

NON-GOVERNMENTAL ORGANIZATIONS AND MULTI-SITED MARINE CONSERVATION SCIENCE: A CASE STUDY

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Non-governmental organizations (NGOs) are now major players in the realm of environmental conservation. While many environmental NGOs started as national organizations focused around single-species protection, governmental advocacy, and preservation of wilderness, the largest now produce applied conservation science and work with national and international stakeholders to develop conservation solutions that work in tandem with local aspirations.

Marine managed areas (MMAs) are increasingly being used as a tool to manage anthropogenic stressors on marine resources and protect marine biodiversity. However, the science of MMA is far from complete. Conservation International (CI) is concluding a 5 year, \$12.5 million dollar Marine Management Area Science (MMAS) initiative. There are 45 scientific projects recently completed, with four main “nodes” of research and conservation work: Panama, Fiji, Brazil, and Belize. Research projects have included MMA ecological monitoring, socioeconomic monitoring, cultural roles monitoring, economic valuation studies, and others. MMAS has the goals of conducting marine management area research, building local capacity, and using the results of the research to promote marine conservation policy outcomes at project sites.

How science is translated into policy action is a major area of interest for science and technology scholars (Cash and Clark 2001; Haas 2004; Jasanoff et al. 2002). For science to move policy there must be work across “boundaries” (Jasanoff 1987). Boundaries are defined as the “socially constructed and negotiated borders between science and policy, between disciplines, across nations, and across multiple levels” (Cash et al. 2001). Working across the science-policy boundary requires boundary organizations (Guston 1999) with accountability to both sides of the boundary, among other attributes. (Guston 1999; Clark et al. 2002).

This paper provides a unique case study illustrating how there are clear advantages to collaborative science. Through the MMAS initiative, CI built accountability into both sides of the science-policy boundary primarily through having scientific projects fed through strong in-country partners and being folded into the work of ongoing conservation processes. This collaborative, boundary-spanning approach led to many advantages, including cost sharing, increased local responsiveness and input, better local capacity building, and laying a foundation for future conservation outcomes. As such, MMAS can provide strong lessons for other organizations planning to get involved in multi-site conservation science.

Methods

Methods to conduct this research have included direct observation, document analysis, and semi-structured interviews. The researcher attended phone and in-person meetings in Washington, D.C, visited all four of the initiative’s main node sites, and took notes on interactions among staff, researchers, and in-country stakeholders. Annual reports, organizational and program timelines, budgets, project work plans, and other documents were examined. Semi-structured interviews with node coordinators and NGO personnel as well as a representative cross-section of policymakers, local stakeholders, employees of partner organizations, and scientists were conducted.

Results

In Panama, CI has been working closely with the Smithsonian Tropical Research Institute (STRI) to manage and conduct the scientific projects. STRI, in turn, has fed the projects directly into improving the data for the management plan of Coiba National Park. Coiba National Park is a new marine park in the Gulf of Chiriqui. While the park was legally established a few years ago, the management plan for the park was just approved in 2009.

Working with an in-country partner and feeding work into this ongoing process led to several large advantages. First, it enabled cost sharing between MMAS and other donors. The funding from the initiative was used in concert with funding from UNESCO and the Walton Foundation to develop the management plan, conduct scientific investigations, and run participatory workshops. Secondly, it allowed immediate feedback of data to relevant

government officials through the Coiba Management Council. The Coiba Management Council is a deliberative council that exists to make decisions about Coiba National Park. On the council sit members of the government, prominent NGOs, representatives of local communities, and STRI. The council functioned as a very efficient information sharing mechanism by keeping policy makers and NGOs aware of the purpose, extent, and results of the MMAS projects. Due to the council, none of the relevant governmental stakeholders and NGOs felt like they were in the dark as to the projects, and all appreciated how the projects were helping the Coiba Management Plan development process.

In Fiji, the NGO has fed the projects through the Fiji Locally Managed Marine Area network (FLMMA), a fully staffed information-sharing network that brings communities, NGOs, government, the University of the South Pacific, and other interested actors together to share strategies and work to create locally managed marine areas (LMMA) using a common approach. Nearly 100% of organizations that work in marine conservation in Fiji are involved in FLMMA.

