Executive Summary

The USAID Fish Right Activity\(^1\) (March 2018 – 2025) improves marine biodiversity and fisheries management in the Philippines by reducing overfishing, destructive and illegal fishing, and degradation of marine ecosystems. Fish Right strengthens the capacity of local governments, non-governmental organizations, fisherfolk, and fishing communities to better manage coastal resources and build resilience to climate change in key sites across the country.

Climate stressors in the Philippines—including rising sea temperatures, sea-level rise, and increased frequency and intensity of extreme weather events—and associated ocean acidification, all pose an existential threat to fisheries and fishing communities. In 2013, Typhoon Haiyan, known in the Philippines as Typhoon Yolanda, revealed the vulnerabilities of these communities, many of which were nearly destroyed by the storm. Understanding these risks, USAID and the Fish Right team incorporated climate impacts into activity design and implementation, strengthening the long-term sustainability of activity interventions.

This case study describes Fish Right’s climate risk management (CRM) actions in the Philippines during its first three years of implementation, with a focus on quantifying and, where possible, monetizing benefits from interventions.

\(^1\) For coverage of Fish Right, also see: [https://www.climatelinks.org/blog/managing-fisheries-face-climate-risk](https://www.climatelinks.org/blog/managing-fisheries-face-climate-risk) and [https://www.climatelinks.org/blog/coastal-communities-persistence](https://www.climatelinks.org/blog/coastal-communities-persistence)

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**KEY BENEFITS OF FISH RIGHT CRM ACTIONS**

- Trained over 6,100 people in resilient and ecosystem-based fisheries management approaches
- At least 29 marine protected areas established or expanded, and placed nearly 1.9 million hectares of biologically significant area under improved management
- Rehabilitated nearly 1,700 hectares of mangrove area in the Calamianes Island Group
- Avoided, reduced, or sequestered over 1,240 metric tons of carbon dioxide equivalent
- Preserved approximately $80 million USD annually in fish catch in Fish Right-supported fisheries
Introduction

USAID Fish Right Activity (hereafter referred to as Fish Right) aims to increase observed fish biomass by 10 percent and reduce threats to marine biodiversity in key areas in the Philippines. Though the scope of the Activity covers the entire country, Fish Right implements activities in three priority locations: The Calamianes Island Group, Southern Negros, and the Visayan Sea.

The ocean economy in the Philippines makes up 7 percent of the country’s gross domestic product, providing livelihoods, food security, and community for millions of Filipinos. However, research indicates that fish catch has declined or stagnated over the past three decades due to overexploitation of fisheries. Meanwhile, climate stressors— including rising sea temperatures, sea-level rise, and increased incidence of extreme weather events—as well as associated ocean acidification are further degrading marine resources and impacting fishing communities. Building on successes and lessons learned from previous USAID activities—Fisheries Improved for Sustainable Harvest (FISH) and Ecosystems Improved for Sustainable Fisheries (ECOFISH)—Fish Right was designed to operate on the principle that addressing climate change impacts will be key to improved fisheries in the long-term.

In response to USAID’s 2016 CRM Policy and the devastation from Typhoon Haiyan in 2013, CRM has been an integral part of Fish Right since its design. Because fisheries in the Philippines are highly vulnerable to climate impacts, Fish Right established a strategic approach to developing capacities for mainstreaming climate resilience into ecosystem-based fisheries management (EBFM).

This case study aims to highlight, quantify, and when possible, monetize the benefits of Fish Right’s CRM actions. However, some CRM actions deliver benefits that are difficult to quantify, such as strengthening the capacities of local governments and communities to plan for and manage climate-resilient fisheries. Other CRM benefits may not yet be apparent because the timeframes associated with climate variability and change are longer than the period of active USAID support.

