Supplementary Material: Effectiveness of community-based TURF-reserves in small-scale fisheries

Raw data and code are available on GitHub at: `https://github.com/jcvdav/ReserveEffect`

Table S1. Number of invertebrate transects performed in each site of each community.

Community	Control	Reserve
Isla Natividad	415	244
Maria Elena	27	21
Punta Herrero	51	73

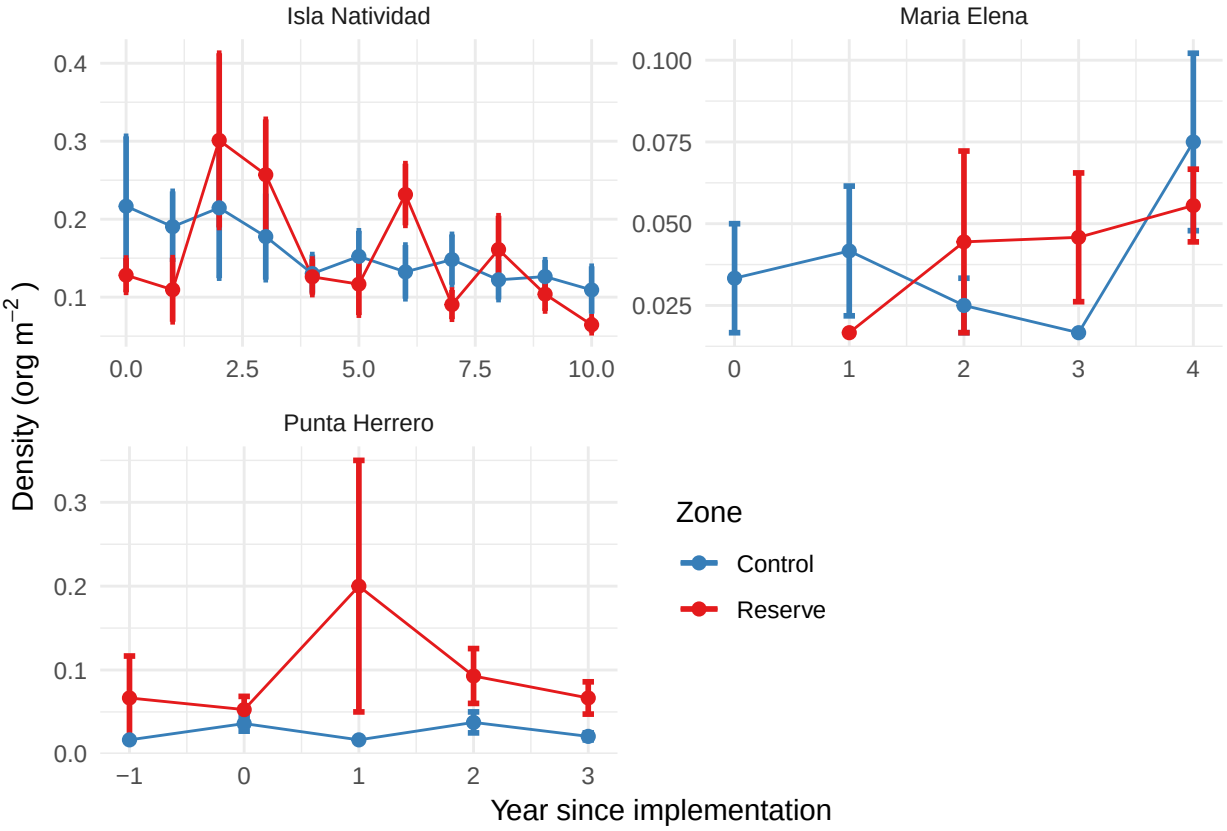

Figure S1: Time series of lobster densities. Bars indicate standard errors.

