By Jack and Anne Rudloe

Shrimpers and lawmakers collide over a move to save the sea turtles

Fishermen protest that they will be put out of business if forced to use a device that keeps endangered species from drowning in their nets

"Lift your nets and prepare for boarding," the Coast Guard coxswain barked into the radio. "Have your crew muster on the stern and your weapons unloaded and out for display."

Our prey was a 72-foot, rust-streaked shrimp trawler, the Charlie G. All morning we had been running south from Cape Canaveral, Florida, in a 45-foot patrol boat, pounding over 7-foot swells. Aboard was Agent Paul Raymond of the National Marine Fisheries Service (NMFS, pronounced "nymphs"), checking to see that the fishermen were pulling TEDs.

TEDs are Turtle Excluder Devices, panels of large-mesh webbing or metal grids inserted into the funnel-shaped shrimp nets. As the nets are dragged along the bottom, shrimp and other small animals pass through the TED and into the cod end of the net, the narrow bag at the end of the funnel where the catch is collected. Sea turtles, sharks, and fish too large to get through the panel are deflected out an escape hatch. Fishermen, who believe that the device causes their nets to dump 20 percent or more of the shrimp as well, call them "trawler elimination devices."

Sea turtles breathe air just as land animals do and must come to the surface every hour or so. Without a TED, they are trapped in a net for as long as it is
Save the turtles, ruin the shrimpers?

Towed underwater and sometimes drowned before being brought aboard. The problem is analogous to the seineing of tuna fish, in which thousands of dolphins are drowned every year (Smithsonian, February 1977). The government's requirement for the use of TEDs has become one of the most bitterly fought regulations in the history of fisheries management.

Last spring the Department of Commerce ruled that TEDs would be required in all offshore waters of the Southeastern United States, then delayed implementation pending the outcome of lawsuits filed by the fishermen. But TEDs were still required off Cape Canaveral, Florida, where the waters fairly seethed with loggerhead turtles. We were on a patrol craft checking compliance.

All the boats we had checked that day had been pulling TEDs, but to the amazement of the Coastguardsmen and the fishery agent, the captain of the Charlie G. didn't seem to know what they were. "Tags?" his bewildered voice had come over the radio. "We ain't found any tags out here."

"No, TEDs," Coxsawain Gill Heeney enunciated. "Turtle Excluder Devices. Are you pulling them?"

There was a long pause and then the voice turned sullen. "No. Ain't got none of those."

The patrol boat eased up to the trawler, and Coastguardsmen wearing pistols and bulletproof vests under their life jackets jumped aboard. For 45 minutes they checked the catch (only 175 pounds of white shrimp after three days at sea), searched for drugs, inspected life jackets and fire extinguishers, noted the serial numbers on guns. The trawler crew was legitimate, it poorly informed. The owner and the captain were eventually fined $4,000 apiece for fishing without TEDs. It was only one skirmish in a ten-year-old battle between shrimpers and conservationists.

The special appeal of the primordial

Sea turtles have little of the appeal, much less mystical attraction, for humans that dolphins do. And yet they are fascinating in their own right, great quiet creatures that swam the oceans long before the first mammal squeaked on dry land, before the oceans we know today even existed. There is so much to be learned about them—basic things like where they spend much of their lives and how they navigate across the trackless waters. They are imposing, powerful and, in their own way, beautiful. Turtles arose about the time the dinosaurs did, and some people are loath to see them disappear.

The sea turtle has become a symbol of the world's environmental conflict. If turtles are not drowned in our fishing nets, they are sucked up by dredges and ground to turtleburger, or blown to bits in the Gulf...
A shrimp trawl is dragged along the bottom like a flattened butterfly net. As the catch is funneled to the back, the excluder device allows shrimp and small fish to go through, but forces turtles out a hatch. When fouled with seaweed, a TED ejects everything.

of Mexico when obsolete oil rigs are removed by detonation. They wash up dead on the beaches, their guts crammed with plastic bags that they have mistaken for their favorite meal, jellyfish.

