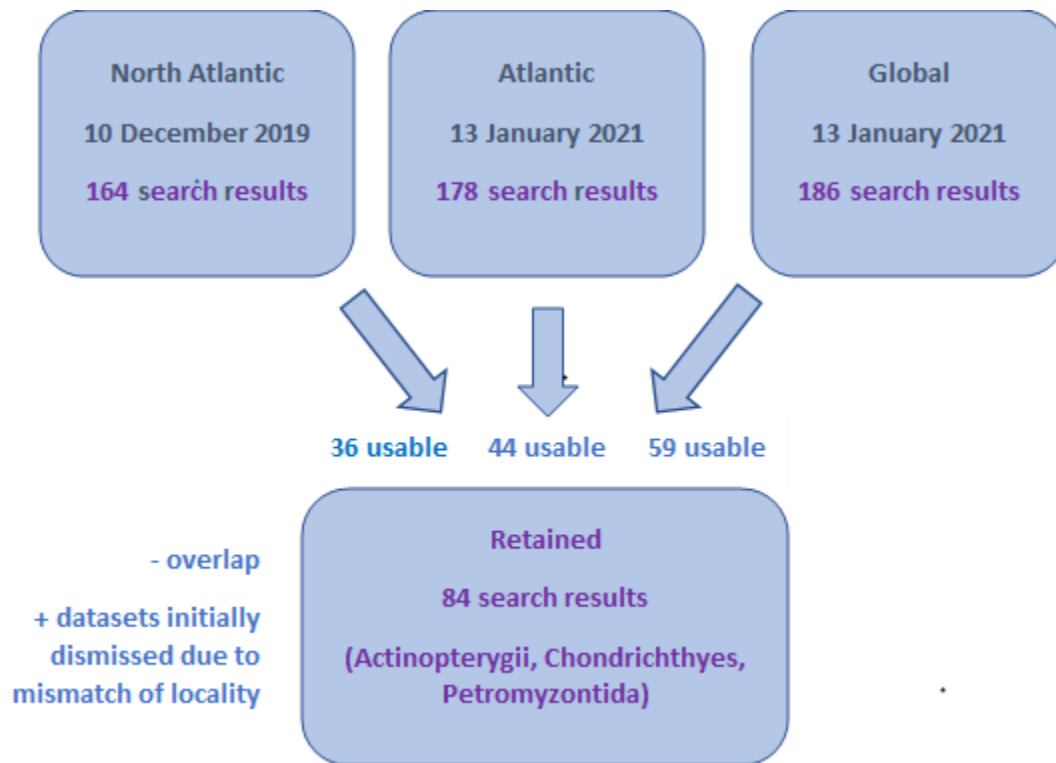


Past & Contemporary Patterns of Marine Biodiversity: Making Inferences from Anadromous Sea Lamprey Population Genomics & Publicly Archived Genetic Data

PhD Thesis Eleana Karachaliou

Supplemental Information 1



SI.1.1. I compiled data in three separate phases, searching the North Atlantic on 10 December 2019 (164 search results; 36 usable), the entire Atlantic on 13 January 2021 (178 search results; 44 usable), and performing a global search on 13 January 2021 (186 search results; 59 usable). For my search terms I used species names (e.g., “*Petromyzon marinus*”) and the keywords “microsatellite” and “microsat*”. Data was considered usable when it consisted of presumed

neutral microsatellites (e.g., excluding known adaptive markers and SNPs) generated in a way that does not affect genetic diversity (e.g., excluding individuals reared in captivity and simulated data). There were instances where the same dataset could be found in more than one round of search results. There were also cases where a dataset that was, for example, found as part of the North Atlantic search but corresponded to the Pacific and was initially omitted, was later included once the study was extended to encompass global oceans. After accounting for overlap and including datasets that were initially omitted due to a mismatch of locality, I retained 84 search results for my global study of the classes Actinopterygii (ray-finned fishes), Chondrichthyes (cartilaginous fishes), and Petromyzontida (lampreys).

SI.1.2. Summary and reference information for data used in analysis as part of this study. Data was accessed from the Dryad repository. Class: Chondrichthyes (C), Actinopterygii (A) or Petromyzontida (P). Loci: number of microsatellite loci sampled, populations: number of populations, individuals: total number of individuals summed over all populations. Coordinates: method of assigning coordinate locations to each site. C = site coordinates provided in study; AC = coordinates given per sample in study, averaged to obtain site coordinates or neighboring populations with too few individuals merged so they can be usable, coordinates averaged; GM = site name searched in Google Maps, for anadromous species sampled in freshwater closest marine site to river mouth from Google Maps used; AU = Author contacted and provided coordinates; M = map provided in study, georeferenced in QGIS; T = Coordinates from northernmost site in transect and per sample distance from northernmost site given in km, coordinates calculated and averaged. Coordinate averages calculated using the `geomean()` command from the `geosphere` R package¹. Size: Max. length (Lmax: cm) as a measure of body

size obtained through the ‘rFishbase’ package². Exploited: species exploitation status as seen in FishBase (www.fishbase.org). Y= commercially or highly commercially fished species; M = minor commercial fisheries; N = species not commercially fished. Information on species exploitation is for reference only and does not reflect exploitation at the population level.

Species	Class	Populations	Coordinates	Individuals	Loci	Search date	Exploited	Size	Reference
<i>Entosphenus tridentatus</i>	P	20	C, GM	965	9	2021 Jan	N	76	³
<i>Aetobatus narinari</i>	C	3	M	572	5	2021 Jan	M	230	⁴
<i>Alopias pelagicus</i>	C	6	M	326	7	2021 Jan	Y	428	⁵
<i>Carcharhinus amblyrhynchos</i>	C	9	C	112	16	2021 Jan	M	255	⁶
<i>Carcharhinus isodon</i>	C	6	M	369	16	2021 Jan	M	200	⁷
<i>Carcharhinus limbatus</i>	C	10	M	812	22	2021 Jan	Y	286	^{8,9}
<i>Carcharhinus melanopterus</i>	C	31	M	1388	31	2021 Jan	Y	200	^{10,11}
<i>Carcharhinus sorrah</i>	C	6	M	700	23	2021 Jan	M	160	^{8,9}
<i>Carcharodon carcharias</i>	C	2	M	166	14	2019 Dec	M	640	¹²
<i>Centroscymnus coelolepis</i>	C	8	C	503	11	2019 Dec	M	121	¹³
<i>Galeocerdo cuvier</i>	C	10	M	380	10	2019 Dec	Y	750	¹⁴
<i>Prionace glauca</i>	C	7	C	226	9	2019 Dec	M	400	¹⁵
<i>Rhincodon typus</i>	C	7	M	406	14	2021 Jan	Y	1700	¹⁶
<i>Rhizoprionodon acutus</i>	C	2	M	294	8	2021 Jan	Y	175	⁹
<i>Scyliorhinus canicula</i>	C	10	AC	834	12	2019 Dec	M	100	¹⁷

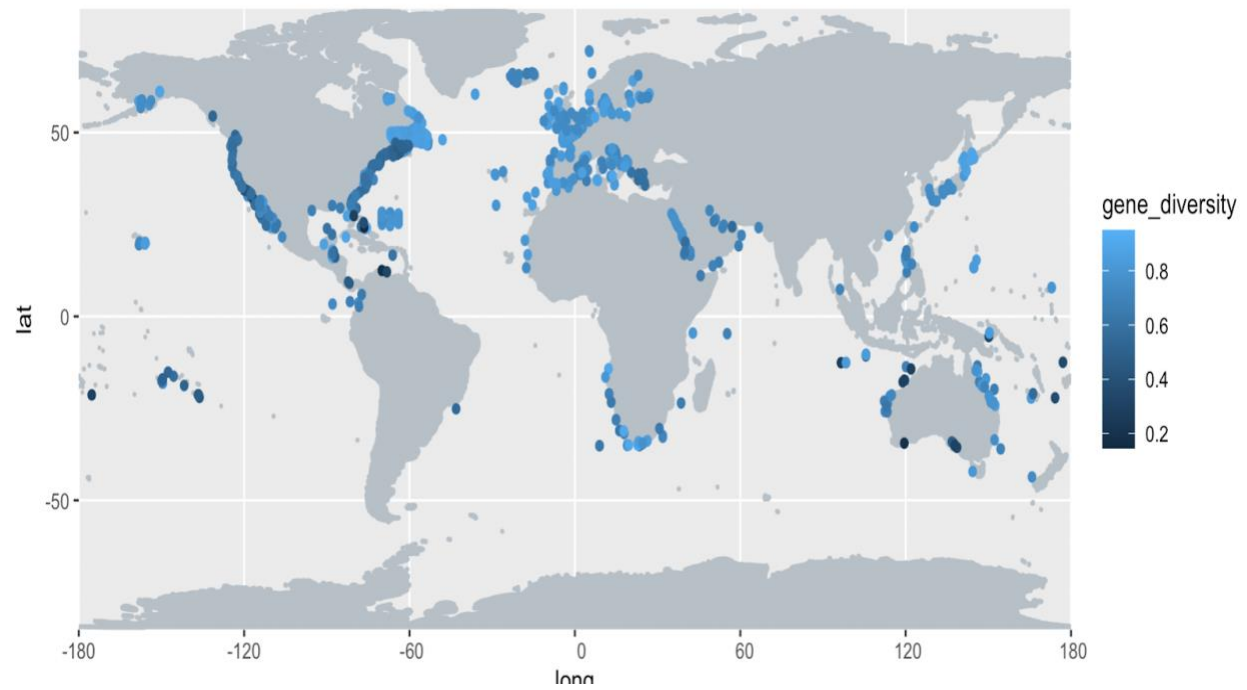
<i>Sphyrna lewini</i>	C	5	M, GM	342	27	2021 Jan	Y	430	9,18
<i>Alosa aestivalis</i>	A	28	GM	1549	15	2019 Dec	Y	40	19
<i>Alosa pseudoharengus</i>	A	56	GM	5346	15	2019 Dec	Y	40	19
<i>Alosa sapidissima</i>	A	33	GM	4354	13	2019 Dec	Y	76	20
<i>Alticus arnoldorum</i>	A	6	C	204	17	2021 Jan	N	8	21
<i>Amphiprion bicinctus</i>	A	19	C	991	38	2021 Jan	N	14	22
<i>Amphiprion chrysopterus</i>	A	1	C	46	8	2021 Jan	N	17	23
<i>Amphiprion melanopus</i>	A	12	C	426	22	2021 Jan	N	12	24
<i>Amphiprion sandaracinos</i>	A	1	C	160	8	2021 Jan	N	14	23
<i>Anguilla anguilla</i>	A	30	AC, C, GM	1336	21	2019 Dec	Y	121.5	25
<i>Anguilla rostrata</i>	A	40	AC, C	2290	39	2019 Dec	Y	152	25,26
<i>Atractoscion aequidens</i>	A	2	M	396	8	2021 Jan	Y	130	27
<i>Chaetodon capistratus</i>	A	10	T	79	11	2021 Jan	N	15	28
<i>Chaetodon guttatissimus</i>	A	2	AC, M	43	20	2021 Jan	N	12	29
<i>Chaetodon lunulatus</i>	A	7	AC, M	263	24	2021 Jan	N	26.7	30,31
<i>Chaetodon punctatofasciatus</i>	A	2	AC, M	25	20	2021 Jan	M	12	29
<i>Chaetodon trifascialis</i>	A	5	M	209	11	2021 Jan	N	18	30
<i>Chaetodon trifasciatus</i>	A	3	AC, M	71	12	2021 Jan	M	15	31
<i>Clupea pallasii</i>	A	18	M	3600	5	2021 Jan	Y	46	32
<i>Diplodus vulgaris</i>	A	12	M	310	9	2019 Dec	Y	45	33

<i>Elacatinus lori</i>	A	10	C	300	14	2021 Jan	N	4.5	34
<i>Engraulis encrasicolus</i>	A	17	C, M	724	15	2019 Dec	Y	20	35,36
<i>Fundulus parvipinnis</i>	A	23	C	182	40	2021 Jan	N	10.8	37,38
<i>Gadus morhua</i>	A	14	C	1330	8	2019 Dec	Y	200	39
<i>Gasterosteus aculeatus</i>	A	14	C, AC, M, GM	545	68	2019 Dec	M	11	40–44
<i>Gillichthys mirabilis</i>	A	29	C	311	32	2021 Jan	N	21	37,38
<i>Gymnosarda unicolor</i>	A	6	M	73	13	2021 Jan	M	248	45
<i>Haemulon flavolineatum</i>	A	11	T	85	11	2021 Jan	Y	30	28
<i>Hypoplectrus nigricans</i>	A	9	T	66	13	2021 Jan	N	15.2	28
<i>Kryptolebias marmoratus</i>	A	14	C	388	65	2021 Jan	N	7.5	46,47
<i>Lethrinus nebulosus</i>	A	4	AC	350	12	2021 Jan	Y	87	48
<i>Limanda limanda</i>	A	15	C	3006	16	2019 Dec	Y	40	49
<i>Lithognathus lithognathus</i>	A	3	C, GM	50	9	2021 Jan	M	200	50
<i>Merluccius capensis</i>	A	9	M, AU	1477	16	2021 Jan	M	140	51,52
<i>Merluccius paradoxus</i>	A	9	M, AU	1452	18	2021 Jan	Y	115	51,52
<i>Naso unicornis</i>	A	7	M	562	8	2021 Jan	Y	70	53
<i>Nerophis lumbriciformis</i>	A	2	C	155	16	2019 Dec	N	15	54,55
<i>Oncorhynchus nerka</i>	A	16	C, GM	1796	36	2021 Jan	Y	84	56–58
<i>Pachymetopon blochii</i>	A	2	C, GM	50	9	2021 Jan	Y	46	50
<i>Paracirrhites arcatus</i>	A	7	C	264	30	2021 Jan	N	20	59

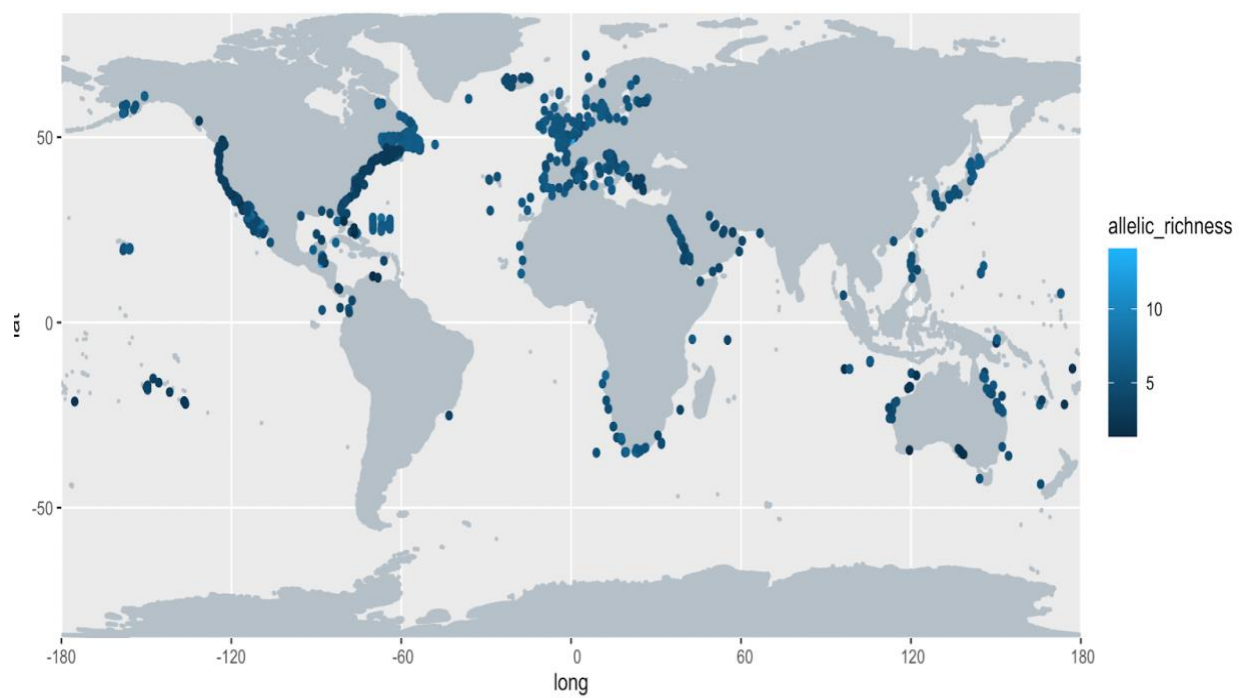
<i>Phycodurus eques</i>	A	6	M	49	7	2021 Jan	N	35	60
<i>Plectropomus leopardus</i>	A	8	C	1204	46	2021 Jan	Y	120	61,62
<i>Plectropomus maculatus</i>	A	7	C	2477	48	2021 Jan	Y	125	61,62
<i>Pomatomus saltatrix</i>	A	4	M	218	15	2021 Jan	Y	130	63
<i>Pomatoschistus flavescens</i> *	A	3	C	83	8	2019 Dec	N	6	64,65
<i>Pristipomoides zonatus</i>	A	8	M, GM	292	8	2021 Jan	Y	57.5	66
<i>Quietula y-cauda</i>	A	28	C	182	34	2021 Jan	N	7	37,38
<i>Salmo salar</i>	A	281	C, M, GM	20038	148	2019 Dec, 2021 Jan	Y	150	67–77
<i>Scomberomorus niphonius</i>	A	10	M	1109	5	2021 Jan	Y	113.1	78
<i>Sebastes mentella</i>	A	8	C	117	12	2019 Dec	Y	77.5	79
<i>Serranus cabrilla</i>	A	11	M	330	11	2019 Dec	M	40	80
<i>Siganus fuscescens</i>	A	8	M	343	12	2021 Jan	Y	40	81
<i>Solea solea</i>	A	4	M	342	11	2019 Dec	Y	70	82
<i>Sparus aurata</i>	A	5	C	171	10	2021 Jan	Y	70	83
<i>Sprattus sprattus</i>	A	13	C, AC	1285	8	2019 Dec	Y	16	84
<i>Stegastes partitus</i>	A	15	T, M	3471	22	2021 Jan	N	10	28,85
<i>Thalassoma bifasciatum</i>	A	11	T	81	11	2021 Jan	N	25	28
<i>Totoaba macdonaldi</i>	A	5	M	310	16	2021 Jan	Y	200	86

*Accepted species name noted in table, the name used by data authors “*Gobiusculus flavescens*”

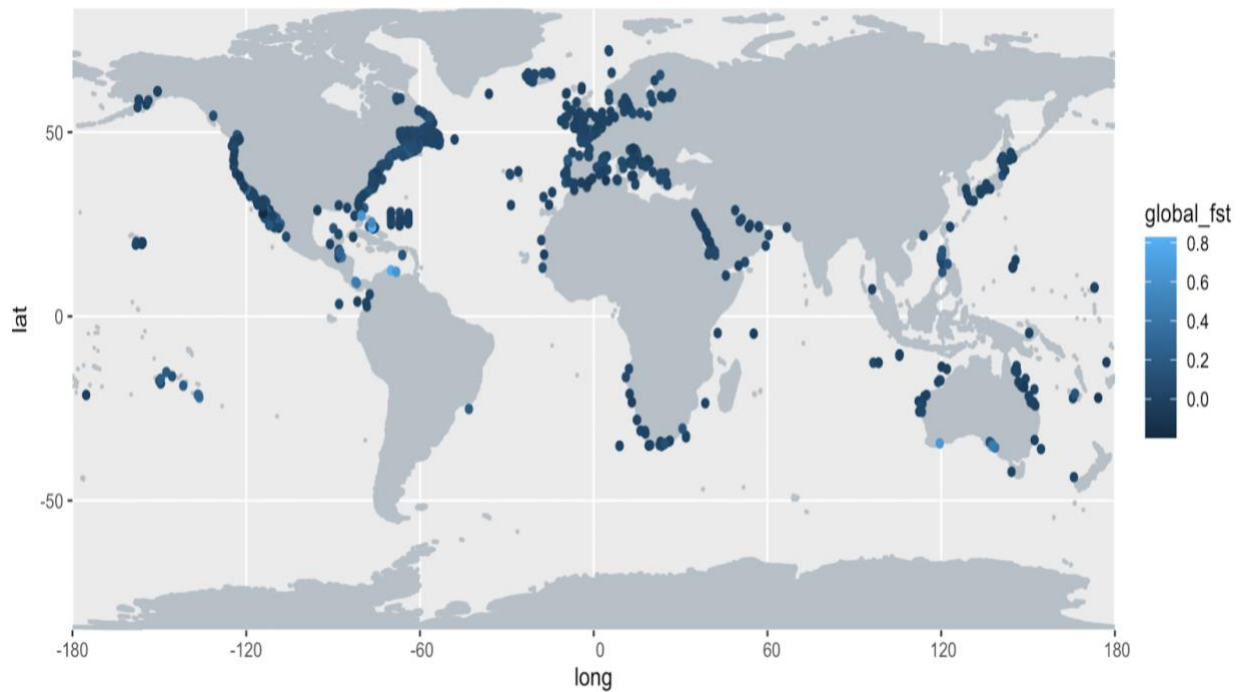
used in dataset.



SI.1.4. Map of global raw gene diversity (expected heterozygosity).



SI.1.5. Map of global raw allelic richness.



SI.1.6. Map of global raw FST.

SI.1.7. Model summaries for human-caused and environmental associations with genetic diversity and differentiation. All model parameters had a normal prior centered on zero with a standard error of 1. Most significant km buffer per model in bold. Effect sizes for each predictor are given with 95% credible intervals. The widely applicable information criterion (WAIC) and efficient approximate leave-one-out cross-validation (LOO) are an indicator of relative model fit. Probability of direction (pd) is a measure of the probability an effect is positive or negative. Conditional R² is the variance explained by both fixed and random effects while marginal R² is the variance explained only by the fixed effects. Bayesian R² is the variance explained by both fixed and random effects divided by the total variance in the data.

