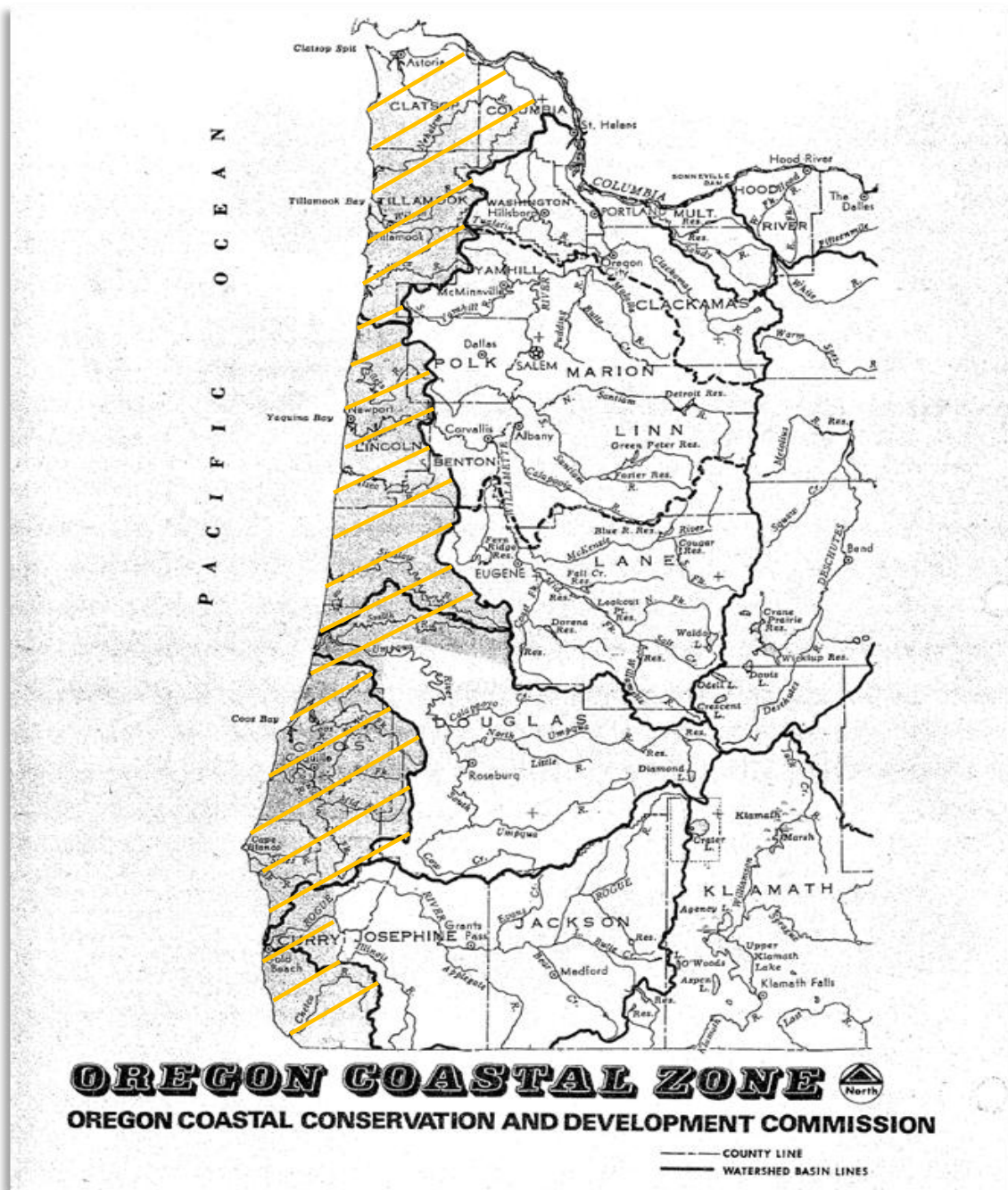


# Approaches to Coastal Management: A case study of territorial sea planning in Oregon



Source: OCCDC 1975

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## 1.0 Introduction

The coastal zone includes coastal lands and also nearshore marine waters (Kay and Alder 1999). The interaction between terrestrial and marine environments is what makes the coastal zone unique. Thus, coastal management addresses various interrelated terrestrial, coastal, and marine issues. Effective coastal management requires practitioners to overcome challenges such as dealing with overlapping jurisdictional boundaries and agency responsibility, and attempting to balance a diverse range of marine and terrestrial activities (Peel and Lloyd 2004).

Coastal and marine spatial planning (CMSP) is a relatively new and evolving ocean policy concept (The Nature Conservancy 2009). Coastal management has typically occurred on a sectoral basis, characterized by ad-hoc planning, inadequate coordination, and reactive in nature (Jay 2010). Advocates assert that CMSP can address these issues by acting as a mechanism to facilitate integrated, ecosystem-based forms of management (Douveire 2010). Supporters also emphasize the importance of CMSP in resolving conflicts among ocean users and coordinating multi-sectoral agencies in the decision making process (Douveire 2010). In theory, CMSP should assist in solving many of the traditional marine management issues.

However, there still remains a lot of ambiguity around the details of coastal and marine spatial planning. As Fanny Douveire points out in her recently published PhD thesis “Coastal and marine spatial planning: concepts, current practice and linkages to other management approaches”, that there is a lack of research that illustrates what CMSP is really about, how it is being applied in practice and how it is linked to other management approaches (Douveire 2010). She also indicates that there has been a lack of academic research to identify the “critical” elements that will ensure that the marine spatial plan can achieve anticipated results.

This research will probe deeper into the gaps identified by Douveire. Through a case study analysis of Oregon’s Coastal Management Program and the Territorial Sea Plan, the research will examine whether CMSP (as a process) and the associated spatial plan (as a guiding document) are being used to address traditional issues and achieve coastal management goals. The research will focus on Oregon’s approach to territorial sea planning and management, and the role of coastal and marine spatial planning within this context. Oregon is one of three states in the U.S. to undertake a comprehensive coastal and marine spatial planning effort. Oregon recently amended its Territorial Sea Plan to include policies, standards, and development requirements for renewable energy projects within state waters. Currently, the Department of Land Conservation and Development is working with stakeholders to add a spatial component to the Territorial Sea Plan. The product of this effort will be a territorial sea planning document that will guide future development of wave energy projects and help to balance the state’s conservation and economic goals. Oregon’s coastal management program was established over thirty-seven years ago. The maturity of this program will allow for a critical review of integrated coastal management and assess how coastal and marine spatial planning is being integrated into the established system.

The following section (Section 2) of this document describes the research methodology. Sections 3,4, and 5 explain the concepts of coastal management, integrated coastal management, and coastal and marine spatial planning. Section 6 focuses on coastal management and territorial sea planning in Oregon, providing an overview of the Oregon Coastal Management Program by highlighting important milestones, periods and events. Subsection 6.4 documents the findings and major themes from state agency representative interviews. Section 7 connects the conceptual background information of integrated coastal management and coastal and marine spatial planning with Oregon’s existing coastal management program. Section 8 summarizes the research findings, and identifies several recommendations and transferable practices.

## 2.0 Research Methods

This research involves an investigation of Oregon's approach to integrated coastal management and coastal and marine spatial planning. It also provides a review of academic literature on these two topic areas, which will ultimately inform a normative analysis of Oregon's approach. The literature review provides background information regarding what integrated coastal management and coastal and marine spatial planning entail and describe the relationship between these two concepts

### 2.1 Research Questions

The research questions were developed to determine how coastal and marine spatial planning is affecting coastal management in Oregon. The questions were selected to provide both a reflective analysis of integration within the management system and a forward-looking assessment of perceived changes.

1. What mechanisms have been established that facilitate integrated coastal management?
2. How is coastal and marine spatial planning being applied and integrated with other management approaches in Oregon?

### 2.2 Data Sources

The first phase of research involved review of Oregon's Territorial Sea Plan and the Ocean Resource Management Plan to identify their scope and purpose in relation to the coastal management program. After these plans were reviewed, state agency representatives were then interviewed. Subjects were asked to share their perspective on integrated coastal management within the state and how coastal and marine spatial planning will be applied within this setting. Interviewees were also asked to discuss the existing adaptive system and clarify how the marine spatial plan is linked to other existing management approaches. An Excel spreadsheet was used to organize the analysis of the Territorial Sea Plan and its various components (policies, standards, institutional arrangements, etc). This strategy was used to document these elements and build a foundation of knowledge that would then be used to guide the interview discussions.

