# *Palythoa* Abundance and Coverage in Relation to Depth

Foisy, Mia
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Foisy, Mia

Masternaut Project

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**Abstract:**

*Palythoa* abundance and coverage was quantified in June of 2017 at six different dive sites to research the hypothesis that *Palythoa* cover decreases with depth. Surveys conducted at Looe Key reef balls 12, 19, 20, 25, 33, and 34 showed that there was a small negative correlation between depth and *Palythoa* abundance as well as a strong negative correlation between depth and *Palythoa* coverage (as depth increased, *Palythoa* abundance and coverage decreased). Aproximately, 58% of average area of *Palythoa* coverage per transect was explained by the average depth per transect. Approximately 29% of the number of Palythoa colonies were explained by depth. When continuing this research, methodology should be revised to prevent errors in data.

**Introduction:**

Many reefs in the Florida Keys were once covered in colorful corals. Now, more and more of the shallow reefs in the Florida Keys are covered in white or beige, the color of *Palythoa*. *Palythoa* is an encrusting zooanthid which not only encrusts on corals, but takes up valuable reef space. During one of the SCUBAnaut's trips down to Summerland Key, a SCUBAnaut team made qualitative observation that the zooanthid, *Palythoa*, was one of the most common sights on the shallow reefs; however, when the team dove on the deeper reefs, there was not as much *Palythoa*. They started wondering if there was less *Palythoa* due to less sunlight at deeper depths. They began research and studying *Palythoa*, trying to find out if depth affected the amount of *Palythoa* present on the reef. After a week of collecting and analyzing data, they came to the conclusion that any good scientist would: they did not have enough data to refute or support the hypothesis. To expand on this previous research, it was hypothesized that depth affected the amount of *Palythoa* and as depth increased, the amount of *Palythoa* present would decrease. Research and underwater surveys were conducted on the annual trip to the Keys, in June of 2017, to further explore the possible relationship between depth and *Palythoa* abundance and coverage and gather more data to test the hypothesis.

**Methods:**

The areas surveyed were Looe Key reef balls 12, 19, 20, and 25, for shallow sites, and Looe Key reef balls 33 and 34, which functioned as the deeper sites (Refer to table one for latitude, longitude, and depth). The reefs located at the sites were anywhere from 2 to 13 meters deep. Before each survey, environmental parameters including date, location, latitude and longitude, surveyors, salinity, and turbidity were measured and recorded. Salinity was recorded using a refractometer and was repeated to ensure accuracy. Turbidity was checked with a Secchi disk. Both salinity and turbidity measurements were checked by multiple divers to ensure correct readings. During the dives, ten-meter-long transect lines were placed on the reefs randomly by the surveyors. *Palythoa* colonies that fell within two meters of the transect, on either side, were recorded using half meter-long PVC pipes with tape marking every 5 centimeters. In order to measure colonies, two measurements were taken: the first measurement was the longest part of the colony along the transect while the second measurement was perpendicular to the first measurement. When encountering a colony partially within the belt transect, only the area of the colony within the belt transect was measured and recorded. At each colony recorded, depth was also recorded using the personal dive gauge available. A total of fifteen surveys were conducted on June 25, 26, 28, and 31. After the field surveys, data were entered in excel and any depth measurements taken in feet were converted to meters. Approximate area for each colony was found by multiplying the length and width recorded. Average depth for each survey along with the average area of the colonies were found and recorded. Averages were found using the formula $\frac{\Sigma x}{n}$ where x is the variable, either of depth or area, and n is the number of entries (Refer to table 2 for raw data). A regression analysis was run in excel to find the R squared and P-value for average depth versus average *Palythoa* area, average depth versus average *Palythoa* area without outliers, and average depth versus total number of colonies.

## Results:

Figure one shows that there is a -58% correlation between the two sets of data. This means that as the depth increases, the average area of each colony decreases. The R squared value for this data is 33.5% which shows that the datum points are about 33% associated with the regression line. The P-value for this data is .0003. Based on the premise that any P-value less than .05 is significant evidence to reject the null hypothesis, this P-value provides strong support in favor of the hypothesis that there is a correlation between depth and *Palythoa* coverage. However, this type of data analysis is extremely susceptible to outliers. This may mean that the numbers are skewed because of the two extremely large areas.