Genetic Diversity Measure	Driver	l-95% CI	u-95% CI	pd	Conditional R2	Marginal R2	Bayesian R2 Values	looic	waic
Gene Diversity	Primary Productivity 200km	-0.04	0.15	87.62%	0.838	0.003	0.8374909	1190	1183.7
Gene Diversity	Primary Productivity 100km	-0.02	0.15	93.17%	0.827	0.004	0.8271529	1255	1248.1
Gene Diversity	Primary Productivity 50km	-0.04	0.14	86.55%	0.826	0.003	0.8262235	1268.5	1261
Gene Diversity	Primary Productivity 25km	-0.02	0.15	92.15%	0.828	0.004	0.8277733	1252.9	1246.6
Gene Diversity	Distance to Market 200km	-0.28	0.03	95.35%	0.829	0.016	0.8288427	1262.4	1251
Gene Diversity	Distance to Market 100km	-0.21	0.03	93.12%	0.822	0.008	0.821904	1301.7	1289.6
Gene Diversity	Distance to Market 50km	-0.19	0.03	92.49%	0.819	0.006	0.8185015	1317.7	1308.9
Gene Diversity	Distance to Market 25km	-0.17	0.03	91.11%	0.816	0.005	0.8161866	1331.6	1322.4
Gene Diversity	Fishing Pressure 200km	-0.85	0.01	97.17%	0.403	0.116	0.4009146	104992.5	1433414.2
Gene Diversity	Fishing Pressure 100km	-0.57	-0.04	99.25%	0.333	0.052	0.3354829	27020.4	75285.7
Gene Diversity	Fishing Pressure 50km	-0.17	0.02	91.59%	0.318	0.002	0.3202003	12355.8	13837.8
Gene Diversity	Fishing Pressure 25km	-0.09	0.07	67.64%	NA	NA	NA	NA	NA
Gene Diversity	Dissolved Oxygen 200km	-0.45	0.20	77.64%	0.859	0.019	0.8587911	1047.8	1040.4
Gene Diversity	Dissolved Oxygen 100km	-0.48	0.20	79.56%	0.863	0.021	0.8624098	1021.1	1013
Gene Diversity	Dissolved Oxygen 50km	-0.47	0.19	80.05%	0.862	0.019	0.8622618	1021.3	1014
Gene Diversity	Dissolved Oxygen 25km	-0.47	0.20	78.90%	0.861	0.02	0.8611135	1030.2	1022.6
Gene Diversity	pH 200km	-0.25	0.28	57.67%	0.858	0.008	0.8575041	1063.5	1055.5
Gene Diversity	pH 100km	-0.20	0.29	65.65%	0.849	0.008	0.8483185	1129.9	1121.3
Gene Diversity	pH 50km	-0.20	0.27	65.04%	0.844	0.007	0.8433345	1163.2	1155.6
Gene Diversity	pH 25km	-0.18	0.27	67.30%	0.842	0.007	0.8414373	1177.5	1169.3
Gene Diversity	Salinity 200km	-0.23	0.79	83.85%	0.865	0.058	0.8646578	1010.1	1002
Gene Diversity	Salinity 100km	-0.26	0.75	82.61%	0.861	0.053	0.8610448	1039.3	1029

Gene Diversity	Salinity 50km	-0.28	0.72	81.85%	0.856	0.051	0.8554687	1082.3	1072.6
Gene Diversity	Salinity 25km	-0.23	0.69	83.40%	0.854	0.049	0.8532925	1096.5	1088
Gene Diversity	Temperature 200km	-0.21	0.32	63.52%	0.858	0.009	0.8575629	1053	1047.1
Gene Diversity	Temperature 100km	-0.23	0.30	62.48%	0.862	0.008	0.8614318	1023.5	1016.8
Gene Diversity	Temperature 50km	-0.22	0.30	63.30%	0.862	0.008	0.8623316	1017.3	1011.3
Gene Diversity	Temperature 25km	-0.22	0.30	59.30%	0.862	0.009	0.8616924	1022.2	1015.8
Gene Diversity	Land Area 200km	-0.11	0.38	86.31%	0.858	0.018	0.8578469	1034.6	1019.1
Gene Diversity	Land Area 100km	-0.06	0.28	90.44%	0.4	0.011	0.4102278	42889.1	103653.4
Gene Diversity	Land Area 50km	0.00	0.11	97.89%	0.392	0.003	0.3944736	9519.1	9608.2
Gene Diversity	Land Area 25km	-0.01	0.10	94.88%	NA	NA	NA	NA	NA
Gene Diversity	Urbanization 200km	-0.17	-0.01	98.80%	0.831	0.009	0.8312344	1179.7	1173.8
Gene Diversity	Urbanization 100km	-0.16	-0.00	97.80%	0.406	0.007	0.4079385	9931.1	11675.9
Gene Diversity	Urbanization 50km	-0.11	0.00	96.80%	0.414	0.003	0.4161094	8785.3	9223.0
Gene Diversity	Urbanization 25km	-0.13	-0.00	97.79%	NA	NA	NA	NA	NA
Gene Diversity	Human Impacts 200km	-0.11	0.03	88.05%	0.807	0.002	0.8065582	1379.1	1374.1
Gene Diversity	Human Impacts 100km	-0.09	0.03	86.04%	0.798	0.001	0.797661	1415.8	1412.1
Gene Diversity	Human Impacts 50km	-0.07	0.02	87.13%	0.795	0.001	0.7949981	1424.4	1419.5
Gene Diversity	Human Impacts 25km	-0.08	0.03	83.83%	0.798	0.001	0.7979978	1416.4	1411.2
Gene Diversity	Species Richness 200km	-0.22	0.26	56.17%	0.825	0.007	0.8244892	1276.4	1269.1
Gene Diversity	Species Richness 100km	-0.20	0.23	57.57%	0.824	0.006	0.8238446	1276.7	1269.2
Gene Diversity	Species Richness 50km	-0.22	0.32	64.10%	0.363	0.009	0.3728552	52743.6	86696.3
Gene Diversity	Species Richness 25km	-0.33	0.22	68.49%	NA	NA	NA	NA	NA
Allelic Richness	Primary Productivity 200km	-0.04	0.14	84.47%	0.759	0.002	0.7588983	1615.2	1613

Allelic Richness	Primary Productivity 100km	-0.03	0.17	91.61%	0.761	0.005	0.7605196	1617.3	1618.5
Allelic Richness	Primary Productivity 50km	-0.02	0.19	94.10%	0.762	0.006	0.7612481	1626.3	1626.5
Allelic Richness	Primary Productivity 25km	-0.01	0.16	95.97%	0.755	0.005	0.7550021	1635.4	1632.8
Allelic Richness	Distance to Market 200km	-0.15	0.06	73.76%	0.747	0.002	0.7472214	1671	1668.3
Allelic Richness	Distance to Market 100km	-0.09	0.07	50.40%	0.745	0.001	0.7446372	1673.5	1669.5
Allelic Richness	Distance to Market 50km	-0.07	0.08	58.53%	0.745	0.001	0.7447425	1668.1	1664.2
Allelic Richness	Distance to Market 25km	-0.06	0.08	65.21%	0.745	0.001	0.7446635	1670	1667.2
Allelic Richness	Fishing Pressure 200km	-0.12	0.07	71.54%	0.301	0.002	0.3028815	9408.1	9599.6
Allelic Richness	Fishing Pressure 100km	-0.09	0.07	65.44%	0.299	0.001	0.2989447	7781.1	7969
Allelic Richness	Fishing Pressure 50km	-0.08	0.05	67.46%	0.307	0	0.3075565	7795	7715
Allelic Richness	Fishing Pressure 25 km	-0.05	0.11	75.76%	NA	NA	NA	NA	NA
Allelic Richness	Dissolved Oxygen 200km	-0.51	0.03	95.55%	0.782	0.043	0.7817697	1506	1506.4
Allelic Richness	Dissolved Oxygen 100km	-0.48	0.05	94.33%	0.783	0.037	0.7826642	1504.2	1504
Allelic Richness	Dissolved Oxygen 50km	-0.47	0.06	93.62%	0.782	0.038	0.7820513	1507.8	1505.6
Allelic Richness	Dissolved Oxygen 25km	-0.47	0.05	95.23%	0.781	0.04	0.7811872	1512.7	1512
Allelic Richness	pH 200km	-0.25	0.28	57.40%	0.794	0.008	0.7938907	1457.1	1455.8
Allelic Richness	pH 100km	-0.22	0.28	62.18%	0.792	0.008	0.7915057	1471.1	1471.1
Allelic Richness	pH 50km	-0.23	0.27	57.63%	0.79	0.008	0.7898601	1484.7	1481.3
Allelic Richness	pH 25km	-0.24	0.27	56.54%	0.789	0.008	0.7889478	1492.1	1483.9
Allelic Richness	Salinity 200km	-0.16	0.68	87.48%	0.772	0.059	0.7722535	1567.7	1565.4
Allelic Richness	Salinity 100km	-0.22	0.61	84.78%	0.771	0.041	0.7710586	1570.5	1568.4
Allelic Richness	Salinity 50km	-0.21	0.59	81.97%	0.77	0.035	0.7693929	1575.3	1575.8
Allelic Richness	Salinity 25km	-0.20	0.58	83.47%	0.769	0.034	0.768863	1581.2	1578.2

Allelic Richness	Temperature 200km	-0.07	0.38	90.88%	0.779	0.022	0.7789317	1518.5	1518
Allelic Richness	Temperature 100km	-0.08	0.36	91.05%	0.779	0.02	0.7790336	1517.4	1519.4
Allelic Richness	Temperature 50km	-0.06	0.38	92.40%	0.779	0.023	0.7790546	1519.3	1520.2
Allelic Richness	Temperature 25km	-0.06	0.37	91.77%	0.779	0.023	0.7785164	1521.6	1521.5
Allelic Richness	Land Area 200km	-0.02	0.43	96.33%	0.787	0.037	0.7871226	1443.1	1436.8
Allelic Richness	Land Area 100km	-0.02	0.35	95.83%	0.38	0.025	0.3895411	38276.8	131669.4
Allelic Richness	Land Area 50km	0.02	0.13	99.39%	0.33	0.006	0.3350284	7113.5	6741
Allelic Richness	Land Area 25km	-0.02	0.10	90.15%	NA	NA	NA	NA	NA
Allelic Richness	Urbanization 200km	-0.15	0.02	94.23%	0.751	0.004	0.7502231	1589.8	1587.1
Allelic Richness	Urbanization 100km	-0.12	0.05	83.70%	0.366	0.002	0.3674889	7843.0	7477.5
Allelic Richness	Urbanization 50km	-0.08	0.03	86.31%	0.342	0.001	0.3465074	7127.1	6618.1
Allelic Richness	Urbanization 25km	-0.09	0.19	77.22%	NA	NA	NA	NA	NA
Allelic Richness	Human Impacts 200km	-0.13	0.00	97.31%	0.747	0.004	0.7464375	1663.1	1661.1
Allelic Richness	Human Impacts 100km	-0.09	0.02	91.17%	0.737	0.002	0.7368886	1692.9	1690.9
Allelic Richness	Human Impacts 50km	-0.05	0.05	52.85%	0.735	0.000	0.7346569	1702.4	1700.1
Allelic Richness	Human Impacts 25km	-0.06	0.05	53.99%	0.736	0.000	0.7352335	1700.2	1698.1
Allelic Richness	Species Richness 200km	-0.08	0.36	90.22%	0.763	0.021	0.7628287	1600	1593.3
Allelic Richness	Species Richness 100km	-0.08	0.32	87.52%	0.759	0.013	0.7586842	1614.3	1610.8
Allelic Richness	Species Richness 50km	-0.10	0.35	86.92%	0.358	0.016	0.3625437	38260.8	50170.2
Allelic Richness	Species Richness 25km	-0.19	0.17	58.30%	NA	NA	NA	NA	NA
FST	Primary Productivity 200km	-0.21	0.03	91.57%	0.576	0.007	0.5753536	2209.4	2207
FST	Primary Productivity 100km	-0.17	0.06	85.20%	0.539	0.004	0.5386294	2301.4	2299.2
FST	Primary Productivity 50km	-0.17	0.10	68.85%	0.542	0.002	0.5413697	2315.4	2311.6

FST	Primary Productivity 25km	-0.16	0.09	71.60%	0.55	0.003	0.5494714	2291.4	2288
FST	Distance to Market 200km	-0.06	0.31	90.45%	0.545	0.015	0.5447602	2305	2300.4
FST	Distance to Market 100km	-0.06	0.24	88.60%	0.527	0.008	0.5271356	2333.9	2330.3
FST	Distance to Market 50m	-0.06	0.22	87.96%	0.521	0.007	0.5207614	2344.1	2340.9
FST	Distance to Market 25km	-0.05	0.21	87.44%	0.518	0.006	0.5173398	2351.3	2347.6
FST	Fishing Pressure 200km	-0.06	0.10	72.44%	0.188	0.001	0.1985703	6608.2	4711.6
FST	Fishing Pressure 100km	-0.06	0.09	66.00%	0.223	0.001	0.2299877	7403	5496.1
FST	Fishing Pressure 50km	-0.08	0.08	52.15%	0.23	0.001	0.2344094	5386.9	4337.1
FST	Fishing Pressure 25km	-0.19	0.08	70.24%	NA	NA	NA	NA	NA
FST	Dissolved Oxygen 200km	-0.02	0.87	97.00%	0.576	0.125	0.575366	2226.4	2223.3
FST	Dissolved Oxygen 100km	-0.06	0.81	95.62%	0.576	0.116	0.575556	2223.5	2220.8
FST	Dissolved Oxygen 50km	-0.05	0.84	96.33%	0.579	0.116	0.5779358	2220	2215.4
FST	Dissolved Oxygen 25km	-0.04	0.82	96.45%	0.577	0.114	0.5763926	2223.1	2221.1
FST	pH 200km	-0.49	0.23	76.50%	0.551	0.026	0.5503918	2295.9	2293.3
FST	pH 100km	-0.48	0.18	82.85%	0.533	0.024	0.5319445	2339.2	2335.9
FST	pH 50km	-0.42	0.16	83.24%	0.521	0.02	0.5195031	2367	2362.3
FST	pH 25km	-0.40	0.14	84.05%	0.515	0.018	0.5144288	2377	2373.8
FST	Salinity 200km	-1.07	0.30	86.61%	0.594	0.123	0.5936833	2188.1	2183.5
FST	Salinity 100km	-0.97	0.44	78.38%	0.591	0.087	0.5903348	2197.1	2193.1
FST	Salinity 50km	-0.88	0.41	78.60%	0.588	0.072	0.5870214	2202.1	2196.7
FST	Salinity 25km	-0.89	0.38	79.80%	0.586	0.077	0.5857254	2203.4	2199.2
FST	Temperature 200km	-0.64	0.02	96.50%	0.583	0.079	0.5829602	2206.8	2203.7
FST	Temperature 100km	-0.63	0.01	96.90%	0.585	0.079	0.5850443	2198.1	2196.1

FST	Temperature 50km	-0.65	0.01	97.00%	0.59	0.084	0.5895389	2188.8	2186.3
FST	Temperature 25km	-0.64	-0.01	97.90%	0.589	0.086	0.5887324	2189.4	2188.2
FST	Land Area 200km	-0.66	-0.03	98.31%	0.579	0.089	0.578575	2146	2135.7
FST	Land Area 100km	-0.41	-0.04	99.34%	0.392	0.04	0.3919392	24560.9	29105.4
FST	Land Area 50km	-0.15	0.03	91.22%	0.328	0.004	0.3292777	4213.4	3836.6
FST	Land Area 25km	-0.09	0.09	52.12%	NA	NA	NA	NA	NA
FST	Urbanization 200km	-0.12	0.21	70.50%	0.549	0.004	0.5488618	2203.0	2198.8
FST	Urbanization 100km	-0.19	0.14	56.45%	0.319	0.003	0.3199093	5263.4	5019.0
FST	Urbanization 50km	-0.13	0.07	66.17%	0.306	0.001	0.3069676	4085.2	3692.8
FST	Urbanization 25 km	-0.13	0.08	63.35%	NA	NA	NA	NA	NA
FST	Human Impacts 200km	-0.08	0.12	65.75%	0.490	0.001	0.488848	2410.5	2408.7
FST	Human Impacts 100km	-0.08	0.06	58.31%	0.470	0.001	0.4698496	2436.7	2435.9
FST	Human Impacts 50km	-0.08	0.05	63.19%	0.468	0.001	0.4677949	2438.8	2437.4
FST	Human Impacts 25km	-0.08	0.05	61.92%	0.468	0.001	0.46809	2444.3	2441.4
FST	Species Richness 200km	-0.30	-0.03	99.33%	0.489	0.024	0.4885272	2394.9	2392.9
FST	Species Richness 100km	-0.27	-0.02	99.06%	0.491	0.021	0.4903917	2386.8	2385
FST	Species Richness 50km	-0.56	0.02	96.53%	0.307	0.039	0.3021184	22723.2	43315.1
FST	Species Richness 25km	-0.35	0.12	83.23%	NA	NA	NA	NA	NA
Ne	Primary Productivity 200km	-0.11	0.23	80.05%	0.356	0.006	0.3554855	1710.7	1704.9
Ne	Primary Productivity 100km	-0.11	0.21	76.38%	0.352	0.004	0.3508489	1719.1	1712.4
Ne	Primary Productivity 50km	-0.09	0.18	75.08%	0.348	0.003	0.3480609	1721	1715.2
Ne	Primary Productivity 25km	-0.08	0.19	79.77%	0.347	0.004	0.3465956	1720	1714.9
Ne	Distance to Market 200km	-0.13	0.12	52.12%	0.331	0.002	0.3309307	1737.6	1731.5

Ne	Distance to Market 100km	-0.13	0.12	53.70%	0.331	0.002	0.3300793	1738	1732
Ne	Distance to Market 50km	-0.13	0.11	51.28%	0.331	0.001	0.3303519	1736.6	1731.9
Ne	Distance to Market 25km	-0.13	0.11	52.05%	0.331	0.002	0.330857	1736	1731.5
Ne	Fishing Pressure 200km	-0.10	0.30	83.12%	0.275	0.01	0.2760769	5303.3	3646.8
Ne	Fishing Pressure 100km	-0.09	0.21	71.65%	0.262	0.002	0.2638453	3222.1	2665.8
Ne	Fishing Pressure 50km	-0.12	0.12	50.62%	0.257	0.001	0.2615113	2990	2483.9
Ne	Fishing Pressure 25km	-0.11	0.19	73.98%	NA	NA	NA	NA	NA
Ne	Dissolved Oxygen 200km	-0.21	0.34	75.95%	0.355	0.014	0.3535508	1713.2	1709.3
Ne	Dissolved Oxygen 100km	-0.21	0.35	76.05%	0.354	0.014	0.3532321	1714.1	1709.9
Ne	Dissolved Oxygen 50km	-0.19	0.36	76.25%	0.355	0.014	0.3545307	1713.4	1708
Ne	Dissolved Oxygen 25km	-0.17	0.35	76.98%	0.357	0.014	0.3564425	1710.2	1706.5
Ne	pH 200km	-0.22	0.17	65.77%	0.337	0.005	0.3364788	1727.9	1723.8
Ne	pH 100km	-0.20	0.17	58.27%	0.334	0.004	0.3337158	1729.8	1726.3
Ne	pH 50km	-0.20	0.17	58.77%	0.335	0.004	0.3347586	1728.7	1725.3
Ne	pH 25km	-0.20	0.17	59.15%	0.337	0.004	0.3357418	1729.1	1724.8
Ne	Salinity 200km	-0.24	0.33	51.24%	0.341	0.007	0.3397306	1727	1722
Ne	Salinity 100km	-0.26	0.28	55.77%	0.343	0.007	0.3424497	1724	1719.7
Ne	Salinity 50km	-0.26	0.24	61.81%	0.341	0.006	0.3400093	1724.6	1720.4
Ne	Salinity 25km	-0.28	0.23	64.08%	0.342	0.006	0.3416718	1723.9	1719.9
Ne	Temperature 200km	-0.35	0.14	82.95%	0.357	0.017	0.3558139	1711.2	1706.4
Ne	Temperature 100km	-0.35	0.13	83.93%	0.355	0.017	0.3540018	1713.1	1709.1
Ne	Temperature 50km	-0.34	0.14	82.09%	0.357	0.015	0.3555201	1712.6	1707.6
Ne	Temperature 25km	-0.34	0.14	80.35%	0.357	0.014	0.3560132	1712.1	1706.7

Ne	Land Area 200km	-0.13	0.13	52.95%	0.359	0.002	0.3587805	1665	1661
Ne	Land Area 100km	-0.11	0.12	56.33%	0.274	0.002	0.2819075	2985.2	2525.5
Ne	Land Area 50km	-0.12	0.08	64.20%	0.268	0.001	0.2678566	2585.3	2375
Ne	Land Area 25km	-0.15	0.05	85.12%	NA	NA	NA	NA	NA
Ne	Urbanization 200km	-0.17	0.12	67.67%	0.377	0.003	0.376307	1656.1	1650.1
Ne	Urbanization 100km	-0.23	0.03	93.60%	0.275	0.007	0.2808449	2575.5	2412.4
Ne	Urbanization 50km	-0.08	0.08	54.55%	0.267	0.001	0.2658967	2537.9	2356.2
Ne	Urbanization 25km	-0.13	0.07	70.28%	NA	NA	NA	NA	NA
Ne	Human Impacts 200km	-0.18	0.12	65.35%	0.359	0.003	0.3585834	1718.9	1712.7
Ne	Human Impacts 100km	-0.10	0.15	63.78%	0.339	0.002	0.3391453	1730.9	1726.6
Ne	Human Impacts 50km	-0.09	0.13	60.98%	0.329	0.001	0.3278958	1737.1	1733.7
Ne	Human Impacts 25km	-0.05	0.17	82.38%	0.325	0.003	0.3239981	1737.1	1733.7
Ne	Species Richness 200km	-0.24	0.04	92.73%	0.335	0.01	0.334092	1720.3	1716.8
Ne	Species Richness 100km	-0.23	0.06	88.28%	0.333	0.007	0.3328812	1720.3	1716.2
Ne	Species Richness 50km	-0.23	0.07	85.82%	0.225	0.007	0.2253349	2671.1	2361.8
Ne	Species Richness 25km	-0.33	0.18	71.00%	NA	NA	NA	NA	NA

SI.1.8. Model summaries for human-caused and environmental associations with genetic diversity and differentiation without priors. Effect sizes for each predictor are given with 95% credible intervals. Probability of direction (pd) is a measure of the probability an effect is positive or negative.

