Supplemental Materials

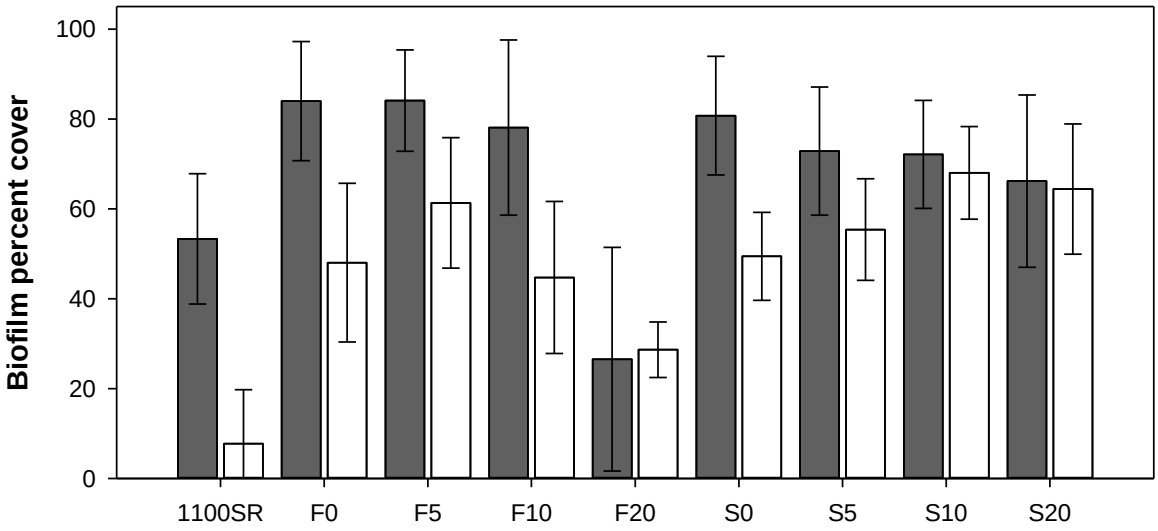

Figure S1. Percent cover of biofilm on test surfaces after 2 weeks (grey bars) and 4 weeks (white bars). Cover for Intersleek 1100SR at the same time points included for comparison. Error bars are 95% confidence intervals, $n = 6$ for all surfaces.

Table S1. ANOVA table for biofilm accumulation data after 6 weeks. Multiple comparisons are included within all levels of both factors 'Oil Content' and 'Surface type', since the interaction term was significant at $p < 0.05$. Statistically significant factors/comparisons are highlighted in bold.

Source of Variation	df	SS	MS	F	*p*
Surface type	1	792.098	792.098	7.774	**0.008**
Oil Content	3	1773.857	591.286	5.803	**0.002**
Structure * Oil Content	3	2916.713	972.238	9.542	**<0.001**
Residual	40	4075.626	101.891		
Total	47	9558.295	203.368		
Pairwise comparisons (Holm–Sidak Method) for factor 'Oil Content' among Flat surfaces (F0–F40)	**Comparison**		**Diff of Means**	**t**	***p***
	0 vs. 20		36.619	6.283	**<0.001**
	5 vs. 20		25.799	4.427	**<0.001**
	10 vs. 20		22.645	3.886	**0.001**
	0 vs. 10		13.974	2.398	0.062
	0 vs. 5		10.820	1.857	0.136
	5 vs. 10		3.154	0.541	0.591
Pairwise comparisons (Holm–Sidak Method) for factor 'Oil Content' among Structured surfaces (S0-S40)	**Comparison**		**Diff of Means**	**t**	***p***
	10 vs. 0		11.356	1.949	0.303
	10 vs. 5		8.668	1.487	0.542
	20 vs. 0		5.788	0.993	0.794
	10 vs. 20		5.568	0.955	0.719
	20 vs. 5		3.100	0.532	0.838
	5 vs. 0		2.688	0.461	0.647
Pairwise comparisons (Holm–Sidak Method) between surface types for all values of the 'Oil Content' factor	**Oil Content**		**Diff of Means**	**t**	***p***
	0 (F0 vs. S0)		12.187	2.091	**0.043**
	5 (F5 vs. S5)		1.321	0.227	0.822
	10 (F10 vs. S10)		13.143	2.255	**0.03**
	20 (F20 vs. S20)		30.220	5.185	**<0.001**

