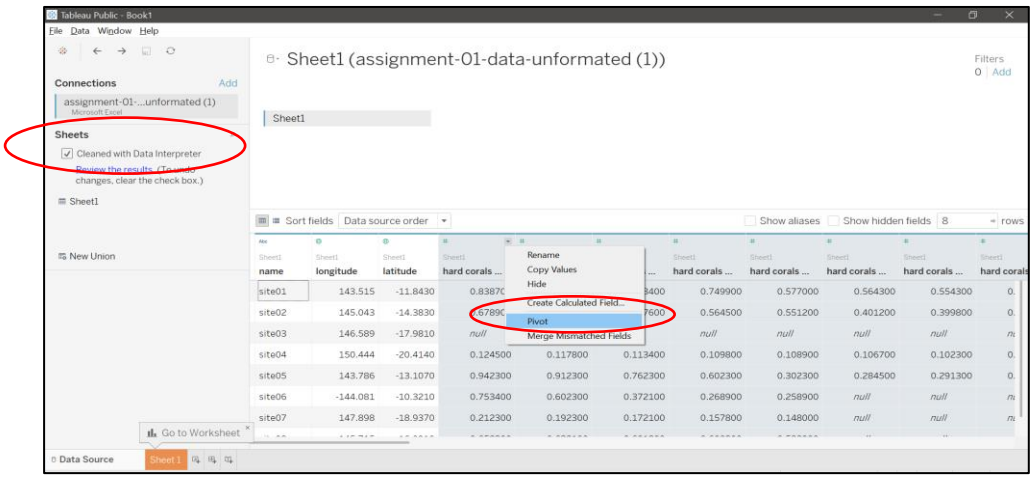
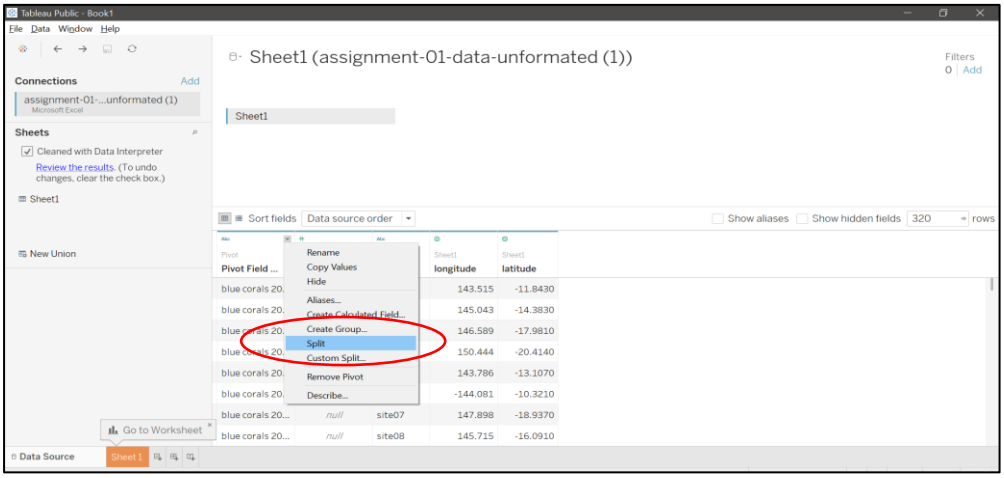
1) Reading the data into Tableau Public

Firstly, we read the data into Tableau Public. As Tableau Public prefers the data source to be in row-oriented tables format, we can clean and correct it using the option "*Cleaned with Data Interpreter*" built in Tableau to correct our data source to row-oriented tables format.

