

Supplemental Information for:

Common barriers, but temporal dissonance: genomic tests suggest ecological and paleo-landscape sieves structure a coastal riverine fish community

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Text S1. Taxonomy

The four focal taxa studied here are co-distributed in rivers along the Atlantic coast of Brazil. However, some taxa encompass more than a single, nominal species given taxonomic treatments. For the genus *Mimagoniates*, the monophyly of multiply sampled individuals of *M. microlepis* supports a single species (Camelier, Menezes, Costa-Silva, & Oliveira, 2018). However, a taxonomic review of *Hyphessobrycon boulengeri* proposed a putative new species (Carvalho, 2006) encompassing the populations from the northern area of its distribution in the states of Espírito Santo and Bahia (populations 44-47 in our study); however, no formal description has been made (as of December 2019). For *Hollandichthys*, this genus includes: *H. multifasciatus*, which is distributed in most of the range of this genus and the recently described *H. taramandahy* (Bertaco & Malabarba, 2013) from the southern basins of Maquiné to Araranguá (populations 3-6 in our study). We note however that phylogenetic reconstructions show that *H. taramandahy* is nested within *H. multifasciatus* (Thomaz, Malabarba, Bonatto, & Knowles, 2015). The coastal *Bryconamericus* group (and referred to simply as *Bryconamericus* here) encompass some narrow endemic and allopatric species, including: *B. microcephalus* (most of the distribution), *B. ornaticeps* (population 41 and possibly 40 in our study),

B. tenuis (population 42 in our study) and *B. lethostigmus* (populations 4-6 in our study); species relationships for the complex remain unknown (Pezzi da Silva, 1998; Hirschman, Fagundes, & Malabarba, 2017).

References

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Table S1. Taxa present at each sampled population. Populations are ordered from the southern (1 - Patos) to the northern most population (47 - Caravelas). The number of individuals from each population included in the FASTSIMCOAL analyses for each geographic division (C = Central, S = South, and N = North) are given in parentheses.

	Population	# sp.	M. microlepis	H. boulengeri	Hollandichthys	Bryconamericus
1	Patos	1		X (S 6)		
2	Tramandaí	1		X (S 7)		
3	Maquiné	2	X (C 1; S 5)		X (C 2; S 9)	
4	Três Forquilhas	4	X (C 2; S 5)	X	X (C 1; S 1)	X (C 3; S 3)
5	Mampituba	2	X (C 2; S 5)		X (C 2; S 9)	
6	Araranguá	3	X (C 2; S 4)		X (C 2; S 2)	X (C 3; S 4)
7	D'Una	3	X (C 1)	X (S 1)	X (C 1; S 2)	
8	Cubatão Sul	2	X (C 1; S 4)	X		
9	Florianópolis	2		X (S 6)	X (C 5; S 6)	
10	Biguaçu	1	X (C 1; S 4)			
11	Tijucas	1	X (C 1; S 1)			
12	Itajaí	3	X (C 1; S 2)	X (C 1; S 1)		X (C 4)
13	Itapocu	3		X (C 3; S 3)	X	X (C 3; S 6)
14	São Francisco do Sul	3	X (C 2; S 2)	X (C 4; S 4)	X (C 2; S 4)	
15	Cubatão Norte	2			X (C 1; S 2)	X (C 4; S 6)
16	Saí-Mirim	2	X	X (C 3; S 3)		
17	Saí-Guaçu	1		X (C 3; S 3)		
18	Guaratuba	4	X (C 2; S 2)	X (C 3; S 3)	X (C 2; S 2)	X (C 3; S 6)
19	Guaraguaçu	1	X			
20	Iguaçu	2	X (C 1)	X (C 3; S 3)		
21	Paranapanema	1	X (C 1; S 3)			
22	Paranaguá	4	X (C 2; S 2)	X (C 3; N 3)	X (C 2; S 4)	X
23	Guaraqueçaba	2	X (C 2; N 2)		X (C 2)	
24	Ribeira de Iguape	4	X (C 2; N 1)	X (C 4; N 4)	X (C 2)	X (C 4)
25	Guarau	2	X (C 2; N 2)		X (C 1)	
26	Itanhaém	2	X (C 1; N 2)	X (C 5; N 5)		
27	Santos	2	X (C 2; N 2)		X (C 2)	
28	Upper Tietê	2		X (C 4; N 4)	X (C 1)	
29	Bertioga	3	X (C 2; N 4)	X (C 4; N 4)	X (C 2)	
30	Juquehy	1			X (C 1)	
31	Boiçucanga	1			X (C 1)	
32	Ilhabela	1			X (C 2)	
33	Ubatuba	1	X (C 1; N 1)		X (C 1)	
34	Picinguaba	1	X (C 2; N 1)		X (C 1)	
35	Toca do Boi	1			X (C 2)	
36	Pereque-Açu	1				X (C 4)
37	Taquari	1				X (C 4)
38	Tarituba	1			X (C 2)	
39	Jaceruba	1	X (N 2)			
40	Guapimirim	3	X (C 1)	X		X (C 2)
41	Macacu	2	X			X (C 3)
42	São João	1				X (C 3)
43	Paraíba do Sul	1	X (C 1; N 2)			
44	Barra do Riacho	2	X (C 1; N 4)	X (N 7)		
45	Barra Seca	2	X (C 1; N 4)	X		
46	Itaunas	2	X (C 1; N 4)	X (N 9)		
47	Caravelas	2	X (C 1; N 4)	X		

Table S2. Sampling and genomic sequences pre- and post-processing in STACKS for each individual of (a) *M. microlepis*, (B) *H. boulengeri*, (c) *Hollandichthys* and (d) *Bryconamericus*. Populations are organized from the southern to the northern most population. An asterisk (*) marks individuals removed from the analysis because of poor sequence quality or large amounts of missing loci.

(a) *M. microlepis*

Population	Voucher	Longitude	Latitude	Raw read count	Retained reads	Mean coverage (SD)
Maquiné	UFRGS 20507/TEC 5765F	-50.20956	-29.65217	2859537	2825580	76.5 (±218.6)
Maquiné	UFRGS 20508/TEC 5766C	-50.28592	-29.56717	2995427	2958723	63.1 (±249)
Maquiné	UFRGS 20508/TEC 5766F	-50.28592	-29.56717	2910662	2880899	68.5 (±247)
Maquiné	UFRGS 20509/TEC 5767C	-50.24617	-29.53839	3219550	3179406	59.1 (±188)
Maquiné	UFRGS 20509/TEC 5767D	-50.24617	-29.53839	2842865	2816537	66.1 (±166.2)
Três Forquilhas	UFRGS 16544/TEC 2877C	-50.12278	-29.45500	2697645	2656104	59 (±185.6)
Três Forquilhas	UFRGS 20511/TEC 5769H	-50.11389	-29.53925	2670490	2641787	54.9 (±172.5)
Três Forquilhas	UFRGS 20514/TEC 5772C	-50.09222	-29.51208	2357245	2317969	47.7 (±142.9)
Três Forquilhas	UFRGS 20514/TEC 5772E	-50.09222	-29.51208	2549843	2519964	56 (±243.7)
Três Forquilhas	UFRGS 20514/TEC 5772F	-50.09222	-29.51208	2470543	2444984	53.9 (±167.2)
Mampituba	UFRGS 20518/TEC 5776D	-49.93492	-29.31067	2173708	2146723	58.2 (±283.8)
Mampituba	UFRGS 20518/TEC 5776E	-49.93492	-29.31067	2152717	2130222	55.3 (±163.4)
Mampituba	UFRGS 20520/TEC 5778E	-50.01664	-29.23361	1976335	1957299	54.7 (±161.6)
Mampituba	UFRGS 20520/TEC 5778G	-50.01664	-29.23361	3283563	3254724	75.8 (±457.8)
Mampituba	UFRGS 20522/TEC 5780D	-49.81936	-29.07864	1898043	1873146	48.5 (±170.2)
Ararangua	UFRGS 16613/TEC 2941A	-49.26544	-28.84219	2032225	1973088	42.8 (±150)
Ararangua	UFRGS 16613/TEC 2941B	-49.26544	-28.84219	2730519	2698593	57.8 (±198.5)
Ararangua	UFRGS 20521/TEC 5779A	-49.77783	-28.99994	3274240	3240545	64.6 (±215.7)
Ararangua	UFRGS 20521/TEC 5779B	-49.77783	-28.99994	2564370	2539369	60.7 (±247.2)
D'Una	MCP 28743/A	-48.78861	-28.19972	1433083	1411758	44.6 (±90.1)
D'Una	MCP 28743/B	-48.78861	-28.19972	1408790	1391503	45 (±91.8)
D'Una	UFRGS 20500/TEC 5758A	-48.76217	-28.20914	700228	691552	23.7 (±89.4)
D'Una	UFRGS 20500/TEC 5758B	-48.76217	-28.20914	372905	366915	14.8 (±64)
Cubatão Sul	UFRGS 20444/TEC 5703A	-48.72703	-27.69833	985484	969321	30 (±86.5)
Cubatão Sul	UFRGS 20444/TEC 5703B	-48.72703	-27.69833	1264009	1253165	38.1 (±124.9)
Cubatão Sul	UFRGS 20444/TEC 5703C	-48.72703	-27.69833	1266391	1251242	38.4 (±127.7)
Cubatão Sul	UFRGS 20444/TEC 5703D	-48.72703	-27.69833	1077564	1063978	35 (±122.1)
Biguaçu	UFRGS 20451/TEC 5709A	-48.78250	-27.49544	726571	714905	25.1 (±65.2)
Biguaçu	UFRGS 20451/TEC 5709B	-48.78250	-27.49544	1535032	1515730	41.4 (±107.4)
Biguaçu	UFRGS 20453/TEC 5711A	-48.78639	-27.49250	2002923	1980246	52.7 (±180)
Biguaçu	UFRGS 20453/TEC 5711B	-48.78639	-27.49250	1748684	1726628	46.6 (±154.1)
Tijucas	UFRGS 20456/TEC 5714	-48.72239	-27.28267	1883904	1859687	57.9 (±163.5)
Tijucas	UFRGS 20457/TEC 5715	-48.98083	-27.43361	450039	442053	16.9 (±44.4)
Tijucas	UFRGS 20458/TEC 5716	-48.97417	-27.29444	1488172	1470200	42 (±137.2)
Tijucas	UFRGS 18498/TEC 3879	-48.82083	-27.26667	1155380	1138042	34.2 (±188.8)
Itajaí	UFRGS 18598/TEC 3891	-48.94769	-27.19461	2059760	2035570	46.9 (±149.9)
Itajaí*	UFRGS 20464/TEC 5722	-48.71486	-26.99508	2342550	1230770	33.9 (±68.1)
Itajaí	UFRGS 18601/TEC 3894A	-48.71444	-27.00694	1315012	1277632	33.5 (±176.4)
Itajaí	UFRGS 18601/TEC 3894B	-48.71444	-27.00694	2708215	2675608	55.3 (±155.2)
São Francisco do Sul	MCP 31800/A	-48.65111	-26.32667	1518743	1500492	42.5 (±65.8)
São Francisco do Sul	MCP 31800/B	-48.65111	-26.32667	1341107	1323749	40 (±64)
São Francisco do Sul	UFRGS 10697/TEC 134	-48.58917	-26.29306	1948766	1904294	46.3 (±104.7)
Saí-Mirim	UFRGS 20473/TEC 5731A	-48.63267	-26.08328	1320046	1304121	28.6 (±62)
Saí-Mirim	UFRGS 20473/TEC 5731B	-48.63267	-26.08328	2375129	2341127	50.8 (±124.8)
Guaratuba	UFRGS 14580/TEC 476A	-48.70000	-25.95944	2452671	2425735	68.6 (±123.1)
Guaratuba	UFRGS 14580/TEC 476B	-48.70000	-25.95944	1606961	1585520	51.7 (±83.8)