Driver	Gen Div Measure	l-95% CI	u-95% CI	pd
Primary Productivity 200km	Gene Diversity	-0.04	0.15	88.48%
Primary Productivity 100km	Gene Diversity	-0.02	0.14	92.56%
Primary Productivity 50km	Gene Diversity	-0.04	0.14	88.21%
Primary Productivity 25km	Gene Diversity	-0.02	0.15	92.66%
Distance to Market 200km	Gene Diversity	-0.27	0.02	95.00%
Distance to Market 100km	Gene Diversity	-0.21	0.03	93.17%
Distance to Market 50km	Gene Diversity	-0.19	0.03	92.30%
Distance to Market 25km	Gene Diversity	-0.17	0.03	91.10%
Fishing Pressure 200km	Gene Diversity	-0.89	0.00	97.45%
Fishing Pressure 100km	Gene Diversity	-0.59	-0.04	99.46%
Fishing Pressure 50km	Gene Diversity	-0.17	0.02	91.67%
Fishing Pressure 25km	Gene Diversity	-0.09	0.07	67.03%
Dissolved Oxygen 200km	Gene Diversity	-0.47	0.20	78.89%
Dissolved Oxygen 100km	Gene Diversity	-0.47	0.20	78.54%
Dissolved Oxygen 50km	Gene Diversity	-0.47	0.21	78.30%
Dissolved Oxygen 25km	Gene Diversity	-0.45	0.19	79.06%
pH 200km	Gene Diversity	-0.25	0.28	56.57%
pH 100km	Gene Diversity	-0.21	0.29	65.77%
pH 50km	Gene Diversity	-0.19	0.28	67.01%
pH 25km	Gene Diversity	-0.19	0.27	66.64%

Salinity 200km	Gene Diversity	-0.23	0.83	86.61%
Salinity 100km	Gene Diversity	-0.28	0.82	84.29%
Salinity 50km	Gene Diversity	-0.25	0.76	83.54%
Salinity 25km	Gene Diversity	-0.23	0.76	84.92%
Temperature 200km	Gene Diversity	-0.24	0.31	61.53%
Temperature 100km	Gene Diversity	-0.22	0.32	61.78%
Temperature 50km	Gene Diversity	-0.23	0.31	62.46%
Temperature 25km	Gene Diversity	-0.23	0.32	61.94%
Land Area 200km	Gene Diversity	-0.11	0.39	86.10%
Land Area 100km	Gene Diversity	-0.06	0.28	90.02%
Land Area 50km	Gene Diversity	0.00	0.11	97.66%
Land Area 25km	Gene Diversity	-0.01	0.10	94.48%
Urbanization 200km	Gene Diversity	-0.18	-0.02	98.86%
Urbanization 100km	Gene Diversity	-0.16	-0.00	97.76%
Urbanization 50km	Gene Diversity	-0.11	0.00	97.15%
Urbanization 25km	Gene Diversity	-0.13	-0.00	97.79%
Human Impacts 200km	Gene Diversity	-0.11	0.03	88.19%
Human Impacts 100km	Gene Diversity	-0.09	0.04	85.01%
Human Impacts 50km	Gene Diversity	-0.07	0.02	87.71%
Human Impacts 25km	Gene Diversity	-0.08	0.03	83.67%
Species Richness 200km	Gene Diversity	-0.22	0.26	56.43%
Species Richness 100km	Gene Diversity	-0.21	0.25	57.21%

Species Richness 50km	Gene Diversity	-0.22	0.31	64.11%
Species Richness 25km	Gene Diversity	-0.33	0.21	69.84%
Primary Productivity 200km	Allelic Richness	-0.04	0.14	84.96%
Primary Productivity 100km	Allelic Richness	-0.03	0.17	92.11%
Primary Productivity 50km	Allelic Richness	-0.02	0.19	93.67%
Primary Productivity 25km	Allelic Richness	-0.01	0.16	95.45%
Distance to Market 200km	Allelic Richness	-0.14	0.06	74.58%
Distance to Market 100km	Allelic Richness	-0.09	0.07	50.69%
Distance to Market 50km	Allelic Richness	-0.07	0.08	57.84%
Distance to Market 25km	Allelic Richness	-0.06	0.08	64.54%
Fishing Pressure 200km	Allelic Richness	-0.12	0.07	72.22%
Fishing Pressure 100km	Allelic Richness	-0.10	0.07	66.51%
Fishing Pressure 50km	Allelic Richness	-0.07	0.05	67.51%
Fishing Pressure 25km	Allelic Richness	-0.05	0.11	76.64%
Dissolved Oxygen 200km	Allelic Richness	-0.52	0.05	95.03%
Dissolved Oxygen 100km	Allelic Richness	-0.48	0.04	95.01%
Dissolved Oxygen 50km	Allelic Richness	-0.47	0.05	94.49%
Dissolved Oxygen 25km	Allelic Richness	-0.48	0.04	95.03%
pH 200km	Allelic Richness	-0.24	0.29	59.22%
pH 100km	Allelic Richness	-0.23	0.29	60.71%
pH 50km	Allelic Richness	-0.23	0.28	58.87%

pH 25km	Allelic Richness	-0.23	0.28	58.06%
Salinity 200km	Allelic Richness	-0.15	0.75	90.18%
Salinity 100km	Allelic Richness	-0.20	0.63	84.80%
Salinity 50km	Allelic Richness	-0.22	0.59	81.63%
Salinity 25km	Allelic Richness	-0.19	0.60	84.11%
Temperature 200km	Allelic Richness	-0.06	0.38	91.79%
Temperature 100km	Allelic Richness	-0.07	0.37	91.53%
Temperature 50km	Allelic Richness	-0.06	0.36	91.92%
Temperature 25km	Allelic Richness	-0.06	0.37	92.03%
Land Area 200km	Allelic Richness	-0.01	0.44	96.88%
Land Area 100km	Allelic Richness	-0.02	0.36	96.21%
Land Area 50km	Allelic Richness	0.02	0.13	99.22%
Land Area 25km	Allelic Richness	-0.02	0.10	89.53%
Urbanization 200km	Allelic Richness	-0.15	0.02	94.11%
Urbanization 100km	Allelic Richness	-0.12	0.04	85.21%
Urbanization 50km	Allelic Richness	-0.08	0.03	85.96%
Urbanization 25km	Allelic Richness	-0.08	0.19	78.56%
Human Impacts 200km	Allelic Richness	-0.12	0.00	97.12%
Human Impacts 100km	Allelic Richness	-0.09	0.02	91.66%
Human Impacts 50km	Allelic Richness	-0.05	0.05	53.16%
Human Impacts 25km	Allelic Richness	-0.05	0.05	53.85%
Species Richness 200km	Allelic Richness	-0.07	0.38	91.18%

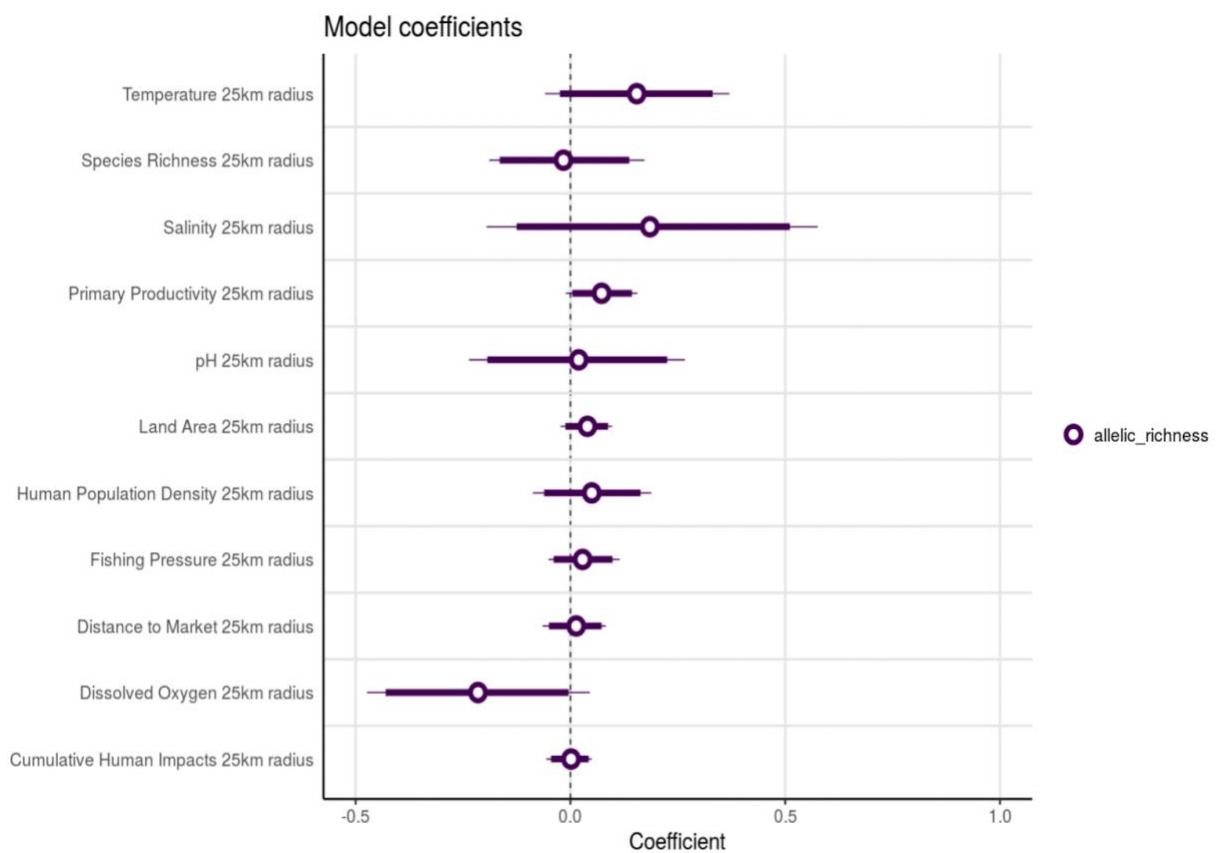
Species Richness 100km	Allelic Richness	-0.08	0.32	87.44%
Species Richness 50km	Allelic Richness	-0.08	0.36	89.22%
Species Richness 25km	Allelic Richness	-0.19	0.16	57.43%
Primary Productivity 200km	FST	-0.21	0.03	92.03%
Primary Productivity 100km	FST	-0.17	0.05	84.70%
Primary Productivity 50km	FST	-0.16	0.10	68.42%
Primary Productivity 25km	FST	-0.17	0.09	72.63%
Distance to Market 200km	FST	-0.07	0.32	90.44%
Distance to Market 100km	FST	-0.07	0.24	87.11%
Distance to Market 50km	FST	-0.06	0.22	86.86%
Distance to Market 25km	FST	-0.06	0.20	86.56%
Fishing Pressure 200km	FST	-0.06	0.10	72.96%
Fishing Pressure 100km	FST	-0.06	0.10	66.43%
Fishing Pressure 50km	FST	-0.08	0.08	52.93%
Fishing Pressure 25km	FST	-0.20	0.08	71.42%
Dissolved Oxygen 200km	FST	-0.00	0.94	97.49%
Dissolved Oxygen 100km	FST	-0.02	0.88	96.99%
Dissolved Oxygen 50km	FST	-0.01	0.89	97.16%
Dissolved Oxygen 25km	FST	-0.02	0.87	97.00%
pH 200km	FST	-0.49	0.27	74.79%

pH 100km	FST	-0.47	0.18	81.08%
pH 50km	FST	-0.43	0.16	82.66%
pH 25km	FST	-0.41	0.13	84.33%
Salinity 200km	FST	-1.17	0.26	89.24%
Salinity 100km	FST	-1.05	0.44	79.44%
Salinity 50km	FST	-0.99	0.41	79.59%
Salinity 25km	FST	-1.02	0.39	80.19%
Temperature 200km	FST	-0.67	0.00	97.34%
Temperature 100km	FST	-0.65	0.01	96.91%
Temperature 50km	FST	-0.67	0.00	97.46%
Temperature 25km	FST	-0.67	-0.01	97.62%
Land Area 200km	FST	-0.66	-0.01	97.87%
Land Area 100km	FST	-0.43	-0.04	99.17%
Land Area 50km	FST	-0.15	0.03	90.47%
Land Area 25km	FST	-0.09	0.09	51.67%
Urbanization 200km	FST	-0.13	0.21	68.97%
Urbanization 100km	FST	-0.18	0.15	56.50%
Urbanization 50km	FST	-0.13	0.07	66.63%
Urbanization 25km	FST	-0.13	0.08	62.14%
Human Impacts 200km	FST	-0.08	0.12	66.25%
Human Impacts 100km	FST	-0.08	0.06	57.48%
Human Impacts 50km	FST	-0.08	0.06	62.19%
Human Impacts 25km	FST	-0.08	0.06	62.01%

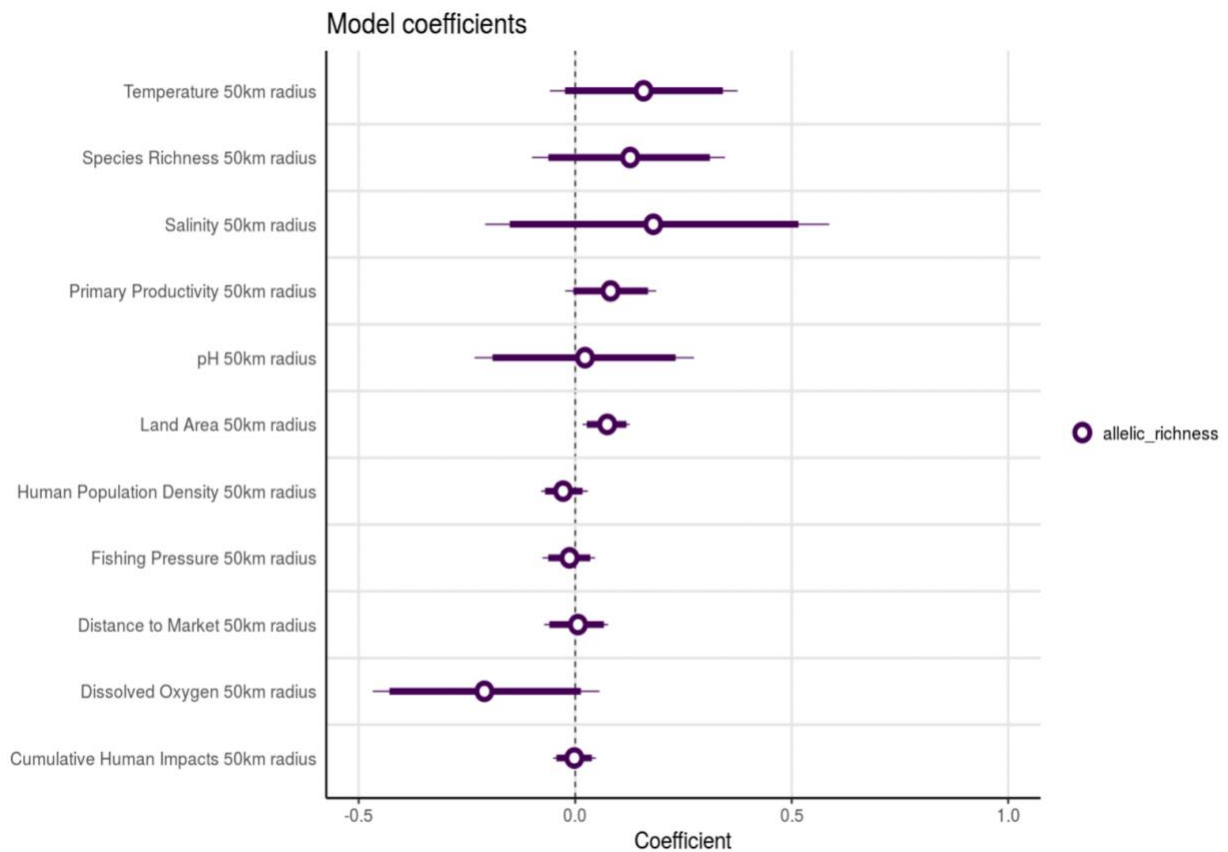
Species Richness 200km	FST	-0.29	-0.03	99.37%
Species Richness 100km	FST	-0.28	-0.03	99.32%
Species Richness 50km	FST	-0.58	0.02	96.61%
Species Richness 25km	FST	-0.36	0.12	83.78%
Primary Productivity 200km	Ne	-0.10	0.23	80.89%
Primary Productivity 100km	Ne	-0.11	0.20	75.67%
Primary Productivity 50km	Ne	-0.09	0.18	75.07%
Primary Productivity 25km	Ne	-0.08	0.19	78.79%
Distance to Market 200km	Ne	-0.14	0.12	50.30%
Distance to Market 100km	Ne	-0.13	0.11	51.93%
Distance to Market 50km	Ne	-0.13	0.12	51.18%
Distance to Market 25km	Ne	-0.13	0.11	50.51%
Fishing Pressure 200km	Ne	-0.10	0.30	84.06%
Fishing Pressure 100km	Ne	-0.09	0.20	69.81%
Fishing Pressure 50km	Ne	-0.11	0.11	52.08%
Fishing Pressure 25km	Ne	-0.12	0.19	72.85%
Dissolved Oxygen 200km	Ne	-0.19	0.35	77.34%
Dissolved Oxygen 100km	Ne	-0.20	0.35	77.20%
Dissolved Oxygen 50km	Ne	-0.20	0.36	77.29%

Dissolved Oxygen 25km	Ne	-0.20	0.36	76.91%
pH 200km	Ne	-0.23	0.16	66.33%
pH 100km	Ne	-0.20	0.16	58.99%
pH 50km	Ne	-0.20	0.16	60.16%
pH 25km	Ne	-0.20	0.17	58.59%
Salinity 200km	Ne	-0.24	0.32	50.95%
Salinity 100km	Ne	-0.27	0.27	57.64%
Salinity 50km	Ne	-0.27	0.23	62.50%
Salinity 25km	Ne	-0.27	0.23	63.48%
Temperature 200km	Ne	-0.35	0.14	84.21%
Temperature 100km	Ne	-0.35	0.13	84.03%
Temperature 50km	Ne	-0.34	0.14	82.19%
Temperature 25km	Ne	-0.34	0.14	81.66%
Land Area 200km	Ne	-0.12	0.13	53.96%
Land Area 100km	Ne	-0.11	0.13	58.03%
Land Area 50km	Ne	-0.13	0.08	65.97%
Land Area 25km	Ne	-0.15	0.05	85.55%
Urbanization 200km	Ne	-0.16	0.12	68.06%
Urbanization 100km	Ne	-0.23	0.03	93.48%
Urbanization 50km	Ne	-0.08	0.09	53.87%
Urbanization 25km	Ne	-0.13	0.07	71.06%
Human Impacts 200km	Ne	-0.17	0.11	66.66%
Human Impacts 100km	Ne	-0.10	0.15	64.04%

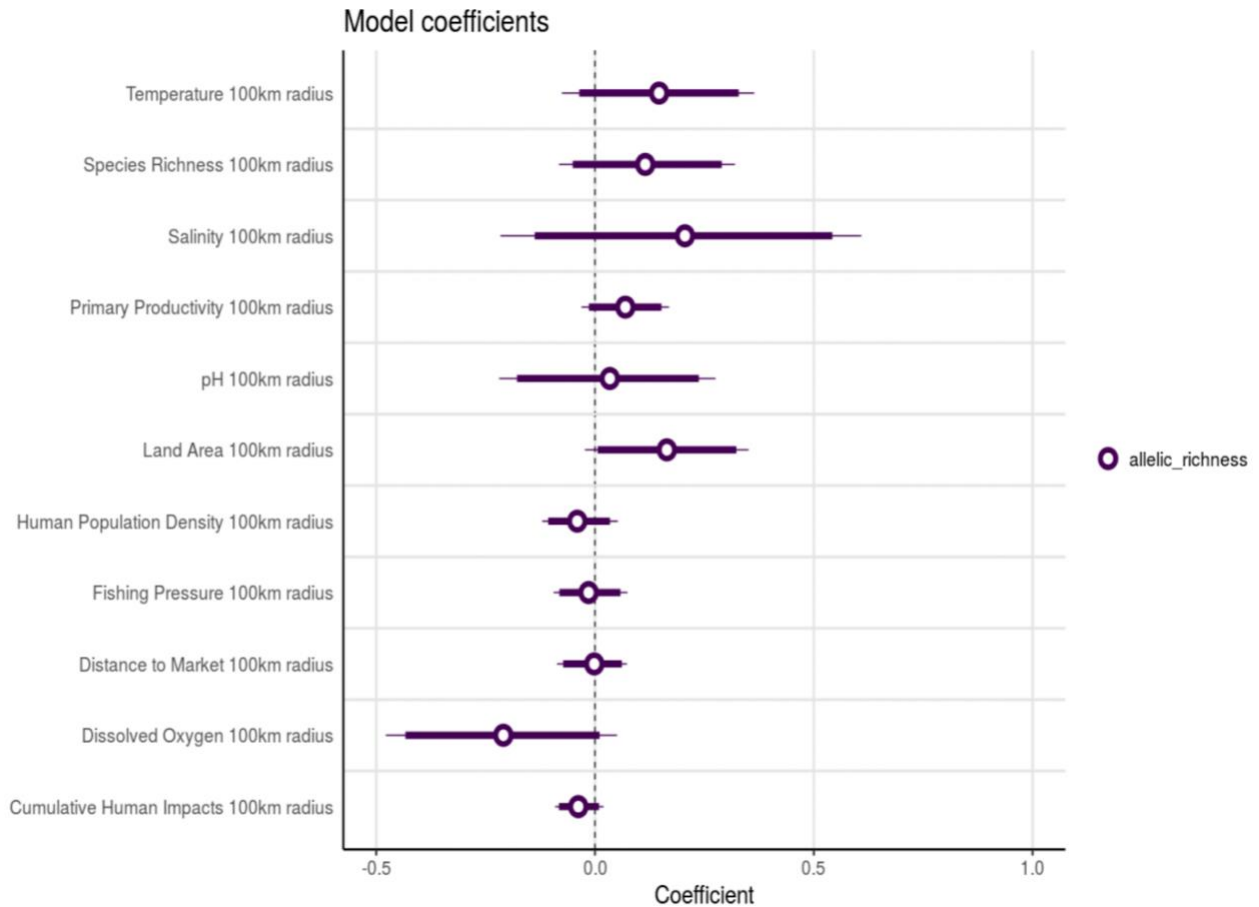
Human Impacts 50km	Ne	-0.09	0.13	61.91%
Human Impacts 25km	Ne	-0.05	0.17	81.55%
Species Richness 200km	Ne	-0.24	0.04	91.74%
Species Richness 100km	Ne	-0.22	0.06	87.58%
Species Richness 50km	Ne	-0.23	0.07	85.22%
Species Richness 25km	Ne	-0.34	0.18	71.99%



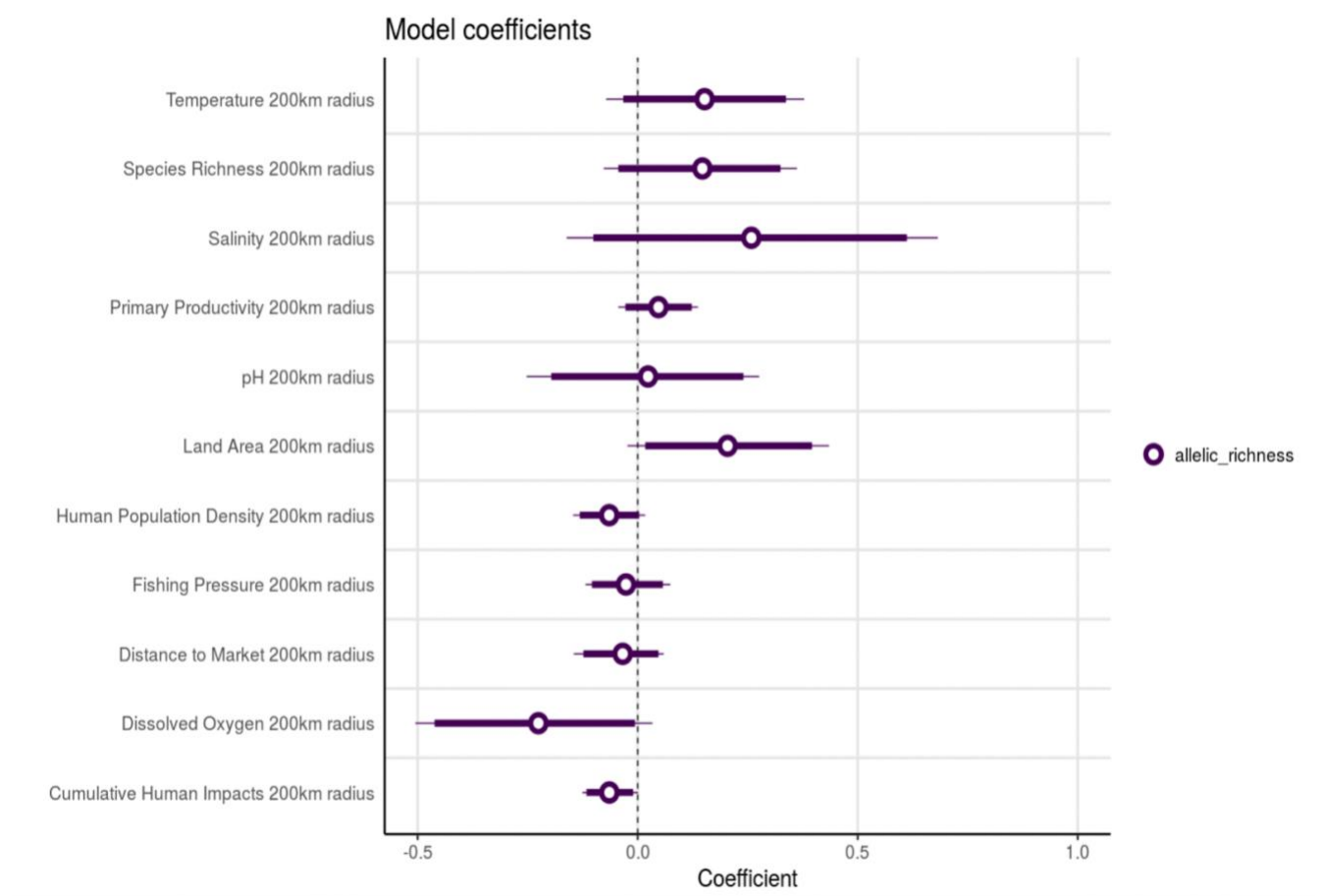
SI.1.9. Allelic richness models with priors, 25 km buffer; x axis showing candidate drivers of allelic richness, y axis showing direction of effects. Slopes and intercepts were allowed to vary with species. Open circles are overall parameter estimates, bold lines are 90% credible intervals, and narrow lines are 95% credible intervals.