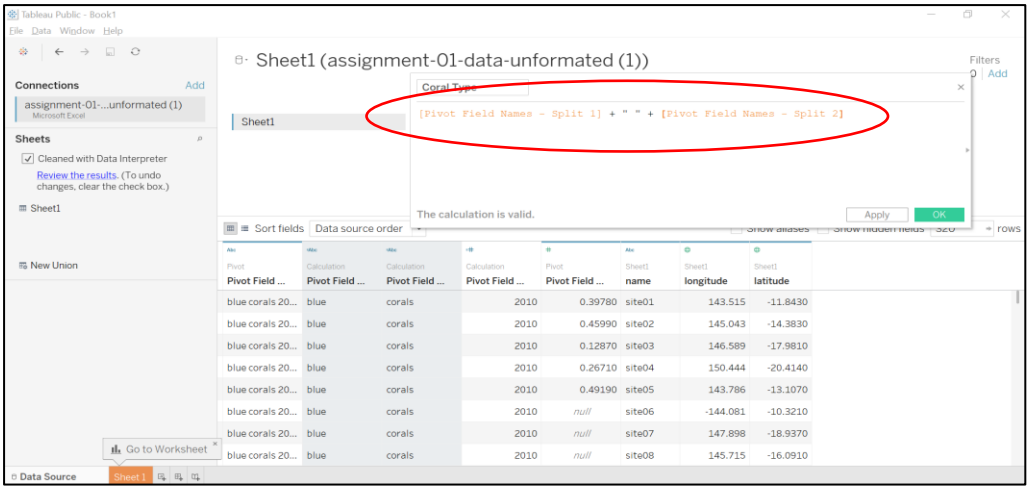
Next, we realised it's not easy to perform analysis of the data as the % of bleaching for different sites are now in multiple columns categorised in accordance to the coral type and the year. We can further format our data using the "*pivot*" option built in Tableau into columnar format.



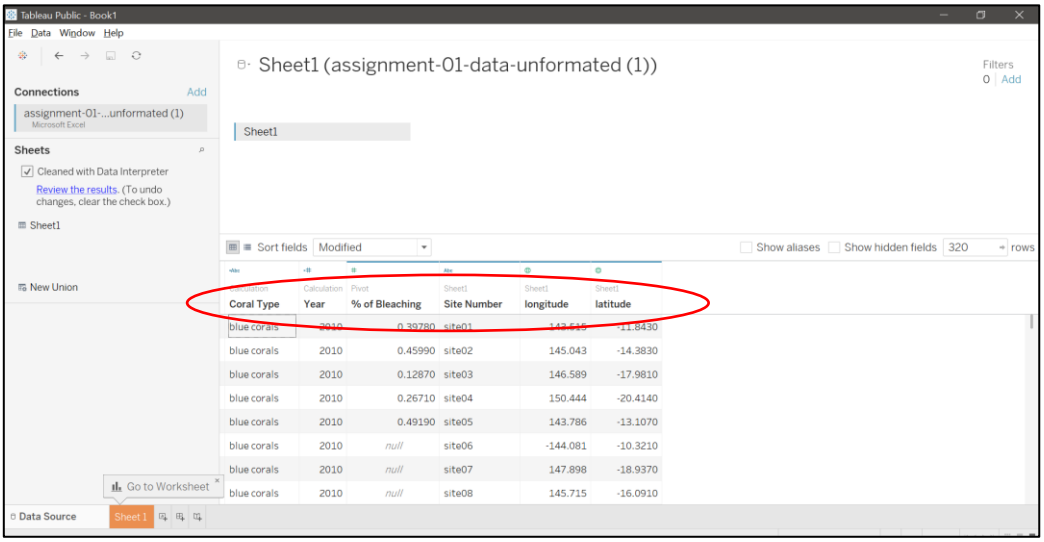
After pivoting the data in Tableau, the newly created pivot field contained the coral type and the year in a single column which was not ideal if we were interested to perform any analysis based on the coral type and year separately. We can correct it by using the "*split*" option in Tableau Public.



We then concatenate the coral type to be as one column using the "Create Calculated Field" option in Tableau, as the "split" option previously created 3 columns instead of the 2 columns we needed (Type of Coral & Year). By inputting the formula *[Pivot Field Names - Split 1]* + " " + *[Pivot Field Names - Split 2]* in the "*Create Calculated Field*", we can create one single column (Coral Type) in the format e.g. "blue corals".

