

Sources, transport and fate of PAHs in sediments and superficial water of a chronically polluted semi-enclosed body of seawater: Linking of compartments.

Authors: Rojo-Nieto, E.^a; Sales, D.^b; Perales, J. A.^a

Corresponding author: elisa.rojo@uca.es; telephone 034 956016587; fax 0034 956 016746

^a Departamento de Tecnologías del Medio Ambiente (Environmental Technologies Department), Centro Andaluz de Ciencia y Tecnología Marinas (CACYTMAR), Universidad de Cádiz, Avda. República Saharaui s/n, 11510 Puerto Real, Cádiz, Spain

^b Departamento de Tecnologías del Medio Ambiente (Environmental Technologies Department), Facultad de Ciencias del Mar y Ambientales, Universidad de Cádiz, Avda. República Saharaui s/n, 11510 Puerto Real, Cádiz, Spain

Table S1. Levels of PAHs ($\mu\text{g L}^{-1}$) in sea water. *NAPH* Naphthalene, *ACE* Acenaphthylene, *ACEN* Acenaphthene, *FLUO* Fluorene, *PHE* Phenanthrene, *ANT* Anthracene, *FLUOR* Fluoranthene, *PYR* Pyrene, *B(a)A* Benzo(a)Anthracene, *CHRY* Chrysene, *B(b)F* Benzo(b)Fluoranthene, *B(k)F* Benzo(k)Fluoranthene, *B(a)P* Benzo(a)Pyrene, *B(ghi)P* Benzo(g,h,i)Perylene, *DB(ah)A* Dibenzo(a,h)Anthracene, *I(123)P* Indeno(1,2,3-cd)Pyrene.

