



**PAKAR SCIENO TW**  
*Integrated Environmental Solutions*

# Manual Marine Water Quality Monitoring (MMWQM) Data Validation

## January 2025

**Date: 26<sup>th</sup> February 2025**



[www.pstw.com.my](http://www.pstw.com.my)



Pakar Scieno TW Sdn Bhd



117 stations monitored in January 2025

No samples rejection

No non-compliance record in term of sample holding time

No data deletion

# MMWQM Stations in January 2025

STATE	CATEGORY			TOTAL
	COASTAL	ESTUARY	ISLAND	
PERLIS	0	2	0	2
KEDAH	9	4	14	27
P.PINANG	17	7	9	33
N.SEMBILAN	14	2	1	17
PERAK	8	6	5	19
SELANGOR	6	10	3	19
<b>TOTAL</b>	<b>54</b>	<b>31</b>	<b>32</b>	<b>117</b>

- Sampling completed as per schedule
- There is no tarball sampling for this particular month

# Invoice January 2024



STATES	STATION	TARBALL	COASTAL	ESTUARY	ISLAND	TOTAL INVOICE
PERLIS	2	-	RM0.00	RM5,352.90	RM0.00	RM5,352.90
KEDAH	27	-	RM30,497.94	RM10,705.80	RM36,593.76	RM77,797.50
P.PINANG	33	-	RM57,607.22	RM18,735.15	RM23,524.56	RM99,866.93
N.SEMBILAN	17	-	RM47,441.24	RM5,352.90	RM2,613.84	RM55,407.98
PERAK	19	-	RM27,109.28	RM16,058.70	RM13,069.20	RM56,237.18
SELANGOR	19	-	RM20,331.96	RM26,764.50	RM7,841.52	RM54,937.98
<b>TOTAL</b>	<b>137</b>	<b>-</b>	<b>RM182,987.64</b>	<b>RM82,969.95</b>	<b>RM83,642.88</b>	<b>RM349,600.47</b>

# Invoice with Tax January 2025



**PAKAR SCIENO TW**  
Integrated Environmental Solutions

**PROFORMA INVOICE**

**Bill To:**  
 Jabatan Alam Sekitar  
 Kementerian Sumber Air dan Kalamul Alam (KREK)  
 Area 1-4, Plot No. 1 & 5, Wawasan Sungai Kall  
 No 28, Persewaan Perakasa, Fasa 4  
 62574 Putrajaya

**Invoice No:** JAN20250078  
**Date:** 12 February 2025  
**Service Tax No.:** ERS-1081-3290007

Page No: Page 1 of 1

DESCRIPTION		RM
Concession Agreement dated 18 June 2016 in relation to Environmental Quality Monitoring Programme ("EQMP")		
<b>VARIABLE EQMP MAINTENANCE CHARGES FOR THE MONTH OF JANUARY 2025</b>		
<b>Marine Water Quality Monitoring Programme</b>		
a. Marine Marine Water Quality Monitoring (MMWQM)		
(i) For Coastal	102,967.64	
(ii) For Estuary	82,869.55	
(iii) For Inland	57,642.88	
(iv) For Stead of Jalin	30,365.02	
		273,845.09
b. Continuous Marine Water Quality Monitoring (CMWQM)	133,052.99	
Level : Air dan permukaan	(28.28)	
		132,774.71
		<b>506,620.80</b>
<b>RM : Five Hundred Fifty Four Thousand Twenty Nine &amp; Oh Thirty Three Only</b>	<b>TOTAL (Excl. Service Tax)</b>	<b>502,896.12</b>
	<b>Add Service Tax 6%</b>	<b>31,218.25</b>
	<b>TOTAL (Incl. Service Tax)</b>	<b>534,114.37</b>

All payments shall be made payable to Pakar Scieno TW Sdn Bhd.

**Bank Details:**  
 Bank Name : Malaysia Banking Berhad  
 Branch : Petaling Jaya Main  
 Address : 58-57, Jalan Dutera (274), 46200 Petaling Jaya  
 Bank No. : 22 - 7656 1988  
 Account No. : 5141 8985 7557  
 Please email payment advice to [finance@pakar.com.my](mailto:finance@pakar.com.my)

**PAKAR SCIENO TW SDN BHD**



**Dr. Abdul Razak Abdullah**  
Chief Executive Officer

Pakar Scieno TW Sdn Bhd (1103189-X)  
 25, Jalan Pengacara U138, Teanaya Industrial Park, Section 11,  
 40150 Shah Alam, Selangor Darul Ehsan, Malaysia  
 Tel: 603-5688 8364 Fax: 603-5583 0423  
 Email address: [finance@pakar.com.my](mailto:finance@pakar.com.my)



Marine Jan 2025 invoice.pdf

# MMWQM Station Classifies as POOR in January 2025

No.	State	Category	Station Class	Location	Station ID	MWQI Index	MWQI Category
1.	Negeri Sembilan	Estuary	E1	KUALA SUNGAI LUKUT	MMNE002	42	POOR
2.	Selangor	Estuary	E1	KUALA SUNGAI LANGAT (LUMUT)	MMBE006	46	POOR
3.	Selangor	Island	3	LUMUT	MMBR003	43	POOR
4.	Selangor	Estuary	3	KUALA SUNGAI KLANG	MMBE005	46	POOR
5.	Selangor	Estuary	E1	KUALA SUNGAI LANGAT (JUGRA)	MMBE004	44	POOR

# KUALA SUNGAI LUKUT MMNE002

## CLASS E1

- POOR MWQI range; 25 – 49 (12x)
  - DO ; range 2.721 – 7.417
  - TSS ; range <1.00 – 38
  - O&G ; range <1.00 - 3
  - Copper ; range <1.00 – 3.6
  - Arsenic ; range 1.3 – 14.9
  - Lead ; range <1.00 – 2
  - Zinc ; range <5.00 – 31.4
  - Ammonia ; range 0.269 – 230.162
  - Nitrate; range <10.00 – 12,100  
95<sup>th</sup> percentile : 4,777.5
  - Phosphate ; range <10.00 – 70
  - Total Coliform ; range <1.00 – 192,000
  - Faecal Coliform ; range <1.00 – 35,000
  - *E. coli* ; range <1.00 – 8,400
  - *Enterococci* ; <1.00 – 2,040

**Station Information** ✕

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**Marine Water Quality Index (MMWQI)**

42

MMWQI

POOR

MMNE002

Station Name: KUALA SUNGAI LUKUT, N.Sembilan

Update on Sunday, 11:00 PM 23 Feb 2025

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**Sampling Frequency**

Feb 2024
May 2024
Aug 2024
Oct 2024
Nov 2024
Jan 2025

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**Sampling Result**

IN-SITU

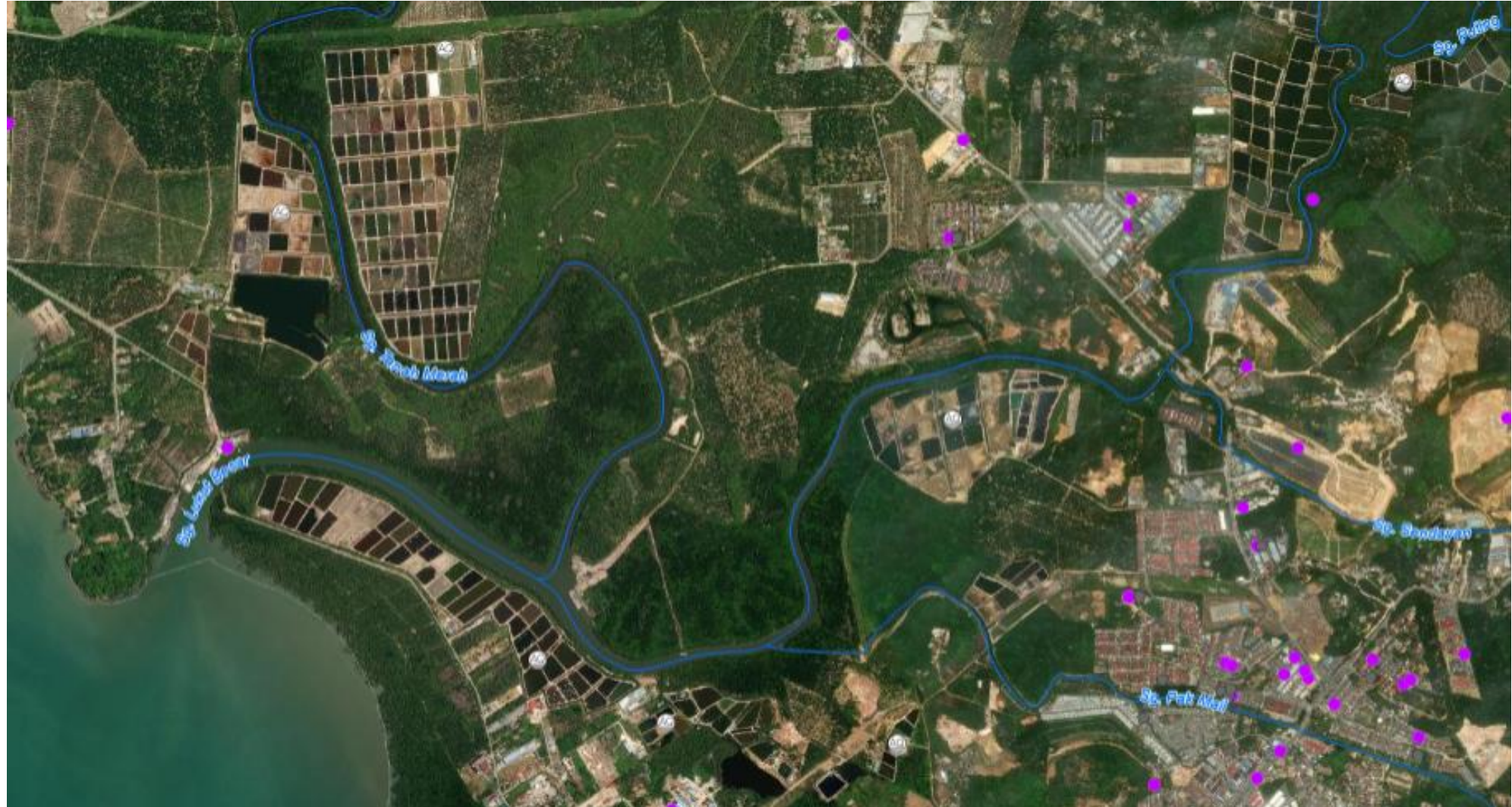
Parameter	Concentration	Sub Index
Dissolved Oxygen	3.418 mg/L	55.42
pH	7.044	-
Salinity	15.163 ppt	-
Temperature	29.464 °C	-
Turbidity	8.555 NTU	-
Electrical Conductivity	25.049 mS/cm	-

