

# **LOOKING FOR SAFE HARBOR IN A CROWDED SEA: COASTAL SPACE USE CONFLICT AND MARINE RENEWABLE ENERGY DEVELOPMENT**

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## **Introduction**

Technological advances in the marine renewable energy industry and increased clarity about the leasing and licensing process are fostering development proposals in both state and federal waters. The ocean is becoming more industrialized and competition among all marine space users is developing (Buck et al. 2004). More spatial competition can lead to conflict between ocean users themselves, and to tensions that spill over to include other stakeholders and the general public (McGrath 2004). Such conflict can wind up in litigation, which is costly and takes agency time and financial resources away from other priorities. As proposals for marine renewable energy developments are evaluated, too often decision-makers lack the tools and information to properly account for the cumulative effects and the tradeoffs associated with alternative human uses of the ocean. This paper highlights the nature of marine space conflicts associated with marine renewable energy literature highlights key issues for the growth of the marine renewable energy sector in the United States.

## **Background to Marine Space Conflicts**

Marine spatial conflict plays out against a background of public ownership of natural resources, remoteness, and monitoring and enforcement difficulties (Portman 2009). In the United States and many other nations, the sovereign (represented by government agencies) manages the resources of the seabed and offshore waters for the public's benefit. As ocean uses and the potential for conflict both increase, so does the number of possible parties to and the complexity of the conflict.

Conflicts over the use of marine and coastal space tend to fall into two broad categories (Sørensen et al. 2003). First, there are areas with existing regulated, restricted or prohibited access such as: major shipping routes, military exercise grounds, major structures, sub-sea cables or pipelines, and marine protected areas for fisheries management or marine conservation. Second, areas with conflicting uses exist such as: commercial and recreational fishing grounds, resource extraction areas, tourism and non-consumptive recreational areas, archaeological sites such as shipwrecks, and those with cultural significance (e.g. customary use or tribal history).

Conflicts in the first category are limited as compatibility with marine renewable energy facilities can often be quickly determined (Michel et al. 2007; Sørensen et al. 2003). Within the second category of uses, the nature and significance of the conflict will often be site specific. Environmental impact assessment/statement processes and related consultation form the bases for state and federal agencies' evaluation of the suitability of these areas for marine energy or other new uses. A diverse, but relatively sparse literature on conflicts between marine renewable energy and other ocean users identifies the major potential conflicts as those involving vessel navigation, commercial fisheries, cultural activities, tourism and recreation.

## **Mitigating Marine Renewable Energy Space-Use Conflicts**

The term "upstream" describes conflict and avoidance strategies in the planning and policy realm. The term "downstream" describes conflict and avoidance strategies that are place-based and site-specific once a development has been proposed (Dukes 2004). In the following sections, coastal and marine spatial planning is presented as an example of upstream conflict avoidance while stakeholder engagement and conflict resolution is described as an example of an approach that has both upstream and downstream applicability.

## **Coastal and Marine Spatial Planning**

Coastal and Marine Spatial Planning (CMSP) is an adaptive, science based approach that analyses current and future uses of marine and coastal areas, assesses tradeoffs between uses, and allocates space to different uses in a way that maximizes societal benefits (Ehler 2008). Siting marine renewable energy projects in the context of CMSP requires that information on the physical environment, ecosystems and human use patterns be integrated to evaluate multiple

aspects. The cumulative impacts of proposed offshore renewable energy projects are weighed relative to stewardship objectives for the specific location for which they are proposed. The suitability of coastal and marine areas for different types of human activity including marine renewable energy development must be assessed. When used, CSMP may assist state and federal agencies with setting priorities on uses and making zoning decisions.

Identifying, mapping and quantifying the cumulative impact of human activities on coastal and ecosystems are key elements in the practice of CMSP. However, estimating and mapping human impacts in the marine environment is a very recent activity (Ban et al. 2010). An effective cumulative effects analysis can provide the basis for improved programmatic approaches, pre-negotiated performance standards, adaptive management and streamlined marine renewable energy permitting processes.

