Figure 1. Aerial view of Algoa Bay showing the position of the Port of Port Elizabeth.

Figure 2. Aerial views of the Port of Port Elizabeth showing the position of the Old Tug Jetty (the proposed project site).

Figure 3. Photographs of part of the existing Old Tug Jetty sheet pile quay wall in the Port of Port Elizabeth. Note the damage to the sheet pile and concrete super structure.

Figure 4. Conceptual design for Phase 1 and Phase 2 of the proposed project (source: PRDW, 2019).

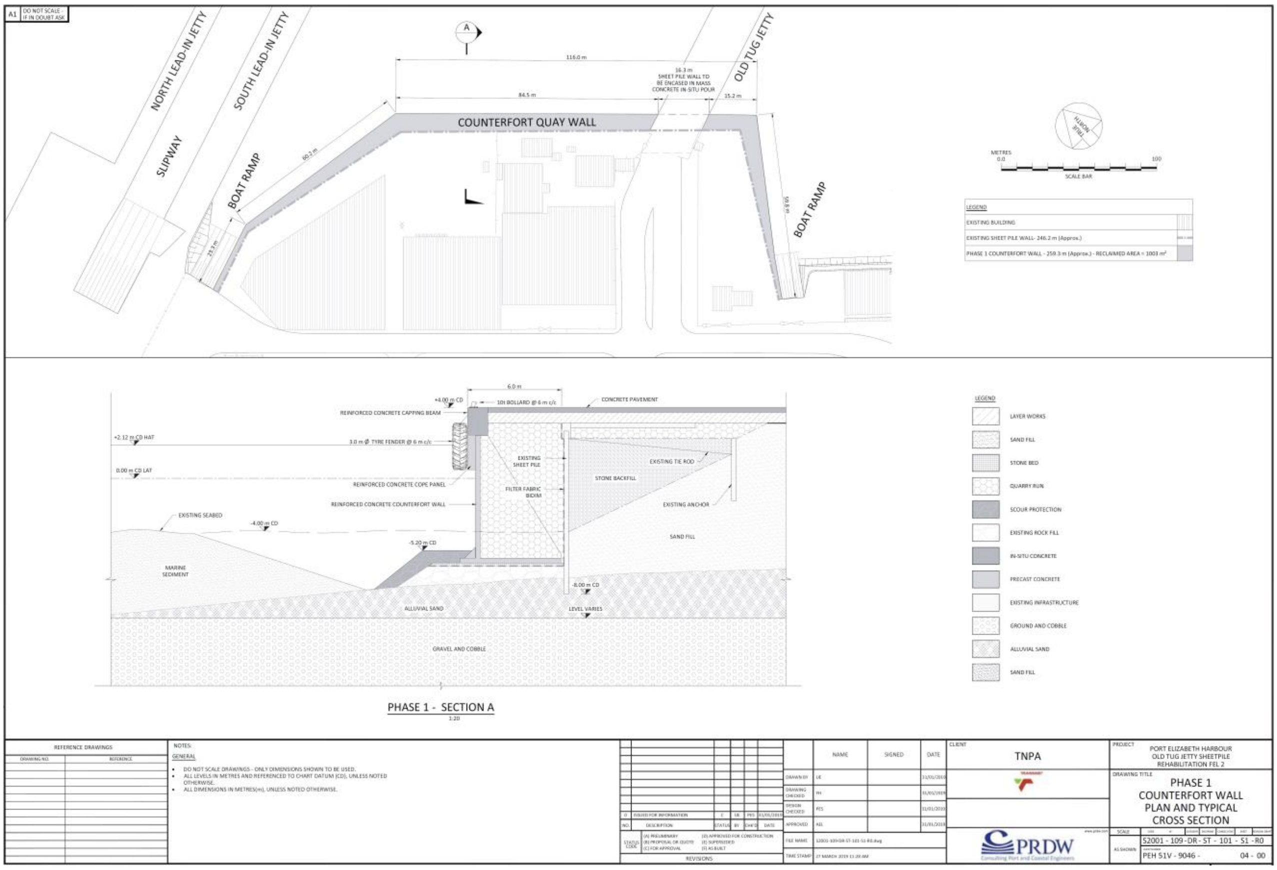


Figure 5. Conceptual engineering design for Phase 1 of the proposed project (source: PRDW, 2019).

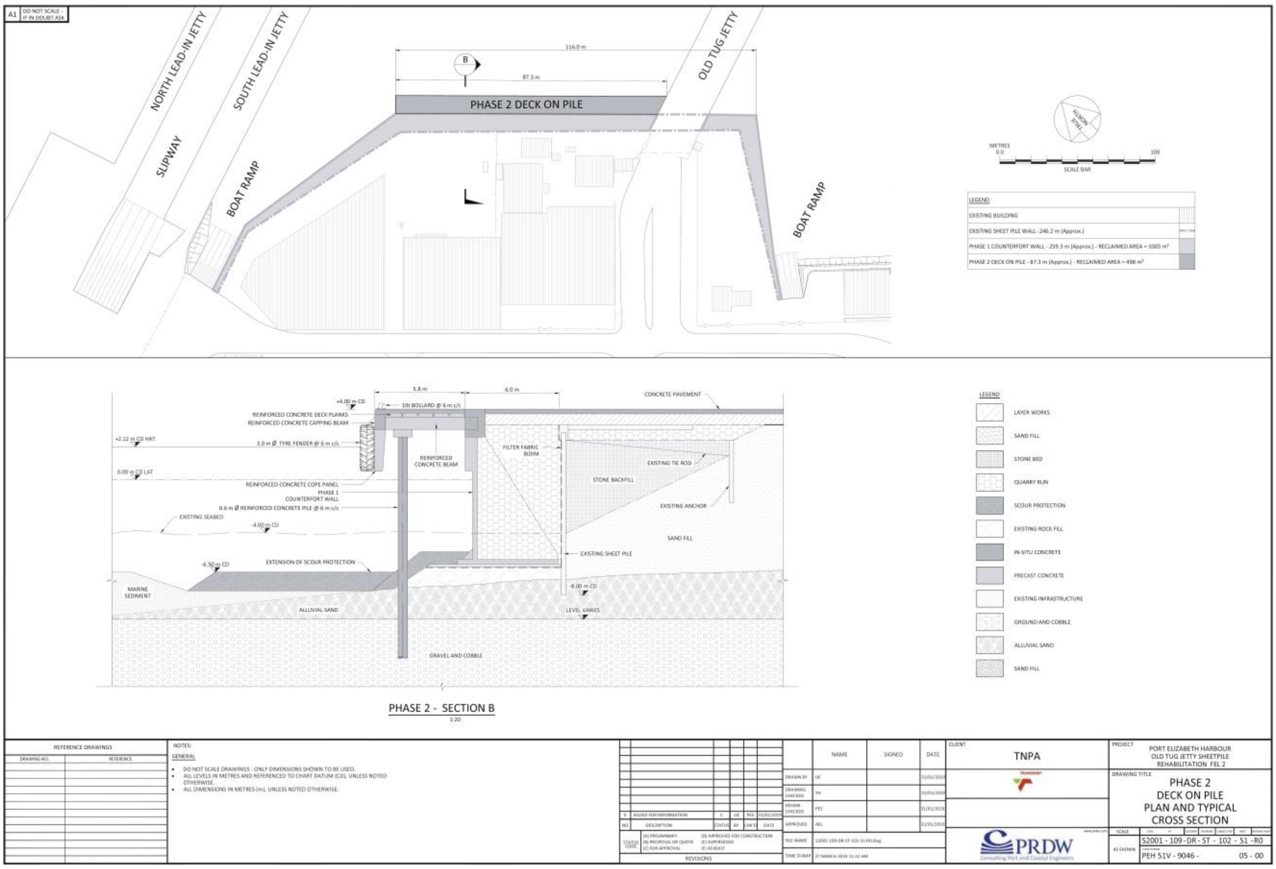


Figure 6. Conceptual engineering design for Phase 2 of the proposed project (source: PRDW, 2019).

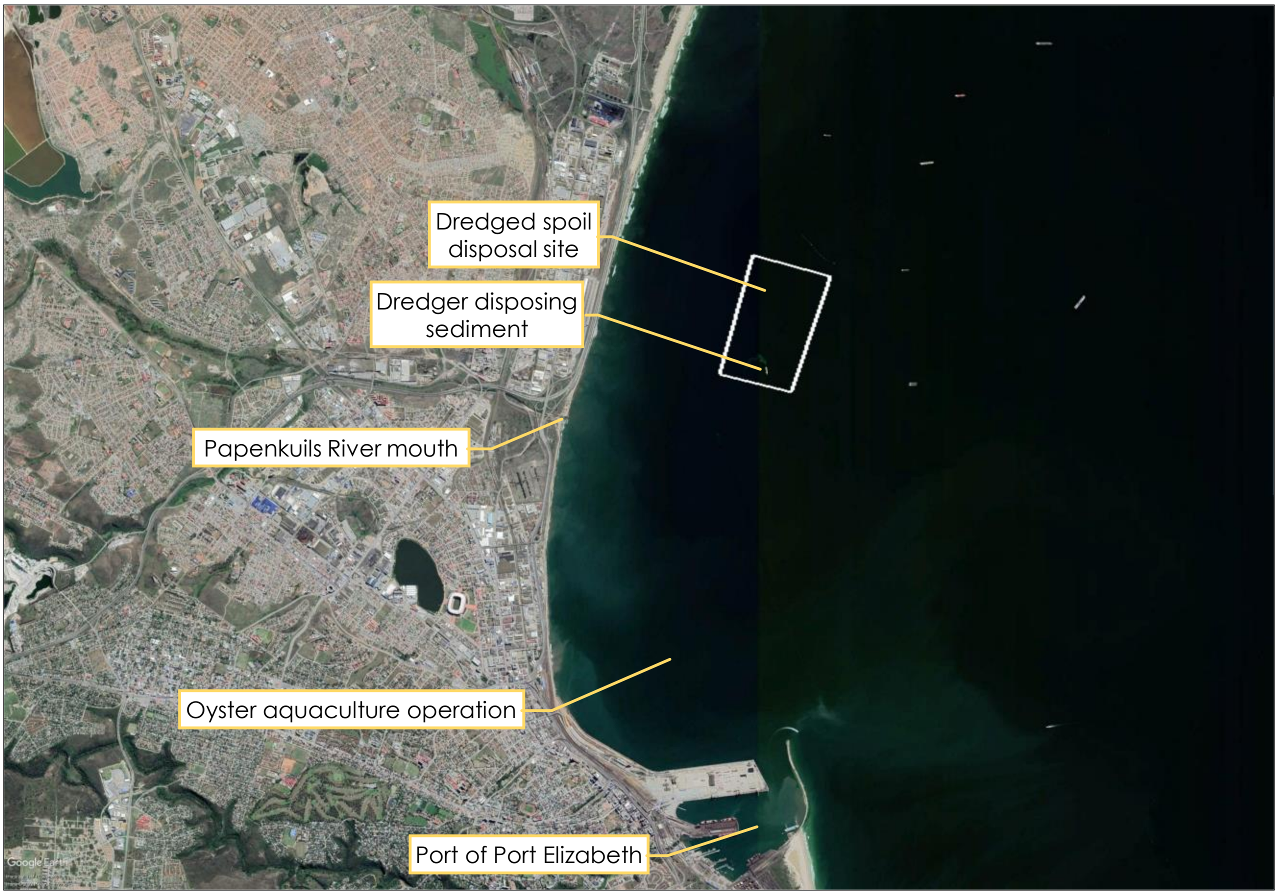
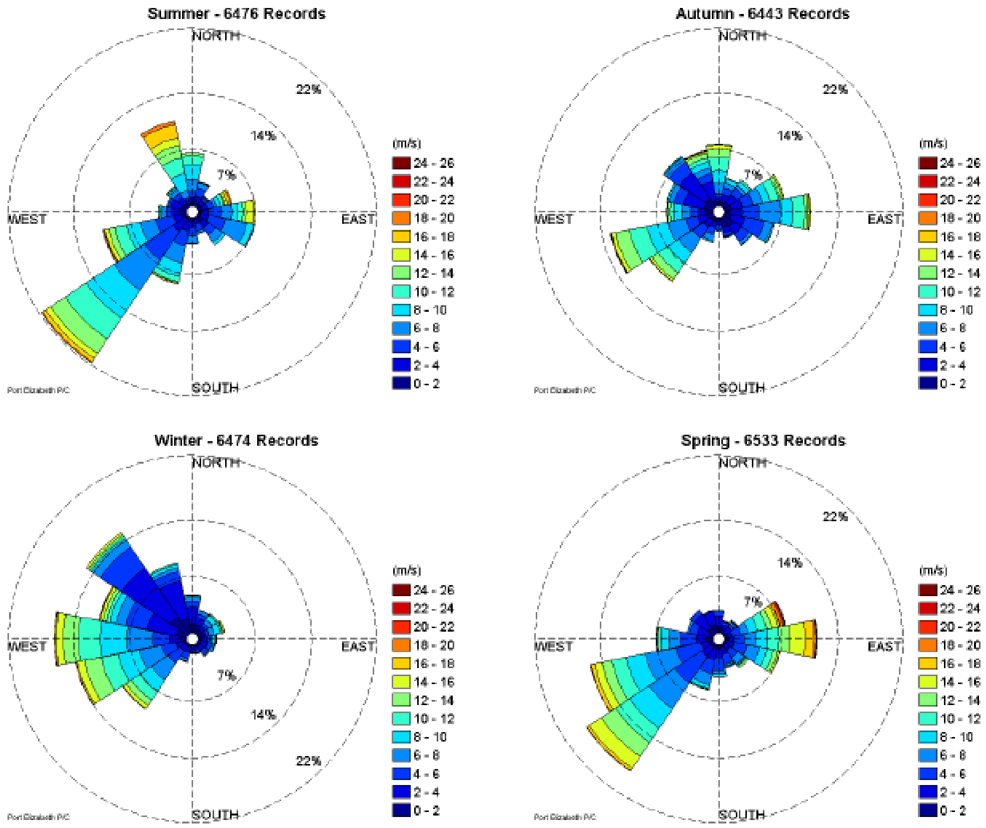
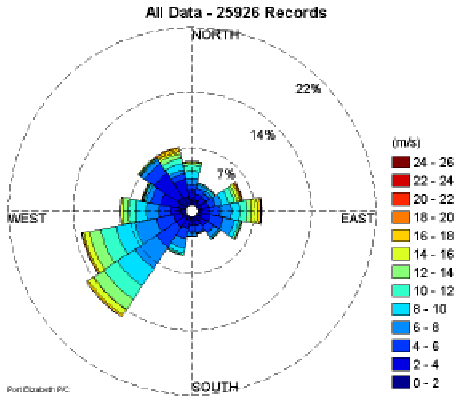


Figure 7. Aerial view of the western part of Algoa Bay showing the position of the dredged spoil disposal site in relation to the Port of Port Elizabeth.





Period	2020-06-01 to 2021-05-31
Station	Port Elizabeth P/C
Position	33.95528 S, 25.63808 E
Height above surface	52.0 m
Records	25926

Figure 8. Wind speed and direction from a weather monitoring station at the Port of Port Elizabeth in 2020 and 2021 (CSIR, 2021).

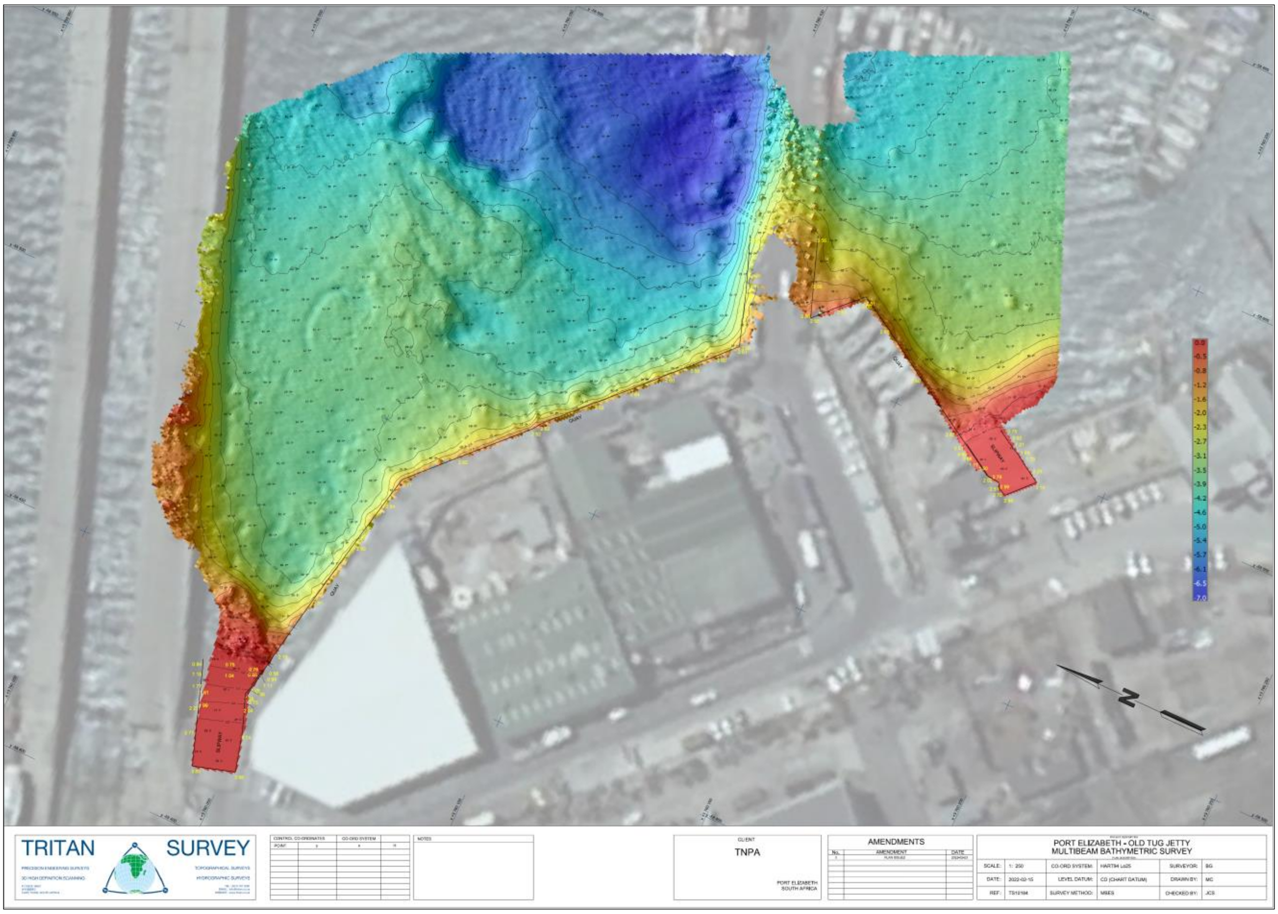


Figure 9. Bathymetric profile for the area near the Old Tug Jetty in the Port of Port Elizabeth.

