

**Supporting Information Table S1. Intraspecific and nearest neighbour distances and the number of individuals sampled for each of the 227 morphospecies in this study. A hyphen will appear in the intraspecific divergence columns for singletons.**

Species	Number of Individuals	Mean Intra-specific (% K2P)	Max Intra-specific (% K2P)	NN Distance (% K2P)
<i>Acanthodoris nanaimoensis</i>	1	-	-	11.21
<i>Acanthodoris pilosa</i>	1	-	-	4.27
<i>Acmaea mitra</i>	10	0.15	0.62	23.82
<i>Admete sp. KL01</i>	3	0	0	10.98
<i>Admete viridula</i>	1	-	-	10.98
<i>Aeolidia papillosa</i>	3	0.41	0.62	19.22
<i>Aeolidia sp. KL01</i>	1	-	-	13.12
<i>Aeolidia sp. KL02</i>	9	0.15	0.46	13.12
<i>Alia carinata</i>	9	0.46	1.26	6.77
<i>Amphissa columbiana</i>	3	0.64	0.93	4.26
<i>Amphissa reticulata</i>	1	-	-	5.45
<i>Amphissa versicolor</i>	1	-	-	4.26
<i>Antalis antillarum</i>	2	0.15	0.15	0.29
<i>Antalis dentalis</i>	1	-	-	2.36
<i>Antalis entalis</i>	3	0.19	0.29	15.81
<i>Antalis inaequicostata</i>	1	-	-	2.36
<i>Antalis sp. PR-2003</i>	1	-	-	0.29
<i>Ariadnaria insignis</i>	6	0.15	0.31	7.82
<i>Armina californica</i>	2	0.51	0.51	21.49
<i>Astarte borealis</i>	1	-	-	17.90
<i>Astarte montagui</i>	12	0.19	0.68	17.90
<i>Axinopsida orbiculata</i>	2	0.16	0.16	9.73
<i>Axinopsida serricata</i>	2	0.16	0.16	9.73
<i>Bathyarca pectunculoides</i>	3	0.30	0.49	29.18
<i>Boonea cf. bisuturalis</i>	2	0.31	0.31	21.81
<i>Boreochiton beringensis</i>	1	-	-	3.80
<i>Boreotrophon cepula</i>	1	-	-	7.69
<i>Boreotrophon truncatus</i>	1	-	-	7.69
<i>Brachioteuthis beani</i>	2	0.15	0.15	18.82
<i>Buccinum aleuticum</i>	3	0.32	0.48	9.07
<i>Buccinum hydrophanum</i>	3	0.11	0.17	5.34
<i>Buccinum senshumaruae</i>	1	-	-	5.34
<i>Buccinum sp. KL01</i>	1	-	-	2.87
<i>Buccinum undatum</i>	2	0.93	0.93	2.87
<i>Cadlina luteomarginata</i>	2	0	0	16.59
<i>Calliostoma canaliculatum</i>	1	-	-	14.33
<i>Calliostoma ligatum</i>	10	0.17	0.47	14.33
<i>Ceratostoma foliatum</i>	3	0	0	10.11
<i>Cidarina cidaris</i>	8	0.19	0.47	23.39
<i>Ciliatocardium ciliatum</i>	6	0.22	0.34	23.03
<i>Clinocardium nuttallii</i>	3	0.10	0.16	20.49
<i>Clione limacina</i>	17	2.12	6.35	35.64
<i>Colus stimpsoni</i>	1	-	-	12.88
<i>Crassostrea gigas</i>	4	0.08	0.16	24.88
<i>Crassostrea virginica</i>	9	0.06	0.69	24.88
<i>Crenella faba</i>	20	0.03	0.32	18.41
<i>Crepidula fornicata</i>	11	1.47	3.14	15.90
<i>Crepidula williamsi</i>	9	1.66	3.15	15.90

<i>Crepidatella lingulata</i>	14	0.26	0.64	15.06
<i>Cryptobranchia concentrica</i>	13	0.29	0.64	23.82
