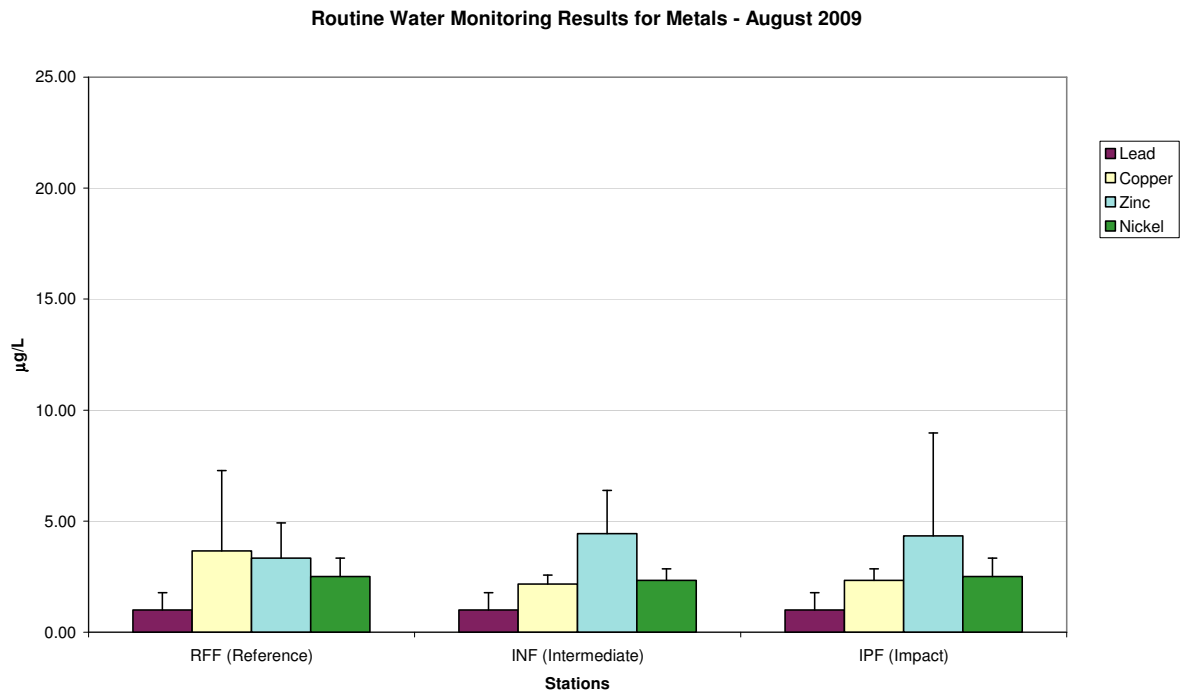

Figure 15: Concentration of Lead, Copper, Zinc and Nickel (mean ± SD) in water samples for Routine Water Quality Monitoringfor CMP IV in August 2009. Note: All other metals (As, Cd, Cr Hg and Ag) were below the limit of detection.

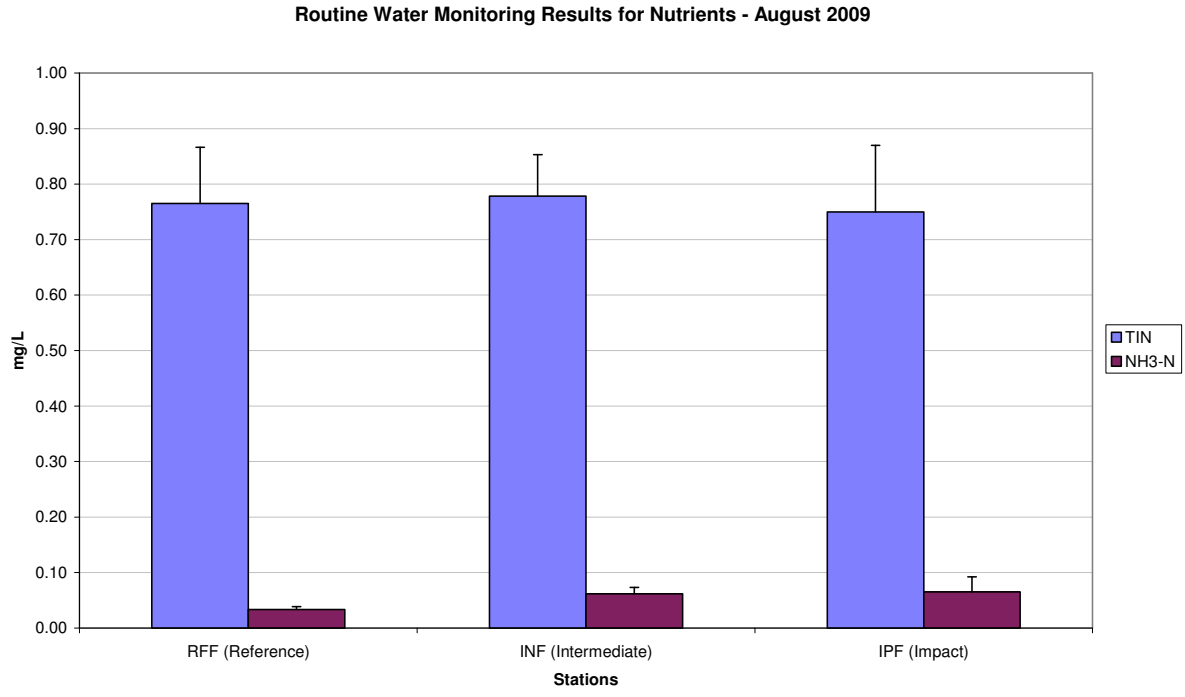

Figure 16: Concentration of Total Inorganic Nitrogen (mean ± SD) in water samples for Routine Water Quality Monitoring for CMP IV in August 2009.

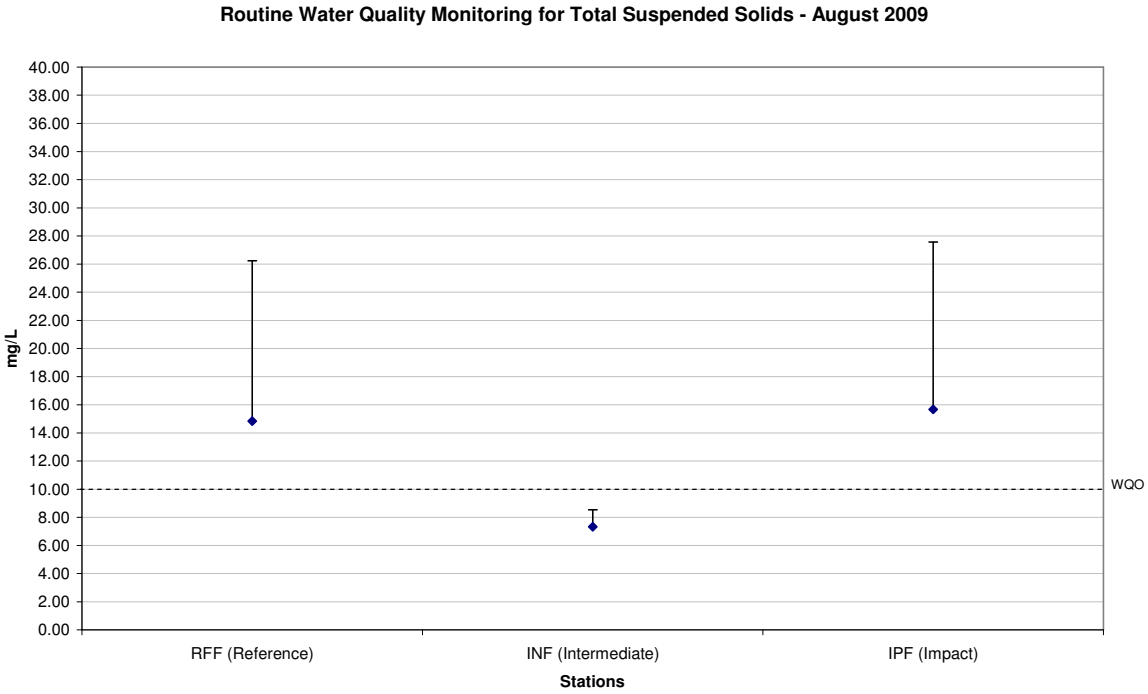

Figure 17: Concentration of Total Suspended Solids (mean ± SD) in water samples for Routine Water Quality Monitoring for CMP IV in August 2009.

