

Step 1: Data selection

Open up the example data file

Launch PRIMER, then click **File > Open...** from the main menu, navigate to the folder named 'NE_NZ_holdfasts' in the 'Examples_P8' directory, and select 'NE_NZ_holdfast_fauna.pri'. Click **Open** to display the species matrix.

PRIMER

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Workspace

NE_NZ_holdfast_fauna

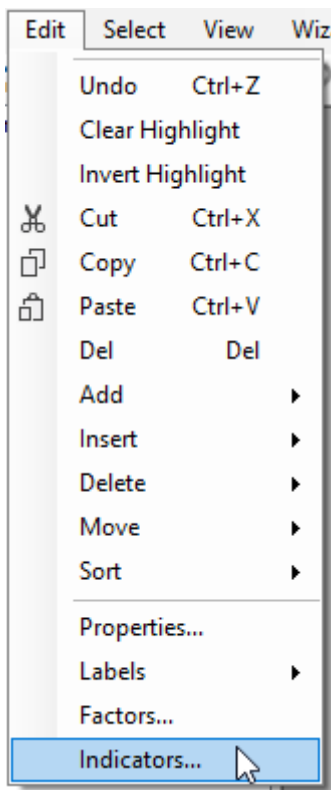
NE_NZ_holdfast_fauna

NE NZ kelp holdfast fauna

Abundance

	Samples							
	Berghan11a	Berghan11b	Berghan11c	Berghan11d	Berghan11e	Berghan14a	Berghan14	
Acervulina inhaeren	8	4	4	2	0	0		
Trochulina dimidiata	0	0	0	0	0	0		
Sycon sp2	0	3	0	2	5	0		
Sycon sp1	0	0	0	2	0	2		
Sycon sp3	0	0	0	0	0	0		
Leucandra sp1	0	0	0	2	0	0		
Grantia sp2	0	0	0	0	0	0		
Amphiute sp1	0	0	0	0	0	0		
Leucosolenia sp1	0	0	1	0	0	1		
Leucetta sp1	0	0	0	0	0	0		
ClathrinidaeF sp1	1	1	0	2	2	0		
Clathrina sp1	0	0	0	0	0	0		
Sigmatocia flagellif	0	0	0	0	0	0		
Callyspongia sp1	0	0	0	0	0	0		

Click on **Edit > Indicators...**



You will see that there are indicators for the variables in this datasheet that show the taxonomic groups in which each species (or taxon) variable belongs, with different levels of the taxonomic hierarchy being provided as different indicators (i.e., 'Genus', 'Family', 'Order', 'Class' and 'Phylum'). There is also an indicator to identify whether individual taxa were counted (enumerated) or quantified on an ordinal scale ('Ordinal' = 'N' or 'Y', respectively).

