

## Supplementary Material: Effectiveness of community-based TURF-reserves in Mexican 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      |

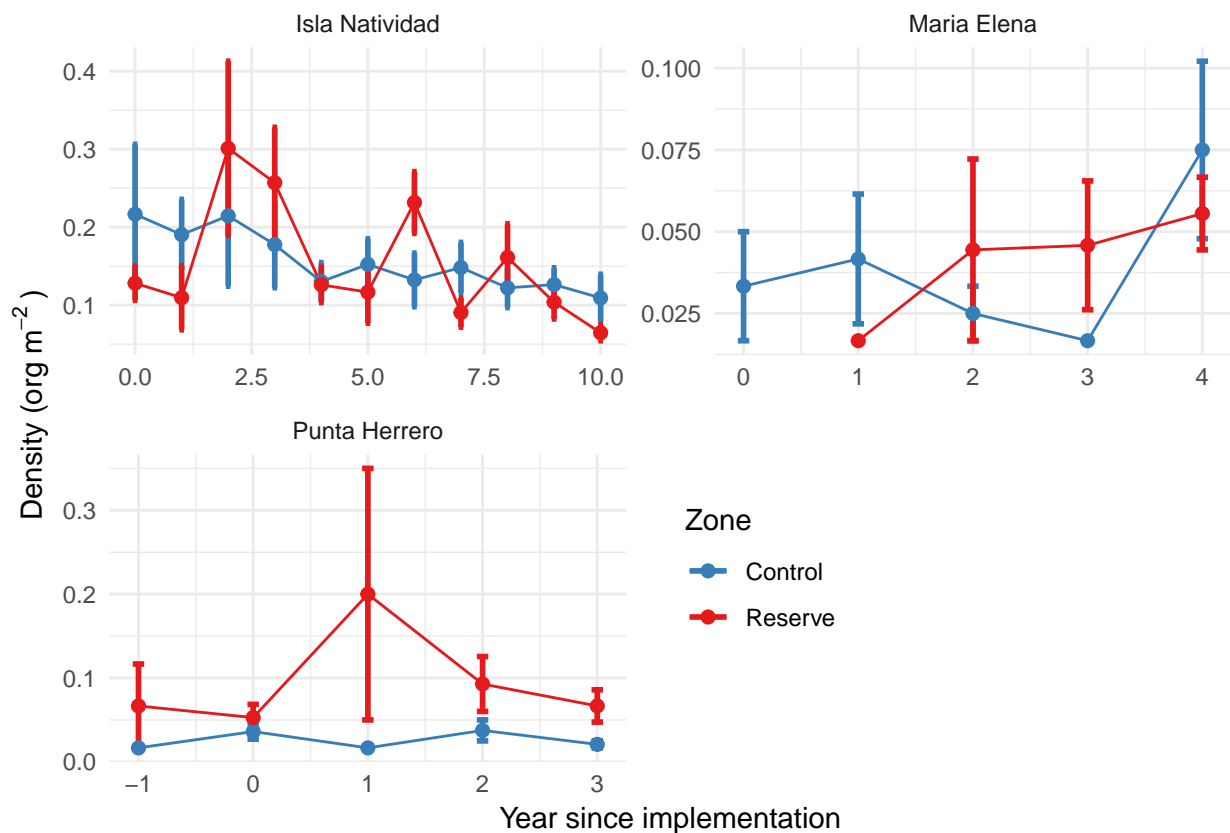


Figure S1: Time series of lobster densities. Bars indicate standard errors.

