Quiz: Marine Life

Question 1

Which of the following is the MOST likely consequence of overfishing a keystone species in a coral reef ecosystem?

A) Increased biodiversity due to reduced competition.
B) A trophic cascade leading to significant changes in the reef community structure.
C) A decrease in the overall biomass of the reef, but no significant change in species composition.
D) An increase in the resilience of the reef to climate change.

Question 2

A marine biologist discovers a new species of fish that lives in the deep ocean and lacks functional eyes. Which adaptation would MOST likely be present in this fish to help it survive in its environment?

A) Enhanced photosynthetic capabilities.
B) Highly developed lateral line system for detecting vibrations.
C) Bright bioluminescent patterns for attracting mates.
D) Thick layer of blubber for insulation against cold temperatures.

Question 3

Ocean acidification, caused by increased atmospheric carbon dioxide, primarily affects which group of marine organisms?

A) Marine mammals that rely on echolocation.
B) Phytoplankton that perform photosynthesis.
C) Shell-forming organisms like corals and shellfish.
D) Deep-sea fish adapted to high pressure environments.

Question 4

What is the primary difference between a baleen whale and a toothed whale?

A) Baleen whales are exclusively found in polar regions, while toothed whales are found in tropical regions.
B) Baleen whales filter feed using baleen plates, while toothed whales actively hunt prey using teeth.
C) Baleen whales are significantly smaller than toothed whales.
D) Baleen whales are warm-blooded, while toothed whales are cold-blooded.

Question 5

A scientist is studying the effects of nutrient runoff from agricultural land on a coastal estuary. What is the MOST likely consequence of excessive nutrient input into this ecosystem?

A) Increased biodiversity and stability of the estuary.
B) Harmful algal blooms and subsequent oxygen depletion (hypoxia).
C) Increased growth of seagrass beds and improved water clarity.
D) A decrease in the population of filter-feeding organisms.

Answer Key

1. Answer: B

Keystone species play a critical role in maintaining the structure and function of an ecosystem. Removing them can trigger a trophic cascade, leading to dramatic shifts in the community.

2. Answer: B

In the deep ocean, where light is absent, a functional lateral line system would be crucial for detecting prey and predators through vibrations in the water.

3. Answer: C

Ocean acidification reduces the availability of carbonate ions, which are essential for shell-forming organisms to build and maintain their calcium carbonate structures.

4. Answer: B

Baleen whales possess baleen plates for filter feeding, while toothed whales have teeth for capturing and consuming individual prey items.

5. Answer: B

Excessive nutrient input can lead to algal blooms. When these algae die and decompose, the process consumes oxygen, leading to hypoxic conditions that can harm or kill marine life.