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2 Fish biomass is estimated based on the total number of fish in an area and the weight of those fish. Biomass values are often used to determine sustainable yield or catch rates for fisheries.
3 University of Rhode Island (2018). Year 1 Workplan. October 1, 2018 to September 30, 2019. USAID Fish Right Program.
7 For coverage of ECOFISH, see: https://biodiversitylinks.org/projects/completed-projects/bridge/usaid-biodiversity-integration-case-study-competition/case-studies/rest-the-bay-regenerate-fish-supplies
8 USAID programs typically have a length of five years.
About 60 percent of Filipinos live in coastal zones and rely on coastal and marine resources for their livelihoods and well-being.\(^9\) That dependence is increasingly strained as climate impacts become more severe. Climate change leads to more frequent and severe weather events, and over the past 10 years, the Philippines has suffered from over 300 extreme weather events.\(^10\) The country is ranked fourth on Germanwatch’s Long-Term Global Climate Risk Index.\(^11\) Storms can cause damage to coastal habitats, leading to reductions in fish stocks, and destroy boats and infrastructure in coastal communities. According to the Asian Development Bank, the Philippines may lose an average of 133.2 billion pesos—approximately 2.6 billion USD—a year due to typhoons.\(^12\) Often, just as the country begins to recover from the impacts of one storm, the next occurs.

During the writing of this case study in December 2021, the Philippines experienced yet another extreme storm: Typhoon Odette. The storm damaged power and communications infrastructure in 11 of the country’s 17 regions and left many without potable water or a safe place to stay. Many Fish Right sites were in the path of the storm.

Extreme weather is not the only climate stressor facing fisheries and communities in the Philippines. The benefits of coral reefs in the Coral Triangle Region—which includes the waters of Indonesia, Malaysia, the Philippines, Papua New Guinea, Timor Leste, and the Solomon Islands—are worth more than 13.9 billion USD annually.\(^13\) But rising sea temperatures, which lead to coral bleaching and loss of these marine ecosystems, are contributing to reductions in fish stocks, tourism,\(^14\) and storm protection.\(^15\) As fisheries in the Philippines are already stressed from overfishing, as well as destructive\(^16\) and illegal fishing, further pressure from climate change poses serious risks to the livelihoods of these communities.

Another threat to the region’s coral is ocean acidification, due to the ocean’s increased uptake of carbon dioxide from the atmosphere. As the world’s oceans become more acidic, the amount of calcium carbonate available for corals and shellfish to use in building their shells and exoskeletons decreases. This in turn makes corals more susceptible to damage from storms and human activity, further reducing

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\(^{11}\) The long-term climate risk index takes into account number of events, fatalities, and monetary losses when analyzing a country’s impact from extreme weather.


\(^{14}\) Communities with coral reefs often rely on livelihoods related to tourism and recreation. Tourists travel to these locations, paying for hotels, restaurants, tour guides, etc. to engage in sightseeing, boating, diving, and other opportunities.

\(^{15}\) Coral reefs form natural barriers that protect shorelines from waves, storms, and flooding.

\(^{16}\) Destructive fishing practices in the Philippines include cyanide and blast, or dynamite, fishing. Both practices make the process of catching fish easier but destroy the coral ecosystem.
the resilience of coastal communities that depend on reefs for food, income, recreation, and protection from storms.

Rising sea levels cause damage to coastal communities from increased flooding and storm surges. The Philippines is experiencing one of the fastest rates of sea level rise in the world, and frequent storms there result in the damage or destruction of coastal homes and infrastructure.

**Climate Risk Management in Action**

“Typhoon Yolanda was a big event that made us realize the extent of our vulnerability [to climate change],” explains USAID Philippines Development Specialist Rebecca (Becky) Guieb. “The Calamianes Island site was destroyed afterwards. If business as usual continues, we won’t be able to make a dent with development work.”

After the FISH and ECOFISH activities, USAID Philippines staff knew the next fisheries improvement program needed to focus on improved coastal resilience to ever-increasing impacts from climate change. Fish Right’s Request for Application required CRM to be integrated into activity interventions. The responding “Theory of Change,” designed by the University of Rhode Island and other implementing partners, integrated CRM and EBFM into the Activity’s strategic approach. To shepherd this approach, the Activity included a role for a Resilience Specialist, Miledel (Mags) Quibilan, to lead mainstreaming resilience into EBFM.

