The effect of chemical dispersant concentration on hydrocarbon mobility through permeable North-East Scotland sands – Supplementary Material

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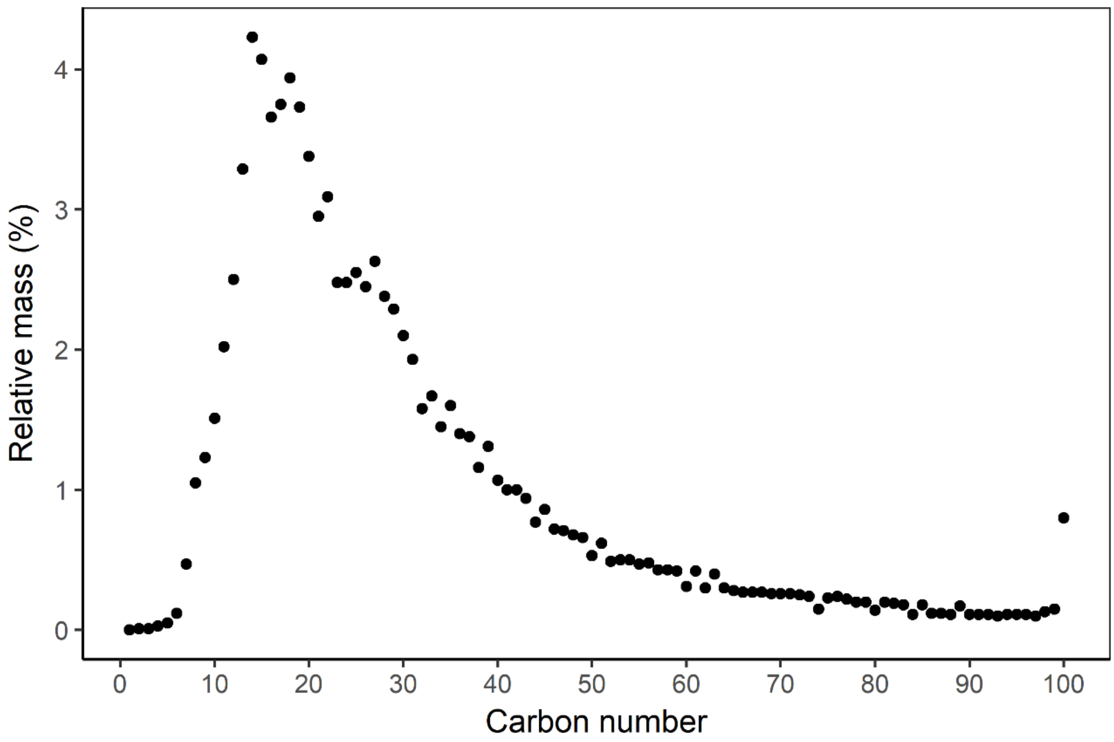
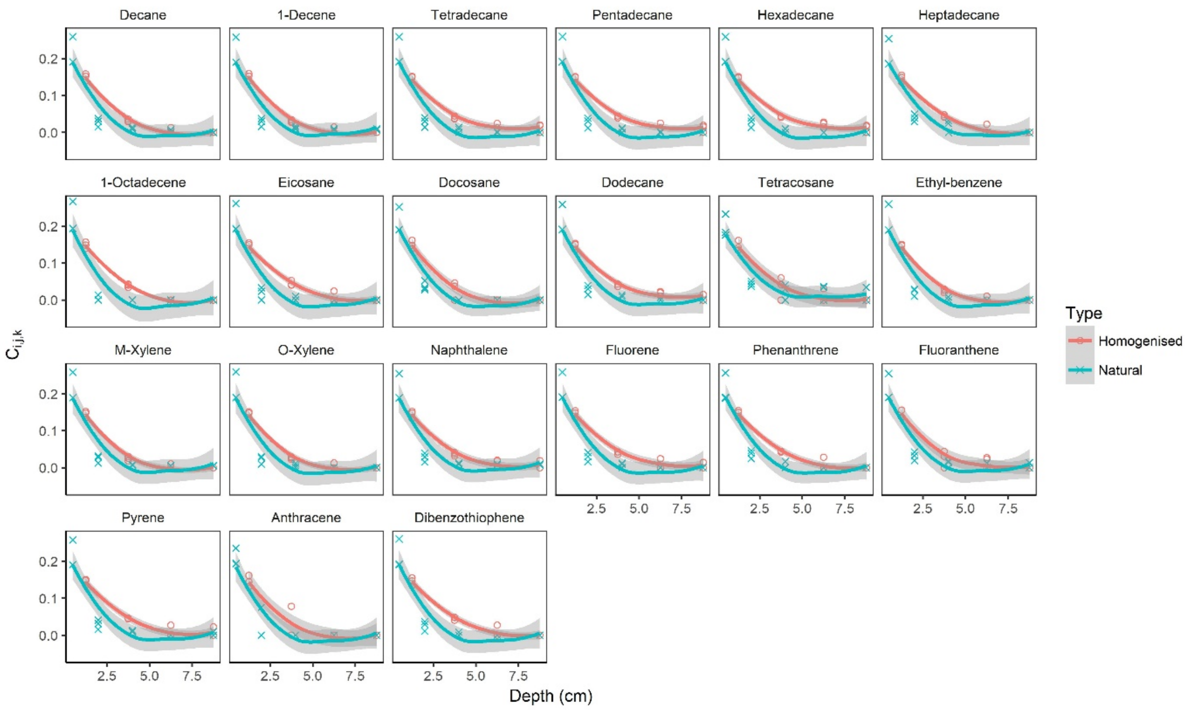
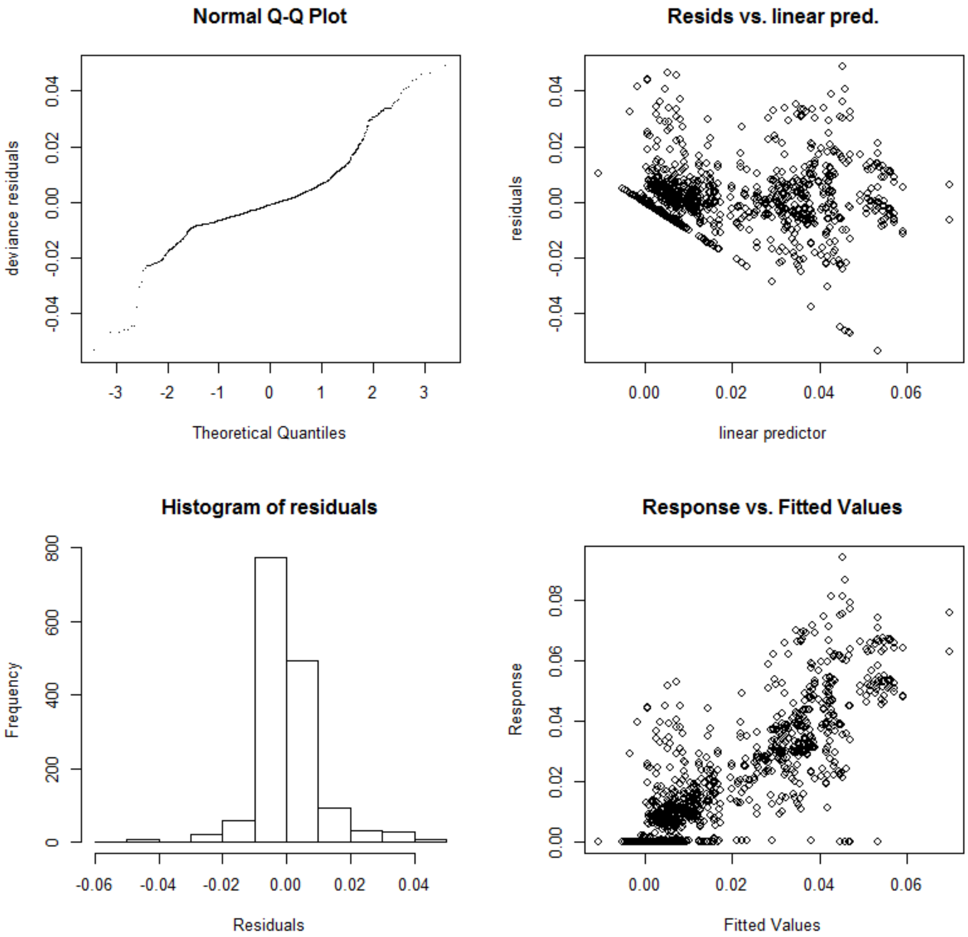