Parameter	Concentration	Sub Index
TSS	4.000 mg/L	94.17
Oil and Grease	<1.000 mg/L	-
Hg	<0.040 µg/L	-
Cd	<1.000 µg/L	-
Cr <sup>6+</sup>	<10.000 µg/L	-
Cu	<1.000 µg/L	-
As	1.000 µg/L	-
Pb	<1.000 µg/L	-
Zn	8.000 µg/L	-
CN	<5.000 µg/L	-
NH <sub>3</sub>	7.033 µg/L	96.82
NH <sub>3</sub> N	1020.000 µg/L	-
NO <sub>2</sub>	354.000 µg/L	-
NO <sub>3</sub>	4590.000 µg/L	19.02
PO <sub>4</sub>	<10.000 µg/L	93.31
Phenol	<10.000 µg/L	-
Tributyltin	<0.002 µg/L	-
Total Coliform	20800.000 cfu/100ml	-
Faecal Coliform	9200.000 cfu/100ml	8
E. coli	2400.000 cfu/100ml	-
Enterococci	156.000 cfu/100ml	-
PAHS	<5.000 µg/L	-

### MMNE002 (KUALA SUNGAI LUKUT)

Station ID (New)	DT	Index	Category	DO	pH	Sal	Temp	Turb	Cond	TSS	O&G	HG	Cd	Cr6+	Cu	As	Pb	Zn
MMNE002	9/1/2025 11:06	42	POOR	3.418	7.044	15.163	29.464	8.555	25.049	4	<1.000	<0.040	<1.000	<10.000	<1.000	1	<1.000	8
MMNE002	21/11/2024 12:44	54	MODERATE	5.858	7.691	21.856	30.669	7.703	34.958	4	<1.000	<0.040	<1.000	<10.000	<1.000	3	<1.000	10
MMNE002	28/10/2024 10:44	52	MODERATE	6.814	7.335	15.444	29.847	17.764	25.484	18	<1.000	<0.040	<1.000	<10.000	<1.000	2	<1.000	9
MMNE002	8/8/2024 11:55	75	MODERATE	4.319	7.54	24.412	29.94	9.727	38.595	10	<1.000	<0.040	<1.000	<10.000	<1.000	4	<1.000	8
MMNE002	9/5/2024 13:00	50	MODERATE	3.973	7.261	20.782	31.143	7.564	33.419	6	<1.000	<0.040	<1.000	<10.000	<1.000	3	<1.000	<5.000
MMNE002	26/2/2024 13:34	49	POOR	6.665	7.613	21.396	31.348	9.213	34.318	12	<1.000	<0.040	<1.000	<10.000	2	5	<1.000	<5.000

Station ID (New)	DT	Index	Category	CN	NH3	NH3-N	NO2	NO3	PO4	Phenol	TBT	TC	FC	E. coli	Enterococci	PAHs
MMNE002	9/1/2025 11:06	42	POOR	<5.000	7.033	1020	354	4590	<10.000	<10.000	<0.002	20800	9200	2400	156	<5.000
MMNE002	21/11/2024 12:44	54	MODERATE	<5.000	13.641	439	172	1540	<10.000	<10.000	<0.002	10400	1320	1200	236	<5.000
MMNE002	28/10/2024 10:44	52	MODERATE	<5.000	2.252	164	138	2400	<10.000	<10.000	<0.002	2200	1040	240	32	<5.000
MMNE002	8/8/2024 11:55	75	MODERATE	<5.000	4.758	230	126	1040	<10.000	<10.000	<0.002	1440	152	120	64	<5.000
MMNE002	9/5/2024 13:00	50	MODERATE	<5.000	4.053	332	169	1960	<10.000	<10.000	<0.002	2240	880	200	92	<5.000
MMNE002	26/2/2024 13:34	49	POOR	<5.000	6.815	249	234	3590	<10.000	<10.000	<0.002	10800	840	360	64	<5.000



# KUALA SUNGAI LANGAT (LUMUT) MMBE006

## CLASS E1

- POOR MWQI range; 34 – 49 (18x)
  - DO ; range 1.911– 7.265
  - TSS ; range 3 – 98
  - O&G ; range <1.00 – 2
  - Copper ; range <1.00 – 4.1
  - Arsenic ; range 1 – 88.4
  - Lead ; range <1.00 – 7.3
  - Zinc ; range <5.00 – 30.4
  - Ammonia ; range 0.105 – 51.596
  - Nitrate; range <10.00 – 5680
  - Phosphate ; range <10.00 – 566
  - Total Coliform ; range <1.00 – 320,000
  - Faecal Coliform ; range <1.00 – 35,600
  - *E. coli* ; range <1.00 – 11,200
  - *Enterococci* ; <1.00 – 3,480

### Station Information

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Marine Water Quality Index (MMWQI)

46

MMWQI

POOR

MMBE006

Station Name: KUALA SUNGAI LANGAT (LUMUT), Selangor

Update on Sunday, 11:00 PM 23 Feb 2025

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Sampling Frequency

Jun 2024
Jul 2024
Oct 2024
Dec 2024
Jan 2025
Feb 2025

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^ Sampling Result

IN-SITU

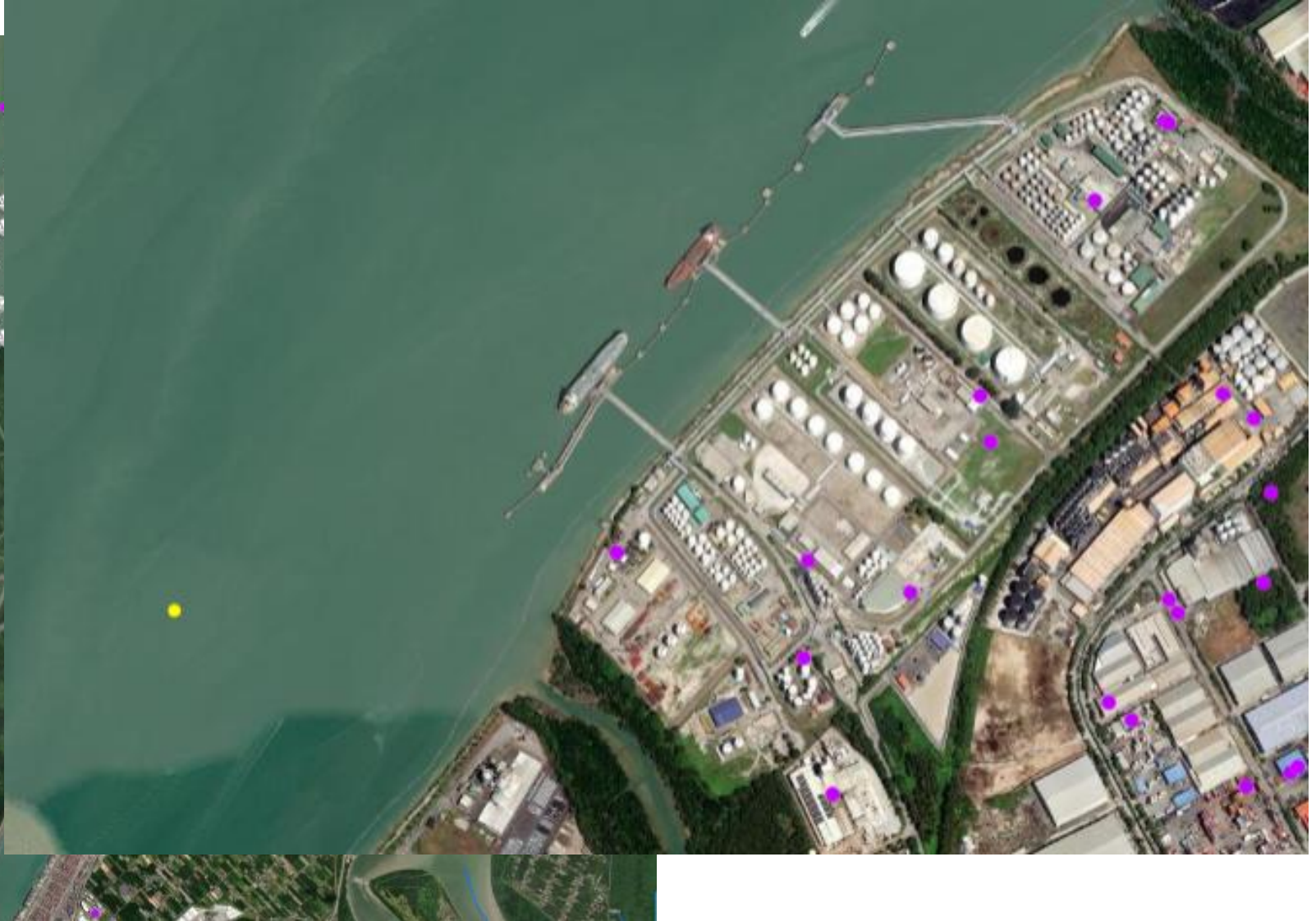
Parameter	Concentration	Sub Index
Dissolved Oxygen	3.087 mg/L	45.96
pH	7.294	-
Salinity	20.919 ppt	-
Temperature	29.829 °C	-
Turbidity	15.928 NTU	-
Electrical Conductivity	33.571 mS/cm	-

