

Table S2. Results of SIMPER analysis describing the OTUs contributing to skin-bacterial community similarity within the geographical area.

OTU	Av. Abundance	Av. Similarity	Sim/SD	Contribution to similarity (%)		Taxonomy
Gulf of Maine						
3	12.42	4.99	0.72	21.54		<i>Bacteroidetes, Tenacibaculum</i>
2	11.69	4.57	0.81	19.73		<i>Gammaproteobacteria, Psychrobacter</i>
12	3.62	1.57	0.83	6.8		<i>Bacteroidetes, Tenacibaculum</i>
10*	5.12	1.45	0.51	6.27	GOM	<i>Bacteroidetes, Tenacibaculum</i>
29	3.45	1.13	0.65	4.87		<i>Bacteroidetes, Tenacibaculum</i>
19	3.65	0.9	0.56	3.89	AK & GOM	<i>Gammaproteobacteria, Psychrobacter</i>
4	5.32	0.9	0.36	3.87		<i>Bacteroidetes, Flavobacteriaceae, uncultured humpback group</i>
28	3.07	0.89	0.48	3.84		<i>Gammaproteobacteria, Psychrobacter</i>
9	3.96	0.76	0.36	3.29		<i>Gammaproteobacteria, Moraxellaceae</i>
7	2.12	0.53	0.46	2.28		<i>Gammaproteobacteria, Psychrobacter</i>
27	1.91	0.36	0.39	1.54		<i>Bacteroidetes, Tenacibaculum</i>
5	2.85	0.35	0.55	1.5		<i>Gammaproteobacteria, Cardiobacteria</i>
11	2.19	0.35	0.33	1.49		<i>Gammaproteobacteria, Psychrobacter</i>
33	1.03	0.3	0.54	1.31	AK & GOM	<i>Gammaproteobacteria, Colwellia</i>
17	1.72	0.29	0.49	1.26	AK & GOM	<i>Gammaproteobacteria, Psychrobacter</i>
20	1.6	0.29	0.3	1.24	HI & GOM	<i>Alphaproteobacteria, Roseobacter clade AS-21</i>
51	0.89	0.28	0.6	1.21	AK & GOM	<i>Bacteroidetes, Tenacibaculum</i>
1	1.22	0.24	0.41	1.02		<i>Bacteroidetes, Tenacibaculum</i>
Alaska						
21	17.17	7.18	0.61	28.51	AK	<i>Gammaproteobacteria, Psychrobacter</i>
8	26.73	6.99	0.5	27.75	AK	<i>Bacteroidetes, Tenacibaculum</i>
33	5.81	2.57	0.8	10.2	AK & GOM	<i>Gammaproteobacteria, Colwellia</i>
3	5.11	1.61	0.53	6.4		<i>Bacteroidetes, Tenacibaculum</i>
19	7.67	1.59	0.32	6.3	AK & GOM	<i>Gammaproteobacteria, Psychrobacter</i>
28	3.96	0.87	0.34	3.47		<i>Gammaproteobacteria, Psychrobacter</i>
17	1.27	0.32	0.41	1.26	AK & GOM	<i>Gammaproteobacteria, Psychrobacter</i>
49	1.7	0.31	0.32	1.23	AK	<i>Gammaproteobacteria, Colwellia</i>
29	0.66	0.3	0.75	1.17	AK	<i>Bacteroidetes, Tenacibaculum</i>

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51	1.36	0.29	0.46	1.16	AK & GOM	<i>Bacteroidetes, Tenacibaculum</i>
110	1.16	0.28	0.33	1.11	AK	<i>Gammaproteobacteria, Colwellia</i>
Hawaii						
2	14.61	4.05	0.49	23.31		<i>Gammaproteobacteria, Psychrobacter</i>
4	8.91	2.43	0.48	13.94		<i>Bacteroidetes, Flavobacteriaceae, uncultured humpback group</i>
1	12.91	1.69	0.21	9.72		<i>Bacteroidetes, Tenacibaculum</i>
7	5.03	1.03	0.33	5.91		<i>Gammaproteobacteria, Psychrobacter</i>
9	4.11	0.99	0.4	5.68		<i>Gammaproteobacteria, Moraxellaceae</i>
15	3.46	0.91	0.44	5.25	HI & Am Samoa	<i>Betaproteobacteria, Aquabacterium</i>
27	1.87	0.72	0.75	4.12		<i>Bacteroidetes, Tenacibaculum</i>
5	1.44	0.43	0.51	2.48	HI & Am Samoa	<i>Gammaproteobacteria, Cardiobacteria</i>
20	1.59	0.41	0.49	2.35	HI & GOM	<i>Alphaproteobacteria, Roseobacter clade AS-21</i>
39	1.23	0.38	0.47	2.16	HI & Am Samoa	<i>Gammaproteobacteria, Escherichia</i>
11	0.91	0.35	0.71	2		<i>Gammaproteobacteria, Psychrobacter</i>
35	1.67	0.32	0.28	1.85	HI	<i>Alphaproteobacteria, Novosphingobium</i> (aromatic hydrocarbon degrader, glycosphingolipids (sphingans) - useful for colonization of eukaryotic organisms)
12	3.38	0.31	0.45	1.77		<i>Bacteroidetes, Tenacibaculum</i>
14	4.75	0.31	0.18	1.76	HI	<i>Gammaproteobacteria, Psychrobacter</i>
American Samoa						
27	9.09	3.59	0.65	18.58		<i>Bacteroidetes, Tenacibaculum</i>
2	12.57	3.48	0.45	17.99		<i>Gammaproteobacteria, Psychrobacter</i>
3	7.68	1.6	0.38	8.25		<i>Bacteroidetes, Tenacibaculum</i>
12	7.17	1.45	0.54	7.51		<i>Bacteroidetes, Tenacibaculum</i>
11	6.24	1.13	0.54	5.82		<i>Gammaproteobacteria, Psychrobacter</i>
1	6.68	0.92	0.39	4.73		<i>Bacteroidetes, Tenacibaculum</i>

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OTU	Av. Abundance	Av. Similarity	Sim/SD	Contribution to similarity (%)		Taxonomy
5	1.77	0.71	0.73	3.66	HI & Am Samoa	<i>Gammaproteobacteria, Cardiobacteria</i>
9	2.52	0.71	0.51	3.66		<i>Gammaproteobacteria, Pseudomonadales, Moraxellaceae</i>
7	2.73	0.7	0.4	3.6		<i>Gammaproteobacteria, Psychrobacter</i>
15	2.46	0.6	0.58	3.08	HI & Am Samoa	<i>Betaproteobacteria, Burkholderiales, Aquabacterium</i>
37	3.13	0.46	0.23	2.37	Am Samoa	<i>Bacteroidetes, Flavobacteriaceae</i>
50	1.68	0.42	0.37	2.17	Am Samoa	<i>Bacteroidetes, Flavobacteriaceae, uncultured humpback group</i>
22	3.95	0.39	0.22	2	Am Samoa	<i>Proteobacteria, Incertae Sedis (humpback-specific)</i>
41	2.66	0.36	0.22	1.84	Am Samoa	<i>Bacteroidetes, Flavobacteriaceae</i>
39	0.65	0.21	0.53	1.07	HI & Am Samoa	<i>Gammaproteobacteria, Escherichia-Shigella</i>
38	1.37	0.2	0.33	1.02	Am Samoa	<i>Gammaproteobacteria, Colwellia</i>