Data was collected from the interviews with state agency representatives. Each interview subject was the head of an agency or department and was directly involved with the development of the coastal and marine spatial planning process or the plan itself. A chain referral system was used to identify additional personnel. Interviews were conducted from January – May 2011. Each subject participated in one (1) 30 minute interview. An interview guide was used to structure the conversations (see Appendix). Overall, the interviews were conversational in nature. Additionally, during the interview a number of follow-up questions were asked that were not included in the survey guide. The nature of the follow-up questions depended on the information shared by the subject. The interviews included four main questions regarding integrated coastal management, existing challenges, perceived benefits of the coastal and marine spatial planning, and existing adaptive frameworks.

All interviews were recorded and then transcribed. Following the interview, the transcript was sent to the interviewee. The interviewee then had the opportunity to correct erroneous information and add additional details. Transcriptions were reviewed for emergent patterns and themes of importance regarding the research topics of interest. This process was completed for seven key informants in Oregon. The information collected from the interviews was used to inform the comparative analysis between research findings and the academic literature.

## 3.0 Coastal Management in the United States

Coastal populations continue to increase as do the scale and intensity of problems within the coastal zone (Salomons et.al. 1999, Douvere 2010). Coastal inhabitants depend on resources, such as coastal ecosystems, fish, and offshore mineral reserves, for subsistence, recreation and economic development (Salomons et.al. 1999). The need for coastal management usually arises in response to problems associated with conflicting uses of resources, coastal access, pollution, and environmental degradation (Kay and Alder 1999). Managers have to continually address issues that arise from competing uses of the same area or with a specific resource. In order to sustain human use of marine and coastal resources, managers must address how best to minimize and mitigate impacts to coastal resources so that they remain viable for human use and consumption (Douvere 2008). This tends to be a very heated issue due to the relative economic importance of coastal zone for industries such as fishing, aquaculture, development, and tourism (Kay and Alder 1999).

### 3.1 The U.S. Coastal Zone Management Act of 1972

With the enactment of the Coastal Zone Management Act (CZMA) in 1972, a new period of coastal management began in the United States. The emergence of the CZMA grew out of the recognition that coastal management had become so complex that the inherent problems could only be solved with a restructuring of the existing management system (Godschalk 1992). CZMA advocates claimed the fundamental issue was the U.S. Government's failure to create an adequate managerial structure. Advocates identified a need to establish a program would grant state coastal authorities increased power and responsibility (Godschalk 1992). The CZMA did just that. With the passing of the CZMA, states began to develop individual coastal zone management plans. Federal grants were used to develop comprehensive management plans (Blizzard and Mangun 2008). These funds were also used by State agencies to work with local governments in implementing the management plans (Blizzard and Mangun 2008).

As a national policy the CZMA required state management programs to define the boundaries of the coastal zone, outline permissible land and water uses within this zone, propose a system of state control over land and water uses, establish guidelines on priority of uses, and propose an organizational structure that would facilitate the implementation of the management program (Godschalk 1992). Critics of the CZMA claim that the act was vague, lacking substance, and failed to provide clear guidance on agency responsibility (Godschalk 1992). Another key issue was that most of the state programs that evolved out of the CZMA focused primarily on the management of shore land-use issues, leaving coastal-water issues largely unaddressed (Cicin-Sain and Knecht 1998).

In addition to the management problem, coastal zone was becoming an "administrative battleground" rife with conflict among agencies and coastal and ocean users (Cicin-Sain and Knecht 1998). Cicin-Sain and Knecht (1998), note two main types of ocean and coastal resource related conflicts:

1. Conflicts among users over the right to use particular coastal and ocean areas;
2. Conflicts among government agencies that administer coastal and ocean related programs.

Ocean and coastal users inevitably compete for space. Issues related to non-compatible uses often lead to conflict (Cicin-Sain and Knecht 1998). For example, during the 1980's there were many conflicts associated with the fishing community and offshore oil development. The fishers were concerned with potential adverse impacts on marine ecosystems, and their livelihood, that would result from oil development and production (Cicin-Sain and Knecht 1998). In regards to agency conflict, coastal and marine ecosystems often extend beyond local government's jurisdiction and include state and federal waters. Agency conflicts arise for a variety of reasons, including overlapping jurisdictional responsibility,

uncoordinated management, and disjointed communication and decision-making (Ehler and Basta 1993). Management of coastal ecosystems often requires the cooperation of multiple levels of government and various agencies within each level of government. In an effort to address the conflicts described above, academics and coastal managers began exploring the concept of “integrated” coastal management (Sorensen 1997).

## 4.0 Integrated Coastal Management

Integrated coastal management (ICM) is an attempt to bring together environmental, social and economic issues that influence the use of coastal and marine resources (Kay and Alder 1999). The goals of ICM are to improve governance within the coastal zone, achieve sustainable development, reduce vulnerability to coastal areas from the impacts of natural hazards, and maintain healthy functioning ecological systems in coastal and marine areas (Cicin-Sain and Knecht 1998). Douvere (2010, 101) describes ICM as, “integrating the land and sea interface through rational planning of activities and better coherence between public and private activities that affect the use of the coastal zone”. Douvere asserts that ICM should work to improve decision-making processes between public authorities at the national, regional and local level by creating a structured mechanism through which stakeholders can interact to discuss common policies and new developments.

McMenna et al. (2008) divide the general principles of ICM into three categories: procedural, strategic, and locally specific. Procedural principles focus on the characteristics of the methods and procedures used to pursue ICM. This may include involving all relevant agencies at different levels of government, or finding mechanisms that work to facilitate coordination between sectoral agencies at the same level of governance. Strategic principles mainly deal with long-term goals and address broad concepts like sustainability, holistic management or ecosystem-based management. Locally specific principles focus on the management of small geographic areas and seek to engage local communities in the process of making management decisions. At the local level, adaptive management and consensus-based decision-making strategies used to operationalize these principles.

### 4.1 Integration

As a process, ICM seeks to overcome traditionally fragmented management by reducing the sectoral approach to management and improving coordination among agencies at all levels of government (Cicin-Sain and Knecht 1998). Many authors discuss the concept of horizontal and vertical integration (Sorensen 1997, Cicin-Sain et al. 1998, Kay et al. 1999, Douvere 2010). Horizontal integration implies that integration occurs among different coastal and marine sectors and land-based sectors (e.g. fisheries, tourism, conservation, agriculture, forestry, mining, etc.) (Cicin-Sain and Knecht 1998). This is achieved by ensuring that all sectors (fishing, oil and gas development, water quality, etc.) and all levels of government are harmonized through a restructuring in the design of institutional processes (Cicin-Sain and Knecht 1998). ICM requires a holistic management system where decision-making bodies at the same level are coordinated as closely as possible. These entities need to be organized in such a way that their jurisdictional boundaries and operational fields of concern do not overlap (Vallega 1999).

Vertical integration requires coordination among all levels of government and stakeholders. These levels include governmental organizations, regional authorities, local authorities, economic associations, and nongovernmental organizations (Vallega 1999). Another aspect of ICM is spatial and science-management integration. Geographically, management must consider both the ocean and land sides of the coastal zone. In regards to science integration, management decisions should be based off of information provided by relevant disciplines (natural sciences, social sciences, engineering, etc.) (Cicin-Sain and Knecht 1998).

Jans Sorensen (1997) identifies several actions that will lead to improved horizontal and vertical integration to: (1) a clear demarcation of responsibilities must be made between (governmental and nongovernmental) to resolve jurisdictional conflicts; (2) increase coordination, communication and resource sharing; and (3) minimize redundant management efforts. Sorensen also discusses the need to have higher levels of government agree to abide by the plans approved and prepared by lower levels of government.

In summary, ICM aims to integrate planning and coordination of management activities associated with the land and sea interface, to build coherence between public and private activities that affect the coastal zone (Douvere 2010). ICM seeks to expand traditional management to be more holistic and comprehensive. This includes horizontal and vertical integration, but also expanding the scope of management to balance conservation and ecosystem preservation with sustainable development (Olsen 2002). An ICM approach must include developing a combination of “adaptive, integrated, environmental, economic, and social management systems” which come together to focus on the coastal zone (Kay and Alder 1999, 57). Coastal management must address many interconnected issues resulting from human use and activity in terrestrial environments and marine environments. The complexity of these issues, coupled with need to manage complex dynamic ecological systems, require management systems that can deal with uncertainty and adapt to changing conditions (Cicin-Sain and Knecht 1998).

## **4.2 Adaptive Management**

Adaptive management can be a useful strategy to cope with the uncertainties and complexities inherent of ecosystem management (Torell 2000). Parma (1998) explains that adaptive management involves managing according to a plan, which guides the decision-making process, and the plan can then be modified based off of observation and evaluation of practice. Torell provides a summary of the three main principles of adaptive management. The first principle refers to the ability of management processes and policies to respond to new information. This includes learning through monitoring and assessments and allowing for information sharing. The second principle involves acknowledging uncertainty and accepting a “learn by doing” approach and experimentation. Lastly, adaptive management involves participatory processes that engage stakeholders in planning and management decisions.

