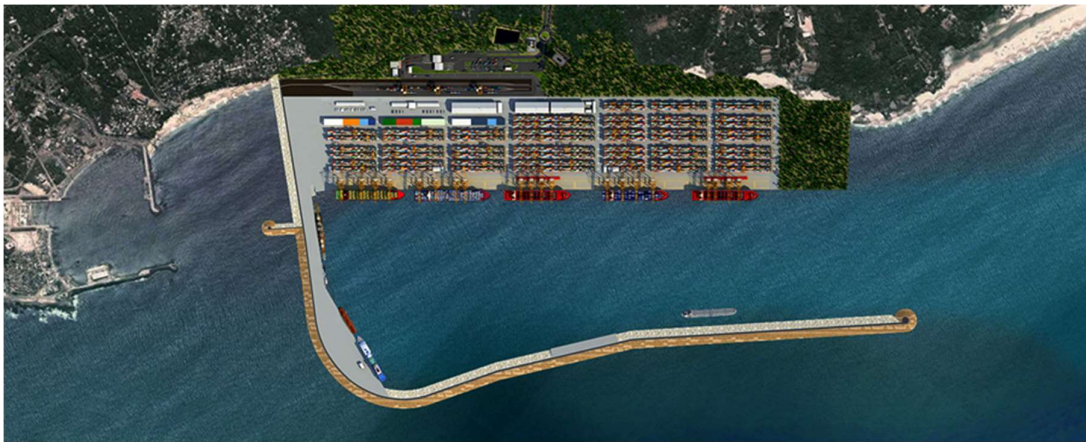


ENVIRONMENT MONITORING REPORT **DECEMBER - 2025**



ADANI VIZHINJAM PORT PVT. LTD. **VIZHINJAM, KERALA**

Report No.: SEAAL/EMR-AVPPL-2512

Report Date: 05th January, 2026

This Report presents the discussion and the results of Environmental Monitoring at Adani Vizhinjam Port. The monitoring has been conducted and the report has been prepared & issued by Standards Environmental & Analytical Laboratories, Ernakulam-683110 to M/s Adani Vizhinjam Port Pvt Limited, Thiruvananthapuram-695 014

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EMR-1	Executive Summary
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Background:

As per the Environment Monitoring Plan prescribed in the EIA for Vizhinjam International Deepwater Multipurpose Seaport, continuous environment monitoring is being carried out by Standards Environmental & Analytical Laboratories (NABL Accredited testing laboratory vide certificate number TC12939, MoEF recognized Environmental Laboratory under the Environment (Protection) Act-1986) at specified frequency as mentioned in Service Order vide email dated 11.07.2022 awarded by Adani Vizhinjam Port Private Limited (AVPPL).

Environment Monitoring includes Ambient Air Quality, Ambient Noise, Marine Water (Physical, Chemical and Biological); Sediment (Physical, Chemical and Biological (Benthos), Ground Water (Physical, Chemical and Biological) and Surface Water (Physical, Chemical and Biological) was carried out at locations shown in following Google maps and co-ordinates as per the table below.

Co-ordinates of the Sampling Locations:

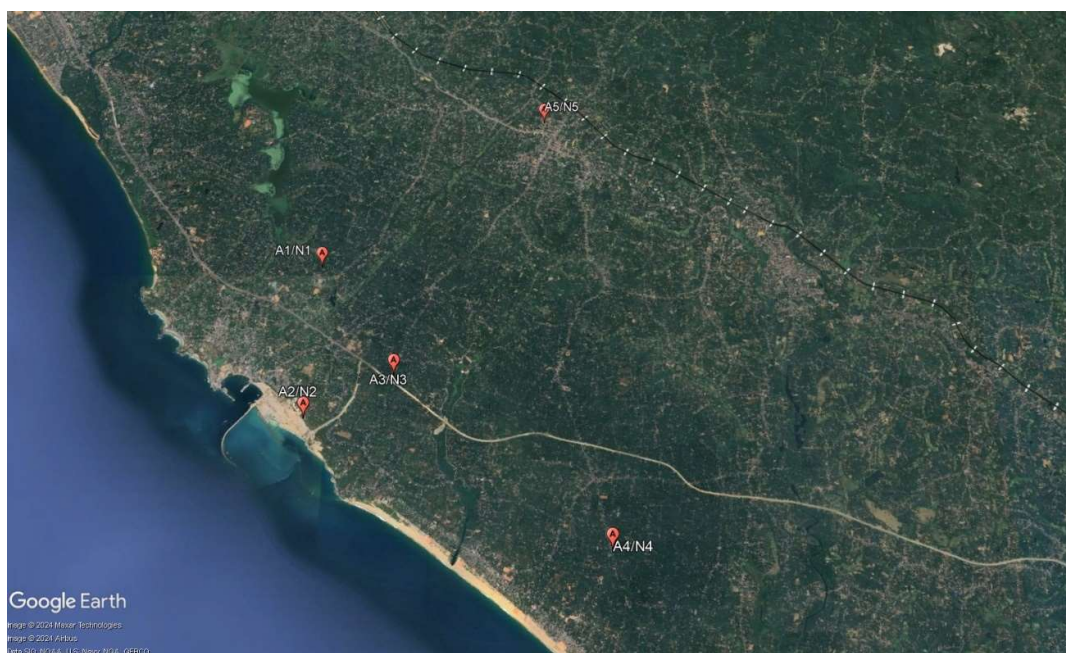
Sl. No.	Matrix	Location Name	Legend	Latitude	Longitude
1.	Ambient Air Quality	Venganoor	A1	8°23'55.10"N	77°00'12.19"E
		Port Site	A2	8°22'13.73"N	77°00'08.39"E
		Proposed Port Estate Area	A3	8°22'41.37"N	77°01'03.17"E
		Chani	A4	8°20'53.49"N	77°03'18.76"E
		Balarampuram	A5	8°25'43.85"N	77°02'38.79"E
2.	Ambient Noise	Venganoor	N1	8°23'55.10"N	77°00'12.19"E
		Port Site	N2	8°22'13.73"N	77°00'08.39"E
		Proposed Port Estate Area	N3	8°22'41.37"N	77°01'03.17"E
		Chani	N4	8°20'53.49"N	77°03'18.76"E
		Balarampuram	N5	8°25'43.85"N	77°02'38.79"E
3.	Marine Water	Near Kovalam Beach	M1	8°22'49.29"N	76°58'40.77"E
		Proposed Dredging Site	M2	8°22'31.11"N	76°58'57.92"E
		Port Basin	M3	8°22'06.96"N	76°59'27.85"E
		South of Breakwater	M4	8°21'51.07"N	77°00'00.21"E
		Inner Approach Channel	M5	8°21'12.68"N	77°00'35.14"E
		Kovalam Beach	M6	8°23'08.16"N	76°58'26.09"E
4.	Marine	Near Kovalam Beach	MS1	8°22'49.29"N	76°58'40.77"E

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Sl. No.	Matrix	Location Name	Legend	Latitude	Longitude
	Sediment	Proposed Dredging Site	MS2	8°22'31.11"N	76°58'57.92"E
		Port Basin	MS3	8°22'06.96"N	76°59'27.85"E
		South of Breakwater	MS4	8°21'51.07"N	77°00'00.21"E
		Inner Approach Channel	MS5	8°21'12.68"N	77°00'35.14"E
		Kovalam Beach	MS6	8°23'08.16"N	76°58'26.09"E
5.	Ground Water	Port Site	G1	8°22'03.72"N	77°00'16.92"E
		Proposed Port Estate Area	G2	8°22'24.96"N	77°01'45.84"E
		PAF Area	G3	8°22'17.60"N	77°00'11.12"E
6.	Surface Water	Poovar West Canal	S1	8°19'22.66"N	77°04'31.70"E
		Vizhinjam Branch Canal	S2	8°22'55.59"N	76°59'36.29"E
		Vellayani Lake	S3	8°25'31.91"N	76°59'37.10"E
		Poovar Estuary	S4	8°18'30.71"N	77°04'36.95"E

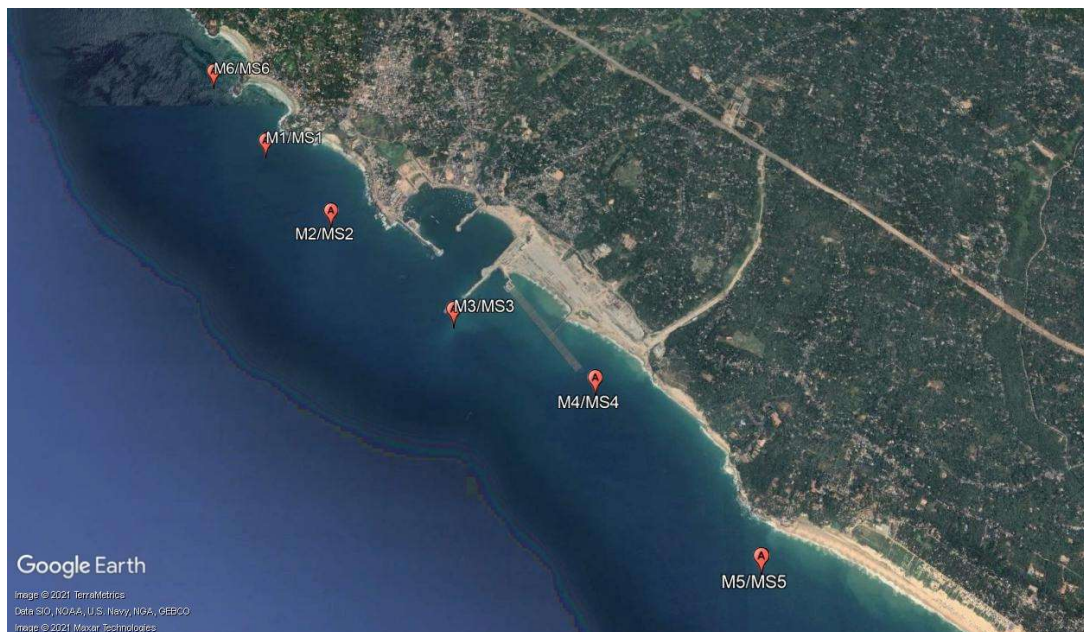
Locations of Ambient Air Quality & Ambient Noise Monitoring



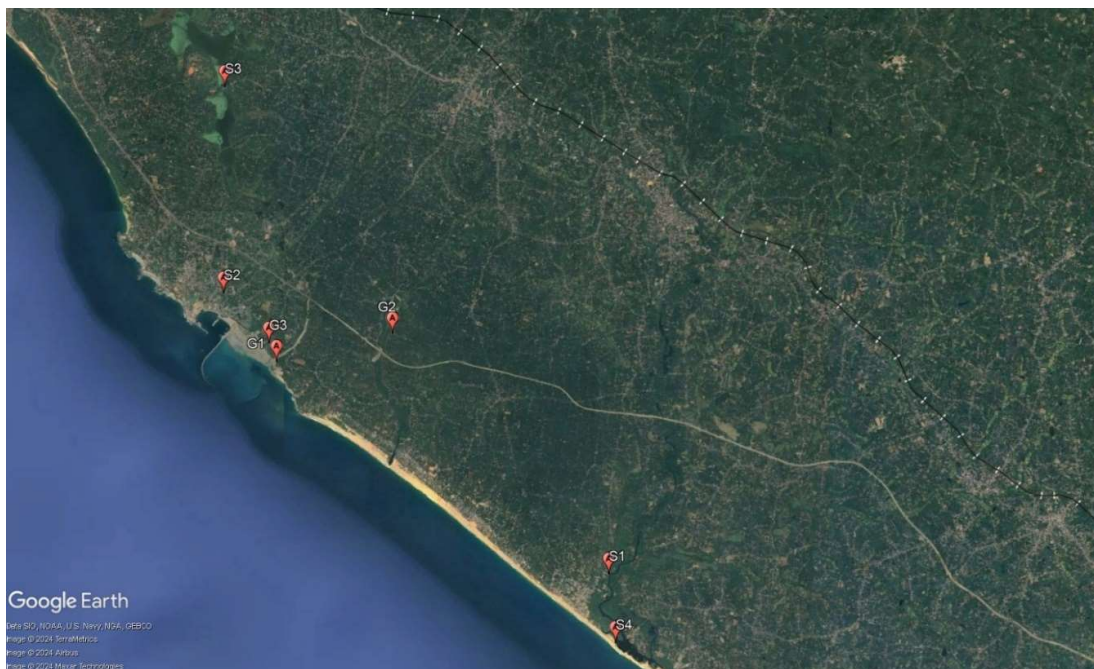
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Marine Water & Marine Sediment Sampling Locations



Ground Water & Surface Water Sampling Locations



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Ambient Air Quality Monitoring was carried out at 5 locations i.e., Venganoor, Port Site, Proposed Port Estate Area, Chani and Balarampuram. All 5 locations were monitored as per National Ambient Air Quality Standard (NAAQS), 2009 at a frequency of twice per week. The monitoring was conducted on the 1st, 4th, 8th, 11th, 15th, 18th, 22nd, 25th and 29th December 2025. Ambient air monitoring started at all 5 locations for 24 hours with the help of programmable timer. After analysis of samples, the obtained results are compared with NAAQS, 2009. All the parameters at all locations were within the NAAQS limits. The results are available under section EMR-2.



RDS & FPS Under Operation



Preparation for Gaseous Sampling



Installation for PM_{2.5}



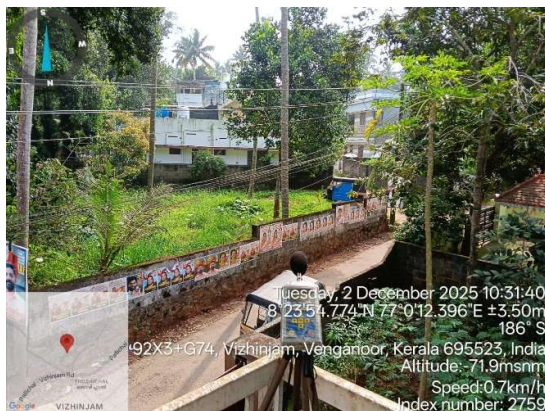
Installation for PM₁₀

Ambient Noise Monitoring carried out at Venganoor, Port Site, Proposed Port Estate Area, Chani and Balarampuram. Classification of locations as per the Noise Pollution (Regulation & Control) Rules, 2000 (Rules 3 (1) and 4(1)) is given in the following table. The results obtained were compared with Noise Pollution (Regulation & Control) Rules, 2000 (Rule 3(1) and 4(1)). The Leq values in the locations were within the limits. *The noise readings are furnished under section EMR-3.

Legend	Location	Area Type
N1	Venganoor	Residential
N2	Port Site	Industrial
N3	Proposed Port Estate Area	Residential
N4	Chani	Residential
N5	Balarampuram	Commercial

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Noise Monitoring @ Venganoor



Noise Monitoring @ Port Site



**Noise Monitoring
@ Proposed Port Estate Area**



Noise Monitoring @ Chani

Marine water samples were collected from 6 locations - Kovalam Beach, Near Kovalam Beach, Proposed Dredging Site, South of Break Water, Port Basin,

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and Inner Approach Chanel. The samples were analysed as per IS/APHA Standard Test Procedures, and the results are provided in Section EMR-4.1.

 6 Dec 2025 09:12:30 8°22'50.74932"N 76°58'47.45672"E 279° W Light House Road Thiruvananthapuram Kerala Altitude: 92.7msnm Speed: 0.0km/h athani m w l t -1 Index number: 281 Marine Water Sampling @ Near Kovalam Beach	 6 Dec 2025 09:54:05 8°21'33.7693"N 77°0'15.87474"E 344° N Kazhivoor Kerala Altitude: -101.2msnm Speed: 0.0km/h athani m w l t -4 Index number: 325 Marine Water Sampling @ South of Break Water
---	--



**Marine Water Sampling
@ Inner Approach Channel**



**Marine Water Sampling
@ Port Basin**

Sediment samples were collected from 6 locations - Kovalam Beach, Near Kovalam Beach, Proposed Dredging Site, South of Break Water, Port Basin, and Inner Approach Channel. The samples were analysed as per IS/APHA Standard Test Procedures, and the results are provided in Section EMR-4.3.



**Marine Sediment Sampling
@ Proposed Dredging Site**



**Marine Sediment Sampling
@ Kovalam Beach**

Ground water samples were collected from 3 locations (open wells) - Port Site, Proposed Port Estate Area, and Port Annex Facility area (PAF). All the parameters at all locations were within the acceptable limits as per IS 10500:2012. However, the water from these locations is not used for drinking purposes. The results are provided in Section EMR-5.



**Ground Water Sampling
@ PAF Area**



**Ground Water Sampling
@ Port Estate Area**

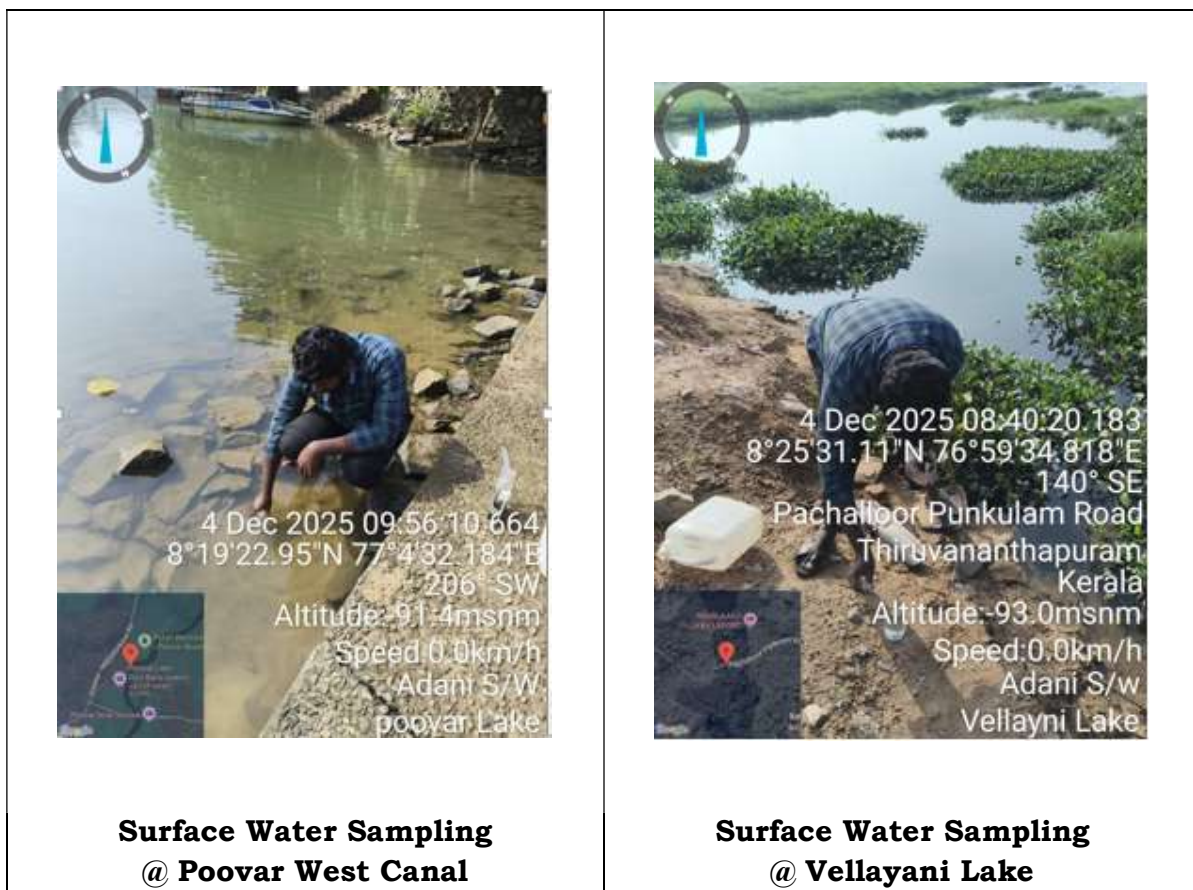


**Ground Water Sampling
@ Port Estate Area**



**Ground Water Sampling
@ Port Site**

Surface water samples were collected from 4 locations - Poovar West Canal, Vizhinjam Branch Canal, Vellayani Lake and Poovar Estuary. The samples were analysed as per the standard procedures and the results are provided in Section EMR-6.





**Surface Water Sampling
@ Vizhinjam Branch Canal**



**Surface Water Sampling
@ Poovar Estuary**

The detailed results of Environmental monitoring carried out for the month of December 2025 are presented in subsequent sections.

