

The calculation process of the proposed model is shown as follows.

1. The standardization results of evaluation indicators are shown in Table S1.

Table S1. The standardization results of evaluation indicators.

Indicators	S2	S3	S6	S8	S11	S12	S14	S15	S18	S21	S22	S24
Salinity	1.000	0.697	0.249	0.304	0.337	0.483	0.827	0.411	0.230	0.182	0.000	0.655
	0	7	6	0	4	3	8	2	2	8	0	5
Suspended solids	0.865	0.469	0.127	0.630	1.000	0.315	0.342	0.604	0.288	0.812	0.000	0.208
	8	8	5	9	0	4	3	0	6	1	0	1
Dissolved oxygen	1.000	0.869	0.521	0.000	0.358	0.467	0.250	0.717	0.587	0.565	0.500	0.478
	0	6	7	0	7	4	0	4	0	2	0	3
Chemical oxygen demand	0.000	0.319	0.164	0.000	0.484	0.567	0.567	0.525	0.639	1.000	0.886	0.886
	0	6	9	0	5	0	0	8	2	0	6	6
Petroleum	0.857	0.904	0.809	0.595	0.500	0.761	0.000	0.666	0.642	0.571	1.000	0.476
	1	8	5	2	0	9	0	7	9	4	0	2
Cuprum	1.000	0.740	0.259	0.259	0.259	0.500	0.259	1.000	0.259	0.259	0.500	0.000
	0	7	3	3	3	0	3	0	3	3	0	0
Plumbum	0.558	0.519	0.162	0.806	0.706	0.457	0.418	0.434	0.093	0.934	1.000	0.000
	6	8	9	8	0	7	9	4	1	8	0	0
Zinc	0.433	0.000	0.450	0.616	0.316	0.483	0.700	0.533	0.316	0.816	0.983	1.000
	3	0	0	7	7	3	0	3	7	7	3	0
Chromium	0.253	0.000	0.293	0.666	0.053	0.373	0.613	0.386	0.800	0.440	0.786	1.000
	3	0	3	7	3	3	3	7	0	0	7	0
Total mercury	0.000	0.075	0.150	0.650	0.550	0.825	0.750	0.625	0.500	0.950	1.000	1.000
	0	0	0	0	0	0	0	0	0	0	0	0
Active phosphate	0.153	0.000	0.604	0.164	0.307	0.472	0.593	0.461	0.208	0.846	0.736	1.000
	8	0	4	8	7	5	4	5	8	2	3	0
Inorganic nitrogen	0.000	0.142	0.631	0.617	0.253	0.311	0.751	0.626	0.791	0.844	0.928	1.000
	0	2	1	8	3	1	1	7	1	4	9	0
Organic carbon	0.000	1.000	0.793	0.847	0.833	0.865	0.894	0.630	0.826	0.981	0.971	0.989
	0	0	5	8	3	9	9	4	1	9	0	1
Sulfide	0.000	0.938	0.252	0.533	0.342	0.447	0.776	0.971	0.376	0.881	0.942	1.000
	0	1	4	3	9	6	2	4	2	0	9	0
Phytoplankton diversity index	1.000	0.000	0.206	0.152	0.166	0.134	0.105	0.369	0.173	0.018	0.029	0.010
	0	0	5	2	7	1	1	6	9	1	0	9
Phytoplankton abundance	1.000	0.000	0.545	0.409	0.295	0.500	0.340	0.250	0.750	0.636	0.568	0.818
	0	0	5	1	5	0	9	0	0	4	2	2
Zooplankton diversity index	0.928	0.428	0.428	0.071	0.285	0.357	0.642	0.071	0.428	0.714	0.000	1.000
	6	6	6	4	7	1	9	4	6	3	0	0
Zooplankton abundance	1.000	0.000	0.810	0.863	0.757	0.726	0.936	0.821	0.789	0.600	0.821	0.726
	0	0	5	2	9	3	8	1	5	0	1	3

Benthos diversity index	1.000 0	0.000 0	0.666 7	0.576 6	0.270 3	0.657 7	0.495 5	0.991 0	0.576 6	0.378 4	0.684 7	0.504 5
Benthos abundance	0.111 1	0.000 0	0.111 1	1.000 0	0.236 1	0.729 2	0.555 6	0.555 6	0.895 8	0.861 1	0.687 5	0.722 2

2. The calculation results of indicator feature weights are shown in Table S2.

Table S2. The calculation results of indicator feature weights.