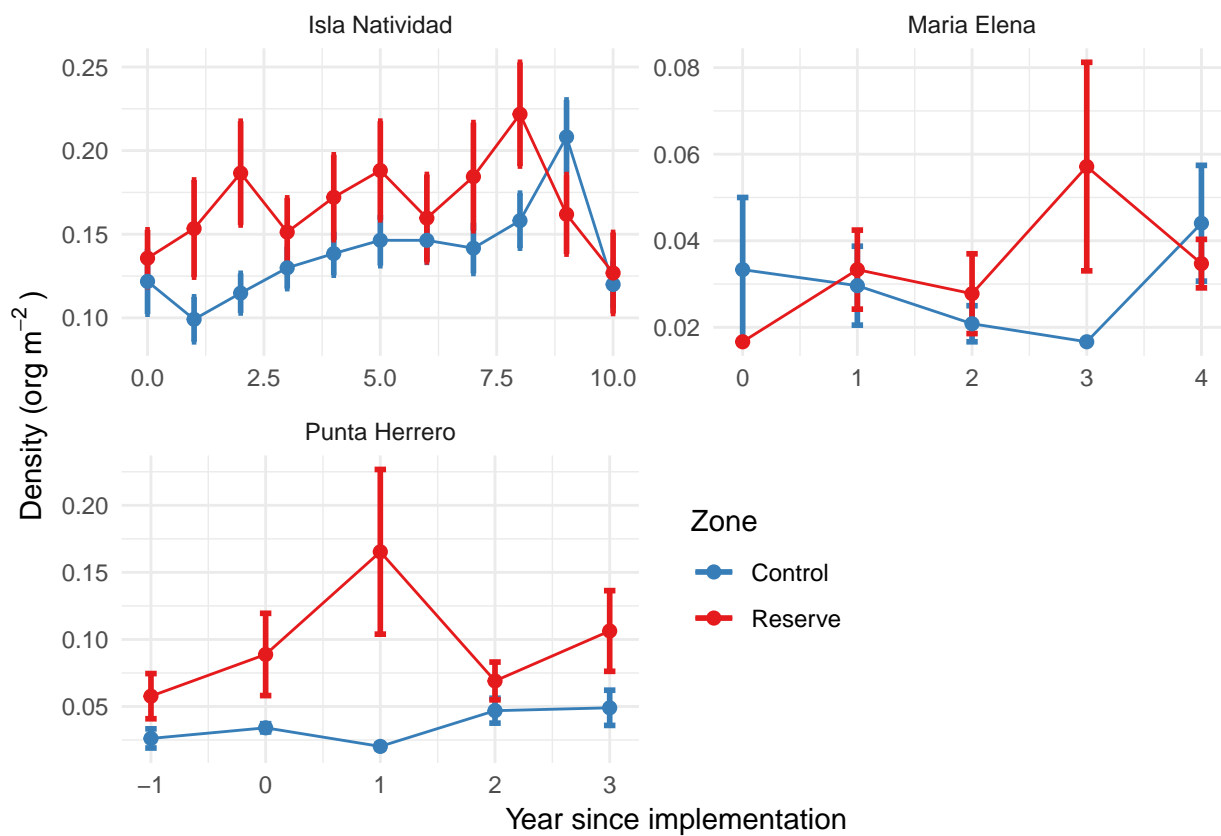
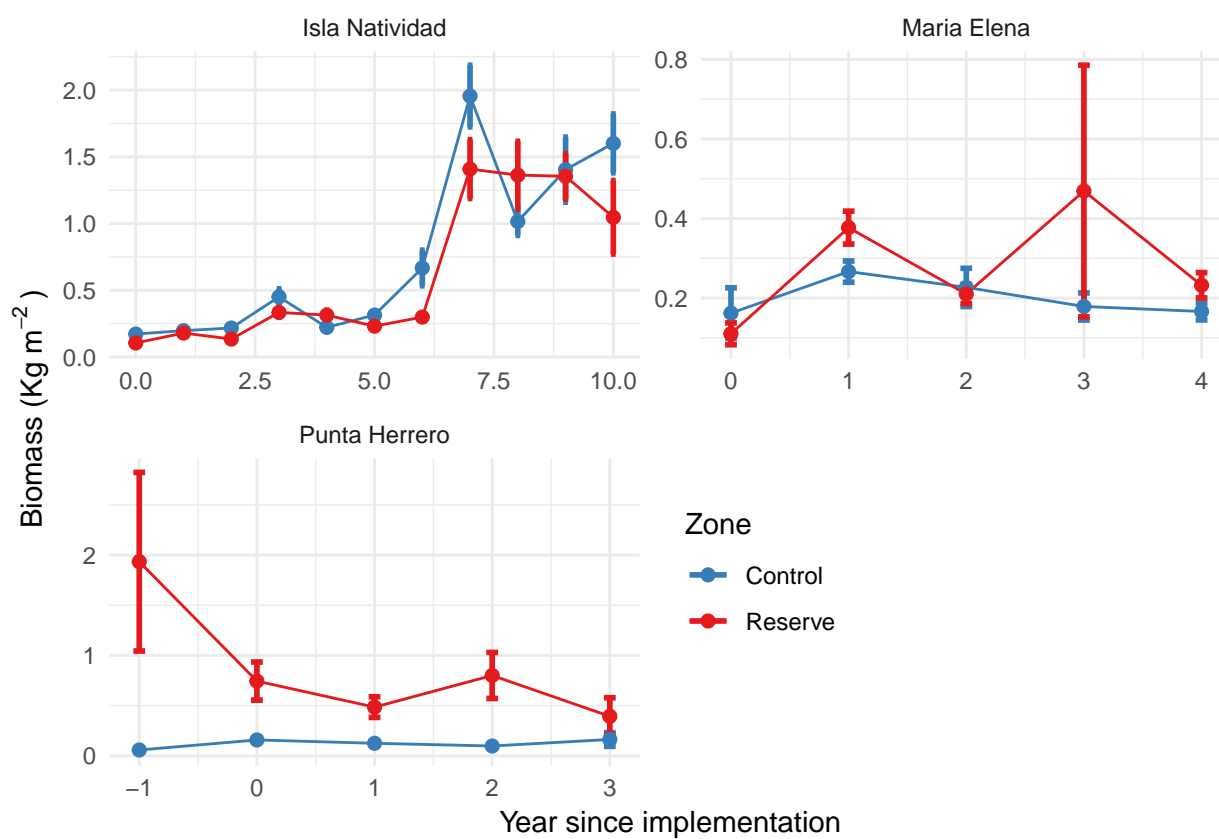