Parameter	Concentration	Sub Index
TSS	22.000 mg/L	87.15
Oil and Grease	<1.000 mg/L	-
Hg	<0.040 µg/L	-
Cd	<1.000 µg/L	-
Cr <sup>6+</sup>	<10.000 µg/L	-
Cu	1.000 µg/L	-
As	13.000 µg/L	-
Pb	1.000 µg/L	-
Zn	15.000 µg/L	-
CN	<5.000 µg/L	-
NH <sub>3</sub>	2.658 µg/L	98.78
NH <sub>3</sub> N	221.000 µg/L	-
NO <sub>2</sub>	453.000 µg/L	-
NO <sub>3</sub>	1140.000 µg/L	63.61
PO <sub>4</sub>	147.000 µg/L	70.95
Phenol	<10.000 µg/L	-
Tributyltin	<0.002 µg/L	-
Total Coliform	13200.000 cfu/100ml	-
Faecal Coliform	920.000 cfu/100ml	8
E. coli	800.000 cfu/100ml	-
Enterococci	48.000 cfu/100ml	-
PAHS	<5.000 µg/L	-

### MMBE006 (KUALA SUNGAI LANGAT (LUMUT))

Station ID (New)	DT	Index	Category	DO	pH	Sal	Temp	Turb	Cond	TSS	O&G	HG	Cd	Cr6+	Cu	As	Pb	Zn
MMBE006	15/1/2025 12:29	46	POOR	3.087	7.294	20.919	29.829	15.928	33.571	22	<1.000	<0.040	<1.000	<10.000	1	13	1	15
MMBE006	20/12/2024 12:03	53	MODERATE	5.704	7.624	16.629	28.984	16.716	27.233	8	<1.000	<0.040	<1.000	<10.000	2	10	<1.000	14
MMBE006	3/10/2024 11:56	74	MODERATE	5.214	7.448	10.215	30.65	19.518	17.471	30	<1.000	<0.040	<1.000	<10.000	2	11	2	18
MMBE006	18/7/2024 11:48	92	EXCELLENT	6.798	8.142	24.255	30.584	4.063	38.398	9	1	<0.040	<1.000	<10.000	1	14	<1.000	26
MMBE006	21/6/2024 13:52	50	MODERATE	5.738	7.649	19.925	31.446	9.68	32.18	4	<1.000	<0.040	<1.000	<10.000	<1.000	68	<1.000	10
MMBE006	7/3/2024 13:06	72	MODERATE	6.697	8.099	24.788	31.172	4.326	39.18	6	<1.000	<0.040	<1.000	<10.000	1	2	1	6

Station ID (New)	DT	Index	Category	CN	NH3	NH3-N	NO2	NO3	PO4	Phenol	TBT	TC	FC	E. coli	Enterococci	PAHs
MMBE006	15/1/2025 12:29	46	POOR	<5.000	2.658	221	453	1140	147	<10.000	<0.002	13200	920	800	48	<5.000
MMBE006	20/12/2024 12:03	53	MODERATE	<5.000	30.421	1230	138	451	229	<10.000	<0.002	32800	11200	9200	3480	<5.000
MMBE006	3/10/2024 11:56	74	MODERATE	<5.000	3.262	168	477	1040	137	<10.000	<0.002	1160	140	80	60	<5.000
MMBE006	18/7/2024 11:48	92	EXCELLENT	<5.000	0.821	<10.000	262	652	52	<10.000	<0.002	920	1	<1.000	<1.000	<5.000
MMBE006	21/6/2024 13:52	50	MODERATE	<5.000	51.596	1710	92	399	373	<10.000	<0.002	16000	14800	400	156	<5.000
MMBE006	7/3/2024 13:06	72	MODERATE	<5.000	12.159	157	472	1390	82	<10.000	<0.002	2680	192	40	8	<5.000



# LUMUT MMBR003

## CLASS 3

- POOR MWQI range; 30 – 49 (20x)
  - DO ; range 1.708 – 7.549
  - TSS ; range <1.00 – 212
  - O&G ; range <1.00 – 2
  - Copper ; range <1.00 – 5.6
  - Arsenic ; range <1.00 – 292
  - 95<sup>th</sup> percentile : 151.5
  - Lead ; range <1.00 – 6.9
  - Zinc ; range <5.00 – 58.1
  - Ammonia ; range 0.321 – 83.352
  - Nitrate; range <10.00 – 2840
  - Phosphate ; range <10.00 – 718
  - Total Coliform ; range <1.00 – 376,000
  - Faecal Coliform ; range <1.00 – 60,000
  - *E. coli* ; range <1.00 – 36,000
  - *Enterococci* ; <1.00 – 3,800

**Station Information** ✕

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Marine Water Quality Index (MMWQI)

43

MMWQI

POOR

**MMBR003**

Station Name: LUMUT, Selangor

Update on Sunday, 11:30 PM

23 Feb 2025

Sampling Frequency

Jun 2024
Jul 2024
Oct 2024
Dec 2024
Jan 2025
Feb 2025

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Sampling Result

IN-SITU

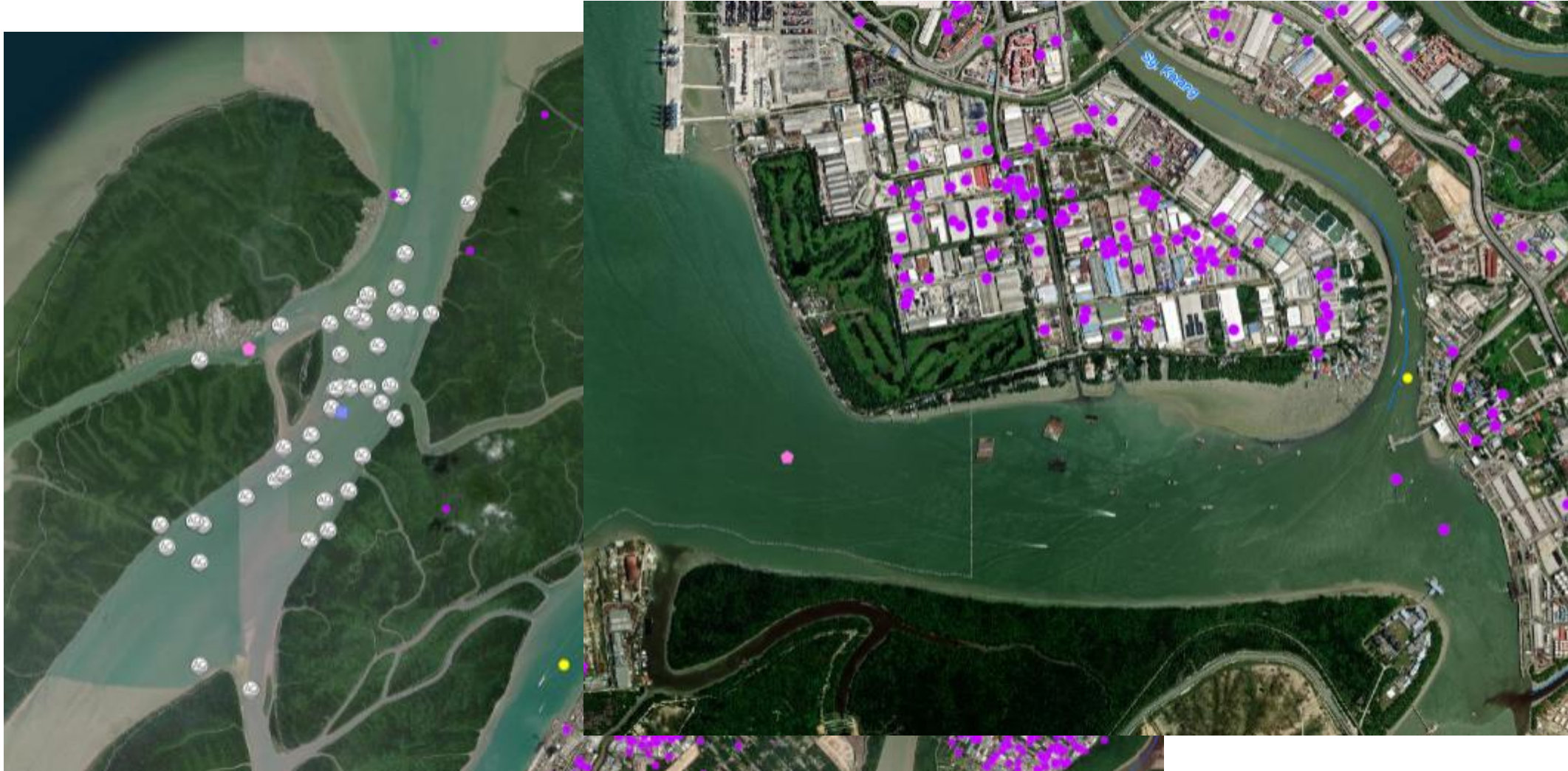
Parameter	Concentration	Sub Index
Dissolved Oxygen	3.24 mg/L	50.45
pH	7.06	-
Salinity	10.486 ppt	-
Temperature	29.013 °C	-
Turbidity	11.436 NTU	-
Electrical Conductivity	17.859 mS/cm	-