Fish Right is currently in its fourth year of implementation. During its first three years, the Activity implemented the following CRM actions, all of which broadly aimed to increase the resilience of fisheries and fishing communities to the impacts of the climate stressors identified above:

- **Increasing the amount of biologically significant area placed under improved management.** The Philippines has over 1,500 marine protected areas (MPAs)—coastal and ocean waters set aside for long-term conservation—but these cover less than 1 percent of Philippine marine waters. Additionally, the communities that manage these areas often do not have the resources to properly implement measures, such as no-take zones or user fees, reducing their overall impact. Fish Right is working to expand the coverage and scope of MPAs and strengthen effective management of these areas. By increasing MPA coverage and creating MPA networks, Fish

19 A Theory of Change explains the thinking behind how a particular intervention will bring about results. For more information see [https://usaidlearninglab.org/lab-notes/what-thing-called-theory-change](https://usaidlearninglab.org/lab-notes/what-thing-called-theory-change)
Right creates redundancies and connections between protected areas, spreading the risk of possible biodiversity loss, and increasing the resilience of the entire system.

- **Strengthening the capacity of local governments and communities to improve coastal and fisheries resilience.** Fish Right trains individuals and institutions at all levels (national, regional, and local) on the principles of climate resilience and EBFM. The Activity teaches fisheries managers to use EBFM decision-support tools in planning and monitoring processes. Fish Right is also building online tools to assist with virtual trainings and provide local government units (LGUs) with better data for informed decision making. The Activity has incorporated climate data into reports for LGUs to use in prioritizing actions and will incorporate national and site level data into its online fisheries dashboard, which will be publicly available upon its completion. By improving capacity, representation, and participation in fisheries management and planning, Fish Right will strengthen long-term capabilities to implement EBFM actions in the communities where it works.

- **Mainstreaming resilience into existing fisheries management plans.** Fish Right has assisted 14 municipalities with applying the Vulnerability Assessment-Tool for Understanding Resilience of Fisheries (VA-TURF), which considers fisheries, reef ecosystems, and socioeconomics when identifying vulnerabilities. Through participatory workshops, Fish Right has helped LGUs identify and prioritize ecosystem-based adaptation (EbA) actions, as well as other climate adaptation actions. LGUs are incorporating actions identified through these workshops into disaster risk and fisheries management plans. Over the past three years, Fish Right has assisted with the drafting, adoption, or implementation of 69 laws, policies, or regulations which incorporate EBFM.

- **Leveraging funds towards the planning and implementation of ecosystem-based actions.** Through trainings and workshops, Fish Right has demonstrated the importance of CRM and EBFM to LGUs and communities and helped them prioritize EbA actions. Based on these interventions, the Activity also works with these partners to leverage or mobilize increased funding for their implementation so that local governments and fisheries managers continue improved practices. Over the first three years of implementation, Fish Right has helped prioritize nearly 50 EbA actions and implement eight, including establishing MPAs and MPA networks, rehabilitating mangroves, implementing gear restrictions in fisheries and fisherfolk registration, and strengthening local law enforcement efforts.

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20 For more information on VA-TURF, see: [https://pdf.usaid.gov/pdf_docs/PA00JHQP.pdf](https://pdf.usaid.gov/pdf_docs/PA00JHQP.pdf)


22 University of Rhode Island (2018-2021). Fish Right Annual Reports, Years 1-3. October 1, USAID Fish Right Program.
- **Reducing mangrove destruction in activity areas.** Through a pause-and-reflect process in 2020, Fish Right identified the need to incorporate mangrove rehabilitation and restoration into its strategic approach. Mangroves—which help protect coastlines from erosion, storm surges, and flooding, and provide nurseries for fisheries—are disappearing in the Philippines as they are converted to fish and shrimp ponds. Fish and shrimp grown in these aquaculture farms do not contribute to the local ecosystems and require large inputs of energy to produce. Fish Right is helping local managers use satellite image classification to survey the extent of mangrove forests and prioritize areas for intervention. Fish Right is also providing trainings to LGUs and local organizations on mangrove establishment and monitoring, and how to estimate greenhouse gas emissions avoided or sequestered due to improved mangrove management.

