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SOLUTIONS BOOK

CLASS 9

Social Science · Understanding Society

CHAPTER 1

Oceans and Life

Complete Questions and Activities Solutions

In-text Questions

Questions and Activities

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Every question is followed by its answer. Question numbers above are clickable and the PDF bookmarks panel lets you jump to any exercise set or question. Figures are reproduced from the NCERT textbook (© NCERT) for educational use.

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1.1

CLASS 9 SOCIAL SCIENCE · CHAPTER 1

In-text Questions

Solutions · 12 questions

Directions (Questions 1–12): These are the questions that appear inside the chapter (The Big Questions, Think About It and Let's Explore), numbered in the order in which they appear. Many are open-ended; model answers based on the chapter are given, and you may add examples from your own surroundings.

QUESTION 1 *The Big Questions · p. 1*

What is the importance of ocean relief?

ANSWER

Ocean relief (submarine relief) means the landforms of the ocean floor: underwater mountains, valleys, plateaus and trenches. Its importance lies in how it affects marine life, resources, ocean movements and our use of the sea.

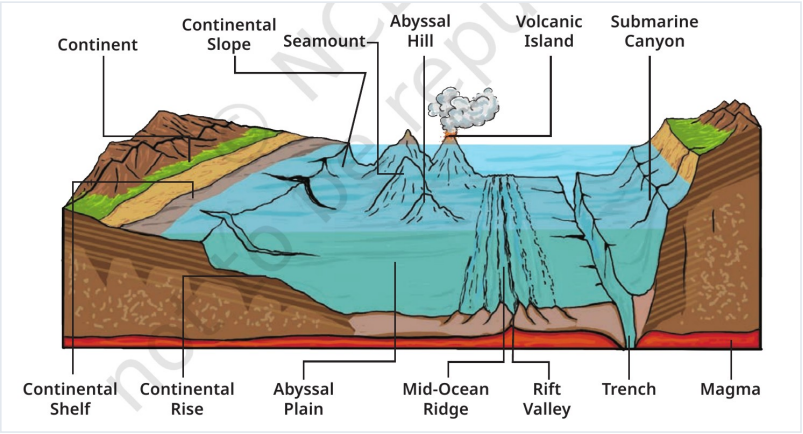


Fig. 1.2. Submarine relief

a What ocean relief includes

Just as land has mountains, valleys and plains, the ocean floor has several landforms. The Mariana Trench in the Pacific Ocean is the deepest place on Earth, and the Mid-Ocean Ridge is the world's longest mountain range, hidden beneath the ocean. Some underwater mountains, such as Mauna Kea (Hawai'i), are even taller than Mount Everest.

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b Important features and why they matter

Feature	What it is	Why it matters
Continental shelf	The submerged, shallow edge of a continent that extends under the ocean	Rich in marine life and in resources such as oil and gas
Continental slope	The steep slope marking the true edge of a continent	Marks where the continent ends and the deep ocean begins
Abyssal plain	The vast, flat and deep ocean floor	Forms the deep part of the ocean basin; a region of undersea exploration
Mid-Ocean Ridge	An immense underwater mountain range formed by volcanic activity	The world's longest mountain range, hidden beneath the ocean
Ocean trenches	The deepest parts of the ocean	Include the Mariana Trench, the deepest place on Earth
Seamounts and guyots	Seamounts are often volcanic underwater mountains; some are flattened by wave action over millennia to form guyots	Show how tall and varied the underwater landscape is

Therefore, ocean relief matters because it influences marine life, the resources we can use and undersea exploration.

QUESTION 2 *The Big Questions · p. 1*

How does ocean water movement impact life and environment?

ANSWER

Ocean water is always in motion as waves, tides and currents. These movements shape coasts, support marine life, help fishing and travel, and influence climate.

a Waves

- Waves are caused mainly by winds blowing across the water and carry energy across the oceans over long distances.
- Waves are called coastal architects: erosion creates cracks, caves, arches, sea stacks and stumps, while deposition forms beaches (Fig. 1.4).
- Storm winds can raise huge waves that damage coastlines. Tsunamis, giant waves caused mainly by underwater earthquakes, can be extremely destructive; their run-up height may reach 30 metres or even more.

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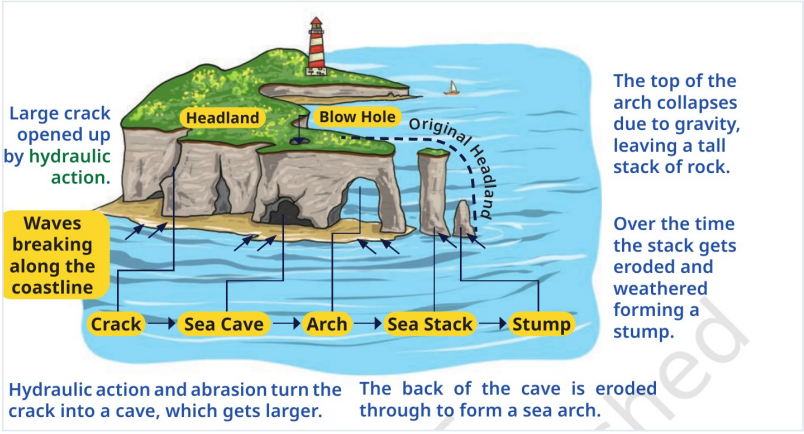


Fig. 1.4. Landform features formed by waves

b Tides

- Tides are the rhythmic rise and fall of ocean water, twice a day in most parts of the world. Spring tides occur at full moon and new moon, when the Sun, Earth and Moon are aligned; neap tides occur when the Moon is in its first and third quarters.
- **Navigation:** high tides raise the water level near the shore so ships can enter harbours; ships check water depth and tidal range before berthing. The Gulf of Khambhat has a tidal range of about 12 metres.
- **Fishing:** at high tide many fish move closer to the shore, so fishing communities get a better catch.
- **Energy:** tidal water can generate electricity; the Gulf of Kutch, the Gulf of Khambhat and the Sundarbans are major tidal energy sites in India.