Parameter	Concentration	Sub Index
TSS	12.000 mg/L	90.98
Oil and Grease	<1.000 mg/L	-
Hg	<0.040 µg/L	-
Cd	<1.000 µg/L	-
Cr <sup>6+</sup>	<10.000 µg/L	-
Cu	1.000 µg/L	-
As	167.000 µg/L	-
Pb	1.000 µg/L	-
Zn	8.000 µg/L	-
CN	<5.000 µg/L	-
NH <sub>3</sub>	26.066 µg/L	88.7
NH <sub>3</sub> N	3640.000 µg/L	-
NO <sub>2</sub>	64.000 µg/L	-
NO <sub>3</sub>	405.000 µg/L	82.27
PO <sub>4</sub>	472.000 µg/L	37.04
Phenol	<10.000 µg/L	-
Tributyltin	<0.002 µg/L	-
Total Coliform	58400.000 cfu/100ml	-
Faecal Coliform	21200.000 cfu/100ml	8
E. coli	16400.000 cfu/100ml	-
Enterococci	372.000 cfu/100ml	-
PAHS	<5.000 µg/L	-

### MMBR003 (LUMUT)

Station ID (New)	DT	Index	Category	DO	pH	Sal	Temp	Turb	Cond	TSS	O&G	HG	Cd	Cr6+	Cu	As	Pb	Zn
MMBR003	15/1/2025 14:42	43	POOR	3.24	7.06	10.486	29.013	11.436	17.859	12	<1.000	<0.040	<1.000	<10.000	1	167	1	8
MMBR003	20/12/2024 14:55	52	MODERATE	5.886	7.77	20.374	28.039	15.334	32.718	12	<1.000	<0.040	<1.000	<10.000	<1.000	37	1	9
MMBR003	3/10/2024 13:51	30	POOR	2.392	7.181	6.855	30.972	20.815	12.097	20	<1.000	<0.040	<1.000	<10.000	3	72	1	8
MMBR003	18/7/2024 14:02	87	GOOD	7.549	8.056	27.74	30.673	2.566	43.321	4	<1.000	<0.040	<1.000	<10.000	<1.000	12	<1.000	8
MMBR003	21/6/2024 15:38	55	MODERATE	5.884	7.895	28.361	30.9	8.196	44.198	6	<1.000	<0.040	<1.000	<10.000	1	19	1	7
MMBR003	7/3/2024 15:14	54	MODERATE	7.122	8.165	24.799	31.11	5.892	39.192	6	<1.000	<0.040	<1.000	<10.000	2	2	<1.000	5

Station ID (New)	DT	Index	Category	CN	NH3	NH3-N	NO2	NO3	PO4	Phenol	TBT	TC	FC	E. coli	Enterococci	PAHs
MMBR003	15/1/2025 14:42	43	POOR	<5.000	26.066	3640	64	405	472	<10.000	<0.002	58400	21200	16400	372	<5.000
MMBR003	20/12/2024 14:55	52	MODERATE	<5.000	38.312	1220	143	773	221	<10.000	<0.002	27600	11600	8400	3720	<5.000
MMBR003	3/10/2024 13:51	30	POOR	<5.000	29.856	2700	37	176	718	<10.000	<0.002	63600	23600	16400	1040	<5.000
MMBR003	18/7/2024 14:02	87	GOOD	<5.000	15.879	237	137	298	72	<10.000	<0.002	512	64	52	<1.000	<5.000
MMBR003	21/6/2024 15:38	55	MODERATE	<5.000	23.398	492	121	510	118	<10.000	<0.002	12400	1680	320	68	<5.000
MMBR003	7/3/2024 15:14	54	MODERATE	<5.000	52.077	586	91	436	115	<10.000	<0.002	30400	8000	7600	188	<5.000



# KUALA SUNGAI KLANG MMBE005

## CLASS 3

- POOR MWQI range; 26 – 49 (31x)
  - DO ; range 0.289 – 7.736
  - TSS ; range <1.00 – 88
  - O&G ; range <1.00 – 2
  - Copper ; range <1.00 – 6
  - Arsenic ; range 1 – 393
  - Lead ; range <1.00 – 6
  - Zinc ; range <5.00 – 34.8
  - Ammonia ; range 0.709 – 80.404
  - Nitrate; range <10.00 – 7140
  - Phosphate ; range <10.00 – 975
  - Total Coliform ; range <1.00 – 322,000
  - Faecal Coliform ; range <1.00 – 192,000
  - *E. coli* ; range <1.00 – 42,000
  - *Enterococci* ; <1.00 – 6,400

**Station Information** ✕

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**Marine Water Quality Index (MMWQI)**

**46**  
MMWQI

POOR

**MMBE005**

Station Name: KUALA SUNGAI  
KLANG, Selangor

Update on Sunday, 11:30 PM  
23 Feb 2025

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**Sampling Frequency**

Jun 2024 Jul 2024 Oct 2024 Dec 2024 Jan 2025 Feb 2025

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**Sampling Result**

IN-SITU

Parameter	Concentration	Sub Index
Dissolved Oxygen	3.771 mg/L	64.48
pH	7.091	-
Salinity	10.993 ppt	-
Temperature	28.795 °C	-
Turbidity	10.053 NTU	-
Electrical Conductivity	18.646 mS/cm	-

Parameter	Concentration	Sub Index
TSS	8.000 mg/L	92.56
Oil and Grease	1.000 mg/L	-
Hg	<0.040 µg/L	-
Cd	<1.000 µg/L	-
Cr <sup>6+</sup>	<10.000 µg/L	-
Cu	2.000 µg/L	-
As	168.000 µg/L	-
Pb	1.000 µg/L	-
Zn	9.000 µg/L	-
CN	<5.000 µg/L	-
NH <sub>3</sub>	27.849 µg/L	87.98
NH <sub>3</sub> N	3690.000 µg/L	-
NO <sub>2</sub>	65.000 µg/L	-
NO <sub>3</sub>	232.000 µg/L	87.41
PO <sub>4</sub>	469.000 µg/L	37.26
Phenol	<10.000 µg/L	-
Tributyltin	<0.002 µg/L	-
Total Coliform	434000.000 cfu/100ml	-
Faecal Coliform	29800.000 cfu/100ml	8
E. coli	26000.000 cfu/100ml	-
Enterococci	1840.000 cfu/100ml	-
PAHS	<5.000 µg/L	-

### MMBE005 (KUALA SUNGAI KLANG)

Station ID (New)	DT	Index	Category	DO	pH	Sal	Temp	Turb	Cond	TSS	O&G	HG	Cd	Cr6+	Cu	As	Pb	Zn
MMBE005	15/1/2025 14:49	46	POOR	3.771	7.091	10.993	28.795	10.053	18.646	8	1	<0.040	<1.000	<10.000	2	168	1	9
MMBE005	20/12/2024 11:31	53	MODERATE	5.785	7.657	17.81	29.167	23.381	28.993	22	1	<0.040	<1.000	<10.000	2	35	2	15
MMBE005	3/10/2024 14:05	31	POOR	2.574	7.074	10.796	30.707	16.53	18.383	17	<1.000	<0.040	<1.000	<10.000	1	73	<1.000	9
MMBE005	18/7/2024 14:10	49	POOR	7.736	7.945	21.59	30.344	5.113	34.561	5	<1.000	<0.040	<1.000	<10.000	<1.000	46	<1.000	12
MMBE005	21/6/2024 15:52	53	MODERATE	5.83	7.783	24.729	31.454	11.12	39.108	3	<1.000	<0.040	<1.000	<10.000	<1.000	38	1	11
MMBE005	7/3/2024 15:30	52	MODERATE	6.409	7.809	21.489	30.727	13.963	34.43	7	<1.000	<0.040	<1.000	<10.000	1	2	<1.000	10

Station ID (New)	DT	Index	Category	CN	NH3	NH3-N	NO2	NO3	PO4	Phenol	TBT	TC	FC	E. coli	Enterococci	PAHs
MMBE005	15/1/2025 14:49	46	POOR	<5.000	27.849	3690	65	232	469	<10.000	<0.002	434000	29800	26000	1840	<5.000
MMBE005	20/12/2024 11:31	53	MODERATE	<5.000	30.771	1150	155	509	199	<10.000	<0.002	148000	15600	4000	4160	<5.000
MMBE005	3/10/2024 14:05	31	POOR	<5.000	19.877	2400	51	193	656	<10.000	<0.002	232000	192000	34000	1640	<5.000
MMBE005	18/7/2024 14:10	49	POOR	<5.000	80.404	1500	186	232	390	<10.000	<0.002	11200	860	400	24	<5.000
MMBE005	21/6/2024 15:52	53	MODERATE	<5.000	40.218	1020	110	427	222	<10.000	<0.002	112000	12800	1600	144	<5.000
MMBE005	7/3/2024 15:30	52	MODERATE	<5.000	43.151	1060	141	692	231	<10.000	<0.002	36000	21200	8800	6400	<5.000



