Navigating Ocean Policies: An Analytical Exploration

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Introduction:

The world's oceans, which cover over 70% of the Earth's surface, play a pivotal role in global ecosystems, climate regulation, and economic activities. While the ocean is not a place that some people think about every day, it plays a vital role in every individual's daily life. The ocean is the largest biosphere on Earth. Coastal counties within the United States are the home to over 128 million people, 40% of the national's population (National Oceanic and Atmospheric Administration). These cities and towns are currently and will continue to suffer at the effects of climate change, whether that be because of developmental destruction or because of aquatic-sourced food depletion. As human impacts on the oceans intensify, the need for comprehensive and effective ocean policies becomes increasingly apparent. This essay examines the complexities of ocean policy, exploring its historical context, current challenges, and the imperative for sustainable management.

History:

The historical evolution of ocean policy unfolds as a rich tapestry, reflecting the dynamic interplay of changing societal needs and challenges over the course of millennia. From the ancient maritime codes of early civilizations to the modern international agreements of today, the trajectory of ocean policy has been intricately woven with threads of economic, political, and environmental considerations.

The United Nations Convention on the Law of the Sea (UNCLOS), which was adopted in 1982, represents a landmark in this evolution. UNCLOS provides a comprehensive framework that delineates nations' rights and responsibilities concerning the use of oceans, defining crucial concepts such as territorial waters, exclusive economic zones (EEZs), and international waters. This agreement seeks to establish a balance between the sovereign rights of nations and the common heritage of mankind in oceanic spaces (Treves, 2008).

The 2015 Paris Climate Accord emerged as a testament to the evolving nature of ocean policy, acknowledging the intricate linkages between oceans and climate change. Addressing the impacts of CO2 and committing to emission reduction pledges, the Paris Climate Accord recognizes the role of oceans as both a source of vulnerability and resilience in the face of global climate challenges (Gattuso et al. 1).

In essence, the historical journey of ocean policy is a continuum that spans centuries, weaving together the wisdom of ancient seafaring civilizations, the legal developments of medieval and Renaissance periods, and the contemporary international agreements that shape the present understanding of sustainable ocean governance. This ongoing evolution reflects humanity's growing awareness of the intricate connections between oceans, societies, and the broader planetary ecosystem.

Current challenges:

A stark reality surfaces as approximately 40% of Americans residing in coastal counties find themselves at heightened risk due to coastal hazards, underscoring the vulnerability of specific populations (National Oceanic and Atmospheric Administration). This demographic faces the immediate and tangible impacts of climate change, emphasizing the urgency of effective policies to mitigate and adapt to these coastal threats. Moreover, the staggering presence of over \$1 trillion worth of infrastructure within 700 feet of the U.S. coastline accentuates the exposure of coastal communities to the far-reaching effects of climate change, presenting a formidable challenge in terms of both economic and human well-being (U.S. Environmental Protection Agency).

The resilience once attributed to marine ecosystems now faces unparalleled challenges, primarily emanating from pollution and climate change. Chemical pollution, stemming from industrial runoff and the pervasive presence of plastic waste, disrupts the delicate balance of marine health (U.S. Department of State). These pollutants infiltrate the oceans, introducing harmful substances that lead to ecological imbalances, endangering marine organisms and compromising the overall health of oceanic ecosystems.

Climate change exacerbates these challenges with the phenomenon of ocean acidification and rising sea temperatures. The absorption of excess carbon dioxide by the oceans contributes to acidification, detrimentally affecting marine organisms reliant on calcium carbonate shells, such as corals and mollusks (Duarte, "Global Change" 2014). Simultaneously, elevated sea temperatures contribute to coral bleaching events, disrupting symbiotic relationships between corals and algae and leading to the widespread degradation of coral reefs. These coral reefs, once vibrant and diverse ecosystems, now face the imminent threat of collapse, jeopardizing the myriad marine species that depend on them for survival. "Calcifying organisms such as coral reefs, shellfish and zooplankton are among the first potential victims. Therefore, ocean acidification will also impact various economic sectors," (Billé et al. 765). As we navigate the evolving landscape of environmental threats, a proactive and adaptive approach to ocean governance is imperative to safeguard the ecological integrity and biodiversity of our oceans for generations to come.

Climate Mitigation and Adaptation Strategies:

Mitigating climate change's impact on oceans requires a global effort to reduce the emission of greenhouse gases, particularly carbon dioxide (CO2). The protection and restoration of coastal vegetation is an important adaption strategy as well. Coastal ecosystems, such as mangroves and seagrasses, act as carbon sinks, absorbing and storing significant amounts of CO2. Protecting and restoring these ecosystems can contribute to mitigating climate change by preserving their capacity to sequester carbon. Overfishing contributes to the disruption of marine ecosystems and affects the carbon balance in the ocean. Implementing sustainable fisheries management practices helps maintain fish populations, ensuring a balanced marine ecosystem that can better withstand the impacts of climate change (Issifu et al. 2117).

There are several different adaption strategies to go along with the climate mitigation concepts that are described previously. These strategies include coral reef restoration, techniques like coral gardening and artificial reef structures can help preserve these vital ecosystems, community-based adaption, engaging local communities in the development of adaptation strategies ensures that solutions are tailored to their specific needs and vulnerabilities, ecosystem-based adaption, which can include restoring wetlands, mangroves, and other habitats that act as buffers against storm surges and sea-level rise, and monitoring and researching the impacts of climate change on marine ecosystems.

Despite the presence of current policies, persistent challenges continue to hinder effective conservation. Implementation gaps, inadequate enforcement, and the intricate interconnection of global ecosystems remain obstacles to achieving successful conservation efforts. Future considerations should prioritize adaptive policies that address emerging threats, engage in public awareness campaigns, and foster enhanced international collaboration to effectively tackle transboundary issues. Policies targeting illegal, unreported, and unregulated (IUU) fishing

involve the establishment and enforcement of monitoring, control, and surveillance measures. Regional fisheries management organizations, including the Western and Central Pacific Fisheries Commission, are actively engaged in regulating fishing activities and promoting sustainable practices (Guerreiro 17).

The International Maritime Organization (IMO) plays a central role in promoting maritime safety and preventing marine pollution (Treves, 5). Through the adoption of conventions and regulations, the IMO sets global standards for ship design, construction, and operation, contributing significantly to the overall security and sustainability of ocean spaces. Regional collaborations, such as the European Union's Operation Atlanta combating piracy off the Horn of Africa, underscore the importance of collective efforts in addressing specific security challenges within a defined geographic area.

Conclusion:

In a rapidly changing maritime landscape, effective ocean policy is not a luxury but a necessity. The intricate balance between economic interests, environmental conservation, and maritime security demands a holistic and collaborative approach. Learning from historical experiences, addressing current challenges, and adapting to emerging issues can pave the way for sustainable ocean policies, safeguarding our shared blue frontier. This analytical exploration emphasizes the importance of understanding historical context in crafting adaptive policies to address the 21st century's complex challenges and highlights the ongoing commitment and innovation necessary for the long-term health of marine ecosystems amid escalating human-induced challenges. Coordinated international efforts remain crucial for the safety and security of ocean spaces, necessitating strengthened legal frameworks, enhanced information sharing, and promotion of sustainable practices.

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