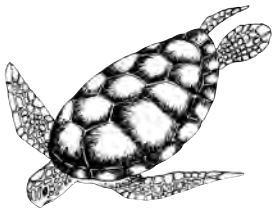
Contents

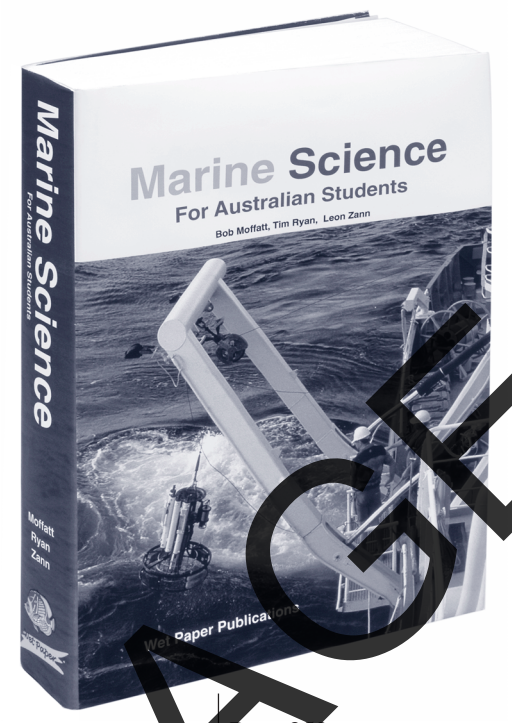


Read this first

All information to answer the questions is contained in your textbook - *Marine Science for Australian Students 2009 Revised Edition* as shown in the Figure below.

- The aim of this exercise book is to give you the opportunity to develop your knowledge and understanding of basic marine biology for further study either at university as a marine scientist or at TAFE as an interpretive tourist guide.
- The questions in this book are designed to help you practise answering different levels of literacy question (see page 591 of your textbook). For example harder questions have more challenging verbs such as *interpret*, *distinguish between* and *decide*, whereas easier questions will have verbs such as *name*, *state*, *label*, *list* or *complete*.

  Your teachers can help you interpret and understand these verbs.
- To help get you started, key verbs have been underlined in Exercise A1 - What do mangroves look like?



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Answer to Q2. on page opposite

Answer to Q3. on page opposite

The missing words to Q4. on page opposite

Information for Q5. on page opposite

Mangroves - Intertidal plants

The tidal zone

The term **mangrove** can be used in three ways: the trees themselves (Figure 259.2), the forest (also, but not commonly, called a mangal), and the habitat. Mangrove forests can grow over 10 metres in height in tropical Australia.

Mangroves are found growing in the intertidal areas of sheltered shores, estuaries and bays or in the lee of large islands and are most likely to grow in tropical and temperate regions shown in Figure 259.1. They grow best at river entrances and creeks where salt has been deposited to form low flat areas of mud. Here the velocity of the river is slowed which allows silt to settle out and accumulate. This mud and silt is rich in nutrients and is ideal for mangrove development. (Read back over the chapter on coastlines in Chapter 4, which discussed wave velocity and substrate type.)

Mangroves are the temporary habitats for fish populations and are in the top three of the most productive ecosystems on earth.

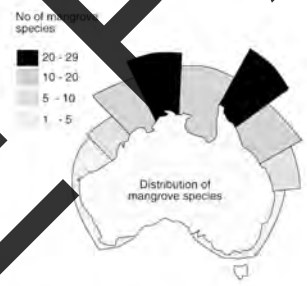

Figure 259.1 Approximate distribution of mangroves in Australia (After Hutchings and Riechter, 1987)

Mangroves in sheltered waters

Mangroves meet the sea.

Mangrove forest

Figure 259.2 Mangroves environments

Marine plants (2) Page 259

Part A: Mangroves and seagrasses

A1. What do mangroves look like?

Aims

- To identify and describe common mangrove features.
- To describe some mangrove adaptations.
- To explain mangrove distribution in terms of latitude.

What to do

- Read pages 259 - 261 of your textbook - *Marine Science for Australian Students* and answer the questions below.

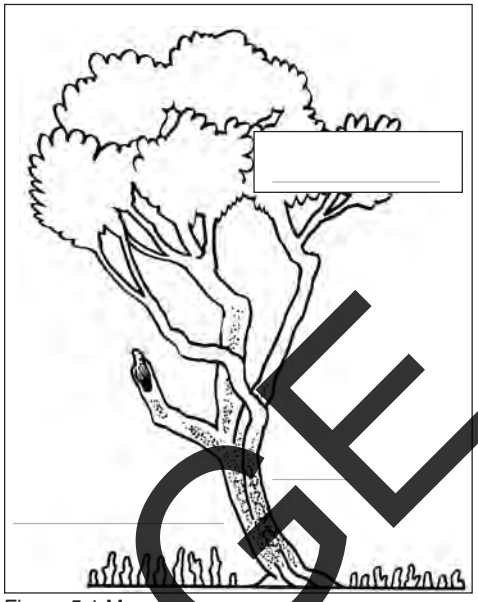

Figure 5.1 Mangrove

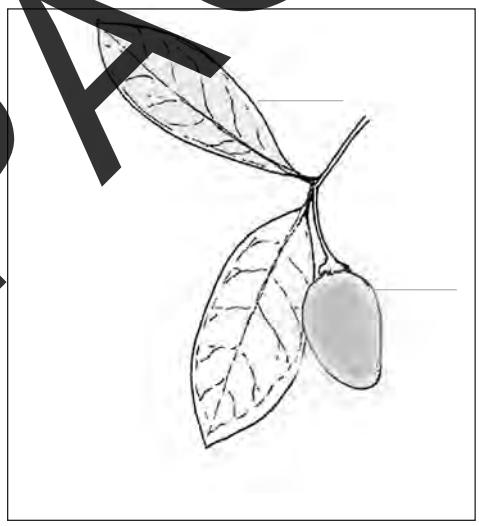

Figure 5.2 Mangrove leaf

Questions

Q1. Label the following external features in Figures 5.1 and 5.2:

Pneumatophores, trunk, leaves, fruit.

