TABLE S1 | Voucher specimens of *Umbrina canosai* from the Southwestern Atlantic that were employed for molecular analyses, with the region, location, sampling date, sex, total length (mm) and total weight (g) of individuals. Regions: Southeastern Brazil (SEB), Southern Brazil (SB) and Argentine-Uruguayan Common Fishing Zone (AU). Voucher names followed the codes: UC (*Umbrina canosai*), RJ (Rio de Janeiro State), SP (São Paulo State), RS (Rio Grande do Sul State) and AR (Argentina). m = male, f = female, Und. = sex undefined.

Region	Voucher specimen	Location	Number per region	Sampling date	Sex	Total length (mm)	Total weight (g)
SB	UCRS001	Rio Grande	1	21/08/2018	m	332	442
SB	UCRS002	Rio Grande	2	21/08/2018	f	252	210
SB	UCRS003	Rio Grande	3	21/08/2018	f	270	285
SB	UCRS004	Rio Grande	4	21/08/2018	m	251	227
SB	UCRS005	Rio Grande	5	21/08/2018	f	278	313
SB	UCRS006	Rio Grande	6	21/08/2018	m	225	144
SB	UCRS007	Rio Grande	7	21/08/2018	f	292	314
SB	UCRS008	Rio Grande	8	21/08/2018	m	291	331
SB	UCRS009	Rio Grande	9	21/08/2018	f	322	466
SB	UCRS020	Rio Grande	10	23/08/2018	f	375	767
SB	UCRS021	Rio Grande	11	23/08/2018	m	375	816
SB	UCRS022	Rio Grande	12	23/08/2018	f	405	826
SB	UCRS023	Rio Grande	13	23/08/2018	f	347	530
SB	UCRS024	Rio Grande	14	23/08/2018	f	306	429
SB	UCRS026	Rio Grande	15	23/08/2018	m	304	412
SB	UCRS028	Rio Grande	16	23/08/2018	m	356	755
SB	UCRS030	Rio Grande	17	23/08/2018	m	329	535
SB	UCRS035	Rio Grande	18	23/08/2018	m	339	560
SB	UCRS042	Rio Grande	19	30/08/2018	f	368	709
SB	UCRS043	Rio Grande	20	30/08/2018	m	358	686
SB	UCRS044	Rio Grande	21	30/08/2018	f	353	573
SB	UCRS045	Rio Grande	22	30/08/2018	m	367	510
SB	UCRS046	Rio Grande	23	30/08/2018	f	357	665
SB	UCRS047	Rio Grande	24	30/08/2018	f	386	666
SB	UCRS048	Rio Grande	25	30/08/2018	m	361	643
SB	UCRS049	Rio Grande	26	30/08/2018	m	347	589
SB	UCRS050	Rio Grande	27	30/08/2018	f	351	625
SB	UCRS057	Rio Grande	28	13/09/2018	f	406	912
SB	UCRS058	Rio Grande	29	13/09/2018	f	398	873
SB	UCRS059	Rio Grande	30	13/09/2018	m	380	798
SB	UCRS060	Rio Grande	31	13/09/2018	m	411	982
SB	UCRS061	Rio Grande	32	13/09/2018	m	402	822
SB	UCRS062	Rio Grande	33	13/09/2018	f	394	914
SB	UCRS063	Rio Grande	34	13/09/2018	f	390	877
AU	UCAR095	Necochea	1	04/04/2017	f	290	344
AU	UCAR096	Necochea	2	04/04/2017	m	305	394

TABLE S1 | (Continued)