Table S2. ANOVA table for biofilm accumulation data after 2 and 4 weeks. Multiple comparisons included within all levels of both factors 'Oil Content' and 'Surface type', since the interaction term was significant at $p < 0.05$. Statistically significant factors/comparisons are highlighted in bold.

Source of Variation	**df**	**Week 2 SS**	**MS**	**F**	***p***	**Week 4 SS**	**MS**	**F**	***p***
Surface type	1	275.372	275.372	1.107	0.299	2228.41	2228.41	14.173	**<0.001**
Oil Content	3	9696.939	3232.313	12.997	**<0.001**	1188.44	396.147	2.519	0.072
Structure * Oil Content	3	4953.724	1651.241	6.640	**<0.001**	3338.399	1112.8	7.077	**<0.001**
Residual	40	9947.657	248.691	-	-	6289.317	157.233	-	-
Total	47	24873.693	529.228	-	-	13044.566	277.544	-	-
Pairwise comparisons (Holm–Sidak Method) for factor 'Oil Content' among Flat surfaces (F0–F40)	**Comparison**		**Diff of Means**	**t**	***p***	**Diff of Means**		**t**	***p***
	0 vs. 5		0.126	0.0138	0.989	13.294		1.836	0.142
	0 vs. 10		5.883	0.646	0.771	3.283		0.454	0.653
	0 vs. 20		57.429	6.308	**<0.001**	19.352		2.673	0.053
	5 vs. 10		6.008	0.660	0.885	16.577		2.290	0.105
	5 vs. 20		57.555	6.321	**<0.001**	32.646		4.509	**<0.001**
	10 vs. 20		51.546	5.661	**<0.001**	16.069		2.220	0.093
Pairwise comparisons (Holm–Sidak Method) for factor 'Oil Content' among Structured surfaces (S0–S40)	**Comparison**		**Diff of Means**	**t**	***p***	**Diff of Means**		**t**	***p***
	0 vs. 5		7.879	0.865	0.863	5.960		0.823	0.658
	0 vs. 10		8.617	0.946	0.884	18.564		2.564	0.082
	0 vs. 20		14.559	1.599	0.528	14.969		2.068	0.206
	5 vs. 10		0.738	0.0811	0.936	12.603		1.741	0.312
	5 vs. 20		6.681	0.734	0.849	9.008		1.244	0.527
	10 vs. 20		5.943	0.653	0.767	3.595		0.497	0.622
Pairwise comparisons (Holm–Sidak Method) between surface types for all values of the 'Oil Content' factor	**Oil Content**		**Diff of Means**	**t**	***p***	**Diff of Means**		**t**	***p***
	0 (F0 vs. S0)		3.243	0.356	0.724	1.419		0.196	0.846
	5 (F5 vs. S5)		11.247	1.235	0.224	5.915		0.817	0.419
	10 (F10 vs. S10)		5.977	0.656	0.515	23.266		3.214	**0.003**
	20 (F20 vs. S20)		39.627	4.352	**<0.001**	35.739		4.937	**<0.001**

Table S3. Repeated-measures ANOVA table for biofilm cleaning test data. Multiple comparisons included between all surfaces.

