

Name _____

The Nitrogen Cycle's Impact on Aquatic Worlds

Open-Ended Response Answer Key

1. Eutrophication can disrupt aquatic food webs by promoting excessive algae growth, which shades out native plants, reduces oxygen levels, and leads to fish kills. Additionally, the decomposition of dead algae consumes more oxygen, further exacerbating oxygen depletion and harming aquatic organisms such as fish, shellfish, and aquatic insects.
2. Human activities contributing to nitrogen pollution include agricultural fertilization, urban runoff, and wastewater discharge. To mitigate these impacts, solutions may include implementing nutrient management practices on farms, reducing fertilizer use in urban areas, and upgrading wastewater treatment facilities to remove nitrogen before discharge into water bodies.
3. Aquatic macrophytes and wetlands play vital roles in nutrient cycling by absorbing nitrogen and other pollutants from water, stabilizing sediments, and providing habitat for diverse aquatic species. These ecosystems act as natural filters, helping to improve water quality and mitigate the impacts of nutrient pollution.
4. Challenges in implementing nutrient management strategies include balancing the needs of agriculture and urban development with environmental conservation goals, as well as addressing socioeconomic factors that influence land use practices and water quality. However, the benefits of these strategies include improved water quality, enhanced biodiversity, and increased resilience of aquatic ecosystems to environmental stressors.

