Supplementary information

Table 1 GC-MS analysis result of the oil-water extract solutions of tested oils. (All concentrations are in µg/L.)

Oil sample No.	Oil Name	B	T	E	m/p-X	o-X	135-TMB	124-TMB	123-TMB	N	2-MN	1-MN	P	Viscosity at 20°C (cP)	Density at 20°C (g/ml)
9	**Arab medium**	819	1519	414	465	351	25	100	47	36	20	24	2	35.40	0.8915
10	**Barrow**	691	1506	93	618	216	64	120	65	41	75	47	2	4.95	0.8481
C*	**Barrow-2**	751	1735	106	646	229	67	125	67	47	79	49	2	4.95	0.8481
12	**Blina**	16	40	25	59	38	34	55	13	15	11	7	5	12.59	0.849
13	**Challis**	567	1032	143	1841	631	98	259	80	60	76	25	2	5.14	0.8322
C*	**Challis-2**	769	1331	192	2499	789	147	367	110	69	96	32	1	5.14	0.8322
14	**Coralina**	294	824	187	715	264	53	95	46	171	80	54	3	2.56	0.7513
23	**Coralina-2**	269	740	170	626	242	47	79	42	163	74	50	3	2.56	0.7513
2	**Diesel**	144	386	87	307	173	35	140	56	62	42	31	1	3.58	0.8332
16	**Goodwyn**	3371	5143	253	1598	565	73	156	56	238	116	74	3	6.77	0.8504
7	**Jabiru**	1217	1569	166	1203	375	74	173	48	130	89	57	2	3.63	0.8125
C*	**Jabiru-2**	1151	1572	156	1101	350	73	168	48	137	105	64	3	3.63	0.8125
19	**NWS_1**	4	7	1	2	1	1	1	1	1	1	1	1	300.10	0.95
1	**NWS_2-1**	2449	4169	321	1462	575	67	170	59	210	84	61	3	3.45	0.8148
11	**NWS_2-2**	1883	3531	261	1194	494	55	144	52	207	80	61	2	3.45	0.8148
18	**NWS_2-3**	1634	2828	208	939	408	43	107	42	188	71	54	2	3.45	0.8148
8	**NWS_3**	1	5	3	7	5	1	2	2	2	1	1	2	48.17	0.921
C*	**NWS_3-2**	1	6	3	8	6	1	2	1	5	2	1	2	48.17	0.921
C*	**NWS mixture**	624	1127	90	408	173	20	50	19	78	29	22	2		
C*	**Petro+diesel**	4321	19116	964	3382	1838	75	365	125	96	22	15	0		
3	**Petro-1**	12866	28139	2095	7576	3873	138	673	217	123	4	3	0	0.6	0.7377
6	**Petro-2**	8954	22146	1444	5244	2778	98	483	157	104	4	2	0	0.6	0.7377
15	**Petro-3**	9526	22438	1563	5593	3020	101	504	168	105	4	3	0	0.6	0.7377
17	**Saladin**	230	818	91	724	194	116	184	47	101	210	105	43	2.31	0.7942
24	**Saladin-2**	331	1092	102	781	211	69	113	30	68	40	22	2	2.31	0.7942
4	**Skua**	7716	5137	260	1498	565	65	177	59	272	106	74	2	3.40	0.8185
C*	**Skua-2**	11694	7362	350	2008	712	86	224	71	295	119	79	2	3.40	0.8185
5	**Swallow**	2358	4754	288	2177	604	115	220	55	173	98	54	1	1.0	0.7507
25	**Swallow-2**	1674	4305	279	2109	615	113	226	62	220	130	72	1	1.0	0.7507
20	**Yammaderry**	294	913	94	438	206	70	40	27	65	36	21	4	2.9	0.7903

C* represents control samples prepared for comparison purpose on relative chemical compositions yet not used in the subsequent sensor system evaluation.

B = Benzene, T = Toluene, E = Ethylbenzene, X = Xylene, TMB =Ttrimethylbenzene, N= Naphthalene, MN = Methylnapthalene, P = Phenathrene