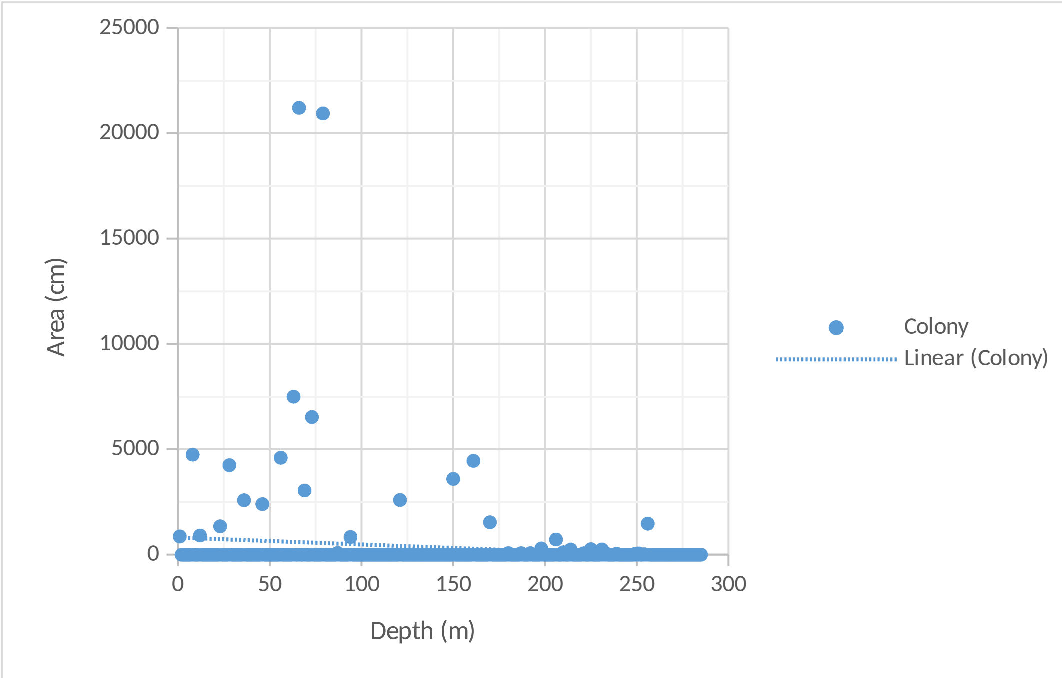


Figure 1. The average area of *Palythoa* colonies versus the average depth per survey

With the removal of outliers, the correlation becomes -78.8%. After removing the outliers, the R squared value rose to 57.7%, meaning that datum points fit approximately 24% better onto the line of regression. Without outliers the P-value decreases to about .0000003, which provides even further support of the hypothesis. Datum points above 10000 centimeters were identified as outliers and removed, as the area is much greater than the area surveyed and therefore known as an error. This correlation shows that as depth increases, the average area of colonies decreases rapidly.

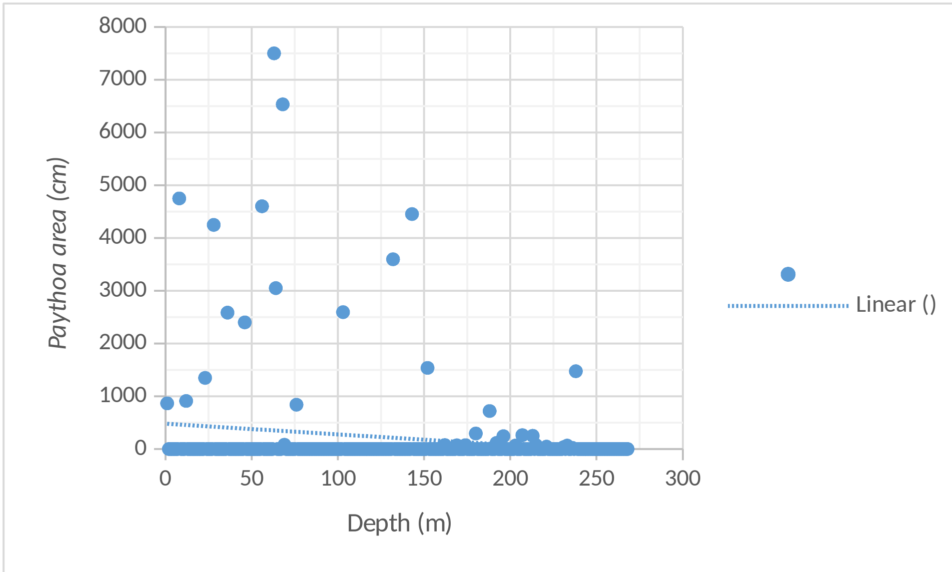


Figure 2. The average area of *Palythoa* colonies versus the average depth per survey without outliers

