



Workshops are a valuable way to engage local communities, provide important information and education, and build an alliance of stakeholders and regional network of programs to empower local communities to protect and conserve their marine environment.

Community Workshops

Local conservation capacity and empowerment is generated by community workshops. Through these efforts, fishers' perspectives are broadened so they appreciate the global impact of local bycatch and learn of ways to avoid it.

Additional conservation and protection gains are expected by the growing awareness of fishers developed through workshops. During year one, 56 workshops were convened with an attendance of more than 2,500 fishers and their families in 17 locations throughout Ecuador.

Success to Date

The ultimate goal of the program is to promote environmentally responsible longline fishing throughout the Pacific Ocean through international collaborations, the exchange of information and improved gear technology.

- Results based on the first year are quite promising and show that significant reductions in sea turtle bycatch and mortality can be achieved in longline fisheries. However, additional data are needed to help better understand the complete picture.
- The patience and understanding of the fishers, and their willingness to help find solutions, is a source of motivation and encouragement for the program's success.
- Support for bycatch solutions is growing. What started as a small project in Ecuador has become a regional program covering most of the Pacific coast of the Americas and extending into the western Pacific.



Acknowledgments

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Participating and Supporting Organizations

Western Pacific Regional Fishery Management Council (WPRFMC)

Inter-American Tropical Tuna Commission (IATTC)

Subsecretaría de Recursos Pesqueros (SRP)

Asociación de Exportadores de Pesca Blanca (ASOEXPEBLA)

Programa Nacional de Observadores Pesqueros del Ecuador (PROBEQUADOR)

Federación Nacional de Cooperativas de Pescadores del Ecuador (FENACOPEC)

The Ocean Conservancy (TOC)

Fundación Jatún Sacha

Escuela de Pesca del Pacífico Oriental (EPESPO)

Escuela Politécnica del Litoral de Santa Elena (ESPOL)

National Oceanographic and Atmospheric Administration (NOAA Fisheries)

World Wildlife Fund (WWF)



Working with the Ecuadorian Fishing Community

to Reduce the Mortality of Sea Turtles in Longline Fisheries: Year One (MARCH 2004 to MARCH 2005)



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THE WESTERN PACIFIC REGIONAL FISHERY MANAGEMENT COUNCIL

is one of eight Councils in the United States established by the Magnuson Fishery Conservation and Management Act of 1976. The Council oversees the nation's fisheries in the 200-mile U.S. Exclusive Economic Zone of the Pacific Islands Region (an area as large as the continental U.S.). Management objectives for the Council are to achieve optimum yield while operating a best practice and environmentally responsible longline fishery.



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Typical Ecuadorian "fibras," small artisanal vessel (7.5 meters in length).

The Problem

The global pelagic longline fleet has expanded continuously since the 1950s to meet consumer demand for high quality fish, primarily tunas, billfishes, mahi-mahi and sharks. Currently, 30 nations operate approximately 6,000 vessels in the Pacific Ocean.

The number of artisanal longline boats operating along the continental shelf of the eastern Pacific Ocean may number into the hundreds of thousands. Ecuador alone has approximately 10,000 small artisanal vessels.

Longline fisheries interact with sea turtles (i.e., bycatch). Six species of sea turtle occur in the Pacific Ocean; all are endangered or threatened. Of these, the leatherback (*Dermochelys coriacea*) and loggerhead (*Caretta caretta*) are in a critical situation. In Ecuador, the vast majority of interactions are with the olive ridley (*Lepidochelys olivacea*). Reducing turtle bycatch is vital to ensuring their long-term survival.

Recognizing the urgent need for solution-oriented approaches, the Western Pacific Regional Fishery Management Council in collaboration with the Inter-American Tropical Tuna Commission, World Wildlife Fund, NOAA Fisheries, and others – together with the local government, national NGOs and fishers – is supporting a project in Ecuador to test and implement fishery modifications.



Replacing J hooks with circle hooks has been found to reduce turtle bycatch and also maintain target catch rates in several fisheries.

The Ecuador Project: March 2004 to 2005

Ecuador's artisanal longline fishery is leading a regional effort to reduce the bycatch of sea turtles in longline fisheries of the Eastern Pacific.

Goals

To maintain the economic viability of the tuna and mahi-mahi fisheries while reducing interactions with endangered sea turtles.

First Year Objectives

- To test circle hooks through fishing experiments. This project implemented a volunteer hook exchange program that replaced J hooks with circle hooks of 120 vessels. An experimental design was utilized to assess results and impacts.
- To improve survival of hooked sea turtles by supplying fishers' with de-hooking devices and training them on the correct techniques for disentanglement.
- To change fishers' attitudes about bycatch through education, community networking and workshops.
- To institute an observer program to monitor the effectiveness of the project, help quantify interaction and mortality rates of sea turtles, and monitor catch rates of target species.



Fisherman releasing a sea turtle.



15,000 J hooks were exchanged for circle hooks during the first year.



A fisherman acquires valuable information regarding the effectiveness of circle hooks.



Four types of dehooking devices that can be used to safely release hooked sea turtles. By removing hooks and releasing turtles, chances of survival are increased and post-hooking mortality is reduced.

Results Following the First Year

Experiments tested J hooks versus circle hooks: 16/0 and 18/0 in the tuna fishery, and 14/0 and 15/0 in the mahi-mahi fishery. Preliminary results, based on observed trips over a single fishing season in are encouraging:

- Circle hooks were found to reduce sea turtle interaction rates by 44% to 88% in the tuna fishery and by 16% to 37% in the mahi-mahi fishery (limited sample size).
- Circle hooks resulted in less harmful sea turtle hookings in both fisheries.
- Due to reduced interaction rates and less harmful hookings by circle hooks, it is estimated that the total reduction in mortality could be 63% to 93% in the tuna fishery and 41% to 93% in the mahi-mahi fishery.
- Catch rates of the target species in the tuna fishery are quite similar for circle hooks and J hooks. Based on target catch rates and reduced sea turtle interaction rates, fishers preferred the 16/0 circle hook.
- Catch rates in the mahi-mahi fishery were lower for circle hooks. Thus more testing is needed to improve catch rates either through improving fishers' skills utilizing circle hooks, or additional modifications in gear or methods. This will be very important to ensure large scale acceptance of circle hooks.

Fisher learning how to use a sea turtle dehooking device.



Fishery bycatch problems will not be solved unless everyone assumes responsibility. The risk of inaction is much greater than the risk of action.