

**Table S1.** Comparison of the analytical results of heavy metals for nearshore Seawater Certified Reference Material (CASS-6; n=3) from National Institute Standard and Technology of USA with certified value.

Elements	Certified value	Measured Value	Recovery (%)
Mn	2.22 ± 0.12	2.34 ± 0.08	105
Fe	1.56 ± 0.12	1.68 ± 0.02	108
Cr	0.10 ± 0.02	0.104 ± 0.012	104
Co	0.067 ± 0.005	0.0711 ± 0.0005	106
As	1.1 ± 0.1	1.000 ± 0.022	96
Cd	0.022 ± 0.002	0.023 ± 0.000	105
Pb	0.011 ± 0.004	0.0108 ± 0.0003	102
Ni	0.42 ± 0.04	0.437 ± 0.004	104
Cu	0.53 ± 0.03	0.558 ± 0.015	105
Zn	1.27 ± 0.18	1.310 ± 0.033	103

**Table S2.** Factors loading for varimax rotated PCA of benthic fluxes.

Elements	PC1	PC2
Mn	0.95	-0.07
Fe	0.91	-0.41
Cr	-0.24	0.97
Co	0.97	0.03
As	0.11	0.88
Cd	-0.30	0.95
Pb	-0.12	0.40
Ni	0.85	0.27
Cu	0.19	0.92
Zn	-0.42	0.80
SOD	0.96	-0.26
NH <sub>4</sub> <sup>+</sup>	-0.92	0.17
NO <sub>3</sub> <sup>-</sup>	-0.83	0.01
PO <sub>4</sub> <sup>3-</sup>	-0.35	-0.93
Si(OH) <sub>4</sub>	-0.77	0.02
% of variance	46.1	36.3
% of cumulative	46.1	82.4