In regards to the key components of an adaptive management plan Parma (1998) identifies three main components. Adaptive management plans include management policies, forming a set of rules that specify actions based off of existing information about a particular system. They also include a monitoring aspect which explains how the system will be monitored in regards to responses from management actions. Lastly, management plans identify the “management system” that will implement the policies. Parma summarizes her opinion, “Adaptive management... forces us to evaluate the effects of past actions as part of the management plan, and implies that management is able to respond effectively in consequence” (Parma 1998, 19).

## **4.3 Barriers to Integrated Coastal Management**

Integrated coastal management remains to be an evolving concept and coastal management programs continue to act in an uncoordinated and disjointed manner (Ehler and Basta 1993, Douvere 2010). In a review of ICM in the European Union, Douvere (2010, 101) points out two main issues: a failure of effective governance and a lack of statutory commitments between programs and agencies. Douvere (2010 & 2008) also discusses other challenges including:

- Unsatisfactory involvement of stakeholders;
- Voluntary participation in ICM programs;
- Effective implementation is stymied because ICM concepts are too vague, broad, and abstract.

Additionally, Douvere and Ehler (2009) claim there continues to be a lack of vertical and horizontal integration among the various management authorities. Management approaches have failed to address spatial and temporal overlap of human activities within the coastal zone. Thus, conflicts among users continue, while human activity also continues to conflict with environmental conservation goals. As a remedy to these issues Douvere (2008) points out that management agencies and affiliated stakeholders lack the necessary tools to operationalize ICM principles, specifically with cross-sectoral integration.



## 5.0 Coastal and Marine Spatial Planning

Traditional coastal management has focused on the land side of the coastal zone, ICM programs that focus specifically on the marine environment are relatively less developed (Cicin-Sain et. al. 1998, Plasman 2008). Douvère (2008) asserts that “there are few frameworks that facilitate comprehensive planning and management of activities occurring along our coasts, and specifically within our oceans”. Douvère and Ehler (2009) further the argument by adding that there is no plan-based approach for ocean management that considers the plans or policies of other uses or sectors within the coastal zone.

Many authors point to urban land-use planning and zoning as a model for future ocean management (Douvère and Ehler 2009, Jay 2010, Plasman 2008, Morrison and Snow-Cotter 2008). Spatial planning is a tool used to regulate land use and development (Ehler 2008). Prior to the emergence of coastal and marine spatial planning, the practice of developing a spatial vision plan for marine areas was rare (Douvère and Ehler 2009). Coastal and marine spatial planning (CMSP) is a proactive approach to facilitate organization of ocean use patterns and interactions between users (Douvère 2010). Jay (2010) refers to the development of CMSP as an extension of comprehensive land-use planning and zoning systems. These two planning strategies share similar qualities. By using a plan-based approach to express spatially explicit human-use zones, potential use-related conflicts are reduced and proactive management can occur.

One of the earliest known examples of CMSP is at the Great Barrier Reef Marine Park, where over 30 years ago, resource managers were using CMSP to guide conservation efforts (Ehler and Douvère 2009). The Great Barrier Reef Marine Park was the first region to develop a comprehensive ocean zoning system that governed ocean uses within a defined planning area (Day 2008). The zoning system featured use-specific zoning strategy that prioritized conservation and allocated certain for recreation and tourism.

CMSP is a practical framework that can help establish a “rational” use of space in marine areas, minimize conflicts between uses, balance development with ecological preservation, and achieve social and economic objectives in a transparent and planned manner (Ehler and Douvère 2009). Ehler and Douvère, define CMSP as, “a public process of analyzing and allocating the spatial and temporal distribution of human activities in marine areas to achieve ecological, economic, and social objectives that are usually specified through a political process.” CMSP can be used as a mechanism to facilitate a plan-based approach and establish an integrated form of ocean management (Douvère and Ehler 2009).

In essence, CMSP can be used to develop a comprehensive plan that establishes ocean use zones and guides management decisions. However, CMSP alone will not create an integrated coastal management system. As a concept, ICM is broader in scope compared to CMSP. CMSP is a process that facilitates integrated management of all current and future uses within the coastal zone. CMSP is one of many strategies that can be applied in the context of ICM.

### 5.1 The Need for Coastal and Marine Spatial Planning

The development and industrialization of coastal areas has continued, and in particular there is intensifying pressure being placed on the ocean side of the coastal zone (Douvère 2010, Jay 2010). The intensification is a result of ongoing population growth, technological development, and growing demand to meet consumer needs such as food and energy (Douvère 2010). Traditional industrial uses of the ocean include fishing maritime transport, sand and mineral extraction, oil and gas exploitation, and tourism. While these activities continue, human uses are also expanding to include aquaculture and renewable energy projects (Jay 2010, Douvère 2010, Ehler and Douvère 2009). Jay (2010) points out that these expanding uses tend to be site-specific, and for renewable energy in particular, require built structures. Thus, with the intensification of sea use there is will be competition for space in marine waters.

Among academics there has been a growing interest in applying CMSP as a mechanism to deal with the increasing human pressures in the marine environment and address current institutional deficiencies (Douvere 2008, Jay 2010, Ehler and Douvere 2009, Ehler 2008). In contrast to comprehensive land use planning, marine management of human uses continues to occur on a single-sector basis (Douvere 2010). Douvere explains, “In most cases, ocean management policies have not been translated into integrated, strategic and comprehensive spatial planning of all activities taking place in marine areas” (2010, 8). Jay (2010) adds there has been insufficient coordination among marine-based human activities, with little discussion about potential environmental and cumulative impacts of multiple activities.

## 5.2 The Benefits of Coastal and Marine Spatial Planning

Ehler (2008) claims that “hard evidence”, regarding the benefits of CMSP, is somewhat limited. CMSP remains to be in an early evolutionary stage and therefore there have been very few evaluations of practical application.

Despite this gap, several authors have discussed the anticipated benefits of CMSP. As noted above, CMSP can be used as a mechanism to facilitate a plan-based approach and establish an integrated form of ocean management (Douvere and Ehler 2009). CMSP can address the shortcomings of existing management by doing the following (Jay 2010):

- provide a strategic framework for planning and management decisions;
- coordinating the needs of different sectors and managing potential conflicts;
- facilitating sustainable exploitation of natural resources;
- allocating space in the marine environment in a rational manner; and
- ensuring consistency between land and marine systems.

Douvere and Ehler claim, CMSP is “meant to enhance the present sector-oriented management with a more comprehensive and coordinated approach to the multiple and increasingly expanding and conflicting uses of the sea (2009, 8). In addition to making management more efficient, CMSP is a planning process that creates a long-term vision in an open and transparent fashion. By establishing a marine spatial plan, coastal managers can provide guidance to decision-makers in various sectors to plan for development according to the long-term vision.

Ehler (2008) discusses three classes of anticipated benefits: ecological, economic, and administrative benefits. Ecologically, CMSP is applied on a regional scale and therefore management is focused on entire ecosystems rather than a site-by-site approach. In addition, conservation areas can be clearly identified and given priority in the planning process. Economically, identification of compatible uses and areas for development will lead to greater certainty for long-term investment decisions. On an administrative level, CMSP can improve the efficiency and transparency of decision-making processes. CMSP also allows managers and decision-makers to assess a multiplicity of objectives in one comprehensive plan. Finally, CMSP will shift the focus of marine management from regulation and control, to planning and implementation.

Douvere (2010) identifies integration and adaptation as two essential characteristics of CMSP. CMSP can function as an integrating mechanism in multiple ways by providing guidance for sectoral-based decisions and coordinating management efforts at the local, state, federal, and international level (Douvere 2010). As an integration tool, CMSP can also help to organize “information on the current uses of the marine environment and key marine features across different sectors so that developers can be aware of potentially conflicting uses in selecting their proposed sites” (Ehler 2008, 841). Smith et. al. (2010) note that CMSP can help improve integration by (1) involving all relevant stakeholders (government agencies, industry sectors, NGOs, etc.); (2) assisting in the technical management and

dispersal of information; (3) informing policies and providing guidance for future development. Ehler states that coastal and marine spatial plans should be integrated with the management plans for adjacent coastal areas, terrestrial land-use plans, and coastal watershed plans. Smith et. al. (2010) supports this claim and adds that CMSP should also integrate the marine and land planning “systems” within the wider context of environmental management (Smith et.al 2010).

