

Supplementary material

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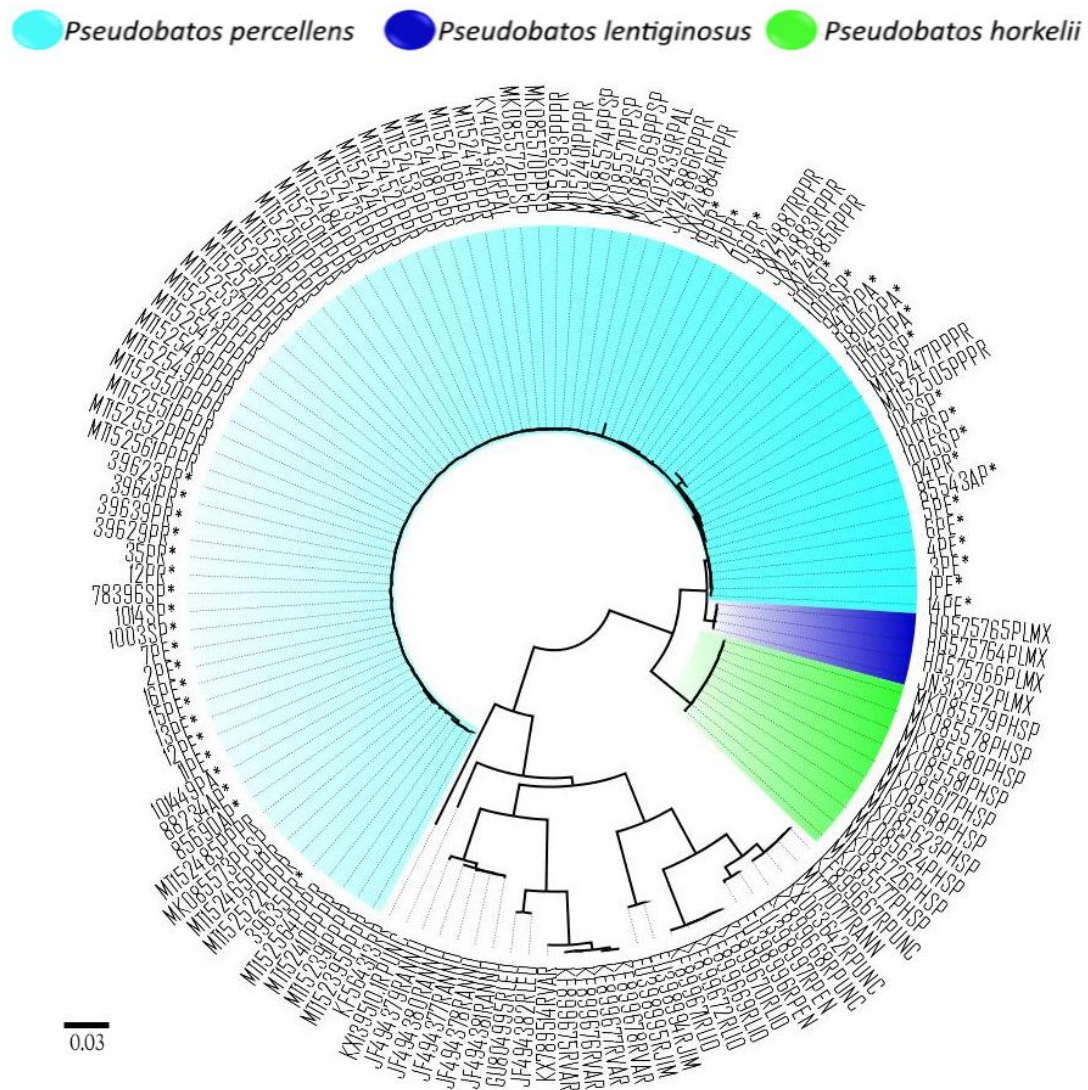


Figure S1. The Maximum Likelihood tree of the *Pseudobatos* and *Rhinobatos* specimens, based on the sequences of the mitochondrial cytochrome c oxidase subunit I gene under the K2P Model. The asterisks* represent the 40 samples sequenced in this study.