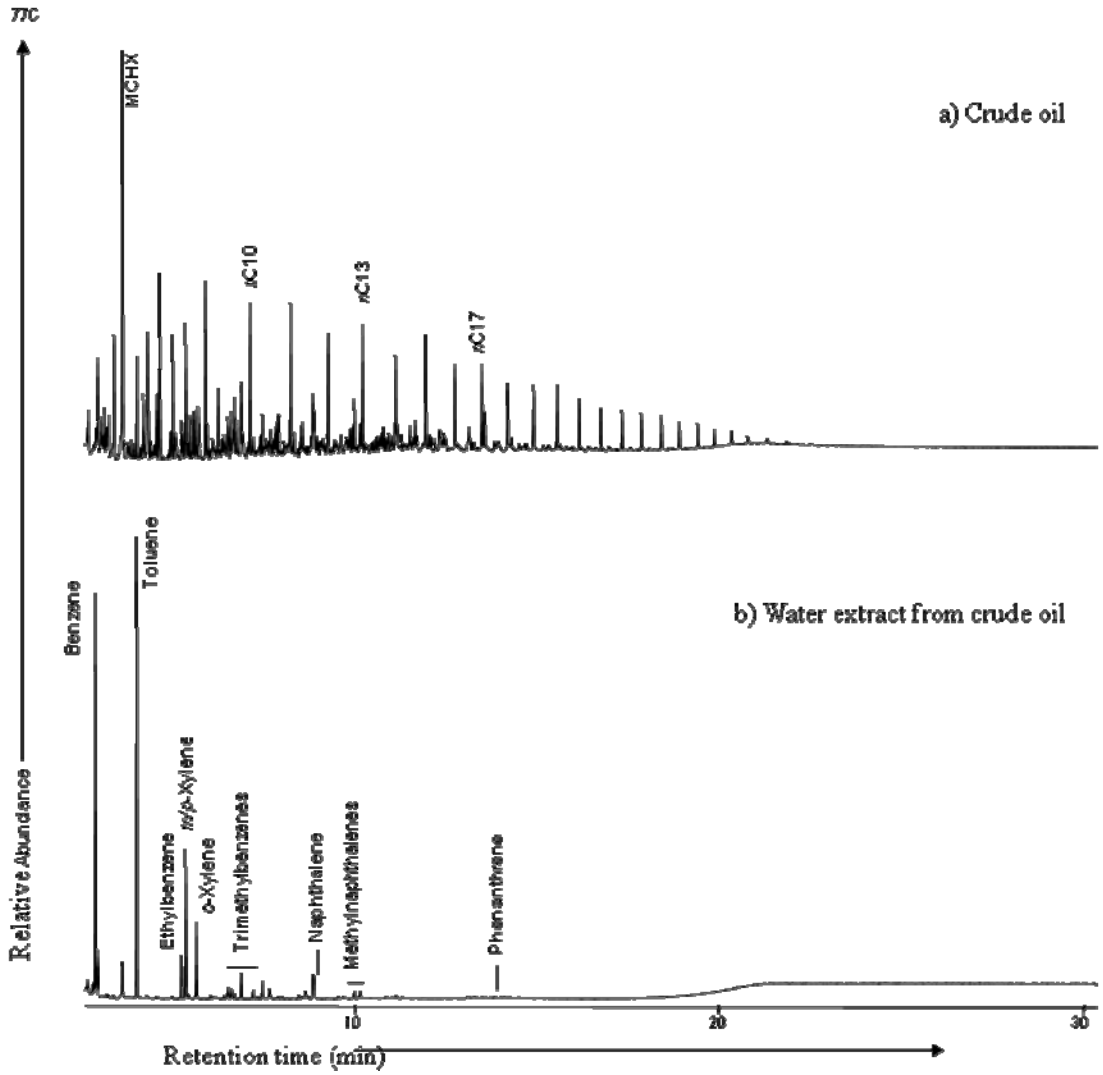

Fig. 1 Total ion chromatograms (*TICs*) from the GC-MS analyses of a) crude oil Swallow and b) water extract from crude oil Swallow, showing the dominant hydrocarbons selected for this study. MCHX = methylcyclohexane, *n*C10 = decane, *n*C13 = tridecane, *n*C17 = heptadecane.

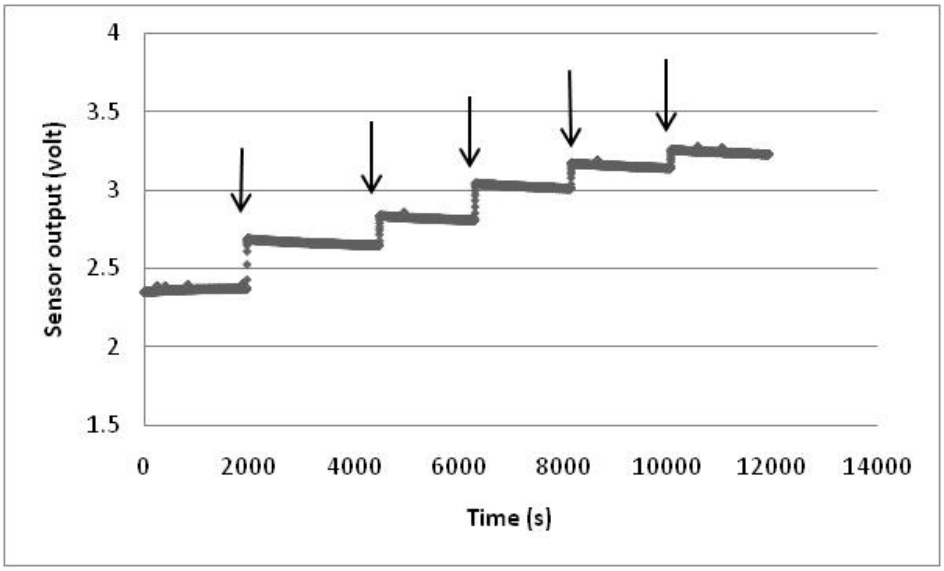

Fig. 2 A typical sensor response curve following addition 20 ml, 20ml, 40 ml, 40 ml and 40 ml of oil-water extract solution to 8L of synthetic sea water. The arrows indicate the addition of oil-water extract into the measurement tank.