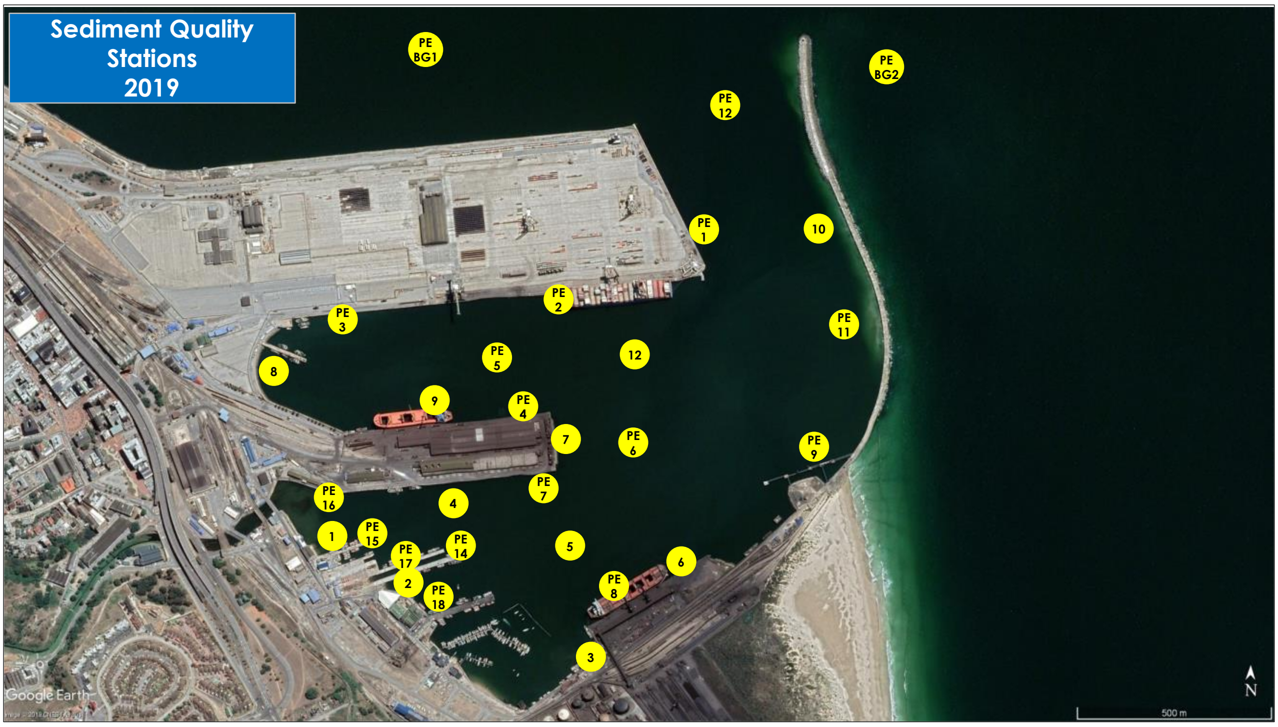


Figure 10. Aerial view of the Port of Port Elizabeth showing the positions where sediment was sampled in 2019.

Table 1. Grain size composition and total organic content of sediment sampled in the Port of Port Elizabeth in 2019. VCS = very coarse-grained sand, CS = coarse-grained sand, MS = medium-grained sand, FS = fine-grained sand, VFS = very fine-grained sand, Mean = mean grain size, TOC = total organic content.

Station	Gravel	VCS	CS	MS	FS	VFS	Mud	Mean	TOC
1	0.04	0.13	0.70	16.92	28.33	9.93	43.94	0.12	3.08
2	0.08	0.24	0.41	1.63	10.24	7.32	80.08	0.07	2.69
3	0.07	0.34	0.54	1.36	16.41	5.36	75.93	0.06	2.47
4	0.11	0.11	0.38	3.60	29.04	8.05	58.72	0.07	2.47
5	0.00	0.00	0.20	3.21	35.07	5.28	56.25	0.08	2.05
6	0.13	0.35	0.84	7.54	39.18	5.63	46.32	0.11	1.50
7	0.00	0.13	0.25	2.29	40.35	14.29	42.70	0.11	1.31
8	0.37	0.37	1.01	35.10	35.37	4.77	23.01	0.15	0.59
9	1.26	0.80	2.33	17.48	44.53	6.04	27.54	0.13	5.80
10	0.00	0.05	1.41	30.20	49.02	5.27	14.05	0.22	0.62
11	0.23	0.53	1.59	15.74	50.47	4.76	26.69	0.13	8.75
12	0.00	0.12	1.47	9.92	40.49	5.11	42.90	0.11	2.08
PE1	0.58	0.61	1.13	33.67	43.23	5.42	15.36	0.19	0.60
PE2	1.76	2.77	8.92	27.66	27.60	3.82	27.46	0.16	0.86
PE3	1.65	0.89	1.44	6.52	29.44	5.93	54.13	0.08	1.82
PE4	0.42	0.15	0.80	38.42	33.99	3.96	22.26	0.15	0.69
PE5	0.10	0.53	2.12	22.72	33.81	4.83	35.89	0.13	0.84
PE6	0.00	0.08	0.42	6.43	44.06	5.75	43.27	0.10	0.97
PE7	0.00	0.09	0.65	10.69	37.17	4.10	47.30	0.11	1.74
PE8	0.63	0.41	0.86	6.44	37.04	4.55	50.09	0.08	1.04
PE12	0.00	0.06	0.15	11.13	67.16	5.82	15.69	0.16	0.73
PE14	0.00	0.10	0.20	0.79	12.77	4.31	81.83	0.06	2.27
PE15	0.00	0.10	0.21	1.41	23.31	13.07	61.89	0.07	1.85
PE16	0.24	1.44	7.39	59.85	27.84	1.94	1.30	0.29	0.15
PE17	0.00	0.00	0.17	0.38	7.64	6.51	85.31	0.05	3.12
PE18	0.11	0.22	0.33	1.80	12.75	5.40	79.40	0.06	2.88
PEBG 1	0.00	0.16	0.74	30.96	61.31	4.72	2.11	0.21	0.20
PEBG 2	0.09	0.32	2.32	31.23	55.42	8.02	2.59	0.21	0.19

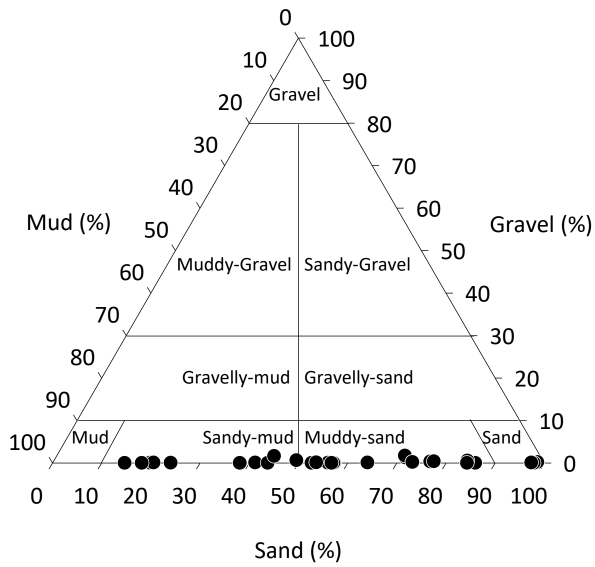


Figure 11. Ternary plot of the grain size composition of sediment sampled in the Port of Port Elizabeth in 2019.

Figure 12. Aerial view of the Port of Port Elizabeth showing the positions where sediment was sampled in August 2022.

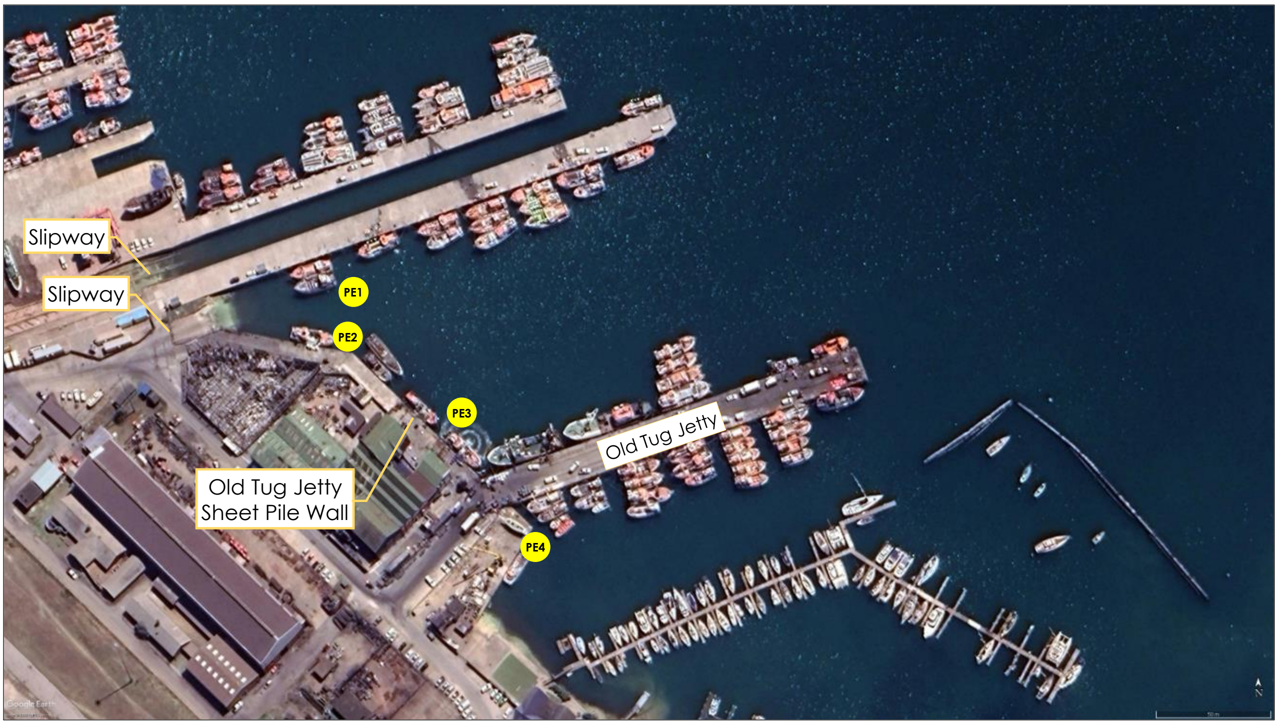


Figure 13. Aerial view of the Port of Port Elizabeth showing the positions the positions where sediment was sampled in the Old Tug Jetty quay area in August 2022.

Table 2. Grain size composition and total organic content of sediment sampled in the Old Tug Jetty area in the Port of Port Elizabeth in August 2022. VCS = very coarse-grained sand, CS = coarse-grained sand, MS = medium-grained sand, FS = fine-grained sand, VFS = very fine-grained sand, Mean = mean grain size, TOC = total organic content, NS = no sediment sampled due to the presence of stones and gravel.

Station	Gravel (%)	VCS (%)	CS (%)	MS (%)	FS (%)	VFS (%)	Mud (%)	TOC (%)
PE1	0.66	0.66	1.15	4.16	16.83	5.43	71.11	6.14
PE2	0.92	1.71	2.58	9.55	18.40	4.94	61.90	2.05
PE3	1.51	1.36	1.43	2.87	13.34	5.16	74.32	9.06
PE4	0.00	0.00	0.20	0.27	2.78	3.26	93.48	2.71
1	0.00	0.36	1.69	24.03	55.97	10.28	7.67	0.14
3	0.00	0.30	1.01	20.54	46.60	7.21	24.33	0.30
4	0.00	0.04	0.50	4.25	35.20	6.10	53.91	1.07
5	0.04	0.11	0.53	14.66	45.66	4.09	34.90	1.72
6	0.00	0.09	0.47	4.59	35.34	5.32	54.19	1.21
7	0.17	0.09	0.17	1.25	34.65	13.71	49.96	1.28
8	0.07	0.22	0.56	18.25	38.07	6.32	36.50	1.91
9	0.00	0.08	0.34	4.20	47.69	7.43	40.26	0.71
10	0.00	0.00	0.14	0.14	3.58	6.44	89.69	1.87
11	1.14	1.55	3.35	26.18	40.63	3.28	23.87	0.78
12	NS	NS	NS	NS	NS	NS	NS	NS
13	0.30	0.26	0.73	5.35	29.54	6.85	56.98	1.20
14	5.35	2.23	5.56	21.04	38.26	4.04	23.52	0.89
15	0.13	0.04	0.22	3.75	32.37	6.84	56.65	2.77
16	0.00	0.04	0.14	14.77	53.71	5.07	26.28	1.48

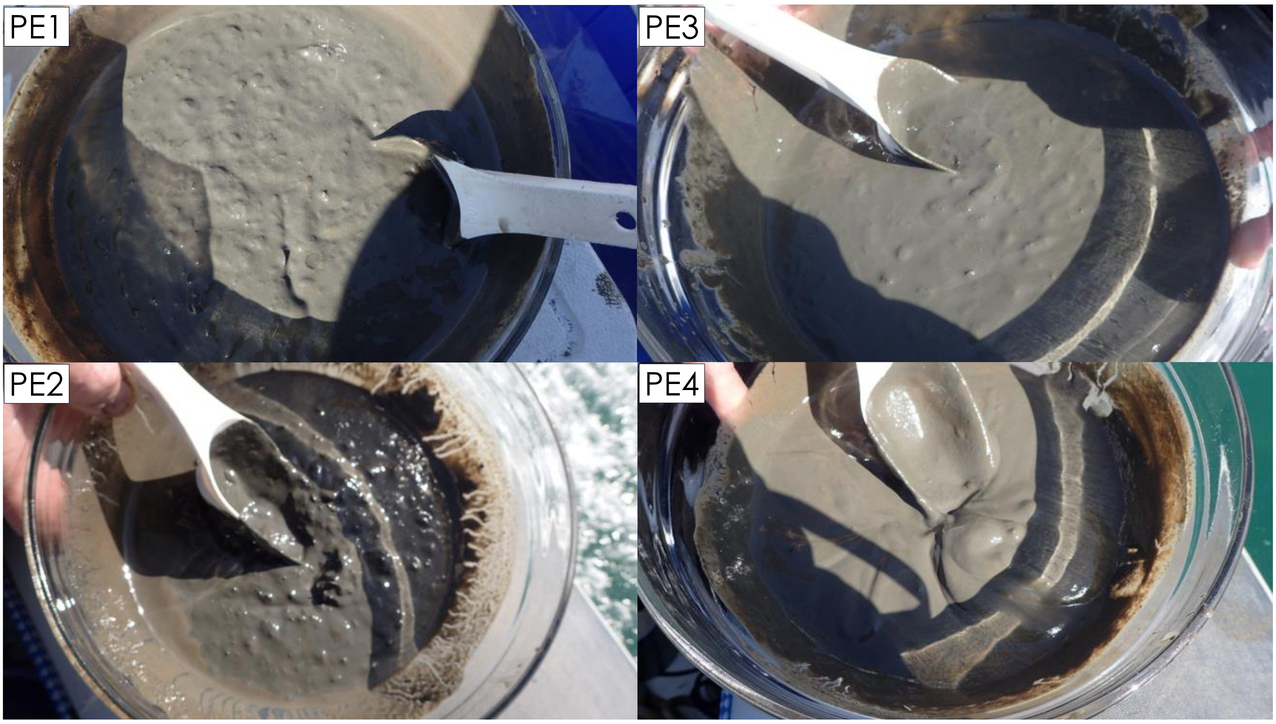


Figure 14. Photographs of sediment sampled at stations alongside and near the Old Tug Jetty quay area in the Port of Port Elizabeth in August 2022.

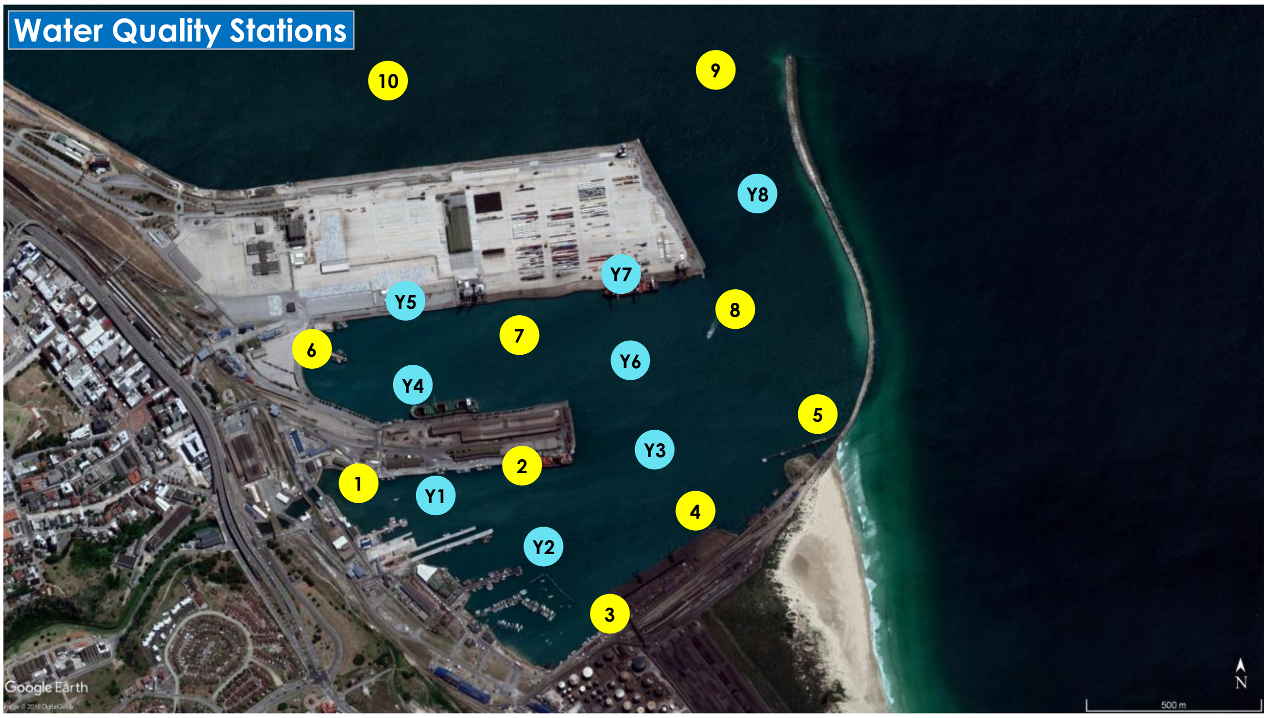


Figure 15. Aerial view of the Port of Port Elizabeth showing the positions where water quality was monitored *in situ* and surface water samples were collected for analysis in the laboratory. Yellow symbols denote positions where *in situ* measurements were made and surface water samples were collected for analysis in the laboratory. Blue symbols denote positions where *in situ* measurements only were made.