We have worked closely with both shrimp fishermen and conservationists fighting to save the sea turtles, most species of which are endangered. Our small marine laboratory in Panacea, Florida, provides live marine animals to schools and research laboratories. Many of our horseshoe crabs, electric rays, octopuses and other specimens come from shrimpers. But we have also been involved in sea turtle research and conservation. Since 1970 we have tagged and released 119 Kemp's ridleys, the most critically endangered of the seven species of sea turtles, and documented some of its habitat preferences. Almost all the turtles in the study were brought to us by commercial fishermen.

Since 1978 all six species found in U.S. waters have been listed as endangered or threatened under the Endangered Species Act. In North America and all over the world, their populations have been decimated by development on their breeding beaches, butchery of nesting females and theft of eggs from their nests. They die at sea from oil slicks and from eating our plastic garbage. And they die in fishermen's nets.

According to NMFS estimates, approximately 48,000 sea turtles are caught each year on shrimp trawlers in the Southeast and approximately 11,000 die. Of those, 10,000 are loggerheads and 750 are Kemp's ridleys. The extrapolation comes from 27,500 observer hours during which 800 turtles were caught; approximately 25 percent were dead when they hit the deck.

While all sea turtles have suffered major population declines, the Kemp's ridleys are in the most trouble. They nest on only one beach—near Rancho Nuevo, Mexico—where they have declined from 40,000 nesting females a day in the late 1940s to 10,000 in 1960 and then to little more than 500 in the '80s. The decline continues at a rate of about 3 percent per year. The species may be extinct by the turn of the century. Since the nesting beach is now protected, shrimp nets are the major suspect.

Meanwhile, the basis for the biggest economic chain in North American fisheries is shrimp, a family of crustaceans even older than sea turtles. At least six species are caught from Maine to Texas, but it is the brown, white and pink shrimp that form the bulk of the fishery in the Southeast. Americans down an average of 2.4 pounds each of shrimp a year, making it far and away the most popular seafood. Run-down luncheonettes a thousand miles from the sea can be counted on to serve deep-fried butterfly shrimp. In 1988, 331 million pounds worth $506 million were landed in the United States. (The rest of the 802 million pounds eaten in this country last year came from elsewhere.) More than 50,000 commercial fishermen and their families rely on shrimp, and many times that number work in shoreside processing plants.

The Rudlofs operate a marine-specimen business in Panacea, Florida. Jack has written six books about the natural history of the Gulf of Mexico.
The shrimp fishermen work in one of the world's last major concentrations of nesting loggerheads, and many cannot believe that any of the turtles are all that rare or endangered. The day after our trip with the Coast Guard, we were aboard the shrimp trawler Capt. Daddy, dragging TEDs with Captain David Cook a half-mile off the Cape Canaveral beach. The shore was an almost continuous wall of high-rise condominiums and hotels, save an occasional patch of palm and vegetation on an unsold lot.

"They point the finger at the shrimper and say he's killing the turtle," Cook said. "But look at what they do building on the beach like this. Turtles don't have any place to lay nowadays. She'll come up and see all those lights and go back and drop her eggs at sea. It isn't where she wants to lay... it's where she can."

"We just want to make a living"

Cook spoke softly, with a melodious low-country accent. Unlike many fishermen we've worked with, his clothes were meticulous; his crew were college students, articulate and knowledgeable about everything we caught. "There are all kinds of men out here," he went on. "There's a few rough ones who'll beat a turtle's head in, cut his throat and throw it overboard, but most of us do our best to set the turtle back alive. We turn him over on his back, pump the water out of him and send him on his way. We don't want to catch the turtle, we just want to make a living. It makes me mad when Greenpeace and the Audubon Society run to the newspapers blaming us whenever dead turtles wash up on the beach. If people really knew how few turtles we drown and what a hardship TEDs are causing, they'd think differently about this."

