Electronic Supplementary Material (ESI) for Analytical Methods.

SUPPLEMENTARY INFORMATION

Table S1) Precision validation for APAH compounds under the TPAH50 quantitation method. Eight replicates were prepared by spiking blank DI water with 0.1 mL of Bunker C. oil at 100X dilution for each analyte. The average, standard deviation, percent (%) relative standard deviation, and expanded measurement uncertainty (EMU) are recorded.

Compound	Detected Total Concentration (µg/mL)								Avg.	Std. Dev.	% Rel. Std. Dev.	EMU
	S1	S2	S3	S4	S5	S6	S7	S8				
C1-Naphthalene	33.04	33.20	33.04	33.65	32.84	33.72	33.07	33.10	33.21	0.311	0.94	1.57E-02
C2-Naphthalene	75.15	73.39	72.91	77.98	77.68	77.27	76.00	75.86	75.78	1.891	2.50	9.75E-03
C3-Naphthalene	133.74	135.02	134.91	139.31	141.84	141.32	134.58	133.25	136.75	3.499	2.56	4.99E-03
C4-Naphthalene	21.81	21.86	22.10	22.46	22.96	22.86	21.77	21.79	22.20	0.495	2.23	5.75E-03
C1-Phenanthracene/Anthracene	19.91	20.04	20.17	20.08	19.78	20.00	19.92	19.90	19.97	0.123	0.62	2.62E-03
C2-Phenanthracene/Anthracene	39.51	39.56	39.92	39.60	39.11	39.58	39.37	39.58	39.53	0.229	0.58	7.05E-03
C3-Phenanthracene/Anthracene	65.77	65.16	66.28	65.71	65.98	66.18	65.46	65.75	65.79	0.367	0.56	3.51E-03
C4-Phenanthracene/Anthracene	19.44	19.11	19.28	19.19	19.19	19.30	18.94	19.44	19.23	0.166	0.86	2.69E-03
C1-Dibenzothiophene	9.49	9.42	9.47	9.28	9.39	9.52	9.18	9.17	9.37	0.138	1.47	8.65E-03
C2-Dibenzothiophene	23.60	23.43	23.56	23.06	23.29	23.70	22.96	22.83	23.31	0.323	1.39	6.76E-03
C3-Dibenzothiophene	22.88	22.70	22.68	22.79	22.57	22.13	21.96	22.06	22.47	0.364	1.62	3.76E-03
C1-Fluoranthene/Pyrene	9.89	10.09	9.87	10.05	9.94	9.90	9.94	9.76	9.93	0.105	1.06	6.20E-03
C2-Fluoranthene/Pyrene	215.41	214.74	217.22	218.17	214.12	211.01	218.09	215.30	215.51	2.374	1.10	3.78E-03
C3-Fluoranthene/Pyrene	20.78	20.80	20.68	20.67	20.92	20.96	20.33	20.36	20.69	0.234	1.13	1.74E-02
C4-Fluoranthene/Pyrene	8.38	8.53	8.74	8.79	8.51	8.79	8.72	8.71	8.65	0.153	1.77	6.57E-03
C1-Benz[a]anthracene/Chrysene	19.28	18.80	19.36	19.08	18.94	18.83	18.75	18.59	18.95	0.268	1.41	3.98E-03
C2-Benz[a]anthracene/Chrysene	70.67	70.61	70.02	69.77	69.32	70.44	69.70	69.37	69.99	0.536	0.77	3.05E-02
C3-Benz[a]anthracene/Chrysene	131.23	131.66	131.06	131.54	129.65	132.09	131.52	130.31	131.13	0.792	0.60	2.81E-02
C4-Benz[a]anthracene/Chrysene	11.20	11.11	11.55	10.71	10.67	10.84	11.13	11.07	11.03	0.290	2.63	1.05E-01
C1-Benzopyrene/Perylene	1.78	1.79	1.79	1.76	1.74	1.74	1.77	1.73	1.76	0.024	1.35	1.15E-02
C2-Benzopyrene/Perylene	1.59	1.65	1.65	1.65	1.66	1.70	1.68	1.67	1.66	0.031	1.90	1.20E-02
C3-Benzopyrene/Perylene	1.32	1.22	1.24	1.26	1.28	1.31	1.31	1.30	1.28	0.035	2.74	1.45E-02

C4-Benzopyrene/Perylene	0.70	0.70	0.67	0.68	0.68	0.67	0.67	0.68	0.68	0.013	1.93	7.73E-03

Table S2)

S2a) The Method Detection Limit (MDL) for low level surface water was determined by spiking 50 mL of DI water with 0.05 mL of 20 µg/L PAH mixture to provide a nominal PAH concentration of 0.02 µg/L (0.02 ppb) level for each component. Replicate analysis (N=8) provided the following data.

Compound	Detected Total Concentration (µg/L)								Average % Recovery	Mean (µg/L)	Std. Dev.	% Rel. Std. Dev.	Expanded Measurement Uncertainty (EMU)
	S1	S2	S3	S4	S5	S6	S7	S8					
Acenaphthene	0.019	0.020	0.020	0.020	0.019	0.019	0.019	0.021	98	0.020	8.03e-4	4.1	0.080
Acenaphthylene	0.019	0.021	0.021	0.020	0.020	0.020	0.019	0.019	100	0.020	8.57e-4	4.3	0.084
Anthracene	0.020	0.020	0.021	0.020	0.021	0.021	0.020	0.021	102	0.020	5.22e-4	2.6	0.069
Benzo(a)anthracene	0.018	0.018	0.019	0.018	0.018	0.018	0.019	0.019	91	0.018	4.47e-4	2.4	0.105
Benzo(a)pyrene	0.018	0.019	0.020	0.019	0.018	0.018	0.021	0.020	95	0.019	9.09e-4	4.8	0.162
Benzo(e)pyrene	0.019	0.021	0.020	0.018	0.019	0.019	0.019	0.021	98	0.020	8.25e-4	4.2	0.171
Benzo(b)fluoranthene	0.021	0.022	0.020	0.020	0.020	0.020	0.018	0.021	101	0.020	9.81e-4	4.9	0.018
Benzo(g,h,i)perylene	0.020	0.020	0.020	0.019	0.019	0.020	0.021	0.021	101	0.020	7.55e-4	3.7	0.054
Benzo(k)fluoranthene	0.020	0.021	0.020	0.020	0.020	0.019	0.021	0.021	101	0.020	4.36e-4	2.2	0.097
Chrysene	0.019	0.020	0.020	0.020	0.020	0.020	0.020	0.021	100	0.020	4.42e-4	2.2	0.171
Dibenzo(a,h)anthracene	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	100	0.020	2.47e-4	1.2	0.148
Fluoranthene	0.019	0.019	0.020	0.020	0.020	0.020	0.020	0.020	99	0.020	3.79e-4	1.9	0.049
Fluorene	0.021	0.019	0.021	0.021	0.019	0.021	0.020	0.020	101	0.020	7.88e-4	3.9	0.252
Indeno(1,2,3-cd)pyrene	0.019	0.019	0.020	0.019	0.020	0.019	0.019	0.018	96	0.019	6.71e-4	3.5	0.175
Naphthalene	0.019	0.019	0.019	0.020	0.019	0.019	0.021	0.019	97	0.019	6.17e-4	3.2	0.032
Perylene	0.017	0.018	0.018	0.018	0.018	0.017	0.019	0.017	89	0.018	7.54e-4	4.2	0.090
Phenanthrene	0.020	0.018	0.019	0.019	0.018	0.018	0.019	0.019	94	0.019	6.04e-4	3.2	0.087
Pyrene	0.020	0.019	0.019	0.020	0.019	0.019	0.020	0.020	97	0.019	3.33e-4	1.7	0.029

S2b) Middle Level Determination for Surface Water Samples. Replicate analysis (N=8) of DI water spiked at 0.2 µg/L (0.2 ppb) with a laboratory prepared standard.

Compound	Detected Total Concentration (µg/L)								Average % Recovery	Mean (µg/L)	Std. Dev.	% Rel. Std. Dev.	Expanded Measurement Uncertainty (EMU)
	S1	S2	S3	S4	S5	S6	S7	S8					
Acenaphthene	0.199	0.191	0.184	0.184	0.189	0.199	0.191	0.179	95	0.189	7.13e-3	3.8	0.080
Acenaphthylene	0.206	0.208	0.207	0.189	0.206	0.203	0.188	0.198	101	0.201	8.21e-3	4.1	0.084
Anthracene	0.198	0.190	0.190	0.184	0.186	0.189	0.189	0.195	95	0.190	4.63e-3	2.4	0.069
Benzo(a)anthracene	0.194	0.175	0.185	0.185	0.189	0.182	0.181	0.195	93	0.186	6.47e-3	3.5	0.105
Benzo(a)pyrene	0.195	0.185	0.180	0.177	0.186	0.185	0.179	0.193	93	0.185	6.38e-3	3.4	0.162
Benzo(e)pyrene	0.198	0.191	0.185	0.188	0.196	0.194	0.193	0.203	97	0.194	5.76e-3	3.0	0.171
Benzo(b)fluoranthene	0.203	0.195	0.188	0.192	0.197	0.197	0.190	0.202	98	0.195	5.29e-3	2.7	0.018
Benzo(g,h,i)perylene	0.196	0.189	0.186	0.185	0.191	0.189	0.184	0.195	95	0.189	4.59e-3	2.4	0.054
Benzo(k)fluoranthene	0.202	0.191	0.192	0.191	0.196	0.196	0.192	0.202	98	0.195	4.35e-3	2.2	0.097
Chrysene	0.197	0.181	0.183	0.185	0.188	0.184	0.186	0.191	94	0.187	5.20e-3	2.8	0.171
Dibenzo(a,h)anthracene	0.196	0.184	0.187	0.180	0.187	0.184	0.183	0.188	93	0.186	4.81e-3	2.6	0.148
Fluoranthene	0.201	0.192	0.194	0.194	0.199	0.193	0.191	0.205	98	0.196	4.97e-3	2.5	0.049
Fluorene	0.198	0.201	0.206	0.201	0.199	0.201	0.197	0.189	100	0.199	4.69e-3	2.4	0.252
Indeno(1,2,3-cd)pyrene	0.166	0.174	0.187	0.187	0.185	0.172	0.168	0.179	89	0.177	8.31e-3	4.7	0.175
Naphthalene	0.206	0.188	0.185	0.182	0.193	0.193	0.191	0.178	95	0.189	8.58e-3	4.5	0.032
Perylene	0.204	0.187	0.184	0.190	0.190	0.192	0.189	0.200	96	0.192	6.62e-3	3.5	0.090
Phenanthrene	0.188	0.189	0.190	0.187	0.188	0.187	0.178	0.181	93	0.186	4.07e-3	2.2	0.087
Pyrene	0.200	0.190	0.194	0.193	0.197	0.192	0.190	0.201	98	0.195	4.10e-3	2.1	0.029

S2c) High level Determination for Surface water Samples. Replicate analysis (N=8) of DI water spiked at 40 µg/L (40 ppb) with a laboratory prepared standard.

Compound	Detected Total Concentration (µg/L)								Average % Recovery	Mean (µg/L)	Std. Dev.	% Rel. Std. Dev.	Expanded Measurement Uncertainty
	S1	S2	S3	S4	S5	S6	S7	S8					

													(EMU)
Acenaphthene	39.7	40.5	40.0	38.6	38.7	40.2	40.1	40.0	99	39.7	0.705	1.8	1.437
Acenaphthylene	41.3	42.2	42.2	40.3	40.8	42.2	42.3	42.3	104	41.7	0.788	1.9	1.609
Anthracene	37.8	38.4	38.4	39.7	39.1	39.7	39.6	39.7	98	39.1	0.749	1.9	0.822
Benzo(a)anthracene	39.1	39.4	39.5	40.4	40.3	40.7	40.5	40.3	100	40.0	0.574	1.4	4.632
Benzo(a)pyrene	39.3	39.7	40.0	40.8	40.7	40.9	40.4	40.8	101	40.3	0.603	1.5	1.597
Benzo(e)pyrene	39.4	39.7	40.1	40.8	40.5	40.9	40.6	40.3	101	40.3	0.529	1.3	1.924
Benzo(b)fluoranthene	38.9	39.2	39.4	40.0	39.9	40.1	39.9	40.0	99	39.7	0.447	1.1	2.049
Benzo(g,h,i)perylene	38.6	39.0	39.5	39.8	40.0	39.7	39.6	39.7	99	39.5	0.469	1.2	2.925
Benzo(k)fluoranthene	38.1	38.5	38.9	39.6	39.4	39.5	39.3	39.6	98	39.1	0.539	1.4	1.122
Chrysene	38.5	39.0	39.0	39.9	39.8	40.0	40.0	39.8	99	39.5	0.577	1.5	1.594
Dibenzo(a,h)anthracene	37.8	38.1	38.6	39.0	39.3	39.2	38.8	39.0	97	38.7	0.537	1.4	4.695
Fluoranthene	38.5	38.8	39.3	39.4	39.8	39.8	39.8	39.6	98	39.4	0.505	1.3	0.714
Fluorene	40.7	41.5	40.5	41.1	41.3	41.4	41.0	41.0	103	41.1	0.334	0.8	1.816
Indeno(1,2,3-cd)pyrene	37.7	37.9	38.4	38.9	39.3	38.9	38.8	38.9	96	38.6	0.555	1.4	6.109
Naphthalene	40.2	40.2	40.7	38.1	38.2	41.1	40.9	41.1	100	40.1	1.233	3.1	0.368
Perylene	38.8	39.3	39.5	40.6	40.7	40.8	40.4	40.6	100	40.1	0.753	1.9	4.300
Phenanthrene	38.3	39.0	38.9	39.5	39.6	39.7	39.7	39.9	98	39.3	0.540	1.4	0.917
Pyrene	38.4	38.7	39.0	39.2	39.8	39.8	39.7	39.4	98	39.2	0.527	1.3	0.456

Table S3) TPAH concentration comparison between Grace *et al*. and Yang *et al*.

#	TPAH Compounds	Symbol	Grace *et al.* Concentration (ug/g)	Yang *et al.* Concentration (ug/g)
1	Naphthalene	C0N	835	569
2	c1-Naphthalene Results	C1N	2610	2144
3	c2-Naphthalene Results	C2N	3723	3187
4	c3-Naphthalene Results	C3N	4298	2949
5	c4-Naphthalene Results	C4N	1021	1700
6	Biphenyl Results	Bph	121	210
7	Dibenzofuran Results	Dbf	120	n/a
8	Acenaphthylene	Acle	26.7	18.3
9	Acenaphthene	Ace	17.8	20.8
10	Fluorene	C0F	120	113
11	c1-Fluorene Results	C1F	613	487
12	c2-Fluorene Results	C2F	722	608
13	c3-Fluorene Results	C3F	469	764
14	Anthracene	An	1.56	11.0
15	Phenanthrene	C0P	341	321
16	c1-Phenanthrene/Anthracene Results	C1P	1037	1013
17	c2-Phenanthrene/Anthracene Results	C2P	1690	1476
18	c3-Phenanthrene/Anthracene Results	C3P	1640	1086
19	c4-Phenanthrene/Anthracene Results	C4P	363	631
20	Dibenzothiophene Results	C0D	377	258
21	c1-Dibenzothiophene Results	C1D	752	540
22	c2-Dibenzothiophene Results	C2D	1392	803
23	c3-Dibenzothiophene Results	C3D	1199	683
24	c4-Dibenzothiophene Results	C4D	333	n/a

25	Benzo(b)fluorene Results	BdF	3.10	n/a
26	Fluoranthene	Fl	1.91	6.3
27	Pyrene	C0Py	9.39	15.5
28	c1-Fluoranthene Results	C1Py	150	142
29	c2-Fluoranthene/Pyrene Results	C2Py	630	300
30	c3-Fluoranthene/Pyrene Results	C3Py	556	427
31	c4-Fluoranthene/Pyrene Results	C4Py	432	n/a
32	Naphthobenzothiophene Results	C0B	15.7	69.0
33	c1-Naphthobenzothiophene Results	C1B	327	204
34	c2-Naphthobenzothiophene Results	C2B	227	288
35	c3-Naphthobenzothiophene Results	C3B	154	256
36	c4-Naphthobenzothiophene Results	C4B	71.5	n/a
37	Benz(A)Anthracene	BaA	7.23	3.2
38	Chrysene	C0C	61.0	57.9
39	c1-Benzo[a]anthracene/chrysene Results	C1C	235	149
40	c2-Benzo[a]anthracene/chrysene Results	C2C	592	332
41	c3-Benzo[a]anthracene/chrysene Results	C3C	445	294
42	c4-Benzo[a]anthracene/chrysene Results	C4C	486	n/a
43	Benzo(b)fluoranthene	BbF	13.8	8.4
44	Benzo(k)fluoranthene	BkF	1.81	0.0
45	Benzo(a)fluoranthene Results	BaF	4.09	n/a
46	Benzo(e)pyrene	BeP	18.3	17.7
47	Benzo(a)pyrene	BaP	5.76	2.3
48	Indeno(1,2,3-cd)Pyrene	IP	5.53	0.0
49	Dibenz(a,h)anthracene	DA	2.88	1.6
50	Benzo(g,h,i)Perylene	BP	4.77	3.5

Table S4)

S4a) Low level LSMD (100 mg/L) WAF TPAH concentration at T = 0, 24, 48, 72, 96 averaged of 4 replicates.

Oil type	**Low Sulfur Marine Diesel**	**Low Sulfur Marine Diesel**	**Low Sulfur Marine Diesel**	**Low Sulfur Marine Diesel**	**Low Sulfur Marine Diesel**
Sample Time	**T= 00 hr.**	**T= 24 hr.**	**T= 48 hr.**	**T= 72 hr.**	**T= 96 hr.**
Oil Concentration (mg/L)	**100 mg/L**	**100 mg/L**	**100 mg/L**	**100 mg/L**	**100 mg/L**
Sample Concentration	**ng/mL**	**ng/mL**	**ng/mL**	**ng/mL**	**ng/mL**
Naphthalene	7.364	2.136	0.690	0.383	0.091
c1-Naphthalene	10.999	2.876	2.933	1.003	0.587
c2-Naphthalene	5.455	1.122	1.238	0.843	0.572
c3-Naphthalene	3.398	0.891	2.378	2.225	1.405
c4-Naphthalene	0.267	0.756	0.257	0.000	0.000
Biphenyl	0.419	0.145	0.067	0.028	0.056
Dibenzofuran	0.049	0.031	0.023	0.000	0.027
Acenaphthylene	0.029	0.014	0.012	0.019	0.018
Acenaphthene	0.212	0.122	0.050	0.033	0.034
Fluorene	0.261	0.147	0.060	0.145	0.000
c1-Fluorene	0.439	0.285	0.000	0.000	0.000
c2-Fluorene	1.349	0.739	0.000	0.000	0.000
c3-Fluorene	0.101	0.209	0.000	0.000	0.000
Anthracene	0.170	0.242	0.345	0.285	0.412
Phenanthrene	0.166	0.071	0.027	0.000	0.000
c1-Phenanthrene/Anthracene	0.471	0.782	0.000	0.000	0.000
c2-Phenanthrene/Anthracene	0.342	0.437	0.000	0.000	0.000
c3-Phenanthrene/Anthracene	0.047	0.042	0.000	0.000	0.000

c4-Phenanthrene/Anthracene	0.042	0.000	0.000	0.000	0.000
Dibenzothiophene	0.013	0.013	0.000	0.016	0.000
c1-Dibenzothiophene	0.068	0.212	0.159	0.043	0.000
c2-Dibenzothiophene	0.054	0.098	0.000	0.000	0.000
c3-Dibenzothiophene	0.036	0.081	0.000	0.000	0.000
c4-Dibenzothiophene	0.000	0.000	0.000	0.000	0.000
Benzo(b)fluorene	0.000	0.000	0.000	0.000	0.000
Fluoranthene	0.003	0.010	0.000	0.000	0.000
Pyrene	0.005	0.000	0.000	0.000	0.000
c1-Fluoranthene/Pyrene	0.030	0.036	0.000	0.000	0.000
c2-Fluoranthene/Pyrene	0.055	0.093	0.000	0.000	0.000
c3-Fluoranthene/Pyrene	0.043	0.000	0.000	0.000	0.000
c4-Fluoranthene/Pyrene	0.000	0.000	0.000	0.000	0.000
Naphthobenzothiophene	0.000	0.000	0.000	0.000	0.000
C1-Naphthobenzothiophene	0.042	0.036	0.000	0.000	0.000
C2-Naphthobenzothiophene	0.000	0.000	0.000	0.000	0.000
C3-Naphthobenzothiophene	0.000	0.035	0.000	0.000	0.000
C4-Naphthobenzothiophene	0.000	0.016	0.000	0.000	0.000
Benzo(a)anthracene	0.000	0.000	0.000	0.000	0.000
Chrysene+ Tryphenylene	0.000	0.000	0.000	0.000	0.000
c1-Benzo[a]anthracene/chrysene	0.000	0.000	0.000	0.000	0.000
c2-Benzo[a]anthracene/chrysene	0.000	0.000	0.000	0.000	0.000
c3-Benzo[a]anthracene/chrysene	0.000	0.000	0.000	0.000	0.000
c4-Benzo[a]anthracene/chrysene	0.000	0.000	0.000	0.000	0.000

Benzo(b)fluoranthene	0.000	0.000	0.000	0.000	0.000
Benzo(J+k)fluoranthene	0.000	0.000	0.000	0.000	0.000
Benzo(a)fluoranthene	0.000	0.000	0.000	0.000	0.000
Benzo(e)pyrene	0.000	0.000	0.000	0.000	0.000
Benzo(a)pyrene	0.000	0.000	0.000	0.000	0.000
Indeno(1,2,3-cd)Pyrene	0.000	0.000	0.000	0.000	0.000
Dibenzo(a,h)Anthracene	0.000	0.000	0.000	0.000	0.000
Benzo(g,h,i)perylene	0.000	0.000	0.000	0.000	0.000

S4b) Mid-level LSMD (320 mg/L) WAF TPAH concentration at T = 0, 24, 48, 72, 96 averaged of 4 replicates.