Indicators	S2	S3	S6	S8	S11	S12	S14	S15	S18	S21	S22	S24
Salinity	0.185 9	0.129 7	0.046 4	0.056 5	0.062 7	0.089 8	0.153 9	0.076 4	0.042 8	0.034 0	0.000 0	0.121 9
Suspended solids	0.152 8	0.082 9	0.022 5	0.111 4	0.176 5	0.055 7	0.060 4	0.106 6	0.050 9	0.143 4	0.000 0	0.036 7
Dissolved oxygen	0.158 3	0.137 7	0.082 6	0.000 0	0.056 8	0.074 0	0.039 6	0.113 6	0.092 9	0.089 5	0.079 2	0.075 7
Chemical oxygen demand	0.000 0	0.052 9	0.027 3	0.000 0	0.080 2	0.093 9	0.093 9	0.087 0	0.105 8	0.165 5	0.146 8	0.146 8
Petroleum	0.110 1	0.116 2	0.104 0	0.076 5	0.064 2	0.097 9	0.000 0	0.085 6	0.082 6	0.073 4	0.128 4	0.061 2
Cuprum	0.188 8	0.139 9	0.049 0	0.049 0	0.049 0	0.094 4	0.049 0	0.188 8	0.049 0	0.049 0	0.094 4	0.000 0
Plumbum	0.091 7	0.085 3	0.026 7	0.132 4	0.115 9	0.075 1	0.068 8	0.071 3	0.015 3	0.153 4	0.164 1	0.000 0
Zinc	0.065 2	0.000 0	0.067 7	0.092 7	0.047 6	0.072 7	0.105 3	0.080 2	0.047 6	0.122 8	0.147 9	0.150 4
Chromium	0.044 7	0.000 0	0.051 8	0.117 6	0.009 4	0.065 9	0.108 2	0.068 2	0.141 2	0.077 6	0.138 8	0.176 5
Total mercury	0.000 0	0.010 6	0.021 2	0.091 9	0.077 7	0.116 6	0.106 0	0.088 3	0.070 7	0.134 3	0.141 3	0.141 3
Active phosphate	0.027 7	0.000 0	0.108 9	0.029 7	0.055 4	0.085 1	0.106 9	0.083 2	0.037 6	0.152 5	0.132 7	0.180 2
Inorganic nitrogen	0.000 0	0.020 6	0.091 5	0.089 6	0.036 7	0.045 1	0.108 9	0.090 9	0.114 7	0.122 4	0.134 7	0.145 0
Organic carbon	0.000 0	0.103 8	0.082 4	0.088 0	0.086 5	0.089 9	0.092 9	0.065 4	0.085 7	0.101 9	0.100 8	0.102 7
Sulfide	0.000 0	0.125 7	0.033 8	0.071 5	0.045 9	0.060 0	0.104 0	0.130 2	0.050 4	0.118 1	0.126 4	0.134 0
Phytoplankto n diversity index	0.422 7	0.000 0	0.087 3	0.064 3	0.070 4	0.056 7	0.044 4	0.156 2	0.073 5	0.007 7	0.012 3	0.004 6
Phytoplankto n abundance	0.163 6	0.000 0	0.089 2	0.066 9	0.048 3	0.081 8	0.055 8	0.040 9	0.122 7	0.104 1	0.092 9	0.133 8

Zooplankton	0.173	0.080	0.080	0.013	0.053	0.066	0.120	0.013	0.080	0.133	0.000	0.186
diversity	3	0	0	3	3	7	0	3	0	3	0	7
index												
Zooplankton	0.113	0.000	0.091	0.097	0.085	0.082	0.105	0.092	0.089	0.067	0.092	0.082
abundance	0	0	6	5	6	0	8	7	2	8	7	0
Benthos	0.147	0.000	0.098	0.084	0.039	0.096	0.072	0.145	0.084	0.055	0.100	0.074
diversity	0	0	0	8	7	7	8	7	8	6	7	2
index												
Benthos	0.017	0.000	0.017	0.154	0.036	0.112	0.085	0.085	0.138	0.133	0.106	0.111
abundance	2	0	2	7	5	8	9	9	6	2	3	7

3. The calculation results of indicator entropy are shown in Table S3.

Table S3. The calculation results of indicator entropy.

Indicators	E_j
Salinity	0.9017
Suspended solids	0.8586
Dissolved oxygen	0.9333
Chemical oxygen demand	0.8785
Petroleum	0.9257
Cuprum	0.8843
Plumbum	0.9223
Zinc	0.9665
Chromium	0.9320
Total mercury	0.9296
Active phosphate	0.9322
Inorganic nitrogen	0.9341
Organic carbon	0.9158
Sulfide	0.8915
Phytoplankton diversity index	0.9260
Phytoplankton abundance	0.8727
Zooplankton diversity index	0.9577
Zooplankton abundance	0.9348
Benthos diversity index	0.8924
Benthos abundance	0.8507

4. The calculation results of coefficient of variation are shown in Table S4.

Table S4. The calculation results of coefficient of variation.

Indicators	Variation coefficients D_j
Salinity	0.0983
Suspended solids	0.1414
Dissolved oxygen	0.0667
Chemical oxygen demand	0.1215

Petroleum	0.0743
Cuprum	0.1157
Plumbum	0.0777
Zinc	0.0335
Chromium	0.0680
Total mercury	0.0704
Active phosphate	0.0678
Inorganic nitrogen	0.0659
Organic carbon	0.0842
Sulfide	0.1085
Phytoplankton diversity index	0.0740
Phytoplankton abundance	0.1273
Zooplankton diversity index	0.0423
Zooplankton abundance	0.0652
Benthos diversity index	0.1076
Benthos abundance	0.1493

5. The calculation results of indicator weights are shown in Table S5.

Table S5. The calculation results of indicator weights.