Depending on where it is fishing, an individual vessel may work for weeks, months or years without catching a turtle, much less causing a fatality. But when a dead turtle washes ashore on a Southeastern beach, there's generally somebody there to find and report it. And unfortunately for the shrimping industry, the ratio of dead turtles on the beach coincides rather closely with the number of trawlers working in the vicinity. Strandings usually pick up along the Georgia and South Carolina coasts after shrimping season starts. One boat may not catch many turtles; but considering that approximately 7,000 offshore commercial vessels tow for four to five million hours per year, the cumulative impact is serious. To this must be added the 11,000 bay boats that fish inshore where TEDs are not required, catching an unknown number of turtles—including the young ones that live in shallow water.

The shrimping industry hotly disputes the government statistics, claiming stranded turtles are mostly victims of pollution or disease. A recent necropsy study

 Armed Coastguardsmen in an inflatable cross from their patrol boat to shrimp trawler off Galveston coast.
by researchers at Texas A&M University, however, showed that of 77 dead ridleys that washed ashore, 55 appeared to have died by drowning. The cause of death could not be determined for the rest, but immediately prior to death nearly all had been feeding on organisms caught incidentally by trawlers.

Yet Dr. Richard Wolkie, a professor of veterinary medicine at the University of Rhode Island who has necropsied stranded turtles in the South Atlantic, isn’t so convinced that trawlers are the entire story. “The shrimpers are killing some of these turtles, but I don’t think all. I’ve found loggerheads with fungus infection in their lungs. They’re like everything else; they suffer from viral, fungal, parasitic and bacterial diseases. And most of the stranded specimens I see are too decomposed to tell much.”

When the trawls aboard the Capt. Daddy were hauled back, the deck writhed with small fish, crabs, ink-sputting squid, and 30 pounds of medium-sized white shrimp with gleaming emerald tails. Besides the turtle controversy, sports fishermen protest the annual two billion pounds of nonshrimp organisms inadvertently caught, called the by-catch, including juvenile trout, redfish, whiting and flounder that are shoveled dead over the side. For every pound of shrimp caught, nine pounds of fish die.

“We just don’t know how many shrimp we would have caught if we weren’t pulling TEDs,” Dave Cook worried as we raked through the pile, culling shrimp from the croakers, catfish, sea robins and anchovies that were gasping away their lives. “You don’t see any big flounder or whiting, do you? They get shot out along with the turtles, and that hurts.” His voice rose: “The trouble with these environmentalists is that they don’t have any idea of what goes on out here.”

*Freedom from complexities of life ashore*

Shrimping is backbreaking work performed on sometimes-rough seas in storms and sudden squalls. The reward for a life of shrimping is usually arthritis; swollen knuckles from too many catfish spines and from having to spend days down in the bilge repairing worn-out equipment in cold, wet weather. But shrimping is also freedom from the complexities of life ashore and enjoyment of the beauty of a calm sea at dusk. Commercial fishing is a way of life increasingly foreign to the desk- and paper-bound world of middle-class America. Many shrimpers, like David Cook, are second or third generation, following the ways of their fathers and grandfathers. Fishing, as one of the industries in which a college degree is not essential, has significant social value.

No one wants to close the shrimping industry down. Yet the law requires endangered species in the public
domain to be protected, regardless of cost. A total shutdown of shrimp was a very real possibility if environmentalists were to sue under the Endangered Species Act. To save the fishery, NMFS began looking for a technological solution. From 1978 through 1984, the agency spent $3.4 million developing and testing the TED. By 1981, NMFS was promoting voluntary use of the device and in 1983 began passing out free TEDs to encourage shrimpers to try them—as did the Center for Marine Conservation, an environmental group.

Even though shrimpers would catch fewer turtles, sharks, horseshoe crabs and jellyfish with TEDs in their nets, most were vehemently opposed to using them. Quickly perceived by the fishermen to be dangerous, the first TEDs were heavy metal devices that swung violently overhead when nets came up in rough seas. Even in later models, the escape panels sometimes clog up with sponges, roots and seaweed—not to mention old oil drums, tarpaulins and other human trash from the bottom—and eject shrimp and edible fish along with turtles out the hatch.

