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Food and Agriculture Organization of the United Nations

Sustainable Management of Bycatch in Bottom Trawl Fisheries

Improved institutional and regulatory frameworks through multi-stakeholder dialogue in Latin America and the Caribbean

PROJECT FULL NAME	COUNTRY & REGION	IMPLEMENTING AGENCY	EXECUTING AGENCIES
Sustainable Management of Bycatch in Latin America and the Caribbean Trawl Fisheries (REBYC-II LAC)	Latin America & the Caribbean: Brazil, Colombia, Costa Rica, Mexico, Suriname, Trinidad and Tobago 	Food and Agriculture Organization of the United Nations (FAO)	WECAFC Brazil, AUNAP Colombia, INVEMAR Colombia, INCOPESCA Costa Rica, INAPESCA/SAGARPA(SADER) Mexico, Ministry of Agriculture Animal Husbandry and Fisheries Suriname, Fisheries Division of Ministry of Agriculture, Land and Fisheries Trinidad and Tobago.

GEF PROJECT ID: **5304**

PROJECT TYPE: **FSP**

GEF PERIOD: **GEF-5**

FOCAL AREAS
- International Waters

IMPACT AREA
- Biodiversity
- International Waters
- Food Security

03/04/2015 CEO Endorsement

07/22/2020 Project Closure

04/23/2013 Project Approval

06/26/2019 Mid-Term Review

GEF Project Grant **$5,800,000**

Co-financing Total **$17,198,491**

Summary

The Sustainable Management of Bycatch in Latin America and the Caribbean Trawl Fisheries (REBYC-II LAC) project is a partnership between six countries and regional organizations to manage bycatch and to support sustainable development of bottom trawl fisheries and the people who depend on them. Over the last five years, it has sought to reduce food loss and to encourage sustainable livelihoods through improving collaborative institutional and regulatory arrangements for bycatch management, strengthening management of bycatch through an Ecosystem Approach to Fisheries (EAF), and enhancing information sharing in the region. The project has created an enabling environment that has increased trust and collaboration between government and stakeholders, leading to improved dialogue, updated rules and regulations, and reductions of over 30% in unsustainable bycatch in at least one pilot site per country.

Results and Global Environmental Benefits

In the last four years, the project has achieved the following global environmental benefits as well as direct socioeconomic benefits for local communities:

- Over 30% reduction of bycatch (range 28-60%) in at least one pilot site per country over the previous four years. This included vessel-based reductions from Bycatch Reduction Devices, as well as reductions based on improved spatial and temporal measures.
- Five countries (Colombia, Trinidad and Tobago, Suriname, Costa Rica, and Brazil) drafted new laws that include bycatch management.
- Three countries (Brazil, Colombia, and Costa Rica) developed new management measures applying Ecosystem Approach to Fisheries (EAF)[1] framework (drafts developed in Suriname and Trinidad and Tobago).
- One Marine Area for Responsible Fisheries established (Barra del Colorado, Costa Rica).
- Five countries (Brazil, Colombia, Costa Rica, Mexico, and Suriname) established formal institutional co-management bodies (consultative processes/committees).
- One regional strategy on bycatch management drafted (awaiting final adoption at the next session of the Western Central Atlantic Fishery Commission).
- Socioeconomic benefits to local fishers were improved or maintained through the creation or strengthening of more than twelve fisher organizations (e.g. Women's organizations in Costa Rica, local Surinamese fishing associations).
- Local capacities were improved through regional training workshops on Fishing Technology, Bycatch Utilization, EAF approach, and updated research on socio-economic and biological impacts of the fishery as well as value chain analysis in most countries.
- Regional coordinating working group on shrimp and groundfish in North-Brazil Guyana Shelf was re-established and strengthened.
- Trust between governments and stakeholders led to improved dialogue, and collaboration was significantly increased.

