

Digital Field Study

Learning Intention: Students conduct investigations to collect valid and reliable secondary data and information [BIO11-12/3]

Success Criteria

Students can:

- ✓ employ and evaluate safe work practices and manage risks
- ✓ Collect accurate quantitative and qualitative data relevant to their investigation

Abiotic Features

Create a Beach Report for your chosen beach note: the interactive map data was collected at Malabar. The following websites can be used to find current beach forecasts for your field study site.

<https://www.coastalwatch.com/surf-forecasts/nsw>

<https://www.willyweather.com.au/nsw.html>

<https://magicseaweed.com/Nouvelle-Galles-du-Sud-Surf-Forecast/47/>

http://www.bom.gov.au/australia/meteye?!loc=NSW_FA001

<https://www.coastalwatch.com/surf-cams-surf-reports/nsw>

(webcam of a beach - Search words: webcam (name) beach)

Today's conditions				
Air Temperature (°C)	_____°C	<input type="checkbox"/> hot	<input type="checkbox"/> warm	<input type="checkbox"/> cool
Water Temperature (°C)	_____°C	<input type="checkbox"/> hot	<input type="checkbox"/> warm	<input type="checkbox"/> cool
Wind Conditions (km/hr)	_____km/hr	<input type="checkbox"/> gale	<input type="checkbox"/> windy	<input type="checkbox"/> still
Wind Direction				
Rainfall (Since 9am)	_____mm			
Wave Height (m) (To tenth metre/ 0.00m)	_____m			
Swell Height (m) (To one tenth of metre)	_____m			
Type of wave	<input type="checkbox"/> surging	<input type="checkbox"/> plunging	<input type="checkbox"/> spilling	
How does it look?	<input type="checkbox"/> flat	<input type="checkbox"/> even waves	<input type="checkbox"/> choppy	
UV prediction				
What specific hazards should you be aware of given the conditions today?				

Collecting Data virtually

Use the interactive [map](#) to virtually examine the rockpools. The data was collected at Malabar close to the swimming pool

The data was collected using the following method

1. A random transect was set up running from the low tide mark to the high tide mark. The distance of the transect was recorded and samples were taken at 10 equal distances along the transect
2. At each sample point the closest rockpool (within 2 meters) was photographed
3. The temperature for each rockpool was recorded

What is the length of the transect?

How many rockpools have been examined?

What is the distance between each rockpool?

Qualitative Data




Qualitative data collection enables us to develop a broad understanding of patterns in the ecosystem and provides a descriptive snapshot of the abiotic and biotic features present in the ecosystem.




Qualitative data can include photos and videos of the environment as well as descriptions of species.

A qualitative method of estimating abundance of populations uses the CON scale.

Common	Easily found
Occasional	Found with careful searching
None	Species is absent

Use the photos within the [interactive map](#) to complete the CON table below. The tidal zone for each rock pool described in the notes. Use an x to mark how frequently a species is found in each tidal zone.

Species	C	O	N	Tidal Zone
 Neptune's necklace (<i>Hormosira banksii</i>)			x	High
		x		Mid
	x			Low
 Sand anemone (<i>Oulactis muscosa</i>)				High
				Mid
				Low
 Swift-footed crab (<i>Leptograpsus variegatus</i>)				High
				Mid
				Low

Species	C	O	N	Tidal Zone
 Rough limpet (<i>Siphonaria diemenensis</i>)				High
				Mid
				Low
 Blue periwinkle (<i>Austrolittorina unifasciata</i>)				High
				Mid
				Low
 Black nerites (<i>Nerita melanotragus</i>)				High
				Mid
				Low

Quantitative Abiotic Features

Use the [interactive map](#) to collect quantitative data about the abiotic features of the rockpools and the species present.

To determine the surface area use the formula surface area = width x breadth to provide an estimate

To determine the distance to low tide, determine the total length of the transect (this can be found by clicking on the transect line) and dividing this distance by the number of samples (10) this will give you the distance between each sample. The estimated distance from low tide to each rock pool will be the rock pool number x the distance between samples.

The temperature for each rockpool is given in its description.

Quantitative Rockpool Data

Abiotic Measurements

Rockpool	Water Temperature (°C)	Surface Area (m ²)	Distance to low tide mark (m)
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Digital Quadrats

Using quadrats enables ecologists to estimate populations of species without counting every single individual in an ecosystem.

