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USAID REGIONAL PROGRAM FOR THE MANAGEMENT OF AQUATIC RESOURCES AND ECONOMIC ALTERNATIVES

FINAL REPORT



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Cover photo collage: USAID Regional Program beneficiaries in Central America. Photos by Regional Program technical team.

The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States government.

ACRONYMS

ACOOPACÍFICO	Pacific Fishers' Cooperative*
ASPESCU	"El Cuco" Artisanal Fishermen's Association (El Salvador)*
BIOMARCC	Coastal Marine Biodiversity, Capacity, and Climate Change Project (Costa Rica)*
CCAD	Central American Commission for the Environment and Development*
CEM	Center for Marine Studies (Honduras)*
ERIMC	Regional Coastal and Marine Research Strategy*
GOAL	International Humanitarian Organization based in Ireland
ICAPO	Eastern Pacific Hawksbill Initiative*
ITQ	individual transferable quotas*
IUCN	International Union for Conservation of Nature
KAUMA	Fishers' Association of Kaukira (Honduras)*
MARENA	Ministry of Environment and Natural Resources of Nicaragua*
MARN	Ministry of Environment and Natural Resources*
MIMAT	Association of Miskito Women of the Atlantic Coast (Honduras)*
MOU	memorandum of understanding
MPA	marine protected area
NatGeo	National Geographic
NGO	nongovernmental organization
OSPESCA	Organization of the Fisheries and Aquaculture Sector of the Central American Isthmus*
RACCN	North Caribbean Coast Autonomous Region*
SERNA	Secretary of Environment and Natural Resources (Honduras)*
SICA	Central American Integration System
STC	Sea Turtle Conservancy
TNC	The Nature Conservancy
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
WCS	Wildlife Conservation Society
WIDECAST	Wider Caribbean Sea Turtle Network
WWF	World Wildlife Fund

*Spanish acronym

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EXECUTIVE SUMMARY

Biodiversity loss is one of Central America's most pressing challenges. The five-year, \$13.9 million USAID Regional Program for the Management of Aquatic Resources and Economic Alternatives, implemented by Chemonics International, was developed to strengthen coastal-marine resource management and biodiversity conservation while improving the livelihoods of local populations. Population growth in coastal-marine areas, climate change, overfishing, and a tradition of "open access" to natural resources, pose a great threat to the future of coastal-marine resources in the region. These challenges along with the demand for limited resources required the Program to carefully consider its strategy to promote biodiversity and conservation in the region.

The USAID Regional Program partnered successfully with local populations, like artisan fishermen and indigenous communities, as well as non-profit organizations, private sector, and government authorities to support coastal-marine biodiversity conservation. This involved improving management of critical ecosystems; improving policy and governance; increasing capacity of fishermen and other stakeholders to use more sustainable practices to extract coastal and marine resources; establishing access rights and aligning market incentives to promote more sustainable use of biodiversity; and promoting economic alternatives to reduce pressure on threatened species.

The Regional Program intervened in 10 areas of significant biological importance, resulting in improved coastal and marine biodiversity conservation in more than 2.3 million hectares in Central America. Improved management plans for the areas harmonize fishing standards, establish and expand access rights and/or no catch zones, and incorporate climate change adaptation measures to increase the resiliency of critical biodiversity. To strengthen the enforcement of policies and regulations designed to conserve target species and protect their habitats, the Regional Program collaborated with 24 institutions and 140 professionals to develop operational protocols for coastal-marine violations and trained them to monitor, execute, and enforce environmental regulations. A system to register and track complaints developed by the program is already in implementation in Bay Islands, Honduras.

The program also implemented improved fishing practices to reduce the use of harmful practices like scuba diving for lobster, explosives, and illegal nets that adversely affect biological diversity and often threaten the lives of the fishermen using them. One of these improved practices involved transitioning lobstermen from SCUBA diving to the use of traps. The program also worked to reduce by-catch by promoting the use of improved nets, traps, and other fishing gear. In addition, the program drastically cut post-harvest fish and seafood waste by improving cold chains and addressing other value chain deficiencies. An estimate of 201,650 juvenile lobsters may have reached their reproductive stage due to these practices.

Moreover, the program focused efforts on commercial activities that aligned market incentives to promote sustainable use of biological diversity. The program linked fishermen associations to buyers seeking to purchase products caught using improved fishing practices. The program also developed and piloted a lobster traceability system, which guarantees buyers that lobster was obtained through safe and sustainable practices. Lastly, the program implemented economic alternatives to fishing overfished commercial species. In addition to introducing fishermen to more

sustainable techniques for fishing and processing less threatened species of equal or greater value, the program redirected coastal communities' efforts toward sustainable opportunities that do not involve marine resource extraction. An activity with tremendous success and with potential to scale across Central America is the online National Geographic geotourism marketing platform, an initiative that committed 141 businesses to use environmentally friendly business practices.

Achievements. Through the program's work and investments in local organizations and fishermen's associations, the program's goals are very likely to be sustained beyond the life of the project as the program has succeeded in winning the "hearts and minds" of beneficiaries and stakeholders who are now placing a higher value on sustainable use and conservation of coastal-marine resources. The program improved management, legal enforcement, fishery practices, and promoted sustainable economic alternatives. The program also solidified market linkages to more environmentally conscious wholesalers and retailers to incentivize industrial lobster fleets and artisan fishermen to continue to utilize improved fishing practices.

- At least 2,354,000 hectares of biological significance in Central America are operating under improved management practices.
- The program established rights-based access mechanisms to support transparency and good governance in areas of biological importance, prevent the "race to fish," and promote more sustainable use of limited resources.
- At least four protected areas in Central America have implemented climate change adaptation and mitigation measures. The government of Honduras has adopted the Regional's Programs adaptation plan as a national climate change action plan for the Caribbean coast of Honduras.
- Program efforts have resulted in a total of 1,606,497 sea turtle hatchlings being protected and released throughout Central America.
- Overall, the program trained 11,591 fishermen, government officials, and nongovernmental organization (NGO) workers to implement best fishing practices.
- The program contributed to development of a fully operational system for fisheries and environment authorities, law enforcement, and prosecutors to track and monitor illicit activities in Bay Islands, Honduras. Similar systems were developed and piloted at two other sites and local organizations will implement them.
- Four management plans for lobster, queen conch, grouper, and cockle — all commercially important species — have been implemented at a multinational level. The plans harmonize conservation practices, such as minimum-catch size for lobster, grouper, and cockle among other species, enabling the healthy reproduction of these species.

- The program facilitated the first tri-national agreement on fishery management in the Gulf of Fonseca. The agreement harmonized closures for three species, minimum catch sizes for two species, and mesh size for gillnets.
- In Nicaragua, 50 percent of industrial diving fleets have been outfitted with traps as a result of program assistance in the area. Consequently, the reduction in diving fleets demonstrates that improved fishing practices are economically viable and can minimize health risks.
- The program facilitated more than \$11.2 million in incremental sales of products and/or services produced under improved management practices and/or access-rights mechanisms, benefitting more than 50 small and medium artisanal fishing businesses.
- Included in the incremental sales mentioned above, National Geographic's Go Blue Central America marketing platform generated \$1.516 million in incremental sales in just 1.5 years.
- The program developed and piloted the first lobster traceability system of its kind in the region.

Despite its achievements in improving policies and practices to support biodiversity conservation, the Regional Program recognizes that there is much more work to be done in Central America. Biodiversity continues to face threats from overfishing, pollution, and habitat destruction, and for this reason, it is critical that USAID's work to conserve critical biodiversity continues in the region. The program's achievements in implementing access-rights mechanisms, policy enforcement, improved fishing practices, and economic alternatives are critical activities that should be continued by local governments, environmental authorities, and local NGOs who have been the program's implementation partners for the last five years.

INTRODUCTION

Concerned with the unsustainable management of coastal and marine resources, the United States Agency for International Development (USAID) and the Central American Integration System (SICA, as it is known by its Spanish acronym) signed the Grant Agreement for the Strategic Objective “Economic Freedom: Open, Diversified Expanding Economies” in August 2005. Through this grant agreement USAID funds would be assigned and/or obligated for the implementation of the USAID Economic Growth Regional Program. The grant agreement initially included two components (or results): 1) laws, policies, and regulations to promote trade and investment, and 2) improved management and conservation of critical watersheds. In 2010, two components were added: 3) enhancing food security and 4) reducing the effects of climate change.

On March 11, 2010, the USAID Regional Program for the Management of Aquatic Resources and Economic Alternatives began its work through a consortium of implementing partners, including Chemonics International, World Wildlife Fund (WWF), The Nature Conservancy (TNC), Wildlife Conservation Society (WCS), the Sea Turtle Conservancy (STC), and Solimar International. The program was originally a four-and-a-half year activity with a budget of \$11.6 million. In July 2012, USAID provided roughly \$1 million in additional funding to expand interventions in the Miskito coast of Honduras and Nicaragua to improve labor conditions and livelihoods for artisanal fishermen attempting to transition away from the dangerous practice of SCUBA diving for lobster. By August 2014, the Program had achieved many of its original targets. USAID extended the program for six more months through March 2015 with an additional \$1.3 million in funding to solidify the sustainability of project initiatives. For the extension, Chemonics International sought Asociacion GOAL Internacional’s expertise to continue implementing activities on the Miskito Coast of Honduras.

During the five years of implementation, the Regional Program fostered improved management of coastal and marine resources and the conservation of four transboundary sites (two tri-national and two binational) with high levels of biodiversity in the Central American region. The tri-national sites are the Gulf of Honduras (Belize, Guatemala, and Honduras) and the Gulf of Fonseca (Nicaragua, Honduras, and El Salvador), and the bi-national sites are the Miskito Coast (Honduras and Nicaragua) and Cahuita-Bocas del Toro (Costa Rica and Panama).

This final report highlights the results achieved over the life of the program, including impacts based on targets and indicators set under the contract, lessons learned, and next steps for sustainability. The report focuses on the impacts on biodiversity conservation, improved fisheries, and economic alternatives for target coastal communities. Given that ecosystems depend not only on the transparency and compliance of environmental policies that govern natural resource management, but also on the sustainable use of these resources, economic alternatives are particularly important for providing the socioeconomic conditions that push forward and sustain healthy ecosystems.

For the program, economic alternatives for artisan fishermen involved improved processing and diversification of fishery products, conservation- and tourism-based

employment, and land-based opportunities through a buyer-led approach — the core principle of which is that to be sustainable, alternative livelihoods must be led by producing what sells instead of trying to sell what is produced. This approach was adopted to help fishermen who were using improved fishing practices connect to markets, and to encourage buyers to market these goods as sustainable products to consumers. It is important to note that this approach allowed the program to promote diversification of fishery products, obtained through improved fishing practices, and provided viable economic opportunities for fishermen and their families who depend on coastal and marine resources.

The final report is structured as follows:

1. Section I: Problem and Context
2. Section II: Program Activities and Results
3. Section III: Impact — What Did We Achieve?
4. Section IV: Lessons Learned
5. Section V: Next Steps
6. Annexes: Technical Tools and Information Developed by the Regional Program (interactive DVD; will be distributed to continue to promote program activities beyond the life of the program)



Fishermen in Bilwi, Nicaragua, where the USAID Regional Program focused on the lobster value chain and on finding economic alternatives for former lobster divers, as well as disabled diver and their families. Photo by Augusto Rosales.

SECTION I. PROBLEM AND CONTEXT

Central America has two long coastlines with vibrant and growing populations. The region is ranked within the world's top 25 "biodiversity hotspots" and is home to the Mesoamerican Reef, the largest barrier reef in the Western Hemisphere. Central America's oceans support thousands of species of fish and marine wildlife, including six of the seven species of marine turtles. Mangroves along its coastlines provide critical habitats for fish and shorebirds and protect coastal areas from the damage associated with strong storms. Coastal and marine areas are also critical from an economic standpoint. The Organization of the Fisheries and Aquaculture Sector of the Central American Isthmus (OSPESCA) estimates that marine fisheries contribute more than \$1.9 billion annually to the economies of the region.

The growth of human populations, particularly in coastal zones, and environmental pressures imposed by economic growth and climate change, however, pose great threats to the future conservation of marine ecosystems and species diversity in Central America. Tourism on the coast and agriculture further inland damage fragile reef environments. Overfishing is quickly depleting critical fisheries, and increasing sea levels and surface water temperatures from climate change threaten corals and other marine wildlife, such as sea turtles. All of these threaten the 21 percent of the region's population living in coastal areas that depend on coastal and marine resources for their livelihoods and food security.

A tradition of "open access" to natural resources in the region lies at the heart of unsustainable resource management and threats to biodiversity in the region. Lack of restrictions and access-rights mechanisms encourages a "race to fish," leading fishermen to extract as many resources in the shortest time possible. This is compounded by a lack of transparency surrounding the management of natural resources and weak enforcement of fisheries regulations by local authorities. Natural resource users, including fishermen, also have limited opportunities to participate in local and national government decisions affecting economic activity in their communities.

Limited restrictions on fishing are further accentuated by the fact that value chains are highly developed in just a handful of marine products — creating an incentive for excessive and sometimes illegal over-extraction of those products — but underdeveloped in alternative marine products which may be more sustainable while equally profitable. This leaves rural fishermen with few market incentives to move toward more efficient practices and encourages over-extraction of a handful of resources. This lack of diversification across fishing activities furthers threatens marine biodiversity.

A. Program Objectives

USAID's Regional Program for the Management of Aquatic Resources and Economic Alternatives Program began in March 2010 with the aim to support biodiversity conservation and strengthen coastal-marine resource management in Central America to reduce threats to vulnerable species from unsustainable fishing practices and coastal development. The program laid the foundation for access-rights mechanisms

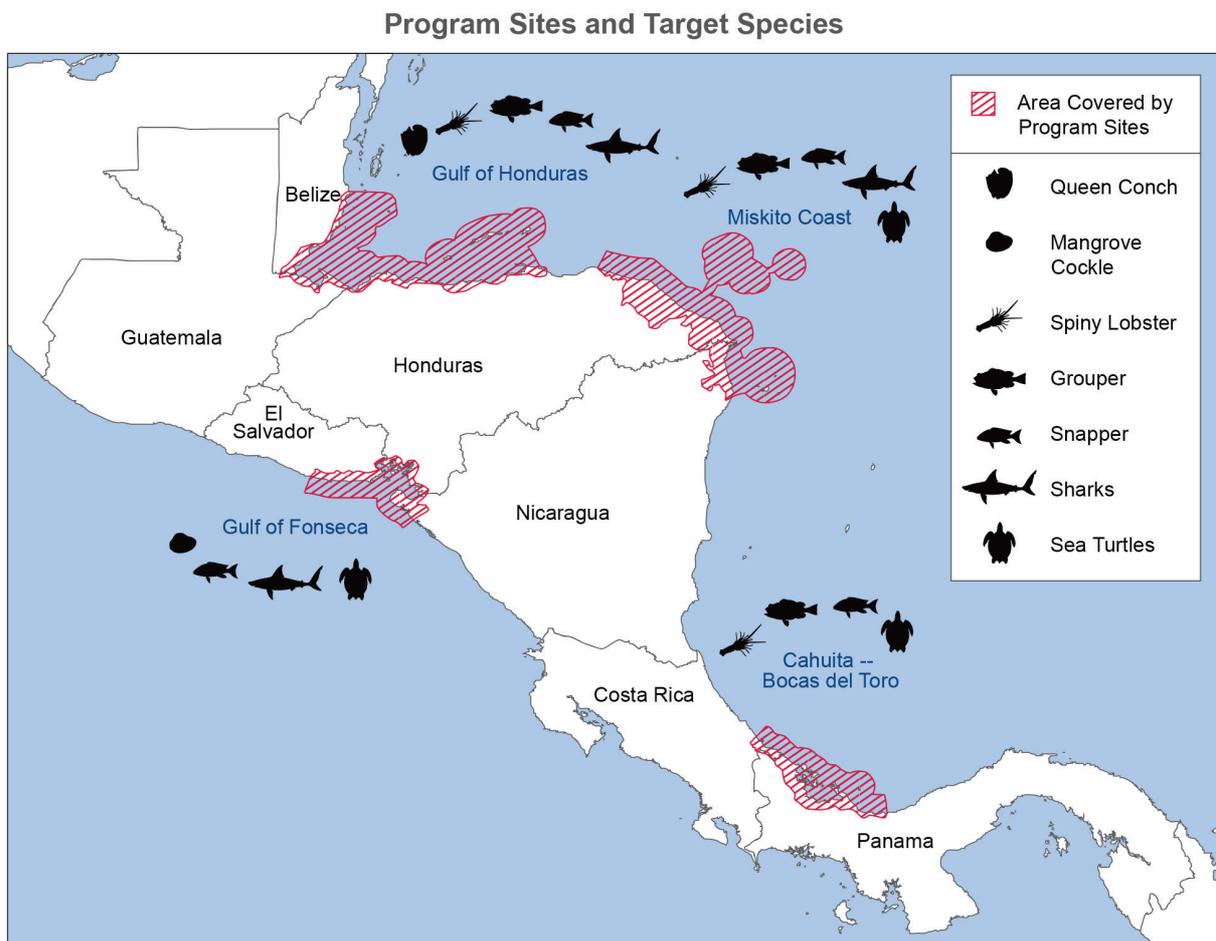
to strengthened coastal and marine resources management and conservation while improving the livelihoods of local populations who depend on these resources.