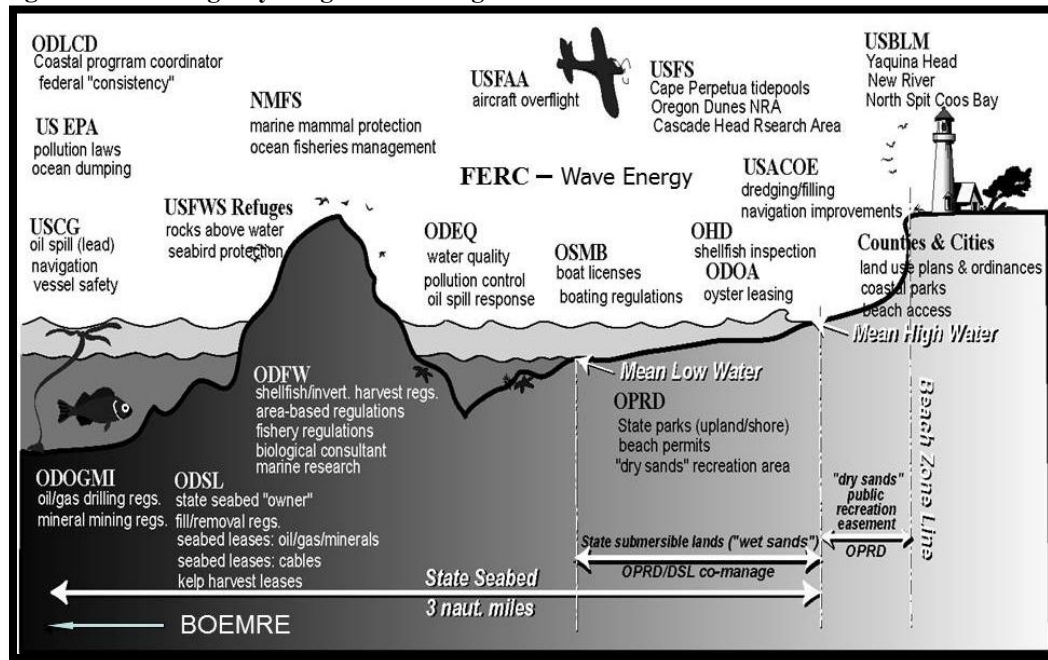
Douvere describes CMSP as a continual process that must include monitoring and evaluation components and be responsive to new information and changes within the marine environment. She recommends determining a specific timeframe for plan revisions so that the plan will remain current and updated. Without an adaptive approach, the spatial plan quickly be outdated and jeopardize the proactive decision-making benefits of CMSP.

In summary, coastal and marine spatial plans should help to integrate coastal management by facilitating integration across relevant sectors, ensuring consistency with adjacent planning areas and “systems”. This includes integrating management efforts of the physical ecosystems, but also through various levels of government, their jurisdictional boundaries, and the relevant plans and policies. Integration should occur both horizontally and vertically.

## 6.0 Case Study: Territorial Sea Planning in Oregon

As established in the 1972 US Coastal Zone Management Act, Oregon's territorial sea extends from the shore outwards to three miles. Oregon's coastal zone management authority applies to the entire area within the territorial sea. The federal government has jurisdiction over the seabed beyond state waters to the limit of the 200-mile Exclusive Economic Zone (Bailey 1997). Figure 6.1 provides a brief description of agency programs and authorities related ocean and coastal resources.

**Figure 6.1 State Agency Programs in Oregon's Territorial Sea**



Source: DLCD, 2011

### 6.1 Introduction

Oregon's first formal coastal management effort began with the creation of the Oregon Coastal Conservation and Development Commission (OCC&DC) and the Oregon Coastal Management Program (OCMP), established by the 1971 legislature. OCC&DC (ORS 191.150) addressed various coastal use issues and was tasked with preparing Oregon's first coastal management plan. Among other things, OCC&DC made a major contribution to Oregon's coastal management program by conducting statewide inventories of coastal resources, compiled critical information, and developed specific management recommendations to improve management within the coastal zone (OCZMA 2004). OCC&DC had a profound impact on coastal land use in Oregon. It was their work that laid the foundation for the coastal goals and policies that would shortly thereafter be integrated with the statewide land-use planning program in 1975 (Bailey 1997).

Oregon's statewide land-use program, and the associated coastal management program, is based on 19 Statewide Planning Goals developed and adopted by the Land Conservation and Development Commission (Bailey 1997). These goals have now become Oregon's standards for comprehensive planning (DLCD 2001). More specifically, the statewide planning goals set requirements on how land use decisions are to be made by local governments and state agencies. City and counties are responsible for preparing and implementing plans that meet the statewide planning goals. State agencies have a statutory responsibility (ORS 197.180) to develop State Agency Coordination Programs (SAC) to make

sure that their land-use related actions do not conflict with the statewide planning goals or local government's land use plans. From the very early stages of land-use planning in Oregon, integrative mechanisms were prominent features of the statewide program.

Four of the statewide planning goals apply to the OCMP: (1) Goal 16 – Estuarine Resources; (2) Goal 17 – Beaches and Dunes; (3) Goal 18 – Coastal Shorelands; and (4) Goal 19 – Ocean Resources. Statewide Planning Goal 19, adopted in 1977 and amended in 2000, is Oregon's primary policy for ocean resource management. Goal 19 expresses two main requirements. As a broad policy statement, Goal 19 "seeks to conserve the long-term values, benefits, and resources of the ocean," while giving "highest priority to management of renewable marine resources over non-renewable ones and emphasizing protection of biodiversity and habitats"(DLCD 2001, 22). In addition, Goal 19 requires that state and federal agencies use "high level" scientific information to analyze the effects of management and policy decisions on ocean resources. Goal 19 also contains several requirements for implementing the goal, including "uses of ocean resources", "management measures", and "contingency plans". Robert Bailey (1997) identifies several weaknesses of Goal 19 in its original form:

'The goal does not make clear (nor is there administrative guidance) how agencies are to actually apply these more detailed requirements to achieve the standard of 'proper management'. Furthermore, the goal does not provide guidance on making management decisions among and between competing uses of renewable resources rather than between renewable and non-renewable resources.'

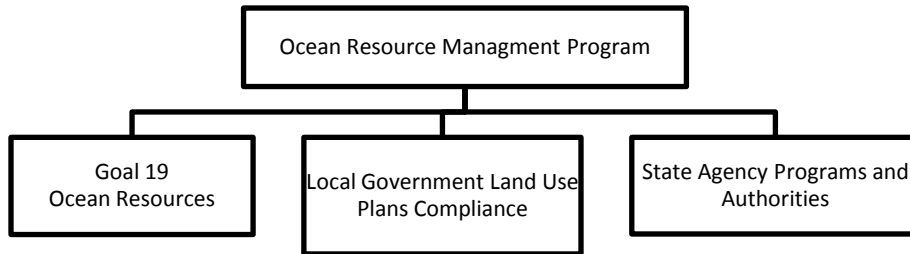
These weaknesses in the planning system really became apparent during the late-70's and early-80's as federal interest in offshore oil and gas development, and mineral mining proceeded to gain increasing attention (Hout 1990). At the time the state was lacking a comprehensive plan to manage ocean resources. These external driving forces provided the motivation to develop an ocean-specific management program.

## **6.2 Oregon Oceans Management Act of 1987**

In an effort to address the "wet side" of coastal management and develop a more detailed management system, the 1987 legislature enacted the Oregon Oceans Management Act (ORS 196.405-515), which ultimately led to the creation of the Oregon Ocean Resource Management Program. The law also designated the Department of Land Conservation and Development as the lead agency for ocean planning. The Ocean Resource Management Program is integrated with the statewide planning goals and builds upon the same management framework utilized by the OCMP (OCMP 2008). Bailey (1997) identified the institutional elements of the Oregon Ocean Resource Management Program that facilitated integration with the land-use planning system and also enabled planning and management of ocean resources. All state and local governments were operating under the umbrella of the statewide land-use program. After the creation of the Ocean Resource Management Plan, all local government plans that affected ocean resources had to comply with policies included in the plan

The legislation also created a Task Force, responsible for assessing Oregon's ocean resources, their uses and management, and developing a plan that established a comprehensive ocean management system (OCMP 1992). The Oregon Oceans Management Act was a legal mechanism used to "link together state agency programs, federal programs, local government interests, and public concerns into a coordinated planning and management program" (Oregon Ocean Resource Management Program 1991, 5). As directed by the legislature, the Oregon Ocean Resources Management Act initiated an ocean planning process. The ultimate goal of the process was to develop a specific planning document, The Oregon Ocean Resource Management Plan.

**Figure 6.2: Institutionalized elements Oregon’s Framework for Integrated Ocean Management**



Source: Bailey 1997

The Oregon Oceans Resource Management Plan (Ocean Plan) was the first of two major planning phases for ocean resources. The Ocean Plan, developed in 1990 and subsequently adopted by DLCD into the OCMP in 2000, addresses management within the 200-mile U.S. Exclusive Economic Zone. It established broad policies and identifies specific recommendation to improve management and protection of Oregon’s ocean resources (OCMP 1992). The Ocean Plan essentially accomplished four major goals (Hout 1990):

1. An analysis of state and federal laws, programs, and regulations affecting ocean resources;
2. A review of present and future uses occurring within the planning area, and the state’s management of these uses;
3. Compiled relevant maps and studies to inform planning efforts;
4. Provided key recommendations to improve state agency programs for managing ocean resources.

