

Human threats to coral reefs

Coral reef ecosystems around the world are under threat. The Pacific Ocean is the safest area for coral reefs with 60 per cent considered to be at low risk of destruction. Outside this area, 70 per cent of reefs are at risk. South-east Asia has the coral reefs with the greatest variety of plants and animals yet more than 80 per cent of these reefs are at high risk (see 4.3 on page 85). Most of the threats are a direct result of human activities.

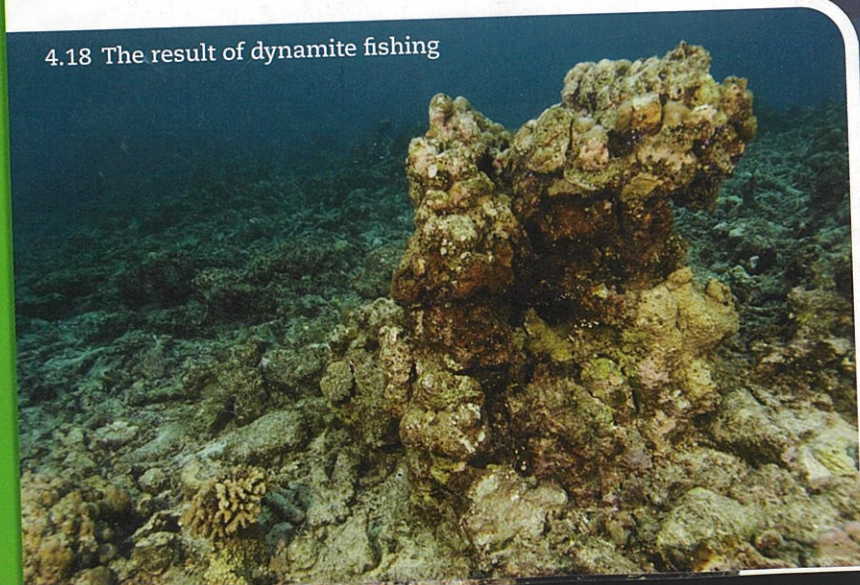
TRADE IN CORAL REEF ANIMALS

Collection of coral and reef fish for sale to aquarium enthusiasts around the world poses a serious threat to reefs. Cyanide is used to stun the reef fish in the wild so they can be easily removed from the coral. The cyanide kills the coral polyps. The global retail value of marine ornamental fish and aquarium hobby supplies is estimated at US\$500 million and consists of over 1000 reef species.

FISHING

As the world's population grows, the demands on the food resources of coral reefs are going to be greater. Fish living around the coral reefs are already a resource under pressure. Overfishing removes fish stocks and does not leave a large enough population of fish to restock the area. It also alters the balance of the reef ecosystem. Destructive fishing techniques, such as blast fishing with dynamite, are used to collect masses of fish quickly, making this a significant threat to reefs.