Indicators	W_j
Salinity	0.0558
Suspended solids	0.0803
Dissolved oxygen	0.0379
Chemical oxygen demand	0.069
Petroleum	0.0422
Cuprum	0.0657
Plumbum	0.0441
Zinc	0.019
Chromium	0.0386
Total mercury	0.04
Active phosphate	0.0385
Inorganic nitrogen	0.0374
Organic carbon	0.0478
Sulfide	0.0616
Phytoplankton diversity index	0.042
Phytoplankton abundance	0.0723
Zooplankton diversity index	0.024
Zooplankton abundance	0.037
Benthos diversity index	0.0611
Benthos abundance	0.0848

6. The data preprocessing results are shown in Table S6.

Table S6. The data preprocessing results.

Indicators	S2	S3	S6	S8	S11	S12	S14	S15	S18	S21	S22	S24
Salinity	0.285	0.287	0.289	0.289	0.289	0.288	0.286	0.288	0.289	0.290	0.291	0.287
	6	3	8	5	3	5	5	9	9	2	2	5
Suspended solids	0.305	0.288	0.273	0.295	0.311	0.281	0.282	0.294	0.280	0.303	0.267	0.276
	7	3	2	4	6	5	7	2	3	3	6	8
Dissolved oxygen	0.232	0.247	0.287	0.347	0.306	0.294	0.319	0.265	0.280	0.282	0.290	0.292
	7	7	7	8	5	0	0	2	2	7	2	7
Chemical oxygen demand	0.358	0.311	0.334	0.358	0.287	0.275	0.275	0.281	0.264	0.211	0.228	0.228
	8	8	5	8	6	5	5	6	9	9	6	6
Petroleum	0.281	0.279	0.283	0.290	0.293	0.284	0.310	0.287	0.288	0.291	0.276	0.294
	5	9	1	4	6	7	5	9	8	2	7	4
Cuprum	0.240	0.262	0.303	0.303	0.303	0.282	0.303	0.240	0.303	0.303	0.282	0.324
	2	1	0	0	0	5	0	2	0	0	5	9
Plumbum	0.265	0.275	0.364	0.203	0.228	0.290	0.300	0.296	0.382	0.171	0.155	0.405
	7	4	6	6	8	9	6	7	0	6	3	3
Zinc	0.297	0.333	0.296	0.282	0.307	0.293	0.275	0.289	0.307	0.265	0.252	0.250
	8	8	4	6	5	6	6	5	5	9	1	7
Chromium	0.308	0.333	0.304	0.268	0.328	0.296	0.273	0.295	0.255	0.290	0.256	0.235
	7	6	8	2	3	9	4	6	1	4	4	5
Total mercury	0.329	0.323	0.318	0.283	0.290	0.271	0.276	0.285	0.294	0.262	0.258	0.258
	2	9	6	4	5	1	4	2	0	3	8	8
Active phosphate	0.316	0.330	0.274	0.315	0.301	0.286	0.275	0.287	0.311	0.251	0.261	0.237
	1	4	2	1	8	4	2	5	0	7	9	3
Inorganic nitrogen	0.392	0.365	0.271	0.274	0.344	0.333	0.248	0.272	0.241	0.230	0.214	0.201
	6	4	7	3	1	0	7	6	0	8	6	0
Organic carbon	0.634	0.170	0.266	0.240	0.247	0.232	0.218	0.341	0.250	0.178	0.183	0.175
	9	1	1	8	5	4	9	8	9	5	6	1
Sulfide	0.356	0.250	0.327	0.296	0.317	0.305	0.269	0.247	0.313	0.257	0.250	0.244
	1	9	8	3	7	9	1	2	9	3	4	0
Phytoplankton diversity index	0.634	0.170	0.266	0.240	0.247	0.232	0.218	0.341	0.250	0.178	0.183	0.175
	9	1	1	8	5	4	9	8	9	5	6	1
Phytoplankton abundance	0.324	0.249	0.290	0.280	0.272	0.287	0.275	0.268	0.306	0.297	0.292	0.311
	7	9	7	5	0	3	4	6	0	5	4	1
Zooplankton diversity index	0.351	0.283	0.283	0.234	0.263	0.273	0.312	0.234	0.283	0.322	0.224	0.361
	4	1	1	3	6	3	4	3	1	1	5	2
Zooplankton abundance	0.313	0.214	0.294	0.300	0.289	0.286	0.307	0.295	0.292	0.274	0.295	0.286
	6	6	9	1	7	5	4	9	8	0	9	5
Benthos diversity index	0.367	0.175	0.303	0.286	0.227	0.301	0.270	0.365	0.286	0.247	0.306	0.272
	4	0	3	0	0	6	4	7	0	8	8	1
Benthos	0.228	0.213	0.228	0.346	0.245	0.310	0.287	0.287	0.332	0.328	0.305	0.309

abundance	6	9	6	6	2	7	6	6	8	2	1	7
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7. The calculation results of the weighted normalized decision matrix are shown in Table S7.