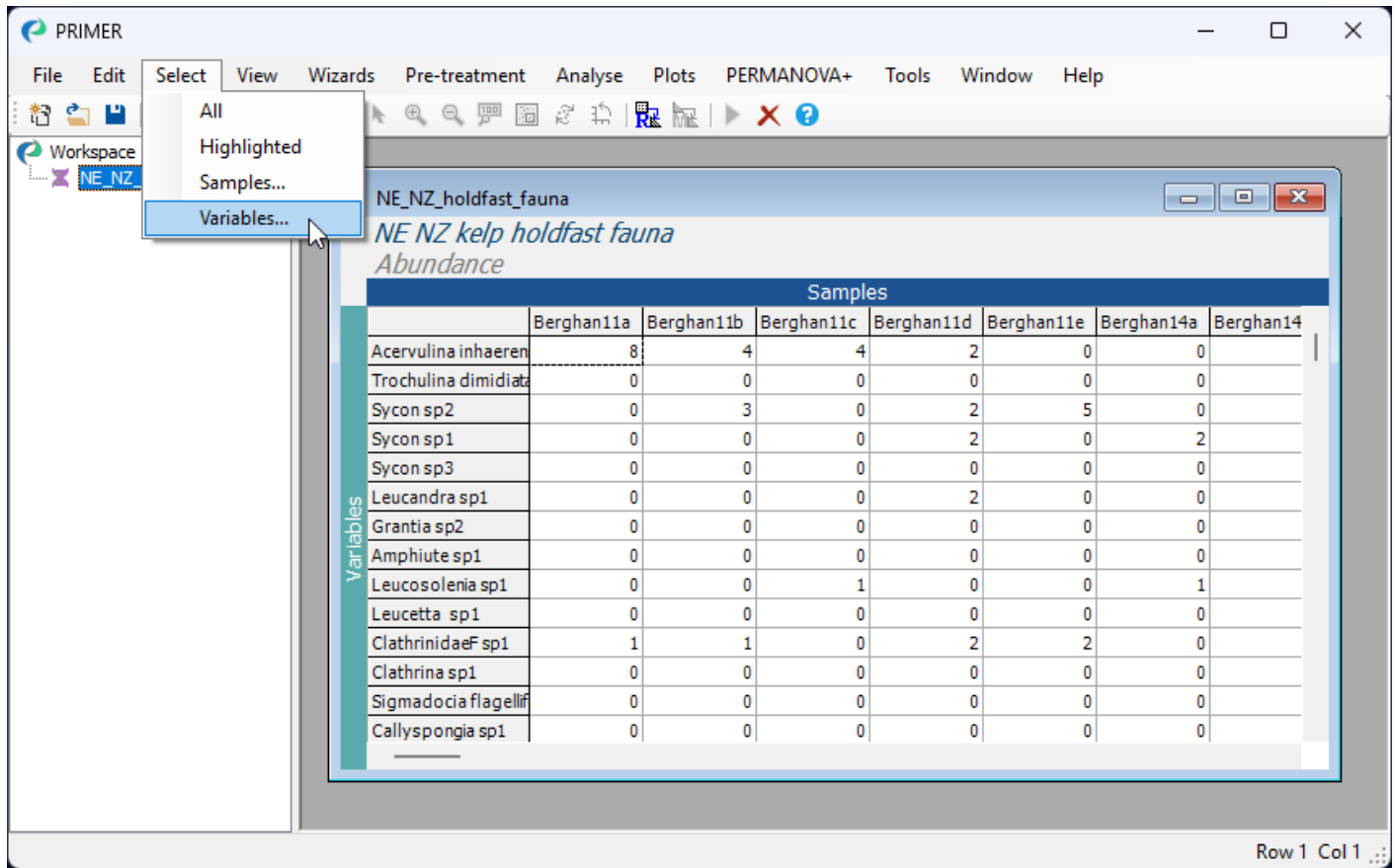
Indicators								
Edit Fill								
Add...	Label	Phylum	Class	Order	Family	Genus	Species	Ordinal
Duplicate	Acervulina inhaerens	Rhizopoda	Reticularea	Foraminiferida	Acervulinidae	Acervulina	Acervulina inha	N
Combine...	Trochulina dimidiata	Rhizopoda	Reticularea	Foraminiferida	Discorbidae	Trochulina	Trochulina dimi	N
Rename...	Sycon sp2	Porifera	Calcarea	Leucosolenida	Sycettidae	Sycon	Sycon sp2	N
Rename Levels...	Sycon sp1	Porifera	Calcarea	Leucosolenida	Sycettidae	Sycon	Sycon sp1	N
Reorder...	Sycon sp3	Porifera	Calcarea	Leucosolenida	Sycettidae	Sycon	Sycon sp3	N
Delete...	Leucandra sp1	Porifera	Calcarea	Leucosolenida	Grantiidae	Leucandra	Leucandra sp1	N
Key...	Grantia sp2	Porifera	Calcarea	Leucosolenida	Grantiidae	Grantia	Grantia sp2	N
Import...	Amphiute sp1	Porifera	Calcarea	Leucosolenida	Grantiidae	Amphiute	Amphiute sp1	N
OK	Leucosolenia sp1	Porifera	Calcarea	Leucosolenida	Leucosoleniidae	Leucosolenia	Leucosolenia sp	N
Cancel	Leucetia sp1	Porifera	Calcarea	Clathrinida	Clathrinidae	Leucetia	Leucetia sp1	Y
Help	ClathrinidaeF sp1	Porifera	Calcarea	Clathrinida	Clathrinidae	indet.	ClathrinidaeF sp	Y
	Clathrina sp1	Porifera	Calcarea	Clathrinida	Clathrinidae	Clathrina	Clathrina sp1	Y
	Sigmatocia flagellifer	Porifera	Demospongiae	Haplosclerida	Chalinidae	Sigmatocia	Sigmatocia fla	Y
	Callyspongia sp1	Porifera	Demospongiae	Haplosclerida	Callyspongiidae	Callyspongia	Callyspongia sp	Y
	Dysidea sp1	Porifera	Demospongiae	Dictyoceratida	Dysideidae	Dysidea	Dysidea sp1	Y
	HalichondridaF sp1	Porifera	Demospongiae	Dictyoceratida	Halichondrida	indet.	HalichondridaF	Y
	PhoriospongiidaeF1	Porifera	Demospongiae	Poecilosclerida	Phoriospongiidae	indet.	Phoriospongiid	Y
	PhoriospongiidaeF2	Porifera	Demospongiae	Poecilosclerida	Phoriospongiidae	indet.	Phoriospongiid	Y
	PhoriospongiidaeF3	Porifera	Demospongiae	Poecilosclerida	Phoriospongiidae	indet.	Phoriospongiid	Y
	Crella incrustans	Porifera	Demospongiae	Poecilosclerida	Crellidae	Crella	Crella incrustan	Y
	Penares sp1	Porifera	Demospongiae	Astrophorida	Ancorinidae	Penares	Penares sp1	Y
	DemospongiaeC sp1	Porifera	Demospongiae	indet.	indet.	indet.	DemospongiaeC	Y
	Sertularia simplex	Cnidaria	Hydrozoa	Conica (subClas	Sertulariidae	Sertularia	Sertularia sim	Y
	Sertularia sp	Cnidaria	Hydrozoa	Conica (subClas	Sertulariidae	Sertularia	Sertularia sp	Y
	Plumularia setacea	Cnidaria	Hydrozoa	Conica (subClas	Plumulariidae	Plumularia	Plumularia seta	Y