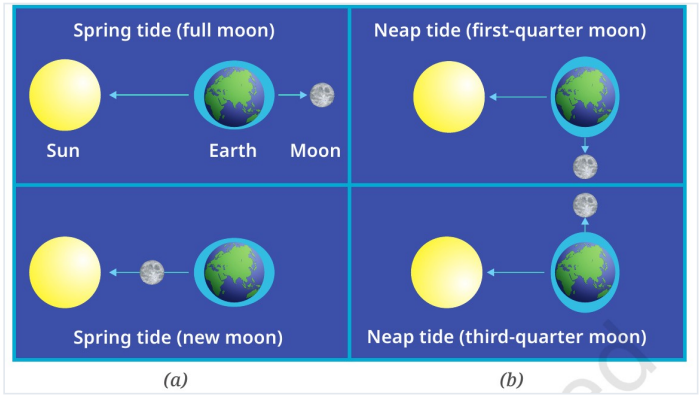


Fig. 1.5 (a) Spring tide (b) Neap tide (Schematic diagram of tidal forcing showing idealised bulges)

c Currents

- Ocean currents are continuous streams of water flowing in definite directions. They are caused by winds, the Earth's rotation (Coriolis force), differences in temperature and salinity, and the shape of continents and ocean basins.

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- **Climate:** the warm Gulf Stream keeps Norway's waters relatively warm, so sea ice does not form easily despite its high latitude, while the cold Labrador Current supports sea ice and icebergs even at lower latitudes.
- **Marine life:** where warm and cold currents meet, the waters are rich in nutrients and support many fish, so they are important fishing grounds.

Therefore, waves, tides and currents shape the coast, support marine life and fishing, help navigation and influence climate.

QUESTION 3 *The Big Questions · p. 1*

Why are maritime zones important for a country?

ANSWER

Maritime zones are different areas of the ocean defined by international law. They tell a country what it may control and use, and which waters belong to everyone.

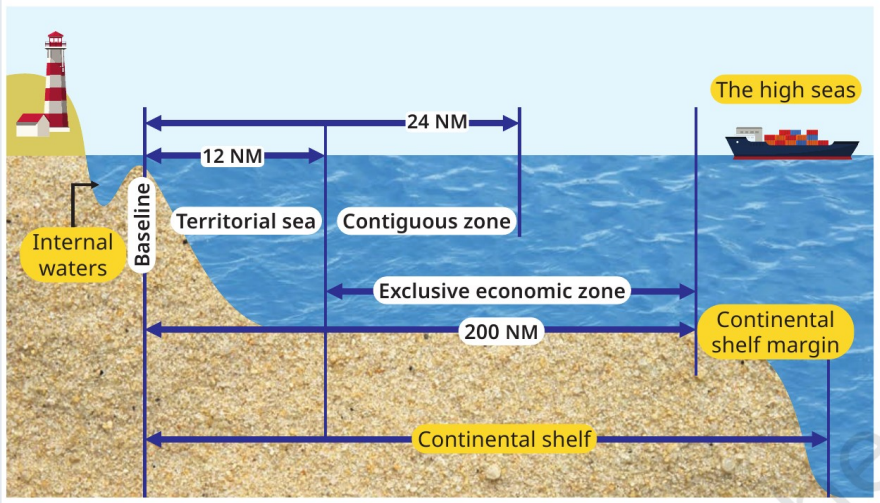


Fig. 1.20. Maritime zones (Indicative only)

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a The maritime zones

Zone	Extent	Rights of the country
Territorial waters	The sea area closest to the country; 12 NM from the baseline (Fig. 1.20)	Near-complete control, subject to the right of innocent passage for foreign ships; it can make laws on customs, immigration and pollution control
Contiguous zone	Up to 24 nautical miles from the baseline	Limited control over customs, fiscal matters and illegal immigration
Exclusive Economic Zone (EEZ)	Up to 200 nautical miles from the baseline; defined under UNCLOS	Special rights to use ocean resources such as fish, oil and gas; other countries' ships may still pass peacefully, and the country does not fully own or control the EEZ waters
High seas	Beyond the EEZs of all countries; about 64 per cent of the world's oceans	Belong to no single country (global commons); all countries have equal rights of navigation, fishing, flying over, laying undersea cables and exploring for minerals

b Why they are important

- **Use of resources:** the EEZ gives a country the right to use fish, oil and gas. Countries with long coastlines, such as India, benefit greatly from fishing, trade and tourism.
- **Control and law-making:** a country can make laws about customs, immigration and pollution in its territorial waters and exercise limited control in the contiguous zone.
- **Peace and fairness:** UNCLOS, a global agreement, defines the zones and helps settle disputes among countries.
- **Responsible use:** since no country controls the high seas, problems such as overfishing and illegal fishing arise there, which shows why clear rules are needed.

Therefore, maritime zones give each country clear rights and duties at sea, helping it use resources and keeping the oceans peaceful and fair.

QUESTION 4 *The Big Questions · p. 1*

How can we use ocean resources in a sustainable way?

