SUPPLEMENTARY INFORMATION

Figure S1. Reference temporal series of accumulated rain, mean wind speed obtained from weather stations (No. 72153 and No. 72191 respectively, Instituto Meteorológico Nacional) and mean water temperature measured with temperature loggers placed throughout the Santa Elena Bay (SEB) during the study period. Shaded regions correspond to approximate upwelling season
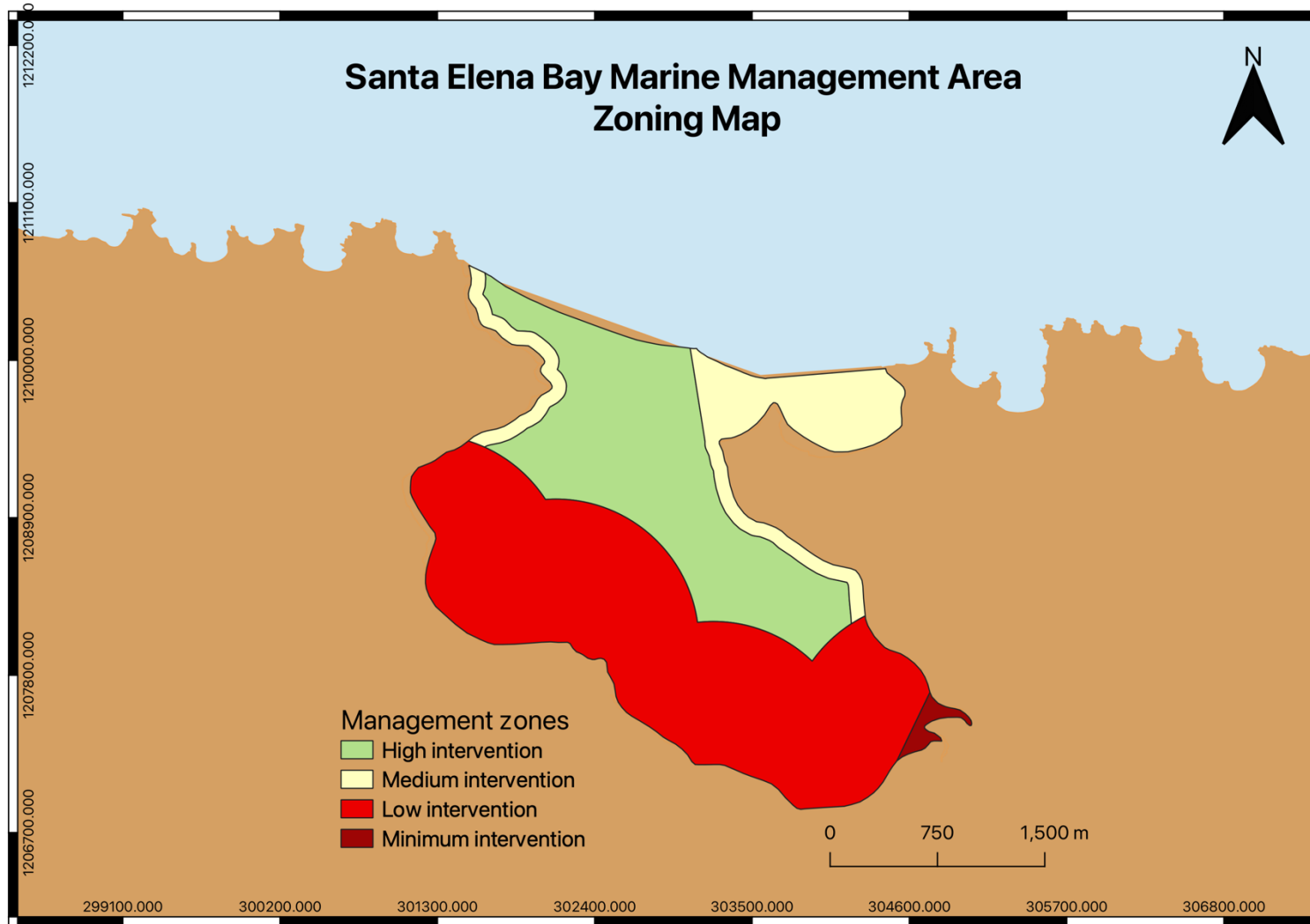
Figure S2. Zoning map of Santa Elena Bay Marine Management Area, north Pacific, Costa Rica. Modified from SINAC (2017).