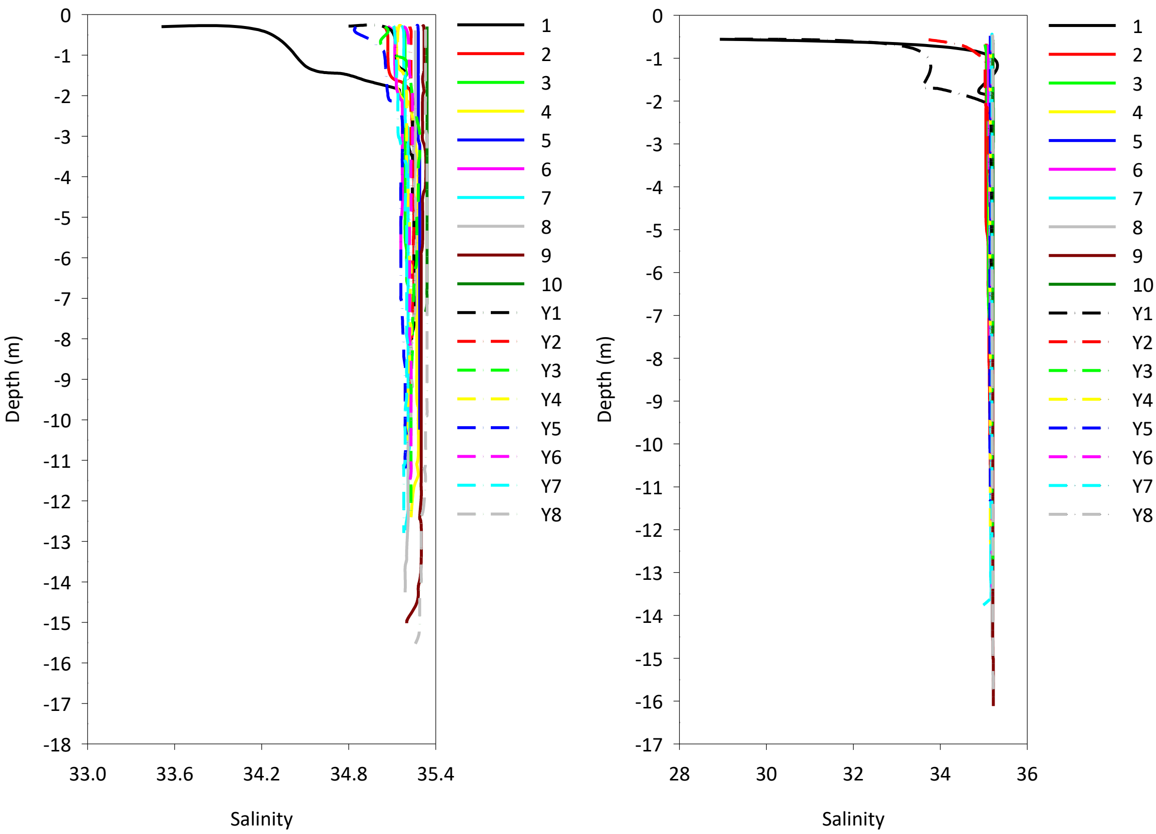


Figure 16. Salinity profiles for the water column in and near the Port of Port Elizabeth for the winter survey on 16 July 2019 (left) and the summer survey on 19 February 2020 (right) for the Long-Term Ecological Monitoring Programme.

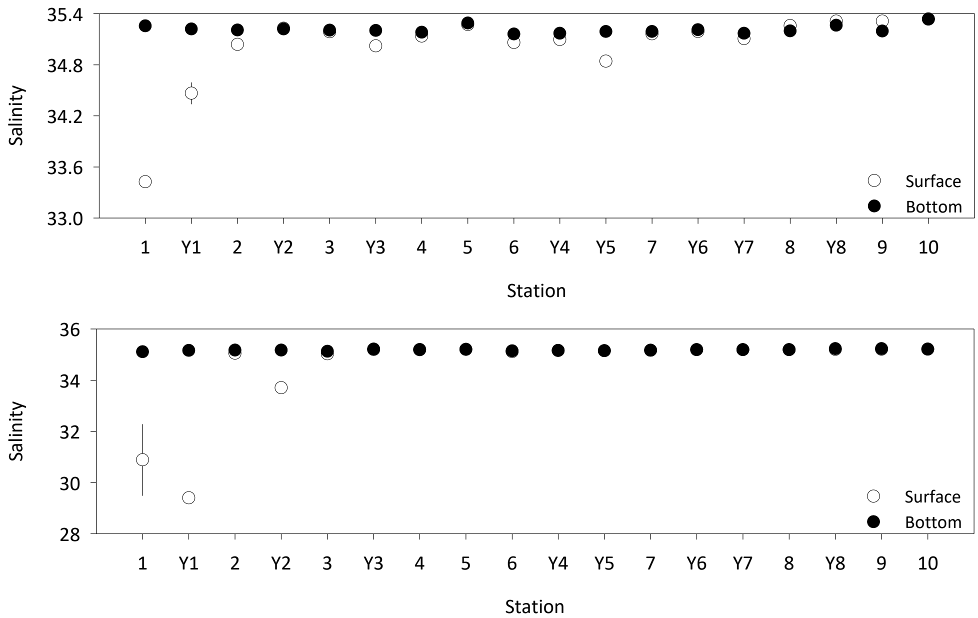


Figure 17. Comparison of the salinity of surface and bottom waters in and near the Port of Port Elizabeth for the winter survey on 16 July 2019 (top) and the summer survey on 19 February 2020 (bottom) for the Long-Term Ecological Monitoring Programme.

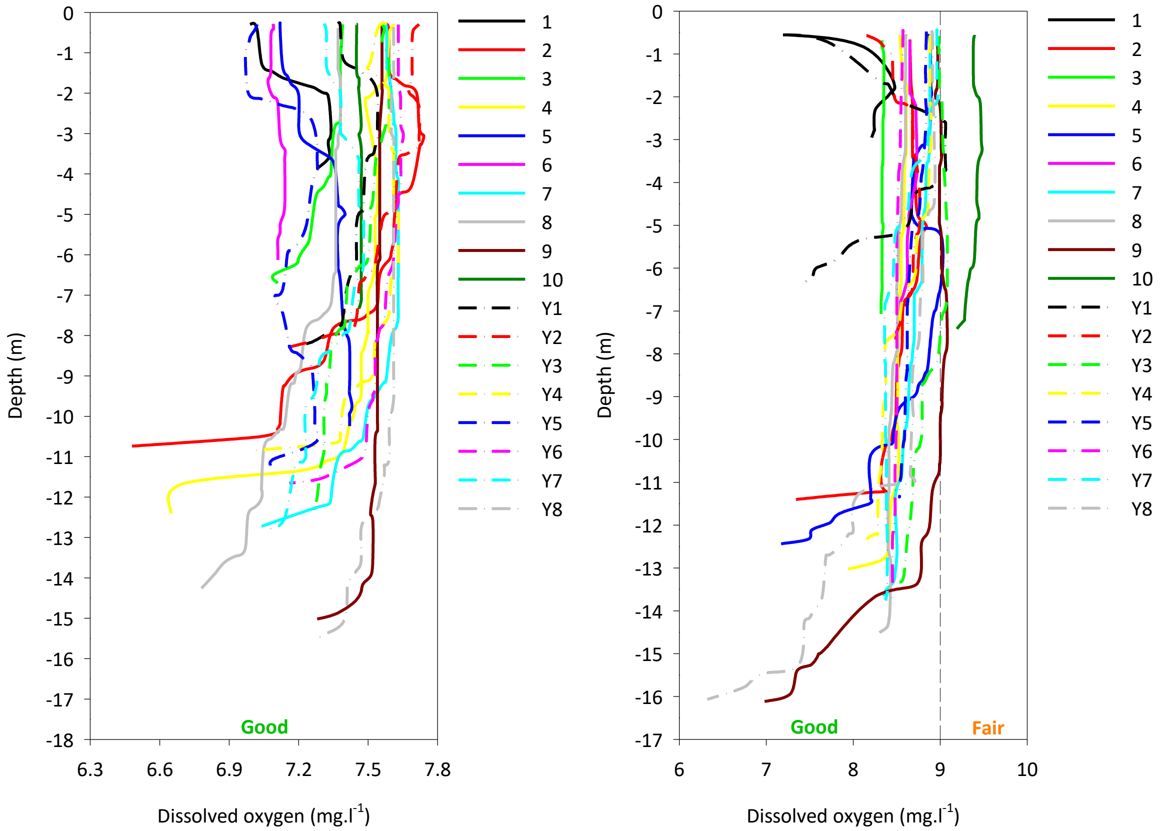


Figure 18. Dissolved oxygen concentration profiles for the water column in and near the Port of Port Elizabeth for the winter survey on 16 July 2019 (left) and the summer survey on 19 February 2020 (right) for the Long-Term Ecological Monitoring Programme. The vertical dashed line denotes the delineation between good and fair water quality as defined for the monitoring programme.

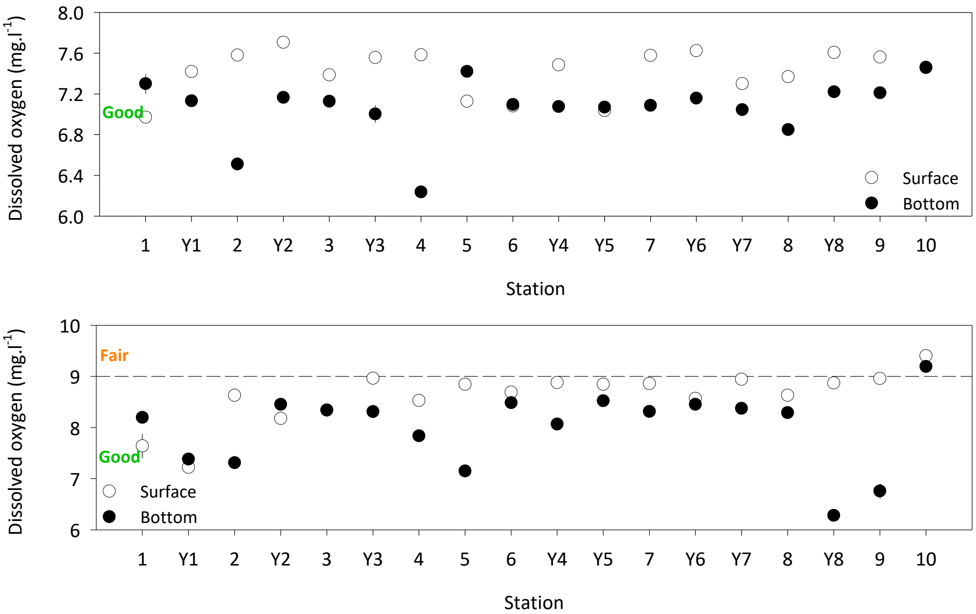


Figure 19. Comparison of dissolved oxygen concentration in surface and bottom waters in and near the Port of Port Elizabeth for the winter survey on 16 July 2019 (top) and the summer survey on 19 February 2020 (bottom) for the Long-Term Ecological Monitoring Programme. The horizontal dashed lines denote the delineation between good and fair water quality as defined for the monitoring programme.

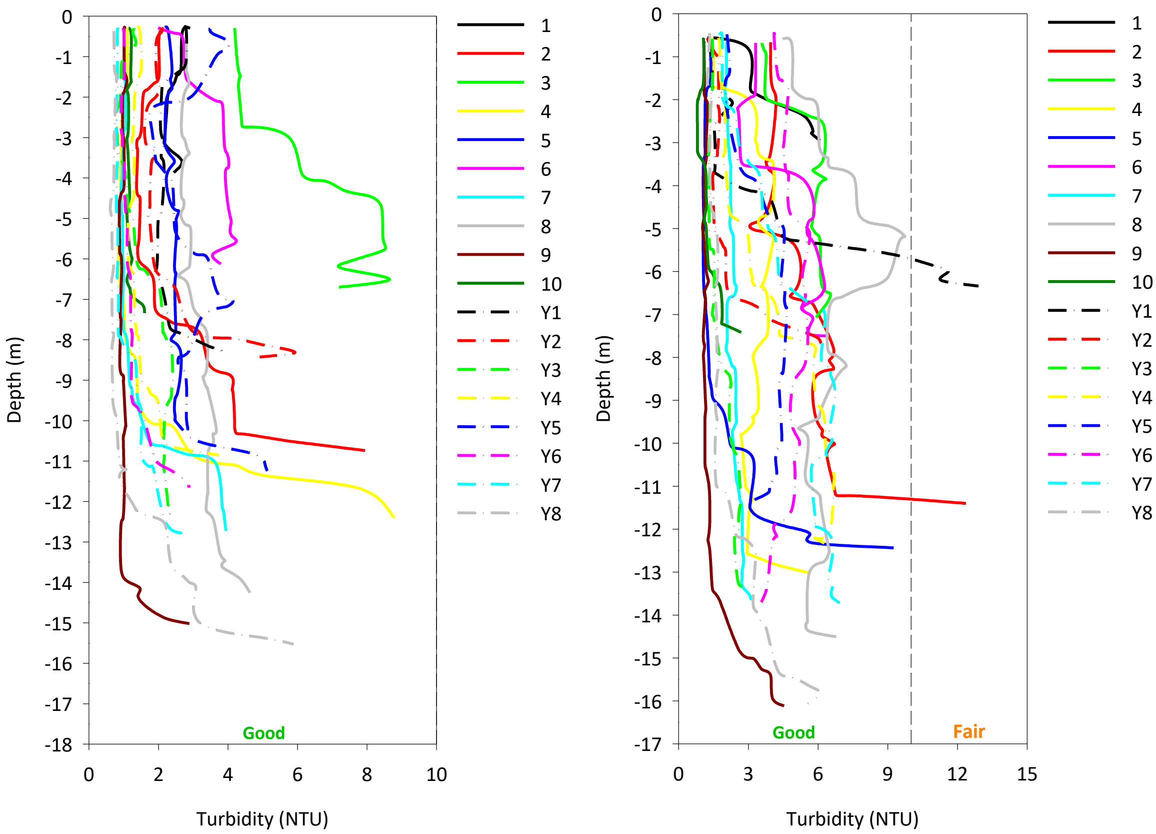


Figure 20. Turbidity profiles for the water column in and near the Port of Port Elizabeth for the winter survey on 16 July 2019 (left) and the summer survey on 19 February 2020 (right) for the Long-Term Ecological Monitoring Programme. The vertical dashed lines denote the delineation between good, fair, and poor water quality as defined for the monitoring programme.

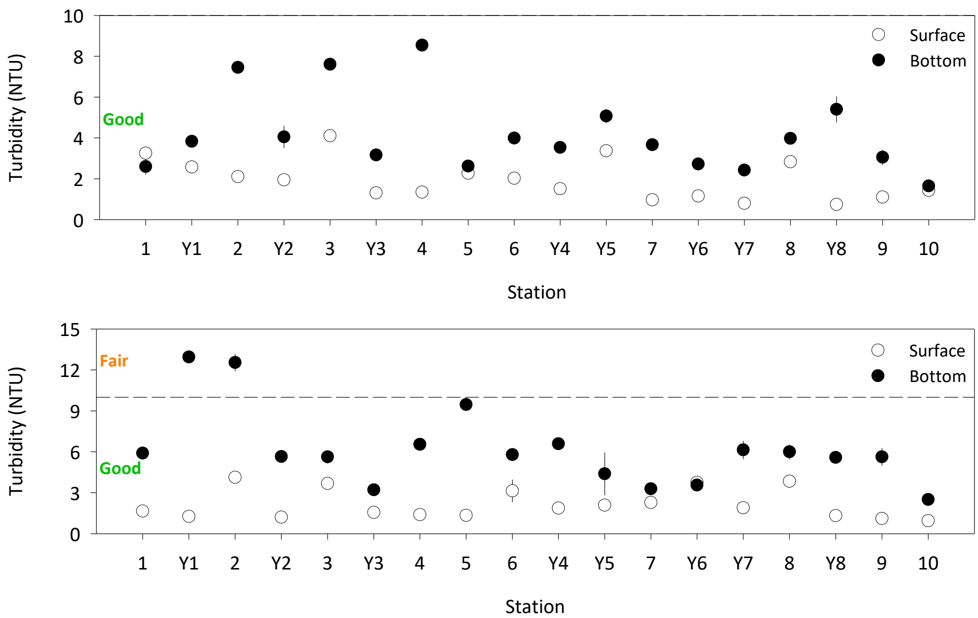


Figure 21. Comparison of the turbidity of surface and bottom waters in and near the Port of Port Elizabeth for the winter survey 16 July 2019 (top) and the summer survey on 19 February 2020 (bottom) for the Long-Term Ecological Monitoring Programme. The horizontal dashed lines denote the delineation between good, fair, and poor water quality as defined for the monitoring programme.

Figure 22. Aerial views of the Port of Port Elizabeth showing the influence of vessel propeller wash on the suspended sediment concentrations and associated turbidity in the water column.

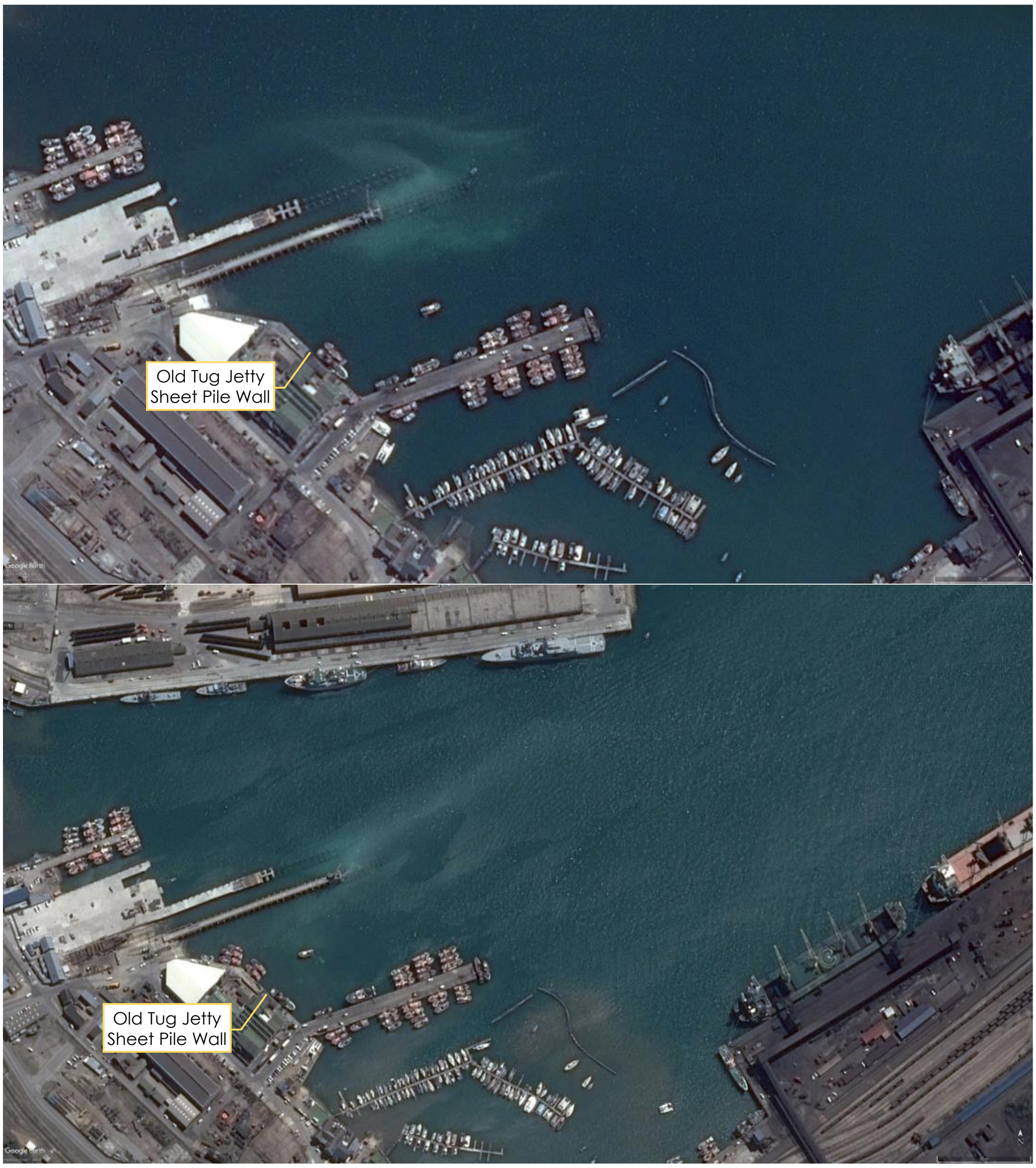


Figure 23. Aerial views of the Port of Port Elizabeth showing the influence of construction activities for the leading jetty rehabilitation on the suspended solids concentrations in the water column.