Source of Variation	df	SS	MS	F	*p*
Surface	7	11428.956	1632.708	4.727	**0.002**
Slide (within surface)	24	8289.220	345.384	-	-
Treatment (pre- / post-cleaning test)	1	17821.749	17821.749	72.653	**<0.001**
Surface * Treatment	7	1245.622	177.946	0.725	0.652
Residual	24	5887.225	245.301	-	-
Total	63	44672.773	709.092	-	-

	Comparison	Diff of Means	t	*p*
Pairwise comparisons (Holm–Sidak Method)	S5 vs. F20	43.721	4.705	**0.002**
	S10 vs. F20	42.297	4.552	**0.003**
	F10 vs. F20	41.776	4.496	**0.004**
	S0 vs. F20	40.643	4.374	**0.005**
	F0 vs. F20	35.105	3.778	**0.022**
	S20 vs. F20	32.661	3.515	**0.040**
	F5 vs. F20	32.180	3.463	**0.043**
	S5 vs. F5	11.540	1.242	0.995
	S5 vs. S20	11.060	1.190	0.996
	S10 vs. F5	10.116	1.089	0.998
	S10 vs. S20	9.636	1.037	0.999
	F10 vs. F5	9.596	1.033	0.998
	F10 vs. S20	9.115	0.981	0.999
	S5 vs. F0	8.616	0.927	0.999
	S0 vs. F5	8.463	0.911	0.998
	S0 vs. S20	7.983	0.859	0.999
	S10 vs. F0	7.192	0.774	0.999
	F10 vs. F0	6.671	0.718	0.999
	S0 vs. F0	5.538	0.596	1.000
	S5 vs. S0	3.077	0.331	1.000
	F0 vs. F5	2.924	0.315	1.000
	F0 vs. S20	2.444	0.263	1.000
	S5 vs. F10	1.944	0.209	1.000
	S10 vs. S0	1.654	0.178	1.000
	S5 vs. S10	1.424	0.153	1.000
	F10 vs. S0	1.133	0.122	0.999
	S10 vs. F10	0.521	0.0560	0.998
	S20 vs. F5	0.480	0.0517	0.959

Table S4. ANOVA table for diatom initial density data. Multiple comparisons included within all levels of both factors 'Oil Content' and 'Surface type', since the interaction term was significant at $p < 0.05$. Statistically significant factors/comparisons are highlighted in bold.

Source of Variation	**df**	**SS**	**MS**	**F**	***p***
Surface type	1	25339.599	25339.599	127.027	**<0.001**
Oil Content	4	580.542	145.136	0.728	0.584
Structure * Oil Content	4	3445.591	861.398	4.318	**0.011**
Residual	20	3989.653	199.483		
Total	29	33355.385	1150.186		
	Comparison		**Diff of Means**	**t**	***p***
Pairwise comparisons (Holm–Sidak Method) for factor 'Oil Content' among Flat surfaces (F0–F40)	20 vs. 5		24.583	2.132	0.373
	40 vs. 5		17.133	1.486	0.776
	10 vs. 5		15.150	1.314	0.839
	20 vs. 0		13.673	1.186	0.866
	0.vs. 5		10.910	0.946	0.928
	20 vs. 10		9.433	0.818	0.936
	20 vs. 40		7.450	0.646	0.949
	40 vs. 0		6.223	0.540	0.934
	10 vs. 0		4.240	0.368	0.920
	40 vs. 10		1.983	0.172	0.865
	Comparison		**Diff of Means**	**t**	***p***
Pairwise comparisons (Holm–Sidak Method) for factor 'Oil Content' among Structured surfaces (S0–S40)	0 vs. 20		33.033	2.864	0.092
	0 vs. 40		32.462	2.815	0.092
	5 vs. 20		31.069	2.694	0.106
	5 vs. 40		30.498	2.645	0.104
	10 vs. 20		18.171	1.576	0.569
	10 vs. 40		17.600	1.526	0.537
	0 vs. 10		14.862	1.289	0.615
	5 vs. 10		12.898	1.118	0.621
	0 vs. 5		1.964	0.170	0.982
	40 vs. 20		0.571	0.0495	0.961
Pairwise comparisons (Holm–Sidak Method) between surface types for all values of the 'Oil Content' factor	**Oil Content**		**Diff of Means**	**t**	***p***
	0 (F0 vs. S0)		77.235	6.697	**<0.001**
	5 (F5 vs. S5)		86.182	7.473	**<0.001**
	10 (F10 vs. S10)		58.133	5.041	**<0.001**
	20 (F20 vs. S20)		30.529	2.647	**0.015**
	40 (F40 vs. S40)		38.550	3.343	**0.003**