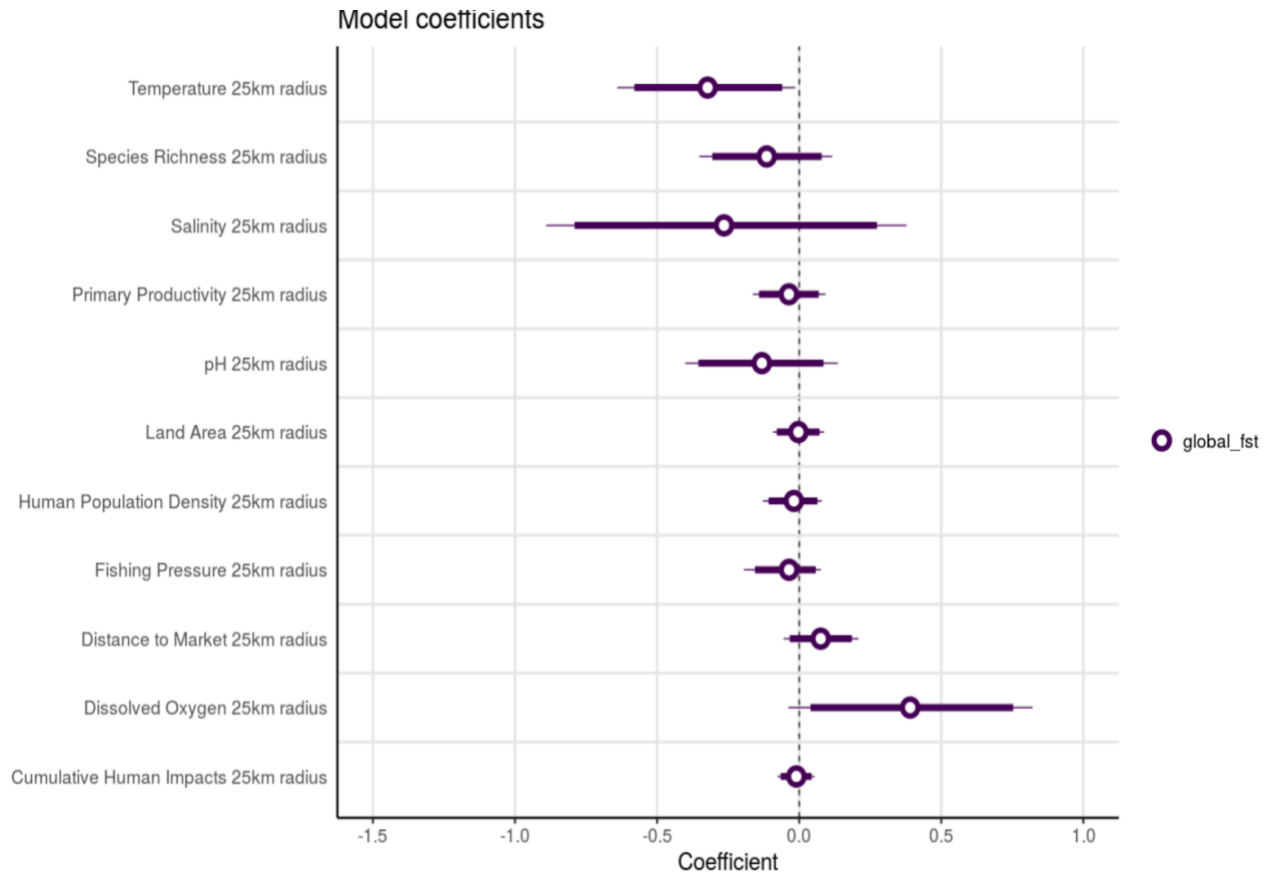
SI.1.10. Allelic richness models with priors, 50 km buffer; x axis showing candidate drivers of allelic richness, y axis showing direction of effects. Slopes and intercepts were allowed to vary with species. Open circles are overall parameter estimates, bold lines are 90% credible intervals, and narrow lines are 95% credible intervals.



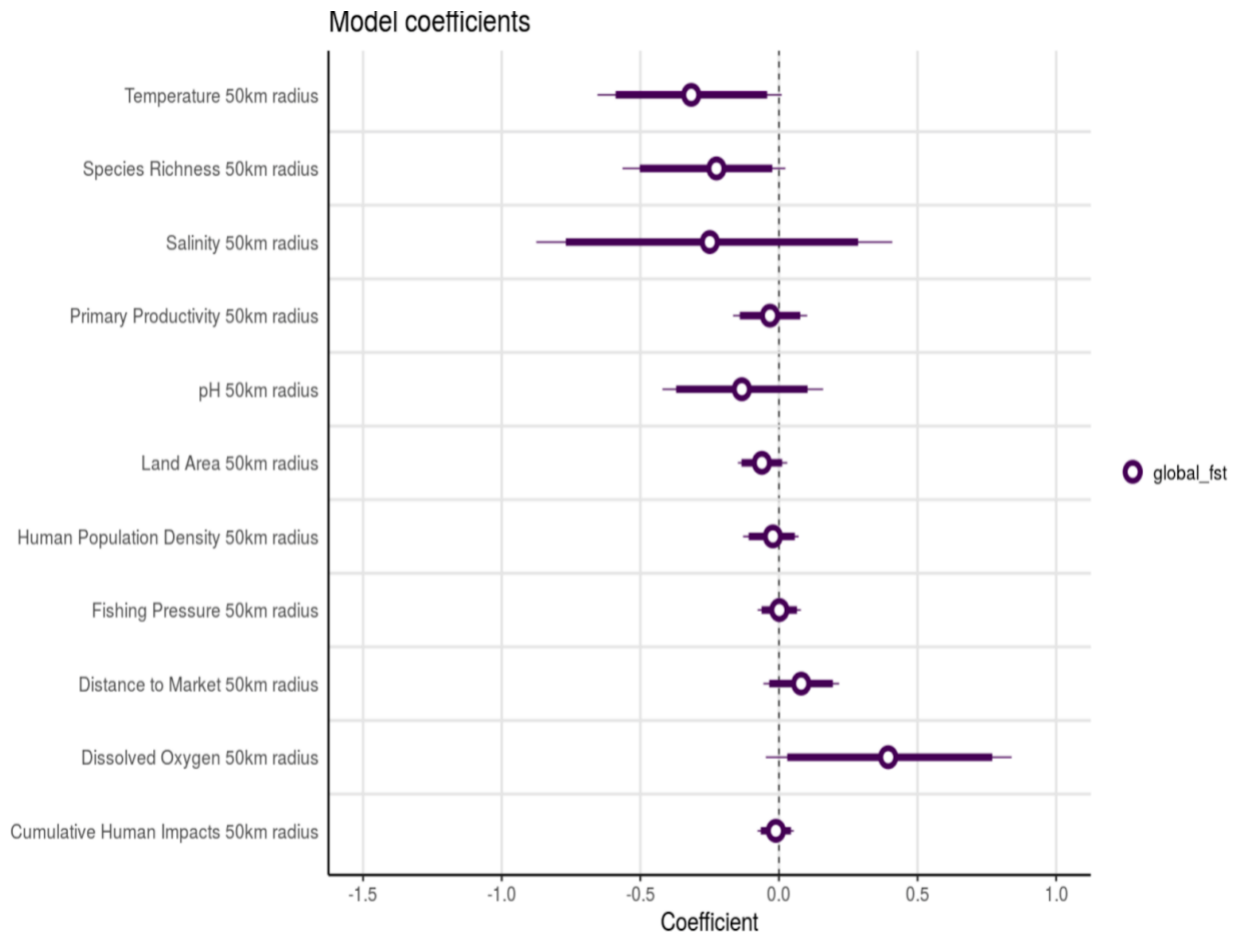
SI.1.11. Allelic richness models with priors, 100 km buffer; x axis showing candidate drivers of allelic richness, y axis showing direction of effects. Slopes and intercepts were allowed to vary with species. Open circles are overall parameter estimates, bold lines are 90% credible intervals, and narrow lines are 95% credible intervals.



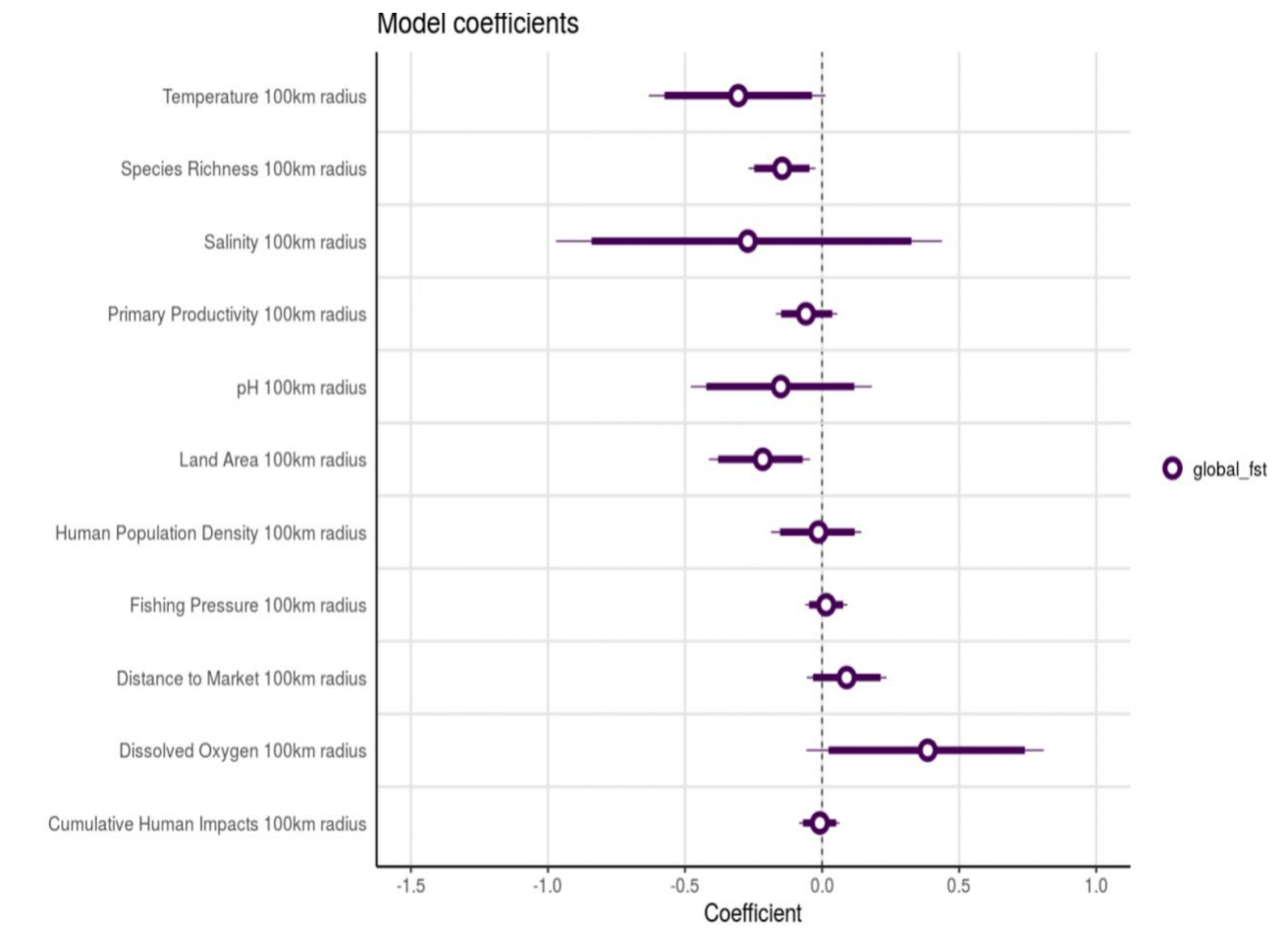
SI.1.12. Allelic richness models with priors, 200 km buffer; x axis showing candidate drivers of allelic richness, y axis showing direction of effects. Slopes and intercepts were allowed to vary with species. Open circles are overall parameter estimates, bold lines are 90% credible intervals, and narrow lines are 95% credible intervals.



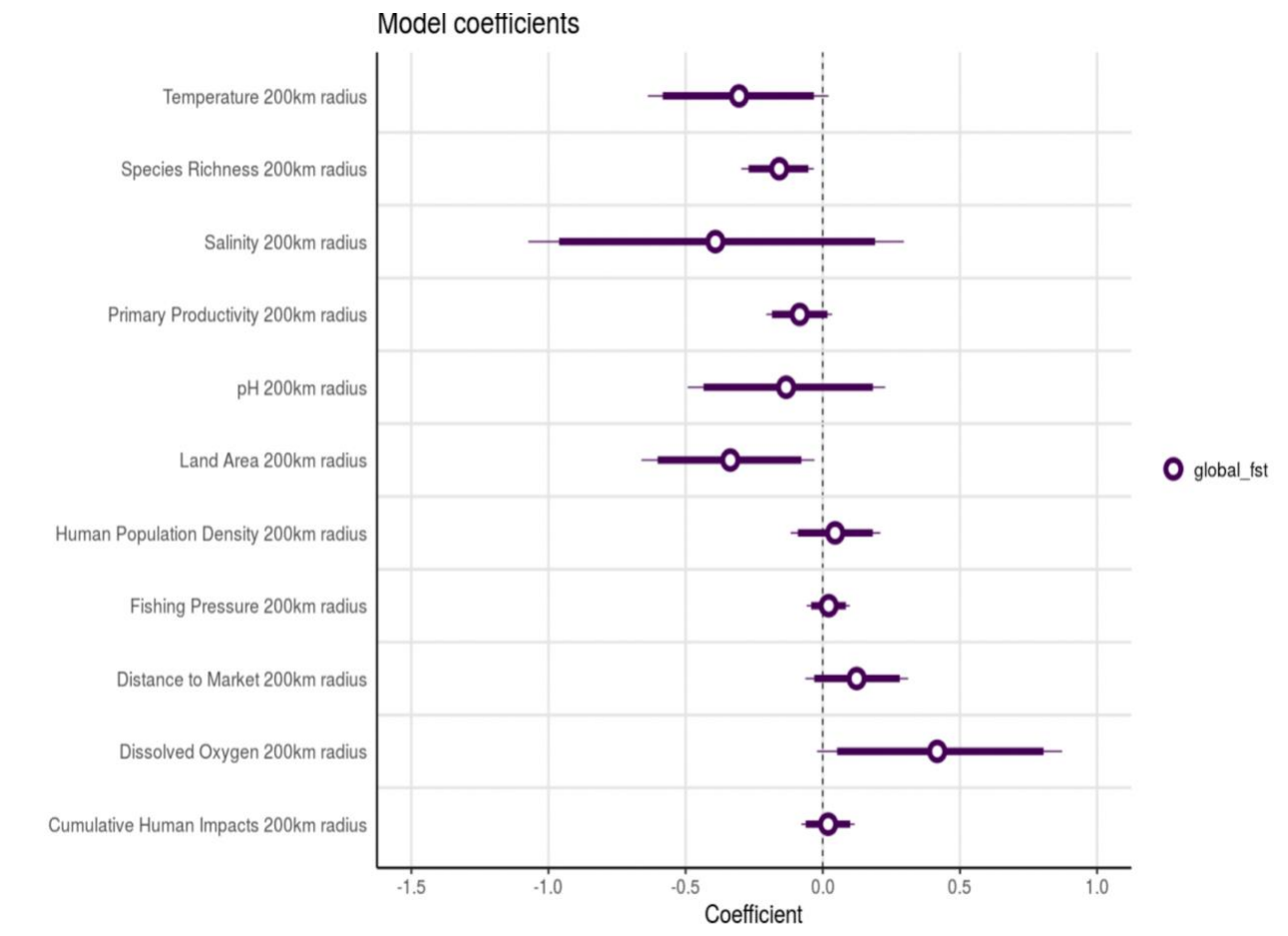
SI.1.13. FST models with priors, 25 km buffer; x axis showing candidate drivers of FST, y axis showing direction of effects. Slopes and intercepts were allowed to vary with species. Open circles are overall parameter estimates, bold lines are 90% credible intervals, and narrow lines are 95% credible intervals.



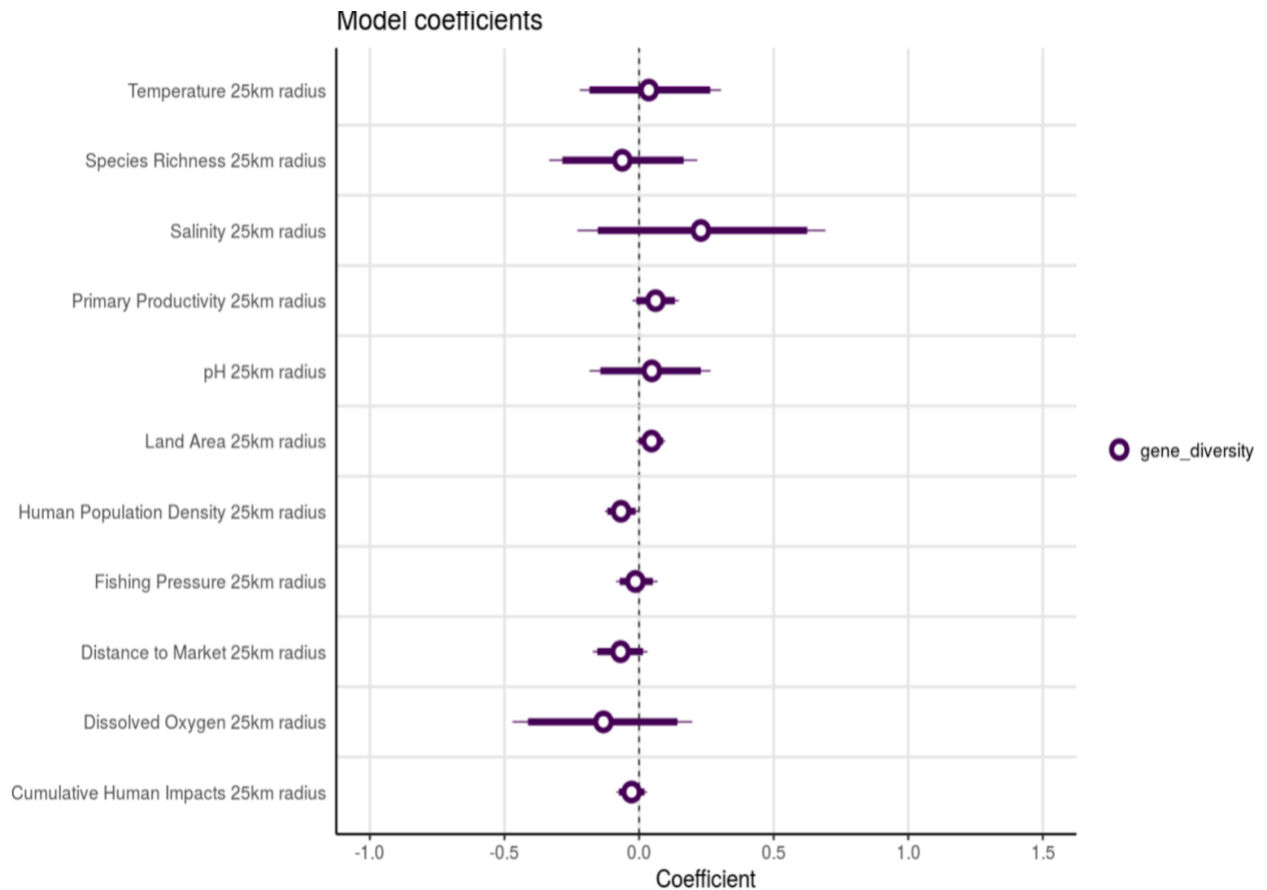
SI.1.14. FST models with priors, 50 km buffer; x axis showing candidate drivers of FST, y axis showing direction of effects. Slopes and intercepts were allowed to vary with species. Open circles are overall parameter estimates, bold lines are 90% credible intervals, and narrow lines are 95% credible intervals.