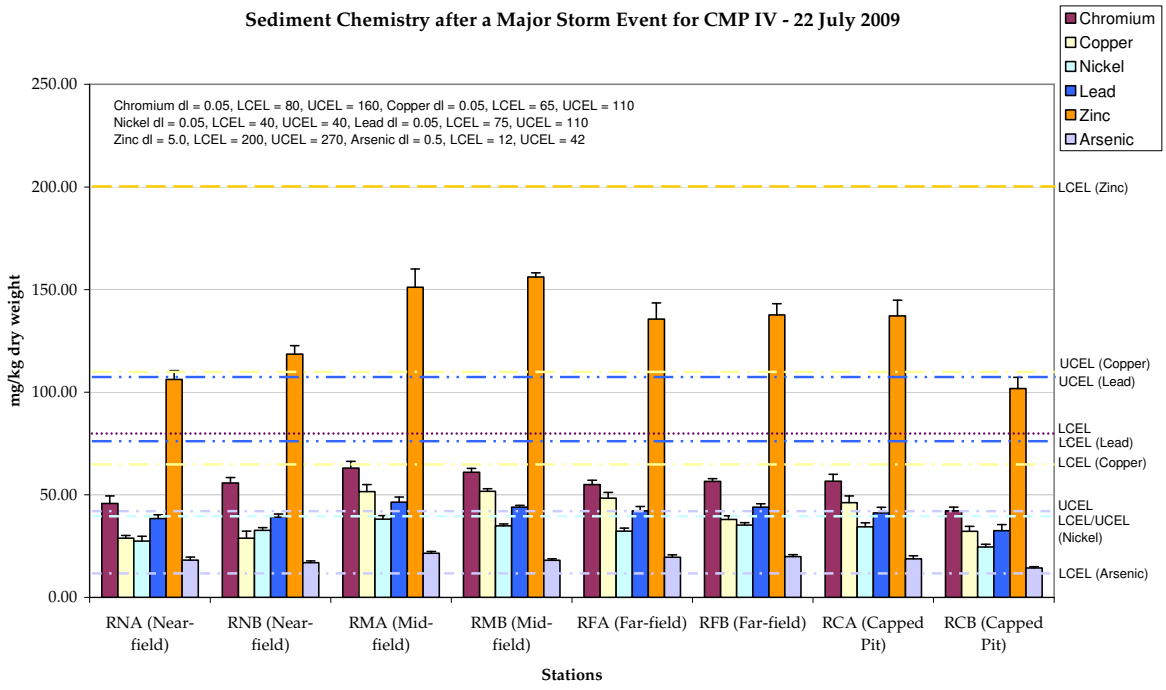

Figure 18: Concentrations of Metals (mean ± SD) during Sediment Chemistry after a Major Storm Event for CMP IV on 22 July 2009.

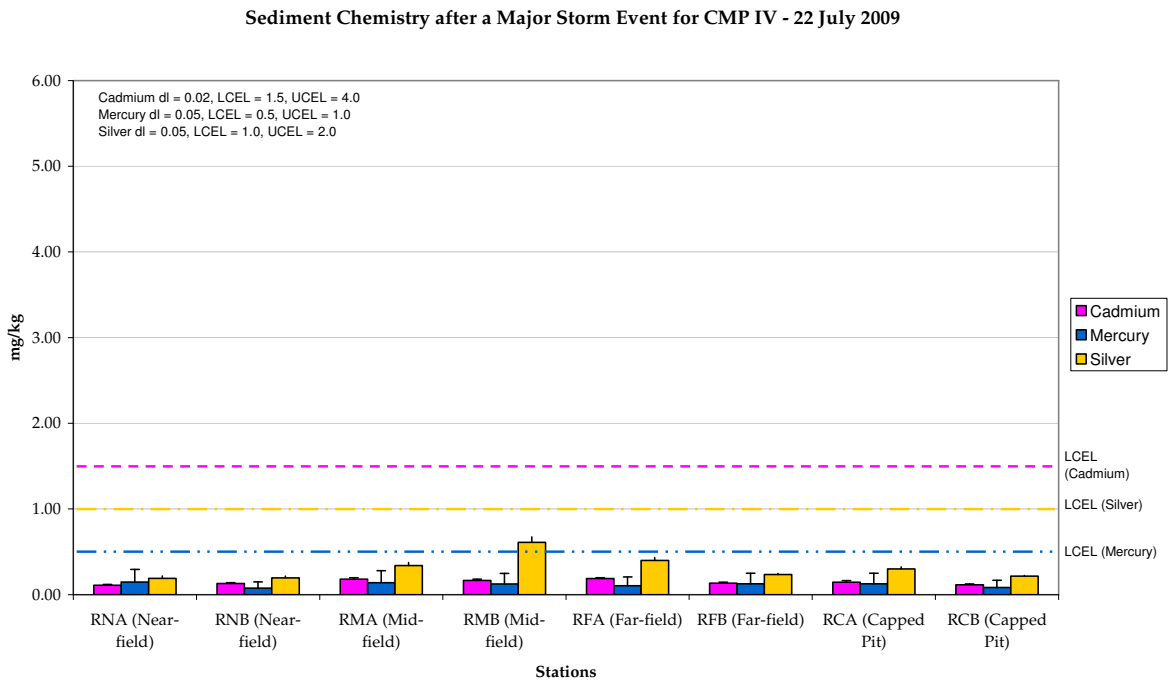

Figure 19: Concentrations of Metals (mean ± SD) during Sediment Chemistry after a Major Storm Event for CMP IV on 22 July 2009.

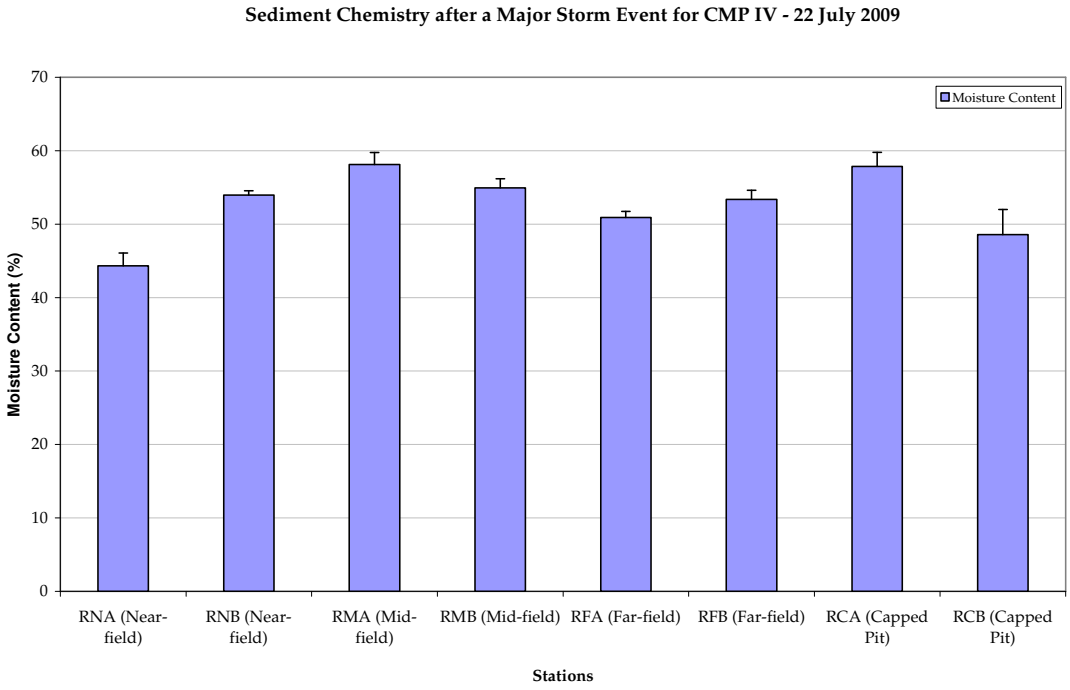

Figure 20: Moisture Content of Sediment (mean ± SD) during Sediment Chemistry after a Major Storm Event for CMP IV on 22 July 2009.

