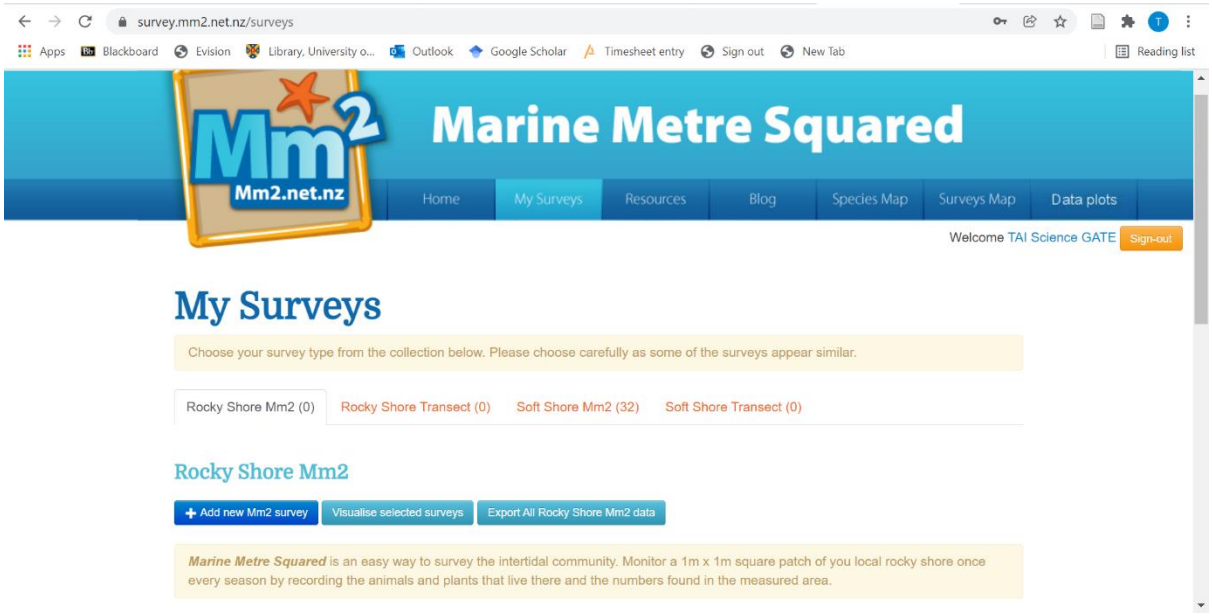
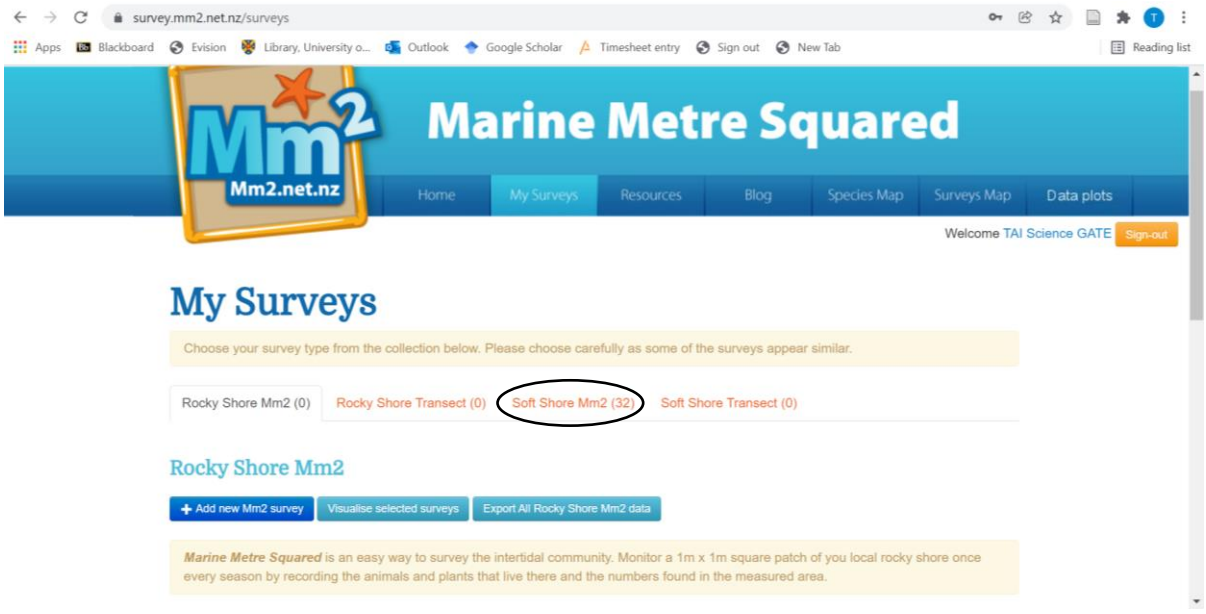
How to analyse your Mm2 data.

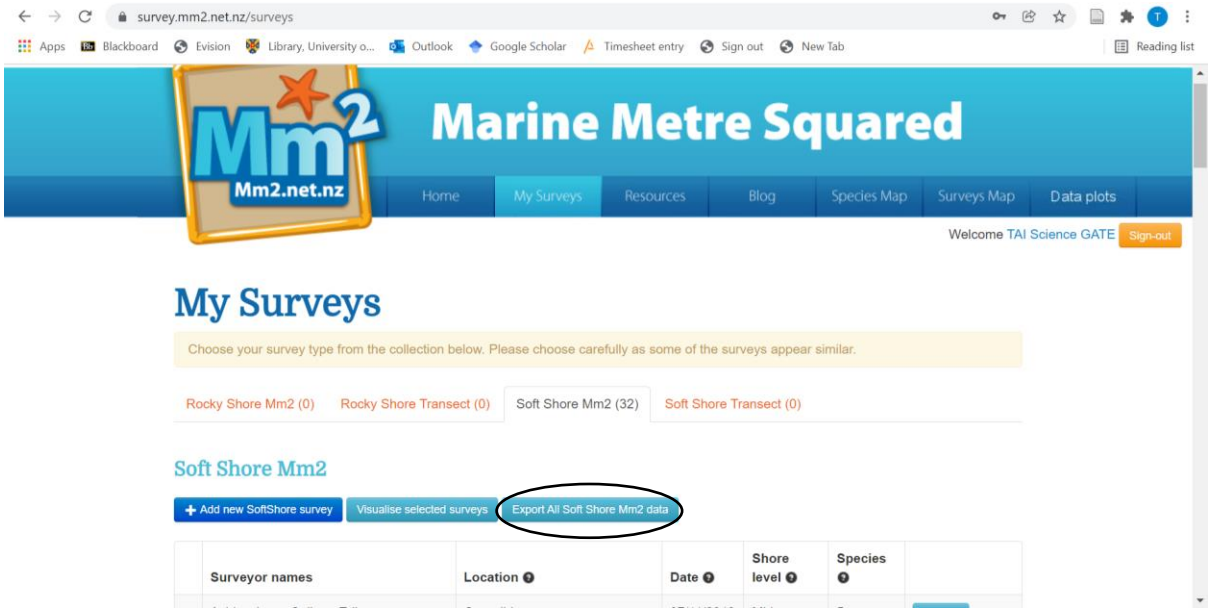
First you need to login to your Mm2 account once you have done this, you should see the below page.