	<u>NAPH</u>	<u>ACE</u>	ACEN	<u>FLOU</u>	PHE	<u>ANT</u>	<u>FLOUR</u>	PYR	B(a)A	<u>CHRY</u>	B(b)F	B(k)F	<u>B(a)P</u>	<u>B(ghi)P</u>	DB(ah) A	<u>I (123)P</u>	<u>B(b)F + B(k)F</u>	<u>B(ghi)P + I(123)P</u>
SC1P1	0.1168	0.0030	d.l.	d.l.	0.0046	0.0039	0.0047	0.0036	d.l.	0.0075	0.0084	d.l.	d.l.	d.l.	d.l.	d.l.	0.0084	d.l.
SC1P2	0.1827	0.0065	0.0031	0.0076	0.0149	0.0040	0.0038	0.0038	d.l.	0.0042	0.0107	d.l.	d.l.	d.l.	d.l.	d.l.	0.0107	d.l.
SC1P3	0.1317	0.0020	d.l.	d.l.	0.0051	d.l.	d.l.	0.0020	d.l.	d.l.	d.l.	d.l.	d.l.	d.l.	d.l.	d.l.	d.l.	d.l.
SC1P4	0.1614	0.0081	d.l.	0.0071	0.0060	d.l.	0.0087	0.0082	d.l.	0.0038	d.l.	d.l.	d.l.	d.l.	d.l.	d.l.	d.l.	d.l.
SC1P5	d.l.	0.0046	d.l.	d.l.	d.l.	d.l.	d.l.	d.l.	d.l.	d.l.	d.l.	d.l.	d.l.	d.l.	d.l.	d.l.	d.l.	d.l.
SC2P1	0.0264	0.0042	d.l.	0.0029	0.0080	0.0072	0.0084	0.0074	0.0153	0.0191	0.0228	0.0178	0.0083	0.0145	0.0113	d.l.	0.0406	0.0145
SC2P2	0.0640	0.0100	d.l.	0.0034	0.0143	0.0112	0.0120	0.0104	0.0187	0.0261	0.0271	0.0221	0.0080	0.0154	d.l.	0.0209	0.0493	0.0363
SC2P3	0.0358	0.0037	d.l.	0.0019	0.0076	0.0065	0.0084	0.0067	0.0124	0.0167	0.0203	0.0148	d.l.	d.l.	d.l.	0.0104	0.0350	0.0104
SC2P4	0.0512	0.0030	d.l.	0.0014	0.0049	0.0038	0.0055	0.0055	0.0074	0.0104	0.0117	0.0093	d.l.	d.l.	d.l.	0.0066	0.0210	0.0066
SC2P5	0.0327	0.0016	d.l.	d.l.	0.0022	0.0029	0.0017	0.0023	0.0023	0.0031	0.0043	0.0035	d.l.	d.l.	d.l.	d.l.	0.0078	d.l.
SC3P1	0.0257	0.0119	0.0025	0.0069	0.0323	0.0365	0.0780	0.0807	0.1689	0.2028	0.1840	0.1541	0.1220	0.1005	0.0853	0.1050	0.3380	0.2055
SC3P2	0.0361	0.0153	d.l.	0.0043	0.0219	0.0292	0.0535	0.0514	0.0982	0.1213	0.1228	0.0985	0.0681	0.0683	0.0108	0.0747	0.2213	0.1429
SC3P3	0.0219	0.0061	d.l.	d.l.	0.0085	0.0115	0.0185	0.0169	0.0311	0.0418	0.0372	0.0319	0.0192	0.0225	0.0160	0.0286	0.0690	0.0512
SC3P4	0.0030	0.0060	d.l.	d.l.	0.0088	0.0105	0.0145	0.0139	0.0230	0.0310	d.l.	d.l.	d.l.	0.0142	d.l.	0.0154	d.l.	0.0297
SC3P5	d.l.	0.0012	d.l.	d.l.	0.0018	0.0021	0.0025	0.0017	d.l.	0.0012	d.l.	d.l.	d.l.	d.l.	d.l.	d.l.	d.l.	d.l.
SC4P1	0.0357	0.0008	d.l.	0.0006	0.0019	0.0010	0.0011	0.0017	d.l.	d.l.	d.l.	d.l.	d.l.	d.l.	d.l.	d.l.	d.l.	d.l.
SC4P2	0.0530	0.0309	d.l.	0.0011	0.0022	0.0018	0.0032	0.0038	d.l.	d.l.	d.l.	d.l.	d.l.	d.l.	d.l.	d.l.	d.l.	d.l.
SC4P3	0.0668	0.0044	0.0009	0.0017	0.0037	0.0041	0.0051	0.0064	d.l.	0.0160	d.l.	d.l.	d.l.	d.l.	d.l.	d.l.	d.l.	d.l.
SC4P4	0.0290	0.0068	d.l.	0.0017	0.0083	0.0082	0.0208	0.0242	0.0165	0.0430	0.0163	0.0279	0.0135	d.l.	d.l.	0.0161	0.0441	0.0161
SC4P5	0.0336	0.0015	d.l.	0.0004	0.0013	0.0010	0.0017	0.0026	d.l.	0.0026	d.l.	d.l.	d.l.	d.l.	d.l.	d.l.	d.l.	d.l.

--- Above Recommended Interim Marine Water Quality Criteria of British Columbia; --- Above European Water Framework Directive (annual mean)
--- Above European Water Framework Directive (maximum admissible concentration)
d.l. Below determination limit

Table S2. Levels of PAHs ($\mu\text{g Kg}^{-1}$ dry weight) in sediments. *NAPH* Naphthalene, *ACE* Acenaphthylene, *ACEN* Acenaphthene, *FLUO* Fluorene, *PHE* Phenanthrene, *ANT* Anthracene, *FLUOR* Fluoranthene, *PYR* Pyrene, *B(a)A* Benzo(a)Anthracene, *CHRY* Chrysene, *B(b)F* Benzo(b)Fluoranthene, *B(k)F* Benzo(k)Fluoranthene, *B(a)P* Benzo(a)Pyrene, *B(ghi)P* Benzo(g,h,i)Perylene, *DB(ah)A* Dibenzo(a,h)Anthracene, *I(123)P* Indeno(1,2,3-cd)Pyrene.