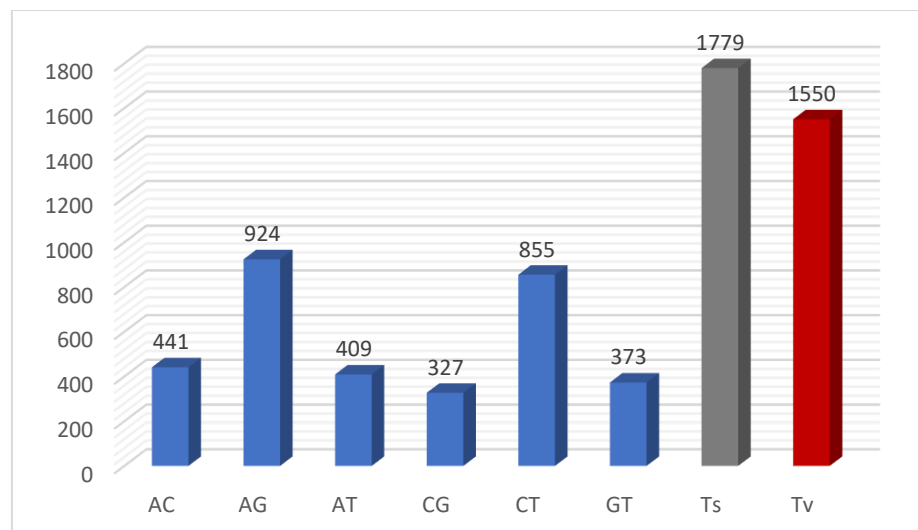


Figure S2. Identification of 3.329 SNPS (in blue), in transitions (in grey) and transversions (in red) characterized in *Pseudobatos percellens*.

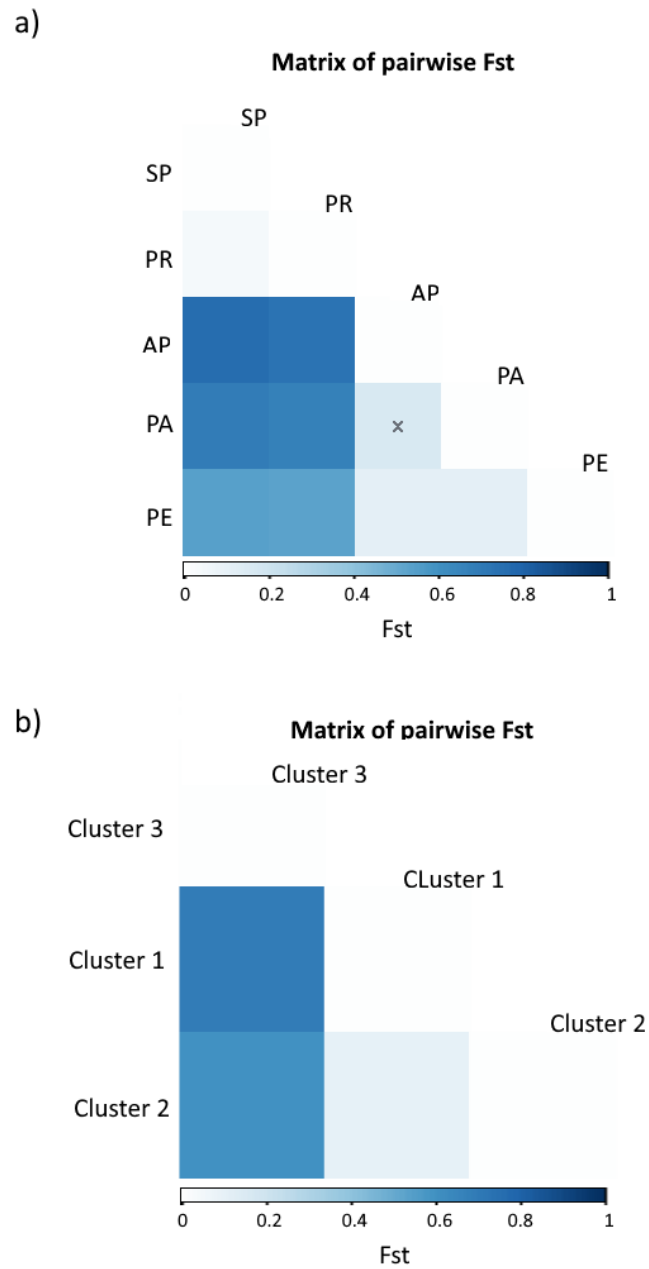


Figure S3. Heatmap depicting pairwise Fst Distance matrices using the dataset of 52 samples of *Pseudobatos percellens* with 3.329 SNPs, between geographical populations (a) and based on cluster (b). P-value not significant >0.05 represented by x. AP, Amapá; PA, Pará; PE, Pernambuco; SP, São Paulo; PR, Paraná.