Guaratuba	UFRGS 18638/TEC 3944	-48.83589	-25.97833	2391122	2363516	47.5 (±115.3)
Guaratuba	UFRGS 18650/TEC 3956	-48.83472	-25.97472	2422777	2389807	56.8 (±326.9)
Guaraguaçu	UFRGS 18592/TEC 3874	-48.59361	-25.72639	1849381	1827440	59.8 (±152.0)
Guaraguaçu	UFRGS 18506/TEC 3968	-48.59028	-25.73917	3230690	3197946	35.4 (±61.8)
Iguaçu*	UFRGS 12859/TEC 1569	-49.79194	-25.69944	120845	99782	7.1 (±13.2)
Iguaçu	UFRGS 12872/TEC 1582	-49.77139	-25.72361	1504811	1484685	45.5 (±72.5)
Iguaçu*	UFRGS 12874/TEC 1584	-50.07333	-26.33722	4895	3371	7.3 (±5)
Iguaçu	UFRGS 12878/TEC 1588	-49.88639	-25.54389	1167724	1151084	32 (±98.6)
Paranapanema	UFRGS 12862/TEC 1572A	-50.38639	-25.07333	880308	872109	26.4 (±45.4)
Paranapanema	UFRGS 12862/TEC 1572B	-50.38639	-25.07333	1308867	1282801	32.7 (±76.2)
Paranapanema	UFRGS 12862/TEC 1572C	-50.38639	-25.07333	1434937	1414982	36 (±72.9)
Paranaguá	UFRGS 18663/TEC 3979	-48.83472	-25.45806	1541078	1523201	35.4 (±61.8)
Paranaguá*	MCP 31816	-48.77472	-25.34139	1377439	1361490	38.7 (±63.1)
Paranaguá	MCP 31813	-48.87472	-25.42222	1925707	1895774	42.3 (±94.6)
Paranaguá	UFRGS 14708/TEC 780	-48.74503	-25.30958	1564502	1539504	36.4 (±56)
Guaraqueçaba	UFRGS 14698/TEC 757A	-48.45008	-25.22019	1746477	1730928	50.4 (±113.7)
Guaraqueçaba	UFRGS 14698/TEC 757B	-48.45008	-25.22019	1909453	1888327	50.6 (±131.1)
Guaraqueçaba	UFRGS 14702/TEC 767A	-48.40778	-25.18111	2077321	2051600	44.6 (±68.5)
Guaraqueçaba	UFRGS 14702/TEC 767B	-48.40778	-25.18111	2179690	1387017	32.8 (±49.6)
Ribeira de Iguape	MCP 31804	-48.61083	-24.60306	1363858	813391	22.5 (±46)
Ribeira de Iguape	UFRGS 18680/TEC 4320	-48.29333	-24.64306	1939279	1917803	43.9 (±108.9)
Ribeira de Iguape	MCP 31836	-48.09639	-24.54861	1239882	1225970	34.1 (±116.2)
Ribeira de Iguape	UFRGS 20481/TEC 5739	-47.89050	-24.69406	2187236	2153954	54.1 (±212.5)
Ribeira de Iguape	UFRGS 12422/TEC 807	-47.42639	-24.66139	3036692	3005245	62.6 (±291.2)
Ribeira de Iguape	UFRGS 18681/TEC 4324	-47.85361	-24.31611	1011939	997781	25.4 (±46.9)
Ribeira de Iguape	UFRGS 20483/TEC 5741	-47.62014	-24.25333	1762463	1738957	39.7 (±72.1)
Ribeira de Iguape	UFRGS 20485/TEC 5743	-47.61583	-24.33361	1993479	1969625	49.3 (±162.4)
Guarau	UFRGS 18716/TEC 4366A	-47.06722	-24.37472	2263364	2237431	51.3 (±120.7)
Guarau	UFRGS 18716/TEC 4366B	-47.06722	-24.37472	1799823	1780539	45.9 (±104.2)
Itanhaém	UFRGS 18711/TEC 4361	-46.99111	-24.24167	1045456	1031341	27.4 (±57.9)
Itanhaém	UFRGS 18703/TEC 4353	-47.00500	-24.18333	1272908	1252251	31.5 (±59.1)
Itanhaém	UFRGS 20490/TEC 5748	-46.72389	-24.11036	2657668	2623908	57.8 (±173)
Santos	MCP 31806/A	-46.33528	-23.85139	1276996	1253657	30 (±71.6)
Santos	MCP 31806/B	-46.33528	-23.85139	953269	935027	30.1 (±60)
Santos	UFRGS 20492/TEC 5750A	-46.19472	-23.88000	1487001	1465111	36.7 (±65.1)
Santos	UFRGS 20492/TEC 5750B	-46.19472	-23.88000	1101112	1073421	28.4 (±45.6)
Bertioga	UFRGS 20494/TEC 5752A	-45.81733	-23.74300	1518547	1497150	36.2 (±125.4)
Bertioga	UFRGS 20494/TEC 5752B	-45.81733	-23.74300	1743256	1724231	39.5 (±64.5)
Bertioga	UFRGS 20494/TEC 5752C	-45.81733	-23.74300	2199766	2172383	46.1 (±72.2)
Bertioga	UFRGS 20494/TEC 5752D	-45.81733	-23.74300	1277157	1264328	30.7 (±46.9)
Ubatuba	UFRGS 18770/TEC 4412A	-45.11333	-23.41333	1664401	1645904	39.1 (±84.3)
Ubatuba	UFRGS 18770/TEC 4412B	-45.11333	-23.41333	559203	550934	51.9 (±140)
Ubatuba	UFRGS 14770/TEC 862A	-45.05917	-23.40917	1379008	1343594	38.7 (±74.4)
Ubatuba	UFRGS 14770/TEC 862B	-45.05917	-23.40917	2524168	2489353	17.2 (±28.7)
Picinguaba	UFRGS 18776/TEC 4418	-44.88056	-23.31250	909183	899293	25.6 (±45.2)
Picinguaba*	UFRGS 12895/TEC 902	-44.87000	-23.35000	1681322	1665167	53.4 (±231.3)
Picinguaba	UFRGS 14775/TEC 869	-44.85333	-23.35222	2276504	2249902	50.6 (±111.2)
Picinguaba	UFRGS 18779/TEC 4421	-44.85122	-23.35014	844079	823133	24 (±34.4)
Jaceruba	UFRGS 18808/TEC 4444	-43.56889	-22.60889	980957	961999	25.4 (±44.8)
Guapimirim	UFRGS 18850/TEC 4480	-42.89861	-22.51778	1288668	1276028	31.7 (±48.9)
Macacu	UFRGS 18833/TEC 4464	-42.64850	-22.45106	639440	632018	18.4 (±28.7)
Macacu	UFRGS 18846/TEC 4476	-42.65722	-22.47889	1709758	1687195	39.3 (±65.2)
Paraíba do Sul	UFRGS 18818/TEC 4453A	-42.86997	-22.30334	1121087	1107832	30.9 (±56.7)
Paraíba do Sul	UFRGS 18818/TEC 4453B	-42.86997	-22.30334	946412	929782	26.9 (±54.3)
Paraíba do Sul	UFRGS 18818/TEC 4453C	-42.86997	-22.30334	1649489	1621937	34.6 (±71.1)

Paraíba do Sul	UFRGS 18818/TEC 4453D	-42.86997	-22.30334	559019	548959	18 (±32.3)
Barra do Riacho	UFRGS 18968/TEC 4575A	-40.16550	-19.78003	1752270	1730773	47 (±76)
Barra do Riacho	UFRGS 18968/TEC 4575B	-40.16550	-19.78003	1254498	1228029	32 (±50.7)
Barra do Riacho	UFRGS 18968/TEC 4575C	-40.16550	-19.78003	1926531	1897578	47 (±80.4)
Barra do Riacho	UFRGS 18968/TEC 4575D	-40.16550	-19.78003	1805245	1786162	46.5 (±79.4)
Barra Seca	UFRGS 14813/TEC 926A	-39.84083	-18.93694	1626063	1600532	45.9 (±86.8)
Barra Seca	UFRGS 14813/TEC 926B	-39.84083	-18.93694	1624248	1606357	46.2 (±89)
Barra Seca	UFRGS 11102/TEC 931A	-39.89806	-18.89750	1982433	1959121	46.5 (±88.4)
Barra Seca	UFRGS 11102/TEC 931B	-39.89806	-18.89750	1319481	1294005	35.2 (±62.7)
Itaunas	UFRGS 19022/TEC 4622A	-39.79444	-18.29639	1089820	1075159	31.3 (±53.8)
Itaunas	UFRGS 19022/TEC 4622B	-39.79444	-18.29639	1817530	1796595	44.2 (±90.3)
Itaunas	UFRGS 19028/TEC 4626A	-39.91917	-18.30778	1163679	1144700	34.7 (±60.8)
Itaunas	UFRGS 19028/TEC 4626B	-39.91917	-18.30778	1846484	1823780	47.6 (±80.8)
Caravelas	UFRGS 14823/TEC 941A	-39.44833	-17.67889	2226359	2200474	54.9 (±110)
Caravelas	UFRGS 14823/TEC 941B	-39.44833	-17.67889	1661928	1639185	39.7 (±70.7)
Caravelas	UFRGS 14823/TEC 941C	-39.44833	-17.67889	1333590	1319162	36.5 (±63.3)
Caravelas	UFRGS 14823/TEC 941D	-39.44833	-17.67889	2545746	2499483	54.3 (±107.5)

(b) *H. Boulengeri*

Population	Voucher	Longitude	Latitude	Raw read count	Retained reads	Mean coverage (SD)
Patos	UFRGS 12518/TEC 1336A	-51.295556	-31.603333	1847673	1788023	42 (±41.3)
Patos	UFRGS 12518/TEC 1336B	-51.295556	-31.603333	1277945	1238633	34.2 (±33.1)
Patos	UFRGS 12518/TEC 1336C	-51.295556	-31.603333	3683342	3527546	64.2 (±86.7)
Patos	UFRGS 12527/TEC 1345A	-52.133056	-31.382500	1165996	1131511	31 (±29.4)
Patos	UFRGS 12527/TEC 1345B	-52.133056	-31.382500	3261960	3193781	57.8 (±70.6)
Patos	UFRGS 12527/TEC 1345C	-52.133056	-31.382500	2673491	2625853	57.4 (±67)
Patos	UFRGS 12528/TEC 1346A	-51.513889	-30.556389	1584103	1538907	36.8 (±39.6)
Patos	UFRGS 12528/TEC 1346B	-51.513889	-30.556389	2987324	2928618	42.7 (±60.3)
Patos	UFRGS 15546/TEC 1950A	-50.849889	-30.095694	1082592	1044864	28.9 (±25)
Patos	UFRGS 15546/TEC 1950B	-50.849889	-30.095694	1068606	1036985	30.5 (±29.1)
Patos	UFRGS 15546/TEC 1950C	-50.849889	-30.095694	1389194	1358850	35.1 (±35)
Patos	UFRGS 15546/TEC 1950D	-50.849889	-30.095694	1848274	1810718	47.8 (±52.2)
Patos	UFRGS 12454/TEC 698	-52.536333	-30.211944	1918460	1852380	42.7 (±46.3)
Tramandaí	UFRGS 19203/TEC 4898	-50.442494	-30.535433	886449	857102	25.3 (±21.4)
Tramandaí	UFRGS 19201/TEC 4896A	-50.294433	-30.213375	1525371	1475527	35.1 (±37.9)
Tramandaí	UFRGS 19201/TEC 4896B	-50.294433	-30.213375	1364819	1321166	34.4 (±36.3)
Tramandaí	UFRGS 19201/TEC 4896C	-50.294433	-30.213375	1895721	1833593	40.7 (±49.8)
Tramandaí	UFRGS 19201/TEC 4896D	-50.294433	-30.213375	558082	547335	19.8 (±18)
Tramandaí	UFRGS 19201/TEC 4896E	-50.294433	-30.213375	3426471	3339351	65.4 (±88.4)
Tramandaí	UFRGS 19201/TEC 4896F	-50.294433	-30.213375	1470285	1437608	39.7 (±44.2)
Três Forquilhas	UFRGS 19131/TEC 4850A	-49.968041	-29.613938	1833999	1772018	39.6 (±45.9)
Três Forquilhas	UFRGS 19131/TEC 4850B	-49.968041	-29.613938	1287638	1261596	33.9 (±37.9)
Três Forquilhas	UFRGS 19131/TEC 4850C	-49.968041	-29.613938	2382929	2333741	53.4 (±71.9)
D'Una	MCP 28748	-48.679167	-28.080833	1195766	1158358	32 (±29.6)
Cubatão Sul	UFRGS 20443/TEC 5702	-48.727028	-27.698333	1907120	1879187	18.5 (±25.9)
Florianópolis	UFRGS 20498/TEC 5756A	-48.518750	-27.685250	1240256	1197094	33.4 (±32.6)
Florianópolis	UFRGS 20498/TEC 5756B	-48.518750	-27.685250	542035	522700	18.2 (±13.8)
Florianópolis	UFRGS 20498/TEC 5756C	-48.518750	-27.685250	567089	548360	19.4 (±15.8)
Florianópolis	UFRGS 20498/TEC 5756D	-48.518750	-27.685250	644879	624246	21.2 (±17.5)
Florianópolis	UFRGS 20498/TEC 5756E	-48.518750	-27.685250	1970387	1935240	54.2 (±57.3)
Florianópolis	UFRGS 20498/TEC 5756F	-48.518750	-27.685250	1842212	1803438	48.5 (±51.8)
Florianópolis	UFRGS 20498/TEC 5756G	-48.518750	-27.685250	1210673	1184078	38.7 (±37.9)
Florianópolis	UFRGS 20498/TEC 5756H	-48.518750	-27.685250	2147120	2104987	55.8 (±63)

