



Trials *and* Tribulations

OF TURTLE EXCLUDER DEVICES

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Turtle excluder devices (TEDs) have been shown to reduce sea turtle bycatch in trawl fisheries across the world, but their implementation in different fisheries has varied greatly. In the eyes of a turtle conservationist, it is hard to believe that any fisher would want to fish without a TED. Yet fishers often see things differently, and as with the use of any tool, the use of TEDs must be mastered through experience. When TEDs were originally introduced in the United States, fishing fleets battled with regulators and conservationists over TED requirements. However, today TEDs are widely accepted as part of the bycatch solution and are mainstreamed into daily fishing activities throughout the United States. Elsewhere, TED uptake has also faced challenges. The following stories of two trawl fisheries in drastically different socioeconomic settings illustrate the challenges and successes of putting TEDs to work around the world.



An employee of Samies Girl Fresh Seafood Market in Brisbane, Australia, displays shrimp caught using TEDs. Kristina and Harry Georges, owners of Samies Girl, proudly advertise their support for sea turtle conservation; not only do they sell shrimp caught exclusively through the use of TEDs, but they also sell insulated, reusable bags whose proceeds benefit sea turtle research and education as part of their Save Our Sea Turtles Foundation. © CALEN OFFIELD

Australia's Northern Prawn Fishery

In the early 1990s, Australia's Commonwealth Scientific Industrial Research Organisation estimated that the country's Northern Prawn Fishery (NPF) incidentally caught 5,000–6,000 sea turtles during August to November of each year, of which 39 percent likely died. In light of these statistics, various research organizations conducted experiments with TEDs and other bycatch reduction devices (BRDs). Most research projects were conducted in cooperation with the fishing industry. In 1989, the issue of sea turtle interactions with trawl operations grew more relevant with the passing of U.S. Public Law 101-162, section 609, which requires TED-compliant certification (or equivalent bycatch reduction measures) for all countries exporting shrimp to the United States.

Subsequently, scientists and gear technologists began working in cooperation with fishers and net builders to test and develop mitigation measures for turtle bycatch in the NPF. Teams of observers and gear technologists spent time on NPF vessels demonstrating how TEDs work, comparing target and nontarget catches in nets with TEDs versus those with regular gear, modifying TEDs to suit the vessels, and assisting fishers in making TEDs workable. Fisher participation in the programs was voluntary. In addition to the work done on vessels, hands-on workshops and port visits were conducted, newsletters and videos were distributed, trial TEDs and BRDs were loaned to fishers, and an incentive program

that recognized individual contributions in the use of these devices was created. Fishers became involved in research to address bycatch issues, and several became turtle-handling mentors, thereby assisting other fishers in becoming more turtle safe.

Although TEDs have proved to be a benefit to both sea turtles and fishers in the NPF, the adoption of TEDs was initially feared by many fishers. Some were concerned about safety issues; they imagined the large metal TEDs might injure crew members. Others assumed that target catches would diminish, and some feared an added financial burden. Most of these fears were put to rest as fishers modified TEDs to suit their own fishing styles and gear. Because of the collaborative process through which TEDs were introduced into the fishery, fishers and net builders had the opportunity to design and test their own ideas. If their designs were effective, their use was permitted. Ultimately, subsequent studies to assess catch and mortality rates of sea turtles in the NPF demonstrated that TED use reduced sea turtle bycatch to fewer than 200 turtles per year from more than 5,000 before TEDs were used. At the same time, prawn catch was down only 3 to 6 percent—a small decrease that was easily compensated for by the higher quality of the catch when using TEDs, because contact with turtles in the nets was resulting in high levels of low-quality, “soft or damaged” product.

In 2000, six months after TEDs became mandatory in the NPF, the U.S. embargo of Australian shrimp was lifted. By then, most of the NPF fleet had voluntarily adopted TEDs, and little enforcement was necessary

to ensure compliance. Bycatch monitoring by trained fishers has now become an ongoing program, and fishers and net builders continue to design and test new types of BRDs with gear technicians, scientists, and managers.