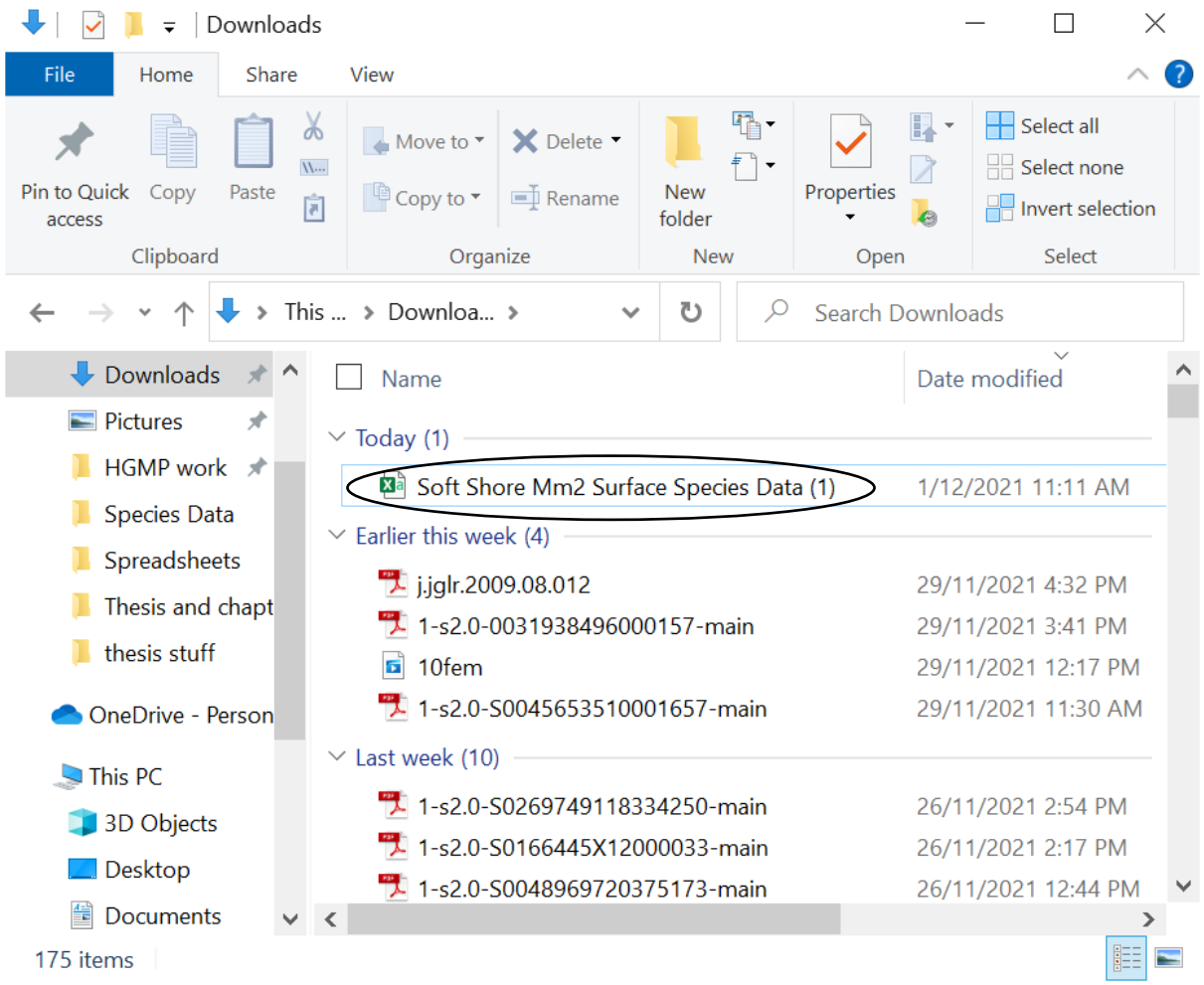
Select the surveys you would like to analyse. For this example I will be selecting 'Soft Shore Mm2'.



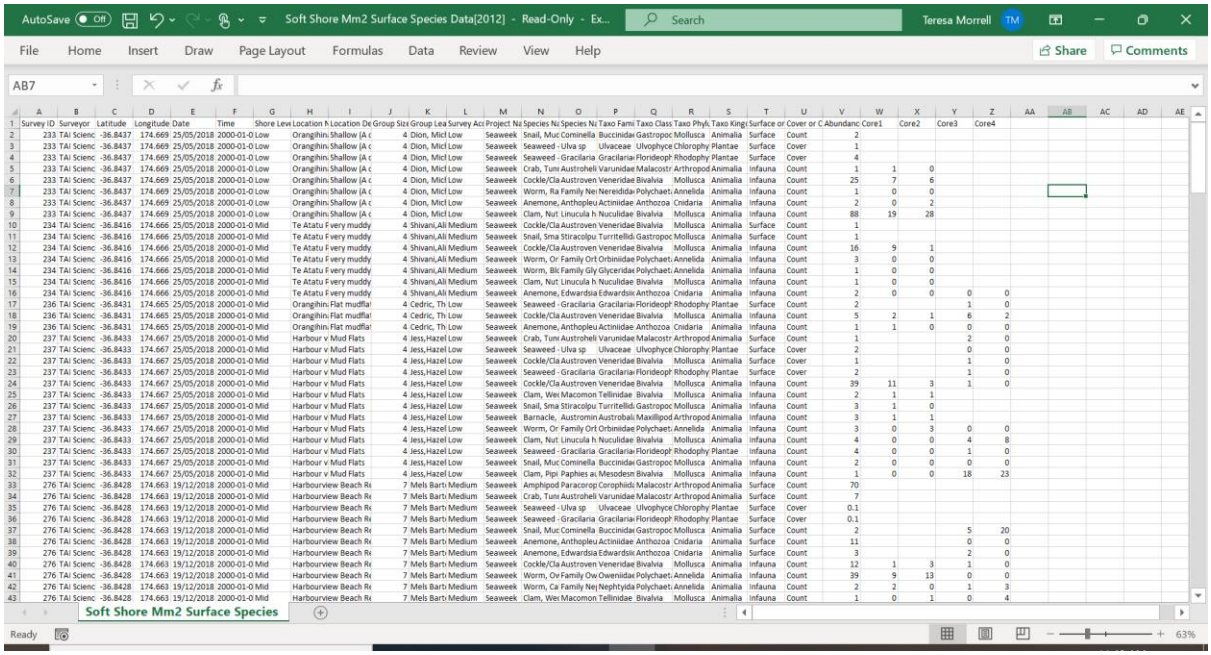
Once you have chosen which surveys you want to analyse, click the "Export all Mm2 data" button. This will say "Export all Rocky Shore Mm2 data" if you are analysing rocky shore data and "Export all Soft Shore Mm2 data".



Once you have chosen this, your data will be saved in your downloads folder.