Itajaí	UFRGS 18609/TEC 3902	-48.714444	-27.006944	690013	667119	20.3 (±15.1)
Itapocu	UFRGS 18616/TEC 3909A	-48.848611	-26.443056	880315	853196	23.9 (±20.9)
Itapocu	UFRGS 18616/TEC 3909B	-48.848611	-26.443056	957989	929415	25.1 (±22)
Itapocu	UFRGS 18616/TEC 3909C	-48.848611	-26.443056	1116077	1073124	28 (±23.9)
Itapocu	UFRGS 18616/TEC 3909D	-48.848611	-26.443056	747371	723963	20.8 (±16.7)
Itapocu	UFRGS 18616/TEC 3909E	-48.848611	-26.443056	1065569	1042031	27.4 (±24.6)
Itapocu	UFRGS 18616/TEC 3909F	-48.848611	-26.443056	802157	783185	23.6 (±18.3)
Itapocu	UFRGS 18616/TEC 3909G	-48.848611	-26.443056	1380793	1356729	38 (±33.6)
Itapocu	UFRGS 18616/TEC 3909H	-48.848611	-26.443056	830935	812535	24.4 (±19.9)
Itapocu	UFRGS 18613/TEC 3906A	-48.726500	-26.383139	907116	882078	24 (±20.5)
Itapocu	UFRGS 18613/TEC 3906B	-48.726500	-26.383139	423667	415579	15.3 (±10.7)
Sao Francisco do Sul	UFRGS 10571/TEC 0126A	-48.589167	-26.293056	890002	864059	25.3 (±19.9)
Sao Francisco do Sul	UFRGS 10571/TEC 0126B	-48.589167	-26.293056	1349021	1305196	32.2 (±28.5)
Sao Francisco do Sul	UFRGS 10571/TEC 0126C	-48.589167	-26.293056	989664	973667	28.6 (±24.6)
Sao Francisco do Sul	UFRGS 10571/TEC 0126D	-48.589167	-26.293056	3678677	3625315	76.4 (±95)
Sao Francisco do Sul	UFRGS 10563/TEC 0120A	-48.588611	-26.286667	1232286	1195594	31 (±28.5)
Sao Francisco do Sul	UFRGS 10563/TEC 0120B	-48.588611	-26.286667	1156274	1120625	30.3 (±25.8)
Sao Francisco do Sul	UFRGS 10563/TEC 0120C	-48.588611	-26.286667	2060354	2017742	49.7 (±50.5)
Sao Francisco do Sul	UFRGS 10563/TEC 0120D	-48.588611	-26.286667	1931096	1894277	49.9 (±50.1)
Saí-Mirim	UFRGS 20472/TEC 5730A	-48.632667	-26.083278	928179	901751	26.4 (±22.9)
Saí-Mirim	UFRGS 20472/TEC 5730B	-48.632667	-26.083278	1057938	1016252	27.8 (±24.6)
Saí-Mirim	UFRGS 20472/TEC 5730C	-48.632667	-26.083278	550306	533183	18.3 (±13.6)
Saí-Mirim	UFRGS 20472/TEC 5730D	-48.632667	-26.083278	1491290	1442995	36.8 (±35.7)
Saí-Mirim	UFRGS 20472/TEC 5730E	-48.632667	-26.083278	2205001	2175225	59.5 (±60.9)
Saí-Mirim	UFRGS 20472/TEC 5730F	-48.632667	-26.083278	1638328	1618616	48.2 (±47.1)
Saí-Mirim	UFRGS 20472/TEC 5730G	-48.632667	-26.083278	1363790	1341654	41.1 (±38.9)
Saí-Mirim	UFRGS 20472/TEC 5730H	-48.632667	-26.083278	1092912	1071841	34.4 (±28.2)
Sai-Guaçu	UFRGS 20529/TEC 5787A	-48.604333	-25.963167	1416489	1363476	35.8 (±34.9)
Sai-Guaçu	UFRGS 20529/TEC 5787C	-48.604333	-25.963167	1631849	1580518	39.2 (±37.6)
Sai-Guaçu	UFRGS 20529/TEC 5787D	-48.604333	-25.963167	1808793	1750390	42.1 (±43.3)
Sai-Guaçu	UFRGS 20529/TEC 5787E	-48.604333	-25.963167	2222668	2177970	52.7 (±59.3)
Sai-Guaçu	UFRGS 20529/TEC 5787F	-48.604333	-25.963167	2043184	2000026	53.3 (±56.9)
Sai-Guaçu	UFRGS 20529/TEC 5787G	-48.604333	-25.963167	2349755	2299787	56.7 (±63.7)
Sai-Guaçu	UFRGS 20529/TEC 5787H	-48.604333	-25.963167	2229059	2181937	53.6 (±59.6)
Sai-Guaçu	UFRGS 20529/TEC 5787J	-48.604333	-25.963167	2242437	2166865	45.7 (±51.4)
Guaratuba	UFRGS 18643/TEC 3949	-48.834722	-25.974722	1721277	1669595	40.8 (±40.3)
Guaratuba	UFRGS 13825/TEC 108	-48.728056	-25.923889	590609	576956	20.8 (±16.1)
Guaratuba	UFRGS 10562/TEC 0110	-48.586111	-25.906667	1855602	1798195	40.4 (±40.6)
Iguaçu	UFRGS 12875/TEC 1585A	-50.073333	-26.337222	1239601	1203290	30.3 (±25.7)
Iguaçu	UFRGS 12875/TEC 1585B	-50.073333	-26.337222	689033	670158	20.2 (±15.4)
Iguaçu	UFRGS 12875/TEC 1585C	-50.073333	-26.337222	1043123	1013865	27.4 (±23.7)
Iguaçu	UFRGS 12875/TEC 1585D	-50.073333	-26.337222	590078	573422	20 (±14.4)
Iguaçu	UFRGS 12875/TEC 1585E	-50.073333	-26.337222	1139137	1112616	32.9 (±26.6)
Iguaçu	UFRGS 12875/TEC 1585F	-50.073333	-26.337222	1411411	1384906	37 (±32.8)
Iguaçu	UFRGS 12875/TEC 1585G	-50.073333	-26.337222	2057434	2017790	49.9 (±49.9)
Paranaguá	UFRGS 12444/TEC 719A	-48.659778	-25.314806	1479810	1434631	36.5 (±32.1)
Paranaguá	UFRGS 12444/TEC 719B	-48.659778	-25.314806	901025	880570	28.6 (±21.6)
Paranaguá	UFRGS 12444/TEC 719C	-48.659778	-25.314806	1859826	1823965	49.7 (±44.9)
Ribeira de Iguape	UFRGS 14713/TEC 796A	-47.780750	-24.789500	1311412	1268394	31.4 (±28.6)
Ribeira de Iguape	UFRGS 14713/TEC 796B	-47.780750	-24.789500	2772614	2722505	60.8 (±72.5)
Ribeira de Iguape	UFRGS 12378/TEC 798	-47.598611	-24.730000	599369	578393	17.7 (±14.4)
Ribeira de Iguape*	UFRGS 12420/TEC 792	-47.890278	-24.694167	216428	210442	9.9 (±6.9)
Ribeira de Iguape	UFRGS 20480/TEC 5738	-47.890500	-24.694056	1536032	1480825	33.2 (±34.7)
Ribeira de Iguape	UFRGS 14724/TEC 814	-47.426389	-24.661389	1874361	1827227	44.8 (±48.4)
Ribeira de Iguape	UFRGS 12397/TEC 735	-47.532833	-24.078028	1422585	1378170	34.1 (±32.9)

Ribeira de Iguape	UFRGS 18690/TEC 4334A	-47.744167	-24.283611	1406567	1360579	34.1 (±32.6)
Ribeira de Iguape	UFRGS 18690/TEC 4334B	-47.744167	-24.283611	2104860	2047396	48 (±53.8)
Ribeira de Iguape	UFRGS 18690/TEC 4334C	-47.744167	-24.283611	1308497	1277420	35.2 (±33.9)
Itanhaém	UFRGS 18712/TEC 4362A	-46.991111	-24.241667	899229	870778	24.3 (±18.6)
Itanhaém	UFRGS 18712/TEC 4362B	-46.991111	-24.241667	1233645	1194107	30.4 (±26.4)
Itanhaém	UFRGS 18712/TEC 4362C	-46.991111	-24.241667	892012	871549	27.6 (±23.2)
Itanhaém	UFRGS 20487/TEC 5745A	-46.923611	-24.177472	1469953	1423861	34.7 (±31.1)
Itanhaém	UFRGS 20487/TEC 5745B	-46.923611	-24.177472	3345766	3274386	62.2 (±81.9)
Itanhaém	UFRGS 20487/TEC 5745C	-46.923611	-24.177472	3223135	3153918	60.9 (±78.3)
Itanhaém*	MCP 31741	-46.732778	-24.116944	1093267	626572	12.7 (±48.8)
Itanhaém	UFRGS 20489/TEC 5747A	-46.723889	-24.110361	1307613	1264536	32.5 (±28.2)
Itanhaém	UFRGS 20489/TEC 5747B	-46.723889	-24.110361	1393500	1347426	34.2 (±30.6)
Itanhaém	UFRGS 20489/TEC 5747C	-46.723889	-24.110361	4076021	3989460	69.1 (±103.5)
Upper Tietê	UFRGS 12432/TEC 829	-46.313750	-23.772528	1647062	1595317	40.1 (±39.1)
Upper Tietê	UFRGS 12427/TEC 825A	-46.334722	-23.766389	1331282	1289472	36.3 (±32.6)
Upper Tietê	UFRGS 12427/TEC 825B	-46.334722	-23.766389	469645	453753	15.2 (±11.4)
Upper Tietê	UFRGS 12427/TEC 825C	-46.334722	-23.766389	612485	595898	19 (±14.7)
Upper Tietê	UFRGS 12427/TEC 825D	-46.334722	-23.766389	2755277	2694254	56.1 (±68.2)
Upper Tietê	UFRGS 12427/TEC 825E	-46.334722	-23.766389	2146580	2105405	35.4 (±45.1)
Upper Tietê	UFRGS 12427/TEC 825F	-46.334722	-23.766389	1396475	1363107	39.4 (±36.4)
Upper Tietê	UFRGS 12427/TEC 825G	-46.334722	-23.766389	1763142	1726593	47.8 (±47.4)
Bertioga	UFRGS 12408/TEC 752A	-46.003153	-23.779469	1046977	1008794	25.9 (±20.7)
Bertioga	UFRGS 12408/TEC 752B	-46.003153	-23.779469	1093755	1060987	27.9 (±22.7)
Bertioga	UFRGS 12408/TEC 752C	-46.003153	-23.779469	2348598	2279306	46.4 (±47.9)
Bertioga	UFRGS 12408/TEC 752D	-46.003153	-23.779469	1504611	1449840	31.2 (±30.3)
Bertioga	UFRGS 12408/TEC 752E	-46.003153	-23.779469	1563612	1522542	40 (±36.2)
Bertioga	UFRGS 12408/TEC 752F	-46.003153	-23.779469	2659199	2600009	54.3 (±59.2)
Bertioga	UFRGS 12408/TEC 752G	-46.003153	-23.779469	1721657	1691182	46.4 (±40.7)
Bertioga	UFRGS 12408/TEC 752H	-46.003153	-23.779469	3538443	3467198	64.8 (±77.5)
Guapimirim	UFRGS 18866/TEC 4493A	-42.898611	-22.517778	1339187	1297980	31.7 (±28.2)
Guapimirim	UFRGS 18866/TEC 4493B	-42.898611	-22.517778	1105006	1085422	32 (±25)
Guapimirim	UFRGS 18866/TEC 4493C	-42.898611	-22.517778	1365621	1341490	38.1 (±31.8)
Barra do Riacho	UFRGS 18971/TEC 4578A	-40.165500	-19.780028	1177801	1139150	32.4 (±25.8)
Barra do Riacho	UFRGS 18971/TEC 4578B	-40.165500	-19.780028	489321	473156	16.4 (±10.8)
Barra do Riacho	UFRGS 18971/TEC 4578C	-40.165500	-19.780028	666778	645884	21.1 (±15.2)
Barra do Riacho	UFRGS 18971/TEC 4578D	-40.165500	-19.780028	671894	655108	23.5 (±19)
Barra do Riacho	UFRGS 18971/TEC 4578E	-40.165500	-19.780028	510501	499673	18.2 (±13.3)
Barra do Riacho	UFRGS 18971/TEC 4578F	-40.165500	-19.780028	597704	585393	22.5 (±17.4)
Barra do Riacho	UFRGS 18971/TEC 4578G	-40.165500	-19.780028	2271118	2227180	53.7 (±58.4)
Barra Seca	UFRGS 11106/TEC 935A	-39.81083333	-18.63083333	1064153	1030541	29.9 (±23.4)
Barra Seca	UFRGS 11106/TEC 935B	-39.81083333	-18.63083333	1282813	1245387	35.8 (±29.1)
Barra Seca	UFRGS 11106/TEC 935C	-39.81083333	-18.63083333	1846537	1816357	53.8 (±53.4)
Barra Seca	UFRGS 11106/TEC 935D	-39.81083333	-18.63083333	2344462	2289974	55.3 (±61.8)
Barra Seca	UFRGS 11106/TEC 935E	-39.81083333	-18.63083333	2130634	2088276	57 (±58.4)
Barra Seca	UFRGS 19005/TEC 4609	-39.793889	-18.543333	1764047	1706487	41.4 (±38.5)
Itaunas	UFRGS 19017/TEC 4617A	-39.794444	-18.296389	1201344	1163117	31.7 (±25.9)
Itaunas	UFRGS 19017/TEC 4617B	-39.794444	-18.296389	2657271	2592633	57.5 (±67.6)
Caravelas	UFRGS 14820/TEC 938	-39.44833333	-17.67888889	1949737	1902617	52 (±56.2)