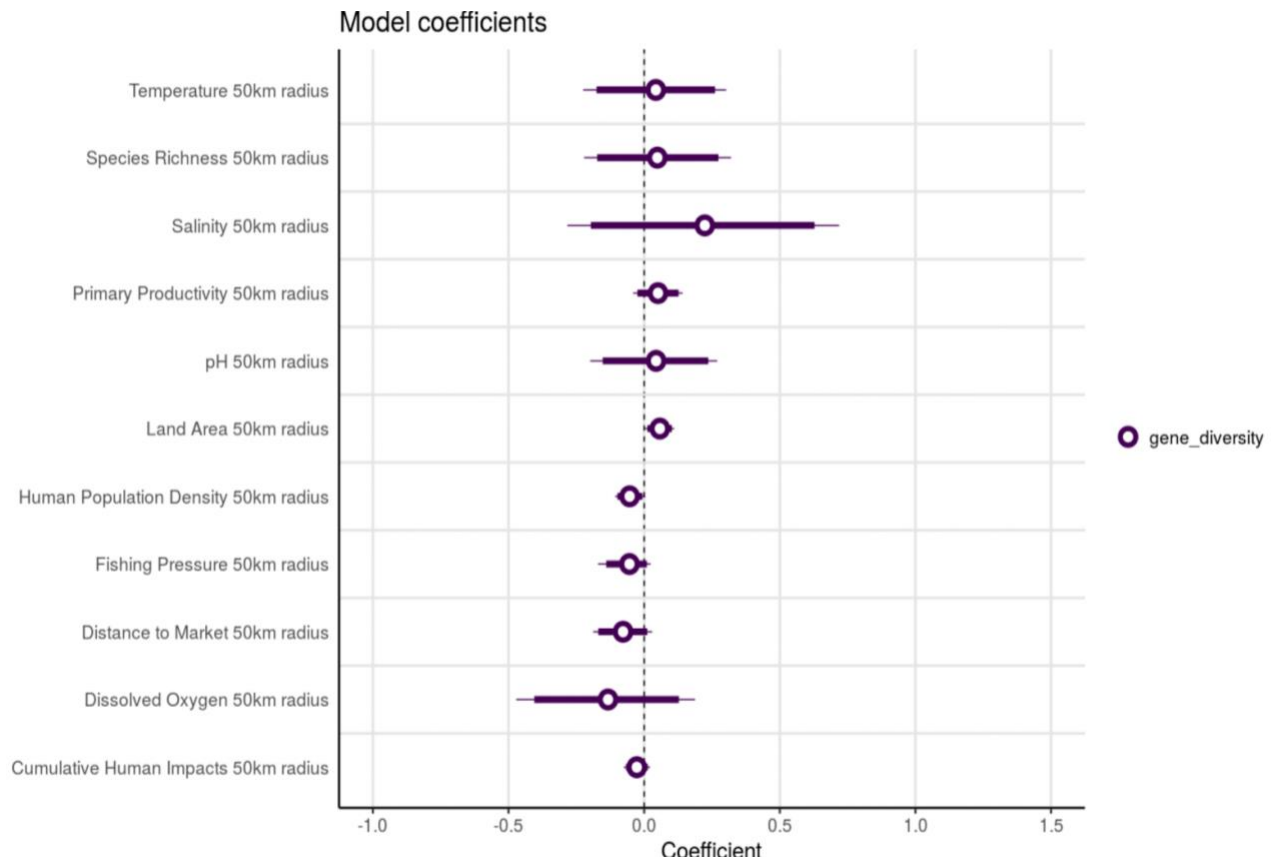
SI.1.15. FST models with priors, 100 km buffer; x axis showing candidate drivers of FST, y axis showing direction of effects. Slopes and intercepts were allowed to vary with species. Open circles are overall parameter estimates, bold lines are 90% credible intervals, and narrow lines are 95% credible intervals.



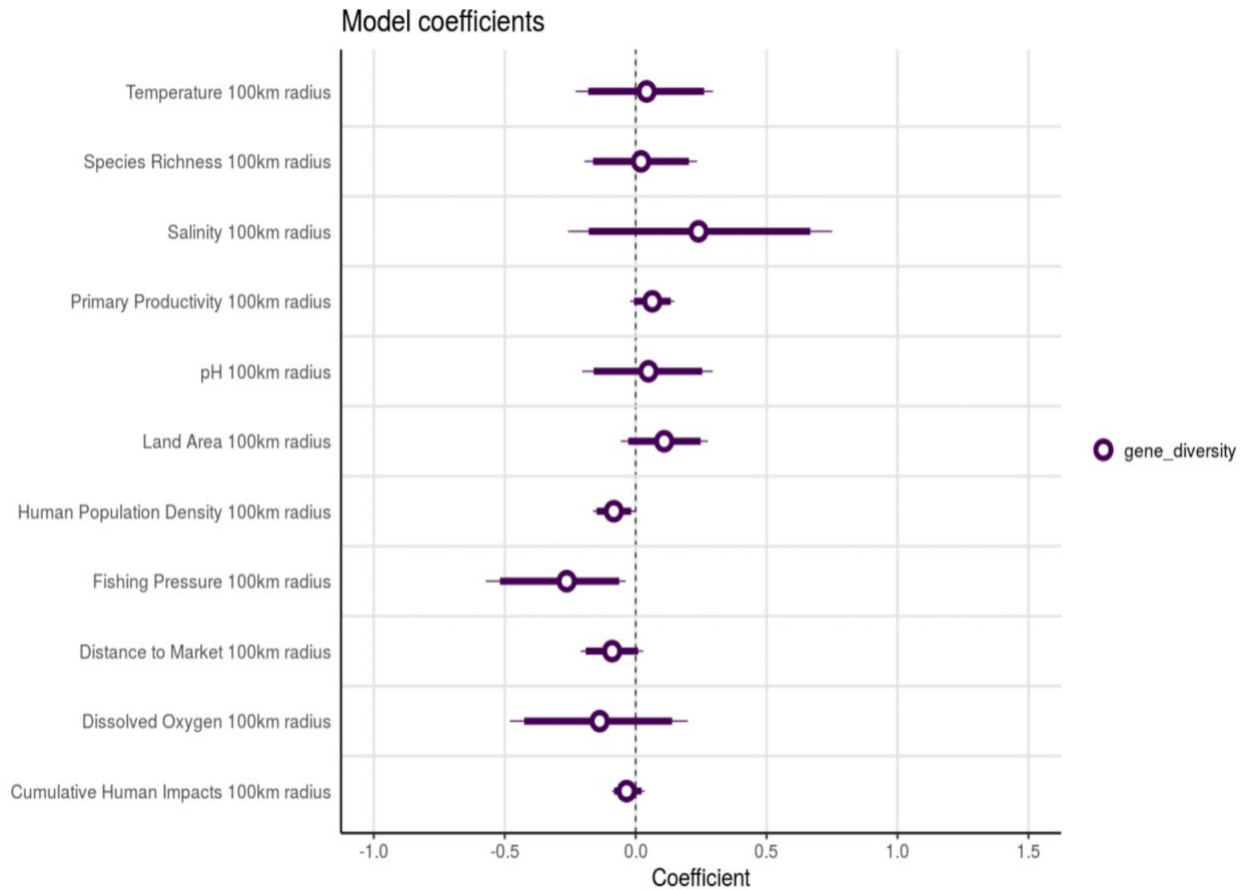
SI.1.16. FST models with priors, 200 km buffer; x axis showing candidate drivers of FST, y axis showing direction of effects. Slopes and intercepts were allowed to vary with species. Open circles are overall parameter estimates, bold lines are 90% credible intervals, and narrow lines are 95% credible intervals.



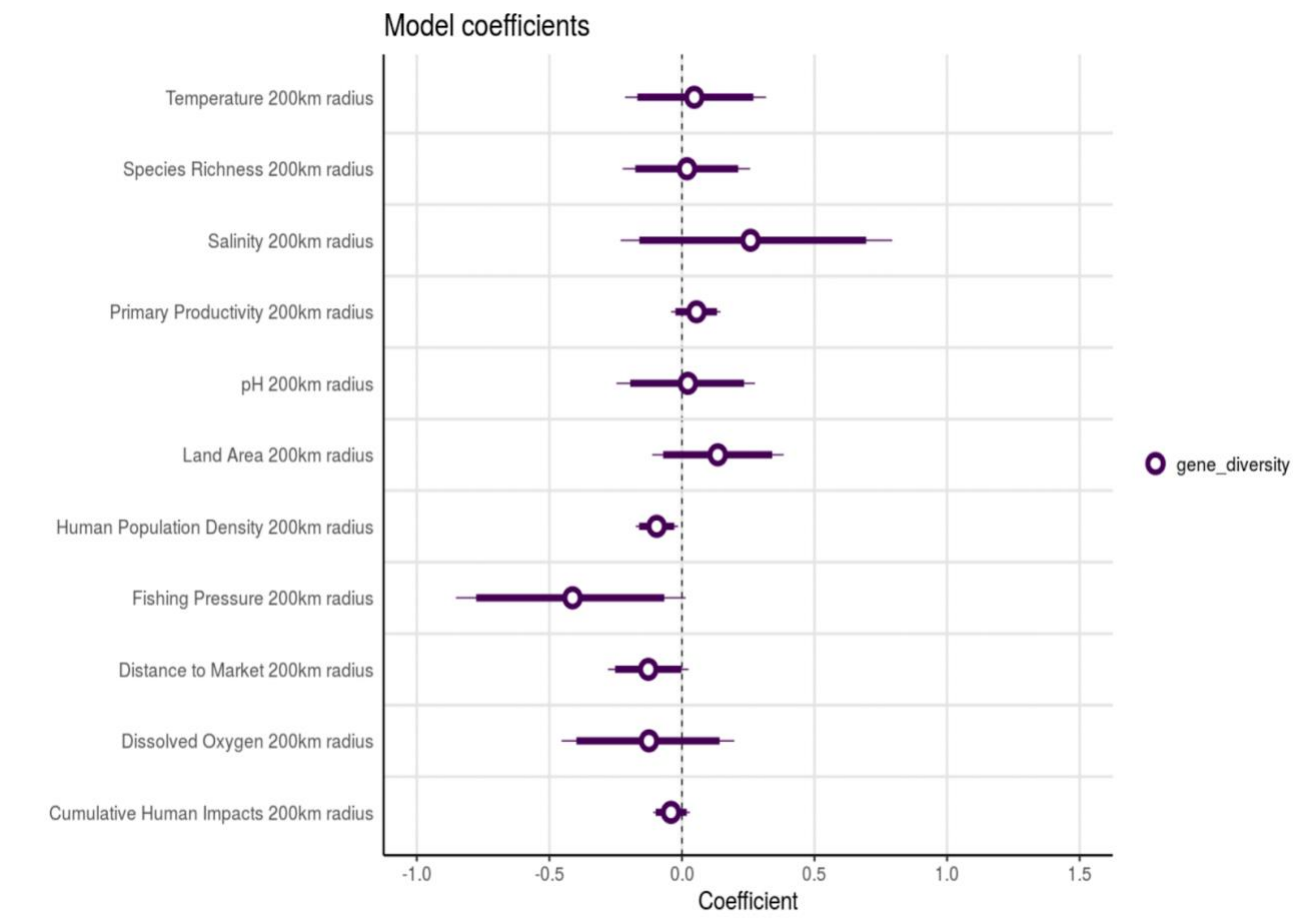
SI.1.17. Gene diversity models with priors, 25 km buffer; x axis showing candidate drivers of gene diversity, y axis showing direction of effects. Slopes and intercepts were allowed to vary with species. Open circles are overall parameter estimates, bold lines are 90% credible intervals, and narrow lines are 95% credible intervals.



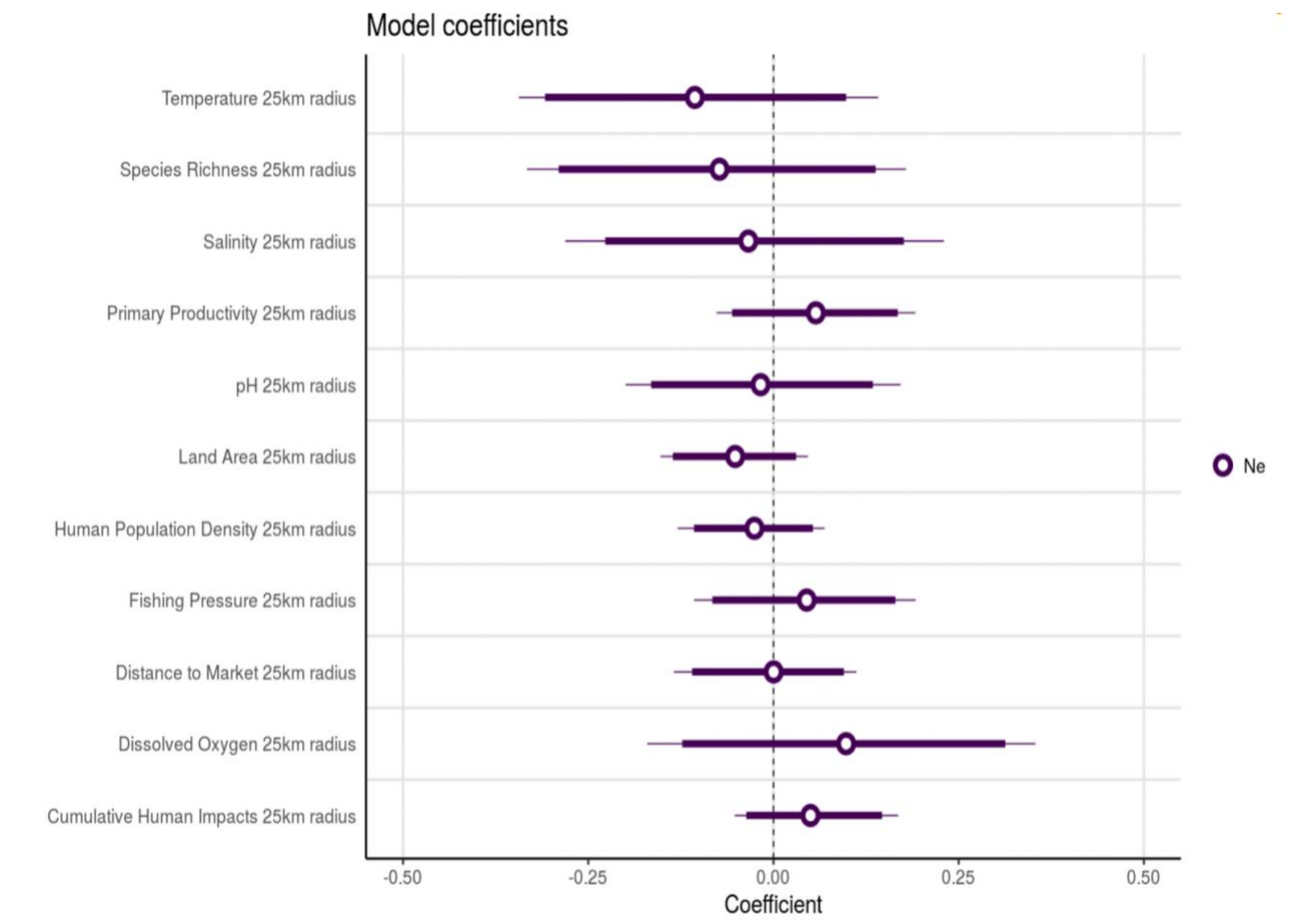
SI.1.18. Gene diversity models with priors, 50 km buffer; x axis showing candidate drivers of gene diversity, y axis showing direction of effects. Slopes and intercepts were allowed to vary with species. Open circles are overall parameter estimates, bold lines are 90% credible intervals, and narrow lines are 95% credible intervals.



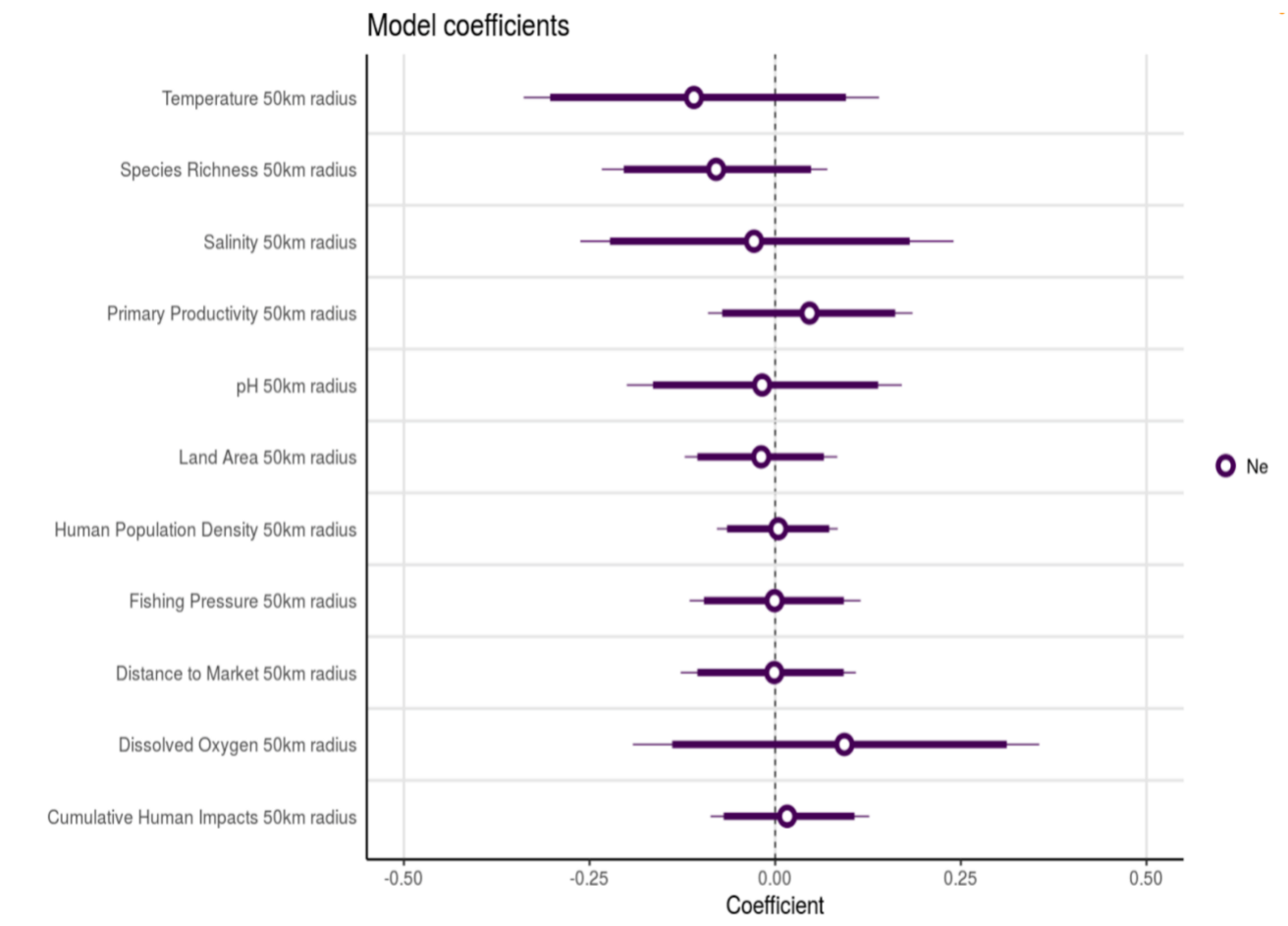
SI.1.19. Gene diversity models with priors, 100 km buffer; x axis showing candidate drivers of gene diversity, y axis showing direction of effects. Slopes and intercepts were allowed to vary with species. Open circles are overall parameter estimates, bold lines are 90% credible intervals, and narrow lines are 95% credible intervals.



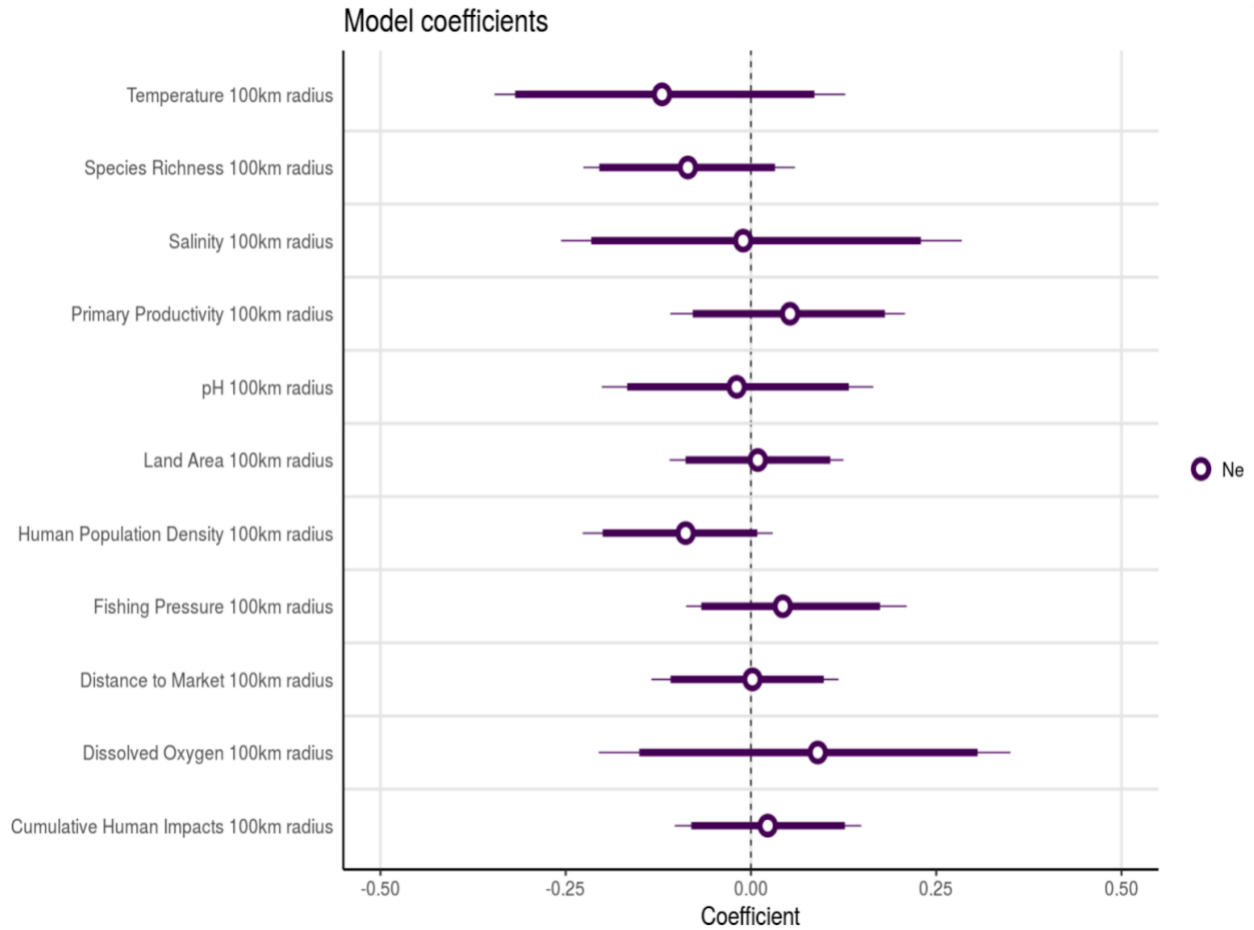
SI.1.20. Gene diversity models with priors, 200 km buffer; x axis showing candidate drivers of gene diversity, y axis showing direction of effects. Slopes and intercepts were allowed to vary with species. Open circles are overall parameter estimates, bold lines are 90% credible intervals, and narrow lines are 95% credible intervals.