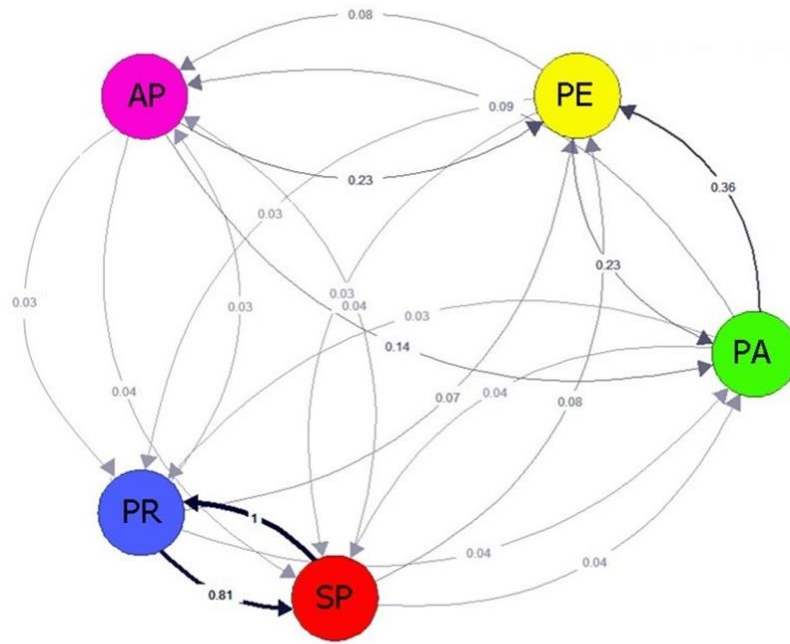


Figure S4. Contemporary gene flow based on number of migrant (N_m), illustrating relationships based on geographic distribution of the *P. percellens* samples. The arrows indicate the direction of migration, while the stronger gene flows are represented by larger numbers, as well as the thicker and the darker colored lines. Fine and clear lines represent limited gene flow with a coefficient < 0.3 . AP, Amapá; PA, Pará; PE, Pernambuco; SP, São Paulo; PR, Paraná.

List of Tables

Table S1. Summary of 52 samples sequencing and processing of *Pseudobatos percellens*. Asterisks* represent samples that were not sequenced in DNA barcode.

	Sample ID	Locality			DNA barcode	NGS Rawdate	Final data set
		City	State of Brazil	Coast region			
1	85543AP	Almeriana	Amapá	North	yes	1.592.634	1.240.322
2	85690AP	Almeriana	Amapá	North	yes	207.416	175.933
3	88234AP	Almeriana	Amapá	North	yes	1.762.517	1.341.711
4	94712PA	Soure	Pará	North	yes	1.834.347	1.503.568
5	94990PA	Soure	Pará	North	*	1.568.179	1.359.066
6	98002PA	Soure	Pará	North	yes	1.789.388	1.581.637
7	101449PA	Soure	Pará	North	yes	1.246.354	924.580
8	101450PA	Soure	Pará	North	yes	1.780.418	1.494.963
9	11PE	Recife	Pernambuco	Northeastern	yes	1.939.233	1.394.922
10	12PE	Recife	Pernambuco	Northeastern	yes	3.044.497	2.538.142
11	13PE	Recife	Pernambuco	Northeastern	yes	1.780.229	1.628.563
12	14PE	Recife	Pernambuco	Northeastern	yes	1.503.580	1.377.005
13	15PE	Recife	Pernambuco	Northeastern	yes	1.664.632	1.580.071
14	16PE	Recife	Pernambuco	Northeastern	yes	1.678.142	1.493.681
15	3PE	Recife	Pernambuco	Northeastern	yes	1.728.967	1.499.587
16	6PE	Recife	Pernambuco	Northeastern	yes	1.722.904	1.555.572
17	1PE	Recife	Pernambuco	Northeastern	yes	1.421.034	1.105.420
18	2PE	Recife	Pernambuco	Northeastern	yes	1.198.502	907.854
19	8PE	Recife	Pernambuco	Northeastern	*	1.358.980	975.245
20	4PE	Recife	Pernambuco	Northeastern	yes	1.324.023	982.652
21	5PE	Recife	Pernambuco	Northeastern	yes	1.221.237	1.012.540
22	7PE	Recife	Pernambuco	Northeastern	yes	1.667.441	1.394.922
23	1001SP	Santos	São Paulo	Southeastern	yes	1.829.515	1.526.873
24	1002	Santos	São Paulo	Southeastern	*	1.333.021	974.521
25	1003SP	Santos	São Paulo	Southeastern	yes	1.362.623	1.098.248
26	1005	Santos	São Paulo	Southeastern	yes	2.081.031	1.845.214
27	1006	Santos	São Paulo	Southeastern	*	1.350.320	1.024.103
28	1007	Santos	São Paulo	Southeastern	yes	1.299.510	992.452
29	1009SP	Santos	São Paulo	Southeastern	yes	1.747.620	1.363.464
30	1010SP	Santos	São Paulo	Southeastern	*	2.406.931	2.168.945
31	1011	Santos	São Paulo	Southeastern	yes	1.458.652	1.203.547
32	1012SP	Santos	São Paulo	Southeastern	yes	1.979.983	1.376.701
33	1014SP	Santos	São Paulo	Southeastern	yes	1.875.725	1.055.045
34	1015SP	Santos	São Paulo	Southeastern	*	1.799.062	1.509.097
35	78396SP	Santos	São Paulo	Southeastern	yes	1.692.726	1.418.166
36	78398SP	Santos	São Paulo	Southeastern	*	1.933.800	1.518.304
37	78412SP	Santos	São Paulo	Southeastern	*	1.632.519	1.432.462
38	39623PR	Pontal do Paraná	Paraná	Southeastern	yes	2.221.370	1.997.624