Table S5. ANOVA table for diatom post-shear exposure density data. <ultiple comparisons included for different levels of the factor 'Oil Content'. Statistically significant factors/comparisons are highlighted in bold.

Source of Variation	df	SS	MS	F	*p*
Surface type	1	7076.591	7076.591	52.823	**<0.001**
Oil Content	4	3765.417	941.354	7.027	**0.001**
Structure * Oil Content	4	1502.705	375.676	2.804	0.054
Residual	20	2679.352	133.968		
Total	29	15024.064	518.071		
	Comparison		**Diff of Means**	**t**	***p***
Pairwise comparisons (Holm–Sidak Method) for factor 'Oil Content' comparing different percentages across both surface types	10 vs. 0		31.065	4.649	**0.002**
	5 vs. 0		26.763	4.005	**0.006**
	40 vs. 0		25.189	3.769	**0.010**
	10 vs. 20		16.902	2.529	0.132
	20 vs. 0		14.163	2.119	0.250
	5 vs. 20		12.600	1.886	0.319
	40 vs. 20		11.026	1.650	0.385
	10 vs. 40		5.876	0.879	0.773
	10 vs. 5		4.302	0.644	0.776
	5 vs. 40		1.574	0.236	0.816

Table S6. ANOVA table for diatom percent removal data. Multiple comparisons included for different levels of the factor 'Oil Content'. Statistically significant factors/comparisons are highlighted in bold.

Source of Variation	df	SS	MS	F	*p*
Surface type	1	747.487	747.487	13.149	**0.002**
Oil Content	4	2202.753	550.688	9.687	**<0.001**
Structure * Oil Content	4	257.137	64.284	1.131	0.370
Residual	20	1136.978	56.849		
Total	29	4344.355	149.805		
	Comparison		**Diff of Means**	**t**	***p***
Pairwise comparisons (Holm–Sidak Method) for factor 'Oil Content' comparing different percentages across both surface types	0 vs. 40		22.522	5.174	**<0.001**
	0 vs. 5		21.417	4.920	**<0.001**
	0 vs. 10		21.280	4.888	**<0.001**
	0 vs. 20		12.476	2.866	0.065
	20 vs. 40		10.046	2.308	0.176
	20 vs. 5		8.941	2.054	0.239
	20 vs. 10		8.804	2.022	0.208
	10 vs. 40		1.242	0.285	0.989
	5 vs. 40		1.105	0.254	0.961
	10 vs. 5		0.137	0.0316	0.975

Table S7. ANOVA table for barnacle cyprid settlement data. Multiple comparisons included for different levels of the factor 'Oil Content'. Statistically significant factors/comparisons are highlighted in bold. Data were arcsine-square root transformed prior to analysis.

Source of Variation	df	SS	MS	F	*p*
Surface type	1	0.0181	0.0181	0.731	0.397
Oil Content	4	2.309	0.577	23.369	**<0.001**
Structure * Oil Content	4	0.175	0.0439	1.776	0.148
Residual	50	1.235	0.0247		
Total	59	3.737	0.0633		
	Comparison		**Diff of Means**	**t**	***p***
Pairwise comparisons (Holm–Sidak Method) for factor 'Oil Content' comparing different percentages across both surface types	10 vs. 20		0.461	7.186	**<0.001**
	0 vs. 20		0.457	7.117	**<0.001**
	5 vs. 20		0.439	6.842	**<0.001**
	10 vs. 40		0.342	5.331	**<0.001**
	0 vs. 40		0.338	5.261	**<0.001**
	5 vs. 40		0.320	4.986	**<0.001**
	40 vs. 20		0.119	1.856	0.250
	10 vs. 5		0.0221	0.345	0.981
	0 vs. 5		0.0176	0.275	0.954
	10 vs. 0		0.00448	0.0698	0.945