EMR-2	Ambient Air Quality Monitoring Report
--------------	--

Location, Legend	Venganoor, A1
Month, Year	December, 2025

Date of Sampling	Results					
	PM ₁₀ µg/m ³	PM _{2.5} µg/m ³	SO ₂ µg/m ³	NO _x µg/m ³	CO mg/m ³	HC ppm
01-12-2025	53.3	27.8	4.46	5.18	BDL	BDL
04-12-2025	50.4	26.4	4.42	4.92	BDL	BDL
08-12-2025	47.5	24.6	4.30	4.65	BDL	BDL
11-12-2025	52.1	26.1	4.49	4.86	BDL	BDL
15-12-2025	49.5	22.3	4.15	4.66	BDL	BDL
18-12-2025	51.3	25.7	4.22	4.70	BDL	BDL
22-12-2025	45.7	23.3	4.25	4.88	BDL	BDL
25-12-2025	48.8	24.5	4.37	4.98	BDL	BDL
29-12-2025	50.6	25.4	4.25	4.93	BDL	BDL
NAAQS 2009 Limits	100	60	80	80	4	-

Note: National Ambient Air Quality Standards (Industrial, Residential, Rural and other Area).
BDL: Below Detectable Limit

Location, Legend	Port Site, A2
Month, Year	December, 2025

Date of Sampling	Results					
	PM ₁₀ µg/m ³	PM _{2.5} µg/m ³	SO ₂ µg/m ³	NO _x µg/m ³	CO mg/m ³	HC ppm
01-12-2025	72.3	30.2	4.49	5.11	BDL	BDL
04-12-2025	66.4	28.4	4.75	5.87	BDL	BDL
08-12-2025	50.5	22.2	4.38	4.85	BDL	BDL
11-12-2025	59.9	26.4	4.52	5.08	BDL	BDL
15-12-2025	51.5	23.0	4.25	4.96	BDL	BDL
18-12-2025	62.4	25.6	4.40	5.21	BDL	BDL
22-12-2025	59.6	25.1	4.66	5.11	BDL	BDL
25-12-2025	48.5	20.7	4.40	4.98	BDL	BDL
29-12-2025	57.4	25.4	4.28	4.99	BDL	BDL
NAAQS 2009 Limits	100	60	80	80	4	-

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Date of Sampling	Results					
	PM ₁₀ µg/m ³	PM _{2.5} µg/m ³	SO ₂ µg/m ³	NO _x µg/m ³	CO mg/m ³	HC ppm
Note: National Ambient Air Quality Standards (Industrial, Residential, Rural and other Area). BDL: Below Detectable Limit						

Location, Legend	Proposed Port Estate Area, A3
Month, Year	December, 2025

Date of Sampling	Results					
	PM ₁₀ µg/m ³	PM _{2.5} µg/m ³	SO ₂ µg/m ³	NO _x µg/m ³	CO mg/m ³	HC ppm
01-12-2025	53.6	26.4	4.34	5.45	BDL	BDL
04-12-2025	54.2	25.4	4.52	5.16	BDL	BDL
08-12-2025	49.8	23.9	4.35	4.92	BDL	BDL
11-12-2025	53.5	25.0	4.27	4.87	BDL	BDL
15-12-2025	48.3	23.7	4.41	4.78	BDL	BDL
18-12-2025	50.4	25.2	4.23	5.14	BDL	BDL
22-12-2025	57.4	26.1	4.22	5.32	BDL	BDL
25-12-2025	52.1	25.8	4.53	5.42	BDL	BDL
29-12-2025	55.6	24.9	4.62	5.12	BDL	BDL
NAAQS 2009 Limits	100	60	80	80	4	-
Note: National Ambient Air Quality Standards (Industrial, Residential, Rural and other Area). BDL: Below Detectable Limit						

Location, Legend	Chani, A4
Month, Year	December, 2025

Date of Sampling	Results					
	PM ₁₀ µg/m ³	PM _{2.5} µg/m ³	SO ₂ µg/m ³	NO _x µg/m ³	CO mg/m ³	HC ppm
01-12-2025	50.1	22.4	4.53	5.36	BDL	BDL
04-12-2025	46.2	20.4	4.4	5.19	BDL	BDL
08-12-2025	53.2	24.3	4.32	5.17	BDL	BDL
11-12-2025	57.1	26.7	4.60	5.53	BDL	BDL
15-12-2025	53.9	22.9	4.45	5.48	BDL	BDL
18-12-2025	49.1	19.9	4.35	5.13	BDL	BDL

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Date of Sampling	Results					
	PM ₁₀ µg/m ³	PM _{2.5} µg/m ³	SO ₂ µg/m ³	NO _x µg/m ³	CO mg/m ³	HC ppm
22-12-2025	45.3	21.5	4.56	5.18	BDL	BDL
25-12-2025	54	21.9	4.52	5.29	BDL	BDL
29-12-2025	57.1	24.1	4.60	5.16	BDL	BDL
NAAQS 2009 Limits	100	60	80	80	4	-
Note: National Ambient Air Quality Standards (Industrial, Residential, Rural and other Area). BDL: Below Detectable Limit						

Location, Legend	Balarampuram, A5
Month, Year	December, 2025

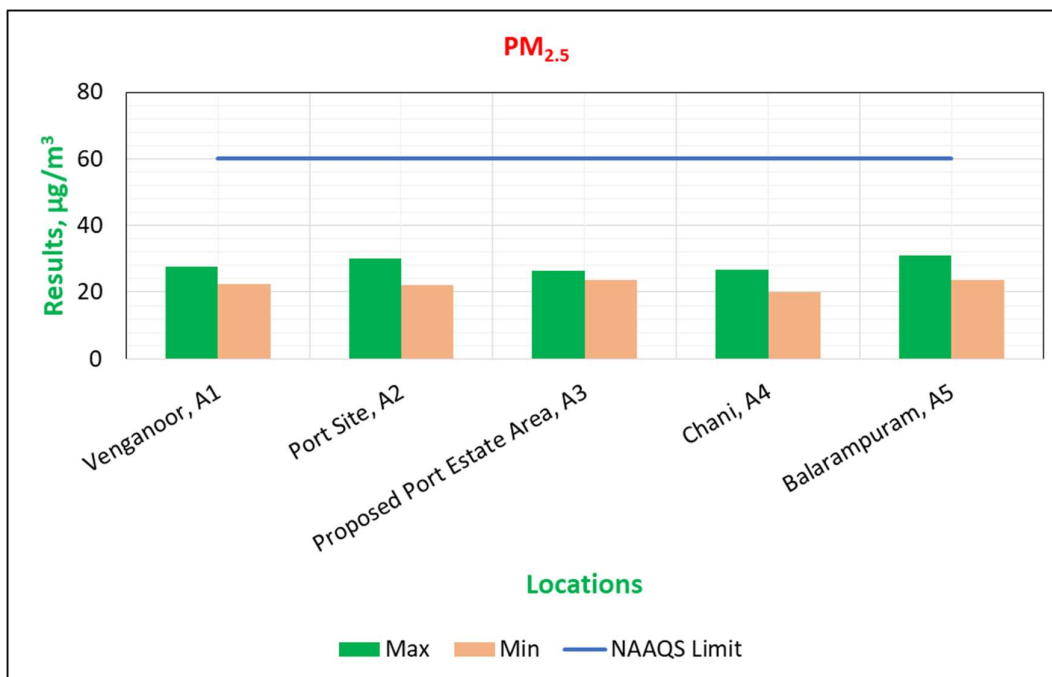
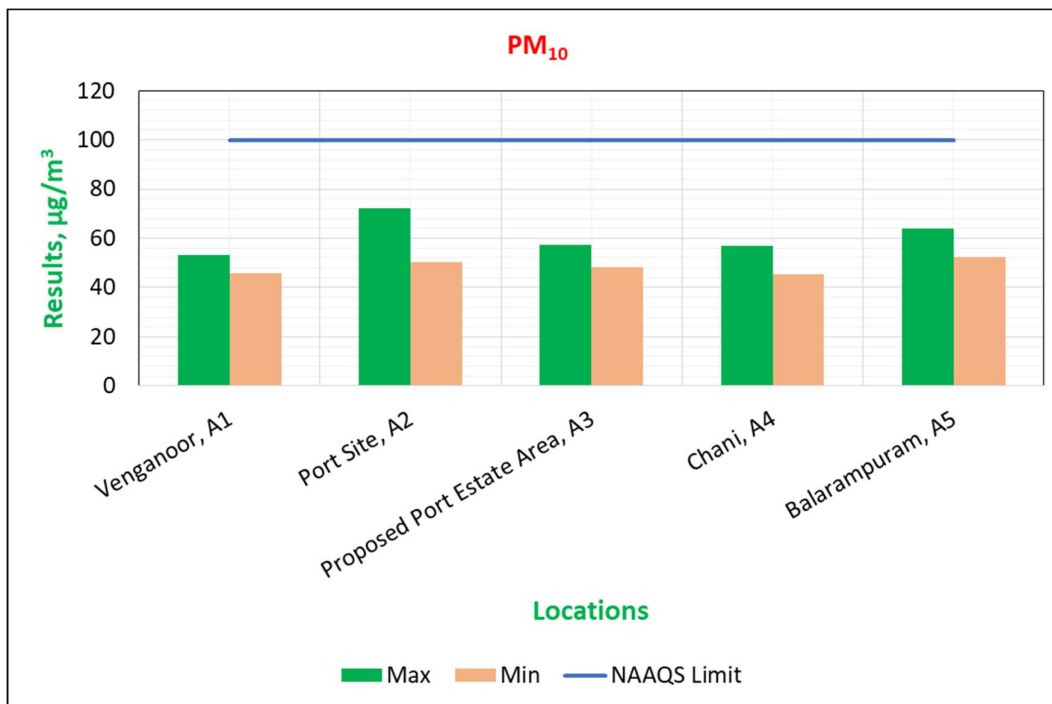
Date of Sampling	Results					
	PM ₁₀ µg/m ³	PM _{2.5} µg/m ³	SO ₂ µg/m ³	NO _x µg/m ³	CO mg/m ³	HC ppm
01-12-2025	63.4	27.6	4.54	5.74	BDL	BDL
04-12-2025	56.8	26.4	4.74	5.56	BDL	BDL
08-12-2025	61.5	29.8	4.55	5.48	BDL	BDL
11-12-2025	52.3	24.3	4.11	5.13	BDL	BDL
15-12-2025	63.3	30.9	4.25	5.44	BDL	BDL
18-12-2025	64.1	29.2	4.16	5.32	BDL	BDL
22-12-2025	52.2	23.8	4.14	5.61	BDL	BDL
25-12-2025	64.2	28.6	4.05	5.54	BDL	BDL
29-12-2025	53.4	24.6	4.32	5.34	BDL	BDL
NAAQS 2009 Limits	100	60	80	80	4	-
Note: National Ambient Air Quality Standards (Industrial, Residential, Rural and other Area). BDL: Below Detectable Limit						

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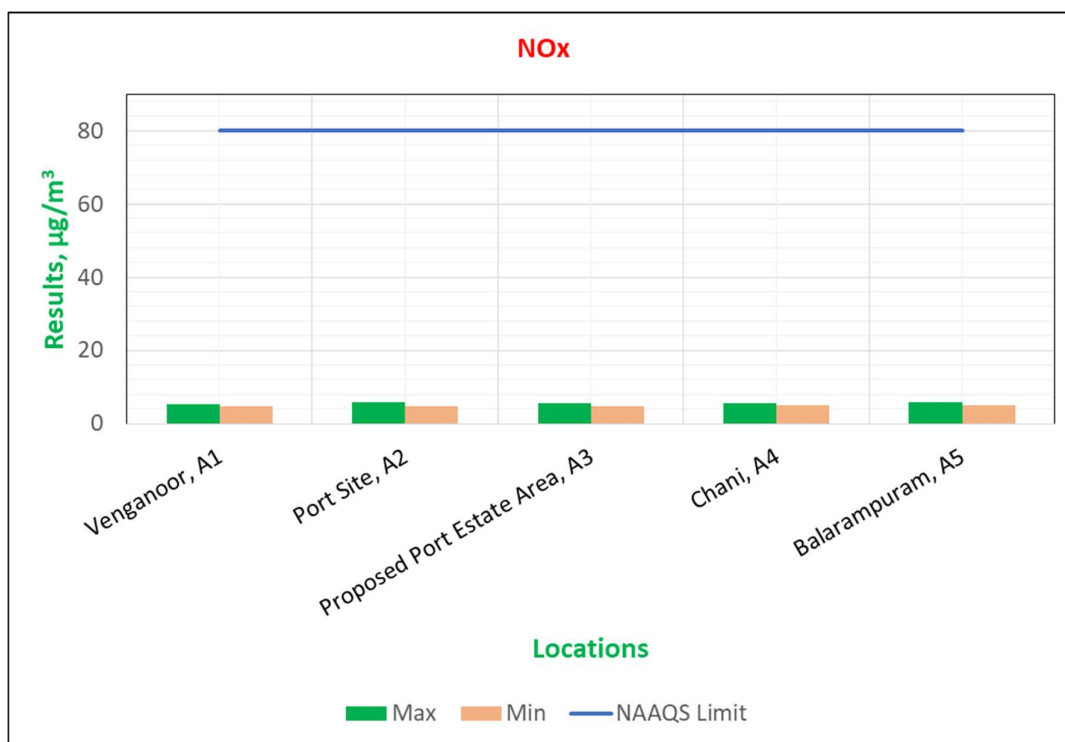
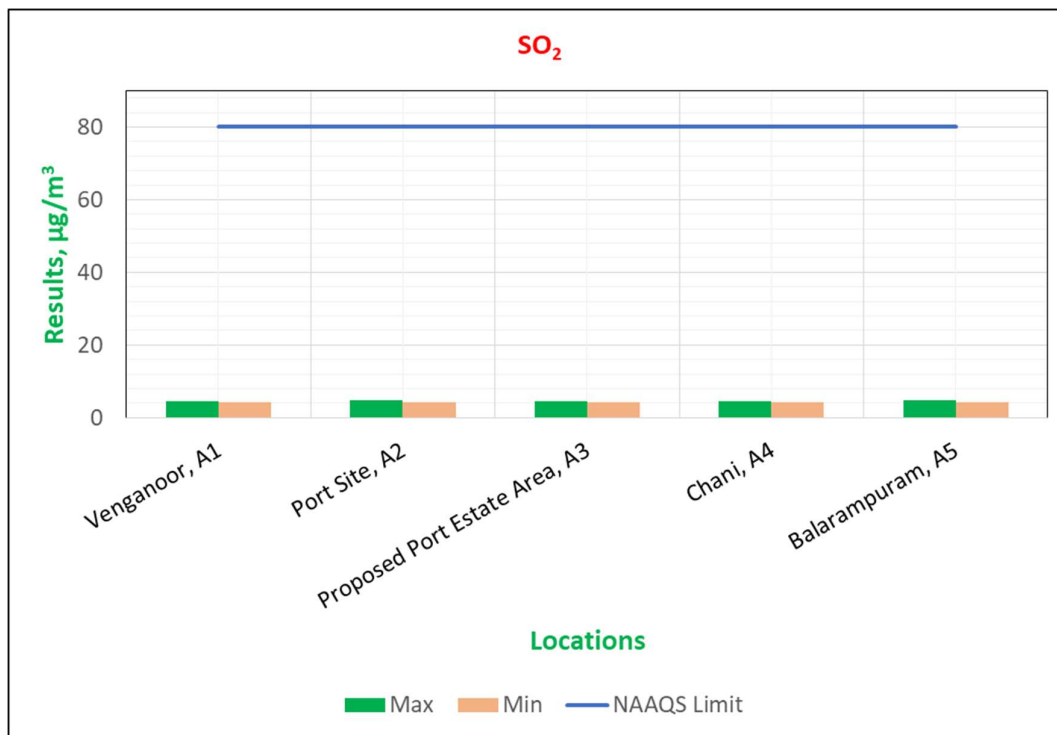
EMR-2.1

Statistical Analysis of Ambient Air Quality



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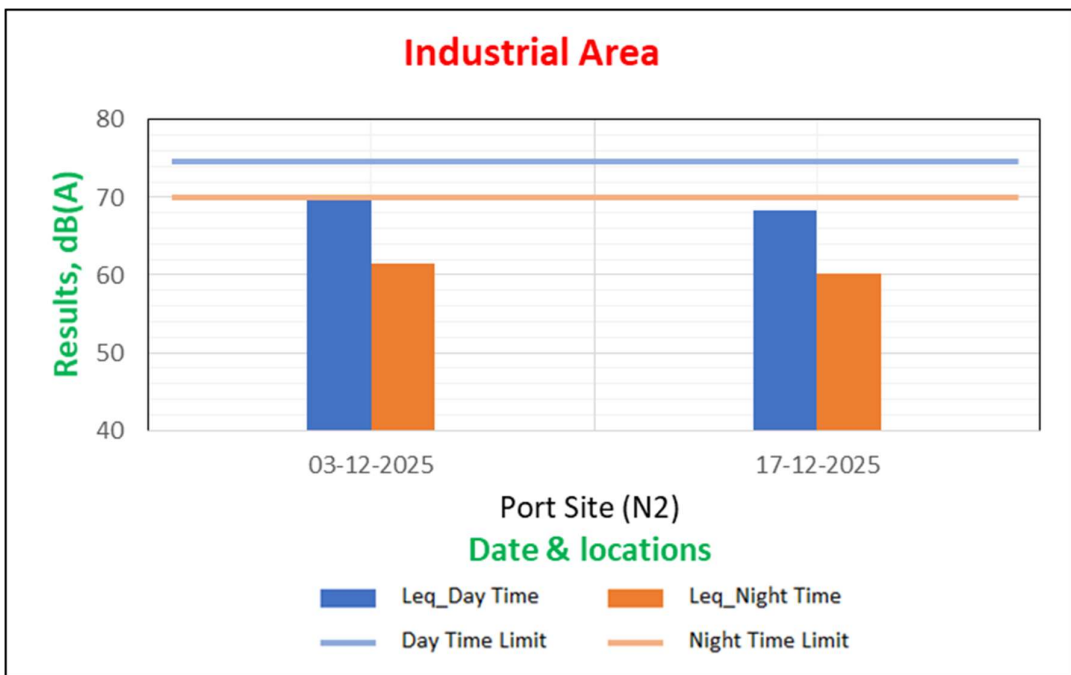
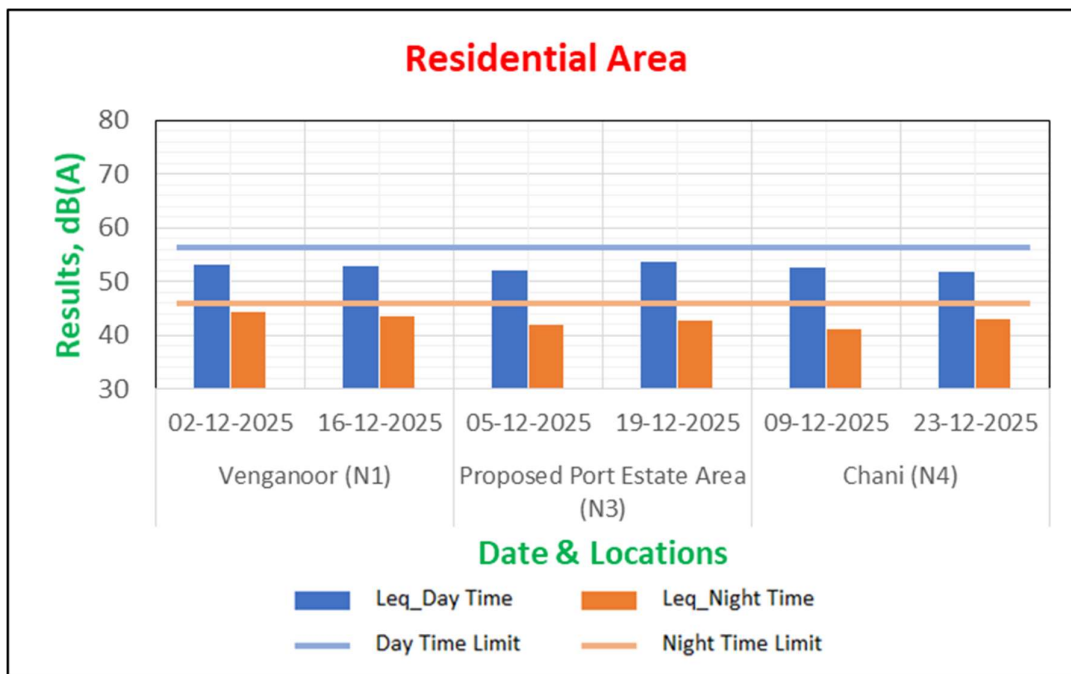
EMR-3	Ambient Noise Monitoring Report
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Location & Legend	Date of Sampling	Results (dB(A))					
		L _{max} Day time	L _{max} Night time	L _{min} Day time	L _{min} Night time	Leq Day time	Leq Night time
Venganoor (Residential) N1	02-12-2025	75.8	73.7	32.5	31.7	53.2	44.2
	16-12-2025	74.2	72.4	31.9	31.5	52.7	43.5
Port Site (Industrial) N2	03-12-2025	94.1	90.6	33.5	34.1	69.7	61.4
	17-12-2025	89.6	87.1	35.5	31.5	68.4	60.1
Proposed Port Estate Area (Residential) N3	05-12-2025	77.8	71.9	31.8	30.5	52.1	41.8
	19-12-2025	74.5	70.9	31.2	29.8	53.6	42.6
Chani (Residential) N4	09-12-2025	75.9	72.6	33.5	30.8	52.6	41.1
	23-12-2025	73.8	71.9	30.9	30.4	51.8	42.9
Balarampuram (Commercial) N5	12-12-2025	84.9	80.6	32.5	31.7	62.6	53.4
	26-12-2025	81.6	79.8	31.9	30.4	59.8	50.9
As per the Noise Pollution (Regulation & Control) Rules, 2000 [Rules 3 (1) and 4(1)]							
Area Code	Area Type	Limits in dB (A) Leq					
				Day (6 a.m. to 10 p.m.)		Night (10 p.m. to 6 a.m.)	
A	Industrial			75		70	
B	Commercial			65		55	
C	Residential			55		45	

EMR-3.1	Statistical Analysis of Ambient Noise Monitoring
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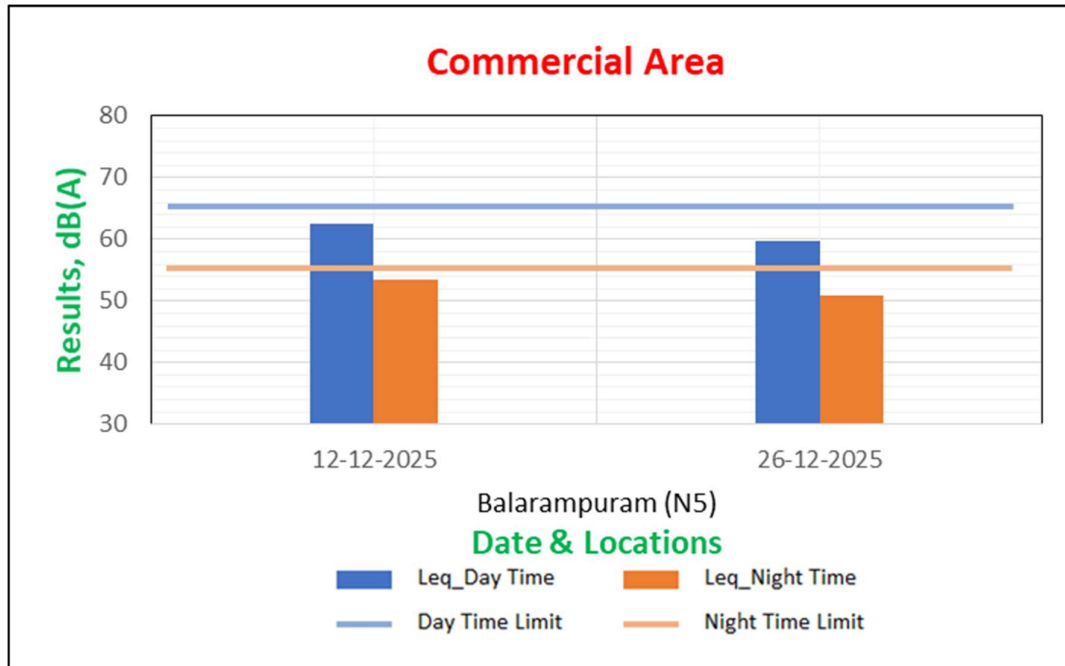
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EMR-4	Marine Ecological Survey
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EMR-4.1	Marine Water Analysis Report
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Location, Legend	Near Kovalam Beach, M1
Date of Sampling	04-12-2025