Figure S2: Time series of invertebrate densities. Bars indicate standard errors.

**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.

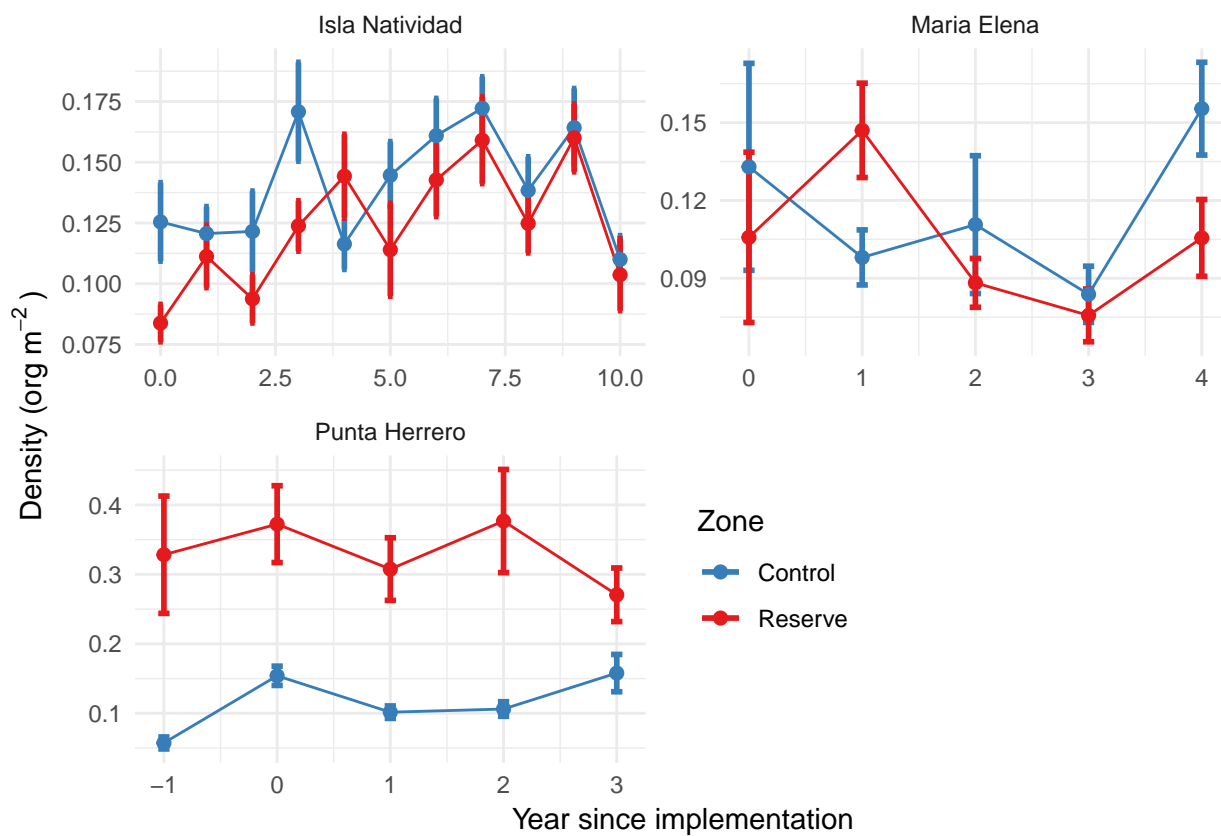


Figure S4: Time series of fish densities. Bars indicate standard errors.