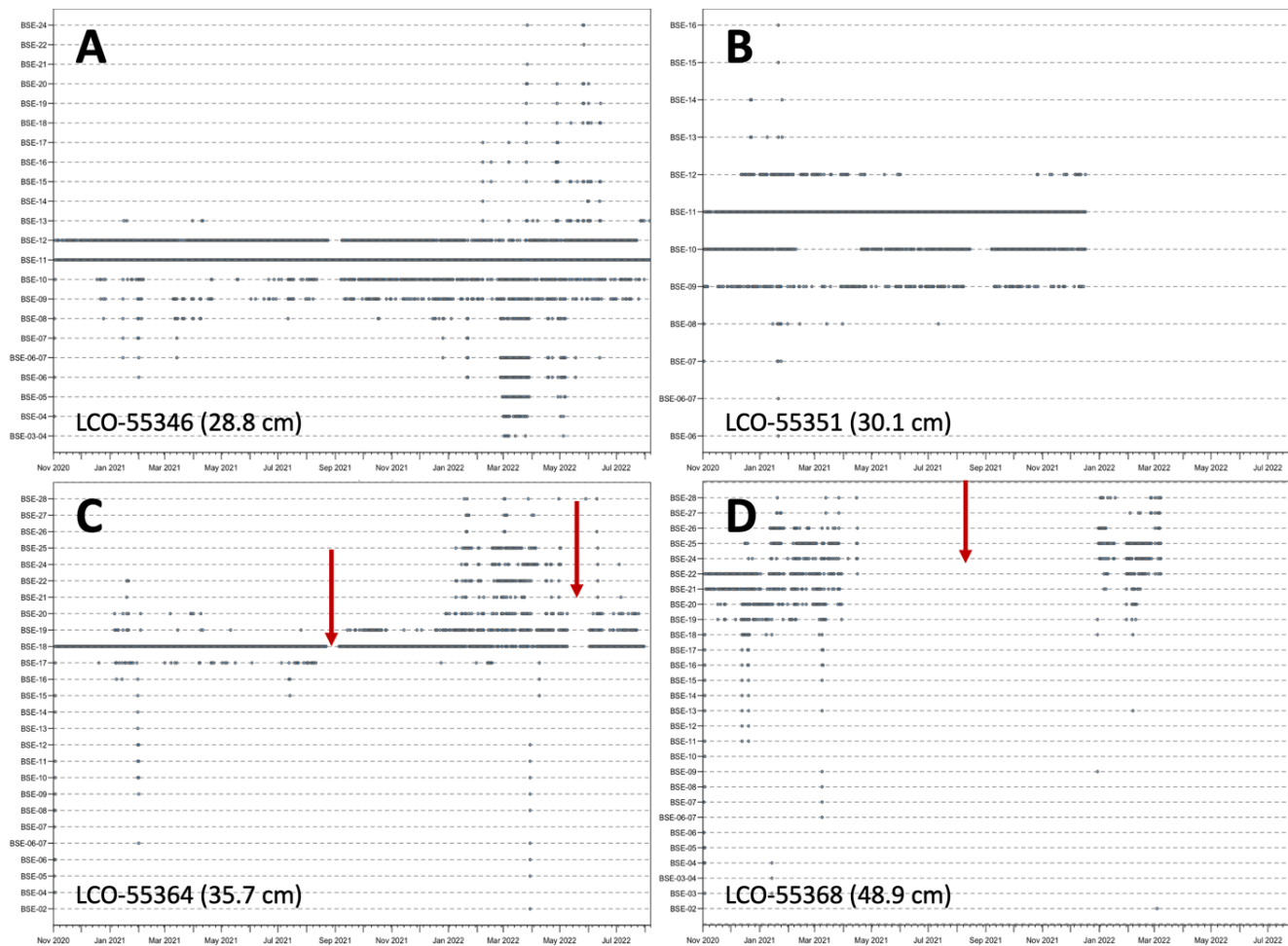
Figure S3. Examples of individual detection plots of the colorado snapper (LCO – *L. colorado*). Location and sum of total detections per receiver in the Santa Elena Bay (left) and detections at different stations through the monitoring period (right) of four individuals. Total length of fish indicated in parenthesis next to individual tag code. Arrows indicate periods of detection gaps of at least one week.