(c) *Hollandichthys*

Population	Voucher	Longitude	Latitude	Raw read count	Retained reads	Mean coverage (SD)
Maquiné	UFRGS 11793/TEC842 A	-50.2933	-29.5906	1823115	1510955	15.1 (±45.8)
Maquiné	UFRGS 11793/TEC842 B	-50.2933	-29.5906	1267088	1087900	13 (±32.4)

Maquiné	UFRGS 11793/TEC842 C	-50.2933	-29.5906	2054826	1733752	16.2 (±45.5)
Maquiné	UFRGS 11793/TEC842 D	-50.2933	-29.5906	1922076	1692089	15.8 (±46.7)
Maquiné	UFRGS 11793/TEC842 E	-50.2933	-29.5906	2375671	2065855	18.3 (±63.1)
Maquiné	UFRGS 11793/TEC842 F	-50.2933	-29.5906	2542248	1678713	17.8 (±50.9)
Maquiné	UFRGS 11793/TEC842 G	-50.2933	-29.5906	1976228	1683519	14.9 (±41.2)
Maquiné	UFRGS 11793/TEC842 H	-50.2933	-29.5906	2039575	1780893	15.9 (±45.4)
Maquiné	UFRGS 11793/TEC842 I	-50.2933	-29.5906	2178200	1941389	23.3 (±60.9)
Maquiné	MCP26969	-50.2833	-29.5833	1196972	854115	7.7 (±69.4)
Três Forquilhas*	UFRGS 16513/TEC2841 A	-50.1789	-29.4267	1128460	966580	17.9 (±57)
Três Forquilhas	UFRGS 16513/TEC2841 B	-50.1789	-29.4267	1234567	931387	9.1 (±18)
Três Forquilhas	UFRGS 16513/TEC2841 C	-50.1789	-29.4267	1272236	1070280	14.9 (±40.6)
Três Forquilhas	UFRGS 16513/TEC2841 D	-50.1789	-29.4267	1019104	815821	10.6 (±21.3)
Três Forquilhas	UFRGS 16513/TEC2841 E	-50.1789	-29.4267	974598	707924	7.4 (±17.7)
Três Forquilhas	UFRGS 16513/TEC2841F	-50.1789	-29.4267	1121395	894136	9.8 (±18.8)
Três Forquilhas	UFRGS 16513/TEC2841 G	-50.1789	-29.4267	1352268	1025133	9.9 (±27.5)
Três Forquilhas*	UFRGS 16513/TEC2841 H	-50.1789	-29.4267	1286903	1050800	13 (±29.3)
Mampituba	UFRGS 11792/TEC841 A	-50.1167	-29.2528	2271189	2019993	18 (±56.5)
Mampituba	UFRGS 11792/TEC841 B	-50.1167	-29.2528	2993304	2662523	19.1 (±57.8)
Mampituba	UFRGS 11792/TEC841 C	-50.1167	-29.2528	1701233	1480050	14.9 (±42.2)
Mampituba	UFRGS 11792/TEC841 D	-50.1167	-29.2528	1385623	1156003	12 (±30.7)
Mampituba	UFRGS 11792/TEC841 E	-50.1167	-29.2528	1814810	1516244	13.9 (±36.8)
Mampituba	UFRGS 11792/TEC841 F	-50.1167	-29.2528	1749054	1464074	13.8 (±36.8)
Mampituba	UFRGS 11792/TEC841 G	-50.1167	-29.2528	1405917	1095388	11.9 (±30.7)
Mampituba	UFRGS 11792/TEC841 H	-50.1167	-29.2528	908667	709308	9 (±19.9)
Mampituba	MCP23625	-49.9969	-29.1703	1688056	1300026	11.6 (±562.5)
Mampituba	UFRGS 11790/TEC839	-49.9822	-29.1692	1628963	1381686	14 (±52.1)
Araranguá*	UFRGS 11791/TEC840 A	-49.9289	-28.7908	407508	227797	-
Araranguá	UFRGS 11791/TEC840 B	-49.9289	-28.7908	1170918	964684	12 (±34.6)
Araranguá	UFRGS 11791/TEC840 C	-49.9289	-28.7908	1466012	1256026	12.2 (±44.5)
Araranguá	UFRGS 11791/TEC840 D	-49.9289	-28.7908	1463739	1159837	13 (±39.2)
D'Una	UFRGS 16587/TEC2919 A	-48.7005	-28.0715	2783833	2469992	20.1 (±91.6)
D'Una	UFRGS 16587/TEC2919 B	-48.7005	-28.0715	1774893	1545472	18.2 (±55.2)
D'Una	UFRGS 16587/TEC2919 C	-48.7005	-28.0715	1489435	1230239	12.8 (±41.1)
D'Una*	UFRGS 16587/TEC2919 D	-48.7005	-28.0715	2483493	2231984	26.6 (±81.8)
D'Una	UFRGS 16587/TEC2919 E	-48.7005	-28.0715	2135018	1850607	18.3 (±52.3)
D'Una*	UFRGS 16587/TEC2919 F	-48.7005	-28.0715	1296886	1108358	14.4 (±36.4)
D'Una	UFRGS 16587/TEC2919 G	-48.7005	-28.0715	1062519	836586	7.6 (±57)
D'Una*	UFRGS 16587/TEC2919 H	-48.7005	-28.0715	1101909	929652	13.6 (±31.4)
Florianópolis	MCP28737/100	-48.4775	-27.5881	1571100	1155499	10 (±408.6)
Florianópolis	MCP28737/101	-48.4775	-27.5881	1500857	1148858	13.1 (±955.2)
Florianópolis	MCP28737/102	-48.4775	-27.5881	1128815	909977	10.6 (±203.6)
Florianópolis	MCP28732A	-48.4864	-27.5111	1839766	1628125	8.8 (±105.6)
Florianópolis	MCP28732B	-48.4864	-27.5111	1438780	1085898	12.2 (±53.7)
Florianópolis	MCP28747	-48.4925	-27.5086	1353998	965540	9.8 (±188.5)
Florianópolis	MCP38317	-48.4372	-27.4831	1355850	962147	9 (±74)
Florianópolis*	MCP37635/A	-48.4231	-27.4831	812468	604630	9 (±99.5)
Florianópolis*	MCP37635/B	-48.4231	-27.4831	851942	507815	7.3 (±61.8)
Florianópolis	MCP37635/C	-48.4231	-27.4831	1098851	871131	9.5 (±75.1)
Itapocu	MCP30552	-48.7258	-26.3828	1209118	946763	10 (±396.1)
São Francisco do Sul	MCP30553	-48.6511	-26.3267	1358622	1041275	10.4 (±314.8)
São Francisco do Sul*	UFRGS 10579/TEC105	-48.6511	-26.3267	455531	247839	-
São Francisco do Sul	UFRGS 9359/TEC345	-48.58916667	-26.29305556	1484971	1257981	12.8 (±57.2)
São Francisco do Sul	UFRGS 10570/TEC106 A	-48.58916667	-26.29305556	2738799	2506161	21.2 (±59.7)
São Francisco do Sul	UFRGS 10570/TEC106 B	-48.58916667	-26.29305556	3186947	2892456	21.8 (±62)
São Francisco do Sul*	UFRGS 10570/TEC106 C	-48.58916667	-26.29305556	1525797	1326424	16.9 (±37)

São Francisco do Sul	UFRGS 10570/TEC106 D	-48.58916667	-26.29305556	2686698	2495012	17.5 (±48.6)
São Francisco do Sul	UFRGS 10570/TEC106 E	-48.58916667	-26.29305556	2700678	2429372	21 (±57.6)
São Francisco do Sul	UFRGS 10570/TEC106 F	-48.58916667	-26.29305556	2708515	2440012	23 (±62.1)
São Francisco do Sul	UFRGS 10570/TEC106 G	-48.58916667	-26.29305556	2541149	2313342	18.7 (±53.7)
Cubatão Norte	MCP30667	-48.9289	-26.1919	1272942	994028	9.9 (±60.9)
Guaratuba	UFRGS 10578/TEC109	-48.5833	-25.8833	2158302	1857011	16.4 (±128.7)
Guaratuba	UFRGS 9358/TEC346	-48.5833	-25.8833	1267302	956980	8.8 (±74.1)
Paranaguá	MHNCl ncat/1	-48.7000	-25.4333	1278109	935893	9.2 (±33)
Paranaguá	MHNCl ncat/2	-48.7000	-25.4333	1021488	706960	8.1 (±21)
Paranaguá	MHNCl ncat/3	-48.7000	-25.4333	1235019	906103	9.4 (±46.4)
Paranaguá	MHNCl ncat/4	-48.7000	-25.4333	1200292	807300	8.2 (±79.1)
Paranaguá	MHNCl ncat/6	-48.7000	-25.4333	1339796	923487	7.8 (±134.4)
Guaraqueçaba	UFRGS 11778/TEC755 A	-48.4500	-25.2200	1365569	1097390	13.1 (±29.2)
Guaraqueçaba	UFRGS 11778/TEC755 B	-48.4500	-25.2200	1541716	1171014	9.1 (±19.6)
Guaraqueçaba*	UFRGS 11778/TEC755 C	-48.4500	-25.2200	713284	392307	-
Guaraqueçaba	UFRGS 11778/TEC755 D	-48.4500	-25.2200	1306469	977174	9.3 (±19.7)
Guaraqueçaba	UFRGS 11778/TEC755 E	-48.4500	-25.2200	1301434	985575	9.3 (±24.4)
Guaraqueçaba	MCP30558	-48.4336	-25.2092	1570277	1277232	12.9 (±34.4)
Guaraqueçaba	UFRGS 11779/TEC763 A	-48.4203	-25.1739	1331361	938170	8.9 (±19.6)
Guaraqueçaba	UFRGS 11779/TEC763 B	-48.4203	-25.1739	1343074	995952	8.5 (±17.3)
Guaraqueçaba	UFRGS 11779/TEC763 C	-48.4203	-25.1739	1833265	1494428	13.5 (±31.9)
Guaraqueçaba	UFRGS 11779/TEC763 D	-48.4203	-25.1739	1841856	1578082	14 (±36.1)
Ribeira de Iguape	UFRGS 11781/TEC806 A	-47.4931	-24.6614	2077778	1583210	11.9 (±26.5)
Ribeira de Iguape	UFRGS 11781/TEC806 B	-47.4931	-24.6614	1570785	1305293	12.8 (±30.2)
Ribeira de Iguape	UFRGS 11781/TEC806 C	-47.4931	-24.6614	1514447	1226833	12.6 (±30.3)
Ribeira de Iguape*	UFRGS 11781/TEC806 D	-47.4931	-24.6614	673196	449983	8.4 (±16.2)
Ribeira de Iguape	UFRGS 11782/TEC739 A	-47.4836	-24.6500	1644564	1264159	11.9 (±28)
Ribeira de Iguape	UFRGS 11782/TEC739 B	-47.4836	-24.6500	1572629	1234041	12 (±29)
Guarau*	UFRGS 11784/TEC722 A	-47.0550	-24.3683	4449	2478	-
Guarau	UFRGS 11784/TEC722 B	-47.0550	-24.3683	1556261	1114347	9 (±15.6)
Guarau	UFRGS 11784/TEC722 D	-47.0550	-24.3683	1530139	1145238	10.3 (±20.8)
Guarau	UFRGS 11784/TEC722 E	-47.0550	-24.3683	1598988	1256610	8.1 (±15.7)
Guarau	MCP30555	-47.0547	-24.3681	1291554	940643	8 (±12.7)
Guarau*	UFRGS 11783/TEC817 A	-47.0372	-24.3600	1289234	1028955	10.3 (±19.5)
Guarau	UFRGS 11783/TEC817 C	-47.0372	-24.3600	1219687	859228	7.7 (±14)
Guarau*	UFRGS 11783/TEC817 E	-47.0372	-24.3600	10481	2863	-
Guarau	MCP30554	-47.0372	-24.3597	1519051	1159490	9.8 (±91.4)
Guarau	MCP30561	-47.0361	-24.3586	1912939	1559830	14.9 (±34.9)
Santos	UFRGS 11785/TEC820 A	-46.3489	-23.8569	1428856	1050598	10 (±21.5)
Santos	UFRGS 11785/TEC820 B	-46.3489	-23.8569	1473939	1090577	10 (±20.6)
Santos*	UFRGS 11785/TEC820 C	-46.3489	-23.8569	2490488	2222585	20.2 (±79.2)
Santos	UFRGS 11785/TEC820 D	-46.3489	-23.8569	1379889	1059057	10.3 (±21.9)
Santos	UFRGS 11785/TEC820 E	-46.3489	-23.8569	1670347	1282315	11 (±22.5)
Santos	UFRGS 11785/TEC820 F	-46.3489	-23.8569	1606014	1219205	10.7 (±22.7)
Santos	MCP30559/341	-46.3483	-23.8564	1410664	1125864	10 (±19.4)
Santos	MCP30559/342	-46.3483	-23.8564	1569792	1233696	10.1 (±20.4)
Santos	MCP30560/290	-46.3281	-23.8425	1652764	1358598	12.4 (±28.7)
Santos	MCP30560/291	-46.3281	-23.8425	934064	760014	8.9 (±17)
Upper Tietê	UFRGS 11787/TEC827 A	-46.3136	-23.7725	1721145	1281748	8.9 (±16.8)
Upper Tietê*	UFRGS 11787/TEC827 B	-46.3136	-23.7725	2209345	2032282	16.4 (±52.7)
Upper Tietê	UFRGS 11787/TEC827 C	-46.3136	-23.7725	1340661	943311	7.7 (±15.6)
Upper Tietê*	UFRGS 11787/TEC827 D	-46.3136	-23.7725	2512031	2432574	32.1 (±84.9)
Upper Tietê	UFRGS 11787/TEC827 E	-46.3136	-23.7725	1651191	1233524	10.3 (±20.6)
Upper Tietê	UFRGS 11786/TEC826 A	-46.3347	-23.7664	804503	637740	8.4 (±15)
Upper Tietê	UFRGS 11786/TEC826 B	-46.3347	-23.7664	1239103	996612	9.4 (±21.9)