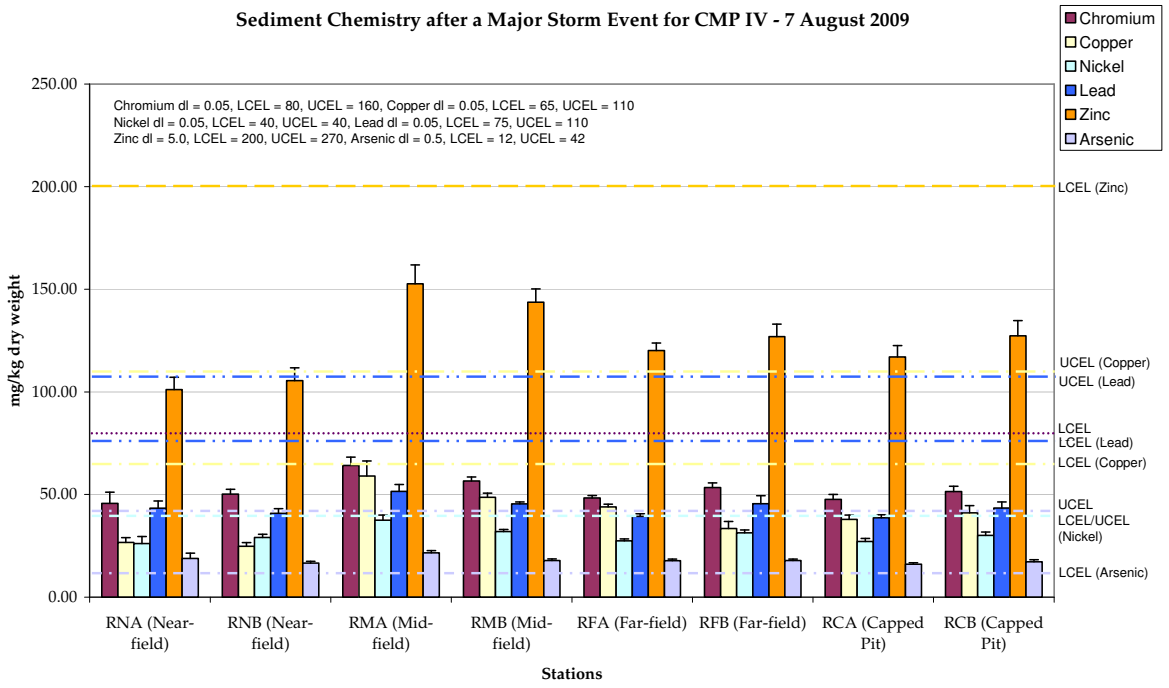

Figure 21: Concentrations of Metals (mean ± SD) during Sediment Chemistry after a Major Storm Event for CMP IV on 7 August 2009.

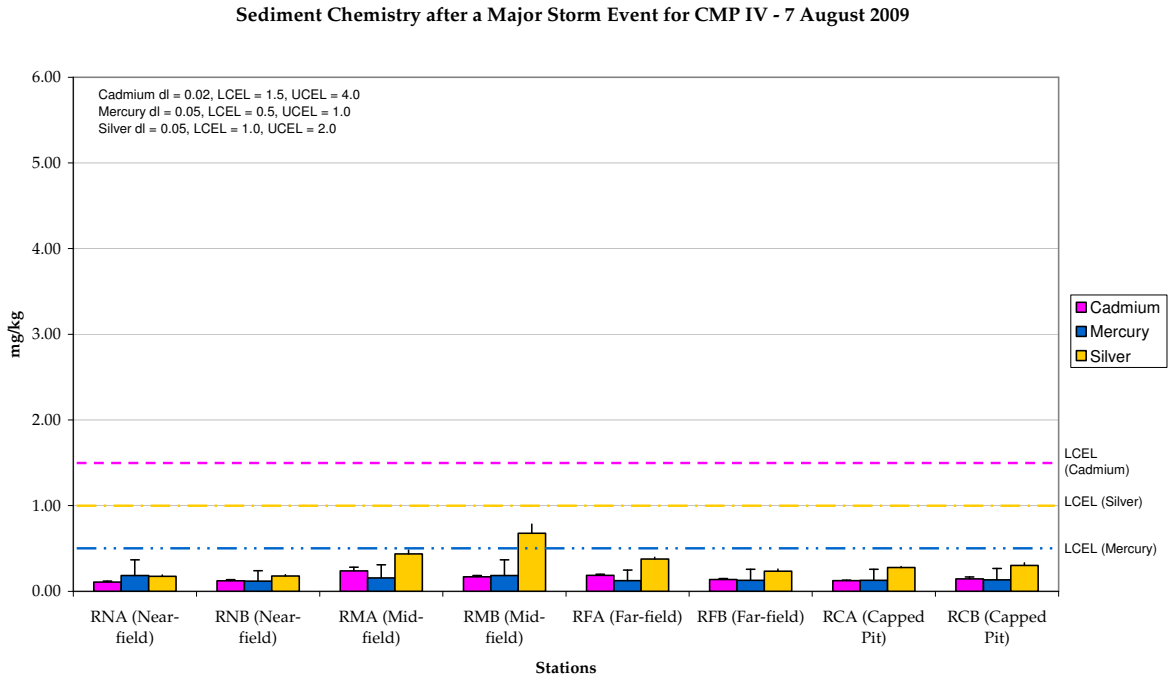

Figure 22: Concentrations of Metals (mean ± SD) during Sediment Chemistry after a Major Storm Event for CMP IV on 7 August 2009.

Source:	H:\Team\EM\GMS Projects\0103262 CEDD EM&A for CMP at Sha Chau (2009 - 2013)\06 Contract Submission (LAM)\06.11 Storm Sediment Chemistry\August 2009	**Environmental Resources Management**
Date:	18/11/2009	ERM

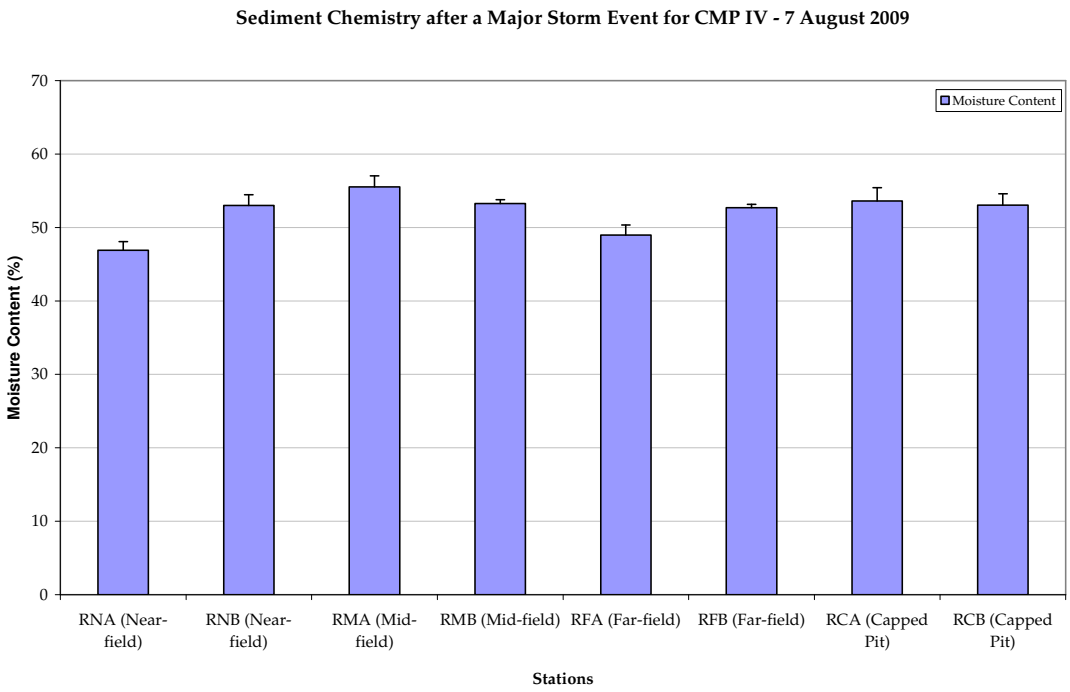

Figure 23: Moisture Content of Sediment (mean ± SD) during Sediment Chemistry after a Major Storm Event for CMP IV on 7 August 2009.

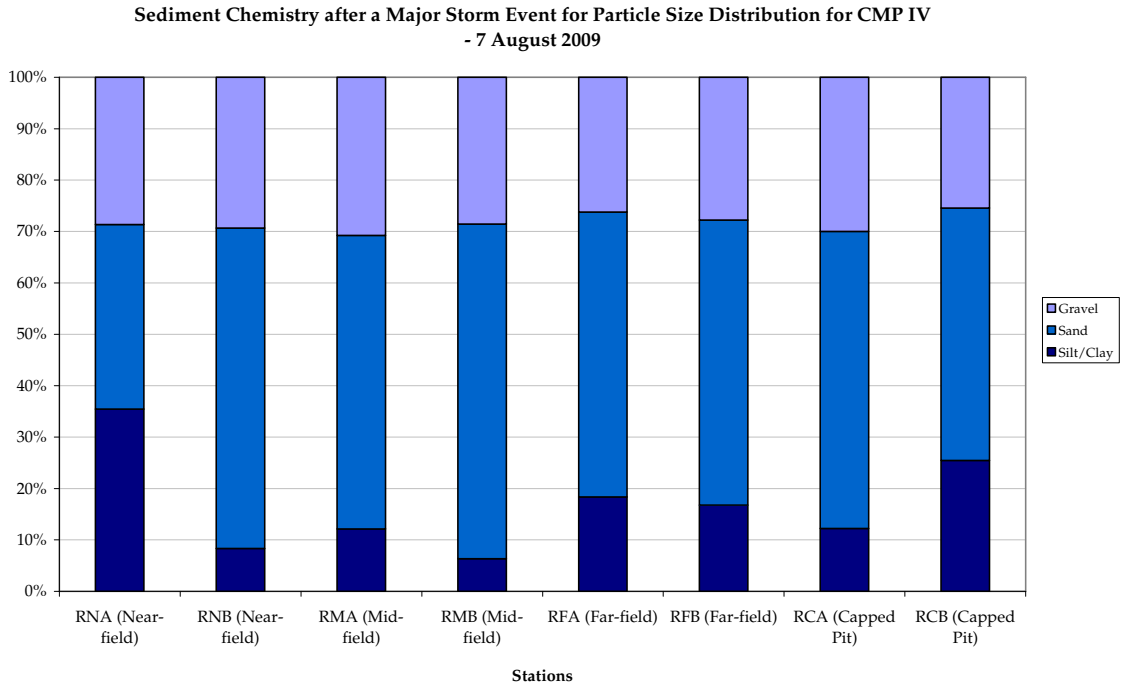

Figure 24: Particle Size Distribution (% mean) during Sediment Chemistry after a Major Storm Event for CMP IV on 7 August 2009.