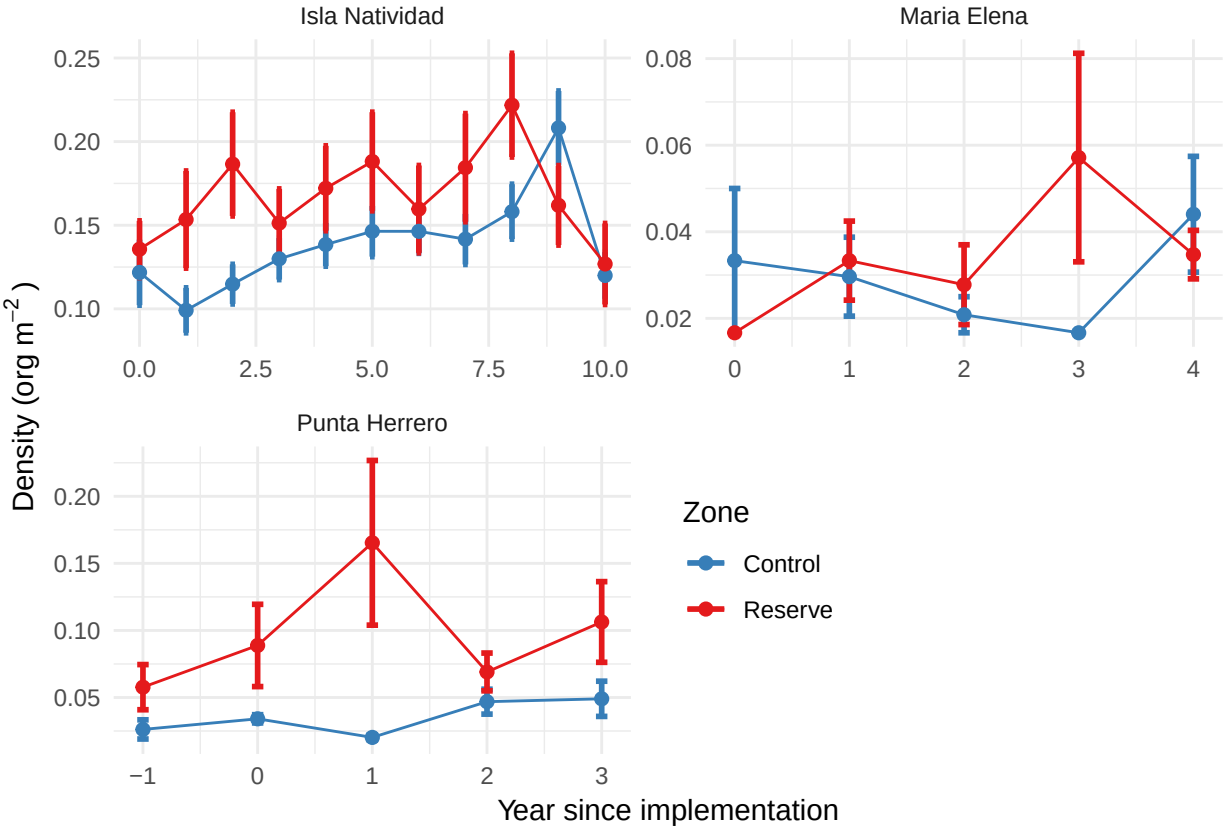

Figure S2: Time series of invertebrate densities. Bars indicate standard errors.

Table S2. Number of fish transects performed in each site of each community.

Community	Control	Reserve
Isla Natividad	400	241
Maria Elena	44	45
Punta Herrero	82	85