Figure S4. Examples of individual detection plots of the pacific dog snapper (LNO – *L. novemfasciatus*). Location and sum of total detections per receiver in the Santa Elena Bay (left) and detections at different stations through the monitoring period (right) of four individuals. Total length of fish indicated in parenthesis next to individual tag code. Arrows indicate periods of detection gaps of at least one week.
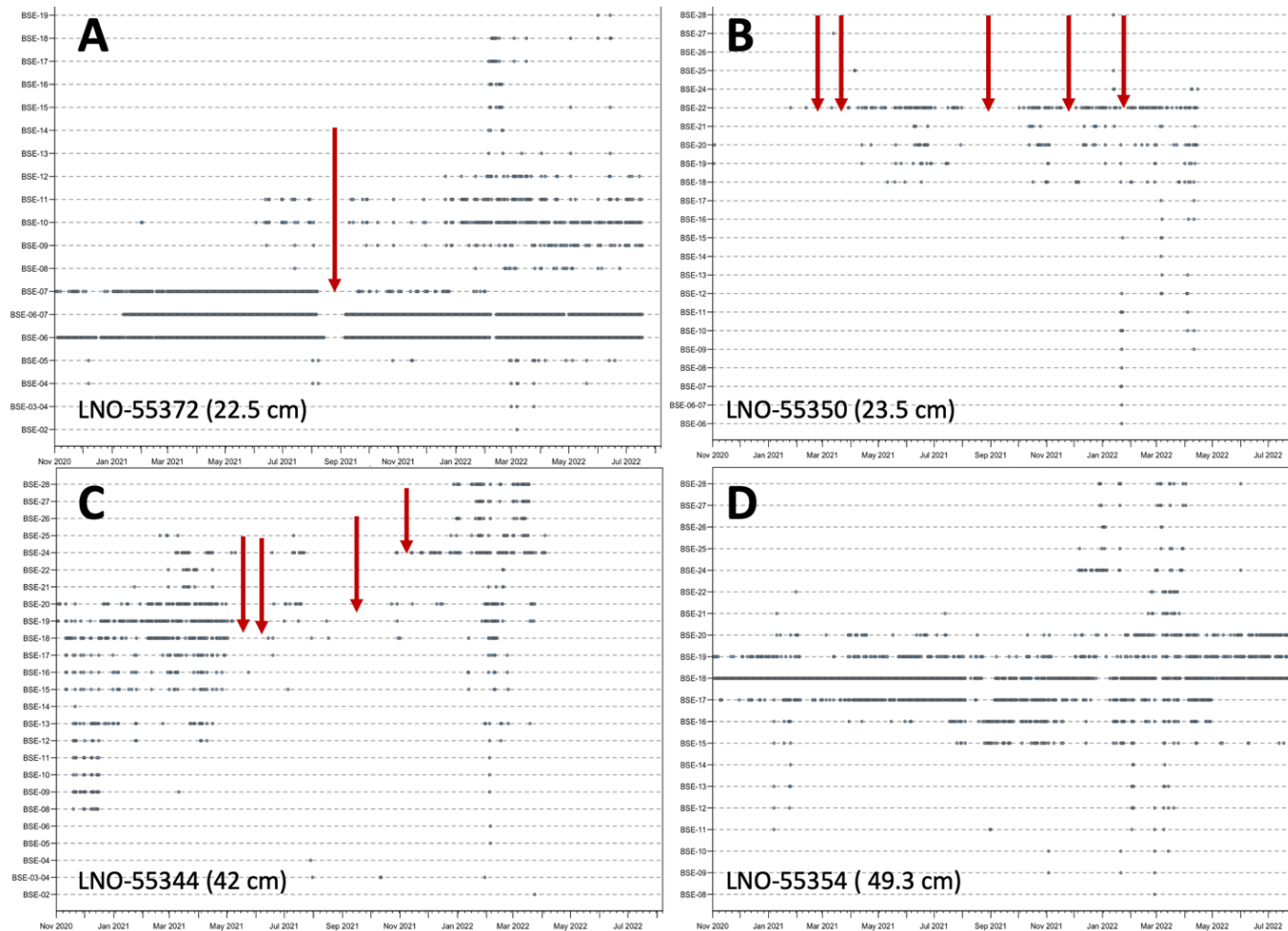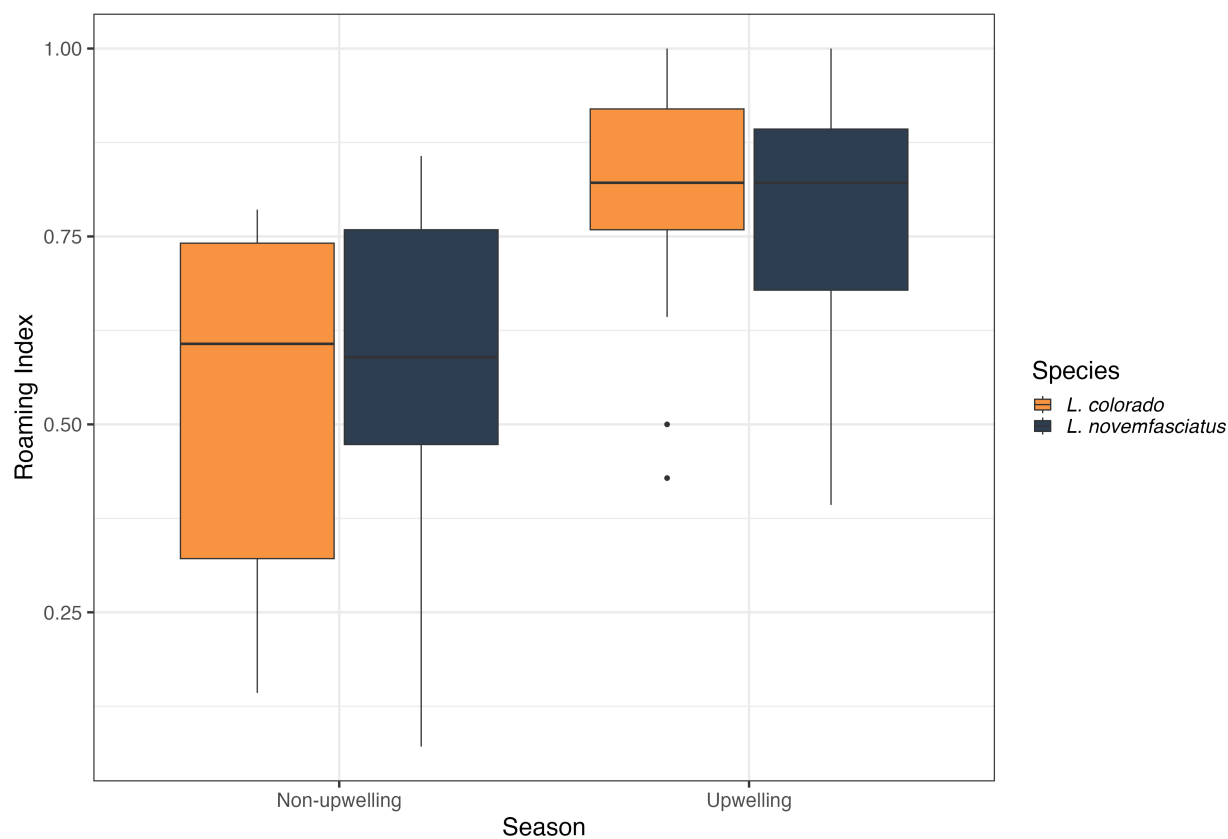
Figure S5. Boxplots of roaming index by season for *Lutjanus colorado* (LCO) and *Lutjanus novemfasciatus* (LNO). Significant differences in roaming index between seasons are observed for both LCO and LNO ($X^2 = 9.5477$, df = 1, p = 0.002002) and for *L. novemfasciatus* ($X^2 = 7.0938$, df = 1, p = 0.007735, respectively)