ANSWER

Sustainable use means using ocean resources for growth and livelihoods without harming the health of marine ecosystems. This idea is known as the Blue Economy.

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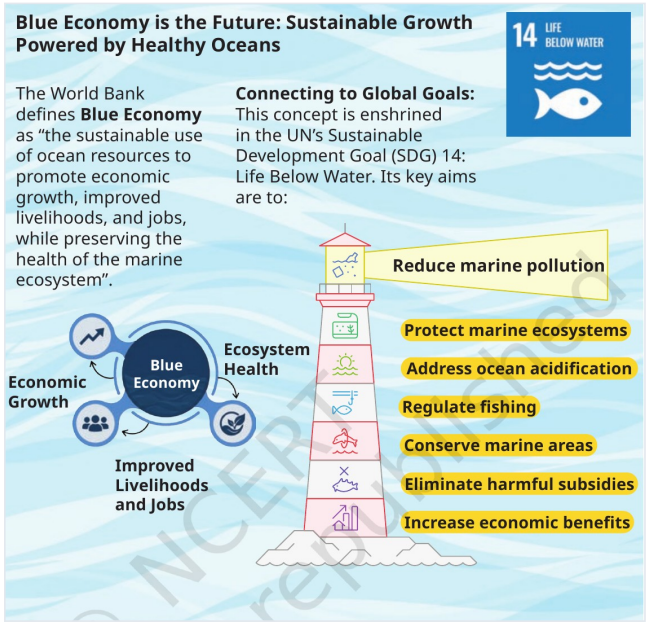


Fig. 1.19. The role of Blue Economy

a The Blue Economy

The World Bank describes the Blue Economy as the sustainable use of ocean resources for economic growth, improved livelihoods and jobs, while preserving the health of the marine ecosystem. It is linked to the UN's Sustainable Development Goal (SDG) 14: Life Below Water.

b Key aims of SDG 14

- Reduce marine pollution, protect marine ecosystems and address ocean acidification.
- Regulate fishing, conserve marine areas and eliminate harmful subsidies.
- Increase economic benefits from the sustainable use of marine resources.

c What we can do

- **Regulate:** follow rules for fishing to prevent overfishing and illegal fishing, and rules such as MARPOL to reduce pollution from ships.
- **Conserve:** protect unique ecosystems such as coral reefs and use marine resources without disturbing marine ecosystems.
- **Cooperate:** countries work together under international laws such as UNCLOS to share and manage ocean resources without conflict.
- **Use renewable 'blue energy':** tides and waves are renewable sources of energy from the ocean.

Therefore, cooperation, regulation and conservation help us use ocean resources today and keep them for future generations.

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QUESTION 5 *The Big Questions · p. 1*

How do early warning systems help protect people from tsunamis and cyclones?

ANSWER

Cyclones are large rotating storms and tsunamis are giant waves caused by earthquakes. Early Warning Systems work like giant alarm systems for coastal areas: they detect the hazard, predict the disaster and issue timely warnings so that people can evacuate and stay safe.

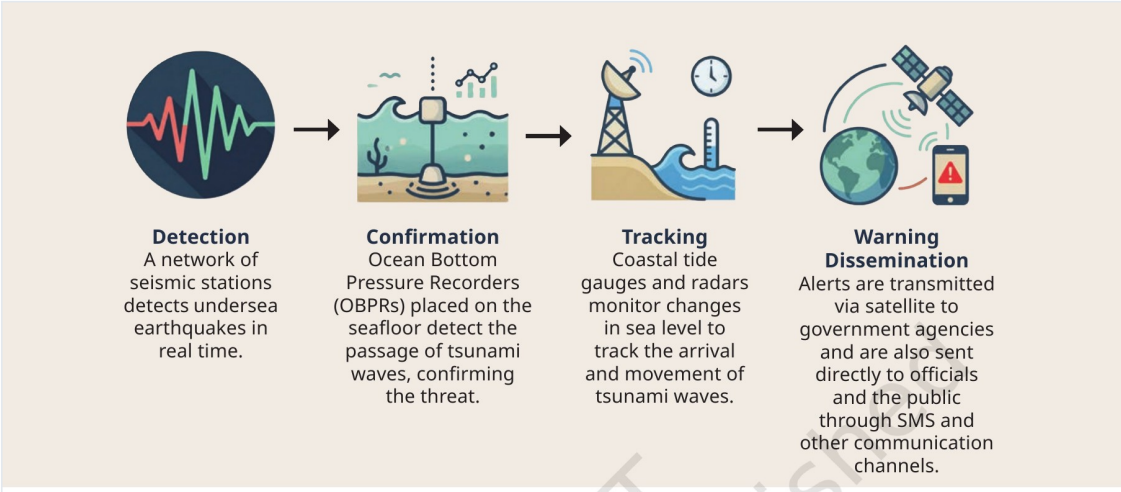


Fig. 1.15. Functioning of the tsunami early warning system

a Tsunami early warning in four stages

Stage	What happens
Detection	A network of seismic stations detects undersea earthquakes in real time
Confirmation	Ocean Bottom Pressure Recorders (OBPRs) on the seafloor detect the passage of tsunami waves and confirm the threat
Tracking	Coastal tide gauges and radars monitor changes in sea level to track the arrival and movement of tsunami waves
Warning dissemination	Alerts go by satellite to government agencies and directly to officials and the public through SMS and other channels

b Cyclone warnings in India

- Cyclone Warning Services and Marine Weather Services monitor storms along both coasts, and advanced technology predicts cyclones at an early stage, which has significantly reduced the loss of human and animal lives.