Figure three shows that there is a -29% correlation between the number of colonies and depth. The R squared value for this regression was 8%, which shows that there is little to no fit with the line of regression and these datum points are more random. The P-value for this data was .08, which is greater than .05 showing that there is no significant evidence to say that depth effects *Palythoa* abundance. While this data analysis is very sensitive to outliers, the outliers are valid datum points because despite being higher numbers, they are accurate representations of certain reefs opposed to outliers in figure two which were errors. The outliers should be included in this graph seeing as getting rid of them would be removing valid data.

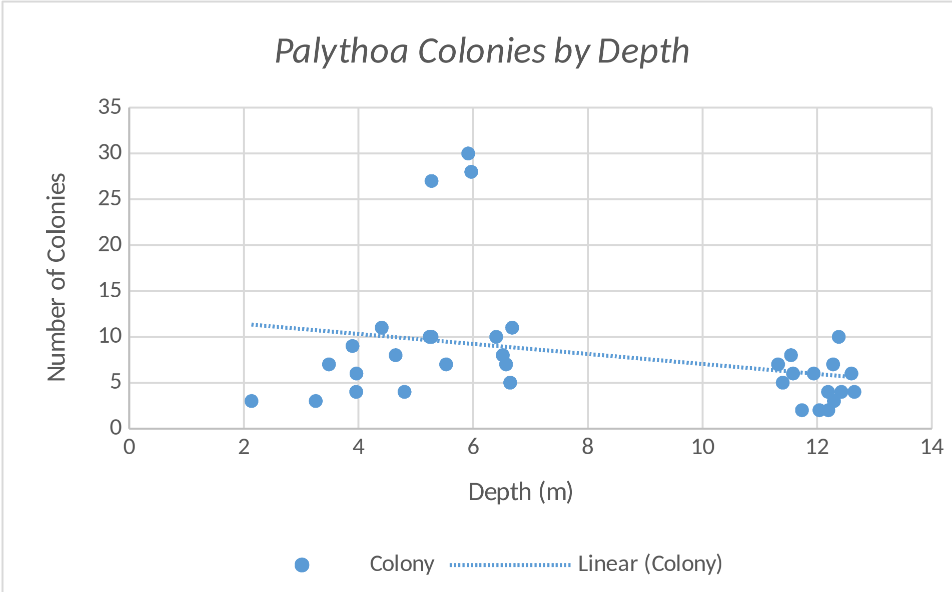


Figure 3. Number of colonies versus average depth per survey

**Discussion:**

The goal of this research was to test the hypothesis that depth has an effect on *Palythoa* abundance and coverage. Throughout the research, many of the surveyors noticed that there was a visual difference in coverage of *Palythoa* based on depth. One of the hypotheses for why depth effected *Palythoa* abundance, or coverage, was that due to the encrusting nature of *Palythoa*, it requires lots of light which would be lessoned with depth. Based on the data collected, as seen in figure one and figure two, the correlation between depth and *Palythoa* area is significant and strongly supports the hypothesis that *Palythoa* coverage decreases as depth increases. However, as seen in figure three, there was not significant evidence to prove that depth had any effect on *Palythoa* abundance.

The research was not without issues. One of the main errors that occurred is the inaccuracy in determining the area of a *Palythoa* colony. After using multiplication to find the area of each colony and then adding the products together, the numbers found were higher than the area that was actually surveyed.

There are multiple reasons something like this may have occurred. For one, currents, and surges on the shallower sites, may have made it more difficult for surveyors to get an accurate measurement of the *Palythoa*. Surveyors were teen citizen scientists, some of whom were new to diving. The diving skill level of the surveyors may have played into possible errors in data collection. Another area where errors may have been made is in the actual definition of colony. Colony was defined as one continuous area of *Palythoa* or an area of *Palythoa* only briefly interrupted (refer to image one for visual representation of a disconnected colony). Also, it is possible that some of the surveyors may have counted colonies outside of the designated survey area. It is important to consider that there may have been difficulty in measuring the two meters on either side considering the approximated nature of the measurement. The above problems may be easily solved simply by having a more in depth training of the methodology and providing time to practice buoyancy and dive skills. Another possibility is an error with how the data itself were treated. When multiplying the two measurements, it is assumed that the colony is a rectangle; however, this is not usually the case. After using a few pictures of *Palythoa* to find a possible error margin, even that resulted in numbers larger than the area surveyed. If possible, using cameras to photograph each colony on a transect and measuring them in a photo-editing program later may give a more accurate area of each colony. Then, data of the density of *Palythoa* could be used as another reading of abundance.

