Ocean and Bay Planning Framework

Engagement Analysis

Planning for a Vibrant Blue Economy

Blue Economy is a widely used term referring to the sustainable use of ocean resources to support economic growth while also preserving ocean ecosystem health. For the purposes of this plan, the economic opportunities provided by the Delaware Bay, along with those provided by the ocean, are included in Delaware's blue economy. Delaware's growing blue economy contributors will be addressed in detail, including opportunities to minimize stressors on the natural environment.

1. Recreation and Tourism
    a. **Non-consumptive recreation**
    Non-consumptive recreation, such as wildlife watching, surfing, swimming, and kayaking is highly valued in Delaware, from both an economic and livelihood standpoint, with varying spatial and temporal frequencies. It will be important to identify strategies for responsible recreation to minimize damage to natural resources.
    b. **Tourism**
    Marine-based tourism, including ecotourism, has a large impact on Delaware's economy and workforce.
    c. **Recreational fishing & waterfowl hunting**
    Recreational fishing and waterfowl hunting offer unique opportunities to the livelihood of Delawareans, including offshore areas of productive fishing used by for-hire vessels, private angler fishing activities, and shore-based surf fishing. Recreational fishing and hunting for waterfowl provide significant contributions to Delaware's economy.
2. Maritime
    a. **Marine transportation**
    Marine transportation is highly present in the Planning Area and has significant impacts on Delaware's economy, environment, and public safety.
        i. *Commercial shipping*
        Commercial vessels rely on specific routes within the Planning Area to transport goods such as fruit, vehicles, and steel. It will be important to address the impact of existing and future commercial vessel traffic, based on future port expansions and offshore activities.
        ii. *Port facilities impacts*
        The Delaware River port complex has a positive impact on Delaware's economy. Activities associated with ports may cause stress to the marine environment, including maintenance dredging, vessel traffic, and potential for oil spills.
        iii. *Lightering sites*

There are locations within the Planning Area where lightering is conditionally or unconditionally permitted. Potential impacts include oil spills.

iv. *Anchorage areas*
There are anchorage area locations established within the Planning Area to ensure maritime safety.

v. *Passenger Ferries*
Passenger ferries, such as the Cape May-Lewes Ferry, play an important role in contributing to Delaware's economy, including through the Marine Highway Program.

b. Commercial fishing
The impact and sustainability of commercial fishing on Delaware's coastal economy and marine environment, the impact of other Atlantic Ocean activities on the fishing industry, and spatial and temporal descriptions of the fisheries important to Delawareans, including those intended for human consumption, will be important to examine.

c. Aquaculture
Various aquaculture leases currently exist in the Planning Area and there may be potential for new aquaculture or mariculture in offshore waters.

d. Military activities
Military activity occurs within the Planning Area. Maintaining military access to ocean space for training and operational purposes is of utmost importance.

3. Offshore Energy

a. Offshore wind
There are many challenges and opportunities associated with offshore wind energy development and transmission as a climate change mitigation strategy in Delaware, including siting and spacing and port development. Potential socioeconomic impacts, such as community benefits and tourism impacts, will be important to address, as well as the environmental impacts to bats, birds, marine mammals, fisheries, and physiological processes.

Planning for a Healthy Blue Environment

The marine resources off Delaware's coast are being forced to adapt to increased anthropogenic impacts, warming waters, and acidification. As essential components of Delaware's ecosystem, marine resources in the Atlantic Ocean and Delaware Bay provide ecosystem services such as supporting biodiversity, regulating climate, absorbing carbon dioxide, and providing clean air. Maintaining and preserving the health and resilience of these ecosystem services directly impacts human well-being, from food security to public health. Identifying strategies to strengthen the conservation and sustainability of marine resources and the marine environment is the bedrock of ocean planning.

1. Marine Resource Conservation

a. Habitat

Various habitat features and types (physical, benthic, biological composition, and structure) located in the Planning Area are essential in supporting marine resources such as seagrass, deep sea corals, Atlantic sturgeon, birds, reefs, and shellfish. Strategies and initiatives for protection and restoration are implemented throughout the state. Exploring the benefits of conservation areas and open space will be necessary.

b. Living marine resources

There are many opportunities to improve living marine resource conservation and protection across taxa groups, including minimizing negative interactions, introducing policies to support resource protection, species monitoring, ensuring sustainable fishing practices, and invasive species management.

c. Quality of life

The visual beauty of natural resources and benefits of public access to undisturbed places contribute to a cherished quality of life and source of inspiration to Delawareans.

2. Anthropogenic Impacts

a. Climate change

Impacts of climate change can be seen throughout the Planning Area in the form of warming waters and sea level rise and will continue to impact human activities and marine resources, including species range shifts and resulting impacts from increased severe weather events. Opportunities for marine-based climate change mitigation and adaptation strategies are possible within the Planning Area.

i. Acidification

Coastal and ocean acidification is a concern in the marine environment. As water chemistry changes due to absorption of carbon dioxide and increased nutrient levels, the pH is reduced. Acidification can have impacts on commercially and ecologically important shellfish and the aquaculture industry in Delaware. Strategies to address acidification causing factors will be explored.

b. Oil spills

Risks associated with oil spills can vary by volume and source. There are existing protections and opportunities for policy changes to address spills, and organizations responsible for response.

c. Marine debris

Multiple types of marine debris have been documented in the Planning Area, such as derelict fishing gear, microplastics, and consumer debris, resulting in environmental and human health impacts. Potential and existing opportunities to eliminate or reduce marine debris in the environment will be explored.

d. Water quality

Sources and events that contribute to marine pollution, including stormwater, wastewater, and agricultural runoff, may impact water quality, seafood consumption advisories, and human health.

Planning for a Sustainable Blue Foundation

Delaware's blue economy and environment rely on the support provided by its solid foundation and records of the past. The seabed provides the means necessary to keep our nation running through utility and communication cables, accessible navigation, and the resources to support a resilient coast.

1. Submarine Infrastructure
    a. **Cables and pipelines**
    Various types of cables and pipelines are present within the Planning Area, such as telecommunication cables, energy transmission cables and outfall pipes. Some challenges associated with utility corridor siting in the Planning Area, include existing infrastructure, fishing areas, wildlife and habitat, navigation routes, sand borrow areas, and seafloor composition.
    b. **Archaeological resources**
    Underwater archaeological resources in the Planning Area provide the unique opportunity to learn about past human activity. These resources are vulnerable to threats such as development or site damage.
    c. **Artificial reef development**
    Artificial reefs have an important relationship with other marine resources, provide valuable ecosystem services, and support human activities like diving and fishing in the Planning Area.
2. Marine Minerals
    a. **Mineral resources**
    Geological data is available in nearshore areas of the Planning Area, but more investigation is needed beyond 6-8 miles from shore. Mineral resource demand issues are associated with the locations and availability of suitable sand borrow areas for beach replenishment.
    b. **Dredging and disposal**
    There are various challenges and opportunities associated with navigational channel dredging and disposal in the Planning Area, including open water placement, beneficial use, channel maintenance, and impacts to natural and cultural resources.
    c. **Offshore oil and gas**
    Oil spills can have devastating effects to seabird, fish, and marine animal populations, as well as on elements of Delaware's blue economy. It is important to maintain, and bolster where necessary, the existing protective measures to minimize risk of oil and gas spills or leaks into the marine environment.