Table S7. The calculation results of the weighted normalized decision matrix.

Indicators	S2	S3	S6	S8	S11	S12	S14	S15	S18	S21	S22	S24
Salinity	0.015	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016
	9	0	2	2	1	1	0	1	2	2	2	0
Suspended solids	0.024	0.023	0.021	0.023	0.025	0.022	0.022	0.023	0.022	0.024	0.021	0.022
	5	1	9	7	0	6	7	6	5	4	5	2
Dissolved oxygen	0.008	0.009	0.010	0.013	0.011	0.011	0.012	0.010	0.010	0.010	0.011	0.011
	8	4	9	2	6	1	1	1	6	7	0	1
Chemical oxygen demand	0.024	0.021	0.023	0.024	0.019	0.019	0.019	0.019	0.018	0.014	0.015	0.015
	8	5	1	8	8	0	0	4	3	6	8	8
Petroleum	0.011	0.011	0.011	0.012	0.012	0.012	0.013	0.012	0.012	0.012	0.011	0.012
	9	8	9	3	4	0	1	2	2	3	7	4
Cuprum	0.015	0.017	0.019	0.019	0.019	0.018	0.019	0.015	0.019	0.019	0.018	0.021
	8	2	9	9	9	6	9	8	9	9	6	3
Plumbum	0.011	0.012	0.016	0.009	0.010	0.012	0.013	0.013	0.016	0.007	0.006	0.017
	7	1	1	0	1	8	3	1	8	6	9	9
Zinc	0.005	0.006	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.004
	7	3	6	4	8	6	2	5	8	1	8	8
Chromium	0.011	0.012	0.011	0.010	0.012	0.011	0.010	0.011	0.009	0.011	0.009	0.009
	9	9	8	4	7	5	6	4	8	2	9	1
Total mercury	0.013	0.013	0.012	0.011	0.011	0.010	0.011	0.011	0.011	0.010	0.010	0.010
	2	0	7	3	6	8	1	4	8	5	4	4
Active phosphate	0.012	0.012	0.010	0.012	0.011	0.011	0.010	0.011	0.012	0.009	0.010	0.009
	2	7	6	1	6	0	6	1	0	7	1	1
Inorganic nitrogen	0.014	0.013	0.010	0.010	0.012	0.012	0.009	0.010	0.009	0.008	0.008	0.007
	7	7	2	3	9	5	3	2	0	6	0	5
Organic carbon	0.030	0.008	0.012	0.011	0.011	0.011	0.010	0.016	0.012	0.008	0.008	0.008
	3	1	7	5	8	1	5	3	0	5	8	4
Sulfide	0.021	0.015	0.020	0.018	0.019	0.018	0.016	0.015	0.019	0.015	0.015	0.015
	9	5	2	3	6	8	6	2	3	9	4	0
Phytoplankton diversity index	0.026	0.007	0.011	0.010	0.010	0.009	0.009	0.014	0.010	0.007	0.007	0.007
	7	1	2	1	4	8	2	4	5	5	7	4
Phytoplankton abundance	0.023	0.018	0.021	0.020	0.019	0.020	0.019	0.019	0.022	0.021	0.021	0.022
	5	1	0	3	7	8	9	4	1	5	1	5
Zooplankton diversity index	0.008	0.006	0.006	0.005	0.006	0.006	0.007	0.005	0.006	0.007	0.005	0.008
	4	8	8	6	3	6	5	6	8	7	4	7
Zooplankton	0.011	0.007	0.010	0.011	0.010	0.010	0.011	0.010	0.010	0.010	0.010	0.010

abundance	6	9	9	1	7	6	4	9	8	1	9	6
Benthos	0.022	0.010	0.018	0.017	0.013	0.018	0.016	0.022	0.017	0.015	0.018	0.016
diversity	4	7	5	5	9	4	5	3	5	1	7	6
index												
Benthos	0.019	0.018	0.019	0.029	0.020	0.026	0.024	0.024	0.028	0.027	0.025	0.026
abundance	4	1	4	4	8	3	4	4	2	8	9	3

8. The calculation results of the initial positive ideal solutions of the evaluation indicators are shown in Table S8.

Table S8. The calculation results of the initial positive ideal solutions of the evaluation indicators.

Indicators	positive ideal solution F_j^+
Salinity	0.0558
Suspended solids	0.0803
Dissolved oxygen	0.0379
Chemical oxygen demand	0.069
Petroleum	0.0422
Cuprum	0.0657
Plumbum	0.0441
Zinc	0.019
Chromium	0.0386
Total mercury	0.04
Active phosphate	0.0385
Inorganic nitrogen	0.0374
Organic carbon	0.0478
Sulfide	0.0616
Phytoplankton diversity index	0.042
Phytoplankton abundance	0.0723
Zooplankton diversity index	0.024
Zooplankton abundance	0.037
Benthos diversity index	0.0611
Benthos abundance	0.0848

9. The calculation results of gray correlation coefficient are shown in Table S9.

Table S9. The calculation results of gray correlation coefficient.