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- The National Cyclone Risk Mitigation Project (NCRMP) builds cyclone shelters, strengthens warning systems and improves emergency response.
- INCOIS, with the India Meteorological Department (IMD), runs the Storm Surge Early Warning System (SSEWS) that forecasts cyclone-induced storm surges and the extent of coastal flooding.
- The GEMINI device gives fishermen alerts on high waves, strong winds and cyclone and tsunami warnings in their local language.

c Reaching people and being prepared

- The Indian Tsunami Early Warning Centre (ITEWC) sends alerts to the Government of India, which informs state governments and emergency response teams through satellite networks, SMS, emails and coastal display boards.
- Public awareness and training are equally important, so that officials and coastal communities know how to respond when a cyclone or tsunami is predicted.

Therefore, early warning systems detect hazards early and send timely alerts so that people can evacuate and stay safe.

QUESTION 6 *Let's Explore · p. 3*

Looking at Fig. 1.2

→ How do you think these oceanic features would have been formed?

→ Which part of the ocean floor appears deep and shallow?

→ How do you think these underwater features would have an effect on marine life and ocean movements?

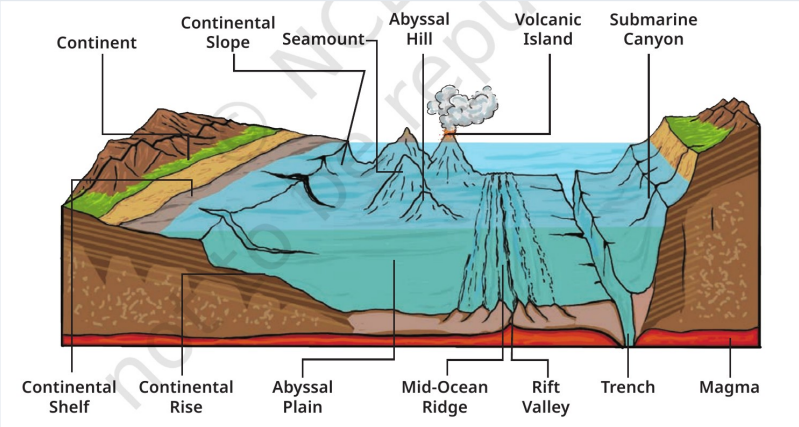


Fig. 1.2. Submarine relief

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ANSWER

Fig. 1.2 shows the submarine relief from the edge of a continent to the deep ocean floor. Model answers to the three parts are given below.

a How the features may have formed

Feature	Likely formation
Mid-Ocean Ridge and rift valley	Formed by volcanic activity, with magma rising from below (the figure shows magma beneath the ridge)
Seamounts, abyssal hills and volcanic islands	Mostly volcanic mountains built up from the ocean floor; a volcanic island is one that has reached above the sea surface
Guyots	A seamount whose summit was flattened by wave action over millennia and later submerged
Continental shelf, slope and rise	The submerged edge of the continent itself, continuing from the land under the sea
Trenches and submarine canyons	Deep cuts in the ocean floor; trenches are the deepest parts of the ocean and are linked to movements of the Earth's crust

b Deep and shallow parts

Depth	Parts of the ocean floor in Fig. 1.2
Shallow	Continental shelf (coastal fish live here at depths of 0–200 m); the tops of seamounts, volcanic islands and the crest of the Mid-Ocean Ridge, which rise high above the floor
Deep	Abyssal plain (the vast, deep ocean floor); ocean trenches (the deepest parts); rift valley and submarine canyons

c Effect on marine life and ocean movements

- **Marine life:** the continental shelf is rich in marine life and resources like oil and gas, so fishing is concentrated there. Relief features influence marine life and the resources available.
- **Ocean movements:** ocean currents are shaped by the shape of continents and ocean basins, so underwater features can guide the flow of water.
- **Tides and shipping:** shallow areas, such as parts of the Singapore Strait, force large ships to wait for high tide, and the shape of a coast can give a very large tidal range, as in the Gulf of Khambhat (about 12 m).

Therefore, the shape and depth of the ocean floor affect where marine life is found and how ocean water moves.

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QUESTION 7 *Let's Explore · p. 5*

Find out the names of some famous sea beaches in our country and locate them on the map of India.

ANSWER

Beaches are depositional features formed by waves. India has a vast coastline of 11,098.81 kilometres, so famous beaches lie on both the west coast (Arabian Sea) and the east coast (Bay of Bengal). Ten well-known beaches are listed to mark on your map.

a Famous sea beaches of India

Beach	Near	State / UT	Sea
Mandvi Beach	Mandvi (Kutch)	Gujarat	Gulf of Kutch (Arabian Sea)
Juhu Beach	Mumbai	Maharashtra	Arabian Sea
Calangute Beach	North Goa	Goa	Arabian Sea
Om Beach	Gokarna	Karnataka	Arabian Sea
Kovalam Beach	Thiruvananthapuram	Keralam	Arabian Sea
Marina Beach	Chennai	Tamil Nadu	Bay of Bengal
Rushikonda Beach	Visakhapatnam	Andhra Pradesh	Bay of Bengal
Puri Beach	Puri	Odisha	Bay of Bengal
Digha Beach	Digha	West Bengal	Bay of Bengal
Radhanagar Beach	Havelock Island (Swaraj Dweep)	Andaman and Nicobar Islands	Andaman Sea

b Locating them on the map

- On an outline map of India, mark the beaches of Gujarat, Maharashtra, Goa, Karnataka and Keralam along the **western** coast facing the Arabian Sea.
- Mark the beaches of Tamil Nadu, Andhra Pradesh, Odisha and West Bengal along the **eastern** coast facing the Bay of Bengal.
- Mark Radhanagar Beach on the Andaman Islands in the Bay of Bengal region, and use a symbol with a key.