Oil type	**Low Sulfur Marine Diesel**	**Low Sulfur Marine Diesel**	**Low Sulfur Marine Diesel**	**Low Sulfur Marine Diesel**	**Low Sulfur Marine Diesel**
Sample Time	**T= 00 hr.**	**T= 24 hr.**	**T= 48 hr.**	**T= 72 hr.**	**T= 96 hr.**
Oil Concentration (mg/L)	**320 mg/L**	**320 mg/L**	**320 mg/L**	**320 mg/L**	**320 mg/L**
Sample Concentration	**ng/mL**	**ng/mL**	**ng/mL**	**ng/mL**	**ng/mL**
Naphthalene	6.956	2.952	1.545	0.383	0.091
c1-Naphthalene	9.942	4.538	3.292	1.343	0.819
c2-Naphthalene	5.343	2.764	2.073	1.676	1.251
c3-Naphthalene	3.355	0.766	1.947	2.161	1.442
c4-Naphthalene	0.172	0.413	0.000	0.000	0.000
Biphenyl	0.445	0.150	0.037	0.037	0.064
Dibenzofuran	0.052	0.046	0.017	0.000	0.047
Acenaphthylene	0.027	0.000	0.000	0.008	0.000
Acenaphthene	0.230	0.123	0.021	0.043	0.039
Fluorene	0.243	0.108	0.000	0.139	0.000

c1-Fluorene	0.396	0.156	0.000	0.000	0.000
c2-Fluorene	0.401	0.372	0.000	0.000	0.000
c3-Fluorene	0.071	0.147	0.000	0.000	0.000
Anthracene	0.101	0.086	0.062	0.107	0.166
Phenanthrene	0.191	0.065	0.000	0.000	0.000
c1-Phenanthrene/Anthracene	0.278	0.293	0.000	0.000	0.000
c2-Phenanthrene/Anthracene	0.179	0.194	0.000	0.000	0.000
c3-Phenanthrene/Anthracene	0.042	0.028	0.000	0.000	0.000
c4-Phenanthrene/Anthracene	0.051	0.000	0.000	0.000	0.000
Dibenzothiophene	0.011	0.003	0.000	0.000	0.000
c1-Dibenzothiophene	0.120	0.213	0.035	0.041	0.000
c2-Dibenzothiophene	0.099	0.118	0.000	0.000	0.000
c3-Dibenzothiophene	0.056	0.108	0.000	0.000	0.000
c4-Dibenzothiophene	0.000	0.000	0.000	0.000	0.000
Benzo(b)fluorene	0.000	0.000	0.000	0.000	0.000
Fluoranthene	0.000	0.006	0.000	0.000	0.000
Pyrene	0.000	0.000	0.000	0.000	0.000
c1-Fluoranthene/Pyrene	0.027	0.041	0.000	0.000	0.000
c2-Fluoranthene/Pyrene	0.048	0.120	0.000	0.000	0.000
c3-Fluoranthene/Pyrene	0.063	0.000	0.000	0.000	0.000
c4-Fluoranthene/Pyrene	0.000	0.000	0.000	0.000	0.000
Naphthobenzothiophene	0.000	0.000	0.000	0.000	0.000
C1-Naphthobenzothiophene	0.046	0.036	0.000	0.000	0.000
C2-Naphthobenzothiophene	0.015	0.008	0.000	0.000	0.000
C3-Naphthobenzothiophene	0.035	0.039	0.000	0.000	0.000
C4-Naphthobenzothiophene	0.000	0.015	0.000	0.000	0.000
Benzo(a)anthracene	0.000	0.000	0.000	0.000	0.000
Chrysene+ Tryphenylene	0.000	0.000	0.000	0.000	0.000

c1-Benzo[a]anthracene/chrysene	0.000	0.000	0.000	0.000	0.000
c2-Benzo[a]anthracene/chrysene	0.000	0.000	0.000	0.000	0.000
c3-Benzo[a]anthracene/chrysene	0.000	0.000	0.000	0.000	0.000
c4-Benzo[a]anthracene/chrysene	0.000	0.000	0.000	0.000	0.000
Benzo(b)fluoranthene	0.000	0.000	0.000	0.000	0.000
Benzo(J+k)fluoranthene	0.000	0.000	0.000	0.000	0.000
Benzo(a)fluoranthene	0.000	0.000	0.000	0.000	0.000
Benzo(e)pyrene	0.000	0.000	0.000	0.000	0.000
Benzo(a)pyrene	0.000	0.000	0.000	0.000	0.000
Indeno(1,2,3-cd)Pyrene	0.000	0.000	0.000	0.000	0.000
Dibenzo(a,h)Anthracene	0.000	0.000	0.000	0.000	0.000
Benzo(g,h,i)perylene	0.000	0.000	0.000	0.000	0.000

S4c) High level LSMD (1000 mg/L) WAF TPAH concentration at T = 0, 24, 48, 72, 96 averaged of 4 replicates.

Oil type	**Low Sulfur Marine Diesel**	**Low Sulfur Marine Diesel**	**Low Sulfur Marine Diesel**	**Low Sulfur Marine Diesel**	**Low Sulfur Marine Diesel**
Sample Time	**T= 00 hr.**	**T= 24 hr.**	**T= 48 hr.**	**T= 72 hr.**	**T= 96 hr.**
Oil Concentration (mg/L)	**1000 mg/L**	**1000 mg/L**	**1000 mg/L**	**1000 mg/L**	**1000 mg/L**
Sample Concentration	**ng/mL**	**ng/mL**	**ng/mL**	**ng/mL**	**ng/mL**
Naphthalene	7.275	3.447	1.765	0.383	0.091
c1-Naphthalene	10.288	4.581	3.218	1.237	1.012

c2-Naphthalene	5.419	2.185	2.033	1.033	0.781
c3-Naphthalene	2.803	0.433	1.415	1.102	0.859
c4-Naphthalene	0.127	0.340	0.127	0.000	0.000
Biphenyl	0.470	0.158	0.097	0.049	0.075
Dibenzofuran	0.056	0.030	0.019	0.000	0.030
Acenaphthylene	0.020	0.000	0.000	0.005	0.000
Acenaphthene	0.196	0.123	0.054	0.046	0.041
Fluorene	0.185	0.071	0.017	0.132	0.000
c1-Fluorene	0.237	0.139	0.000	0.000	0.000
c2-Fluorene	0.218	0.329	0.000	0.000	0.000
c3-Fluorene	0.051	0.098	0.000	0.000	0.000
Anthracene	0.046	0.039	0.076	0.060	0.077
Phenanthrene	0.150	0.059	0.031	0.000	0.000
c1-Phenanthrene/Anthracene	0.189	0.178	0.000	0.000	0.000
c2-Phenanthrene/Anthracene	0.111	0.113	0.000	0.000	0.000
c3-Phenanthrene/Anthracene	0.000	0.000	0.000	0.000	0.000
c4-Phenanthrene/Anthracene	0.040	0.000	0.000	0.000	0.000
Dibenzothiophene	0.000	0.000	0.000	0.000	0.000
c1-Dibenzothiophene	0.148	0.213	0.159	0.045	0.000
c2-Dibenzothiophene	0.108	0.125	0.000	0.000	0.000
c3-Dibenzothiophene	0.078	0.092	0.000	0.000	0.000
c4-Dibenzothiophene	0.000	0.000	0.000	0.000	0.000
Benzo(b)fluorene	0.000	0.000	0.000	0.000	0.000
Fluoranthene	0.000	0.005	0.000	0.000	0.000
Pyrene	0.000	0.000	0.000	0.000	0.000
c1-Fluoranthene/Pyrene	0.025	0.034	0.000	0.000	0.000
c2-Fluoranthene/Pyrene	0.045	0.093	0.000	0.000	0.000
c3-Fluoranthene/Pyrene	0.000	0.000	0.000	0.000	0.000

c4-Fluoranthene/Pyrene	0.000	0.000	0.000	0.000	0.000
Naphthobenzothiophene	0.000	0.000	0.000	0.000	0.000
C1-Naphthobenzothiophene	0.052	0.039	0.000	0.000	0.000
C2-Naphthobenzothiophene	0.017	0.000	0.000	0.000	0.000
C3-Naphthobenzothiophene	0.045	0.041	0.000	0.000	0.000
C4-Naphthobenzothiophene	0.025	0.017	0.000	0.000	0.000
Benzo(a)anthracene	0.000	0.000	0.000	0.000	0.000
Chrysene+ Tryphenylene	0.000	0.000	0.000	0.000	0.000
c1-Benzo[a]anthracene/chrysene	0.000	0.000	0.000	0.000	0.000
c2-Benzo[a]anthracene/chrysene	0.000	0.000	0.000	0.000	0.000
c3-Benzo[a]anthracene/chrysene	0.000	0.000	0.000	0.000	0.000
c4-Benzo[a]anthracene/chrysene	0.000	0.000	0.000	0.000	0.000
Benzo(b)fluoranthene	0.000	0.000	0.000	0.000	0.000
Benzo(J+k)fluoranthene	0.000	0.000	0.000	0.000	0.000
Benzo(a)fluoranthene	0.000	0.000	0.000	0.000	0.000
Benzo(e)pyrene	0.000	0.000	0.000	0.000	0.000
Benzo(a)pyrene	0.000	0.000	0.000	0.000	0.000
Indeno(1,2,3-cd)Pyrene	0.000	0.000	0.000	0.000	0.000
Dibenzo(a,h)Anthracene	0.000	0.000	0.000	0.000	0.000
Benzo(g,h,i)perylene	0.000	0.000	0.000	0.000	0.000

S4e) Low level HSFO (100 mg/L) WAF TPAH concentration at T = 0, 24, 48, 72, 96 averaged of 4 replicates.

Oil type	**High Sulfur Marine Diesel**	**High Sulfur Marine Diesel**	**High Sulfur Marine Diesel**	**High Sulfur Marine Diesel**	**High Sulfur Marine Diesel**
Sample Time	**T= 00 hr.**	**T= 24 hr.**	**T= 48 hr.**	**T= 72 hr.**	**T= 96 hr.**
Oil Concentration (mg/L)	**100 mg/L**	**100 mg/L**	**100 mg/L**	**100 mg/L**	**100 mg/L**

Sample Concentration	ng/mL	ng/mL	ng/mL	ng/mL	ng/mL
Naphthalene	12.007	2.106	0.198	0.222	0.329
c1-Naphthalene	12.596	5.292	0.326	0.862	0.775
c2-Naphthalene	4.581	1.594	0.481	0.317	0.345
c3-Naphthalene	3.680	1.053	0.598	0.369	0.437
c4-Naphthalene	0.318	0.328	0.256	0.000	0.255
Biphenyl	0.209	0.090	0.026	0.000	0.000
Dibenzofuran	0.128	0.049	0.022	0.000	0.000
Acenaphthylene	0.018	0.012	0.011	0.000	0.000
Acenaphthene	0.430	0.136	0.065	0.043	0.037
Fluorene	0.435	0.164	0.073	0.034	0.030
c1-Fluorene	1.230	0.187	0.105	0.061	0.066
c2-Fluorene	1.621	0.339	0.251	0.123	0.067
c3-Fluorene	0.467	0.000	0.094	0.000	0.080
Anthracene	0.070	0.023	0.017	0.015	0.011
Phenanthrene	0.582	0.231	0.069	0.025	0.048
c1-Phenanthrene/Anthracene	1.212	0.355	0.188	0.108	0.111
c2-Phenanthrene/Anthracene	1.761	0.533	0.317	0.144	0.159
c3-Phenanthrene/Anthracene	0.862	0.267	0.226	0.108	0.147
c4-Phenanthrene/Anthracene	0.432	0.159	0.145	0.031	0.117
Dibenzothiophene	0.186	0.108	0.073	0.039	0.063
c1-Dibenzothiophene	0.694	0.268	0.251	0.152	0.109
c2-Dibenzothiophene	1.869	0.382	0.301	0.168	0.188
c3-Dibenzothiophene	1.546	0.304	0.193	0.101	0.159
c4-Dibenzothiophene	0.600	0.219	0.141	0.053	0.043
Benzo(b)fluorene	0.027	0.000	0.000	0.000	0.000
Fluoranthene	0.024	0.000	0.000	0.000	0.000
Pyrene	0.019	0.000	0.000	0.000	0.000

c1-Fluoranthene/Pyrene	0.620	0.117	0.102	0.052	0.061
c2-Fluoranthene/Pyrene	2.191	0.417	0.336	0.188	0.256
c3-Fluoranthene/Pyrene	0.761	0.307	0.313	0.121	0.228
c4-Fluoranthene/Pyrene	0.445	0.141	0.116	0.059	0.082
Naphthobenzothiophene	0.000	0.000	0.000	0.000	0.000
C1-Naphthobenzothiophene	0.590	0.381	0.215	0.142	0.176
C2-Naphthobenzothiophene	0.213	0.170	0.120	0.075	0.079
C3-Naphthobenzothiophene	0.320	0.164	0.136	0.082	0.100
C4-Naphthobenzothiophene	0.282	0.070	0.060	0.040	0.030
Benzo(a)anthracene	0.109	0.018	0.003	0.000	0.000
Chrysene+ Tryphenylene	0.189	0.033	0.014	0.008	0.000
c1-Benzo[a]anthracene/chrysene	0.588	0.095	0.060	0.037	0.049
c2-Benzo[a]anthracene/chrysene	2.501	0.204	0.225	0.171	0.253
c3-Benzo[a]anthracene/chrysene	1.746	0.312	0.272	0.033	0.258
c4-Benzo[a]anthracene/chrysene	0.149	0.000	0.175	0.000	0.000
Benzo(b)fluoranthene	0.049	0.000	0.000	0.000	0.000
Benzo(J+k)fluoranthene	0.003	0.000	0.000	0.000	0.000
Benzo(a)fluoranthene	0.000	0.000	0.000	0.000	0.000
Benzo(e)pyrene	0.054	0.015	0.000	0.000	0.000
Benzo(a)pyrene	0.049	0.014	0.000	0.000	0.000
Indeno(1,2,3-cd)Pyrene	0.000	0.000	0.000	0.000	0.000
Dibenzo(a,h)Anthracene	0.017	0.000	0.000	0.000	0.000
Benzo(g,h,i)perylene	0.022	0.000	0.000	0.000	0.000

S4f) Mid-level HSFO (320 mg/L) WAF TPAH concentration at T = 0, 24, 48, 72, 96 averaged of 4 replicates.

Oil type	**High Sulfur Marine Diesel**	**High Sulfur Marine Diesel**	**High Sulfur Marine Diesel**	**High Sulfur Marine Diesel**	**High Sulfur Marine Diesel**
Sample Time	**T= 00 hr.**	**T= 24 hr.**	**T= 48 hr.**	**T= 72 hr.**	**T= 96 hr.**
Oil Concentration (mg/L)	**320 mg/L**	**320 mg/L**	**320 mg/L**	**320 mg/L**	**320 mg/L**
Sample Concentration	**ng/mL**	**ng/mL**	**ng/mL**	**ng/mL**	**ng/mL**
Naphthalene	27.170	2.963	0.169	0.455	0.528
c1-Naphthalene	28.672	13.937	0.786	1.589	1.473
c2-Naphthalene	14.142	5.493	0.737	0.664	0.543
c3-Naphthalene	12.563	3.589	2.065	0.520	0.738
c4-Naphthalene	1.205	0.541	0.675	0.547	0.423
Biphenyl	0.451	0.180	0.105	0.033	0.033
Dibenzofuran	0.326	0.084	0.046	0.023	0.024
Acenaphthylene	0.081	0.029	0.022	0.021	0.021
Acenaphthene	0.571	0.331	0.183	0.133	0.074
Fluorene	0.898	0.428	0.175	0.104	0.055
c1-Fluorene	2.954	1.769	0.340	0.228	0.108
c2-Fluorene	5.293	1.589	1.196	0.347	0.275
c3-Fluorene	0.658	0.433	0.197	0.112	0.185
Anthracene	0.323	0.075	0.052	0.046	0.040
Phenanthrene	1.777	0.498	0.290	0.070	0.076
c1-Phenanthrene/Anthracene	5.902	1.675	0.797	0.557	0.352
c2-Phenanthrene/Anthracene	7.102	2.661	0.655	0.829	0.599
c3-Phenanthrene/Anthracene	4.421	1.362	0.306	0.438	0.449
c4-Phenanthrene/Anthracene	2.105	0.692	0.138	0.204	0.342
Dibenzothiophene	0.433	0.233	0.148	0.098	0.108

c1-Dibenzothiophene	3.032	1.100	0.697	0.345	0.328
c2-Dibenzothiophene	5.017	1.997	1.524	1.056	0.958
c3-Dibenzothiophene	5.206	2.026	1.050	0.883	0.994
c4-Dibenzothiophene	2.239	0.881	0.349	0.318	0.384
Benzo(b)fluorene	0.178	0.033	0.026	0.000	0.000
Fluoranthene	0.100	0.027	0.020	0.011	0.000
Pyrene	0.078	0.029	0.018	0.011	0.000
c1-Fluoranthene/Pyrene	2.282	0.917	0.352	0.249	0.245
c2-Fluoranthene/Pyrene	10.302	3.439	0.628	1.132	1.334
c3-Fluoranthene/Pyrene	3.409	1.071	0.359	0.509	0.897
c4-Fluoranthene/Pyrene	1.471	0.749	0.434	0.233	0.323
Naphthobenzothiophene	0.053	0.000	0.000	0.000	0.000
C1-Naphthobenzothiophene	2.851	1.038	0.363	0.808	0.792
C2-Naphthobenzothiophene	2.456	0.490	0.935	0.442	0.495
C3-Naphthobenzothiophene	2.388	0.494	0.511	0.380	0.503
C4-Naphthobenzothiophene	0.543	0.394	0.307	0.169	0.191
Benzo(a)anthracene	0.462	0.139	0.080	0.035	0.043
Chrysene+ Tryphenylene	0.737	0.227	0.127	0.074	0.073
c1-Benzo[a]anthracene/chrysene	1.773	0.570	0.534	0.225	0.295
c2-Benzo[a]anthracene/chrysene	8.678	3.252	2.016	1.609	0.902
c3-Benzo[a]anthracene/chrysene	8.749	2.996	0.878	0.307	1.971
c4-Benzo[a]anthracene/chrysene	2.122	0.124	0.239	0.042	0.000
Benzo(b)fluoranthene	0.168	0.034	0.030	0.022	0.018
Benzo(J+k)fluoranthene	0.025	0.000	0.000	0.000	0.008
Benzo(a)fluoranthene	0.000	0.000	0.000	0.000	0.000

Benzo(e)pyrene	0.238	0.092	0.049	0.039	0.033
Benzo(a)pyrene	0.267	0.102	0.056	0.040	0.041
Indeno(1,2,3-cd)Pyrene	0.042	0.000	0.000	0.000	0.000
Dibenzo(a,h)Anthracene	0.063	0.018	0.017	0.014	0.000
Benzo(g,h,i)perylene	0.111	0.040	0.032	0.026	0.021

S4g) High level HSFO (1000 mg/L) WAF TPAH concentration at T = 0, 24, 48, 72, 96 averaged of 4 replicates.

Oil type	**High Sulfur Marine Diesel**	**High Sulfur Marine Diesel**	**High Sulfur Marine Diesel**	**High Sulfur Marine Diesel**	**High Sulfur Marine Diesel**
Sample Time	**T= 00 hr.**	**T= 24 hr.**	**T= 48 hr.**	**T= 72 hr.**	**T= 96 hr.**
Oil Concentration (mg/L)	**1000 mg/L**	**1000 mg/L**	**1000 mg/L**	**1000 mg/L**	**1000 mg/L**
Sample Concentration	**ng/mL**	**ng/mL**	**ng/mL**	**ng/mL**	**ng/mL**
Naphthalene	64.307	9.229	0.229	0.912	0.724
c1-Naphthalene	62.204	22.353	3.950	2.754	1.485
c2-Naphthalene	47.843	14.062	5.191	2.252	1.405
c3-Naphthalene	59.372	24.149	12.245	4.319	2.563
c4-Naphthalene	5.428	2.813	2.237	0.893	0.647
Biphenyl	2.083	0.376	0.196	0.091	0.073
Dibenzofuran	1.161	0.296	0.114	0.067	0.030
Acenaphthylene	0.188	0.114	0.066	0.046	0.037
Acenaphthene	1.506	0.734	0.311	0.259	0.169
Fluorene	2.112	0.996	0.433	0.293	0.176
c1-Fluorene	11.044	6.165	0.998	0.932	0.499
c2-Fluorene	19.545	12.094	2.660	0.806	0.526
c3-Fluorene	2.116	1.415	1.319	0.462	0.396

Anthracene	0.806	0.415	0.207	0.169	0.109
Phenanthrene	5.687	2.193	0.824	0.535	0.302
c1-Phenanthrene/Anthracene	22.534	13.529	4.197	3.283	3.436
c2-Phenanthrene/Anthracene	36.945	24.501	3.530	4.525	3.375
c3-Phenanthrene/Anthracene	18.556	10.199	1.114	2.905	2.258
c4-Phenanthrene/Anthracene	8.487	5.697	0.339	0.958	0.916
Dibenzothiophene	3.607	0.688	0.300	0.191	0.200
c1-Dibenzothiophene	11.403	6.754	2.515	1.789	1.407
c2-Dibenzothiophene	21.150	12.413	5.077	3.969	2.827
c3-Dibenzothiophene	19.581	13.997	4.328	2.762	2.557
c4-Dibenzothiophene	8.819	4.462	1.644	1.258	1.207
Benzo(b)fluorene	0.552	0.404	0.099	0.084	0.000
Fluoranthene	0.258	0.169	0.069	0.048	0.038
Pyrene	0.277	0.182	0.068	0.040	0.031
c1-Fluoranthene/Pyrene	8.695	5.925	0.426	1.175	1.286
c2-Fluoranthene/Pyrene	45.132	27.922	1.831	6.385	5.975
c3-Fluoranthene/Pyrene	12.851	8.047	0.593	1.819	1.543
c4-Fluoranthene/Pyrene	6.144	5.932	0.676	1.273	1.211
Naphthobenzothiophene	0.212	0.133	0.036	0.027	0.026
C1-Naphthobenzothiophene	15.712	10.693	2.191	2.694	1.968
C2-Naphthobenzothiophene	9.079	5.525	1.706	1.869	1.183
C3-Naphthobenzothiophene	8.550	5.168	0.857	1.540	0.970
C4-Naphthobenzothiophene	4.149	2.589	1.401	0.639	0.631
Benzo(a)anthracene	1.731	1.210	0.445	0.235	0.246
Chrysene+ Tryphenylene	2.486	1.117	0.495	0.480	0.312
c1-Benzo[a]anthracene/chrysene	8.532	6.161	1.726	1.268	0.934
c2-Benzo[a]anthracene/chrysene	33.604	24.263	6.833	5.990	2.128

c3-Benzo[a]anthracene/chrysene	38.105	30.323	4.371	4.790	5.640
c4-Benzo[a]anthracene/chrysene	8.296	5.338	0.814	0.529	0.380
Benzo(b)fluoranthene	0.664	0.640	0.095	0.091	0.064
Benzo(J+k)fluoranthene	0.080	0.073	0.021	0.019	0.020
Benzo(a)fluoranthene	0.026	0.014	0.000	0.000	0.000
Benzo(e)pyrene	1.179	0.886	0.153	0.141	0.118
Benzo(a)pyrene	1.235	0.878	0.206	0.162	0.134
Indeno(1,2,3-cd)Pyrene	0.066	0.064	0.008	0.021	0.006
Dibenzo(a,h)Anthracene	0.336	0.128	0.045	0.050	0.032
Benzo(g,h,i)perylene	0.642	0.245	0.085	0.082	0.075

S4h) Low level Dilbit (100 mg/L) WAF TPAH concentration at T = 0, 24, 48, 72, 96 averaged of 4 replicates.