Parameter	Unit	Results	
		High Tide (13:30 – 14:40)	Low Tide (08:50 – 10:10)
Temperature	°C	27.9	27.5
Colour	Hazen	1	1
pH Value	-	8.01	8.05
Turbidity	N.T.U.	1.0	1.5
Electrical Conductivity (at 25°C)	µmho/cm	52100	52400
Total Suspended Solids	mg/L	BDL	BDL
Total Dissolved Solids	mg/L	33344	33536
Dissolved Oxygen	mg/L	7.0	7.1
Biochemical Oxygen Demand (3 days, 27°C)	mg/L	BDL	BDL
Floating Materials (Oil, grease and Scum (Including Petroleum Products)	mg/L	BDL	BDL
Nitrite (as NO ₂)	mg/L	0.042	0.048
Nitrate (as NO ₃)	mg/L	BDL	BDL
Phenolic Compounds (as C ₆ H ₅ OH)	mg/L	BDL	BDL
Ammonical Nitrogen (as NH ₃ -N)	mg/L	BDL	BDL
Total Nitrogen (as N)	mg/L	BDL	BDL
Total Phosphorous (as P)	mg/L	BDL	BDL
Reactive Phosphorous	mg/L	BDL	BDL
Polycyclic Aromatic Hydrocarbon	mg/L	BDL	BDL
Salinity	ppt	33.792	34.011
Total Chlorophyll	mg/m ³	0.5	0.6
Total Coliforms	MPN/100 ml	BDL	BDL
Fecal Coliforms	MPN/100 ml	BDL	BDL
BDL: Below Detectable Limit			

Location, Legend	Proposed Dredging Site, M2
Date of Sampling	04-12-2025

Parameter	Unit	Results
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		High Tide (13:30 – 14:40)	Low Tide (08:50 – 10:10)
Temperature	°C	28.3	27.9
Colour	Hazen	1	1
pH Value	-	8.02	8.03
Turbidity	N.T.U.	1	1.3
Electrical Conductivity (at 25°C)	µmho/cm	52450	52650
Total Suspended Solids	mg/L	BDL	BDL
Total Dissolved Solids	mg/L	33570	33670
Dissolved Oxygen	mg/L	6.9	7.0
Biochemical Oxygen Demand (3 days, 27°C)	mg/L	BDL	BDL
Floating Materials (Oil, grease and Scum (Including Petroleum Products)	mg/L	BDL	BDL
Nitrite (as NO ₂)	mg/L	0.028	0.041
Nitrate (as NO ₃)	mg/L	BDL	BDL
Phenolic Compounds (as C ₆ H ₅ OH)	mg/L	BDL	BDL
Ammonical Nitrogen (as NH ₃ -N)	mg/L	BDL	BDL
Total Nitrogen (as N)	mg/L	BDL	BDL
Total Phosphorous (as P)	mg/L	BDL	BDL
Reactive Phosphorous	mg/L	BDL	BDL
Polycyclic Aromatic Hydrocarbon	mg/L	BDL	BDL
Salinity	ppt	34.048	34.194
Total Chlorophyll	mg/m ³	0.4	0.5
Total Coliforms	MPN/100 ml	BDL	BDL
Fecal Coliforms	MPN/100 ml	BDL	BDL
BDL: Below Detectable Limit			

Location, Legend	Port Basin, M3
Date of Sampling	04-12-2025

Parameter	Unit	Results
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		High Tide (13:30 – 14:40)	Low Tide (08:50 – 10:10)
Temperature	°C	28.2	27.7
Colour	Hazen	1	1
pH Value	-	8.08	8.10
Turbidity	N.T.U.	1.0	1.8
Electrical Conductivity (at 25°C)	µmho/cm	52700	52910
Total Suspended Solids	mg/L	BDL	BDL
Total Dissolved Solids	mg/L	33728	33862
Dissolved Oxygen	mg/L	7.0	7.1
Biochemical Oxygen Demand (3 days, 27°C)	mg/L	BDL	BDL
Floating Materials (Oil, grease and Scum (Including Petroleum Products)	mg/L	BDL	BDL
Nitrite (as NO ₂)	mg/L	0.049	0.050
Nitrate (as NO ₃)	mg/L	BDL	BDL
Phenolic Compounds (as C ₆ H ₅ OH)	mg/L	BDL	BDL
Ammonical Nitrogen (as NH ₃ -N)	mg/L	BDL	BDL
Total Nitrogen (as N)	mg/L	BDL	BDL
Total Phosphorous (as P)	mg/L	BDL	BDL
Reactive Phosphorous	mg/L	BDL	BDL
Polycyclic Aromatic Hydrocarbon	mg/L	BDL	BDL
Salinity	ppt	34.230	34.384
Total Chlorophyll	mg/m ³	0.50	0.70
Total Coliforms	MPN/100 ml	BDL	BDL
Fecal Coliforms	MPN/100 ml	BDL	BDL
BDL: Below Detectable Limit			

Location, Legend	South of Breakwater, M4
Date of Sampling	04-12-2025

Parameter	Unit	Results
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		High Tide (13:30 – 14:40)	Low Tide (08:50 – 10:10)
Temperature	°C	27.2	27.0
Colour	Hazen	1	1
pH Value	-	7.99	8.02
Turbidity	N.T.U.	1.1	1.5
Electrical Conductivity (at 25°C)	µmho/cm	52320	52490
Total Suspended Solids	mg/L	BDL	BDL
Total Dissolved Solids	mg/L	33485	33594
Dissolved Oxygen	mg/L	6.9	7.1
Biochemical Oxygen Demand (3 days, 27°C)	mg/L	BDL	BDL
Floating Materials (Oil, grease and Scum (Including Petroleum Products)	mg/L	BDL	BDL
Nitrite (as NO ₂)	mg/L	0.035	0.042
Nitrate (as NO ₃)	mg/L	BDL	BDL
Phenolic Compounds (as C ₆ H ₅ OH)	mg/L	BDL	BDL
Ammonical Nitrogen (as NH ₃ -N)	mg/L	BDL	BDL
Total Nitrogen (as N)	mg/L	BDL	BDL
Total Phosphorous (as P)	mg/L	BDL	BDL
Reactive Phosphorous	mg/L	BDL	BDL
Polycyclic Aromatic Hydrocarbon	mg/L	BDL	BDL
Salinity	ppt	33.953	34.077
Total Chlorophyll	mg/m ³	0.4	0.6
Total Coliforms	MPN/100 ml	BDL	BDL
Fecal Coliforms	MPN/100 ml	BDL	BDL
BDL: Below Detectable Limit			

Location, Legend	Inner Approach Channel, M5
Date of Sampling	04-12-2025

Parameter	Unit	Results
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		High Tide (13:30 – 14:40)	Low Tide (08:50 – 10:10)
Temperature	°C	27.8	27.1
Colour	Hazen	1	1
pH Value	-	8.01	8.06
Turbidity	N.T.U.	0.8	1.2
Electrical Conductivity (at 25°C)	µmho/cm	52640	52825
Total Suspended Solids	mg/L	BDL	BDL
Total Dissolved Solids	mg/L	33690	33808
Dissolved Oxygen	mg/L	6.8	6.9
Biochemical Oxygen Demand (3 days, 27°C)	mg/L	BDL	BDL
Floating Materials (Oil, grease and Scum (Including Petroleum Products)	mg/L	BDL	BDL
Nitrite (as NO ₂)	mg/L	BDL	BDL
Nitrate (as NO ₃)	mg/L	BDL	BDL
Phenolic Compounds (as C ₆ H ₅ OH)	mg/L	BDL	BDL
Ammonical Nitrogen (as NH ₃ -N)	mg/L	BDL	BDL
Total Nitrogen (as N)	mg/L	BDL	BDL
Total Phosphorous (as P)	mg/L	BDL	BDL
Reactive Phosphorous	mg/L	BDL	BDL
Polycyclic Aromatic Hydrocarbon	mg/L	BDL	BDL
Salinity	ppt	34.186	34.322
Total Chlorophyll	mg/m ³	0.4	0.5
Total Coliforms	MPN/100 ml	BDL	BDL
Fecal Coliforms	MPN/100 ml	BDL	BDL
BDL: Below Detectable Limit			

Location, Legend	Kovalam Beach, M6
Date of Sampling	04-12-2025

Parameter	Unit	Results
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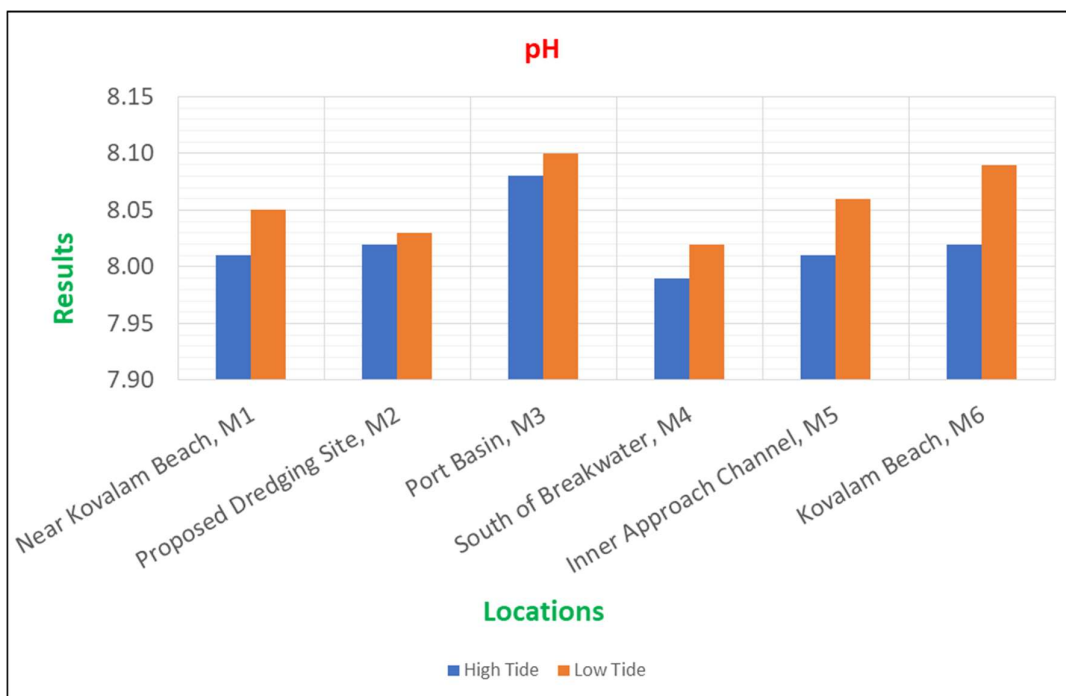
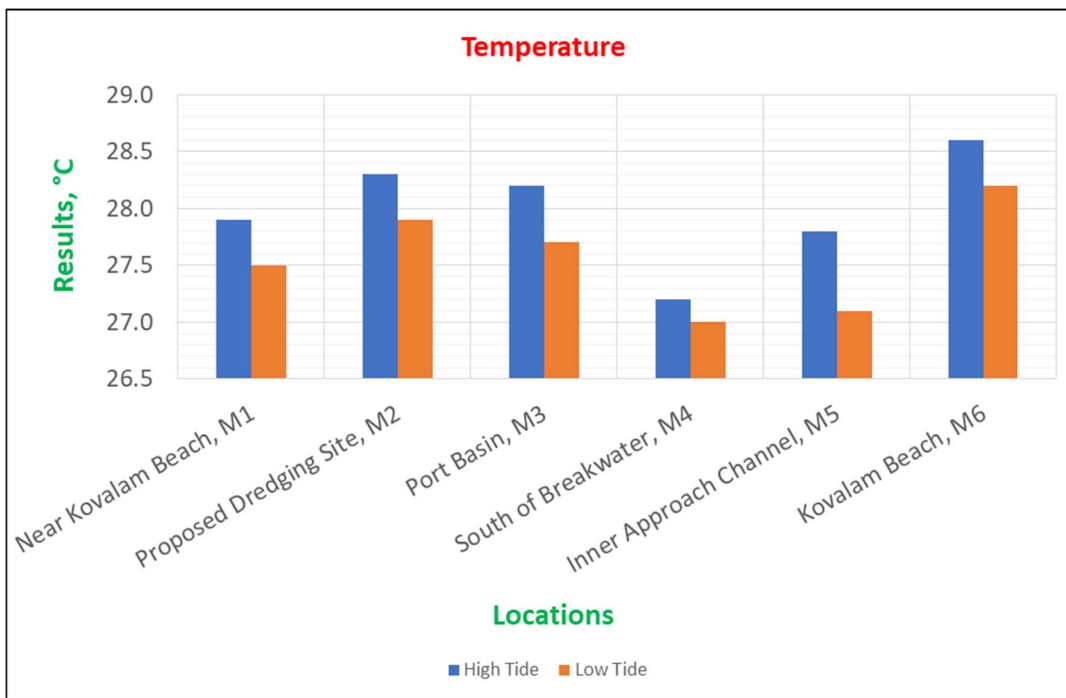
		High Tide (13:30 – 14:40)	Low Tide (08:50 – 10:10)
Temperature	°C	28.6	28.2
Colour	Hazen	1	1
pH Value	-	8.02	8.09
Turbidity	N.T.U.	1	1.3
Electrical Conductivity (at 25°C)	µmho/cm	52360	52550
Total Suspended Solids	mg/L	BDL	BDL
Total Dissolved Solids	mg/L	33510	33632
Dissolved Oxygen	mg/L	6.9	7.0
Biochemical Oxygen Demand (3 days, 27°C)	mg/L	BDL	BDL
Floating Materials (Oil, grease and Scum (Including Petroleum Products)	mg/L	BDL	BDL
Nitrite (as NO ₂)	mg/L	0.035	0.041
Nitrate (as NO ₃)	mg/L	BDL	BDL
Phenolic Compounds (as C ₆ H ₅ OH)	mg/L	BDL	BDL
Ammonical Nitrogen (as NH ₃ -N)	mg/L	BDL	BDL
Total Nitrogen (as N)	mg/L	BDL	BDL
Total Phosphorous (as P)	mg/L	BDL	BDL
Reactive Phosphorous	mg/L	BDL	BDL
Polycyclic Aromatic Hydrocarbon	mg/L	BDL	BDL
Salinity	ppt	33.982	34.121
Total Chlorophyll	mg/m ³	0.4	0.5
Total Coliforms	MPN/100 ml	BDL	BDL
Fecal Coliforms	MPN/100 ml	BDL	BDL
BDL: Below Detectable Limit			

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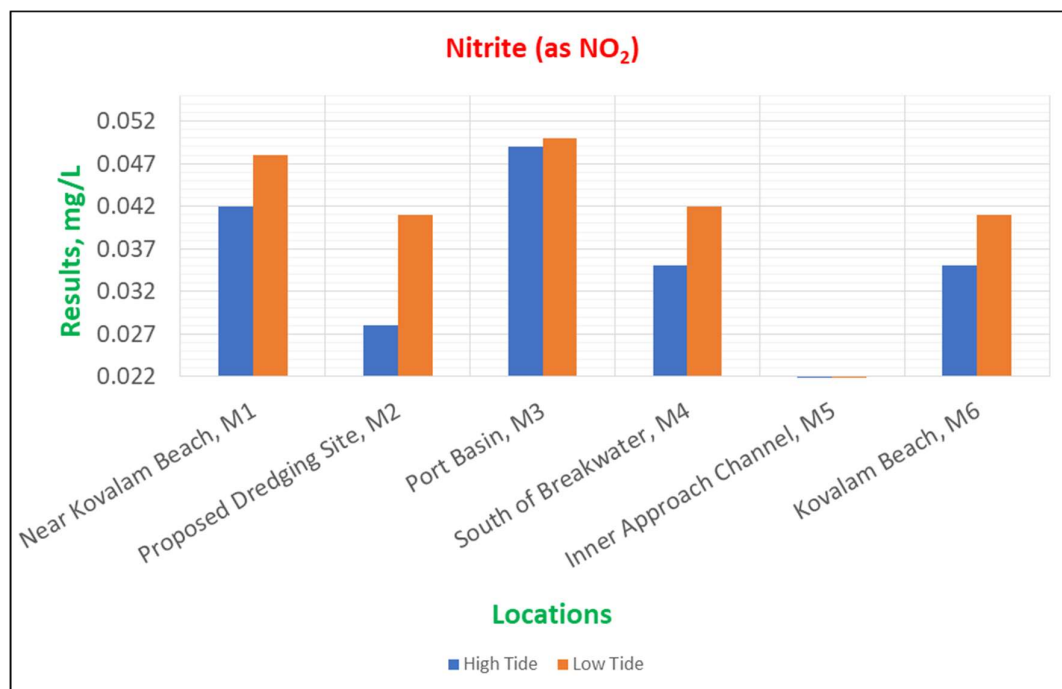
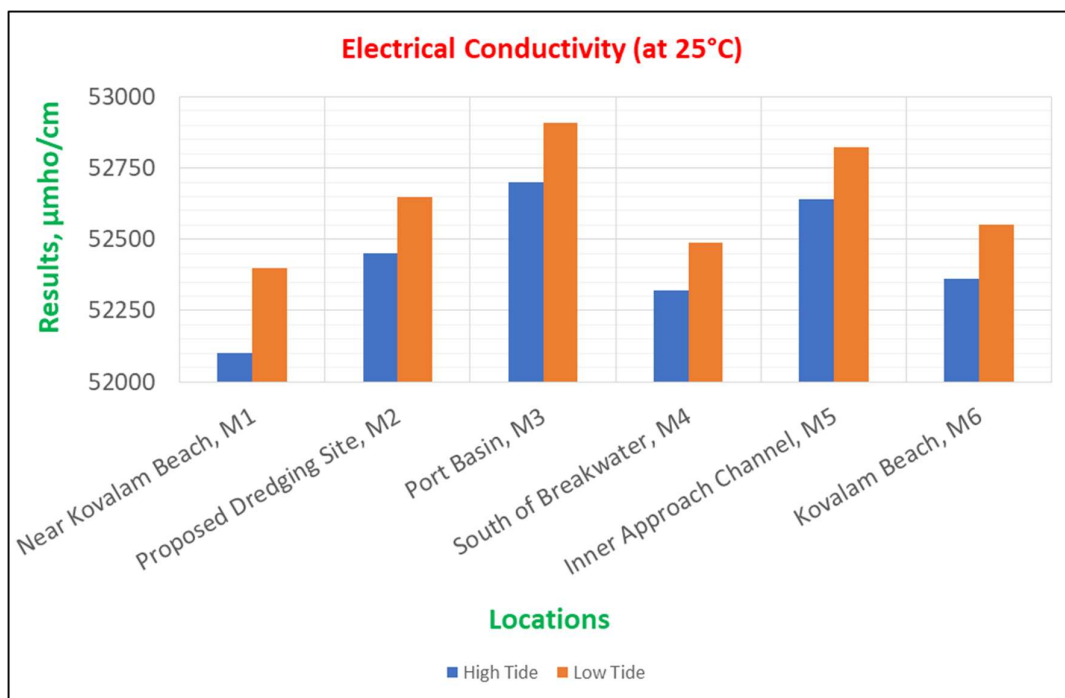
EMR-4.2