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Therefore, India's beaches, formed by wave deposition, are spread along both its western and eastern coasts and its islands.

QUESTION 8 *Think About It · p. 8*

Observe the map carefully and note the movement patterns of cold and warm currents. Do you think these currents affect the temperature of nearby coastal regions?

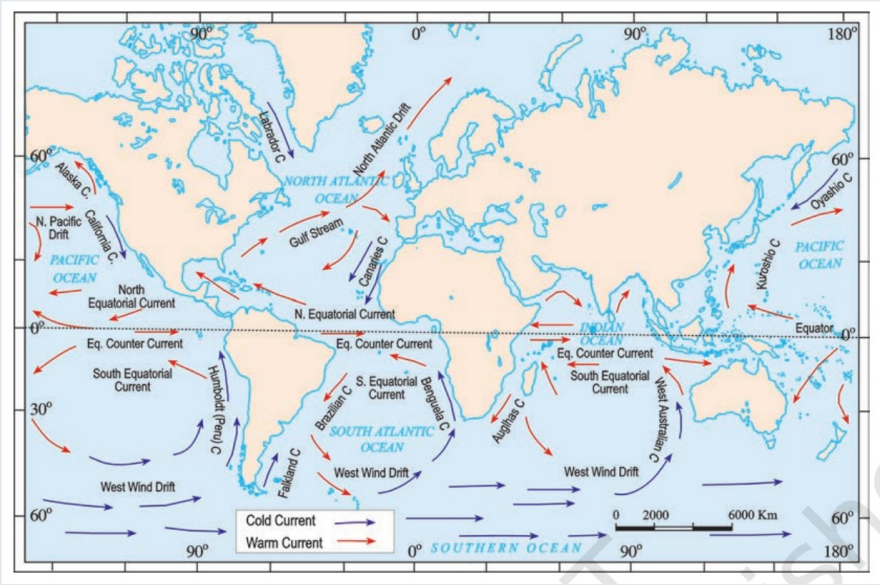


Fig. 1.9. Major ocean currents

ANSWER

Yes. Currents carry warm or cold water along coasts, so they affect the temperature of the coastal regions they pass.

a Movement pattern of currents in Fig. 1.9

- **Warm currents** (red arrows) flow from warmer regions, such as the Gulf Stream and the Kuroshio. **Cold currents** (blue arrows) flow from colder regions, such as the Labrador, Benguela and West Australian currents.
- Currents follow definite directions. The Coriolis force deflects moving water to the right in the Northern Hemisphere and to the left in the Southern Hemisphere, so many currents curve.

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b Effect on coastal temperature

Current	Type	Effect on nearby region
Gulf Stream	Warm; starts in the Gulf of Mexico and flows towards Norway	Keeps the waters near Norway relatively warm, so sea ice does not form easily despite its high latitude (60°–70°)
Labrador Current	Cold; flows along the east coast of Canada	Carries freezing water and supports the formation of sea ice and icebergs even at lower latitudes

c Fishing grounds

The regions where warm and cold currents meet are rich in nutrients, so they support a large variety of fish and are important fishing grounds.

Therefore, warm currents make nearby coasts warmer and cold currents make them colder, so currents affect coastal temperature.

QUESTION 9 *Let's Explore · p. 8*

Observe Fig. 1.9 and take a note on ocean currents along the coastline of India. What is the nature of ocean currents?

ANSWER

In Fig. 1.9 the currents drawn around India's coastline are shown with red arrows, so they are warm currents. An enlarged part of the figure is shown below.

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Fig. 1.9 (enlarged detail). Ocean currents in the Indian Ocean around India

a Currents near India in the figure

Place in the figure	Current shown	Nature
Arabian Sea (west of India)	Red arrow curving towards India’s west coast	Warm
Bay of Bengal (east of India)	Red arrow pointing north along the east coast	Warm
South of India	Equatorial Counter Current (eastward) and South Equatorial Current (westward)	Warm

b Nature of the currents

- All the currents drawn along India’s coastline in Fig. 1.9 are **warm currents**; the cold currents (blue arrows) lie much further south, such as the West Wind Drift and the West Australian Current.
- Warm currents flow from warmer regions and make the nearby sea warmer.

Therefore, the ocean currents along India’s coastline in Fig. 1.9 are warm currents.

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QUESTION 10 *Let's Explore · p. 9*

Most deaths during the 2004 Indian Ocean tsunami occurred in Indonesia. However, the Island of Simeulue was largely spared from the disaster. Researchers suggest that this was partly because of local folklore, passed down through generations, that helped residents recognise the warning signs of a tsunami and respond quickly. Talk to your elders and find out whether similar folk traditions or stories related to natural disasters exist in your culture. Share these with your classmates and discuss how traditional knowledge can help communities stay safe.