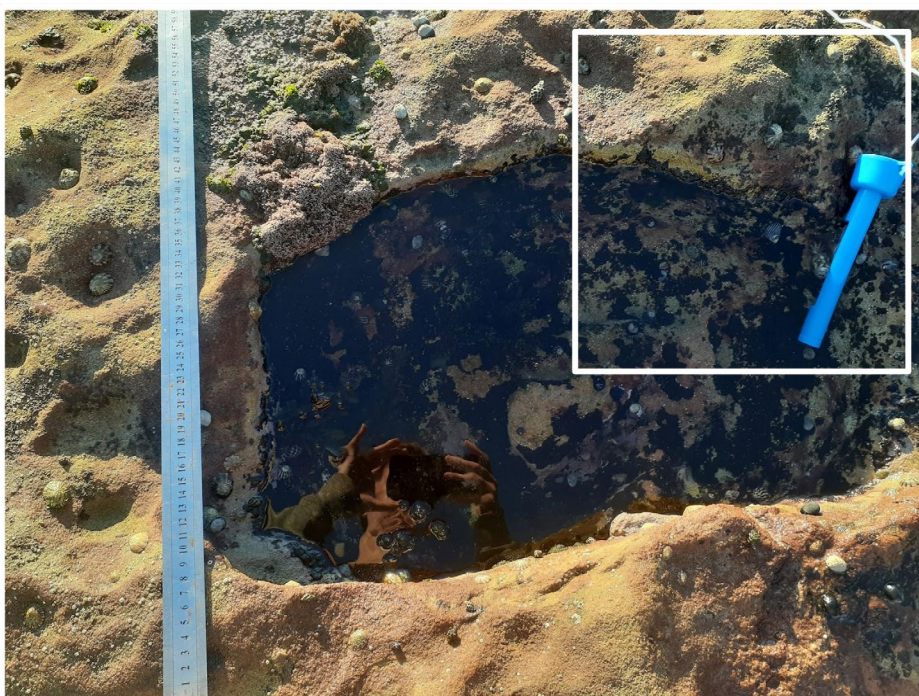
Digital quadrats (25cm x 25cm) for each rockpool have been created using the ruler in each image. The quadrat is the white square located in the top right of each image. To randomise the quadrat double click the google drawing then randomly 'throw' the quadrat using your mouse onto the rockpool. Count the number of individuals of each species and record in the table below. For species that are on the boundary line count those that occur on 2 of the sides and do not include individuals on the opposite sides. Use the field [study guide](#) to help you identify species

Note: unobstructed images of the rockpools can be found on the interactive map where species are obscured by the ruler to enable easier identification