<i>Cryptochiton stelleri</i>	1	-	-	15.64
<i>Cryptonatica affinis</i>	8	2.47	9.65	7.68
<i>Cryptonatica aleutica</i>	2	0	0	6.99
<i>Cryptonatica russa</i>	1	-	-	6.99
<i>Cuspidaria glacialis</i>	1	-	-	30.42
<i>Cuspidaria subtorta</i>	2	0	0	30.42
<i>Cuthona columbiana</i>	1	-	-	18.36
<i>Cyanoplax dentiens</i>	4	0.62	0.93	16.07
<i>Cyanoplax fernaldi</i>	17	1.05	2.98	16.07
<i>Cyclocardia borealis</i>	1	-	-	43.70
<i>Cyclocardia crassidens</i>	3	0.11	0.16	39.09
<i>Cylichna alba</i>	2	0.15	0.15	11.35
<i>Cylichna cf. gouldii</i>	6	1.60	3.53	11.35
<i>Dendronotus cf. robustus</i>	1	-	-	13.22
<i>Dendronotus frondosus</i>	8	1.11	2.78	13.22
<i>Dentalium pilsbryi</i>	2	21.22	21.22	0.29
<i>Diaphana minuta</i>	1	-	-	19.60
<i>Diaulula sandiegensis</i>	1	-	-	16.80
<i>Dirona albolineata</i>	2	0.15	0.15	19.55
<i>Discurria insessa</i>	10	0.06	0.31	19.25
<i>Doris montereyensis</i>	5	0.66	0.97	19.38
<i>Dosidicus gigas</i>	19	0.65	2.60	19.51
<i>Ecrobia truncata</i>	11	0.19	0.46	17.17
<i>Ennucula tenuis</i>	18	0.19	1.39	24.98
<i>Ensis directus</i>	1	-	-	30.43
<i>Entalina tetragona</i>	1	-	-	28.18
<i>Enteractopus dofleini</i>	1	-	-	7.47
<i>Episiphon yamakawai</i>	1	-	-	18.45
<i>Eubranchus rupium</i>	5	0.70	1.10	18.19
<i>Euspira heros</i>	8	0.18	0.31	5.30
<i>Euspira pallida</i>	1	-	-	5.30
<i>Fissidentalium candidum</i>	1	-	-	20.91
<i>Fissurellidea bimaculata</i>	1	-	-	25.07
<i>Flabellina cf. trophina</i>	1	-	-	20.24
<i>Flabellina salmonacea</i>	5	1.45	2.84	16.96
<i>Flabellina sp. KLO1</i>	2	0.77	0.77	16.96
<i>Flabellina verrucosa</i>	7	0.07	0.16	22.40
<i>Gadila aberrans</i>	2	2.99	2.99	18.64
<i>Gastropteron pacificum</i>	13	0.47	1.24	19.25
<i>Gemma gemma</i>	9	0.11	0.31	26.69
<i>Glycymeris septentrionalis</i>	2	0.16	0.16	29.18
<i>Graptacme eborea</i>	2	0.29	0.29	14.99
<i>Haminoea virescens</i>	7	0.22	0.46	19.93
<i>Homalopoma baculum</i>	2	0	0	28.60
<i>Homalopoma luridum</i>	1	-	-	23.76
<i>Ilyanassa obsoleta</i>	12	0.47	0.95	14.70
<i>Janolus fuscus</i>	1	-	-	23.89
<i>Katharina tunicata</i>	8	1.01	1.74	18.39
<i>Keenocardium blandum</i>	2	0.16	0.16	18.50
<i>Keenocardium californiense</i>	2	0	0	18.50
<i>Kellia suborbicularis</i>	1	-	-	27.56
<i>Lacuna sp. KLO1</i>	3	1.57	2.32	10.72
<i>Lacuna vincta</i>	10	0.48	1.30	16.37
<i>Lepidochitona flectens</i>	3	1.01	1.33	15.46

<i>Lepidozona interstincta</i>	11	0.33	1.08	4.63
<i>Lepidozona radians</i>	4	0.24	0.34	4.63
<i>Leptochiton alascensis</i>	2	0	0	12.01
<i>Leptochiton rugatus</i>	2	0	0	12.01
