

15. Coastal processes fieldwork - Port Campbell National Park

Teacher notes

Organisational details are in italics.

STOP 1. Peterborough

There is bus parking adjacent to the reserve, tennis courts and toilets. Students can be dropped off at this point and met again at the carpark to the right immediately across the bridge, in the park itself, provided Curdies River is not flowing.

There is only a very small flow in Curdies River for most of the year and the inlet is generally blocked by sand. Much of the drainage to the coast occurs below the soil surface.

Due to the closure of the inlet there has been a bank up of water and some development of wetlands on the western side inland from the bridge.

Walk in groups across the sand in front of Curdies Inlet.

Explain the processes occurring here, especially **longshore drift**. Explain how it has built up sand on this beach. Longshore drift can be calculated for that day. It is usually from west to east. Give students information on tide times and range.

Questions.

1a. Students add the site number to their fieldwork map.

1b. Students suggest what caused the blockage of the Curdies River at this site.

1c. Students draw and label a sketch of the site including the river, dunes, beach and vegetation.

Walk across to the dune system on the east side of the river. You will find a sign giving information of the Schomberg shipwreck.

Observe weather and wave conditions for today.

Discuss the process involved in dune establishment and stabilisation.

1d. Students complete an environment summary sheet for both sides of the dune. They indicate the location on their sketch. Take a photograph of the site.

1e. Students note possible types of human activity that could be undertaken here (both on the beach and behind the dunes either side of the inlet.) They give evidence to support their list.

1f. Students measure or estimate the width of the pathway here. They suggest why it might be so narrow. They note any other management or information facilities. Take a photograph of the pathway.

Meet bus in carpark.

STOP 2. INFORMATION BOARD

This information board was installed in 1994 to give information to visitors approaching from the west. It includes information on main points of interest, opening times of the information centre, and any local or special events that may be on. This is updated from time to time

2a. Students list the information topics on this board.

2b. They suggest why the sign is located here.

THE GROTTO

The track down to the Grotto was closed in 1994. The asphalt track was severely eroded. There are plans to upgrade the track and reopen it. Check with the ranger if you wish to include this stop in your fieldwork.

STOP 3. LONDON BRIDGE

Divide the students into groups and space the groups out along the platform. Remind students of the need to take photographs and to fill in the record sheet.

Discuss coastal processes at work here. It is also a good location to point out rips. Penguin tracks may be seen on the sand to the west of the platform.

3a. Students locate this stop on their map.

3b. They look for areas of deposition, areas of erosion, direction of wave approach, rips, location of bridge collapse in 1990, the tracks (if any) on the beach, stabilised berm.

STOP 4. THE ARCH

This is a natural arch on a rock ledge six metres above the sea. It has changed very little over this century, although its surface has become increasingly pitted by saltspray.

The carpark and access to the viewing place is quite restricted here.

4a. Students locate this site on their map.

4b. They sketch this feature, labelling important processes that are occurring.

4c. They suggest possible constraints of this site for visitors and what might happen here when visitor numbers increase.

4d. Students suggest any additional strategies that could be used to ensure visitor safety and protect the surrounding environment.

4e. Students complete an environment summary sheet half way back along the walking track, or to the east of the carpark.

STOP 5. PORT CAMPBELL

Lunch and toilet stop. Park the bus at the end of the beach in street.

The group could view the Port Campbell Visitor Information Centre before or after lunch. Make sure you book beforehand by phoning 5598 6089. The Centre can hold 30 students at a time. Note there is no seating for groups viewing the 12 minute video.

The display at the information centre covers a number of themes. You could include the sheet on the video (see Pre-visit activity) if these are appropriate to your goals. The Centre could be an appropriate wet weather alternative but remember to book first.

STOP 6. LOCH ARD GORGE

The limestone cliffs have again formed dramatic cliffs and other features here. The lines of weakness or joint lines in the limestone run north-east to south west. It is along these lines that erosion has formed Loch Ard, Thunder Cave and the Blowhole.

Divide into groups. Some can complete the sites 6, 7, and 8 in reverse order, that is, site 8, 7, then 6. The main objective here is to observe the coastal features and the processes that created them. Students will also build up a record of management strategies. These will be analysed and evaluated in the fieldwork report.

Walk down the steps into the gorge.

6a. Students mark this site on their map.

6b. They suggest how this gorge formed.