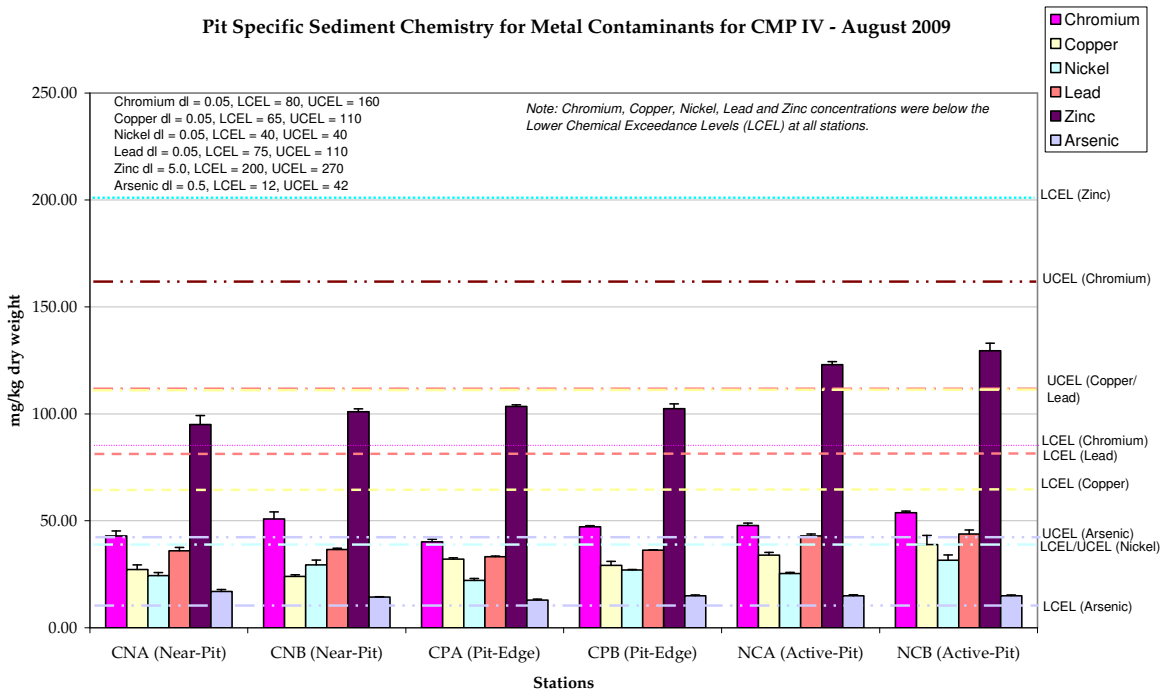

Figure 25: Concentration of Metals (Cr, Cu, Ni, Pb, Zn, As) in sediment samples for Pit Specific Sediment Chemistry for CMP IV during August 2009.

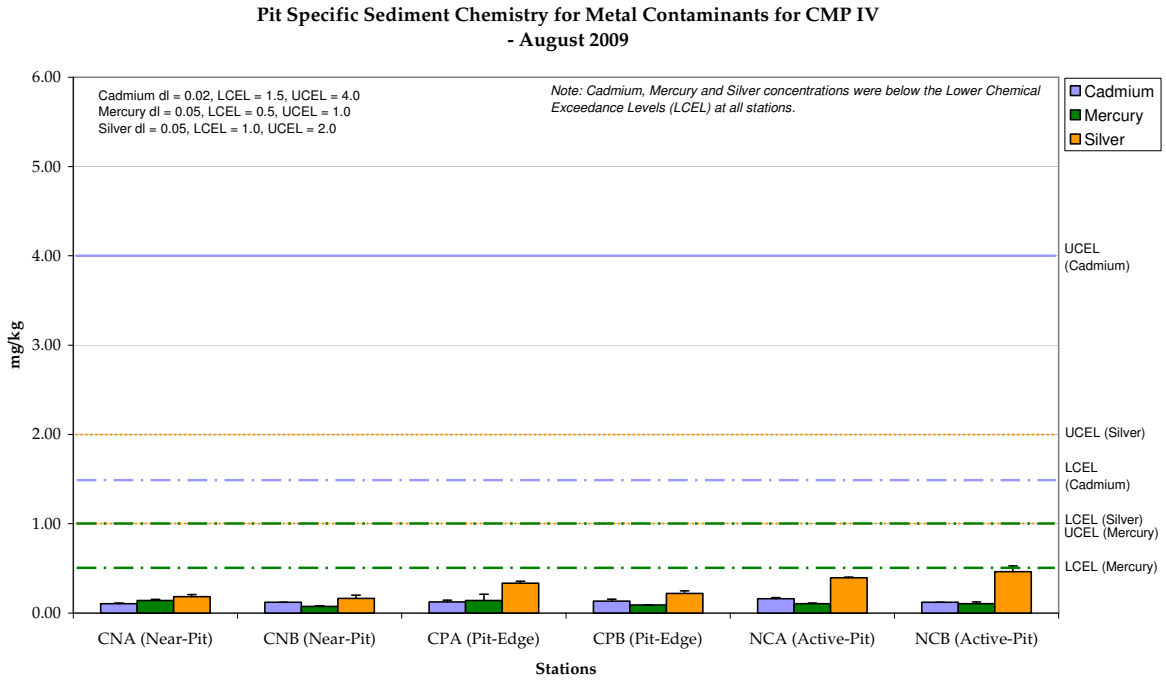

Figure 26: Concentration of Metals (Cd, Hg, Ag) in sediment samples for Pit Specific Sediment Chemistry for CMP IV during August 2009.

Source:	H:\Team\EM\GMS Projects\0103262 CEDD EM&A for CMP at Sha Chau (2009 - 2013)\06 Contract Submission (LAM)\06.3 Pit Specific Sediment Chemistry\August 2009	**Environmental Resources Management**
Date:	18/11/2009	ERM

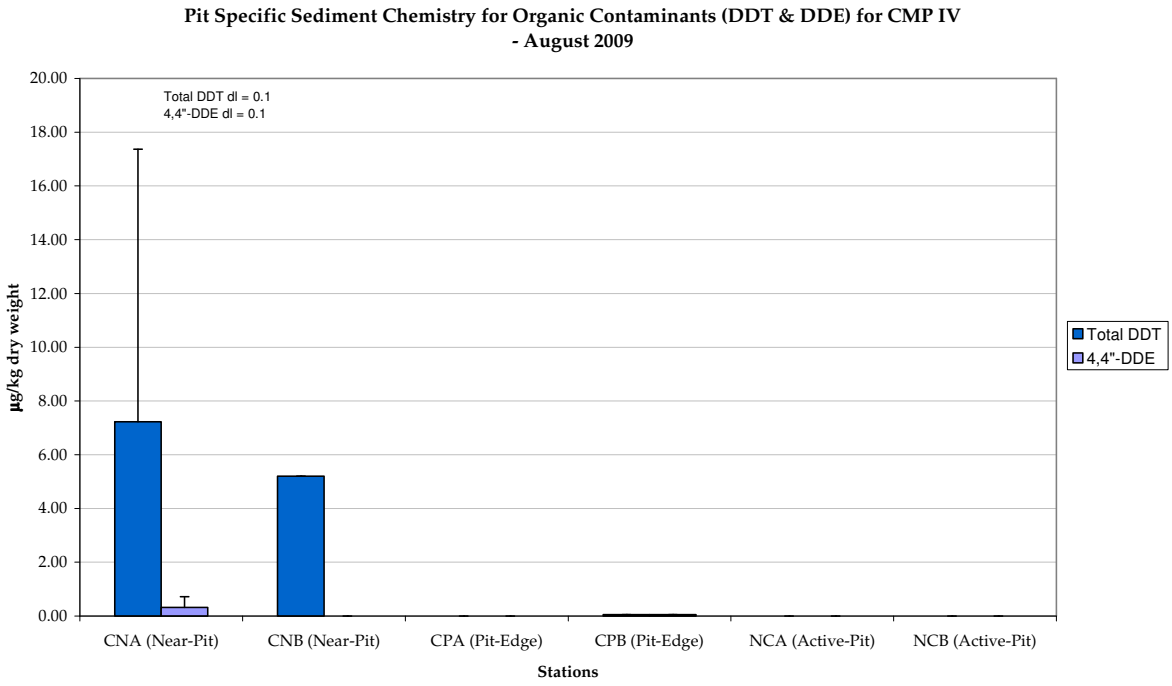

Figure 27: Concentration of DDT and DDE in sediment samples for Pit Specific Sediment Chemistry for CMP IV during August 2009.