Upper Tietê	UFRGS 11786/TEC826 C	-46.3347	-23.7664	1312201	937231	8.9 (±17.3)
Upper Tietê	UFRGS 11786/TEC826 D	-46.3347	-23.7664	1816278	1383835	11.6 (±23)
Upper Tietê	UFRGS 11786/TEC826 E	-46.3347	-23.7664	1317731	939323	7.8 (±13.8)
Bertioga*	UFRGS 11771/TEC888 C	-46.0031	-23.7794	199120	186254	-
Bertioga	UFRGS 11771/TEC888 D	-46.0031	-23.7794	1702483	1340406	14.2 (±35.2)
Bertioga	UFRGS 11771/TEC888 E	-46.0031	-23.7794	3797857	3466754	32 (±109.1)
Bertioga	UFRGS 11771/TEC888 F	-46.0031	-23.7794	2530946	2115001	19.3 (±77.3)
Bertioga*	UFRGS 11771/TEC888 G	-46.0031	-23.7794	66882	6311	-
Bertioga	UFRGS 11777/TEC980 B	-46.0031	-23.7794	2935697	2550960	20.7 (±58.8)
Bertioga	UFRGS 11777/TEC980 C	-46.0031	-23.7794	1770554	1410510	15.4 (±40.3)
Bertioga	UFRGS 11777/TEC980 D	-46.0031	-23.7794	1856994	1445558	13.9 (±34.6)
Bertioga	UFRGS 11777/TEC980 E	-46.0031	-23.7794	2460277	1934988	16.8 (±44.1)
Bertioga*	UFRGS 11777/TEC980 G	-46.0031	-23.7794	23591	10754	-
Juquehy*	UFRGS 11772/TEC891 A	-45.7203	-23.7628	2300416	2131299	45.5 (±92.5)
Juquehy	UFRGS 11772/TEC891 B	-45.7203	-23.7628	2585949	2107327	19 (±53.2)
Juquehy*	UFRGS 11772/TEC891 C	-45.7203	-23.7628	224285	193786	-
Juquehy*	UFRGS 11772/TEC891 D	-45.7203	-23.7628	490259	421046	-
Juquehy*	UFRGS 11772/TEC891 E	-45.7203	-23.7628	21494	10027	-
Juquehy	UFRGS 11772/TEC891 G	-45.7203	-23.7628	3404274	3089411	25.3 (±83)
Juquehy	UFRGS 11772/TEC891 H	-45.7203	-23.7628	2675823	2351809	19.4 (±50.3)
Juquehy*	UFRGS 11772/TEC891 I	-45.7203	-23.7628	2901160	2660446	31 (±72.1)
Juquehy*	MCP30658	-45.7144	-23.7617	8339	4351	-
Boiçucanga	UFRGS 11795/TEC1229 A	-45.6064	-23.7733	1998679	1729076	18.7 (±48.6)
Boiçucanga	UFRGS 11795/TEC1229 B	-45.6064	-23.7733	2850510	2373213	20.3 (±63.3)
Boiçucanga	UFRGS 11795/TEC1229 C	-45.6064	-23.7733	3256867	2953768	23.7 (±78.2)
Boiçucanga	UFRGS 11795/TEC1229 D	-45.6064	-23.7733	2501502	2161569	19.3 (±66)
Boiçucanga	UFRGS 11795/TEC1229 E	-45.6064	-23.7733	3023378	2681668	22.1 (±67.5)
Boiçucanga*	UFRGS 11795/TEC1229 F	-45.6064	-23.7733	3416573	3185316	26.1 (±181)
Boiçucanga	UFRGS 11795/TEC1229 G	-45.6064	-23.7733	1479360	1176663	12.6 (±26.1)
Boiçucanga	UFRGS 11795/TEC1229 H	-45.6064	-23.7733	1109731	867293	10.5 (±20.7)
Boiçucanga*	UFRGS 11795/TEC1229 I	-45.6064	-23.7733	1909069	1689597	16.7 (±31.6)
Boiçucanga*	UFRGS 11795/TEC1229 J	-45.6064	-23.7733	2352458	2146528	26.4 (±61.7)
Sao Sebastiao*	UFRGS 11788/TEC859 A	-45.4522	-23.8239	1165919	603275	8.3 (±14)
Sao Sebastiao*	UFRGS 11788/TEC859 B	-45.4522	-23.8239	1201194	599398	6.6 (±9.6)
Sao Sebastiao*	MCP30660	-45.5519	-23.7894	1219213	864402	7.9 (±16.4)
Ilhabela	MCP30661/358	-45.3633	-23.8250	1318964	1074290	11.3 (±23.8)
Ilhabela	MCP30661/359	-45.3633	-23.8250	3161748	2944413	15.7 (±48.8)
Ilhabela*	UFRGS 11773/TEC897 C	-45.3536	-23.8214	190840	170846	-
Ilhabela	UFRGS 11773/TEC897 D	-45.3536	-23.8214	1095256	778180	11.4 (±22.6)
Ilhabela	UFRGS 11773/TEC897 E	-45.3536	-23.8214	1894348	1618334	12.4 (±27.4)
Ilhabela*	UFRGS 11773/TEC897 F	-45.3536	-23.8214	775095	504082	7.6 (±12.5)
Ilhabela*	UFRGS 11773/TEC897 G	-45.3536	-23.8214	604004	52725	-
Ilhabela	MCP30662/383	-45.3589	-23.8200	1880301	1595523	14.1 (±37.5)
Ilhabela	MCP30662/384	-45.3589	-23.8200	1732334	1455896	13.1 (±31.2)
Ubatuba	MCP30663	-45.1286	-23.4278	1480671	1083984	9.6 (±18.9)
Ubatuba	UFRGS 11774/TEC900 A	-45.1144	-23.4125	1321716	935442	10.3 (±20.2)
Ubatuba	UFRGS 11774/TEC900 B	-45.1144	-23.4125	2151002	1915290	15.5 (±38.9)
Picinguaba	UFRGS 11789/TEC866 A	-44.8706	-23.3467	2429300	1984838	15.6 (±44.2)
Picinguaba	UFRGS 11789/TEC866 B	-44.8706	-23.3467	1074156	793710	10.2 (±19.3)
Toca do Boi	UFRGS 11775/TEC908 A	-44.6819	-23.3292	1453427	1185664	13.4 (±36.7)
Toca do Boi	UFRGS 11775/TEC908 B	-44.6819	-23.3292	1574027	1333708	13.4 (±31)
Toca do Boi	UFRGS 11775/TEC908 C	-44.6819	-23.3292	1666329	1443786	15.7 (±42.8)
Toca do Boi	UFRGS 11775/TEC908 D	-44.6819	-23.3292	1132355	882935	11 (±26)
Toca do Boi	UFRGS 11775/TEC908 E	-44.6819	-23.3292	1682263	1366221	13.4 (±33)
Toca do Boi	UFRGS 11775/TEC908 F	-44.6819	-23.3292	1361996	1107613	12.1 (±28.3)

Toca do Boi	UFRGS 11775/TEC908 G	-44.6819	-23.3292	1434266	1118482	11.6 (±24.2)
Toca do Boi	UFRGS 11775/TEC908 H	-44.6819	-23.3292	2040740	1742324	13.7 (±44.1)
Toca do Boi	MCP30664/387	-44.6819	-23.3292	1484778	1165930	12 (±29.6)
Toca do Boi	MCP30664/388	-44.6819	-23.3292	1572158	1206032	11 (±28.9)
Tarituba	UFRGS 11776/TEC909 A	-44.5950	-23.0419	1098168	900046	10.5 (±23.9)
Tarituba*	UFRGS 11776/TEC909 B	-44.5950	-23.0419	726529	618667	10.1 (±19.7)
Tarituba	UFRGS 11776/TEC909 C	-44.5950	-23.0419	2868700	2542999	20.6 (±60.5)
Tarituba*	UFRGS 11776/TEC909 D	-44.5950	-23.0419	620526	449556	7.3 (±13.7)
Tarituba	UFRGS 11776/TEC909 E	-44.5950	-23.0419	1310075	1110254	12.2 (±28.6)
Tarituba	UFRGS 11776/TEC909 F	-44.5950	-23.0419	2099253	1827632	16.2 (±39.9)
Tarituba	UFRGS 11776/TEC909 G	-44.5950	-23.0419	1389264	1078034	11.6 (±27.6)
Tarituba	UFRGS 11776/TEC909 H	-44.5950	-23.0419	1464882	1206051	13.4 (±36.9)
Tarituba*	UFRGS 11776/TEC909 I	-44.5950	-23.0419	2409686	2221319	27.8 (±69.3)
Tarituba	UFRGS 11776/TEC909 J	-44.5950	-23.0419	2496914	2229227	19.3 (±51.2)
Paraty*	MCP30665	-44.6975	-23.0764	970498	703921	8.7 (±17.1)

(d) *Bryconamericus*

Population	Voucher	Longitude	Latitude	Raw read count	Retained reads	Mean coverage (SD)
Três Forquilhas	UFRGS 16209/TEC 2357	-50.09161111	-29.509	1279122	1239762	23.3 (±52.9)
Três Forquilhas	UFRGS 16209/TEC 2358	-50.09161111	-29.509	2119729	2054087	33.4 (±78.3)
Três Forquilhas	UFRGS 16209/TEC 2359	-50.09161111	-29.509	2928005	2840748	41.6 (±113.4)
Três Forquilhas*	UFRGS 16209/TEC 2360	-50.09161111	-29.509	40524	38406	11.5 (±19.2)
Araranguá	UFRGS 16211/TEC 2376	-49.67361111	-28.97875	2918015	2846728	41.8 (±109.7)
Araranguá	UFRGS 16211/TEC 2377	-49.67361111	-28.97875	2280681	2213314	34 (±85.9)
Araranguá	UFRGS 16211/TEC 2378	-49.67361111	-28.97875	3248149	3171295	45.3 (±113.5)
Araranguá	UFRGS 16211/TEC 2379	-49.67361111	-28.97875	2706494	2633775	39.7 (±105)
Itajaí	UFRGS 18476/TEC 3884A	-49.161194	-27.224417	392158	379261	11 (±21)
Itajaí	UFRGS 18476/TEC 3884B	-49.161194	-27.224417	466689	452890	10.2 (±19.1)
Itajaí	UFRGS 18476/TEC 3884C	-49.161194	-27.224417	802105	770570	18 (±35.2)
Itajai	UFRGS 20461/TEC 5719	-48.7225	-27.015	1292849	1261528	26.8 (±52.2)
Itajaí*	UFRGS 18600/TEC 3893A	-48.714444	-27.006944	56007	52150	10 (±16.7)
Itajaí*	UFRGS 18600/TEC 3893B	-48.714444	-27.006944	34129	31681	14.2 (±20.5)
Itajaí	UFRGS 18600/TEC 3893C	-48.714444	-27.006944	1095984	1064556	21.4 (±44.4)
Itajai	UFRGS 20463/TEC 5721	-48.712556	-26.994972	1988499	1934159	33.1 (±72.3)
Itapocu	UFRGS 18485/TEC 3923	-49.178333	-26.419444	2433769	2369823	39.8 (±118.7)
Itapocu	UFRGS 18485/TEC 4670	-49.178333	-26.419444	2158778	2105481	28.9 (±82.9)
Itapocu	UFRGS 18485/TEC 4671	-49.178333	-26.419444	1599110	1558982	32.4 (±85)
Itapocu	UFRGS 18485/TEC 4672	-49.178333	-26.419444	712644	691911	17.6 (±37.9)
Itapocu*	UFRGS 18485/TEC 4673	-49.178333	-26.419444	1157	109	-
Itapocu	UFRGS 18485/8F	-49.178333	-26.419444	2718259	2652589	45.1 (±129.5)
Itapocu	UFRGS 18485/8G	-49.178333	-26.419444	2246814	2191791	40.8 (±115.3)
Itapocu	UFRGS 18485/8H	-49.178333	-26.419444	2991530	2917900	45.3 (±143.8)
Cubatão Norte*	UFRGS 20467/TEC 5725A	-48.922222	-26.197111	79835	53398	8.9 (±9.8)
Cubatão Norte	UFRGS 20467/TEC 5725B	-48.922222	-26.197111	754078	732134	18.6 (±36.2)
Cubatão Norte	UFRGS 20467/TEC 5725C	-48.922222	-26.197111	1476060	1430276	28.5 (±74.7)
Cubatão Norte	UFRGS 18631/TEC 3937A	-48.954083	-26.176611	1447902	1398341	28.2 (±61)
Cubatão Norte	UFRGS 18631/TEC 3937B	-48.954083	-26.176611	2379986	2309263	38.8 (±88.6)
Cubatão Norte	UFRGS 18511/TEC 3931	-48.999764	-26.175833	1826251	1767902	32.4 (±76.4)
Cubatão Norte	UFRGS 18511/TEC 4675	-48.999764	-26.175833	920988	888339	20 (±41.3)
Cubatão Norte*	UFRGS 18511/TEC 4676	-48.999764	-26.175833	117985	110651	8.7 (±15.4)
Guaratuba	UFRGS 18651/TEC 3957A	-48.856111	-26.007778	1856046	1794705	34.6 (±130.1)
Guaratuba	UFRGS 18651/TEC 3957B	-48.856111	-26.007778	1569911	1516407	30.7 (±80.8)
Guaratuba	UFRGS 18651/TEC 3957C	-48.856111	-26.007778	1444455	1387134	27.9 (±78.7)