# KUALA SUNGAI LANGAT( JUGRA) MMBE004

## CLASS E1

- POOR MWQI range; 36 – 48 (15x)
  - DO ; range 3.057 – 9.094
  - TSS ; range 2 – 260
  - O&G ; range <1.00 – 3
  - Copper ; range <1.00 – 6.1
  - Arsenic ; range <1.00 – 96.7
  - Lead ; range <1.00 – 10.4
  - Zinc ; range <5.00 – 42
  - Ammonia ; range 0.168 – 54.593
  - Nitrate; range <10.00 – 7880
  - 95<sup>th</sup> percentile : 5,727.5
  - Phosphate ; range <10.00 – 432
  - Total Coliform ; range <1.00 – 440,000
  - Faecal Coliform ; range <1.00 – 110,000
  - *E. coli* ; range <1.00 – 24,000
  - *Enterococci* ; <1.00 – 2,520

**Station Information** ✕

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Marine Water Quality Index (MMWQI)

**44**  
MMWQI

POOR

**MMBE004**

Station Name: KUALA SUNGAI LANGAT (JUGRA), Selangor

Update on Sunday, 11:30 PM 23 Feb 2025

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Sampling Frequency

Jun 2024 Jul 2024 Oct 2024 Dec 2024 Jan 2025 Feb 2025

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^ Sampling Result

IN-SITU

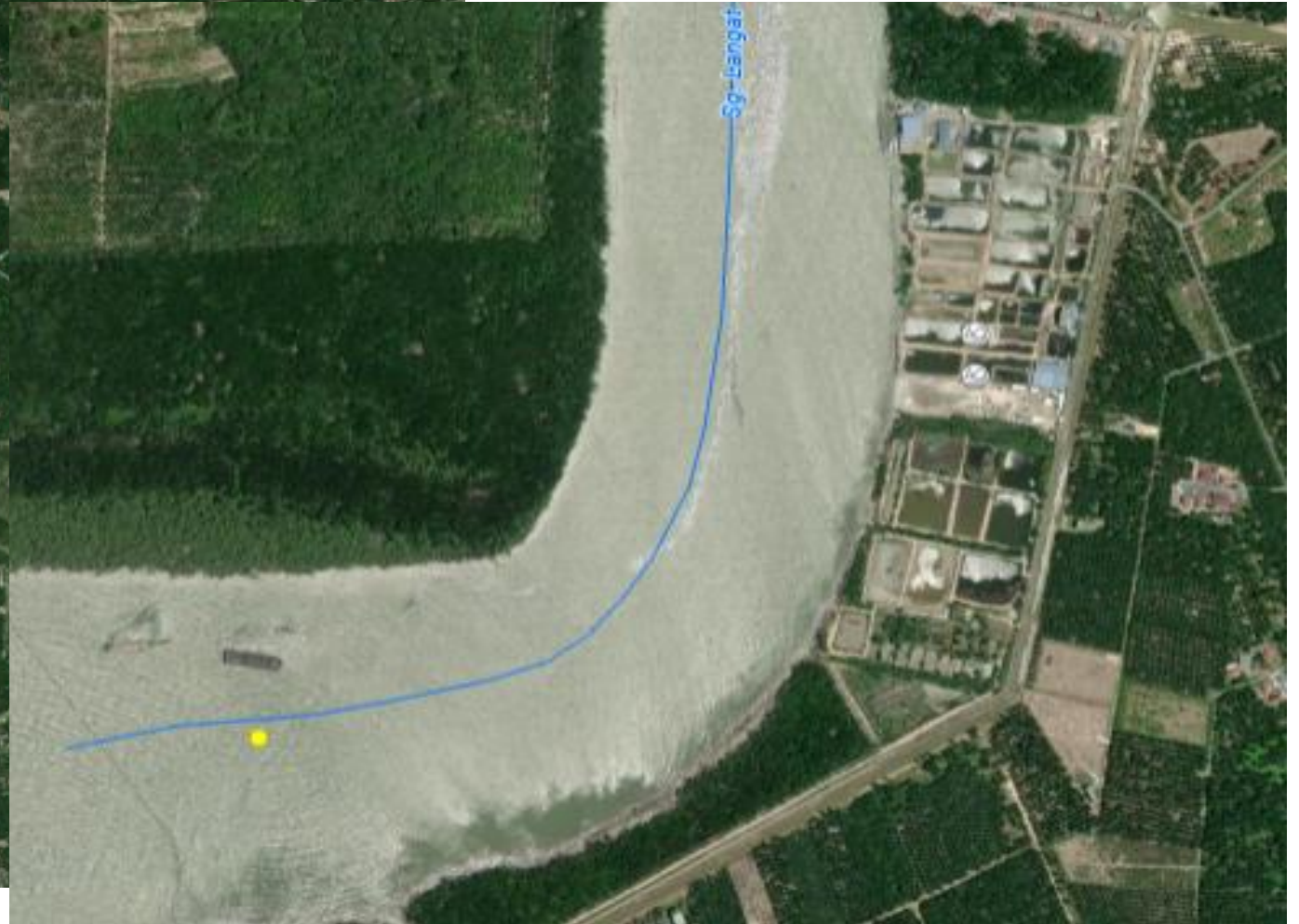
Parameter	Concentration	Sub Index
Dissolved Oxygen	4.354 mg/L	77.21
pH	7.071	-
Salinity	19.515 ppt	-
Temperature	28.393 °C	-
Turbidity	38.281 NTU	-
Electrical Conductivity	31.477 mS/cm	-

Parameter	Concentration	Sub Index
TSS	36.000 mg/L	82.06
Oil and Grease	<1.000 mg/L	-
Hg	<0.040 µg/L	-
Cd	<1.000 µg/L	-
Cr <sup>6+</sup>	<10.000 µg/L	-
Cu	2.000 µg/L	-
As	2.000 µg/L	-
Pb	3.000 µg/L	-
Zn	16.000 µg/L	-
CN	<5.000 µg/L	-
NH <sub>3</sub>	1.798 µg/L	99.18
NH <sub>3</sub> N	272.000 µg/L	-
NO <sub>2</sub>	758.000 µg/L	-
NO <sub>3</sub>	3970.000 µg/L	23.62
PO <sub>4</sub>	44.000 µg/L	87.18
Phenol	<10.000 µg/L	-
Tributyltin	<0.002 µg/L	-
Total Coliform	12000.000 cfu/100ml	-
Faecal Coliform	1400.000 cfu/100ml	8
E. coli	600.000 cfu/100ml	-
Enterococci	90.000 cfu/100ml	-
PAHS	<5.000 µg/L	-

### MMBE004 (KUALA SUNGAI LANGAT (JUGRA))

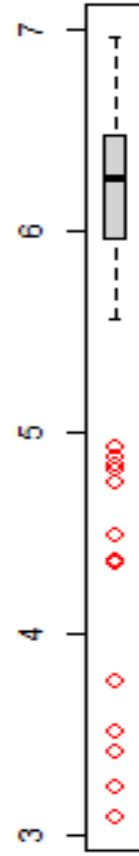
Station ID (New)	DT	Index	Category	DO	pH	Sal	Temp	Turb	Cond	TSS	O&G	HG	Cd	Cr6+	Cu	As	Pb	Zn
MMBE004	16/1/2025 10:14	44	POOR	4.354	7.071	19.515	28.393	38.281	31.477	36	<1.000	<0.040	<1.000	<10.000	2	2	3	16
MMBE004	18/12/2024 15:00	51	MODERATE	6.563	8.048	23.701	30.099	46.95	37.587	55	1	<0.040	<1.000	<10.000	3	3	4	19
MMBE004	4/10/2024 11:18	84	GOOD	5.303	7.42	24.961	30.959	10.305	39.417	14	<1.000	<0.040	<1.000	<10.000	2	2	<1.000	10
MMBE004	19/7/2024 11:47	47	POOR	4.495	7.148	15.901	29.304	20.754	26.155	19	<1.000	<0.040	<1.000	<10.000	<1.000	5	2	19
MMBE004	6/6/2024 11:33	57	MODERATE	6.19	7.363	23.698	30.579	34.746	37.601	41	<1.000	<0.040	<1.000	<10.000	1	4	2	15
MMBE004	6/3/2024 12:22	53	MODERATE	6.089	7.877	19.23	30.788	67.075	31.139	90	1	<0.040	<1.000	<10.000	2	2	3	8