6c. At the north end there is a cave. Students suggest how the stalactites, stalagmites and columns formed. They suggest what the existence of the dunes and slope of the cliffs indicate about changing sea levels over a period of time.

6d. Students note the interpretation boards and management facilities or practices that have been established here. Sketch or take a photograph of one.

6e. Students complete an environment summary sheet to the east of the carpark.

Walk to

STOP 7. THE BLOWHOLE

This is approximately _____ metres inland from the cliff. The wave action has concentrated along a line of weakness in the limestone, creating a cave about _____ metres long.

The blowhole is basically a collapsed section of the roof of that cave. When seas are particularly rough, waves impact against the cave walls creating a spray similar to a "blowhole"

7a. Students locate this site on their field map.

7b. They briefly describe how this feature has formed.

7c. They suggest what might happen in the next stage of its development.

Walk to

STOP 8. THUNDER CAVE

Consider further dividing your group size before the viewing platform as the base of Thunder Cave is quite small.

8a. Students locate this site on their field map.

8b. They describe how the platform developed here.

8c. They suggest what might be the next stage in the development of this area.

8d. They list management and visitor education strategies used here.

Walk back to the bus.

Complete the historical section at the cemetery if this is included in your aims.

Travel by bus to stop 9.

STOP 9. THE TWELVE APOSTLES

This is a high energy coastline and therefore there is little beach development. In future these stacks will erode and disappear.

9a. Students locate this site on their field map.

9b. Students draw a sketch of one stack and label:

- notch points
- wave direction
- vegetation (if any)
- limestone layers
- approximate height

Return to the bus.

The Great Ocean Road to the east passes Glenample Homestead and then the park exit just before Princetown.



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Student sheet

STOP 1. Peterborough

- 1a. Add the site number to your map.
- 1b. What has caused the blockage of the Curdies river at this site?
- 1c. Create a labelled sketch showing the river, dunes, beach and vegetation.
- 1d. Complete an environment summary sheet for both sides of the dune. Indicate the location on your sketch.
- 1e. Note possible types of human activity that could be undertaken here (both on the beach and behind the dunes either side of the inlet). Give evidence to support your list.
- 1f. Measure or estimate the width of the pathway here? Why might it be so narrow?
- 1g. Note any other management or information facilities.

STOP 2. INFORMATION BOARD

Briefly list the topics on this board. Why might it be located here?

STOP 3. LONDON BRIDGE

- 3a. Locate this stop on your map.
- 3b. Create a labelled sketch to show:
 - areas of deposition
 - areas of erosion
 - direction of wave approach
 - rips
 - location of bridge collapse in 1990
 - the tracks (if any) on the beach
 - stabilised berm (ridge) parallel to coast.

STOP 4. THE ARCH.

- 4a. Locate this site on your map.
- 4b. Sketch this feature, labelling important processes that are occurring here.
- 4c. What are the constraints of this site for visitors? What might happen here when visitor numbers increase?
- 4d. Suggest any additional strategies that could be used to ensure visitor safety and protect the surrounding environment.
- 4e. Complete an environment summary sheet half way back along the walking track, or to the east of the carpark.

STOP 5. PORT CAMPBELL

Toilets, food and something to drink.

STOP 6. LOCH ARD GORGE

- 6a. Mark this site on your map.
- 6b. How was this gorge formed?
- 6c. How would the stalactites, stalagmites and columns have formed in the cave at the north end of the gorge? What do the existence of the dunes and slope of the cliffs indicate about changing sea-levels?
- 6d. Note the interpretation boards and management facilities or practices that have been established here. Sketch or take a photograph of one.
- 6e. Complete an environment summary sheet to the east of the carpark

STOP 7. THE BLOWHOLE

- 7a. Locate this site on your field map.
- 7b. Briefly describe how this feature formed.
- 7c. What might happen in the next stage of its development?

STOP 8. THUNDER CAVE

- 8a. Locate this site on your field map.
- 8b. Describe how this platform developed.
- 8c. What do you think might be the next stage in the development of this area?
- 8d. List management and interpretation strategies used here.

STOP 9. THE TWELVE APOSTLES

- 9a. Locate this site on your field map.
- 9b. Draw a labelled sketch of one, showing:
 - notch points.
 - wave direction
 - vegetation (if any)
 - limestone layers
 - approximate height
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