Fishermen saw the TED as one more hardship in an industry already stretched to the breaking point by high fuel and insurance costs, overfishing, and competition from cheap foreign shrimp raised in ponds or caught by subsidized vessels.

Many swore they'd die before they ever put TEDs on. As one fisherman told us last year, "Shrimpers are like a bucket floating in the sea, half full of water, about to sink. And TEDs are like the waves splashing in on us—we'll be under before you know it. A TED ain't nothing but a big hole in the net, and I'll be damned if I'm gonna pull them."

Newer TEDs were lighter, safer and cheaper, but nobody wanted them. Despite test results to the contrary, shrimpers feared that under real-world working conditions the new TEDs would still cause them to lose 20 to 50 percent of the shrimp caught. NMFS claimed the number was closer to 4. All the while, dead turtles continued to wash ashore, and groups like Greenpeace and the Center for Marine Conservation were demanding an end to the killing.

The voluntary approach failed. The U.S. Fish and Wildlife Service demanded mandatory use of TEDs. The Center for Marine Conservation announced it would sue NMFS under the Endangered Species Act. Such a suit would almost certainly succeed and probably force a total closure of the fishery.

With the gun to their heads, industry representatives then agreed to phase in the use of TEDs. When public hearings were held, however, rank-and-file fishermen rose up in rebellion. Thousands showed up in auditoriums in places like Biloxi, Mississippi, to vow civil disobedience against what they still perceived as a threat to their survival. "Perhaps some species were just meant to disappear," said Governor Edwin W. Edwards of Louisiana, to thunderous applause. He continued, "If it comes to a question of whether it's shrimpers or the turtles—by-bye turtles."

Shrimpers filed lawsuit after lawsuit but lost in court each time. The fight then moved to Congress where the Endangered Species Act was up for renewal. After prolonged debate, TEDs were required in the final bill, sort of. They would become mandatory in May 1989—but only in offshore waters. After May 1990, tow times in inshore bays behind barrier beaches, where many young sea turtles live, would be limited to 90 minutes—an unenforceable ordinance. Because all testing has been done in offshore waters only, TEDs would not be required inshore until NMFS could test them under inshore conditions. For now, inshore turtles would have virtually no protection.

Arguments over the cause of death

In the fall of 1988, immediately after the bill was passed by Congress, disaster struck anew. Wave after wave of dead turtles began washing up along the coast from Georgia to New Smyrna Beach, Florida. From October to December, 201 dead turtles washed ashore, of which 70 were ridleys. Ninety loggerheads, 17 leatherbacks, 3 green turtles and 12 rotted, unidentified carcasses also washed up. Only 32 ridleys had washed up during these months from 1980 to 1986. The strandings occurred while 150 to 200 boats were working a few miles to the north.

A few people speculated that perhaps migrating turtles had swum through an area farther north where toxic wastes were dumped, and had been able to swim south before dying. They pointed to the dead bottle-nosed dolphins that had washed up on the shore during the summer of that year, a die-off still not satisfactorily
Green turtle that had come out of water to bask in sun returns to shining lagoon on Tern Island, Hawaii. Turtles mate in the shallow water around the atoll, part of the Leeward Islands National Wildlife Refuge.
explained. Something other than shrimp fishing was killing the turtles, they argued. Dead whales and manatees, animals that had not been caught in shrimp nets, washed ashore in Florida during the same period. In the Florida Keys, sea grasses and coral reefs were dying. Across the ocean, seals were dying in the North Sea.

Environmentalists insisted that whatever might be killing other marine organisms, it was shrimp fishing that was killing the sea turtles. Sally Murphy of the South Carolina Wildlife and Fisheries division pointed out, “When there’s no shrimp boats out there, there are no strandings. In 1987 when the shrimp season began on June 4 in South Carolina, 143 loggerheads washed up dead. Then in 1988 the shrimp season was delayed until June 28 because there had been intensive rains, and the shrimp were too small to harvest, and only two turtles washed up dead during the same period. It isn’t pollution; shrimp boats drown turtles.”