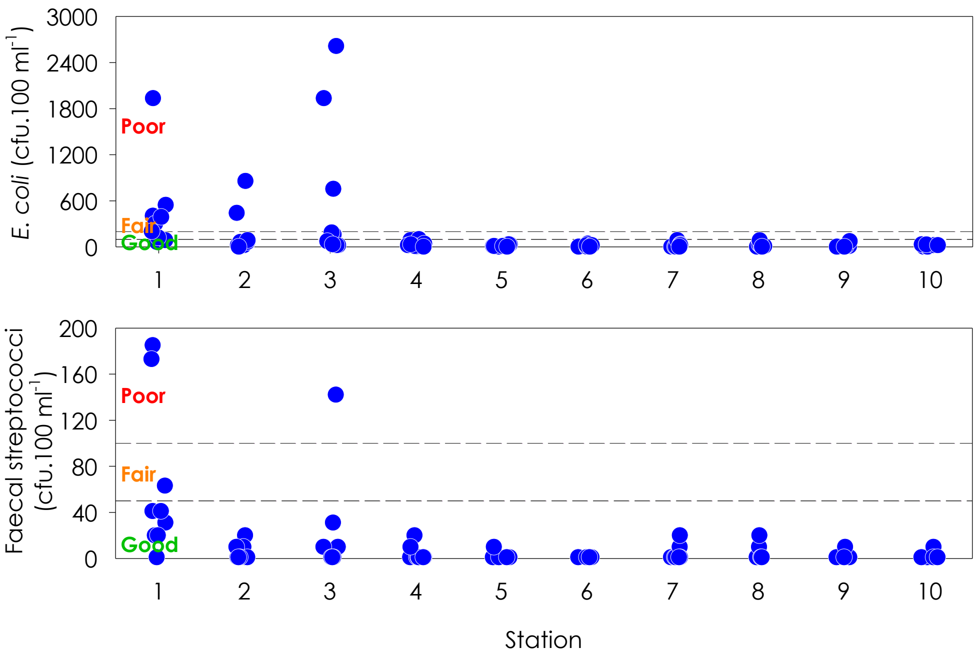


Figure 24. Faecal indicator bacteria colony forming unit counts in surface waters sampled in and near the Port of Port Elizabeth for surveys between 2015-2019 for the Long-Term Ecological Monitoring Programme. The horizontal dashed lines denote the delineation between good, fair, and poor water quality as defined for the monitoring programme.

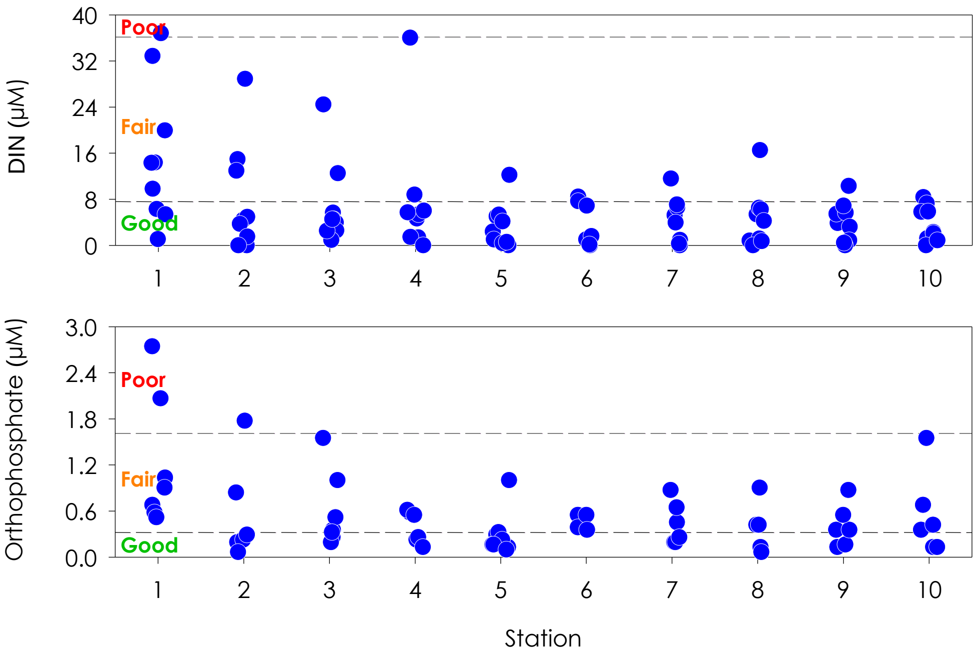


Figure 25. Nutrient concentrations in surface waters sampled in and near the Port of Port Elizabeth for surveys between 2015-2019 for the Long-Term Ecological Monitoring Programme. The horizontal dashed lines denote the delineation between good, fair, and poor water quality as defined for the monitoring programme.

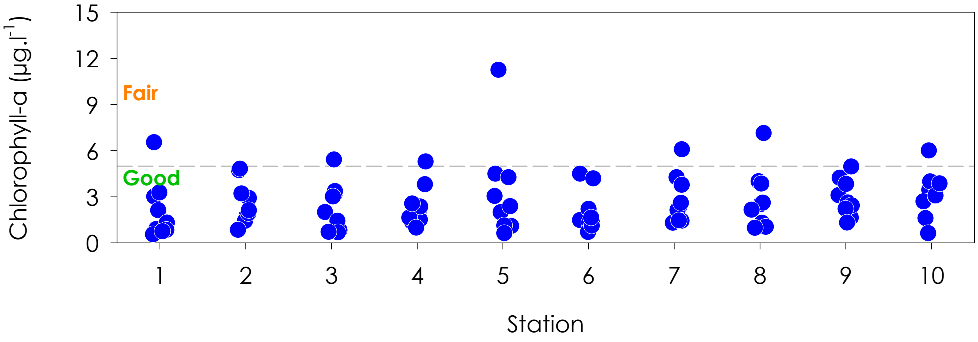


Figure 26. Chlorophyll-*a* concentrations in surface waters sampled in and near the Port of Port Elizabeth for surveys between 2015-2019 for the Long-Term Ecological Monitoring Programme. The horizontal dashed lines denote the delineation between good, fair, and poor water quality as defined for the monitoring programme.

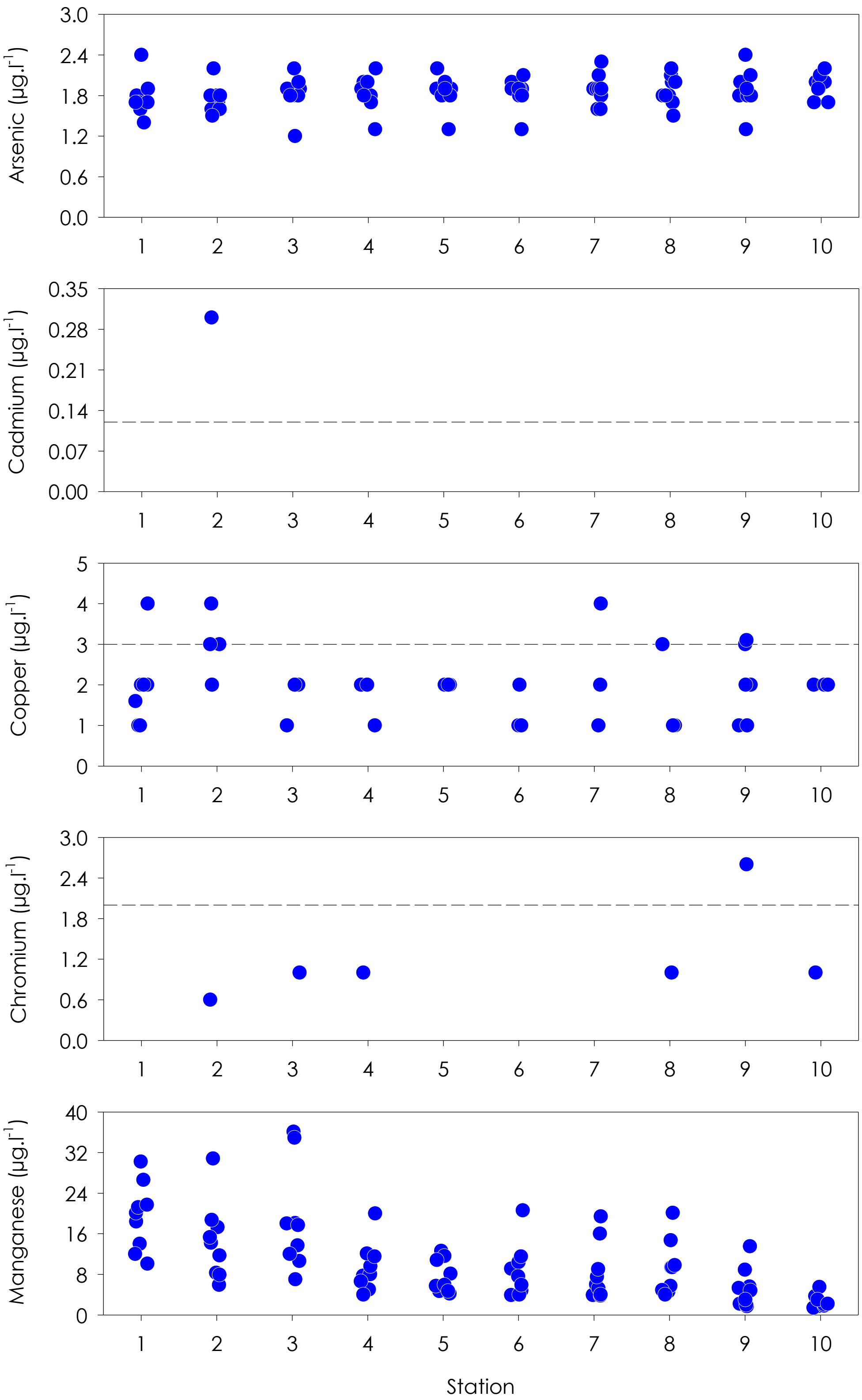


Figure 27. Metal concentrations in surface waters sampled in and near the Port of Port Elizabeth for surveys between 2015-2019 for the Long-Term Ecological Monitoring Programme. The horizontal dashed lines denote the updated South African Water Quality Guidelines for Coastal Marine Waters (DEA, 2018).

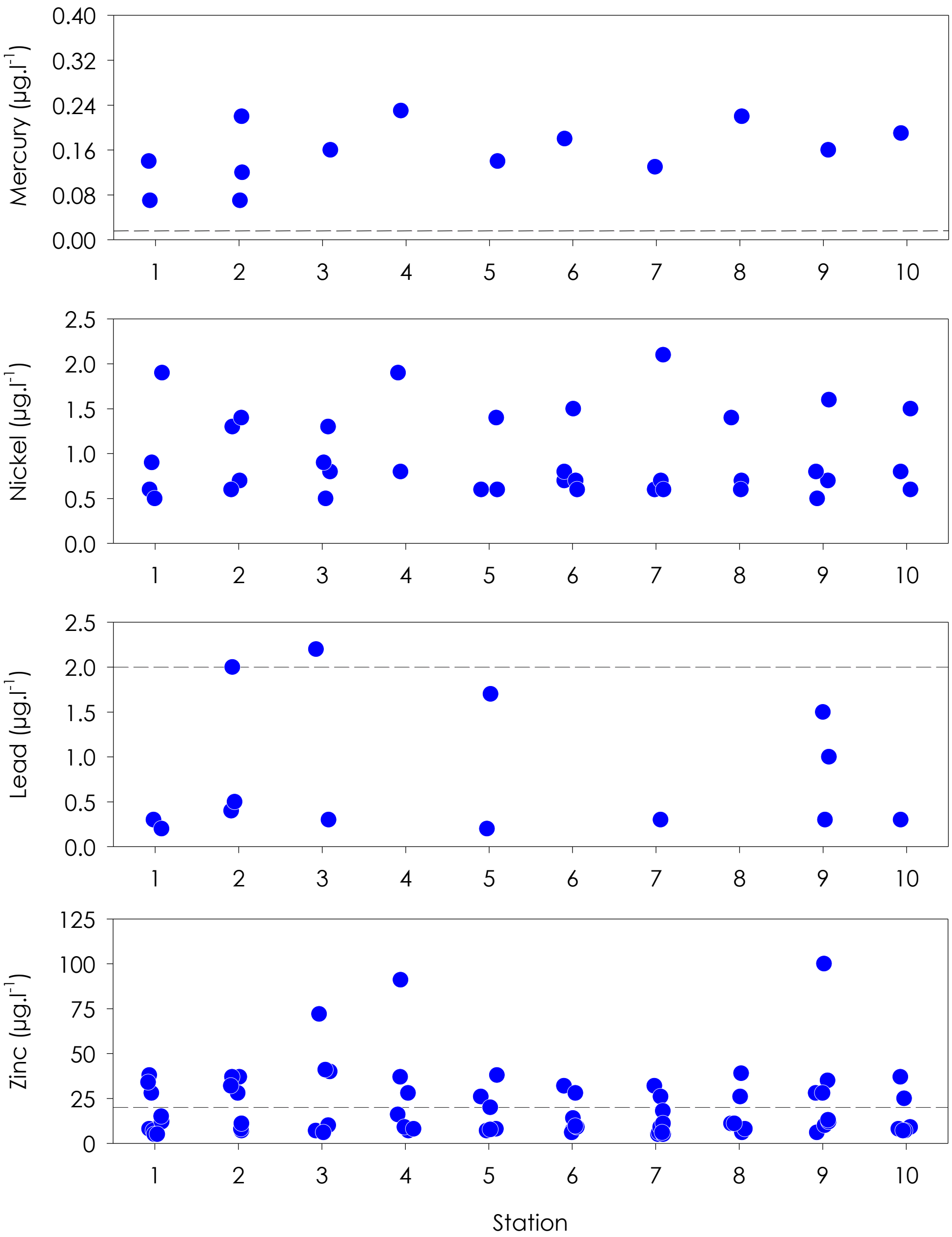


Figure 27 continued. Metal concentrations in surface waters sampled in and near the Port of Port Elizabeth for surveys between 2015-2019 for the Long-Term Ecological Monitoring Programme. The horizontal dashed lines denote the updated South African Water Quality Guidelines for Coastal Marine Waters (DEA, 2018). Absent data points reflect that the concentration was below the method detection limit (*i.e.* was too low to measure in the laboratory).

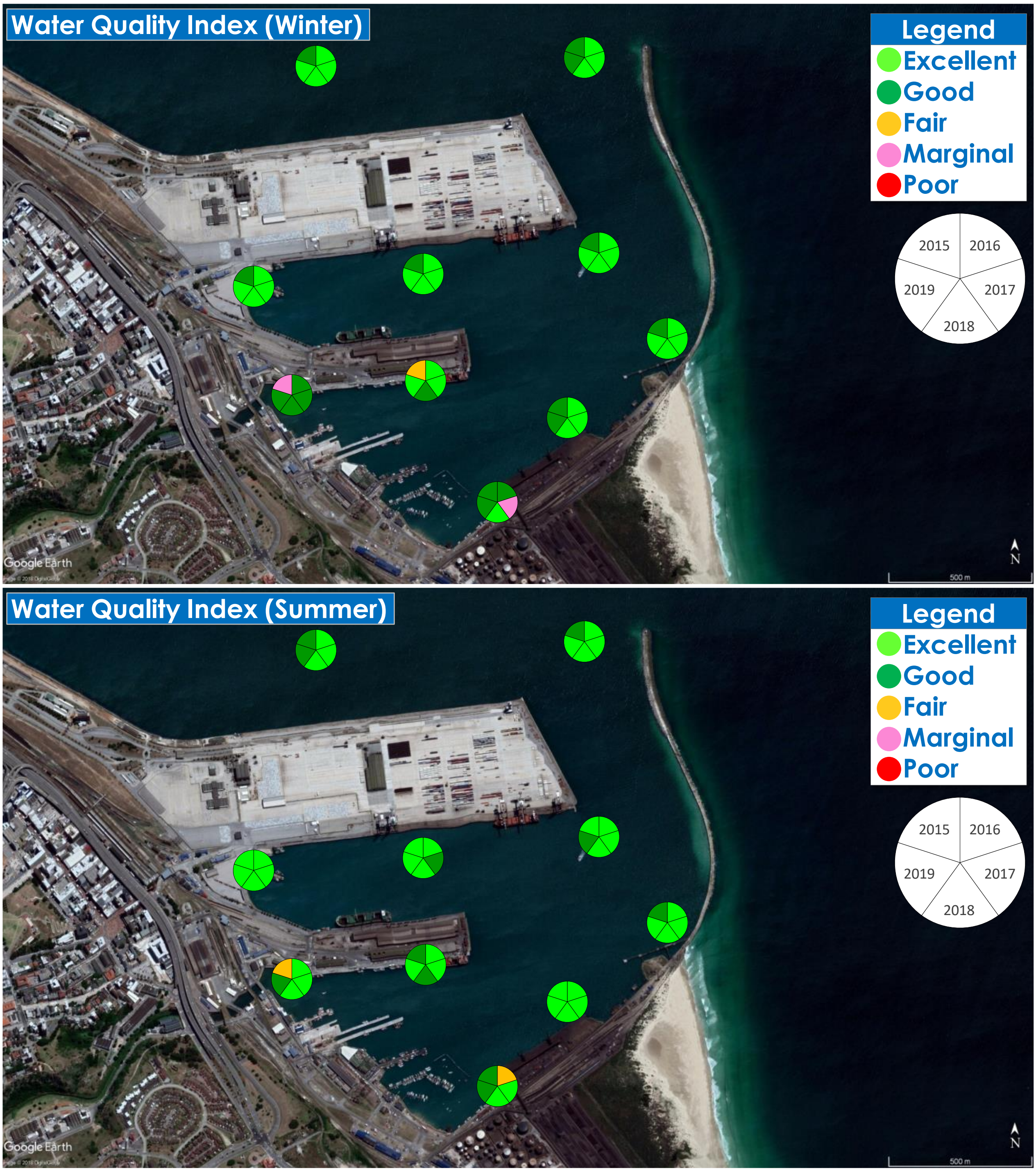


Figure 28. Water quality indices for surface water sampled in and near the Port of Port Elizabeth for the Long-Term Ecological Monitoring Programme between 2015-2019.