Table S1. Number of receivers and habitat availability by habitat type (i.e. mangroves, transitional and reef)

Habitat	No. Receivers	Area (km2) i.e. habitat availability	Area coverage (%)
Mangroves	14	0.871	38.068
Transitional	8	0.639	27.928
Reef	6	0.778	34.003

Table S2. Summaries of selection of candidate generalized additive models for habitat use shifts.

Model	AICc	dAICc	df	weight
L colorado				
Full model	5235.8	0	18.6	1
Only month	6150.2	914.3	9.5	<0.001
Only habitat	6358.6	1122.8	3	<0.001
Only intercept	7196	1960.2	1	<0.001
L. novemfasciatus				
Full model	5944.3	0	25.1	1
Only habitat	7127.1	1182.7	3	<0.001
Only month	7494	1549.6	9.7	<0.001
Only intercept	8182.7	2238.4	1	<0.001

Table S3. Summaries of selection of candidate generalized additive mixed models for probability of occurrence of *L. colorado* and *L. novemfasciatus*. Random intercept was the tag ID of each individual fish.

Model	AICc	dAICc	df	weight
L colorado				
Null model: only random intercept	25888.22	5285.893	2	0
Full model: All variables	20604.81	2.480526	15	0.068718
All except Wind speed	20602.33	0	13	0.237525
All except Temperature, Rain, and Wind Speed (Selected)	20602.68	0.345692	10	0.199822
All except Temperature	20602.74	0.407763	13	0.193715
All except Temperature and Rain	20603	0.671396	12	0.169792
All except Rain	20604.6	2.265306	14	0.076525
All except Total length	20605.61	3.27589	14	0.04617
All except Moon Illumination	20609.18	6.849426	14	0.007733
All except Habitat	24815.94	4213.613	11	0
L. novemfasciatus				
Null model: only random intercept	30839.2	5542.7	2	<0.001
Full model: All variables	25300	3.5	15	0.08
All except Rain, Moon Illumination and Length (Selected)	25296.5	0	12	0.46
All except Length	25298.1	1.6	14	0.21
All except Rain	25298.8	2.3	14	0.15
All except Moon Illumination	25299.5	3	14	0.1
All except Temperature and Rain	25310.7	14.2	12	<0.001
All except Temperature	25311.6	15.1	13	<0.001
All except Wind speed	25313.9	17.4	13	<0.001
All except Habitat	30009.5	4713	11	<0.001