More proof—and a demand for TEDs

Further evidence came from a Cape Canaveral study in which vessels used TEDs on one side and regular nets on the other: over a two-year period 40 turtles were caught and 3 drowned. They all came from nets that lacked “turtle shooters.”

After all the years of delay, of fishermen fighting TEDs in court and trying to subvert the Endangered Species Act, environmentalists were furious. They were tired of stepping over shark-bitten carcasses of drowned turtles buzzing with flies, ghost crabs tearing at their eyes. They called for a meeting of the Florida Marine Fisheries Commission and demanded that the state require the immediate use of TEDs.

In December 1988, over vehement protests from the shrimpers, the State of Florida acted, requiring emergency use of TEDs in state waters off northeast Florida. The May 1989 date stipulated by the federal government was not good enough. In July 1989 Florida extended their use to all offshore waters.

“I can’t see it,” Captain Edward Keith said one night last February when we were aboard his boat, the Lady Murle II, off Apalachicola, Florida, where TEDs were not yet required. “I’ve been shrimping most of my life, and I haven’t drowned over three or four turtles—nothing like the 11,000 the government’s talking about on TV. That’s a bunch of baloney.”

Edward had worked with us even before he started shrimping 18 years ago, collecting specimens and helping to tag turtles. A large percentage of our turtle data and many of the specimens that we sold through our laboratory came from him.

“It won’t just be turtles,” he chortled at the irony of our years of conservation efforts. “You can probably kiss your business goodbye. Those nets kick out a lot of junk you sell—horseshoe crabs, sponges, sea cucumbers, electric rays. In a few months when we have to put TEDs in, you may be out of business.” We were dragging for electric rays to be used in biomedical research. It’s possible these fish were big enough to be excluded by a TED. He might be right.

It was 5 in the morning when Pete Johnson, Edward’s deckhand, cried, “Hey, look, we got a sea turtle!” He pointed to the starboard outrigger, where the net had just risen from the water and stretched out into the midnight sea. “See him falling back into the net?”

Anxiously we waited as the two crewmen hoisted the nets slowly out of the water. With a jerk of the tail bag, a deluge of fishy, bulging-eyed creatures tumbled out onto the deck. Jumbo pink shrimp jackknifed, blue crabs scurried off in all directions, and catfish grunted and writhed on the deck. On top of them all thumped down the loggerhead. There it lay, deck lights gleaming off its scaly yellow flippers, its brown shell rimmed
Most endangered of all the sea turtles, a Kemp's, or Atlantic, ridley crosses sand at Rancho Nuevo, Mexico.

A hatchling loggerhead swims among sargassum weed. In summer, this turtle ranges north to New England.

Once hunted as a source of tortoiseshell for jewelry, as well as meat, a hawksbill swims in the Bahamas.

A leatherback covers its nest on a Suriname beach. Individuals of this species can grow to 1,600 pounds.

with white barnacles. The turtle was gasping for breath, slowly opening and closing its heavy-lidded eyes. Edward grabbed it by its front and rear flippers and heaved it on its back, where it flopped around on its domed shell, slapping the deck with its foreflippers.

We culled off, stepping around and over the turtle as we picked out the rays, shrimp, slipper lobsters, crabs and edible fish from the rest of the catch. The turtle was in the way, as all turtles are in the way of modern man. And when we were finished, and it had recovered, we punched metal tags into its flippers, measured its carapace, and the three of us hoisted it over the rail. The turtle landed with a splash and swam off.

We moved inshore, and on the next haul, to our delight, there was a frisky ridley. Usually we would drag for weeks and never see one. The next time the nets came up, to our amazement, we caught a glimpse of still another small ridley. It tumbled down and vanished beneath the avalanche of shrimp, crabs and fish. But somehow it didn't look right. Then we got the stench. It was rotten, dead at least a week. A crewman flipped it over. The turtle's throat had been cut.

Peter Johnson looked appalled. He shook his head. "Maybe someone was gonna eat him. Then come morning, he was too tired and threw him back." His words trailed off hollowly, "I don't know..."

