

Exploring the Link Between Planning and Coastal Zone Management

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The world's oceans cover more than 70% of the planet's surface, and 97% of Earth's water is ocean water.¹ At first glance, these staggering numbers suggest that the ocean's resources are limitless. However, as the world's population continues to increase, the stress on ocean ecosystems and resources increases as well. To address this strain on coastal resources, policy experts have come up with various strategies and management plans to bring a measure of regulatory certainty over offshore assets and natural features, which generally fall under the term coastal zone management. Some of these coastal zone management policies incorporate land use and spatial planning concepts utilized by land use planners in their daily work.

A History of Coastal Zone Management

The modern foundations for regulating the coastal environment were set in place within the United States by the Coastal Zone Management Act (CZMA) enacted by Congress in 1972.² The passage of the act was prompted, in part, by a 1964 Senate Report, which indicated that the nation's coastal ecosystems had experienced significant environmental deterioration from increased commercial and recreational demand within the coastal zone. Over one-quarter of the country's salt marshes had been destroyed by 1964 due to the environmental pressures exerted by coastal development. Salt marshes are critical habitat for spawning fish and other marine life, so it was vitally important that these areas be maintained.

In response to these mounting environmental challenges, the CZMA established the coastal zone management program. This program allocates funds to the 35 coastal states and territories to address various concerns ranging from enhancing public access to coastal hazard mitigation.³ Funds were also allocated for states to develop and administer their own coastal zone management (CZM) programs.

In much the same way the Standard State Zoning Enabling Act set the foundation for zoning and land use across the country, the coastal zone management program brought planning principles to bear on the marine environment.⁴ The primary duties of the state management programs as set forth by the CZMA included: outlining allowable land and water uses, establishing boundaries for the coastal zone, and developing a systematic planning process to address problems such as beach access and protection, coastal erosion, and energy siting.



Credit: Trish Hartmann

To accomplish these goals, the CZMA set up four different pools of funding that states can use. Those funding pools include:

- core program funding for the CZM program and applied research (Section 306), construction and land acquisition (Section 306A);
- program enhancements (Section 309); and
- technical assistance that supports 309 activities (Section 310).

Between 2012 and 2017 CZM programs helped 1,165 communities across the nation undertake some form of coastal hazard mitigation. States have used the different funding pools to address various critical shoreline needs and have employed the bulk of the funding in addressing coastal hazard mitigation, restoring coastal habitat, and coastal community development. CZM programs also conserved 34,147 acres of coastal habitat between the years 2008 and 2017.

Developing a Special Area Management Plan for Coastal Regions

A federal program by itself though is not sufficient to address the full range of problems that may befall a coastal region. To fully address those issues, a planning framework is needed to outline goals and objectives and to set environmental benchmarks for coastal regions. One of the provisions of the CZMA calls for “plans which provide for increased specificity in protecting significant natural resources, reasonable coastal-dependent economic growth, improved protection of life and property in hazardous areas....and improved predictability in governmental decision making.”⁵ The resulting plans produced in accordance with these directives are known as special area management plans (SAMPs), and they are a critical planning tool. Funding assistance is available through the National Oceanic and Atmospheric Administration (NOAA) of the U.S. Department of Commerce to help eligible coastal states prepare and implement SAMPs.

One noteworthy example of a shoreline area management plan is in the State of Rhode Island. The Rhode Island Coastal Resources Management Council (CRMC), in conjunction with the University of Rhode Island and various state and local agencies, developed a new SAMP for state coastal waters.⁶ The SAMP covers the entire coastal zone of Rhode Island and all 21 of its coastline communities.⁷ Through extensive data analysis and intergovernmental coordination, the Rhode Island Ocean SAMP fosters a comprehensive permitting system for offshore development that ensures that the state’s coastal waters are effectively monitored and supervised to avoid further environmental degradation.