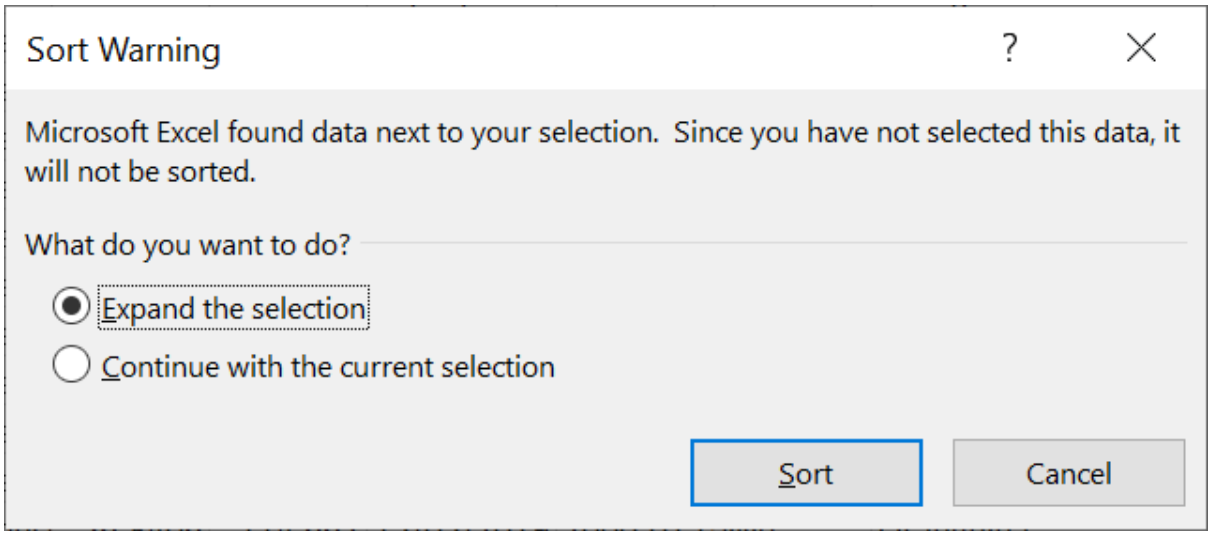
Open this file and your data will look like this!



To start, I order the data to make it a bit easier to see what's what. To do this use the ctrl and "A" keys to select all your data. Once your data is selected, right click and choose the "sort" line in the menu that appears. You can then choose to sort the data from largest to smallest or smallest to largest, choose one of these.

Your data should now be grouped by the years in which it was collected. This way it is easy for us to collate the data collected each year individually so that we can compare data across time!

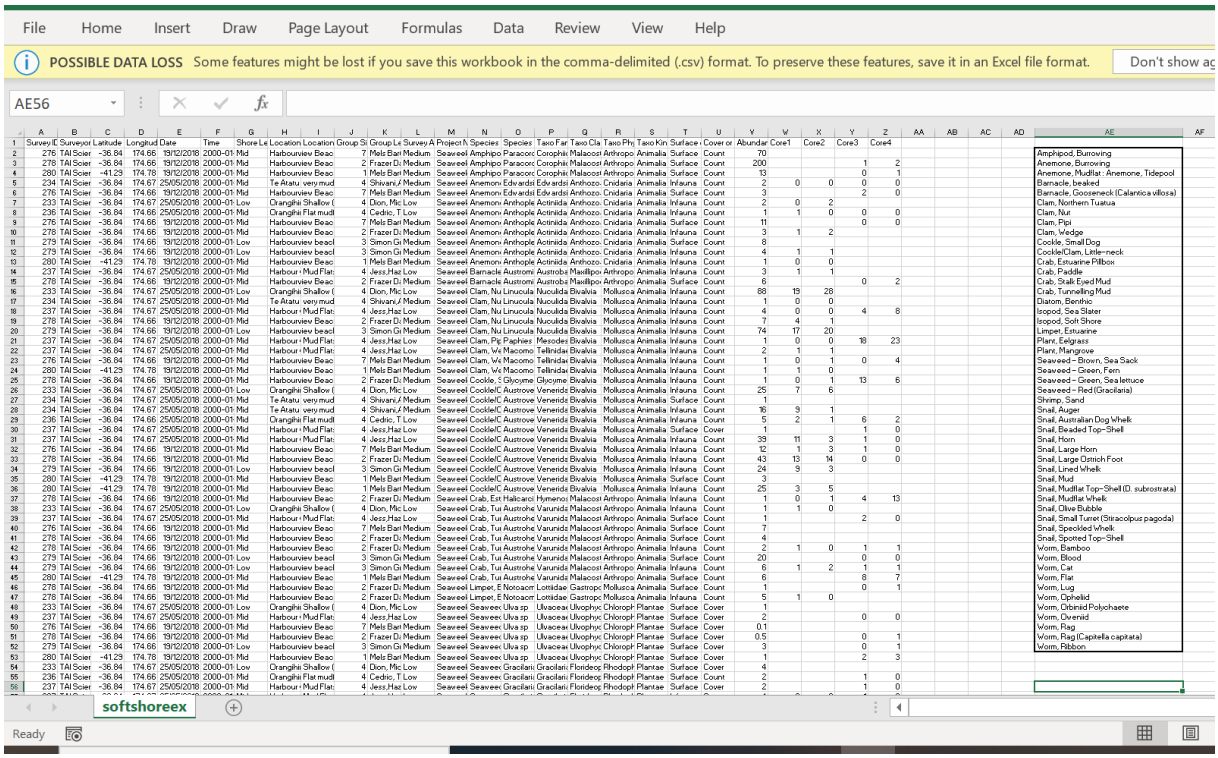
Now to organise the species, highlight the Species name column and once again right click and choose 'sort' this time we are going to choose sort A-Z. This will group all the species together for us. When you choose this a text box will pop up like the one below:



Make sure that "Expand the selection" is the option selected as this means that all the data will move when the data is sorted.

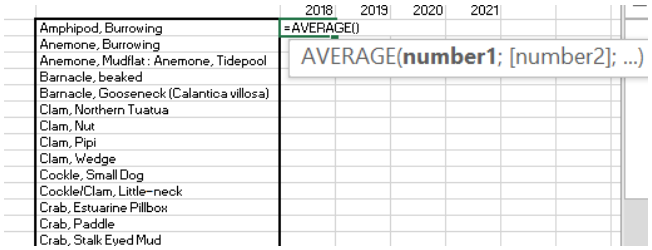
Our species list should now be organised like the below, this allows us to see which species were observed.

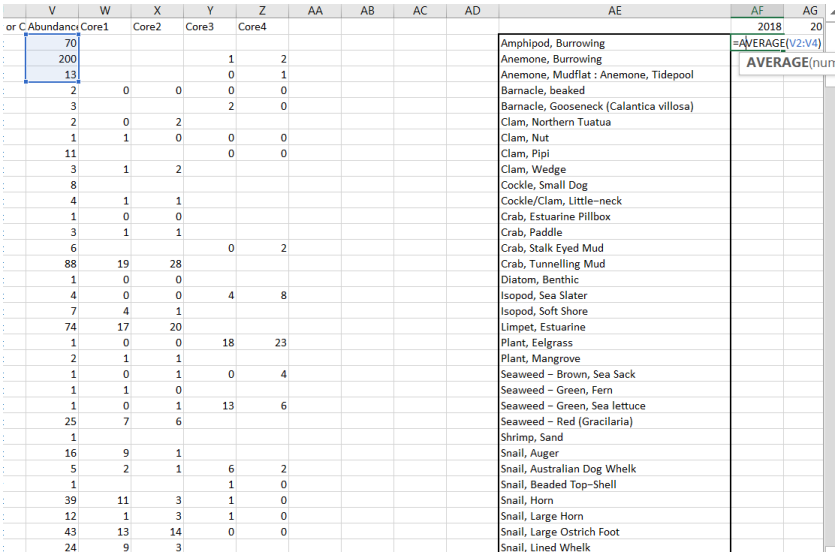
Now that we can see which species we have, we are going to make a condensed species list. Like the one in the black box below.