Supplementary Figure 1. Schiehallion crude oil composition by carbon number. Analysis carried out externally by Intertek, ITS Services (UK).



Supplementary Figure 2. Comparison of percolation of model oil component normalised concentrations as a function of sediment depth using homogenised (red circles) and undisturbed (blue crosses) sediments (n = 3). Red and blue lines represent locally-weighed regression smooths for normalised hydrocarbon concentration as a function of depth. Grey bands represent standard error.



Supplementary Figure 3. Generalised Additive Mixed Effects Model (GAMM) diagnostics for hydrocarbon concentrations in the top 10 cm of sediment.

Supplementary Table 1. GAMM fit summary for hydrocarbon concentrations as a function of sediment depth and dispersant concentration. Table shows estimated degrees of freedom (e.d.f.), reference degrees of freedom (Ref d.f.), F-values and p-values.

Term	e.d.f.	Ref. d.f.	F	p-value
te(Depth, [SD25]) for Decane	6.11	6.11	29.98	$<2 \times 10^{-16}$
te(Depth, [SD25]) for 1-Decene	6.09	6.09	21.46	$<2 \times 10^{-16}$
te(Depth, [SD25]) for Dodecane	6.06	6.06	35.51	$<2 \times 10^{-16}$
te(Depth, [SD25]) for Tetradecane	6.31	6.31	36.82	$<2 \times 10^{-16}$
te(Depth, [SD25]) for Pentadecane	6.32	6.32	36.02	$<2 \times 10^{-16}$
te(Depth, [SD25]) for Hexadecane	6.28	6.28	36.15	$<2 \times 10^{-16}$
te(Depth, [SD25]) for Heptadecane	6.40	6.40	46.98	$<2 \times 10^{-16}$
te(Depth, [SD25]) for 1-Octadecene	6.33	6.33	18.11	$<2 \times 10^{-16}$
te(Depth, [SD25]) for Eicosane	6.33	6.33	26.31	$<2 \times 10^{-16}$
te(Depth, [SD25]) for Docosane	6.60	6.60	44.99	$<2 \times 10^{-16}$
te(Depth, [SD25]) for Tetracosane	9.95	9.95	22.57	$<2 \times 10^{-16}$
te(Depth, [SD25]) for Ethyl-benzene	6.47	6.47	25.79	$<2 \times 10^{-16}$
te(Depth, [SD25]) for M-Xylene	6.32	6.32	21.28	$<2 \times 10^{-16}$
te(Depth, [SD25]) for O-Xylene	6.36	6.36	26.04	$<2 \times 10^{-16}$
te(Depth, [SD25]) for Naphthalene	6.16	6.16	26.72	$<2 \times 10^{-16}$
te(Depth, [SD25]) for Fluorene	6.34	6.34	37.77	$<2 \times 10^{-16}$
te(Depth, [SD25]) for Phenanthrene	6.43	6.43	44.12	$<2 \times 10^{-16}$
te(Depth, [SD25]) for Anthracene	9.60	9.60	48.41	$<2 \times 10^{-16}$
te(Depth, [SD25]) for Dibenzothiophene	6.51	6.51	35.46	$<2 \times 10^{-16}$
te(Depth, [SD25]) for Pyrene	6.27	6.27	32.95	$<2 \times 10^{-16}$
te(Depth, [SD25]) for Dibenzothiophene	6.51	6.51	35.46	$<2 \times 10^{-16}$