Oil type	**Dilbit**	**Dilbit**	**Dilbit**	**Dilbit**	**Dilbit**
Sample Time	**T= 00 hr.**	**T= 24 hr.**	**T= 48 hr.**	**T= 72 hr.**	**T= 96 hr.**
Oil Concentration (mg/L)	**100 mg/L**	**100 mg/L**	**100 mg/L**	**100 mg/L**	**100 mg/L**
Sample Concentration	**ng/mL**	**ng/mL**	**ng/mL**	**ng/mL**	**ng/mL**
Naphthalene	0.423	0.222	0.053	0.048	0.042
c1-Naphthalene	0.644	0.222	0.066	0.047	0.050
c2-Naphthalene	0.794	0.224	0.132	0.057	0.065
c3-Naphthalene	0.742	0.124	0.038	0.048	0.066
c4-Naphthalene	0.113	0.060	0.000	0.000	0.000
Biphenyl	0.043	0.000	0.000	0.000	0.000
Dibenzofuran	0.000	0.000	0.000	0.000	0.000
Acenaphthylene	0.000	0.000	0.000	0.000	0.000
Acenaphthene	0.038	0.021	0.000	0.000	0.000

Fluorene	0.082	0.027	0.000	0.000	0.000
c1-Fluorene	0.238	0.060	0.044	0.016	0.000
c2-Fluorene	0.446	0.123	0.146	0.045	0.089
c3-Fluorene	0.134	0.042	0.000	0.000	0.000
Anthracene	0.000	0.000	0.000	0.000	0.000
Phenanthrene	0.255	0.045	0.013	0.008	0.008
c1-Phenanthrene/Anthracene	0.389	0.075	0.000	0.000	0.000
c2-Phenanthrene/Anthracene	0.408	0.078	0.067	0.044	0.060
c3-Phenanthrene/Anthracene	0.254	0.053	0.000	0.000	0.000
c4-Phenanthrene/Anthracene	0.096	0.054	0.000	0.032	0.041
Dibenzothiophene	0.130	0.045	0.028	0.000	0.000
c1-Dibenzothiophene	0.243	0.072	0.082	0.039	0.052
c2-Dibenzothiophene	0.446	0.060	0.041	0.027	0.034
c3-Dibenzothiophene	0.425	0.063	0.052	0.035	0.040
c4-Dibenzothiophene	0.599	0.059	0.072	0.000	0.041
Benzo(b)fluorene	0.000	0.000	0.000	0.000	0.000
Fluoranthene	0.000	0.000	0.000	0.000	0.000
Pyrene	0.000	0.000	0.000	0.000	0.000
c1-Fluoranthene/Pyrene	0.096	0.055	0.044	0.000	0.000
c2-Fluoranthene/Pyrene	0.235	0.046	0.000	0.000	0.000
c3-Fluoranthene/Pyrene	0.261	0.072	0.022	0.029	0.032
c4-Fluoranthene/Pyrene	0.182	0.000	0.035	0.029	0.000
Naphthobenzothiophene	0.000	0.000	0.000	0.000	0.000
C1-Naphthobenzothiophene	0.418	0.033	0.000	0.000	0.000
C2-Naphthobenzothiophene	0.203	0.025	0.000	0.000	0.006
C3-Naphthobenzothiophene	0.187	0.070	0.000	0.000	0.007
C4-Naphthobenzothiophene	0.127	0.000	0.000	0.000	0.000
Benzo(a)anthracene	0.000	0.000	0.000	0.000	0.000

Chrysene+ Tryphenylene	0.018	0.000	0.000	0.000	0.000
c1-Benzo[a]anthracene/chrysene	0.044	0.000	0.000	0.000	0.000
c2-Benzo[a]anthracene/chrysene	0.194	0.000	0.000	0.000	0.000
c3-Benzo[a]anthracene/chrysene	0.196	0.134	0.000	0.000	0.000
c4-Benzo[a]anthracene/chrysene	0.149	0.000	0.000	0.000	0.000
Benzo(b)fluoranthene	0.000	0.000	0.000	0.000	0.000
Benzo(J+k)fluoranthene	0.000	0.000	0.000	0.000	0.000
Benzo(a)fluoranthene	0.000	0.000	0.000	0.000	0.000
Benzo(e)pyrene	0.000	0.000	0.000	0.000	0.000
Benzo(a)pyrene	0.000	0.000	0.000	0.000	0.000
Indeno(1,2,3-cd)Pyrene	0.000	0.000	0.000	0.000	0.000
Dibenzo(a,h)Anthracene	0.000	0.000	0.000	0.000	0.000
Benzo(g,h,i)perylene	0.000	0.000	0.000	0.000	0.000

S4i) Mid-level Dilbit (320 mg/L) WAF TPAH concentration at T = 0, 24, 48, 72, 96 averaged of 4 replicates.

Oil type	**Dilbit**	**Dilbit**	**Dilbit**	**Dilbit**	**Dilbit**
Sample Time	**T= 00 hr.**	**T= 24 hr.**	**T= 48 hr.**	**T= 72 hr.**	**T= 96 hr.**
Oil Concentration (mg/L)	**320 mg/L**	**320 mg/L**	**320 mg/L**	**320 mg/L**	**320 mg/L**
Sample Concentration	**ng/mL**	**ng/mL**	**ng/mL**	**ng/mL**	**ng/mL**
Naphthalene	2.174	0.484	0.105	0.105	0.076
c1-Naphthalene	1.938	0.441	0.169	0.118	0.092
c2-Naphthalene	2.048	0.346	0.166	0.103	0.080
c3-Naphthalene	1.832	0.215	0.067	0.081	0.075
c4-Naphthalene	0.214	0.081	0.023	0.000	0.041

Biphenyl	0.074	0.034	0.026	0.000	0.000
Dibenzofuran	0.019	0.000	0.000	0.000	0.000
Acenaphthylene	0.000	0.000	0.000	0.000	0.000
Acenaphthene	0.094	0.031	0.000	0.000	0.000
Fluorene	0.186	0.046	0.016	0.000	0.000
c1-Fluorene	0.492	0.091	0.051	0.023	0.000
c2-Fluorene	0.860	0.149	0.146	0.083	0.091
c3-Fluorene	0.227	0.047	0.000	0.000	0.000
Anthracene	0.024	0.000	0.000	0.000	0.000
Phenanthrene	0.424	0.081	0.027	0.011	0.011
c1-Phenanthrene/Anthracene	0.763	0.136	0.092	0.036	0.051
c2-Phenanthrene/Anthracene	0.829	0.151	0.097	0.071	0.063
c3-Phenanthrene/Anthracene	0.557	0.100	0.042	0.030	0.034
c4-Phenanthrene/Anthracene	0.192	0.102	0.037	0.057	0.062
Dibenzothiophene	0.217	0.070	0.043	0.019	0.024
c1-Dibenzothiophene	0.618	0.110	0.127	0.083	0.082
c2-Dibenzothiophene	1.072	0.149	0.088	0.051	0.049
c3-Dibenzothiophene	1.026	0.139	0.090	0.064	0.052
c4-Dibenzothiophene	1.282	0.111	0.087	0.054	0.052
Benzo(b)fluorene	0.000	0.000	0.000	0.000	0.000
Fluoranthene	0.011	0.000	0.000	0.000	0.000
Pyrene	0.011	0.000	0.000	0.000	0.000
c1-Fluoranthene/Pyrene	0.178	0.066	0.069	0.042	0.000
c2-Fluoranthene/Pyrene	0.452	0.082	0.025	0.044	0.050
c3-Fluoranthene/Pyrene	0.497	0.104	0.044	0.050	0.047
c4-Fluoranthene/Pyrene	0.413	0.054	0.054	0.042	0.033
Naphthobenzothiophene	0.000	0.000	0.000	0.000	0.000
C1-Naphthobenzothiophene	0.958	0.070	0.028	0.019	0.022

C2-Naphthobenzothiophene	0.434	0.051	0.033	0.022	0.023
C3-Naphthobenzothiophene	0.314	0.104	0.026	0.024	0.030
C4-Naphthobenzothiophene	0.250	0.000	0.000	0.000	0.000
Benzo(a)anthracene	0.015	0.000	0.000	0.000	0.000
Chrysene+ Tryphenylene	0.031	0.000	0.000	0.000	0.000
c1-Benzo[a]anthracene/chrysene	0.124	0.027	0.027	0.000	0.000
c2-Benzo[a]anthracene/chrysene	0.296	0.000	0.000	0.000	0.000
c3-Benzo[a]anthracene/chrysene	0.385	0.121	0.000	0.000	0.000
c4-Benzo[a]anthracene/chrysene	0.186	0.000	0.000	0.000	0.000
Benzo(b)fluoranthene	0.000	0.000	0.000	0.000	0.000
Benzo(J+k)fluoranthene	0.000	0.000	0.000	0.000	0.000
Benzo(a)fluoranthene	0.000	0.000	0.000	0.000	0.000
Benzo(e)pyrene	0.000	0.000	0.000	0.000	0.000
Benzo(a)pyrene	0.000	0.000	0.000	0.000	0.000
Indeno(1,2,3-cd)Pyrene	0.000	0.000	0.000	0.000	0.000
Dibenzo(a,h)Anthracene	0.000	0.000	0.000	0.000	0.000
Benzo(g,h,i)perylene	0.000	0.000	0.000	0.000	0.000

S4j) High level Dilbit (1000 mg/L) WAF TPAH concentration at T = 0, 24, 48, 72, 96 averaged of 4 replicates.

Oil type	**Dilbit**	**Dilbit**	**Dilbit**	**Dilbit**	**Dilbit**
Sample Time	**T= 00 hr.**	**T= 24 hr.**	**T= 48 hr.**	**T= 72 hr.**	**T= 96 hr.**
Oil Concentration (mg/L)	**1000 mg/L**	**1000 mg/L**	**1000 mg/L**	**1000 mg/L**	**1000 mg/L**
Sample Concentration	**ng/mL**	**ng/mL**	**ng/mL**	**ng/mL**	**ng/mL**

Naphthalene	2.219	0.866	0.254	0.126	0.090
c1-Naphthalene	1.691	0.513	0.237	0.163	0.112
c2-Naphthalene	1.825	0.428	0.221	0.125	0.094
c3-Naphthalene	1.939	0.261	0.099	0.091	0.085
c4-Naphthalene	0.305	0.104	0.030	0.000	0.048
Biphenyl	0.095	0.041	0.032	0.000	0.000
Dibenzofuran	0.031	0.000	0.000	0.000	0.000
Acenaphthylene	0.000	0.000	0.000	0.000	0.000
Acenaphthene	0.085	0.035	0.014	0.000	0.000
Fluorene	0.188	0.057	0.034	0.000	0.000
c1-Fluorene	0.600	0.099	0.067	0.025	0.000
c2-Fluorene	1.004	0.184	0.165	0.102	0.093
c3-Fluorene	0.276	0.049	0.000	0.000	0.000
Anthracene	0.036	0.000	0.000	0.000	0.000
Phenanthrene	0.474	0.101	0.040	0.011	0.012
c1-Phenanthrene/Anthracene	0.898	0.169	0.105	0.050	0.051
c2-Phenanthrene/Anthracene	1.122	0.232	0.133	0.091	0.076
c3-Phenanthrene/Anthracene	0.812	0.211	0.078	0.061	0.045
c4-Phenanthrene/Anthracene	0.332	0.154	0.065	0.077	0.066
Dibenzothiophene	0.223	0.073	0.048	0.023	0.025
c1-Dibenzothiophene	0.752	0.140	0.146	0.091	0.084
c2-Dibenzothiophene	1.389	0.223	0.134	0.081	0.063
c3-Dibenzothiophene	1.640	0.244	0.152	0.110	0.085
c4-Dibenzothiophene	1.654	0.208	0.115	0.086	0.057
Benzo(b)fluorene	0.000	0.000	0.000	0.000	0.000
Fluoranthene	0.019	0.000	0.000	0.000	0.000
Pyrene	0.017	0.000	0.000	0.000	0.000
c1-Fluoranthene/Pyrene	0.277	0.131	0.094	0.067	0.000

c2-Fluoranthene/Pyrene	0.597	0.146	0.052	0.063	0.055
c3-Fluoranthene/Pyrene	0.838	0.169	0.066	0.077	0.065
c4-Fluoranthene/Pyrene	0.680	0.085	0.068	0.058	0.041
Naphthobenzothiophene	0.000	0.000	0.000	0.000	0.000
C1-Naphthobenzothiophene	1.480	0.105	0.063	0.038	0.030
C2-Naphthobenzothiophene	0.907	0.108	0.051	0.047	0.028
C3-Naphthobenzothiophene	0.652	0.118	0.043	0.033	0.036
C4-Naphthobenzothiophene	0.485	0.021	0.000	0.000	0.000
Benzo(a)anthracene	0.018	0.000	0.000	0.000	0.000
Chrysene+ Tryphenylene	0.049	0.011	0.000	0.000	0.000
c1-Benzo[a]anthracene/chrysene	0.178	0.049	0.034	0.016	0.000
c2-Benzo[a]anthracene/chrysene	0.404	0.000	0.000	0.000	0.000
c3-Benzo[a]anthracene/chrysene	0.483	0.117	0.000	0.000	0.000
c4-Benzo[a]anthracene/chrysene	0.213	0.000	0.000	0.000	0.000
Benzo(b)fluoranthene	0.014	0.000	0.000	0.000	0.000
Benzo(J+k)fluoranthene	0.000	0.000	0.000	0.000	0.000
Benzo(a)fluoranthene	0.000	0.000	0.000	0.000	0.000
Benzo(e)pyrene	0.000	0.000	0.000	0.000	0.000
Benzo(a)pyrene	0.010	0.000	0.000	0.000	0.000
Indeno(1,2,3-cd)Pyrene	0.000	0.000	0.000	0.000	0.000
Dibenzo(a,h)Anthracene	0.000	0.000	0.000	0.000	0.000
Benzo(g,h,i)perylene	0.000	0.000	0.000	0.000	0.000

Table S5) Determination of seawater matrix effect using 16 replicate seawater blanks (B1-B16) for TPAH 50 analysis. All 16 blanks have concentrations lower than the LOQ (0.01 ng/mL) for all 50 TPAH analytes.

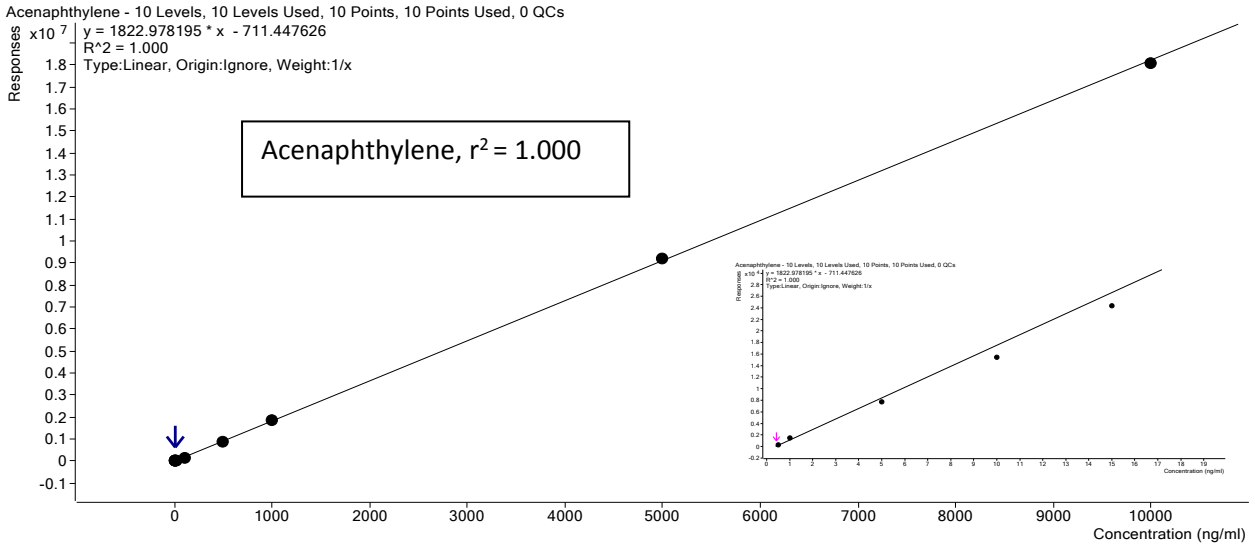
Sample	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**B8**	**B9**	**B10**	**B11**	**B12**	**B13**	**B14**	**B15**	**B16**
Sample Concentration	**ng/mL**	**ng/mL**	**ng/mL**	**ng/mL**	**ng/mL**	**ng/mL**	**ng/mL**	**ng/mL**	**ng/mL**	**ng/mL**	**ng/mL**	**ng/mL**	**ng/mL**	**ng/mL**	**ng/mL**	**ng/mL**
Naphthalene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
c1-Naphthalene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
c2-Naphthalene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
c3-Naphthalene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
c4-Naphthalene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
Biphenyl	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
Dibenzofuran	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ

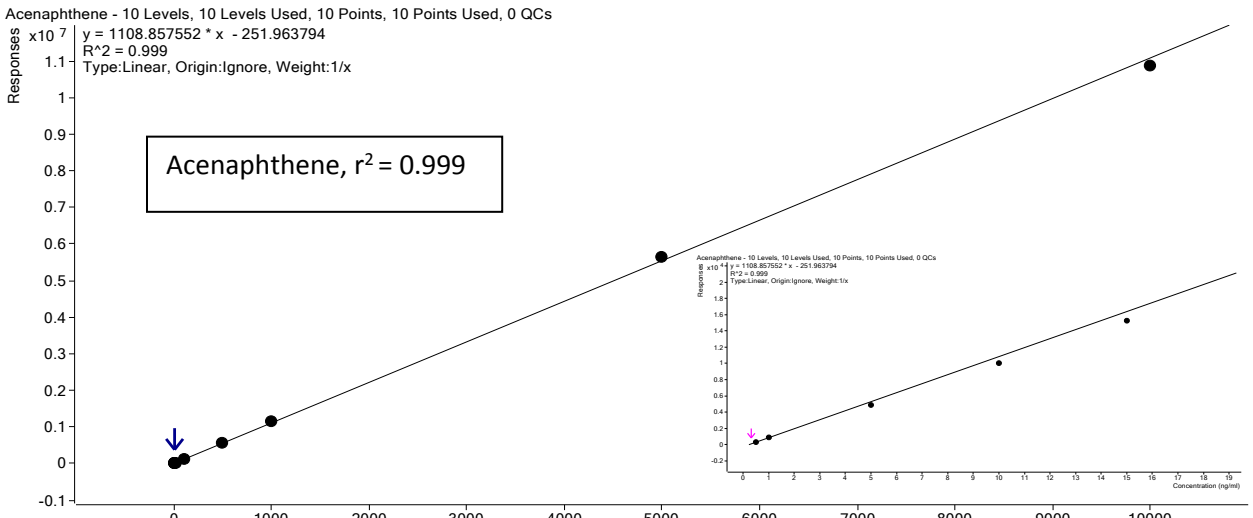
Acenaphthylene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
Acenaphthene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
Fluorene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
c1-Fluorene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
c2-Fluorene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
c3-Fluorene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
Anthracene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
Phenanthrene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
c1-Phenanthrene/Anthracene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
c2-Phenanthrene/Anthracene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
c3-Phenanthrene/Anthracene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
c4-Phenanthrene/Anthracene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
Dibenzothiophene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
c1-Dibenzothiophene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ

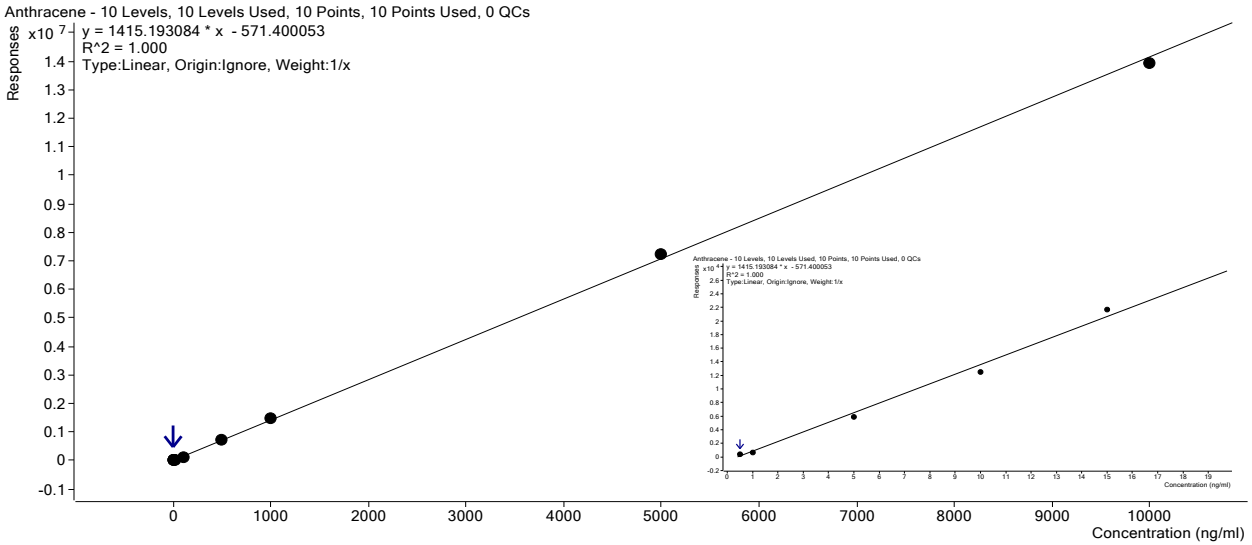
c2-Dibenzothiophene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
c3-Dibenzothiophene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
c4-Dibenzothiophene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
Benzo(b)fluorene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
Fluoranthene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
Pyrene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
c1-Fluoranthene/Pyrene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
c2-Fluoranthene/Pyrene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
c3-Fluoranthene/Pyrene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
c4-Fluoranthene/Pyrene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
Naphthobenzothiophene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
C1-Naphthobenzothiophene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
C2-Naphthobenzothiophene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
C3-Naphthobenzothiophene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
C4-Naphthobenzothiophene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ

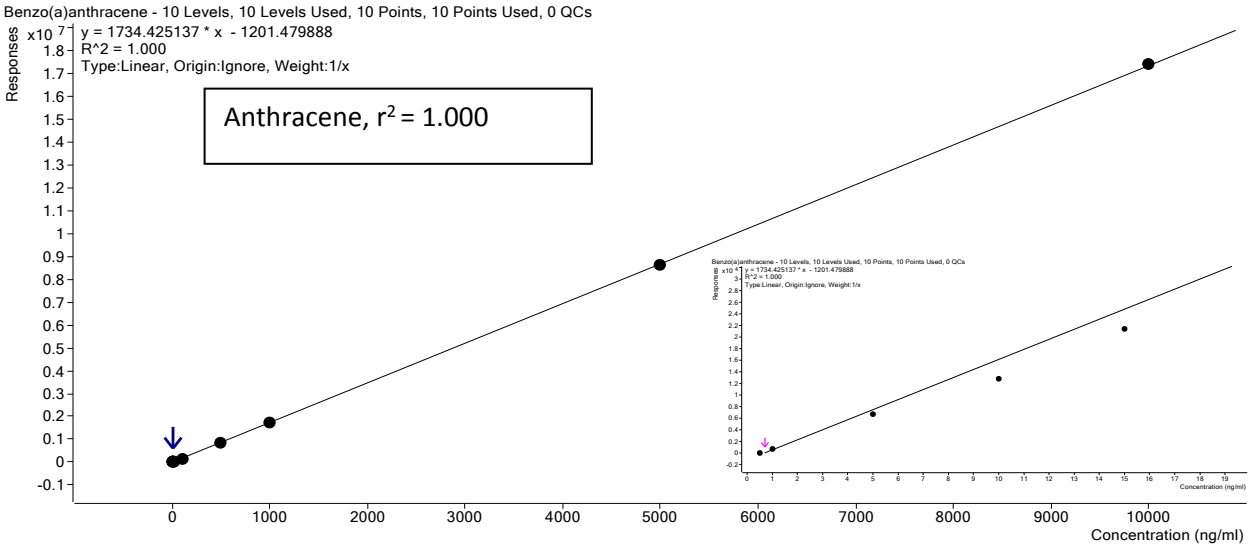
Benzo(a)anthracene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
Chrysene+ Tryphenylene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
c1-Benzo[a]anthracene/chrysene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
c2-Benzo[a]anthracene/chrysene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
c3-Benzo[a]anthracene/chrysene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
c4-Benzo[a]anthracene/chrysene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
Benzo(b)fluoranthene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
Benzo(J+k)fluoranthene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
Benzo(a)fluoranthene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
Benzo(e)pyrene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
Benzo(a)pyrene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
Indeno(1,2,3-cd)Pyrene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
Dibenzo(a,h)Anthracene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
Benzo(g,h,i)perylene	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ

Figure S1) 18 PAH linear calibration curves from 0.5 µg/L to 10000 µg/L showing linearity with r^2 values of > 0.995. 5 of the lower end calibration points are also shown to scale to demonstrate linearity of both low and high concentrations.



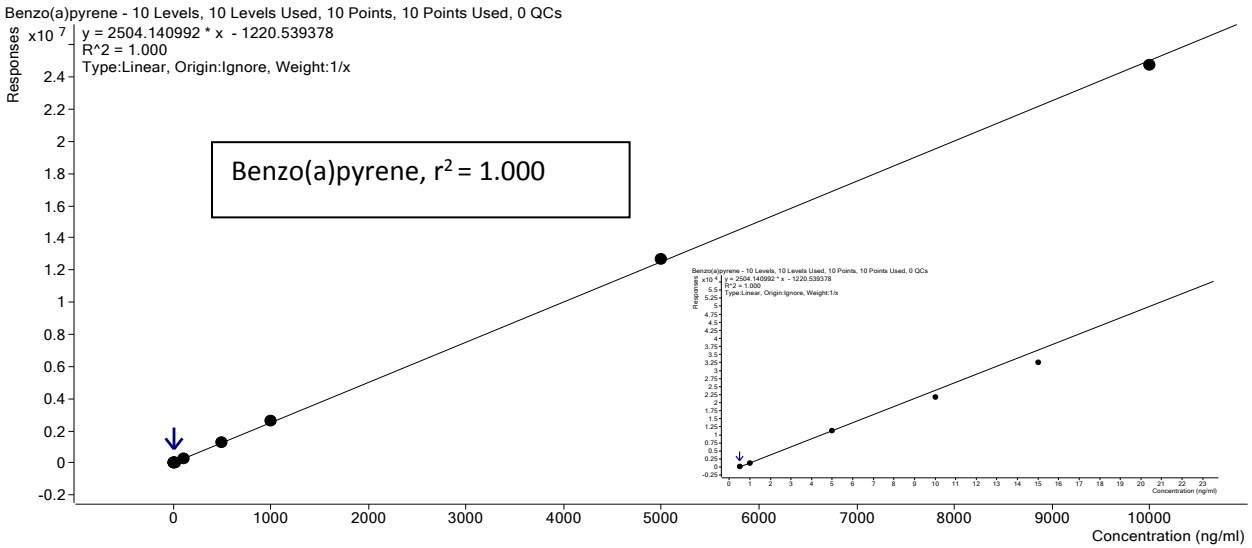


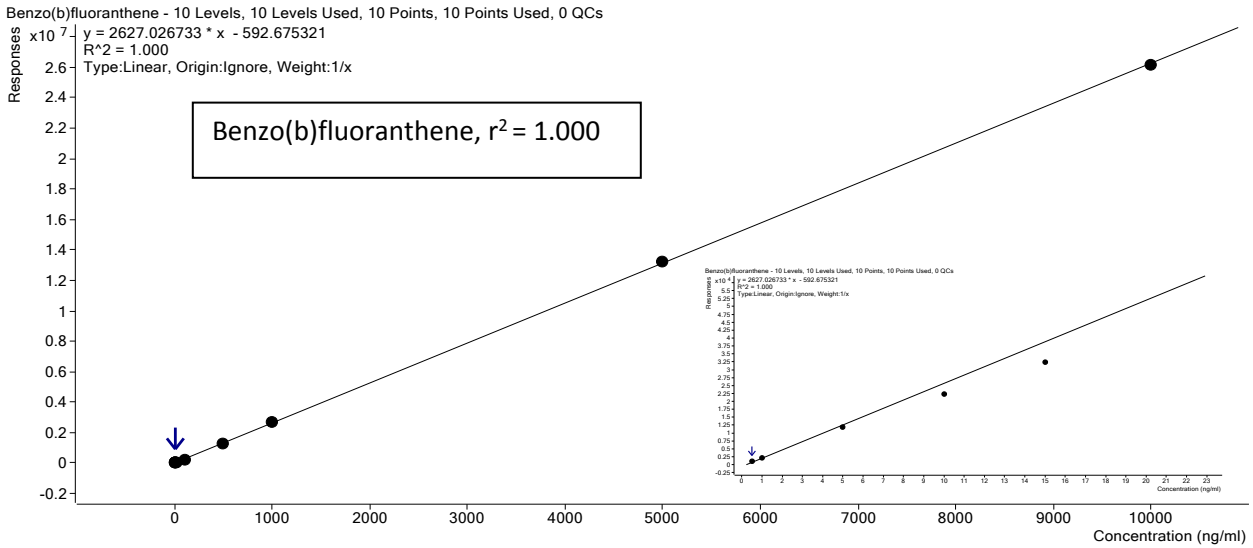


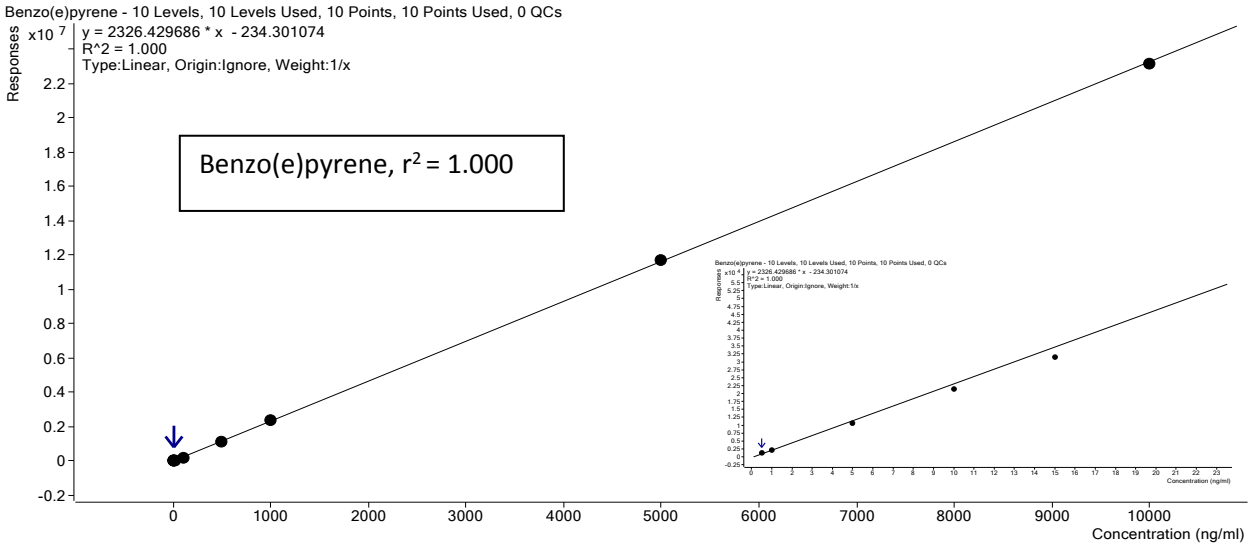


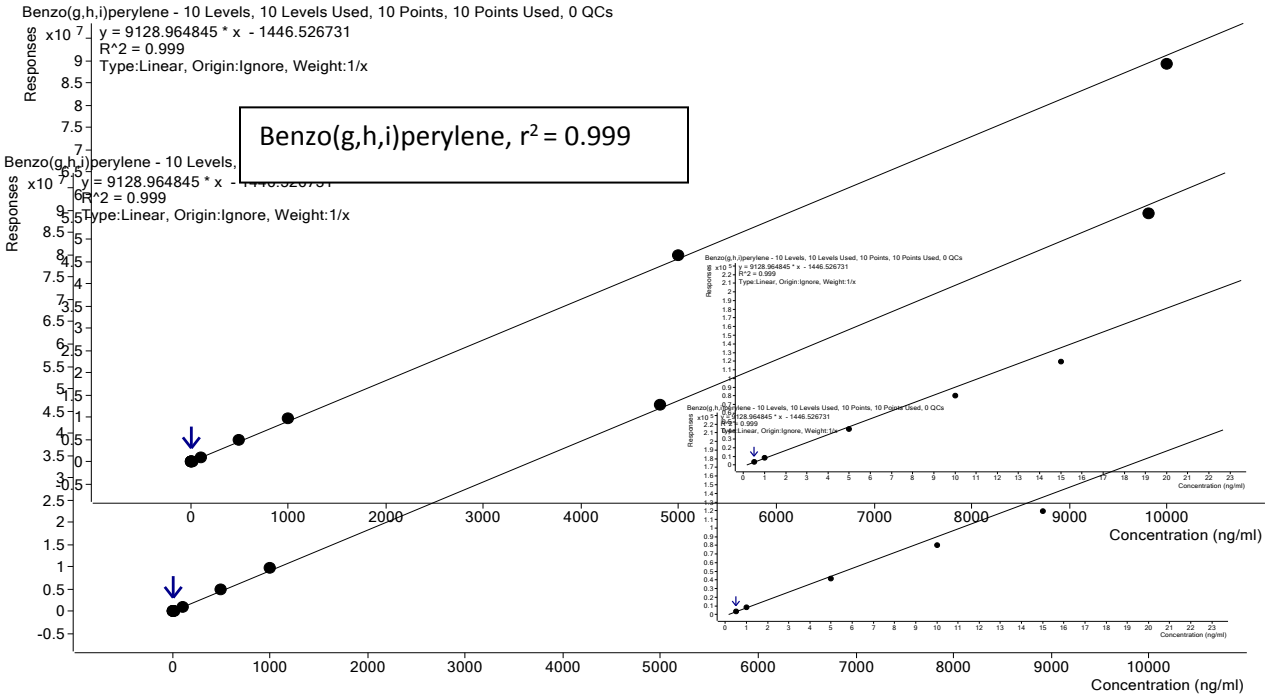
Anthracene, $r^2 = 1.000$

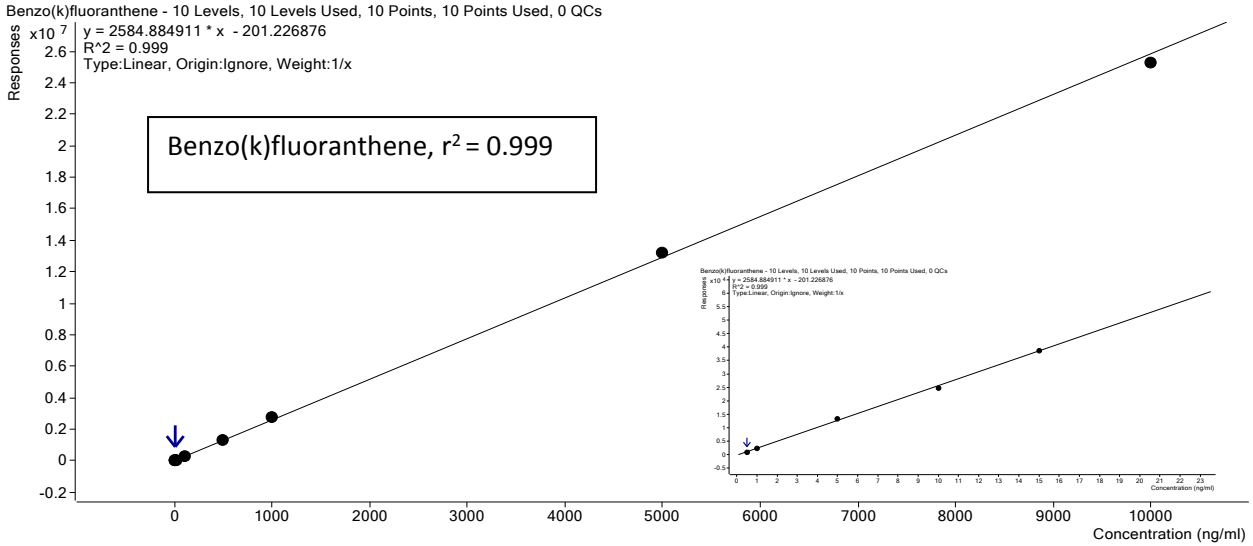
Benzo(a)anthracene, $r^2 = 1.000$

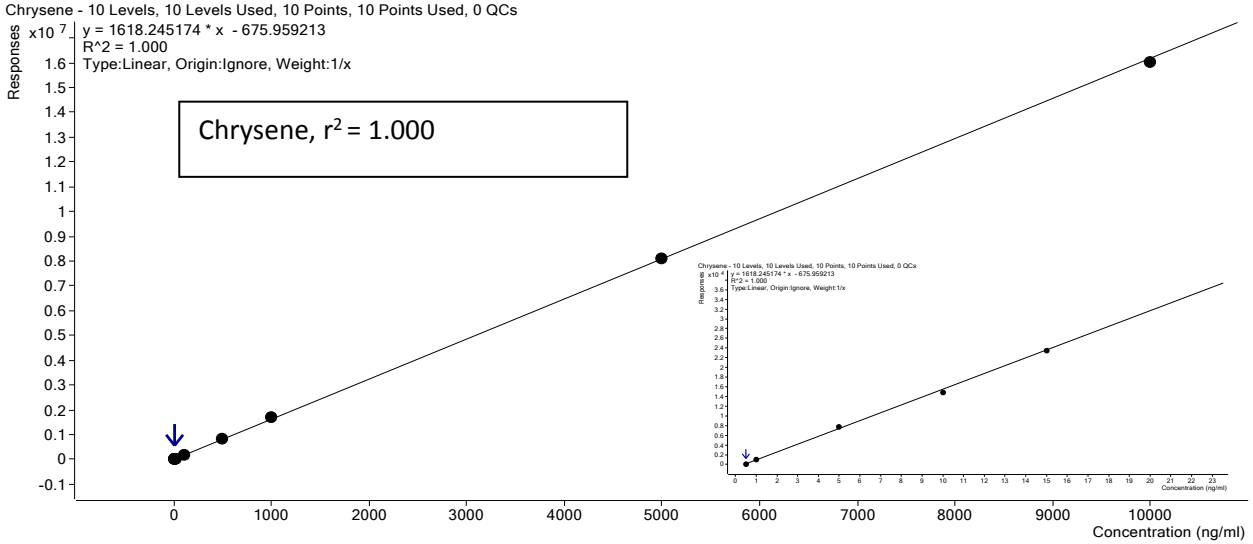

Benzo(a)pyrene - 10 Levels, 10 Levels Used, 10 Points, 10 Points Used, 0 QCs
y = 2504.140992 * x - 1220.539378
R^2 = 1.000
Type:Linear, Origin:Ignore, Weight:1/x
Responses
x10 7
Benzo(a)pyrene, r2 = 1.000
Concentration (ng/ml)

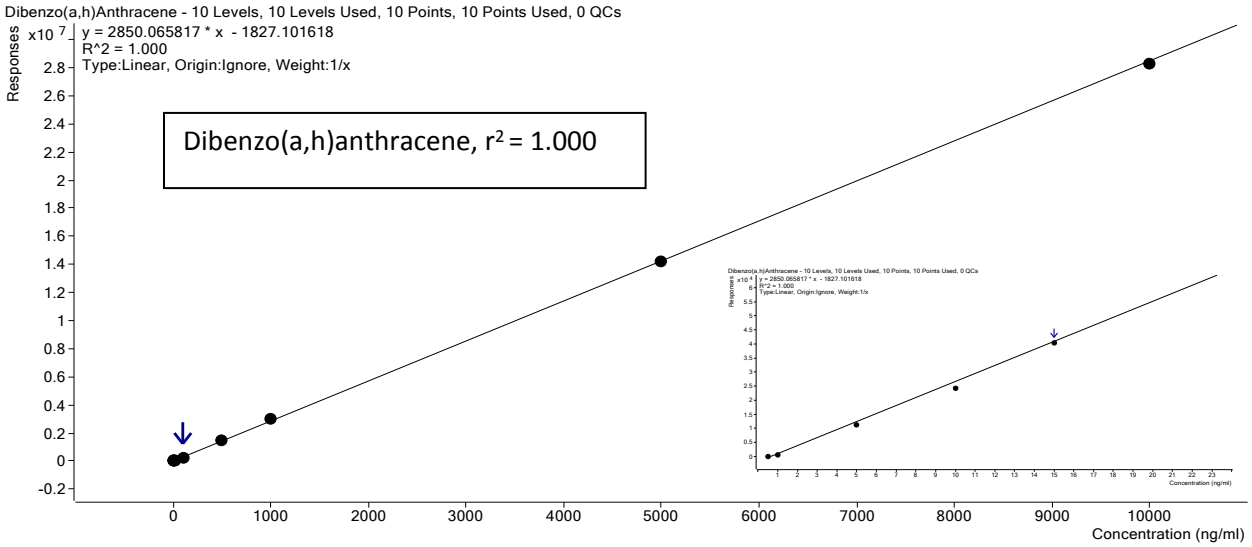

Benzo(b)fluoranthene - 10 Levels, 10 Levels Used, 10 Points, 10 Points Used, 0 QCs
y = 2627.026733 * x - 592.675321
R^2 = 1.000
Type:Linear, Origin:Ignore, Weight:1/x
Responses
x10 7
Benzo(b)fluoranthene, r2 = 1.000
Concentration (ng/ml)