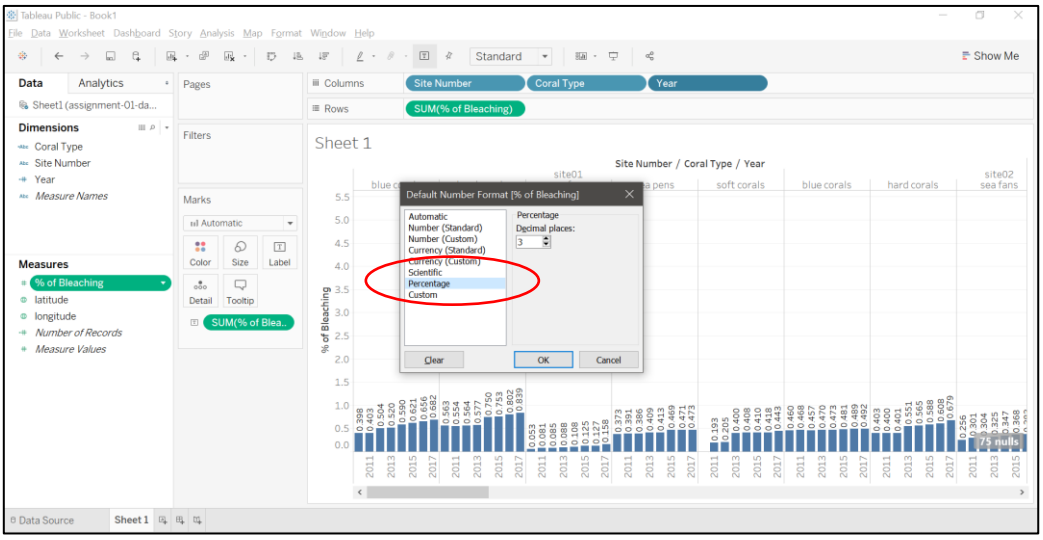


Lastly, we can hide the unnecessary columns and rename the remaining columns to Coral Type, Year, % of Bleaching, Site Number, longitude and latitude.