<i>Leukoma staminea</i>	1	-	-	27.00
<i>Limacina helicina</i>	2	0.94	0.94	38.71
<i>Lirabuccinum dirum</i>	8	0.04	0.18	13.94
<i>Lirularia succincta</i>	2	0.95	0.95	21.66
<i>Littorina littorea</i>	20	0.41	0.93	11.89
<i>Littorina obtusata</i>	31	0.06	0.81	3.22
<i>Littorina plena</i>	1	-	-	11.31
<i>Littorina saxatilis</i>	56	0.45	1.45	3.22
<i>Littorina sitkana</i>	19	0.24	0.93	8.55
<i>Littorinimorpha sp. KL01</i>	1	-	-	10.72
<i>Littorinimorpha sp. KL03</i>	1	-	-	8.26
<i>Littorinimorpha sp. KL04</i>	1	-	-	8.26
<i>Loligo opalescens</i>	3	0.06	0.17	21.11
<i>Lottia alveus</i>	1	-	-	22.56
<i>Lottia digitalis</i>	8	0.08	0.66	19.75
<i>Lottia paradigitalis</i>	14	0.11	0.51	18.12
<i>Lottia pelta</i>	6	0.41	0.79	18.12
<i>Lottia scutum</i>	8	0.38	1.48	23.45
<i>Macoma balthica</i>	23	0.45	3.65	15.46
<i>Macoma calcarea</i>	3	0.57	0.62	17.32
<i>Macoma moesta</i>	5	0.64	1.01	17.32
<i>Macoma nasuta</i>	1	-	-	15.46
<i>Mactromeris polynyma</i>	1	-	-	32.01
<i>Margarites costalis</i>	4	0.38	0.77	15.69
<i>Margarites groenlandicus</i>	1	-	-	10.43
<i>Margarites helycinus</i>	11	0	0	10.86
<i>Margarites olivaceus</i>	3	1.55	2.71	10.43
<i>Margarites pupillus</i>	2	0.43	0.43	10.86
<i>Margarites sp. KL01</i>	1	-	-	15.69
<i>Mastigoteuthis magna</i>	1	-	-	19.29
<i>Melanella thersites</i>	1	-	-	24.90
<i>Mercenaria mercenaria</i>	8	0.28	0.76	25.63
<i>Mitrella cf. tuberosa</i>	1	-	-	8.68
<i>Modiolus modiolus</i>	1	-	-	38.40
<i>Montereina lentiginosa</i>	1	-	-	15.60
<i>Montereina nobilis</i>	2	0.46	0.46	15.60
<i>Mopalia imporcata</i>	1	-	-	13.43
<i>Mopalia kennerleyi</i>	9	1.18	1.75	13.12
<i>Mopalia lignosa</i>	6	1.38	2.66	12.01
<i>Mopalia vespertina</i>	1	-	-	12.01
<i>Musculus discors</i>	1	-	-	12.13
<i>Musculus niger</i>	3	0.11	0.17	12.13
<i>Mya arenaria</i>	11	0.25	1.13	18.13
<i>Mya truncata</i>	6	4.41	8.34	18.13
<i>Mytilus californianus</i>	3	0.53	0.79	17.09
<i>Mytilus edulis</i>	79	8.84	18.96	0
<i>Mytilus trossulus</i>	17	5.90	17.82	0
<i>Neptunea ithia</i>	1	-	-	13.05
<i>Neptunea phoenicea</i>	1	-	-	13.05
<i>Neverita lewisii</i>	2	0	0	14.53
<i>Nucella canaliculata</i>	6	0.16	0.49	7.21
<i>Nucella emarginata</i>	23	0.10	0.46	6.46

<i>Nucella lamellosa</i>	3	0.33	0.34	6.85
<i>Nucella lapillus</i>	22	0.04	0.31	6.46
<i>Nucella ostrina</i>	6	0.59	1.45	7.21
<i>Nucula proxima</i>	1	-	-	24.98
<i>Nuculana pernula</i>	3	0.62	0.92	1.58
<i>Nuculana radiata</i>	1	-	-	1.58
<i>Ocinebrina lurida</i>	1	-	-	9.60
<i>Ocinebrina sclera</i>	1	-	-	9.60