**Conclusion:**

*Palythoa* is found in great number in the Florida Keys. *Palythoa* not only takes up valuable reef space which could have otherwise been inhabited by corals but also encrusts on corals themselves causing harm and possibly even killing the coral. Based on previous observations *Palythoa* seemed to be more abundant at shallower depths. Preliminary findings conducted in 2015 were too small to support or reject the hypothesis that there was a negative correlation between *Palythoa* abundance and depth (as depth increases, *Palythoa* decreases). In June of 2017 the project began again, with new methodology and survey sheets. After several days of research and a brief data analysis, it can be concluded that while depth does negatively affect coverage there is not statistical evidence to prove a relationship between depth and abundance. The data showed that while depth increased, both the average area of *Palythoa* and the number of colonies of *Palythoa* decreased. During future research on this topic, a revision of the survey methods may be required.

**Acknowledgements:**

Throughout the duration of this project quite a few people have helped get the project to where it is today: the SCUBAnauts who helped collect data, the advisory committee for reviewing and guiding the entire process, Angie Cowan for proofreading and keeping morale, and finally Kylie Buckman, the person who helped start this project back in 2015.

Table 1. Reef Ball Location and Depth

| Reef Ball | Latitude | Longitude | Depth (m) | Turbidity (m) | Salinity (ppt) |
|---|---|---|---|---|---|
| **Reef Ball 12** | 24°32.754’ | 081°24.360’ | 3.5 | > 3.5 | 35 |
| **Reef Ball 19** | 24°32.680’ | 081°24.505’ | 6.7 | 4.6 | 35 |
| **Reef Ball 20** | 24°32.700’ | 081°24.560’ | 7.6 | > 7.6 | 35 |
| **Reef Ball 25** | 24°32.705’ | 081°24.588’ | 11.9 | 7.6 | 35 |
| **Reef Ball 33** | 24°32.534’ | 081°24.925’ | 11.6 | >11.6 | 35 |
| **Reef Ball 34** | 24°32.705’ | 081°24.588’ | 6.4 | >6.4 | 35 |