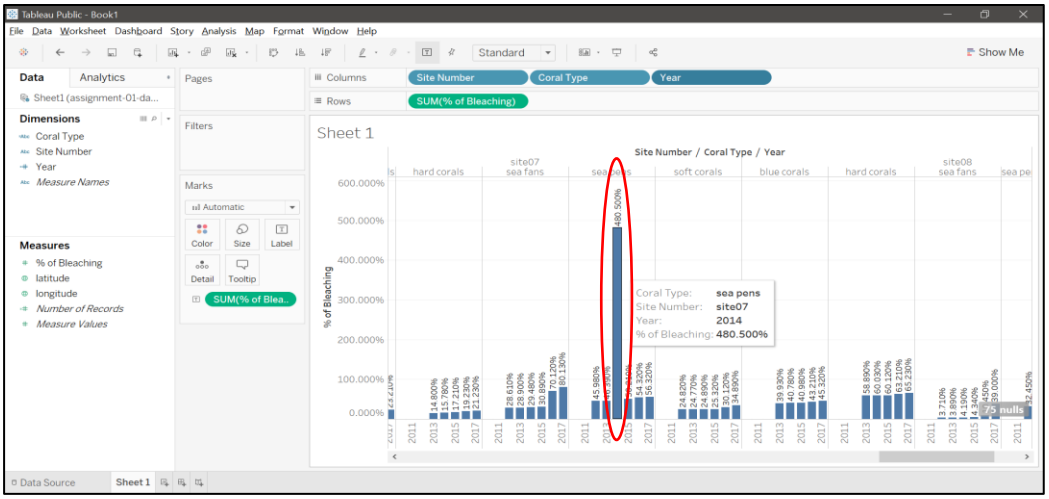


2) Checking the data for entry errors

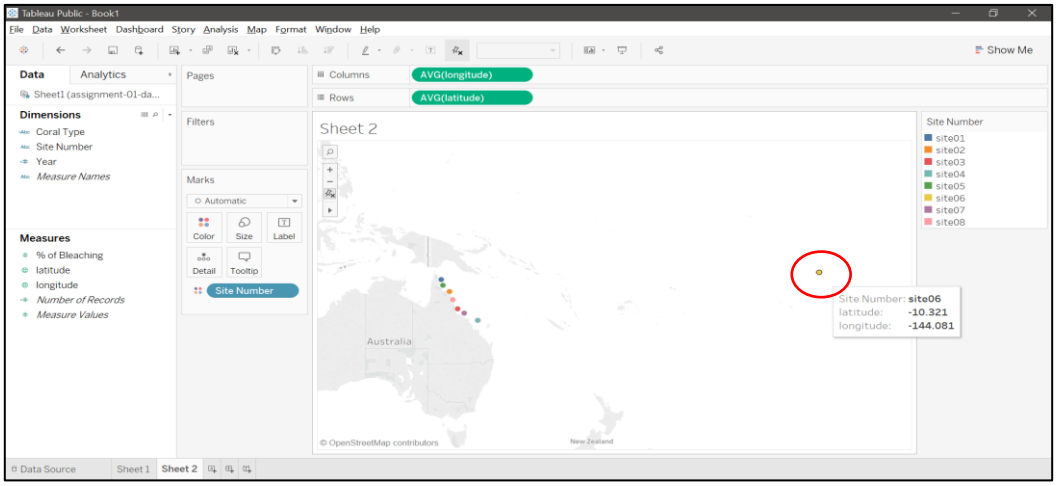
We will try visualising the data to check for any possible data entry error. Plug in “Site Number”, “Year” & “Coral Type” into “Columns” and “% of Bleaching” into “Rows”. We can change the number format for “% of Bleaching” to be in percentage format instead of the decimal format for easier analysis purpose.



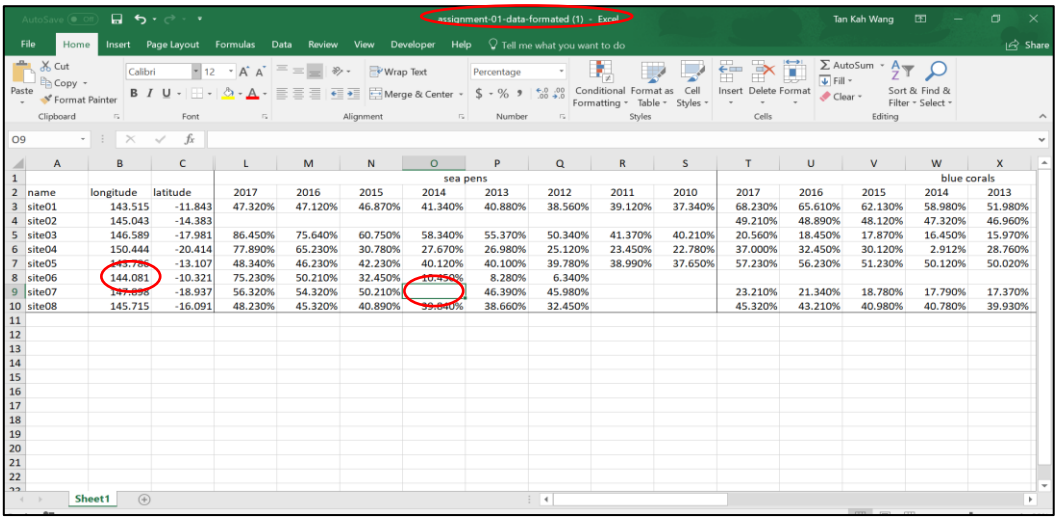
We noticed that for “Site07”, under the year “2014” for coral type “Sea Pens”, there seem to be a data entry error as the percentage of bleaching was 480.500%. Thus, we should remove this data point from the data table.