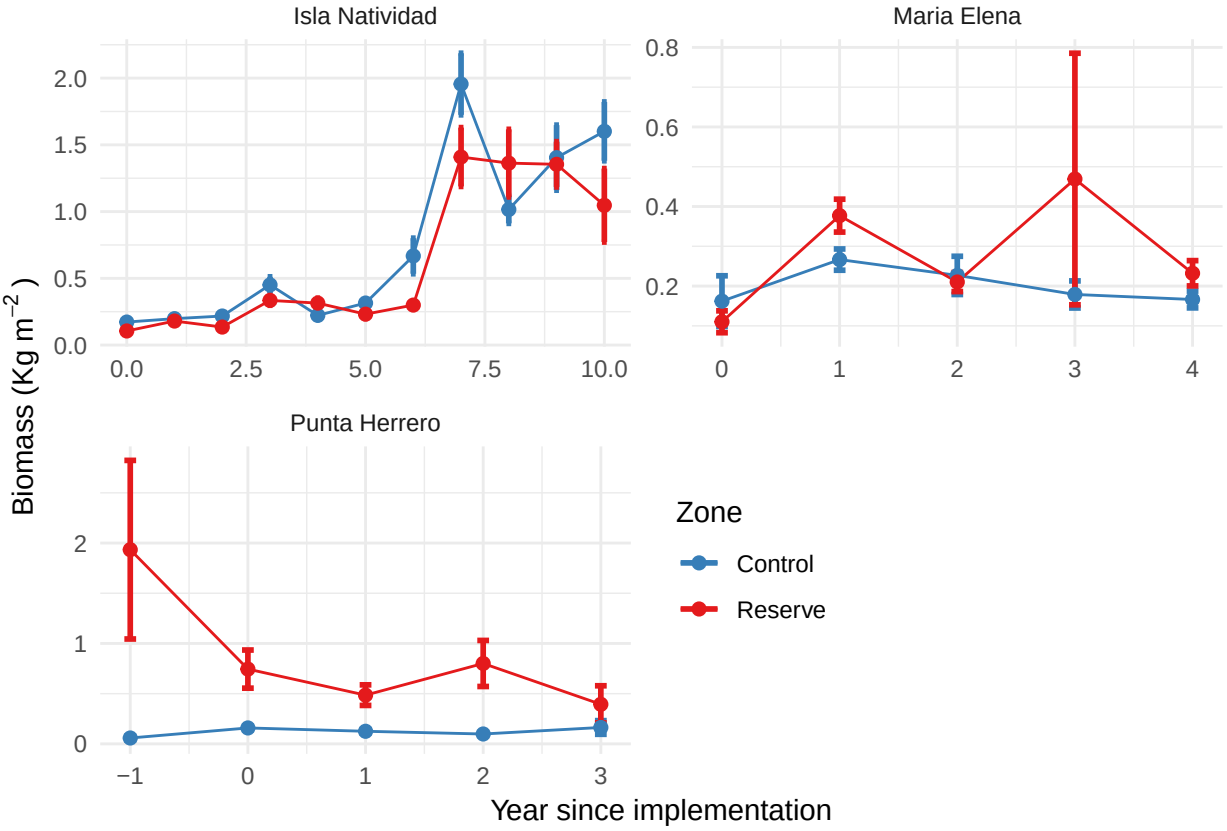

Figure S3: Time series of fish biomass. Bars indicate standard errors.