Image 1. Visual representation of a Disconnected Colony

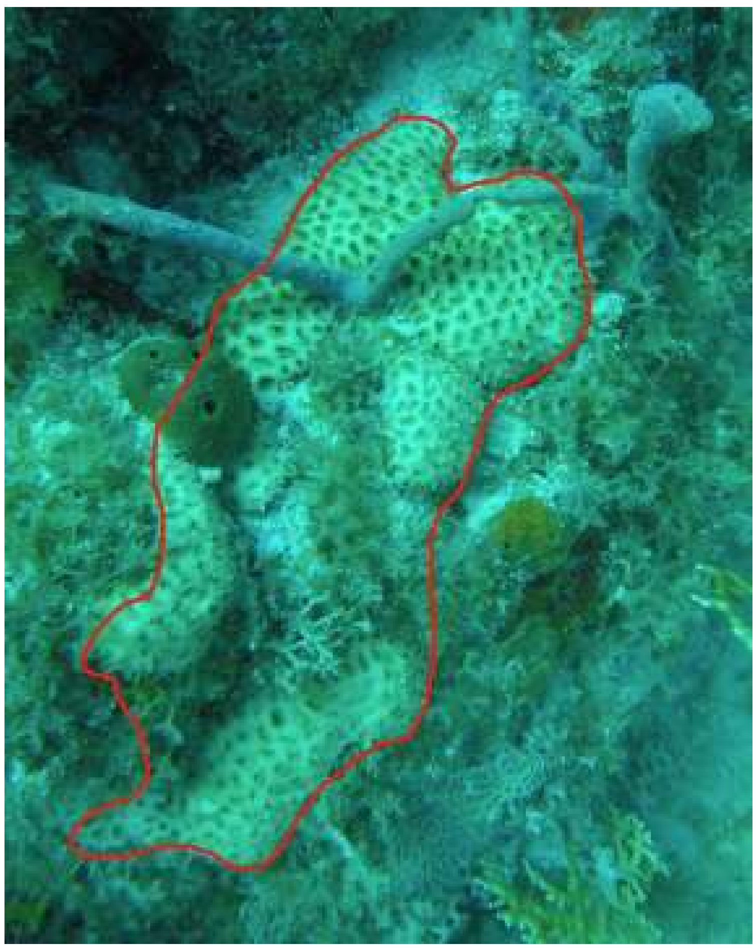

Table 2. Raw Data

| Date | Location | Transect | Depth (m) | Width (cm) | Height (cm) |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| 6/25/17 | Looe Key Buoy 12 24°32.754 W 81°24.360 N | transect 1 | 2.44 | 50 | 40 |
| | | | 3.96 | 15 | 20 |
| | | | 3.66 | 25 | 10 |
| | | | 3.66 | 25 | 10 |
| | | | 3.35 | 7 | 30 |
| | | | 3.66 | 30 | 60 |
| | | | 3.66 | 15 | 50 |
| 6/25/17 | Looe Key Buoy 12 24°32.754 W 81°24.360 N | transect 2 | 3.96 | 30 | 100 |
| | | | 3.96 | 100 | 100 |
| | | | 3.96 | 150 | 30 |
| | | | 3.96 | 50 | 30 |
| 6/25/17 | Looe Key Buoy 19 81°24.505 W 24°32.680 N | transect 1 | 7.01 | 10 | 5 |
| | | | 6.71 | 90 | 50 |
| | | | 6.71 | 50 | 25 |
| | | | 6.71 | 45 | 50 |
| | | | 6.71 | 15 | 10 |
| | | | 6.71 | 20 | 15 |
| | | | 6.71 | 10 | 15 |
| | | | 6.4 | 30 | 15 |
| | | | 6.4 | 12 | 20 |
| | | | 6.4 | 15 | 5 |
| | | | 7.01 | 30 | 20 |
| 6/25/17 | Looe Key Buoy 19 81°24.505 W 24°32.680 N | transect 2 | 6.71 | 30 | 25 |
| | | | 6.4 | 8 | 30 |
| | | | 6.1 | 50 | 30 |
| | | | 7.01 | 100 | 30 |
| | | | 7.01 | 50 | 25 |
| 6/25/17 | Looe Key Buoy 19 81°24.502 W 24°32.681 N | transect 1 | 5.49 | 23 | 15 |
| | | | 6.4 | 20 | 15 |
| | | | 6.4 | 25 | 25 |
| | | | 6.71 | 20 | 20 |
| | | | 6.71 | 100 | 50 |
| | | | 7.62 | 25 | 40 |
| | | | 6.4 | 70 | 90 |
| | | | 6.4 | 200 | 100 |
| 6/25/1 | Looe Key Buoy 19 81°24.502 | transect | 6.4 | 50 | 20 |

| | | | | | |
|---|---|---|---|---|---|
| 7 | W 24°32.681 N | 2 | | | |
| | | | 6.4 | 25 | 20 |
| | | | 6.71 | 50 | 50 |
| | | | 6.4 | 20 | 20 |
| | | | 6.71 | 110 | 60 |
| | | | 6.4 | 100 | 50 |
| | | | 6.4 | 60 | 30 |
| | | | 6.1 | 70 | 50 |
| | | | 6.4 | 70 | 40 |
| | | | 6.1 | 25 | 70 |
| 6/25/17 | Looe Key Buoy 12 24°32.754 W 81°24.360 N | transect 1 | 4.9 | 30 | 25 |
| | | | 4.9 | 10 | 5 |
| | | | 5.6 | 20 | 20 |
| | | | 6.1 | 75 | 70 |
| | | | 5.3 | 50 | 30 |
| | | | 5.4 | 80 | 50 |
| | | | 6 | 30 | 50 |
| | | | 5.8 | 50 | 25 |
| | | | 4.2 | 75 | 60 |
| | | | 4.2 | 80 | 60 |
| 6/25/17 | Looe Key Buoy 12 24°32.754 W 81°24.360 N | transect 2 | 4.2 | 110 | 146 |
| | | | 5.6 | 60 | 50 |
| | | | 5.2 | 80 | 30 |
| | | | 5.2 | 150 | 40 |
| | | | 5.3 | 40 | 30 |
| | | | 6 | 50 | 55 |
| | | | 7.2 | 50 | 15 |
| 6/26/17 | Looe Key Buoy 20 24°32.700 W 81°24.560 N | transect 1 | 3.66 | 50 | 100 |
| | | | 3.05 | 75 | 200 |
| | | | 3.05 | 50 | 50 |
| 6/26/17 | Looe Key Buoy 20 24°32.700 W 81°24.560 N | transect 2 | 2.44 | 25 | 125 |
| | | | 1.83 | 30 | 100 |
| | | | 2.13 | 400 | 150 |
| 6/26/17 | Looe Key Buoy 20 24°32.700 W 81°24.560 N | transect 3 | 6.1 | 20 | 25 |
| | | | 4.88 | 100 | 100 |
| | | | 4.57 | 30 | 15 |