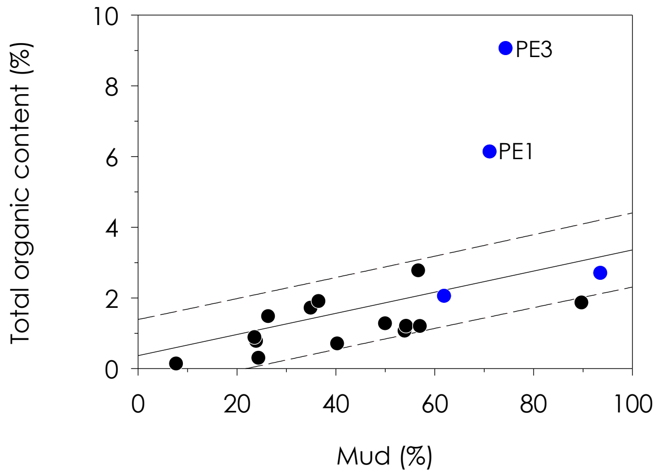


Figure 29. Baseline model for the total organic content in sediment in the Port of Port Elizabeth, with the total organic measured in sediment sampled in the port in August 2022 superimposed. Some data points are highlighted by station identifiers. The data points highlighted in blue represent sediment sampled alongside and near the Old Tug Jetty quay area.

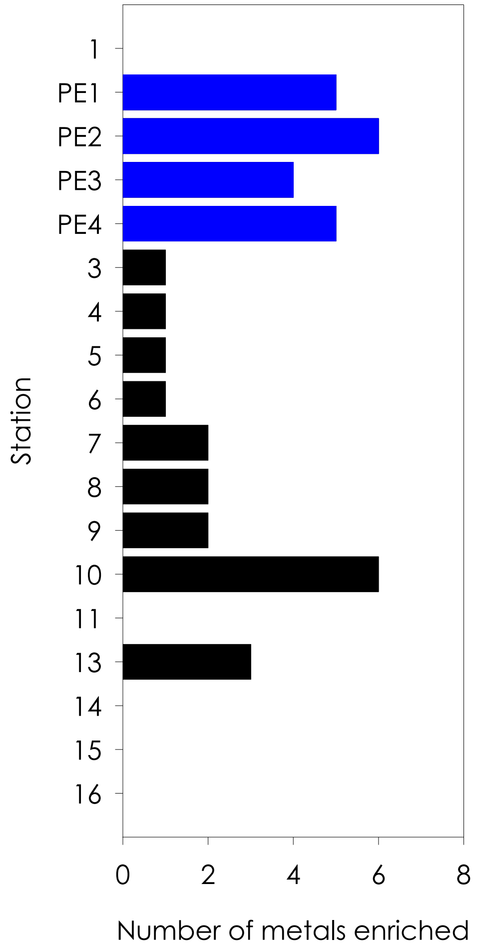


Figure 30. The number of metals enriched in sediment sampled in the Port of Port Elizabeth in January 2022. Stations alongside and near the Old Tug Jetty quay area are highlighted in blue.

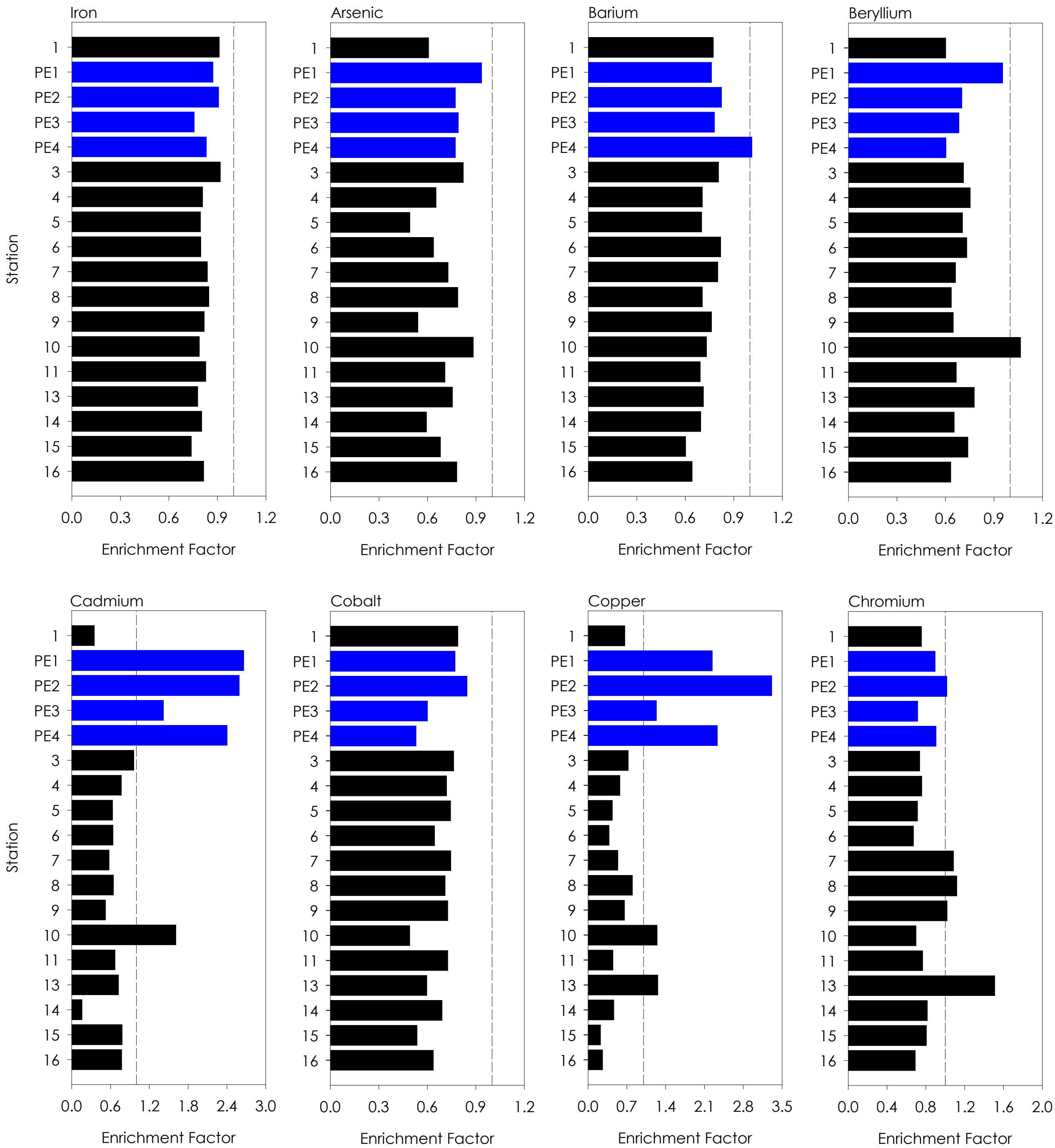


Figure 31. Enrichment Factors for metals in sediment sampled in the Port of Port Elizabeth in January 2022. The dashed lines represent an Enrichment Factor = 1. Enrichment Factors >1 indicate the metal was at a concentration exceeding the baseline and may indicate contamination. Stations alongside and near the Old Tug Jetty quay area are highlighted in blue.

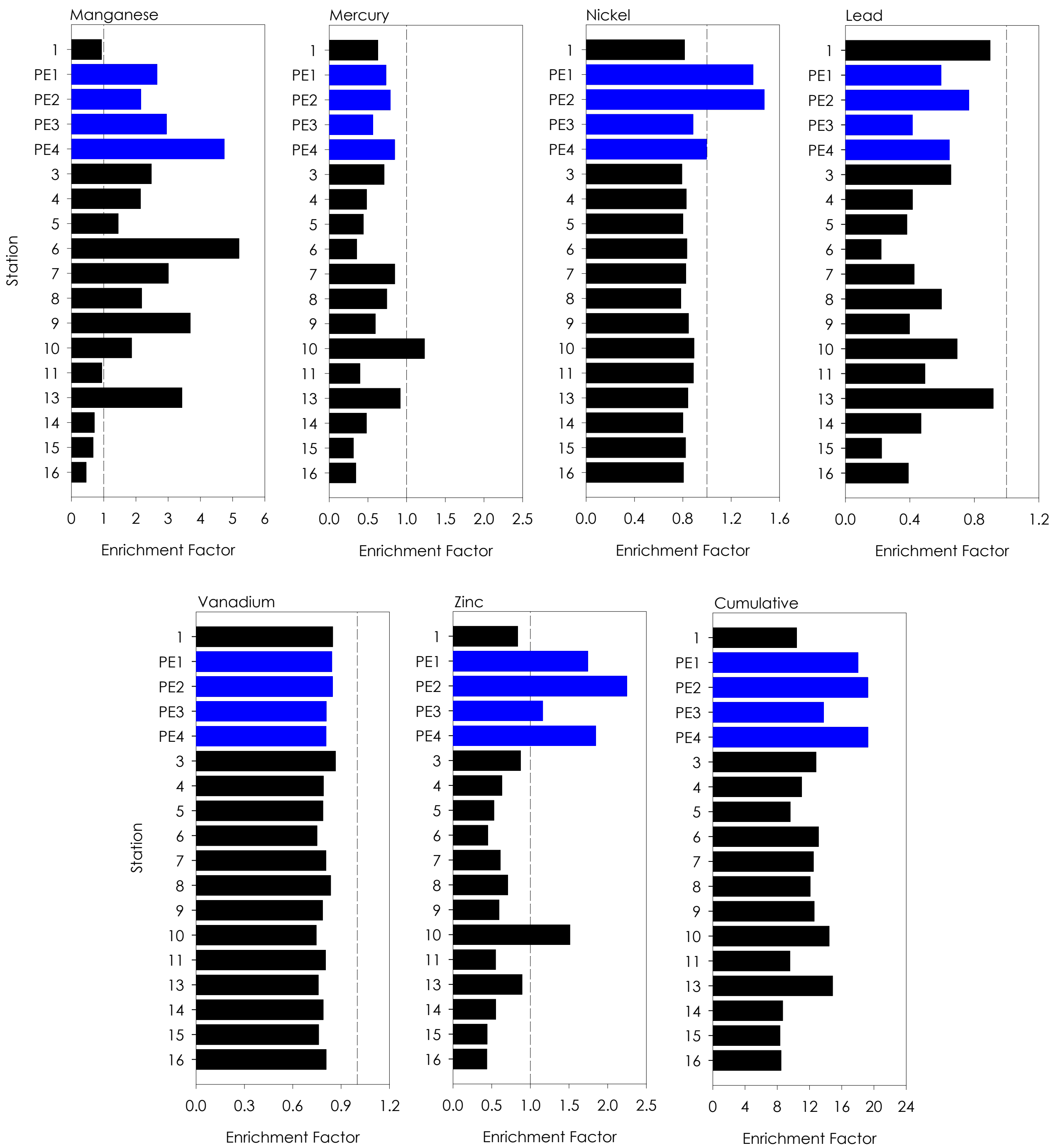


Figure 31 continued. Enrichment Factors for metals in sediment sampled in the Port of Port Elizabeth in January 2022. The dashed lines represent an Enrichment Factor = 1. Enrichment Factors >1 indicate the metal was at a concentration exceeding the baseline and may indicate contamination. Stations alongside and near the Old Tug Jetty quay area are highlighted in blue.

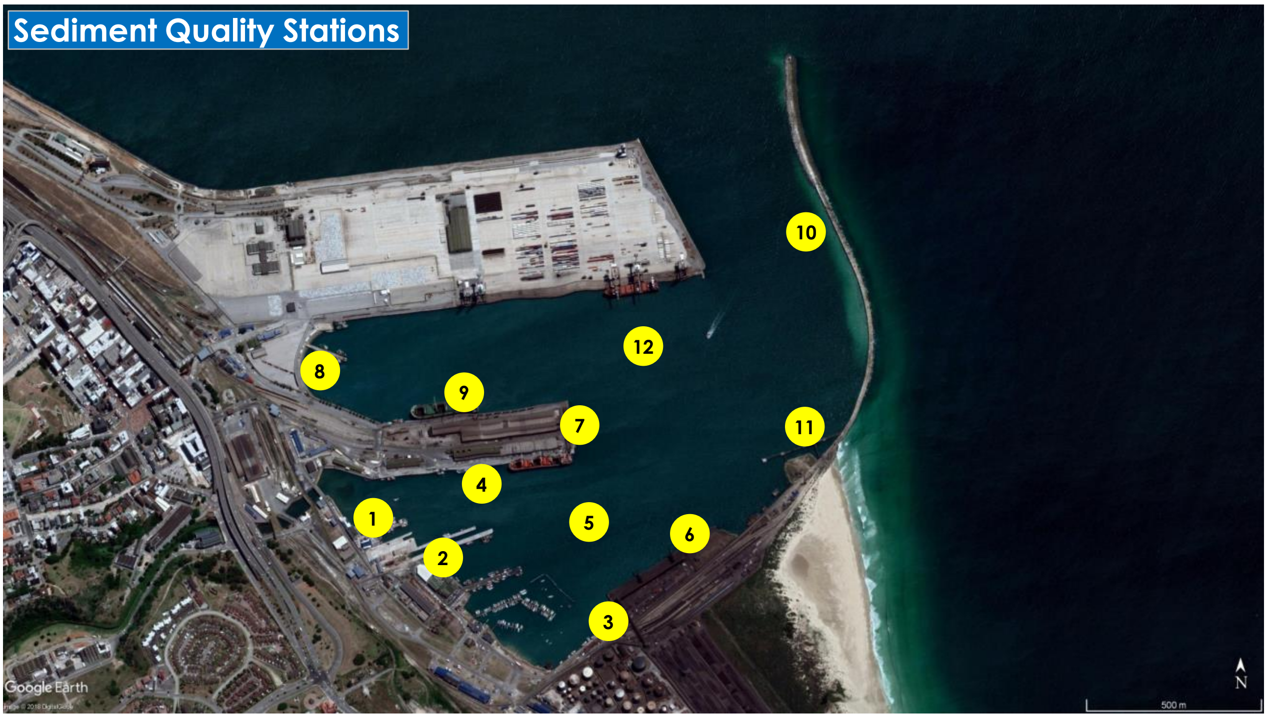


Figure 32. Aerial view of the Port of Port Elizabeth showing the positions where sediment was sampled in surveys between 2015-2019 for the Long-Term Ecological Monitoring Programme.

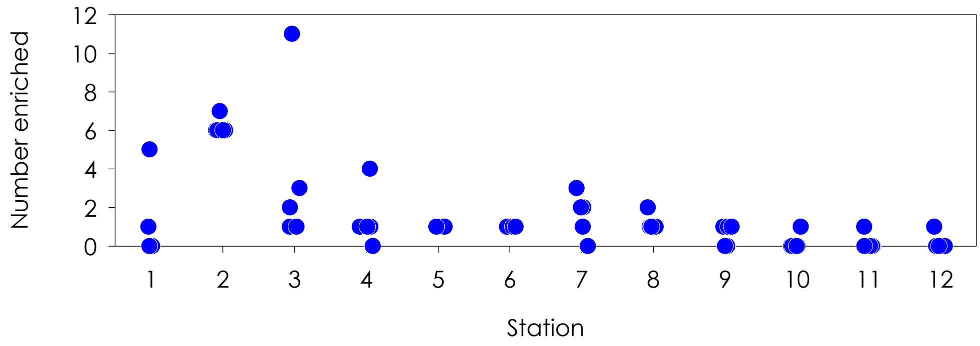


Figure 33. The number of metals enriched in sediment sampled in surveys between 2015-2019 for the Long-Term Ecological Monitoring Programme for the Port of Port Elizabeth.

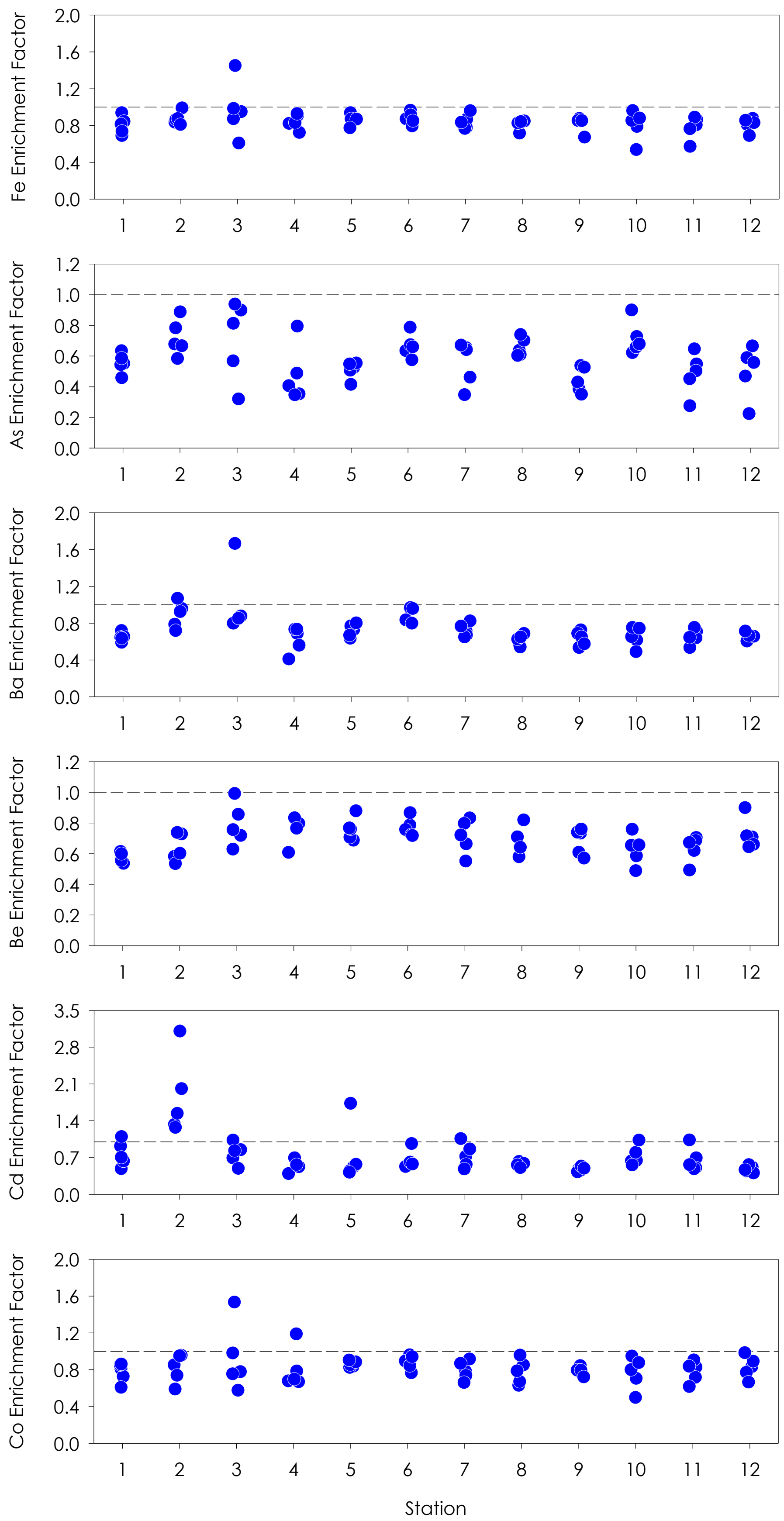


Figure 34. Enrichment Factors for metals in sediment sampled in surveys between 2015-2019 for the Long-Term Ecological Monitoring Programme for the Port of Port Elizabeth. The dashed lines represent an Enrichment Factor = 1. Enrichment Factors >1 indicate the metal was at a concentration exceeding the baseline and may indicate contamination.