Guaratuba*	UFRGS 18651/TEC 3957D	-48.856111	-26.007778	3952	1701	-
Guaratuba	UFRGS 18651/TEC 3957E	-48.856111	-26.007778	1294115	1255443	27.2 (±63.3)
Guaratuba	UFRGS 18651/TEC 3957F	-48.856111	-26.007778	2859614	2766823	43.1 (±142.1)
Guaratuba	UFRGS 18651/TEC 3957G	-48.856111	-26.007778	879030	843185	20.3 (±48.2)
Guaratuba*	UFRGS 18651/TEC 3957H	-48.856111	-26.007778	3584	281	-
Paranaguá	UFRGS 18510/TEC 3977A	-48.834722	-25.458056	1243022	1205489	26.2 (±64.6)
Paranaguá	UFRGS 18510/TEC 3977B	-48.834722	-25.458056	2401229	2330032	39.4 (±78.8)
Paranaguá	UFRGS 18510/TEC 3977E	-48.834722	-25.458056	662219	640463	16.6 (±36.9)
Paranaguá*	UFRGS 18510/TEC 3977F	-48.834722	-25.458056	5225	113	-
Paranaguá*	UFRGS 18510/TEC 3977G	-48.834722	-25.458056	4029	84	-
Paranaguá	UFRGS 18510/TEC 3977H	-48.834722	-25.458056	403240	388617	12.3 (±27.2)
Ribeira de Iguape	UFRGS 12417/TEC 778	-48.551389	-25.072222	1160027	1092998	18.6 (±89.1)
Ribeira de Iguape	UFRGS 18536/TEC 4319A	-48.293333	-24.643056	1594720	1558011	29.6 (±71.8)
Ribeira de Iguape	UFRGS 18536/TEC 4319B	-48.293333	-24.643056	1362004	1321566	26.3 (±56.1)
Ribeira de Iguape	UFRGS 18517/TEC 4304A	-48.591389	-24.580000	1489355	1453023	28.6 (±56.7)
Ribeira de Iguape	UFRGS 18517/TEC 4309B	-48.591389	-24.580000	1352136	1323030	26.1 (±54.6)
Ribeira de Iguape	UFRGS 18515/TEC 4683	-48.673056	-24.558333	2904870	2844880	44.4 (±96.2)
Ribeira de Iguape	UFRGS 18515/TEC 4684	-48.673056	-24.558333	2866453	2800335	43.5 (±89.5)
Ribeira de Iguape*	UFRGS 18524/TEC 4346A	-47.653056	-24.104167	322268	311254	11.7 (±25.8)
Ribeira de Iguape*	UFRGS 18524/TEC 4346B	-47.653056	-24.104167	304445	295462	9.8 (±17.3)
Ribeira de Iguape	UFRGS 18524/TEC 4346C	-47.653056	-24.104167	2724659	2655741	41.6 (±83)
Ribeira de Iguape	UFRGS 18524/TEC 4346D	-47.653056	-24.104167	2057572	2011391	33.7 (±78.3)
Perequê-açu	UFRGS 18789/TEC 4429A	-44.788611	-23.215278	1790684	1737918	32.7 (±89.2)
Perequê-açu	UFRGS 18789/TEC 4429B	-44.788611	-23.215278	720890	699474	17.4 (±32.6)
Perequê-açu*	UFRGS 18789/TEC 4429C	-44.788611	-23.215278	257228	246347	8.4 (±16.3)
Perequê-açu	UFRGS 18789/TEC 4429D	-44.788611	-23.215278	1592620	1546938	30 (±64.4)
Perequê-açu	UFRGS 18789/TEC 4429E	-44.788611	-23.215278	2387374	2325328	40.2 (±88.7)
Perequê-açu	UFRGS 18789/TEC 4429F	-44.788611	-23.215278	1343369	1307901	28.4 (±73)
Perequê-açu	UFRGS 18789/TEC 4429G	-44.788611	-23.215278	216700	208781	8.5 (±14.3)
Perequê-açu*	UFRGS 18789/TEC 4429H	-44.788611	-23.215278	8562	269	-
Taquari	UFRGS 18791/TEC 4431A	-44.692500	-23.041389	1386365	1356730	29.6 (±66.9)
Taquari	UFRGS 18791/TEC 4431B	-44.692500	-23.041389	1849566	1805769	32.8 (±64.1)
Taquari	UFRGS 18791/TEC 4431C	-44.692500	-23.041389	2272186	2180744	36.3 (±72.5)
Taquari	UFRGS 18791/TEC 4431D	-44.692500	-23.041389	2693680	2622928	42.8 (±103.2)
Taquari	UFRGS 18791/TEC 4431E	-44.692500	-23.041389	2861613	2783414	44.6 (±89.7)
Taquari	UFRGS 18791/TEC 4431F	-44.692500	-23.041389	1809723	1765553	19.5 (±37.7)
Taquari	UFRGS 18791/TEC 4431G	-44.692500	-23.041389	1493358	1449232	27.4 (±49.9)
Taquari	UFRGS 18791/TEC 4431H	-44.692500	-23.041389	1904893	1832935	30.5 (±63.2)
Guapimirim	UFRGS 18848/TEC 4478A	-42.898611	-22.517778	1463128	1412646	32 (±131)
Guapimirim	UFRGS 18848/TEC 4478B	-42.898611	-22.517778	1749975	1686892	33.8 (±152.4)
Guapimirim	UFRGS 18848/TEC 4478C	-42.898611	-22.517778	2067482	1997891	32.3 (±89.1)
Macacu	UFRGS 18843/TEC 4473	-42.657222	-22.478889	1880337	1802560	32.4 (±89.5)
Macacu*	UFRGS 18834/TEC 4465	-42.648500	-22.451056	136370	125997	32.5 (±89.9)
Macacu	UFRGS 18834/TEC 4747	-42.648500	-22.451056	2405931	2350649	32.5 (±90.3)
Macacu	UFRGS 18834/TEC 4749	-42.648500	-22.451056	2913533	2846707	32.6 (±90.6)
Macacu	UFRGS 18828/TEC 4459	-42.621667	-22.418889	1101578	1060097	32.7 (±91)
Macacu	UFRGS 18828/TEC 4744	-42.621667	-22.418889	1649697	1608699	32.8 (±91.4)
Macacu	UFRGS 18828/TEC 4746	-42.621667	-22.418889	527327	514733	32.9 (±91.8)
São João	UFRGS 18873/TEC 4500	-42.574722	-22.582778	1860924	1808838	34.9 (±93.9)
São João	UFRGS 18892/TEC 4516	-42.465278	-22.545833	3132383	3062687	50.9 (±189.1)
São João	UFRGS 18892/TEC 4754	-42.465278	-22.545833	2124948	2070053	39.7 (±119)
São João	UFRGS 18892/TEC 4756	-42.465278	-22.545833	3458041	3353169	47.4 (±174.3)

Table S3. Summary of genomic libraries based on STACKS processing, including the number of individuals and loci in each step of data processing, and the mean summary statistics reported in STACKS.

	<i>Mimagoniates microlepis</i>	<i>Hyphessobrycon boulengeri</i>	<i>Hollandichthys</i>	<i>Bryconamericus</i>
Total of libraries	3	2	2	1
Total individuals	118*	136	182	87
Total populations	32	23	24	13
Total reads (millions)	203625424	241441086	325578791	164516577
Retained reads after <i>proccess radtags</i>	198540198	203388694	232013863	136913642
Mean coverage	44.2 (\pm 13.5)	37.1 (\pm 13.6)	13.8 (\pm 5.8)	28.4 (\pm 11.7)
Number base pairs eliminated at 3' end	15	20	5	15
Final sequence length	120	115	80	120
Θ upper 95% quantile	0.02	0.0145	0.024	0.018
Number of individuals after STACKS	116	136	167	83
Number of loci after STACKS	182,799	90,487	204,924	126,378
Number of SNPs after STACKS	508,333	209,853	568,347	379,422
Maximum number of SNP's in one locus	13	9	10	11
Number of individuals used for analyses	113**	134	142	74
Number of populations	32	23	24	13
Number of loci/SNPs with 50% missing data	3,515/30,032	13,881/57,183	26,077/122,762	11,436/75,552
Genotyping rate 50% missing	0.67	0.72	0.66	0.68
Number of loci/SNPs with 25% missing data	1,802/15,896	6,129/27,103	6,902/33,780	4,293/30,686
Genotyping rate 25% missing	0.79	0.87	0.85	0.92
MEAN SUMMARY STATISTICS				
Mean π (\pm sd) -variants sites	0.027 (\pm 0.01)	0.029 (\pm 0.01)	0.032 (\pm 0.02)	0.036 (\pm 0.02)
Mean π (\pm sd) -variants + invariants sites	0.0017 (\pm 0.0007)	0.0009 (\pm 0.0005)	0.002 (\pm 0.0008)	0.0015 (\pm 0.001)
Mean <i>HOBS</i> (\pm sd)	0.021 (\pm 0.008)	0.026 (\pm 0.01)	0.028 (\pm 0.01)	0.022 (\pm 0.01)
Mean <i>HEXP</i> (\pm sd)	0.021 (\pm 0.009)	0.025 (\pm 0.01)	0.027 (\pm 0.01)	0.032 (\pm 0.02)

*118 are a subset of 240 individuals that were sequenced in three libraries for this species as part of a larger project.

**35% missing for *M. microlepis*

Table S4. Model comparisons based on Akaike Information Criteria (AIC) for the best point estimate from 40 FASTSIMCOAL runs per model for each taxon per geographic division. The Delta AIC (Δ AIC) is given for the difference in AIC values between the two most likely models, with the most likely model shown in bold.