In comparison to Goal 19, the Ocean Plan included relatively clear policy directions. The ocean plan established Oregon’s “Ocean Stewardship Area” which began at the shoreline and extended out to the continental slope. Spanning both state and federal waters, the Ocean Stewardship Area is not a jurisdictional boundary. Rather, it defines the area that is of direct economic and ecological importance to the state (Bailey 1997). Ocean uses and activities within the Ocean Stewardship Area would inherently affect state interests such as habitat protection, marine birds and mammals, ocean fisheries, marine transportation, and recreation (Hout 1990). From Oregon’s perspective, the state shared management responsibilities and interests with federal resource management agencies. With the establishment of the Ocean Stewardship Area, the state expressed the interest in seeking a co-management arrangement with the federal government to ensure that ocean resources were managed in accordance with the policies of the Ocean Plan (Hout 1990). This action was also a clear indicator that the state was supportive of developing an ecosystem-based approach to ocean resource management.

**Figure 6.3: Oregon's Ocean Stewardship Area**



Source: OCMP 2008

### 6.3 Territorial Sea Planning

One of the principal outcomes of Ocean Plan was the establishment of a permanent ocean policy advisory council (Bailey 1997). The Ocean Policy Advisory Council (OPAC), created by the 1991 legislature OPAC functions as a permanent mechanism to coordinate an interagency and multi-organizational

approach to ocean planning, policy development, and management (Hout 1990). OPAC was originally tasked with the dual mission of preparing a territorial sea plan for Oregon and to coordinate management of ocean resources within the planning area. OPAC is comprised of representatives from various state and federal agencies, ocean user groups, local coastal governments, and citizen representatives (Hout 1990). OPAC acts as the main marine policy advisory council to the Governor's office.

OPAC completed the management plan for the territorial sea in 1994. The Territorial Sea Plan (TSP) outlines a management framework for state waters, and also addresses the protection of Oregon's rocky shores (Hershman 1996). The plan contains detailed requirements for state and federal agencies for "analyzing the effect of their activities" on ocean resources and establishes a "coast-wide strategy for protection of Oregon's vulnerable rocky shore areas" (DLCD 2001, 22). The initial plan contained three parts (Bailey 1997):

1. A description of relevant state and federal ocean laws, coastal policies, and programs, and previous management plans associated with state ocean resources.
2. Requirements and procedures for completing resource inventories and evaluating the effects of ocean-related projects and uses. This section includes a discussion of Joint Review Panels as a mechanism to further coordinate complex decisions and outlines the process for consulting with local governments.
3. A detailed rocky shores management strategy. This section states goals and policies, describes habitat classifications (Marine Garden, Research Reserve, Habitat Refuge, and Marine Shore), designates sites into these categories, and provides site-specific recommendation

The TSP was amended in 2000 to address submarine telecommunication cables on the seafloor, and in 2001 to add a chapter that describes Oregon's overall management goals and policies (DLCD 2001). Most recently, Oregon initiated a two-phased TSP amendment process to address renewable energy development within the territorial sea. Phase one, completed November 2009, created Chapter five "Uses of the Territorial Sea for the Development of Renewable Energy Facilities or Other Related Structures, Equipment or Facilities". Chapter five of the TSP includes various policies, implementation and evaluation standards, coordination process, and development requirements for renewable energy projects. Phase two, expected to be completed in 2011, will result in the creation of spatially explicit information that will be used to direct renewable energy development into specific areas, with the intention to minimize impact to biological resources, geologic structures, and existing human uses of marine resources (commercial and recreational fishing, recreation, etc.) (DLCD 2011). With this most recent amendment, the TSP is transitioning from a policy document to a more functional management document that will include a spatially explicit zoning plan, along with maps that identify designated uses (DLCD 2011). Table 6.0, on the following page, summarizes the various components of the TSP.

**Table 6.0 Territorial Sea Plan Summary**

<b>Title</b>	<b>Summary</b>	<b>Powers and Responsibilities</b>
Part 1: Ocean Management Framework	Description of ocean planning history, relevant state ocean laws, coastal policies and programs, as well as applicable federal laws and programs affecting the State's ocean resources	Identifies hierarchy of legal authorities (laws and plans), and describes various ocean management responsibilities for state agencies
Part Two: Making Resource Use Decisions	Detailed requirements and procedures for completing resource inventories and evaluating the effects of ocean-related projects, establishes Joint Review panels as a mechanism for complex decision making, includes policies that direct local government consultation on major ocean development projects	Describes the general process for making decisions in the territorial sea, also describes mandatory compliance of state agency activities with local government's comprehensive plans
Part Three: Rocky Shores Management Strategy	Outlines the habitat specific rocky shores management strategy, establishes rocky shore categories (Marine Garden, Research Reserve, Habitat Refuge, and Marine Shore), and designates sites into these categories	Includes goals and policies intended to direct site-specific management of rocky shore areas, all local, state, and federal activities must be consistent with the listed policies
Part Four: Uses of the Sea Floor	Addresses telecommunication cables, pipelines, "and other utilities" that transmit electricity, identifies implementation requirements	Policies directed at preserving important fisheries and habitats, requires coordination and communication among applicants and fishers
Part Five: Use of the Territorial Sea for the Development of Renewable Energy Facilities	Describes how ocean renewable energy projects will be managed and regulated; eventually, this section will include spatially explicit maps that identify high priority areas for siting projects	Includes policies, review and evaluation standards, a description of the coordination process, and operational plan requirements for ocean renewable energy projects



## 6.4 Analysis of Territorial Sea Planning in Oregon

State agency representatives were interviewed to gain insight to the existing nature of integrated management in Oregon, identify how CMSP is being applied, and the benefits of its application. Interviews were conducted with seven different individuals, representing five different agencies.

The interviews covered two main themes: 1) integrated coastal management (existing examples and challenges; and 2) the perceived benefits of coastal and marine spatial planning. In this section, I will provide a comprehensive summary of the information gathered through the interviews. The following section will compare these findings to relevant discussions in the literature.

### Integrated Foundations

In Oregon, ICM began in the early 1970's with the work of OCC&DC and their watershed approach to coastal resource management. OCC&DC's work influenced the development of the four coastal-related Statewide Planning Goals (16-19). As one subject told me, "Oregon [had] a very integrated coastal management program to begin with. The work of the old OCC&DC really set the stage for a lot of this, even at that point there was a clear recognition of the watershed, the mountains to the sea aspect of coastal management." ICM really gained a footing with the formal adoption of the statewide planning land use program in 1973. However, at that time a comprehensive approach towards ocean management was largely undefined. One subject explained, "Goal 19 was written and adopted to try and substitute for some sort of plan." The scope and language of Statewide Planning Goal 19 was inherently too vague to provide clear management guidance. Despite Goal 19's lack of specificity, integration of management efforts occurred through the natural tendency for agencies to work together. A subject explains, "We always worked together and communicated. I think part of it is because Oregon, at least population wise, is a relatively small state and there were just a limited number of people working on [coastal] issues....so the personal knowledge of each other helped a lot with informal communication." Another subject referred to this as the natural "culture of the agencies". All interview subjects confirmed informal communication continues and serves as an important inter-agency integration mechanism.

The OCC&DC model was so successful that it led to the creation of the Land Conservation and Development Commission in 1975 (ORS 197.030). LCDC was in charge of adopting state land-use goals and implements rules, assuring local plan compliance with the goals, coordinating state and local planning, and managing the coastal zone program (with assistance from DLCD). This evolution of land use planning gave birth to an important organization called the Oregon Coastal Zone Management Association (OCZMA). A state agency interviewee noted that after the collapse of OCC&DC, "OCZMA became a residue of the former OCC&DC." OCZMA was established in 1976 as a nonprofit group and a legal extension of local government under Oregon law (ORS 190). OCZMA works to "provide intellectual think tank capacity and as an advocacy group that represents local government interests including ports, cities, counties, soil and water conservation districts, and one of the tribes (the Coquille Tribe) on the Oregon coast. OCZMA was identified as an important integration mechanism linking local government interests with state and federal management discussions.