Specifically, the program’s objectives were to:

- Promote effective monitoring and enforcement of coastal and marine resource policies and legislation with an emphasis on compliance
- Foster rights-based and market-based access mechanisms and management incentives for the conservation and sustainable use of coastal and marine resources through an ecosystem-based management approach

B. Geographic Scope and Target Species

The program implemented activities in four key sites presented in Exhibit 2: the Gulf of Honduras, the Miskito Coast of Honduras and Nicaragua, the Gulf of Fonseca, and the bi-national region of Cahuita-Bocas del Toro in Costa Rica and Panama. Intervention areas targeted by the program are characterized by governance challenges stemming from difficulties accessing disperse and isolated islands, underinvestment in infrastructure, and limited labor options for rural communities. These areas also face a continued and accelerating deterioration of the environment — including a high rate of mangrove deforestation for natural resource extraction — as well as weak transparency in the legislative process governing natural resources and a lack of market incentives for conservation.



The Gulf of Honduras extends from Dangriga, Belize, through Guatemala, to La Ceiba, in the Honduran Caribbean coast. The gulf also hosts 900 kilometers of the Mesoamerican Reef, the second largest coral reef system in the world. Complex dynamic coastal waters and currents from the open ocean — which produce a large ecosystem of estuaries, barrier beaches, marine lagoons, seagrass beds, barrier reefs, and cays — characterize the region. With more than 6,300 artisan fishermen in the region (OSPESCA, 2012), a growing population, and weak economic environment, artisanal fishing is one of the most important socioeconomic activities for coastal communities. The program site included activities in the Bays Islands of Honduras, an area with a variety of natural resources and key ecosystems for the region. In 2010 the government of Honduras declared the Bay Islands region the Islands Marine National Park Bay (BINMP), which is the country's largest protected marine and coastal area.

The Miskito Coast is a binational area along the Caribbean coast of Honduras and Nicaragua. In Honduras, isolation and scarce economic opportunities lead coastal communities, including Miskito indigenous groups, to rely heavily on fishing and lobster diving, placing heavy pressures on connected species. The region is characterized by a rich array of habitats, such as tropical rain forests, mangroves, lagoons, wetlands, coral reefs and more. It is also home to the 5,250 km² Rio Platano Reserve, which is on UNESCO's List of World Heritage in Danger.

In Nicaragua, the program worked in the North Caribbean Coast Autonomous Region (RACCN, as it is known by its Spanish acronym), where most of the land is owned by three indigenous communities: Prinzu Auya Un, Karata, and Tawira. The region is home to the Miskito Cays and Coastal Biological Reserve. This area comprises a diverse terrestrial and natural habitat with beaches, mangroves, swamps, and coral reefs, among other features. The complex hydrological system of freshwater lagoons and brackish marshes is an excellent breeding ground for manatees, alligators, and other species of biodiversity importance. The region is also known for temporary settlements on shallow waters, where communities live for six months a year to catch lobster, shrimp, fish, and shellfish, as their main source of income and livelihoods.

The Cahuita-Bocas del Toro Regional Program site covers the coastline from Cahuita, Costa Rica, to Ngöbe-Buglé and Bocas del Toro, Panama. The region's ecosystems include coral reefs, mangroves, archipelagos, coastal wetlands, lowland tropical forests, and montane and premontane forests. As one of the areas with the highest levels of terrestrial biodiversity in Central America, it hosts 189 mammal species, 825 birds, 558 butterflies, 168 reptiles, and 128 amphibians. This area is also home to endangered species, as well as many indigenous peoples who have inhabited the area for generations, including the Ngöbe, Naso, and Bribri. Despite the narrowness of the continental shelf, which is a major fishing constraint, most peoples' livelihoods depend on the exploitation of marine resources.

On the Pacific Coast, the Gulf of Fonseca is situated in the tri-national area of El Salvador, Honduras, and Nicaragua. The area is of great political, commercial, social and environmental importance for the three countries. In a region with at least 8,600 artisan fishermen, marine resources are important for employment, income generation, and food security. In 2009 alone, more than 7,800 tons of fish were recorded in catch volumes, representing approximately \$8.6 million in sales. With

estuaries, mangroves, lagoons, and salt flats, the Gulf is also an area with important ecological functions and significant biological diversity.

Target species. The Regional Program worked with seven target species. Of these, five are of critical commercial importance and two are highly endangered. Their habitat is associated with biodiversity hotspots, such as seagrass, coral reefs, and mangrove ecosystems.

C. Strategy

The program aimed to ensure that the coastal and marine biodiversity in the region continues to provide the critical goods and services on which coastal communities depend. For this reason, the program implemented an ecosystems-based approach¹ to its work involving the use and conservation coastal and marine species of commercial value, as well as the ecosystems on which they depend. This approach integrates the management of coastal land, water, and living resources in a way that promotes conservation, as well as equitable and sustainable use of resources, through participatory methods. One of the guiding principles of the ecosystem approach is to reduce market distortions that adversely affect biological diversity and to align market incentives to promote the sustainable use of biological diversity. Without addressing these competing factors, it is difficult to manage and understand threats to target species and changes to ecosystems.

Key interventions under the program focused on the following (see graphic on next page):

Promoting improved management and conservation of ecosystems on which target species and rural coastal communities depend. Participatory processes employed by the program to develop management plans and incorporate climate change adaptation measures ensured local communities have a stake in the sustainability of their natural resources.

Promoting more effective monitoring and enforcement of coastal and marine resource policies and regulations to reduce threats faced by target species.

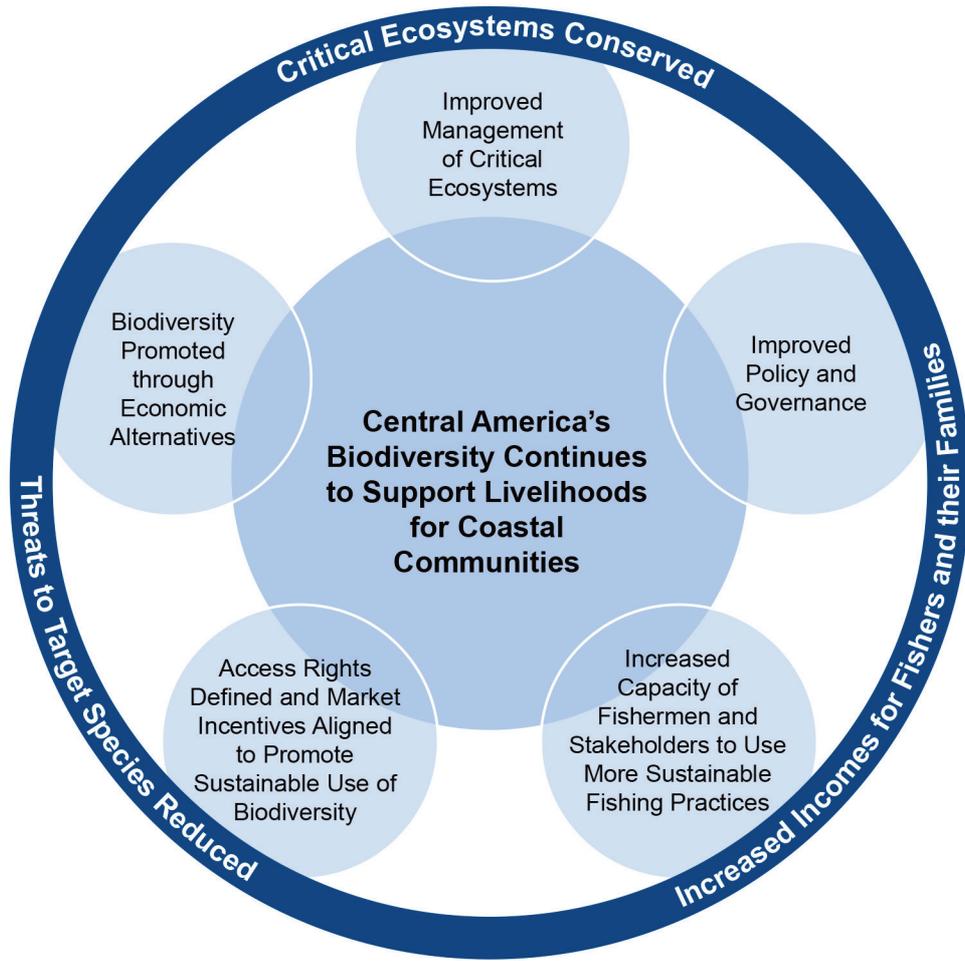
Building capacity of stakeholders and industrial and artisan fishermen in best fishing practices for target commercial species.

Aligning market incentives to promote more sustainable use of biodiversity. Implementing access rights through concessions, limited licensing, or similar mechanisms, allowing communities who for generations have inhabited areas of biological importance continue to benefit from the natural resources.

Introducing economic alternatives to complement and increase fishers' incomes and reduce pressure on overfished species. Implementing a buyer-led approach to promote the use of improved fishing practices and sustainable business practices.

¹ Ecosystem approach from the Convention of Biodiversity 1992

Approach to Promote Equitable and Sustainable Use of Coastal and Marine Resources.



SECTION II. PROGRAM ACTIVITIES AND RESULTS

Through the holistic strategy described in Section I that encompassed actions aimed at addressing multiple threats to biodiversity, the program improved efforts to conserve the region's critical natural resources and ecosystems while continuing to provide a viable economic future for fishing communities. The program implemented interventions at the regional, national, and local levels at specific sites, ranging from massive region-wide policy and research initiatives, to alternative pilot programs at the site levels with high potential to be replicated in neighboring countries.

A. Improved Management and Conservation of Critical Ecosystems

In 2010, the program compiled existing information on areas of significant biological importance and appropriate geographic intervention areas and together with local stakeholders and fisheries and environment authorities, selected those of highest importance for the region. Upon reviewing criteria for selection including opportunities for synergies with existing initiatives, feasibility for improving management, technical viability, and political will to implement

improvements, the program identified areas covering more than 2.3 million hectares in the region in which it could improve and even expand protected area management (see box). Program interventions in these areas balanced biodiversity and conservation with the needs of local populations to survive and overcome threats in

Intervention Areas Selected to Implement Improved Management Practices

- Glover's Reef Marine Reserve, Belize
- Port Honduras Marine Reserve, Belize
- Rio Sarstun Multiple use area, Guatemala
- Punta Manabique Wildlife Refuge, Guatemala
- Cayos Cochinos National Marine Monument, Honduras
- Bay Island Marine National Park, Honduras
- Jiquilisco Bay, El Salvador
- Estero Padre Ramos Natural Reserve, Nicaragua
- Cayos Miskitos Biological Reserve, Nicaragua
- Damani Guariviara International Wetlands, Panama

What is "Improved Management?"

In accordance with USAID guidance and in line with the IUCN World Commission on Protected Areas' Framework for Assessing Management Effectiveness of Protected Areas, the program was considered to contribute to the improved management of an area when any one of the following occurred:

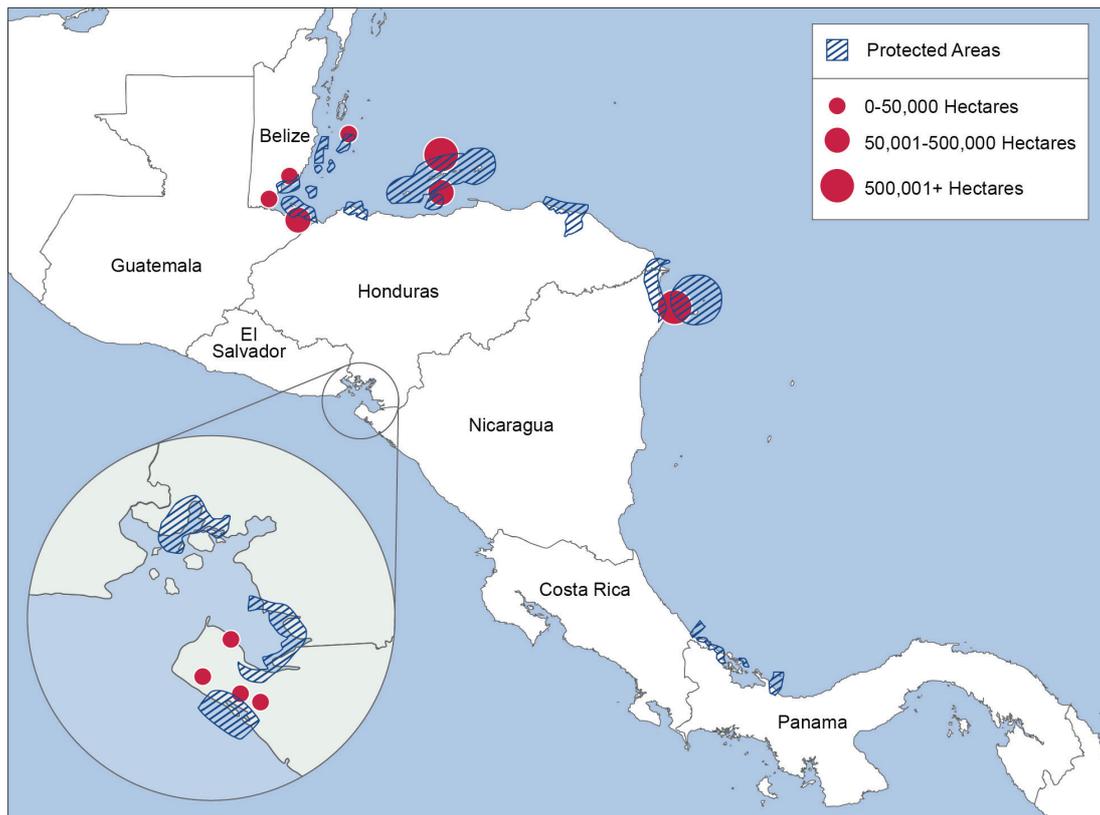
- *Context.* A local site assessment is completed which informs management planning (e.g., biodiversity assessment; socioeconomic characterization; identification of principle threats; assessment of vulnerability to climate change; assessment of legal status).
- *Planning.* Management actions are designed with appropriate participation (e.g., management plan updated/improved; management plans developed for conservation of species; development of climate change adaptation plans).
- *Inputs.* Human and institutional capacity is developed (e.g., fishermen and their communities are trained in improved fishing practices).
- *Process.* Management actions are implemented (e.g., co-management mechanisms established; plans for recuperation of threatened species are implemented).
- *Outputs.* A change in legal status favors conservation or sustainable natural resources management; or on-the-ground management impacts are demonstrated (e.g., rights-based access mechanisms established; no-fishing zones demarcated).
- *Outcomes.* Adaptive management is demonstrated (e.g., threats to biodiversity reduced; health/status of biodiversity improved).
- *Evaluation.* Ongoing monitoring and evaluation is established.

their natural environment. The program also identified eight marine protected areas in which administrative measures, management tools, and other inputs could contribute to improved management.