Q2. Distinguish between the different ways the term *mangrove* can be used.

Q3. Describe where mangroves are found.

Q4. Complete the missing words -

Mangroves are the temporary _____ for fish populations and are in the top of the _____

Q5. Draw a graph in the space below to distinguish between the numbers of mangrove species found at different latitudes. Explain why more mangroves are found in the tropics compared to temperate latitudes.

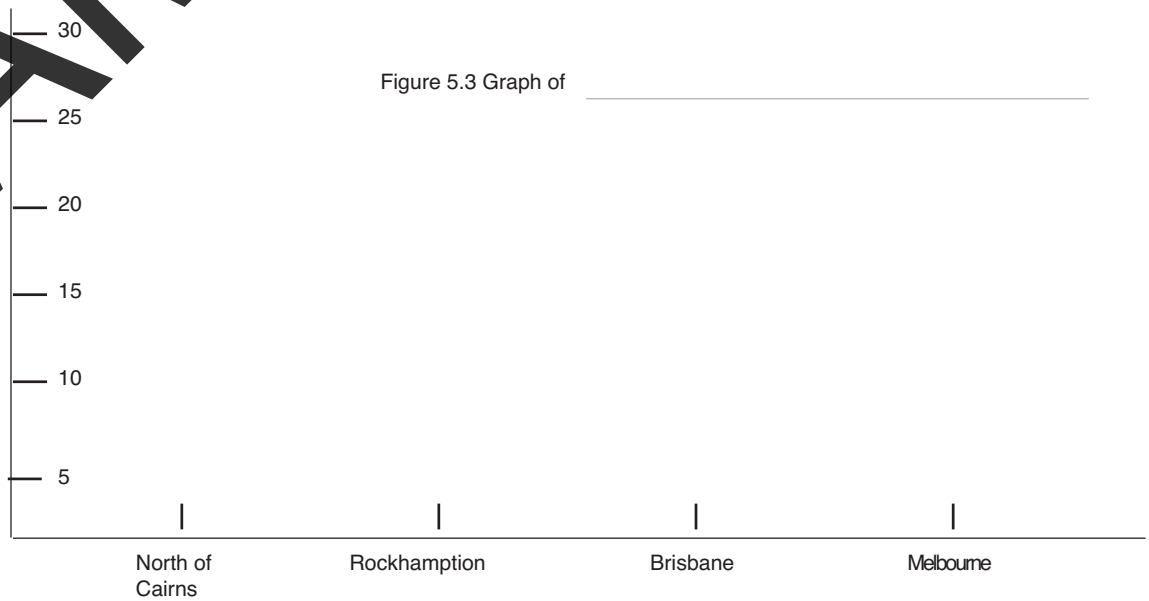

Figure 5.3 Graph of _____

Q6. Describe two water characteristics required for mangroves to grow.

Q7. Name the root system that stops mangroves from being washed away with tides.

Q8. Identify the root systems of mangroves A - E in Figure 6.1.

Q9. Describe how mangrove roots help overcome the problem of very low concentrations of oxygen.

Q10. Explain why mangroves growing above high tide levels possess a less specialized root system.

Q11. List and explain three ways mangroves get rid of salt to help them photosynthesise.

Q 12. Decide where mangroves A - E shown in Figures 6.1 could be found. Draw these in Figure 6.2 below.

Figure 6.1 Mangrove root systems

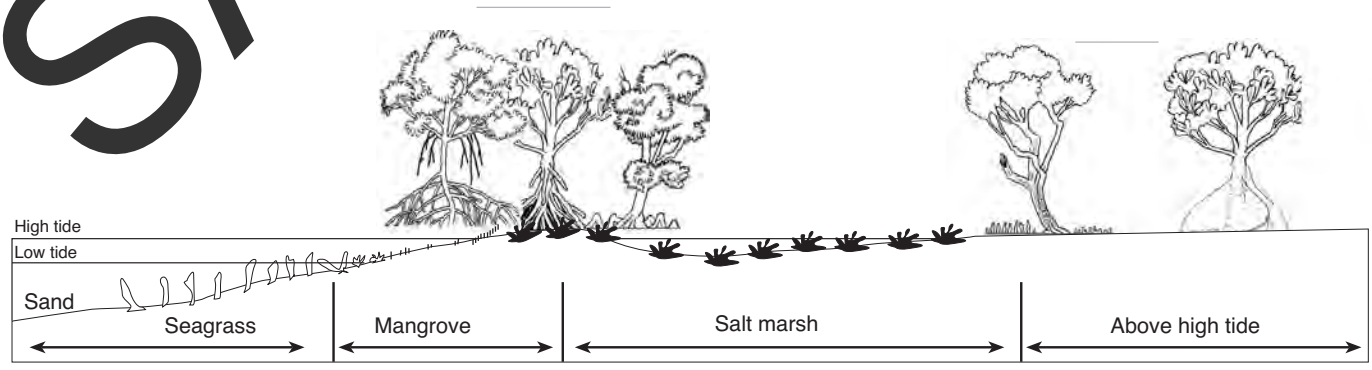

Figure 6.2 Mangrove distribution