# DATA VISUALIZATION AND EXPLORATION ASSIGNMENT – 1

## 1. LOADING DATA INTO TABLEAU

The CSV Data provided once loaded into Tableau wasn't in a suitable format for visualization as the column names weren't displayed properly . Tableau has an option called 

This helps to resolve the column naming problem. After this I pivoted the columns other than site, latitude and longitude. The data was displayed in the following manner,

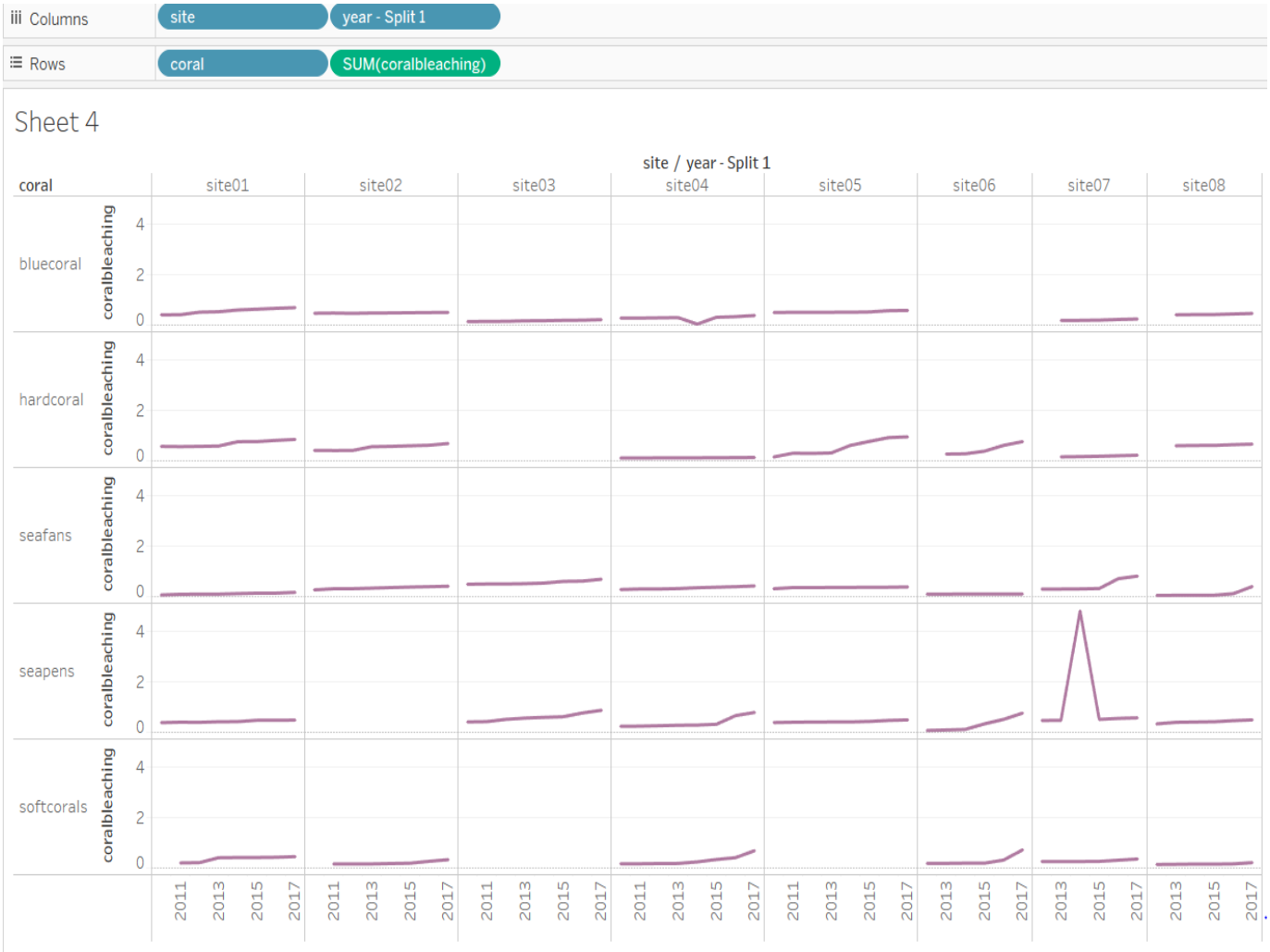
| Abc<br>Sheet1<br>**site** | <br>Sheet1<br>**longitude** | <br>Sheet1<br>**latitude** | Abc<br>Pivot<br>**year** | #<br>Pivot<br>**coralbleaching** |
|---|---|---|---|---|
| site01 | 143.51500 | -11.84300 | hard corals 2010 | 0.562900 |
| site02 | 145.04300 | -14.38300 | hard corals 2010 | 0.403400 |
| site03 | 146.58900 | -17.98100 | hard corals 2010 | *null* |
| site04 | 150.44400 | -20.41400 | hard corals 2010 | 0.100100 |
| site05 | 143.78600 | -13.10700 | hard corals 2010 | 0.144500 |