After the state legislature passed the Oregon Ocean Resource Management Act in 1987, a formal framework for integrated management started to take form. The TSP (1994) established statewide policies for management and development within state waters, including "clear policies" that directed protection natural resources and protection of existing uses such as fishing and recreation. Specifically, the TSP identified relevant state authorities and their role in ocean management of the territorial sea. Several agency representatives noted that this was particularly useful because it had never been done before. There are also statutory requirements for interagency coordination (ORS 196.485), through the

creation of state agency review panels known as Joint Agency Review Panels (JARP). JARPs, one interviewee explained, “were an attempt to formalize what was an informal relationship between state agencies, together with local governments and federal agencies to deal with project or management issues.” The TSP documented these important policies, but it also mandated that an integrative process for analyzing and review proposed new uses within the territorial sea. Another state representative summarized the integrated nature of the TSP in this way, “It [the TSP] created a framework for all of the relevant agencies, stakeholders, and interested parties to come together within a policy framework and a procedural framework that seeks to integrate virtually every interest in ocean management and stewardship for the state of Oregon.”

### Coastal and Marine Spatial Planning

Interviewees noted that the preexisting chapters of the TSP were not specific enough to adequately deal with renewable energy projects. With the increased interest in renewable energy development there was a clear need for spatially explicit information to identify appropriate areas for the siting of wave energy facilities off the coast of Oregon. Part 5 of the TSP addresses this need. Part 5 is being developed in two phases. The first phase, completed in November 2009, established policies, review standards, and operational plan requirements for developers of renewable energy projects. It also identifies a specific coordination process for state agency review of these projects. An interviewee explained, Part 5 “lines out for the developer and for the agencies, what kinds of studies have to be done and how agencies will work together in reviewing an application...and what the implementation or programmatic plan requirements there are for that development.” Phase II, currently underway, will create the spatial component of the coastal and marine spatial planning process. The products of this phase will be various maps that identify specific use zones within the territorial sea. Once the update is complete, state agencies will use the TSP as a “regulatory filter”, by only allowing renewable energy development in areas prescribed by the TSP maps.

When asked to discuss how CMSP will affect ocean management in Oregon, interviewees gave a range of answers all focused on positive outcomes of the process. In terms of stakeholder engagement, a state agency administrator noted:

‘It [the CMSP process] certainly helped bring the issues forward for a general public discussion...to get it out there in a public discussion and say what do you want the state to do about this, and have it be a process that pulls together a lot of opinions and diverse views...it’s a better organized, more consistent application of how we coordinate and do our work.’

The coastal and marine spatial planning process was also noted as an important stimulus for gathering high quality, comprehensive and updated data. In Oregon, CMSP has assisted in integrating an “enormous amount of information about the offshore ecosystem that never would have happened otherwise.” In this way, CMSP has benefited planning and management, but also science and conservation.

**Table 6.1 Data Integration Resulting from Coastal and marine spatial planning**

Project	Organizations
Fishing Effort Mapping	Ecotrust, DLCD, Packard Foundation, Oregon Wave Energy Trust
Marine Ecosystem Maps	DLCD, ODFW, The Nature Conservancy
Seafloor Mapping	DSL, NOAA, Oregon State University
Recreational Use Survey	Surfrider Foundation, Ecotrust
Existing Beneficial Uses	DLCD

Source: DLCD, 2011

Another interviewee expressed that CMSP will help improve decision-making by giving everyone a “common framework” for making management decisions about ocean energy development. This framework includes the policies, requirements, and standards that will guide the review and analysis process for any renewable energy project. All relevant parties will be working from the same information and this will be true for the developers and the agencies. As described by an interviewee, “It [Part 5] lines out, for the developer and for the agencies, what kinds of studies have to be done and how agencies will work together in reviewing an application for a lease or a permit or any sort of authorization for renewable energy development, and what the implementation or programmatic plan requirements there are for that development.

In terms of integration, a state agency representative summarized the ongoing effort this way, “it’s the spatial component that I think is going to draw everyone’s attention and make it easier to integrate the program interests, the regulatory interests, the aspirations of not just state and federal agencies, but stakeholders as well.” In addition to the integration aspect, several subjects mentioned that the spatial component of the TSP should assist in making management decisions more efficient and assist in operationalizing the policies of the TSP. A state agency representative stated, “I look at the spatial planning as a means to execute the TSP, just another bit of good information that we can use when deciding what uses are appropriate in the territorial sea...”.

### **Territorial Sea Planning Cycle**

Oregon’s territorial sea planning cycle has been characterized as being driven by real world events and occurs on an “as needed basis”. I asked subjects to share their thoughts about how this system is working. In regards to the TSP, I was curious to know why a defined period for plan review and evaluation was not being implemented (e.g. every five years). One subject commented, “It’s a hard choice to make whether you do a strict schedule or as needed. Either way, you have the potential to be behind the curve. As needed, at least on the surface, sounds like it could be more responsive than a strict schedule, but still lags behind often.” Other subjects characterized a strict five-year review process as “arbitrary” and “a waste of time” if not much has occurred within the five-year period. One subject characterized Oregon’s system this way, “Our approach for ocean planning to begin with was really driven by specific needs to solve specific problems. The framework was developed in the early 90’s really coming out of the need to get ahead of potential of oil and gas and marine mineral development on the Oregon Coast...I think as time went on, we just kind of went from one issue to the other within the framework that had been developed.” Most of the interviewees agreed that this system continues to work for Oregon. However, one subject concluded, there is “no direction from the legislature or internal to ourselves, about revisiting or revising the plan. That’s probably not a bad idea, to step back and review it.... But it’s probably a shortcoming of the program we’ve got.”

Part 5 of the TSP does feature specific adaptive mechanisms that will assist in responding to the impacts and needs of ocean energy development projects. A subject explained, “We’ve built in the adaptive management requirements so that even though we don’t understand what the impacts might be, we’ve given ourselves the ability to collect information and address those unknowns as we gather that data about the impacts of a particular development.” All renewable energy projects will be required to submit an adaptive management plan in addition to a monitoring that will investigate resulting impacts on natural resources. The adaptive management plan must be responsive to the findings of the monitoring program. If performance standards are not met, adaptation measures must be applied to bring the project into compliance. The adaptive plan must explain how and what adaptive measures will be applied to the operation and management of the project.

## Management Challenges

The challenges identified by the state agency representatives reflect the realities of many planning and management effort. Subjects identified three main issues: 1) stakeholder burnout; 2) limited resources and funding; and 3) dealing with incomplete information and uncertainty.

Participants noted that the need for stakeholder engagement has historically “come in waves”, but over the last five years with a marine reserve process and the current CMSP effort, the request for stakeholder participation has been “intense”. One subject explained, “Because we are asking people to go to meetings and keep up with these things above and beyond their normal life.... it’s really getting tough for a working member of the public that has a family, a job, and everything else independent of that....to try to keep up with these things.” Another subject noted the difficulty involved with sustaining engagement-heavy processes, describing them as “labor intensive”. He explained, “In Oregon, we involve a lot of stakeholders in our decision making process and that is not an easy thing to do, and to keep people engaged and to keep people focused over a long period of time, and participating in making decisions that are complex, it’s not easy even if you’re a paid professional, but if you’re a volunteer it’s very demanding.”

The CMSP effort is equally demanding on state agencies. Due to the current economic climate, state agencies are force to work with limited resources such as personnel and funding. Over a period of 38 months, the TSP amendment process has cost the state approximately \$1.75 million (Bailey, 2011). In comparison to Massachusetts, which completed a similar coastal and marine spatial planning process in 2009, Oregon has received substantially less funding. Massachusetts completed their spatial plan over a course of 18 months and spent approximately \$4.1 million (Moura, 2011).<sup>1</sup>

The allocated funds for Oregon’s current effort have been nearly consumed. A state agency representative explained, “Right now Oregon is a tremendous success story, but we are really lacking the assets to make sure in this next year we can pull together this plan. We’re all scrambling, coming down the homestretch, and we’re looking at our gas gauge and wondering if we have enough gas in the tank to really finish this up.” Resource limitations were identified as the key factor that will most likely prevent other states from initiating a coastal and marine spatial planning process that models Oregon’s approach.

Several representatives identified the challenges of limited data and having to make decisions in spite of the existence of global uncertainties such as climate change and economic trends. One subject stated, “We’ll never have complete baseline data for everything we would want or need to know about the territorial sea. It’s just not possible that we will ever know everything....we will always have some degree of incomplete information about the resources we want to know about that would allow us to fully understand the implications of any activity.” Considering this reality, subjects indicated a strong need for a functioning adaptive management system. It addition, several interviewees discussed the challenge of having to plan for the future, without really knowing what the environmental, economic, political, and social conditions will be in ten or twenty years from now.

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<sup>1</sup> The funding information provided for both states are rough approximations that include federal, state, and independent funding sources.