Geographic division	Model	Strict divergence (3 parameters)		Divergence with symmetric gene flow (4 parameters)		Divergence with asymmetric gene flow (5 parameters)		Divergence with symmetric pulse of gene flow (5 parameters)		Divergence with asymmetric pulse of gene flow (6 parameters)		Δ AIC
		Likelihood	AIC	Likelihood	AIC	Likelihood	AIC	Likelihood	AIC	Likelihood	AIC	
North	<i>M. microlepis</i>	-1220.688	2447.4	-1217.6	2443.1	-1217.0	2443.9	-1216.8	2443.7	-1216.1	2444.1	0.55
	<i>H. Boulengeri</i>	-3074.23	6154.5	-3066.1	6140.2	-3063.8	6137.7	-3061.1	6132.2	-3073.7	6159.4	5.49
Central	<i>M. microlepis</i>	-1661.101	3328.2	-1648.7	3305.5	-1648.8	3307.6	-1651.4	3312.8	-1647.8	3307.7	2.172
	<i>H. Boulengeri</i>	-7899.857	15805.7	-7897.4	15802.8	-7894.4	15798.8	-7912.5	15835.0	-7874.9	15761.7	37.066
	<i>Hollandichthys</i>	-8610.79	17227.6	-8526.6	17061.3	-8526.8	17063.6	-8567.7	17145.4	-8512.7	17037.4	23.86
	<i>Bryconamericus</i>	-6174.596	12355.2	-6144.9	12297.9	-6134.0	12277.9	-6169.0	12348.0	-6113.4	12238.9	39.054
South	<i>M. microlepis</i>	-4226.204	8458.4	-4221.5	8451.1	-4220.8	8451.7	-4224.4	8458.8	-4223.7	8459.4	0.64
	<i>H. Boulengeri</i>	-9660.949	19327.9	-9633.5	19274.9	-9632.3	19274.6	-9647.3	19304.6	-9641.1	19294.2	0.3
	<i>Hollandichthys</i>	-8774.121	17554.2	-8751.9	17511.9	-8723.3	17456.6	-8854.0	17718.1	-8710.9	17433.7	22.8
	<i>Bryconamericus</i>	-7382.774	14771.5	-7369.8	14747.6	-7367.9	14745.7	-7371.3	14752.5	-7365.5	14743.0	2.8

Table S5. Point estimates of demographic parameters estimated using FASTSIMCOAL2 per geographic division (A = North; B = Central; and C = South) for the different models of divergence, including models of divergence with gene flow (i.e., a model of divergence with gene flow = GF or pulsed gene flow = Pulse GF), in which migration is modeled as either symmetrical (sym.) or asymmetrical (asym.), as well as divergence without gene flow (Strict Div.); note the parameter estimates for the most likely model of divergence (in bold) are also given in Table 2 with the 95% confidence intervals and when the same mutation rate is applied across species to demonstrate the robustness of our conclusions. Parameter estimates are shown for the ancestral population size, N_{ANC} , the population size for the northern population of each division, N_2 , and the migration rate, MIG as one or two parameters depending on the model, divergence time, T_{DIV} , and the time of the gene flow, T_{GF} , for Pulse GF scenario are reported. Note that the population size of the southern population per geographic division (N_I) was calculated directly from the empirical data (i.e., it is a fixed parameter in the model) to improve the accuracy of the other parameters estimated from the SFS (following the recommendations for the program; see Excoffier & Foll, 2011). Also given are the priors (top row), number of individuals and loci used to calculate the site frequency spectrum (SFS).

(A) North division

Taxa	# Ind.	Loci	Model	N_{ANC}	N_I	N_2	MIG	T_{DIV}	T_{GF}
			PRIORS (not bounded)	unif[1e3,1e6]	fixed parameter	unif[1e3,1e6]	GF = logunif[1e-5,20]/N2 Pulse GF = unif[1e-8,0.2]	unif[1e3,2e6]	unif[1e3,1.2e5] Tadm < TDIV
<i>M. microlepis</i>	12	1035	Strict Div.	14444		18098	na	25937	na
			GF (sym.)	12262		17983	6.6e-7	28167	na
			GF (asym.)	11133	99119	19975	1.28e-6, 1.25e-8	32042	na
			Pulse GF (sym.)	12671		19562	2.4e-3	28582	15547
			Pulse GF (asym.)	11426		19674	1.1e-2, 6.2e-4	30818	1111
<i>H. Boulengeri</i>	15	2083	Strict Div.	96521		39876	na	135418	na
			GF (sym.)	18710		36887	1.26e-7	204872	na
			GF (asym.)	14598	80214	34996	2.7e-9, 2e-7	205167	na
			Pulse GF (sym.)	81988		35084	7.7e-3	143341	29997
			Pulse GF (asym.)	46627		41050	0.26, 0.1	232937	102385

(B) Central division

Taxa	# Ind.	Loci	Model	N_{ANC}	N_I	N_2	MIG	T_{DIV}	T_{GF}
			PRIORS (not bounded)	unif[1e3,1e6]	fixed parameter	unif[1e3,1e6]	GF = logunif[1e-5,20]/N2 Pulse GF = unif[1e-8,0.2]	unif[1e3,2e6]	unif[1e3,1.2e5] Tadm < TDIV
<i>M. microlepis</i>	15	1235	Strict Div.	15158		24893	na	26453	na
			GF (sym.)	8758		26621	1.42e-6	37170	na
			GF (asym.)	6870	70485	26555	1.67e-6, 1.5e-6	38608	na
			Pulse GF (sym.)	11054		25114	3.6e-3	30408	22384
			Pulse GF (asym.)	8091		26599	1.6e-2, 1.5e-2	36819	2613
<i>H. Boulengeri</i>	15	4385	Strict Div.	66139		26644	na	21456	na
			GF (sym.)	65035		26959	9.82e-7	23666	na
			GF (asym.)	61107	50802	25820	4.61e-8, 1.92e-6	23339	na
			Pulse GF (sym.)	71923		31340	2.59e-3	28103	18001
			Pulse GF (asym.)	120106		30536	0.95, 0.084	233547	20751
<i>Hollandichthys</i>	15	5533	Strict Div.	73595		139357	na	62845	na
			GF (sym.)	38364		139814	1.29e-6	112598	na
			GF (asym.)	30562	98214	146054	1.4e-6, 1.26e-6	125104	na
			Pulse GF (sym.)	60372		140216	8.4e-3	74171	33076
			Pulse GF (asym.)	38053		138302	0.047, 0.043	108770	9476
<i>Bryconamericus</i>	15	4142	Strict Div.	40127		90945	na	62652	na
			GF (sym.)	6326		85261	8.5e-7	98416	na
			GF (asym.)	1878	81933	77290	2.67e-7, 2.39e-6	104504	na
			Pulse GF (sym.)	41011		86488	1.7e-3	63994	49844
			Pulse GF (asym.)	2566		80988	8e-3, 0.12	116180	12749

(C) South division

Taxa	# Ind.	Loci	Model	N_{ANC}	N_I	N_2	MIG	T_{DIV}	T_{GF}
			PRIORS (not bounded)	unif[1e3,1e6]	fixed parameter	unif[1e3,1e6]	GF = logunif[1e-5,20]/N2 Pulse GF = unif[1e-8,0.2]	unif[1e3,2e6]	unif[1e3,1.2e5] Tadm < TDIV
<i>M. microlepis</i>	15	3004	Strict Div.	8798		5169	na	6689	na
			GF (sym.)	7474		5228	4.43e-6	7897	na
			GF (asym.)	7797	26432	4983	3.07e-6, 6.23e-6	7563	na
			Pulse GF (sym.)	8188		5011	1.1e-3	6762	2704
			Pulse GF (asym.)	8042		5606	0.19, 0.036	8666	4709
<i>H. bouleengeri</i>	15	5186	Strict Div.	85888		30729	na	27103	na
			GF (sym.)	80285		31550	1.7e-6	35637	na
			GF (asym.)	78432	43781	30251	1.21e-6, 2.11e-6	33847	na
			Pulse GF (sym.)	87335		30486	2.6e-3	29611	4853
			Pulse GF (asym.)	73184		30836	0.06, 0.09	41535	8770
<i>Hollandichthys</i>	15	5785	Strict Div.	23054		6331	na	9709	na
			GF (sym.)	21749		7084	4.75e-6	15078	na
			GF (asym.)	17817	42411	5177	1.32e-6, 1.52e-5	16246	na
			Pulse GF (sym.)	26993		11007	2e-3	19718	11277
			Pulse GF (asym.)	19099		5205	3.7e-3, 6.1e-2	14253	1092
<i>Bryconamericus</i>	7	6133	Strict Div.	24873		66225	na	74949	na
			GF (sym.)	10877		69312	2.51e-7	93031	na
			GF (asym.)	10149	42017	66132	4.55e-8, 5.25e-7	92303	na
			Pulse GF (sym.)	19848		66719	2e-3	82911	67900
			Pulse GF (asym.)	8773		50029	1.89e-3, 5.6e-3	97311	3137

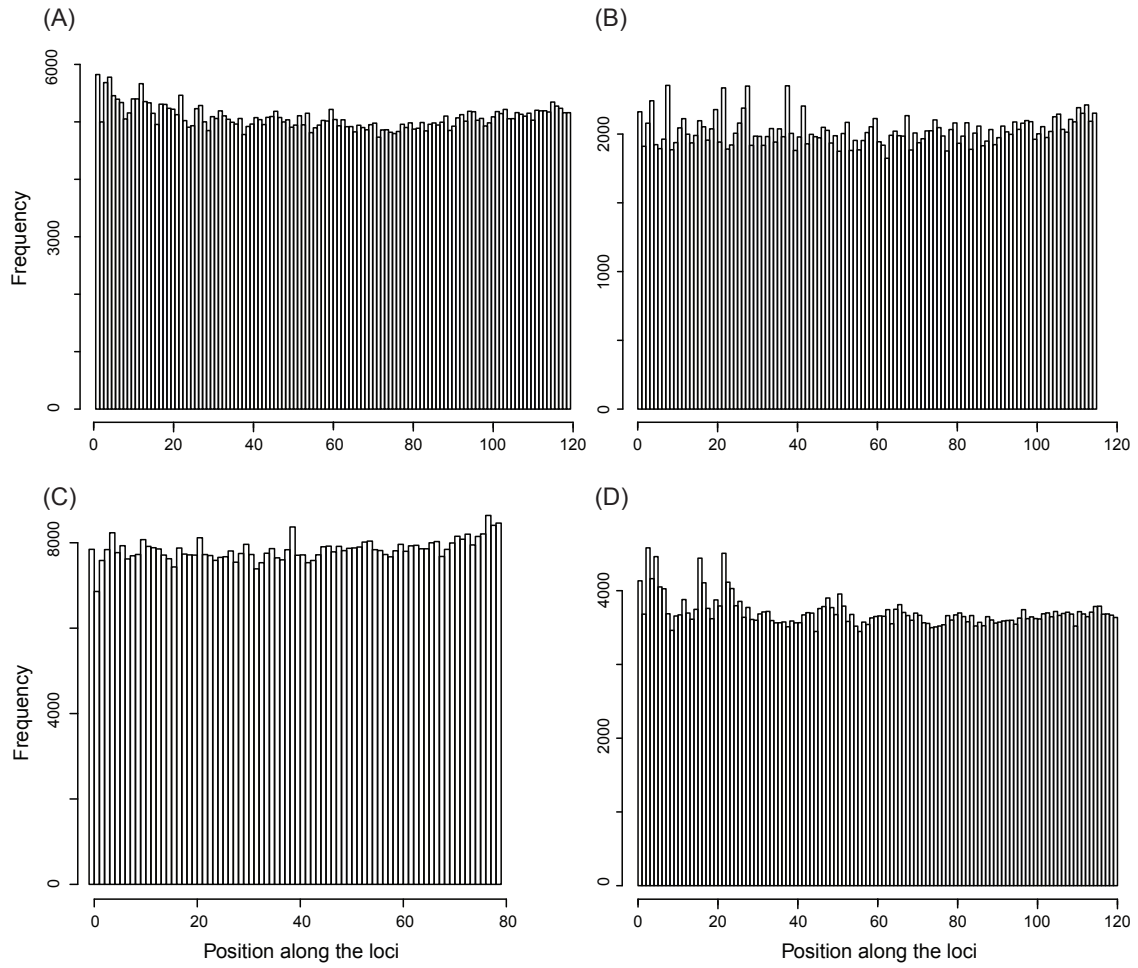


Figure S1. Summary of the frequency of segregating sites for each base-pair position of a locus in *M. microlepis* (A), *H. Boulengeri* (B), *Hollandichthys* (C), and *Bryconamericus* (D).