## 2. DATA ENTRY ERROR

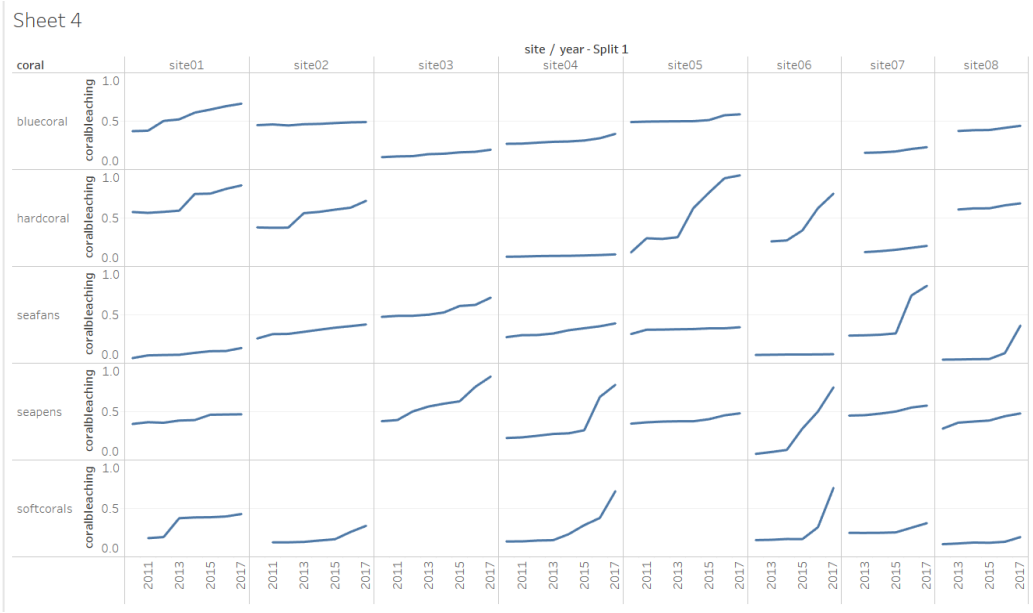
For my convenience and for better visualization I **Transform** ->**custom split** the year column so that I get a separate column for the particular years. I grouped together the different types of corals so that I have a group containing the coral names.

| Abc<br>Sheet1<br>site | <br>Sheet1<br>longitude | <br>Sheet1<br>latitude | Abc<br>Pivot<br>year | #<br>Pivot<br>coralbleaching | =Abc<br>Calculation<br>year - Split 1 | <br>Group<br>coral |
|---|---|---|---|---|---|---|
| site01 | 143.51500 | -11.84300 | hard corals 2010 | 0.562900 | 2010 | hardcoral |
| site02 | 145.04300 | -14.38300 | hard corals 2010 | 0.403400 | 2010 | hardcoral |
| site03 | 146.58900 | -17.98100 | hard corals 2010 | *null* | 2010 | hardcoral |
| site04 | 150.44400 | -20.41400 | hard corals 2010 | 0.100100 | 2010 | hardcoral |
| site05 | 143.78600 | -13.10700 | hard corals 2010 | 0.144500 | 2010 | hardcoral |

Inorder to check for entry errors I plotted the coralBleaching for different types of corals in different Sites for each year from 2010 to 2017. This was the output obtained,