Statistical Analysis of Marine Water



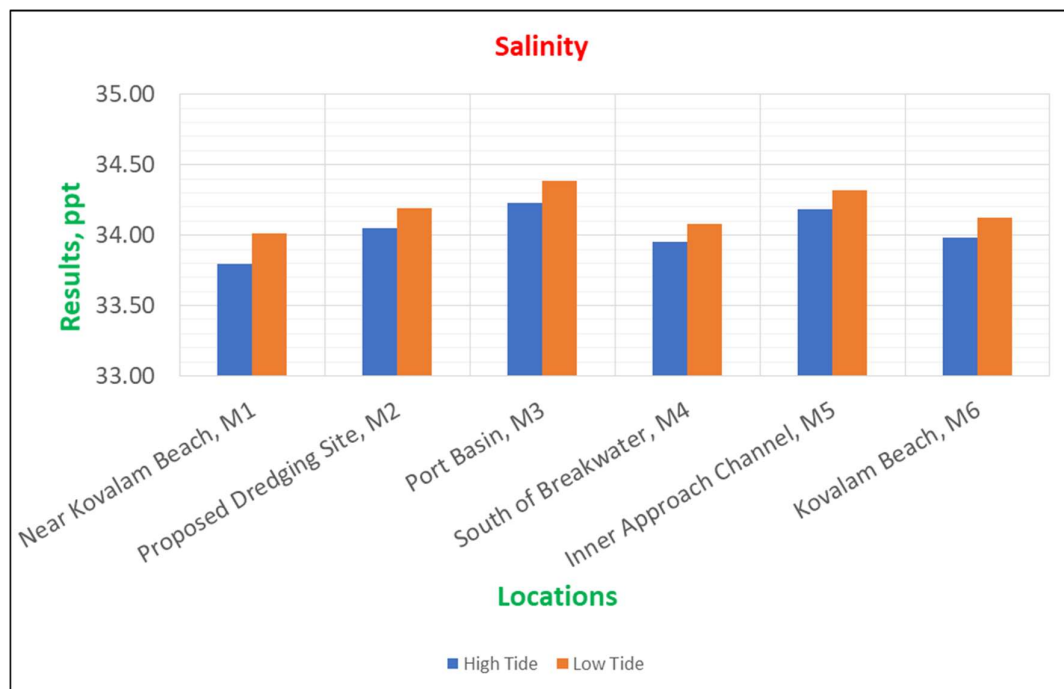
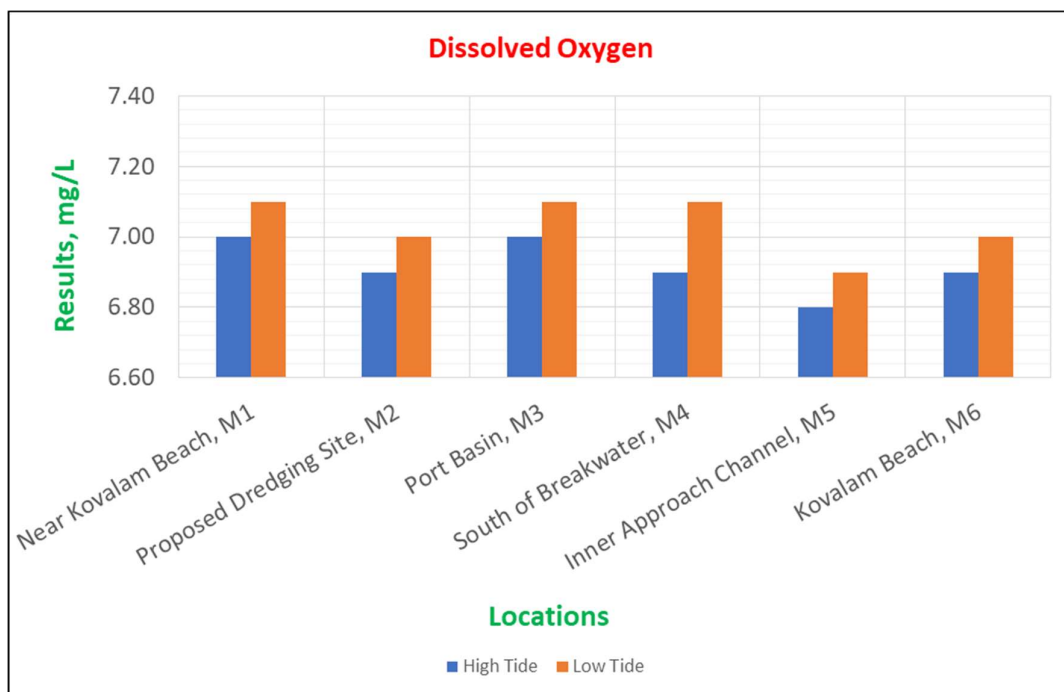
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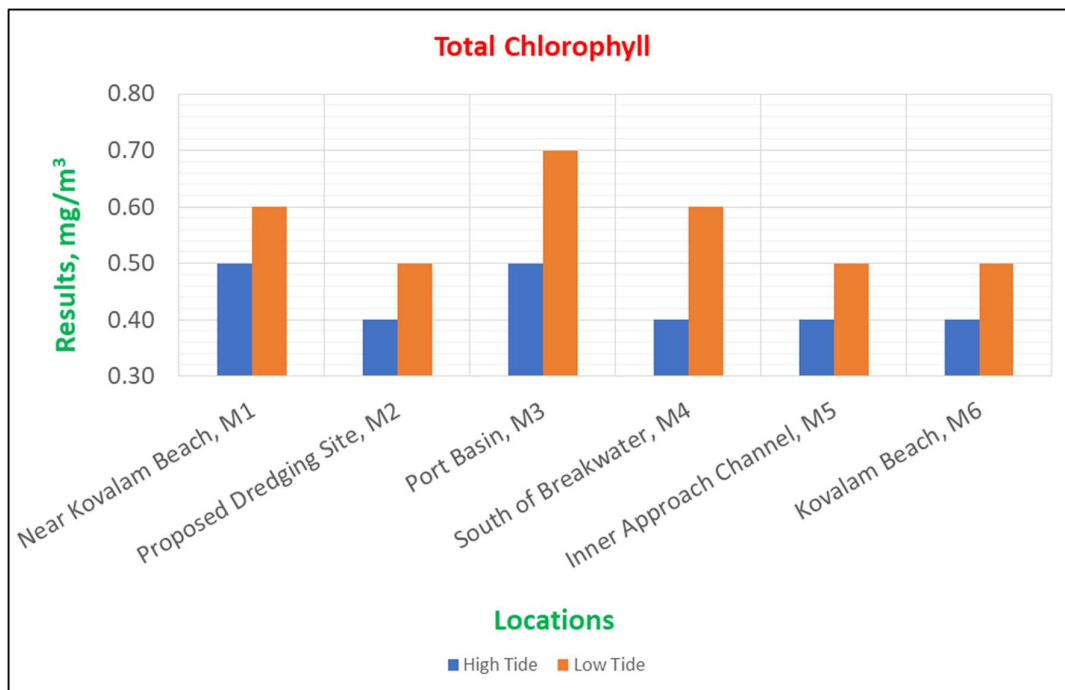
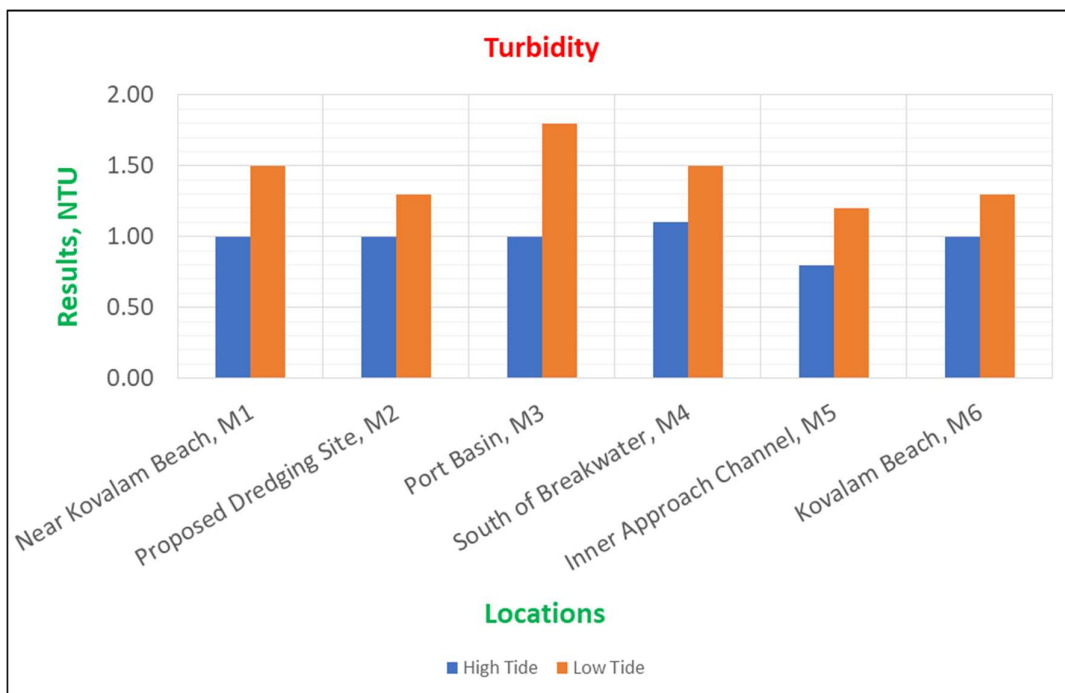
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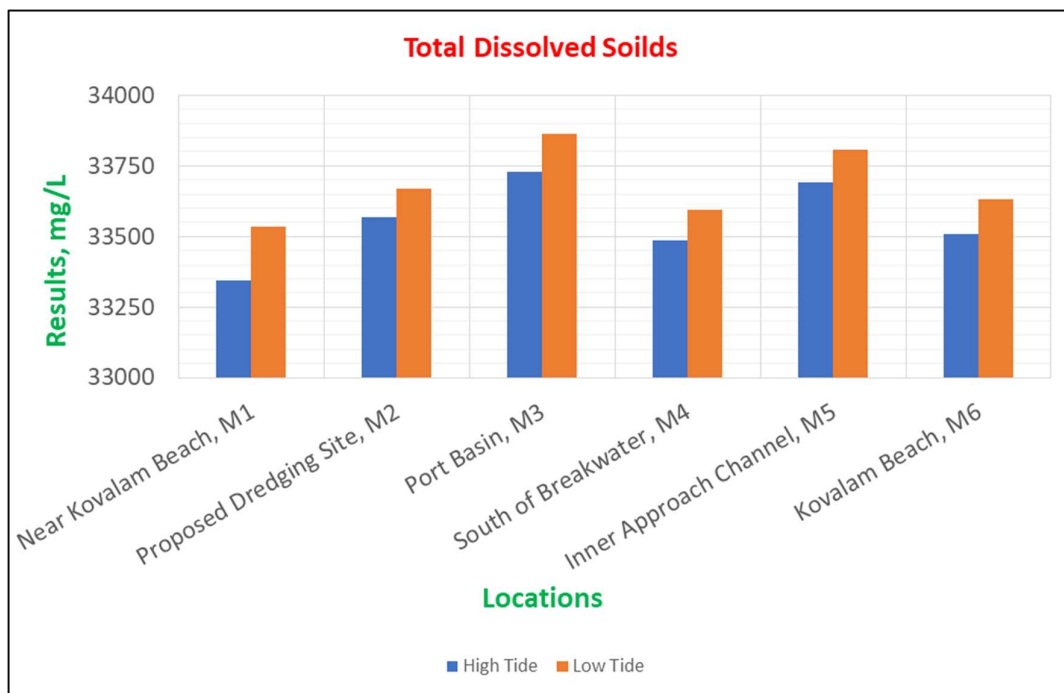
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EMR-4.3

Sediment Analysis Report

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Date of Sampling	04-12-2025
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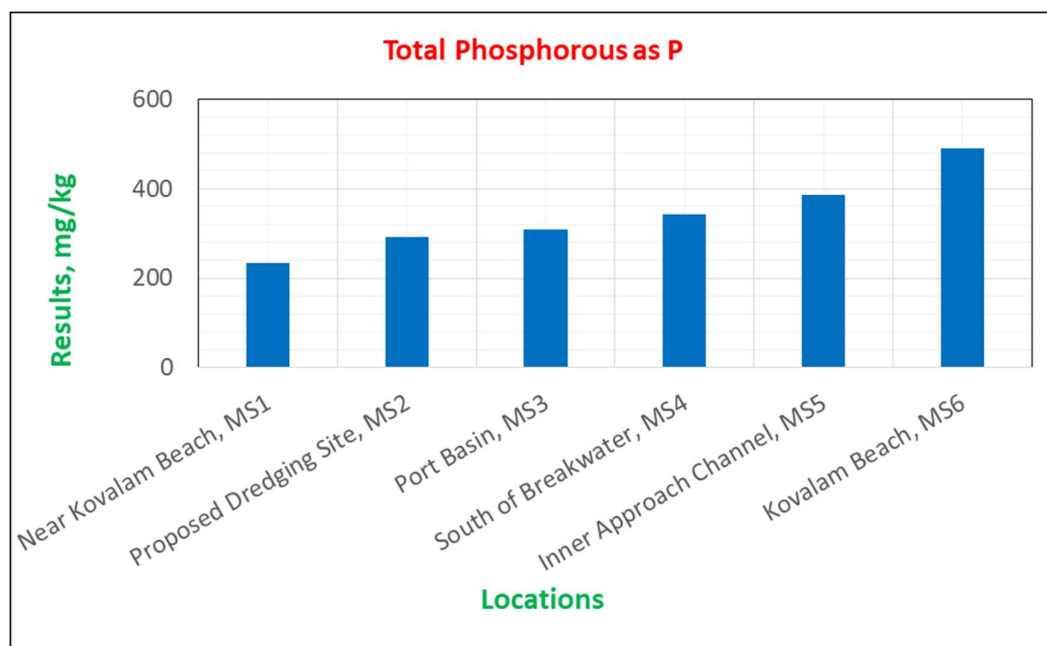
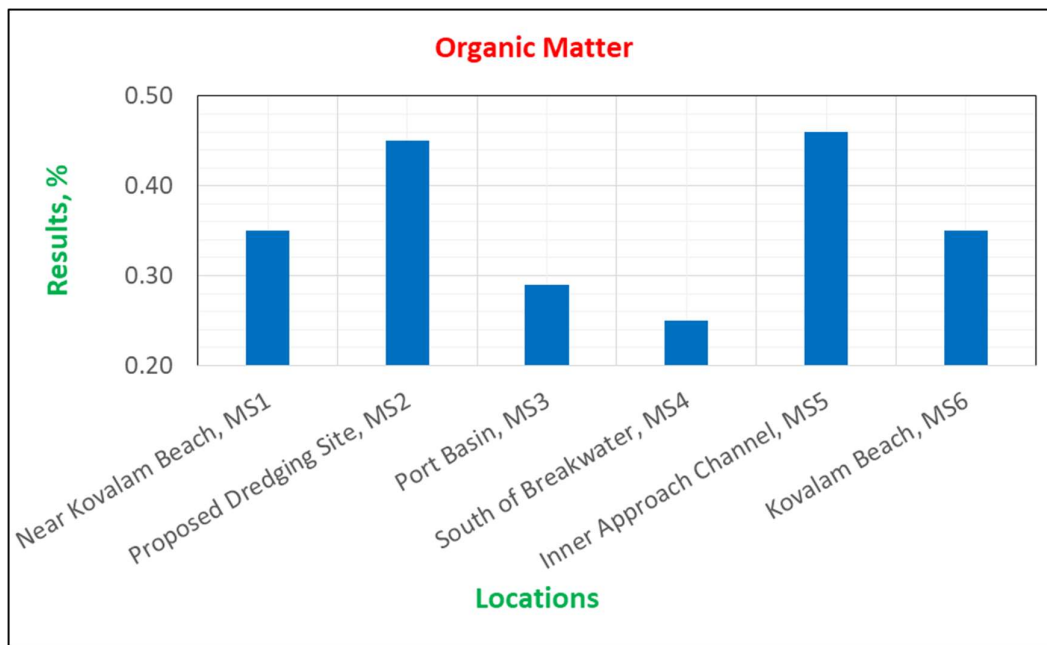
Parameter	Unit	Results					
		Near Kovalam Beach (MS1)	Proposed Dredging Site (MS2)	Port Basin (MS3)	South of Break Water (MS4)	Inner Approach Channel (MS5)	Kovalam Beach (MS6)
Texture	-	Sand	Sand	Sandy Loam	Sand	Sand	Sand
Organic Matter	%	0.35	0.45	0.29	0.25	0.46	0.35
Total Phosphorus (as P)	mg/kg	235	291	310	342	385	490
Aluminium (as Al)	mg/kg	1236	1541	1850	1253	1426	1362
Chromium (as Cr)	mg/kg	BDL	BDL	BDL	BDL	BDL	BDL
Copper (as Cu)	mg/kg	BDL	BDL	BDL	BDL	BDL	BDL
Iron (as Fe)	mg/kg	8854	1653	2269	2536	1113	1120
Lead (as Pb)	mg/kg	BDL	BDL	BDL	BDL	BDL	BDL
Manganese (as Mn)	mg/kg	2.99	2.33	2.45	2.15	2.50	3.12
Mercury (as Hg)	mg/kg	BDL	BDL	BDL	BDL	BDL	BDL
Zinc (as Zn)	mg/kg	2.30	1.88	2.22	1.60	1.56	1.70
Nickel (as Ni)	mg/kg	BDL	BDL	BDL	BDL	BDL	BDL
Benthic Organism							
Micro Benthic Organism	No./m ²	61002	60112	60025	63178	62786	61425
Macro Benthic Organism	No./m ²	58002	56278	57485	61482	59278	58947
Total	No./m²	119004	116390	117510	124660	122064	120372

BDL: Below Detectable Limit

EMR-4.4	Statistical Analysis of Sediment
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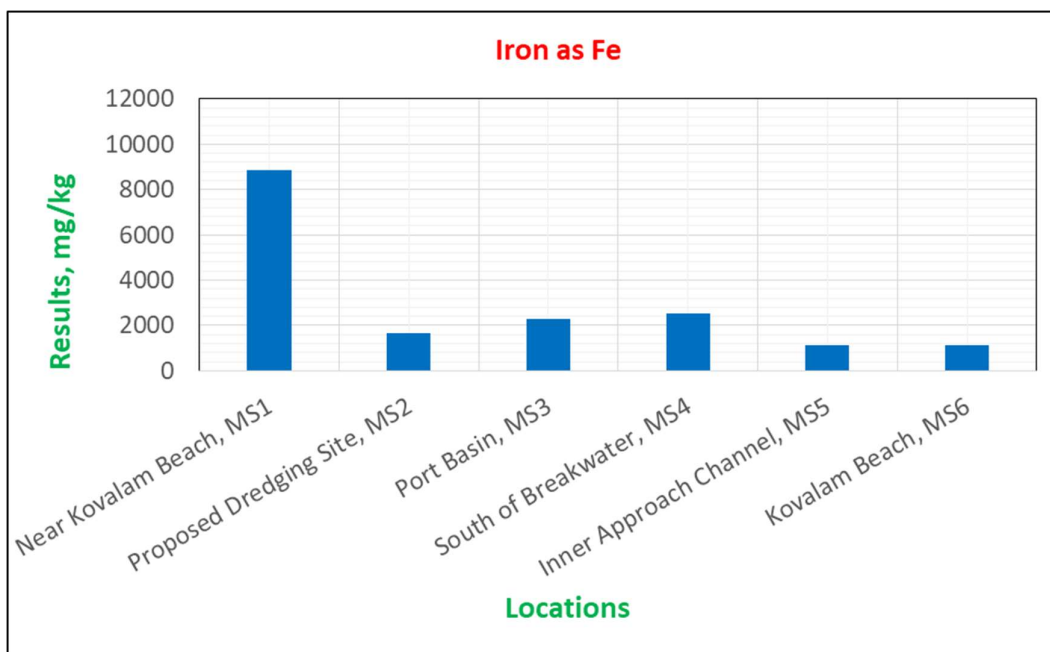
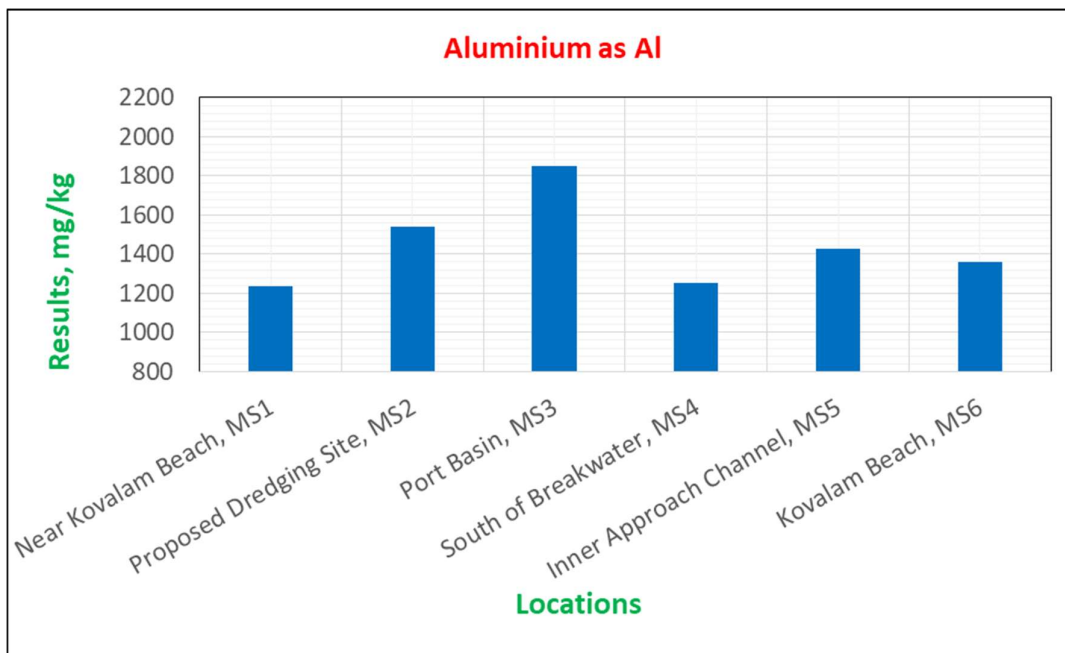
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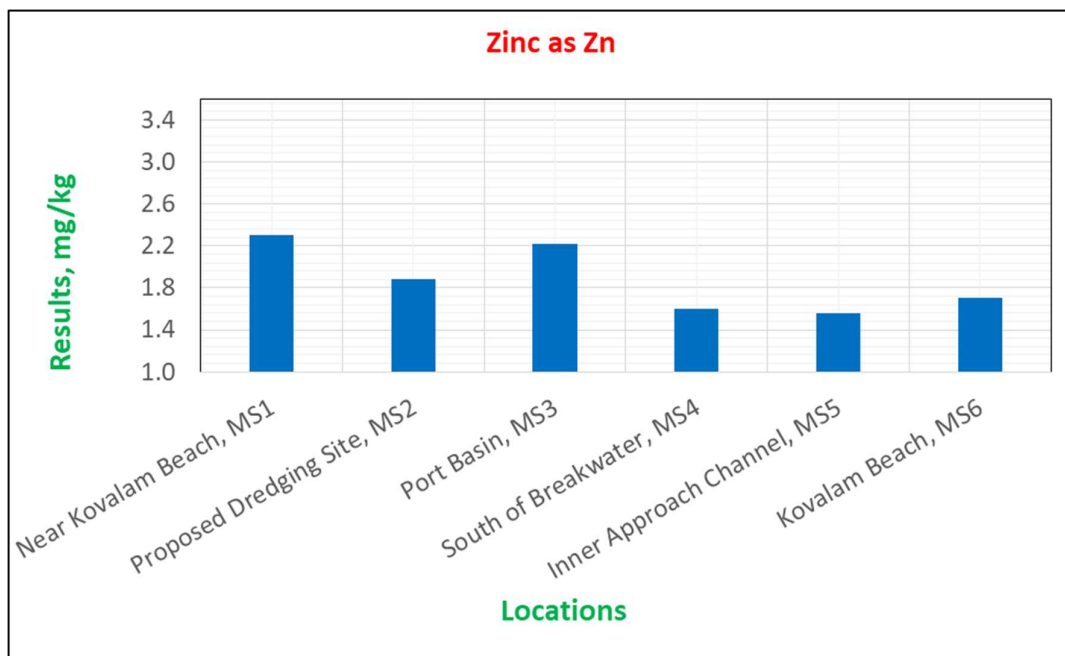
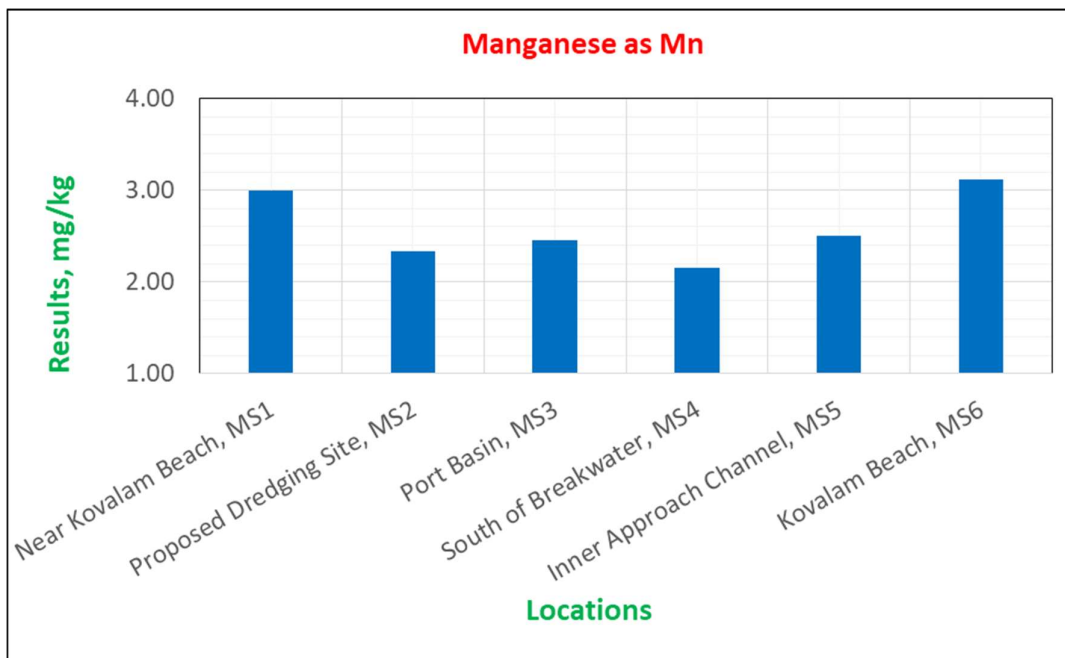
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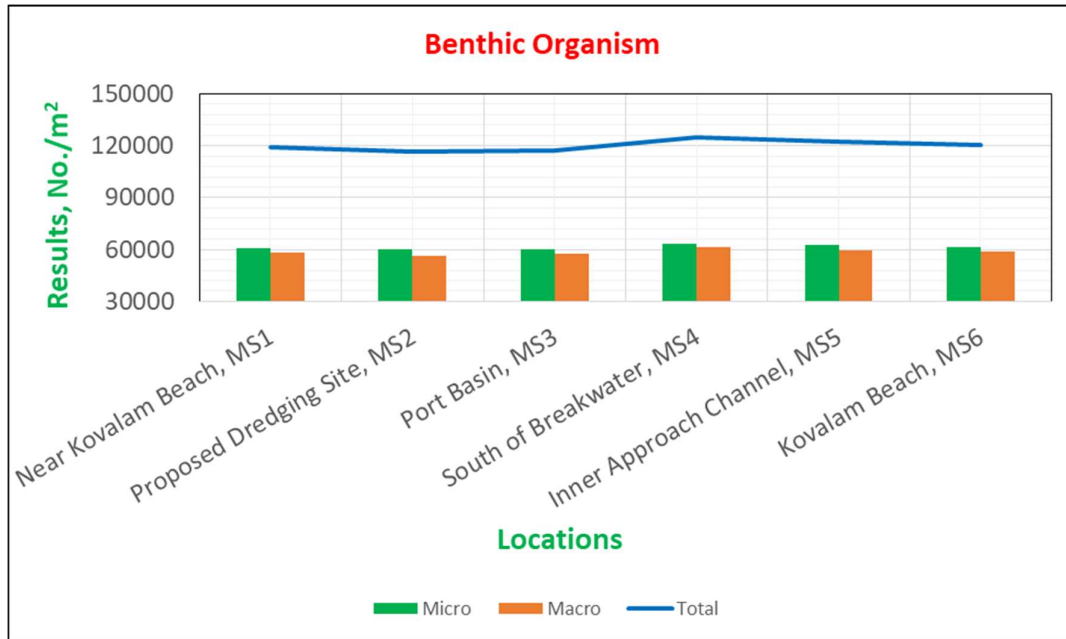
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EMR-4.5	Phytoplankton Analysis from Marine Water Samples
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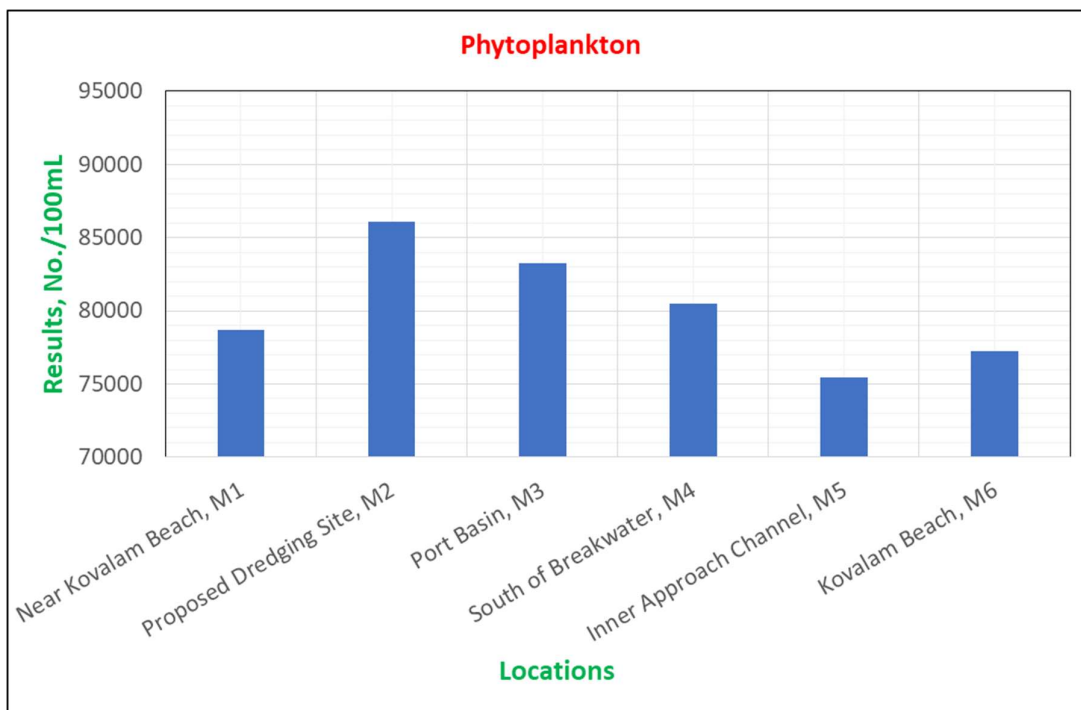
Date of Sampling	04-12-2025
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Parameter	Unit	Results					
		Near Kovalam Beach (M1)	Proposed Dredging Site (M2)	Port Basin (M3)	South of Break Water (M4)	Inner Approach Channel (M5)	Kovalam Beach (M6)
Fragilariaceae	No/100mL	38754	41275	33145	43249	36784	37869
Bacillariophyceae		20453	12454	18795	13578	28548	20145
Cyanophyceae		1856	5178	3548	2547	1542	3045
Chlorophyceae		1768	3054	963	3965	1655	825
Stephanodiscaceae		3014	1967	601	2253	625	965
Merismopediaceae		881	2678	3879	1024	124	1457
Selenastraceae		0	0	0	0	0	0
Scenedesmaceae		1654	824	2014	7143	421	1478
Zygnemataceae		987	1497	2269	314	889	989
Chlorellaceae		1240	7110	8479	2356	1024	1125
Micractiniaceae		1102	6278	2478	1387	987	2587
Chlorococcaceae		1245	250	1102	105	941	1356
Desmidiaceae		0	0	0	1012	0	0
Hildenbrandiaceae		0	0	0	0	0	0
Microcystaceae		2154	2234	707	124	568	2054
Coscinodiscaceae		3014	711	1125	563	745	1351
Naviculaceae		567	604	4112	754	625	1987
Skeletonemataceae		0	0	0	135	0	0
Total		78689	86114	83217	80509	75478	77233