## 7.0 Discussion

In Oregon, OCCDC influenced the formation of the statewide land-use planning system. The modern form of the coastal management program has evolved out of that very same land-use system of which it originally gave birth. Oregon's approach to ocean planning also draws elements from the land-use planning system. As an interviewee explained, "This is basically the same planning process. It's bringing all the parties together, it's trying to understand the physical, economic, biologic framework you're dealing with and then make some decisions about your policies, your objectives, and pull people together to make a conscious decision ....So to me this ocean planning stuff is really a very manageable extension of what we've been doing in Oregon for 35 years." From coastal planning to coastal and marine spatial planning, Oregon's approach embodies many of the ICM qualities and characteristics discussed in the literature. This fact has helped Oregon to become a "success story" and overcome the common barriers that often prevent integrated management.

This section will review the concepts related to integrated coastal management and coastal and marine spatial planning. I will then highlight how Oregon's approach to planning and management intersects with these concepts.

### 7.1 Integration

McMenna et al. (2008) describe a set of principles being used to guide the implementation of ICM in Europe. These principles are being used as standard in which to judge the progress of ICM. The authors organize the principles into three main categories including procedural, strategic, and locally-based principles. Procedural principles focus on the characteristics of the methods and procedures used to pursue ICM. This may include involving all relevant agencies at different levels of government, or finding mechanisms that work to facilitate coordination between sectoral agencies at the same level of governance. Strategic principles mainly deal with long-term goals and address broad concepts like sustainability, holistic management or ecosystem-based management. Locally specific principles focus on the management of small geographic areas and seek to engage local communities in the process of making management decisions. Locally specific imply the need for adaptive management and consensus-based decision-making.

**Table 7.1 Integration within Oregon's Coastal Management Program**

Integration Themes	Summary
Strategic	Statutory requirements of consistency with Oregon's Statewide Planning Goals
Vertical	Federal agency consistency requirements; Oregon Coastal Zone Management Association working with local, state, and federal agencies; Local comprehensive plan consistency requirements.
Horizontal	Statutory requirements; State Agency Coordination Program; participation on specialized task forces; strong interagency communication

In regards to these principles, there are aspects of all three categories embedded within Oregon's approach to coastal management. This occurs both horizontally and vertically, and through statutory requirements within Oregon's management system. Under the statewide land-use program, state agency coordination is required by law. The State Agency Coordination (SAC) program applies to all state agencies that have some sort of authority which in some way affect land use (ORS 197). SAC requires that all state agency actions and programs are consistent with the Statewide Planning Goals, one of which in Goal 19 (ocean resources). This is also a strategy to operationalize the broad statements and priorities

expressed within Goal 19. The TSP requires other formal coordination mechanisms such as JARP (Part 2) and JART (Part 5). In addition, state agency programs must conform to the requirements listed in the TSP (ORS 196).

In regards to vertical integration, one interviewee stated, “we extended our tentacles down to the grassroots level” in regards to involving all relevant parties and interests. In regards to local principles, OCZMA was identified as a successful integration mechanism helping to coordinate local engagement in state planning efforts. OCZMA plays an important role, as an advocacy group, in represent local perspectives in state and federal discussions. Relevant sectoral representatives have also been involved through extensive public engagement processes and through participation on formal committees such as OPAC. While complete integration with federal programs has at times been challenging, most interviewees noted that federal agencies are participating in various state-related management efforts. One subject noted, “We’ve always had federal agencies involved in our planning efforts and working with us and along with other state agencies...there’s a federal liaison who sits on OPAC”. The state-federal relation was “established a long time ago”. Federal agencies played an important role in the participating and providing funding for the development of the TSP (Hout 1990, Bailey 1997). In addition, the West Coast Governor’s Agreement on Ocean Health (WCGA) was identified as a recent initiative working to improve coordination and integration between state and federal agencies.<sup>2</sup> As per the Coastal Zone Management Act of 1972, all federal activity within state waters must be consistent with state planning documents such as the TSP. Thus, federal agencies are required to abide by Oregon’s federally approved coastal management program. The

Procedurally, it is clear that Oregon has involve all relevant state agencies into planning and management of its coastal zone, both land and sea. Horizontal integration has been achieved through formal mechanisms such as statutory coordination requirements and participation in review committees, but also through informal mechanisms such as interagency communication and interactions. The TSP was identified as the fundamental planning document that originally outlined state agency responsibilities and authority within the territorial sea. This was a strong integrative action.

Coastal management in Oregon is described as a networked program because of the strong link between the management efforts on land and in the sea. The statewide planning system includes both of these geographic areas. The Statewide Land Use Program addresses terrestrial management issues while the Ocean Resource Management Program address marine oriented issues. In this way Oregon has operationalized an ecosystem-based approach to coastal management.

## **7.2 Coastal and Marine Spatial Planning**

The coastal and marine spatial planning effort in Oregon is embedded within the networked coastal management program. The ocean and coastal management programs are an integrated component of the statewide land-use planning system. Part 5 of the TSP addresses the priorities expressed in the Statewide Planning Goal 19 (ocean resources). As a component of the TSP, the same statutory requirements for state agency coordination, local government compliance, and federal agency consistency apply. I believe the recent changes to the system are in fact a “logical extension” of what has been occurring in land use and coastal planning for the past several decades. In some senses, OCCDC’s original vision of creating a system that establishes a holistic management perspective, acknowledging inherent connections between

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<sup>2</sup> The West Coast Governors’ Agreement on Ocean Health is a proactive, regional collaboration to protect and manage ocean and coastal resources along the entire West Coast. In September 2006, the Governors of Oregon, Washington and California signed the West Coast Governors’ Agreement on Ocean Health. Under this agreement, the three states, by working together and consulting with federal agency leads and stakeholders, developed a bold set of actions to improve the health of our ocean and coastal resources.

land and sea, has been achieved. Through an adaptive approach, the program has addressed new issues by adding additional details and specificity into the management system.

From the information I received, it is evident that CMSP is being applied to cope with the surge of interest for renewable wave energy projects in Oregon’s territorial sea. CMSP is being used as a planning and management tool to identify areas suitable for this emerging use of the sea. Part 5 of the TSP will ultimately be used to increase the efficiency of related decision-making processes and also give the developers some degree of certainty in regards to pursuing advancements of pilot projects. Oregon is admittedly taking a “cautionary approach” in allowing development of renewable energy projects. As one subject claimed, “renewable energy is, in this particular instance, a type of industry and a need that we have identified as a state, and as a nation, that we want to develop. So we have to give ourselves an opportunity and give the developers an opportunity to see if it will work. So we’ve built into the process mechanisms for developing pilot projects and phasing in projects and things like that, so that we can work through those unknowns.”

**Table 7.2 Benefits of Coastal and marine spatial planning in Oregon**

Theme	Summary
Management	CMSP is management framework through which specific policies and development requirements can be organized to guide renewable energy projects and protect important resources; used to address site specific issues and projects.
Process	Bring together diverse groups and interests to build consensus and develop a vision for Oregon's territorial sea.
Information	Will bring tangible information (maps, policies) into management discussions; gather integrated spatial data about offshore ecosystems; increase understanding of important ecosystems and resources.

In regards to the application of CMSP, interviewees identified the following major themes:

- A strategy to improve management within the territorial sea;
- A process to bring diverse stakeholders together;
- A mechanism to organize and gather detailed integrated information about offshore ecosystems and resources.

As a management framework, CMSP is being used to develop common and specific information to guide sector and agency decisions. Part 5 of the TSP is the physical document that all sectors and agencies can refer to find detailed maps, policies, standards, and other development requirements. The detailed information will enable all parties to focus on site specific issues. This information will facilitate rational decision making and be used to guide development in a planned way.

As a process, CMSP has been applied as a mechanism to facilitate stakeholder discussions, build consensus, and establish a long-term vision for the territorial sea. The process of mapping existing uses is integrative in the sense that it has involved numerous stakeholders including state and federal agencies, and various interest groups representing conservation, recreation, wave energy, and fishing. The process will also produce integrated information that describes existing ecological and socio-cultural conditions within the planning area.

### 7.3 The Challenge of Territorial Sea Planning and Management

An integrative approach to ocean management should be based on a broad understanding of the marine environment, ecological systems, and human-use patterns. Oregon is currently working through the process to produce the most current and spatially-explicit information to guide management decisions. However, because there are so many ambiguities involved (dynamic

ecological systems, shifting climatic conditions, rapidly evolving technology, etc.) it will be essential that the TSP be responsive to new information and observations as the management system for renewable energy is applied in the field. Although responding to ocean issues and updating the TSP on an as needed basis has worked in the past, this new era of ocean planning and management merits continuous review and evaluation

The inclusion of new information, reviewing the standards and policies, and updating the management framework will likely involve additional public input and stakeholder engagement. Funding and stakeholder burnout were identified as major challenge for the current TSP amendment process and coastal and marine spatial planning effort. The need to work with stakeholders in evaluating and updating the plan will continue to place pressure in these areas.



