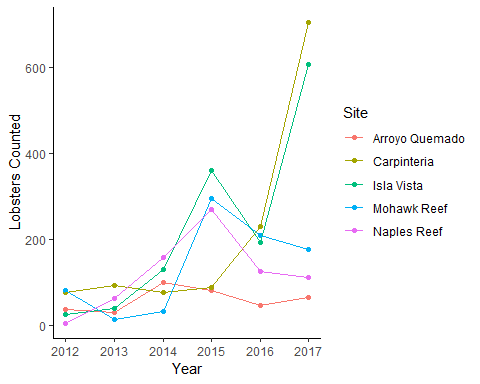
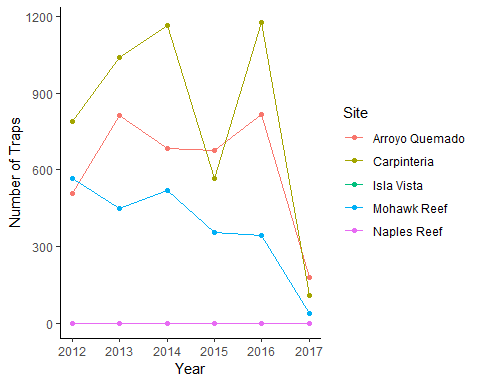
ESM206-assignment4

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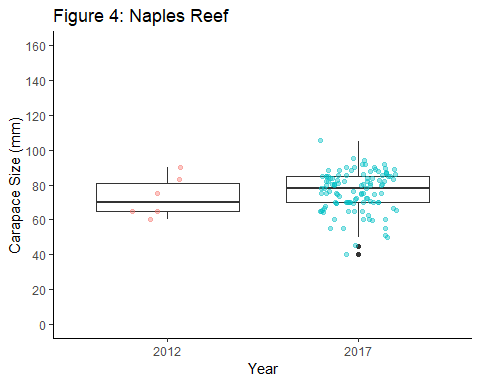
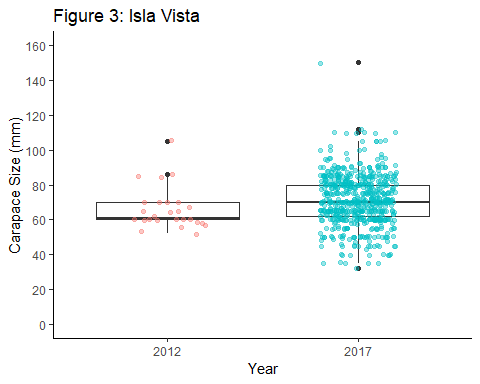
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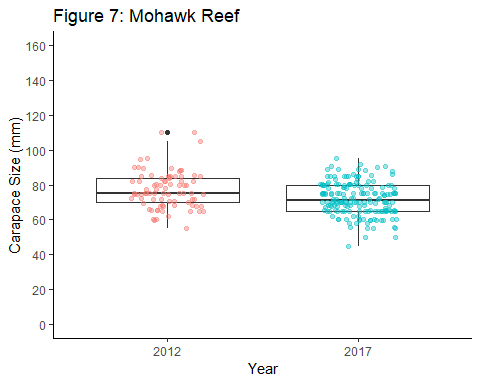
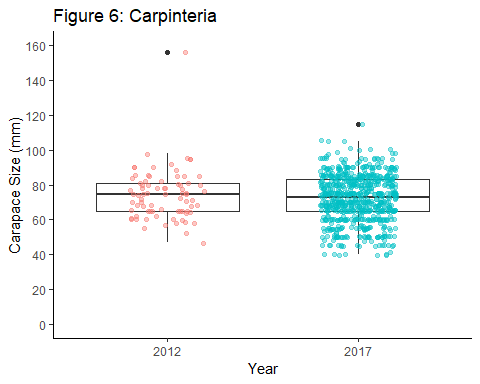
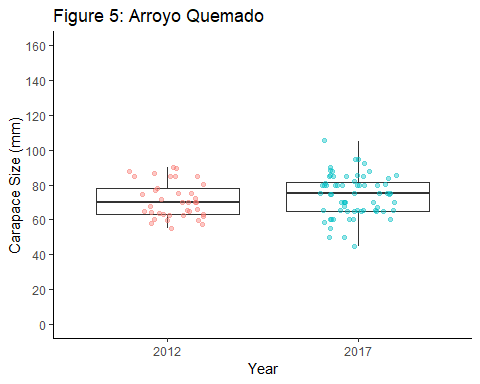
**Figure 1: Lobster Abundance at Five Locations in the Santa Barbara Channel (2012-2017)** Total number of lobsters counted at Arroyo Quemado, Carpinteria, Isla Vista, Mohawk, and Naples reefs each year from 2012 to 2017. Data collected in lobster fishing season (October through March) every two to four weeks. Data used with permission of Santa Barbara Coastal Long Term Ecological Research Project .

