

WRAP Exams · wrapexams.com

Prelims PYQ, Mains model answers, and copy evaluation. Write to the desk for this paper, a doubt, or the AI waitlist.

ask@wrapexams.com · +91 85951 84903 · wrapexams.com

Q5

Discuss the causes of depletion of mangroves and explain their importance in maintaining coastal ecology.

UPSC Civil Services Mains 2019 · GS I · 10 marks · World's Physical Geography

Salient features of world's physical geography.

Core demand of the question

- Discuss the causes of depletion of mangroves and explain their importance in maintaining coastal ecology
- Treat depletion causes and ecological importance as two equal parts
- Keep the answer within a 10-mark length

Revision summary

Aquaculture, ports, cities, dams, and pollution are the main causes of mangrove loss.

Cyclones and sea-level rise finish stands that humans have already cut.

Mangroves bind mud, cut storm surge, and nurse fish and crabs.

They store blue carbon and link wildlife from the **Sundarbans** to Pichavaram.

CRZ rules and restoration only work if conversion for ponds and ports is stopped.

Introduction

Mangroves are salt-tolerant forests of mud coasts, deltas, and islands. India has lost large belts of them to ponds, ports, and cities, even though they hold the shoreline together and feed coastal life.

Body**Why mangrove belts shrink**

- Shrimp and fish aquaculture cleared wide mangrove belts in the Godavari-Krishna deltas, parts of Odisha, and South-East Asian coasts for export ponds.
- Ports, special economic zones, roads, and city landfill have cut mangroves around Mumbai, Kochi, and other fast harbours.
- Agriculture, salt pans, and fuelwood cutting nibble fringes in Gujarat and Tamil Nadu, while upstream dams trap sediment that mangroves need to keep up with the sea.
- Oil spills, plastic, and industrial waste poison roots; cyclones and sea-level rise then uproot weakened stands, as seen after storms in the **Sundarbans** and the Andaman coasts.
- Weak enforcement of **Coastal Regulation Zone** rules and unclear tenure let conversion continue even where maps still show a green belt.

Importance for coastal ecology

- Stilt roots trap mud, cut wave energy, and reduce storm surge, which is why villages behind the **Sundarbans** and Bhitarkanika suffer less erosion than open mudflats.

- The forest is a nursery for fish, crab, and prawn that later feed the open sea and artisanal catch.
- Litter and roots store blue carbon and keep water quality by filtering nutrients before they reach seagrass and coral.
- Tigers, saltwater crocodiles, olive ridley nesting beaches nearby, and countless waders use mangrove edges as a linked habitat, not as a separate park.
- Pichavaram, Coringa, and Mumbai's remaining patches still show that a living mangrove is cheaper coastal defence than a concrete wall.

What the two parts imply

- Depletion is mostly a land-use choice; ecology pays in fisheries, storms, and carbon when that choice is extraction.

Flow diagram

Ponds ports pollution dams -> Mangrove loss
Mangrove loss -> Erosion surge
Mangrove loss -> Fishery nursery loss
Sundarbans Bhitarkanika Pichavaram -> Coastal ecology value
Coastal ecology value -> Protect restore

Conclusion

Mangroves fall to ponds, ports, and pollution, and coasts then lose nurseries, mud, and storm cover. Restoration under programmes such as **MISHTI** and strict CRZ protection has to treat the forest as infrastructure, not as spare land.

Facts & figures

Sundarbans

World's largest mangrove delta shared by India and Bangladesh; a cyclone buffer and tiger habitat.

Bhitarkanika, Odisha

Mangrove sanctuary important for crocodiles, mud coasts, and storm protection.

Pichavaram, Tamil Nadu

Well-known east-coast mangrove that shows fishery and tourism value of a living stand.

Coastal Regulation Zone

Indian coastal law that restricts conversion of mangroves and other ecologically sensitive areas.

MISHTI

Mangrove Initiative for Shoreline Habitats and Tangible Incomes, a Union restoration programme announced in 2023.

WRAP Exams · Write. Read. Analyse. Practice. · <https://wrapexams.com/upsc/mains-answers/gs-1/2019/discuss-the-causes-of-depletion-of-mangroves-and-explain-their-importance-in-maintaining-coastal-ecology/> · ask@wrapexams.com · wrapexams.com

WRAP Exams