Indicators	S2	S3	S6	S8	S11	S12	S14	S15	S18	S21	S22	S24
Salinity	0.974	0.980	0.993	0.991	0.990	0.986	0.977	0.988	0.993	0.994	1.000	0.981
	7	8	0	5	6	6	3	6	6	9	0	9
Suspended	0.959	0.855	0.733	0.894	1.000	0.821	0.827	0.888	0.815	0.943	0.758	0.798
solids	0	7	8	9	0	2	0	1	4	6	6	8
Dissolved	0.818	0.773	0.830	1.000	0.876	0.844	0.910	0.780	0.812	0.818	0.835	0.841
oxygen	0	1	0	0	5	9	6	2	7	4	9	9

Chemical oxygen demand	1.000	0.774	0.869	1.000	0.693	0.659	0.659	0.675	0.631	0.543	0.552	0.552
	0	3	2	0	5	1	1	9	7	1	9	9
Petroleum	0.900	0.896	0.905	0.929	0.939	0.910	1.000	0.921	0.923	0.931	0.436	0.942
	9	0	9	0	7	9	0	2	8	7	6	4
Cuprum	0.883	0.899	0.885	0.885	0.885	0.899	0.885	0.866	0.885	0.885	0.899	1.000
	8	2	0	0	0	6	0	1	0	0	6	0
Plumbum	0.760	0.859	0.860	0.775	0.788	0.787	0.796	0.798	0.915	0.818	0.801	1.000
	6	7	8	3	0	6	3	7	4	7	9	0
Zinc	0.942	1.000	0.939	0.919	0.956	0.935	0.909	0.929	0.956	0.896	0.877	0.810
	0	0	9	4	9	7	5	5	9	0	4	1
Chromium	0.920	1.000	0.909	0.814	0.982	0.887	0.827	0.883	0.785	0.869	0.788	0.770
	5	0	1	8	1	1	1	5	7	6	5	7
Total mercury	1.000	0.981	0.963	0.858	0.877	0.827	0.840	0.863	0.887	0.805	0.797	0.626
	0	3	4	5	6	0	2	2	5	9	7	8
Active phosphate	0.952	1.000	0.836	0.949	0.909	0.867	0.839	0.870	0.936	0.785	0.808	0.683
	7	0	8	5	7	7	3	4	9	5	0	8
Inorganic nitrogen	1.000	0.915	0.910	0.915	0.959	0.932	0.973	0.912	0.962	0.947	0.894	0.907
	0	9	6	0	5	8	6	1	1	3	1	8
Organic carbon	1.000	0.635	0.686	0.671	0.675	0.666	0.658	0.642	0.677	0.637	0.639	0.635
	0	2	6	0	0	0	4	3	0	4	9	8
Sulfide	1.000	0.631	0.864	0.751	0.824	0.782	0.674	0.623	0.810	0.646	0.630	0.351
	0	6	4	0	3	3	5	5	4	1	4	4
Phytoplankton diversity index	1.000	0.862	0.793	0.801	0.805	0.796	0.888	0.874	0.807	0.866	0.869	0.865
	0	7	1	6	8	6	7	4	9	9	5	2
Phytoplankton abundance	1.000	0.549	0.818	0.776	0.744	0.804	0.757	0.732	0.891	0.849	0.826	0.918
	0	3	8	6	6	2	1	5	5	6	3	7
Zooplankton diversity index	0.979	0.855	0.855	0.884	0.835	0.840	0.904	0.835	0.855	0.922	0.872	1.000
	3	6	6	8	8	5	6	1	6	2	0	0
Zooplankton abundance	1.000	0.628	0.941	0.956	0.926	0.917	0.979	0.944	0.935	0.883	0.944	0.917
	0	4	2	8	1	2	6	3	1	5	3	2
Benthos diversity index	1.000	0.597	0.739	0.690	0.664	0.734	0.652	0.990	0.690	0.603	0.749	0.656
	0	5	3	6	3	1	0	6	6	2	8	0
Benthos abundance	0.526	0.333	0.526	1.000	0.563	0.784	0.689	0.689	0.904	0.876	0.759	0.780
	1	3	1	0	7	6	5	5	5	6	5	3

10. The calculation results of the improved indicators positive and negative ideal solutions are shown in Table S10.

Table S10. The calculation results of the improved indicators positive and negative ideal solutions.

Indicators	positive ideal solution S^+	negative ideal solution S^-
Salinity	1.0000	0.9747
Suspended solids	1.0000	0.7338
Dissolved oxygen	1.0000	0.7731
Chemical oxygen demand	1.0000	0.5431
Petroleum	1.0000	0.4366
Cuprum	1.0000	0.8838
Plumbum	1.0000	0.7606
Zinc	1.0000	0.8101
Chromium	1.0000	0.7707
Total mercury	1.0000	0.6268
Active phosphate	1.0000	0.6838
Inorganic nitrogen	1.0000	0.8941
Organic carbon	1.0000	0.6352
Sulfide	1.0000	0.3514
Phytoplankton diversity index	1.0000	0.7931
Phytoplankton abundance	1.0000	0.5493
Zooplankton diversity index	1.0000	0.8351
Zooplankton abundance	1.0000	0.6284
Benthos diversity index	1.0000	0.5975
Benthos abundance	1.0000	0.3333

11. The distance between the evaluation indicators and the ideal solutions is shown in Table S11.

Table S11. The distance between the evaluation indicators and the ideal solutions.