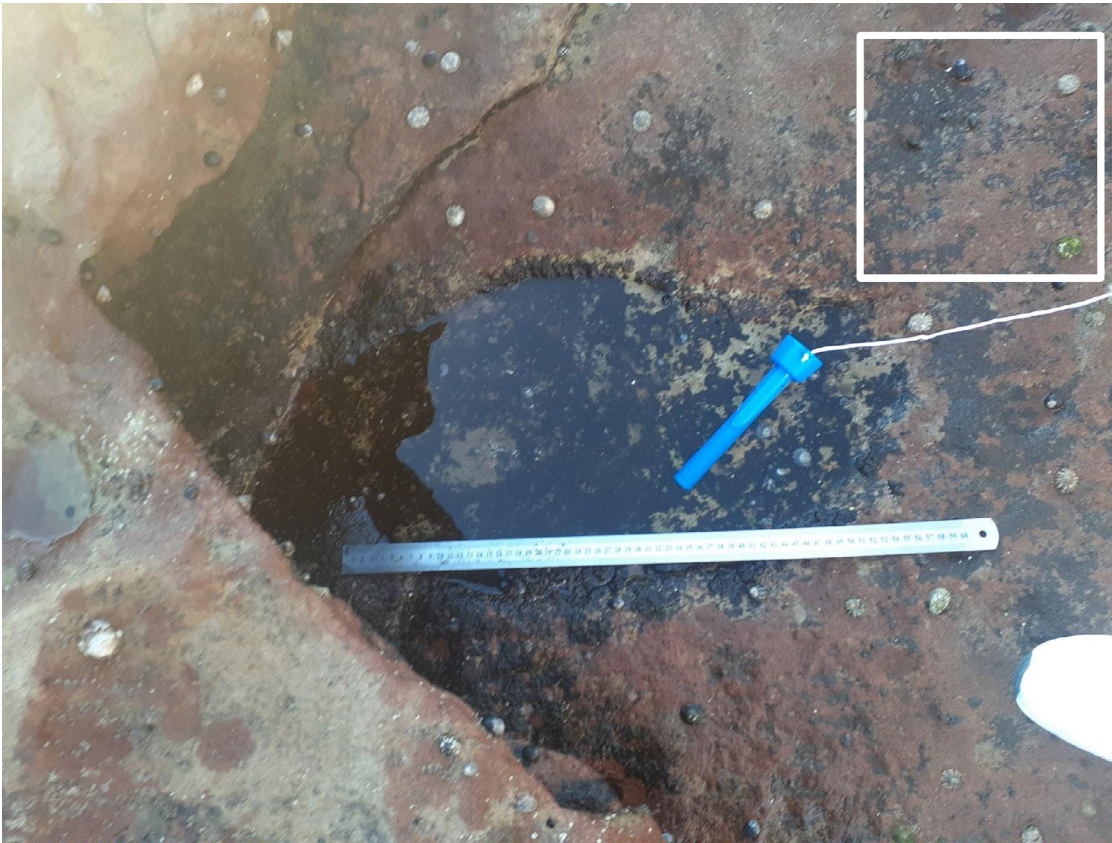
Rockpool 1



Rockpool 2



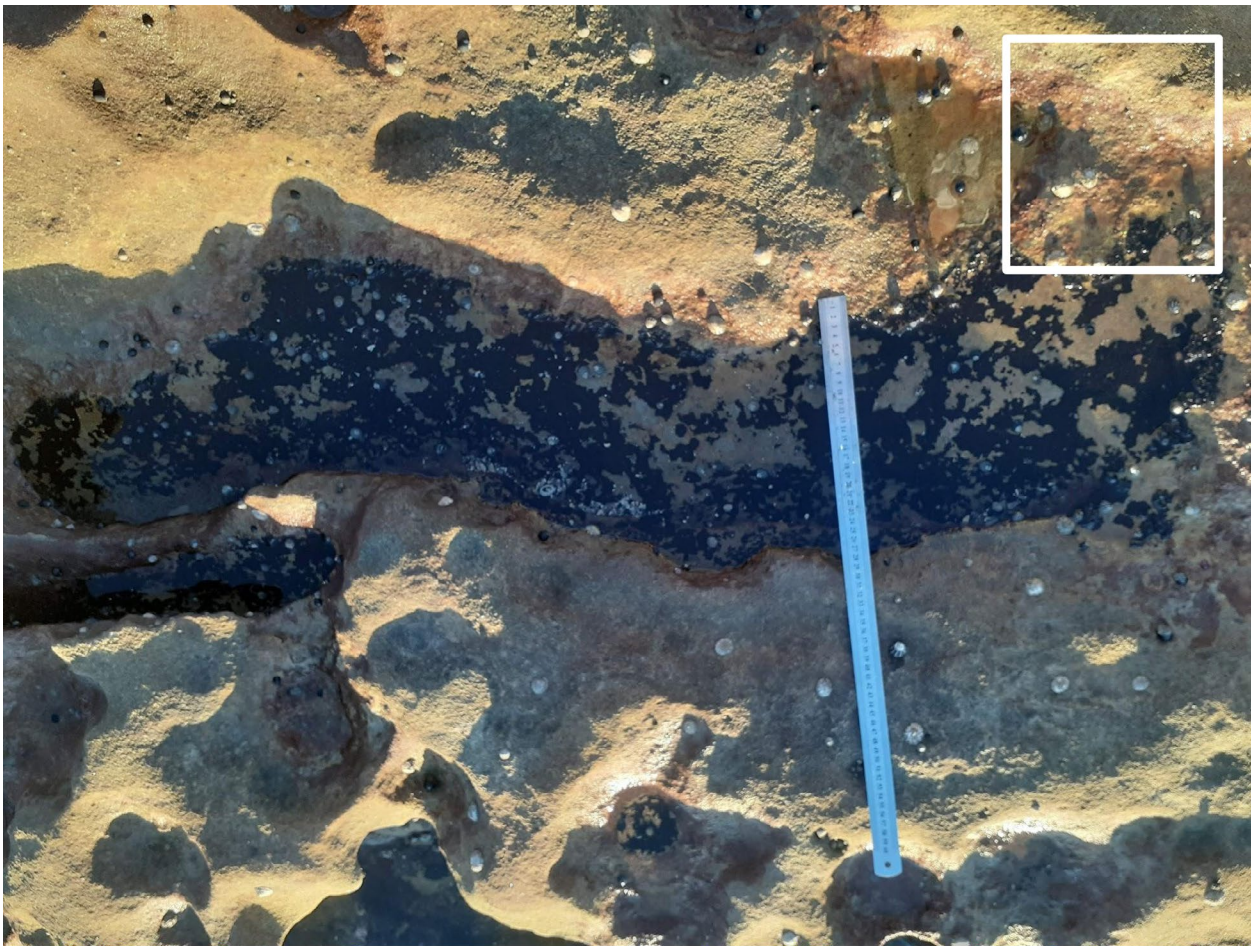
Rockpool 3



Rockpool 4



