Researcher reviews ecosystem-based ocean management approaches

October 21 2015, by David Orenstein

The director of the University of Maine Darling Marine Center says ecosystem-based approaches to restore ocean health provide a flexible framework for marine management and allow scientists and stakeholders to move beyond reactive and piecemeal solutions.

"Ecosystem-based management (EBM) accounts for the diverse

connections between people and oceans and the trade-offs inherent in managing for multiple uses," says Heather Leslie, who reviewed six EBM projects in the article "Learning from Ecosystem-Based Management in Practice" in the Oct. 14 issue of Coastal Management.

As EBM efforts mature, Leslie said it will be important to ensure solid connections between researchers and those on the front lines of managing people's interactions with coastal and marine environments.

Researchers leading innovative projects at Pacific Ocean sites (two in California, two in Mexico, one in Fiji and one in Palau) adapted EBM principles to match each locale's combination of challenges and circumstances.

Through site visits, analysis of project documents and more than 100 interviews, Leslie's team examined how similarities and differences among the sites shaped implementation.

"Ecosystem-based management, even five years after being called out as the cornerstone of the U.S. National Ocean Policy, is still a fairly new way of doing business. It will be exciting to see what innovations emerge in the coming years," said Leslie.

"The challenge of translating science into effective management remains, as we saw in a number of these cases."

California's Elkhorn Slough, between Santa Cruz and Monterey, faces many threats but scientists taking part in the EBM effort focused on preventing salt marsh erosion. Honing in on one objective was a key adaptation in this case, the study found. Another was planning the project in an area governed by one organization, rather than several government agencies.

In Morro Bay, project leaders integrated two community-based efforts into a more science-driven, multidimensional management effort involving water quality, marine habitats and coastal economies. A problem, the study found, was how to most effectively share local-scale scientific findings with state and federal policymakers.

In Palau, a multi-stakeholder EBM coalition sought to mitigate potential erosion from a new 53-mile road around Babeldaob Island. The team realized the need to focus the project geographically and conceptually but faced the challenge of linking science to specific management actions, said Leslie.

In the Mexican project focused on the shrimp fishery in the Gulf of California, scientists believed EBM could reduce bycatch of unintended species and resolve conflict between large- and small-scale fishing operations. Mathematical models were utilized to explore management solutions for the overarching government authority to test. As of the end of the study period in 2010, though, the models had not been tested.

In the other Mexican project in the northern Gulf, the effort focused on improving sustainability of a diverse fishery of thousands of small-scale fishers pursuing more than 70 species. The team generated scientific data and developed management plans, but struggled to deliver plans to the government in ways that could affect policy.

In Fiji, EBM practitioners sought to enhance community-based efforts to sustain the fishery of the more than 300 islands in the archipelago. They first envisioned a national-scale project, but sharpened the focus to two geographically smaller sites. They also adapted the framework to coordinate with existing management efforts. Because local officials could implement policy, the team had better success translating science into action.

Leila Sievanen, Tara Gancos Crawford, Rebecca Gruby, H. Cristina Villanueva-Aznar and Lisa Campbell co-authored the article.

Leslie said the study yielded lessons for the management practice in other ocean places.

"In the Gulf of Maine, where I live, state and federal governments, working together with stakeholders, have demonstrated a strong commitment to ecosystem-based approaches," she said.

Leslie said she and colleagues in the Gulf of Maine region would have an opportunity to build on this commitment in meetings convened through the Northeast Regional Planning Body as part of the implementation of President Barack Obama's National Ocean Policy. To learn more, including how to participate, visit neoceanplanning.org/events .

More information: Heather Leslie et al. Learning from Ecosystem-Based Management in Practice, *Coastal Management* (2015). DOI: 10.1080/08920753.2015.1051424

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