Stations	d^+	d^-
S2	0.8789	1.3121
S3	1.3169	0.6454
S6	1.1981	0.6489
S8	1.0161	1.0423
S11	1.1763	0.6749
S12	1.0811	0.6942
S14	1.2238	0.5338
S15	1.2167	0.5914
S18	1.1292	0.6589
S21	1.2473	0.6257
S22	1.3956	0.4269
S24	1.2888	0.6983

12. The calculation results of relative proximity are shown in Table S12.

Table S12. The calculation results of relative proximity based on the proposed model.

Stations	Relative proximity C_i
S2	0.5988
S3	0.3289
S6	0.3513
S8	0.5063
S11	0.3645
S12	0.3910
S14	0.3037
S15	0.3271
S18	0.3685
S21	0.3340
S22	0.2342
S24	0.3514

The calculation process of the TOPSIS model is shown as follows.

1. The forward processing results of evaluation indicators are shown in Table S13.

Table S13. The forward processing results of evaluation indicators.

Indicators	S2	S3	S6	S8	S11	S12	S14	S15	S18	S21	S22	S24
Salinity	0.569	0.397	0.142	0.1730	0.192	0.275	0.47	0.2340	0.131	0.569	0.397	0.14
	0	0	0		0	0	10		0	0	0	20
Suspended solids	10.35	9.760	9.250	10.000	10.55	9.530	9.57	9.9600	9.490	10.35	9.760	9.25
	00	0	0	0	00	0	00		0	00	0	00
Dissolved oxygen	9.200	8.000	4.800	0.0000	3.300	4.300	2.30	6.6000	5.400	9.200	8.000	4.80
	0	0	0		0	0	00		0	0	0	00
Chemical oxygen demand	0.000	0.310	0.160	0.0000	0.470	0.550	0.55	0.5100	0.620	0.000	0.310	0.16
	0	0	0		0	0	00		0	0	0	00
Petroleum	36.00	38.00	34.00	25.000	21.00	32.00	0.00	28.000	27.00	36.00	38.00	34.0
	00	00	00	0	00	00	00	0	00	00	00	00
Cuprum	5.400	4.000	1.400	1.4000	1.400	2.700	1.40	5.4000	1.400	5.400	4.000	1.40
	0	0	0		0	0	00		0	0	0	00
Plumbum	72.00	67.00	21.00	104.00	91.00	59.00	54.0	56.00	12.00	72.00	67.00	21.0
	00	00	00	00	00	00	00			00	00	00
Zinc	0.260	0.000	0.270	0.3700	0.190	0.290	0.42	0.3200	0.190	0.260	0.000	0.27
	0	0	0		0	0	00		0	0	0	00
Chromium	0.190	0.000	0.220	0.5000	0.040	0.280	0.46	0.2900	0.600	0.190	0.000	0.22
	0	0	0		0	0	00		0	0	0	00
Total mercury	0.000	0.300	0.600	2.6000	2.200	3.300	3.00	2.5000	2.000	0.000	0.300	0.60
	0	0	0		0	0	00		0	0	0	00
Active phosphate	0.014	0.000	0.055	0.0150	0.028	0.043	0.05	0.0420	0.019	0.014	0.000	0.05
	0	0	0		0	0	40		0	0	0	50
Inorganic nitrogen	0.000	0.003	0.014	0.0139	0.005	0.007	0.01	0.0141	0.017	0.000	0.003	0.01
	0	2	2		7	0	69		8	0	2	42
Organic carbon	0.000	276.0	219.0	234.00	230.0	239.0	247.	174.00	228.0	0.000	276.0	219.
	0	0	0		0	0	00		0	0	0	00
Sulfide	0.000	0.197	0.053	0.1120	0.072	0.094	0.16	0.2040	0.079	0.000	0.197	0.05
	0	0	0		0	0	30		0	0	0	30
Phytoplankton diversity index	377.0	101.0	158.0	143.00	147.0	138.0	130.	203.00	149.0	377.0	101.0	158.
	0	0	0		0	0	00	00	0	0	0	00
Phytoplankton abundance	1.910	1.470	1.710	1.6500	1.600	1.690	1.62	1.5800	1.800	1.910	1.470	1.71
	0	0	0		0	0	00		0	0	0	00
Zooplankton diversity index	0.360	0.290	0.290	0.2400	0.270	0.280	0.32	0.2400	0.290	0.360	0.290	0.29
	0	0	0		0	0	00		0	0	0	00

Zooplankton abundance	3.010	2.060	2.830	2.8800	2.780	2.750	2.95	2.8400	2.810	3.010	2.060	2.83
	0	0	0		0	0	00		0	0	0	00
Benthos diversity index	2.120	1.010	1.750	1.6500	1.310	1.740	1.56	2.1100	1.650	2.120	1.010	1.75
	0	0	0		0	0	00		0	0	0	00
Benthos abundance	2.480	2.320	2.480	3.7600	2.660	3.370	3.12	3.1200	3.610	2.480	2.320	2.48
	0	0	0		0	0	00		0	0	0	00

2. The standardization results of evaluation indicators are shown in Table S14.

Table S14. The standardization results of evaluation indicators.