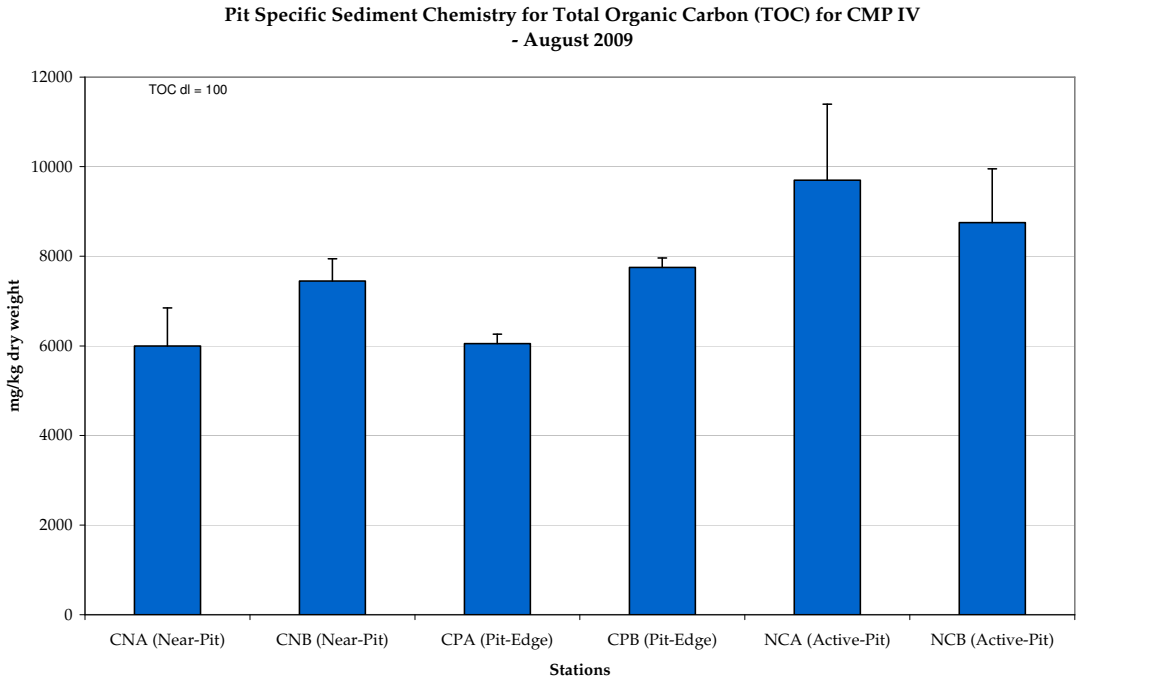

Figure 28: Concentration of Total Organic Carbon (TOC) in sediment samples for Pit Specific Sediment Chemistry during August 2009.

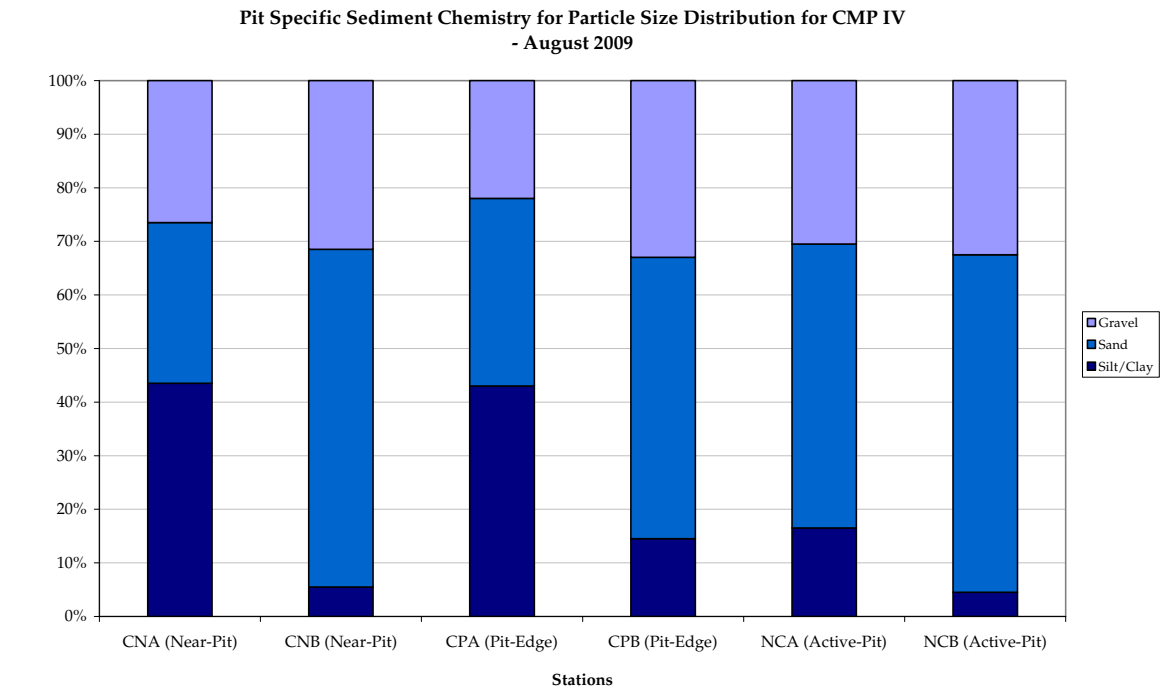

Figure 29: Particle Size Distribution (% mean) of sediment samples for Pit Specific Sediment Chemistry during August 2009.

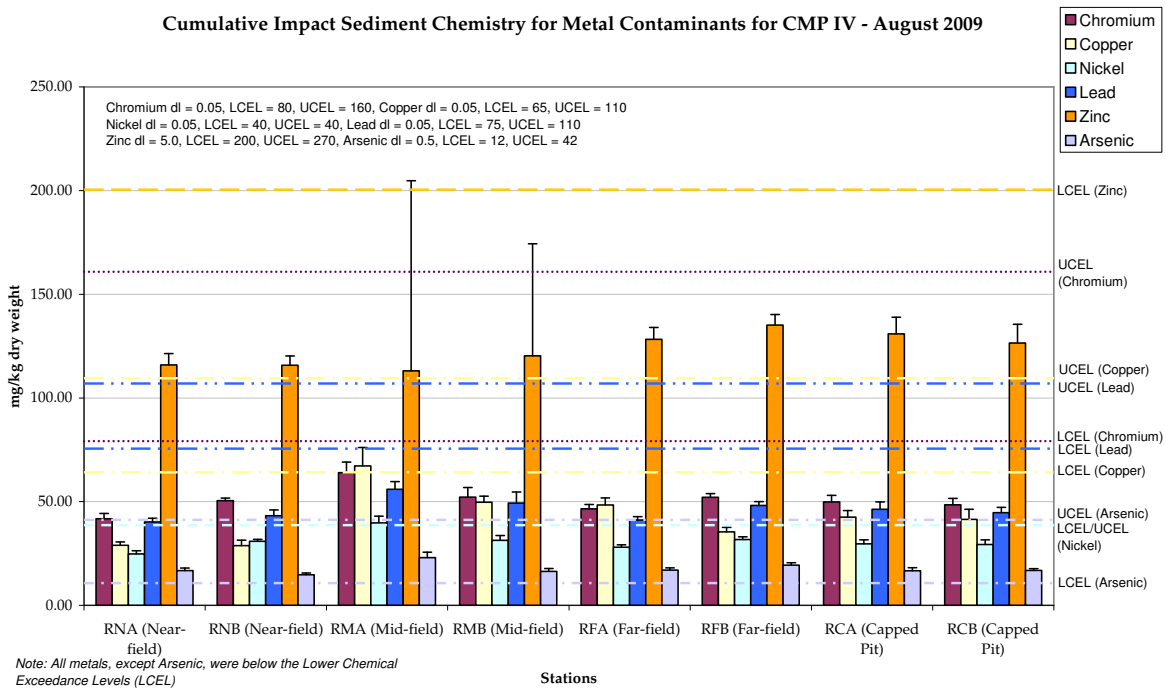

Figure 30: Concentration of Metals (Cr, Cu, Ni, Pb, Zn, As) in sediment samples for Cumulative Impact Sediment Analysis for CMP IV during August 2009.