ANSWER

This is an activity based on the Simeulue example. A model answer explains how folklore helped, gives steps for collecting stories from your elders and lists points for class discussion.

a What happened at Simeulue

The 2004 Indian Ocean tsunami caused great loss of life, mostly in Indonesia, yet the island of Simeulue was largely spared. Researchers suggest that this was partly because local folklore, passed down through generations, helped residents recognise the warning signs of a tsunami and respond quickly.

b Steps for your activity

- **Ask your elders** (grandparents, neighbours, community elders) whether stories, sayings or customs about floods, cyclones, earthquakes or other disasters exist in your culture.
- **Note each story:** who told it, which disaster it is about, what warning signs it describes and what action it advises.
- **Share in class** and compare the stories collected by different classmates.

c Points for class discussion

- How did folklore help the people of Simeulue recognise a tsunami and respond quickly?
- Why are stories passed down through generations easy to remember in an emergency?
- How can traditional knowledge work together with early warning systems, public awareness and training to keep communities safe?

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Therefore, traditional knowledge passed down through generations can help communities recognise danger early and stay safe.

QUESTION 11 *Think About It · p. 14*

If you receive a tsunami or cyclone alert on your phone right now, do you know the five steps your family should take to stay safe?

ANSWER

A warning saves lives only when people know how to respond. Here is a model set of five steps; your family may add steps that suit your locality.

a Five steps for family safety

Step	What to do
1. Stay calm and confirm the alert	Read the alert carefully and check it against official warnings sent by the authorities (SMS, emails, coastal display boards)
2. Move to a safe place	Leave the coast and low-lying areas at once and go to the nearest cyclone shelter or higher ground, as officials advise
3. Take essentials	Carry drinking water, food, medicines, a torch, a charged phone and important papers
4. Follow official instructions	Keep listening to updates and return only when the authorities say it is safe; fishing families should not go to sea
5. Stay together and help others	Keep the family together, help children and elders and pass the warning to neighbours

b Be prepared

Discuss this plan at home in advance. The chapter stresses that public awareness and training are as important as technology, so that people know how to respond when a warning is issued.

Therefore, a family that knows its five steps can act quickly and safely when an alert is received.

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QUESTION 12 *Let's Explore · p. 18*

Maritime disputes are conflicts or disagreements between countries over territory, resources, or rights in naval areas such as oceans, seas, or coastal regions. Can you find out some countries that have conflicts over their territorial sea waters?

ANSWER

Yes. Maritime disputes arise when the claims of countries to sea areas, islands and resources overlap. A few well-known examples are given below.

a Examples of maritime disputes

Sea area	Countries involved	Nature of the dispute
South China Sea	China, the Philippines, Vietnam, Malaysia, Brunei and Taiwan	Overlapping claims over islands, waters and resources
East China Sea	China and Japan	Disagreement over the Senkaku/Diaoyu islands and the surrounding waters
Aegean Sea	Greece and Turkey	Disagreements over sea boundaries and rights
Sea of Japan	Japan and South Korea	Disagreement over the Takeshima/Dokdo islets
Palk Strait	India and Sri Lanka	Issues over fishing by fishermen near the maritime boundary

b How disputes are settled

- International laws such as UNCLOS define maritime zones and help settle disputes among countries.
- Countries use negotiation and legal processes. For example, the India–Bangladesh maritime boundary in the Bay of Bengal was settled in 2014 through arbitration.

Therefore, overlapping claims over seas, islands and resources lead to maritime disputes, which international law helps to settle.

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1.2

CLASS 9 SOCIAL SCIENCE · CHAPTER 1

Questions and Activities

Solutions · 9 questions

Directions (Questions 1–9): These are the Questions and activities at the end of the chapter (page 20). Answer each in your own words using the points given.

QUESTION 1

How do different features of the ocean floor affect human activities such as fishing, transport, and underwater exploration?

ANSWER

The ocean floor decides where the water is shallow or deep, where marine life gathers and where resources lie. This affects fishing, transport and exploration.

a Effect on human activities

Activity	How ocean-floor features affect it
Fishing	The continental shelf is shallow and rich in marine life, and coastal (neritic) fish live within it at depths of 0–200 m. Oceanic fish live beyond the shelf at depths of more than 200 m
Transport	Ships need enough water depth. Shallow areas such as the Singapore Strait make large ships (VLCCs) wait for high tide, and ships check depth and tidal range before berthing at a port
Underwater exploration	The shelf holds resources such as oil and gas, extracted by offshore rigs. Ridges, trenches and seamounts, including the Mariana Trench, attract undersea exploration, and bathymetry (mapping of underwater topography) guides it

b Resources and cables

Sand, gravel and deep-sea minerals are also found on the ocean floor, and undersea cables are laid on the floor of the high seas. Relief features therefore influence marine life, resource availability and undersea exploration.

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Therefore, ocean-floor features guide where we fish, how ships move safely and where we explore the sea.

QUESTION 2

How do waves, tides, and ocean currents influence climate, marine life, and human activities around the world?

ANSWER

Waves, tides and currents are not merely movements of water. They help shape the Earth's surface, support marine life, aid fishing and travel and influence climate.

a Climate

- Currents carry warm or cold water to other regions. The warm Gulf Stream keeps Norway's waters relatively warm, so sea ice does not form easily there despite a high latitude.
- The cold Labrador Current carries freezing water and supports sea ice and icebergs even at lower latitudes. Oceans are vital for climate regulation.

b Marine life

- Where warm and cold currents meet, nutrient-rich waters support a large variety of fish.
- During high tide many fish move closer to the shore in search of food and shelter.

c Human activities

- **Fishing and navigation:** high tides give fishing communities a better catch and let ships enter harbours; tidal currents can reach 5–6 knots (about 9–11 km/h).
- **Energy and culture:** tidal energy can generate electricity; the Bhadkeshwar Mahadev Temple at Dwarka can be reached only during low tide.
- **Coasts and hazards:** waves erode coasts and build beaches, while storm waves and tsunamis can cause great damage.