| | | | | | |
|---|---|---|---|---|---|
| | | | 3.66 | 25 | 50 |
| 6/26/17 | Looe Key Buoy 20 24°32.700 W 81°24.560 N | transect 4 | 4.27 | 10 | 20 |
| | | | 4.57 | 20 | 50 |
| | | | 4.27 | 50 | 120 |
| | | | 3.05 | 70 | 400 |
| | | | 4.57 | 20 | 25 |
| | | | 3.05 | 50 | 70 |
| 6/26/17 | Looe Key Buoy 20 24°32.699 W 81°24.560 N | transect 1 | 4.57 | 150 | 215 |
| | | | 5.79 | 60 | 40 |
| | | | 4.57 | 25 | 50 |
| | | | 4.57 | 100 | 150 |
| | | | 4.57 | 50 | 155 |
| | | | 4.57 | 500 | 50 |
| | | | 4.27 | 385 | 200 |
| | | | 4.27 | 60 | 115 |
| 6/26/17 | Looe Key Buoy 20 24°32.699 W 81°24.560 N | transect 2 | 7.01 | 15 | 10 |
| | | | 6.4 | 7 | 10 |
| | | | 6.4 | 10 | 15 |
| | | | 6.4 | 7 | 5 |
| | | | 6.4 | 5 | 5 |
| | | | 6.4 | 12 | 5 |
| | | | 7.01 | 8 | 9 |
| 6/26/17 | Looe Key Buoy 20 24°32.700 W 81°34.560 N | transect 1 | 5.49 | 20 | 5 |
| | | | 3.66 | 5 | 6 |
| | | | 5.49 | 10 | 5 |
| | | | 5.49 | 20 | 5 |
| | | | 5.49 | 30 | 25 |
| | | | 5.79 | 15 | 15 |
| | | | 5.18 | 50 | 50 |
| | | | 5.18 | 15 | 10 |
| | | | 5.49 | 25 | 10 |
| | | | 5.18 | 20 | 15 |
| | | | 5.18 | 6 | 7 |
| | | | 5.49 | 50 | 15 |
| | | | 5.49 | 75 | 50 |
| | | | 5.49 | 75 | 20 |
| | | | 5.49 | 10 | 10 |