Station ID (New)	DT	Index	Category	CN	NH3	NH3-N	NO2	NO3	PO4	Phenol	TBT	TC	FC	E. coli	Enterococci	PAHs
MMBE004	16/1/2025 10:14	44	POOR	<5.000	1.798	272	758	3970	44	<10.000	<0.002	12000	1400	600	90	<5.000
MMBE004	18/12/2024 15:00	51	MODERATE	<5.000	3.78	58	285	2280	18	<10.000	<0.002	100000	11600	2000	2520	<5.000
MMBE004	4/10/2024 11:18	84	GOOD	<5.000	0.168	<10.000	70	295	15	<10.000	<0.002	1120	112	60	32	<5.000
MMBE004	19/7/2024 11:47	47	POOR	<5.000	4.631	538	616	3440	26	<10.000	<0.002	2720	920	560	52	<5.000
MMBE004	6/6/2024 11:33	57	MODERATE	<5.000	6.812	469	46	538	<10.000	<10.000	<0.002	2080	1080	40	114	<5.000
MMBE004	6/3/2024 12:22	53	MODERATE	<5.000	20.847	432	61	1090	<10.000	<10.000	<0.002	11000	1420	600	164	<5.000

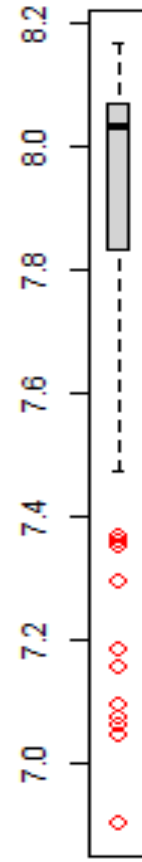




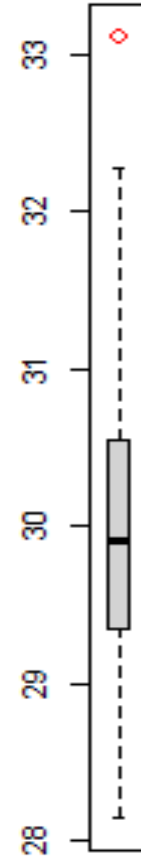
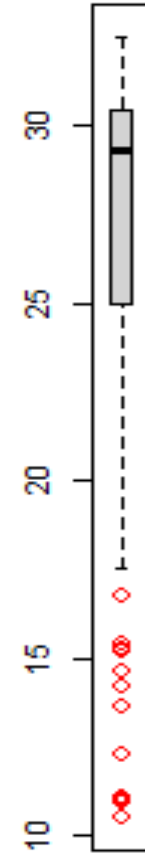
**DO mg/L**



**pH**



**Salinity ppt Temperature °C**

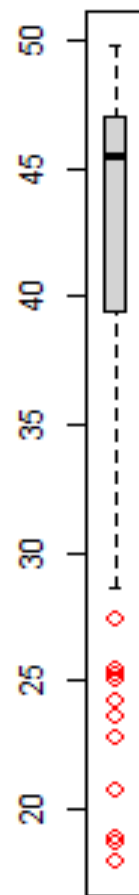




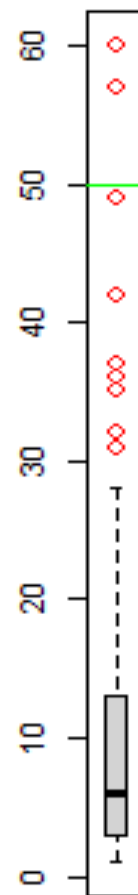
**Turbidity, NTU.**



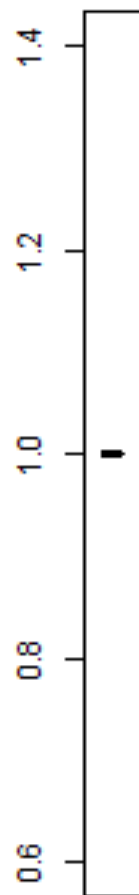
**Conductivity,  $\mu$ S/cm.**



**TSS, mg/L**

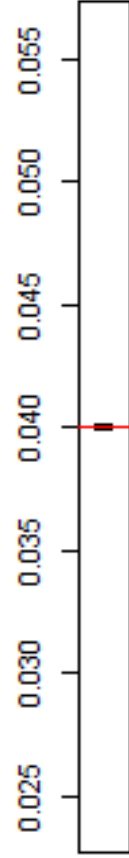


**O&G, mg/L**

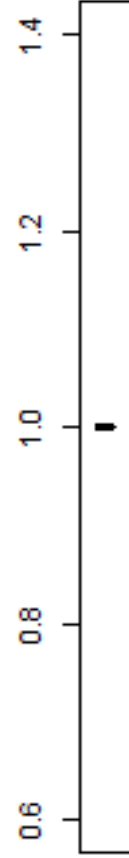




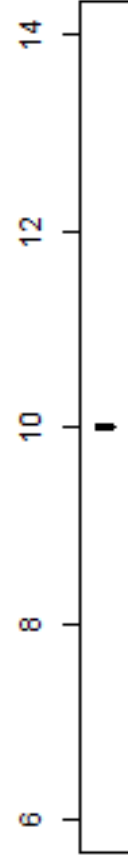
**Hg  $\mu\text{g/L}$**



**Cd  $\mu\text{g/L}$**

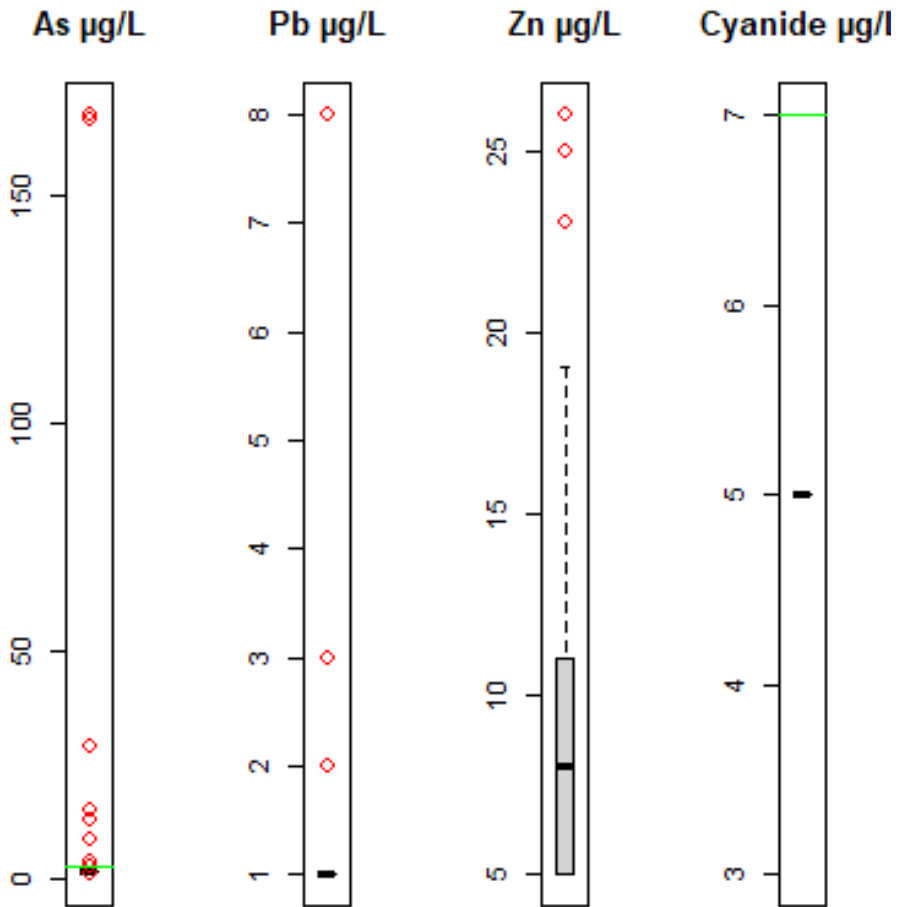


**Cr(VI)  $\mu\text{g/L}$**



**Cu  $\mu\text{g/L}$**





## Extreme Arsenic Value > Class 3 ( $3 \mu\text{g/l}$ )

- 25 Stations
  - MMBE005 (KUALA SUNGAI KLANG) : **168**  $\mu\text{g/l}$   
Range : 1 – 393  
**95 percentile : 164.5**
  - MMBR003 (LUMUT) : **167**  $\mu\text{g/l}$   
Range : <1.00 – 292  
**95 percentile : 151.5**





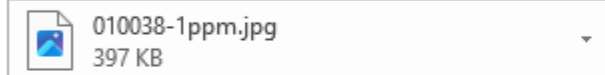
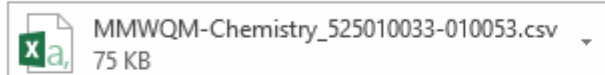
Mon 20/1/2025 4:18 PM

fathin.karudin@chemsain.com

Peninsular Marine Report: 525010033-010053

To j.somu@pstw.com.my; rifaie.azhari@pstw.com.my; 'Maisarah Kifi'; 'Zulaikha Sharudin'

Cc 'pstwproject'; 'Nurhazira Othman'; 'Nur Syahirah Binti Ali Hassan'; 'Wan Norfaezah'



Reply Reply All Forward



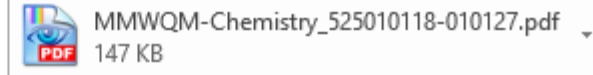
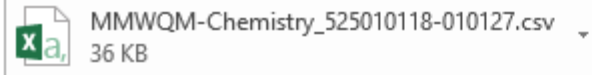
Mon 27/1/2025 3:56 PM

fathin.karudin@chemsain.com

RE: Peninsular Marine Report: 525010118-010127

To j.somu@pstw.com.my; rifaie.azhari@pstw.com.my; 'Maisarah Kifi'; 'Zulaikha Sharudin'