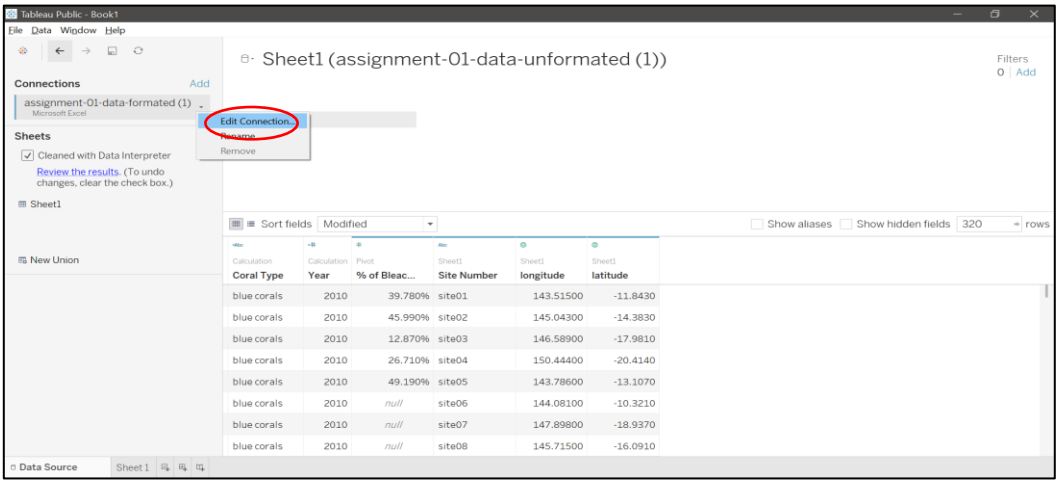
Next, we will try to visualise the geographical data by plugging “longitude” into “columns”, “latitude” into “rows” and “Site Number” to “Color” to detect any potential data entry issues. We noted there was a potential error for “Site06” as it was away from the rest of the sites on the map. We can correct it by changing the longitude to 144.081 instead of -144.081.



We can change the data entry errors in Microsoft Excel manually. Firstly, we change the longitude of “Site06” to 144.081 instead of -144.081 and next, we will remove the data point of 480.500% for “Site07, 2014, sea pens”.

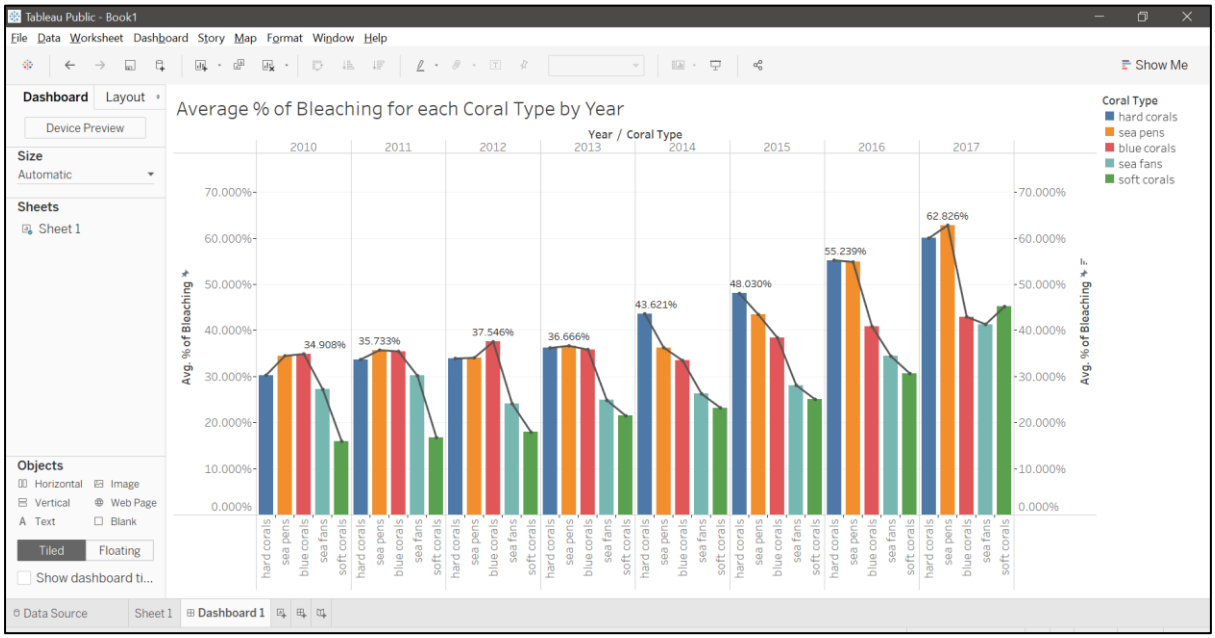


After which, we can save the excel data file as a name that is not the same as the previous so that we can load this data source into Tableau Public directly without having to repeat the steps we did initially while reading the data into Tableau Public for the first time. This can be done by editing the connection and choosing the new formatted data file we have saved.