| | | | | | |
|---|---|---|---|---|---|
| | | | 5.49 | 20 | 25 |
| | | | 5.49 | 50 | 25 |
| | | | 5.18 | 100 | 30 |
| | | | 5.18 | 40 | 35 |
| | | | 5.18 | 70 | 35 |
| | | | 4.88 | 20 | 15 |
| | | | 5.18 | 25 | 20 |
| | | | 5.18 | 30 | 10 |
| | | | 5.49 | 30 | 20 |
| | | | 5.49 | 35 | 15 |
| | | | 5.18 | 20 | 25 |
| | | | 4.88 | 30 | 25 |
| 6/26/17 | Looe Key Buoy 20 24°32.700 W 81°34.560 N | transect 2 | 5.79 | 5 | 5 |
| | | | 6.1 | 20 | 10 |
| | | | 6.4 | 30 | 35 |
| | | | 5.79 | 15 | 15 |
| | | | 5.79 | 25 | 10 |
| | | | 5.79 | 25 | 10 |
| | | | 5.79 | 25 | 30 |
| | | | 6.1 | 125 | 60 |
| | | | 5.79 | 295 | 155 |
| | | | 5.79 | 30 | 5 |
| | | | 6.1 | 45 | 40 |
| | | | 6.1 | 35 | 25 |
| | | | 5.79 | 50 | 20 |
| | | | 5.79 | 30 | 15 |
| | | | 5.79 | 5 | 15 |
| | | | 6.1 | 20 | 10 |
| | | | 6.4 | 30 | 10 |
| | | | 6.4 | 10 | 20 |
| | | | 6.1 | 10 | 5 |
| | | | 6.4 | 20 | 10 |
| | | | 6.1 | 40 | 35 |
| | | | 6.1 | 25 | 15 |
| | | | 5.79 | 15 | 10 |
| | | | 6.4 | 65 | 80 |
| | | | 6.1 | 35 | 55 |
| | | | 5.49 | 10 | 10 |
| | | | 5.49 | 55 | 35 |
| | | | 5.49 | 20 | 15 |
| | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 6/26/17 | Looe Key Buoy 12 24°32.754 W 81°24.360 N | transect 1 | 4.88 | 75 | 50 |
| | | | 4.57 | 50 | 60 |
| | | | 4.57 | 120 | 100 |
| | | | 4.57 | 100 | 30 |
| | | | 4.57 | 35 | 15 |
| | | | 4.57 | 50 | 27 |
| | | | 4.88 | 10 | 17 |
| | | | 4.27 | 35 | 20 |
| | | | 4.57 | 60 | 47 |
| | | | 3.66 | 90 | 75 |
| | | | 3.35 | 100 | 55 |
| 6/26/17 | Looe Key Buoy 12 24°32.754 W 81°24.360 N | transect 2 | 5.18 | 50 | 10 |
| | | | 4.88 | 150 | 75 |
| | | | 3.05 | 19 | 17 |
| | | | 3.96 | 75 | 35 |
| | | | 3.35 | 170 | 125 |
| | | | 3.96 | 12 | 1 |
| | | | 3.96 | 45 | 65 |
| | | | 3.66 | 20 | 10 |
| | | | 3.05 | 40 | 25 |
| 6/26/17 | Looe Key Ball 20 81°24.560 N 24°32.699 W | transect 1 | 5.18 | 100 | 40 |
| | | | 5.18 | 25 | 50 |
| | | | 5.18 | 20 | 5 |
| | | | 5.18 | 55 | 40 |
| | | | 4.88 | 20 | 25 |
| | | | 5.18 | 5 | 5 |
| | | | 5.49 | 20 | 35 |
| | | | 5.49 | 40 | 20 |
| | | | 5.49 | 200 | 20 |
| | | | 5.49 | 40 | 45 |
| 6/28/17 | Looe Key buoy 33 24°32.534 W 81°24.925 N | transect 1 | 10.97 | 20 | 5 |
| | | | 10.97 | 20 | 5 |
| | | | 10.97 | 5 | 5 |
| | | | 11.58 | 20 | 10 |
| | | | 11.58 | 5 | 5 |
| | | | 11.58 | 5 | 5 |
| | | | 11.58 | 10 | 5 |

| | | | | | |
|---|---|---|---|---|---|
| 6/28/17 | Looe Key buoy 33 24°32.534 W 81°24.925 N | transect 2 | 11.58 | 10 | 5 |
| | | | 11.58 | 15 | 10 |
| | | | 11.28 | 5 | 5 |
| | | | 11.28 | 15 | 5 |
| | | | 11.28 | 10 | 5 |
| 6/28/17 | Looe Key buoy 33 24°32.534 W 81°24.925 N | transect 3 | 12.19 | 5 | 5 |
| | | | 11.89 | 5 | 5 |
| | | | 11.89 | 20 | 15 |
| | | | 11.89 | 5 | 5 |
| | | | 11.89 | 10 | 5 |
| | | | 11.89 | 5 | 3 |
| 6/28/17 | Looe Key buoy 33 24°32.534 W 81°24.925 N | transect 4 | 11.58 | 40 | 30 |
| | | | 11.89 | 5 | 5 |
| | | | 11.28 | 5 | 10 |
| | | | 11.58 | 5 | 10 |
| | | | 11.58 | 20 | 35 |
| | | | 11.28 | 5 | 5 |
| | | | 11.58 | 10 | 15 |
| | | | 11.58 | 10 | 15 |
| 6/28/17 | Looe Key buoy 33 24°32.534 W 81°24.925 N | transect 1 | 12.8 | 10 | 10 |
| | | | 12.8 | 55 | 50 |
| | | | 12.5 | 2 | 3 |
| | | | 12.5 | 5 | 5 |
| 6/28/17 | Looe Key buoy 33 24°32.534 W 81°24.925 N | transect 2 | 12.5 | 15 | 5 |
| | | | 12.5 | 7 | 5 |
| | | | 12.5 | 15 | 10 |
| | | | 12.19 | 20 | 10 |
| 6/28/17 | Looe Key buoy 33 24°32.534 W 81°24.925 N | transect 3 | 12.19 | 20 | 40 |
| | | | 12.5 | 10 | 15 |
| | | | 12.5 | 15 | 20 |
| | | | 12.19 | 5 | 20 |
| | | | 12.19 | 10 | 10 |
| | | | 12.19 | 10 | 20 |
| | | | 12.19 | 5 | 10 |
| 6/28/1 | Looe Key buoy 33 24°32.534 | transect | 12.19 | 10 | 10 |