The Regional Program’s methodology involved evaluating the current state of protected areas and identifying and implementing the most effective interventions to promote their improved management. To date, the program has incorporated and verified implementation of improved management measures, systems for local participation and co-management, climate change adaptation measures, and improved fishing practices to foster conditions for improved management in more than 2.3 million hectares (see box).

- Program Interventions to Improve Natural Resource Management in Areas of Critical Biodiversity**
- Development of protected area and natural resource management plans
 - Establishment and expansion of no-take zones
 - Implementation of more sustainable fishing practices and techniques
 - Actions to protect species key for biodiversity
 - Implementation of access-rights mechanisms (i.e. concessions, limited licenses, and limited entry rights) for community groups that have traditionally benefitted from coastal-marine resources.

Hectares Under Improved Management



The program successfully implemented improved management plans, policies, fishing restrictions, access rights, and climate change adaptation measures through participatory processes that involved all stakeholders. This included extensive consultations with community and indigenous leaders, fishery industry representatives, local government, NGOs, and other private sector representatives. The success in these regions largely derives from the fact that participatory methods

are effective at generating buy-in for the need to consume resources responsibly, and can reinforce co-management strategies where communities and local governments take responsibility of conservation efforts — a more permanent strategy for promoting biodiversity.

Below we highlight successful examples of these processes in three management areas: Bay Islands Marine National Park in Honduras, Cayos Cochinos National Marine Monument in Honduras, and Miskito Cays Biological Reserve in Nicaragua. A detailed matrix of all program results related to improving management practices is also presented in Annex A.

Bay Islands Marine National Park. The area was declared a national park by the government of Honduras in 2010, and is the largest Marine Protected Area (MPA) in Honduras. The area has a highly developed tourism industry that faces challenges incorporating local communities and artisan fishermen. The recent development of a large number of local organizations, supported by international organizations concerned with issues of biodiversity, provided the ideal scenario for change.

In October 2010, the program signed a memorandum of understanding (MOU) with the Honduran National Institute for Forest Conservation and Development, Protected Areas and Wildlife to support the implementation of the Protected Areas Law (2007) to empower local communities and stakeholders to support biodiversity conservation in the Bay Islands. In the first two years of the park's existence, the program conducted assessments of the Bay Islands' vulnerability to climate change and helped put forward a participatory management plan that incorporated climate change adaptation measures. The implementation of the management plan, supported by the program, has helped identify additional improvements to zoning and land use policies as well as spark other management and climate change initiatives.

The management plan also outlined a co-management approach with local and indigenous fishers' associations. In December 2014, 51 community council members representing four central government ministries, four municipalities, and four local NGOs signed a co-management approach that clearly defines management responsibilities of each. This was an outstanding achievement for the program given its role in the implementation of the management plan. The co-management approach will regulate how conservation and extractive activities are carried out, and will benefit the environmental, economic, social development of the Marine National Park.

To consolidate a commitment to implement the co-management approach, the program provided a series of in-depth training workshops for fishers' associations to build their organizational capacity in preparation for their roles as co-managers. In return for conserving the park's critical natural resources, the fishermen received fishing licenses and declared their commitment to using sustainable practices that support healthy ecosystems. The process of attaining a license for artisan fishermen is a unique experience in Honduras, where artisanal fisheries are rarely recorded. The licensing process also served as a pretext to train artisan fishermen on the importance of conservation initiatives like no-take zones that help improve the overall health of fishing areas on which local fishermen depend.

Reinforcing the authorities' and communities' commitment to implement the park's management plan through a co-management approach, the program developed and piloted an online system to track coastal and marine resource violations for the Bay Islands. Although the system was developed for the entire region, the Bay Islands' local governments are the first to have put the system into action. Implementing the system is a central and bold action that improves transparency in resource management and in processing complaints.



The Regional Program worked with artisan fishermen in a number of villages — such as Cayos Cochinos, Honduras (above) — across Central America. Most artisan fishermen and their families depend solely on marine products. Photo by Nestor Windevoxhel.

Cayos Cochinos National Marine Monument. The Regional Program helped update the management plan for the monument — an important step as the Cochinos Cays form part of the great Meso-American Reef Barrier System. Since its dedication as a marine reserve by the Honduran government in 1994, this was the first time that Cayos Cochinos' management plan has been updated.

With participation from local fishermen communities, the Regional Program drafted a 12-year management plan recently approved by Secretary of Environment and Natural Resources of Honduras (SERNA, as it is known by its Spanish acronym). The plan incorporated knowledge from fishing communities, who reviewed and discussed zoning, management standards, as well as permitted, restricted, and prohibited activities in a marine reserve. The management plan includes climate change adaptation measures to protect beaches and coral reefs, no-take zones for snappers

and groupers, and reserve areas where lobster fishing is prohibited, so that the species may complete their reproduction cycle. The Regional Program's intervention in Cayos Cochinos has also helped promote the formalization of access-rights for six communities. Although these access rights were included in the declaration of the marine reserve and the communities supervise access-rights themselves, these rights have never been sanctioned by the government.

Miskito Cays Biological Reserve.

Nicaragua declared this Biological Reserve in the early 1990s, yet after more than 20 years of existence, the program facilitated development of the reserve's first management plan. Participatory processes involved three indigenous territories (Prinzu Ahuya Un, Karata, and Tawira) and indigenous groups that have lived in the area for centuries and whose livelihoods depend on the natural resources of the reserve. The program worked with all three indigenous communities and the government of RACCN to negotiate and agree on a co-management approach for the area. The management plan includes a



Community leaders in Miskito Cays, Nicaragua, attend a program-led participatory workshop to develop the reserve's management plan. Photo by Nestor Windevoxhel.

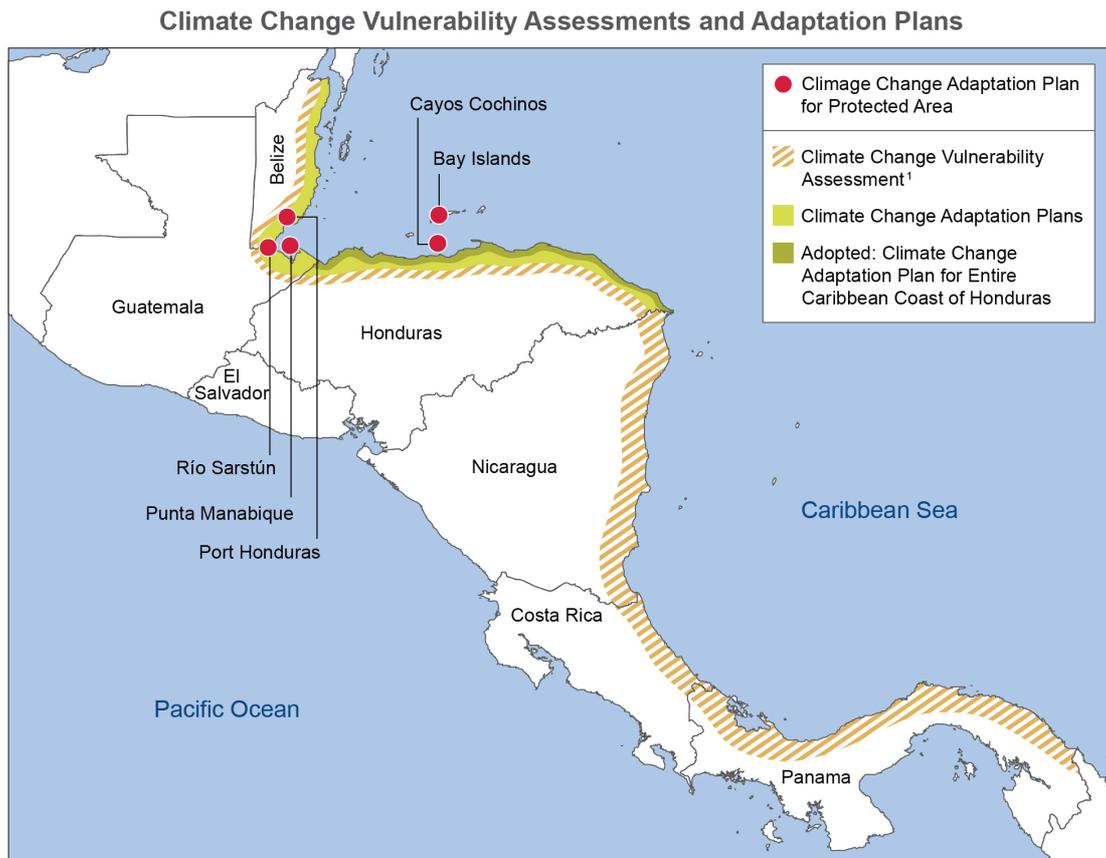
proposal to re-categorize the MPA, from only allowing scientific research activities to recognizing the rights of the indigenous communities to benefit from the natural resources through sustainable fishing and development.

In mid-2014, the management plan and proposals were submitted and approved by the RACCN governor and by the regional technical environmental authorities. The Regional Autonomous Council expects to approve the plan in early 2015. Once approved, the plan would include management of the larger watershed as well as of the Cays' critical coral reefs and mangroves. By including the watershed and expanding the management area, the plan effectively integrates land and sea conservation, which prior to 2015 had not been done successfully. This promotes better management and reproduction of key ecosystems that are important for biodiversity and increases the ecosystems' resilience to effects from climate change.

A1. CLIMATE CHANGE ADAPTATION

Although major activities in climate change were not initially visualized during the design of the program, a coastal-marine resource management program cannot work on conservation and biodiversity without first understanding the effects of climate change on its regions and communities, as well as the species and natural resources impacted. Some of the effects of climate change affecting these areas include increases in carbon dioxide and acidity in the ocean, ocean level rise, increases in ocean water temperatures, and high intensity tropical storms. All of these effects will have major impacts on coastal-marine resources in the region and in the livelihoods of coastal populations.

To prepare Central America for these effects, the Regional Program conducted five vulnerability assessments, including a vulnerability assessment for the entire Caribbean coast of Central America. The assessments included information on the effects of climate change on coral reefs, fisheries, seagrass, and turtles, as well as ecological systems like mangroves, coastal wetlands, beaches, and sand dunes. The assessments also served to identify the most vulnerable areas in the region, and assessed the adaptive capacities of coastal communities.



¹ In partnership with the USAID Regional Program, BIOMARCC conducted the vulnerability assessment along the Caribbean coastline for Nicaragua, Costa Rica, and Panama.

Building on findings from the vulnerability assessments, the program developed nine adaptation plans for coastal areas spanning Belize, Guatemala, Honduras, Nicaragua,

and Panama. Measures identified in these climate change adaptation plans have been incorporated into protected area management plans in Honduras and Nicaragua. Additionally, the adaptation plan drafted by the program was approved and adopted by the Honduran government as the national climate change adaptation strategy for Honduras' Caribbean coast. The government of Guatemala also developed an action plan and drafted a proposal for a climate change law, using as a source of information the vulnerability assessment and adaptation plan produced with the program's technical and financial support. In their national strategies for sea turtle conservation, both Guatemala and Honduras have also incorporated climate change adaptation initiatives directly related to sea turtle protection — a tangible sign of the impact of the program's efforts in climate change adaptation.

A2. Sea Turtle Conservation

Sea turtles are emblematic animals that represent the ocean's biodiversity. All species of sea turtle are included in the International Union for Conservation of Nature's (IUCN) endangered species list. A series of threats exists for sea turtles ranging from overexploitation (hunting, egg collecting, and meat consumption) to accidental capture and drowning, beach erosion, and pollution. Coastal population growth and development along coasts further exacerbates the problem, rapidly destroying natural habitats where sea turtles breed.

Recognizing not only the need for *in situ* protection, but also the regional threat to sea turtle survival, the program worked at the local and national levels to provide additional protection for the most endangered species such as the Leatherback (*Dermochelys coriacea*) and Hawksbill (*Eretmochelys imbricata*) sea turtles.

At the national level, the Regional Program worked with government authorities to prepare national strategies and policies that could help improve management practices at the local level. To prepare these strategies and obtain public buy-in, the program sponsored working groups composed of civil society organizations, NGOs, government authorities, and private sector representatives. The working groups gathered basic existing information on source and location of major threats, nesting sites, agencies working on conservation and their impacts, and labor and research needs to strengthen conservation activities. Through a series of workshops, the information was shared with authorities, local communities, and other stakeholders who would be impacted by the national strategies and policies. The workshops and process helped the program rally multiple stakeholders, with varying



Local and international volunteers learn how to rescue sea turtle hatchlings in Cahuita, Costa Rica. Photo by Julio Barquero.

degrees of interest, to support national strategies to promote sea turtle conservation. The program helped develop or improve national strategies for sea turtle conservation in Guatemala, El Salvador, and Honduras.

At the local level, with support from the Sea Turtle Conservancy, Wider Caribbean Sea Turtle Conservation Network, and Eastern Pacific Hawksbill Initiative, the program worked with coastal communities to help protect the most endangered sea turtle species and to promote economic alternatives to deter families from profiting from the sale of sea turtles and their eggs. *In situ* conservation involved the participation of local communities in maintaining turtle nurseries and facilitating hatchling release. The program worked in the Gulf of Fonseca, one of the most important breeding grounds for Hawksbill sea turtles, and worked in the binational regions of Costa Rica and Panama.

Program efforts have resulted in a total of 1,606,497 hatchlings being protected and released throughout Central America. Although the program focused its efforts on Hawksbill and Leatherback turtles, about six percent of all hatchlings were Olive Ridley, Green, and other species. The majority of results of *in situ* conservation efforts were in the Cahuita-Bocas del Toro bi-national zone, which has the highest rates of Leatherback and Hawksbill nesting in the program's areas of intervention.