<i>Octopus rubescens</i>	1	-	-	7.47
<i>Odostomia sp. KL01</i>	1	-	-	21.48
<i>Odostomia sp. KL02</i>	1	-	-	21.48
<i>Oenopota bicarinata</i>	4	0.18	0.31	11.56
<i>Oenopota sp. KL01</i>	4	0.92	1.61	4.91
<i>Oenopota sp. KL02</i>	1	-	-	8.53
<i>Oenopota sp. KL03</i>	1	-	-	4.91
<i>Oenopota sp. KL04</i>	1	-	-	8.53
<i>Olivella baetica</i>	1	-	-	14.5
<i>Onchidella borealis</i>	26	0.57	2.99	10.48
<i>Onchidella cf. carpenteri</i>	1	-	-	10.48
<i>Onchidoris bilamellata</i>	4	0.39	0.62	16.60
<i>Onchidoris muricata</i>	1	-	-	16.60
<i>Palio dubia</i>	3	0.43	0.64	4.27
<i>Petalconchus compactus</i>	5	0	0	29.03
<i>Philina lima</i>	3	0	0	23.21
<i>Pododesmus macrochisma</i>	6	0.06	0.28	45.11
<i>Polyschides carolinensis</i>	1	-	-	18.64
<i>Pomaulax gibberosus</i>	1	-	-	20.09
<i>Portlandia arctica</i>	3	0	0	38.89
<i>Propebela fidicula</i>	1	-	-	11.35
<i>Propebela turricula</i>	7	2.43	4.17	11.35
<i>Pulsellum salishorum</i>	2	0.44	0.44	31.82
<i>Puncturella galeata</i>	1	-	-	27.25
<i>Retusa obtusa</i>	4	0.96	1.56	20.16
<i>Rhabdus rectius</i>	4	11.47	22.45	14.99
<i>Rossia glaucopsis</i>	1	-	-	2.83
<i>Rossia pacifica</i>	5	0.06	0.16	2.83
<i>Rossia palpebrosa</i>	1	-	-	11.70
<i>Rostanga pulchra</i>	2	1.55	1.55	19.06
<i>Ruditapes philippinarum</i>	1	-	-	25.63
<i>Saxidomus gigantea</i>	4	0.36	0.62	26.69
<i>Scabrotrophon fabricii</i>	1	-	-	9.66
<i>Scabrotrophon maltzani</i>	3	0.72	1.08	9.66
<i>Serpulorbis sp. KL01</i>	1	-	-	29.03
<i>Serripes laperousii</i>	2	0.30	0.30	21.05
<i>Similipecten greenlandicus</i>	10	0.07	0.50	46.87
<i>Siphonodentalium lobatum</i>	2	0	0	22.92
<i>Spisula solidissima</i>	4	0.15	0.31	31.79
<i>Stenosemus albus</i>	5	0.05	0.15	20.15
<i>Tachyrhynchus erosus</i>	3	0.08	0.25	23.12
<i>Tachyrhynchus reticulatus</i>	4	1.49	2.98	25.25
<i>Tegula funebris</i>	4	0.41	0.62	13.12
<i>Tegula pulligo</i>	4	0.31	0.46	13.12
<i>Tellina nuculoides</i>	3	0	0	18.91
<i>Thyasira gouldi</i>	7	10.04	17.72	17.97
<i>Tonicella insignis</i>	1	-	-	10.92
<i>Tonicella lineata</i>	15	1.12	2.99	5.07

<i>Tonicella marmorea</i>	44	0.42	1.75	10.92
<i>Tonicella rubra</i>	1	-	-	3.80
<i>Tonicella undocaerulea</i>	4	1.30	1.60	5.07
<i>Tresus capax</i>	4	0.62	0.93	31.79
<i>Trichotropis cancellata</i>	19	0.82	1.87	7.82
<i>Triopha catalinae</i>	3	17.99	26.39	16.59
<i>Urosalpinx cinerea</i>	7	0	0	11.27
<i>Yoldia hyperborea</i>	6	0.17	0.51	35.49
<i>Yoldia myalis</i>	2	0	0	43.80
<i>Yoldiella frigida</i>	2	0.31	0.31	14.26
<i>Yoldiella nana</i>	2	0.15	0.15	14.26