Source: H:\Team\EM\GMS Projects\0103262 CEDD EM&A for CMP at Sha Chau (2009 - 2013)\06 Contract Submission (LAM)\06.4 Cumulative Impact Sediment Chemistry\August 2009

Date: 18/11/2009

Environmental Resources Management

ERM

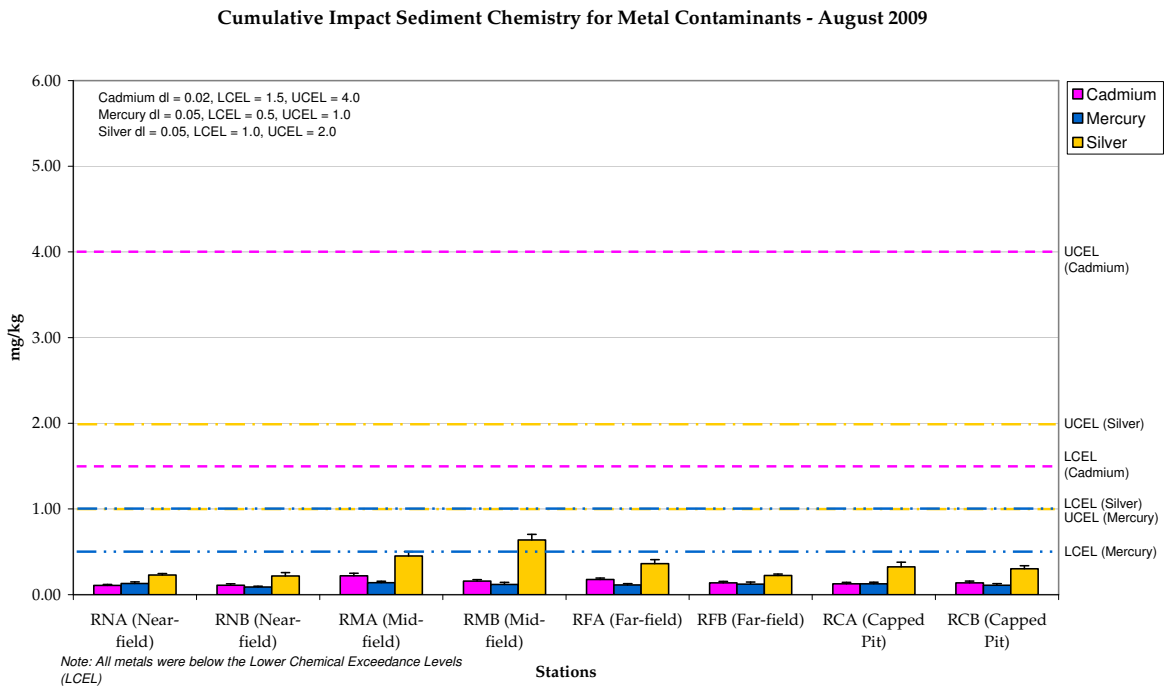

Figure 31: Concentration of Metals (Cd, Hg, Ag) in sediment samples for Cumulative Impact Sediment Analysis for CMP IV during August 2009.

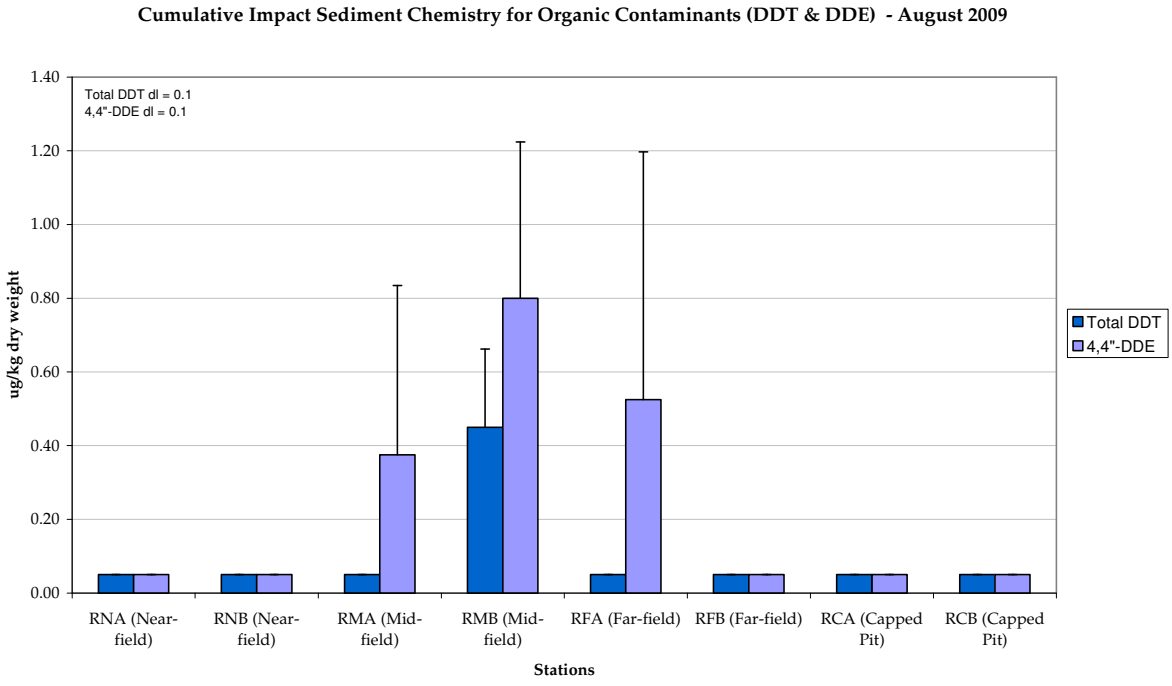

Figure 32: Concentration of DDT and DDE in sediment samples for Cumulative Impact Sediment Analysis for CMP IV during August 2009.

Source:	H:\Team\EM\GMS Projects\0103262 CEDD EM&A for CMP at Sha Chau (2009 - 2013)\06 Contract Submission (LAM)\06.4 Cumulative Impact Sediment Chemistry\August 2009	**Environmental Resources Management**	ERM
Date:	18/11/2009		

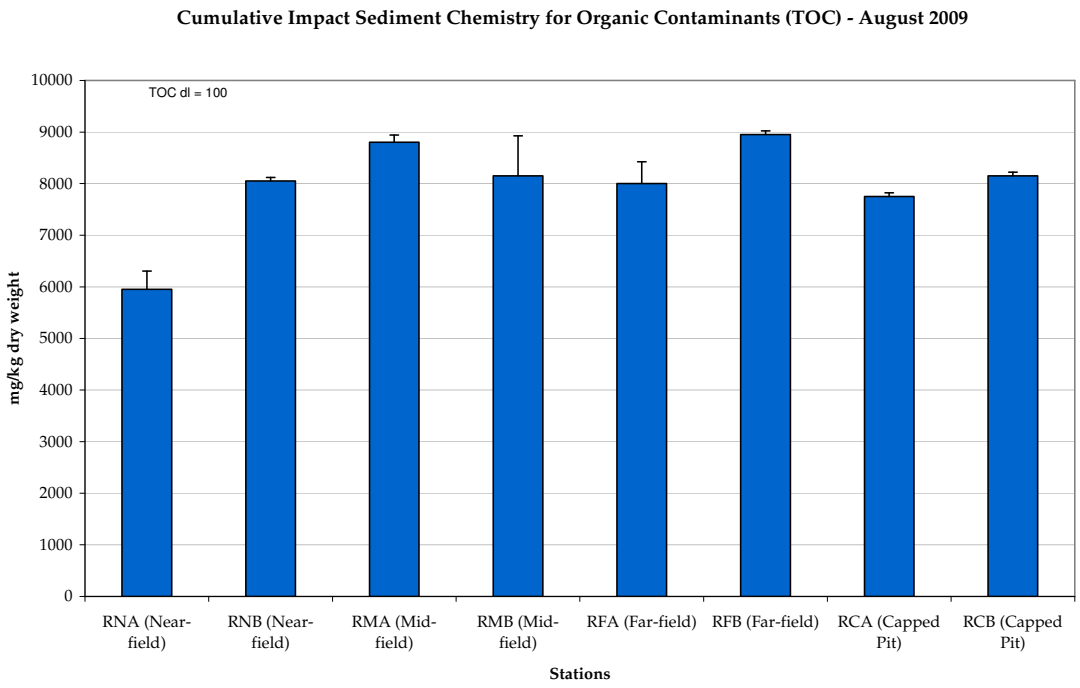

Figure 33: Concentration of Total Organic Carbon (TOC) in sediment samples for Cumulative Impact Sediment Analysis during August 2009.