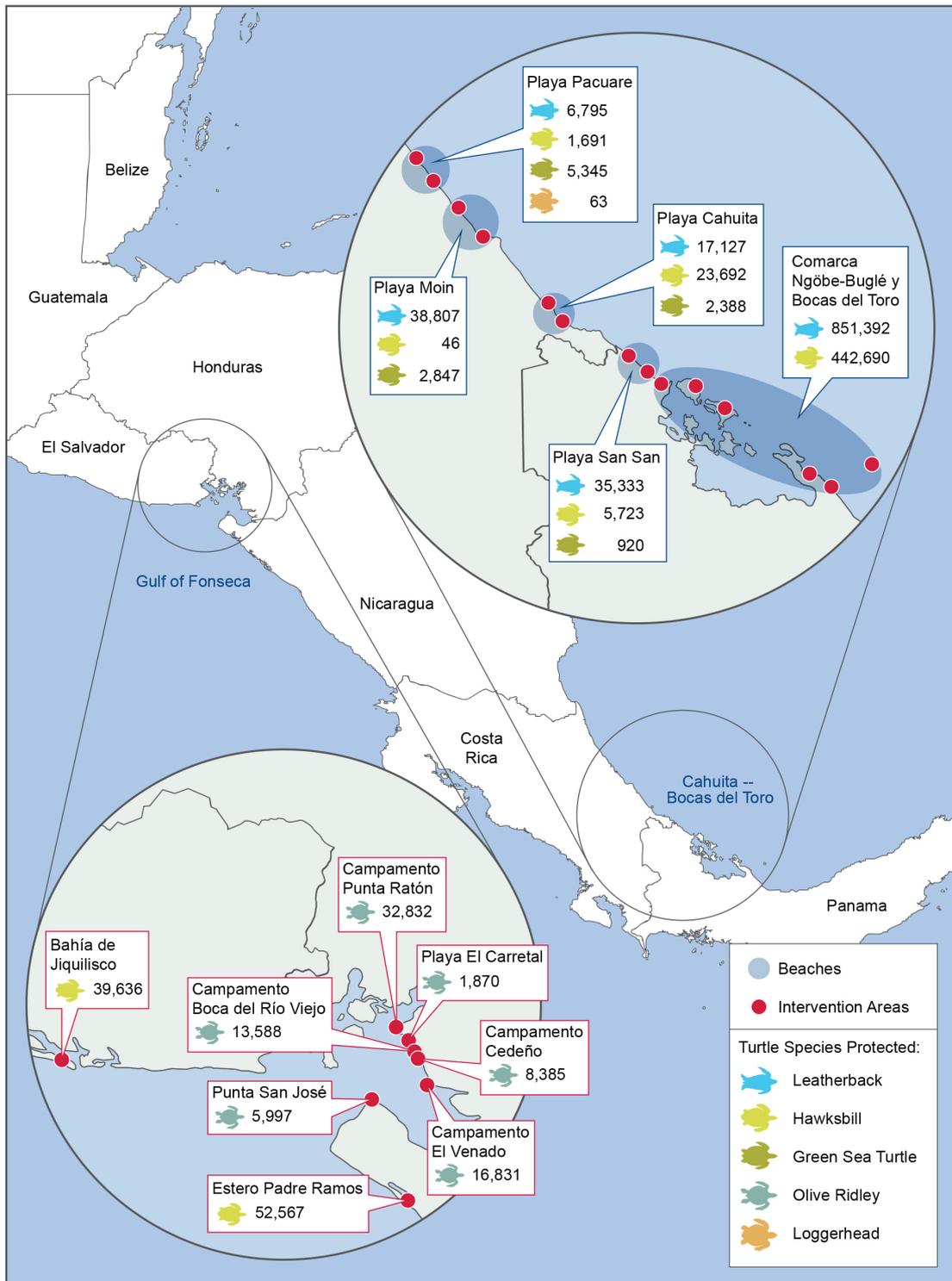
Hatching season for Leatherback sea turtles in Cahuita, Costa Rica. Photo by WIDECAST.

B. Monitoring and Enforcement of Coastal and Marine Resource Policies and Regulations

Policies and regulations have a direct effect on conservation and utilization of coastal and marine resources. For this reason, one of the program's objectives was to promote the effective monitoring and enforcement of policies and legislation related to coastal and marine resources. Promoting effective policy enforcement and regulation required an in-depth understanding of the status and implementation of laws and regulations in Central America. After an extensive legal analysis, the program found that there were many well drafted laws and policies regulating coastal-marine resources. Serious weaknesses existed however, in how compliance with policies and regulation were monitored and enforced. A serious lack of communication and understanding of legal responsibilities across government institutions significantly weakened the state's ability to enforce existing regulations.

To overcome these challenges, the program worked to: 1) harmonize and update policies and regulations at national and regional levels; 2) design and develop strategies that promote compliance with laws and action plans for coastal-marine ecosystems; 3) Promote public participation for transparency and oversight.

Sea Turtle Hatchlings Protected



B1. Enhanced Policies and Regulations

The program's major advantage to achieve considerable results strengthening environmental policies and regulations was a signed MOU between USAID, the Organization of the Fisheries and Aquaculture Sector of the Central American

Isthmus (OSPESCA), and the Central American Commission for Environment and Development (CCAD) — the latter two representing influential regional government entities that worked with the program and supported its actions during the five years of implementation. Through this collaboration the program has been able to draft and apply a number of policies that harmonize fishery practices and management policies, as well as strategies that serve to protect critical species for marine biodiversity. Most policy instruments are drafted through processes that involve participation, coordination, consultation, and consensus building among key stakeholders. Taking the time to follow through with these processes ensures that policies will be followed by marine-resource users and applied by municipal, regional, and national governments. Below we provide representative examples of program assistance at each level.

Regional fisheries-environment agenda. While they have related and sometimes overlapping responsibilities, Ministries of Environment and Ministries of Fisheries and Agriculture in Central American countries rarely coordinate strategies to more sustainably manage critical natural resources. One of the institutional, social, and scientific aspirations of regional authorities OSPESCA and CCAD has been to develop coordinated work plans for the management and protection of marine and coastal resources for each of the seven countries in the region, as well as for the region as a whole.

The program, in support of OSPESCA and CCAD, initiated the process of consulting with 55 institutional representatives from all seven Central American countries to develop joint National Fisheries-Environment Agendas for Panama, Costa Rica, Guatemala, Honduras, El Salvador, and Belize. From the six national agendas, the program developed and submitted a Regional Fisheries-Environment Agenda to the Regional Secretariats of SICA, CCAD, and OSPESCA that synchronizes the agendas of all Central American fishery and environmental institutions. The majority of proposed activities in the action plan in the Regional Agenda will be implemented through the establishment of inter-institutional coordinating bodies that do not require additional funds, but rather optimize the use of existing resources.

Harmonized closed seasons for Nassau Grouper. Prior to the program's interventions, the three countries that border the Gulf of Honduras (Belize, Guatemala, and Honduras) imposed different close seasons for the Nassau Grouper, an important commercial fishery in the region. The varying enforcement of closed seasons among these countries did not give the fishermen the incentives to allow the species to complete its reproductive cycle. For example, when it was time to impose a closed fishing season in Guatemala, fishermen would simply navigate their boat to ocean waters controlled by Belizean or Honduran authorities and continue fishing. Through program interventions, local and national authorities, with support from fisherman and other stakeholders who benefit from marine resource in the Gulf of Honduras, agreed to harmonize the closed season for grouper and other important coordinated regulations critical for the recuperation of the species.

Tri-national fishing standards in the Gulf of Fonseca. In 2011, the program brought together more than 20 independent and organized fishermen with regional and local authorities from El Salvador, Honduras, and Nicaragua to discuss threats of overfishing in the Gulf of Fonseca. Together, fishermen and authorities identified the

most fragile and endangered fish and shellfish species and those of greatest commercial value and agreed to take steps to improve fisheries management, enhance regulations, and increase compliance in the gulf. Fishermen and authorities jointly developed proposals to improve fishing practices, including coordinating closed



Artisan fisherman in the Gulf of Fonseca, El Salvador, rows through mangroves. These areas play a central role in keeping coastal-marine ecosystems healthy. Photo by Nestor Windevoxhel.

seasons, standardizing fishing techniques, and establishing minimum catch sizes. They also agreed to prohibit the capture of sharks within the Gulf of Fonseca.

With program support, fishermen and authorities continued to refine the proposals and on April 6, 2011, authorities from all three countries officially agreed to a series of tri-national standards for fisheries management in the Gulf. Today, more than 8,500 fishermen are implementing improved fishing practices in the Gulf of Fonseca, resulting in conservation of the valuable coastal and marine resources on which they depend.

B2. Strategy for Tracking and Monitoring Coastal-Marine Resource Violations

In most Central American countries there is an urgency to improve reporting of illicit coastal-marine activities to strengthen legal enforcement and criminal proceedings like investigations, prosecutions, and trials. Given the complexity of the problem and the actions needed to implement a solution across Central America, the program chose to design and implement a complaints tracking and monitoring system for coastal and marine violations in three pilot sites: La Union, El Salvador; Chinandega, Nicaragua; and Bays Islands, Honduras. The program complemented the implementation of the system with trainings and a public awareness strategy.

Operational protocols for coastal-marine violations. To effectively track and monitor complaints, the program first helped local authorities develop operational protocols for violations of coastal-marine resource regulations. Central and local public sector institutions responsible for environmental compliance often operate under a complex regulatory framework that at times can create jurisdictional conflicts. The operational protocols — developed with the participation of all relevant actors — defined responsibilities and actions to expedite and coordinate monitoring and compliance, as well as administrative and judicial processes related to prosecuting violators. These protocols improve environmental supervision, monitoring, and compliance via effective coordination of law enforcement, environmental and fisheries authorities, prosecutors, and other actors responsible for application of environmental regulations and enforcement of coastal and marine violations across jurisdictions. Three countries, 24 institutions, and 140 professionals have been involved in the development of the complaint tracking and monitoring strategy.



Deputy Chief of Party Zulma Ricord de Mendoza with police officers and fishery and environmental authorities at an operational protocols workshop in La Union, El Salvador. Photo by Arnulfo Ruiz.

Systems to register and track complaints of coastal and marine violations. The program designed and implemented online complaints tracking and monitoring systems for coastal and marine violations in conjunction with authorities involved in developing the operational protocols at each of the three pilot sites. In Bay Islands, the Regional Program signed an MOU with the Center for Marine Studies (CEM), a nongovernmental research institute, for cooperation on implementing the complaints tracking system. The Office of the Attorney General (Public Ministry) will administer the system, which is currently being scaled up, and CEM will provide technical support and monitoring for two years. In Nicaragua, the Regional Program transferred the complaints tracking system to NGO Paso Pacifico, which has agreed to administer and scale it up on the country’s southern Pacific coast. In El Salvador, the Ministry of Environment and Natural Resources (MARN, as it is known by its Spanish acronym) will adapt and extend the system to incorporate other environmental complaints.

Training for law enforcement, prosecutors, and judges in coastal and marine regulations. To ensure the effective use of the tracking and monitoring system, the Regional Program led trainings on sanctioning on offenders for environmental and fisheries authorities, public prosecutors, and judges. Other key enforcement actors participated in workshops to reinforce their knowledge of actions that constitute crimes

Environmental Law Digests

In Central America, many public officials are unaware of laws that regulate and protect these resources. Many judges were uninformed about the existence of illegal fishing nets, and did not know their role in protecting marine resources. The Regional Program developed four national and one regional digests detailing all laws and regulations regarding fisheries and coastal-marine resources. The digests also clarified the role of each institution’s responsibilities in monitoring, executing, and enforcing coastal marine laws.

and offenses against coastal-marine resources. Trainers used the environmental law digests produced by the program for these workshops (see box above).

Public awareness. Nine radio messages were produced to increase public awareness of illicit activities and mechanisms for reporting violators to authorities. The radio messages have proven to be effective communication tools. According to an impact survey given in each of the pilot sites, there was a 30 percent increase in public's ability to identify illicit coastal-marine activities.

C. Building Capacity in Improved Fishing Practices

One of the guiding principles of the ecosystem approach employed by the program is to reduce market distortions that adversely affect biological diversity and to align market incentives to promote the sustainable use of biological diversity. In Central America, fishermen often resorted to using unlawful and even life-threatening methods like illegal gear, explosives, or scuba diving for lobster. Harmful practices do not allow marine life to reproduce, thus harming ocean ecosystems, diminishing biodiversity, and eventually ending fishers' livelihoods. Despite understanding that practices like these harm the sustainability of fisheries over the long-term, fishers' short-run economic gains often do not allow them to employ improved techniques or gear that could be both profitable and sustainable.

Improved fishing practices are fishing activities with low environmental impacts that promote the permanence of marine resources over time while conserving the ecosystem. These practices involve the use of legal fishing techniques and gear, minimal by-catch (other marine species caught unintentionally), and adherence to closed seasons, catch-size requirements, and breeding periods. Fishing under improved practices implies that fishermen can continue to benefit from coastal and marine resources while ensuring that there are still fish to catch several years from now.

Transitioning lobstermen from diving to traps. The program focused significant efforts on promoting improved fishing methods for lobster because of the negative environmental, economic, and social consequences predominant practices have on local communities that depend on lobster fishing. Lobster is highly profitable and a large number of communities of the Caribbean coast of Central America depend on the species for their livelihoods. Although lobster diving has detrimental health consequences — at least three out of 10 lobster fishermen become permanently disabled — diving has remained the preferred fishing method. Divers are also responsible for the largest catch of juvenile lobsters, which halts the species' reproductive cycle. Moreover, regional authorities have passed a moratorium on



The Regional Program delivering improved lobster traps to former divers and fishermen in Miskito Cays, Nicaragua. Photo by USAID Regional Program.

lobster diving, making the switch from lobster diving to more sustainable practices a necessity. The Regional Program estimates that 201,650 juvenile lobsters may have reached their reproductive stage due to the number of fishermen who abandoned the lobster diving fishing practice and transitioned to sustainable practices.

The program focused on converting industrial lobster diving fleets to use improved traps. The program worked closely with Copescharly SA, a lobster fishing company in Nicaragua, to develop a business plan that would guide and secure funding for improved practices. The business plan was approved and Copescharly received \$500,000 in financing, from the Central American Bank for Economic Integrations to equip four industrial diving boats with improved traps. Through assistance from the program, the company also improved its cold chain and processing plant located in Puerto Cabezas, Nicaragua. The conversion enabled 200 fishermen to transition from diving to catching shrimp and finfish, which Copescharly purchases to process for sale to its buyers. Likewise, the company has diversified its production and gained access to new markets. This effort has prompted other entrepreneurs in the area to begin to convert their fleets. According to the Nicaraguan Institute of Fisheries and Aquaculture, the number of lobster diving boats decreased from 17 in 2010 to eight in 2014, and consequently, boats using traps increased from 35 to 50 during the same period.

The program also promoted the used of lobster traps among artisanal fishermen. On the Miskito Coast of Nicaragua, the program provided traps for 128 members of four fishing cooperatives: Copacayos, Keys Malvinas, El Progreso, and Copesarlan. Nicaraguan fishermen learned how to make lobster traps and how to identify materials that make better traps. In Costa Rica, the program trained 17 artisanal fishermen from the Southern Caribbean Fishermen's Association on using improved traps and helped the association market its lobster to Product-C, a seafood company based in San Jose. The program also procured materials needed to transport the lobster from the coast to the capital city. During 2013 and 2014, the association realized \$11,603 in direct sales for lobster caught using improved fishing practices.

Introducing improved labor standards for sea workers. Through studies and consultations, the program developed a labor codes of conduct for sea workers on the Miskito coast of Nicaragua and Honduras to encourage the fishing industry and local authorities to improve conditions for artisanal fishermen and women linked to fishery activities, and to reduce the numbers of divers disabled due to unsustainable lobster fishing practices. In this region of Central America, the lobster industry tends to use intermediaries to avoid legal responsibilities complying with labor rights. For this reason, the Regional Program promoted compliance with labor codes by training 539 local leaders and stakeholders on the topic in both Honduras and Nicaragua. The program also designed six radio messages on women's labor rights, as well as the need to use coastal-marine resources sustainably for the well-being of coastal communities. The program's work on labor rights was well received in the region and women trained became involved in training other women.

Reducing by-catch and improving the cold chain. The program first worked with the Cooperative Association for Fish Production of the Pacific (ACOO PACIFICO) to improve fishing practices. The program provided legal nets and trained its members on how to use nets that reduce by-catch.

