NO PREP

Humans and the Ocean

Impacts on Marine Vertebrates

Includes: Student reading, case study, differentiated questions, teacher key

Name: Period: Date:

Humans and the Ocean: Impacts on Marine Vertebrates

A Troubled Relationship

For thousands of years, humans have relied on the ocean for food, trade, and exploration. Yet this relationship has often come at a cost to marine life. From whaling in past centuries to modern problems like plastic pollution and bycatch, human actions have left deep marks on the survival of marine vertebrates. Understanding these impacts is essential if we want to preserve the incredible biodiversity of the seas for future generations.

The Whaling Era and Beyond

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The Whaling Era and Beyond

In the 18th and 19th centuries, the demand for whale oil drove massive hunting campaigns. Some species, like the North Atlantic right whale, were nearly wiped out. International agreements like the International Whaling Commission's 1986 ban on commercial whaling have helped populations recover, but not all whales are safe. Some countries still hunt whales, and collisions with ships remain a serious threat. The history of whaling shows how human exploitation can push species to the brink—and how international action can make a difference.

Bycatch and Overfishing

Fishing provides food for billions of people, but it also unintentionally captures non-target animals, a problem known as bycatch. Dolphins, turtles, seabirds, and even sharks often get caught in nets or hooked on longlines. Bycatch kills millions of animals every year. Overfishing adds another challenge: removing too many fish from the ocean destabilizes ecosystems, leaving predators without enough food. Solutions include safer fishing gear and stricter management of fisheries.

Plastic and Habitat Loss

One of the biggest modern threats is plastic pollution. Discarded bags, bottles, and fishing gear float across the seas, breaking down into microplastics that enter the food chain. Sea turtles mistake plastic bags for jellyfish, while seabirds feed bits of plastic to their chicks. Meanwhile, coastal development destroys mangroves, coral reefs, and seagrass beds that many marine vertebrates rely on for nesting, feeding, or shelter.

Key Information

Human Impact	Example Species Affected	Result
Whaling	Blue whales, right whales	Population decline, near-extinction
Bycatch	Dolphins, turtles, seabirds	Accidental deaths in nets and hooks
Overfishing	Sharks, tuna	Loss of prey and ecosystem imbalance
Plastic Pollution	Turtles, seabirds	Ingestion and entanglement
Habitat Loss	Manatees, reef fish	Loss of nesting and feeding areas

Case Study: Plastic in the Pacific

The Great Pacific Garbage Patch, a massive collection of floating plastic between Hawaii and California, is one of the most visible examples of human impact on the ocean. While it does not form a solid island, it contains an estimated 1.8 trillion pieces of plastic, weighing around 80,000 tons. Marine vertebrates are directly harmed: sea turtles choke on bags, fish eat microplastics, and seals become entangled in abandoned nets. Scientists warn that plastic pollution is not just an ocean issue—it affects the global food chain, as fish and shellfish consumed by humans often contain microplastic particles. Efforts are underway to clean up the patch and reduce plastic use worldwide, but the scale of the challenge is enormous.

1. How does plastic pollution affect both marine vertebrates and humans?

_____

_____

2. What long-term solutions might reduce the amount of plastic reaching the ocean?

_____

_____

Multiple Choice

1. What was the main product that drove whaling in the 18th and 19th centuries?

a) Whale meat

b) Whale oil

c) Whale bones for tools

d) Whale cartilage

2. What is the term for unintentionally catching non-target species in fishing gear?

a) Bycatch

b) Harvesting

c) Entanglement

d) Overfishing

3. Which of the following is NOT a major threat to marine vertebrates?

a) Commercial overfishing

b) Plastic pollution

c) Unintended bycatch

d) Habitat restoration

Matching

Write the letter of the correct definition on the line next to each term.

Term	Definition
1. ___ Nearly wiped out whale species	A) Bycatch
2. ___ Millions of animals caught yearly	B) Overfishing
3. ___ Turtles mistaking bags for jellyfish	C) Habitat destruction
4. ___ Loss of coral reefs and mangroves	D) Whaling
5. ___ Sharks losing prey due to overharvest	E) Plastic ingestion

Fill-in-the-Blank

1. The _____ banned commercial whaling in 1986.

2. Sea turtles often mistake _____ bags for jellyfish.

3. Destroying mangroves and coral reefs causes _____ loss.

Short Answer

Answer each question in 2-4 complete sentences.

1. Why is international cooperation important in protecting marine vertebrates?

2. How does overfishing affect the entire marine ecosystem?

3. What are some ways individuals can reduce their impact on ocean health?