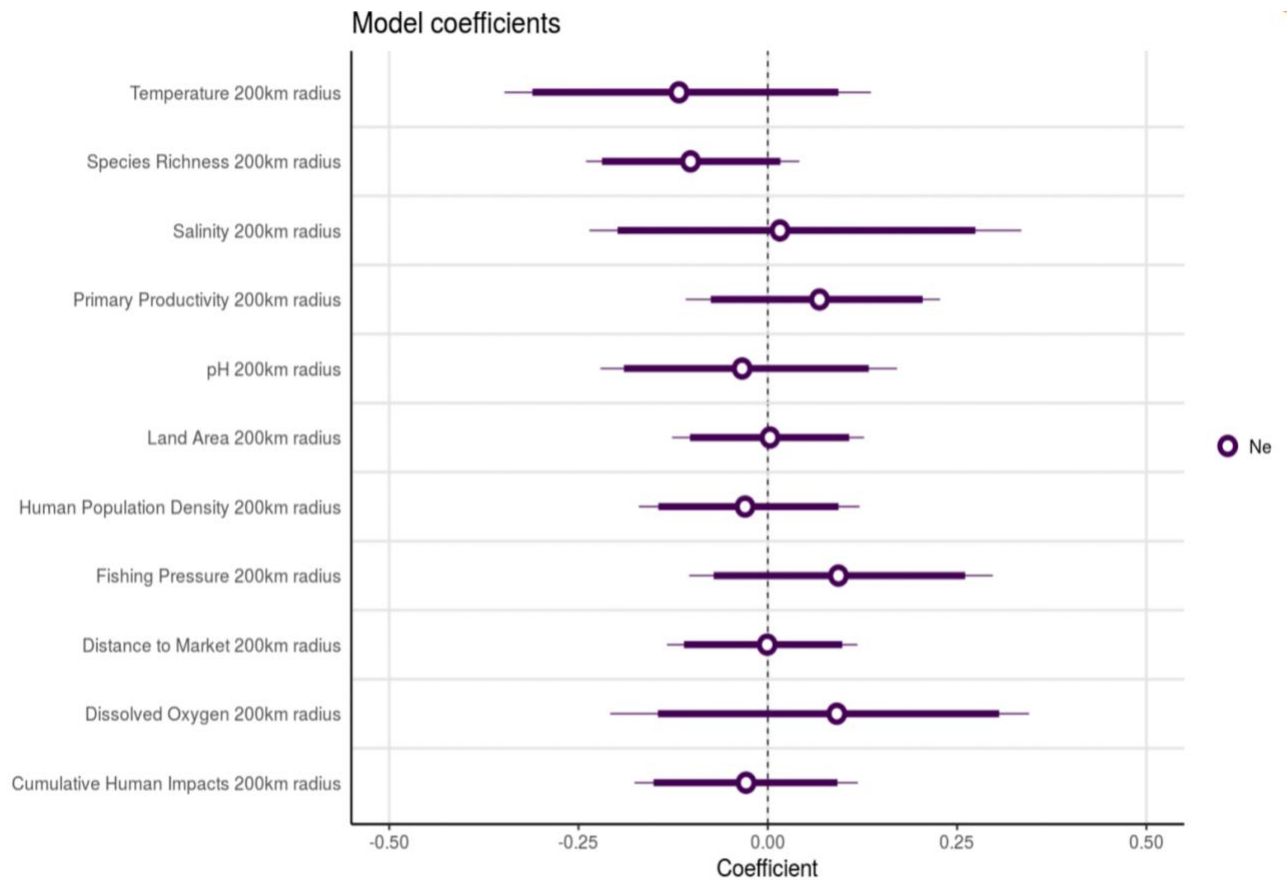
SI.1.21. Effective population size (N_e) models with priors, 25 km buffer; x axis showing candidate drivers of N_e , y axis showing direction of effects. Slopes and intercepts were allowed to vary with species. Open circles are overall parameter estimates, bold lines are 90% credible intervals, and narrow lines are 95% credible intervals.



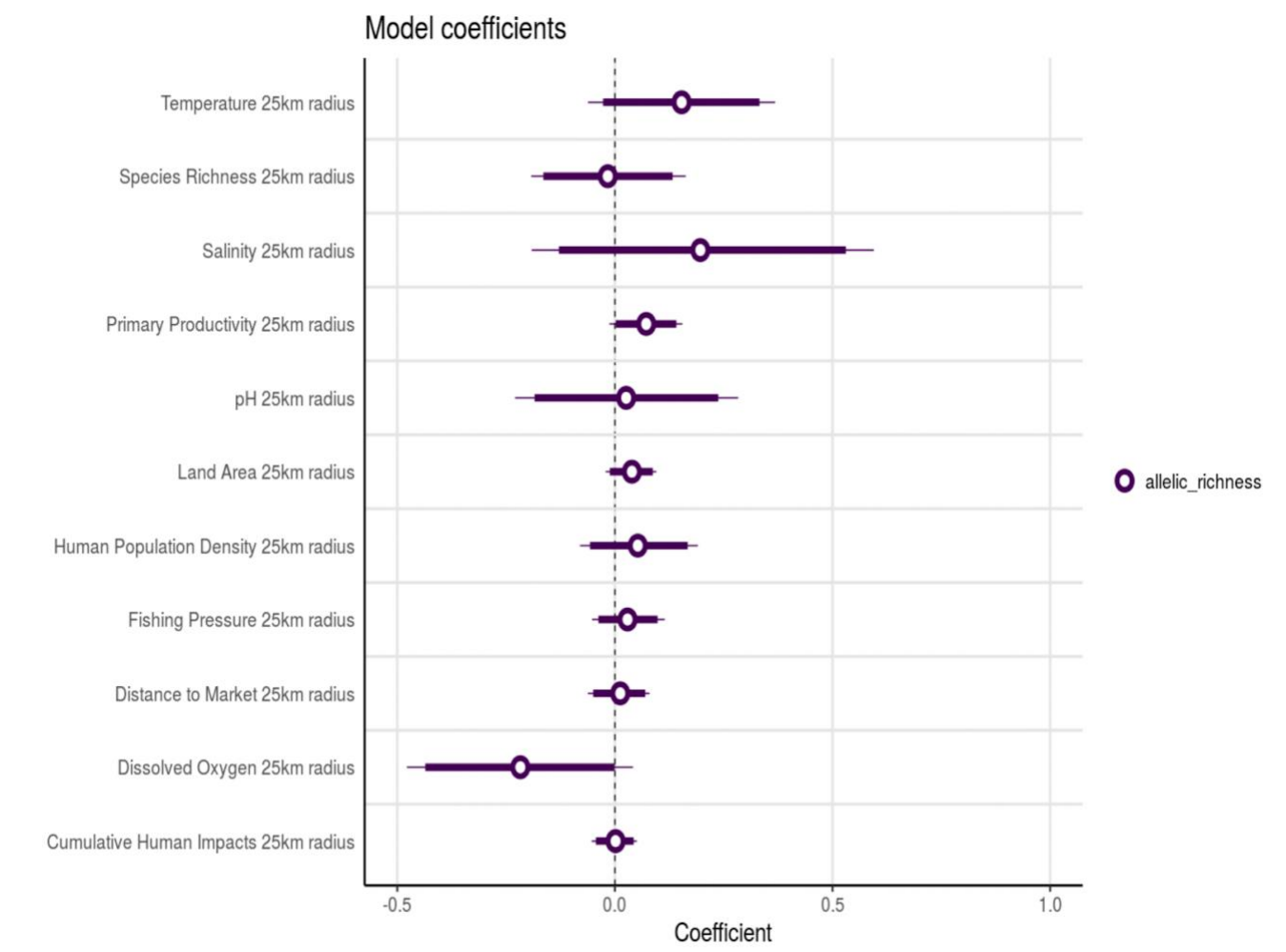
SI.1.22. Effective population size models (N_e) with priors, 50 km buffer; x axis showing candidate drivers of N_e , y axis showing direction of effects. Slopes and intercepts were allowed to vary with species. Open circles are overall parameter estimates, bold lines are 90% credible intervals, and narrow lines are 95% credible intervals.



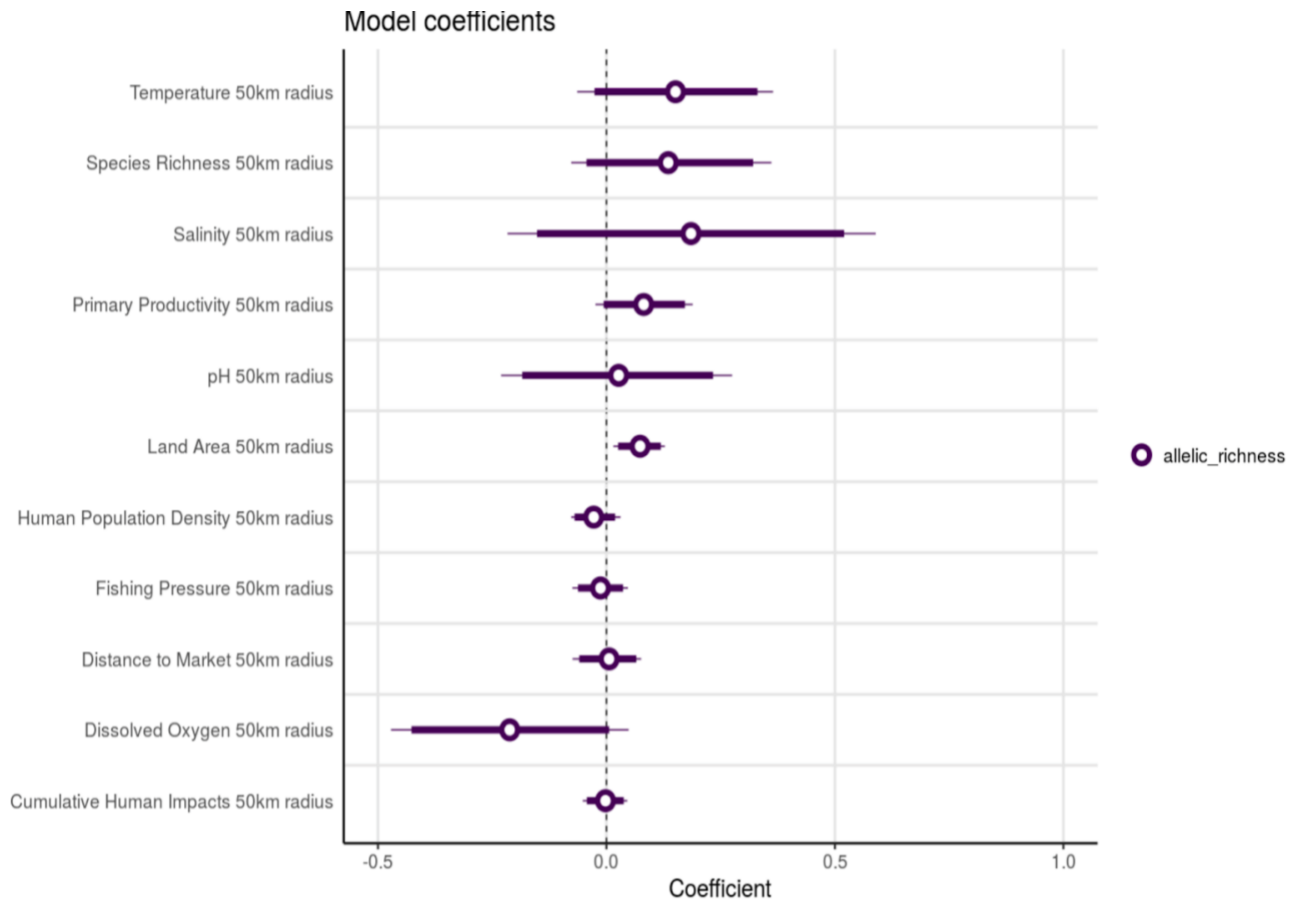
SI.1.23. Effective population size (N_e) models with priors, 100 km buffer; x axis showing candidate drivers of N_e , y axis showing direction of effects. Slopes and intercepts were allowed to vary with species. Open circles are overall parameter estimates, bold lines are 90% credible intervals, and narrow lines are 95% credible intervals.



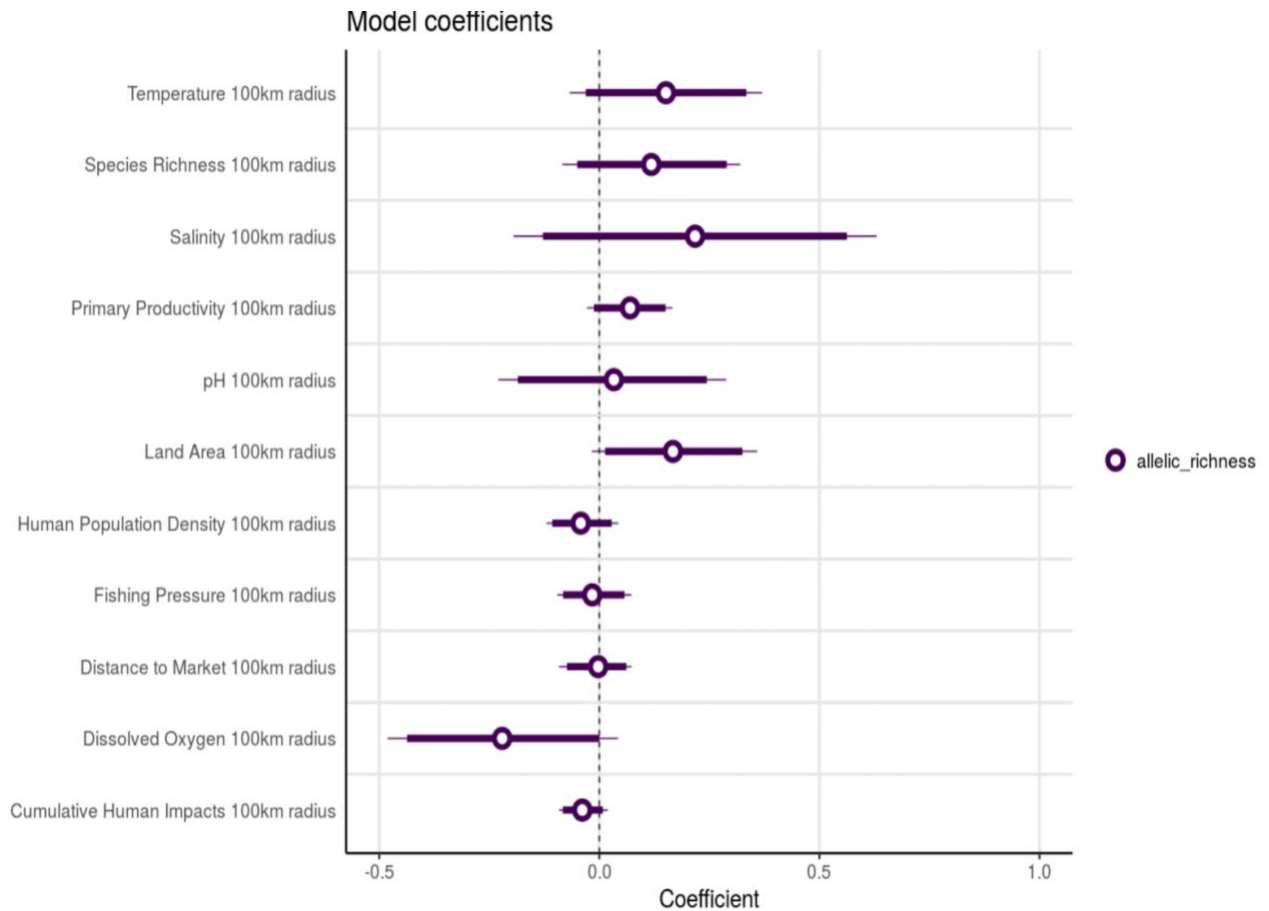
SI.1.24. Effective population size models with priors (N_e), 200 km buffer; x axis showing candidate drivers of N_e , y axis showing direction of effects. Slopes and intercepts were allowed to vary with species. Open circles are overall parameter estimates, bold lines are 90% credible intervals, and narrow lines are 95% credible intervals.



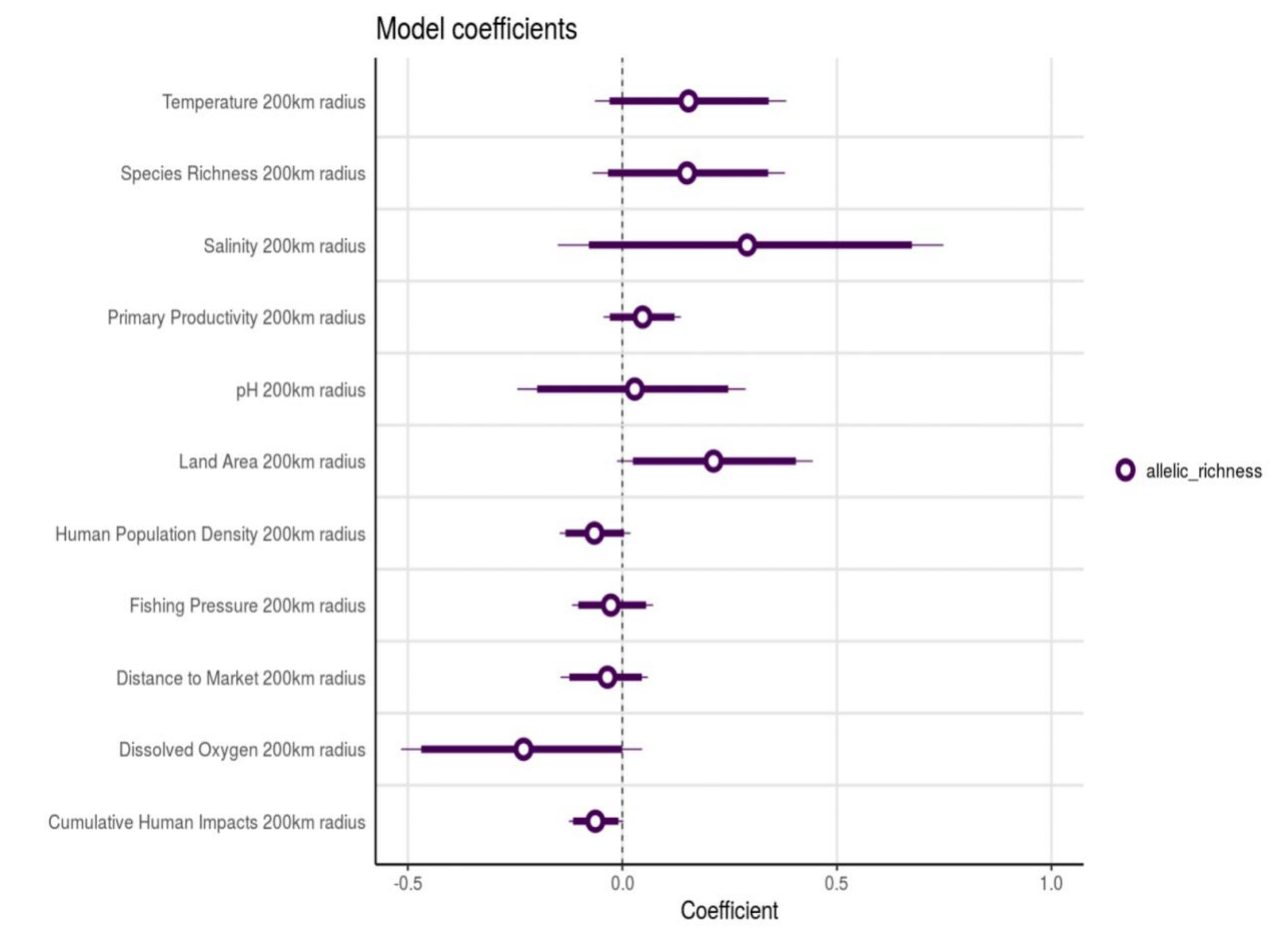
SI.1.25. Allelic richness models without priors, 25 km buffer; x axis showing candidate drivers of allelic richness, y axis showing direction of effects. Slopes and intercepts were allowed to vary with species. Open circles are overall parameter estimates, bold lines are 90% credible intervals, and narrow lines are 95% credible intervals.



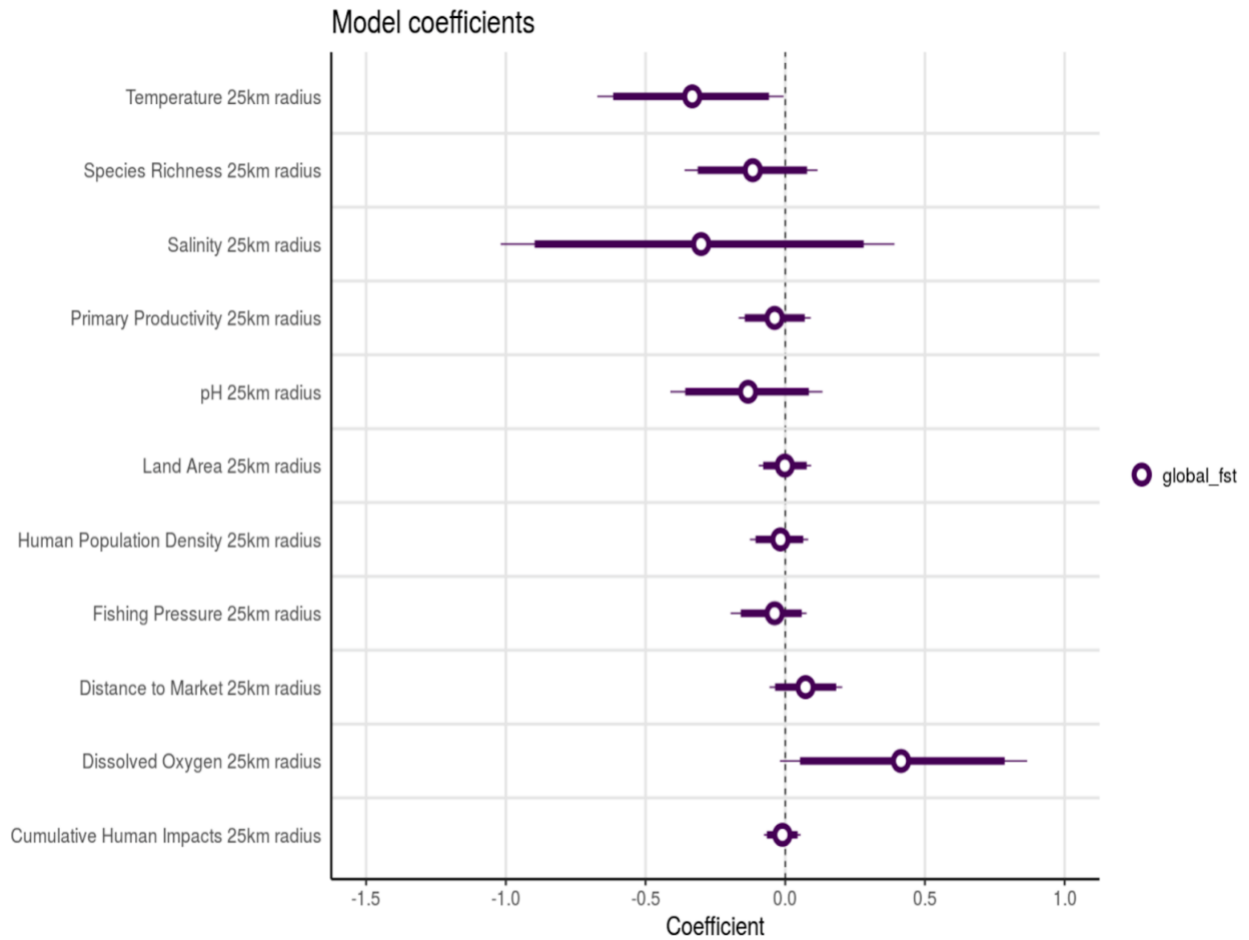
SI.1.26. Allelic richness models without priors, 50 km buffer; x axis showing candidate drivers of allelic richness, y axis showing direction of effects. Slopes and intercepts were allowed to vary with species. Open circles are overall parameter estimates, bold lines are 90% credible intervals, and narrow lines are 95% credible intervals.