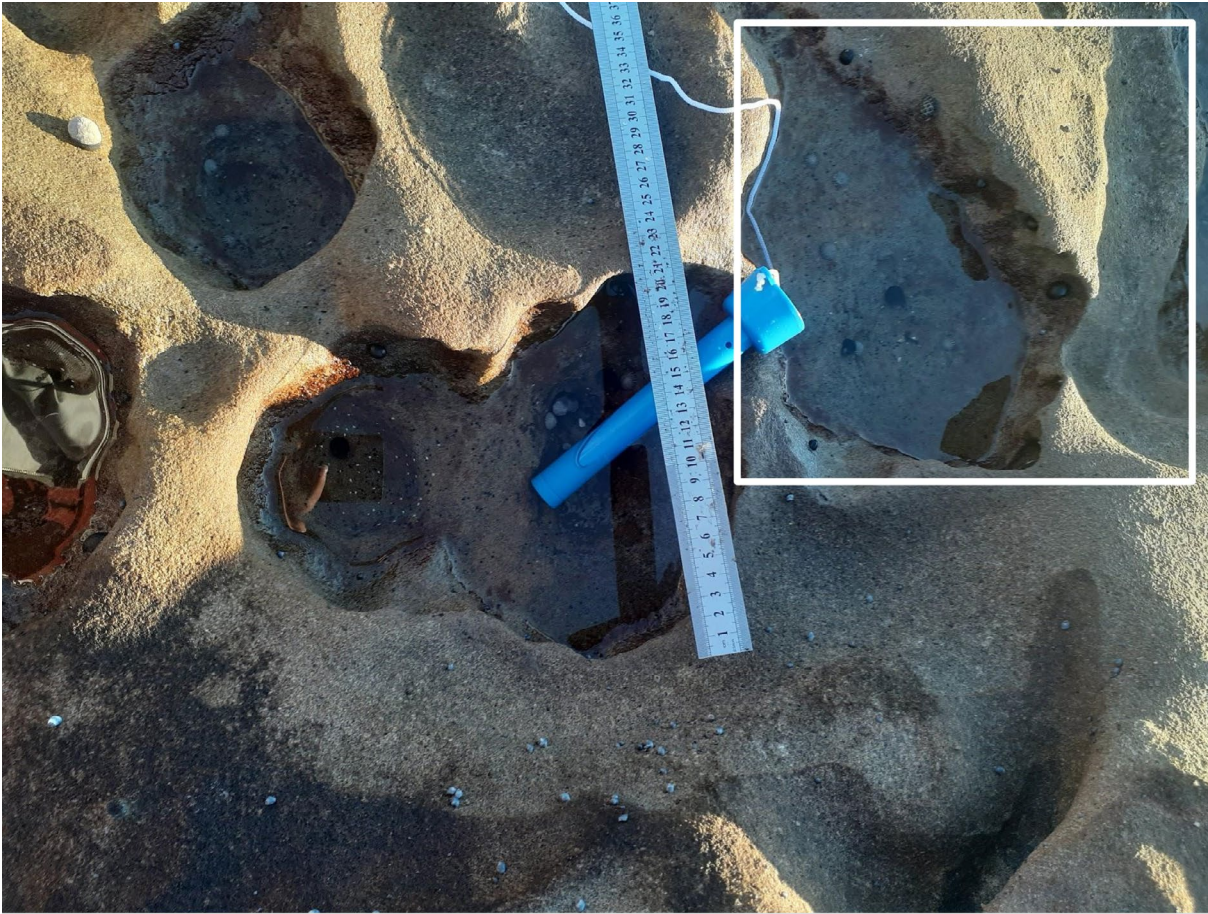
Rockpool 5



Rockpool 6



Rockpool 7



Rockpool 8



Rockpool 9



Rockpool 10