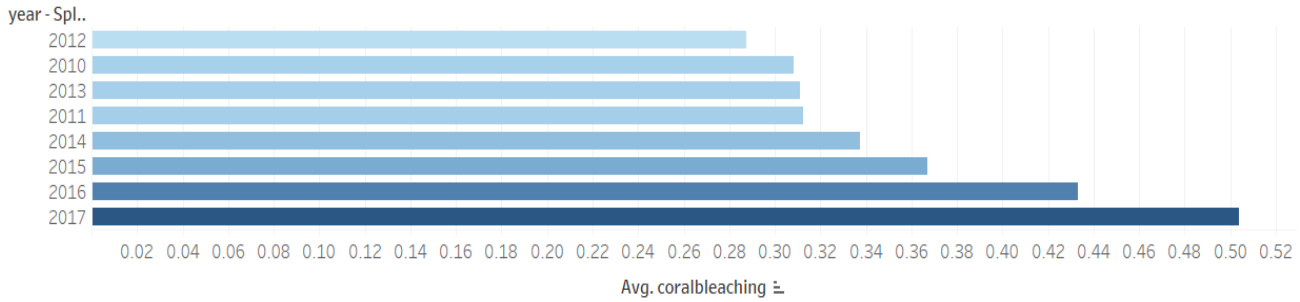
In the visualization every entry seems reasonable except for two of them. Seapens 2014 site07 seems to have a peak value of 480.5% whereas the other values are in the range of  46% to 56% . So I feel this entry has to be somewhere around 48.05%. Similarly Bluecoral Site04 2014 seems to have a very low value of 2.9 % whereas the other values are around 26% to 37%. This must have been a typo as well. I replace it with 29%



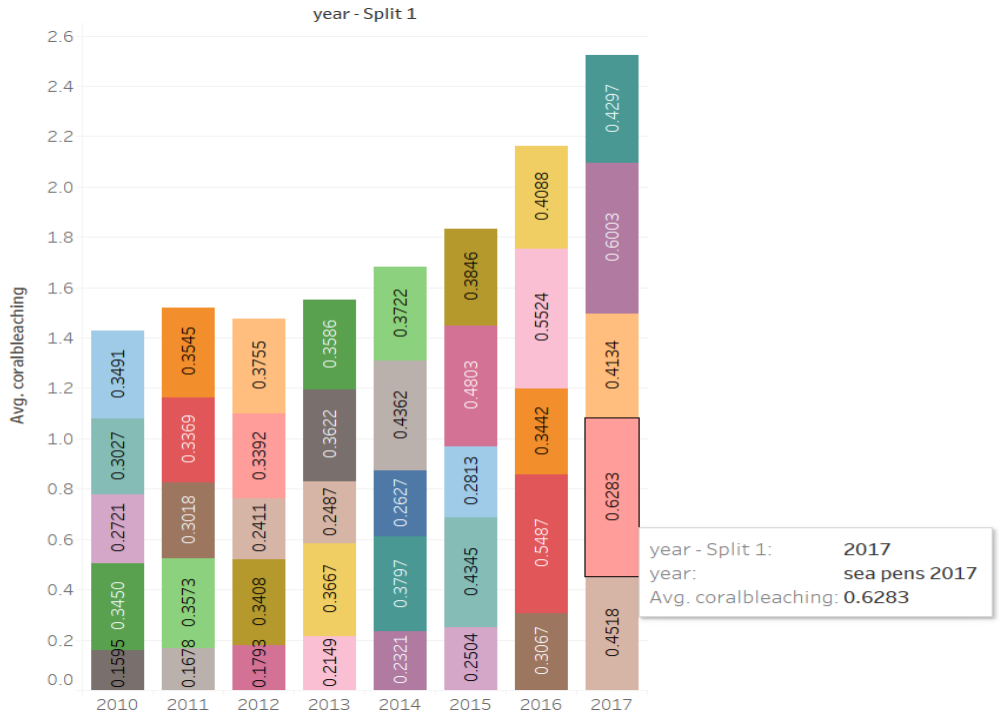

Plotting the latitude and longitudes in the map graph I noticed that the site06 isnt on the Great barrier .Its Longitude has a negative sign which shouldn't have been.


## I. In which years and for what kinds of coral bleaching is the worst ?

To answer this question I plotted the different years on the Y-axis and the avg coral bleaching in X- axis.




We can see that year 2017 has the worst Avg coralbleaching compared to other years. To determine the type of coral which has the worst bleaching I placed the **coral group** on the color mark Color. The following is the graph obtained.