Now that we have a species list, we are going to average the abundance data for each species in each year to make a table like the below.

You can do this quickly using the equations functions in excel to average the data you select.



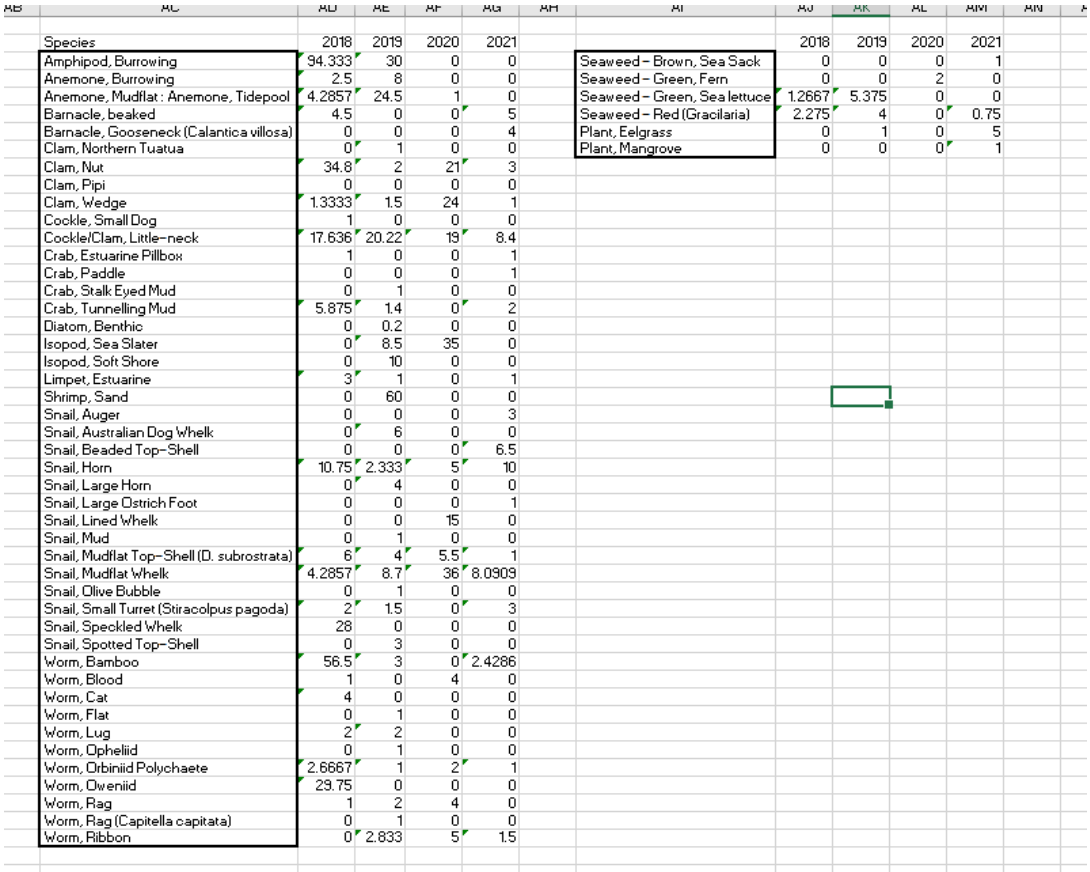


After doing this for all of your species you should have made a table that looks something like this:

Species	2018	2019	2020	2021
Amphipod, Burrowing	94.33333	30	0	0
Anemone, Burrowing	2.5	8	0	0
Anemone, Mudflat : Anemone, Tidepool	4.285714	24.5	1	0
Barnacle, beaked	4.5	0	0	5
Barnacle, Gooseneck (Calantica villosa)	0	0	0	4
Clam, Northern Tuatua	0	1	0	0
Clam, Nut	34.8	2	21	3
Clam, Pipi	0	0	0	0
Clam, Wedge	1.333333	1.5	24	1
Cockle, Small Dog	1	0	0	0
Cockle/Clam, Little−neck	17.63636	20.22222	19	8.4
Crab, Estuarine Pillbox	1	0	0	1
Crab, Paddle	0	0	0	1
Crab, Stalk Eyed Mud	0	1	0	0
Crab, Tunnelling Mud	5.875	1.4	0	2
Diatom, Benthic	0	0.2	0	0
Isopod, Sea Slater	0	8.5	35	0
Isopod, Soft Shore	0	10	0	0
Limpet, Estuarine	3	1	0	1
Plant, Eelgrass	0	1	0	5
Plant, Mangrove	0	0	0	1
Seaweed − Brown, Sea Sack	0	0	0	1
Seaweed − Green, Fern	0	0	2	0
Seaweed − Green, Sea lettuce	1.266667	5.375	0	0
Seaweed − Red (Gracilaria)	2.275	4	0	0.75
Shrimp, Sand	0	60	0	0
Snail, Auger	0	0	0	3
Snail, Australian Dog Whelk	0	6	0	0
Snail, Beaded Top−Shell	0	0	0	6.5
Snail, Horn	10.75	2.333333	5	10
Snail, Large Horn	0	4	0	0
Snail, Large Ostrich Foot	0	0	0	1
Snail, Lined Whelk	0	0	15	0
Snail, Mud	0	1	0	0
Snail, Mudflat Top−Shell (D. subrostrata)	6	4	5.5	1
Snail, Mudflat Whelk	4.285714	8.7	36	8.090909
Snail, Olive Bubble	0	1	0	0
Snail, Small Turret (Stiracolpus pagoda)	2	1.5	0	3
Snail, Speckled Whelk	28	0	0	0
Snail, Spotted Top−Shell	0	3	0	0
Worm, Bamboo	56.5	3	0	2.428571
Worm, Blood	1	0	4	0
Worm, Cat	4	0	0	0
Worm, Flat	0	1	0	0
Worm, Lug	2	2	0	0
Worm, Opheliid	0	1	0	0
Worm, Orbiniid Polychaete	2.666667	1	2	1
Worm, Oweniid	29.75	0	0	0
Worm, Rag	1	2	4	0
Worm, Rag (Capitella capitata)	0	1	0	0
Worm, Ribbon	0	2.833333	5	1.5

Once we have all the average abundance data for each species for each year. We need to separate the animals from the seaweeds because we measure seaweeds in percent cover whilst we count animals.