Like in Panama, feeding the projects through an in-country partner (FLMMA) rather than having out-of-country researchers directly manage and run all the projects, led to benefits to both CI and in-country stakeholders. First, it enabled FLMMA to collect comprehensive, science-based data relating to the status of selected LMMA sites - data which had been severely lacking in the past due to financial constraints. While FLMMA partners have prided themselves on community-based LMMA work, gaining this hard science increased FLMMA learning and consequently in-country conservation capacity. Secondly, it ensured that scientific results of MMAS are poised for adaptive management efforts, with FLMMA partners going back to village sites and using project results to encourage management changes. This was possible chiefly because the science was done in villages where there was an existing institutional partner to follow-up on work, and with FLMMA individuals that have key connections. Finally, it enabled the input of a wide spectrum of the country's most relevant institutions, increasing local support and buy-in.

CI MMAS' work in Brazil centers on the Abrolhos National Marine Park, located off the Atlantic Coast in the southern part of the state of Bahia. Here, CI has worked with its long-established field office, CI-Brazil, to implement the scientific projects. While the field office is ostensibly part of the CI's management structure, it operates independently, is respected for its scientific expertise, and has built a large network of relationships with local communities, government, university, and NGO stakeholders throughout the country.

As with Panama and Fiji, feeding projects directly through a local partner -in this case CI-Brazil - benefitted both the initiative and the partner. Funding from the initiative enabled CI-Brazil to gain a national profile and make more contributions to more conservation processes than they would have otherwise, including helping to establish an extractive reserve in the mangrove area of Cassuruba, stopping oil exploration in Abrolhos National Park, and expanding community communication and outreach efforts. Collaboration over MMAS also enabled CI-Brazil to use and expand upon its strong partnerships with universities (such as University of Sao Paulo and Fundação Getúlio Vargas), government, and communities. These partnerships are now yielding improved data sharing, new scientific proposals, and media projects.

In Belize, CI had coordinated scientific work with the Southern Environmental Association, a NGO based in Placencia involved in managing several environmental reserves in the country's south. While there were fewer ongoing conservation processes in Belize, this coordination has allowed MMAS to tap into a large network of conservation professionals in need of training. Principal investigators from the United States have trained dozens of individuals in marine ecological survey and statistical techniques, thus strengthening the capacity of Belize to do marine management in the future.

Discussion

The MMAS initiative teaches practitioners of marine science two main lessons when designing and running any marine science conservation initiative: make use of ongoing conservation processes and establish strong in-country partners. While conducting and running projects with all out-of-country scientists may be more efficient time-wise and allow more control over the eventual products, it lacks a myriad of benefits that collaborative science offers. Feeding projects into existing conservation processes and working with strong in-country partners means that the

data will immediately be used to strengthen ongoing work and enables the use of existing networks of relationships and governance structures.

Using this approach strengthened the ability of CI to act as a boundary organization and have accountability to all sides of the science-policy boundary (Guston 1999). In Panama, feeding the projects through STRI and into the conservation process of drafting the Coiba Management Plan ensured that the results would be shared and disseminated through the management councils, allowing the input of national level policymakers as well as scientists. In Fiji, the use of FLMMA ensured that NGOs, universities, and policymakers would have a “seat at the table” when the projects were being designed and run, ensuring greater local buy-in and support. In Brazil, use of a well respected field office allowed the initiative to build networks and access relationships that included direct lines to high level policy decision makers and universities. In Belize, coordination with an in-country NGO allowed greater local capacity building than would have been possible otherwise.

Besides being culturally sensitive, building accountability and spanning boundaries lays the groundwork for real science-to-policy outcomes. The establishment of Cassuruba extractive reserve in Brazil is just a sign of what is to come. While accomplishing policy change based on scientific results is a multi-year process that involves many elements, it is clear that the initiative is well situated for future conservation successes.

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