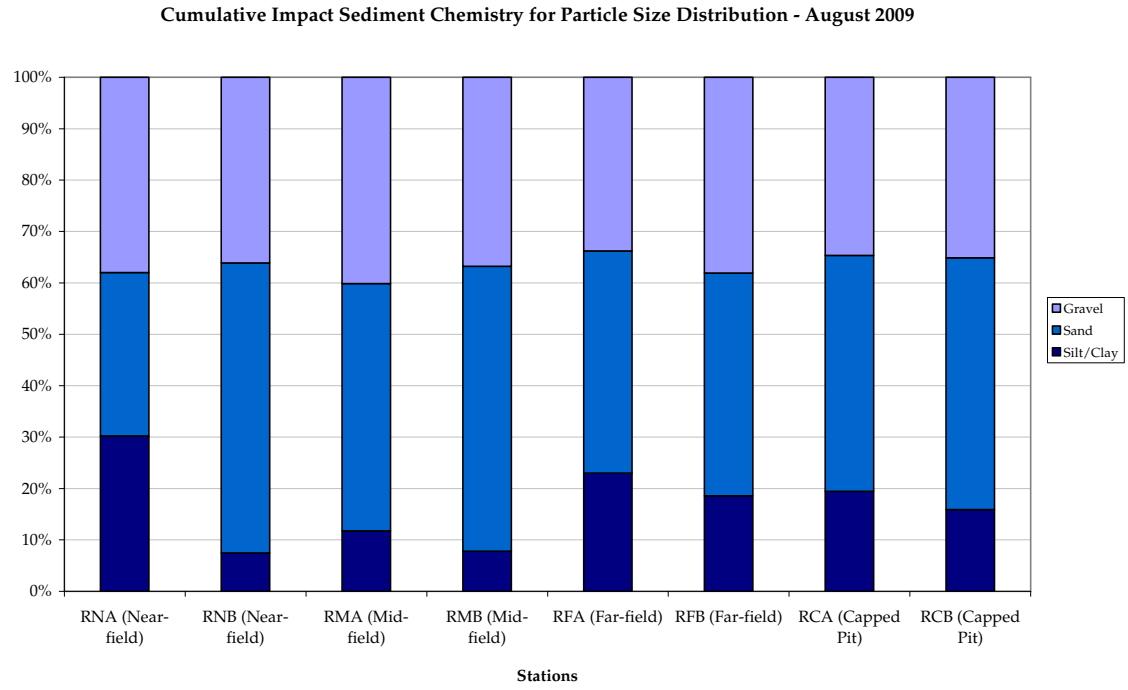

Figure 34: Particle Size Distribution (%) of sediment samples for Cumulative Impact Sediment Analysis during August 2009.

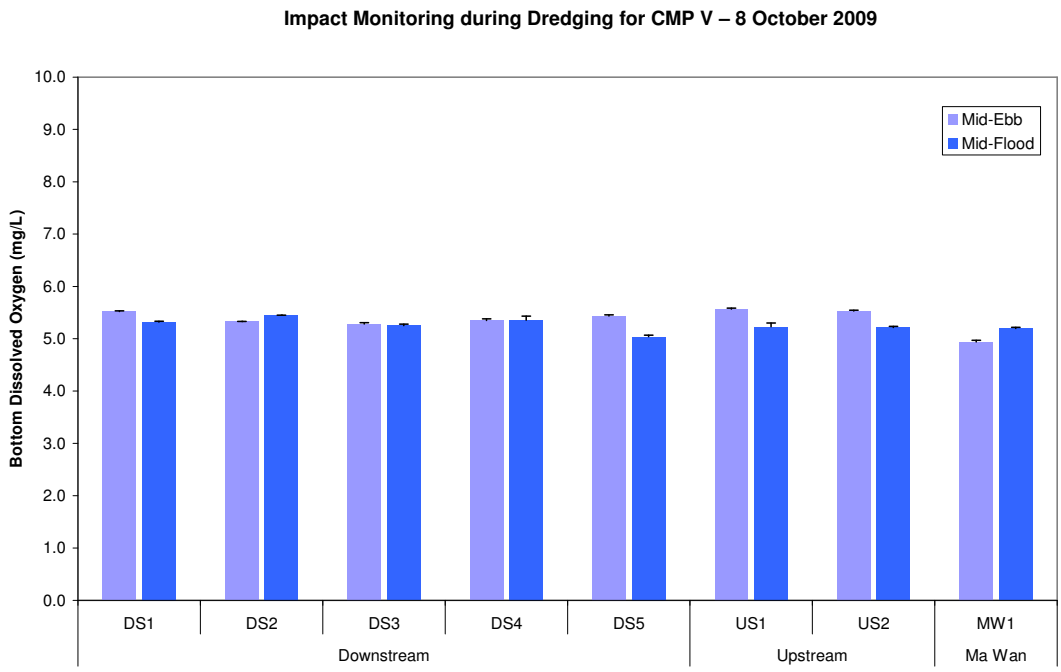

Figure 35: Bottom DO Level (mean ± SD) at Downstream (DS1, DS2, DS3, DS4 and DS5 stations), Upstream (US1 and US2 stations) and Ma Wan (MW1 station) during Impact Monitoring for Dredging on 8 October 2009.

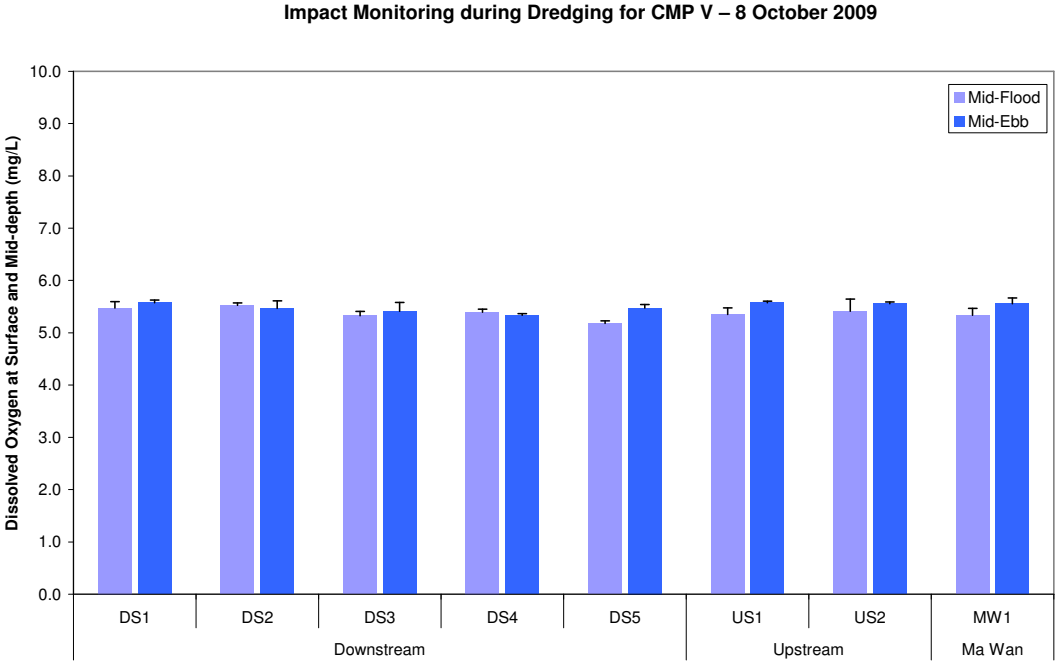

Figure 36: DO Level at Surface and Mid-depth (mean ± SD) at Downstream (DS1, DS2, DS3, DS4 and DS5 stations), Upstream (US1 and US2 stations) and Ma Wan (MW1 station) during Impact Monitoring for Dredging on 8 October 2009.