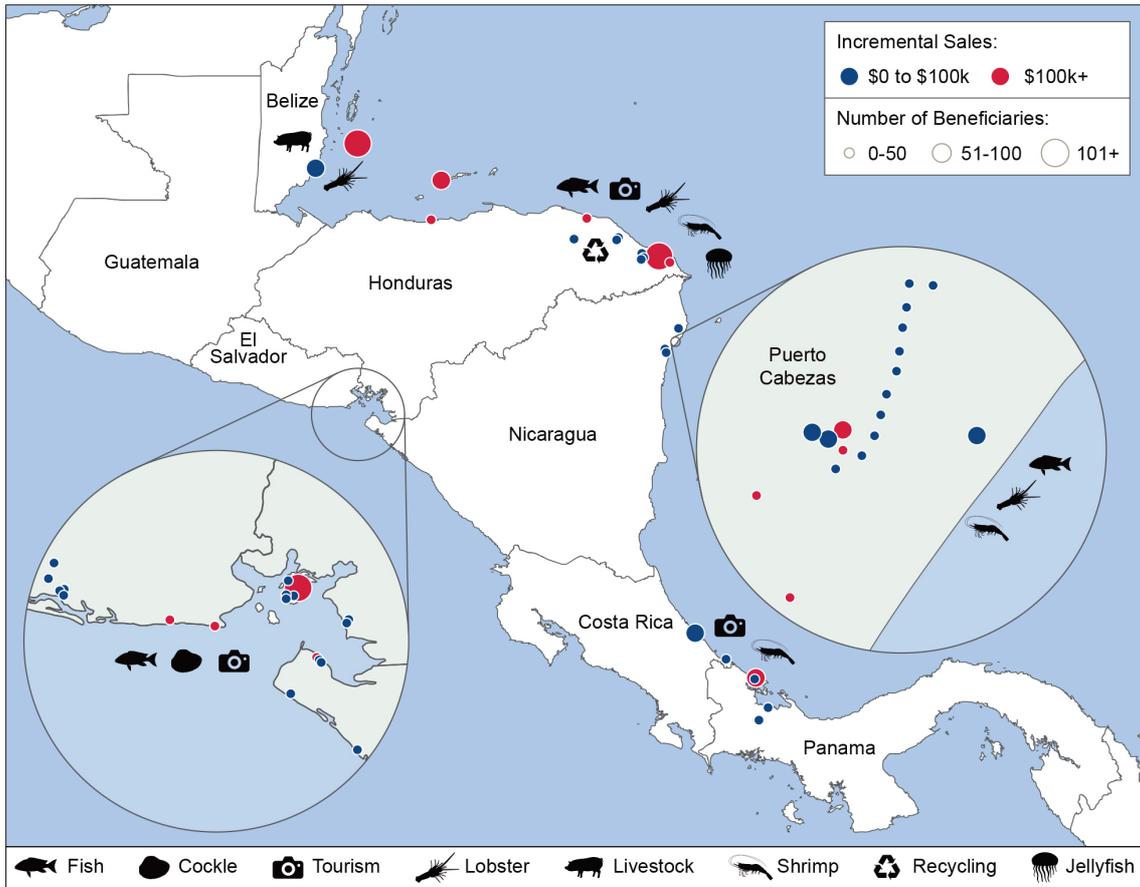
ACOO PACIFICO and its members also participated in program-sponsored workshops to harmonize fishing seasons in the Gulf of Fonseca, as well as in a number of meetings where

fishermen from the area agreed to follow improved fishing practices. Although ACOOPACIFICO was committed to fishing sustainably, the cooperative struggled to find buyers and had an inadequate cold chain that resulted in a loss of 40 percent of their catch. The Regional Program worked with ACOOPACIFICO to draft a business plan that would help the cooperative secure the financing needed to develop the much-needed cold chain. Today ACOOPACIFICO has improved its managerial and business skills, and with the program's help in securing buyers, the cooperative sells nearly 100 percent of its product. ACOOPACIFICO's success benefits more than 34 artisan fishermen directly.



The program provided ice makers for fishing cooperatives in Golfo de Fonseca and trained them on sanitary procedures when making ice and storing fish for transport. Photo by Zulma Ricord de Mendoza.

Number of Beneficiaries and Incremental Sales Realized Using Improved Management and Fishing Practices



D. Aligning Market Incentives to Promote Sustainable Use of Biodiversity

Given the difficulty in ensuring short-run gains in economic alternatives for fishermen who have to support their families, the program adapted a buyer-led approach to ensure that economic alternatives presented to fishermen would be profitable as well as sustainable. The core principle of the buyer-led approach is that to be sustainable, alternative livelihoods must be led by producing what sells instead of trying to sell what is produced. The buyer-led approach was used to help fishermen who were using improved fishing practices, and encourage buyers to market these goods as sustainable products to consumers.

Linking cooperatives to buyers with appetites for more sustainable products. An example of the program's ability to change fishing practices on a larger scale is its influence in the business relationship between Walmart and ASPESCU, a fishers' association from El Cuco, El Salvador. The Regional Program, Walmart, and ASPESCU, signed an MOU that established a relationship between ASPESCU and Walmart's sustainable marketing division to promote the commercialization of seafood products caught using improved fishing practices. Together, Walmart and the Regional Program provided specialized technical assistance to ASPESCU. Due to this support, ASPESCU has significantly improved its collection and processing facilities, trained its members on best fishing practices, and has a stellar management team. With program support, ASPESCU has been able to provide legal fishing nets to its members, which further reduces by-catch and enhances their fishing efforts.



Chief of Party Nestor Windevoxhel signing MOU between Program, Walmart and ASPESCU. Photo by USAID Regional Program

Traceability system for lobster. On the Miskito Coast of Honduras and Nicaragua, the program implemented a pilot traceability system to monitor improved fishing practices for lobster on industrial vessels outfitted with traps. In Honduras, the program worked with companies like Howard del Mar, Marinos Pescaderia, and importer NETUNO USA to implement a traceability system to track lobster caught using improved traps from capture to export. To date, 14,000 pounds of lobster worth \$215,000 have been traced and sold in Miami, Florida. The program replicated the system in Nicaragua, working with industrial fleets and processors like Copescharly, Promarnic, and Atlanta Corporation. In less than a year, the system has traced 4,000 pounds of lobster worth \$64,000. Through these pilot systems, the wholesale buyer is guaranteed that the lobster was obtained using safe and sustainable fishing practices.

E. Promoting Biodiversity through Alternative Livelihoods

To promote biodiversity in rural coastal communities, the program had to find economic alternatives for fishermen to redirect their efforts toward less threatened species, or toward sustainable opportunities that do not involve resource extraction. These alternatives had to provide viable incomes or communities would revert to extractive activities harmful to the environment. The buyer-led approach was a successful tool to overcome this challenge.

Central to the program's success was its strategic alliance with local organizations and multilateral institutions. The program could not have financed the large number of targeted economic activities on its own and leveraged more than \$8 million in funds from government agencies, NGOs, private sector partners, and other donors to ensure the economic and environmental success of alternative livelihoods.

Program assistance focused on helping fishermen associations use improved fishing practices to commercialize their products, reduce marine resources wasted during processing, and diversifying their fishery products. Fishermen who live in remote areas with little electricity can lose up to 40 percent of their catch or more, representing a large amount of marine life wasted. This waste is often due to inadequate cold chains and other processing tools and skills needed to reduce spoilage.

Diversifying products. On the Miskito Coast of Honduras, the Regional Program provided similar support to the fishermen association KAUMA. At the start of the program, KAUMA's membership consisted mostly of lobster divers who risked their lives every day to provide for their families, and often fished juvenile lobster or females with eggs. The association had little alternatives and although it was a relatively large cooperative, it lacked the business and managerial skills to run more efficiently. It was also in great need of a central warehouse where the members of the association could drop off fish ready to be processed. The Regional Program worked with KAUMA to develop a business plan that would help diversify its products, mostly by selling snook and jellyfish. Through the Honduran Social Investment Fund, the association secured the financing needed to build the storage and collection center. The program also financed a consultant for six months to help the KAUMA build the business skills needed to manage its operations and commercialize its products. Today, KAUMA fishermen no longer chose to dive for lobster, and through the Regional Program's support, they use improved fishing practices and have diversified their products, putting less stress on one species.

Introducing shrimp fishing with suripera nets. In Honduras, Nicaragua, Costa Rica, and Panama, the Regional Program promoted the use of *suripera* nets among former lobster divers, a low environmental impact technology and economic alternative to the dangerous practice of lobster diving. *Suripera* nets are used to fish the highly profitable white Caribbean shrimp, and are ideal for sailboats, which reduce the need for fuel making it a low-cost shrimp operation. The nets have a very low by-catch rate and no effect on the seabed, making them equipment that is good for the environment and fishermen alike. This innovative fishing technique is new to Central America, but has been very successful in Baja California, and Sinaloa, Mexico, where fishermen have been using the nets for more than 30 years.



Fishing shrimp with suripera nets was promoted by the Regional Program as an affordable alternative for lobster divers. Mexican fisherman taught Central American fishermen to use the nets during a training sponsored by the program. Photo by GOAL.

To demonstrate to artisan fishermen that this technique could effectively replace lobster diving, the program sent seven fishermen and community leaders from the Miskito Coasts of Nicaragua and Honduras to Mexico for a fishermen-to-fishermen exchange. Central American fishermen learned how to make and use *suripera* nets, and visited Mexican shrimp collection and storage centers, which helped Miskito Coast fishermen visualize the market potential of this sustainable fishing practice. Through workshops financed and organized by the program, fishermen who traveled to Mexico trained other fishermen in their communities. More than 500 fishermen were trained on using *suripera* nets, and the program developed a training manual for distribution to interested fishermen.

Most recently, Honduras and Nicaragua have reserved three nautical miles off the coast for exclusive use for artisanal fishing, which is where most of the white Caribbean shrimp are found. Both governments have also begun their own pilot program for *suripera* nets, making this a real alternative to lobster fishing and an alternative that has a positive impact on biodiversity.



Geotourism business — including this one in Tranquilo Bay, Panama — protect the local environment and cultural heritage. Photo by GoBlueCentralAmerica.org.

Marketing platform for sustainable tourism. How humans and businesses safeguard and interact with coastal-marine ecosystems is as important for

biodiversity as ensuring that fishermen benefit from marine resources sustainably. For this reason the program partnered with National Geographic to develop the Go Blue Central America Geotourism MapGuide (www.gobluecentralamerica.org), an online marketing platform designed to promote local businesses using sustainable practices and increase their access to markets. More than a website, geotourism is a tourism concept recognized worldwide for the sustainability criteria businesses must adhere to in order to be featured in a geotourism website. Geotourism takes the principle that revenue from tourism should promote conservation; therefore, businesses must commit to the conservation of biodiversity through the sustainable use of resources and appropriate waste management practices if they are to be featured.

The Regional Program worked in two pilot sites, Roatan, Honduras and Bocas del Toro, Panama, and helped create local geotourism stewardship councils, led by NGOs, private sector, and local residents, which ensure that participating business owners adhere to sustainability guidelines. As of June 2014, 141 small businesses have joined the Go Blue platform and have committed to environmentally friendly business practices. More than 400 employees of participating businesses were trained in best practices for sustainable tourism. The program distributed a manual with best practices and a code of conduct for visitors at the pilot sites. The Regional Program also designed and implemented a system to monitor incremental sales of participating businesses, and during the first 18 months of the online platform, participating businesses saw a \$1.5 million increase in sales. These sales, demonstrate the value of sustainable tourism for consumers and an economic opportunity for small businesses. Moreover, platform has the potential to be replicated by other countries wishing to promote tourism that embraces globally recognized sustainability guidelines.

F. Gender Integration

Conventionally, the fishery industry is a male-dominated economic sector that is managed almost exclusively by men. However, along all coastal communities in Central America, women play an important role in collecting and commercializing fish products. Women's participation is evident at every stage of fish and seafood value chains, but their work is rarely recognized or valued by society and government institutions. Most women carry out productive activities using their own resources, without guidance, and without technical or financial support. Their work makes substantial contributions to their families' income, as well as food security.



Women in Bilwi, Nicaragua selling the catch of the day at local market. Photo by the USAID Regional Program.

Because women's involvement in fisheries varied at each program intervention site, the Regional Program adapted its gender strategy to fit each community's context and

needs. The following four gender-related success stories highlight the Program's integration of gender issues into its activities.

El Rosario Cooperative. The women's cooperative of El Rosario harvests mangrove cockles in the Gulf of Fonseca in Nicaragua. With the program's direct help, the Ministry of Environment awarded the cooperative a 20-year concession to harvest cockle exclusively while accepting the responsibility to sustainably manage the resource in the area. The program also organized and trained the cooperative to improve their preparation of cockle appetizer cocktails, which has become an important source of income for some of the women.

Indigenous Women's Recycling Association. On the Miskito Coast of Honduras a group of women have been cleaning and recycling their community to protect the natural resource on which they depend. However, the women's association, locally known as MIMAT, lacked the resources and expertise to grow and profit from their recycling activities. The program helped them develop a business plan that enabled them to invest in collection centers, which significantly improved their recycling efforts and ability to sell more recycled materials to regional collection companies. With the increase in profits, the association has invested in machinery needed to grow their business and recycling efforts have become a viable source of income for many female-headed households.

Labor rights in the fishery sector. Women from the Miskito Coast of Honduras and Nicaragua became powerful Program allies to help raise awareness on labor rights related to the fishery sector in the region. A great example is Berna Collins, a local leader who sells lobster and other seafood products, and now an ardent promoter of labor rights among other women. Berna was always aware of the health implications of risky fishing activities and the gender-wage gap in the trade; however, she was unaware that men, women and children working in fisheries had labor rights. The program worked in many communities disseminating and encouraging compliance with labor rights. Women like Berna, who were trained by the Program, are now raising awareness on labor rights for sea workers with their female colleagues and in their communities.

Capacity Building for Women

One in three program participants in capacity building events were women. More than 3,600 women were trained by the program on policy, improved fishing practices, improved management practices, and labor rights.

GENDER CASE STUDY

Empowering Women to Protect Mangroves

Exclusive rights to harvest mangrove cockles and support from USAID helped members of El Rosario Women's Cooperative earn more money while sustainably managing threatened coastal resources.



Photo: Amulfo Ruiz

Members of El Rosario Women's Cooperative sell their products at a local fair.

CHALLENGE Women throughout Central America play an important role in the region's fishing sector, but they are often engaged in activities that provide small economic returns. One women's cooperative, El Rosario in Nicaragua, struggled to find buyers for its black cockles, which grow in the community's mangroves. "We could not go on like this; these women were not bringing in enough to make a living" said Julia Berta Lara, President of the cooperative. Habitat destruction and over-exploitation furthered threatened cockle populations, and in turn, local women's livelihoods.

INITIATIVE Realizing the group's determination to improve their livelihoods, USAID helped its 12 members make their case before the national environmental authority, which granted El Rosario a concession to harvest cockles and conserve mangroves along three hectares of Nicaraguan coastline for 20 years. The women fenced in the area, installed elevated wooden walkways, completed reforestation work, and "planted" juvenile cockles to repopulate the area, thereby successfully implementing a mangrove management strategy.

USAID also helped the cooperative develop and submit a business plan to add value to its products to the Regional Center for the Promotion of Micro, Small, and Medium Enterprises. The Center provided Cooperative El Rosario with US \$9,000 to purchase a canoe, nets, and equipment to prepare and market cockle cocktails.

RESULTS Today, the El Rosario Women's Cooperative has increased its income selling a higher value added product. Where its members' once earned \$0.40 per dozen raw cockles, they now sell cocktails for \$4.40 per dozen.

GENDER CASE STUDY

Supporting Women Leaders in Fisheries

USAID helped the president of the Bocatoreño Fishers' Union to pilot an innovative method to farm fish in floating cages, boosting the association's revenues and generating economic benefits for its members and their families.



Photo: Arnulfo Ruiz

Professor Machazeck with the USAID Regional Program's alternative livelihoods specialist.

CHALLENGE The Bocatoreño Fishers' Union (UPESABO, as it is known by its Spanish acronym) was founded in 1999 by 163 fishermen, who primarily fish in Almirante Bay in the archipelago of Bocas del Toro, Panama. UPESABO was formed under the leadership of Martha Machazeck, a teacher and native of Bocas del Toro, in an effort to protect the livelihoods of local fishermen and fisherwomen and to foster conservation and responsible management of coastal and marine resources. UPESABO has worked diligently to manage local fisheries on which its members depend. Overharvesting and contamination in local waters have negatively impacted fisheries and resulted in steady revenue declines over the past decade.