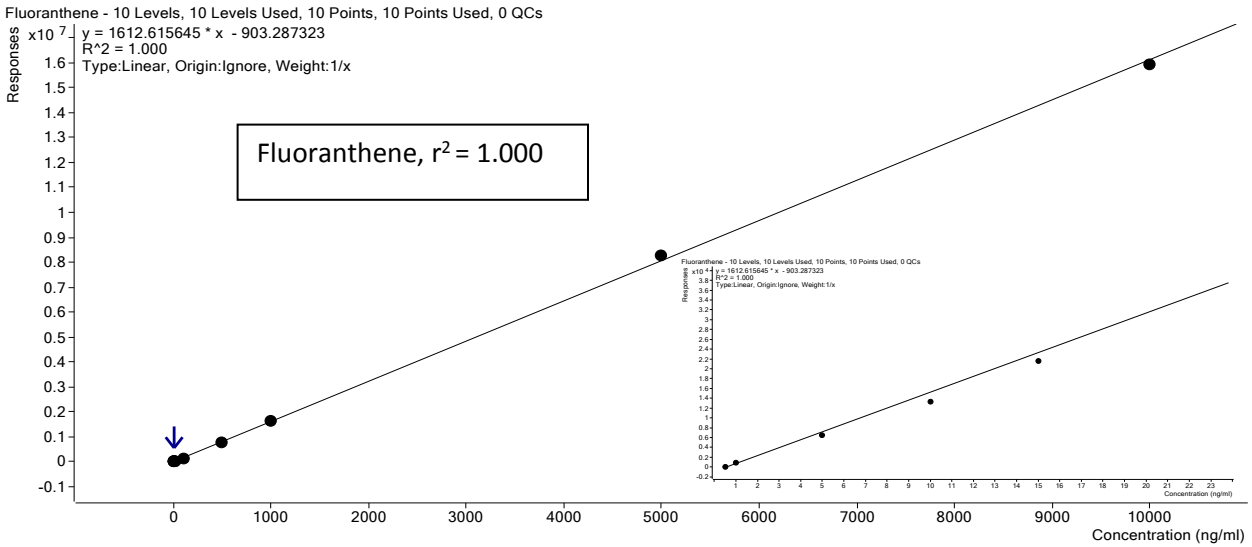

Benzo(e)pyrene - 10 Levels, 10 Levels Used, 10 Points, 10 Points Used, 0 QCs
y = 2326.429686 * x - 234.301074
R^2 = 1.000
Type:Linear, Origin:Ignore, Weight:1/x
Benzo(e)pyrene, r2 = 1.000
Responses
x10 7
Concentration (ng/ml)

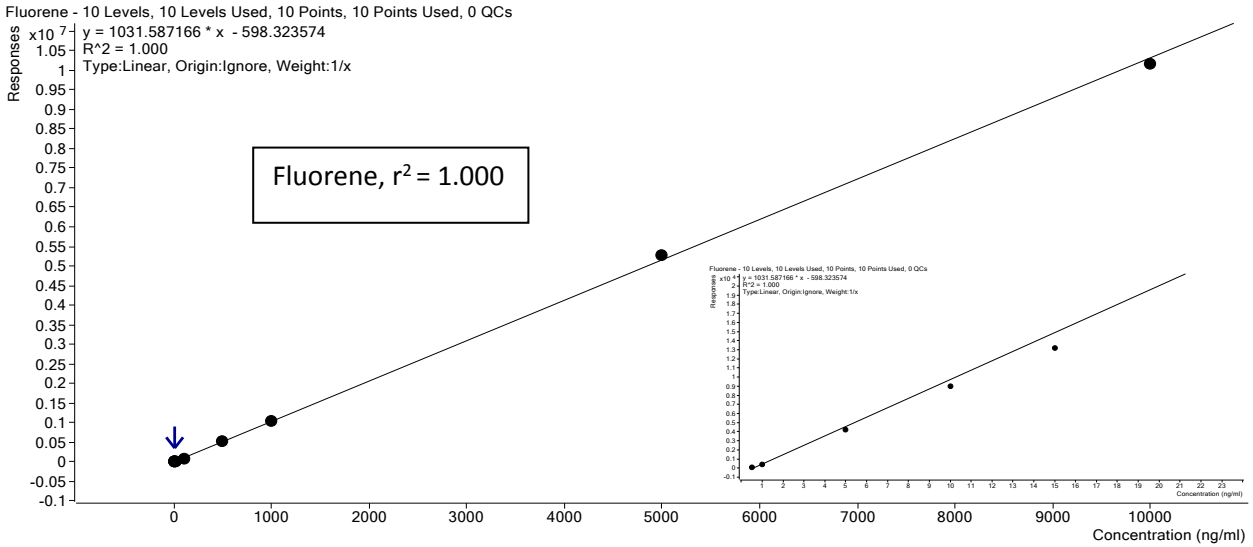

Benzo(g,h,i)perylene - 10 Levels, 10 Levels Used, 10 Points, 10 Points Used, 0 QCs
y = 9128.964845 * x - 1446.526731
R^2 = 0.999
Type:Linear, Origin:Ignore, Weight:1/x
Benzo(g,h,i)perylene, r2 = 0.999
Responses
x10 7
Concentration (ng/ml)

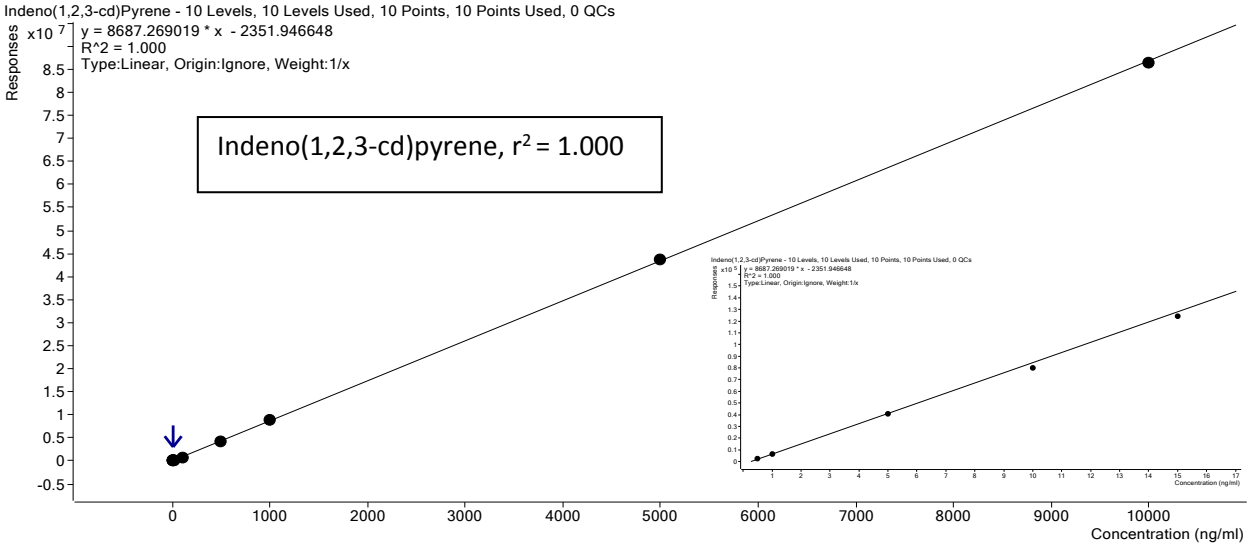

Benzo(k)fluoranthene - 10 Levels, 10 Levels Used, 10 Points, 10 Points Used, 0 QCs
y = 2584.884911 * x - 201.226876
R^2 = 0.999
Type:Linear, Origin:Ignore, Weight:1/x
Responses
x10 7
Benzo(k)fluoranthene, r2 = 0.999
Concentration (ng/ml)

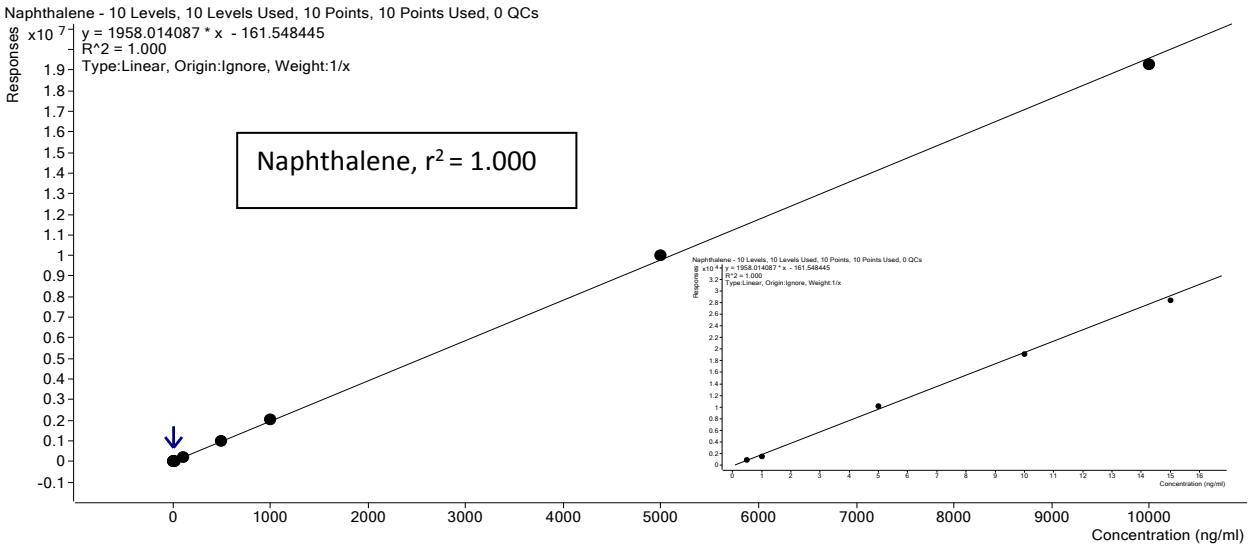

Chrysene - 10 Levels, 10 Levels Used, 10 Points, 10 Points Used, 0 QCs
y = 1618.245174 * x - 675.959213
R^2 = 1.000
Type:Linear, Origin:Ignore, Weight:1/x
Responses
x10 7
Chrysene, r2 = 1.000
Concentration (ng/ml)

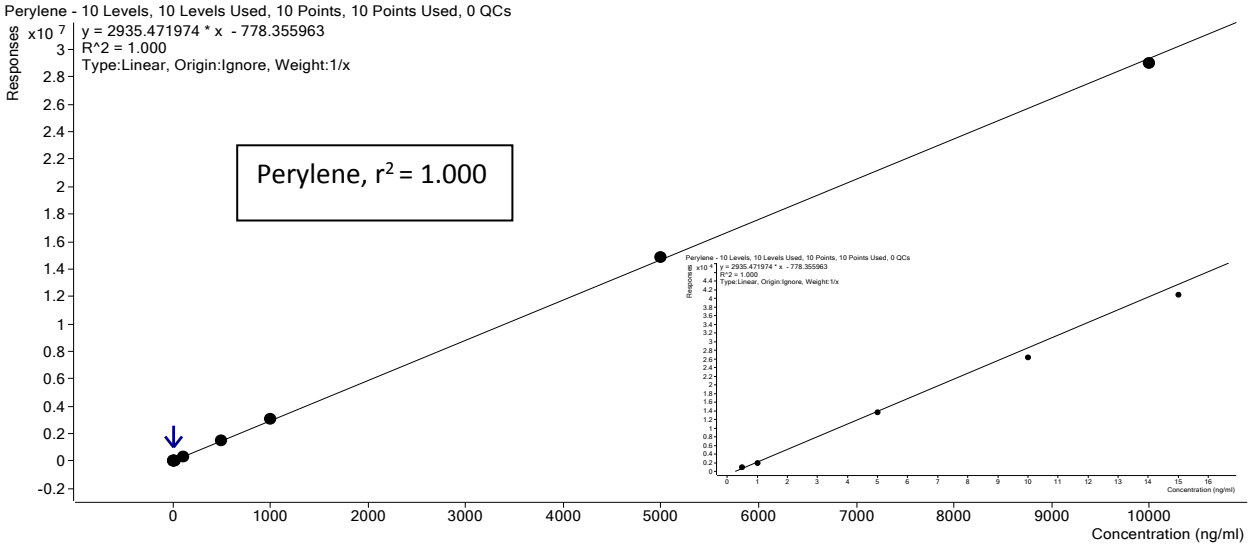

Dibenzo(a,h)Anthracene - 10 Levels, 10 Levels Used, 10 Points, 10 Points Used, 0 QCs
y = 2850.065817 * x - 1827.101618
R^2 = 1.000
Type:Linear, Origin:Ignore, Weight:1/x
Responses
x10 7
Dibenzo(a,h)anthracene, r2 = 1.000
Concentration (ng/ml)

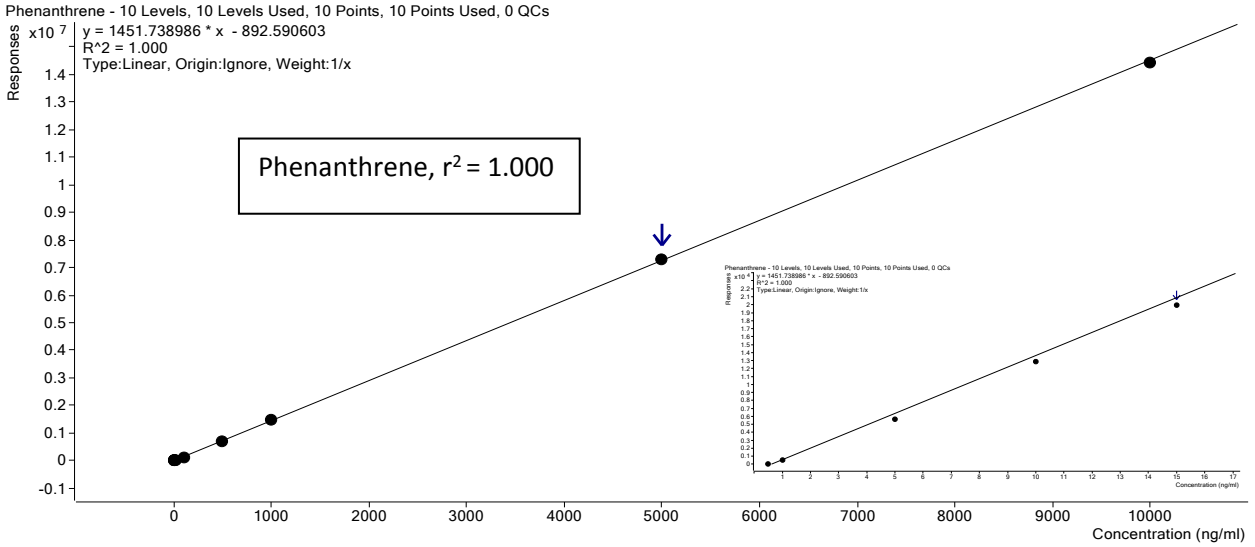

Fluoranthene - 10 Levels, 10 Levels Used, 10 Points, 10 Points Used, 0 QCs
y = 1612.615645 * x - 903.287323
R^2 = 1.000
Type:Linear, Origin:Ignore, Weight:1/x
Responses
x10 7
Fluoranthene, r2 = 1.000
Concentration (ng/ml)


Fluorene - 10 Levels, 10 Levels Used, 10 Points, 10 Points Used, 0 QCs
y = 1031.587166 * x - 598.323574
R^2 = 1.000
Type:Linear, Origin:Ignore, Weight:1/x
Responses
x10 7
Fluorene, r2 = 1.000
Concentration (ng/ml)


Indeno(1,2,3-cd)Pyrene - 10 Levels, 10 Levels Used, 10 Points, 10 Points Used, 0 QCs
y = 8687.269019 * x - 2351.946648
R^2 = 1.000
Type:Linear, Origin:Ignore, Weight:1/x
Responses
x10 7
Indeno(1,2,3-cd)pyrene, r2 = 1.000
Concentration (ng/ml)


Naphthalene - 10 Levels, 10 Levels Used, 10 Points, 10 Points Used, 0 QCs
y = 1958.014087 * x - 161.548445
R^2 = 1.000
Type:Linear, Origin:Ignore, Weight:1/x
Responses
x10 7
Naphthalene, r2 = 1.000
Concentration (ng/ml)


Perylene - 10 Levels, 10 Levels Used, 10 Points, 10 Points Used, 0 QCs
y = 2935.471974 * x - 778.355963
R^2 = 1.000
Type:Linear, Origin:Ignore, Weight:1/x
Responses
x10 7
Perylene, r2 = 1.000
Concentration (ng/ml)


Phenanthrene - 10 Levels, 10 Levels Used, 10 Points, 10 Points Used, 0 QCs
y = 1451.738986 * x - 892.590603
R^2 = 1.000
Type:Linear, Origin:Ignore, Weight:1/x
Responses
x10 7
Phenanthrene, r2 = 1.000
Concentration (ng/ml)

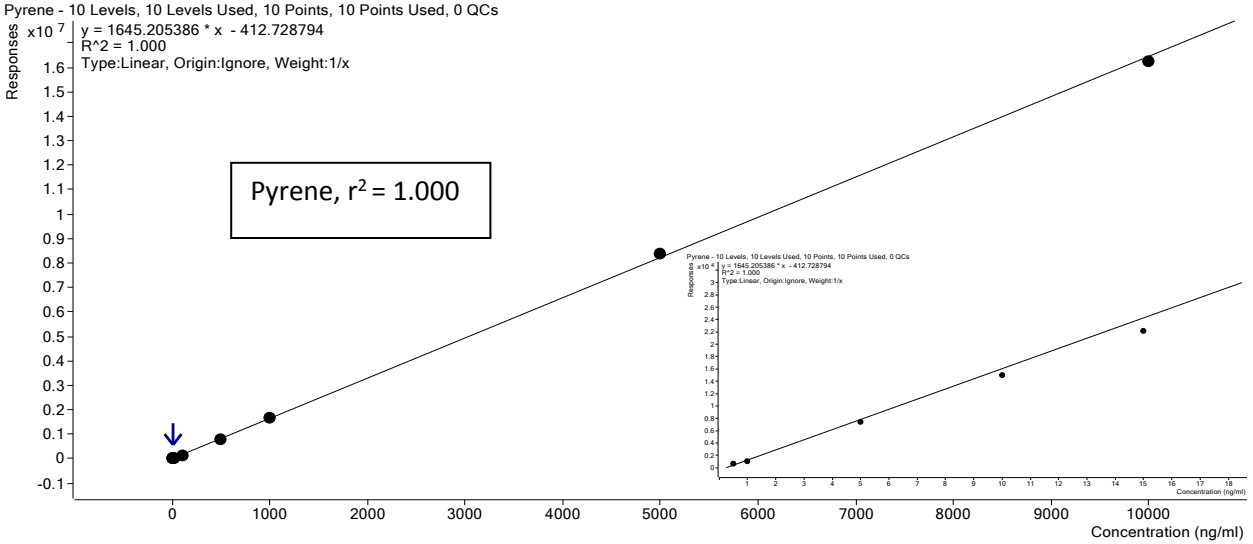
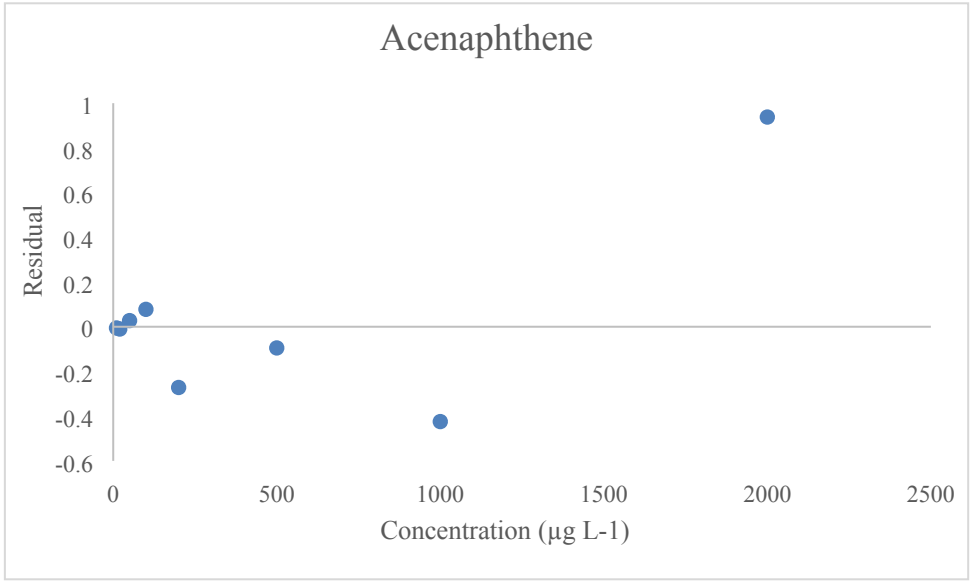
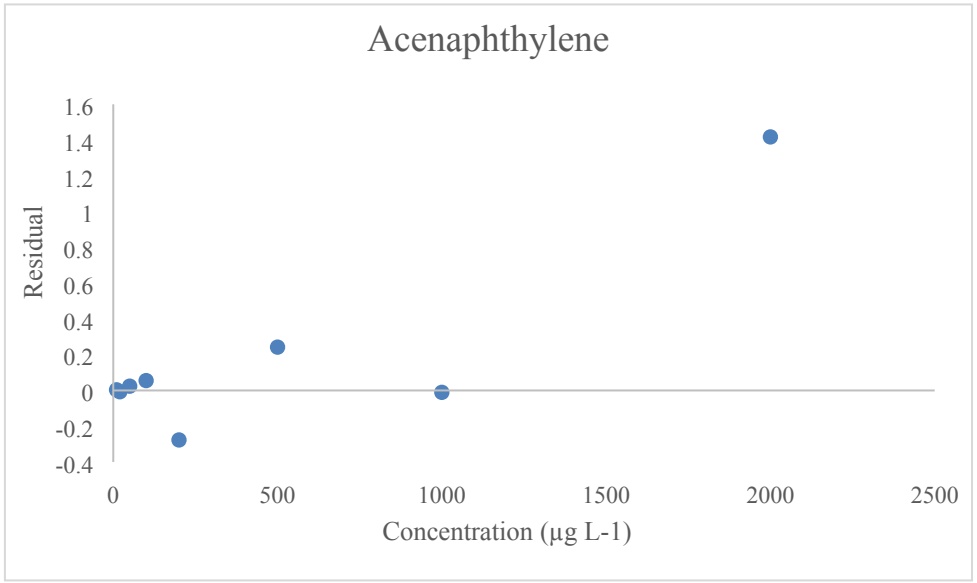
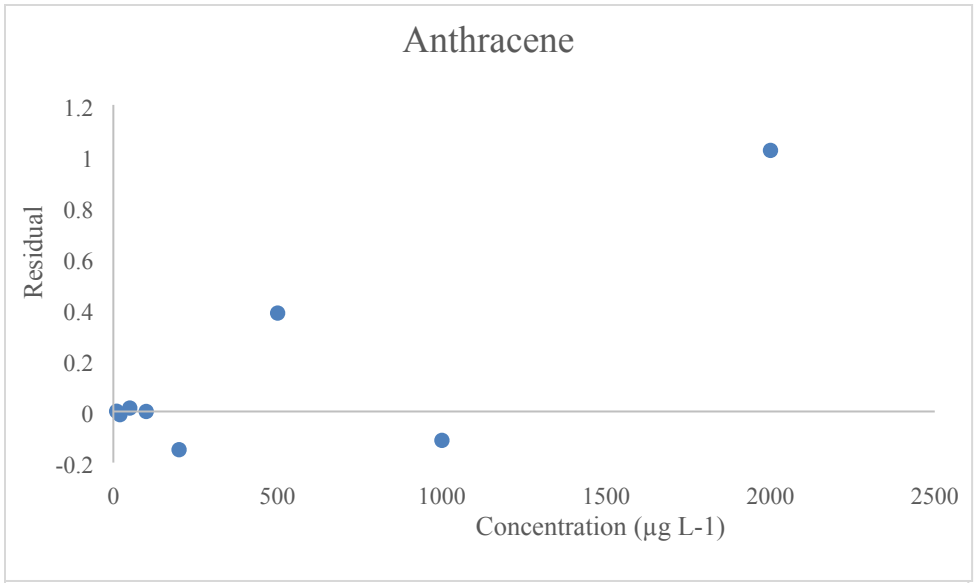
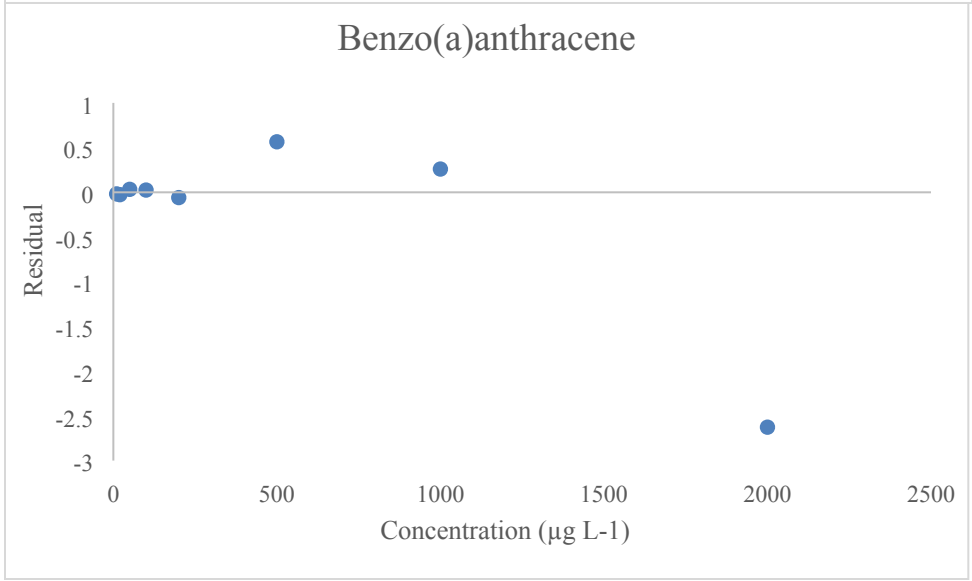