**CRM Outcomes and Benefits**

USAID’s Fish Right Activity demonstrates how CRM can be fully integrated into intervention design to deliver benefits that collectively strengthen the resilience of fisheries to climate change. Table 1 summarizes these benefits, and the remainder of this section describes these and other benefits in more detail.

### Table 1. Fish Right CRM Actions and Outcomes

<table>
<thead>
<tr>
<th>Climate Risks</th>
<th>CRM Actions</th>
<th>CRM Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coral bleaching and loss of reef ecosystems</td>
<td>Increased marine protected area and network coverage</td>
<td>● Increased redundancy and connectedness of key biologically diverse areas</td>
</tr>
<tr>
<td>Marine ecosystem and coastal infrastructure degradation</td>
<td>Training of local governments and communities in resilience and EBFM</td>
<td>● Improved capabilities to respond to climate risks over time</td>
</tr>
<tr>
<td></td>
<td>Application of the VA-TURF+ tool and development of VAs</td>
<td>● Increased participation and engagement within LGUs and communities</td>
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<tr>
<td></td>
<td>Design and implementation of EbAs</td>
<td>● Increased awareness and understanding of climate impacts and vulnerabilities</td>
</tr>
<tr>
<td>Loss of mangroves and resulting damage to coastal communities</td>
<td>Rehabilitation of mangrove forests</td>
<td>● Protection of coastlines and communities from erosion, storm surges, and flooding</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Improved nurseries for fisheries</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Sequestration of carbon dioxide</td>
</tr>
</tbody>
</table>

The Activity developed baseline vulnerabilities of target sites based on historical analyses of sea surface temperatures, wave exposure, and typhoon frequency. Fish Right also recently began monitoring the adoption and implementation of EbA and other climate adaptation actions with the aim of quantifying reductions in baseline climate vulnerabilities as well as complementary improvements in ecosystem and/or community resilience.

The following benefits are those that can be quantified based on information gathered from public sources, USAID Philippines, and Fish Right partners from 2018 to 2021.

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Raising Awareness within Local Governments and Communities

A key Fish Right CRM activity is training local government officials and fisherfolk, empowering them to implement practices that combat climate change. In its first three years of implementation, Fish Right trained over 6,100 people in resilience and EBFM approaches and worked with LGUs to implement CRM and EBFM in their management plans.

In Capiz, the government has doubled its budget to implement improved coastal resources management in 2022 to 2 million pesos—nearly 40,000 USD—because of the climate change impacts that the community is experiencing. Also in Capiz, a local group of fisherfolk is endorsing EBFM and the passage of an ordinance for MPA protection at the barangay level, the smallest administrative division in the Philippines. Ramie Detaro, the Municipal Environment and Natural Resources Officer of the Local Government of Panay, Capiz, credits Fish Right for these developments: “[The people] know… that they need to protect the resources because they are also the ones benefiting from the resources.”

Nicole Carmela Flores from the Capiz Provincial Environment and Natural Resources Office in the Visayan Sea described how Fish Right activities have altered her work.

“We understood that many communities have felt the effects but were not able to identify that those experiences are already the effects of climate change,” she said. Fish Right’s vulnerability assessments and trainings “made us aware in the LGU that our coastal communities needed help in terms of climate change adaptation and mitigation.”