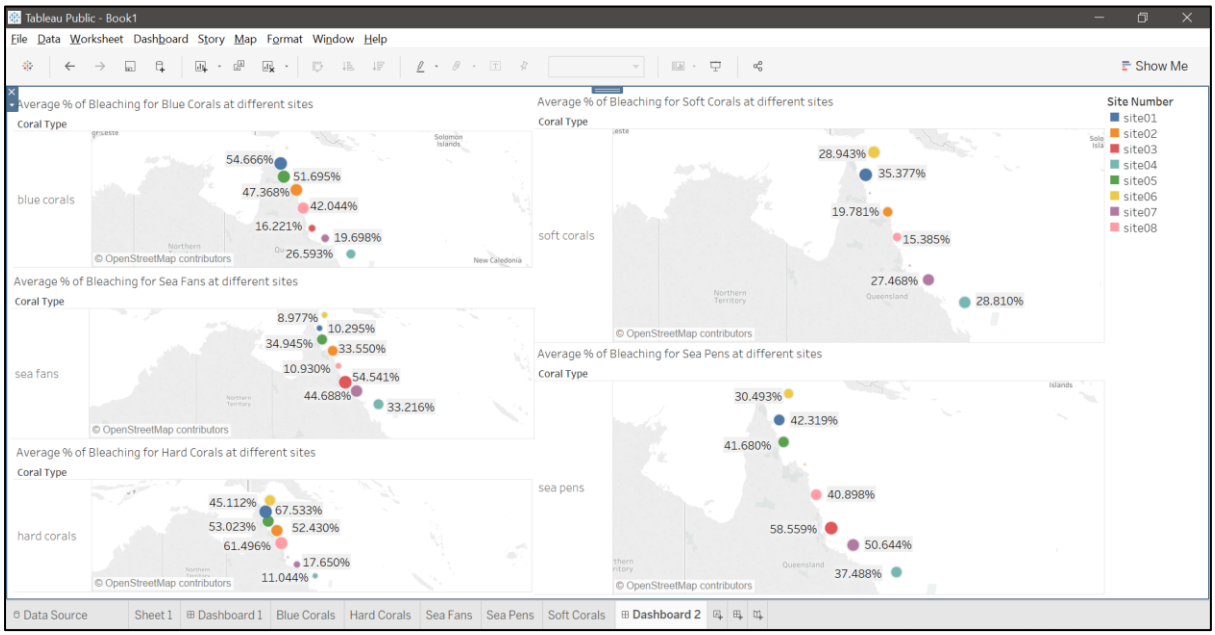
3) Answering Question 1 (In which years and for which kinds of coral bleaching is the worst)

From the visualisation below, we can tell the worst average coral bleaching for each individual year.
For Year 2010, blue corals had the worst average bleaching at 34.90%.
For Year 2011, sea pens had the worst average bleaching at 35.733%.
For Year 2012, blue corals had the worst average bleaching at 37.546%.
For Year 2013, sea pens had the worst average bleaching at 36.666%.
For Year 2014, hard corals had the worst average bleaching at 43.621%.
For Year 2015, hard corals had the worst average bleaching at 48.030%.
For Year 2016, hard corals had the worst average bleaching at 55.239%.
For Year 2017, sea pens had the worst average bleaching at 62.826%.



4) Answering Question 2 (How the location of the site affects bleaching on the different kinds of coral.)

From the visualisation below, we can tell how different kinds of coral were affected based on the location of the site.
For blue corals, the worst average bleaching occurred at Site 01 at 54.666% while Site 03 were affected the least at 16.221%.
For sea fans, the worst average bleaching occurred at Site 03 at 54.541% while Site 06 were affected the least at 8.977%.
For hard corals, the worst average bleaching occurred at Site 01 at 67.533% while Site 04 were affected the least at 11.044%.
For soft corals, the worst average bleaching occurred at Site 01 at 35.377% while Site 08 were affected the least at 15.385%.
For sea pens, the worst average bleaching occurred at Site 03 at 58.559% while Site 06 were affected the least at 30.493%.



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