EMR-4.6	Statistical Analysis of Phytoplankton
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EMR-4.7

Zooplankton Analysis from Marine Samples

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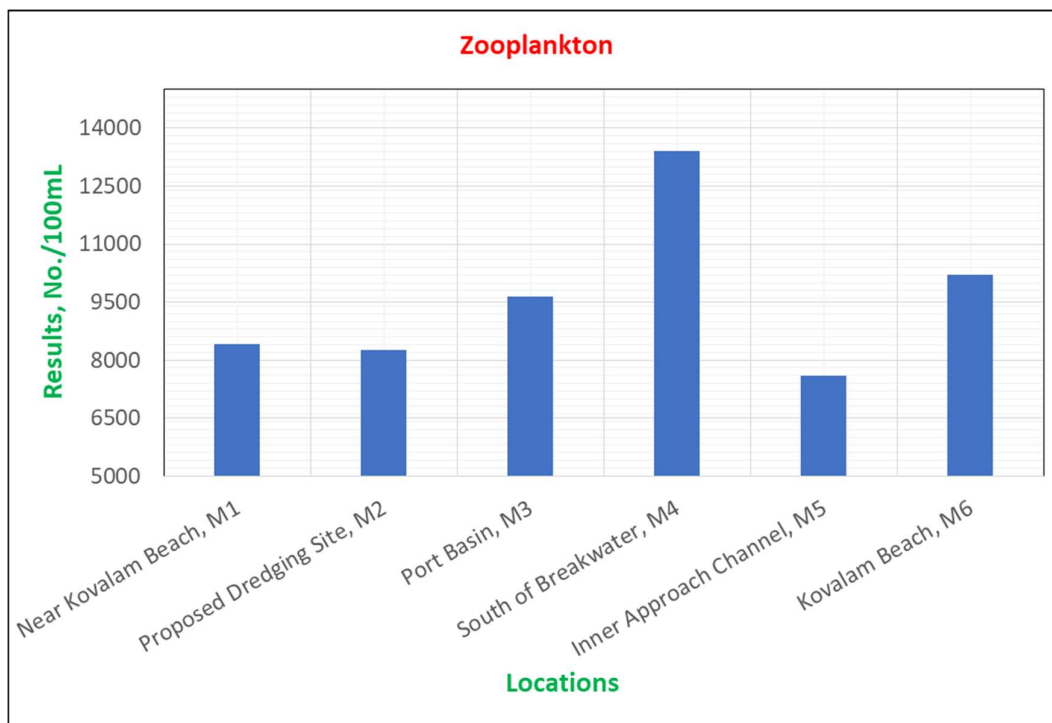
Date of Sampling	04-12-2025
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Parameter	Unit	Results					
		Near Kovalam Beach (M1)	Proposed Dredging Site (M2)	Port Basin (M3)	South of Break Water (M4)	Inner Approach Channel (M5)	Kovalam Beach (M6)
Amphipods	No/100mL	3105	325	1745	3356	234	542
Bivalve larvae		854	568	896	314	189	698
Copepods		1102	435	2351	6587	2985	2356
Decapods		541	86	698	0	856	3147
Gastropods		0	0	0	0	0	0
Chaetognaths		675	101	896	983	147	589
Polychaetes		0	0	0	0	0	0
Ciliates		1051	98	698	1127	952	1758
Lucifer		0	4101	0	0	545	0
Siphonophore		1089	2547	2356	1042	1678	1124
Total		8417	8261	9640	13409	7586	10214

EMR-4.8	Statistical Analysis of Zooplankton
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EMR-5	Ground Water Analysis Report
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Date of Sampling	05-12-2025
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S. No.	Parameters	Unit	Acceptable Limit as per IS 10500: 2012	Results		
				Port Site (Open well) G1	Proposed Port Estate Area (Open well) G2	PAF Area (Open well) G3
Organoleptic & Physical Parameters						
1.	Colour	Hazen Units	Max. 5	1	1	1
2.	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable
3.	pH Value	-	6.5 to 8.5	7.35	7.22	6.88
4.	Turbidity	N.T.U.	Max. 1	0.5	BDL	BDL
5.	Total Dissolved Solids	mg/L	Max. 500	365	188	342
General Parameters concerning substances undesirable in excessive amounts						
6.	Aluminium (as Al)	mg/L	Max. 0.03	BDL	BDL	BDL
7.	Ammonia (as NH ₃ -N)	mg/L	Max.0.5	BDL	BDL	BDL
8.	Anionic Detergents (as MBAS) Calculated as LAS mol.wt. 288.38	mg/L	Max. 0.2	BDL	BDL	BDL
9.	Barium (as Ba)	mg/L	Max. 0.7	BDL	BDL	BDL
10.	Boron (as B)	mg/L	Max. 0.5	BDL	BDL	BDL
11.	Calcium (as Ca)	mg/L	Max. 75	30.3	6.56	28.7
12.	Chloramines (as Cl ₂)	mg/L	Max. 4.0	BDL	BDL	BDL
13.	Chloride (as Cl)	mg/L	Max.250	70.4	35.2	58.7
14.	Copper (as Cu)	mg/L	Max.0.05	BDL	BDL	BDL
15.	Fluoride (as F)	mg/L	Max. 1	BDL	BDL	BDL
16.	Iron (as Fe)	mg/L	Max.1.0	0.25	0.22	0.19
17.	Magnesium (as Mg)	mg/L	Max. 30	8.85	1.48	8.85
18.	Manganese (as Mn)	mg/L	Max.0.1	BDL	BDL	BDL
19.	Mineral Oil	mg/L	Max.1.0	BDL	BDL	BDL
20.	Nitrate (as NO ₃)	mg/L	Max.45	BDL	BDL	BDL
21.	Phenolic Compounds (as C ₆ H ₅ OH)	mg/L	Max. 0.001	BDL	BDL	BDL
22.	Selenium (as Se)	mg/L	Max. 0.01	BDL	BDL	BDL
23.	Silver (as Ag)	mg/L	Max. 0.1	BDL	BDL	BDL
24.	Sulphate (as SO ₄)	mg/L	Max. 200	22.6	3.21	17.5
25.	Sulphide (as H ₂ S)	mg/L	Max. 0.05	BDL	BDL	BDL
26.	Total Alkalinity (as CaCO ₃)	mg/L	Max.200	108	24.0	31.2
27.	Total Hardness (as CaCO ₃)	mg/L	Max. 200	111	22.2	107
28.	Zinc (as Zn)	mg/L	Max. 5	BDL	BDL	BDL
Parameters Concerning Toxic Substances						

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S. No.	Parameters	Unit	Acceptable Limit as per IS 10500: 2012	Results		
				Port Site (Open well) G1	Proposed Port Estate Area (Open well) G2	PAF Area (Open well) G3
29.	Cadmium (as Cd)	mg/L	Max. 0.003	BDL	BDL	BDL
30.	Cyanide (as CN)	mg/L	Max. 0.05	BDL	BDL	BDL
31.	Lead (as Pb)	mg/L	Max. 0.01	BDL	BDL	BDL
32.	Mercury (as Hg)	mg/L	Max. 0.001	BDL	BDL	BDL
33.	Molybdenum (as Mo)	mg/L	Max. 0.07	BDL	BDL	BDL
34.	Nickel (as Ni)	mg/L	Max. 0.02	BDL	BDL	BDL
35.	Pesticide Residues					
i.	Alachlor	µg/L	20	BDL	BDL	BDL
ii.	Atrazine	µg/L	2	BDL	BDL	BDL
iii.	Aldrin/Dieldrin	µg/L	0.03	BDL	BDL	BDL
iv.	Alpha HCH	µg/L	0.01	BDL	BDL	BDL
v.	Beta HCH	µg/L	0.04	BDL	BDL	BDL
vi.	Butachlor	µg/L	125	BDL	BDL	BDL
vii.	Chlorpyrifos	µg/L	30	BDL	BDL	BDL
viii.	Delta HCH	µg/L	0.04	BDL	BDL	BDL
ix.	2,4D chlorophenoxyacetic acid	µg/L	30	BDL	BDL	BDL
x.	DDT (o,p & p,p- Isomers of DDT, DDE, DDD)	µg/L	1	BDL	BDL	BDL
xi.	Endosulfan (α,β & Sulphate)	µg/L	0.4	BDL	BDL	BDL
xii.	Ethion	µg/L	3	BDL	BDL	BDL
xiii.	γ HCH (Lindane)	µg/L	2	BDL	BDL	BDL
xiv.	Isoproturon	µg/L	9	BDL	BDL	BDL
xv.	Malathion	µg/L	190	BDL	BDL	BDL
xvi.	Methyl Parathion	µg/L	0.3	BDL	BDL	BDL
xvii.	Monocrotophos	µg/L	1	BDL	BDL	BDL
xviii.	Phorate	µg/L	2	BDL	BDL	BDL
36.	Polychlorinated Biphenyls (PCB)	mg/L	Max. 0.0005	BDL	BDL	BDL
37.	Polynuclear Aromatic Hydrocarbons (PAH)	mg/L	Max. 0.0001	BDL	BDL	BDL
38.	Total Arsenic (as As)	mg/L	Max. 0.01	BDL	BDL	BDL
39.	Total Chromium (as Cr)	mg/L	Max. 0.05	BDL	BDL	BDL
40.	Trihalomethanes					
a)	Bromoform	mg/L	Max. 0.1	BDL	BDL	BDL
b)	Dibromochloromethane	mg/L	Max. 0.1	BDL	BDL	BDL
c)	Bromodichloroethane	mg/L	Max. 0.06	BDL	BDL	BDL
d)	Chloroform	mg/L	Max. 0.2	BDL	BDL	BDL
Bacteriological Analysis						
41.	<i>E. coli</i>	MPN/100 ml	Not Detectable	BDL	BDL	BDL
42.	Total Coliforms	MPN/100 ml	-	BDL	BDL	BDL

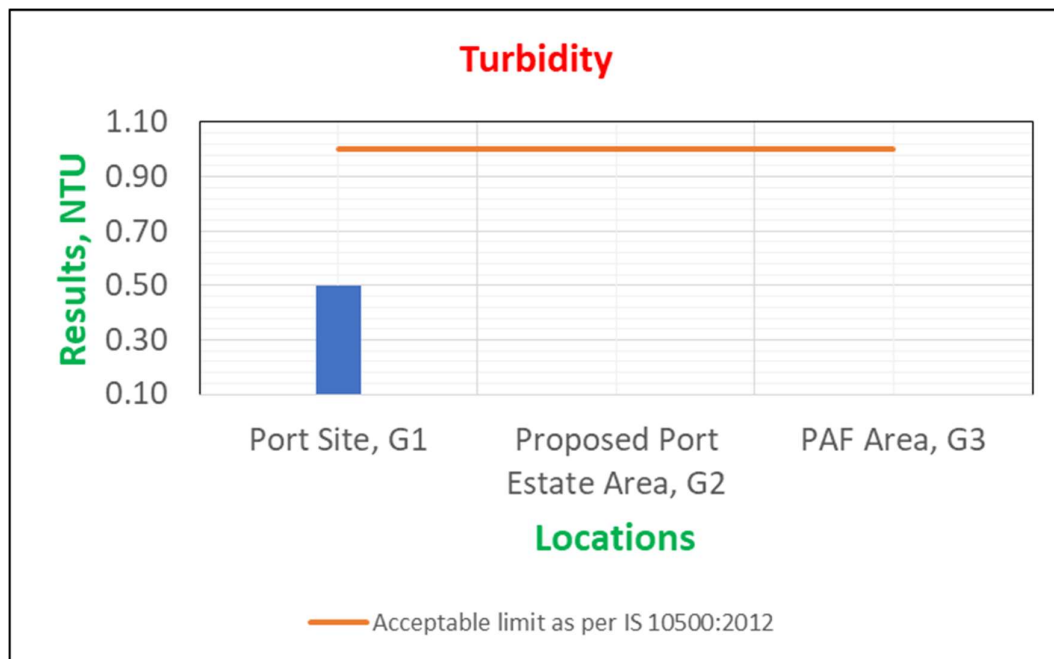
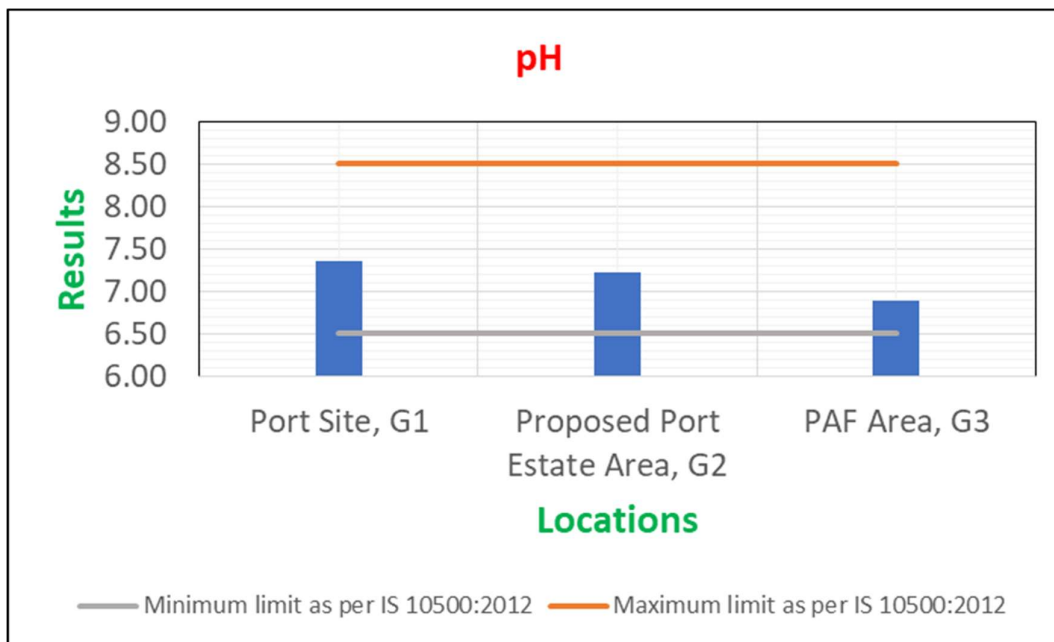
BDL: Below Detectable Limit