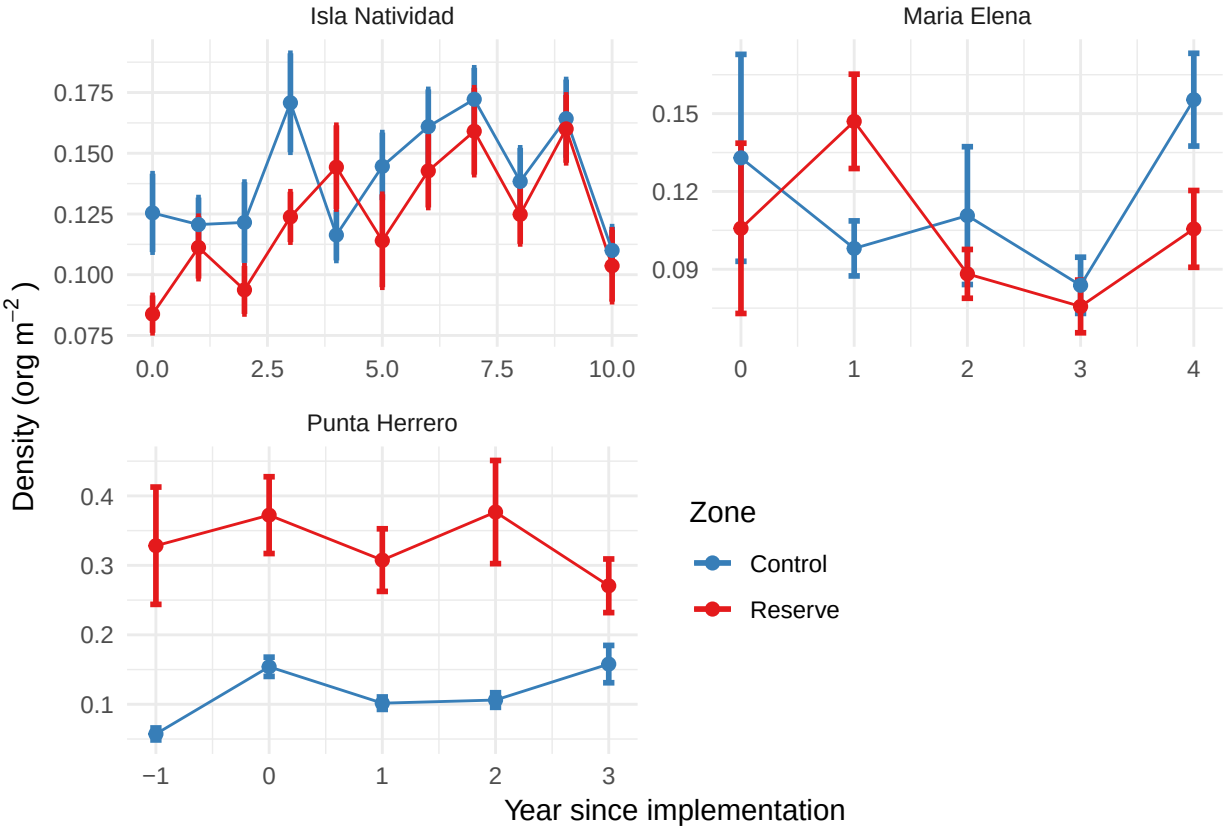

Figure S4: Time series of fish densities. Bars indicate standard errors.

Table S3. Mean ex-vessel prices for lobster (Panulirus spp.) on each TURF (community) by zone (MC = Caribbean; PN = Pacific) and group (Control = only TURF, Treated = TURF and reserve).

Zone	Group	TURF	Before	After
MC	Control	langosteros del caribe	165.58	176.72
MC	Control	vigia chico	177.66	175.31
MC	Treated	cozumel	178.21	170.49
MC	Treated	jose maria azcorra	185.95	207.83
PN	Control	bahia tortugas	155.60	122.46
PN	Control	la purisima	67.54	157.88
PN	Control	pesc nacionales de abulon	67.16	88.79
PN	Treated	buzos y pescadores de la baja california	89.35	190.07