Cc 'pstwproject'; 'Nurhazira Othman'; 'Nur Syahirah Binti Ali Hassan'; 'Wan Norfaezah'



Please be informed that, we would like to highlight some result as below

Oil and Grease	Nitrate (as NO <sub>3</sub> )
1) MMPC003 (525010037): 1 mg/L	1) MMNE002 (525010045): 4,640 ug/L
2) MMPC009 (525010038): 1 mg/L	Repeat result: <b>4,640 ug/L (Over Extreme Value)</b>

Nitrite (as NO <sub>2</sub> )	Nitrate (as NO <sub>3</sub> )	Copper (as Cu)
1) MMBC002 (524010126): 400 ug/L Repeat: 468 ug/L	1) <b>MMBE004</b> (525010127): 3,970 ug/L <b>(Exceed extreme value)</b> Repeat: <b>3,980 ug/L</b>	1) MMBE001 (525010118): 2 ug/L Repeat: 2 ug/L
		2) MMBC001 (525010120): 1 ug/L Repeat: 1 ug/L
		3) MMBC005 (525010122): 1 ug/L Repeat: 1 ug/L
		4) MMBE007 (525010124): 1 ug/L Repeat: 1 ug/L

MMNE001 (KUALA SUNGAI LINGGI) NITRATE: 2360 µg/l

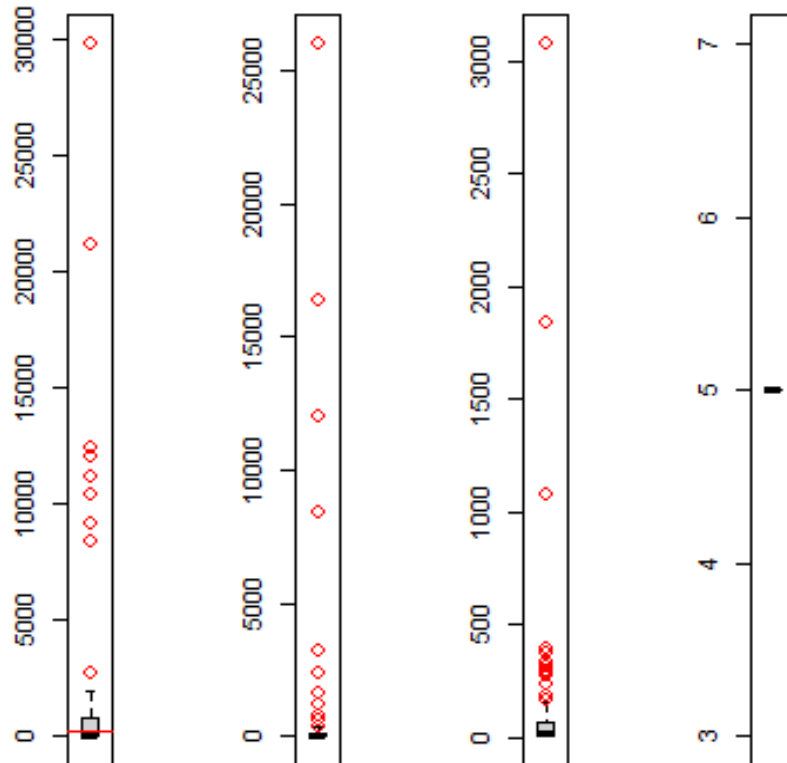
Station ID (New)	DT	Index	Category	DO	pH	Sal	Temp	Turb	Cond	TSS	O&G	HG	Cd	Cr6+	Cu	As	Pb	Zn
MMNE001	10/1/2025 9:36	51	MODERATE	4.873	7.153	12.301	28.136	8.293	20.657	12	<1.000	<0.040	<1.000	<10.000	<1.000	2	<1.000	7
MMNE001	22/11/2024 10:25	56	MODERATE	6.916	7.884	19.117	29.786	14.205	30.938	7	<1.000	<0.040	<1.000	<10.000	3	2	<1.000	11
MMNE001	25/10/2024 10:15	53	MODERATE	6.668	7.802	16.607	29.752	12.823	27.223	6	<1.000	<0.040	<1.000	<10.000	<1.000	2	<1.000	14
MMNE001	9/8/2024 11:29	80	GOOD	5.873	7.977	26.922	30.846	12.717	42.182	9	<1.000	<0.040	<1.000	<10.000	1	2	<1.000	6
MMNE001	10/5/2024 10:55	78	MODERATE	5.239	7.534	19.819	31.058	11.405	32.011	15	<1.000	<0.040	<1.000	<10.000	<1.000	3	<1.000	6
MMNE001	27/2/2024 10:48	93	EXCELLENT	6.918	7.92	17.903	30.378	21.53	29.17	26	<1.000	<0.040	<1.000	<10.000	<1.000	<1.000	<1.000	<5.000

Station ID (New)	DT	Index	Category	CN	NH3	NH3-N	NO2	NO3	PO4	Phenol	TBT	TC	FC	E. coli	Enterococci	PAHs
MMNE001	10/1/2025 9:36	51	MODERATE	<5.000	1.96	238	72	2360	<10.000	<10.000	<0.002	20000	920	400	180	<5.000
MMNE001	22/11/2024 10:25	56	MODERATE	<5.000	7.713	168	32	1280	<10.000	<10.000	<0.002	18000	11600	800	1280	<5.000
MMNE001	25/10/2024 10:15	53	MODERATE	<5.000	3.339	86	68	2020	<10.000	<10.000	<0.002	3880	1040	160	92	<5.000
MMNE001	9/8/2024 11:29	80	GOOD	<5.000	0.573	<10.000	56	637	<10.000	<10.000	<0.002	8000	156	120	120	<5.000
MMNE001	10/5/2024 10:55	78	MODERATE	<5.000	3.974	175	51	892	<10.000	<10.000	<0.002	1960	152	80	64	<5.000
MMNE001	27/2/2024 10:48	93	EXCELLENT	<5.000	0.521	<10.000	13	390	15	<10.000	<0.002	24	4	<1.000	4	<5.000





F.C CFU/100ml E. coli CFU/100ml terococci CFU/100ml PAH µg/L



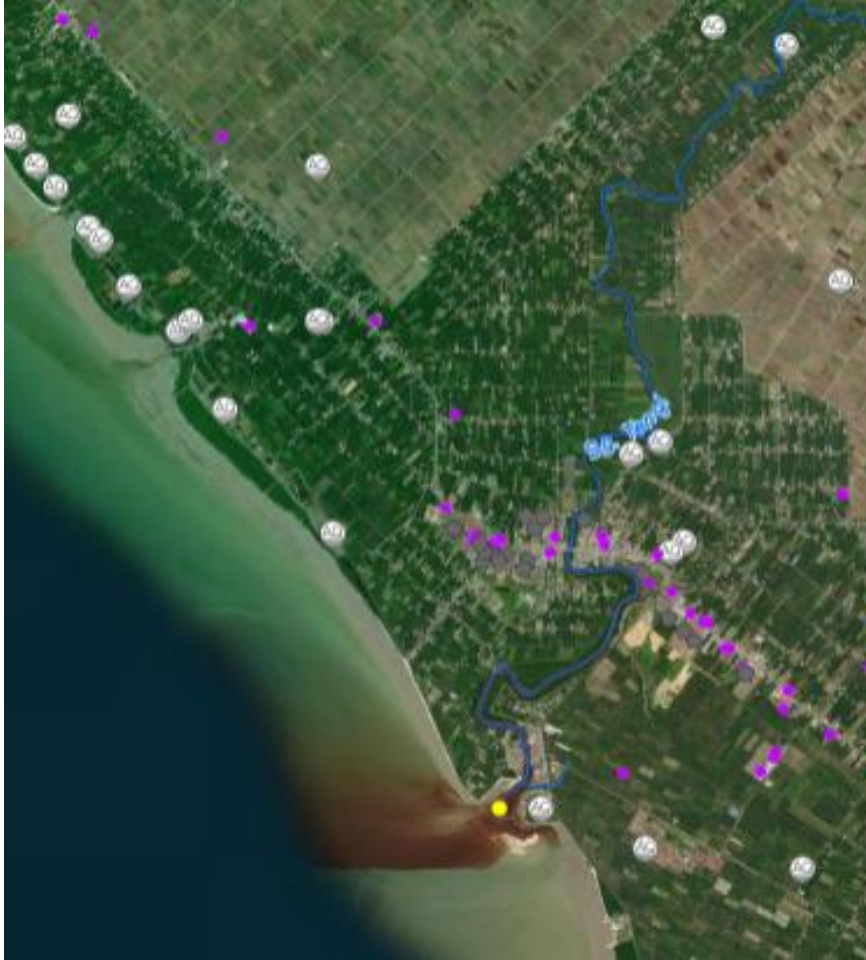
### Extreme Faecal Coliform Value > 12,000 CFU/100mL

- MMBE005 (KUALA SUNGAI KLANG): **29,800** CFU/100ml  
Range : <1.00 – 192,000  
95 percentile : 79,000
- MMBR003 (LUMUT) : **21,200** CFU/100ml  
Range: <1.00 – 60,000  
95 percentile : 35,150
- MMBE009 (KUALA SUNGAI TENGI) : **12,400** CFU/100ml  
Range: <1.00 – 44,000  
95 percentile : 20,450
- MMBC004 (SELAT KLANG UTARA) : **12,000** CFU/100ml  
Range: <1.00 – 17,200  
95 percentile : 16,600