Region	Voucher specimen	Location	Number per region	Sampling date	Sex	Total length (mm)	Total weight (g)
AU	UCAR097	Necochea	3	04/04/2017	f	355	528
AU	UCAR098	Necochea	4	04/04/2017	f	250	238
AU	UCAR099	Necochea	5	04/04/2017	f	320	488
AU	UCAR100	Villa Gesell	6	03/12/2015	f	365	590
AU	UCAR101	Villa Gesell	7	03/12/2015	m	375	640
AU	UCAR102	Necochea	8	04/04/2017	und.	250	254
AU	UCAR103	Necochea	9	04/04/2017	m	270	284
AU	UCAR104	Necochea	10	04/04/2017	m	290	322
AU	UCAR105	Necochea	11	04/04/2017	f	280	322
AU	UCAR106	Necochea	12	04/04/2017	m	300	394
AU	UCAR107	Necochea	13	04/04/2017	f	250	270
AU	UCAR108	Necochea	14	04/04/2017	m	280	300
AU	UCAR109	Necochea	15	04/04/2017	f	300	392
AU	UCAR110	Necochea	16	04/04/2017	f	275	310
AU	UCAR111	Necochea	17	04/04/2017	f	280	324
AU	UCAR112	Necochea	18	04/04/2017	f	295	376
AU	UCAR113	Villa Gesell	19	03/12/2015	f	340	498
AU	UCAR114	Villa Gesell	20	03/12/2015	f	360	598
AU	UCAR121	San Clemente del Tuyú	21	15/01/2019	-	335	482
AU	UCAR122	San Clemente del Tuyú	22	15/01/2019	-	350	538
AU	UCAR125	San Clemente del Tuyú	23	15/01/2019	-	360	632
AU	UCAR127	San Clemente del Tuyú	24	15/01/2019	-	330	444
AU	UCAR128	San Clemente del Tuyú	25	15/01/2019	-	315	416
AU	UCAR129	San Clemente del Tuyú	26	15/01/2019	-	315	418
AU	UCAR130	San Clemente del Tuyú	27	15/01/2019	-	355	576
AU	UCAR131	San Clemente del Tuyú	28	15/01/2019	-	363	612
AU	UCAR132	San Clemente del Tuyú	29	15/01/2019	-	330	412
AU	UCAR133	San Clemente del Tuyú	30	15/01/2019	-	405	824
AU	UCAR134	San Clemente del Tuyú	31	15/01/2019	-	370	594
AU	UCAR135	San Clemente del Tuyú	32	15/01/2019	-	370	610
AU	UCAR136	San Clemente del Tuyú	33	15/01/2019	-	355	530
AU	UCAR137	San Clemente del Tuyú	34	15/01/2019	-	310	388
AU	UCAR138	San Clemente del Tuyú	35	15/01/2019	-	315	444
SEB	UCRJ152	Niterói	1	25/02/2019	f	309	334
SEB	UCRJ153	Niterói	2	25/02/2019	f	325	390

TABLE S1 | (Continued)

Region	Voucher specimen	Location	Number per region	Sampling date	Sex	Total length (mm)	Total weight (g)
SEB	UCRJ154	Niterói	3	25/02/2019	f	337	446
SEB	UCRJ155	Niterói	4	25/02/2019	m	310	368
SEB	UCRJ156	Niterói	5	25/02/2019	f	315	387
SEB	UCRJ157	Niterói	6	25/02/2019	m	308	340
SEB	UCRJ158	Niterói	7	25/02/2019	m	339	483
SEB	UCRJ159	Niterói	8	25/02/2019	m	317	380
SEB	UCRJ160	Niterói	9	25/02/2019	m	305	388
SEB	UCRJ161	Niterói	10	25/02/2019	m	310	375
SEB	UCRJ162	Niterói	11	25/02/2019	f	326	423
SEB	UCRJ163	Niterói	12	25/02/2019	m	334	409
SEB	UCRJ164	Niterói	13	25/02/2019	f	315	381
SEB	UCRJ165	Niterói	14	25/02/2019	f	299	336
SEB	UCRJ166	Niterói	15	25/02/2019	m	322	411
SEB	UCRJ168	Niterói	16	25/02/2019	f	282	250
SEB	UCRJ169	Niterói	17	25/02/2019	m	295	365
SEB	UCRJ171	Niterói	18	25/02/2019	m	324	421
SEB	UCRJ172	Niterói	19	25/02/2019	f	290	308
SEB	UCRJ173	Niterói	20	25/02/2019	f	297	318
SEB	UCRJ174	Niterói	21	25/02/2019	f	306	340
SEB	UCRJ175	Niterói	22	25/02/2019	m	315	475
SEB	UCRJ178	Niterói	23	25/02/2019	f	318	386
SEB	UCRJ179	Niterói	24	25/02/2019	m	316	388
SEB	UCRJ182	Niterói	25	25/02/2019	f	337	468
SEB	UCRJ184	Niterói	26	25/02/2019	f	361	542
SEB	UCRJ186	Niterói	27	25/02/2019	m	334	486
SEB	UCRJ187	Niterói	28	25/02/2019	m	299	320
SEB	UCRJ188	Niterói	29	25/02/2019	m	313	394
SEB	UCRJ189	Niterói	30	25/02/2019	m	311	370
SEB	UCRJ196	Niterói	31	25/02/2019	f	347	487
SEB	UCSP202	Ilhabela	32	15/09/2019	m	287	316
SEB	UCSP203	Ilhabela	33	15/09/2019	m	287	321
SEB	UCSP204	Ilhabela	34	15/09/2019	m	283	302
SEB	UCSP205	Ilhabela	35	15/09/2019	f	290	321
SEB	UCSP207	Ilhabela	36	15/09/2019	m	280	284
SEB	UCSP208	Ilhabela	37	15/09/2019	m	291	343
SEB	UCSP209	Ilhabela	38	15/09/2019	m	275	307
SEB	UCSP210	Ilhabela	39	15/09/2019	m	250	227
SEB	UCSP211	Ilhabela	40	15/09/2019	m	260	279
SEB	UCSP212	Ilhabela	41	15/09/2019	m	275	291
SEB	UCSP213	Ilhabela	42	15/09/2019	f	290	373
SEB	UCSP214	Ilhabela	43	15/09/2019	m	281	324

TABLE S1 | (Continued)