Establishing and Improving Marine Protected Areas

To improve management effectiveness of fisheries and coastal resources, Fish Right has helped establish or expand at least 29 MPAs and placed nearly 1.9 million hectares of biologically significant area under improved management. By using MPAs and MPA networks to increase the redundancy and connectedness of these areas, marine ecosystems are better protected against coral bleaching and ecosystem degradation that result from rising sea temperatures and ocean acidification.
Arnilo “Nilo” Abreau, MPA Warden and president of the Farmer and Fisherfolk Organization of Busuanga, spoke about the lessons he has taken from Fish Right activities including law enforcement, apprehension, and how to handle the violators for MPAs. Fish Right has also worked with the Conception Marine Reserve and Sagrada Bogtong Marine Reserve to draft MPA management plans to determine fishing and tourism policies. According to Nilo, “there are more fish inside the MPA now compared to before the MPA was established.”

Fish Right has also worked with the MPAN in the Calamianes Island Group, which is made up of MPAs in the municipalities of Busuanga, Coron, Culion, and Linapacan (also known as the BCCL). Maria Anna Mercado, the head of the Committee on Environment and Tourism for the Municipal Council of Busuanga, said the BCCL enables better focus on the preservation, conservation, and protection of their seas. “The good thing about the integration and collaboration of the four municipalities is that fish catching is being regulated and managed to avoid overfishing,” she added.

Restoring Natural Protections for Coastlines

Through Fish Right interventions, communities are learning about the benefits mangroves provide, and beginning to rehabilitate these areas, said Jose Dollete Borees, a fisherfolk and president of Casayanan Fisherfolk Association and Chairperson of the Integrated Fisheries and Aquatic Resources Management Council in Capiz. Many mangrove areas were cleared to establish fishponds and construct huts, while others were cut to use as fuel or converted into charcoal. “So now that mangroves are getting fewer, we noticed a low number of fish, and water waves are becoming more destructive,” Borees explained. Fish Right brought in 20,000 seedlings to help rehabilitate mangroves in Pilar, Capiz, and rehabilitated nearly 1,700 hectares of mangrove area in the Calamianes Island Group.

LGUs are also learning about the benefits of mangroves and other EbAs through Fish Right. Nicole Flores of the Capiz Provincial Environment and Natural Resources Office explained that mangroves increase protection from flooding and storm surges due to sea level rise—compared to the sea walls that...
communities have traditionally built—as well as a more cost-effective approach. “They thought these are just trees,” she explained of the people of Capiz, “but now they understand the importance of mangroves.”

Natural climate solutions, like better mangrove management and rehabilitation, help avoid, reduce, or sequester carbon emissions. Fish Right estimated its mangrove management program in the Calamianes Island Group helped to reduce or sequester 1,240 metric tons of carbon dioxide equivalent in its first year of implementation.

Increasing the Value of Fisheries to the Philippine Economy

Fish Right is working to create change and improve fisheries management in the Philippines that will increase observed fish biomass and reduce threats to biodiversity in key areas. Because of the extreme vulnerability of the Philippines, activity interventions support the long-term survival of the fisheries sector and fisherfolk of the Philippines.

Maria Anna Mercado of the Committee on Environment and Tourism for the Municipal Council of Busuanga said fishermen were complaining before that their catch has decreased and there were no more fish to catch near shore, forcing them to spend more money on gasoline to travel further out. “But now [because of Fish Right], they can catch fish near shore,” she said. “The fisherfolk do not complain anymore.”

Nationwide, ocean fishing accounts for approximately 1 percent of the Philippine GDP. In 2020, Fish Right-supported fisheries represented about 2 percent of commercial fisheries catch in the country, as Table 2 shows. Taking this into account, the annual estimated value of improved climate resilience to the Activity’s fisheries is $80 million USD annually.