**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 |

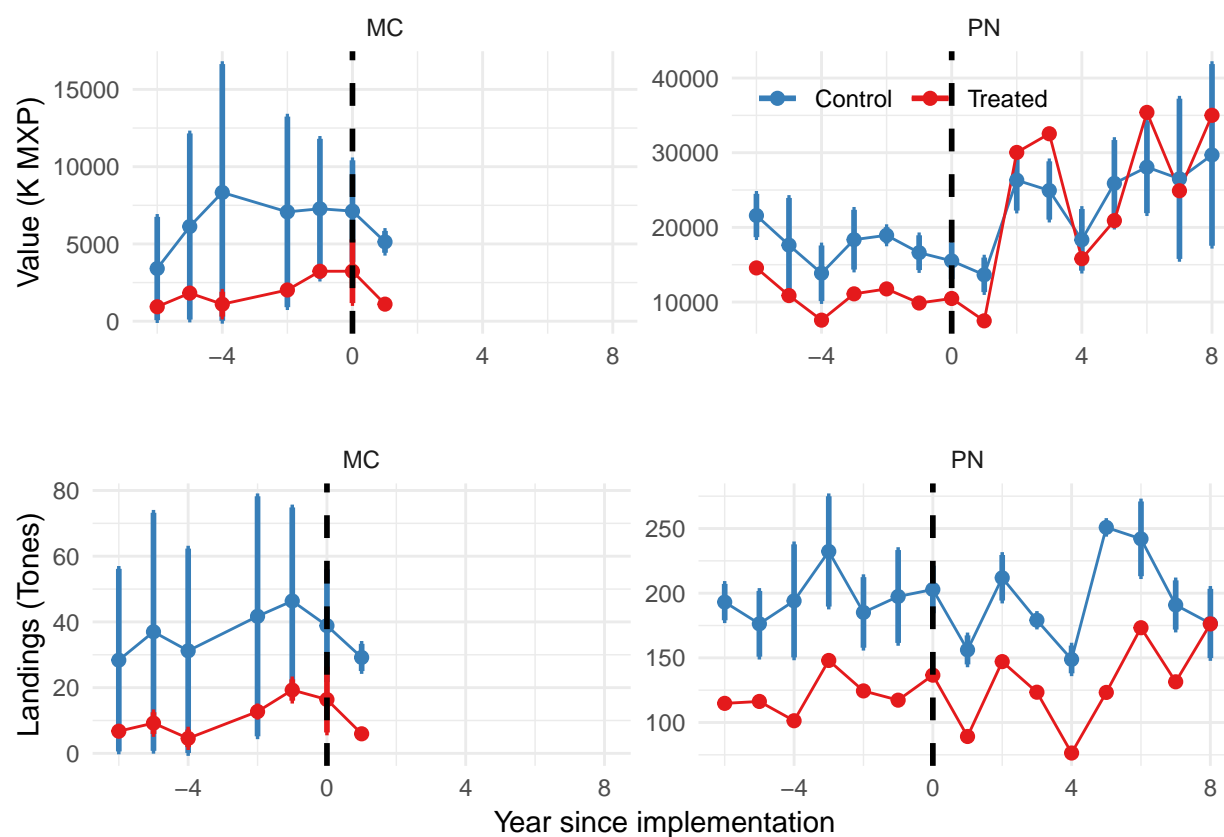


Figure S5: Time series of landings and value of landings.