INITIATIVE As president of UPESABO, Martha found a strategic ally in USAID. The agency helped her design and implement a pilot program to farm snapper in floating cages as an additional source of income for UPESABO members. In 2011, USAID teamed with the United Nations Development Programme's Small Grant Programme and the bi-national Sixaola River Basin Management Program, supported by the Inter-American Bank, the Global Environmental Fund, and the Panamanian Authority for Aquatic Resources to support the pilot program. Together, the alliance contributed \$90,000 to finance the construction of four floating cages and a cabin to house processing operations.

RESULTS By 2014, UPESABO had farmed more than 3,870 pounds of snapper, generating revenues of more than \$8,700 for the 25 fishermen involved in the pilot program. UPESABO expects to triple production when it installs another eight cages in 2015. Martha asserts that fattening snapper in floating cages has been a great success: "Our sales will pay for our members to attend a training focusing on using fish by-products to generate feed. Through this practice, we will be able to fatten even more snapper, which will hopefully result in more revenue and greater benefits for our members."

GENDER CASE STUDY

Turning Trash into Treasure

Through solid waste collection and recycling, Miskito women combat environmental pollution, and work toward financial independence.

Photo: Helena Miranda



MIMAT leader Cendela Lopez with the site coordinator and members of the association.

CHALLENGE Miskito Coast communities in Honduras' Caratasca Lagoon subsist on aquatic resources. While the lagoon hosts a wide variety of economic activities, there was no waste management system in Caratasca. The lack of a robust trash collection system not only created environmental and health concerns for those living within these local communities, but also seriously imperiled their economic livelihoods. With these challenges in mind, 55 women, mostly single mothers, came together in 2006 to form the Association of Indigenous Miskito Women on the Atlantic coast (MIMAT). MIMAT's mission was to provide recycling and waste management services for the town of Puerto Lempira on the edge of the lagoon as well as employment opportunities for Miskito women. MIMAT initiated its operations with a small grant from the United Nations Development Programme and received a number of international accolades. Despite MIMAT's achievements however, the association was not operating as a sustainable business.

INITIATIVE At a critical moment in the association's history, USAID helped MIMAT develop a business plan. Together with MIMAT, USAID identified the need to set up collection centers to make the association's operations more efficient and enable cost savings and larger profits in the long term. USAID also helped MIMAT purchase equipment for the collection centers. MIMAT picked strategic locations for the centers around town where the bulk of trash is generated. Once brought to the collection center, MIMAT's members then transport waste to the association's recycling center where it is sorted and packaged for sale to a recycling company in San Pedro Sula.

RESULTS Collection centers have helped MIMAT increase its capacity to process waste, boosting its profits and making it a sustainable entity dedicated to cleaning up the lagoon around Puerto Lempira. "Today the operation is profitable and the fact that is a women-led enterprise makes me very happy," says Cendela Lopez, president of MIMAT.

SUCCESS STORY

Labor Rights Empower Miskito Women

Bilwi, Nicaragua: about 1,400 women known as *pikineras* collect and sell lobster and other products at local markets. USAID works with these women on labor rights and best fishing practices.



Photo: Chemonics

“My dream is that these women organize themselves to defend their rights, so that they may soon have the support they need to increase their incomes — just like me.”

— Berna Collins, successful *pikinera* and business owner who participated in the USAID Regional Program activities

Pikineras is a term used in Nicaragua for women who work in the male-dominated lobster industry. From remote villages, these women travel for days at a time to the Miskito Cays and sleep 10 to a room to save on rent. This has been the life of Berna Collins, who began her work as a *pikinera* in 1993. Today, she organizes and manages a collective of 40 other women, and together they collect up to 1,000 pounds of lobster per day. In 2007, Hurricane Felix devastated many coastal communities, which added many more women to the workforce, many of whom became *pikineras*. Just in the Miskito Cays, there are more than 1,400 *pikineras*. Most of them are single mothers, orphans, widows, or wives of disabled divers.

To work, *pikineras* often leave their children and disabled husbands at home and without care. Assuming the role of the sole breadwinner and working as a *pikinera* is tough. Many of these women are former housewives who are not used to working in male-dominated industries, and as Berna explains, “we think we’re worth nothing.”

Since 2010, USAID has empowered Miskito women through labor rights workshops.

“With these trainings, we learned that we have rights and that the work we do is important,” says Berna, who attended the workshop with 130 other women. These workshops included training courses on best fishing practices and other marine conservation topics.

“Women have experience selling seafood products, but we don’t succeed because we lack the support to improve our business. We also don’t know that have we rights and that our wages should be equal to the wages of men who do the same work. We should not be exposed to abuse or violence, and we should be compensated fairly when our husbands become disabled,” says Berna.

USAID trained women like Berna, who then trained other women on labor rights and distributed booklets with information in her community. Training other women makes Berna feel empowered and engaged. “We plan to improve our skills on other topics and organize ourselves so that we can buy new equipment and make a better living. As a leader, I’m working on this, and I am sure we will succeed,” says Berna.

SECTION III. WHAT DID WE ACHIEVE?

Over five years of implementation, the USAID Regional Program met or exceeded all targets in 20 indicators. The program was able to leverage more than \$8.3 million in funds to support the conservation of coastal and marine resources and promote improved access-rights, and implement pilot projects on economic alternatives, thus increasing its impact in the region. The following chapter presents the USAID Regional Program's impact in Central America, based on the program's results and its influence at the local, national, and regional levels. Program impact is discussed under each of the following topics: protected areas, laws and policies, improved fishing practices, and economic alternatives.

A. Improved Management and Conservation of Critical Ecosystems

- At least 2,354,000 hectares in Central America are operating under improved management practices. This involved training 1,079 people — 64 percent men and 36 percent women. Improved management practices reinforce access rights for fishermen, incorporate sustainable resource management models, and ensure public participation. These results contribute to the dual goal of balancing natural resource use and improving local livelihoods, an important perspective that Regional Program beneficiaries have gained.
- The program helped establish 12 separate rights-based access mechanisms across Central America. Access rights represent a step towards transparency and good governance in regional areas of biological importance, prevent the “race to fish,” and promote more sustainable use of limited resources.
- At least four protected areas in Central America have implemented climate change adaptation and mitigation measures. The government of Honduras has adopted the Regional's Programs adaptation plan as a national climate change action plan for the Caribbean coast of Honduras.
- The program developed a robust communication campaign to educate the public, fishermen, and fisheries authorities on recent regional regulations prohibiting the cruel and wasteful practice of shark finning.
- Program efforts have resulted in a total of 1,606,497 sea turtle hatchlings being protected and released throughout Central America. The majority of results of in situ conservation efforts were in the Cahuita-Bocas del Toro bi-national zone, which has the highest rates of Leatherback and Hawksbill nesting in the program's areas of intervention. Although the program focused its efforts on Hawksbill and Leatherback turtles, about six percent of all hatchlings were Olive Ridley, Green, and other species. From an impact perspective, at a 0.1 percent survival rate 1,606,497 hatchlings implies 1,606 potential adults added to the world population, a major contribution to turtle conservation. Moreover, the program's work with sea turtle conservation helped launch turtle tourism businesses to raise money for conservation.



Sea turtle hatching at San beach nesting site in Panama. Photo by the USAID Regional Program.

B. Improved Monitoring and Enforcement of Coastal and Marine Resource Policies and Regulations

- The program's participatory methods enabled the validation of 23 policies and strategies across all seven Central American countries, which contributed to harmonization of fishery management policies and practices in two tri-national areas, Gulf of Honduras and Gulf of Fonseca, and one bi-national area, the Miskito Coast of Honduras and Nicaragua.
- Overall, through program assistance, 11,591 fishermen, government officials, and nongovernmental organization workers were trained to implement improved fishing practices and to promote compliance with policies that benefit biodiversity conservation and coastal and marine resource management. The capacity built in Central America by the program will ensure that that policies and agreements to harmonize fishery management continue to be applied by coastal communities.
- In Bay Islands, Honduras, the program contributed to development of a fully operational system for fisheries and environment authorities, law enforcement, and prosecutors to track and monitor illicit activities. CEM will manage the system, which has been approved by the public prosecutor's office, and which will soon include the ability to track other environmental complaints. This effort would not have been possible without the program's initial design and development of the system.

- The Regional Program developed nine radio messages to encourage citizens to monitor and care for coastal-marine resources. The program conducted randomized surveys before and after airing the messages to measure impact. The general public's ability to recognize illicit activities and bad environmental practices having to do with waste management increased by an average of 22 percent. For topics related to biodiversity and endangered species, the average was 34 percent.

C. Improved Fishing Practices to Protect Biodiversity

- Four management plans for lobster, queen conch, grouper, and cockle — all commercially important species — have been implemented at a multinational level. The management plans were drafted to ensure the positive recovery of these species.
- The program promoted the harmonization of conservation practices, such as minimum-catch size for lobster, grouper, and cockle among other species, which enables the healthy reproduction of these species. Harmonization processes involved 4,412 people — 34 percent government officials, 55 percent artisan fishermen, and 11 percent disabled divers and their families — who are now better equipped to manage resources in areas of high biodiversity.
- The program facilitated the first tri-national agreement on fishery management in the Gulf of Fonseca. The agreement harmonized closures for three species, minimum catch sizes for two species, and mesh size for gillnets. Fishermen from the tri-national area are now using improved equipment, resulting in a more sustainable use of marine resources.
- In Nicaragua, 50 percent of industrial diving fleets have been outfitted with traps as a result of program assistance in the area. Consequently, the reduction in diving fleets demonstrates that improved fishing practices are economically viable and can minimize health risks. The reduction of diving fleets from direct program assistance has also prevented the capture of an estimate of 201,650 juvenile lobsters, allowing juveniles to reproduce in the following season — benefiting the species and its habitat.
- Nearly 7,137 fishermen and women have been trained in subjects related to best fishing practices and coastal marine resource management in the region. Fishermen benefitting from the Program report that these skills, along with links to buyers who want more sustainably caught fish and seafood, are enabling them to improve their catch and increase their livelihoods.

D. Market Incentives Aligned to Promote Sustainable Use of Biodiversity

- The program has facilitated more than \$11.2 million in incremental sales of products and/or services produced under improved management practices and/or access-rights mechanisms, benefitting more than 50 small and medium artisanal fishing businesses.

- The buyer-led approach and its focus on satisfying specific demands taught beneficiaries that small and large companies can be allies and benefit from one another. The program was instrumental at deepening trust between the various value chain actors. Moreover, teaching fishermen how to find buyers for the products proved to be the best mechanism to incentivize artisan fishermen to continue to operate under improved fishing practices.

E. Sustainable Alternative Livelihoods

- The geotourism marketing platform established by the program in the Bay Islands, Honduras and Bocas del Toro, Panama has resulted in more than 140 small and medium businesses and 400 workers in coastal communities using sustainable business practices, including sound waste management practices. This has a direct effect on reducing pollutants in rivers and at sea. Additionally, through the National Geographic website businesses receive direct economic benefits for adopting sustainable environmental practices because they are featured with the National Geographic brand. This makes the National Geographic platform a mechanism that ensures the continuation of sustainable practices beyond the life of the program. Further proof that the platform is a viable alternative to resource extraction for coastal communities is the \$1,516,000 in incremental sales over the baseline that this initiative has generated in the past 1.5 years.
- Since the program's introduction of *suripera* nets in the Miskito Coast of Honduras and Nicaragua, hundreds of fishermen, most of them former lobster divers, have switched to fishing shrimp and are exercising their right to fish within three nautical miles off the coast reserved for artisan fishermen.



Fisherman in Bilwi, Nicaragua. Photo by Nestor Windevoxhel.

SECTION IV. LESSONS LEARNED

This section presents the most important lessons the Regional Program learned throughout the implementation process. The lessons cover a number of topics ranging from technical implementation to private sector solutions and program management. The program hopes that the dissemination of these lessons will be helpful for future resource management programs in Central America.

Access rights vs. free access. Although most Central Americans would likely agree that free access to scarce resources is an unsustainable practice, it is difficult to implement access-rights mechanism in places where citizens have always had open access to resources. The program has made clear however, that the establishment of protected areas or reserves is an effective tool to facilitate the implementation of access-rights mechanisms, as there is a preexisting legal framework for conservation.

Implementing access rights successfully. To work for biodiversity, access-rights mechanisms must be implemented under a legal framework that allows flexibility. Organizations should use consensus building or participatory methods tailored to the local context, and should engage resource users to take part in data collection so that they too learn from the information and can continue to manage their resources sustainably. Furthermore, resource management under an access-rights mechanism is not static and always evolving; beneficiaries need external and neutral assistance to guide them through those changes and promote transparency.

Limitations of access rights and the importance of economic alternatives. While implementing access-rights mechanisms and improved fishing practices are essential for promoting biodiversity conservation, these mechanisms and practices exclude some fishermen and may even put them out of business. To ensure sustainability, alternative economic opportunities must be made available for those who lose under the new management mechanisms. The Regional Program demonstrated that sustainable economic activities can directly benefit ecosystem conservation while maintaining the livelihoods of displaced fishermen.

The role of government. It is important to strengthen links between project activities and government officials. Supporting activities that are important for all parties and effective coordination with institutions like CCAD and OSPESCA helped the program scale pilot activities. Initiatives like the system to track and monitor illicit activities, require close coordination with fishery and environment authorities, as well as public prosecutors throughout the design and development process.

Decision-making should be data-driven. Throughout its life, the program encountered a dearth of data on target species and the ecosystems that sustain them in the region. While the regional research strategy and Scribd site developed by the program will help to promote a central repository of resources on coastal and marine management, there is still much to be done to create reliable, actionable statistics to support informed decision-making by governments on policies and mechanisms to support improved coastal and marine resource management.

Local partnerships for sustainability. Strong local NGOs can be great allies, co-implementers, and promote initiatives beyond the life of the program. However,

places where local NGOs, municipal authorities, and central government representatives are present and engage with each other bring forth the best results.

Effective partnerships. Cooperation between private companies, financial institutions, and multilateral agencies proved to help achieve concrete results. To build effective partnerships it is important to establish clear commitments and agreements in writing with a clearly defined timeline. In the Regional Program's experience, synergies and agreements for cooperation can help a project most effectively leverage resources to scale activities and avoid duplicating efforts.

Gender. Women play an important role in processing and commercializing fishery resources, as well as family income and food security; and therefore, can contribute tremendously to the revitalization and conservation of ecosystems. They can also be great allies for raising awareness on issues related to best fishing practices and labor rights.

Working with communities. Programs must work with community leaders to identify sustainable economic alternatives. This is all the more important when working with fishermen associations, cooperatives, or committees. To promote improved fishing practices and sound business practices, the program must first align its interest with the needs of these organizations. Arriving with pre-set activities is a recipe for disaster.

Myths about the private sector. The general myth is that the private sector does not care about environmentally friendly practices or that sustainability is incompatible with profitability. The program revealed that the private sector *is* willing to end unsustainable practices, but many lack the financial resources, know-how, and incentives needed to switch to sustainable practices. Strong governance, monitoring, and compliance can be good incentives, but successful businesses that can be lauded as examples are all the more effective at catalyzing sustainable changes among other entrepreneurs.

Implementing the buyer-led approach. Through this approach the program helped solve a number of specific problems for fishermen associations, and increased their sales by 40 percent, making improved fishing practices a viable alternative. Using a buyer-led approach and finding specific buyers for small businesses avoids working on solutions to market problems without a specific goal. Projects must identify specific buyers and assist associations to meet market demands, rather than increase supply without a well-defined target market.

Understanding value chains to promote environmentally friendly practices. The assumption that the consumer or market demand on its own will reward sustainable fishing practices is flawed. The process of linking sustainable producers with interested buyers requires a careful study of the value chain. More often than not, fishermen need more than technical assistance on improved practices. The Regional Program had to provide technical assistance in business management, marketing, business relationships, and cold chains among other topics to achieve the expected results.

