Effectiveness of community-based TURF-reserves in Mexican small-scale fisheries

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Supporting information

	Community	Control	Reserve	Years of monitoring
S1 Table.	Isla Natividad	415	244	10
	Maria Elena	27	21	4
	Punta Herrero	51	78	4

Invertebrate sampling effort. Number of invertebrate transects performed in each site of each community.

S1 Fig. **Mean annual lobster density.** Dots indicate mean, bars indicate standard errors.

S2 Fig. **Mean annual invertebrate density.** Dots indicate mean, bars indicate standard errors.

	Community	Control	Reserve	Years of monitoring	
S2 Table.	Isla Natividad	400	241	10	**Fish**
	Maria Elena	44	45	4	
	Punta Herrero	82	85	4	

sampling effort Number of invertebrate transects performed in each site of each community.

S3 Fig. **Mean annual fish biomass** Dots indicate mean, bars indicate standard errors.

S4 Fig. **Mean annual fish density** Dots indicate mean, bars indicate standard errors.

S3 Table.

Community	Group	TURF	Before	After
Yucatan Peninsula	Control	Langosteros Del Caribe	165.58	176.72
Yucatan Peninsula	Control	Vigia Chico	177.66	175.31
Yucatan Peninsula	Treated	Cozumel	178.21	170.49
Baja California	Control	Bahia Tortugas	155.60	122.46
Baja California	Control	La Purisima	67.54	157.88
Baja California	Control	Pesc Nacionales De Abulon	67.16	88.79
Baja California	Treated	Buzos Y Pescadores De La Baja California	89.35	190.07

Summary of socioeconomic data Mean ex-vessel prices (MXP / Kg) for lobster (*Panulirus spp.*) on each TURF (community) and group (Control = only TURF, Treated = TURF and reserve).

S5 Fig.   Timeseries of socioeconomic indicators. A) Mean annual value of landings and B) Mean landings.

Table 1. Coefficient estimates of biological indicators for Isla Natividad.

	Dependent variable:			
	Lobster density	Fish biomass	Invertebrate density	Fish density
	(1)	(2)	(3)	(4)
zonaReserva	−0.011 (0.058)	−0.006* (0.003)	0.228 (0.160)	−0.167 (0.104)
year1	0.032 (0.067)	0.007 (0.004)	−0.087 (0.159)	0.005 (0.122)
year2	0.0002 (0.077)	0.006 (0.005)	0.270 (0.176)	−0.027 (0.146)
year3	0.023 (0.072)	0.036*** (0.010)	0.427*** (0.165)	0.230 (0.160)
year4	−0.030 (0.058)	0.011** (0.005)	0.222 (0.153)	−0.040 (0.112)
year5	−0.006 (0.061)	0.024*** (0.006)	0.231 (0.156)	0.102 (0.126)
year6	−0.014 (0.062)	0.080*** (0.023)	0.375** (0.161)	0.300** (0.140)
year7	−0.021 (0.060)	0.339*** (0.067)	−0.057 (0.156)	0.276* (0.147)
year8	−0.026 (0.059)	0.174*** (0.028)	0.147 (0.146)	0.066 (0.126)
year9	−0.038 (0.057)	0.210*** (0.054)	0.045 (0.154)	0.217 (0.138)
year10	−0.066 (0.057)	0.189*** (0.040)	−0.223 (0.145)	−0.159 (0.111)
zonaReserva:year1	−0.058 (0.078)	0.008 (0.006)	0.107 (0.238)	0.134 (0.144)
zonaReserva:year2	0.126 (0.121)	−0.0005 (0.007)	0.047 (0.265)	0.086 (0.177)
zonaReserva:year3	0.053 (0.093)	−0.008 (0.011)	−0.256 (0.224)	−0.072 (0.178)
zonaReserva:year4	0.035 (0.065)	0.024*** (0.009)	−0.234 (0.221)	0.448*** (0.167)
zonaReserva:year5	−0.045 (0.068)	−0.009 (0.009)	−0.318 (0.215)	−0.078 (0.169)
zonaReserva:year6	0.096 (0.075)	−0.042* (0.024)	−0.331 (0.230)	0.038 (0.169)
zonaReserva:year7	−0.030 (0.065)	−0.124 (0.089)	−0.166 (0.206)	−0.047 (0.199)
zonaReserva:year8	0.012 (0.069)	0.084 (0.082)	−0.149 (0.193)	0.120 (0.160)
zonaReserva:year9	0.002 (0.064)	0.036 (0.069)	−0.441** (0.190)	0.210 (0.181)
zonaReserva:year10	−0.016 (0.062)	−0.056 (0.065)	−0.261 (0.185)	0.167 (0.143)
Constant	0.122** (0.054)	0.016*** (0.003)	0.672*** (0.131)	0.567*** (0.094)
Observations	659	641	659	641
R^2	0.049	0.267	0.119	0.080
Residual Std. Error	0.189 (df = 637)	0.175 (df = 619)	0.552 (df = 637)	0.525 (df = 619)

