

# Safer Now at Sea: developing a lower-cost system for tracking small-scale fishing vessels in the southern Philippines

Laura Villadiego



Nowadays, consumers are demanding to know where the seafood they buy comes from to ensure catches are legal, sustainable, and free from labor abuse. The technology to deliver that information, once out of reach for small-scale fishers, is becoming more accessible in places like the Philippines. Its adoption is not only increasing seafood traceability but also improving the safety of fishers while they are out on the water. Small-scale fishers and their families, among the most vulnerable in the seafood supply chain, have welcomed the security and peace of mind the technology brings.

In General Santos in the southern Philippines, known as the tuna capital of the Philippines, wives of tuna fishers like *Ms. Maylene Bibat* are thrilled every time she sees the green dot on her tablet marking the location of her husband's fishing boat. "I instantly felt less worried as it is like knowing that he was safe," *Ms. Bibat* said. For years, *Ms. Bibat* had to wait anxiously in silence in her small village in the southern Philippines while her husband, *Mr. Harry Bibat*, was at sea catching the tuna the family depends on. Hundreds of miles offshore, there was no way for him to communicate with her, often for days at a stretch. But no longer now.

With fish stocks depleted due to overfishing and after a number of scandals around the use of forced labor on fishing vessels, consumers and companies are increasingly demanding to know the origin of the fish they buy. For instance, in 2017 some of the biggest industry players in the sector launched the Global Tuna Alliance to deter illegally caught tuna from getting to market and to promote "improvements in the environmental sustainability and human rights in tuna fisheries." Not only big fishing vessels but also smaller boats are now installing systems to track where they catch fish and register the data for others in the supply chain to see. These systems are changing the lives of small-scale fishers like *Mr. Bibat* in an unexpected way, as this has enabled them to stay in touch with their families. "Now the life of a fisherman is more challenging than it used to be when I was helping my father [as a kid]," said *Mr. Bibat*, who owns a handline boat that only fits two people.

Last year, *Mr. Bibat* made room in his boat for a small transponder that registers the position of the craft and sends it through radio frequencies to the cloud. He placed it on top of one of his two masts. Data from the transponder is available to



Fishers prepare nets at port in General Santos, Philippines  
 (Photo: Biel Calderon)

seafood companies, as well as on *Ms. Bibat's* tablet through an application that displays the location and speed of his boat. "It is a big help for my family to be able to monitor my location while I'm fishing," *Mr. Bibat* said. The emotional relief is more needed today than ever, as *Mr. Bibat's* trips have become increasingly risky as he has to spend longer at sea because the fish around General Santos, the so-called tuna capital of the Philippines just a few miles west of *Mr. Bibat's* village, have vanished. Nonetheless, this new lower-cost system for tracking vessels and fish catches is also improving safety and communications for small-scale fishers and their families.

## Fewer fish means farther fishing

Seafood traceability initially emerged as a food safety tool to enable product recalls. However, the overexploitation of fish stocks led governments and industry players to seek better control of what was caught and where. Over the past two decades, tracking and monitoring systems have been deployed on fishing vessels to deter the illegal harvesting of seafood.

Marine fishery resources have been on a continuous decline since the 1970s, according to the Food and Agriculture Organization of the United Nations (FAO). Back then, 90 percent of fish stocks were fished within biologically

sustainable levels, but that percentage slipped to just under 70 percent in 2015 (FAO, 2018). The situation is even worse for tuna as only 57 percent of stocks of the seven main targeted species were fished within biologically sustainable levels in 2015. In the Asia-Pacific region, scientists with the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) warned that exploitable fish stocks will be gone by 2048 "if current fishing practices continue."

One particular controversial practice is the use of fish aggregating devices or FADs, artificial shelters that attract fish and make it possible to catch large quantities easily. FADs are seen as a major contributor to declining global tuna stocks. "Before there was always a good catch, always plenty of tuna nearby but when these FADs were introduced and there was an over-deployment of FADs, these municipal fishers had to go further away," said *Mr. Raul Gonzalez*, Spokesperson for the Alliance of Tuna Handliners in General Santos. "This [fish decline] entails costs and also longer periods of fishing and also the dangers that are inherent in this kind of fishing operation." However, tuna populations in the area have improved slightly over the past five years after neighboring Indonesia reined in the use of FADs in its waters, *Mr. Gonzalez* said.



Nevertheless, *Mr. Bibat* has not noticed a big increase in the tuna populations yet and is traveling farther out to sea than ever to pursue them. But he does feel safer at sea, thanks to the transponder. His wife *Ms. Bibat* sends him information about weather conditions and gives him advice on where to fish or when it would be advisable to return to port through the application. The transponder also allows *Mr. Bibat* to check his wife’s messages with his mobile phone and answer them through chat and SMS services. “Once I got lost because of heavy wind and huge waves, now this would not happen again if I have a transponder because there is a system that can send information if there is a force majeure and makes me aware and prepared,” he said. “I feel safe and confident during the fishing trips.”

Another tuna fisher, *Mr. Roger Tuasic* has a different hope for the new transponder on his boat, that it will keep him and his son out of jail. The scarcity of fish has also pushed *Mr. Tuasic* to venture farther out to sea and, sometimes, to cross the maritime border with Indonesia. *Mr. Tuasic* was caught seven times in the past while working on a big fishing vessel but always quickly released, but now Indonesian authorities have become stricter. They jailed his son for two-and-a-half years the last time he was arrested, *Mr. Tuasic* said. “This is why I decided to use small fishing boats and fish locally, even though it does not provide sufficiently for my family,” he said. But the risk remains because fishers in small boats can also cross the border accidentally without devices to determine their exact location. “We can also see ... how much fish they have caught and if it is big or small tuna” before the boat reaches the shore, said his wife, *Ms. Adelaida Tuasic*.