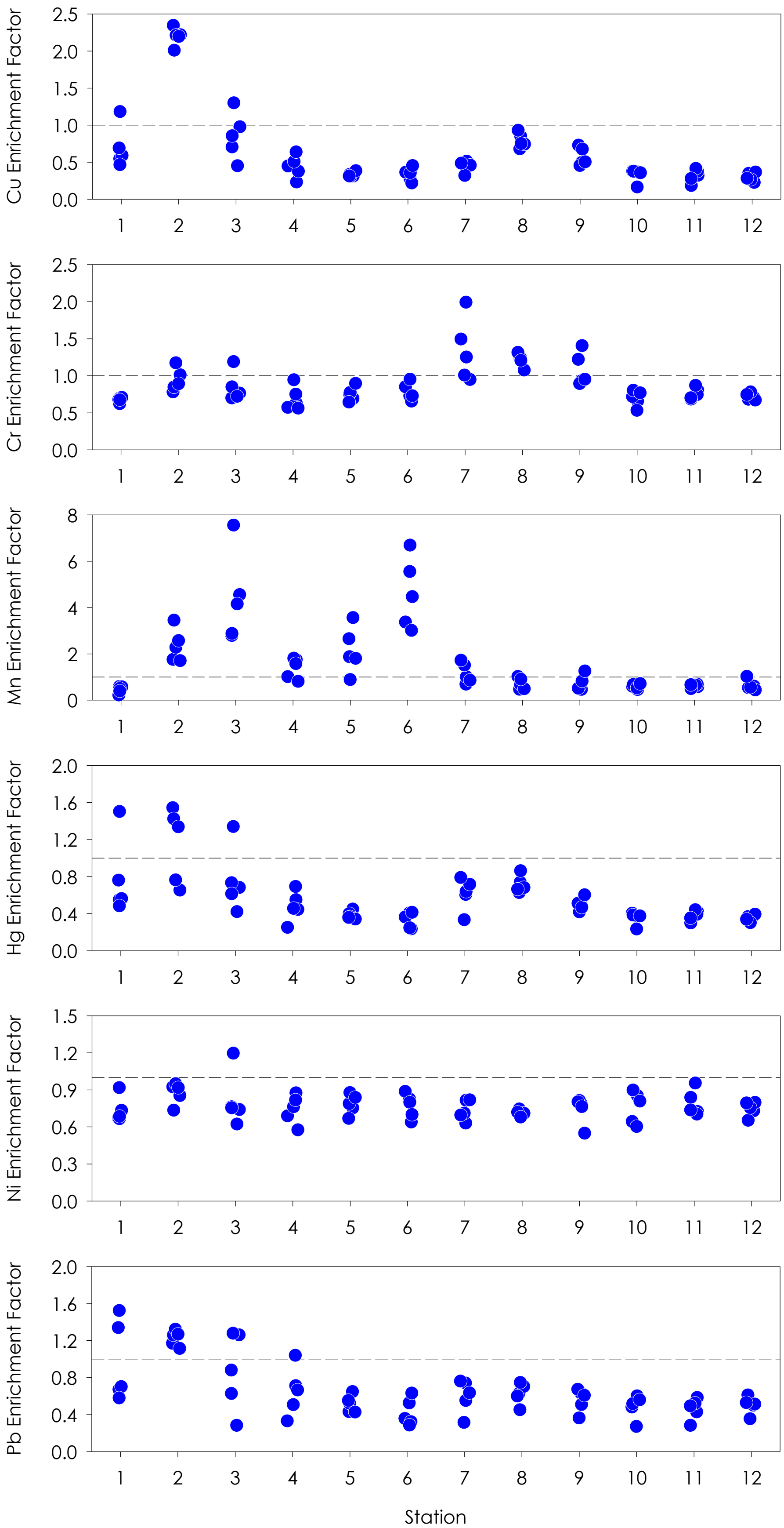


Figure 34 continued. Enrichment Factors for metals in sediment sampled in surveys between 2015-2019 for the Long-Term Ecological Monitoring Programme for the Port of Port Elizabeth. The dashed lines represent an Enrichment Factor = 1. Enrichment Factors >1 indicate the metal was at a concentration exceeding the baseline and may indicate contamination.

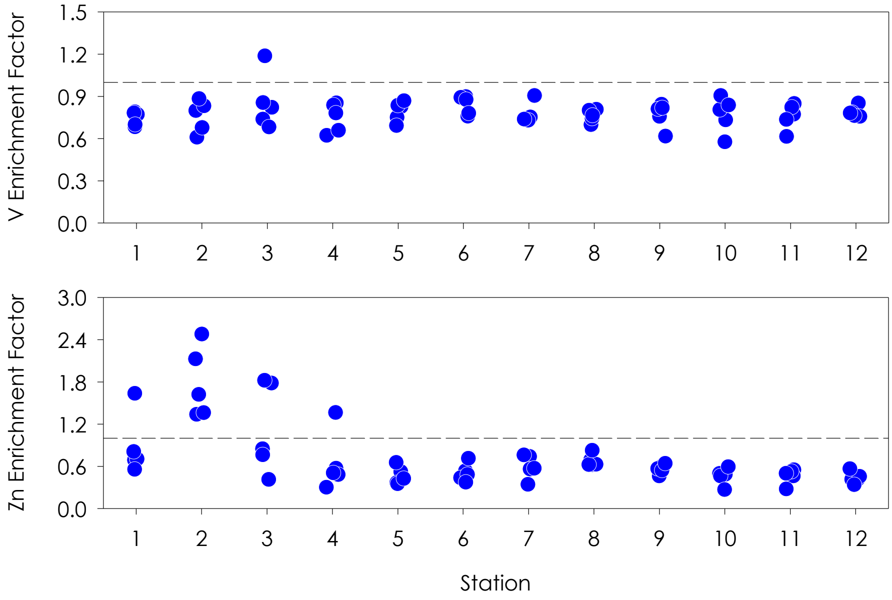


Figure 34 continued. Enrichment Factors for metals in sediment sampled in surveys between 2015-2019 for the Long-Term Ecological Monitoring Programme for the Port of Port Elizabeth. The dashed lines represent an Enrichment Factor = 1. Enrichment Factors >1 indicate the metal was at a concentration exceeding the baseline and may indicate contamination.

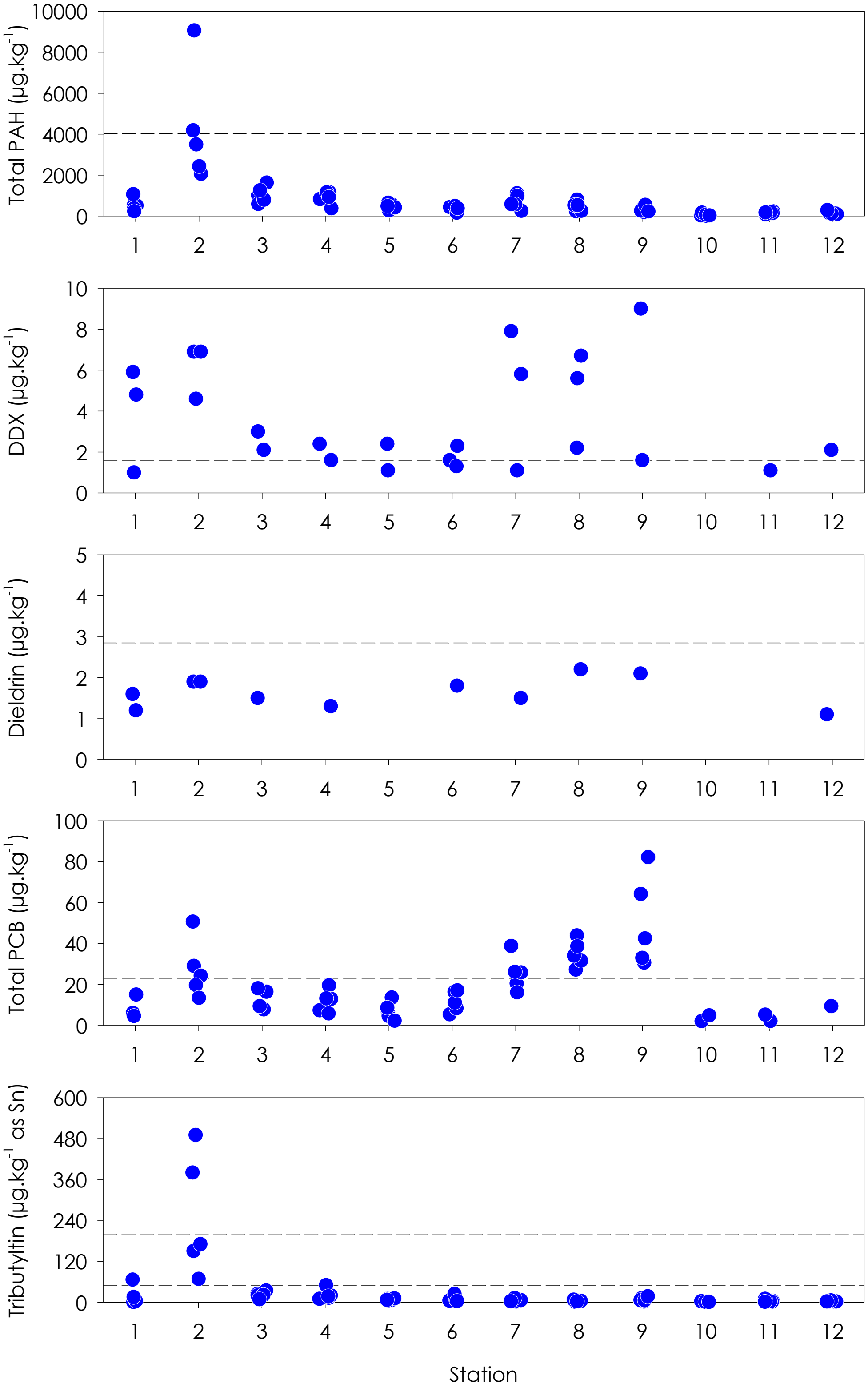


Figure 35. Total polycyclic aromatic hydrocarbon (PAH), DDT and metabolites (DDX), total polychlorinated biphenyl (PCB), and tributyltin concentrations in sediment sampled in the Port of Port Elizabeth for the Long-Term Ecological Monitoring Programme between 2015-2019. The horizontal dashed lines denote sediment quality guidelines that are used elsewhere in the world to estimate the toxicological significance of chemical concentrations in sediment to sediment-dwelling organisms (PAH, DDX, and PCB guidelines from Long *et al*., 1995; dieldrin guideline from MacDonald *et al*., 2002; tributyltin guideline from OSPAR, 2011).

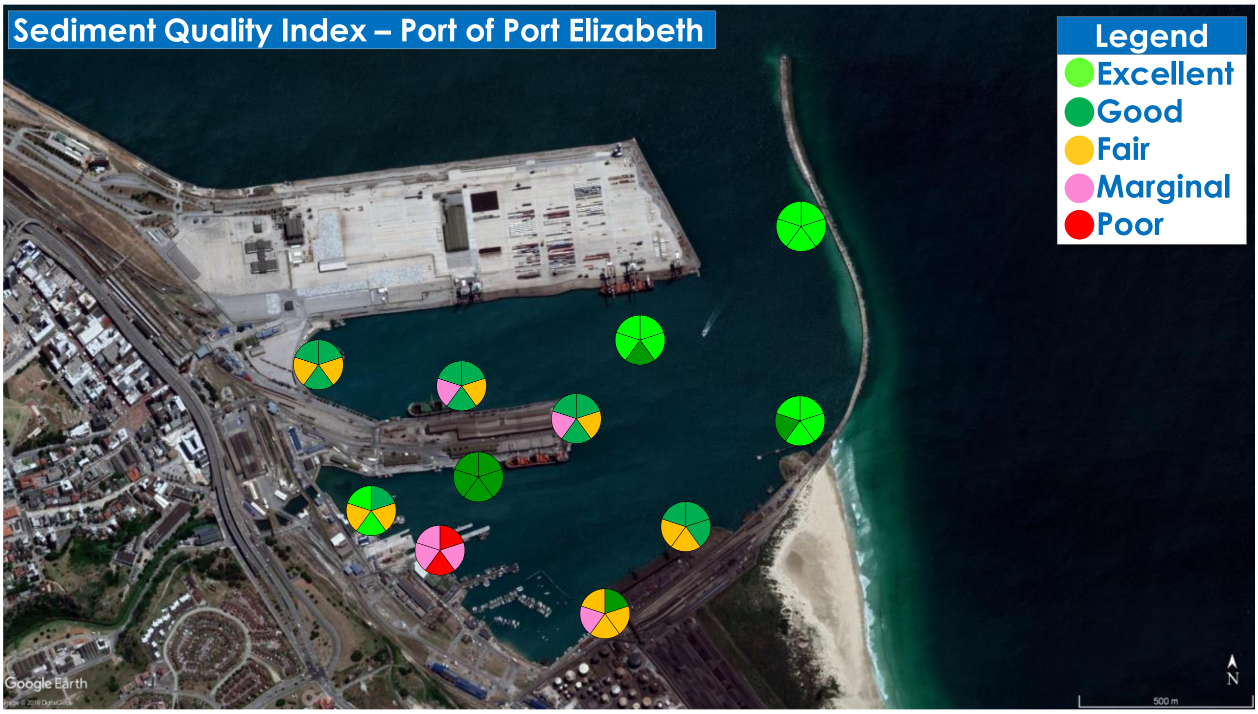


Figure 36. Sediment quality indices for sediment sampled for the Long-Term Ecological Monitoring Programme for the Port of Port Elizabeth between 2015-2019.

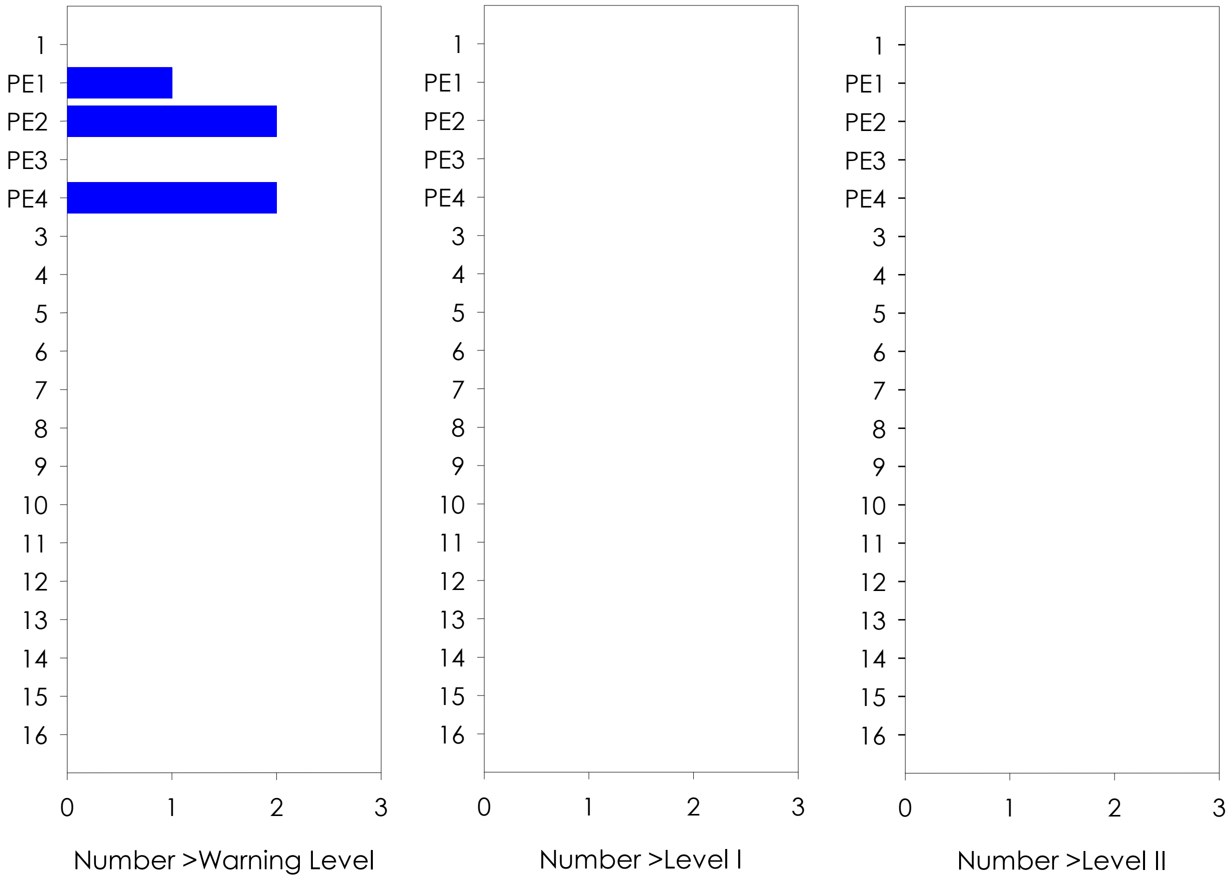


Figure 37. The number of metals in sediment sampled in and near the Port of Port Elizabeth in August 2022 that were at a concentration exceeding the Warning Level, Level I and Level II of the sediment quality guidelines used by the Department of Forestry, Fisheries and the Environment to decide if sediment identified for dredging in South African ports is suitable for open water disposal. Stations alongside and near the Old Tug Jetty quay area are highlighted in blue.

