Name _____

The Sour Side of the Sea: Understanding Ocean Acidification and Its Impact on Marine Life

Open-Ended Response Answer Key

1. Ocean acidification disrupts the marine food web by affecting the availability of key prey species like plankton and krill. As these smaller organisms struggle to survive in more acidic waters, it has a ripple effect on larger species that rely on them for food. This disruption can lead to changes in predator-prey relationships, population dynamics, and ecosystem health. Ultimately, human societies that depend on the ocean for fisheries and tourism can also be affected by declines in marine resources and ecosystem services.
2. As a marine biologist studying the effects of ocean acidification on a coral reef ecosystem, I would use various research methods, including water quality monitoring, pH measurements, and observation of coral health. I would also conduct experiments to simulate future acidic conditions. Conservation measures may include promoting reef resilience through coral restoration, reducing local stressors (e.g., pollution and overfishing), and advocating for global carbon emission reductions to address the root cause of ocean acidification.
3. Collaborative international efforts to combat ocean acidification involve scientific research to monitor and understand the phenomenon, policymakers working to establish regulations and incentives for emission reduction, and public awareness campaigns to educate and engage the public. By sharing knowledge, implementing policies, and mobilizing society, we can collectively address this global challenge and protect the world's oceans.
4. Combating ocean acidification requires a multi-faceted approach. Reducing carbon emissions through cleaner energy sources and sustainable practices is essential to addressing the root cause. Protecting vulnerable marine species can involve the establishment of marine protected areas and regulations to limit stressors like overfishing. Supporting sustainable practices in fisheries and aquaculture can reduce pressure on marine ecosystems. Public awareness and education are key to fostering a sense of responsibility and encouraging positive behaviors, such as reducing carbon footprints and supporting conservation efforts. Together, these actions contribute to a healthier and more resilient ocean environment.