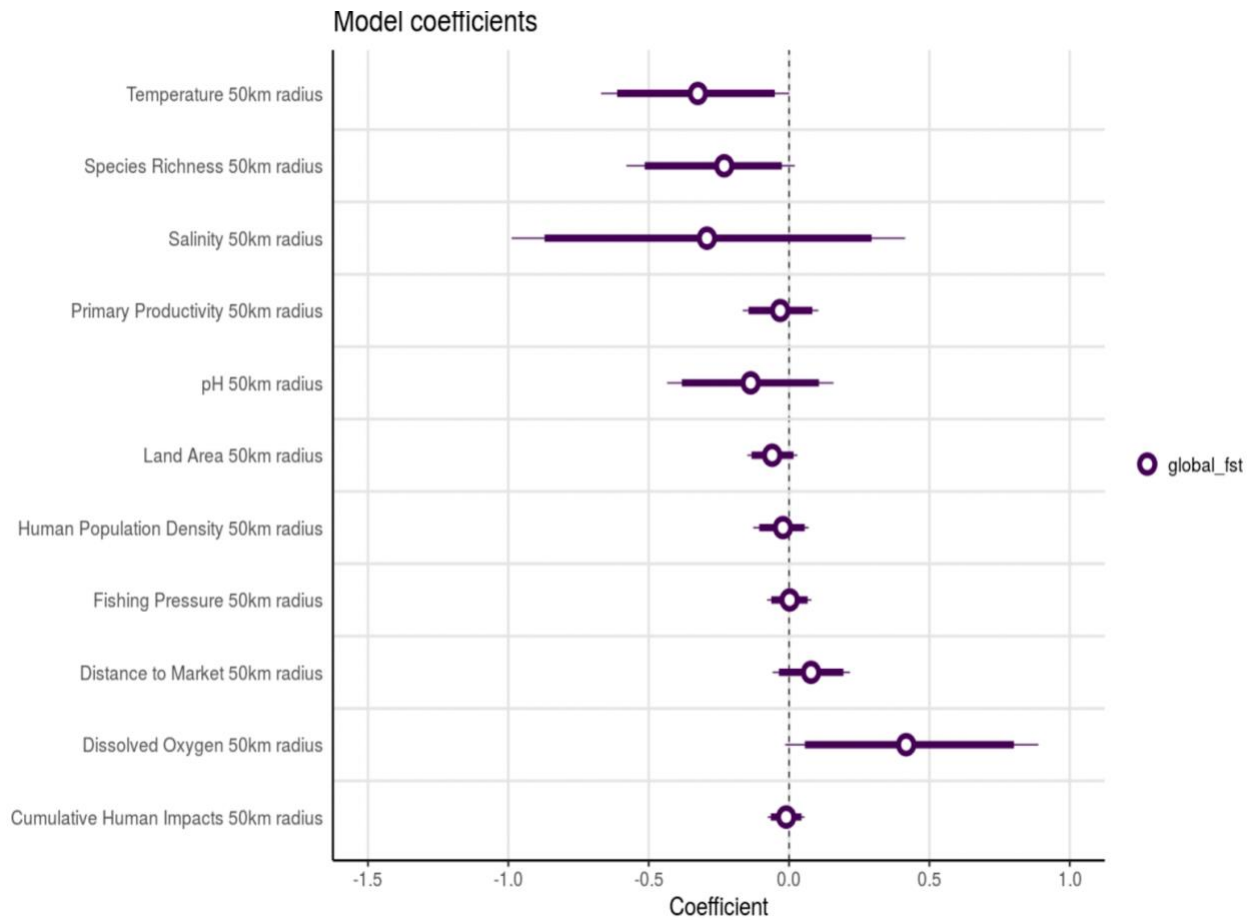
SI.1.27. Allelic richness models without priors, 100 km buffer; x axis showing candidate drivers of allelic richness, y axis showing direction of effects. Slopes and intercepts were allowed to vary with species. Open circles are overall parameter estimates, bold lines are 90% credible intervals, and narrow lines are 95% credible intervals.



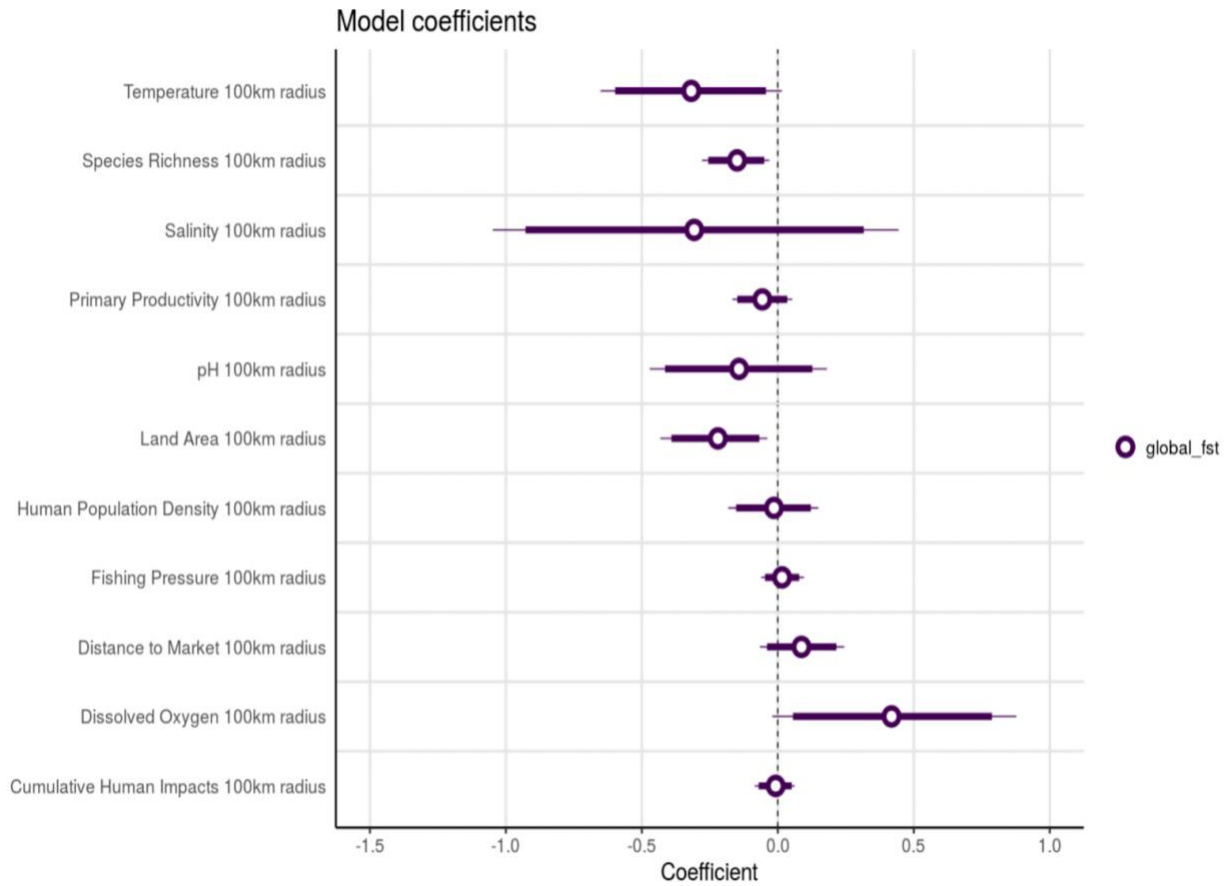
SI.1.28. Allelic richness models without priors, 200 km buffer; x axis showing candidate drivers of allelic richness, y axis showing direction of effects. Slopes and intercepts were allowed to vary with species. Open circles are overall parameter estimates, bold lines are 90% credible intervals, and narrow lines are 95% credible intervals.



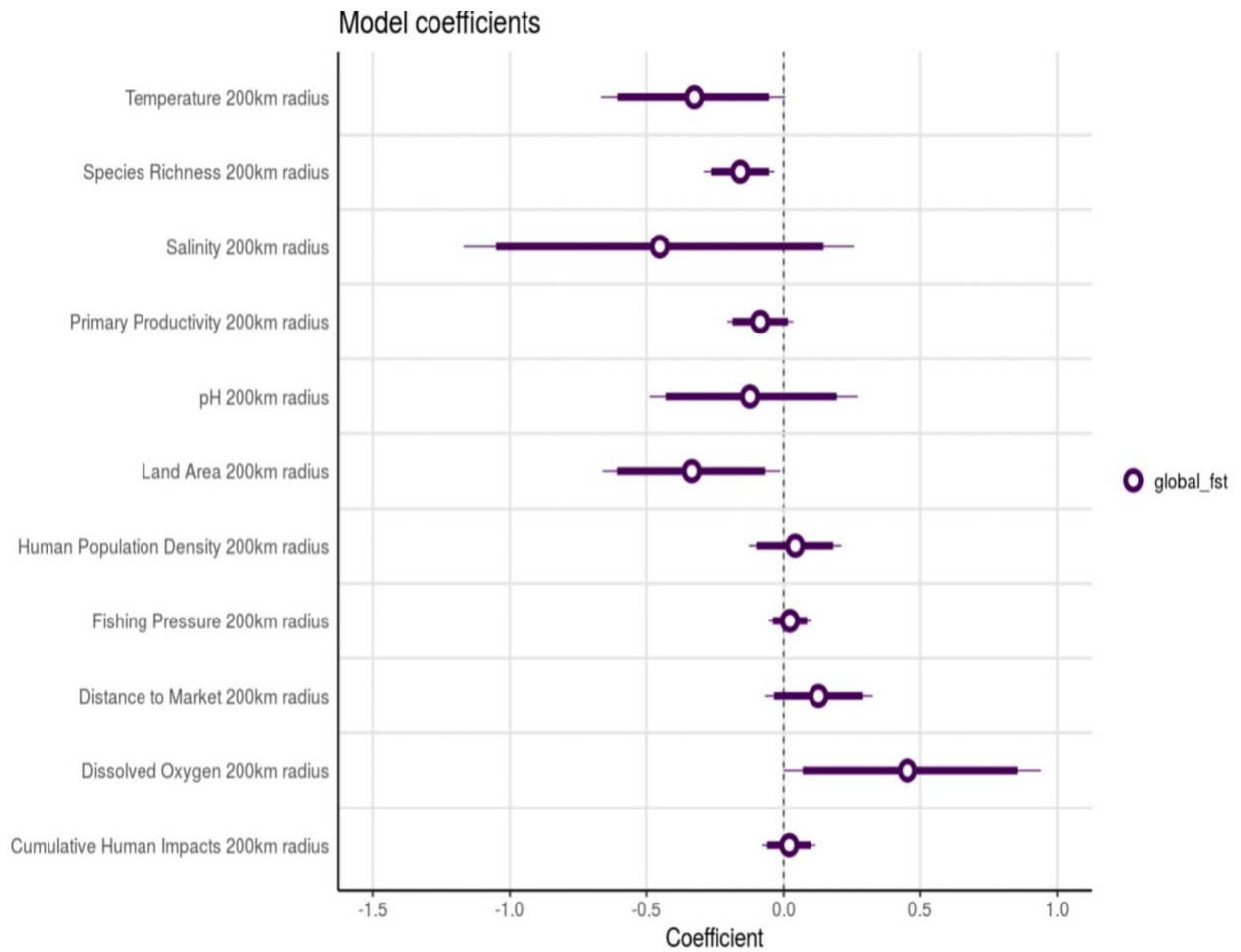
SI.1.29. FST models without priors, 25 km buffer; x axis showing candidate drivers of FST, y axis showing direction of effects. Slopes and intercepts were allowed to vary with species. Open circles are overall parameter estimates, bold lines are 90% credible intervals, and narrow lines are 95% credible intervals.



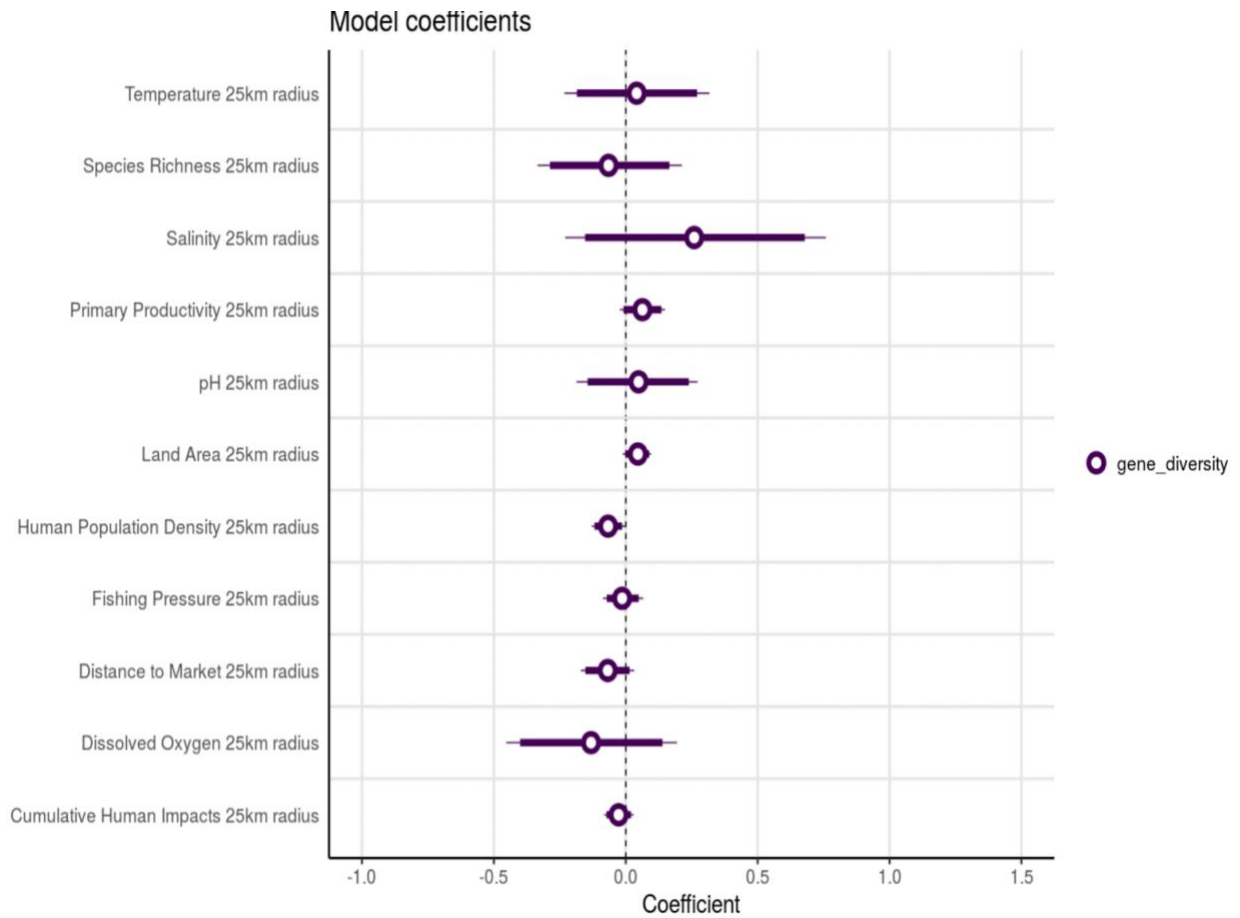
SI.1.30. FST models without priors, 50 km buffer; x axis showing candidate drivers of FST, y axis showing direction of effects. Slopes and intercepts were allowed to vary with species. Open circles are overall parameter estimates, bold lines are 90% credible intervals, and narrow lines are 95% credible intervals.



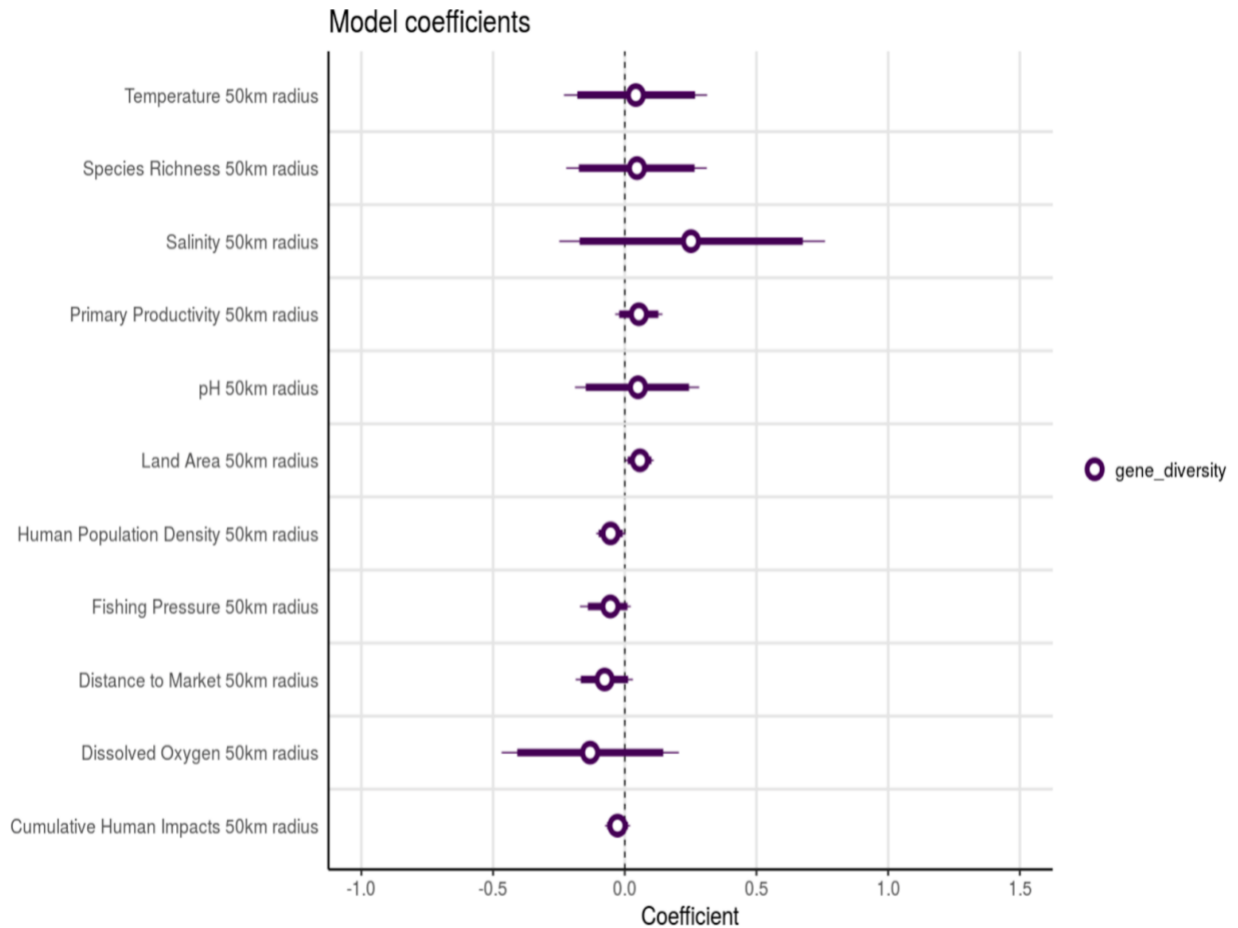
SI.1.31. FST models without priors, 100 km buffer; x axis showing candidate drivers of FST, y axis showing direction of effects. Slopes and intercepts were allowed to vary with species. Open circles are overall parameter estimates, bold lines are 90% credible intervals, and narrow lines are 95% credible intervals.