	NAPH	ACE	ACEN	FLOU	PHE	ANT	FLOU R	PYR	B(a)A	CHRY	B(b)F	B(k)F	B(a)P	B(ghi) P	DB(ah) A	I (123)P
SC1P1	42.40	60.60	117.00	41.80	205.00	121.00	43.70	67.90	37.50	15.90	48.40	63.50	90.50	113.00	d.l.	73.80
SC1P2	41.50	55.90	107.00	38.60	126.00	108.00	23.60	47.30	22.30	d.l.	35.00	64.00	76.80	96.60	d.l.	59.30
SC1P3	119.00	72.80	136.00	d.l.	161.00	141.00	35.90	66.00	32.00	3.61	45.70	66.00	102.00	d.l.	d.l.	76.00
SC1P4	49.90	d.l.	119.00	44.00	141.00	122.00	23.10	49.00	19.50	d.l.	35.50	50.40	82.50	d.l.	d.l.	d.l.
SC1P5	49.30	45.30	86.10	d.l.	103.00	87.90	18.40	34.70	15.40	d.l.	26.20	37.30	60.20	d.l.	d.l.	d.l.
SC2P1	111.69	1.25	d.l.	d.l.	33.15	1.41	14.27	13.66	4.35	5.21	4.94	d.l.	d.l.	d.l.	d.l.	d.l.
SC2P2	141.14	1.83	27.64	30.82	302.23	69.43	299.27	245.88	93.69	100.65	65.88	30.55	48.55	16.94	d.l.	16.18
SC2P3	13.22	0.26	d.l.	d.l.	91.81	6.79	150.21	123.18	28.50	41.15	32.82	25.31	24.77	10.89	2.33	11.79
SC2P4	368.25	1.97	80.26	52.38	196.54	32.61	230.94	205.82	90.53	110.31	71.51	40.59	61.77	165.37	d.l.	19.49
SC2P5	85.72	d.l.	d.l.	d.l.	9.19	d.l.	9.20	9.72	5.70	6.72	8.94	d.l.	d.l.	d.l.	d.l.	d.l.
SC3P1	166.32	d.l.	d.l.	4.43	47.62	3.09	23.02	20.50	4.22	6.37	d.l.	d.l.	d.l.	d.l.	d.l.	d.l.
SC3P2	202.90	3.14	234.95	28.60	269.81	35.17	387.15	283.64	109.05	47.39	95.31	48.90	69.76	26.60	d.l.	31.57
SC3P3	82.98	d.l.	d.l.	2.21	23.76	1.54	11.49	10.23	2.10	33.36	d.l.	d.l.	d.l.	d.l.	d.l.	d.l.
SC3P4	206.50	11.02	5.32	14.34	110.56	31.49	112.65	111.53	d.l.	d.l.	d.l.	11.59	5.63	d.l.	d.l.	d.l.
SC3P5	85.76	3.63	13.57	11.81	145.27	12.81	123.99	96.84	41.62	d.l.	395.27	23.10	21.67	11.89	d.l.	12.20
SC4P1	5.07	0.34	0.14	0.42	3.23	0.94	3.33	3.36	0.61	1.48	0.55	0.78	2.84	d.l.	d.l.	d.l.
SC4P2	10.30	0.50	0.41	1.07	10.84	2.96	10.02	10.52	3.52	6.11	6.89	d.l.	2.98	d.l.	d.l.	1.25
SC4P3	6.82	0.39	0.27	0.47	9.19	2.54	14.82	13.52	5.08	7.55	6.75	0.25	2.60	d.l.	1.82	d.l.
SC4P4	25.18	3.02	14.58	25.13	310.58	65.76	347.76	274.58	78.95	104.62	99.42	d.l.	58.29	d.l.	d.l.	24.90
SC4P5	142.76	5.73	1.99	6.63	68.83	16.18	89.09	75.97	40.39	51.66	4.06	41.24	44.74	d.l.	16.48	34.33

