# Beyond the Catch

How coastal species support food, medicine, and natural beauty

**MAQ.4.5** "Explore the importance of species diversity to the biological resources needed by human populations, including food (e.g., aquaculture and mariculture), medicine, and natural aesthetics."

NAME _____ DATE _____

## 1 READ AND MARK

Read it twice

**YOUR JOB** Underline one detail about food, circle one about possible medicines, and number two details about natural beauty. Use your marks to explain how different species benefit people.

### More Than One Reason to Protect a Bay

1 At low tide, workers in a coastal bay check ropes where sea lettuce grows and cages where oysters feed. Growing marine organisms for food is mariculture, a form of aquaculture carried out in salt water. The farm supplies two foods rather than relying on one species. Nearby eelgrass beds shelter young fish, including species caught by local fishers. Oysters filter tiny particles from the water as they feed, and clearer water can help sunlight reach eelgrass. If polluted runoff harms the eelgrass, fewer young fish may survive to join the catch. The farm and the fishery both depend on healthy, varied coastal life.

2 Farther offshore, sponges live attached to the rocky bottom. Some sponges make chemicals that help them survive among other organisms. Researchers study these chemicals because some may become starting points for medicines, although most never become approved drugs. A sponge species that disappears before scientists study it could take useful chemistry with it. Protecting only the farmed oysters would not protect that possibility. Other species help maintain the sponges' habitat: animals that graze on fast-growing algae can keep rock surfaces from being covered. A diverse community offers researchers more kinds of chemicals to investigate, not a guaranteed cure.

3 Visitors also come to the bay to watch shorebirds hunt along the water and to see green eelgrass waving beneath the surface. These sights are natural aesthetics, the enjoyment people get from living landscapes. Guides and small restaurants may earn income from visitors who value the bay's wildlife. A bay with few surviving species might still look beautiful, but losing birds, fish, and underwater plants would remove many of the experiences visitors seek. Local residents debate limiting fertilizer runoff and protecting shallow habitat. Those choices could support seafood harvests and wildlife viewing while preserving species that scientists have not yet studied.

## 2 ANSWER WITH EVIDENCE

Use the passage

1. How do oysters and eelgrass each help support seafood from the bay?

2. Why might protecting sponge species matter for medicine, even though most sponge chemicals never become approved drugs?

3. How does the bay's species diversity provide both natural beauty and a possible economic benefit?

4. How could limiting fertilizer runoff and protecting shallow habitat support two different resources described in the passage?

## 3 YOUR TURN

Your own words

A town wants to expand a marina beside eelgrass beds and a sponge-covered reef. In 4 to 5 sentences, propose a location or design choice that reduces habitat damage, then explain how protecting species diversity could support two different benefits from food, medicine, or natural beauty.

# Beyond the Catch



## PART 1 · READ AND MARK

Underline one detail about food, circle one about possible medicines, and number two details about natural beauty. Use your marks to explain how different species benefit people. Accept any marking that follows this job and points at the right text.

## PART 2 · ANSWERS

| # | QUESTION | ANSWER |
|---|---|---|
| 1 | How do oysters and eelgrass each help support seafood from the bay? | **Oysters filter particles, which can make water clearer and help eelgrass get sunlight. Eelgrass shelters young fish that may later be caught.** |
| 2 | Why might protecting sponge species matter for medicine, even though most sponge chemicals never become approved drugs? | **Some sponge chemicals may be starting points for medicines. Losing a species before it is studied could mean losing useful chemistry.** |
| 3 | How does the bay's species diversity provide both natural beauty and a possible economic benefit? | **Shorebirds and eelgrass give visitors wildlife to watch. Guides and restaurants may earn income from those visitors.** |
| 4 | How could limiting fertilizer runoff and protecting shallow habitat support two different resources described in the passage? | **Protecting eelgrass could help young fish survive, supporting seafood catches. Keeping eelgrass and wildlife in the bay could also support wildlife viewing.** |

## PART 3 · YOUR TURN (SAMPLE ANSWER)

The town could expand its existing docks instead of dredging beside the eelgrass and reef. Protecting eelgrass would preserve shelter for young fish that could later support local catches. Leaving the sponge-covered reef intact would keep species whose chemicals researchers might study for medicines. This choice protects more than one potential benefit without assuming that every sponge will lead to a drug.

Accept other passage-supported links between species and human benefits. For the open task, look for a plausible habitat-protecting choice and explanations of two distinct benefits, without claiming that a medicine is guaranteed.