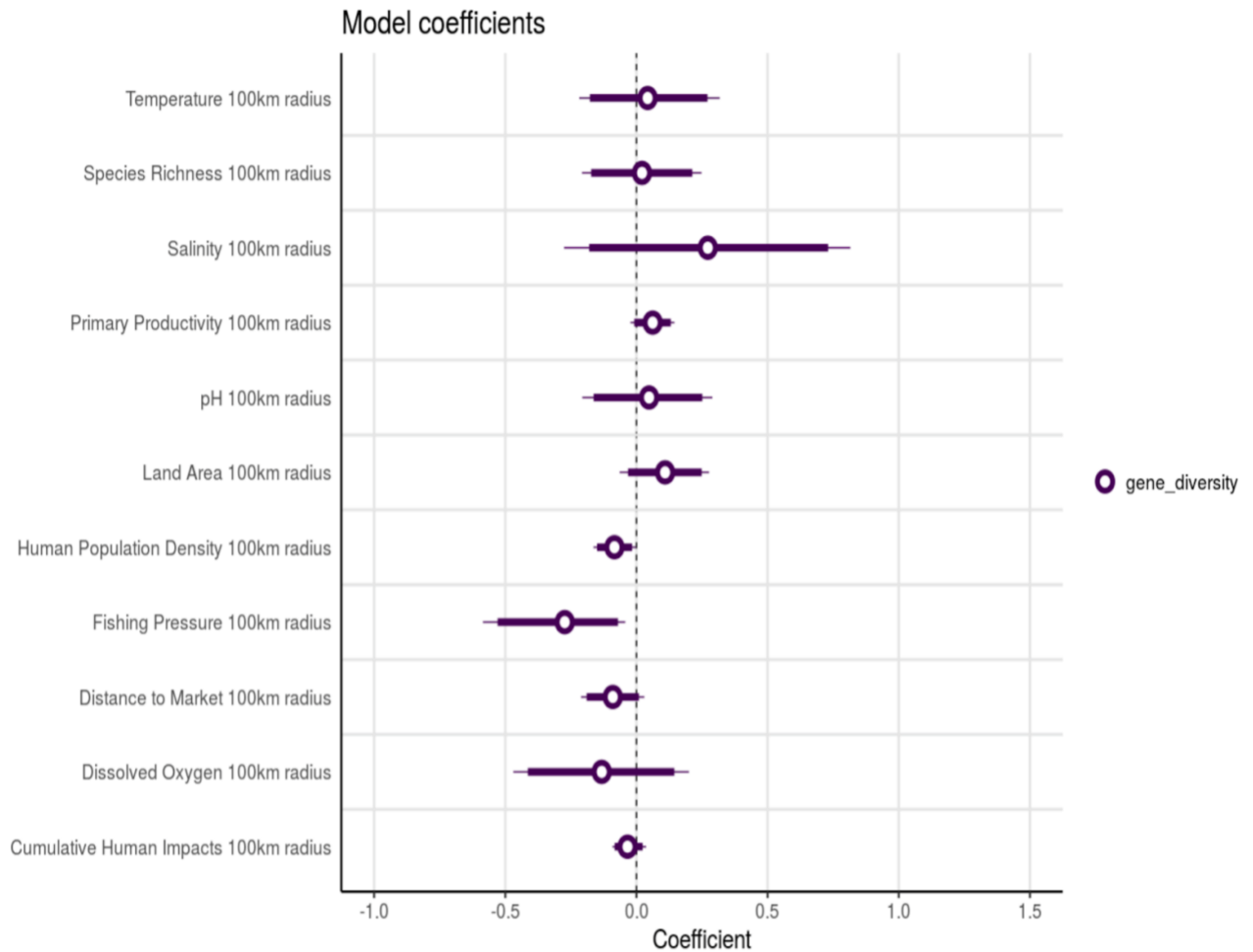
SI.1.32. FST models without priors, 200 km buffer; x axis showing candidate drivers of FST, y axis showing direction of effects. Slopes and intercepts were allowed to vary with species. Open circles are overall parameter estimates, bold lines are 90% credible intervals, and narrow lines are 95% credible intervals.



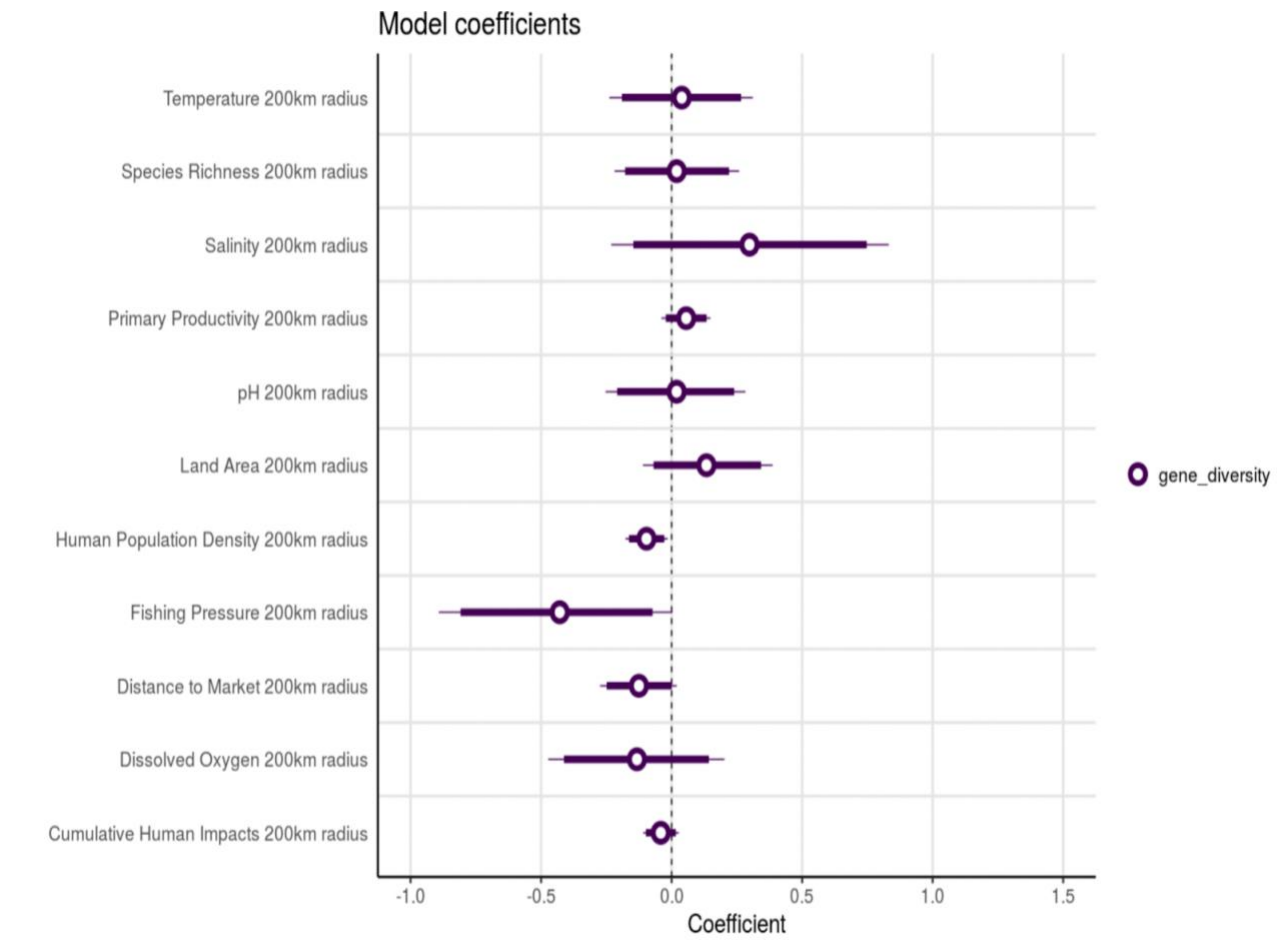
SI.1.33. Gene diversity models without priors, 25 km buffer; x axis showing candidate drivers of gene diversity, y axis showing direction of effects. Slopes and intercepts were allowed to vary with species. Open circles are overall parameter estimates, bold lines are 90% credible intervals, and narrow lines are 95% credible intervals.



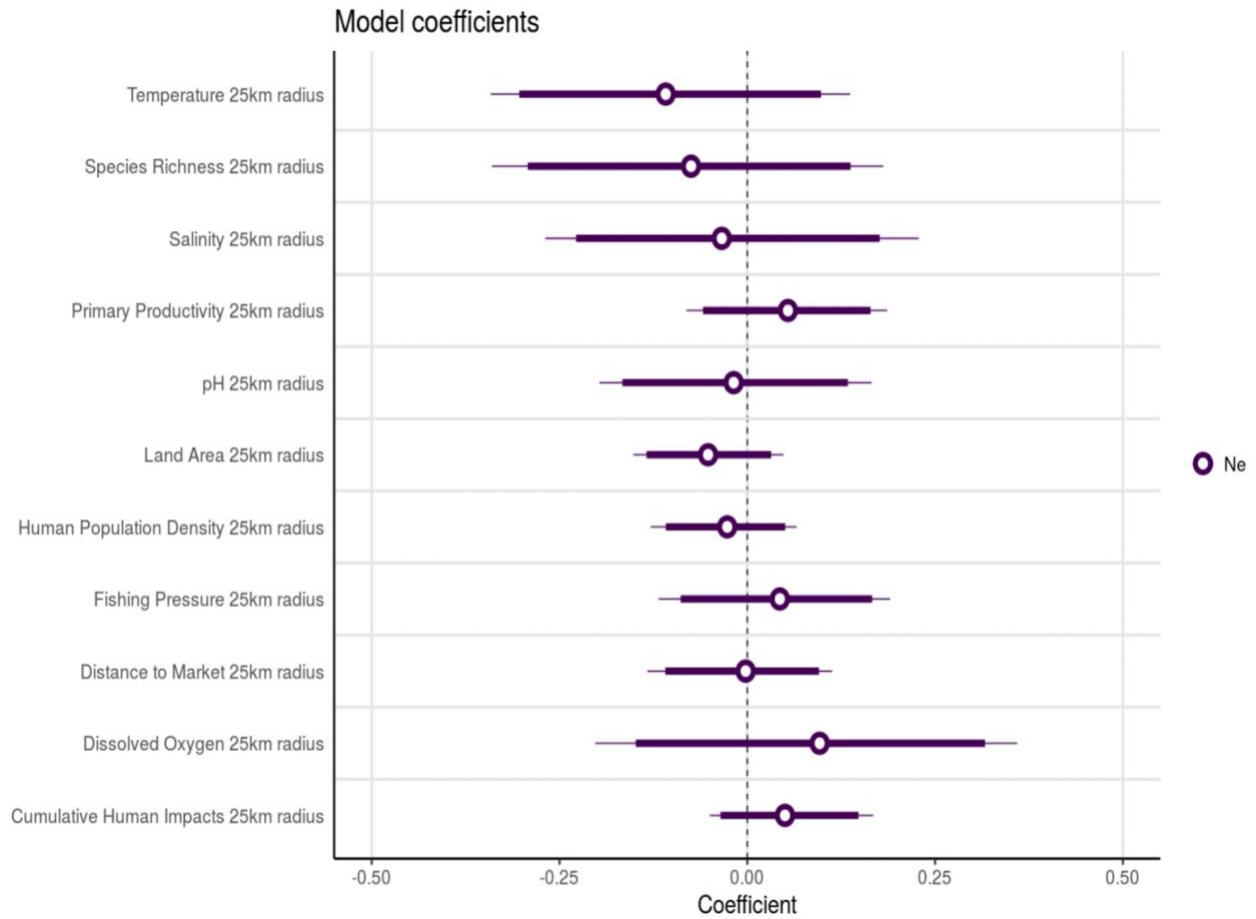
SI.1.34. Gene diversity models without priors, 50 km buffer; x axis showing candidate drivers of gene diversity, y axis showing direction of effects. Slopes and intercepts were allowed to vary with species. Open circles are overall parameter estimates, bold lines are 90% credible intervals, and narrow lines are 95% credible intervals.



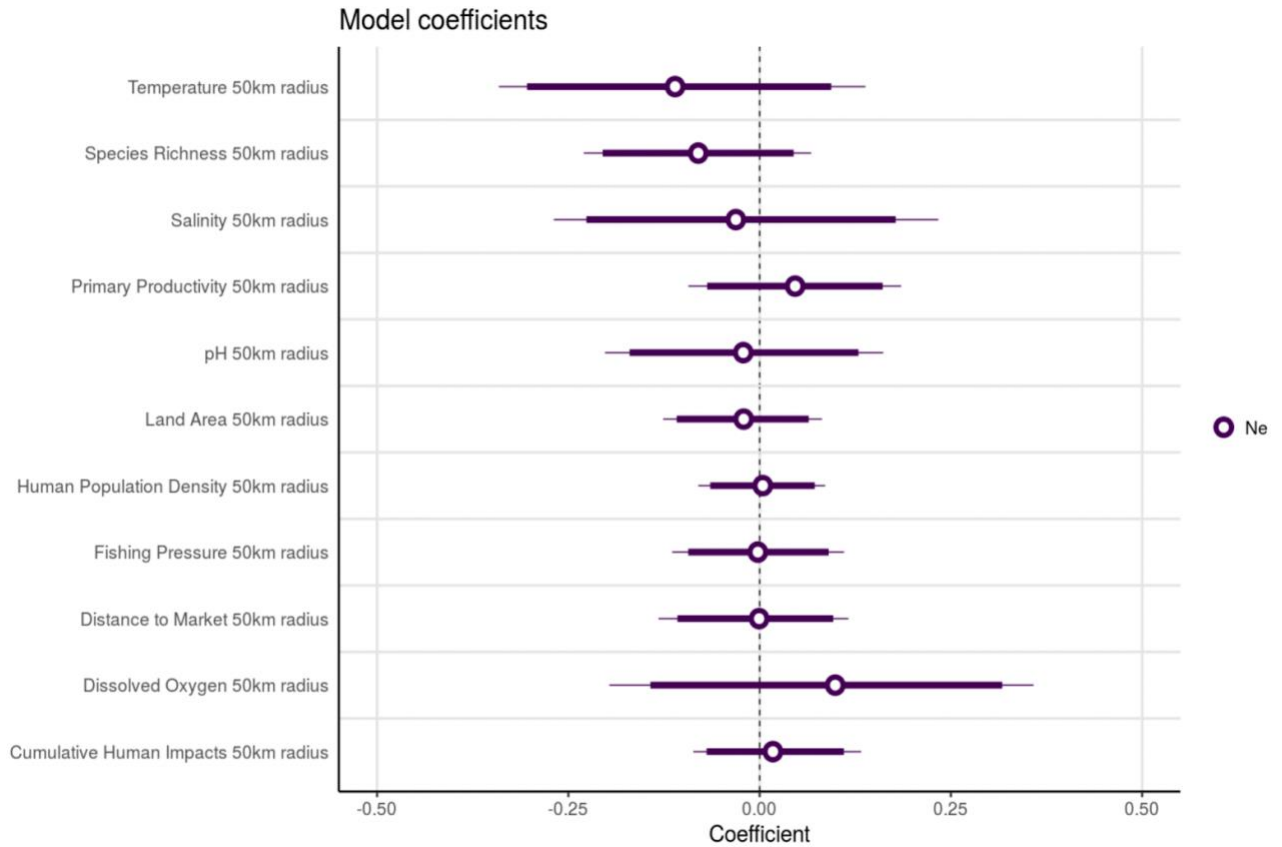
SI.1.35. Gene diversity models without priors, 100 km buffer; x axis showing candidate drivers of gene diversity, y axis showing direction of effects. Slopes and intercepts were allowed to vary with species. Open circles are overall parameter estimates, bold lines are 90% credible intervals, and narrow lines are 95% credible intervals.



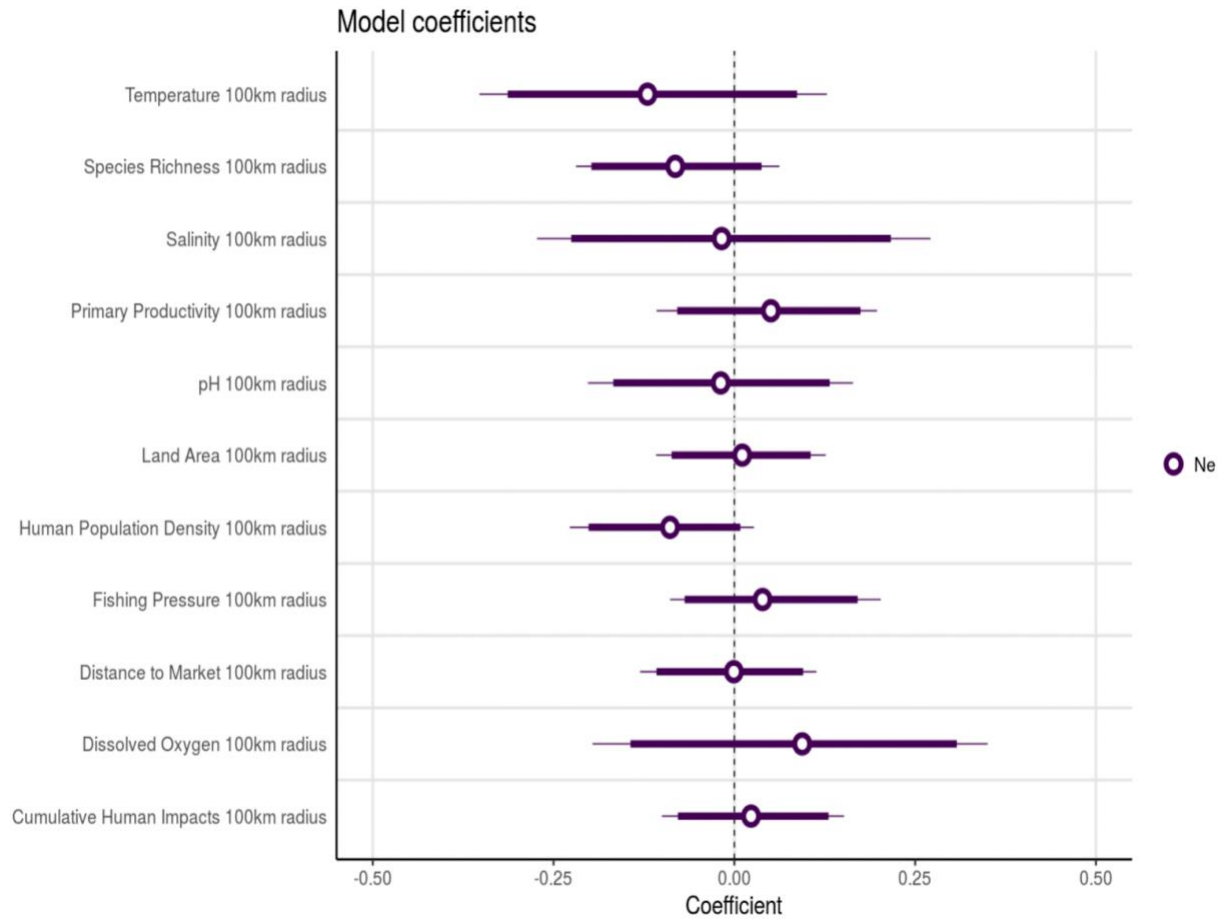
SI.1.36. Gene diversity models without priors, 200 km buffer; x axis showing candidate drivers of gene diversity, y axis showing direction of effects. Slopes and intercepts were allowed to vary with species. Open circles are overall parameter estimates, bold lines are 90% credible intervals, and narrow lines are 95% credible intervals.



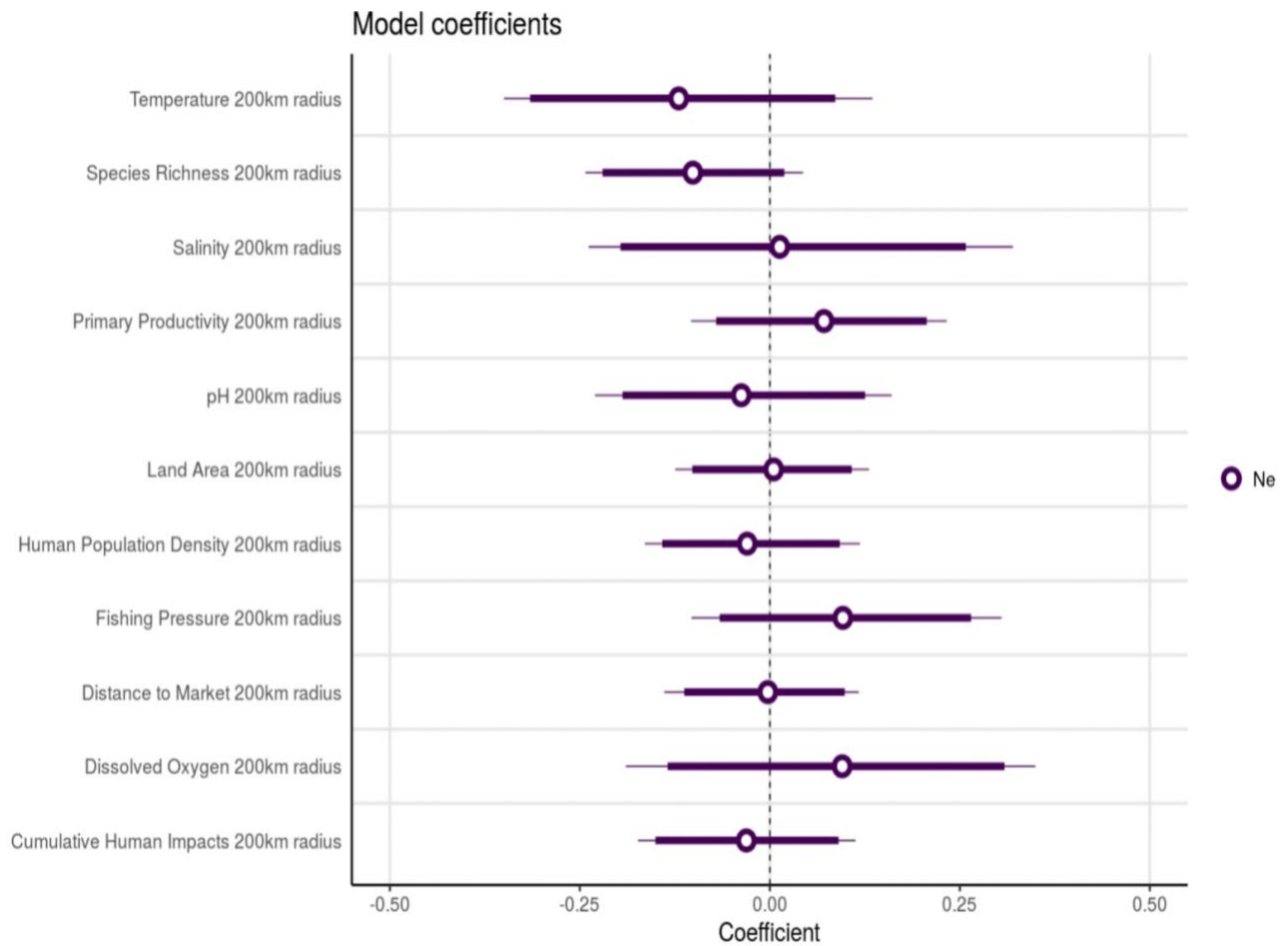
SI.1.37. Effective population size (N_e) models without priors, 25 km buffer; x axis showing candidate drivers of N_e , y axis showing direction of effects. Slopes and intercepts were allowed to vary with species. Open circles are overall parameter estimates, bold lines are 90% credible intervals, and narrow lines are 95% credible intervals.



SI.1.38. Effective population size (N_e) models without priors, 50 km buffer; x axis showing candidate drivers of N_e , y axis showing direction of effects. Slopes and intercepts were allowed to vary with species. Open circles are overall parameter estimates, bold lines are 90% credible intervals, and narrow lines are 95% credible intervals.



SI.1.39. Effective population size (N_e) models without priors, 100 km buffer; x axis showing candidate drivers of N_e , y axis showing direction of effects. Slopes and intercepts were allowed to vary with species. Open circles are overall parameter estimates, bold lines are 90% credible intervals, and narrow lines are 95% credible intervals.



SI.1.40. Effective population size (N_e) models without priors, 200 km buffer; x axis showing candidate drivers of N_e , y axis showing direction of effects. Slopes and intercepts were allowed to vary with species. Open circles are overall parameter estimates, bold lines are 90% credible intervals, and narrow lines are 95% credible intervals.

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