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

|                     | <i>Dependent variable:</i> |                     |                               |                             |
|---------------------|----------------------------|---------------------|-------------------------------|-----------------------------|
|                     | Lobster abundance<br>(1)   | Fish biomass<br>(2) | Invertebrate abundance<br>(3) | Invertebrate biomass<br>(4) |
| zonaReserva         | −0.011 (0.058)             | −0.001*** (0.001)   | 0.014 (0.026)                 | −0.042** (0.018)            |
| year1               | 0.032 (0.067)              | 0.001* (0.001)      | −0.023 (0.024)                | −0.005 (0.020)              |
| year2               | 0.0002 (0.077)             | 0.001 (0.001)       | −0.007 (0.023)                | −0.004 (0.023)              |
| year3               | 0.023 (0.072)              | 0.008*** (0.002)    | 0.008 (0.023)                 | 0.045* (0.026)              |
| year4               | −0.030 (0.058)             | 0.002*** (0.001)    | 0.017 (0.023)                 | −0.009 (0.019)              |
| year5               | −0.006 (0.061)             | 0.005*** (0.001)    | 0.025 (0.025)                 | 0.019 (0.021)               |
| year6               | −0.014 (0.062)             | 0.014*** (0.004)    | 0.025 (0.024)                 | 0.036 (0.022)               |
| year7               | −0.021 (0.060)             | 0.069*** (0.012)    | 0.020 (0.025)                 | 0.047** (0.021)             |
| year8               | −0.026 (0.059)             | 0.038*** (0.005)    | 0.036 (0.026)                 | 0.013 (0.021)               |
| year9               | −0.038 (0.057)             | 0.044*** (0.010)    | 0.086*** (0.029)              | 0.039* (0.023)              |
| year10              | −0.066 (0.057)             | 0.052*** (0.010)    | −0.002 (0.024)                | −0.015 (0.019)              |
| zonaReserva:year1   | −0.058 (0.078)             | 0.002* (0.001)      | 0.040 (0.041)                 | 0.032 (0.025)               |
| zonaReserva:year2   | 0.126 (0.121)              | −0.0003 (0.001)     | 0.058 (0.042)                 | 0.014 (0.026)               |
| zonaReserva:year3   | 0.053 (0.093)              | −0.001 (0.002)      | 0.007 (0.035)                 | −0.005 (0.029)              |
| zonaReserva:year4   | 0.035 (0.065)              | 0.004*** (0.001)    | 0.020 (0.038)                 | 0.070*** (0.027)            |
| zonaReserva:year5   | −0.045 (0.068)             | −0.001 (0.001)      | 0.028 (0.042)                 | 0.011 (0.030)               |
| zonaReserva:year6   | 0.096 (0.075)              | −0.007* (0.004)     | −0.001 (0.039)                | 0.023 (0.028)               |
| zonaReserva:year7   | −0.030 (0.065)             | −0.014 (0.018)      | 0.029 (0.044)                 | 0.029 (0.028)               |
| zonaReserva:year8   | 0.012 (0.069)              | 0.017 (0.017)       | 0.050 (0.044)                 | 0.028 (0.026)               |
| zonaReserva:year9   | 0.002 (0.064)              | 0.004 (0.013)       | −0.060 (0.041)                | 0.037 (0.028)               |
| zonaReserva:year10  | −0.016 (0.062)             | −0.017 (0.016)      | −0.007 (0.038)                | 0.035 (0.025)               |
| Constant            | 0.122** (0.054)            | 0.003*** (0.0005)   | 0.122*** (0.020)              | 0.125*** (0.016)            |
| Observations        | 659                        | 2,987               | 3,714                         | 2,987                       |
| R <sup>2</sup>      | 0.049                      | 0.090               | 0.012                         | 0.020                       |
| Residual Std. Error | 0.189 (df = 637)           | 0.072 (df = 2965)   | 0.244 (df = 3692)             | 0.177 (df = 2965)           |

Note:

\*p&lt;0.1; \*\*p&lt;0.05; \*\*\*p&lt;0.01

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

|                     | <i>Dependent variable:</i> |                     |                               |                             |
|---------------------|----------------------------|---------------------|-------------------------------|-----------------------------|
|                     | Lobster abundance<br>(1)   | Fish biomass<br>(2) | Invertebrate abundance<br>(3) | Invertebrate biomass<br>(4) |
| zonaReserva         | −0.033** (0.013)           | −0.001 (0.002)      | −0.017 (0.013)                | −0.027 (0.051)              |
| year1               | 0.008 (0.023)              | 0.004** (0.002)     | −0.004 (0.016)                | −0.035 (0.041)              |
| year2               | −0.019 (0.015)             | 0.002 (0.002)       | −0.012 (0.013)                | −0.022 (0.048)              |
| year3               | −0.028** (0.014)           | 0.001 (0.002)       | −0.017 (0.013)                | −0.049 (0.041)              |
| year4               | 0.023 (0.028)              | 0.001 (0.002)       | 0.011 (0.019)                 | 0.022 (0.043)               |
| zonaReserva:year1   | −0.003 (0.024)             | 0.004 (0.002)       | 0.020 (0.018)                 | 0.076 (0.056)               |
| zonaReserva:year2   | 0.046* (0.024)             | 0.001 (0.002)       | 0.024 (0.016)                 | 0.005 (0.059)               |
| zonaReserva:year3   | 0.074*** (0.024)           | 0.008 (0.007)       | 0.057** (0.027)               | 0.019 (0.053)               |
| zonaReserva:year4   | 0.001 (0.031)              | 0.002 (0.002)       | 0.007 (0.020)                 | −0.023 (0.056)              |
| Constant            | 0.033** (0.013)            | 0.004** (0.001)     | 0.033*** (0.013)              | 0.133*** (0.040)            |
| Observations        | 48                         | 1,146               | 75                            | 1,146                       |
| R <sup>2</sup>      | 0.222                      | 0.012               | 0.113                         | 0.019                       |
| Residual Std. Error | 0.038 (df = 38)            | 0.021 (df = 1136)   | 0.034 (df = 65)               | 0.196 (df = 1136)           |

Note:

\*p&lt;0.1; \*\*p&lt;0.05; \*\*\*p&lt;0.01

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

|                     | <i>Dependent variable:</i> |                     |                               |                             |
|---------------------|----------------------------|---------------------|-------------------------------|-----------------------------|
|                     | Lobster abundance<br>(1)   | Fish biomass<br>(2) | Invertebrate abundance<br>(3) | Invertebrate biomass<br>(4) |
| zonaReserva         | 0.004 (0.009)              | 0.018*** (0.006)    | 0.055* (0.031)                | 0.218*** (0.057)            |
| year-1              | −0.006 (0.007)             | −0.003*** (0.001)   | −0.008 (0.007)                | −0.097*** (0.016)           |
| year1               | −0.008 (0.005)             | −0.002* (0.001)     | −0.014*** (0.004)             | −0.052*** (0.017)           |
| year2               | 0.004 (0.009)              | −0.002*** (0.001)   | 0.013 (0.010)                 | −0.048*** (0.017)           |
| year3               | −0.001 (0.006)             | −0.001 (0.002)      | 0.015 (0.013)                 | 0.004 (0.030)               |
| zonaReserva:year-1  | 0.017 (0.023)              | 0.025 (0.021)       | −0.023 (0.036)                | 0.053 (0.102)               |
| zonaReserva:year1   | 0.018 (0.024)              | −0.009 (0.007)      | 0.090 (0.069)                 | −0.012 (0.073)              |
| zonaReserva:year2   | 0.019 (0.021)              | 0.0004 (0.009)      | −0.033 (0.035)                | 0.052 (0.094)               |
| zonaReserva:year3   | 0.016 (0.016)              | −0.012 (0.008)      | 0.003 (0.045)                 | −0.106 (0.074)              |
| Constant            | 0.011** (0.005)            | 0.005*** (0.001)    | 0.034*** (0.003)              | 0.154*** (0.014)            |
| Observations        | 124                        | 1,628               | 262                           | 1,628                       |
| R <sup>2</sup>      | 0.051                      | 0.025               | 0.054                         | 0.036                       |
| Residual Std. Error | 0.049 (df = 114)           | 0.061 (df = 1618)   | 0.169 (df = 252)              | 0.572 (df = 1618)           |

Note:

\*p&lt;0.1; \*\*p&lt;0.05; \*\*\*p&lt;0.01



Table S7. Coefficient estimates of socioeconomic indicators Isla Natividad.

|                               | <i>Dependent variable:</i> |                   |
|-------------------------------|----------------------------|-------------------|
|                               | Landings                   | valor             |
|                               | (1)                        | Revenues<br>(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 <sup>2</sup>                | 0.638                      | 0.492             |
| Residual Std. Error (df = 30) | 43.483                     | 9.794             |

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

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

|  | <i>Dependent variable:</i> |                 |
|--|----------------------------|-----------------|
|  | Landings                   | valor           |
|  | (1)                        | Revenues<br>(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 <sup>2</sup>                           | 0.230                      | 0.242           |
| Residual Std. Error (df = 7)             | 39.665                     | 7.294           |
| <i>Note:</i> *p<0.1; **p<0.05; ***p<0.01 |                            |                 |