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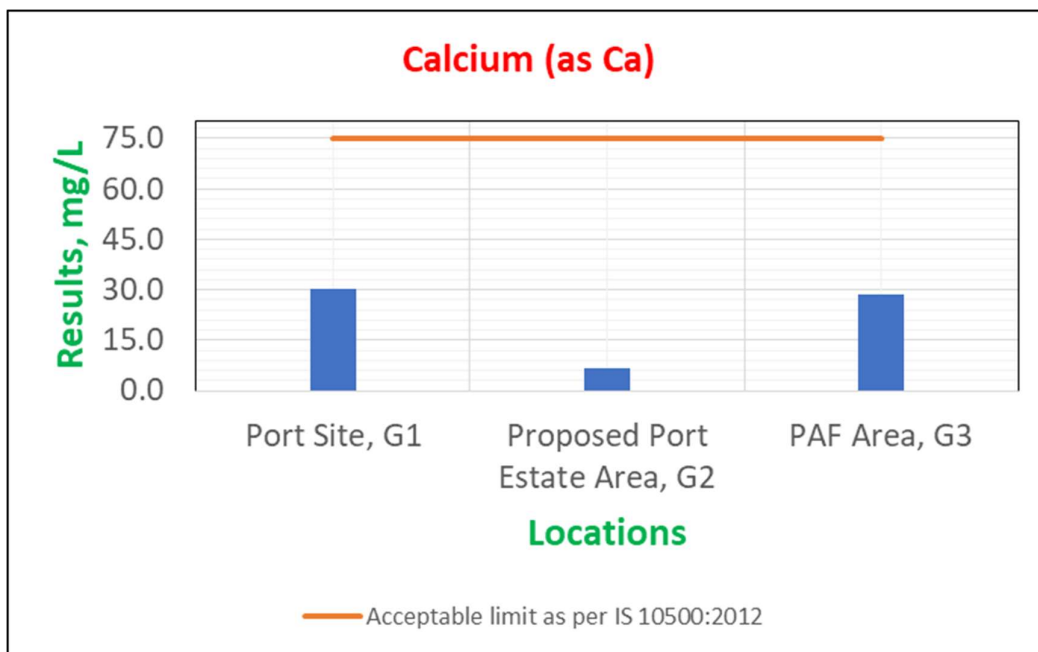
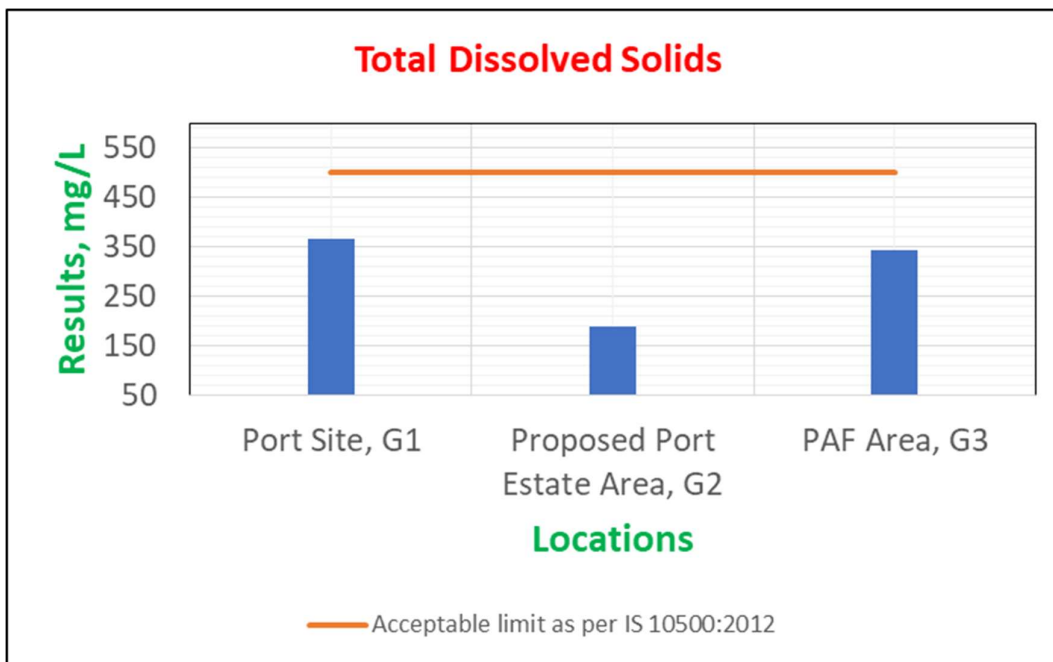
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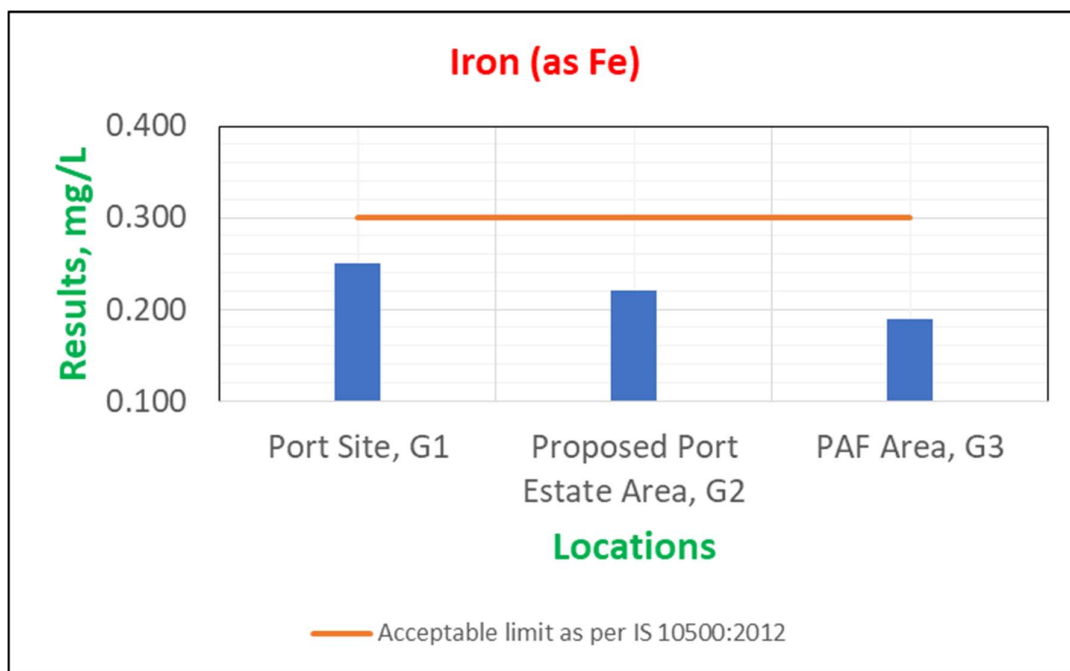
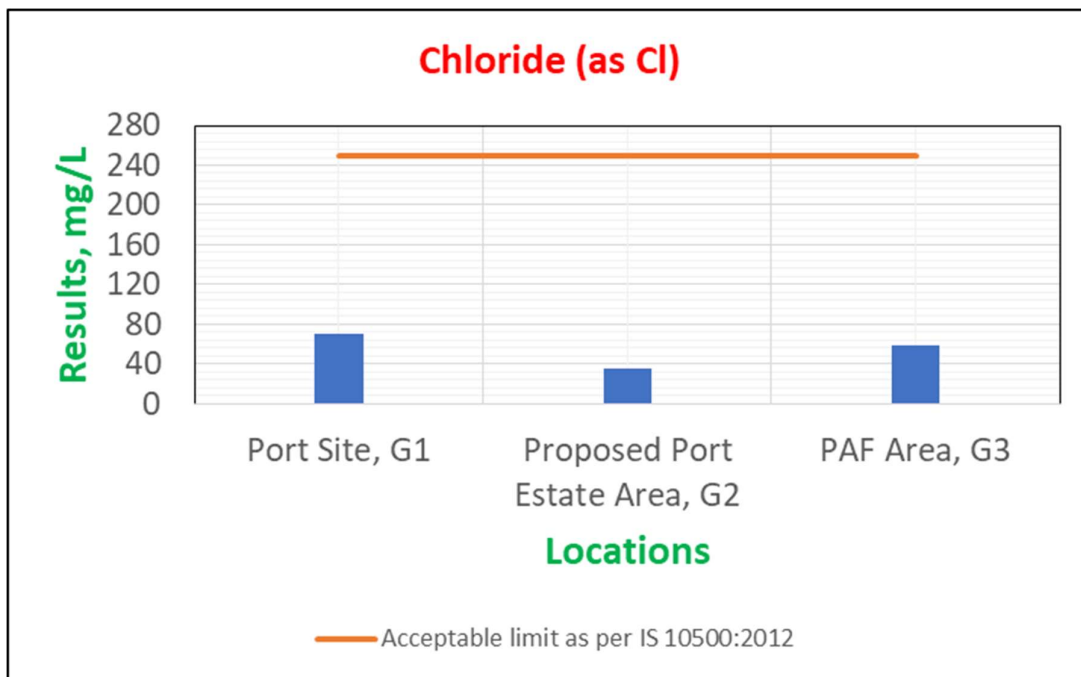
Statistical Analysis of Ground Water



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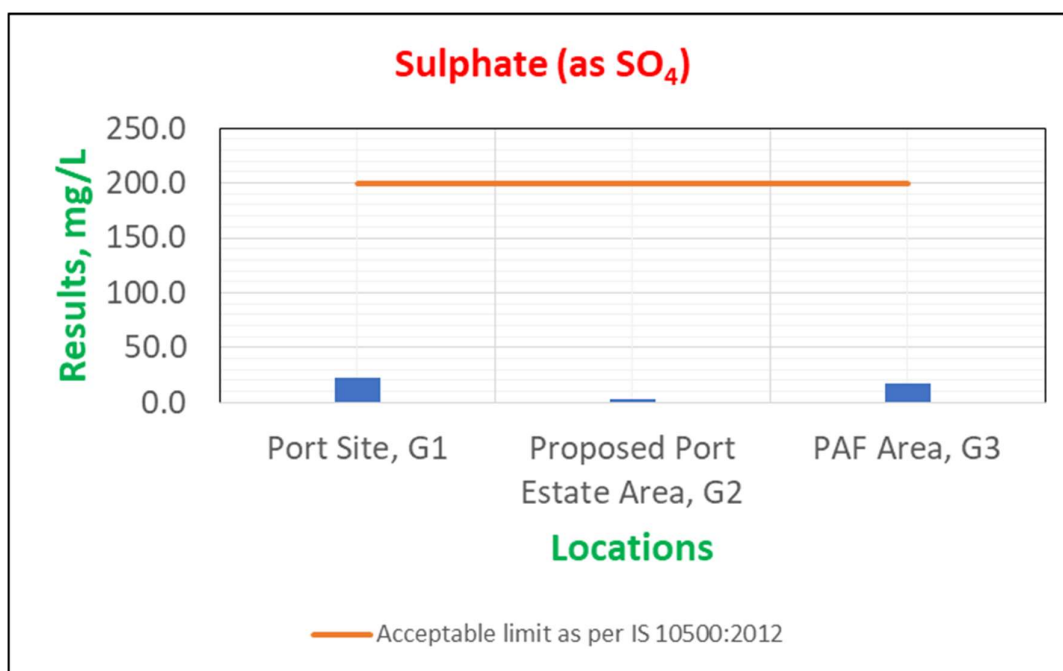
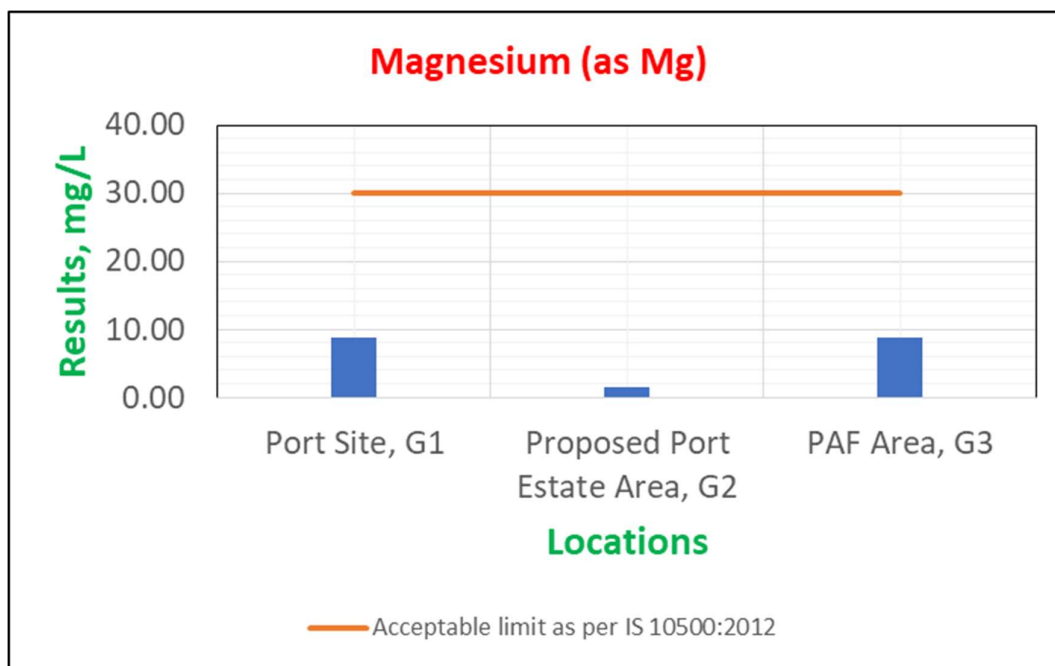
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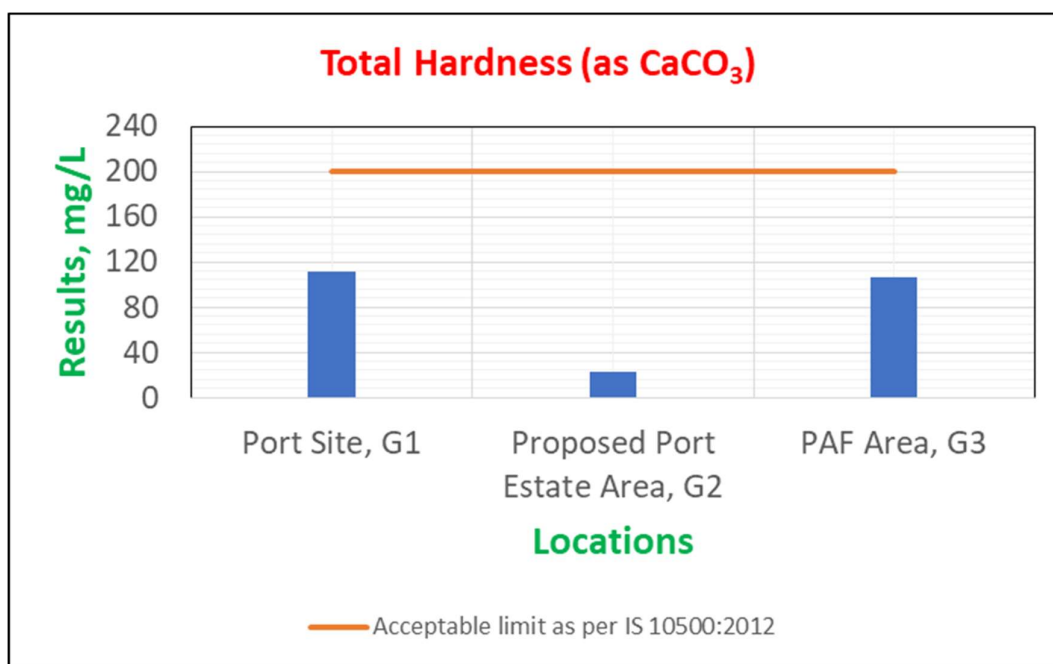
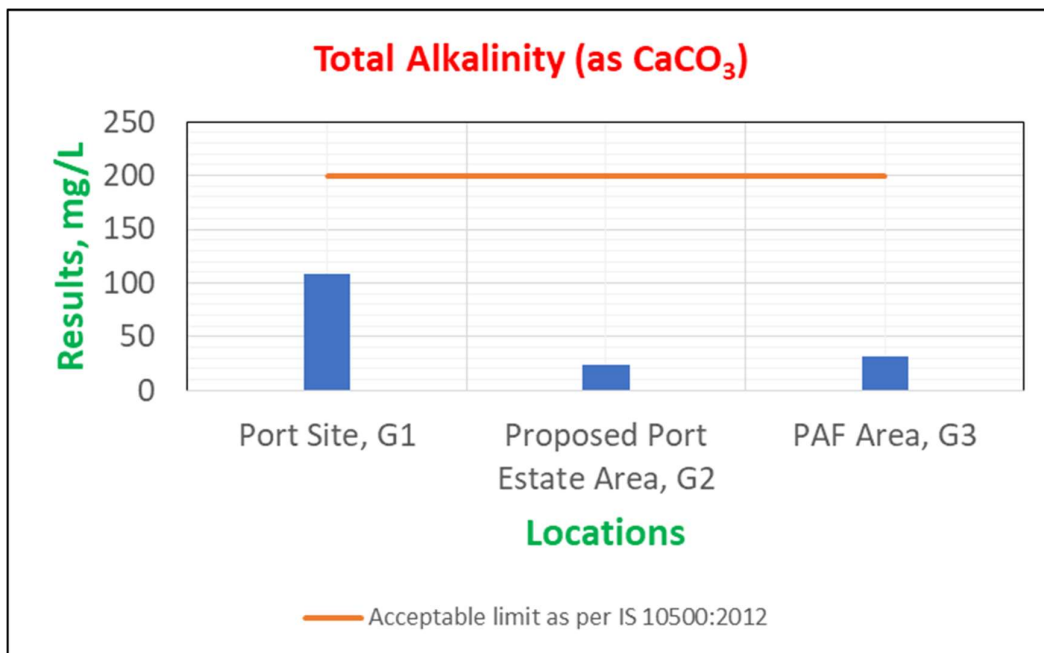
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EMR-6	Surface Water Analysis Report
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Date of Sampling	05-12-2025
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S. No.	Parameters	Unit	Results			
			Poovar West Canal S1	Vizhinjam Branch Canal S2	Vellayani Lake S3	Poovar Estuary S4
Physical Parameters						
1.	Colour	Hazen Units	1	1	1	1
2.	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable
3.	pH Value	-	7.35	7.29	7.22	7.01
4.	Turbidity	N.T.U.	1.2	2.0	0.8	1.0
5.	Electrical Conductivity (at 25°C)	µmho/cm	1410	310	290	5100
6.	Total Dissolved Solids	mg/L	902	198	186	3265
Chemical Parameters						
7.	Dissolved Oxygen	mg/L	6.9	7.0	6.9	7.1
8.	Biochemical Oxygen Demand (3 days, 27°C)	mg/L	BDL	BDL	BDL	BDL
9.	Oil & Grease	mg/L	BDL	BDL	BDL	BDL
10.	Free Ammonia	mg/L	BDL	BDL	BDL	1.66
11.	Anionic Detergents (as MBAS) Calculated as LAS mol.wt. 288.38	mg/L	BDL	BDL	BDL	BDL
12.	Barium (as Ba)	mg/L	BDL	BDL	BDL	BDL
13.	Boron (as B)	mg/L	BDL	BDL	BDL	BDL
14.	Calcium (as Ca)	mg/L	35.3	24.6	15.6	60.7
15.	Chloride (as Cl)	mg/L	108	58.7	39.1	431
16.	Copper (as Cu)	mg/L	BDL	BDL	BDL	BDL
17.	Fluoride (as F)	mg/L	BDL	BDL	BDL	BDL
18.	Iron (as Fe)	mg/L	0.75	0.88	0.56	0.70
19.	Magnesium (as Mg)	mg/L	10.80	7.38	4.43	17.7
20.	Manganese (as Mn)	mg/L	BDL	BDL	BDL	BDL
21.	Mineral Oil	mg/L	BDL	BDL	BDL	BDL
22.	Nitrate (as NO ₃)	mg/L	BDL	BDL	BDL	BDL
23.	Phenolic Compounds (as C ₆ H ₅ OH)	mg/L	BDL	BDL	BDL	BDL
24.	Selenium (as Se)	mg/L	BDL	BDL	BDL	BDL
25.	Silver (as Ag)	mg/L	BDL	BDL	BDL	BDL
26.	Sulphate (as SO ₄)	mg/L	30.1	3.12	2.88	152
27.	Total Phosphate (as PO ₄)	mg/L	BDL	BDL	BDL	BDL
28.	Total Alkalinity (as CaCO ₃)	mg/L	38.4	50.4	40.8	31.2
29.	Total Hardness (as CaCO ₃)	mg/L	131	90.9	56.6	222
30.	Calcium Hardness (as CaCO ₃)	mg/L	86.9	60.6	38.4	149
31.	Zinc (as Zn)	mg/L	BDL	BDL	BDL	BDL

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S. No.	Parameters	Unit	Results			
			Poovar West Canal S1	Vizhinjam Branch Canal S2	Vellayani Lake S3	Poovar Estuary S4
32.	Sodium (as Na)	mg/L	35.1	22.4	18.2	201
33.	Potassium (as K)	mg/L	2.91	2.36	1.55	17.5
34.	Sodium Adsorption Ratio	-	1.325	1.016	1.046	5.832
35.	Salinity	ppt	0.693	0.148	0.138	2.692
36.	Cadmium (as Cd)	mg/L	BDL	BDL	BDL	BDL
37.	Cyanide (as CN)	mg/L	BDL	BDL	BDL	BDL
38.	Lead (as Pb)	mg/L	BDL	BDL	BDL	BDL
39.	Mercury (as Hg)	mg/L	BDL	BDL	BDL	BDL
40.	Pesticide Residues					
i.	Alachlor	µg/L	BDL	BDL	BDL	BDL
ii.	Atrazine	µg/L	BDL	BDL	BDL	BDL
iii.	Aldrin/Dieldrin	µg/L	BDL	BDL	BDL	BDL
iv.	Alpha HCH	µg/L	BDL	BDL	BDL	BDL
v.	Beta HCH	µg/L	BDL	BDL	BDL	BDL
vi.	Butachlor	µg/L	BDL	BDL	BDL	BDL
vii.	Chlorpyrifos	µg/L	BDL	BDL	BDL	BDL
viii.	Delta HCH	µg/L	BDL	BDL	BDL	BDL
ix.	2,4D chlorophenoxyacetic acid	µg/L	BDL	BDL	BDL	BDL
x.	DDT (o,p & p,p- Isomers of DDT, DDE, DDD)	µg/L	BDL	BDL	BDL	BDL
xi.	Endosulfan (α,β & Sulphate)	µg/L	BDL	BDL	BDL	BDL
xii.	Ethion	µg/L	BDL	BDL	BDL	BDL
xiii.	γ HCH (Lindane)	µg/L	BDL	BDL	BDL	BDL
xiv.	Isoproturon	µg/L	BDL	BDL	BDL	BDL
xv.	Malathion	µg/L	BDL	BDL	BDL	BDL
xvi.	Methyl Parathion	µg/L	BDL	BDL	BDL	BDL
xvii.	Monocrotophos	µg/L	BDL	BDL	BDL	BDL
xviii.	Phorate	µg/L	BDL	BDL	BDL	BDL
41.	Polynuclear Aromatic Hydrocarbons (PAH)	mg/L	BDL	BDL	BDL	BDL
42.	Total Arsenic (as As)	mg/L	BDL	BDL	BDL	BDL
43.	Total Chromium (as Cr)	mg/L	BDL	BDL	BDL	BDL
Biological Analysis						
44.	Total Coliforms	MPN/100 ml	BDL	BDL	BDL	BDL
45.	Faecal Coliforms	MPN/100 ml	BDL	BDL	BDL	BDL