Click **OK** on the 'Indicators' dialog, so the data matrix is the active item in the workspace again.

Select a subset of variables, using an indicator

We wish to select just the mollusc species for the analysis.

1. From the 'NE_NZ_holdfast_fauna.pri' data sheet, click **Select > Variables...**



The screenshot shows the PRIMER software interface. The 'Select' menu is open, and 'Variables...' is highlighted. The data sheet 'NE_NZ_holdfast_fauna' is displayed, showing the abundance of various mollusc species across seven samples. The table is titled 'NE NZ kelp holdfast fauna Abundance' and has columns for 'Samples' (Berghan11a, Berghan11b, Berghan11c, Berghan11d, Berghan11e, Berghan14a, Berghan14) and rows for species names.

	Berghan11a	Berghan11b	Berghan11c	Berghan11d	Berghan11e	Berghan14a	Berghan14
Acervulina inhaeren	8	4	4	2	0	0	
Trochulina dimidiata	0	0	0	0	0	0	
Sycon sp2	0	3	0	2	5	0	
Sycon sp1	0	0	0	2	0	2	
Sycon sp3	0	0	0	0	0	0	
Leucandra sp1	0	0	0	2	0	0	
Grantia sp2	0	0	0	0	0	0	
Amphiute sp1	0	0	0	0	0	0	
Leucosolenia sp1	0	0	1	0	0	1	
Leucetta sp1	0	0	0	0	0	0	
ClathrinidaeF sp1	1	1	0	2	2	0	
Clathrina sp1	0	0	0	0	0	0	
Sigmatocia flagellif	0	0	0	0	0	0	
Callyspongia sp1	0	0	0	0	0	0	

2. In the 'Select Variables' dialog, choose (• Indicator levels > **Phylum**) and click **Levels....**

Select Variables

☐ Variable names
Select Variable Names...