Indicators	S2	S3	S6	S8	S11	S12	S14	S15	S18	S21	S22	S24
Salinity	0.545	0.380	0.136	0.165	0.184	0.263	0.451	0.224	0.125	0.099	0.000	0.357
	6	7	2	9	1	7	6	4	6	7	0	7
Suspended solids	0.305	0.288	0.273	0.295	0.311	0.281	0.282	0.294	0.280	0.303	0.267	0.276
	7	3	2	4	6	5	7	2	3	3	6	8
Dissolved oxygen	0.494	0.429	0.257	0.000	0.177	0.231	0.123	0.354	0.290	0.279	0.247	0.236
	1	7	8	0	2	0	5	5	0	3	1	3
Chemical oxygen demand	0.000	0.154	0.079	0.000	0.234	0.274	0.274	0.254	0.309	0.484	0.429	0.429
	0	8	9	0	6	6	6	6	5	3	3	3
Petroleum	0.355	0.375	0.336	0.247	0.207	0.316	0.000	0.276	0.266	0.237	0.415	0.197
	8	5	0	1	5	2	0	7	8	2	1	7
Cuprum	0.538	0.398	0.139	0.139	0.139	0.269	0.139	0.538	0.139	0.139	0.269	0.000
	2	7	5	5	5	1	5	2	5	5	1	0
Plumbum	0.272	0.253	0.079	0.393	0.343	0.223	0.204	0.211	0.045	0.455	0.487	0.000
	1	2	4	0	9	0	1	6	3	4	1	0
Zinc	0.201	0.000	0.209	0.287	0.147	0.225	0.325	0.248	0.147	0.380	0.457	0.465
	8	0	5	1	4	0	9	3	4	2	8	6
Chromium	0.131	0.000	0.152	0.345	0.027	0.193	0.318	0.200	0.415	0.228	0.408	0.518
	4	0	2	9	7	7	2	6	1	3	1	8
Total mercury	0.000	0.031	0.063	0.276	0.233	0.350	0.318	0.265	0.212	0.403	0.424	0.424
	0	9	7	2	7	5	7	6	4	6	9	9
Active phosphate	0.081	0.000	0.318	0.086	0.162	0.249	0.312	0.243	0.110	0.445	0.388	0.527
	1	0	5	9	1	0	7	2	0	9	0	0
Inorganic nitrogen	0.000	0.062	0.278	0.273	0.112	0.137	0.332	0.277	0.349	0.373	0.410	0.442
	0	9	9	0	0	5	0	0	6	2	5	0
Organic carbon	0.000	0.341	0.271	0.289	0.284	0.296	0.305	0.215	0.282	0.335	0.331	0.338
	0	8	2	8	8	0	9	5	4	6	9	1
Sulfide	0.000	0.386	0.103	0.219	0.141	0.184	0.319	0.400	0.154	0.362	0.388	0.411
	0	2	9	6	2	3	6	0	9	7	2	7
Phytoplankton diversity	0.634	0.170	0.266	0.240	0.247	0.232	0.218	0.341	0.250	0.178	0.183	0.175
	9	1	1	8	5	4	9	8	9	5	6	1

index												
Phytoplankton abundance	0.324	0.249	0.290	0.280	0.272	0.287	0.275	0.268	0.306	0.297	0.292	0.311
	7	9	7	5	0	3	4	6	0	5	4	1
Zooplankton diversity index	0.351	0.283	0.283	0.234	0.263	0.273	0.312	0.234	0.283	0.322	0.224	0.361
	4	1	1	3	6	3	4	3	1	1	5	2
Zooplankton abundance	0.313	0.214	0.294	0.300	0.289	0.286	0.307	0.295	0.292	0.274	0.295	0.286
	6	6	9	1	7	5	4	9	8	0	9	5
Benthos diversity index	0.367	0.175	0.303	0.286	0.227	0.301	0.270	0.365	0.286	0.247	0.306	0.272
	4	0	3	0	0	6	4	7	0	8	8	1
Benthos abundance	0.228	0.213	0.228	0.346	0.245	0.310	0.287	0.287	0.332	0.328	0.305	0.309
	6	9	6	6	2	7	6	6	8	2	1	7

3. The calculation results of the weighted normalized decision matrix are shown in Table S15.

Table S15. The calculation results of the weighted normalized decision matrix.