Environmental Challenge

Industrial and semi-industrial bottom/shrimp trawling in tropical and sub-tropical areas tends to generate exceptionally large quantities of bycatch and low-value fish. In general, a significant part of this bycatch is discarded and unreported. In Latin America and the Caribbean, detailed information on the composition, volume, value, and potential utilization of bycatch—as well as on the impact of fishing on seabed habitats—had been inadequate until the REBYC-II LAC project. This may have led to significant impacts on

Map of project implementation countries

targeted and non-targeted fishery resources, marine ecosystems, and fishing communities. The root causes of impacts on fishery resources include local drivers such as unsustainable fishing practices and economic difficulties in the private fishing sector, and global drivers such as growing demand for fishery products. While the project cannot easily change the macroeconomic context, it does address barriers to better bycatch management, thus promoting sustainable development of bottom trawl fisheries and providing benefits to the people, communities, and other fisheries that the bottom trawl fishery sustains or influences.

Integrated Approach and Key Features

Integrated and science-based approach to the bottom trawl fishery

The project addressed the interface between biodiversity conservation and food security through sustainably managed international and national waters. In-depth analysis of national fisheries governance, legislation, and international instruments in all project countries led to this integrated approach. Project partners first evaluated the bycatch composition of its target fisheries by assessing the ecological and species-specific impacts of the catches. If these were determined to be unsustainable, partners sought technological and management solutions to reduce the amount of unsustainable bycatch and discards.

Additionally, improved on-board observation and data collection highlighted ecologically sensitive areas that require protection. The project supported dialogue to develop spatial or temporal measures that protect critical habitat. However, bycatch reduction may undermine short-term food security in many coastal communities. Thus, understanding the contribution of the trawl fisheries and different components

1 The Ecosystem Approach to Fisheries has been adopted by the FAO Committee on Fisheries as the appropriate and practical way to fully implement the Code of Conduct for Responsible Fisheries. EAF is a risk-based management planning process that covers the principles of Sustainable Development including the human and social elements of sustainability, not just the ecological and environmental components.

of trawl catches to livelihoods, nutrition, food security, and poverty alleviation was critically important for the development of sustainable bycatch management strategies. Using this approach, the project sought to protect biodiversity while preventing food-security impacts on vulnerable communities. The project sought consensus on a regional strategy to manage bycatch. This strategy improved practices across the region and will ensure regional collaboration.

Improved institutional and regulatory frameworks through multi-stakeholder dialogues

The project design ensured a multi-stakeholder, participatory process that supports everything from collecting baseline data, testing new technologies, forging agreement on management plans, developing regulations, and sharing information. This process included an early participatory approach to the design of the project itself through local and regional workshops. Thus, once the project began, a proper participatory framework already existed; in most of the countries these participatory committees continued to drive all the associated activities leading to positive outcomes for sustainable bycatch management in trawl fisheries.

While the effort to establish the multi-stakeholder committees was time consuming, it was critical for effective project delivery. These project committees were slowly becoming formalized management committees through government decrees. They are now formal institutional bodies that engage key stakeholders—including small- and large-scale fishing sectors, indigenous and non-indigenous fishers, various environmental organizations, and local communities and governments—in the management of these fisheries. As a example in Colombia and Costa Rica, this participatory approach has led fisher organizations to play a critical role in negotiating management measures (particularly spatial approaches such as fisheries zoning agreements) that clarify where artisanal and industrial fishing takes place and that reduce conflict amongst users. Multi-stakeholder committees are also the main vehicle to update fishery management plans and agree to new or improved regulations, such as those concerning the use of bycatch reduction devices.

Now, the project fosters a proactive and participatory co-management process where all the key stakeholders have participated in an integrated and adaptive fisheries management decision-making process. Strong ownership by government and other key stakeholders offers a foundation for sustainability of outcomes in the face of political instability. An example is Brazil, where the government office responsible for fisheries changed four times during REBYC-II LAC's lifetime. Despite these changes, the institutional arrangement facilitated by the project, which supported strong partnerships among different institutions (government, academia, fishers' associations), created an enabling environment for participatory, open, and transparent processes to develop a fisheries management plan. This included local consultations in almost 60 bottom-trawling communities that represent more than 90% of catches from bottom trawl fisheries.