Table S8. ANOVA table for juvenile barnacle percent removal data. Multiple comparisons included for different levels of the factor 'Oil Content' within both levels of the factor 'Surface type', since the interaction term was significant at $p < 0.05$. Statistically significant factors/comparisons are highlighted in bold.

Source of Variation	df	SS	MS	F	*p*
Surface type	1	0.175	0.175	6.413	**0.015**
Oil Content	4	0.352	0.0879	3.226	**0.021**
Structure * Oil Content	4	0.395	0.0987	3.620	**0.012**
Residual	45	1.227	0.0273		
Total	54	2.169	0.0402		
	Comparison		**Diff of Means**	**t**	***p***
Pairwise comparisons (Holm–Sidak Method) for factor 'Oil Content' among Flat surfaces (F0–F40)	F20 vs. F0		0.361	3.607	**0.008**
	F40 vs. F0		0.336	3.529	**0.009**
	F20 vs. F5		0.307	2.942	**0.040**
	F20 vs. F10		0.294	2.939	**0.036**
	F40 vs. F5		0.283	2.830	**0.041**
	F40 vs. F10		0.270	2.828	**0.034**
	F10 vs. F0		0.0668	0.701	0.931
	F5 vs. F0		0.0534	0.534	0.934
	F20 vs. F40		0.0242	0.242	0.964
	F10 vs. F5		0.0134	0.134	0.894
	Comparison		**Diff of Means**	**t**	***p***
Pairwise comparisons (Holm–Sidak Method) for factor 'Oil Content' among Structured surfaces (S0–S40)	S20 vs. S40		0.174	1.742	0.603
	S10 vs. S40		0.140	1.399	0.810
	S20 vs. S5		0.130	1.299	0.833
	S0 vs. S40		0.104	1.037	0.922
	S10 vs. S5		0.0956	0.957	0.920
	S20 vs. S0		0.0705	0.675	0.970
	S0 vs. S5		0.0594	0.594	0.961
	S5 vs. S40		0.0443	0.465	0.955
	S10 vs. S0		0.0362	0.347	0.927
	S20 vs. S10		0.0343	0.328	0.744

Table S9. ANOVA table for adult barnacle CRS data (square root transformed). Multiple comparisons included for different levels of the factor 'Oil Content'. Statistically significant factors/comparisons are highlighted in bold.

Source of Variation	df	SS	MS	F	*p*
Surface type	1	0.0757	0.0757	18.693	**<0.001**
Oil Content	4	0.651	0.163	40.194	**<0.001**
Structure * Oil Content	4	0.00804	0.00201	0.496	0.739
Residual	110	0.446	0.00405		
Total	119	1.220	0.0103		
	Comparison		**Diff of Means**	**t**	***p***
Pairwise comparisons (Holm–Sidak Method) for factor 'Oil Content' comparing different percentages across both surface types	5 vs. 40		0.187	9.954	**<0.001**
	10 vs. 40		0.183	9.595	**<0.001**
	5 vs. 20		0.133	6.759	**<0.001**
	10 vs. 20		0.129	6.473	**<0.001**
	0 vs. 40		0.196	5.574	**<0.001**
	0 vs. 20		0.142	3.981	**<0.001**
	20 vs. 40		0.0542	3.237	**0.006**
	0 vs. 10		0.0127	0.346	0.980
	0 vs. 5		0.00915	0.250	0.961
	5 vs. 10		0.00359	0.166	0.869