Region	Voucher specimen	Location	Number per region	Sampling date	Sex	Total length (mm)	Total weight (g)
SEB	UCSP215	Ilhabela	44	15/09/2019	m	288	317
SEB	UCSP216	Ilhabela	45	15/09/2019	m	280	316
SEB	UCSP217	Ilhabela	46	15/09/2019	m	284	318
SEB	UCSP218	Ilhabela	47	15/09/2019	f	260	276
SEB	UCSP219	Ilhabela	48	15/09/2019	f	275	303
SEB	UCSP220	Ilhabela	49	15/09/2019	m	266	297
SEB	UCSP221	Ilhabela	50	15/09/2019	m	285	326
SEB	UCSP222	Ilhabela	51	15/09/2019	f	257	247
SEB	UCSP223	Ilhabela	52	15/09/2019	f	294	387
SEB	UCSP224	Ilhabela	53	15/09/2019	f	255	234
SEB	UCSP225	Ilhabela	54	15/09/2019	f	303	363
SEB	UCSP226	Ilhabela	55	15/09/2019	m	265	270
SEB	UCSP228	Ilhabela	56	15/09/2019	m	295	307
SEB	UCSP229	Ilhabela	57	15/09/2019	m	-	314
SEB	UCSP232	Ilhabela	58	15/09/2019	f	289	361
SEB	UCSP237	Ilhabela	59	15/09/2019	f	290	358
SEB	UCSP244	Ilhabela	60	15/09/2019	f	267	273
SEB	UCSP246	Ilhabela	61	15/09/2019	f	294	340
SEB	UCSP247	Ilhabela	62	15/09/2019	f	277	352
SEB	UCSP249	Ilhabela	63	15/09/2019	f	264	302
SEB	UCSP251	Ilhabela	64	15/09/2019	f	280	334

TABLE S2 | Exact G test of population differentiation (p-values, upper diagonal) and F_{ST} indices (lower diagonal) among three regions along the Southwestern Atlantic for *Umbrina canosai*. No values were significant.

Region	SEB	SB	AU
Southeastern Brazil (SEB)	-	0.6889	0.0857
Southern Brazil (SB)	-0.0221	-	0.3775
Argentine-Uruguayan Common Fishing Zone (AU)	-0.0172	-0.0023	-

TABLE S3 | Analysis of Molecular Variance (AMOVA) for *Umbrina canosai* comparing the two stocks: north and south; and the three regions: Southeastern Brazil (SEB), Southern Brazil (SB) and Argentine-Uruguayan Common Fishing Zone (AU). Abbreviations of fixation indices: cluster in relation to the total (F_{CT}), subpopulation in relation to the cluster (F_{SC}) and subpopulation in relation to the total (F_{ST}).

Grouping	Source of variation	Degrees of freedom	Sum of squares	Variance components	Percentage of variation (%)	Fixation index	P-value
North Stock (SEB) x South Stock (SB+AU)	Among stocks	1	-3.007	Va = -0.035	-1.78	F_{CT}: -0.0178	0.6632
	Among regions within stocks	1	1.798	Vb = -0.003	-0.16	F_{SC}: -0.0016	0.6202
	Within regions	263	532.419	Vc = 2.024	101.95	F_{ST}: -0.0195	0.9987
	Total	265	531.211	1.986	100		
Regions SEB x SB x AU	Among regions	2	-1.208	Va = -0.031	-1.56	F_{ST}: -0.0156	0.9982
	Within regions	263	532.419	Vb = 2.024	101.56		
	Total	265	531.211	1.993	100		

TABLE S4 | Mean migrants per generation of *Umbrina canosai* among three regions along the Southwestern Atlantic, estimated in Migrate software. The lines show the priors, results and model diagnostics to each model (columns). Region abbreviations: Southeastern Brazil (SEB), Southern Brazil (SB), Argentine-Uruguayan Common Fishing Zone (AU). Diagnostic abbreviations: Bezier-approximated Thermodynamic integration (BTI), Effective MCMC Sample Size (ESS).

	Parameters	Model 0 (Migrate default)	Model 1	Model 2	Model 3
Prior range	Distribution	Uniform	Exponential	Uniform	Uniform
	Mutation-scaled population size (Θ)	0 - 0.10	0 - 20	0 - 20	0 - 200
	Mutation-scaled migration rate (M)	0 - 1000	0 - 20	0 - 20	0 - 200
Mean number of migrants per generation (γ)	SB→SEB	40.76	149.23	179.96	524.26
	AU→SEB	45.40	95.73	153.91	498.05
	SEB→SB	45.71	86.74	207.23	2062.86
	AU→SB	48.58	111.23	168.07	1321.69
	SEB→AU	42.08	103.31	191.01	3286.80
	SB→AU	57.21	96.72	179.41	2088.41
	General Mean	46.63	107.16	179.93	1630.35
Diagnostics	BTI (marginal likelihood)	-2464968.32	-139270.96	-85672.19	-21559.57
	Percentage of parameters with ESS > 1000	100%	40%	40%	100%

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