To inform the plan, state officials gathered a number of unique datasets for the purposes of monitoring and regulation. These datasets include mapping indicating

shoreline change, sediment transport analysis, inundation modeling, marsh migration analysis, and economic analysis indicating costs associated with shoreline change. These tools were not only key to building the SAMP, they were also aggregated together and made available to the public through STORMTOOLS, a service available through the Rhode Island CRMC.⁸

One of the unique components of the Rhode Island SAMP is that it brought the concept of zoning to coastal waters. To translate this from theory into practice took time, as various components of Rhode Island’s coastal waters had to be classified according to their different land attributes and noteworthy features. One offshore development priority that was identified during the SAMP process was the siting of offshore wind turbines. To establish a suitable zone for turbines, it was necessary to gather information on wind speeds, water depth, and proximity to protected areas.⁹ Also, to ensure that offshore development did not interfere with Rhode Island fisheries, the Ocean SAMP designated areas of high fishing activity as areas of particular concern and mapped out mobile gear, fixed gear, and recreational fishing areas within the study area. Important cultural assets located offshore, such as shipwreck sites, also were mapped.

With a thorough mapping and land classification system in place, the Rhode Island Ocean SAMP is able to institute an extensive permitting process for offshore development. To ensure that permitting requirements are in keeping with coastal regulations, the Ocean SAMP established a Joint Agency Working Group (JAWG) composed of many state and federal agencies. The JAWG’s role is to determine project-specific requirements to be followed during the construction and operations of a project. Included within these requirements are any monitoring needs to ensure the project does not produce adverse impacts on the site.

Individuals who are developing offshore facilities must submit two types of plans for the facility for federal approval. Once these plans are complete and a project is being developed, the JAWG will make a determination for the different monitoring requirements needed on site.

Comprehensive Planning for Coastal Waters

One of the most valuable tools in the planning profession is the comprehensive plan, “a comprehensive strategy for

growth that preserves valuable land reserves while helping to foster optimum economic viability.”¹⁰ In the State of Alabama, state and local officials are taking the comprehensive planning framework and applying it to the state’s coast.

Alabama’s comprehensive plan was described at a 2015 meeting of state and federal officials as a way to leverage additional funding for Alabama’s coastal region and to synthesize existing data to address future needs along the coast.¹¹ Similar to other comprehensive plans, the Alabama Coastal Comprehensive Plan (CCP) set time frames of 10, 25, and 50 years in order to encompass both short and long-term needs within the region. A large number of meetings, nineteen in total, were conducted in 2015 within the coastal Alabama region to gather public input and help guide the overall vision of the document.¹² In order to encourage participation, giant maps were put on display that people could mark up with sticky notes expressing their concerns about the coastal region.¹³ In addition to participating in meetings, input from the general public was also gathered via a survey, developed by the Mobile Bay National Estuary Program, to identify priority issues.

Another component of the Alabama CCP was synthesizing existing literature and datasets about Alabama’s coastal region into the comprehensive plan framework. Any inventory or plan that touched upon some aspect of the coastal watershed was catalogued and used to inform the development of the plan. Eventually this data was collated into an ArcGIS story map.¹⁴ The story map is a key component of the Alabama CCP as it takes data that has been collated from public meetings and existing plans and displays the information in one, easy to use tool. Key datasets incorporated into the story map include: storm surge scenarios, structure risk under current conditions and two different sea level rise scenarios, an oyster suitability map, and a wetland resource assessment map. Though the story map tool and CCP are not yet finalized, the public input and data gathering produced so far will help coastal communities get a better handle on their existing coastal needs and what needs to be addressed going forward.

Conclusion

Coastal policy and land use policy have a great deal in common. Basic concepts of land use planning, such as zoning

and the comprehensive plan, have been used to address environmental challenges and concerns unique to coastal ecosystems. Coastal zone management is also similar to land use planning in that it delineates study zones or regions of interest by identifying shared geographic characteristics such as terrain and ecosystem attributes. Most important of all, coastal zone management and land use planning underscore that to understand a place, whether it is manmade or natural, one must labor to understand its underlying terrain and distinguishing environmental characteristics. 🦋

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Endnotes

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