## 8.0 Conclusion

The research conducted within this study concludes that Oregon has taken an integrated approach to coastal management. The statewide land-use program provides the overarching framework that requires interagency and inter-sectoral coordination and participation. Oregon's reliance on stakeholder engagement, through advisory task forces and participation within planning processes, is a key example of strong vertical integration within the management system. As described in the interviews, inter-agency communication and coordination is not an issue. It is common practice for state agencies to communicate through formal and informal pathways. In regards to science integration, the current CMSP process has acted as a catalyst in the state's effort to collect comprehensive data about coastal ecosystems and resources, and also relevant social and economic information. The TSP eliminated any ambiguities regarding jurisdictional responsibilities and overlap by clearly identifying responsible agencies and their respective authority within the coastal zone. Adaptive management is an active component of the coastal management program. In regards to the TSP, the lack of a formal review timeline has not impeded the efficacy of the program. Amending the plan on an as needed basis has worked for Oregon's Coastal Management Program. With the addition of the spatial component to the TSP, I believe that the State will need to review the plan (specifically Part 5) more frequently than it has in the past.

This research provides insight to how Oregon has chosen to use and apply CMSP within the context of ocean resource management. The State has continued the trend to involve numerous stakeholders in the process, thereby reducing potential conflicts among users. CMSP is being used to develop a plan-based approach to management. State agency representatives agreed that this action should increase the efficiency of management decisions and increase the degree of certainty for speculating developers of wave energy projects. As a component of the TSP, the spatial delineation of use zones must prioritize elements identified in Goal 19 such as protecting marine habitats and fishery areas. Time will tell, but it appears as if CMSP will help Oregon maintain its conservation goals while allowing new uses to occur within the territorial sea. Consistent monitoring, evaluation, and adaptive management will be necessary to understand and control the impacts of renewable energy projects on existing uses such as conservation, recreation, and fishing.

### 8.1 Adaptive Management: performance monitoring

Adaptive management and effective coastal and marine spatial planning require monitoring and evaluation of social, ecological, economic, and governance indicators. However, ecological and socio-economic outcomes take a relatively long time to surface. Douvère (2010) identifies the need for CMSP efforts to develop governance indicators to assess short-term progress. In general, indicators serve as a management tool allowing decision-makers to determine whether management actions are achieving their intended objectives. Therefore it is critical that an evaluation process, including objectives and indicators, be defined early in the CMSP process. Meaningful objectives should be specific, measurable, achievable, and time bound.

Based off of a review of the academic literature, most CMSP efforts have failed to establish a clear set of indicators and measurable objectives required to assess implementation performance (Day 2008, Douvère, 2010; Ehler and Douvère, 2009). In this regard, Oregon is no different. I believe that Oregon's coastal management program would benefit from adopting a defined planning horizon for reviewing Part 5 of the TSP and developing a comprehensive set of indicators that focus specifically on evaluating the efficacy and efficiency of management within the territorial sea.

Massachusetts, currently implementing their marine spatial plan (completed 2009), has established a set of indicators that could provide a model for Oregon. The Executive Office of Energy and Environmental Affairs has developed indicators to assess the management plan and identify general trends within the

planning area (EEA 2009). Their indicators have been grouped into three general categories: governance, environmental, and socio-economic. These indicators are summarized and presented in Table 8.1.

**Table 8.1 Performance Indicators featured in the Massachusetts Ocean Management Plan**

<b>Category</b>	<b>Indicator</b>
Environmental	Change in location and/or extent of core and important habitat (e.g., feeding, nesting, breeding)
	Change in abundance/population density of key species within the planning area
	Change in distribution of key species
	Fish population assessment (volume of fisheries landings, average length of fish sampled, number of individual)
	Mean sea level rise
	Sea surface, water column, and bottom temperature
Socio-economic	Economic value of fisheries (commercial and recreation)
	Economic value and total production capacity of offshore renewable energy
	Economic value of recreational boating
Governance	Number and area of management areas/use zones
	Number of projects proposed/permitted in planning area
	Percent of state energy produced from renewable energy in planning area
	Resources expended for implementation of plan and data collection

Source: EEA, 2009

Massachusetts recognizes the need to establish measurable objectives for each of the listed indicators. However this detailed information has yet to be produced. Oregon may want to consider additional indicators such as level of stakeholder satisfaction, streamlined permitting procedures, or improved integration among federal, state, and local government. The challenge remains, how do you create measurable objectives for these indicators? Is there a meaningful threshold to gauge this information? Future collaboration between state agencies, renewable energy developers, and other relevant stakeholders will be necessary to develop a series of governance indicators and measurable objectives appropriate for evaluating management efforts in Oregon’s territorial sea.

## 8.2 Transferable Practices

Coastal and marine spatial planning in Oregon is an embedded component of Oregon’s unique land use planning system. However, there are lessons to be learned from Oregon’s approach that can be applied to other states interested in CMSP and integrated coastal management.

### Coordination

Oregon has developed a management system that requires formal coordination of stakeholders and state agencies. The Ocean Policy Advisory Council, Oregon Coastal Zone Management Association, the State Agency Coordination Program, and Joint Agency Review Teams are example of this feature. These formal mechanisms allow for strong horizontal and vertical integration. These components also serve a different function in that they establish a space for informal communication and interaction. By participating in these groups, individuals gain an opportunity to engage in informal discussions with people who have different interests and perspectives. In regards to natural resources management, informal interactions between stakeholders can play a key role in developing a shared understanding of problems, raise awareness of diverse views, and help to build mutual trust (Margerum 2001). Oregon’s formal coordination requirements enable interpersonal interactions which help strengthen the consensus building process in establishing a vision for future development in territorial sea.

## Stakeholder Engagement

Stakeholder engagement has been a fundamental aspect of Oregon's CMSP effort. This has occurred through some of the formal mechanisms described above, but also through additional activities. CMSP in Oregon is a public process. DLCD has spent a substantial amount of time and resources working with various groups to develop innovative ways to collect spatial data of existing ocean uses. Notably, two specific nonprofit groups (Ecotrust and the Oregon Chapter of the Surfrider Foundation) helped to engage fishermen and recreationalist in the data collection effort. The "Recreational Use Survey", an online survey, allowed over 4,000 individuals to map and share information about their recreational activities along the Oregon Coast (LaFranchi and Daugherty 2011). State agencies also worked with Ecotrust to interview over 600 fishermen, asking them to map important recreational and commercial fishing grounds (Bailey 2011). Ecotrust has developed the Oregon MarineMap decision-support tool (<http://oregon.marinemap.org/>) to give stakeholders access to a wide range of coastal and marine data, including the fisheries data. The State has also created a specific website (<http://www.oregonocean.info/>) to organize all relevant information regarding planning and management within the territorial sea. This website enables stakeholders to access scheduling information, documents, reports, and spatial data.

These features have all contributed to the successful application of CMSP in Oregon. As CMSP gains national and international interest, it will be useful to review previous efforts in the United States. Massachusetts and Oregon can definitely provide insight to the application and process of CMSP. This study has described how CMSP is linked to Oregon's coastal management and land use planning system, and highlighted several transferable practices. It has provided documentation of how the existing governance system is working in regards to ocean and coastal management. Future research should focus on conducting a more formal evaluation of the governance system. This information will be essential if Oregon chooses to adopt an official monitoring and evaluation protocol to assess management performance in implementing the TSP.

## **9.0 Acronyms**

**CZMA** – Coastal Zone Management Act of 1972

**DLCD** – Department of Land Conservation and Development

**DSL** – Department of State Lands

**ICM** – Integrated Coastal Management

**JARP**–Joint Agency Review Panels

**LCDC** – Land Conservation and Development Commission

**CMSP** – Coastal and Marine Spatial Planning

**NOAA** – National Oceanic and Atmospheric Administration

**OCCDC**–Oregon Coastal Conservation and Development Commission

**OCMP** – Oregon Coastal Management Program

**OCZMA** – Oregon Coastal Zone Management Association

**ODFW** – Oregon Department of Fish and Wildlife

**OPRD** – Oregon Parks and Recreation Department

**OWET** – Oregon Wave Energy Trust

**SAC** – State Agency Coordination Programs

**TSP** – Territorial Sea Plan

**WCGA** – West Coast Governors’ Agreement on Ocean Health

## Appendix

### Interview Questions:

1. Do you feel that the Territorial Sea Plan has improved integrated coastal management within your state? If so, can you please describe how integrated management has been improved?
2. In regards to the territorial sea, how will adding a spatial component to the plan affect decision-making and management?
3. Can you discuss any challenges that continue to exist in regards to integrated planning and management decisions within the territorial sea?
4. In regards to monitoring, evaluation, and adaptation, what time frames have been set for these elements to occur? Are these time frames proving to be realistic and effective?

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