This is a quick job of turning your one species table into two, like below:

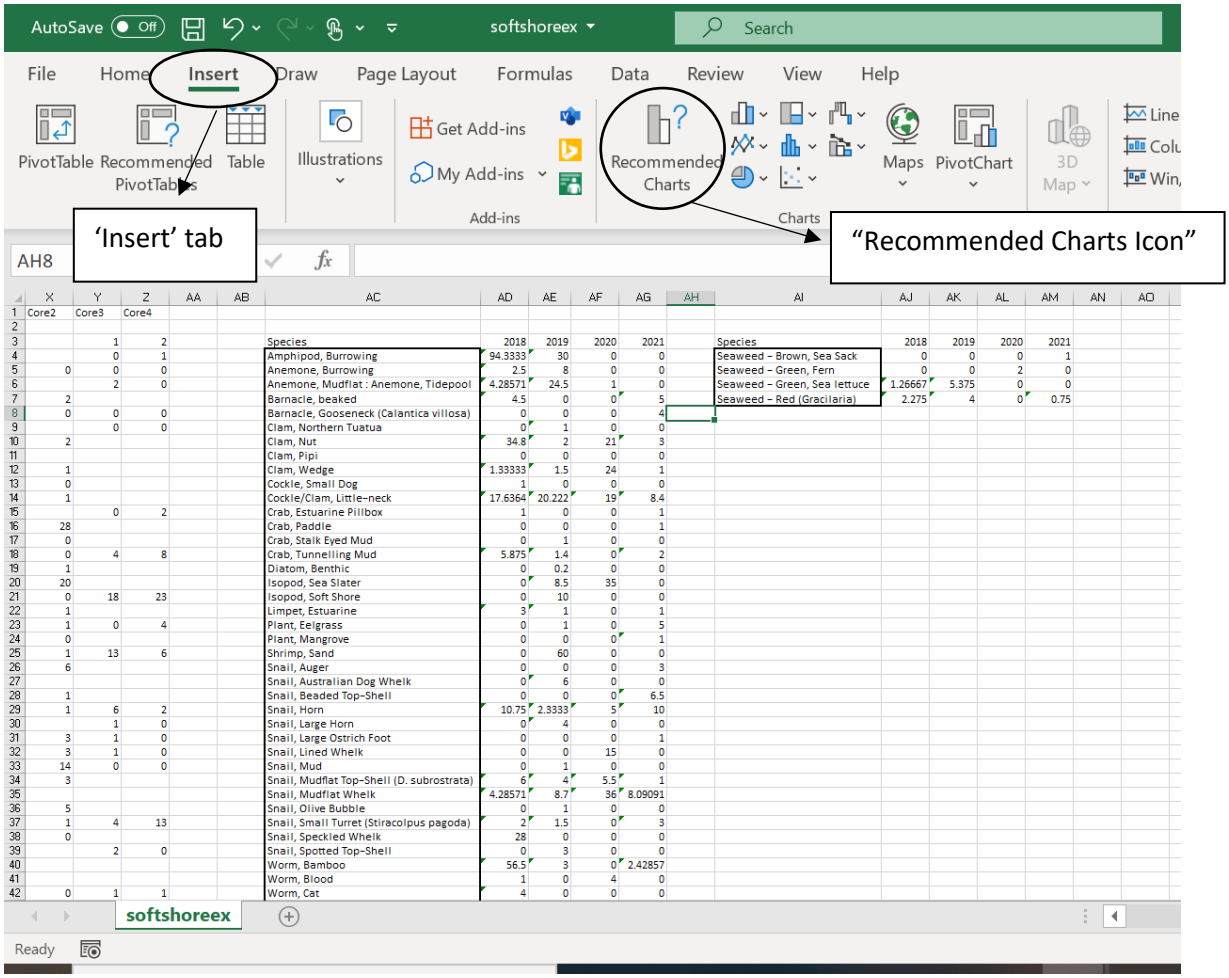


Species	2018	2019	2020	2021
Amphipod, Burrowing	94.333	30	0	0
Anemone, Burrowing	2.5	8	0	0
Anemone, Mudflat : Anemone, Tidepool	4.2857	24.5	1	0
Barnacle, beaked	4.5	0	0	5
Barnacle, Gooseneck (Calantica villosa)	0	0	0	4
Clam, Northern Tuatua	0	1	0	0
Clam, Nut	34.8	2	21	3
Clam, Pipi	0	0	0	0
Clam, Wedge	1.3333	1.5	24	1
Cockle, Small Dog	1	0	0	0
Cockle/Clam, Little-neck	17.636	20.22	19	8.4
Crab, Estuarine Pillbox	1	0	0	1
Crab, Paddle	0	0	0	1
Crab, Stalk Eyed Mud	0	1	0	0
Crab, Tunnelling Mud	5.875	1.4	0	2
Diatom, Benthic	0	0.2	0	0
Isopod, Sea Slater	0	8.5	35	0
Isopod, Soft Shore	0	10	0	0
Limpet, Estuarine	3	1	0	1
Shrimp, Sand	0	60	0	0
Snail, Auger	0	0	0	3
Snail, Australian Dog Whelk	0	6	0	0
Snail, Beaded Top-Shell	0	0	0	6.5
Snail, Horn	10.75	2.333	5	10
Snail, Large Horn	0	4	0	0
Snail, Large Ostrich Foot	0	0	0	1
Snail, Lined Whelk	0	0	15	0
Snail, Mud	0	1	0	0
Snail, Mudflat Top-Shell (D. subrostrata)	6	4	5.5	1
Snail, Mudflat Whelk	4.2857	8.7	36	8.0909
Snail, Olive Bubble	0	1	0	0
Snail, Small Turret (Stiracolpus pagoda)	2	1.5	0	3
Snail, Speckled Whelk	28	0	0	0
Snail, Spotted Top-Shell	0	3	0	0
Worm, Bamboo	56.5	3	0	2.4286
Worm, Blood	1	0	4	0
Worm, Cat	4	0	0	0
Worm, Flat	0	1	0	0
Worm, Lug	2	2	0	0
Worm, Opheliid	0	1	0	0
Worm, Orbiniid Polychaete	2.6667	1	2	1
Worm, Oweniid	29.75	0	0	0
Worm, Rag	1	2	4	0
Worm, Rag (Capitella capitata)	0	1	0	0
Worm, Ribbon	0	2.833	5	1.5