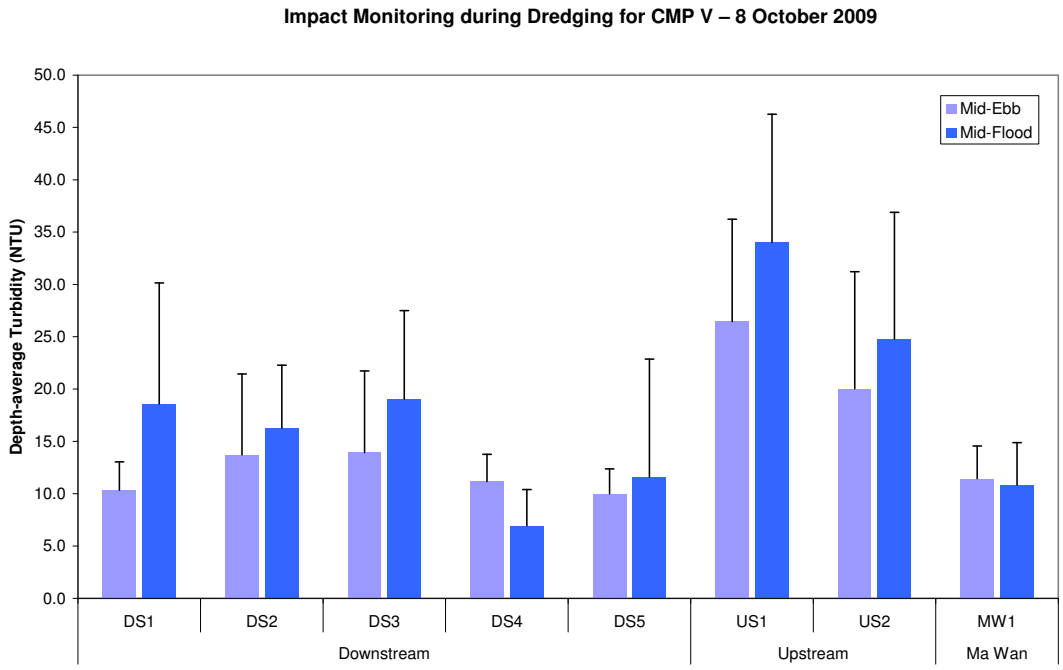

Figure 37: Depth-average Turbidity (mean ± SD) at Downstream (DS1, DS2, DS3, DS4 and DS5 stations), Upstream (US1 and US2 stations) and Ma Wan (MW1 station) during Impact Monitoring for Dredging on 8 October 2009.

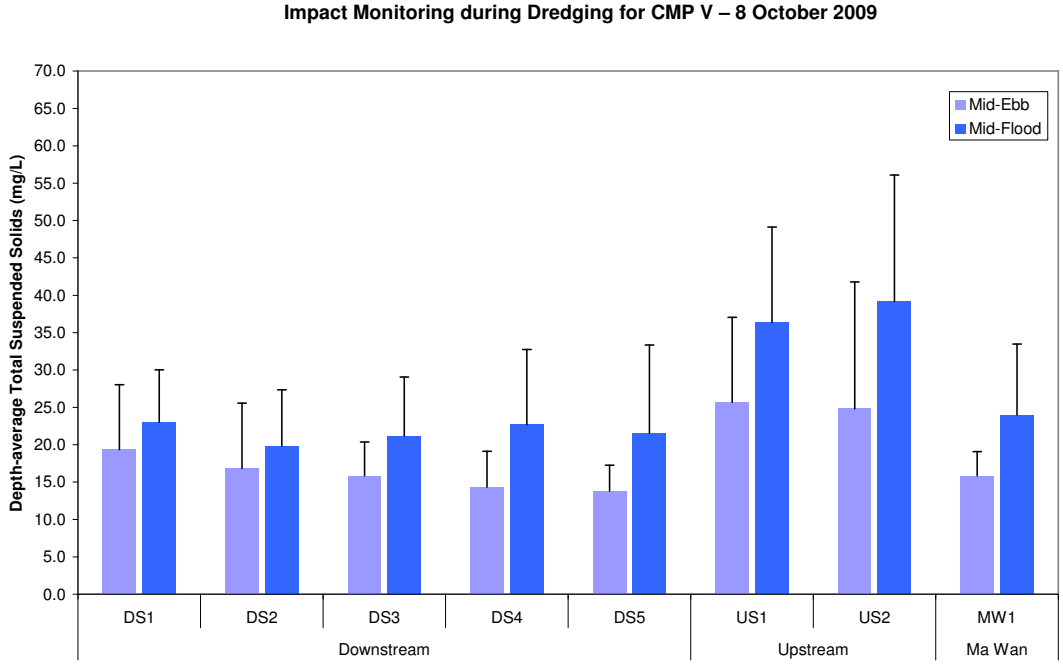

Figure 38: Depth-average Total Suspended Solids (mean ± SD) at Downstream (DS1, DS2, DS3, DS4 and DS5), Upstream (US1 and US2) and Ma Wan (MW1) stations during Impact Monitoring for Dredging on 8 October 2009.

Annex B1: Impact Water Quality Monitoring for Dredging Activities during Mid-ebb Tide for 8 October 2009

Station	Downstream (Impact)		
Time (hh:mm)	13:51-15:19		
Monitoring Depth (m)	Depth Average	Surface and Middle	Bottom
D.O. (mg/L)	N/A	5.45	5.38
Turbidity (NTU)	11.84	N/A	N/A
SS (mg/L)	16.03	N/A	N/A
Remarks	Dredging works were observed.		

Station	Upstream (Reference)		
Time (hh:mm)	15:42-16:09		
Monitoring Depth (m)	Depth Average	Surface and Middle	Bottom
D.O. (mg/L)	N/A	5.56	5.5
Turbidity (NTU)	21.21	N/A	N/A
SS (mg/L)	27.67	N/A	N/A
Remarks	Dredging works were observed.		

Station	Ma Wan		
Time (hh:mm)	17:11-17:14		
Monitoring Depth (m)	Depth Average	Surface and Middle	Bottom
D.O. (mg/L)	N/A	5.04	4.94
Turbidity (NTU)	11.43	N/A	N/A
SS (mg/L)	16.17	N/A	N/A
Remarks			

Compliance with Action and Limit Levels

	Action Level		Limit Level					
Parameter	**Impact Stations**	**Comparison between I and R [(a)]**	**Mean Value at Impact Stations**	**Comparison between I and R [(a)]**	**Mean Value at Impact Stations**	**Mean Value at Reference Stations**	**Compliance with Action level**	**Compliance with Limit Level**
DO (Bottom)	< 2.96	R significantly greater than I (t-test, $p < 0.05$)	< 2.00	R significantly greater than I (t-test, $p < 0.05$)	5.38	5.5	Y	Y
DO (Surface and Mid Depth)	< 3.76	R significantly greater than I (t-test, $p < 0.05$)	< 3.11	R significantly greater than I (t-test, $p < 0.05$)	5.45	5.56	Y	Y
Turbidity (Depth-averaged)	> 28.14	I ≥ 1.2 R (25.45)	> 38.32	I ≥ 1.3 R (27.57)	11.84	21.21	Y	Y
SS (Depth-averaged)	> 37.88	I ≥ 1.2 R (33.20)	> 61.92	I ≥ 1.3 R (35.97)	16.03	27.67	Y	Y

Annex B2: Impact Water Quality Monitoring for Dredging Activities during Mid-flood Tide for 8 October 2009

Station	Downstream (Impact)		
Time (hh:mm)	07:50 - 10:54		
Monitoring Depth (m)	Depth Average	Surface and Middle	Bottom
D.O. (mg/L)	N/A	5.12	5.14
Turbidity (NTU)	18.23	N/A	N/A
SS (mg/L)	22.27	N/A	N/A
Remarks	Dredging works were observed.		

Station	Upstream (Reference)		
Time (hh:mm)	07:50 - 10:54		
Monitoring Depth (m)	Depth Average	Surface and Middle	Bottom
D.O. (mg/L)	N/A	5.42	5.4
Turbidity (NTU)	31.03	N/A	N/A
SS (mg/L)	40.67	N/A	N/A
Remarks	Dredging works were observed.		

Station	Ma Wan		
Time (hh:mm)	07:50 - 10:54		
Monitoring Depth (m)	Depth Average	Surface and Middle	Bottom
D.O. (mg/L)	N/A	4.88	4.88
Turbidity (NTU)	18.17	N/A	N/A
SS (mg/L)	23.00	N/A	N/A
Remarks			

Compliance with Action and Limit Levels

Parameter	Action Level		Limit Level		Mean Value at Impact Stations	Mean Value at Reference Stations	Compliance with Action level	Compliance with Limit Level
	Mean Value at Impact Stations	Comparison between I and R [(a)]	Mean Value at Impact Stations	Comparison between I and R [(a)]				
DO (Bottom)	< 2.96	R significantly greater than I (t-test, p < 0.05)	< 2.00	R significantly greater than I (t-test, p < 0.05)	5.14	5.4	Y	Y
DO (Surface and Mid Depth)	< 3.76	R significantly greater than I (t-test, p < 0.05)	< 3.11	R significantly greater than I (t-test, p < 0.05)	5.12	5.42	Y	Y
Turbidity (Depth-averaged)	> 28.14	I ≥ 1.2 R (37.24)	> 38.32	I ≥ 1.3 R (40.34)	18.23	31.03	Y	Y
SS (Depth-averaged)	> 37.88	I ≥ 1.2 R (48.80)	> 61.92	I ≥ 1.3 R (52.87)	22.27	40.67	Y	Y

Note: (a) I = Impact; R = Reference Stations