Therefore, waves, tides and currents affect climate, marine life and many human activities around the world.

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QUESTION 3

Describe the importance of marine resources.

ANSWER

Marine resources are the materials and features found in the oceans that have intrinsic or economic value. They are of two kinds: living and non-living.

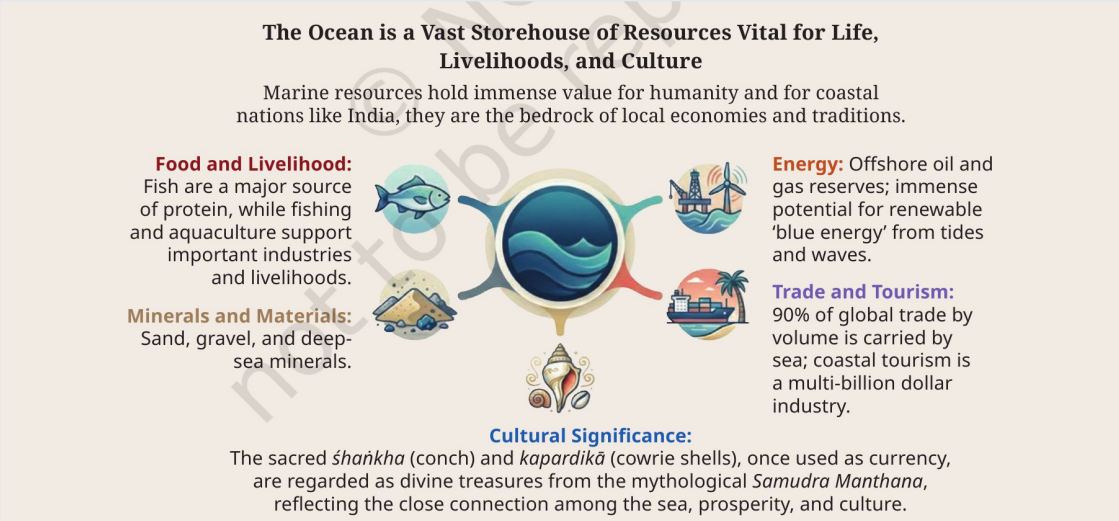


Fig. 1.18. Significance of marine resources

a Importance of marine resources

Importance	How marine resources help
Food and livelihood	Fish are a major source of protein, and fishing and aquaculture support important industries and livelihoods
Minerals and materials	Sand, gravel and deep-sea minerals
Energy	Offshore oil and gas reserves, and immense potential for renewable 'blue energy' from tides and waves
Trade and tourism	About 90% of global trade by volume is carried by sea, and coastal tourism is a multi-billion dollar industry
Environment	Oceans support biodiversity and sustain many plant and animal species, including unique ecosystems such as coral reefs
Culture	The sacred śhaṅkha (conch) and kapardikā (cowrie shells), once used as currency, are regarded as divine treasures from Samudra Manthana

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b Use them responsibly

Marine resources are vital for food security, economic activities and a healthy environment. Countries with long coastlines, such as India, benefit greatly from the sea, but the resources must be used responsibly without disturbing marine ecosystems.

Therefore, marine resources provide food, energy, materials, trade, jobs and culture, and must be used responsibly.

QUESTION 4

Draw a poster that encourages people to protect marine resources. Include a slogan (like Save Our Seas or Fish for the Future) and explain your message in 2–3 sentences.

ANSWER

This is an activity. A model poster and message are given; draw your own on chart paper with colour and pictures.



a What to include

Element	What to draw or write
Slogan	Write a short slogan in large letters, such as “Protect the Blue, Protect Our Future”
Pictures	Draw a clean sea with fish, a coral reef, a fishing boat and a ship; add a sign against dumping waste in the sea
Colours	Use blue and green for a healthy ocean and a bright colour for the slogan

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b Message (3 sentences)

The oceans give us food, energy, jobs and a healthy environment. If we pollute them or catch too many fish, these gifts will be lost. Let us use marine resources responsibly so that they last for future generations.

Therefore, a good poster has a clear slogan, simple pictures and a short message about protecting marine resources.

QUESTION 5

Using a map of India, mark at least five coastal states that might need tsunami warnings.

ANSWER

The 2004 Indian Ocean tsunami caused extensive damage in Tamil Nadu, Puducherry, Andhra Pradesh, Keralam and the Andaman and Nicobar Islands. Coastal states on both coasts may need warnings.

a Five coastal states to mark

State	Coast	Note
Tamil Nadu	East coast (Bay of Bengal)	Extensively damaged in 2004
Andhra Pradesh	East coast (Bay of Bengal)	Extensively damaged in 2004
Keralam	West coast (Arabian Sea)	Extensively damaged in 2004
Odisha	East coast (Bay of Bengal)	Coastal state facing the Bay of Bengal
West Bengal	East coast (Bay of Bengal)	Coastal state facing the Bay of Bengal

b More places you may mark

- Other coastal states: Gujarat, Maharashtra, Goa and Karnataka.
- Union Territories named in the chapter: Puducherry and the Andaman and Nicobar Islands.

Therefore, coastal states and Union Territories on both the east and west coasts, and the islands, may need tsunami warnings.

NCERT ARCHIVE

QUESTION 6

Work in a group and act out what would happen when a cyclone warning is issued. Highlight what role different people, like scientists, officials, and coastal villagers, would play.