Insecurity in the region threatens biodiversity. Finally, among all the challenges encountered, security has been the greatest challenge. While beautiful, the remote areas and communities with which the program worked are vulnerable to those organizations and individuals who prefer to operate in the shadows. Unfortunately, the Regional Program lived through this experience when Jairo Mora, a Wider Caribbean Sea Turtle Conservation Network employee and exemplary local conservationist was murdered patrolling a remote beach to protect sea turtle nests in Moin, Costa Rica. The event brought great sadness and absolute clarity that international or local conservations are risking their lives to provide a healthy world for their children and grandchildren. Despite ongoing efforts to minimize security risks for all employees, the regrettable death of Jairo Mora is a sad reminder that we must maximize our resources to provide secure work environments for our staff and beneficiaries.

SECTION V. NEXT STEPS

From its inception, the USAID Regional Program's activities were designed to be supported and managed by local governments, environmental authorities, and/or local NGOs. To date, the program has received 38 letters of commitment signed by partners and beneficiaries, expressing their willingness to continue activities and to build on the results and achievements of the program. This section will highlight several initiatives that are key for Central American environmental sustainability and biodiversity conservation in light of these commitments.

Regional policies and access-rights mechanisms. Representatives from fisheries and environmental ministries from all Central American countries put considerable time and effort into creating the Regional Agenda, which coordinates all activities related to fishery and coastal-marine resource management. Regional authorities like OSPESCA and CCAD could further encourage the implementation of the regional agenda by ensuring that national authorities take on two or three specific activities per year that would also reinforce the sustainability of program-led activities.

Access-rights mechanisms have proven to be useful and viable tools for promoting sustainable resource management in the region. OSPESCA could additionally apply lessons learned from the program's pilot activities to develop a regional policy through which a number of access-rights mechanism could co-exist, as a clear path toward the sustainable use of coastal-marine resources. One specific area for future work is in the continued development of transfer mechanisms. In the program's experience, transferable quotas are difficult to implement in the region, but the regional policy could give each country the flexibility to adopt its own transfer mechanisms to circumvent prior concerns.

Although each Central American country has its own idiosyncrasies and goals, the program also successfully coordinated best management practices for target species. Some of the program's policy coordination activities helped OSPESCA implement its 2013 regional policy in best management practices. OSPESCA could further use harmonization strategies developed by the program for grouper, queen conch, and mangrove cockle (*curil*), among others, as it works towards regionalizing policies and strategies.

Improved lobster fishing practices and traceability systems. Program principles related to improved lobster fishing practices have been fully appropriated by hundreds of fishermen in Central America. Many divers have switched to fishing with traps or other improved practices. The use of lobster traps caught on quickly with artisanal and industrial fishermen. In addition to the boats the program helped outfit with traps, other industrial boat owners asked the program to help them with the transition. Although the program did not have the time or resources to facilitate further conversion, these boat owners decided to outfit their boats themselves using methods and local knowledge instilled by the program.

The growing demand for lobster caught under improved fishing practices, will soon force lobster fishermen in Central America to demonstrate some sort of best practice certification to consumers. The Regional Program's lobster traceability system piloted in Honduras and Nicaragua, has been popular and successful, and can be adapted to

fit the local and regional needs. In 2013, the first pilot system was implemented in La Ceiba, Honduras, and in 2014, the system was replicated again in La Ceiba and in RACCN. NETUNO, the company purchasing the traced lobster from program beneficiaries, is interested in strengthening business relationships with other Central American providers if they can trace the origin and fishing practices under which they catch lobster. In fact, most businesses in the United States would like to be able to certify to their consumers that their lobster has been caught using traps. Today, this is quite difficult given the few successful traceability systems that exist in the region.

A regional approach to traceability could push the lobster industry to the next level — improved fishing practices and sustainability. In OSPESCA’s most recent plan to end lobster diving, the regional authority included a traceability initiative for fishing products. OSPESCA could adopt and scale the pilot initiatives implemented by the program. A regional traceability system with a robust database that could also serve as a monitoring and evaluation system could be an enormous victory for sustainable lobster fishing in Central America.

NatGeo and geotourism. The NatGeo platform has proven to be an effective system to promote small- and medium-sized businesses in the region that adhere to geotourism principles. The platform’s success will encourage business to continue to use best management practices that promote the sustainability of coastal-marine resources and ecosystems. The website was designed to include seven tourist sites for Central America. As developing the platform is the greatest cost — one that has already been paid for by the Regional Program — it should be fairly easy to incorporate new tourism sites that feature other coastal communities interested in promoting conservation through Geotourism. An organization like SICA could work with the NatGeo platform and take advantage of the program’s experience using the website.

Tracking and monitoring illicit coastal-marine activities. A strong enforcement system is critical to ensure that other program initiatives like improved fishing practices continue to be implemented and that those that benefit from coastal-marine resources do not revert to practices that are harmful to the environment. The program created three pilot operational protocols and tracking systems for coastal-marine crimes; however, adequate follow-up is important to ensure that enforcement protocols and systems continue to operate effectively. Organizations like OSPESCA and CCAD could carry on this unique initiative region wide.

Labor codes of conduct. Labor codes were presented to the public to strengthen the compliance of laws and international codes for men and women involved in fisheries. Women working in fisheries are almost always at disadvantage: their work is not valued and is usually performed under very difficult conditions. The program prepared a guide with fundamental labor codes that should be observed, and trained local leaders to train others on workers’ rights. This is an important activity that should be carried out by Ministries of Labor and Fisheries authorities.



In the search of a better balance between natural resource use and improving local livelihoods, the program has benefitted the lives of artisan fishermen across Central America. Photo by Nestor Windevoxhel.

ANNEX A. AREAS OF BIOLOGICAL IMPORTANCE UNDER IMPROVED MANAGEMENT

Area of Biological Importance, Country	Partners	Measures Taken to Improve Management	Hectares Under Improved Management
Glover's Reef Belize	Belize Fisheries Department Wildlife Conservation Society	<ul style="list-style-type: none"> • Special Licenses System reduced the number of fishermen with access and increased the catch per unit of effort between 2010 and 2012 • Prohibited fishing during spawning periods • Increased compliance with closed season for conch and spiny lobster • Prohibited SCUBA diving; spiny lobster caught free diving only • Minimum size requirements established for all commercial species 	35,067
Damani Guariviara Wetland of International Importance Panama		<ul style="list-style-type: none"> • Management plan developed through a participatory process with local communities and authorities; plan is pending approval of the Government of Panama 	N/A
Miskito Cays Biological Reserve Nicaragua		<ul style="list-style-type: none"> • Improved Management Plan promoted compliance with existing regulations for critical commercial species. • Incorporated development plans for three indigenous territories within the reserve • Integrated new coastal areas and their surrounding marine zones increasing total hectares under the management plan from 850,000 to 1,301,657 • Reinforced rights of artisanal fishermen to fish in the first three nautical miles off the coast • Established a local co-management scheme with the three indigenous territories and the RACAN • Reclassified the protected area as a Biosphere Reserve 	1,301,657
Cayos Cochinos National Marine Monument Honduras	Fundación Cayos Cochinos	<ul style="list-style-type: none"> • Through participatory processes with fishing communities, developed and received government approval for a new management plan spanning the next 12 years • Incorporated measures for adaptation to climate change • Established no catch zones in snapper and grouper spawning zones as well as in zones critical for lobsters' reproductive cycles • Reinforced and regulated access rights of the six communities surrounding the marine protected areas and proposed exclusive rights to fish 	122,012
Bay Islands National Marine Park Honduras	Solimar TNC	<ul style="list-style-type: none"> • Analyzed and recommended climate change adaptation measures • Updated management plan recently approved by authorities established a co-management mechanism for the protected area, involving participation of artisanal fishers' associations and cooperatives • Completed the process to register and grant licenses to artisanal fishermen, including training them in permitted fishing areas and improved fishing practices • Promoted more transparent processing of coastal and marine resource violations, through the development of operational protocols and an online system to report and track violations • Continued to support more eco-friendly small and medium enterprises through the National Geographic online marketing platform (www.gobluecentralamerica.org) 	647,152.5

Area of Biological Importance, Country	Partners	Measures Taken to Improve Management	Hectares Under Improved Management
Port Honduras Marine Reserve Belize	TIDE TNC	<ul style="list-style-type: none"> Established and/or expanded no catch zones Implemented alternative livelihoods initiatives with artisanal fishermen including poultry raising in the south of Punta Gorda, and algae farming in Port Honduras (replicating successes in Placencia) Supported co-management schemes with leaders of communities adjacent to the reserve Developed a monitoring system to track fishing in the reserve Incorporated a climate change adaptation plan Reviewed existing access rights mechanisms and made recommendations to improve sustainability of fisheries 	40,470
Concessions for management and conservation of mangrove cockles Nicaragua	MARENA	<ul style="list-style-type: none"> Helped five local cooperatives obtain approval from MARENA for concessions to sustainably harvest and manage mangrove cockle fisheries and protect the mangroves in which they grow for 20 years 	25.4
Multiple Use Area, Sarstun Guatemala	CONAP FUNDAECO	<ul style="list-style-type: none"> Protected area co-manager FUNDAECO implemented recommendations on future land and infrastructure development Incorporated precautions and conservation strategies for sea turtle nesting beaches Incorporated climate change adaptation measures in the management plan (currently pending approval from CONAP) Prepared a proposal for financing to ensure sufficient funding for the implementation of proposal climate change adaptation measures 	47,582
Punta Manabique Wildlife Refuge Guatemala	CONAP	<ul style="list-style-type: none"> Helped the administrative authority, CONAP, incorporate climate change adaptation measures Established the first community fishing refuge in Bahía de la Graciosa 	159,577
Total Hectares Under Improved Management as of February 2015			2,353,544

ANNEX B. PROGRAM TARGETS AND ACHIEVEMENTS

Strategic Objective/Result/Indicator	Indicator Targets and Actual Achievements								Reasons for Significant Deviations (+/-10%) From Program Targets
		FY11	FY12	FY13	FY14	LoP	EXTENSION	FINAL	
Strategic Objective 1: Promote effective monitoring and enforcement of coastal and marine resources policies and legislation with an emphasis on compliance									
Result 1. All Central American Countries Adopt and Implement Harmonized Best Management Practices for the Sustainable Use of Target Coastal and Marine Resources (Grouper, Spiny Lobster, Queen Conch, Mangrove Cockle)									
Indicator 1. Number of coastal and marine resources conservation and sustainable use policies and legislation drafted and presented.	Target	5	5	-	10	20	1	21	In order to develop regional fisheries-environment and research strategies for CCAD and OSPESCA, the Program had to develop 7 national fisheries-environment agendas and research strategies, resulting in 16 total strategies.
	Actual	5	4	5	9	23	1	24	
	Achieved	100%	80%	500%	90%	115%	100%	114%	
Indicator 2. Number of coastal and marine resources law monitoring and enforcement strategies drafted and implemented.	Target	1	2	2	-	5	N/A	5	
	Actual	1	-	2	2	5	-	5	
	Achieved	100%	0%	100%	200%	100%	N/A	100%	
Indicator 3. Number of countries implementing harmonized fisheries violation reporting system.	Target	-	-	-	3	3	N/A	3	
	Actual	-	-	-	3	3	3	3	
	Achieved	N/A	N/A	0%	100%	100%	N/A	100%	
Indicator 4. Number of people from fisheries and environment governmental and non-governmental institutions trained.	Target	600	500	300	100	1,500	N/A	1,500	At the start of the program, fisheries and environmental regulation entities in the region were characterized by a lack of capacity. The Program integrated training activities for authorities into nearly all activities to develop a strong knowledge base in the region. The Program also identified opportunities to work with the UNDP Small Grants Program, Spanish Cooperation Agency, TIDE, and other donors and NGOs to jointly sponsor capacity building activities which enabled it to reach significantly greater numbers of staff of relevant authorities and NGOs.
	Actual	848	875	579	104	2,406	4	2,410	
	Achieved	141%	175%	193%	104%	160%	N/A	161%	
Indicator 5. Number of regional mechanisms implemented to foster research, providing peer reviewed information to sustainably manage coastal and marine resources.	Target	-	1	-	-	1	N/A	1	In addition to developing and disseminating a regional coastal and marine research strategy, the Program established a Scribd site for wide dissemination of studies and reports on regional best practices in coastal and marine management.
	Actual	-	1	-	1	2	-	2	
	Achieved	N/A	100%	0%	N/A	200%	N/A	200%	
Indicator 6. Number of technical/scientific articles on marine and coastal resource management developed with program support.	Target	8	8	10	4	30	N/A	30	In addition to reports and studies produced directly by Program specialists, the Program supported the development of numerous studies by five Program partners and at least two dozen consultants.
	Actual	8	8	29	6	51	-	51	
	Achieved	100%	100%	290%	N/A	170%	N/A	170%	
Indicator 7. Number of plans drafted or updated, and implemented for management of target species.	Target	2	2	1	-	5	N/A	5	Transboundary and/or regional management plans were developed for three commercial species. It was not possible to develop a regional plan for sea turtles, so the Program developed four management plans at the national level with harmonized elements.
	Actual	2	2	-	4	8	-	8	
	Achieved	100%	100%	0%	0%	160%	N/A	160%	
Result 4. All Central American countries adopt and implement harmonized policies on sustainable shark fisheries									
Indicator 8. Number of countries adopting and implementing harmonized policies or best practices in sustainable shark fisheries.	Target	-	-	-	6	6	N/A	6	
	Actual	-	-	-	6	6	-	6	
	Achieved	N/A	N/A	N/A	100%	100%	N/A	100%	
Strategic Objective 2: Foster rights-based and market-based mechanisms and management incentives for the conservation and sustainable use of coastal and marine fisheries resources and ecosystems, with an emphasis on ecosystem-based approaches to management									
Result 2. From a 2009 baseline value in US\$, at least 25% of product sold of combined target species is harvested under rights-based management regimes and best fisheries									