39	39629PR	Pontal do Paraná	Paraná	Southeastern	yes	2.009.598	1.859.092
40	39635PR	Pontal do Paraná	Paraná	Southeastern	yes	1.922.036	1.697.671
41	39636PR	Pontal do Paraná	Paraná	Southeastern	*	2.088.145	1.776.926
42	39639PR	Pontal do Paraná	Paraná	Southeastern	yes	1.527.188	1.324.798
43	39641PR	Pontal do Paraná	Paraná	Southeastern	yes	2.942.812	2.578.145
44	39648PR	Pontal do Paraná	Paraná	Southeastern	*	2.062.981	1.834.540
45	39642PR	Pontal do Paraná	Paraná	Southeastern	*	1.401.230	1.024.125
46	02PR	Pontal do Paraná	Paraná	Southeastern	*	1.232.281	921.452
47	04PR	Pontal do Paraná	Paraná	Southeastern	yes	1.074.999	852.003
48	06PR	Pontal do Paraná	Paraná	Southeastern	yes	1.311.201	909.852
49	12PR	Pontal do Paraná	Paraná	Southeastern	yes	1.488.771	1.123.050
50	19PR	Pontal do Paraná	Paraná	Southeastern	yes	1.088.741	869.231
51	21PR	Pontal do Paraná	Paraná	Southeastern	yes	1.666.212	1.320.547
52	35PR	Pontal do Paraná	Paraná	Southeastern	yes	1.464.214	1.180.357

Table S2. Genetic distances (Kimura -2- Parameter - K2P) based on COI sequences among *Pseudobatos* and *Rhinabatos* species (below the diagonal) and standard errors (above the diagonal). The numbers in bold represent the intraspecific K2P genetic distances.

	1	2	3	4	5	6	7	8	9	10	11	12
1 <i>Pseudobatos percellens</i>	0.000	0.005	0.010	0.019	0.020	0.019	0.018	0.019	0.020	0.019	0.019	0.019
2 <i>Pseudobatos lentiginosus</i>	0.013	0.000	0.010	0.019	0.020	0.019	0.018	0.019	0.020	0.019	0.019	0.020
3 <i>Pseudobatos horkelii</i>	0.057	0.057	0.000	0.022	0.020	0.019	0.018	0.019	0.020	0.020	0.019	0.019
4 <i>Rhinabatos rhinobatus</i>	0.178	0.176	0.214	-	0.019	0.019	0.018	0.018	0.019	0.019	0.020	0.019
5 <i>Rhinabatos penggali</i>	0.188	0.195	0.189	0.176	0.000	0.015	0.006	0.017	0.015	0.016	0.010	0.005
6 <i>Rhinabatos jimbaranensis</i>	0.163	0.171	0.174	0.168	0.110	0.000	0.013	0.018	0.017	0.017	0.015	0.014
7 <i>Rhinabatos punctifer</i>	0.180	0.185	0.185	0.171	0.039	0.111	0.005	0.015	0.013	0.014	0.010	0.003
8 <i>Rhinabatos variegatus</i>	0.181	0.183	0.196	0.166	0.157	0.161	0.143	0.000	0.010	0.015	0.018	0.016
9 <i>Rhinabatos leucospilus</i>	0.188	0.190	0.188	0.161	0.126	0.138	0.115	0.055	0.000	0.014	0.017	0.014
10 <i>Rhinabatos annulatus</i>	0.174	0.175	0.183	0.159	0.131	0.135	0.118	0.122	0.101	0.000	0.017	0.015
11 <i>Rhinabatos lionotus</i>	0.181	0.191	0.189	0.178	0.063	0.111	0.077	0.169	0.157	0.153	0.000	0.010
12 <i>Rhinabatos annandalei</i>	0.183	0.189	0.183	0.178	0.015	0.108	0.026	0.140	0.112	0.125	0.066	-

Table S3. - Matrix of Pairwise F_{ST} (below diagonal) and p -values (above diagonal divide) among geographical states populations of *Pseudobatos percellens* based on 3.329 SNP data.

	Amapá	Pará	Pernambuco	São Paulo	Paraná
Amapá	-				
Pará	0.160	-			
Pernambuco	0.118	0.112	-		
São Paulo	0.764	0.696	0.544	-	
Paraná	0.730	0.676	0.538	0.043	-