ANSWER

Divide the class into groups and give each member a role. The table shows what each role does; the scenes follow in order.

a Roles

Role	What they do
Scientists	Monitor atmospheric disturbances over warm ocean waters using advanced technology, predict the cyclone early, forecast storm surge and flooding, and issue warnings
Officials	Receive the alert, inform state governments and emergency response teams, open cyclone shelters and spread the warning by SMS, emails and coastal display boards
Fishermen	Receive alerts on high waves, strong winds and cyclone warnings in their local language through the GEMINI device and come back to the shore
Coastal villagers	Listen to the warning, follow instructions, move to a cyclone shelter and help children and elders

b Order of scenes

- **Scene 1:** scientists detect and predict the cyclone.
- **Scene 2:** officials receive the alert and pass it to teams and villages.
- **Scene 3:** villagers and fishermen receive the warning and respond.
- **Scene 4:** evacuation to shelters, followed by relief and the return home when safe.

Therefore, a cyclone warning works only when scientists, officials and villagers each play their part.

NCERT ARCHIVE

QUESTION 7

Suppose a foreign ship is sailing through India’s territorial sea. What principle allows the ship to pass through these waters, subject to certain conditions?

ANSWER

The principle of **innocent passage** allows a foreign ship to pass through the territorial sea of a country, subject to conditions.

a Meaning and conditions

Point	Explanation
Principle	Innocent passage allows foreign ships to pass through the territorial waters of a country as long as they do not threaten its peace, good order or security
Must do	Move continuously without stopping, except in emergencies or cases of breakdowns
Not allowed	Fishing, military operations or other non-peaceful actions

Therefore, innocent passage lets a foreign ship cross India’s territorial sea if it keeps moving and does not threaten India’s peace or security.

QUESTION 8

A country has an Exclusive Economic Zone (EEZ) extending up to 200 nautical miles from its baseline. What rights does the country have over the natural resources in this zone?

ANSWER

In its EEZ, a country has special rights to use the ocean resources. The EEZ is defined under UNCLOS by global agreement.

NCERT ARCHIVE

a Rights and limits

Point	Explanation
Rights over resources	The country has special rights to use ocean resources such as fish, oil and gas in the zone
Limit on control	Ships from other countries may still pass through peacefully, and the country does not fully own or control the waters of the EEZ
Extent	From the baseline up to 200 nautical miles from the coast, beyond the territorial sea and the contiguous zone

Therefore, a country has special rights to use the fish, oil and gas of its EEZ, but it does not fully own or control the waters.

QUESTION 9

Create a model of an ocean with ship routes, protected zones, and safety measures. Based on the model, explain how it follows maritime laws and protects the ocean.

ANSWER

This is a project. A model plan is given below, using the maritime zones of Fig. 1.20 as the base. Build it on a tray or board with coloured paper, clay and cards.

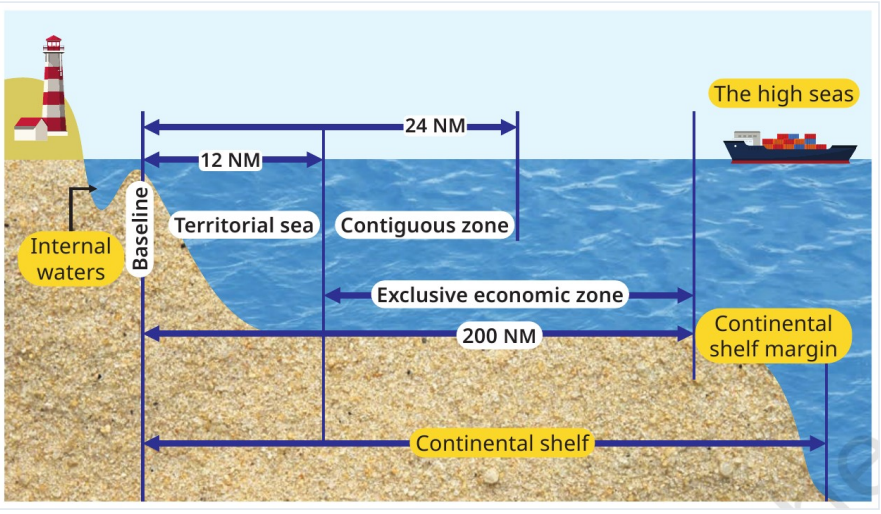


Fig. 1.20. Maritime zones (Indicative only)

NCERT ARCHIVE

a What to include in the model

Part of the model	What to show	Law or idea it follows
Maritime zones	Mark the territorial sea, contiguous zone, EEZ and high seas from the coast	UNCLOS maritime zones
Ship routes	A foreign ship crossing the territorial sea in a continuous path; ships on the high seas flying their flag	Innocent passage; laws of the flag state on the high seas
Safe sailing	Ships with lights, signals and radio, with give-way and stand-on vessels marked	COLREGs (rules of the road at sea)
Protected zones	A coral reef or marine area where fishing is not allowed, and a regulated fishing area	Blue Economy and SDG 14: conserve marine areas, regulate fishing
Safety measures	A tsunami detection buoy, a cyclone warning board at the harbour and a GEMINI device on a fishing boat	Early warning systems
Pollution control	A “no dumping” sign and waste bins on a ship	MARPOL Convention

b Explaining your model

- The zones show what each country may control and use, and the high seas are open to all.
- Ships follow the rules of the road at sea and the rules of passage, so voyages are safe and peaceful.
- Protected zones, pollution control and early warning measures protect marine life, ships and coastal people.

Therefore, a model that shows zones, safe routes, protected areas and warning systems follows maritime laws and protects the ocean.

NCERT ARCHIVE