NO PREP

Overfishing and the Collapse of Global Fisheries

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

Name: Period: Date:

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The ocean is often imagined as limitless: a blue frontier filled with endless fish swimming beneath the waves. For centuries, people treated it that way, casting nets and lines without much thought to whether the supply could ever run out. But the reality is very different. Today, many of the world's most important fish populations are in serious trouble. Overfishing, the practice of taking fish from the ocean faster than they can reproduce, has pushed species to the edge of collapse and reshaped entire marine ecosystems. This story isn't just about fish; it's about people, culture, and the future of our planet.

Causes of Overfishing

At the heart of the problem is a mix of human ambition, technology, and weak rules. Fishing used to mean small boats and simple nets. Now, fleets are equipped with sonar that can track schools of fish, massive trawl nets that sweep across the ocean floor, and longlines stretching for miles with thousands of hooks. These advances bring in enormous hauls, but they don't give fish populations time to recover. Add to this the global appetite for seafood (shrimp cocktails, sushi bars, fish sticks in school cafeterias) and you have a demand that never seems to slow down. Governments also play a role. Some countries subsidize fishing fleets, encouraging them to keep fishing even when catches drop. Others lack the enforcement power to stop illegal, unreported, or unregulated (IUU) fishing on the open seas. With vast stretches of ocean that no single nation fully controls, it becomes a race: whoever catches the most, wins, at least until the resource is gone.

Ecological Impacts of Overfishing

The ocean is not just a pantry; it's a living system where everything is connected. When large numbers of fish are pulled out, the balance of the food web is disturbed. Predators such as sharks, tuna, and swordfish are especially vulnerable because they

grow slowly and reproduce less often. When these top predators disappear, smaller species can explode in number, creating ripple effects through the ecosystem. The story of the Atlantic cod is a sobering reminder. Once so abundant off North America's east coast that early explorers claimed you could scoop them out of the sea with baskets, cod were fished relentlessly until their populations crashed in the 1990s. Even after strict bans, recovery has been painfully slow. Beyond fish, overfishing damages habitats. Trawling nets that scrape across the seafloor flatten coral reefs and disturb bottom-dwelling species. These aren't places that bounce back quickly, sometimes not at all.

Economic and Human Consequences

When fish vanish, people suffer. Millions of jobs worldwide depend on healthy fisheries, from large commercial fleets to small coastal communities that have fished for generations. Overfishing doesn't just cut into profits; it destroys a way of life. For many developing nations, where fish are the main source of protein, dwindling stocks lead to hunger and malnutrition. Economists describe the pattern as a boom-and-bust cycle. At first, new technology and growing fleets bring in record catches. Communities thrive, exports rise, and seafood seems plentiful. But once populations collapse, the "boom" turns into a bust, leaving behind empty nets and devastated towns. Consumers feel the effects too—scarcity drives up prices, meaning seafood may become a luxury that only the wealthy can afford.

Solutions: Toward Sustainable Seafood

Despite the grim outlook, there are paths to a better future. Many scientists argue for strict, science-based quotas—limits on how many fish can be caught each year. These quotas only work if enforced, which means international cooperation is essential. Some regions have also established marine protected areas (MPAs) where fishing is limited or banned. These safe zones act as nurseries, allowing fish populations to rebound and spill over into nearby waters. Ordinary people also have power. By choosing sustainable seafood—products labeled with certifications like the Marine Stewardship Council (MSC)—consumers can support responsible fisheries. Aquaculture, or fish farming, provides another alternative, though it must be managed carefully to prevent pollution and disease. Public awareness campaigns can shift demand away from overfished favorites like tuna or salmon and toward

species that are more abundant. The key is balance: taking what we need without stripping the ocean bare.

Key Information: Table: Key Causes and Effects of Overfishing

Cause	Effect on Ecosystems	Effect on Humans
Technological advances	Rapid depletion of species	Short-term economic growth
Weak regulations & IUU fishing	Species collapse, disrupted food webs	Loss of sustainable income
High global demand	Pressure on popular species	Rising seafood prices
Bottom trawling	Habitat destruction	Long-term fishery decline

Case Study: The Collapse of the Newfoundland Cod Fishery

For centuries, cod fishing off the coast of Newfoundland, Canada, was considered one of the richest fisheries in the world. Early European explorers described the waters as so full of cod that nets could be dipped in and pulled out overflowing. By the mid-20th century, technological advances in trawling and refrigeration allowed fleets to capture cod on an industrial scale. At first, this boom seemed like a blessing, with record catches fueling jobs and exports. However, by the 1980s, scientists began warning that cod populations were declining. Overfishing continued, with political pressure and short-term profits outweighing long-term sustainability. In 1992, the Canadian government imposed a moratorium on cod fishing, abruptly ending centuries of tradition and throwing over 30,000 people out of work. The economic and cultural shock was immense, with entire communities devastated. Decades later, cod stocks have not returned to pre-collapse levels, highlighting how quickly an ecosystem can unravel when pushed beyond its limits. The Newfoundland case stands as one of the most dramatic examples of fisheries collapse and serves as a cautionary tale for the world's oceans.

1. What were the main causes of the Newfoundland cod collapse?

_____

_____

2. How did the collapse affect both the ecosystem and the local economy?

_____

_____

Multiple Choice

1. Which factor contributes most directly to overfishing?

    a) Reduced use of technology in fishing

    b) The steady decline in global seafood demand among consumers

    c) Natural population growth of fish

    d) Technological advances and weak regulations

2. What is one ecological effect of removing top predators like sharks from the ocean?

    a) Smaller prey species multiply unchecked

    b) Marine biodiversity increases

    c) Coral reef structures strengthen and expand

    d) Fish stocks recover more quickly

3. What is the purpose of marine protected areas (MPAs)?

    a) To ban all seafood consumption and international trade

    b) To give fish populations a chance to rebound

    c) To eliminate aquaculture production

    d) To promote illegal fishing

Matching

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

Term	Definition
1. ___ Fishing at rates beyond replenishment	A) Boom-and-bust cycle
2. ___ Destruction caused by dragging nets	B) Sustainable regulation
3. ___ Network of predator-prey relationships	C) Habitat destruction
4. ___ Economic rise followed by collapse	D) Overfishing
5. ___ International agreement on quotas	E) Food webs disrupted

Fill-in-the-Blank

1. The collapse of the _____ cod fishery in 1992 became a global symbol of overfishing.

2. Choosing seafood labeled by the _____ Stewardship Council helps promote sustainability.

3. _____ fishing continues to thrive because of weak monitoring and enforcement.

Short Answer

Answer each question in 2-4 complete sentences.

1. Explain how overfishing affects both biodiversity and human food security.

2. Why is international cooperation necessary to solve the problem of overfishing?

3. Suggest one way students can help promote sustainable seafood choices in their daily lives.