Note: $^*p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$

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

Table 2. Coefficient estimates of biological indicators for Maria Elena.

	Dependent variable:			
	Lobster density	Fish biomass	Invertebrate density	Fish density
	(1)	(2)	(3)	(4)
zonaReserva	-0.033^{**} (0.013)	-0.017 (0.027)	-0.008 (0.015)	-0.362 (0.758)
year1	0.008 (0.023)	0.075^{**} (0.029)	0.033^{*} (0.018)	0.028 (0.755)
year2	-0.019 (0.015)	0.034 (0.033)	-0.010 (0.015)	-0.046 (0.759)
year3	-0.028^{**} (0.014)	0.006 (0.027)	-0.017 (0.013)	-0.566 (0.700)
year4	0.023 (0.028)	0.031 (0.033)	0.044^{*} (0.026)	0.993 (0.952)
zonaReserva:year1	-0.003 (0.024)	0.064 (0.042)	-0.003 (0.023)	1.342 (0.915)
zonaReserva:year2	0.046^{*} (0.024)	0.017 (0.036)	0.035 (0.023)	0.181 (0.838)
zonaReserva:year3	0.074^{***} (0.024)	0.064 (0.070)	0.092^{*} (0.049)	0.139 (0.774)
zonaReserva:year4	0.001 (0.031)	0.003 (0.037)	-0.009 (0.029)	-0.953 (1.043)
Constant	0.033^{**} (0.013)	0.041 (0.025)	0.033^{**} (0.013)	1.462^{**} (0.691)
Observations	48	89	48	89
R^2	0.222	0.171	0.308	0.258
Residual Std. Error	0.038 (df = 38)	0.086 (df = 79)	0.043 (df = 38)	1.074 (df = 79)

Note: *p<0.1; **p<0.05; ***p<0.01

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

Table 3. Coefficient estimates of biological indicators for Punta Herrero.

	Dependent variable:			
	Lobster density	Fish biomass	Invertebrate density	Fish density
	(1)	(2)	(3)	(4)
zonaReserva	0.004 (0.009)	0.212^{**} (0.097)	0.192^{*} (0.103)	2.570^{**} (1.254)
year-1	-0.006 (0.007)	-0.045^{***} (0.016)	-0.018 (0.033)	-1.398^{***} (0.279)
year1	-0.008 (0.005)	-0.033^{**} (0.016)	-0.053^{***} (0.013)	-1.057^{***} (0.279)
year2	0.004 (0.009)	-0.040^{***} (0.015)	-0.004 (0.026)	-1.112^{***} (0.312)
year3	-0.001 (0.006)	-0.031 (0.023)	0.025 (0.033)	-0.691 (0.498)
zonaReserva:year-1	0.010 (0.015)	0.263 (0.186)	-0.066 (0.121)	0.496 (1.312)
zonaReserva:year1	0.018 (0.024)	-0.149 (0.100)	0.041 (0.143)	-1.015 (1.348)
zonaReserva:year2	0.019 (0.021)	-0.044 (0.121)	-0.153 (0.110)	0.018 (1.561)
zonaReserva:year3	0.016 (0.016)	-0.167 (0.106)	-0.034 (0.134)	-1.575 (1.444)
Constant	0.011^{**} (0.005)	0.060^{***} (0.015)	0.079^{***} (0.012)	2.009^{***} (0.259)
Observations	129	167	129	167
R^2	0.050	0.211	0.113	0.169
Residual Std. Error	0.048 (df = 119)	0.213 (df = 157)	0.263 (df = 119)	2.769 (df = 157)

Note: *p<0.1; **p<0.05; ***p<0.01

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

S7 Table. Coefficient estimates of socioeconomic indicators Isla Natividad.