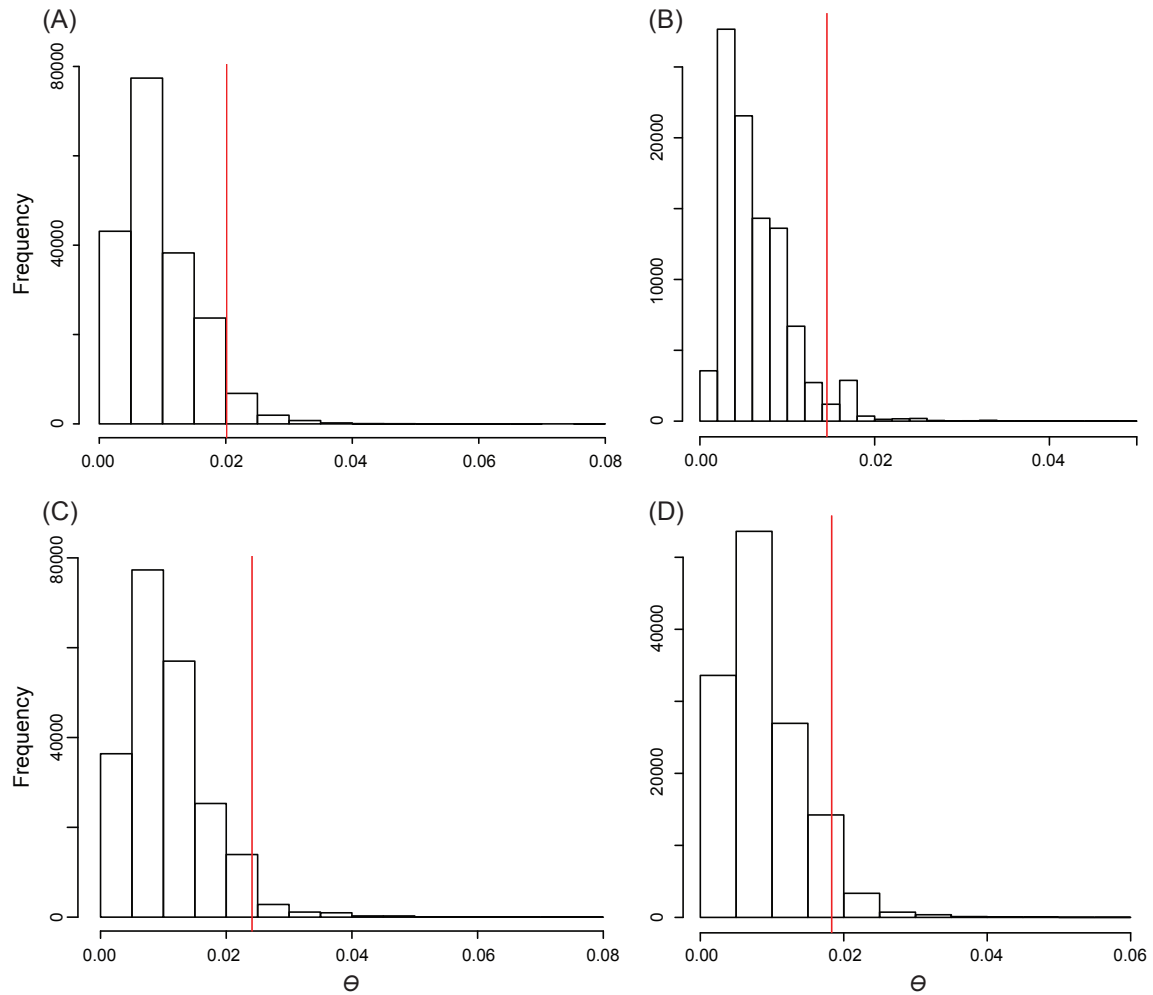


Figure S2. Distribution of theta, θ , per loci, with the red line marking the θ -values in the 95 percentile that were excluded from analyses to avoid including variation likely reflective of sequencing and/or assembly errors in *M. microlepis* (A), *H. Boulengeri* (B), *Hollandichthys* (C), *Bryconamericus* (D).

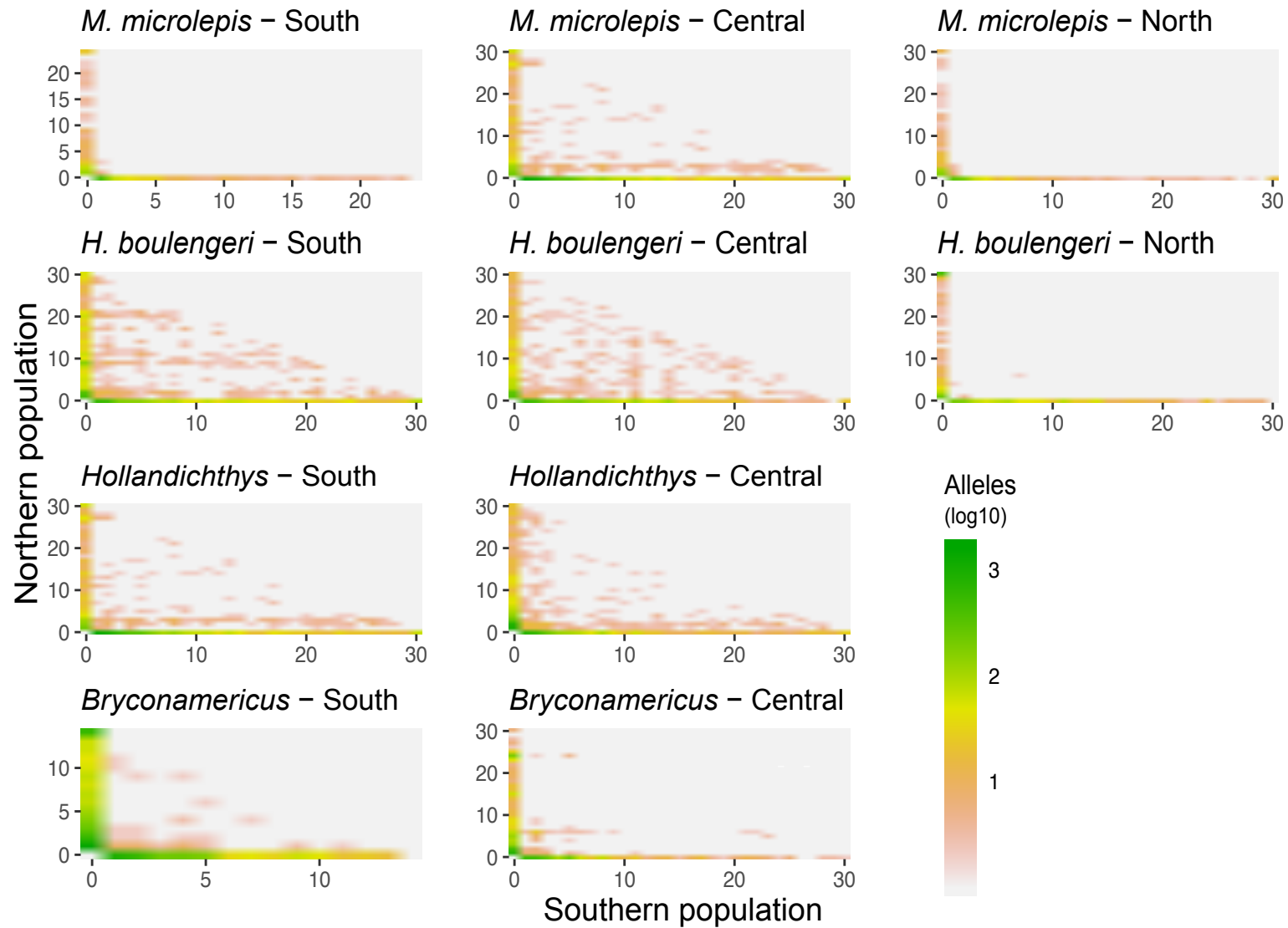
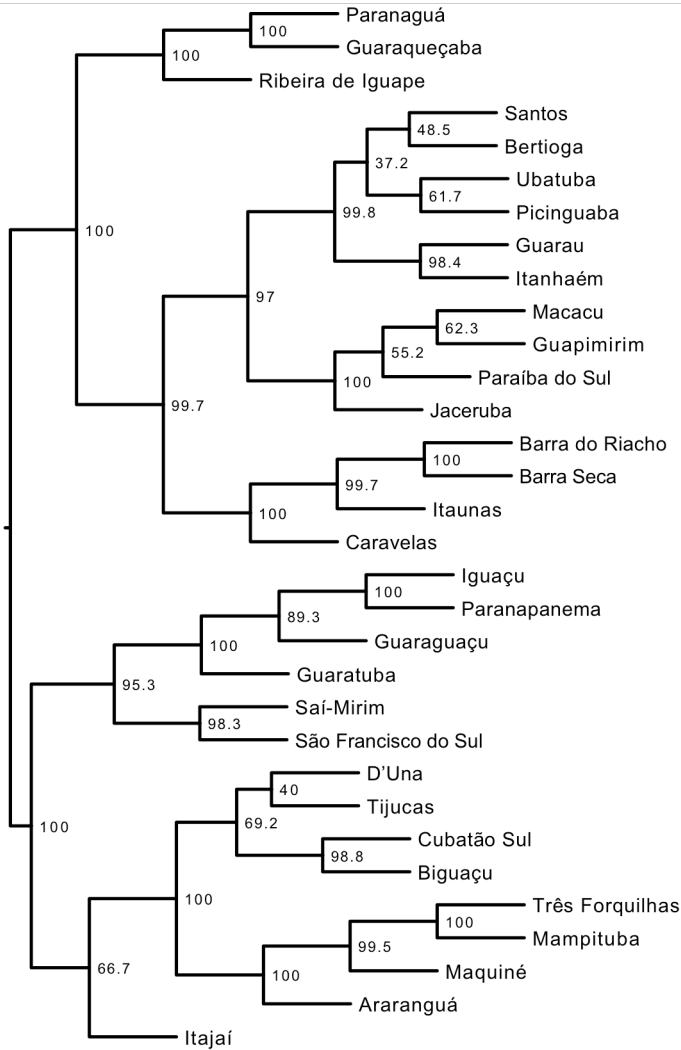


Fig. S3. Heat maps of the joint folded site frequency spectrum (SFS) for populations on the north and south of each geographic division for each taxon; these are the SFSs used to compare the models estimated in FASTSIMCOAL.

(a) *M. microlepis*



(b) *H. boulengeri*

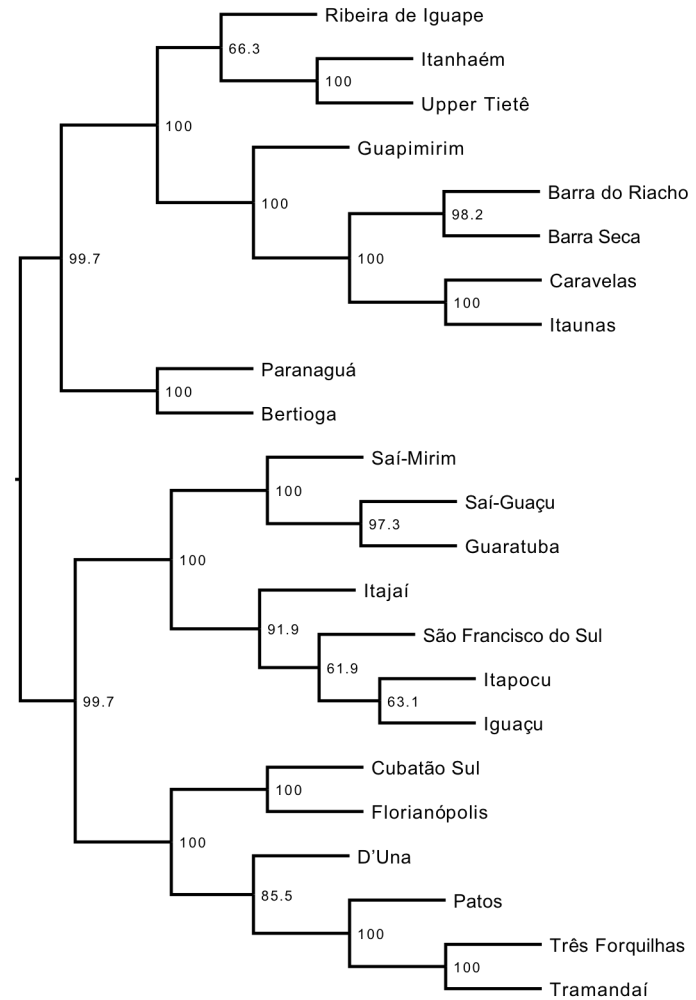
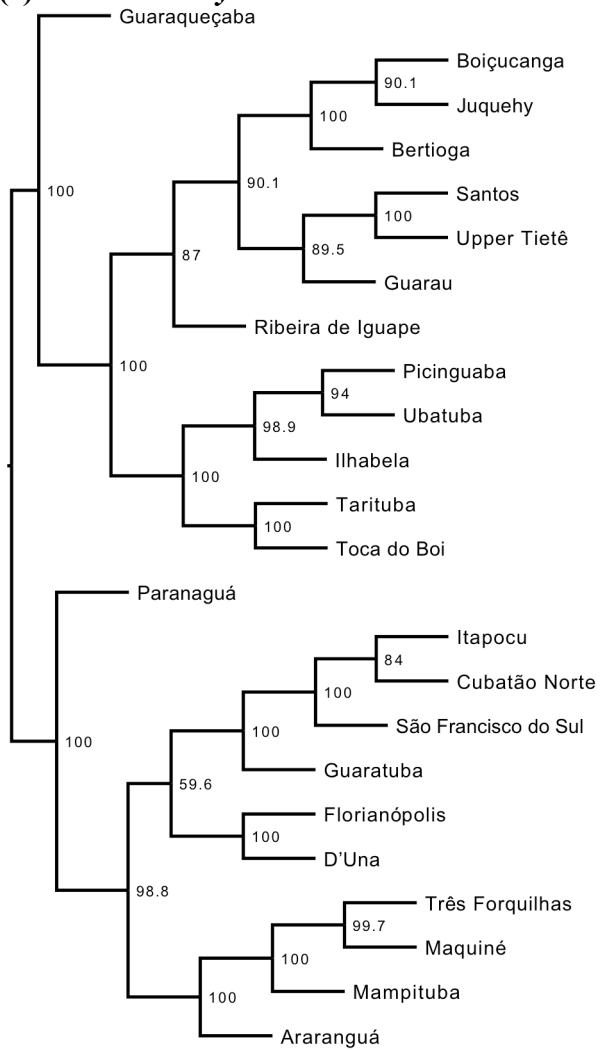


Figure S4. Phylogenetic trees estimated with SVDquartets at the population level for each taxon (A = *M. microlepis*, B = *H. boulengeri*, C = *Hollandichthys* and D = *Bryconamericus*). Bootstraps support values are shown on each node – *continued next page.*

(c) *Hollandichthys*



(d) *Bryconamericus*