Table 2. Fish Right Activity Area Commercial Fisheries Production in 2020

<table>
<thead>
<tr>
<th>Province</th>
<th>Catch (Metric Tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Palawan</td>
<td>20,038</td>
</tr>
<tr>
<td>Negros Oriental</td>
<td>6,183</td>
</tr>
<tr>
<td>Negros Occidental</td>
<td>17,648</td>
</tr>
<tr>
<td>Iloilo</td>
<td>29,611</td>
</tr>
<tr>
<td>Capiz</td>
<td>11,667</td>
</tr>
<tr>
<td>Masbate</td>
<td>2,316</td>
</tr>
<tr>
<td>Cebu</td>
<td>9,860</td>
</tr>
<tr>
<td><strong>Total Fish Right Fisheries</strong></td>
<td><strong>97,323</strong></td>
</tr>
<tr>
<td><strong>Total Philippine Fisheries</strong></td>
<td><strong>4,400,373</strong></td>
</tr>
</tbody>
</table>

Lessons Learned

CRM has been integral to Fish Right since its inception. “From the very beginning when we developed our theory of change … we have been deliberate in incorporating resilience aspects,” explained Mags Quibilan. She detailed how the outputs from Fish Right’s approach to mainstreaming climate resilience are further integrated as inputs into other activity areas, such as capacity building and planning.

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From lessons learned in target sites, Fish Right is developing a facilitator's toolkit on vulnerability assessment and climate change adaptation planning, so that others can replicate the process. This toolkit will include training videos that explain how climate change affects fisheries and the steps that fisherfolk, fisheries managers, and LGUs can take to mitigate them. Fish Right will also incorporate vulnerability assessment and adaptation results into its upcoming online fisheries dashboard and provide tailored visualizations for LGUs that contributed to these efforts.

**Summary**

The USAID Fish Right Activity is demonstrating how incorporating CRM can empower beneficiaries and lead to long-term, quantifiable benefits. Now in its fourth year of implementation, the Activity is seeing success in its objectives—as well as an increased need for improved responses to climate impacts.

Local government staff, fisherfolk, and coastal communities have more awareness of climate risks and strategies to combat them and are empowered to do so. Fisherfolk within Fish Right sites are already beginning to see improved fish catch. Integrating CRM into fisheries management in the Philippines will be key to its continued improvement.

“We needed a strategic approach that could accelerate coastal resilience through a whole-of-society approach,” said Fish Right’s Chief of Party, Nygiel Armada. “It’s hard not to focus on climate.”

For more information about Fish Right

- **Philippines | U.S. Agency for International Development**
- Rebecca Guieb, USAID Philippines Mission Development Specialist
- Nygiel Armada, USAID Fish Right Chief of Party
- Miledel Quibilan, USAID Fish Right Resilience Specialist

For more information about CRM

- Geoffrey Blate, Ph.D., Environment Officer, Climate and Cross-Sectoral Strategies, USAID/DDI Environment, Energy, and Infrastructure Bureau, gblate@usaid.gov
- Alexandra Giese, Ph.D., Science and Technology Policy Fellow (of the American Association for the Advancement of Science), Climate and Cross-Sectoral Strategies, USAID/DDI Environment, Energy, and Infrastructure Bureau, agiese@usaid.gov

The **Climate Integration Support Facility (CISF)** blanket purchase agreement supports USAID to conduct climate risk management across all USAID programming. Climate risk management is the process of assessing, addressing, and adaptively managing climate risks that may impact the ability of USAID programs to achieve development objectives. This worldwide support mechanism can assist USAID missions, bureaus, and offices with climate risk management by providing analysis, facilitation, training, evaluation, learning opportunities, and related services. The agreement may also support focused adaptation, clean energy, and sustainable landscapes programming with such services.

Case study authors

**Kait Siegel, Ben Matek, and Leah Quin** of Abt Associates developed this case study and “The Benefits of Climate Risk Management,” an accompanying blog series on Climatelinks.

Acknowledgments
The authors would like to thank staff from the USAID Philippines Mission and the Fish Right Activity team for their contributions to this case study: Becky Guieb, Nygiel Armada, Andre Uychiaoco, and Mags Quibilan. We are also grateful to Niva Gonzales for traveling to Busuanga and Capiz to conduct interviews during a particularly challenging time in the Philippines, and to local staff at SIKAT and Community Centered Conservation (C3) who made her travel possible. We are appreciative of all the interviewees who participated in this case study and provided valuable insights about the importance of USAID Fish Right’s work in their communities.