Pyrene - 10 Levels, 10 Levels Used, 10 Points, 10 Points Used, 0 QCs
y = 1645.205386 * x - 412.728794
R^2 = 1.000
Type:Linear, Origin:Ignore, Weight:1/x
Responses
x10 7
Pyrene, r2 = 1.000
Concentration (ng/ml)

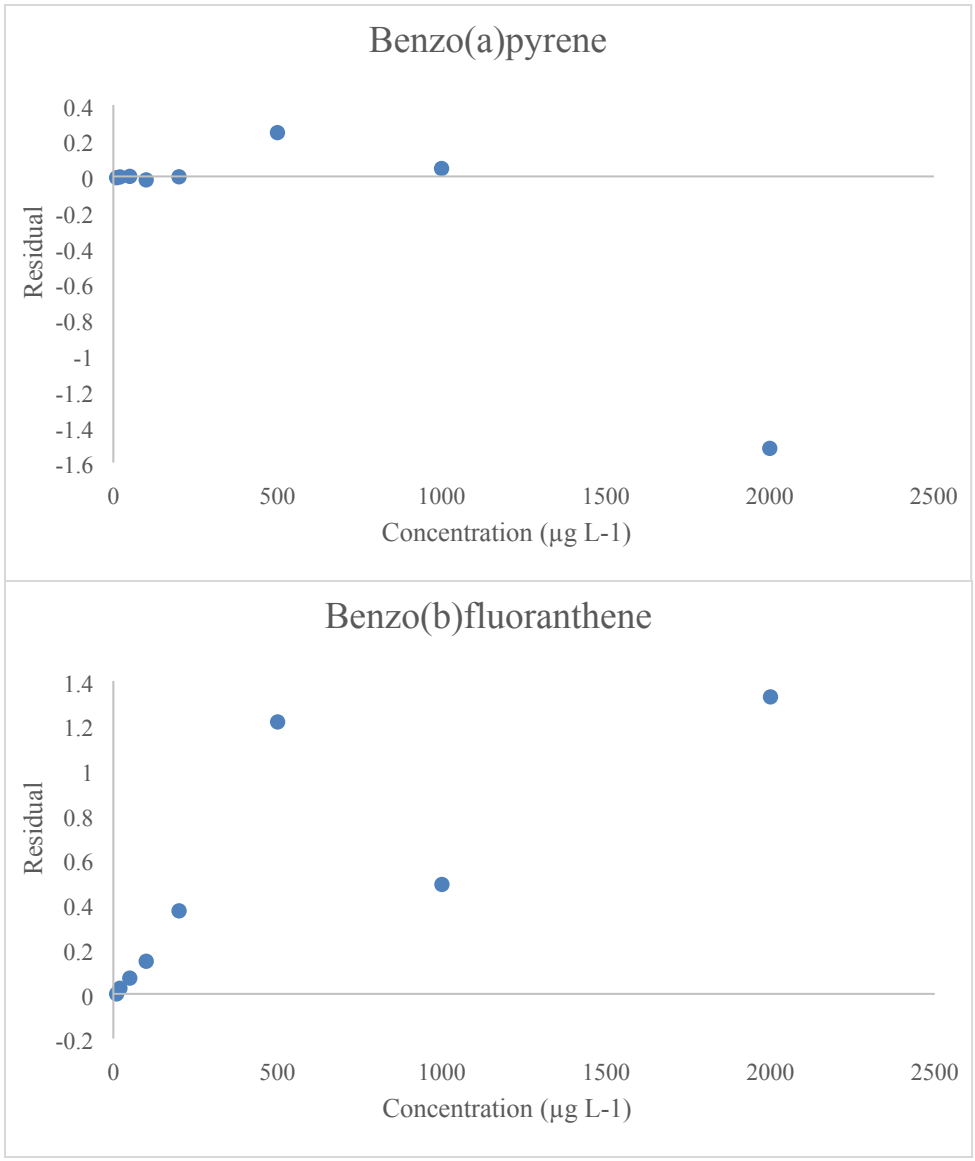
Figure S2) Residuals between neat DCM calibrations and seawater extracted calibrations plotted against eight concentrations for all 18 target PAHs to assess scedasticity of the calibration curves.

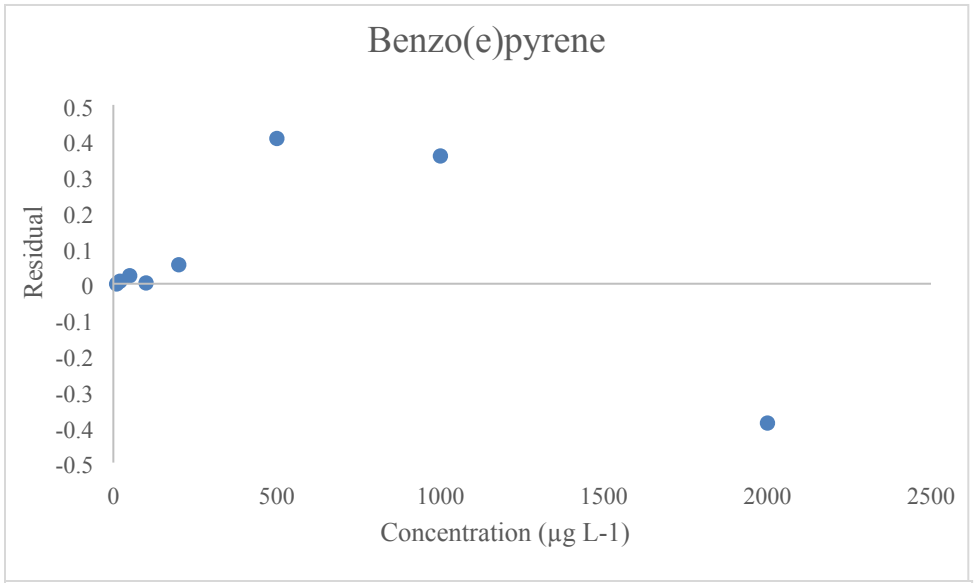


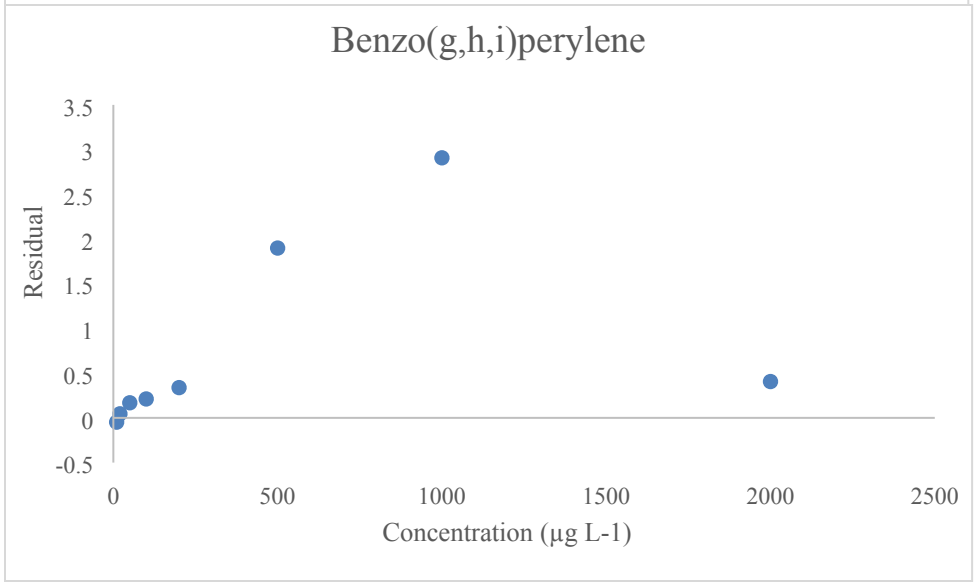


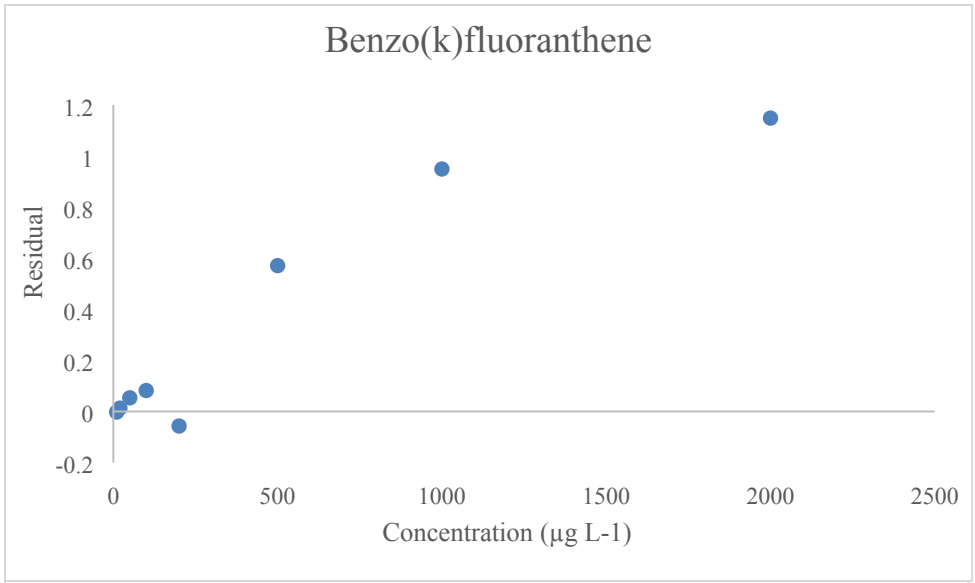

Anthracene
Residual
1.2
1
0.8
0.6
0.4
0.2
0
-0.2
0
500
1000
1500
2000
2500
Concentration (µg L-1)

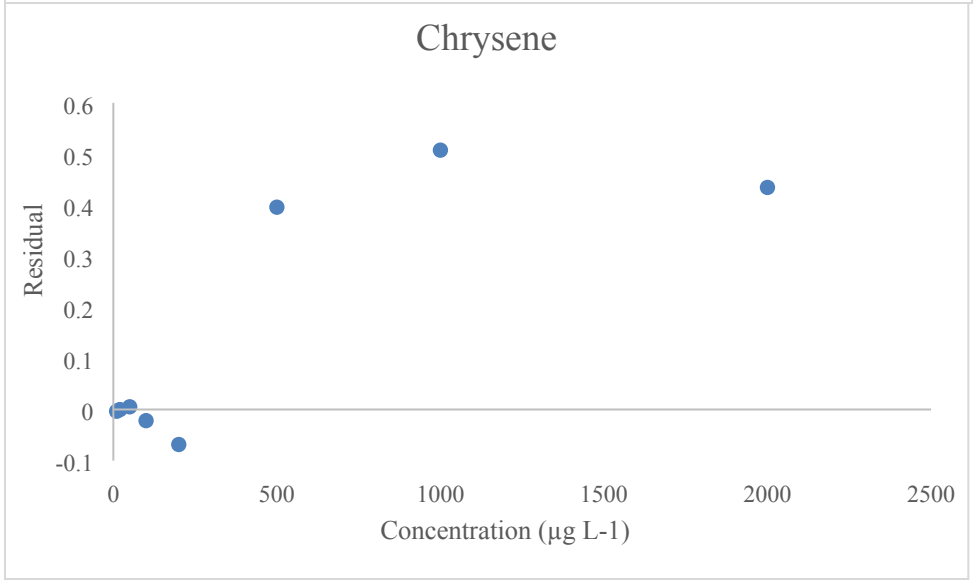

Benzo(a)anthracene
Residual
1
0.5
0
-0.5
-1
-1.5
-2
-2.5
-3
0
500
1000
1500
2000
2500
Concentration (µg L-1)

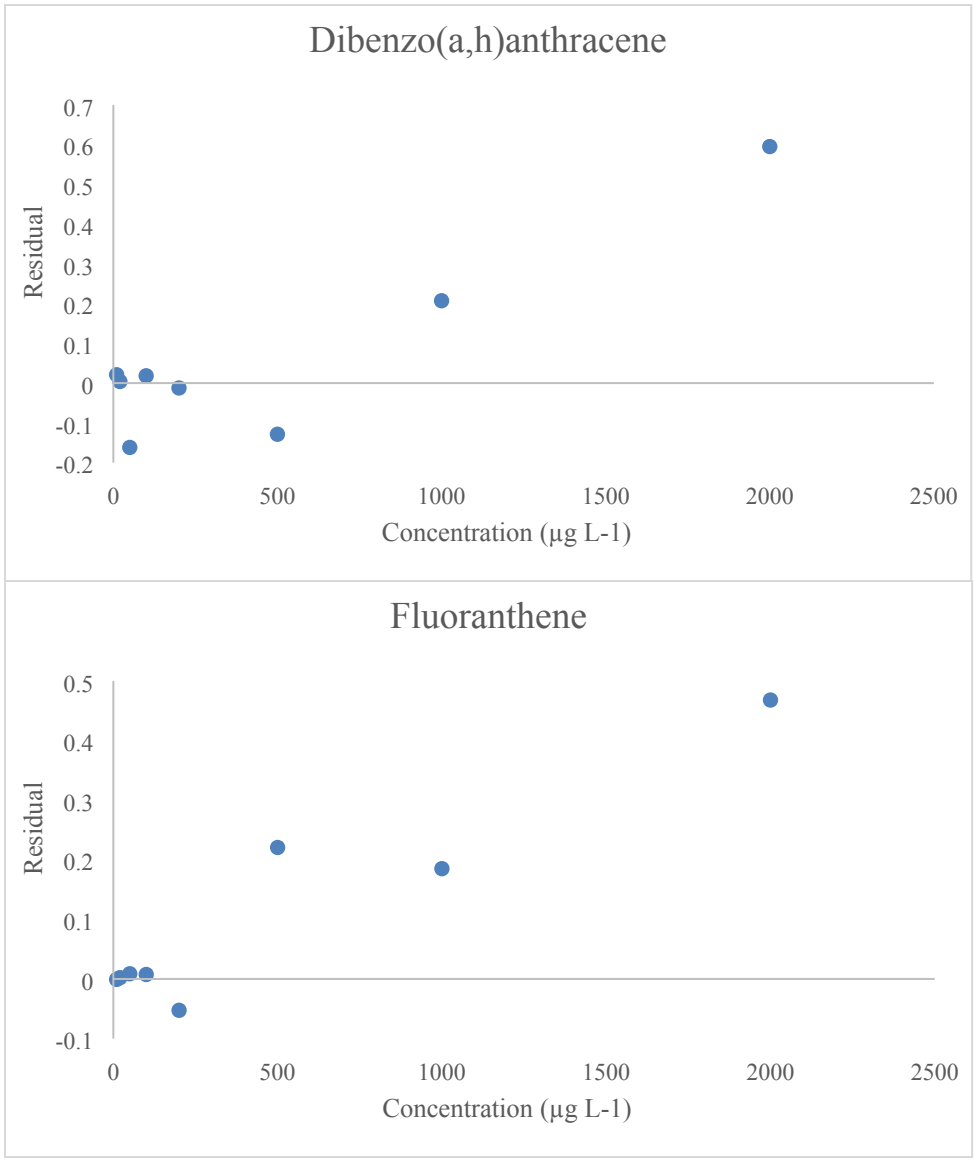

Benzo(a)pyrene
Residual
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
-1.2
-1.4
-1.6
0
500
1000
1500
2000
2500
Concentration (µg L-1)
Benzo(b)fluoranthene
Residual
1.4
1.2
1
0.8
0.6
0.4
0.2
0
-0.2
0
500
1000
1500
2000
2500
Concentration (µg L-1)

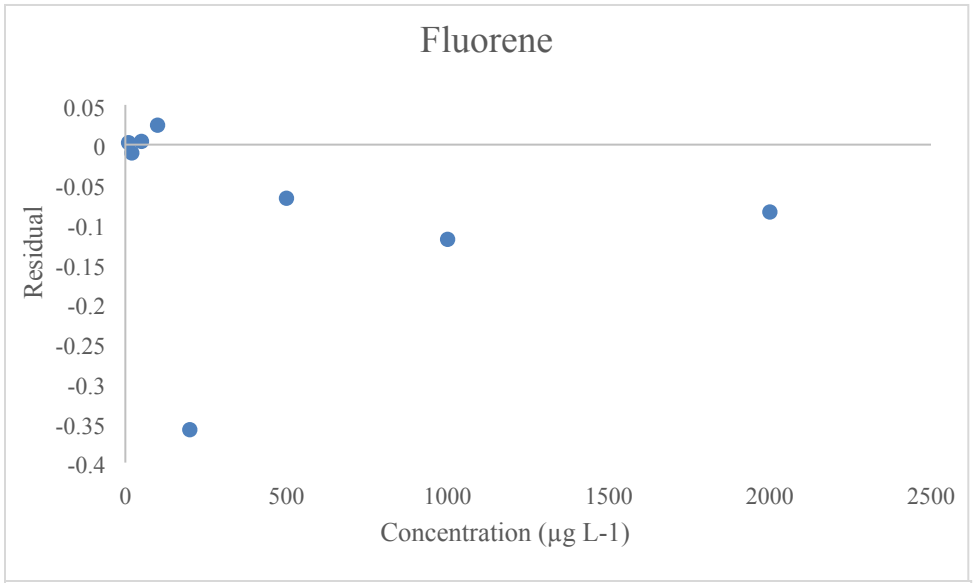

Benzo(e)pyrene
Residual
0.5
0.4
0.3
0.2
0.1
0
-0.1
-0.2
-0.3
-0.4
-0.5
0
500
1000
1500
2000
2500
Concentration (µg L-1)