In the United States, 12 coastal states are undertaking marine spatial planning of state waters (Portman et al. 2009). For example, Rhode Island, Massachusetts and Oregon have recently undertaken spatial planning exercises to provide for marine renewable energy development. Each state appears to be taking a different approach to CMSP. This can create uncertainty for developers and barriers to national standards for the deployment of marine renewable energy installations.

At the federal level, there is a well-established ocean mapping effort (the United States Marine Cadastre) as well as the CMSP initiative evolving under the National Ocean Policy Task Force's Interim Framework for Effective Coastal and Marine Spatial Planning (Interagency Ocean Policy Task Force 2009). Within the interim framework, the second national guiding principle states that multiple uses should be managed (Interagency Ocean Policy Task Force 2009, p.7): "In a manner that reduces conflict, enhances compatibility among uses and with sustained ecosystem functions and services, and increases certainty and predictability for economic investments."

### **Stakeholder Engagement in Conflict Identification and Avoidance**

Stakeholder engagement in marine renewable energy conflict resolution can occur upstream, as part of the CMSP or preliminary site investigations, or downstream as part of mediation around planned or operational energy facilities.

Engaging stakeholders in the upstream assessment and evaluation of marine renewable energy proposals can inform all involved about the cumulative impacts, the societal relationships with those impacts and the value of benefits and costs associated with the impacts. Portman (2009) reviews public participation in environmental impact assessments (EIA) for offshore renewable energy projects in the United States and Europe and calls for a planning framework consisting of five elements.

- Effective communication where developers or agencies administering the EIA process communicate clearly, fully, and on a level that is understood by participants;
- Broad-based inclusion where special attention is paid to how stakeholders and the public are included in project scoping;
- Prioritization addressing the effectiveness of decision-making, definition of boundaries, and the consideration of cumulative impacts;
- Three-way learning involving local (stakeholder) knowledge, expert knowledge, and knowledge from previous or parallel EIA experience;
- Analysis of alternatives as part of an iterative process.

Geographic Information Systems (GIS) are increasingly being used to support upstream stakeholder engagement (Ramsey 2009). GIS are used to inform, engage and include stakeholders and their knowledge in management of coastal and marine resources. For example, St Martin and Hall-Arber (2008) describe a participatory method to map the at-sea presence of fishing communities. The spatial representation of communities can inform sectors such as marine renewable energy striving to incorporate human dimensions in site assessment and spatial planning.

If upstream engagement of stakeholders fails to mitigate conflict once a marine renewable energy development is proposed, then dispute resolution comes into play. Environmental Conflict Resolution (ECR) has three features (Orr et al. 2008): a focus on environmental, natural resource, or public resource issues and conflicts; an involvement of an independent, third party facilitator or mediator; and a process that shows intent to seek agreement.

Although government use and refinement of ECR have grown steadily since the 1980s, agencies experience challenges when making efforts to expand the use of these tools. In 2004, the United States Institute for Environmental Conflict Resolution undertook a survey (USIECR 2005) to determine which agencies were using ECR and what barriers existed.

The United States Department of the Interior response to the USIECR survey pointed out barriers or disincentives. It is difficult to find funds, staff time and senior commitment to support long-term projects. Resistance from some attorneys and some managers to use of process continues. There is a lack of resources available to support capacity building both for government employees and for other parties. Understanding of the value/benefits of appropriate use is deficient. There is insufficient collection of data and evaluation of process to demonstrate the value of ECR processes. A budget process does not provide rewards or incentives for choosing to work with ECR.

## Conclusion

The potential size of marine renewable energy installations, proximity to the coast and heavily populated areas, shipping lanes, valued seascapes and the uncertainty associated with the impacts of emerging technology suggests that actual and perceived conflicts over marine space use may be orders of magnitude greater than state and federal agencies have experienced previously. Although each coastal and ocean conflict situation and its stakeholders are unique, best practices do exist to allow coastal managers to address effectively spatial and resource conflicts. Upstream use of participatory CMSP can do much to avoid unnecessary conflict between existing uses of the nation's coasts and ocean and marine renewable energy. Devoting greater state and federal agency resources to ECR will also help mitigate the effects of the inevitable downstream conflicts that will arise with the proliferation of marine renewable energy facilities.

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