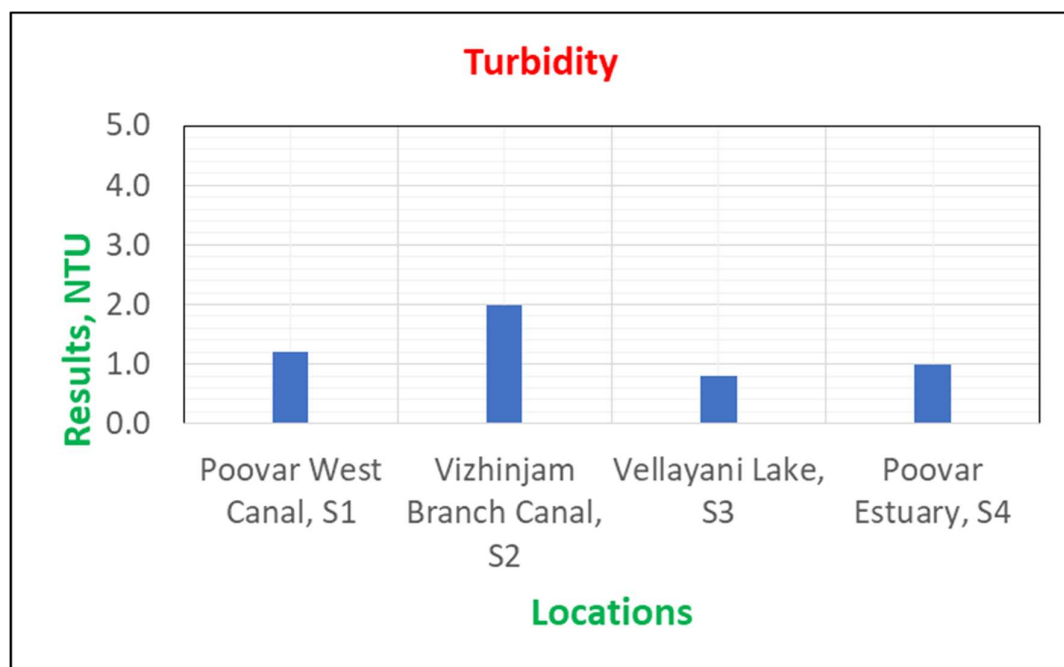
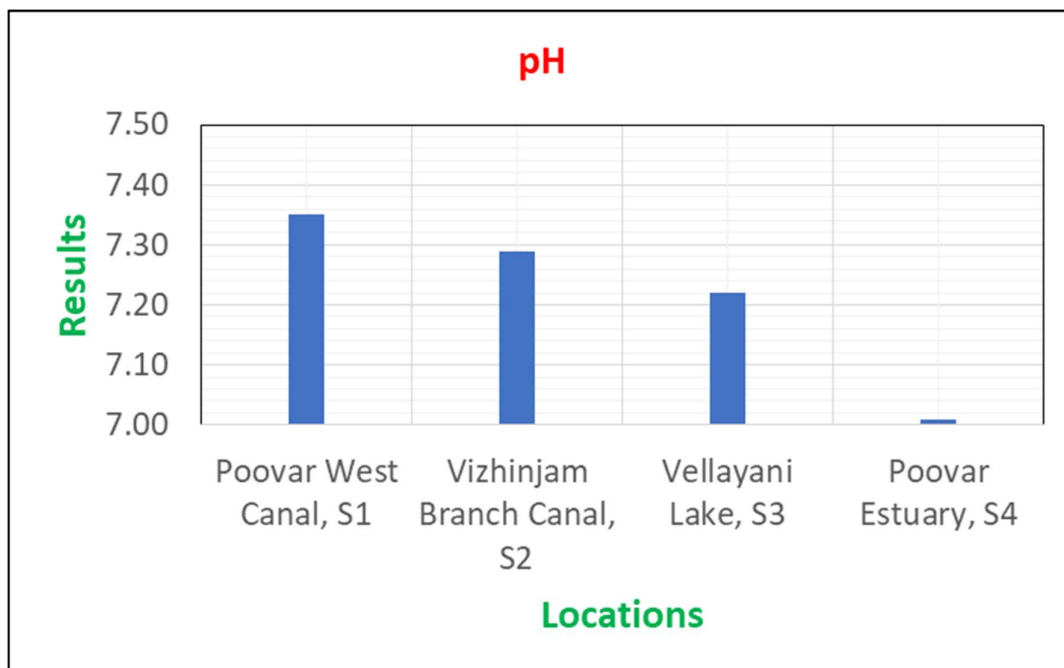
BDL: Below Detectable Limit

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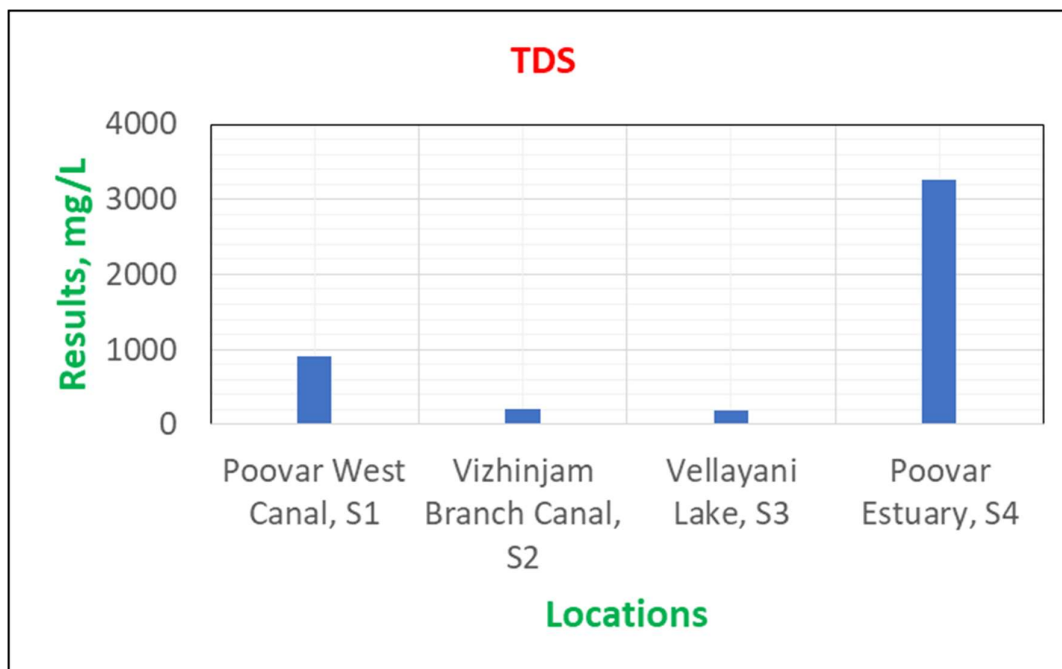
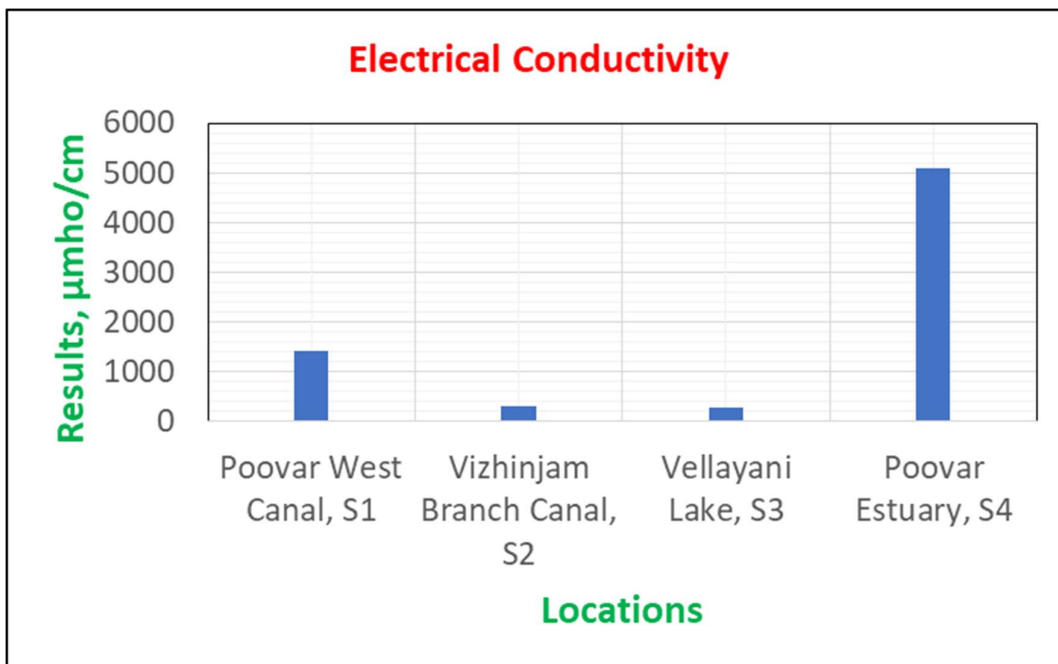
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Statistical Analysis of Surface Water



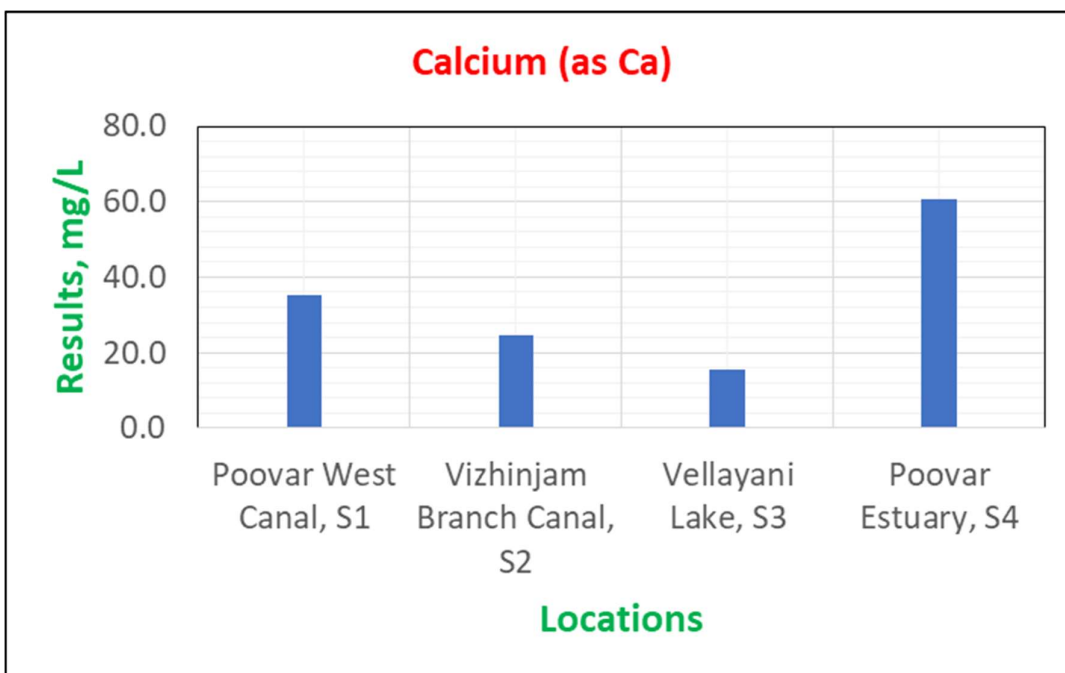
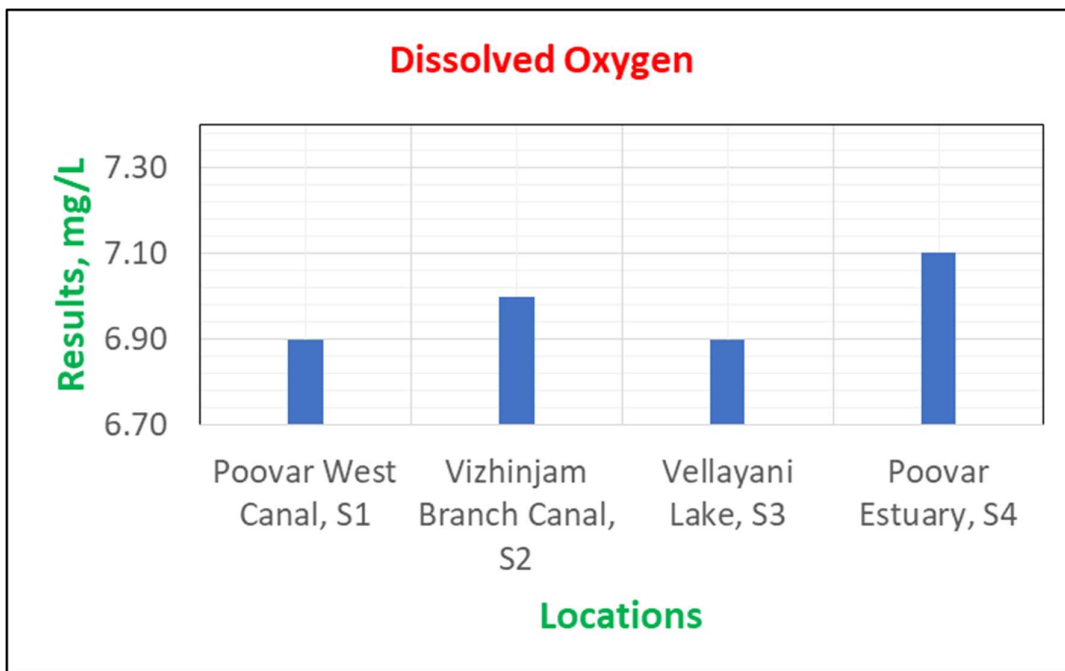
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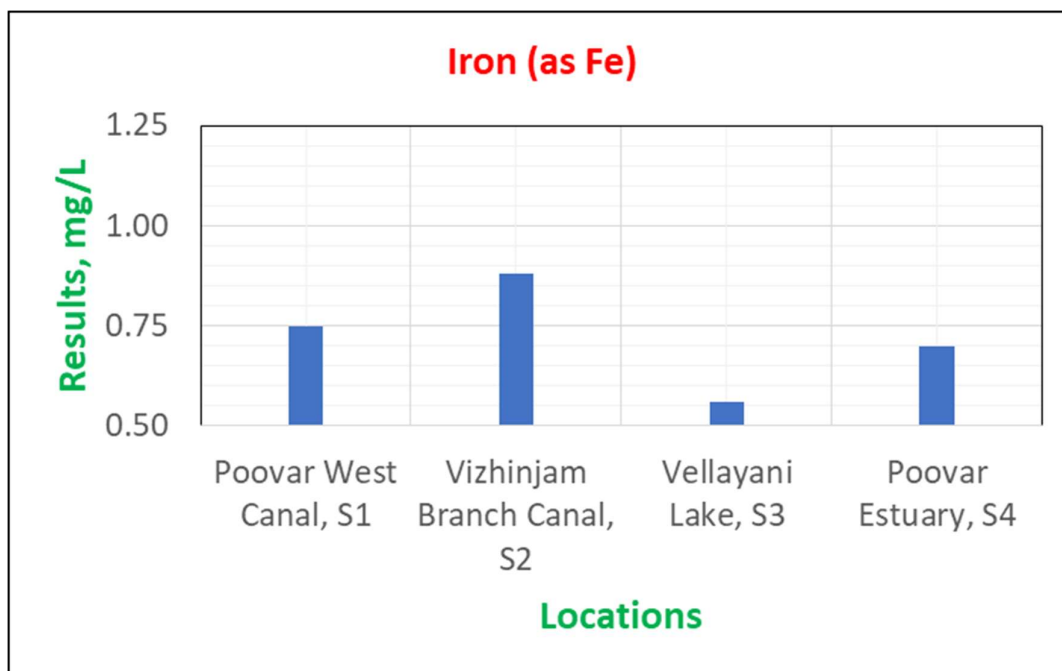
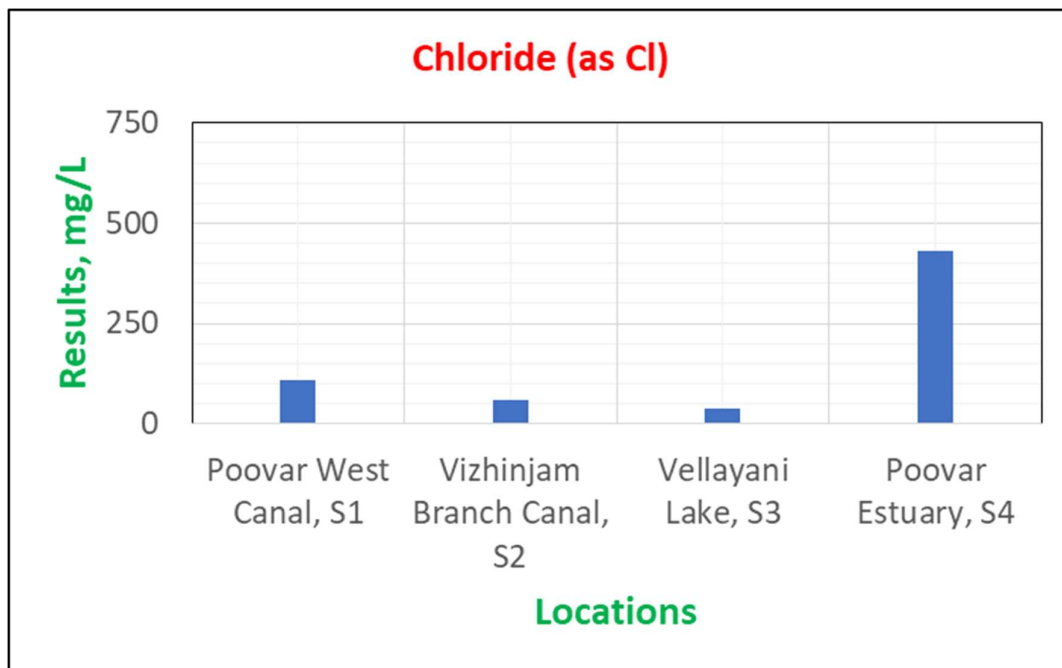
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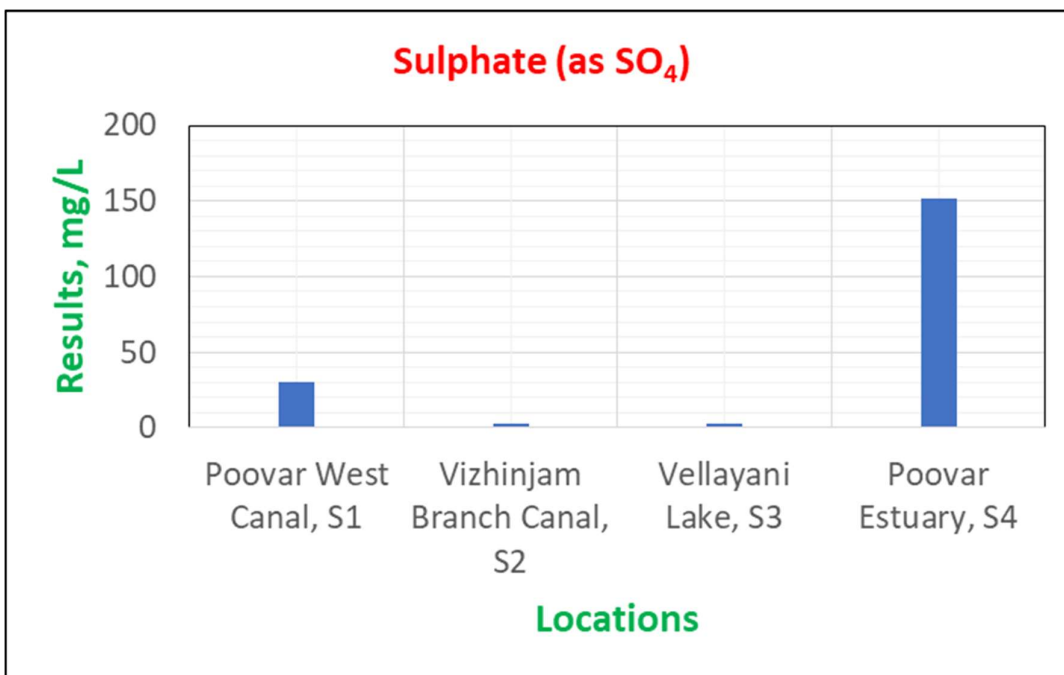
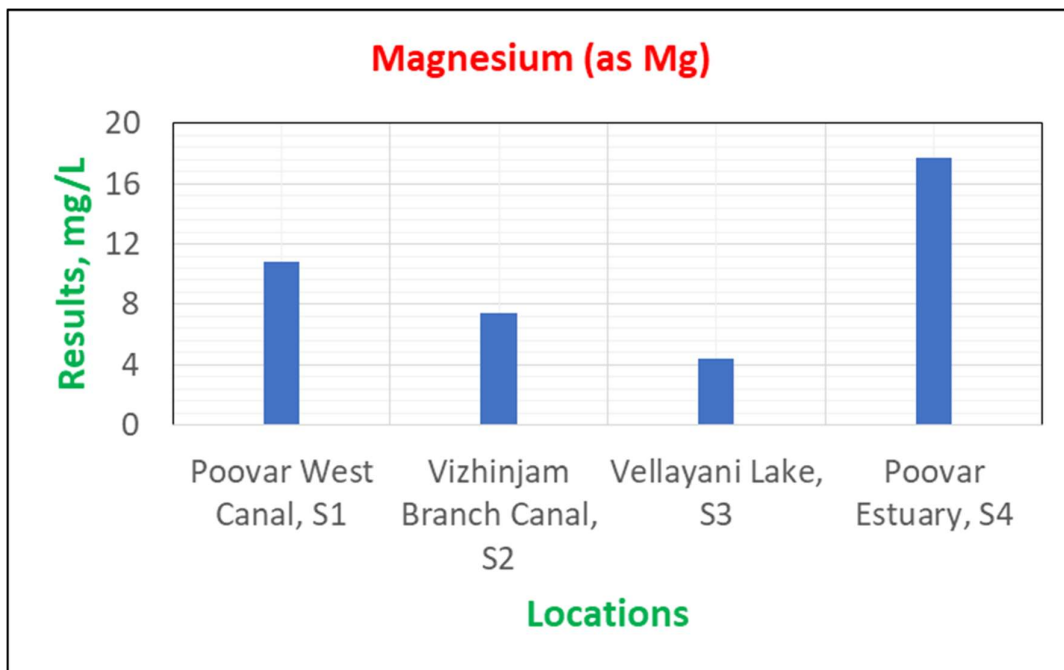
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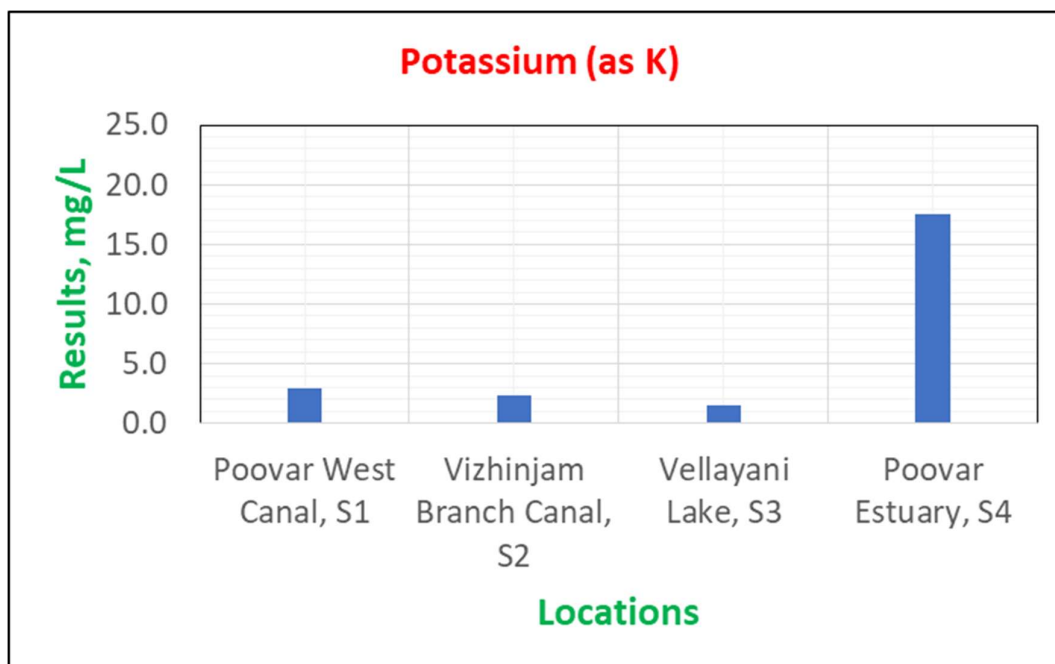
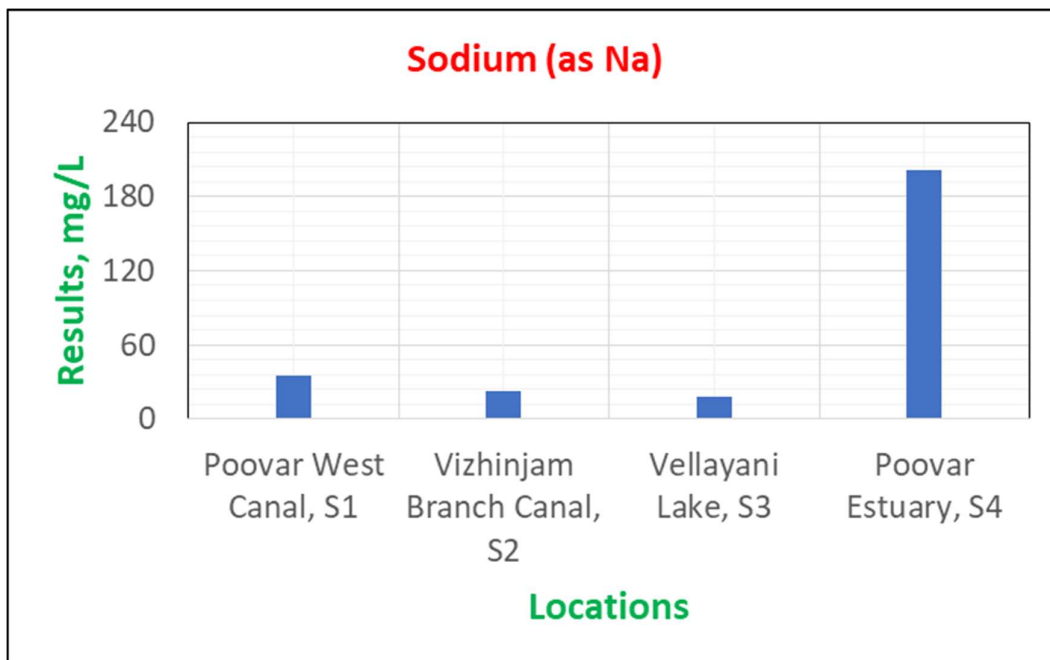
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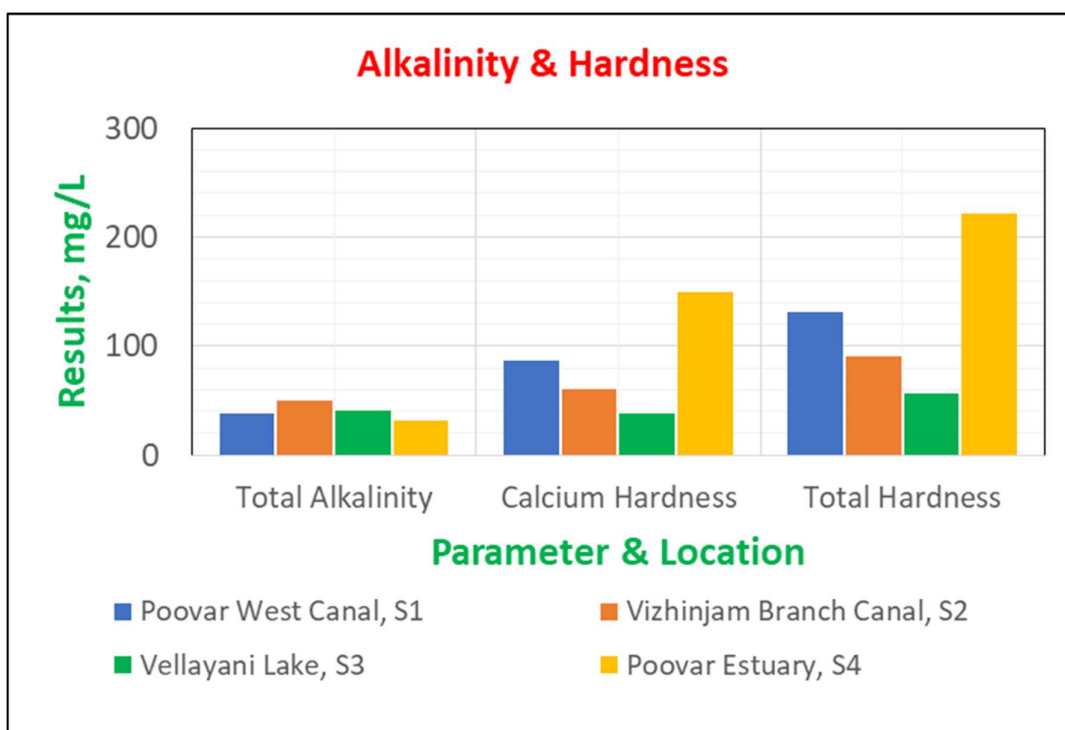
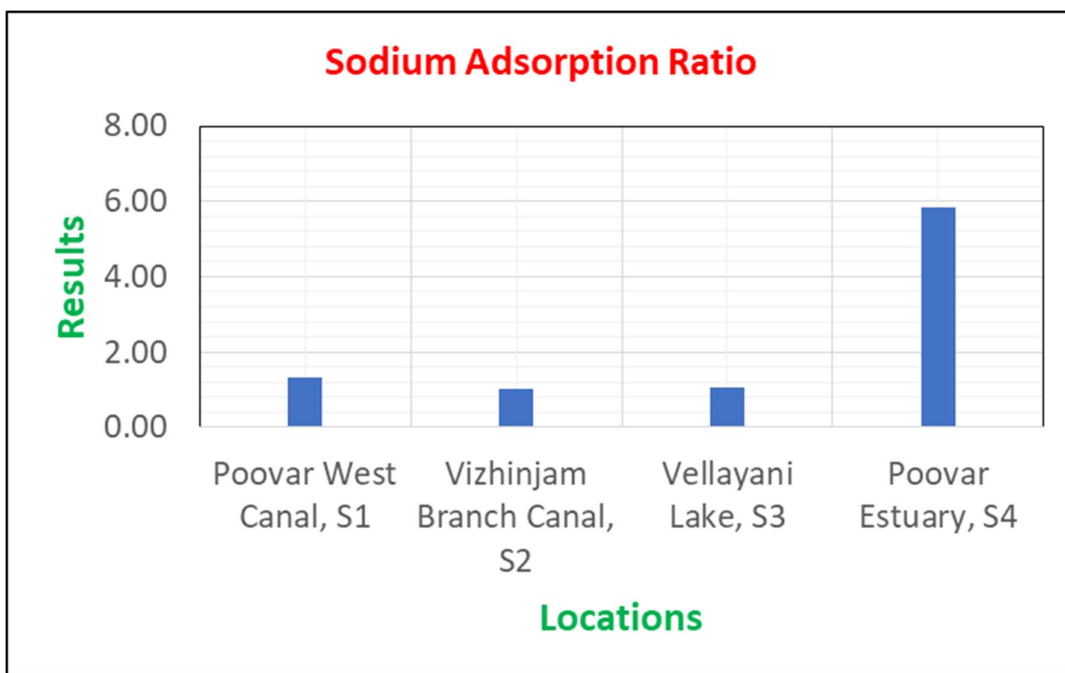
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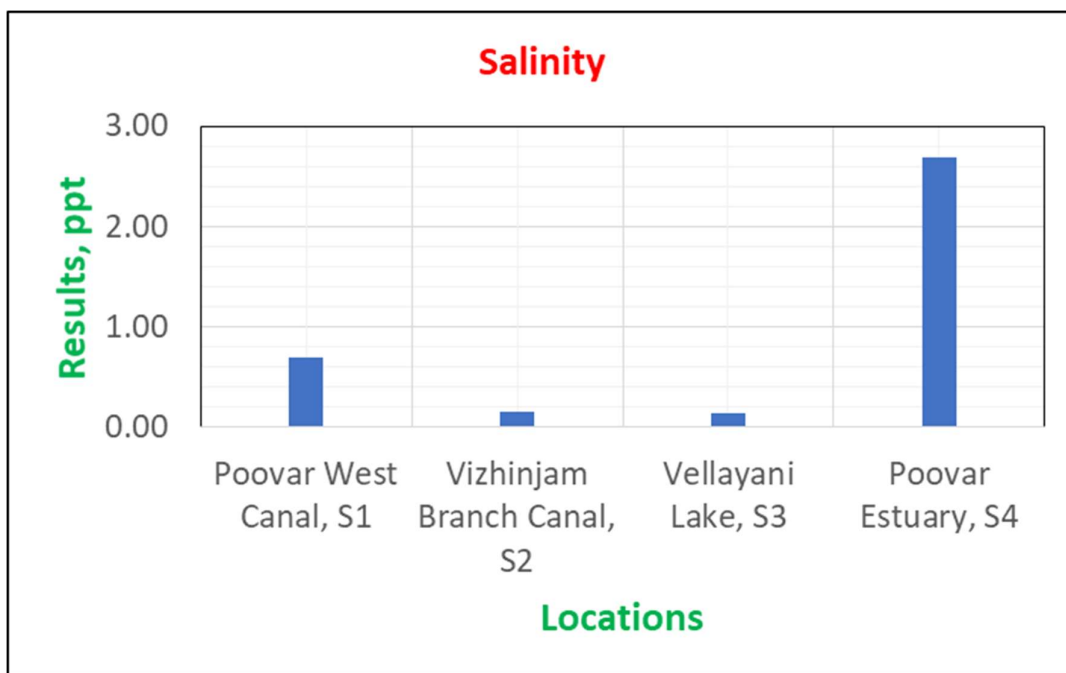
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EMR-7	List of Parameters, Detection Limits and Methodology of Analysis
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Sr. No.	Parameter	Unit	Detection Limit	Method Reference
Ambient Air Analysis				
1.	Particulate Matter (size less than 10 µm) or PM ₁₀	µg/m ³	5.0	IS 5182 (Part 23) : 2006
2.	Particulate Matter (size less than 2.5 µm) or PM _{2.5}	µg/m ³	2.0	IS 5182 (Part 24): 2019
3.	Sulphur Dioxide (SO ₂)	µg/m ³	4.0	IS 5182 Part 2: 2001 RA 2017
4.	Nitrogen Dioxide (NO ₂)	µg/m ³	4.0	IS 5182 Part 6: 2006 RA 2017
5.	Carbon Monoxide (CO)	mg/m ³	0.1	IS 5182: Part 10:1999 (NDIR Method)
6.	Hydrocarbon (HC)	ppm	1.0	IS 5182 Part 17: 1979
Surface and Ground Water Analysis				
7.	Colour	Hazen Units	1	IS 3025 (Part 4): 2021
8.	Odour	-	--	IS 3025 (Part 5): 2018
9.	pH Value	-	2	IS 3025 (Part 11): 2022
10.	Turbidity	N.T.U.	0.1	IS 3025 (Part 10): 2023
11.	Electrical Conductivity (at 25°C)	µs/cm	1.0	IS 3025 (Part 14): 2013
12.	Total Dissolved Solids	mg/L	5	IS 3025 (Part 16): 2023
13.	Dissolved Oxygen	mg/L	0.2	IS 3025 (Part 38) : 1989
14.	Biochemical Oxygen Demand (3 days, 27°C)	mg/L	2	IS 3025 (Part 44) : 2023
15.	Oil & Grease	mg/L	1	IS 3025 Part 39: 2021
16.	Aluminium (as Al)	mg/L	0.2	IS 3025 Part 55:2003
17.	Ammonia (as NH ₃ - N)	mg/L	0.1	IS 3025 (Part 34): 1998
18.	Anionic Detergents (as MBAS) Calculated as LAS mol.wt. 288.38	mg/L	0.1	IS 13428 Annex K:2005
19.	Barium (as Ba)	mg/L	0.5	APHA (24th Edn) 3111-D : 2023
20.	Boron (as B)	mg/L	0.2	IS 3025 (Part 57): 2021
21.	Calcium (as Ca)	mg/L	1	IS 3025 Part 40: 1991
22.	Chloramines (as Cl ₂)	mg/L	1	APHA (24th Edn) 4500-Cl G : 2023
23.	Chloride (as Cl)	mg/L	1	IS 3025 Part 32: 1988
24.	Copper (as Cu)	mg/L	0.05	IS 3025 Part 42: 1992
25.	Fluoride (as F)	mg/L	0.1	APHA (24th Edn) 4500-F- B, D: 2023
26.	Iron (as Fe)	mg/L	0.1	IS 3025 Part 53: 2003
27.	Magnesium (as Mg)	mg/L	1	IS 3025 (Part 46): 2023
28.	Manganese (as Mn)	mg/L	0.05	IS 3025 Part 59: 2006 RA 2017
29.	Mineral Oil	mg/L	0.50	IS 3025 Part 39: 1991 RA 2019
30.	Nitrate (as NO ₃)	mg/L	1	APHA (24th Edn) 4500-NO3 B:

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Sr. No.	Parameter	Unit	Detection Limit	Method Reference
				2023
31.	Phenolic Compounds (as C ₆ H ₅ OH)	mg/L	0.01	IS 3025 (Part 43/Sec 1): 2022
32.	Selenium (as Se)	mg/L	0.002	APHA (24th Edn) 3114C : 2023
33.	Silver (as Ag)	mg/L	0.1	APHA (24th Edn) 3111-B : 2023
34.	Sulphate (as SO ₄)	mg/L	1	IS 3025 (Part 24/Sec 1): 2022
35.	Sulphide (as H ₂ S)	mg/L	0.01	IS 3025 (Part 29): 2022
36.	Total Phosphate (as PO ₄)	mg/L	0.1	IS 3025 (Part 31/Sec 1): 2022
37.	Total Alkalinity (as CaCO ₃)	mg/L	1	IS 3025 (Part 23): 2023
38.	Total Hardness (as CaCO ₃)	mg/L	1	IS 3025 Part 21: 2009
39.	Calcium Hardness (as CaCO ₃)	mg/L	1	IS 3025 Part 40: 1991
40.	Zinc (as Zn)	mg/L	0.025	APHA (24th Edn) 3111-B : 2023
41.	Sodium (as Na)	mg/L	1	IS 3025 Part 45: 1993
42.	Potassium (as K)	mg/L	0.5	IS 3025 Part 45: 1993
43.	Sodium Absorption Ratio	-	0.1	IS 11624: 1986
44.	Cadmium (as Cd)	mg/L	0.03	IS 3025 (Part 41) : 2023
45.	Cyanide (as CN)	mg/L	0.01	IS 3025 (Part 27/Sec 1): 2021
46.	Lead (as Pb)	mg/L	0.2	IS 3025 Part 47: 1994 RA 2019
47.	Mercury (as Hg)	mg/L	0.002	IS 3025 Part 48: 1994 RA 2019
48.	Molybdenum (as Mo)	mg/L	0.25	APHA (24th Edn) 3111-D : 2023
49.	Nickel (as Ni)	mg/L	0.1	IS 3025 Part 54: 2003
50.	Pesticide Residues			
i.	Alachlor	µg/L	0.005	SEAAL/INS/SOP/7.2/03
ii.	Atrazine	µg/L	0.005	SEAAL/INS/SOP/7.2/03
iii.	Aldrin/Dieldrin	µg/L	0.005	SEAAL/INS/SOP/7.2/03
iv.	Alpha HCH	µg/L	0.005	SEAAL/INS/SOP/7.2/03
v.	Beta HCH	µg/L	0.005	SEAAL/INS/SOP/7.2/03
vi.	Butachlor	µg/L	0.005	SEAAL/INS/SOP/7.2/03
vii.	Chlorpyrifos	µg/L	0.005	SEAAL/INS/SOP/7.2/03
viii.	Delta HCH	µg/L	0.005	SEAAL/INS/SOP/7.2/03
ix.	2,4D chlorophenoxyacetic acid	µg/L	0.005	SEAAL/INS/SOP/7.2/03
x.	DDT (o,p & p,p- Isomers of DDT, DDE, DDD)	µg/L	0.005	SEAAL/INS/SOP/7.2/03
xi.	Endosulfan (α, β & Sulphate)	µg/L	0.005	SEAAL/INS/SOP/7.2/03
xii.	Ethion	µg/L	0.005	SEAAL/INS/SOP/7.2/03
xiii.	γ HCH (Lindane)	µg/L	0.005	SEAAL/INS/SOP/7.2/03
xiv.	Isoproturon	µg/L	0.005	SEAAL/INS/SOP/7.2/03
xv.	Malathion	µg/L	0.005	SEAAL/INS/SOP/7.2/03
xvi.	Methyl Parathion	µg/L	0.005	SEAAL/INS/SOP/7.2/03
xvii.	Monocrotophos	µg/L	0.005	SEAAL/INS/SOP/7.2/03

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Sr. No.	Parameter	Unit	Detection Limit	Method Reference
xviii.	Phorate	µg/L	0.005	SEAAL/INS/SOP/7.2/03
51.	Polychlorinated Biphenyls (PCB)	mg/L	0.000005	SEAAL/INS/SOP/7.2/04
52.	Polynuclear Aromatic Hydrocarbons (PAH)	mg/L	0.000005	SEAAL/INS/SOP/7.2/05
53.	Total Arsenic (as As)	mg/L	0.002	IS 3025(Part 37) : 2022
54.	Total Chromium (as Cr)	mg/L	0.4	IS 3025 Part 52 :2003
55.	Volatile organic Compounds			
a)	Bromoform	mg/L	0.005	SEAAL/INS/SOP/7.2/02
b)	Dibromochloromethane	mg/L	0.005	SEAAL/INS/SOP/7.2/02
c)	Bromodichloroethane	mg/L	0.005	SEAAL/INS/SOP/7.2/02
d)	Chloroform	mg/L	0.005	SEAAL/INS/SOP/7.2/02
56.	<i>E.coli</i>	MPN/100 ml	2	IS 1622: 1981
57.	Total Coliforms	MPN/100 ml	2	IS 1622: 1981
58.	Faecal Coliforms	MPN/100 ml	2	IS 1622: 1981
Marine Water Analysis				
1.	Temperature	°C	15	IS 3025 (Part 9): 2023
2.	pH Value	-	2	IS 3025 (Part 11): 2022
3.	Turbidity	N.T.U.	0.1	IS 3025 (Part 10) : 2023
4.	Electrical Conductivity (at 25°C)	µmhos/cm	10	IS 3025 Part 14: 2013
5.	Total Suspended Solids	mg/L	5	IS 3025 (Part 17): 2022
6.	Total Dissolved Solids	mg/L	10	IS 3025 (Part 16): 2023
7.	Dissolved Oxygen	mg/L	0.2	IS 3025 Part 38 : 1989
8.	Biochemical Oxygen Demand (3 days, 27°C)	mg/L	2	IS 3025 (Part 44): 2023
9.	Floating Materials – Oil, Grease and Scum (Including Petroleum Products)	mg/L	1	IS 3025 Part 39: 2021
10.	Nitrite (as NO ₂)	mg/L	0.02	IS 3025 Part 34: 1998
11.	Nitrate (as NO ₃)	mg/L	1	APHA (24th Edn) -4500 - NO ₃ - B : 2023
12.	Phenolic Compounds (as C ₆ H ₅ OH)	mg/L	0.01	APHA (24th Edn) 5530 - B,C,D: 2023
13.	Ammonical Nitrogen (as NH ₃ -N)	mg/L	1	IS 3025 Part 34 : 1988
14.	Total Nitrogen (as N)	mg/L	1	IS 3025 Part 34 : 1988
15.	Total Phosphorous (as P)	mg/L	0.01	IS 3025 (Part 31/Sec 1): 2022
16.	Reactive Phosphorous	mg/L	0.01	IS 3025 (Part 31/Sec 1): 2022
17.	Polycyclic Aromatic Hydrocarbon	mg/L	0.000005	SEAAL/INS/SOP/7.2/05
18.	Salinity	ppt	0.0036	APHA (24th Edn) 2520 - B: 2023
19.	Total Chlorophyll	mg/m ³	0.1	APHA 24th Edn:10200. H
20.	Total Coliforms	MPN/100 ml	2	IS 1622: 1981

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Sr. No.	Parameter	Unit	Detection Limit	Method Reference
21.	Faecal Coliforms	MPN / 100ml	2	IS 1622: 1981
22.	Phytoplanktons	No. / 100ml	--	APHA 24th Edn:10200. F
23.	Zooplanktons	No. / 100ml	--	APHA 24th Edn:10200. G
Sediment Analysis				
1.	Texture	-	--	SEAAL/CHL/SOP/7.2/21
2.	Organic Matter	%	0.1	IS 2720 Part 22:1972
3.	Total Phosphorus (as P)	mg/kg	10	IS 10158: 1982
4.	Aluminium (as Al)	mg/kg	5	USEPA 7000B: 2017
5.	Chromium (as Cr)	mg/kg	5	USEPA 7000B: 2007
6.	Copper (as Cu)	mg/kg	1.5	USEPA 7000B: 2007
7.	Iron (as Fe)	mg/kg	2.5	USEPA 7000B: 2007
8.	Lead (as Pb)	mg/kg	5	USEPA 7000B: 2007
9.	Manganese (as Mn)	mg/kg	1.5	USEPA 7000B: 2007
10.	Mercury (as Hg)	mg/kg	0.10	SEAAL/CHL/SOP/7.2/19
11.	Zinc (as Zn)	mg/kg	1	USEPA 7000B: 2007
12.	Nickel (as Ni)	mg/kg	2.5	USEPA 7000B: 2007
13.	Benthic Organism	No. / m ²	1	APHA 24th Edn:10750. B
BDL: Below Detectable Limit; LOD: Limit of Detection				

End of Report