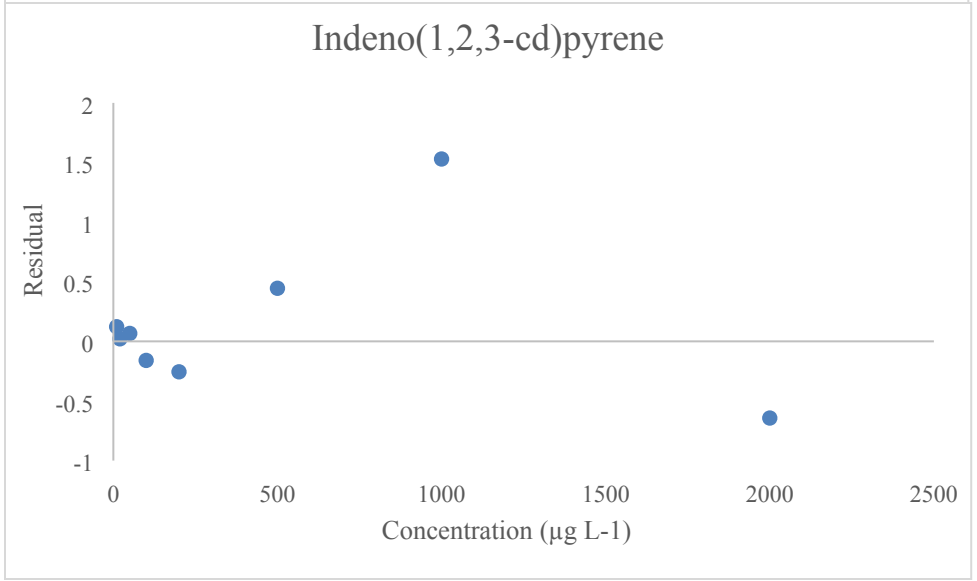

Benzo(g,h,i)perylene
Residual
3.5
3
2.5
2
1.5
1
0.5
0
-0.5
0
500
1000
1500
2000
2500
Concentration (µg L-1)

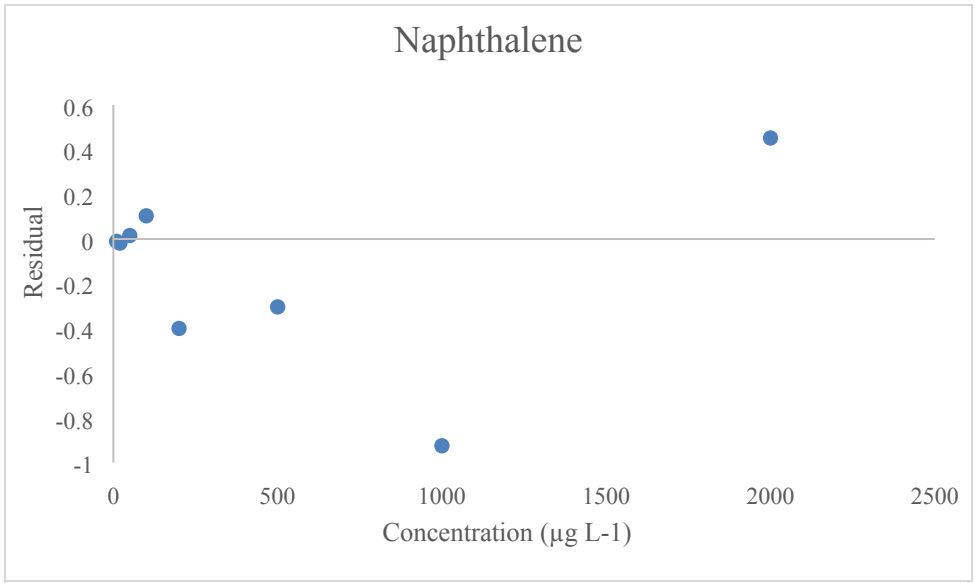

Benzo(k)fluoranthene
Residual
1.2
1
0.8
0.6
0.4
0.2
0
-0.2
0
500
1000
1500
2000
2500
Concentration (µg L-1)

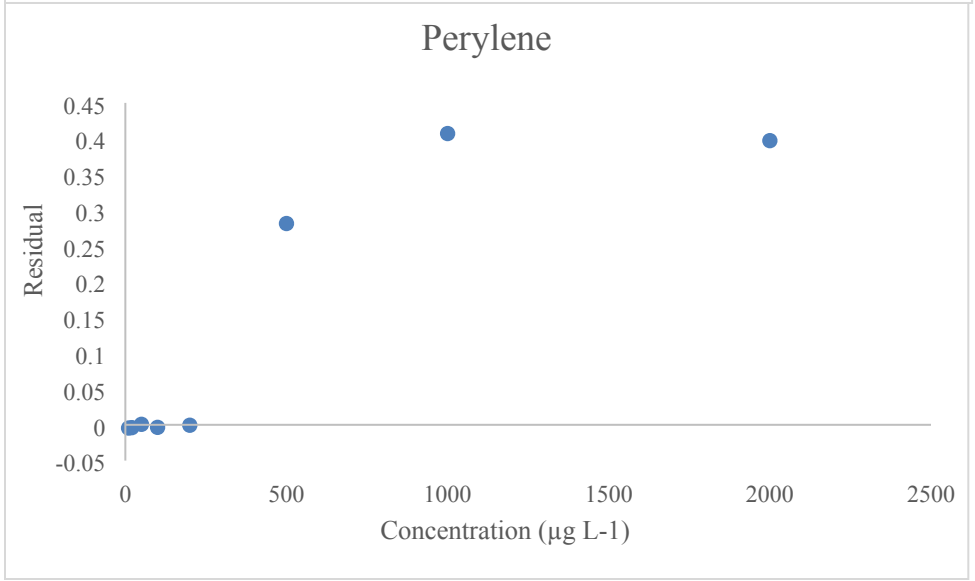

Chrysene
Residual
0.6
0.5
0.4
0.3
0.2
0.1
0
-0.1
0
500
1000
1500
2000
2500
Concentration (µg L-1)


Dibenzo(a,h)anthracene
Residual
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-0.1
-0.2
0
500
1000
1500
2000
2500
Concentration (µg L-1)
Fluoranthene
Residual
0.5
0.4
0.3
0.2
0.1
0
-0.1
0
500
1000
1500
2000
2500
Concentration (µg L-1)


Fluorene
0.05
0
-0.05
-0.1
-0.15
-0.2
-0.25
-0.3
-0.35
-0.4
Residual
0
500
1000
1500
2000
2500
Concentration (µg L-1)


Indeno(1,2,3-cd)pyrene
2
1.5
1
0.5
0
-0.5
-1
Residual
0
500
1000
1500
2000
2500
Concentration (µg L-1)


Naphthalene
Residual
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
500
1000
1500
2000
2500
Concentration (µg L-1)


Perylene
Residual
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
-0.05
0
500
1000
1500
2000
2500
Concentration (µg L-1)

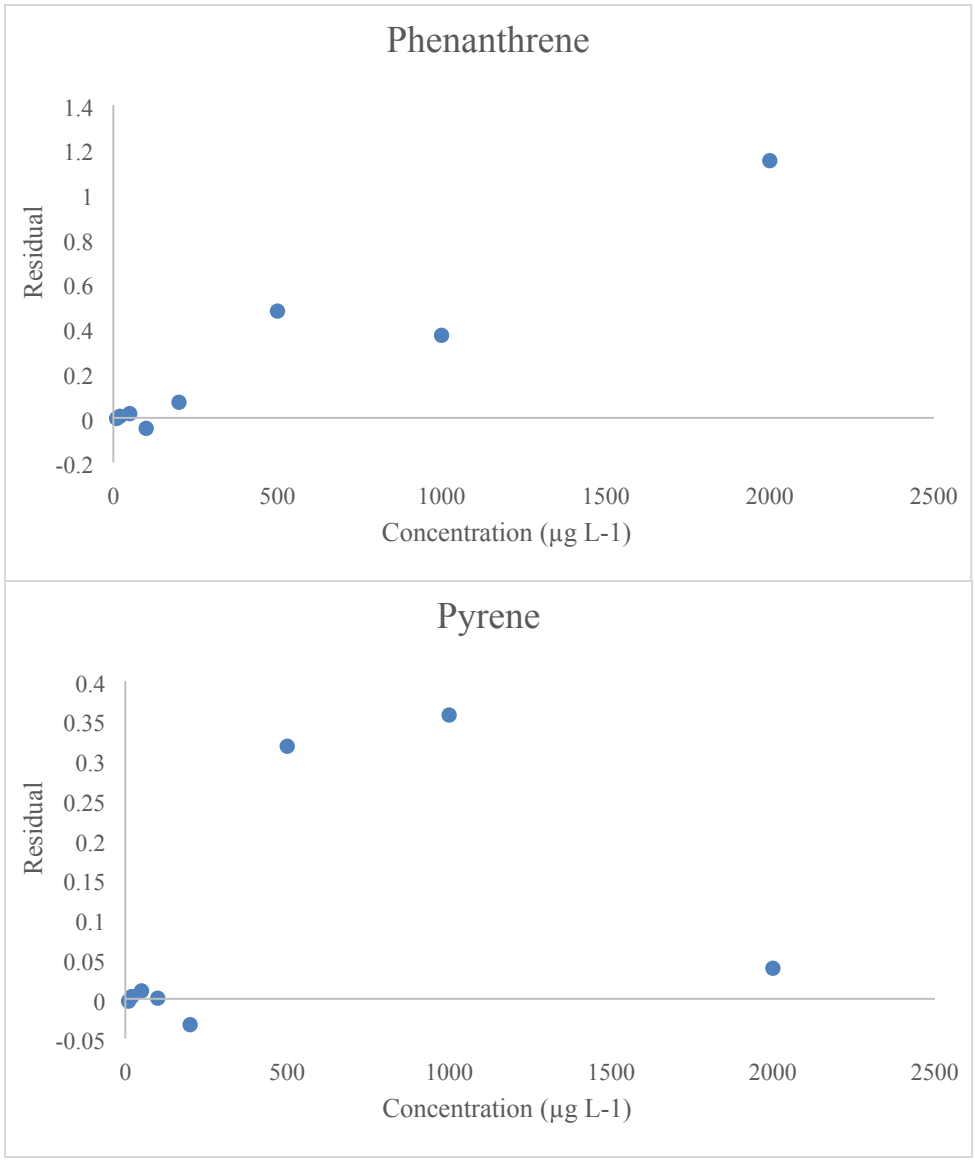
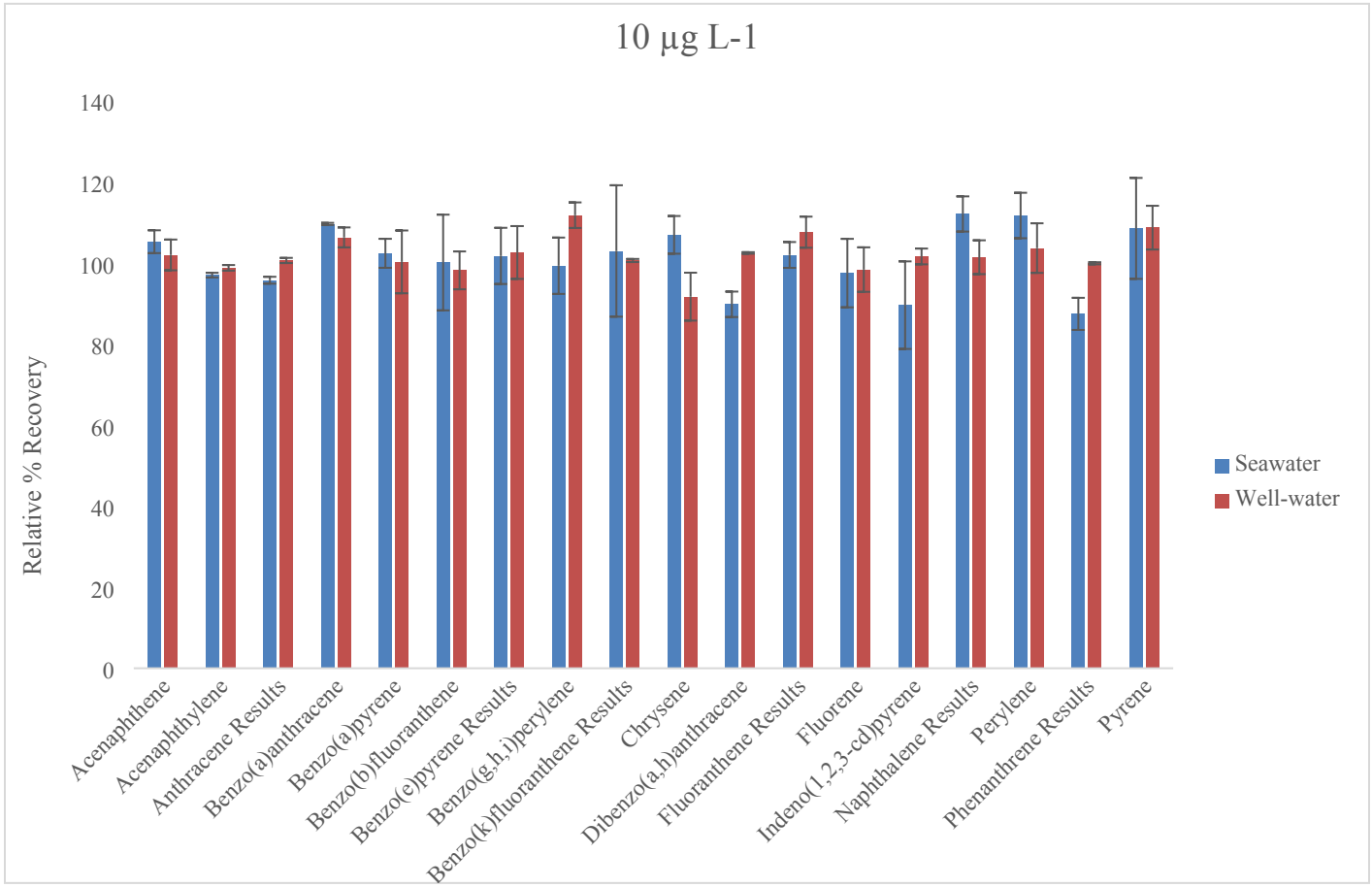
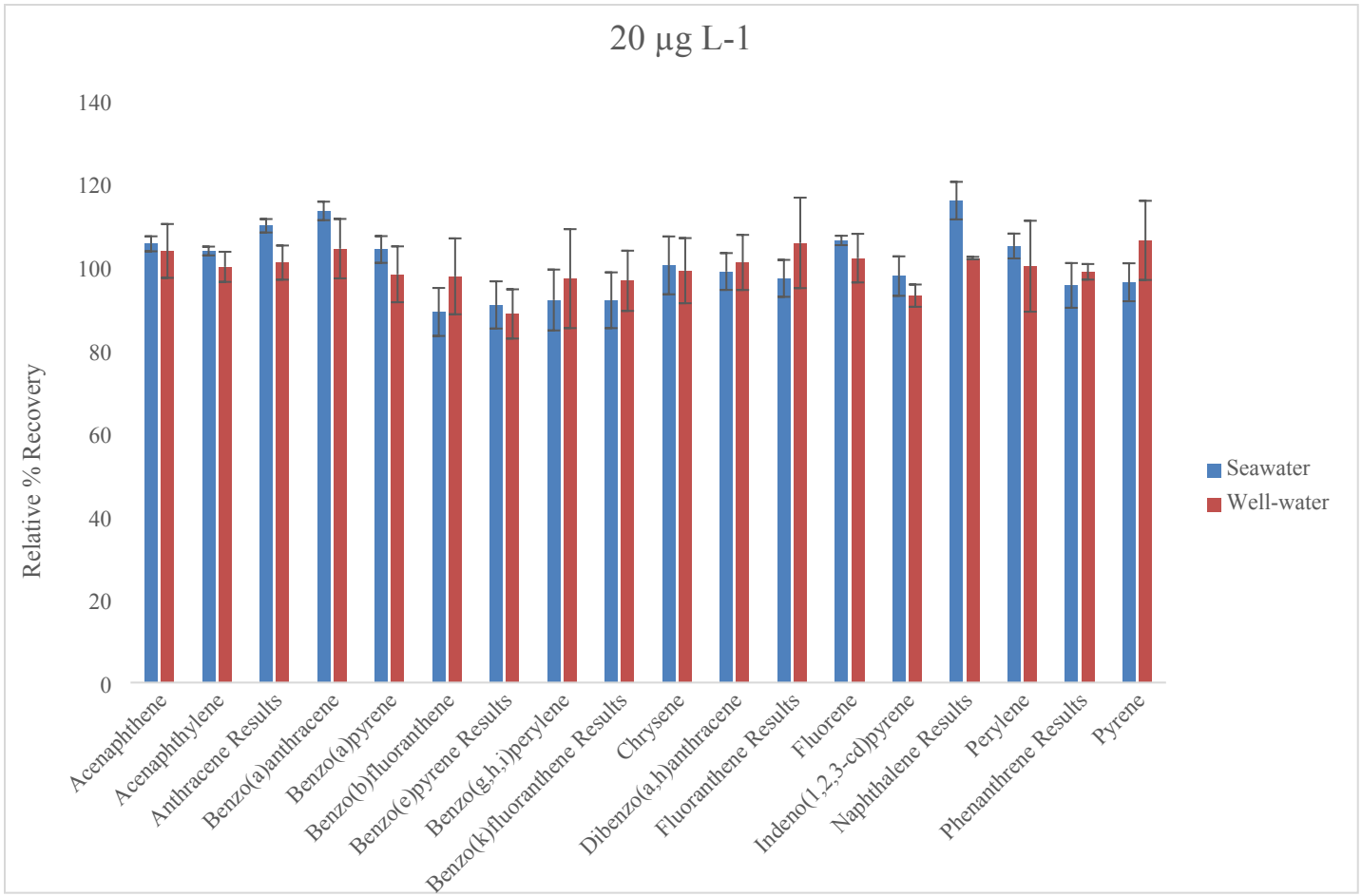
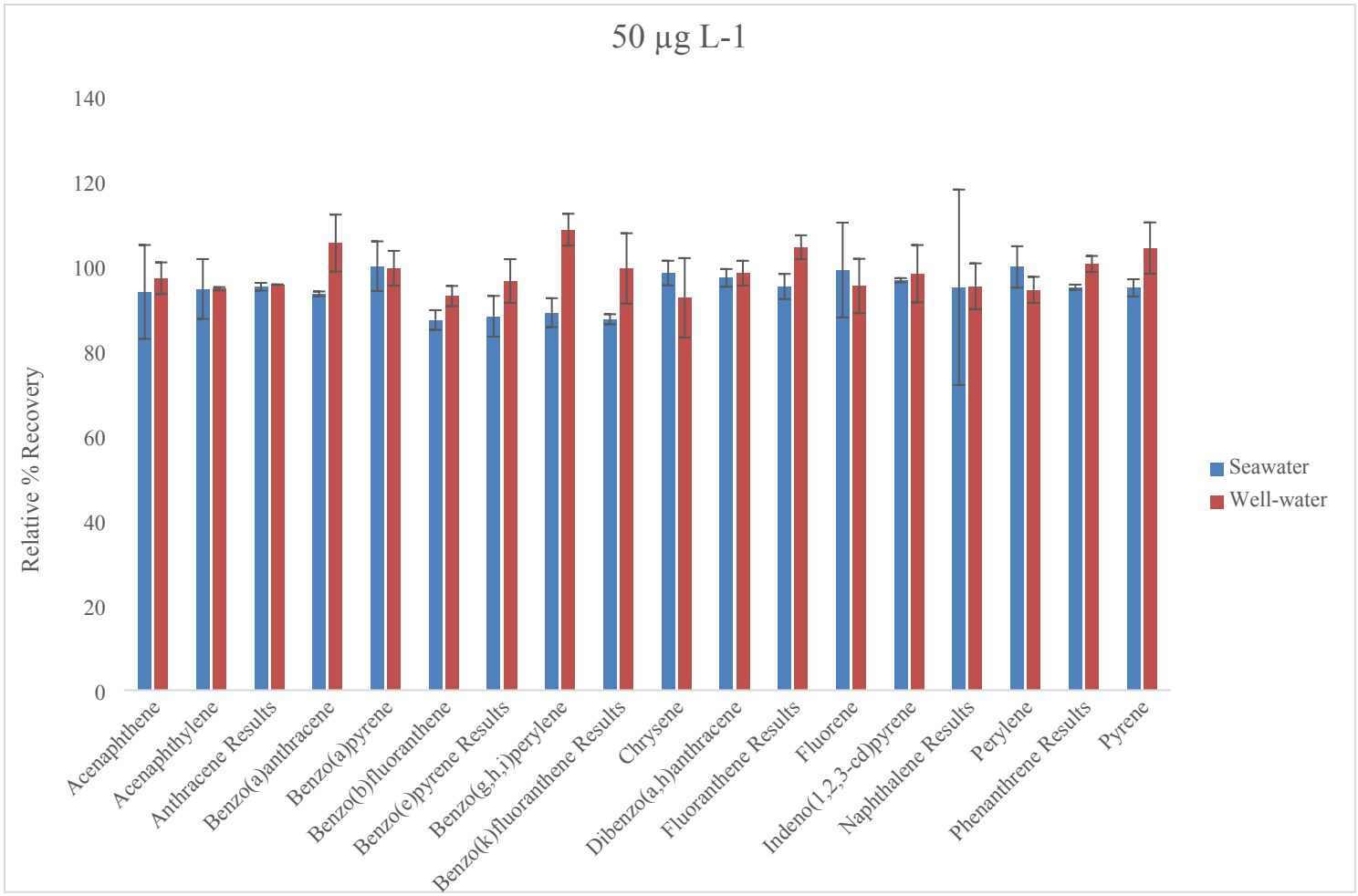
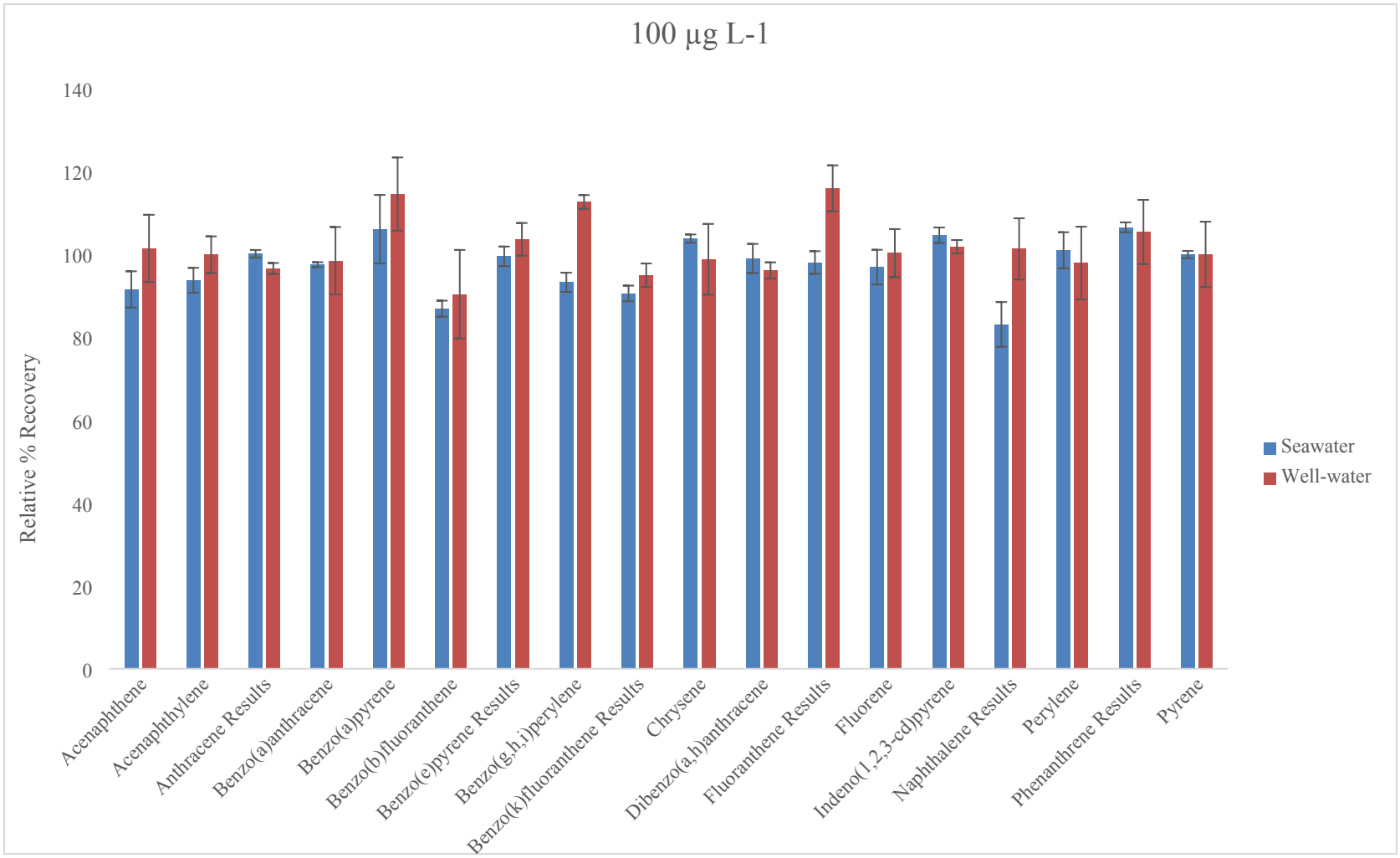