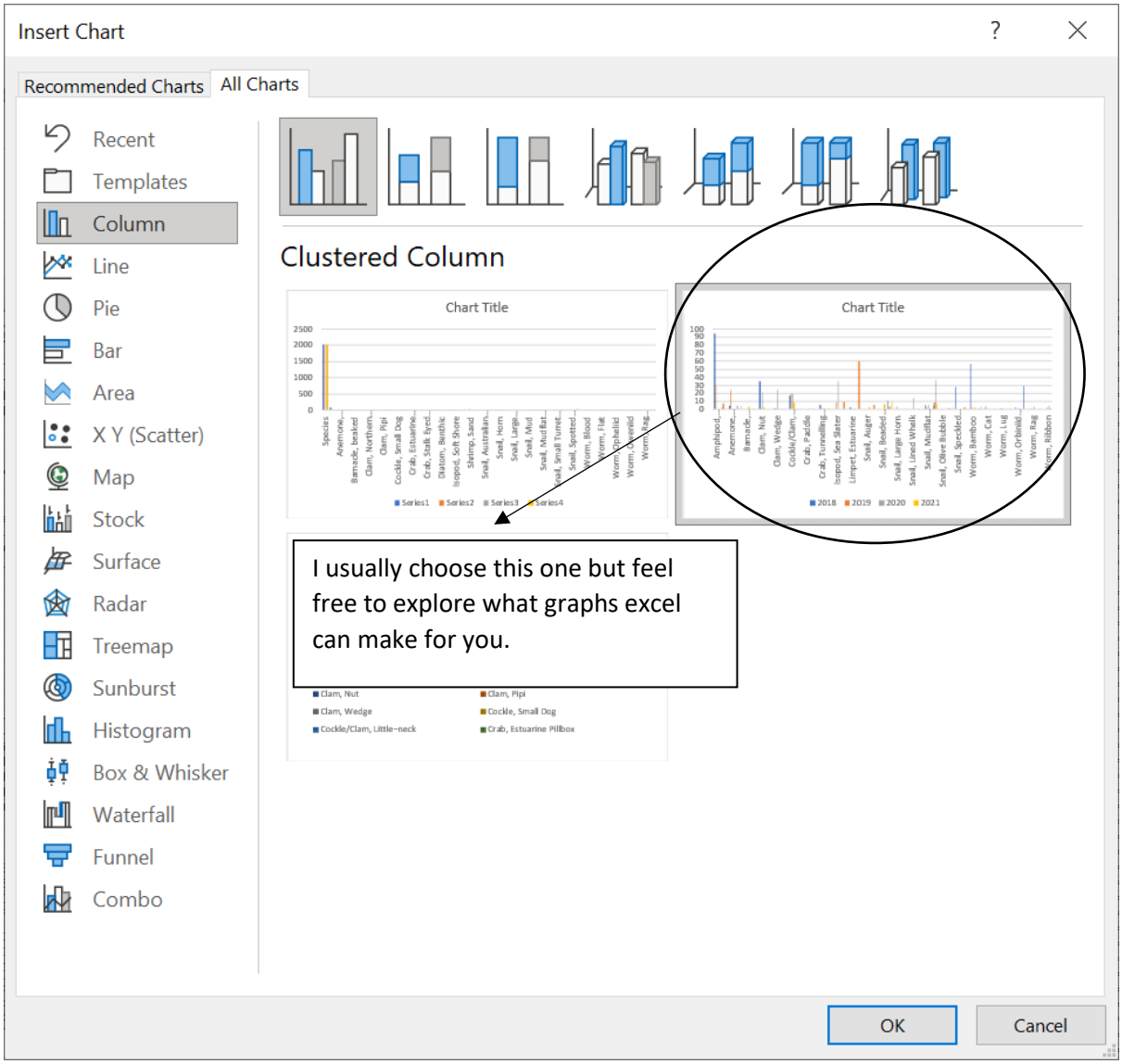
	2018	2019	2020	2021
Seaweed - Brown, Sea Sack	0	0	0	1
Seaweed - Green, Fern	0	0	2	0
Seaweed - Green, Sea lettuce	1.2667	5.375	0	0
Seaweed - Red (Gracilaria)	2.275	4	0	0.75
Plant, Eelgrass	0	1	0	5
Plant, Mangrove	0	0	0	1

Now we can make graphs showing how the abundance of each species has changed over time.

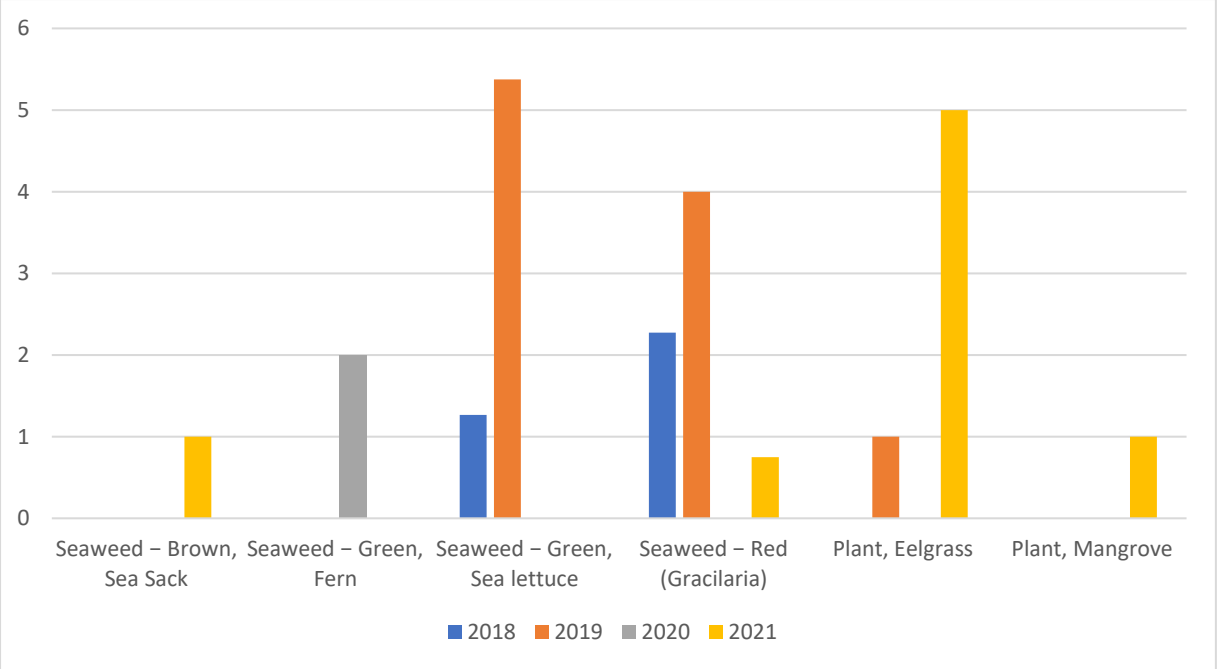
To do this, we highlight the data we want to graph and in the insert tab we click on the 'Recommended Charts' icon, this will show you a range of graphs that can be made from your data. Example of this below.