--- Concentration above ERL (NOAA)
d.l. Below determination limit

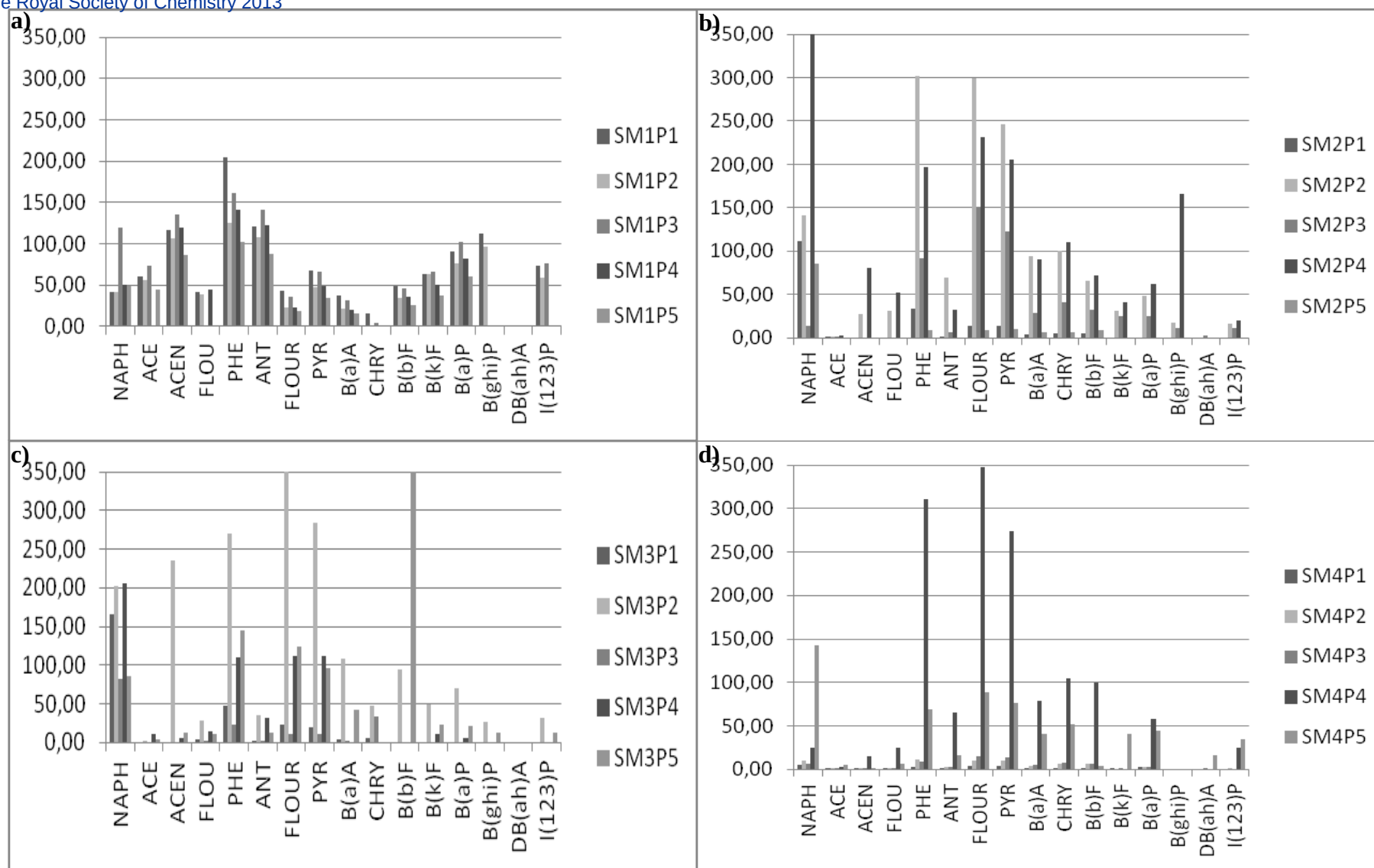


Figure S1. Distribution of individual PAHs in sediments (concentrations in $\mu\text{g Kg}^{-1}$ dry weight). a) First sampling campaign. b) Second sampling campaign. c) Third sampling campaign. d) Fourth sampling campaign.