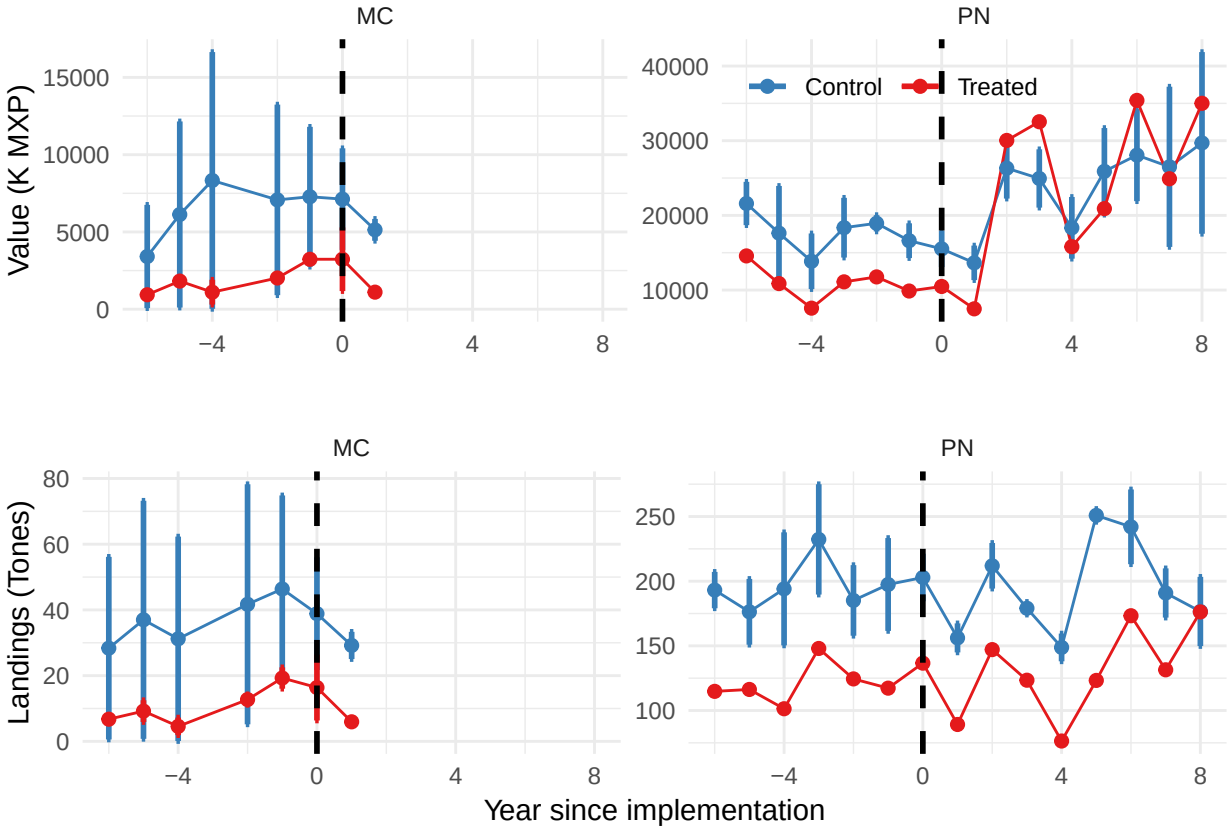

Figure S5: Time series of landings and value of landings.

Table S4. Coefficient estimates of biological indicators for Isla Natividad.

	Dependent variable:			
	Lobster abundance	Fish biomass	Invertebrate abundance	Invertebrate biomass
	(1)	(2)	(3)	(4)
zonaReserva	−0.011 (0.058)	−0.003 (0.002)	0.002 (0.020)	−0.031* (0.017)
year1	0.032 (0.067)	−0.004 (0.003)	−0.027 (0.021)	0.001 (0.018)
year2	0.0002 (0.077)	−0.004 (0.003)	0.002 (0.020)	0.010 (0.022)
year3	0.023 (0.072)	0.004 (0.003)	0.014 (0.020)	0.053** (0.025)
year4	−0.030 (0.058)	−0.002 (0.002)	−0.009 (0.020)	−0.005 (0.018)
year5	−0.006 (0.061)	0.001 (0.002)	0.006 (0.020)	0.036* (0.020)
year6	−0.014 (0.062)	0.008** (0.003)	0.014 (0.020)	0.049** (0.022)
year7	−0.021 (0.060)	0.064*** (0.010)	−0.044* (0.023)	0.063*** (0.019)
year8	−0.026 (0.059)	0.027*** (0.005)	−0.029 (0.020)	0.025 (0.020)
year9	−0.038 (0.057)	0.040*** (0.009)	−0.021 (0.025)	0.056** (0.022)
year10	−0.066 (0.057)	0.043*** (0.009)	−0.107*** (0.024)	−0.006 (0.018)
zonaReserva:year1	−0.058 (0.078)	0.005 (0.004)	0.041 (0.031)	0.013 (0.023)
zonaReserva:year2	0.126 (0.121)	0.005 (0.004)	0.049 (0.033)	0.007 (0.024)
zonaReserva:year3	0.053 (0.093)	0.001 (0.004)	0.004 (0.027)	−0.020 (0.028)
zonaReserva:year4	0.035 (0.065)	0.007** (0.003)	0.017 (0.030)	0.075*** (0.025)
zonaReserva:year5	−0.045 (0.068)	0.001 (0.004)	0.013 (0.029)	−0.0003 (0.028)
zonaReserva:year6	0.096 (0.075)	−0.001 (0.004)	0.013 (0.029)	0.009 (0.027)
zonaReserva:year7	−0.030 (0.065)	−0.013 (0.017)	0.012 (0.033)	0.008 (0.026)
zonaReserva:year8	0.012 (0.069)	0.026 (0.016)	0.032 (0.028)	0.021 (0.025)
zonaReserva:year9	0.002 (0.064)	0.007 (0.012)	−0.077** (0.036)	0.031 (0.027)
zonaReserva:year10	−0.016 (0.062)	−0.011 (0.016)	−0.018 (0.034)	0.027 (0.024)
Constant	0.122** (0.054)	0.001 (0.006)	0.059*** (0.018)	0.119*** (0.042)
Observations	659	2,987	3,714	2,987
R^2	0.049	0.211	0.426	0.153
Residual Std. Error	0.189 (df = 637)	0.067 (df = 2947)	0.187 (df = 3667)	0.165 (df = 2947)
Note:				*p<0.1; **p<0.05; ***p<0.01