4.18 The result of dynamite fishing

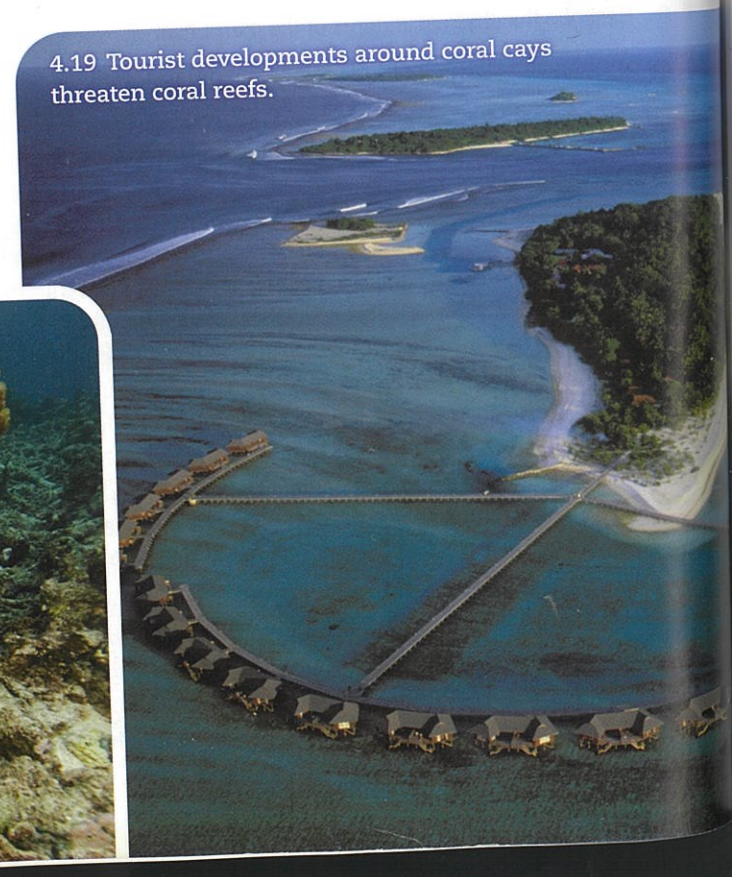


4.17 Dried seahorses, like many other reef animals, are used in alternative medicines.

TOURISM

Tourism is the world's fastest growing industry. As resorts are built they often lack sufficient planning and environmental controls. Wastes from the resorts may enter the surrounding water and increase the nutrients in the water. This disturbs the balance in the reef and degrades coral reefs. Careless tour operators in boats and other activities also cause damage. Whenever people walk on or stir up sediment in the reef they contribute to coral reef destruction.

4.19 Tourist developments around coral cays threaten coral reefs.



COASTAL DEVELOPMENT

The construction of settlements along the coastline impacts on nearby coral reefs. It is estimated that half a billion people worldwide live within 100 kilometres of a coral reef. In the richer countries, coastal developments along coral reefs include canal estates, highrise tourist hotels, apartment blocks and shopping complexes.

The growth of large cities along the coast places pressure on reefs as pollution from the urban areas enters the water and people exploit the resources of the reef.

FARMING

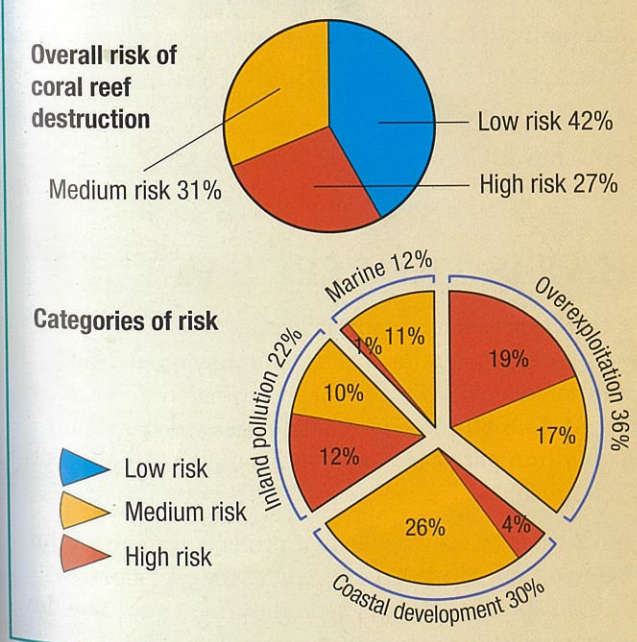
Farming, logging and land clearing all lead to soil erosion. As it is washed into rivers, soil eventually ends up in the ocean. When rivers flow across farmland and empty into the sea near coral reefs the sediment and nutrients encourage algae and limit the sunlight available for coral polyps to grow, killing the reef.

RISK OF DESTRUCTION

Coral reefs can be classified into three categories according to their risk of destruction—low, medium or high. The risks to reefs can be further broken down into their causes:

- over-exploitation involves activities such as fishing and taking coral
- coastal development involves building near reefs
- inland pollution involves runoff from agriculture and towns
- marine pollution involves shipping debris and oil leaks.

4.20 Threats to the global environment of coral reefs



Activities

Knowledge

- 1 How does the trend for people to have hobby aquariums impact on coral reefs?
- 2 Why is cyanide used to catch ornamental fish for the aquarium trade? What impact does it have on the reef?
- 3 What is meant by overfishing of fish stocks? What impact does this have on the coral reef environment?
- 4 Describe two impacts tourists have on coral reefs.
- 5 Why is there a need for careful management of urban developments located next to coral reefs?
- 6 List three activities that can lead to soil erosion. How does eroded soil travel to coral reefs?
- 7 What impact does sediment from rivers have on coral reefs?
- 8 List the four main causes of coral reef destruction.

Skills

- 9 Refer to 4.20:
 - a What percentage of coral reefs are considered to be at high risk of destruction?
 - b Which category of risk to coral reefs presents the greatest overall threat?
 - c Copy and complete the tables below:

| Rank | Threat category | High Risk (%) |
|------|-----------------|---------------|
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |

| Rank | Threat category | Medium Risk (%) |
|------|-----------------|-----------------|
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |

- 10 Look at 4.18 and 4.19 then copy and complete the table below.

| Type of photograph | Figure number |
|--------------------|---------------|
| Oblique | |
| Ground level | |

Application

- 11 Discuss the most likely factors that cause 80 per cent of the coral reefs of South-east Asia to be at high risk.