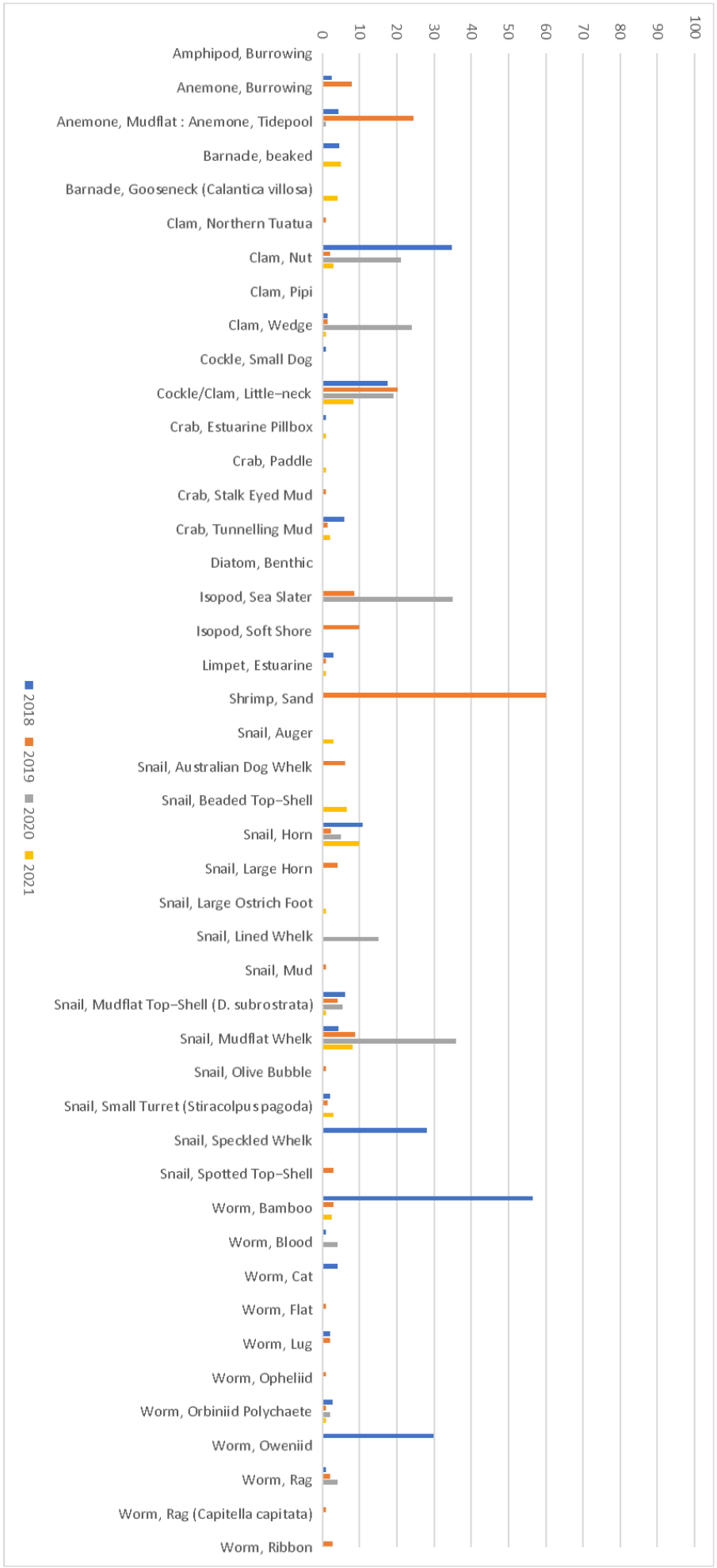


	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO
1	Core2	Core3	Core4															
2																		
3		1	2			Species	2018	2019	2020	2021		Species	2018	2019	2020	2021		
4		0	1			Amphipod, Burrowing	94.3333	30	0	0		Seaweed - Brown, Sea Sack	0	0	0	1		
5	0	0	0			Anemone, Burrowing	2.5	8	0	0		Seaweed - Green, Fern	0	0	2	0		
6		2	0			Anemone, Mudflat : Anemone, Tidepool	4.28571	24.5	1	0		Seaweed - Green, Sea lettuce	1.26667	5.375	0	0		
7	2					Barnacle, beaked	4.5	0	0	5		Seaweed - Red (Gracilaria)	2.275	4	0	0.75		
8	0	0	0			Barnacle, Gooseneck (Calantica villosa)	0	0	0	4								
9		0	0			Clam, Northern Tuatua	0	1	0	0								
10	2					Clam, Nut	34.8	2	21	3								
11						Clam, Pipi	0	0	0	0								
12	1					Clam, Wedge	1.33333	1.5	24	1								
13	0					Cockle, Small Dog	1	0	0	0								
14	1					Cockle/Clam, Little-neck	17.6364	20.222	19	8.4								
15		0	2			Crab, Estuarine Pillbox	1	0	0	1								
16	28					Crab, Paddle	0	0	0	1								
17	0					Crab, Stalk Eyed Mud	0	1	0	0								
18	0	4	8			Crab, Tunnelling Mud	5.875	1.4	0	2								
19	1					Diatom, Benthic	0	0.2	0	0								
20	20					Isopod, Sea Slater	0	8.5	35	0								
21	0	18	23			Isopod, Soft Shore	0	10	0	0								
22	1					Limpet, Estuarine	3	1	0	1								
23	1	0	4			Plant, Eelgrass	0	1	0	5								
24	0					Plant, Mangrove	0	0	0	1								
25	1	13	6			Shrimp, Sand	0	60	0	0								
26	6					Snail, Auger	0	0	0	3								
27						Snail, Australian Dog Whelk	0	6	0	0								
28	1					Snail, Beaded Top-Shell	0	0	0	6.5								
29	1	6	2			Snail, Horn	10.75	2.3333	5	10								
30		1	0			Snail, Large Horn	0	4	0	0								
31	3	1	0			Snail, Large Ostrich Foot	0	0	0	1								
32	3	1	0			Snail, Lined Whelk	0	0	15	0								
33	14	0	0			Snail, Mud	0	1	0	0								
34	3					Snail, Mudflat Top-Shell (D. subrostrata)	6	4	5.5	1								
35						Snail, Mudflat Whelk	4.28571	8.7	36	8.09091								
36	5					Snail, Olive Bubble	0	1	0	0								
37	1	4	13			Snail, Small Turret (Stiracolpus pagoda)	2	1.5	0	3								
38	0					Snail, Speckled Whelk	28	0	0	0								
39		2	0			Snail, Spotted Top-Shell	0	3	0	0								
40						Worm, Bamboo	56.5	3	0	2.42857								
41						Worm, Blood	1	0	4	0								
42	0	1	1			Worm, Cat	4	0	0	0								



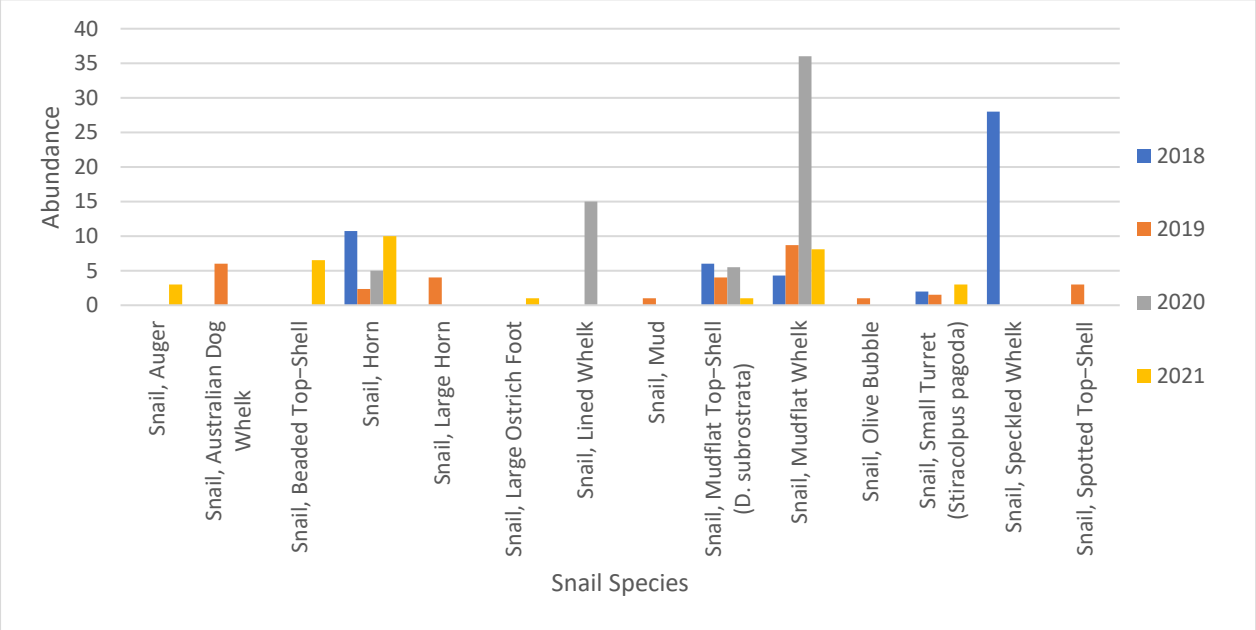
Once we have done this, you should have made graphs that look similar to these.