Table S5. Coefficient estimates of biological indicators for Maria Elena.

	Dependent variable:			
	Lobster abundance	Fish biomass	Invertebrate abundance	Invertebrate biomass
	(1)	(2)	(3)	(4)
zonaReserva	−0.033** (0.013)	−0.001 (0.002)	−0.007 (0.021)	−0.024 (0.047)
year1	0.008 (0.023)	0.003* (0.002)	0.010 (0.019)	−0.034 (0.038)
year2	−0.019 (0.015)	0.001 (0.002)	−0.004 (0.015)	−0.037 (0.044)
year3	−0.028** (0.014)	−0.0001 (0.002)	−0.002 (0.016)	−0.057 (0.040)
year4	0.023 (0.028)	0.0004 (0.002)	0.022 (0.022)	0.044 (0.041)
zonaReserva:year1	−0.003 (0.024)	0.004* (0.002)	0.008 (0.023)	0.065 (0.051)
zonaReserva:year2	0.046* (0.024)	0.002 (0.002)	0.017 (0.022)	0.020 (0.053)
zonaReserva:year3	0.074*** (0.024)	0.001 (0.002)	0.039 (0.040)	0.013 (0.049)
zonaReserva:year4	0.001 (0.031)	0.003 (0.002)	−0.001 (0.027)	−0.040 (0.052)
Constant	0.033** (0.013)	−0.0004 (0.001)	0.010 (0.019)	0.133*** (0.040)
Observations	48	1,146	75	1,146
R^2	0.222	0.807	0.199	0.248
Residual Std. Error	0.038 (df = 38)	0.010 (df = 1090)	0.035 (df = 57)	0.175 (df = 1090)
Note:				*p<0.1; **p<0.05; ***p<0.01

Table S6. Coefficient estimates of biological indicators for Punta Herrero.

	Dependent variable:			
	Lobster abundance	Fish biomass	Invertebrate abundance	Invertebrate biomass
	(1)	(2)	(3)	(4)
zonaReserva	0.004 (0.009)	0.014** (0.005)	0.069** (0.035)	0.170*** (0.054)
year-1	−0.006 (0.007)	−0.001 (0.002)	0.019 (0.022)	−0.087*** (0.031)
year1	−0.008 (0.005)	−0.003 (0.002)	−0.0001 (0.018)	−0.073*** (0.028)
year2	0.004 (0.009)	−0.002 (0.002)	0.032** (0.014)	−0.053* (0.028)
year3	−0.001 (0.006)	−0.002 (0.002)	0.038* (0.020)	−0.016 (0.032)
zonaReserva:year-1	0.017 (0.023)	−0.013* (0.008)	−0.044 (0.043)	−0.134* (0.081)
zonaReserva:year1	0.018 (0.024)	−0.011* (0.006)	0.048 (0.071)	−0.021 (0.066)
zonaReserva:year2	0.019 (0.021)	−0.001 (0.008)	−0.076 (0.048)	0.032 (0.086)
zonaReserva:year3	0.016 (0.016)	−0.013* (0.007)	−0.012 (0.047)	−0.110 (0.069)
Constant	0.011** (0.005)	−0.001 (0.002)	0.092*** (0.023)	0.122*** (0.046)
Observations	124	1,628	262	1,628
R^2	0.051	0.345	0.127	0.271
Residual Std. Error	0.049 (df = 114)	0.051 (df = 1566)	0.165 (df = 243)	0.506 (df = 1566)
Note:				*p<0.1; **p<0.05; ***p<0.01

Table S7. Coefficient estimates of socioeconomic indicators Isla Natividad.