Indicators	S2	S3	S6	S8	S11	S12	S14	S15	S18	S21	S22	S24
Salinity	0.030	0.021	0.007	0.009	0.010	0.014	0.025	0.012	0.007	0.005	0.000	0.020
	4	2	6	3	3	7	2	5	0	6	0	0
Suspended solids	0.024	0.023	0.021	0.023	0.025	0.022	0.022	0.023	0.022	0.024	0.021	0.022
	5	1	9	7	0	6	7	6	5	4	5	2
Dissolved oxygen	0.018	0.016	0.009	0.000	0.006	0.008	0.004	0.013	0.011	0.010	0.009	0.009
	7	3	8	0	7	8	7	4	0	6	4	0
Chemical oxygen demand	0.000	0.010	0.005	0.000	0.016	0.018	0.018	0.017	0.021	0.033	0.029	0.029
	0	7	5	0	2	9	9	6	4	4	6	6
Petroleum	0.015	0.015	0.014	0.010	0.008	0.013	0.000	0.011	0.011	0.010	0.017	0.008
	0	8	2	4	8	3	0	7	3	0	5	3
Cuprum	0.035	0.026	0.009	0.009	0.009	0.017	0.009	0.035	0.009	0.009	0.017	0.000
	4	2	2	2	2	7	2	4	2	2	7	0
Plumbum	0.012	0.011	0.003	0.017	0.015	0.009	0.009	0.009	0.002	0.020	0.021	0.000
	0	2	5	3	2	8	0	3	0	1	5	0
Zinc	0.003	0.000	0.004	0.005	0.002	0.004	0.006	0.004	0.002	0.007	0.008	0.008
	8	0	0	5	8	3	2	7	8	2	7	8
Chromium	0.005	0.000	0.005	0.013	0.001	0.007	0.012	0.007	0.016	0.008	0.015	0.020
	1	0	9	4	1	5	3	7	0	8	8	0
Total mercury	0.000	0.001	0.002	0.011	0.009	0.014	0.012	0.010	0.008	0.016	0.017	0.017
	0	3	5	0	3	0	7	6	5	1	0	0
Active phosphate	0.003	0.000	0.012	0.003	0.006	0.009	0.012	0.009	0.004	0.017	0.014	0.020
	1	0	3	3	2	6	0	4	2	2	9	3
Inorganic nitrogen	0.000	0.002	0.010	0.010	0.004	0.005	0.012	0.010	0.013	0.014	0.015	0.016
	0	4	4	2	2	1	4	4	1	0	4	5
Organic	0.000	0.016	0.013	0.013	0.013	0.014	0.014	0.010	0.013	0.016	0.015	0.016

carbon	0	3	0	9	6	1	6	3	5	0	9	2
Sulfide	0.000	0.023	0.006	0.013	0.008	0.011	0.019	0.024	0.009	0.022	0.023	0.025
	0	8	4	5	7	4	7	6	5	3	9	4
Phytoplankton diversity index	0.026	0.007	0.011	0.010	0.010	0.009	0.009	0.014	0.010	0.007	0.007	0.007
	7	1	2	1	4	8	2	4	5	5	7	4
Phytoplankton abundance	0.023	0.018	0.021	0.020	0.019	0.020	0.019	0.019	0.022	0.021	0.021	0.022
	5	1	0	3	7	8	9	4	1	5	1	5
Zooplankton diversity index	0.008	0.006	0.006	0.005	0.006	0.006	0.007	0.005	0.006	0.007	0.005	0.008
	4	8	8	6	3	6	5	6	8	7	4	7
Zooplankton abundance	0.011	0.007	0.010	0.011	0.010	0.010	0.011	0.010	0.010	0.010	0.010	0.010
	6	9	9	1	7	6	4	9	8	1	9	6
Benthos diversity index	0.022	0.010	0.018	0.017	0.013	0.018	0.016	0.022	0.017	0.015	0.018	0.016
	4	7	5	5	9	4	5	3	5	1	7	6
Benthos abundance	0.019	0.018	0.019	0.029	0.020	0.026	0.024	0.024	0.028	0.027	0.025	0.026
	4	1	4	4	8	3	4	4	2	8	9	3

4. The distance between the evaluation indicators and the ideal solutions is shown in Table S16.

Table S16. The distance between the evaluation indicators and the ideal solutions.

Stations	d^+	d^-
S2	0.0577	0.0594
S3	0.0533	0.0523
S6	0.0607	0.0332
S8	0.0596	0.0400
S11	0.0563	0.0356
S12	0.0445	0.0459
S14	0.0466	0.0503
S15	0.0373	0.0589
S18	0.0530	0.0427
S21	0.0449	0.0602
S22	0.0425	0.0639
S24	0.0494	0.0626

5. The calculation results of relative proximity are shown in Table S17.

Table S17. The calculation results of relative proximity based on the TOPSIS method.

Stations	Relative proximity C_i
S2	0.5073
S3	0.4955
S6	0.3539

S8	0.4016
S11	0.3874
S12	0.5076
S14	0.5191
S15	0.6123
S18	0.4464
S21	0.5730
S22	0.6006
S24	0.5589