☐ Variable numbers
1

☒ Indicator levels
Phylum Levels...

☐ Exclude variables that:

☐ Have 10 % or more zero value(s)

☒ Have 1 or more missing value(s)

☐ Have 10 % or more missing values

☐ Top 1 variable(s) based on:

☒ Frequency of occurrence

☐ Total abundance (sum)

☐ Percent contribution to any one sample

☐ Select variables that:

☒ Occur in at least 3 sample(s)

☐ Occur in at least 5 % of sample(s)

☐ Contribute at least 10 % to total abundance (sum)

☐ Output selection to new worksheet

OK Cancel Help

3. In the 'Selection' dialog, click on the word 'Mollusca' in the list of 'Available' phylum categories, and click on the single-right-arrow button: >. This will move the word 'Mollusca' over to the 'Include:' box on the right-hand side of the 'Selection' dialog window. Click **OK**.

Selection

Select indicator groups

Available:

- Rhizopoda
- Porifera
- Cnidaria
- Platyhelminthes
- Nemertea
- Nematoda
- Sipuncula
- Mollusca**
- Annelida
- Arthropoda
- Brachiopoda
- Bryozoa
- Echinodermata
- Chordata
- Craniata

Filter:

Include:

Mollusca

Filter:

OK Cancel Help

→

Selection

Select indicator groups

Available:

- Rhizopoda
- Porifera
- Cnidaria
- Platyhelminthes
- Nemertea
- Nematoda
- Sipuncula
- Annelida
- Arthropoda
- Brachiopoda
- Bryozoa
- Echinodermata
- Chordata
- Craniata

Filter:

Include:

Mollusca

Filter:

OK Cancel Help

4. Now that we have selected the Molluscs, and we are back in the 'Select Variables' dialog window, we *also* want to choose to '☒ Output selection to new worksheet', as shown below. This will kick out just the variables that we have selected into a new worksheet for ensuing analysis. We can now click **OK** on the 'Select Variables' dialog.

Select Variables

☐ Variable names
Select Variable Names...

☐ Variable numbers
1

☒ Indicator levels
Phylum Levels...

☐ Exclude variables that:

☐ Have 10 % or more zero value(s)

☒ Have 1 or more missing value(s)

☐ Have 10 % or more missing values

☐ Top 1 variable(s) based on:

☒ Frequency of occurrence

☐ Total abundance (sum)

☐ Percent contribution to any one sample

☐ Select variables that:

☒ Occur in at least 3 sample(s)

☐ Occur in at least 5 % of sample(s)

☐ Contribute at least 10 % to total abundance (sum)

☒ Output selection to new worksheet

OK Cancel Help

Voila! Now you have just the mollusc species alone in a new worksheet called 'Data1'.

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Workspace

- NE_NZ_holdfast_fauna
 - Select Variables1
 - Data1

NE_NZ_holdfast_fauna

Select Variables1

Data1

NE NZ kelp holdfast fauna

Abundance

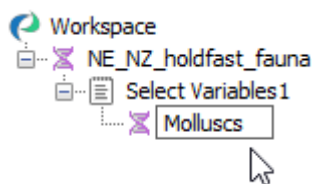
	Samples							
	Berghan11a	Berghan11b	Berghan11c	Berghan11d	Berghan11e	Berghan14a	Berghan14b	Berghan14c
Onithochiton neglectus	2	0	0	2	0	0	3	0
Rhyssoplax sp.	0	0	0	0	0	0	0	0
Notoplax violacea	2	2	1	1	1	0	1	0
Asteracmea suteri	1	0	0	1	1	0	0	0
Incisura rosea	1	1	1	1	2	0	0	0
Scissurella prendre	1	0	1	4	1	0	0	0
Haliotis sp.	0	0	0	0	0	0	1	0
Emarginula striatula	0	0	0	0	0	0	0	0
Tugali suteri	0	0	0	0	0	0	0	0
Cantharidus purpur	0	0	2	0	1	0	0	0
Herpetopoma bella	0	0	0	0	0	0	0	0
Herpetopoma larochei	0	0	0	0	0	1	0	0
Liotella polypleura	0	0	0	0	0	0	0	0