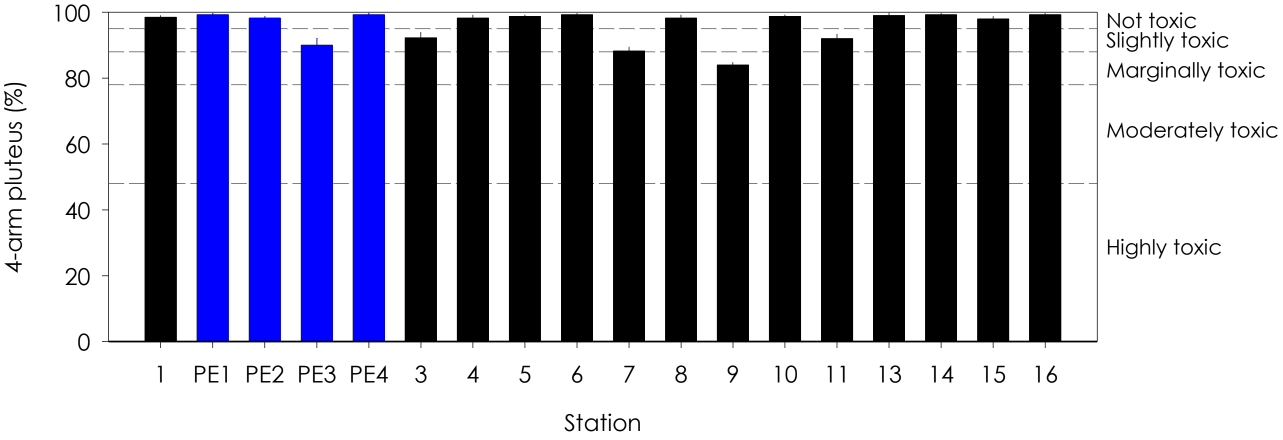


Figure 38. Proportion (mean ± standard deviation) of sea urchin (*Echinometra mathaei*) embryos that developed normally to the 4-arm pluteus after exposure under a sediment-water interface testing regime to sediment sampled in the Port of Port Elizabeth in August 2022. Stations alongside and near the Old Tug Jetty quay area are highlighted in blue.

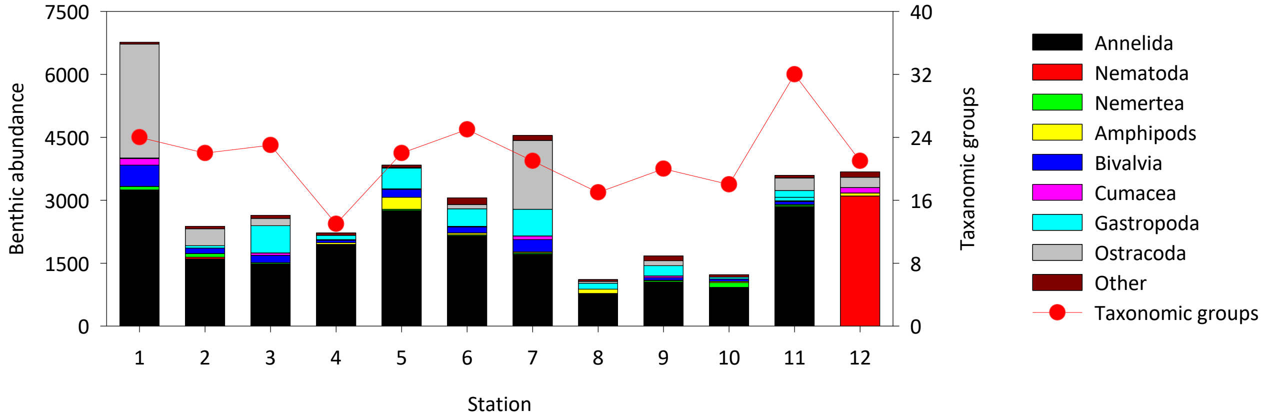


Figure 39. Abundance and number of taxonomic groups comprising the benthic macrofaunal community at each station sampled in the Port of Port Elizabeth in 2019 for the Long-Term Ecological Monitoring Programme.

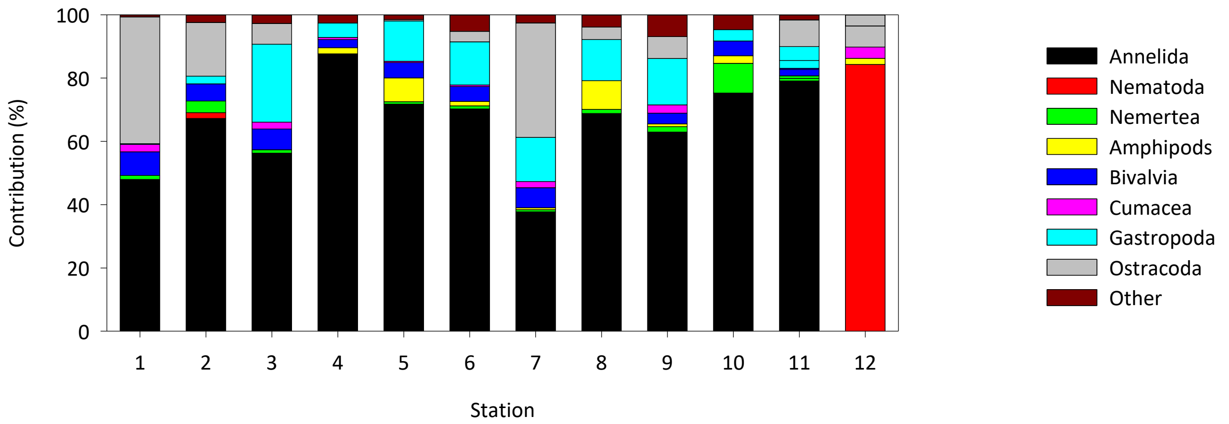


Figure 40. Contribution of various taxonomic groups to benthic macrofaunal abundance at each station sampled in the Port of Port Elizabeth in 2019 for the Long-Term Ecological Monitoring Programme.

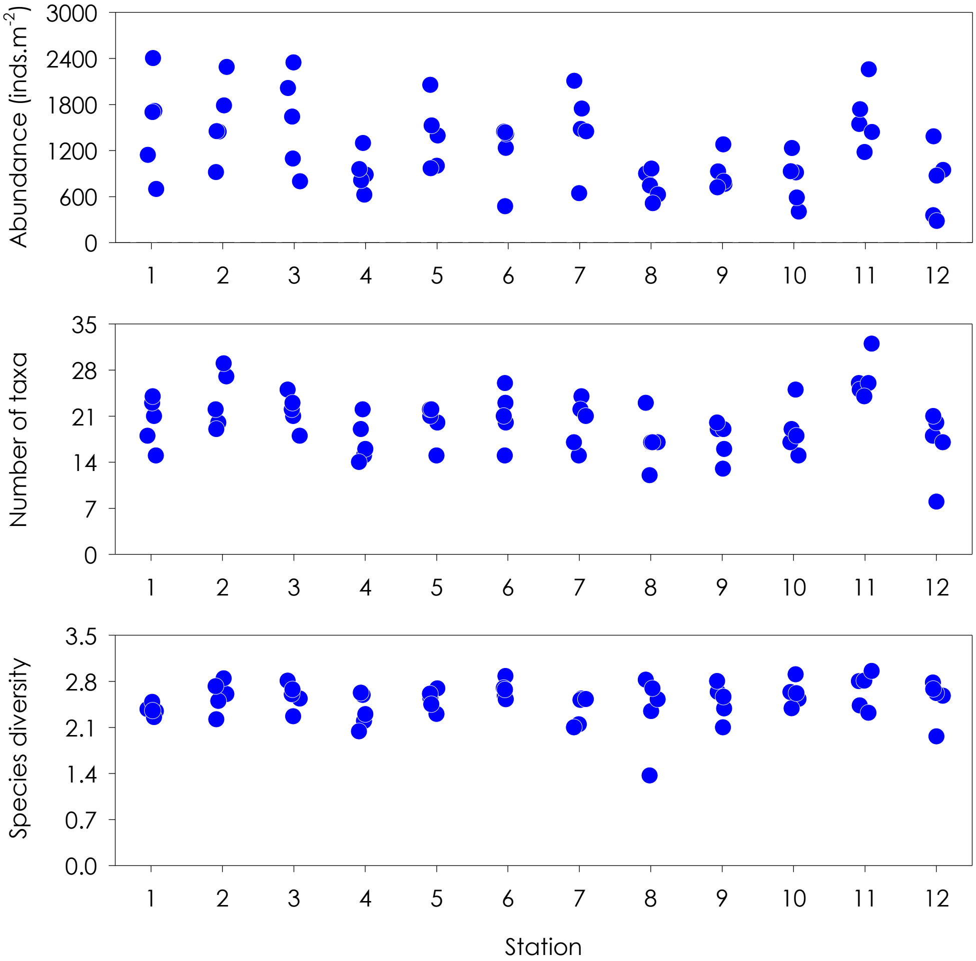


Figure 41. Univariate indices for benthic macrofauna in sediment sampled in the Port of Port Elizabeth for the Long-Term Ecological Monitoring Programme between 2015-2019.

Figure 42. Photos showing encrusting organisms on the sheet pile quay wall at the Old Tug Jetty (top) and on piles near the Old Tug Jetty (bottom).

Figure 43. Aerial view of part of Algoa Bay showing the extent of the dredged spoil disposal site and the positions where sediment was sampled at and near the site in July 2017.

Table 3. Grain size composition and total organic content of sediment sampled at and near the dredged spoil disposal site in Algoa Bay in July 2017. VCS = very coarse-grained sand, CS = coarse-grained sand, MS = medium-grained sand, FS = fine-grained sand, VFS = very fine-grained sand, Mean = mean grain size, TOC = total organic content.

Station	Gravel (%)	VCS (%)	CS (%)	MS (%)	FS (%)	VFS (%)	Mud (%)	Mean (mm)	TOC (%)
DS1	0.00	0.14	1.40	33.29	61.30	2.65	1.22	0.22	0.04
DS2	0.00	0.08	1.03	26.93	67.64	3.21	1.11	0.21	0.19
DS3	0.00	0.09	1.21	32.44	62.06	2.90	1.30	0.22	0.21
DS4	0.03	0.29	3.28	44.26	48.60	2.10	1.43	0.24	0.15
DS5	0.03	0.50	3.98	47.18	45.83	1.38	1.10	0.25	0.07

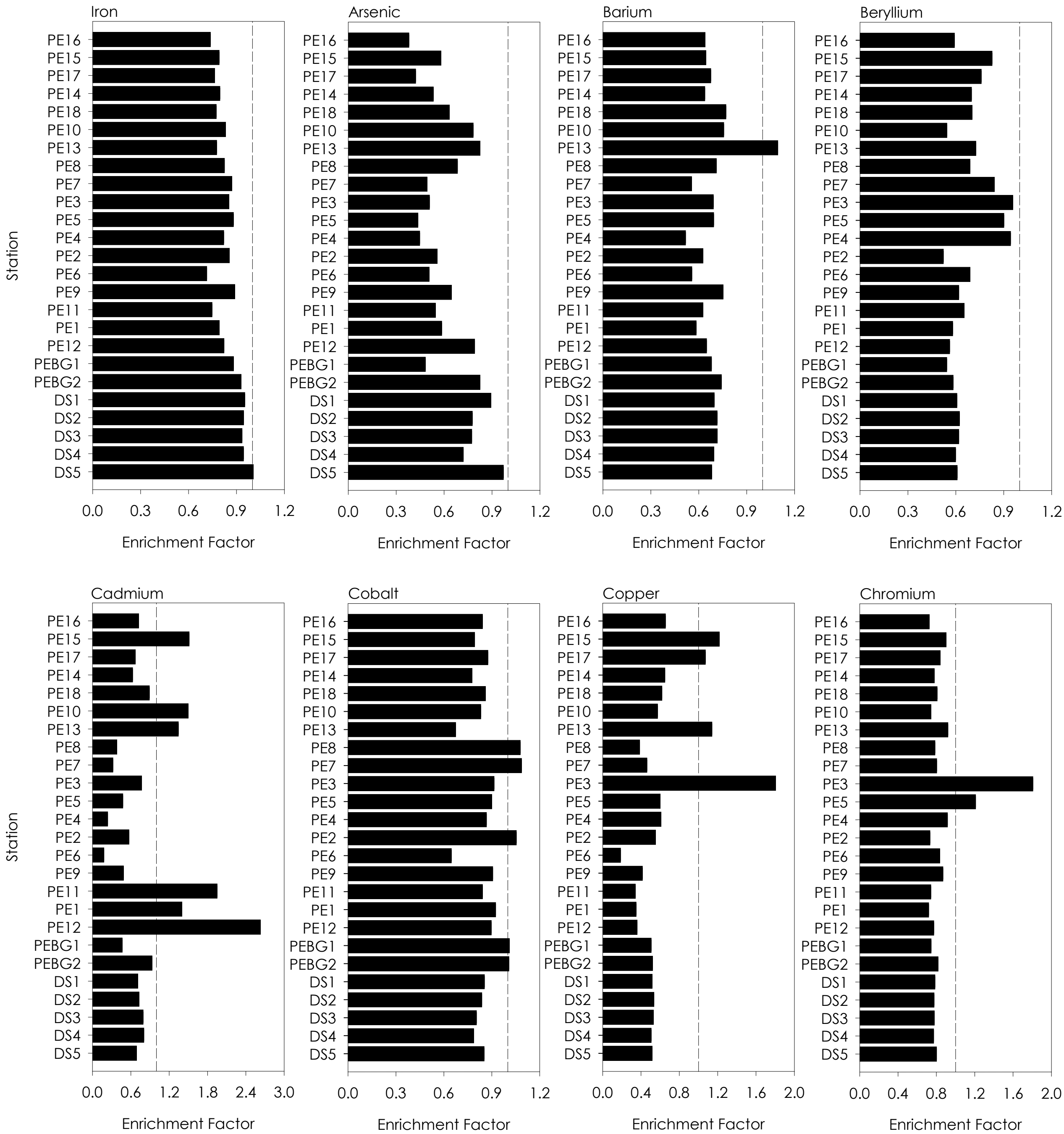


Figure 44. Enrichment Factors for metals in sediment in Port of Port Elizabeth in July 2017. The dashed lines represent an Enrichment Factor = 1. Enrichment Factors >1 indicate the metal was at a concentration exceeding the baseline and may indicate contamination.

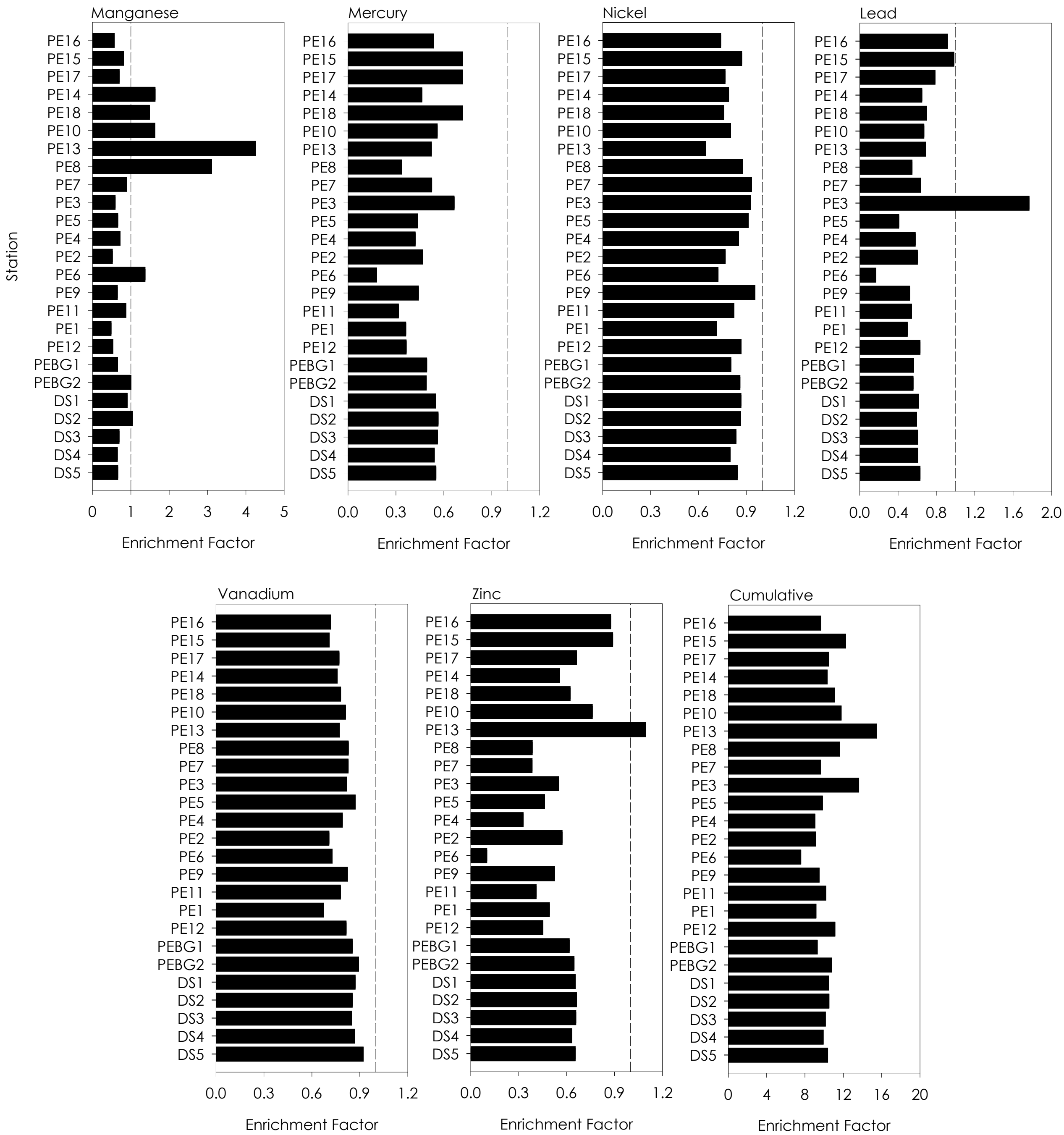


Figure 44 continued. Enrichment Factors for metals in sediment in Port of Port Elizabeth in July 2017. The dashed lines represent an Enrichment Factor = 1. Enrichment Factors >1 indicate the metal was at a concentration exceeding the baseline and may indicate contamination.

Table 3. Summary of construction and operational phase impacts to the biophysical environment that might or will arise due to the proposed project, before and after mitigation.