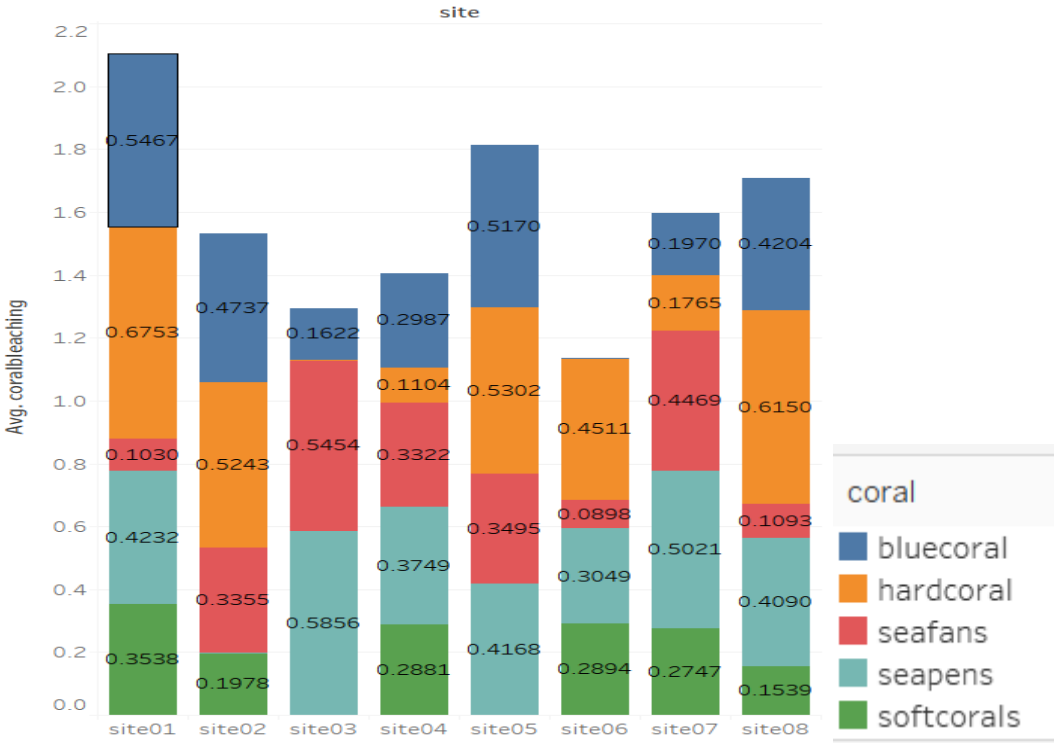



We can see that sea pens has an average coralbleaching of 62.83% in the year 2017.

| YEAR | CORAL | AVG CORALBLEACHING |
|---|---|---|
| 2010 | Bluecorals | 34.91% |
| 2011 | Seapens | 35.73% |
| 2012 | Bluecorals | 37.55% |
| 2013 | Seapens | 36.67% |
| 2014 | Hardcorals | 43.62% |
| 2015 | Hardcorals | 48.03% |
| 2016 | Hardcorals | 55.24% |
| 2017 | Seapens | 62.83% |

## II. How location of the site affects bleaching on different kinds of coral?

To obtain the answer I plot Sites on the x axis and Avg coral bleaching on Y axis and placed the different corals on the color mark.




| SITE | BLUECORAL | HARDCORAL | SEAFANS | SEAPENS | SOFTCORALS |
|---|---|---|---|---|---|
| SITE1 | 54.67 | 67.53 | 10.30 | 42.32 | 35.38 |
| SITE2 | 47.37 | 52.43 | 33.55 | | 19.78 |
| SITE3 | 16.22 | | 54.54 | 58.56 | |
| SITE4 | 29.87 | 11.04 | 33.22 | 37.49 | 28.81 |
| SITE5 | 51.70 | 53.02 | 34.95 | 41.68 | |
| SITE6 | | 45.11 | 8.98 | 30.49 | 28.94 |
| SITE7 | 19.70 | 17.65 | 44.69 | 50.21 | 27.47 |
| SITE8 | 42.04 | 61.50 | 10.93 | 40.90 | 15.39 |

The red highlighted values are the corals having the highest Average coralbleaching in the respective sites .