Phenanthrene
Residual
1.4
1.2
1
0.8
0.6
0.4
0.2
0
-0.2
0
500
1000
1500
2000
2500
Concentration (µg L-1)
Pyrene
Residual
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
-0.05
0
500
1000
1500
2000
2500
Concentration (µg L-1)

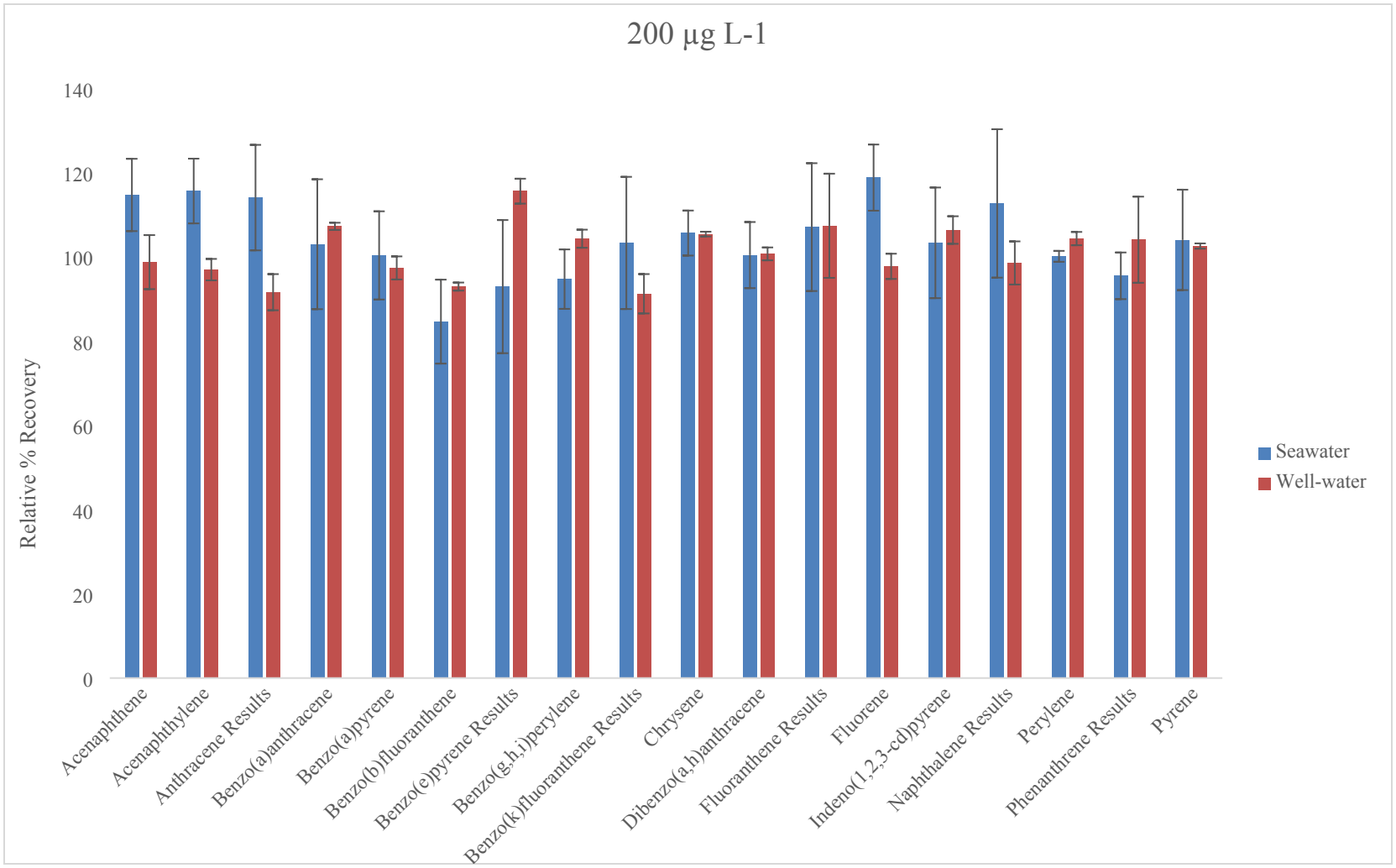
Figure S3) Average percent recovery of 18 target PAHs at 10, 20, 50, 100, 200, 500, 1000, 2000 µg L^{-1} concentrations in seawater and well-water relative to nominal neat DCM calibration standards to evaluate matrix effects.

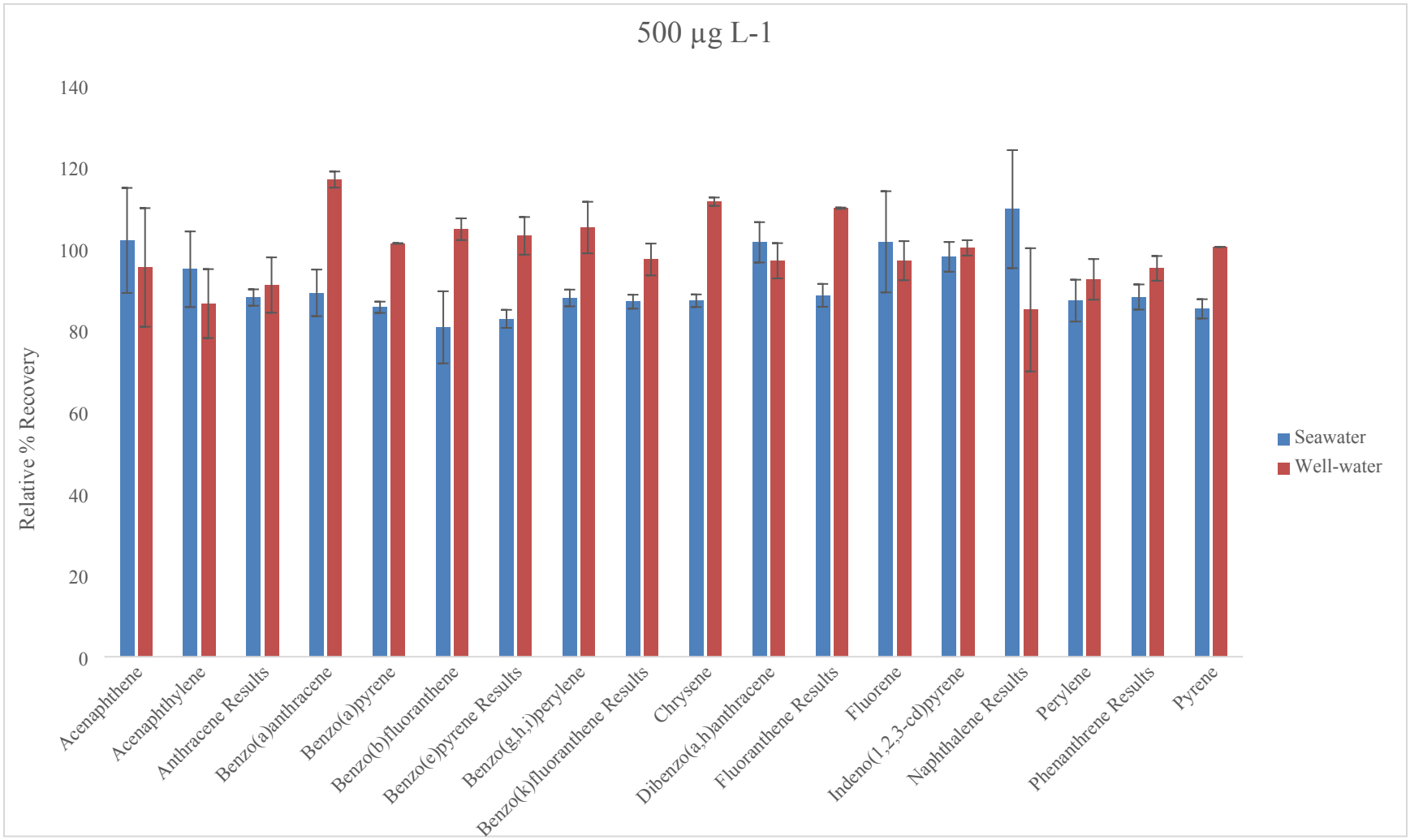


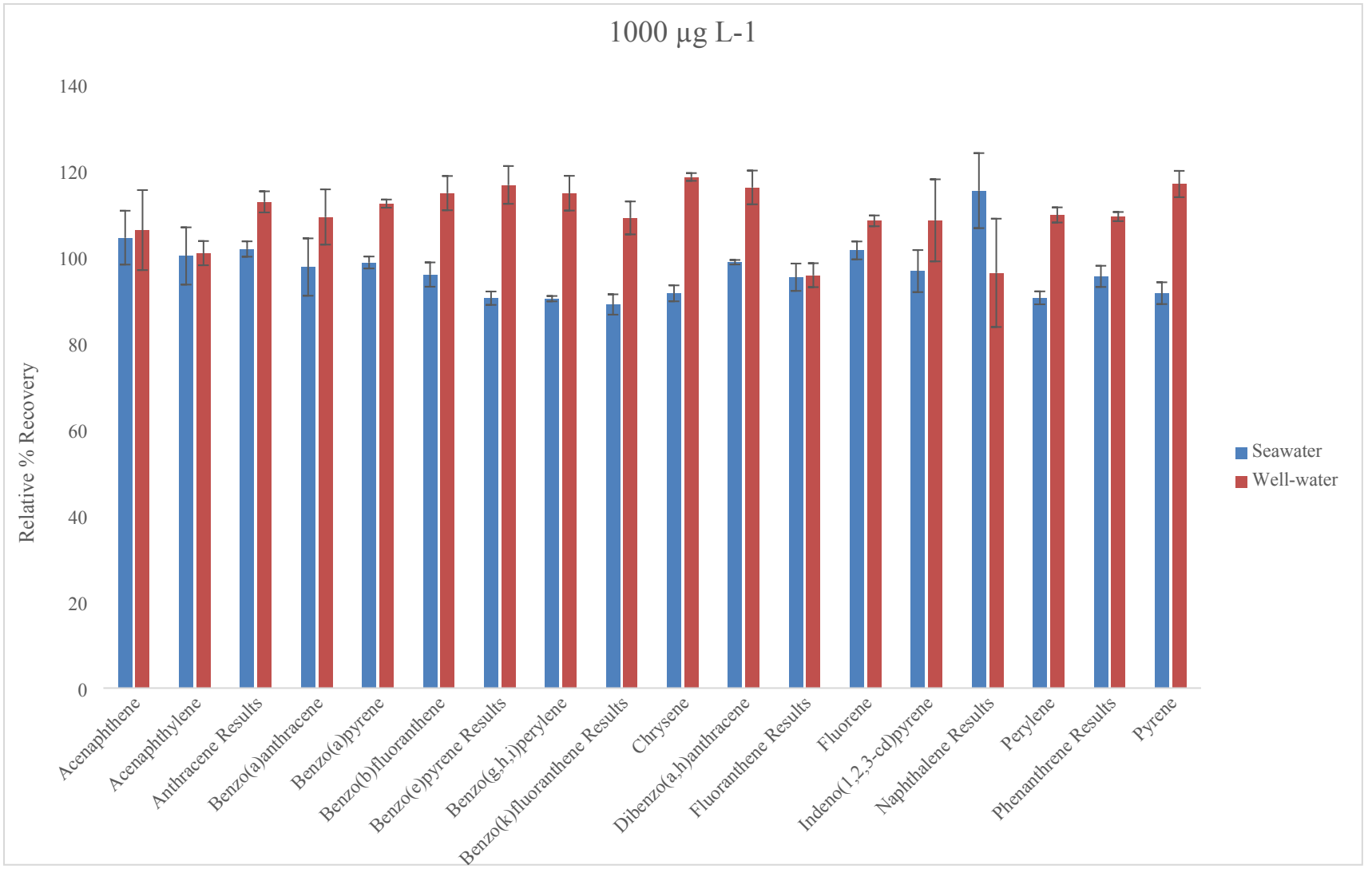

20 µg L-1
Relative % Recovery
140
120
100
80
60
40
20
0
Seawater
Well-water
Acenaphthene
Acenaphthylene
Anthracene Results
Benzo(a)anthracene
Benzo(a)pyrene
Benzo(b)fluoranthene
Benzo(e)pyrene Results
Benzo(g,h,i)perylene
Benzo(k)fluoranthene Results
Chrysene
Dibenzo(a,h)anthracene
Fluoranthene Results
Fluorene
Indeno(1,2,3-cd)pyrene
Naphthalene Results
Perylene
Phenanthrene Results
Pyrene

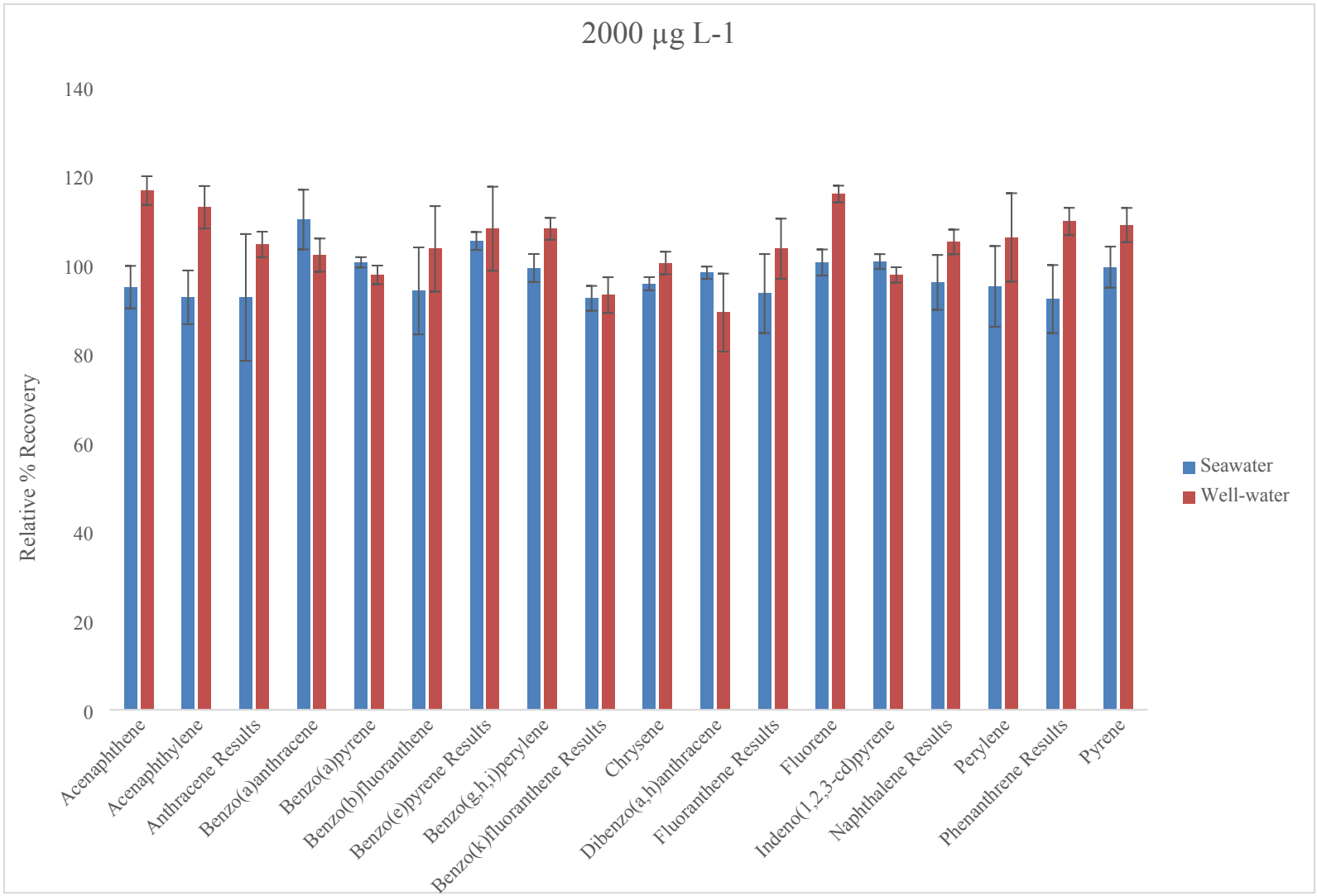

50 µg L-1
Relative % Recovery
140
120
100
80
60
40
20
0
Seawater
Well-water
Acenaphthene
Acenaphthylene
Anthracene Results
Benzo(a)anthracene
Benzo(a)pyrene
Benzo(b)fluoranthene
Benzo(e)pyrene Results
Benzo(g,h,i)perylene
Benzo(k)fluoranthene Results
Chrysene
Dibenzo(a,h)anthracene
Fluoranthene Results
Fluorene
Indeno(1,2,3-cd)pyrene
Naphthalene Results
Perylene
Phenanthrene Results
Pyrene


100 µg L-1
Relative % Recovery
140
120
100
80
60
40
20
0
Seawater
Well-water
Acenaphthene
Acenaphthylene
Anthracene Results
Benzo(a)anthracene
Benzo(a)pyrene
Benzo(b)fluoranthene
Benzo(e)pyrene Results
Benzo(g,h,i)perylene
Benzo(k)fluoranthene Results
Chrysene
Dibenzo(a,h)anthracene
Fluoranthene Results
Fluorene
Indeno(1,2,3-cd)pyrene
Naphthalene Results
Perylene
Phenanthrene Results
Pyrene


200 µg L-1
Relative % Recovery
140
120
100
80
60
40
20
0
Seawater
Well-water
Acenaphthene
Acenaphthylene
Anthracene Results
Benzo(a)anthracene
Benzo(a)pyrene
Benzo(b)fluoranthene
Benzo(e)pyrene Results
Benzo(g,h,i)perylene
Benzo(k)fluoranthene Results
Chrysene
Dibenzo(a,h)anthracene
Fluoranthene Results
Fluorene
Indeno(1,2,3-cd)pyrene
Naphthalene Results
Perylene
Phenanthrene Results
Pyrene


500 µg L-1
Relative % Recovery
140
120
100
80
60
40
20
0
Seawater
Well-water
Acenaphthene
Acenaphthylene
Anthracene Results
Benzo(a)anthracene
Benzo(a)pyrene
Benzo(b)fluoranthene
Benzo(e)pyrene Results
Benzo(g,h,i)perylene
Benzo(k)fluoranthene Results
Chrysene
Dibenzo(a,h)anthracene
Fluoranthene Results
Fluorene
Indeno(1,2,3-cd)pyrene
Naphthalene Results
Perylene
Phenanthrene Results
Pyrene


1000 µg L-1
Relative % Recovery
140
120
100
80
60
40
20
0
Seawater
Well-water
Acenaphthene
Acenaphthylene
Anthracene Results
Benzo(a)anthracene
Benzo(a)pyrene
Benzo(b)fluoranthene
Benzo(e)pyrene Results
Benzo(g,h,i)perylene
Benzo(k)fluoranthene Results
Chrysene
Dibenzo(a,h)anthracene
Fluoranthene Results
Fluorene
Indeno(1,2,3-cd)pyrene
Naphthalene Results
Perylene
Phenanthrene Results
Pyrene


2000 µg L-1
Relative % Recovery
140
120
100
80
60
40
20
0
Seawater
Well-water
Acenaphthene
Acenaphthylene
Anthracene Results
Benzo(a)anthracene
Benzo(a)pyrene
Benzo(b)fluoranthene
Benzo(e)pyrene Results
Benzo(g,h,i)perylene
Benzo(k)fluoranthene Results
Chrysene
Dibenzo(a,h)anthracene
Fluoranthene Results
Fluorene
Indeno(1,2,3-cd)pyrene
Naphthalene Results
Perylene
Phenanthrene Results
Pyrene