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Marine Affairs Capstone course, Prof. Susan Farady, spring 2017

Maine Municipal Harbor Management: Case Studies in Adaptive Resource Management

My senior marine capstone project focused on how to make decisions in natural resource management based on the textbook used in class, using the Cape Elizabeth Harbors Committee's work as a case study. Because Cape Elizabeth's process was still in the early stages by the time my class was over, I also looked at the Town of Brunswick, Maine as my other case study. This document is intended to accompany the Powerpoint presentation I gave at the Committee's April 27, 2017 meeting.

Background

The Town of Cape Elizabeth started off in 1529 as a nameless headland. It wasn't incorporated until 1765. By the 1800s the town started to grow, establishing a larger population. Just 35 years later, there was already a higher demand on the area from a wide range of users. From 1920 to 1950 there was a slow suburbanization which brought many changes. With these changes followed a rapid growth period from 1950 to 1970. The population doubled in just 20 years before tapering off again. Without a solid plan already put in place to accommodate the rapid growth of the area, Cape Elizabeth decided on the need for a Comprehensive Plan in 1987. The Comprehensive Plan was successfully released a year later in 1988. The next plan put in place was the 2005 Coastal Waters and Harbor Ordinance. It was created to establish regulations for the increased marine activities within the harbors, waterways and tidal waters. Two years later, the Comprehensive Plan was produced to preserve the Town of Cape Elizabeth as a highly desirable community through the change. With 30 years passing since the last major review of Cape Elizabeth's coastal waters resources, the 2016 Harbors Committee was created and released the Harbors Committee Charge. Many components of the Comprehensive Plan of 1988 still stand true today, but some don't. With the needs of Cape Elizabeth changing, it's an opportune time to review issues relating to its harbors.

Decision Making in Natural Resource Management: A Structured Adaptive Approach

Throughout my Marine Affairs Capstone class, we discussed marine resource management. We used Michael J. Conroy and James T. Peterson's text, "Decision Making in Natural Resource Management: A Structured, Adaptive Approach (Wiley-Blackwell, 2013)." The text explained how to go about making decisions for natural resources.

The authors discussed the steps that go into good decision making. The first step is the importance of defining the decision problem early on in the process. They advise that one should make the decision problem a concise statement so that it's more efficient. The text included a diagram that connects the decision problem to the resource state and objective. For clarification, resource state is

some measurable conditions of nature (population, abundance etc.) The objective is the specific, quantifiable outcomes that reflect the values of decision makers and stakeholders. They relate directly to the management decisions. According to the diagram, the decisions are thought to influence the resource state in one way or another in order to achieve the objective.

Fundamental and Mean Objectives

Their next step is to then determine the objectives. The text splits the objectives into fundamental objectives and mean objectives. Fundamental objectives are the things that a decision maker truly values and wants to achieve. To separate the fundamental objectives from the mean objectives, the question asked is “why is that important?” Mean objectives on the other hand, are a means to achieving those fundamental objectives. To separate the mean objectives from the fundamental, one asks “how do we accomplish that?”

Stakeholder Involvement

To assist with the decision making process and objectives, the authors discuss the importance of stakeholder involvement. In most scenarios, it’s important to include a wide range of stakeholders. When thinking about who to include, there are many types of stakeholders. Some examples include: consumers, non-governmental organizations, political, natural resource management agencies, etc. When thinking about how to include these multiple stakeholders it’s helpful to consider the governance system. Governance defines the way stakeholders interact in the process. Some examples talked about in the text include autocratic, democratic, and consensus decision making.

Case Study: The Town of Brunswick

Since I won’t be able to see Cape Elizabeth’s process come to an end in December, I looked at Brunswick, Maine as a second case study. The Town of Brunswick has already gone through a similar process with their Harbor Management Plan in 2014. It could be helpful to Cape Elizabeth to learn from the successes and failures of Brunswick’s Harbor Management Plan.

Brunswick is a coastal community, nearly all surrounded by water. Over the years, the town had seen a significant growth in interest and use of Town waters. Because of this, access to the water was a critical issue. As coastal development continued to increase, traditional access points tended to be closed or restricted. This placed additional pressure on existing public access points, and on the users desiring access. This sparked the need for the Harbor Management Plan.

Brunswick’s Plan

The Town issued a Request for Proposals in January 2013 for consultants to work with the Town to develop a Harbor Management Plan. The two consultant groups worked with the Town staff,

stakeholders, citizens and other groups to develop a Harbor Management Plan. The next year, in 2014, the Plan was released.

Project Approach

Brunswick's plan was split into 5 major components.

- **Inventory**
- Mapping
- **Primary goals**
- **Harbor and waterfront objectives**
- Harbor ordinance updates

The most important parts to consider are the inventory process and separation between primary goals and harbor waterfront objectives.

Step 1: Inventory

First step was inventory, which served to identify and document existing conditions and uses of Brunswick's coastal and river waters, and land use near the coastline. To accomplish this, they reviewed numerous existing reports, worked with the Town to complete a GPS survey (Town's moorings, access points, etc.), and gathered the input of stakeholders.

Stakeholder Involvement

Brunswick's plan included the importance of stakeholder involvement in the decision making process. They decided to include stakeholders through 3 public forums and surveys. The public forums allowed for public input, review of the plan and inventory progress. The surveys were handed out at the public forums and put online to gather the opinions of stakeholders. This information was used to determine the primary goals and harbor and waterfront objectives.

Step 2: Primary Goals

Brunswick's plan separated the goals from the objectives. This separation and additional step allowed for clearer objectives. For their plan, the broad goal was improved harbor management. To support the broad goal, they came up with four primary goals:

1. Coordinate Harbor & Waterfront Efforts with Town & Regional Programs
2. Balance Shared Uses of Brunswick's Waterfront

3. Pursue a Sustainable Waterfront

4. Manage, Promote, and Preserve Brunswick's Coastal and River Environment

Step 3: Harbor and Waterfront Objectives

With these goals, they were able to determine and organize their objectives. Since they were working with multiple objectives, they ranked them in terms of priority based on a 10 year projected implementation timeframe. These are the following categories:

- Ongoing
- 1-3 Year (2014-2017)
- 1-5 Year (2014-2019)
- 1-10 Year (2014-2024)

The objectives were then split into categories such as waterfront access, preserve working waterfront, harbor ordinance updates, etc. Within each of these categories, specific goals and recommendations were discussed.

Response to Climate Change

Brunswick included a climate change section at the end of their plan. While there is still much debate over the cause and nature of climate change, the effects are undeniable and must be dealt with.

Coastal communities are more vulnerable to the effects of climate change. They may experience sea level rise and coastal erosion, if they haven't already. It can ruin the infrastructure and coastal properties, and cause more issues for the Town. The Town of Brunswick addressed coastal erosion by suggesting the use of soft approaches that limit the impacts to coastal resources. They also included a plan for sea level rise. They suggested a long term plan that should include sea level rise projections into town planning efforts and update local ordinances and open space priorities appropriately.

Summary

Cape Elizabeth's Harbor Committee could benefit from considering some of the natural resource management concepts I studied as well as some of the experiences of Brunswick, Maine in reviewing their harbor and waterfront management.

Specifically:

1. It is important to clearly define the decision problem and objectives early in the process.

2. It can be helpful to separate fundamental vs. mean objectives
3. Consider using diagrams to illustrate the decision making process.
4. It can be helpful to rank objectives by timeframe as Brunswick did.
5. Stakeholder engagement is important throughout the process, and using different ways to engage stakeholders, such as Brunswick's use of an online survey.
6. The impacts of climate change on a coastal community could be considered, such as Brunswick did.

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