6
5
4
3
2
1
0
Seaweed – Brown, Sea Sack
Seaweed – Green, Fern
Seaweed – Green, Sea lettuce
Seaweed – Red (Gracilaria)
Plant, Eelgrass
Plant, Mangrove
2018
2019
2020
2021


0
10
20
30
40
50
60
70
80
90
100
Amphipod, Burrowing
Anemone, Burrowing
Anemone, Mudflat : Anemone, Tidepool
Barnade, beaked
Barnade, Gooseneck (Calantica villosa)
Clam, Northern Tuatua
Clam, Nut
Clam, Pipi
Clam, Wedge
Cockle, Small Dog
Cockle/Clam, Little-neck
Crab, Estuarine Pillbox
Crab, Paddle
Crab, Stalk Eyed Mud
Crab, Tunnelling Mud
Diatom, Benthic
Isopod, Sea Slater
Isopod, Soft Shore
Limpet, Estuarine
Shrimp, Sand
Snail, Auger
Snail, Australian Dog Whelk
Snail, Beaded Top-Shell
Snail, Horn
Snail, Large Horn
Snail, Large Ostrich Foot
Snail, Lined Whelk
Snail, Mud
Snail, Mudflat Top-Shell (D. subrostrata)
Snail, Mudflat Whelk
Snail, Olive Bubble
Snail, Small Turret (Stiracolpus pagoda)
Snail, Speckled Whelk
Snail, Spotted Top-Shell
Worm, Bamboo
Worm, Blood
Worm, Cat
Worm, Flat
Worm, Lug
Worm, Opheliid
Worm, Orbiniid Polychaete
Worm, Oweniid
Worm, Rag
Worm, Rag (Capitella capitata)
Worm, Ribbon
2018
2019
2020
2021

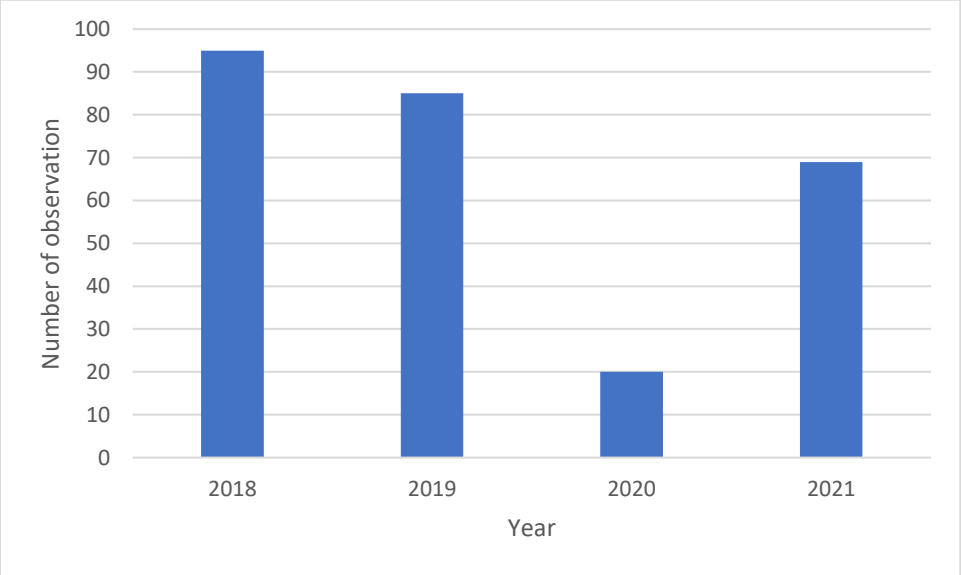
Now that we know how to make graphs we can make graphs that help us to answer questions we may have about the data we have collected.

For instance, I could ask the question, how does the abundance of snails change over time at this site?

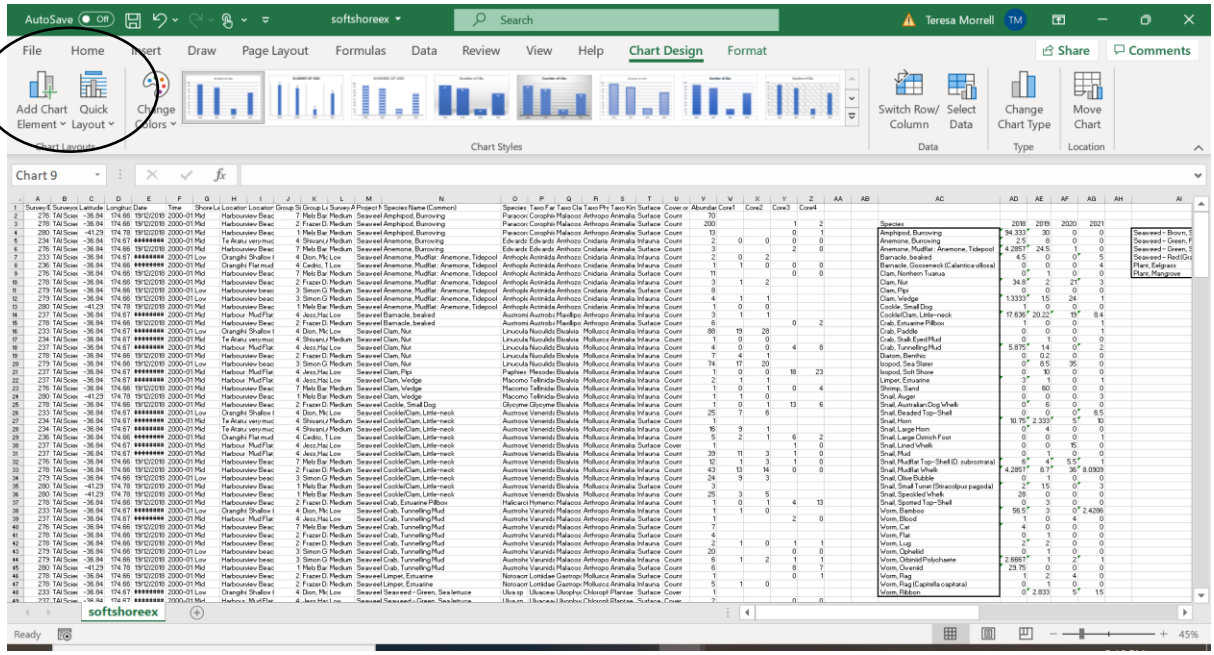


Using this graph, I can see that the most species of snail were observed in 2021 as the yellow bar is the most common. From this graph, I can also see how the abundance of each snail species has changed over time, for instance the mudflat whelk was most abundant in 2020.

Using the other data this spreadsheet gives us. For example, the graph below give information as to the number of observations, lines of data, per year.



To add information to the graphs you are making, the “Quick Layout” and “Add Chart Element” Buttons can help you change how the graph looks and what titles it has.


AutoSave
softshoreex
Search
Teresa Morrell
File
Home
Insert
Draw
Page Layout
Formulas
Data
Review
View
Help
Chart Design
Format
Share
Comments
Add Chart Element
Quick Layout
Change Colors
Chart Layouts
Chart Styles
Switch Row/ Column
Select Data
Data
Change Chart Type
Type
Move Chart
Location
Chart 9
softshoreex
Ready
45%