 **Figure 2: Fishing Pressure at Five Locations in the Santa Barbara Channel (2012-2017)** Total annual number of commercial lobster trap bouys counted at Arroyo Quemado, Carpinteria, Isla Vista, Mohawk, and Naples reefs. Lobster trap bouy counts at Isla Vista and Naples marine protected areas are both zero in all years between 2012 - 2017, even though only Naples Reef is displayed on this figure. Data collected in lobster fishing season (October through March) every two to four weeks. Data used with permission of Santa Barbara Coastal Long Term Ecological Research Project .

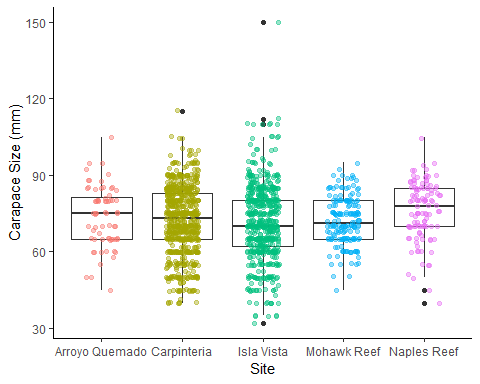
**Figures 3-4: Lobster Carapace Sizes at sites inside Marine Protected Areas (2012 and 2017)** Lobster carapace (mm) data collected at two Long-Term Ecological Research sites within Marine Protected Areas in the Santa Barbara Channel: Isla Vista (n=26 in 2012, n=606 in 2017) and Naples Reef (n=6 in 2012, n=112 in 2017). Mean lobster size only differed significantly between 2012 and 2017 at Isla Vista; pairwise comparison at Naples Reef yielded no significant difference (IN LINE REFERENCING).



**Figures 5-7: Lobster Carapace Sizes at sites outside of Marine Protected Areas in 2012 and 2017** Lobster carapace (mm) data collected at three Long-Term Ecological Research sites outside of Marine Protected Areas in the Santa Barbara Channel: Arroyo Quemado, (n = 38 in 2012, n = 68 in 2017), Carpinteria (n = 78 in 2012, n = 705 in 2017), and Mohawk Reef (n = 83 in 2012, n = 178 in 2017). Mean lobster size only differed significantly between 2012 and 2017 at Mohawk Reef; pairwise comparison at all other sites yielded no significant difference (IN LINE REFERENCING). ADD CORRESPONDING NUMBERS TO EACH GRAPH TITLE.



**Figure 8: Mean Lobster Carapace Length at Five LTER Sites in the Santa Barbara Channel in 2017** Mean lobster carapace length (mm) measured at five locations: Arroyo Quemado, Carpinteria, Isla Vista, Mohawk Reef, and Naples Reef, all Long-Term Ecological Research sites. Mean carapace length only differed significantly between Naples Reef and Isla Vista, and between Naples Reef and Carpinteria; all other pairwise comparisons yielded no significant difference (IN-LINE REFERENCING) (one-way ANOVA, F(X) = X, p = x), with post-hoc Tukey’s HSD (alpha = 0.05).



**Figure 9: Mean Lobster Carapace Length at five LTER sites in the Santa Barbara Channel in 2017** Mean lobster carapace length (mm) measured at five locations: Arroyo Quemado, Carpinteria, Isla Vista, Mohawk Reef, and Naples Reef. Boxes indicate the 25th and 75th percentiles of observations, lower and upper boundaries respectively, and the dark center line indicates the median at each location. Whiskers, or the vertical lines, indicate observations within 1.5 times the interquartile range indicated by the box. Solitary points indicate measurements outside of the interquartile whisker range. Colored jitter points indicate individual lobster size measurements.

## Warning: Setting row names on a tibble is deprecated.

References: 1. Reed, D. . 2017. SBC LTER: Reef: Abundance, size and fishing effort for California Spiny Lobster (Panulirus interruptus), ongoing since 2012. Santa Barbara Coastal Long Term Ecological Research Project. <doi:10.6073/pasta/81ce20b29614ec99d85d54907eaa3e8e>