	Dependent variable:	
	Landings	valor Revenues
	(1)	(2)
zonaReserva	−29.442** (11.650)	−5.560 (4.495)
year-6	−9.747 (24.616)	6.074 (6.641)
year-5	−26.548* (13.992)	2.106 (8.285)
year-4	−8.805 (29.871)	−1.665 (6.046)
year-3	29.433 (28.151)	2.834 (4.858)
year-2	−17.752 (13.634)	3.423 (5.278)
year-1	−5.421 (22.370)	1.095 (4.431)
year1	−46.722*** (16.583)	−1.873 (5.213)
year2	9.037 (11.830)	10.802** (4.612)
year3	−23.798 (21.989)	9.425** (4.566)
year4	−54.097*** (16.698)	2.816 (4.498)
year5	48.012** (22.367)	10.380* (5.667)
year6	39.160* (21.590)	12.549* (7.129)
year7	−11.992 (10.746)	10.988 (10.889)
year8	−26.265** (12.598)	14.186 (13.017)
zonaReserva:year-6	−12.067 (24.616)	−1.980 (6.641)
zonaReserva:year-5	6.214 (13.992)	−1.715 (8.285)
zonaReserva:year-4	−26.453 (29.871)	−1.237 (6.046)
zonaReserva:year-3	−18.071 (28.151)	−2.213 (4.858)
zonaReserva:year-2	5.569 (13.634)	−2.142 (5.278)
zonaReserva:year-1	−13.914 (22.370)	−1.703 (4.431)
zonaReserva:year1	−0.696 (16.583)	−1.119 (5.213)
zonaReserva:year2	1.436 (11.830)	8.758* (4.612)
zonaReserva:year3	10.607 (21.989)	12.639*** (4.566)
zonaReserva:year4	−6.110 (16.698)	2.515 (4.498)
zonaReserva:year5	−61.368*** (22.367)	0.047 (5.667)
zonaReserva:year6	−2.498 (21.590)	12.371* (7.129)
zonaReserva:year7	6.842 (10.746)	3.441 (10.889)
zonaReserva:year8	65.875 (12.598)	10.347 (13.017)
Constant	166.062*** (11.650)	16.037*** (4.495)
Observations	60	60
R^2	0.888	0.647
Residual Std. Error (df = 28)	25.072	8.460
Note:		*p<0.1; **p<0.05; ***p<0.01

Table S8. Coefficient estimates of socioeconomic indicators for Maria Elena.

	Dependent variable:	
	Landings	valor Revenues
	(1)	(2)
zonaReserva	−38.364*** (12.766)	−6.453*** (2.104)
year-6	−10.495 (11.845)	−3.715 (2.447)
year-5	−1.865 (17.891)	−0.997 (2.558)
year-4	−7.648 (13.465)	1.206 (5.184)
year-2	2.857 (18.201)	−0.051 (2.700)
year-1	7.519 (12.064)	0.151 (1.770)
year1	−9.668 (31.049)	−1.990 (5.471)
zonaReserva:year-6	−7.993 (11.845)	−0.607 (2.447)
zonaReserva:year-5	−12.027 (17.891)	−2.239 (2.558)
zonaReserva:year-4	−11.519 (13.465)	−4.595 (5.184)
zonaReserva:year-2	−18.128 (18.201)	−3.360 (2.700)
zonaReserva:year-1	−11.394 (12.064)	−2.079 (1.770)
zonaReserva:year1	−9.629 (31.049)	−2.092 (5.471)
Constant	64.771*** (12.766)	11.747*** (2.104)
Observations	21	21
R^2	0.887	0.851
Residual Std. Error (df = 6)	16.398	3.496
Note:		*p<0.1; **p<0.05; ***p<0.01