Edward's voice was skeptical. "More likely they grabbed him, jabbed him like this," he said, simulating a short, vicious stab with a knife. "Some think if we get rid of these turtles, they won't be endangered no more. They'll be extinct."

By the May 1 deadline for implementing TEDs, opponents had lost a court challenge, but members of Congress from Louisiana had persuaded Secretary of Commerce Robert Mosbacher to delay further. Because shrimpers needed more time to buy and install TEDs, only warnings would be issued through the end of
June. As the July 1 deadline drew near, shrimpers reluctantly put in the hated TEDs. Then nature struck with the biggest bloom of sargassum weed in years. The golden seaweed washed up on beaches from Florida to Texas, hopelessly clogging the excluder panels as it came. Shrimpers were furious when they lifted their nets to find them full of seaweed and largely empty of shrimp.

Because of the seaweed, Mosbacher told the Coast Guard not to enforce the law. The shrimpers happily cut the devices out of their nets. Environmental groups prepared to go to court; Commerce staff members advised the Secretary he could not legally refuse to enforce the law, and he reversed himself.

On Friday, July 21, the order was broadcast on the Coast Guard’s “Notice to Mariners,” and the airwaves exploded with anger and frustration. In an unheard-of show of unity, between 400 and 600 shrimp boats steamed into port to protest. By nightfall the Coast Guard in Galveston had a blizzard of blips on their radar screens, all heading into the Houston ship channel, one of the busiest seaways in the world (Smithsonian, October 1985). By morning, major shipping lanes along the coast were blockaded with trawlers. Trying to clear the Corpus Christi channel, Coastguardsmen cut anchor ropes, tried to drag boats away and blasted them with water cannons, knocking out windows and flooding engines.

Mosbacher announced he was abandoning TEDs entirely, but in 45 days requiring all shrimpers to limit their tows to 105 minutes, so that any turtles caught would not drown before the net was hauled to the surface. Normal tows, in contrast, run up to four hours, longer than most turtles can go without breathing—especially when stressed. To make enforcement manageable, his order continued, all shrimp boats would have to lower and raise their nets at exactly the same time.

With an explosion of press releases and television appearances, the National Wildlife Federation followed the Center for Marine Conservation and other

In a spontaneous protest last July, shrimp boats linked up to blockade the Corpus Christi ship channel.
groups and filed suit. Florida instituted its own emergency TED regulations in state waters. It did not help when a shrimper off Fort Myers was arrested after he cut the throats of three nearly drowned loggerheads.

A federal judge ordered Mosbacher to enforce some immediate turtle protection until he ruled on the TED issue. The Secretary responded by requiring the 105-minute tow to take effect immediately.

In August the Coast Guard reported that, based on aerial surveillance and about 100 boardings, 88 percent of the fleet was not complying with the shorter tow times. Mosbacher withdrew the limited tow times and once again required TEDs.

Again shrimpers steamed to their home ports to tie up in protest. When President Bush visited New Orleans in September, crowds of fishermen and their families stood along his motorcade route shouting, “No TEDs! No TEDs!”

While the President listened to complaints from local Congressmen, more than 50 shrimpers blockaded nearby waterways. But this time, instead of confrontation, the Coast Guard videotaped the boats, identified the owners, and issued citations that could amount to $55,000 per vessel.

“The ------ environmentalists are making criminals out of hardworking me!” stormed Dewey Fortner, captain of the Raven out of Tampa. “There’s no way I can make a living with a TED. I’ll put one on my net after they take me to jail.”

The flip-flopping through the summer made an already difficult situation worse. One shrimper spoke angrily at a meeting with the Coast Guard after the Galveston blockade: “It’s the on-again, off-again, on-again stuff we can’t stand. If they’d have made us put on TEDs—and leave us alone—we’d either get by, starve or go bankrupt, but there wouldn’t be this misery of jerking us around.”

“This whole thing is terrible,” agreed one woman. “The turtles are dying and the shrimpers are starving. No one wins.”

The fishermen reasoned that stopping oil tanker deliveries to East Coast would bring them attention.