Today, the NPF is considered among the most progressive shrimp trawl fisheries in the world. There is a longstanding collaborative culture in this fishery, and over time, trust and respect have built up between fishers and scientists. The gradual and supportive approach that was adopted before TEDs became mandatory was one of the keys to the effort's success. Through this process, fishers had the opportunity to see and use the gear, collect the data needed to make decisions, and participate by designing and testing their own ideas. They accepted that sea turtle bycatch existed, and they helped solve the problem, in partnership with managers, scientists, and gear technicians. The fishing industry was not just a part of the problem; it became a fundamental part of the solution.

Sabah, Malaysia, Trawl Fishery

In the early 1980s, the Malaysian Fisheries Department attempted to introduce TEDs in Malaysian shrimp trawl fisheries. Regrettably, the plan lacked the clarity and comprehensive education and outreach that proved successful a few years later in the NPF. The effort was confounded following the enactment of the U.S. shrimp embargo in 1989, when India, Malaysia, Pakistan, and Thailand jointly and successfully contested the TED requirement as a contravention of World Trade Organization policy. A subsequent appeal by the U.S. government failed, and Malaysian fishers continued to fish without TEDs. Eventually, the U.S. certification requirement prevailed. However, the Malaysian Fisheries Department's effort to introduce TEDs had failed, and the status quo of not using TEDs remained intact.

Chief among the reasons that TEDs were not adopted by Malaysian trawl fishers was the general fact that creating a hole in a net, which is part of TED installation, is contrary to much of what a fisher has learned. Indeed, Malaysian trawl fishers spend substantial amounts of time repairing holes in their nets. Convincing them to actively create a 1 to 2 meter (3.3 to 6.5 foot) hole in their nets is a difficult task, particularly when the suggestion comes from a stranger who is also not a fisher.

In light of this challenge, recent efforts to re-introduce TEDs in the state of Sabah, Malaysia, by a local nonprofit organization—the Marine Research Foundation (MRF)—in partnership with the Sabah Department of Fisheries have used a different strategy. Rather than presenting TEDs principally as a way to reduce turtle bycatch, the MRF effort (began in 2006) has emphasized TEDs' other abilities, such as reducing fuel costs, improving catch quality, and decreasing net repair and downtime.

Drawing from lessons learned in Australia's NPF and elsewhere, the renewed TED effort in Sabah has also focused on developing personal relationships with fishers and on creating a collaborative process for TED trials and implementation. Biologists have been working side by side with fishers to test and adapt TEDs to local boat design and fishing practices, while developing personal relationships that have been critical to the program's success thus far. Furthermore, a recently organized visit

PAGE 18: A juvenile loggerhead escapes a trawl net through a turtle excluder device (TED) during research in Florida, U.S.A. TEDs are designed to release turtles from trawl nets through an escape hatch, while still allowing shrimp and other target species to enter the net. © 2010 NORBERT WU / NORBERTWU.COM PAGE 19: The distinct bars of a TED are visible amid a pile of fishing nets in Queensland, Australia. © CALEN OFFIELD

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by Malaysian trawl fishers and fisheries officers to the U.S. National Marine Fisheries Service station in Pascagoula, Mississippi, has had a major positive effect on the program's success. During their visit, the fishers and fisheries officers witnessed complete (100 percent) TED use firsthand, tested TEDs under real fishing conditions, and spoke with fishers who use them daily.

Currently, the TED project in Sabah is voluntary, but efforts are under way to have TED regulations included in Malaysia's Fisheries Act. Voluntary use of TEDs is still gradual among the broader Sabah trawl fishery, but the initial efforts by MRF, the Sabah Department of Fisheries, and a small group of fishers are already having a great effect in raising awareness about TEDs and in dispelling many common fears about their use. The program continues to expand its work to include new fishers in new ports, with the hope that many will adopt TEDs on a voluntary basis or become better informed and prepared should TED use become mandatory.

Both of the examples—Australia and Malaysia—and the pioneering efforts in U.S. fisheries suggest that the key ingredients to success in TED implementation are voluntary fisher collaboration from the start, and a gradual approach that is based on personal relationships. TED adoption is likely to fail without support from fishers and a wide range of stakeholders. Fortunately, we have observed that when TEDs are adopted, fishers who use them rarely want to go TED-less. In the meantime, the lessons gleaned through the trials and tribulations of TED implementation around the world offer valuable advice for the road ahead. ■

Staff members from the Marine Research Foundation (Malaysia) work with local fishers to install TEDs in their trawl nets. © NICOLAS J. PILCHER