Understanding impacts on vulnerable groups including gender

It is vital to understand the vulnerable groups that the project may affect, and address them directly via policy, capacity building, or project adjustments. Value chain and socio-economic analyses on the fisheries pilot sites improved understanding of the role of women in the value chain. Partners then adjusted the project to make sure that women received socioeconomic benefits from bycatch and that local communities that relied on nutrition from bycatch could have alternative livelihoods. Thus, outputs address the needs of local communities and do not affect them disproportionately. These studies also identified other vulnerable groups, providing the basis for further intervention. In Costa Rica and Colombia, for example, these studies shed light on the role of women in the value chain, and the project is now working to create or strengthen women's organizations that may fight towards decent employment or seek alternative livelihoods. This is particularly crucial in Costa Rica, where trawling is currently banned.

Fishers and researchers in Trinidad weigh the catch during comparative gear trials © FAO Trinidad

Lessons Learned

Engagement of private sector and fisher's traditional knowledge to develop appropriate techniques

The project collaborated with the private sector to develop new adaptable and implementable technologies and regulations as a part of multi-stakeholder research process. For example, fishers welcome bycatch reduction devices when such devices decrease fish sorting times on vessels that can lead to better rest or more fishing time, both highly appreciated during long and arduous fishing journeys. Compliance and uptake of new technologies also improved when private sector partners saw other benefits (such as lower fuel costs) in real time rather than just reading about them in reports. One of the other reasons for uptake of new technology by fishers is that scientists work together with fishers to develop the reduction devices. Fishers themselves came up with their own proposals based on tests that they conducted, inspired by discussions with researchers. They took ownership of the process and worked together with researchers in modifying and adapting the fishing nets.

The project has tested and introduced innovative fishing technologies in all project countries, including technologies adapted from other countries (such as square mesh panels

Women's organization seeking alternative livelihoods in Costa Rica
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and flexible turtle excluding devices). In some cases, new technologies were also developed specifically by the country implementing the project (for example, updated grids and fisheyes—rigid metal frames that form an opening for fish to escape through—for small trawlers in Brazil).

Incorporated lessons learned from previous projects

The REBYC-II LAC project builds on two previous Sustainable Management of Bycatch projects. It incorporated lessons learned from these previous projects into its design. Key lessons learned from previous projects include strengthening of institutional arrangements to develop and implement management plans, increasing participation of fishers in planning and implementation of appropriate management measures, and creating incentives and capacity to reduce bycatch and discards. Another lesson learned was that focusing solely on improving fishing technology is not enough. It is also important to understand the bio-economic impacts on both the marine resources and those dependent on them as a source of livelihood and income, and improving knowledge management for enhanced dissemination of results and greater awareness. All these lessons learned were addressed in the project design.

Toward durability: Scaling up in country and region

To achieve sustainable management of bycatch in trawl fisheries, the project focused on processes that improved institutional and regulatory frameworks and ensure voluntary uptake of new fishing practices. The strengthening of bycatch management through multi-stakeholder participatory processes offered a strong potential for scaling up and replication; e.g. Brazil went from 4 local pilot sites to 14 coastal states without using project funds and regional EAF training led to local application in Brazil, Colombia, Costa Rica, Mexico, and Suriname. Fleet-wide behavioral changes are not yet fully sustainable, but the process is expected to continue a positive trajectory, given the benefits provided by the project, such as improved fishing technology, lower costs, new food products, and institutional structures for participation.

This participatory approach shows that focusing on how things are developed is as important as what is developed. REBYC-II LAC had to be implemented with a high degree of complexity: six countries; four languages; a wide geographic area with diverse national socio-economic and fishing characteristics; varying degrees of national capacities (at institutional and governmental levels as well as academic and fishery enterprise capacities and abilities). By using a common participatory approach and sharing knowledge from other areas and countries, the project was able to address this complexity and develop tailored solutions that fit into local contexts.

References and Multimedia

- For more information, videos and news, please visit the project website, http://www.fao.org/in-action/rebyc-2/en/
- Mid Term Evaluation of the Sustainable management of bycatch in Latin America and Caribbean trawl fisheries (REBYC-II LAC) Project (June 2019)
- Ecosystem Approach to Fisheries, http://www.fao.org/fishery/eaf-net/about/what-is-eaf/en

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Available at:
http://www.thegef.org/topics/knowledge-learning

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