

**SUPPLEMENTARY DATA**

Mathematical Description of the Relation between Water and Sea Organism Pollution

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**Table S1.** Heavy metals in different water catchment areas.

Description of the place	Cr, [µg/L]	Mn, [µg/L]	Ni, [µg/L]	Cu, [µg/L]	Zn, [µg/L]	As, [µg/L]	Cd, [µg/L]	Hg, [µg/L],	Pb, [µg/L]
Black sea – Krapets (North) <sup>1</sup>	0.4	1	0.6	1.1	18	1.5	0.06	0.05	1.5
Varna Lake – West <sup>2</sup>	0.6	8.4	0.8	1.81	13	5.34	0.15	0.05	1.8
Varna Lake-Northwest <sup>3</sup>	0.56	22	2.4	24	16	4.3	0.07	0.05	1.8
Varna-Lake – New channel <sup>4</sup>	0.7	4.6	0.6	1.2	14	3.9	0.05	0.05	0.53
Varna bay <sup>5</sup>	0.4	1.5	0.6	0.9	22	1.1	0.09	0.05	0.8
Black sea –Kamchiya (Varna) <sup>6</sup>	0.5	0.6	0.6	0.6	15	1.2	0.05	0.05	0.7
Burgas bay-Sarafovo (South) <sup>7</sup>	0.4	0.5	0.6	0.6	31	1.1	0.05	0.05	0.34

**Locations:**

1. BG2BS00000MS001 43°36'60.0" / 28°35'60.0".
2. BG2PR100L001 '43°11'32.5" / 27°46'35,1".
3. BG2PR100L001 '43°11'51.4" / 27°47'37,0.
4. BG2PR100L001 43°11'04.5" / 27°54'08,9".
5. BG2BS00000MS005 43°19'06.0" / 27°55'59.0".
6. BG2BS00000MS007 43°00'60.0" / 27°53'60.0".

**Table S2.** Heavy metals in different sediments.

Проба	Cr [µg/g]	Mn [µg/g]	Ni, [µg/g]	Cu [µg/g]	Zn [µg/g]	As [µg/g]	Cd [µg/g]	Hg [µg/g]	Pb [µg/g]
Profile Kaliakra/K-1 mile/ North	30	605	51	81	104	4.1	0.07	0.05	39
Profile Kaliakra / K-10 mile/ North	22	709	60	69	97	6.1	0.09	0.06	38
Varna Lake/ A-22/	24	454	44	96	159	8	1.5	0.07	62
Varna Lake /A-16/	138	471	75	118	206	12	13	0.11	68
Varna bay/ B-3/ Varna	2	215	11	20	31	4.2	0.06	0.05	21
Varna bay / B-4/ Varna	2	328	17	34	49	3.2	0.15	0.05	27
Varna bay / B-5/ Varna	2	260	20	25	52	4.1	0.09	0.05	29
Profile Burgas /Г-1 mile/South	20	367	43	53	87	3.9	0.08	0.05	41
Profile Burgas/Г-3 mile/South	15	433	44	89	89	4.8	0.1	0.05	35

**Table S3.** Results from sampling of sea fish and shellfish within the Black Sea basin

Fish and shellfish	Cr	Mn	Ni	Cu	Zn	As
	[µg/g]	[µg/g]	[µg/g]	[µg/g]	[µg/g]	[µg/g]
Shad ( <i>A. pontica</i> ) North	0.050	0.110	0.070	0.450	9.000	0.380
Black sea goby ( <i>N. melanostomus</i> ) North	0.050	0.070	0.008	0.760	9.000	0.660
Garpike ( <i>B. Belone</i> ) North	0.060	0.050	0.006	0.430	9.500	0.240
Red mullet ( <i>M. barbatus ponticus</i> ) North	0.060	0.060	0.007	0.440	6.200	2.700
Blue mussel (wild) ( <i>Mytilus edulis</i> ) North	0.040	0.780	0.039	1.120	18.000	3.500
Blue mussel (cultivated) <i>Mytilus edulis</i> ) North	0.050	0.560	0.041	1.420	7.200	1.500
Gray mullet ( <i>M. cephalus</i> ) Varna Lake	0.080	0.090	0.017	0.710	10.000	0.900
Turbout ( <i>Pseta Maxima</i> ) Varna	0.020	0.240	0.064	0.190	4.800	3.990
Atlantic bonito ( <i>S. sarda</i> ) South	0.070	0.130	0.011	0.660	10.000	0.410
Gray mullet ( <i>M. cephalus</i> ) South	0.070	0.170	0.009	0.340	5.200	1.100
Sprat ( <i>S. spratus</i> ) South	0.040	0.110	0.028	1.400	11.000	0.730