Row 1 Col 1

Rename the selected subset of data

From the subsetting data matrix ('Data1'), if you click on **Edit > Properties...**, you will see that this new sheet now only has 105 variables ('Number of rows:').

To change the name of the data sheet, click, hover and click again on the name 'Data1' in the Explorer tree window (or click **File > Rename Data** or hit the 'F2' key) and type in a new name for the subsetting data sheet: Molluscs.



At this point, you might like to save your workspace. Click **File > Save Workspace As... >** (Filename: NZ_holdfast_molluscs.pwk).

¶ An aside: Note that whenever you have selected a subset of data (this might be a subset of variables, as done here, or a subset of samples, or both), then the original data matrix on which the operation has been done will have a blue background colour to indicate that you have done this, like so:

NE_NZ_holdfast_fauna

NE NZ kelp holdfast fauna

Abundance

Samples

	Berghan11a	Berghan11b	Berghan11c	Berghan11d	Berghan11e	Berghan14a	Berghan1
Onithochiton negle	2	0	0	2	0	0	
Rhyssoplax sp	0	0	0	0	0	0	
Notoplax violacea	2	2	1	1	1	0	
Asteracmea suteri	1	0	0	1	1	0	
Incisura rosea	1	1	1	1	2	0	
Scissurella prendre	1	0	1	4	1	0	
Haliotis sp	0	0	0	0	0	0	
Emarginula striatula	0	0	0	0	0	0	
Tugali suteri	0	0	0	0	0	0	
Cantharidus purpur	0	0	2	0	1	0	
Herpetopoma bella	0	0	0	0	0	0	
Herpetopoma laroc	0	0	0	0	0	1	
Liotella polypheura	0	0	0	0	0	0	
Trochus viridus	0	0	0	0	0	0	
Trochus sp	0	0	0	0	0	0	

Any analyses done on a selected subset of data will only be performed on that subset. It is usually a good idea to duplicate and rename a selected subset of data, so as to keep any analysis done on that subset of data clear and separate from the (full) original dataset. To duplicate an item in the Explorer tree, click **Tools > Duplicate**. To rename the duplicated item, hit F2 (or click **File > Rename Data**).

Note that subsetting does not affect the original full data matrix of information in any way, which is still always there. You can clear any subset selection (of variables and/or samples) by clicking on *Select > All* to return to the full data matrix in its entirety. The blue background colour will go away when you do that, and the formerly selected data will yet be highlighted in yellow-orange hues.

	Samples						
	Berghan11a	Berghan11b	Berghan11c	Berghan11d	Berghan11e	Berghan14a	Berghan1
Edwardsia sp	0	0	0	1	0	0	
ActiniariaO lumped	0	0	0	0	0	0	
Culicia rubeola	0	0	0	0	0	0	
TurbellariaC sp1	4	4	0	3	5	8	
Thysanozoon brocc	0	0	0	0	0	0	
Nemertea lumped	3	4	5	2	0	5	
Nematoda lumped	1	1	1	0	0	3	
Sipuncula lumped	0	1	0	0	0	0	
Onithochiton negle	2	0	0	2	0	0	
Rhyssoplax sp	0	0	0	0	0	0	
Notoplax violacea	2	2	1	1	1	0	
Asteracmea suteri	1	0	0	1	1	0	
Incisura rosea	1	1	1	1	2	0	
Scissurella prendre	1	0	1	4	1	0	
Haliotis sp	0	0	0	0	0	0	

Clicking on *Select > Highlighted* can then be used to re-instate the selection from before, if desired.

Revision #23

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