## Out of reach of small-scale fishers

After years of working in a canning plant seven days a week for a meager salary, *Mr. Jason Albasi* thought the way to make ends meet was to buy a tuna handliner. He had learned the job from his father and heard that a single big tuna could sell for as much as PHP 60,000 (around USD 1,200) at the port in General Santos — five times his monthly salary at the canning plant.



But it didn’t turn out to be that easy. With the decline of tuna stocks, fishing also became more expensive. “One-third of the income goes to cover the trip expenses, such as fuel or ice to preserve the tuna,” *Mr. Albasi* said. Once ashore he also has to pay the crew. In the end, there’s little left in his pocket.

The traceability requirements only increased the burden. In 2014, the Government of the Philippines began requiring fishing vessels to carry a vessel monitoring mechanism (VMM), a device that records their movements to discourage or penalize illegal fishing. The requirement did not yet apply to small-scale fishing vessels less than 30GT but it likely will in coming years.

Some markets, like the tuna industry, are also increasingly demanding that each fish comes with data on where and when it was caught, mostly through electronic catch documentation and traceability (eCDT) technologies that send the information to the cloud so buyers can access it. “Right now, it is not required by law but I know they will ask us soon,” said *Mr. Albasi*.

VMM and eCDT systems can cost hundreds of dollars a month in subscription charges — unaffordable for small-scale fishers like *Mr. Albasi* or *Mr. Bibat*. The traceability systems also often entail complicated bureaucratic tasks that fishers, who are sometimes illiterate, can find difficult to complete. Yet small-scale fisheries account for more than 90 percent of the world’s fishing workforce and produce around half of the global catches, according to FAO. So, bringing them on board is essential for traceability initiatives to work.

*Engr. Arcelio Fetizanan, Jr.* identified that gap and figured out how to simplify the complex tracking systems used by aircraft and large fishing vessels so small-scale fishers could also benefit from them. “What we are doing is to actually make it easier also for the [small-scale] fishers to comply with the regulations,” *Engr. Fetizanan* said.

With his Manila-based technology provider company, Futuristic Aviation and Maritime Enterprise (FAME), *Engr. Fetizanan* developed a transponder that uses radio frequency cards that automatically register location and time data for each catch and create an ID for each fish. “We put [a card] on the tuna, normally on the fin, so we can actually monitor and trace where it was caught and how it was caught,” *Engr. Fetizanan* said. Technicians at FAME work on a transponder that is helping small-scale fishers in the Philippines comply with the country’s new vessel-tracking regulations as well as stay in touch with their families while they’re at sea.

Workers carry a yellowfin tuna (*Thunnus albacares*) at the port in General Santos  
(Photo: Biel Calderon)

The technology not only enables fishers to easily comply with vessel tracking regulations, but also simplifies the paper-based catch documentation systems that most small-scale fishers still use in the Philippines. “They don’t need to write something on paper or on mobile, just with tapping [the card against the transponder] they are already complying with the regulations,” *Engr. Fetizanan* said.

FAME has also reduced the cost of the subscription to PHP 800 a month (around USD 185 a year). Even so, without being sure they could get a premium price for their fish if they used the technology, local fishers deemed the investment too risky. They could only afford it with a special subsidy from the USAID Oceans and Fisheries Partnership, which so far has covered one year’s subscription fees for 26 fishers in General Santos, including *Mr. Bibat*, *Mr. Tuasic*, and *Mr. Albasi*. It has also equipped local governments with small offices for tracking vessel locations and data.

“Seafood is no longer an unlimited, promised resource. Without action against IUU [illegal, unreported, unregulated] fishing, U.S. consumers’ continued access to the proteins they rely on is not guaranteed,” said the acting director of USAID’s regional development mission for Asia, *Mr. Jeffrey Spence*, in an email, by way of explaining the interest of the U.S. in encouraging the use of this technology. The U.S. is the world’s second-largest seafood importer and imports more than 90 percent of the seafood consumed there.

To *Mr. Bibat’s* relief, the FAME transponder on his boat is also equipped with an emergency button that he and his crew can press if they find themselves in trouble. “When they click, it automatically sends different signals to the cloud giving them the assurance that someone knows that they have a problem,” *Engr. Fetizanan* said. That button is one of *Ms. Bibat’s* favorite features. “If Harry presses it, we can call the coast guard to go rescue them. In addition, since the boat is being tracked, it is easy to find them. Before it could take days,” she said. In spite of all the fancy devices *Ms. Bibat* and *Mr. Bibat* now use, the entrance of their house is still well guarded by an elaborate Catholic altar presided over by an image of the Virgin Mary. “The device might help,” *Ms. Bibat* said, “but God sees everything.”

## Reference

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## About the Author

*Laura Villadiego* is a freelance journalist specializing in human rights, labor issues, and the environment. Based in Thailand, she has been covering Southeast Asia and authored reports and articles for Mongabay.org. Her article originally appeared at <https://news.mongabay.com/2019/11/safer-at-sea-the-unexpected-benefit-of-traceability-for-small-scale-fishers/>.

