

الواجب المنزلي
الأسبوع العاشر

الإدارة المركزية للتعليم العام
مكتب تنمية مادة العلوم



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العلوم المنتكاملة

الصف الأول الثانوي
الفصل الدراسي الأول

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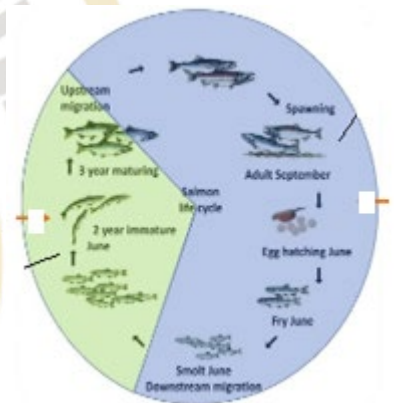
First: MCQ

1-Which of the following expresses the final stability resulting from the interaction of living organisms with non-living environmental components for the continuity of life?

- a. Ecological balance
- b. Nutrient balance
- c. Aquatic system balance
- d. Natural energy flow between living organisms

2- The figure shows the life cycle of salmon. Study it and then determine how the migration of salmon contributes to achieving balance in the surrounding environment?

- a. Consumes the largest amount of phytoplankton
- b. Helps increase the number of predators
- c. Compensates for its loss during its life cycle
- d. Helps preserve coral reefs

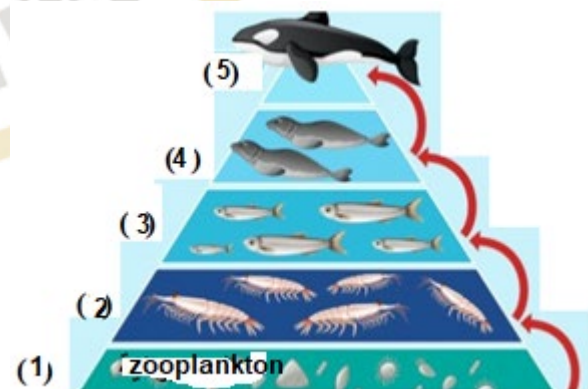


3- The figure in front of you represents a food chain in a marine environment.

Study it and then answer:

What happens when number (3) decreases?

- a. (5) increases and (2) decreases
- b. (2) increases and (1) decreases
- c. (4) and (5) are not affected
- d. (1) increases and (2) decreases





4- Coral reefs are known as "rainforests of the sea," and this is because they:

- a. Are considered producer organisms
- b. Eliminate sea urchins
- c. Provide a suitable habitat for many marine organisms
- d. Serve as a shelter and safe haven for large predatory fish

5- Which of the following factors is most likely to increase biodiversity within the aquatic environmental area?

- a. Increase in carbon dioxide ratio
- b. Increase in predatory fish
- c. Increase in salinity rates in water
- d. Increase in phytoplankton

6- Which of the following activities does not lead to disruption of the aquatic ecological balance?

- a. Discharging chemical factory wastes into the water
- b. Destroying natural habitats of marine organisms
- c. Recycling and reducing waste in the water
- d. Overfishing in different areas

7- Some studies have shown that climate changes increase imbalance in0 aquatic systems, threatening the balance among aquatic organisms. To preserve the aquatic ecosystem's ability for ecological balance, which of the following can be adopted?



- a. Protecting and expanding biodiversity areas such as coral reefs.
- b. Increasing the number of primary predatory species to maintain the food chain structure
- c. Building artificial barriers to control environmental temperatures
- d. Introducing species that resist temperature changes

8- What is the most accurate explanation for the disruption of ecological balance in a lake over the long term after a decrease in green algae?

- a. Decrease in nutrient ratios
- b. Consumption of the majority of dissolved oxygen gas
- c. Increase in carbon dioxide gas concentration
- d. Production of a large amount of oxygen

9- A marine area in one of the lakes faces a challenge of high pollution rates, where agricultural sewage water rich in nitrogen and phosphorus is discharged into this lake, disrupting nutrient balance and negatively affecting the balance among organisms in this aquatic system.

Which of the following represents the best solution that reflects the positive role of humans in addressing the problem?

- a. Artificially pumping oxygen into the water regularly to combat oxygen deficiency resulting from the imbalance.
- b. Manually removing surface algae periodically to reduce biomass.
- c. Reducing excess nutrients before they reach the aquatic system, addressing the problem at the source.
- d. Banning fishing in the entire area.



10-The role of predatory fish in maintaining ecological balance in aquatic ecosystems is:

- a. Reducing the number of small fish
- b. Controlling the number of predatory fish
- c. Reducing nutrient levels
- d. Reducing algae growth

11-When nutrient levels in an aquatic ecosystem are excessive, it leads to:

- a. Decreased plant growth rate
- b. Increased biodiversity
- c. Abnormal algae bloom
- d. Ecosystem stability

12-Which of the following is an example of the impact of overfishing on ecological balance?

- a. Improved water quality
- b. Decline in numbers of predatory fish
- c. Increased biodiversity
- d. Stable prey populations



13-What is the main cause of biodiversity loss in aquatic ecosystems?