Strategic Objective/Result/Indicator	Indicator Targets and Actual Achievements								Reasons for Significant Deviations (+/-10%) From Program Targets
		FY11	FY12	FY13	FY14	LoP	EXTENSION	FINAL	
Indicator 9. Number of artisan and industrial fishermen trained on best fisheries practices, with emphasis on rights- and/or market-based mechanisms.	Target	825	1,688	2,487	-	5,000	550	5,550	Training of fishermen was an integral part of all Program activities and occurred from the first months of the Program through the extension.
	Actual	794	1,657	3,953	580	6,984	685	7,669	
	Achieved	96%	98%	159%	N/A	140%	125%	138%	
Indicator 10. Number of Individual Transferable Quotas (ITQs), catch-shares, or similar rights-based mechanisms, established and implemented for strengthened best fisheries practices on target species.	Target	2	2	5	1	10	N/A	10	The concept of Individual Transferable Quotas (ITQs) is not a popular concept in Central America. As such, the Program promoted similar, but more socially accepted mechanisms such as limited entry or access rights (e.g. concessions, licensing, limited entry licensing); catch quotas or catch shares; closed areas or "no-take zones;" and input rights (e.g. time fished, gear restrictions, size requirements). The Program took advantage of opportunities to expand no-take zones and replicate concessions even after the target had been met.
	Actual	1	2	2	7	12	-	12	
	Achieved	50%	100%	40%	700%	120%	N/A	120%	
Indicator 11. Cumulative percentage of sales of target species harvested under rights-based mechanisms and/or best fisheries practices.	Target	5%	10%	15%	20%	25%	N/A	25%	This target was established prior to contract award as part of the original request for proposal. Upon award, the Program team found it nearly impossible to find any reliable data on sales of all target commercial species at all sites. As such, the Program had to use NOAA statistics on annual exports of just two target commercial species (spiny lobster and conch) to the US as a proxy for total regional harvest of those two species. However, these baselines figures included the entire region, and not just the four sites in the Program's direct control. Therefore the baseline established was much larger than that within the Program's area of direct influence. In addition, the Program's second objective focused on promoting alternatives to fishing target species. More than 64% of sales achieved as a result of program support came from alternative products and services such as shrimp, other types of fish, and tourism. Therefore, while the Program did not reach its target of 25%, this should not be interpreted as not reaching its main objectives. On the contrary, its success in achieving significant sales from alternative livelihoods should be seen as a success.
	Actual	10%	4.4%	6.9%	5.1%	6.6%	0.0%	6.6%	
	Achieved	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Result 3. At least 1.5 million sea turtle hatchlings are protected using public-private alliances and best management practices in select areas throughout Central America									
Indicator 12. Number of sea turtle hatchlings protected and released.	Target	-	500,000	500,000	500,000	1,500,000	N/A	1,500,000	
	Actual	-	416,185	527,512	662,868	1,606,565	-	1,606,565	
	Achieved	N/A	83%	106%	133%	107%	N/A	107%	
Result 5. Decreased landings of juvenile lobsters due to the implementation of improve fishing practices as result of program interventions									
Indicator 13. Decrease in the number of Juvenile Lobsters Harvested as the Result of Program Interventions.	Target	-	-	54,700	109,402	164,102	N/A	164,102	This target reflects an estimate of the number of juveniles not captured as a result of Program efforts to transition lobster divers to improved practices and/or economic alternatives. As the Program reached higher numbers of divers than expected, this estimate is also higher.
	Actual	-	11,032	72,549	118,069	201,650	-	201,650	
	Achieved	N/A	N/A	133%	108%	123%	N/A	123%	
Result 6. All Central American countries adopt and implement harmonized policies for coral reef and mangrove management as critical ecosystems to adapt and build resilience to climate change									
Indicator 14. Number of plans for coral reef and mangrove management to adapt and build resilience to climate change drafted, adopted, or implemented.	Target	-	1	9	-	10	N/A	10	The positive impacts of early climate change vulnerability assessments and adaptation completed in the Gulf of Honduras spurred involvement of new actors and development of new management plans in 5 marine protected areas, surpassing the target by 40%.
	Actual	2	9	1	2	14	-	14	
	Achieved	N/A	900%	11%	N/A	140%	N/A	140%	
Indicator 15. Number of hectares of biological significance and/or natural resources under improved natural resource management as a result of USG assistance.	Target	35,000	465,000	500,000	200,000	1,200,000	N/A	1,200,000	The coverage area of marine protected areas in Cayos Cochinos and the Miskito Cays Biosphere Reserve was expanded greatly during the course of work, thereby significantly surpassing the target for hectares under improved management.
	Actual	35,067	647,153	20	1,671,303	2,353,543	935	2,354,478	
	Achieved	100%	139%	N/A	836%	196%	N/A	196%	
Result 7. At least two (2) labor standard manuals, codes, or guidelines drafted and validated with local communities, the private sector, and governmental officials.									
Indicator 16. Number of labor standards, manuals, codes, or guidelines drafted and validated with local communities, the private sector, and governmental officials in the Miskito Coast of Honduras and Nicaragua.	Target	-	-	1	1	2	N/A	2	
	Actual	-	-	-	2	2	-	2	
	Achieved	N/A	N/A	0%	200%	100%	N/A	100%	

Strategic Objective/Result/Indicator	Indicator Targets and Actual Achievements								Reasons for Significant Deviations (+/-10%) From Program Targets
		FY11	FY12	FY13	FY14	LoP	EXTENSION	FINAL	
Result 8. Sustainable and productive pilot projects formulated and implemented in Honduran and Nicaraguan Miskito Coast, which allow active lobster scuba divers, to move on to appropriate new jobs, with improved labor conditions and earnings, in substitution to the SCUBA lobster fishery.									
Indicator 17. Number of families benefitting from productive pilot projects in the Miskito Coast of Honduras and Nicaragua.	Target	-	-	625	625	1,250	N/A	1,250	The Program surpassed its targets because demand for Program assistance exceeded original estimates. In Nicaragua, the Program was able to work with 300 disabled divers, double its target of 150. In Honduras, fishers' association Kauma, grew and was able to incorporate greater numbers of fishers and their families into program activities. In Nicaragua and Honduras, pilots encouraging the use of suripera nets for shrimping reached double the number of fishermen expected.
	Actual	-	-	739	1,041	1,780	-	1,780	
	Achieved	N/A	N/A	118%	167%	142%	N/A	142%	
Result 9. At least nine hundred (900) disabled SCUBA fishermen or members of their families trained on new skills and abilities to start their own businesses or gain employment through alternative economic activities, earning higher revenues in Gracias a Dios Department, Honduras and in the North Atlantic Autonomous Region (RAAN) in Nicaragua									
Indicator 18. Number of disabled fishermen or household members of disabled fishermen in the Miskito Coast trained in business or productive skills.	Target	-	-	450	450	900	N/A	900	Every disabled diver has at least two dependents, and in many cases these dependents are female. Recognizing this, the Program sponsored trainings for members of disabled divers' families. More than 225 women participated in training programs related to the fisheries value chain and processing and marketing of products.
	Actual	-	30	451	1,031	1,512	-	1,512	
	Achieved	N/A	N/A	100%	229%	168%	N/A	168%	
Result 10. No less than US\$6 million leveraged to co finance productive projects proposals from sustainable fisheries, sustainable tourism, and arts and crafts; in alliance and coordination with other financial institutions and the private sector									
Indicator 19. Value (USD) of non-USG funds leveraged to co-finance conservation efforts or productive projects in sustainable fisheries, sustainable tourism, and any other economic alternative.	Target	500,000	1,500,000	2,000,000	2,000,000	6,000,000	N/A	6,000,000	The Program leveraged funds from the Government of Honduras, the Inter-American Development Bank, UNDP's Small Grants Program, National Geographic and dozens of private sector partners over the course of the program. One of the biggest contributions came from the Honduran Government's PRONEGOCIOS program. The Honduras Government agree to implement the Program's economic alternative programs in rural zones in the Miskito Coast. This \$2 million helped the Program significantly exceed it target for dollars leveraged.
	Actual	644,984	2,038,853	2,866,015	2,819,568	8,369,420	-	8,369,420	
	Achieved	129%	136%	143%	N/A	139%	N/A	139%	
Result 11. No less than US\$8 million in additional sales of products and services generated as a result of the implementation of the productive projects and business plans on sustainable fisheries, sustainable tourism and arts and crafts; implemented with associations and cooperatives in the Program's sites									
Indicator 20. Value (USD) of additional sales of products or services that can be directly attributed to the activity interventions and which support conservation and/or sustainable use efforts.	Target	-	1,000,000	3,000,000	4,000,000	8,000,000	N/A	8,700,000	The Program's Buyer-Led Approach helped Program staff to focus activities on meeting existing demand from buyers in the region and abroad. This meant that fishermen employing improved practices would have access to improved markets. The Program also helped improve cold chains ensuring that product could be sold instead of wasted. More the 67 percent of sales came from spiny lobster and geotourism, and both of these sectors greatly exceeded original sales projections.
	Actual	-	1,910,147	3,245,503	5,079,983	10,235,633	1,009,527	11,245,160	
	Achieved	N/A	191%	108%	127%	128%	N/A	129%	

ANNEX C. TRAINING BY TOPIC

Fiscal Year	Topic	Indicator 4		Indicator 9		Indicator 18		Totals		Total by Topic	Total by Fiscal Year
		Men	Women	Men	Women	Men	Women	Men	Women		
FY2011	Institutional, Legal and Policies Framework	111	56	135	14	0	0	246	70	316	1,642
	Economic Alternatives, Marketing and Markets	83	29	289	117	0	0	372	146	518	
	Coastal Marine Resources Management	184	105	38	57	0	0	222	162	384	
	Responsible Fishing	196	66	115	19	0	0	311	85	396	
	Sea Turtle Conservation	10	8	10	0	0	0	20	8	28	
FY2012	Institutional, Legal and Policies Framework	54	22	61	24	0	0	115	46	161	2,562
	Economic Alternatives, Marketing and Markets	66	45	424	464	0	0	490	509	999	
	Coastal Marine Resources Management	321	181	233	121	0	0	554	302	856	
	Responsible Fishing	90	37	216	66	30	0	336	103	439	
	Sea Turtle Conservation	33	26	44	4	0	0	77	30	107	
FY2013	Institutional, Legal and Policies Framework	64	23	568	385	0	0	632	408	1,040	4,983
	Economic Alternatives, Marketing and Markets	37	17	913	599	292	125	1,242	741	1,983	
	Coastal Marine Resources Management	132	77	319	235	0	0	451	312	763	
	Responsible Fishing	51	17	498	173	34	0	583	190	773	
	Sea Turtle Conservation	94	67	154	109	0	0	248	176	424	
FY2014	Institutional, Legal and Policies Framework	24	8	121	40	0	0	145	48	193	1,715
	Economic Alternatives, Marketing and Markets	0	0	88	8	543	54	631	62	693	
	Coastal Marine Resources Management	30	8	190	45	0	0	220	53	273	
	Responsible Fishing	4	2	80	8	258	176	342	186	528	
	Sea Turtles	17	11	0	0	0	0	17	11	28	
FY2015	Institutional, Legal and Policies Framework	3	1	225	150	0	0	228	151	379	689
	Economic Alternatives, Marketing and Markets	0	0	8	4	0	0	8	4	12	
	Responsible Fishing	0	0	259	39	0	0	259	39	298	
Grand Total										11,591	

ANNEX D. INCREMENTAL SALES BY PRODUCT

Site	Country	Products and/or Services	Additional sales (Fiscal Year 2012)	Additional sales (Fiscal Year 2013)	Additional sales (Fiscal Year 2014)	Additional sales (Extension Period)	Total Additional Sales (by Group, Association or Cooperative)	Total Additional Sales (by Site)
GOH	Belize	Sea products	\$ 929,299	\$ 620,831	\$ 248,519		\$ 1,798,649	\$ 1,798,649
		Tourism	\$ 70,000				\$ 70,000	
C-BT	Costa Rica	Sea products		\$ 3,155	\$ 8,492		\$ 11,648	
		Sea products			\$ 741		\$ 741	\$ 489,025
		Tourism		\$ 7,049			\$ 7,049	
CMN	Nicaragua	Geotourism		\$ 176,458	\$ 223,129		\$ 399,587	
		Sea products	\$ 512,400	\$ 1,249,750	\$ 2,359,475	\$ 503,834	\$ 4,625,459	\$ 4,625,459
GOF	El Salvador	Sea products	\$ 116,944	\$ 453,273	\$ 317,010	\$ 20,207	\$ 907,434	
		Tourism	\$ 22,301		\$ 23,675		\$ 45,976	
		Tourism		\$ 20,857	\$ 2,500		\$ 23,357	\$ 1,525,153
CMH	Honduras	Sea products	\$ 257,303	\$ 62,878	\$ 90,276		\$ 410,457	
		Sea products	\$ 1,900	\$ 23,105	\$ 89,345	\$ 23,579	\$ 137,929	
CMH	Honduras	Sea products		\$ 220,400	\$ 954,697	\$ 462,712	\$ 1,637,809	
		Collection/sale of solid waste services			\$ 9,176		\$ 9,176	\$ 2,764,352
		Geotourism		\$ 486,049	\$ 631,318		\$ 1,117,367	
Total			\$ 1,910,147	\$ 3,323,806	\$ 4,958,354	\$ 1,010,332	\$ 11,202,638	\$ 11,202,638

ANNEX E. PROGRAM SUBCONTRACTORS

The USAID Regional Program was implemented by Chemonics International, consortium partners, and other partners whose important contributions helped achieve enormous results in Central America. The following are the Regional Program's major subcontractors.

Consortium Partners

Sea Turtle Conservation (STC). STC is focused on protecting hawksbill and leatherback sea turtles and their nesting sites in the Bocas del Toro Province of Panama. The Subcontractor worked with Ngöbe-Buglé Indigenous community in the region and Panama's National Environmental Authority to gain their support through a Public-Private Partnership for the protection of sea turtle nests and hatchlings. Drawing on tools such as research, habitat protection, public education, and community outreach, STC provided technical assistance through site-based monitoring, protection and sustainable ecotourism activities.

Solimar International. This U.S. small business applied a market-driven approach to develop sustainable tourism in the Gulf of Honduras and Bocas del Toro, Panama. The subcontractor implemented proven business solutions and providing targeted technical assistance aimed at increasing visitor spending, improved industry cooperation, and more effective destination marketing and promotion. Solimar also developed a Geotourism platform, an online marketing platform designed to promote local businesses using sustainable practices and increase their access to markets.

The Nature Conservancy (TNC). This nonprofit assisted the Regional Program in developing a network of conservation areas and management plans for the Gulf of Honduras. This included creating permanent finance mechanisms that cover the basic management costs of marine protected areas, establishing a network of no-take-zone sanctuaries for fish stocking/repopulation, and fisheries management systems to sustain artisanal fisheries and healthy ecosystems. TNC also incorporated climate change strategies for marine ecosystems; protected endangered and economically important species; assisted in the improvement of surveillance of marine resources; and developed regulations, incentives, and land-use zoning mechanisms to address coastal sustainable development.

World Conservation Society (WCS). WCS provided assistance in best fisheries management practices, piloting individual transfer quotas, and developing a national policy in Belize. More specifically, WCS worked to increase stakeholder engagement to support a revised governance framework for ecosystem-based fisheries management in Belize. In order to build governance capacity among local communities to collectively manage natural resource use, WCS implemented a special licensing system, and limited access via a quota system.

World Wildlife Fund (WWF). The nonprofit provided technical assistance in the fisheries sector, particularly for the Caribbean spiny lobster. WWF made significant progress in promoting better fishing practices and rights-based and market-based mechanisms for sustainable lobster fishing in the Central American Caribbean. WWF worked at the local, national and international levels to continue engaging the

fisheries sector in adopting best management practices, in partnership with major seafood retailers and regional policy authorities like OSPESCA. The nonprofit also worked with the private sector actors in the lobster industry in Honduras and Nicaragua and assisted in developing regional regulations and guidelines for lobster management, including piloting a traceability system with the Regional Program's support.

Other Partners

Asociación GOAL Internacional (GOAL). The subcontractor was identified as a well-known actor on the Honduran Miskito Coast. During the extension period of the Program, the subcontractor implemented activities to support a sustainable balance between economic activities and conservation. This included promoting the improved management of new fisheries and other economic alternatives for fishermen seeking to abandon the dangerous practice of diving for lobster. The subcontractor consolidated linkages in fish and seafood value chains to foster long-term use of improved fisheries management practices and to increase access to buyers in formal markets.

Eastern Pacific Hawksbill Initiative (ICAPO). ICAPO, a well-known nonprofit organization in Central America, has focused on protecting hawksbill sea turtles and their nesting sites in the Gulf of Fonseca since 2008. Through the Regional Program's support, ICAPO worked on the beaches of Bahia Jiquilisco in El Salvador and Estero Padre Ramos in Nicaragua. The Program and ICAPO developed a sea turtle monitoring and protection initiative after researchers found that the Gulf of Fonseca is one of the most important sea turtle nesting sites in the region.

Wider Caribbean Sea Turtle Conservation Network (WIDECAST). This international scientific network composed of volunteer conservationist experts and professionals, partnered with allied organizations in over 40 countries implemented activities to stabilize and recover leatherback, hawksbill, and green sea turtle populations and their ecosystems in the binational site of Moin-Cahuita-Bocas Del Toro, in Costa Rica and Panama. WIDECAST protected sea turtle nests and hatchlings and promoted climate change adaptation measures that help protect sea turtles.



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