Impact 1
Construction phase

Impact assessment without mitigation					
Impact	Impacts due to the ingress of non-hazardous solid waste into the port				
Status	Positive		**Negative**		
Nature	**Direct**	**Indirect**	Reversible		**Irreversible**
Extent	Site specific	Local	Regional	National	**International**
Duration	Temporary	Short-Term	Medium-Term	Long-Term	**Permanent**
Intensity	Minor	Low	Moderate	**High**	Severe
Probability	Highly Unlikely	Unlikely	Possible	**Probable**	Definite
Confidence	Low	Medium		**High**	
Significance	Very Low	Low	Medium	**High**	Fatally flawed
Impact assessment with mitigation					
Significance	Very Low	**Low**	Medium	High	Fatally flawed

Impact 2
Construction phase

Impact assessment without mitigation					
Impact	Environmental deterioration due to spillages from portable toilets				
Status	Positive		**Negative**		
Nature	**Direct**	**Indirect**	**Reversible**		Irreversible
Extent	**Site specific**	Local	Regional	National	International
Duration	**Temporary**	Short-Term	Medium-Term	Long-Term	Permanent
Intensity	Minor	Low	**Moderate**	High	Severe
Probability	Highly Unlikely	**Unlikely**	Possible	Probable	Definite
Confidence	Low		Medium	**High**	
Significance	**Very Low**	Low	Medium	High	Fatally flawed
Impact assessment with mitigation					
Significance	**Very Low**	Low	Medium	High	Fatally flawed

Impact 3
Construction phase

Impact assessment without mitigation					
Impact	Impacts to soil, sediment, and geology				
Status	Positive		**Negative**		
Nature	**Direct**	Indirect	Reversible		**Irreversible**
Extent	**Site specific**	Local	Regional	National	International
Duration	Temporary	Short-Term	Medium-Term	Long-Term	**Permanent**
Intensity	**Minor**	Low	Moderate	High	Severe
Probability	**Highly Unlikely**	Unlikely	Possible	Probable	Definite
Confidence	Low		Medium	**High**	
Significance	**Very Low**	Low	Medium	High	Fatally flawed
Impact assessment with mitigation					

Significance	Very Low	Low	Medium	High	Fatally flawed

Impact 4
Construction phase

Impact assessment without mitigation					
Impact	Deterioration in water and sediment quality due to hazardous material spills and leaks				
Status	Positive		Negative		
Nature	Direct	Indirect	Reversible	Irreversible	
Extent	Site specific	Local	Regional	National	International
Duration	Temporary	Short-Term	Medium-Term	Long-Term	Permanent
Intensity	Minor	Low	Moderate	High	Severe
Probability	Highly Unlikely	Unlikely	Possible	Probable	Definite
Confidence	Low	Medium		High	
Significance	Very Low	Low	Medium	High	Fatally flawed
Impact assessment with mitigation					
Significance	Very Low	Low	Medium	High	Fatally flawed

Impact 5
Construction phase

Impact assessment without mitigation					
Impact	Ecological impacts due to the spillage of construction material and demolition debris into the port				
Status	Positive		Negative		
Nature	Direct	Indirect	Reversible	Irreversible	
Extent	Site specific	Local	Regional	National	International
Duration	Temporary	Short-Term	Medium-Term	Long-Term	Permanent
Intensity	Minor	Low	Moderate	High	Severe
Probability	Highly Unlikely	Unlikely	Possible	Probable	Definite
Confidence	Low	Medium		High	
Significance	Very Low	Low	Medium	High	Fatally flawed
Impact assessment with mitigation					
Significance	Very Low	Low	Medium	High	Fatally flawed

Impact 6
Construction phase

Impact assessment without mitigation					
Impact	Deterioration in water quality due to increased suspended sediment concentrations and turbidity caused of construction activities				
Status	Positive		Negative		
Nature	Direct	Indirect	Reversible	Irreversible	
Extent	Site specific	Local	Regional	National	International
Duration	Temporary	Short-Term	Medium-Term	Long-Term	Permanent
Intensity	Minor	Low	Moderate	High	Severe
Probability	Highly Unlikely	Unlikely	Possible	Probable	Definite
Confidence	Low	Medium		High	
Significance	Very Low	Low	Medium	High	Fatally flawed

Impact assessment with mitigation					
Significance	Very Low	Low	Medium	High	Fatally flawed

Impact 7
Construction phase

Impact assessment without mitigation					
Impact	Ecological impacts due to the deposition of sediment mobilised and introduced into the water column by construction activities				
Status	Positive		Negative		
Nature	Direct	Indirect	Reversible	Irreversible	
Extent	Site specific	Local	Regional	National	International
Duration	Temporary	Short-Term	Medium-Term	Long-Term	Permanent
Intensity	Minor	Low	Moderate	High	Severe
Probability	Highly Unlikely	Unlikely	Possible	Probable	Definite
Confidence	Low	Medium		High	
Significance	Very Low	Low	Medium	High	Fatally flawed
Impact assessment with mitigation					
Significance	Very Low	Low	Medium	High	Fatally flawed

Impact 8
Construction phase

Impact assessment without mitigation					
Impact	Deterioration in water quality due to the release of oxygen depleting substances from sediment by construction activities				
Status	Positive		Negative		
Nature	Direct	Indirect	Reversible	Irreversible	
Extent	Site specific	Local	Regional	National	International
Duration	Temporary	Short-Term	Medium-Term	Long-Term	Permanent
Intensity	Minor	Low	Moderate	High	Severe
Probability	Highly Unlikely	Unlikely	Possible	Probable	Definite
Confidence	Low		Medium		High
Significance	Very Low	Low	Medium	High	Fatally flawed
Impact assessment with mitigation					
Significance	Very Low	Low	Medium	High	Fatally flawed

Impact 9
Construction phase

Impact assessment without mitigation					
Impact	Deterioration in water quality due to the mobilisation of bottom sediment leading to the release of nutrients				
Status	Positive		Negative		
Nature	Direct	Indirect	Reversible	Irreversible	
Extent	Site specific	Local	Regional	National	International
Duration	Temporary	Short-Term	Medium-Term	Long-Term	Permanent
Intensity	Minor	Low	Moderate	High	Severe
Probability	Highly Unlikely	Unlikely	Possible	Probable	Definite

Confidence	Low		Medium	High	
Significance	Very Low	Low	Medium	High	Fatally flawed
Impact assessment with mitigation					
Significance	Very Low	Low	Medium	High	Fatally flawed

Impact 10
Construction phase

Impact assessment without mitigation					
Impact	Deterioration in water and sediment quality due to the release of toxic chemicals from sediment by construction activities				
Status	Positive		Negative		
Nature	Direct	Indirect	Reversible	Irreversible	
Extent	Site specific	Local	Regional	National	International
Duration	Temporary	Short-Term	Medium-Term	Long-Term	Permanent
Intensity	Minor	Low	Moderate	High	Severe
Probability	Highly Unlikely	Unlikely	Possible	Probable	Definite
Confidence	Low		Medium	High	
Significance	Very Low	Low	Medium	High	Fatally flawed
Impact assessment with mitigation					
Significance	Very Low	Low	Medium	High	Fatally flawed

Impact 11
Construction phase

Impact assessment without mitigation					
Impact	Deterioration in water quality due to a dredging related increase in suspended sediment concentrations and turbidity				
Status	Positive		Negative		
	The impact is negative since dredging will adversely impact on water quality.				
Nature	Direct	Indirect	Reversible	Irreversible	
Extent	Site specific	Local	Regional	National	International
Duration	Temporary	Short-Term	Medium-Term	Long-Term	Permanent
	The impact is temporary because dredging will occur for a relatively short period.				
Intensity	Minor	Low	Moderate	High	Severe
Probability	Highly Unlikely	Unlikely	Possible	Probable	Definite
Confidence	Low		Medium	High	
Significance	Very Low	Low	Medium	High	Fatally flawed
Impact assessment with mitigation					
Significance	Very Low	Low	Medium	High	Fatally flawed

Impact 12
Construction phase

Impact assessment without mitigation					
Impact	Ecological impacts due to the deposition of sediment outside the dredging footprint				
Status	Positive		Negative		
Nature	Direct	Indirect	Reversible	Irreversible	
Extent	Site specific	Local	Regional	National	International

Duration	Temporary	Short-Term	Medium-Term		Long-Term	Permanent
Intensity	Minor	Low	Moderate		High	Severe
Probability	Highly Unlikely	Unlikely	Possible		Probable	Definite
Confidence	Low		Medium		High	
Significance	Very Low	Low	Medium		High	Fatally flawed
Impact assessment with mitigation						
Significance	Very Low	Low	Medium		High	Fatally flawed

Impact 13
Construction phase

Impact assessment without mitigation						
Impact	Deterioration in water quality due to the release of oxygen demanding substances from sediment by dredging					
Status	Positive			Negative		
Nature	Direct	Indirect		Reversible	Irreversible	
Extent	Site specific	Local	Regional		National	International
Duration	Temporary	Short-Term	Medium-Term		Long-Term	Permanent
Intensity	Minor	Low	Moderate		High	Severe
Probability	Highly Unlikely	Unlikely	Possible		Probable	Definite
Confidence	Low		Medium		High	
Significance	Very Low	Low	Medium		High	Fatally flawed
Impact assessment with mitigation						
Significance	Very Low	Low	Medium		High	Fatally flawed

Impact 14
Construction phase

Impact assessment without mitigation						
Impact	Deterioration in water quality due to the release of nutrients from sediment by dredging					
Status	Positive			Negative		
Nature	Direct	Indirect		Reversible	Irreversible	
Extent	Site specific	Local	Regional		National	International
Duration	Temporary	Short-Term	Medium-Term		Long-Term	Permanent
Intensity	Minor	Low	Moderate		High	Severe
Probability	Highly Unlikely	Unlikely	Possible		Probable	Definite
Confidence	Low		Medium		High	
Significance	Very Low	Low	Medium		High	Fatally flawed
Impact assessment with mitigation						
Significance	Very Low	Low	Medium		High	Fatally flawed

Impact 15
Construction phase

Impact assessment without mitigation				
Impact	Deterioration in water quality due to the release of toxic chemicals from sediment by dredging			
Status	Positive		Negative	
Nature	Direct	Indirect	Reversible	Irreversible

Extent	Site specific	Local	Regional	National	International
Duration	Temporary	Short-Term	Medium-Term	Long-Term	Permanent
Intensity	Minor	Low	Moderate	High	Severe
Probability	Highly Unlikely	Unlikely	Possible	Probable	Definite
Confidence	Low	Medium		High	
Significance	Very Low	Low	Medium	High	Fatally flawed
Impact assessment with mitigation					
Significance	Very Low	Low	Medium	High	Fatally flawed

Impact 16
Construction phase

Impact assessment without mitigation					
Impact	Ecological impacts due to the removal, injury, and disturbance of biological communities in dredging footprints				
Status	Positive		Negative		
Nature	Direct	Indirect	Reversible	Irreversible	
Extent	Site specific	Local	Regional	National	International
	The loss, injury and disturbance of biological communities will be limited to the dredging footprints and their immediate surroundings is thus considered site specific.				
Duration	Temporary	Short-Term	Medium-Term	Long-Term	Permanent
Intensity	Minor	Low	Moderate	High	Severe
Probability	Highly Unlikely	Unlikely	Possible	Probable	Definite
Confidence	Low		Medium	High	
Significance	Very Low	Low	Medium	High	Fatally flawed
Impact assessment with mitigation					
Significance	Very Low	Low	Medium	High	Fatally flawed

Impact 17
Construction phase

Impact assessment without mitigation					
Impact	Deterioration in water quality due to an increase in suspended sediment concentrations during dredged sediment disposal				
Status	Positive		Negative		
Nature	Direct	Indirect	Reversible	Irreversible	
Extent	Site specific	Local	Regional	National	International
Duration	Temporary	Short-Term	Medium-Term	Long-Term	Permanent
Intensity	Minor	Low	Moderate	High	Severe
Probability	Highly Unlikely	Unlikely	Possible	Probable	Definite
Confidence	Low		Medium	High	
Significance	Very Low	Low	Medium	High	Fatally flawed
Impact assessment with mitigation					
Significance	Very Low	Low	Medium	High	Fatally flawed

Impact 18

Impact assessment without mitigation

Construction phase

Impact	Deterioration in water quality due to the release of oxygen depleting substances from sediment during disposal				
Status	Positive		Negative		
Nature	Direct	Indirect	Reversible	Irreversible	
Extent	Site specific	Local	Regional	National	International
Duration	Temporary	Short-Term	Medium-Term	Long-Term	Permanent
Intensity	Minor	Low	Moderate	High	Severe
Probability	Highly Unlikely	Unlikely	Possible	Probable	Definite
Confidence	Low		Medium		High
Significance	Very Low	Low	Medium	High	Fatally flawed
Impact assessment with mitigation					
Significance	Very Low	Low	Medium	High	Fatally flawed

Impact 19
Construction phase

Impact assessment without mitigation					
Impact	Deterioration in water quality due to the release of nutrients from sediment during disposal				
Status	Positive		Negative		
Nature	Direct	Indirect	Reversible	Irreversible	
Extent	Site specific	Local	Regional	National	International
Duration	Temporary	Short-Term	Medium-Term	Long-Term	Permanent
Intensity	Minor	Low	Moderate	High	Severe
Probability	Highly Unlikely	Unlikely	Possible	Probable	Definite
Confidence	Low		Medium		High
Significance	Very Low	Low	Medium	High	Fatally flawed
Impact assessment with mitigation					
Significance	Very Low	Low	Medium	High	Fatally flawed

Impact 20
Construction phase

Impact assessment without mitigation					
Impact	Ecological impacts due to the transfer of toxic chemicals in dredged sediment to the dredged spoil disposal site				
Status	Positive		Negative		
Nature	Direct	Indirect	Reversible	Irreversible	
Extent	Site specific	Local	Regional	National	International
Duration	Temporary	Short-Term	Medium-Term	Long-Term	Permanent
Intensity	Minor	Low	Moderate	High	Severe
Probability	Highly Unlikely	Unlikely	Possible	Probable	Definite
Confidence	Low		Medium		High
Significance	Very Low	Low	Medium	High	Fatally flawed
Impact assessment with mitigation					
Significance	Very Low	Low	Medium	High	Fatally flawed

Impact 21
Construction phase

Impact assessment without mitigation					
Impact	Ecological impacts due to physical effects of sediment disposal at the dredged spoil disposal site				
Status	Positive		**Negative**		
Nature	**Direct**	**Indirect**	**Reversible**	Irreversible	
Extent	**Site specific**	Local	Regional	National	International
Duration	Temporary	**Short-Term**	Medium-Term	Long-Term	Permanent
Intensity	Minor	**Low**	Moderate	High	Severe
Probability	Highly Unlikely	Unlikely	Possible	Probable	**Definite**
Confidence	Low		**Medium**	High	
Significance	Very Low	**Low**	Medium	High	Fatally flawed
Impact assessment with mitigation					
Significance	Very Low	**Low**	Medium	High	Fatally flawed

Impact 22
Construction phase

Impact assessment without mitigation					
Impact	Impacts associated with the disposal of sediment leading to an elevated seabed at the dredged spoil disposal site in Algoa Bay				
Status	Positive		**Negative**		
Nature	**Direct**	Indirect	**Reversible**	Irreversible	
Extent	Site specific	**Local**	Regional	National	International
Duration	Temporary	**Short-Term**	Medium-Term	Long-Term	Permanent
Intensity	**Minor**	Low	Moderate	High	Severe
Probability	**Highly Unlikely**	Unlikely	Possible	Probable	Definite
Confidence	Low		Medium	**High**	
Significance	**Very Low**	Low	Medium	High	Fatally flawed
Impact assessment with mitigation					
Significance	**Very Low**	Low	Medium	High	Fatally flawed

Impact 23
Construction phase

Impact assessment without mitigation					
Impact	Ecological impacts due to the temporary loss of sheet pile wall biological communities				
Status	Positive		**Negative**		
Nature	**Direct**	**Indirect**	**Reversible**	Irreversible	
Extent	Site specific	**Local**	Regional	National	International
Duration	Temporary	Short-Term	**Medium-Term**	Long-Term	Permanent
Intensity	Minor	**Low**	Moderate	High	Severe
Probability	Highly Unlikely	**Unlikely**	Possible	Probable	Definite
Confidence	Low		Medium	**High**	
Significance	Very Low	**Low**	Medium	High	Fatally flawed
Impact assessment with mitigation					
Significance	Very Low	**Low**	Medium	High	Fatally flawed

Impact 24
Construction phase

Impact assessment without mitigation					
Impact	Ecological impacts due to underwater noise				
Status	Positive		**Negative**		
Nature	**Direct**	**Indirect**	**Reversible**	Irreversible	
Extent	Site specific	Local	**Regional**	National	International
Duration	Temporary	**Short-Term**	Medium-Term	Long-Term	Permanent
Intensity	Minor	Low	Moderate	**High**	Severe
Probability	Highly Unlikely	Unlikely	Possible	**Probable**	Definite
Confidence	**Low**		Medium	**High**	
Significance	Very Low	Low	**Medium**	High	Fatally flawed
Impact assessment with mitigation					
Significance	Very Low	Low	**Medium**	High	Fatally flawed

Impact 25
Construction phase

Impact assessment without mitigation					
Impact	Ecological impacts due to above water noise				
Status	Positive		**Negative**		
Nature	**Direct**	Indirect	**Reversible**	Irreversible	
Extent	**Site specific**	Local	Regional	National	International
Duration	Temporary	**Short-Term**	Medium-Term	Long-Term	Permanent
Intensity	Minor	**Low**	Moderate	High	Severe
Probability	Highly Unlikely	Unlikely	Possible	**Probable**	Definite
Confidence	Low		**Medium**	**High**	
Significance	Very Low	**Low**	Medium	High	Fatally flawed
Impact assessment with mitigation					
Significance	Very Low	**Low**	Medium	High	Fatally flawed

Impact 26
Operational phase

Impact assessment without mitigation					
Impact	Impact of altered quay wall geometry on hydrodynamics				
Status	Positive		Negative		
Nature	**Direct**	Indirect	Reversible	**Irreversible**	
Extent	**Site specific**	Local	Regional	National	International
Duration	Temporary	Short-Term	Medium-Term	Long-Term	**Permanent**
Intensity	**Minor**	Low	Moderate	High	Severe
Probability	**Highly Unlikely**	Unlikely	Possible	Probable	Definite
Confidence	Low		**Medium**	**High**	
Significance	**Very Low**	Low	Medium	High	Fatally flawed
Impact assessment with mitigation					
Significance	**Very Low**	Low	Medium	High	Fatally flawed

Impact 27
Operational phase

Impact assessment without mitigation						
Impact	Ecological impact due to the permanent habitat loss					
Status	Positive		Negative			
Nature	Direct	Indirect	Reversible		Irreversible	
Extent	Site specific	Local	Regional	National	International	
Duration	Temporary	Short-Term	Medium-Term	Long-Term	Permanent	
Intensity	Minor	Low	Moderate	High	Severe	
Probability	Highly Unlikely	Unlikely	Possible	Probable	Definite	
Confidence	Low		Medium		High	
Significance	Very Low	Low	Medium	High	Fatally flawed	
Impact assessment with mitigation						
Significance	Very Low	Low	Medium	High	Fatally flawed	

Impact 28
Operational phase

Impact assessment without mitigation						
Impact	Ecological impact due to habitat modification by the deck-on-pile structure					
Status	Positive		Negative			
Nature	Direct	Indirect	Reversible		Irreversible	
Extent	Site specific	Local	Regional	National	International	
Duration	Temporary	Short-Term	Medium-Term	Long-Term	Permanent	
Intensity	Minor	Low	Moderate	High	Severe	
Probability	Highly Unlikely	Unlikely	Possible	Probable	Definite	
Confidence	Low		Medium		High	
Significance	Very Low	Low	Medium	High	Fatally flawed	
Impact assessment with mitigation						
Significance	Very Low	Low	Medium	High	Fatally flawed	