- a. Sustainable fishing
- b. Habitat destruction
- c. Natural predation
- d. Balanced nutrient levels

14-The role of humans in maintaining ecological balance is:

- a. Ignoring resource management
- b. Preserving natural resources
- c. Increasing pollution levels
- d. Overusing water resources

15-What is the primary strategy for protecting aquatic ecosystems?

- a. Ignoring climate change
- b. Developing comprehensive protection plans
- c. Promoting industrial pollution
- d. Overexploiting natural resources

16-Which of the following is NOT a role that humans can play to help maintain ecological balance?

- a. Preserving natural resources
- b. Limiting environmental awareness programs
- c. Promoting sustainable development
- d. Avoiding pollution and overuse of resource

17-Sustainable development contributes to maintaining ecological balance by

- a. Increasing pollution
- b. Responsibly meeting current needs
- c. Ignoring the needs of future generations
- d. Promoting unsustainable agricultural practices

18-Which of the following human activities positively contributes to maintaining ecological balance?

- a. Overfishing marine species
- b. Using clean and sustainable technologies
- c. Increasing fertilizer use in aquatic environments
- d. Overfishing to control fish populations

19-What is the most effective way to rise awareness about ecological balance

- a. Reducing educational programs
- b. Conducting environmental awareness campaigns in schools and through media
- c. Reducing the study of ecosystems in school curricula
- d. Encouraging overuse of natural resources



20-Which of the following is NOT a negative impact of human activities on aquatic ecosystems?

- a. Pollution from pesticides and heavy metals
- b. Sustainable development programs
- c. Overfishing
- d. Destruction of natural habitats, such as coral reefs

21-How can humans contribute effectively to preserving natural resources?

- a. By promoting pollution
- b. By using resources sustainably and avoiding overexploitation
- c. By destroying coral reefs for economic purposes
- d. By reducing environmental awareness initiatives

22-How does energy flow in an aquatic food web?

- a. From producers, such as algae, to consumers, such as herbivorous and predatory fish
- b. Directly from predators to plants
- c. From nitrogen to phosphorus
- d. From deep-sea organisms to surface-dwelling organisms

23-One of the major consequences of not protecting aquatic ecosystems is:

- a. Improved ecological balance
- b. Loss of biodiversity
- c. Improved water quality
- d. Increased species diversity

24-What is the main purpose of maintaining ecological balance in aquatic ecosystems?

- a. To increase the population of all organisms
- b. To ensure the continuous flow of energy through the food web
- c. To increase the production of fish and other seafood
- d. To maintain the dynamic stability of the ecosystem

25-Which of the following human activities can lead to ecological imbalance in aquatic ecosystems?

- a. Pollution
- b. Overfishing
- c. Habitat destruction
- d. All of the above

26-Which of the following is not a strategy humans can use to maintain ecological balance in aquatic ecosystems?

- a. Preserving natural resources
- b. Promoting unsustainable development
- c. Increasing environmental awareness and education
- d. Participating in environmental policy initiatives

Second: Essay Questions

Explain the following:

- 1- The importance of nutrient balance in aquatic environments.
- 2- The negative impact of overfishing on the ecological balance of aquatic environments.
- 3- "In an aquatic ecosystem, the balance between organisms is greatly affected by interactions between elements of the food chain. If a type of predator species becomes extinct due to pollution..."

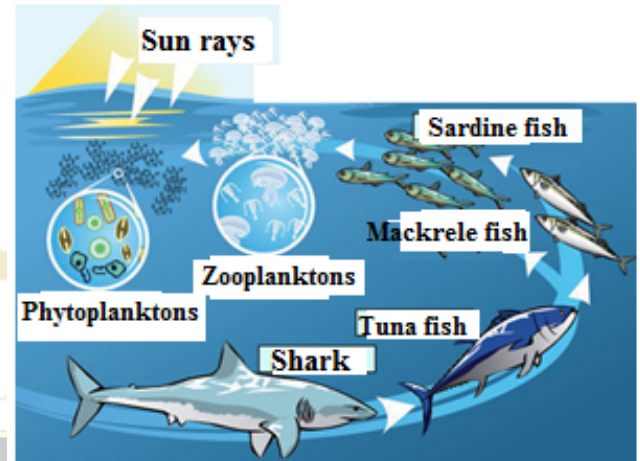
Based on your studies, propose three solutions to compensate the loss of this species while ensuring the long-term sustainability of the aquatic system.

- 4- Natural reserves are among the most important means of maintaining the ecological balance of different environments. For example, there is the Ras Muhammad Natural Reserve in South Sinai.

Explain the role of these nature reserves in maintaining ecological balance.

5. In the opposite figure:

- What do you expect to happen if another predator is introduced in addition to the existing predator in this food chain? - Explain your answer.
- What is the relationship between increased environmental pollution and the ecological balance in this marine food chain?



6. Humans play a dual role in the ecological balance of marine ecosystems. Explain.

7- Explain each of the following:

- a. The importance of nutrient balance in aquatic environments.
- b. The negative impact of overfishing on the ecological balance in aquatic environments.
- c. The role of humans in maintaining ecological balance.