S8 Table. Coefficient estimates of socioeconomic indicators Maria Elena.

Table 4. Coefficient estimates of socioeconomic indicators Isla Natividad.

	Dependent variable:	
	Landings	valor Revenues
	(1)	(2)
zonaReserva	−66.248*** (21.192)	−5.040* (2.817)
year-6	−9.747 (26.691)	6.074 (4.376)
year-5	−26.548 (36.201)	2.106 (7.819)
year-4	−8.805 (54.742)	−1.665 (5.141)
year-3	29.433 (53.606)	2.834 (5.409)
year-2	−17.752 (37.964)	3.423 (3.086)
year-1	−5.421 (46.563)	1.095 (3.894)
year1	−46.722* (24.836)	−1.873 (3.882)
year2	9.037 (29.383)	10.802** (5.477)
year3	−23.798 (21.935)	9.425* (5.316)
year4	−54.097** (24.541)	2.816 (5.541)
year5	48.012** (21.950)	10.380 (7.267)
year6	39.160 (39.516)	12.549 (7.653)
year7	−11.992 (30.520)	10.988 (12.703)
year8	−26.265 (37.453)	14.186 (14.328)
zonaReserva:year-6	−12.067 (26.691)	−1.980 (4.376)
zonaReserva:year-5	6.214 (36.201)	−1.715 (7.819)
zonaReserva:year-4	−26.453 (54.742)	−1.237 (5.141)
zonaReserva:year-3	−18.071 (53.606)	−2.213 (5.409)
zonaReserva:year-2	5.569 (37.964)	−2.142 (3.086)
zonaReserva:year-1	−13.914 (46.563)	−1.703 (3.894)
zonaReserva:year1	−0.696 (24.836)	−1.119 (3.882)
zonaReserva:year2	1.436 (29.383)	8.758 (5.477)
zonaReserva:year3	10.607 (21.935)	12.639** (5.316)
zonaReserva:year4	−6.110 (24.541)	2.515 (5.541)
zonaReserva:year5	−61.368*** (21.950)	0.047 (7.267)
zonaReserva:year6	−2.498 (39.516)	12.371 (7.653)
zonaReserva:year7	6.842 (30.520)	3.441 (12.703)
zonaReserva:year8	65.875* (37.453)	10.347 (14.328)
Constant	202.868*** (21.192)	15.517*** (2.817)
Observations	60	60
R^2	0.638	0.492
Residual Std. Error (df = 30)	43.483	9.794

Note:	*p<0.1; **p<0.05; ***p<0.01

Table 5. Coefficient estimates of socioeconomic indicators for Maria Elena.

	Dependent variable:	
		valor
	Landings	Revenues
	(1)	(2)
zonaReserva	−12.452 (21.012)	−1.831 (4.026)
year-6	−10.495 (39.993)	−3.715 (5.741)
year-5	−1.865 (49.084)	−0.997 (8.401)
year-4	−7.648 (43.503)	1.206 (10.941)
year-2	2.857 (49.422)	−0.051 (8.558)
year-1	7.519 (40.701)	0.151 (6.850)
year1	−9.668 (21.613)	−1.990 (4.118)
zonaReserva:year-6	−7.993 (39.993)	−0.607 (5.741)
zonaReserva:year-5	−12.027 (49.084)	−2.239 (8.401)
zonaReserva:year-4	−11.520 (43.503)	−4.595 (10.941)
zonaReserva:year-2	−18.129 (49.422)	−3.360 (8.558)
zonaReserva:year-1	−11.395 (40.701)	−2.079 (6.850)
zonaReserva:year1	−9.629 (21.613)	−2.092 (4.118)
Constant	38.859* (21.012)	7.125* (4.026)
Observations	21	21
R^2	0.230	0.242
Residual Std. Error (df = 7)	39.665	7.294
Note:		*p<0.1; **p<0.05; ***p<0.01