| | | | | | |
|---|---|---|---|---|---|
| 7 | W 81°24.925 N | 4 | | | |
| | | | 12.19 | 10 | 10 |
| | | | 12.19 | 5 | 5 |
| 6/28/17 | Looe Key Buoy 34 24°32.516 W 81°24.983 | transect 1 | 11.58 | 5 | 7 |
| 6/28/17 | Looe Key Buoy 34 24°32.516 W 81°24.983 | transect 2 | 11.58 | 5 | 5 |
| | | | 11.58 | 25 | 10 |
| | | | 11.58 | 20 | 15 |
| | | | 11.58 | 30 | 15 |
| | | | 11.58 | 15 | 5 |
| | | | 11.58 | 15 | 15 |
| 6/28/17 | Looe Key Buoy 34 24°32.516 W 81°24.983 | transect 3 | 11.89 | 35 | 10 |
| | | | 11.58 | 15 | 10 |
| 6/28/17 | Looe Key buoy 33 24°32.534 W 81°24.925 N | transect 1 | 12.5 | 15 | 15 |
| | | | 12.19 | 3 | 5 |
| | | | 12.8 | 3 | 2 |
| | | | 12.8 | 12 | 4 |
| | | | 12.8 | 10 | 12 |
| | | | 12.5 | 5 | 2 |
| 6/28/17 | Looe Key buoy 33 24°32.534 W 81°24.925 N | transect 2 | 11.89 | 5 | 8 |
| | | | 12.19 | 8 | 10 |
| | | | 12.5 | 15 | 10 |
| | | | 11.89 | 10 | 5 |
| | | | 12.5 | 10 | 3 |
| | | | 12.5 | 10 | 3 |
| | | | 12.5 | 5 | 5 |
| | | | 12.5 | 5 | 3 |
| | | | 12.8 | 6 | 4 |
| | | | 12.5 | 3 | 3 |
| 6/28/17 | Looe Key Buoy 33 29°32.534 W 81°24.925 N | transect 3 | 12.5 | 6 | 7 |
| | | | 11.89 | 6 | 5 |
| 6/28/17 | Looe Key Buoy 34 24°32.577 W 81°24.981 | transect 1 | 11.89 | 6 | 7 |
| | | | 12.19 | 10 | 15 |
| | | | 12.8 | 1 | 1 |

| | | | | | |
|---|---|---|---|---|---|
| 6/28/17 | Looe Key Buoy 34 24°32.577 W 81°24.981 | transect 2 | 11.89 | 5 | 4 |
| | | | 12.19 | 5 | 5 |
| 6/31/17 | Looe Key Buoy 25 24°32.705 W 81°24.588 W | transect 1 | 5.79 | 10 | 13 |
| | | | 5.79 | 3 | 8 |
| | | | 5.79 | 5 | 7 |
| | | | 5.79 | 5 | 3 |
| | | | 5.79 | 7 | 5 |
| | | | 5.79 | 100 | 50 |
| | | | 5.79 | 60 | 35 |
| | | | 5.79 | 20 | 15 |
| | | | 5.79 | 10 | 10 |
| | | | 5.79 | 3 | 5 |
| | | | 5.79 | 15 | 8 |
| | | | 5.79 | 30 | 40 |
| | | | 5.79 | 5 | 4 |
| | | | 5.79 | 5 | 50 |
| | | | 5.79 | 15 | 20 |
| | | | 5.79 | 10 | 8 |
| | | | 6.1 | 30 | 25 |
| | | | 6.1 | 35 | 15 |
| | | | 6.1 | 50 | 50 |
| | | | 6.1 | 20 | 5 |
| | | | 6.4 | 80 | 60 |
| | | | 6.4 | 25 | 30 |
| | | | 6.4 | 50 | 30 |
| | | | 6.1 | 40 | 35 |
| | | | 5.49 | 200 | 75 |
| | | | 5.49 | 20 | 5 |
| | | | 5.49 | 8 | 5 |
| | | | 6.1 | 20 | 10 |
| | | | 6.1 | 50 | 20 |
| | | | 6.4 | 15 | 10 |