MMBE009 (KUALA SUNGAI TENGI) FAECAL COLIFORM: **12,400** CFU/100ml

Station ID (New)	DT	Index	Category	DO	pH	Sal	Temp	Turb	Cond	TSS	O&G	HG	Cd	Cr6+	Cu	As	Pb	Zn
MMBE009	15/1/2025 11:56	54	MODERATE	6.254	7.86	13.62	31.81	57.502	22.774	36	1	<0.040	<1.000	<10.000	<1.000	4	3	16
MMBE009	18/12/2024 10:48	51	MODERATE	5.901	7.496	17.785	29.874	98.828	28.979	74	<1.000	<0.040	<1.000	<10.000	2	6	5	25
MMBE009	3/10/2024 11:02	42	POOR	3.504	7.529	21.557	30.46	354.506	34.517	310	1	<0.040	<1.000	<10.000	4	5	11	39
MMBE009	18/7/2024 14:24	81	GOOD	6.542	7.882	23.833	31.517	24.863	37.832	63	1	<0.040	<1.000	<10.000	<1.000	3	2	9
MMBE009	6/6/2024 11:02	37	POOR	2.938	7.486	22.702	30.497	116.067	36.171	74	<1.000	<0.040	<1.000	<10.000	<1.000	2	2	<5.000
MMBE009	6/3/2024 11:12	53	MODERATE	4.415	7.188	10.903	31.956	20.955	18.579	23	<1.000	<0.040	<1.000	<10.000	1	3	<1.000	5

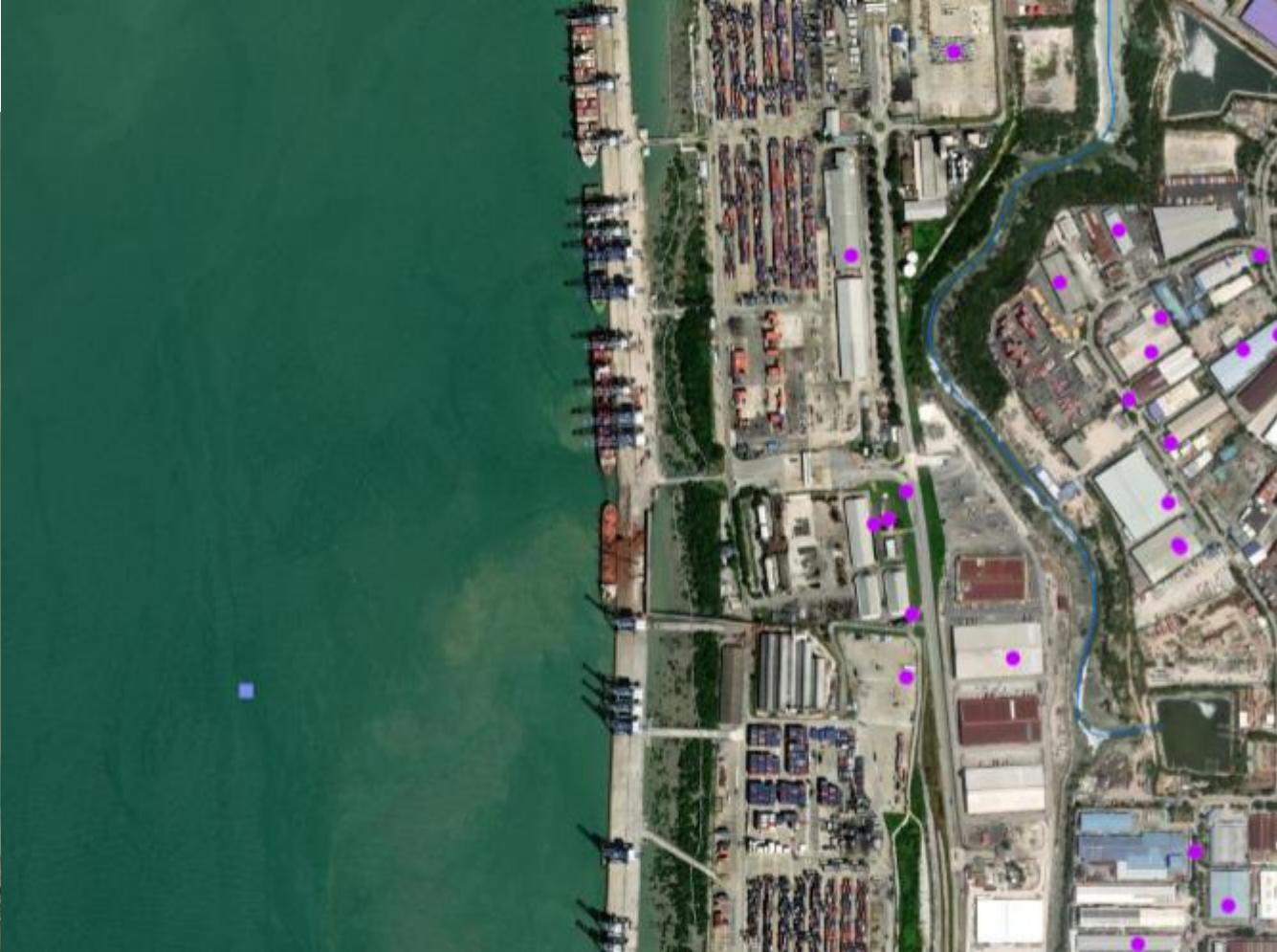
Station ID (New)	DT	Index	Category	CN	NH3	NH3-N	NO2	NO3	PO4	Phenol	TBT	TC	FC	E. coli	Enterococci	PAHs
MMBE009	15/1/2025 11:56	54	MODERATE	<5.000	28.055	544	190	794	76	<10.000	<0.002	124000	12400	12000	1080	<5.000
MMBE009	18/12/2024 10:48	51	MODERATE	<5.000	2.732	140	72	1640	51	<10.000	<0.002	20000	13200	4400	172	<5.000
MMBE009	3/10/2024 11:02	42	POOR	<5.000	0.703	33	120	454	44	<10.000	<0.002	11200	1480	800	880	<5.000
MMBE009	18/7/2024 14:24	81	GOOD	<5.000	1.389	28	85	142	19	<10.000	<0.002	960	140	80	60	<5.000
MMBE009	6/6/2024 11:02	37	POOR	<5.000	2.154	112	35	524	<10.000	<10.000	<0.002	1960	920	680	128	<5.000
MMBE009	6/3/2024 11:12	53	MODERATE	<5.000	1.553	133	26	957	45	<10.000	<0.002	29600	3160	1600	516	<5.000



MMBC004 (SELAT KLANG UTARA) FAECAL COLIFORM : 12,000 CFU/100ml

Station ID (New)	DT	Index	Category	DO	pH	Sal	Temp	Turb	Cond	TSS	O&G	HG	Cd	Cr6+	Cu	As	Pb	Zn
MMBC004	15/1/2025 14:11	50	MODERATE	4.367	7.701	26.507	29.661	12.381	41.549	14	<1.000	<0.040	<1.000	<10.000	2	29	1	8
MMBC004	20/12/2024 14:36	54	MODERATE	6.195	7.861	27.998	28.045	9.785	43.574	8	<1.000	<0.040	<1.000	<10.000	<1.000	2	<1.000	9
MMBC004	3/10/2024 13:37	56	MODERATE	5.291	7.923	28.11	30.794	8.232	43.843	8	<1.000	<0.040	<1.000	<10.000	2	11	<1.000	6
MMBC004	18/7/2024 13:38	93	EXCELLENT	7.505	8.09	29.004	30.896	1.919	45.092	5	<1.000	<0.040	<1.000	<10.000	<1.000	5	<1.000	10
MMBC004	21/6/2024 15:25	56	MODERATE	5.708	7.927	30.084	30.358	5.213	46.566	10	<1.000	<0.040	<1.000	<10.000	<1.000	9	<1.000	<5.000
MMBC004	7/3/2024 14:54	74	MODERATE	7.145	8.153	29.01	30.746	5.297	45.094	6	<1.000	<0.040	<1.000	<10.000	2	2	<1.000	6

Station ID (New)	DT	Index	Category	CN	NH3	NH3-N	NO2	NO3	PO4	Phenol	TBT	TC	FC	E. coli	Enterococci	PAHs
MMBC004	15/1/2025 14:11	50	MODERATE	<5.000	34.235	1190	148	518	226	<10.000	<0.002	47600	12000	8400	272	<5.000
MMBC004	20/12/2024 14:36	54	MODERATE	<5.000	30.549	836	171	620	159	<10.000	<0.002	38800	17200	12800	2920	<5.000
MMBC004	3/10/2024 13:37	56	MODERATE	<5.000	10.116	201	86	344	67	<10.000	<0.002	3360	1160	800	80	<5.000
MMBC004	18/7/2024 13:38	93	EXCELLENT	<5.000	0.726	<10.000	124	382	19	<10.000	<0.002	124	16	4	4	<5.000
MMBC004	21/6/2024 15:25	56	MODERATE	<5.000	10.612	218	114	497	81	<10.000	<0.002	1320	880	160	76	<5.000
MMBC004	7/3/2024 14:54	74	MODERATE	<5.000	0.823	<10.000	80	675	<10.000	<10.000	<0.002	2480	236	160	64	<5.000





**PAKAR SCIENO TW**  
*Integrated Environmental Solutions*

**Thank You**