

# Man's Marine Brother

# The Porpoise

by Hillary Hauser

The unrelenting sun blasted down from its high perch in the sky as our old converted shrimp trawler lobbed along on its seemingly endless course. Day after day we tried to lift our spirits by joking about the heat and humidity as we went back and forth over a twenty-five-mile-square area of the Little Bahama Bank.

It was July 1972, and we were searching for the wreck of the *NUESTRA SENORA DE LA MARAVILLA*, a Spanish galleon that had sunk in 1656 somewhere, we thought, within our twenty-five-mile leased chunk of ocean. Ancient documents in Seville had indicated that more than five million pesos in treasure—gold, silver, emeralds, jewelry, pearls and other precious stones—had gone down with the ship, and we were looking for the telltale signs of the wreckage: piles of round ballast stones or readings on our magnetometer. Tempers often ran short, as they so easily do on such shipboard adventures, but any suspicious sign of the wreck would gather everyone's spirits together and the common purpose of finding it would soothe jangled nerves and touchy tempers.



And so it went, disappointment and tenseness alternating with excitement and joviality. We were forty miles from the nearest land; Memory Rock was the closest chunk of earth, somewhere off Grand Bahama's West End. The only other boats we saw were Cuban fishing vessels, which often ran down the marker buoys that we threw from the boat to indicate where we had been. Days passed into weeks, and just when the thought of gold and silver was becoming a dimmer possibility, we found our treasure: porpoises.

They came swooping in around our old trawler with indescribable vitality. Huge schools of them played in our bow, rolling, diving, criss-crossing each other in great, gleeful fashion. We immediately forgot about the *Maravilla*. As soon as we stopped the boat they would circle a bit and then would swim away.

We found that we could keep their interest if we jumped overboard the minute the engines were cut, using only masks, fins and snorkels to dive to the bottom, only twenty-five to thirty feet. They would follow us down, swimming in playful circles around us, dancing on their tails, swimming upside down, the works. When we surfaced, they would surface. (Later I learned that porpoises need to breathe about as often as man.) If we didn't dive again they would wander off, so we all became fast, furious, out-of-breath, repetitive divers. The whole herd of them took part in our diving game — males, females, the little babies. They seemed to accept us completely, swim-

ming fearlessly close to us but always staying only inches from our reach.

I was hooked. Each day, while the others were watching magnetometers and marking our area with the buoys, I watched the horizon for signs of our friends. They never failed to show up and we never resisted the urge to jump over the side for an intermission from work and a few precious moments of play with completely wild animals who accepted our presence; they had probably never been with humans before.

My tenure with the treasure expedition came to an end about three weeks before the wreck of the *Maravilla* was found. While the others got to feel the thrill of handling two million dollars worth of gold doubloons, silver pieces of eight and giant emeralds, I was at home with a gold mine of books on porpoises.

The Greeks called them *Hieros ichthys*, the sacred fish. Throughout time porpoises have been respected, admired and worshipped as intelligent brothers of the sea. Troubled mariners on rough waters always regarded their appearance as a good sign — an indication of safety. Imagine the feelings of a sailor who, after many days on the lonely ocean, would be joined by cavorting porpoises who would swoop in to play at his bow, leaping up into the air, darting through the waves, torpedoing upside down through the water. They always represented pure joy. It is no wonder that the porpoise has come to be called the mariner's best friend.

Porpoises belong to the scientific order Cetacea, which includes whales and dolphins. Cetaceans are not fish, but warm-blooded mammals who bear their young alive and nurse them after they are born. While they live completely independent of land, unlike seals and sea lions, they need air to live. A porpoise needs to breathe, on the average, every thirty seconds. Consider this against the fact that these animals feed, sleep, jump and play in the water all their lives!

Porpoises and dolphins comprise the family Delphinidae. There is much confusion between the porpoise and dolphin, but the two can be distin-

guished. The dolphin has a long, snout-like beak and sharp teeth; the porpoise has spade-shaped snoutlike teeth and no beak. The physiological differences between the two are minor, and most people, and some scientists, simply refer to them both as porpoises. This distinction also helps eliminate the confusion, though, between the cataceous dolphin and the commercially desirable dolphin-fish.

Cetaceans are sometimes called "reentrants" because millions of years ago they once lived on land. There are many theories about all life originating in the sea, to eventually emerge on land, and the fact that these animals went back to the sea has earned them the term "reentrant." Scientists point to their terrestrial body plan; an X-ray of the flipper of the porpoise would show the bone of a hand, forearm, wrist, fingers and upper arm. The nose has moved up to the top of the head to form the blowhole. With this, the porpoise can breathe without lifting its head out of water.

The porpoise is well adapted to its watery environment. The most obvious thing a seaman will notice about the animal is the apparent ease with which it speeds along in front of a boat. According to mammalogist and author Ken Norris (*The Porpoise Watcher*) the porpoise reaches top speeds of 23.1 knots, but can go even faster by getting free rides at the bow of a boat, allowing itself to be pushed along by bow waves.

But the most phenomenal physiological characteristic of the porpoise is its sense of direction and ability to hunt, communicate and navigate through even the most turbid, low visibility situations. This is directly attributed to its highly developed sonar. The best of sonars available to humans, in use by the U.S. Navy, can only indicate an object in the distance. Whether it is whale or submarine often cannot be distinguished. The porpoise on the other hand, can discern not only whether the thing is a whale or submarine, but it can tell what kind of metal it is (if it's a submarine), whether it is dead or alive (if it's a whale). The sonar of the porpoise tells the animal the size,

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*In 1972, Hillary was a member of a diving expedition to the Bahamas, which resulted in this story.*



direction, distance, shape, density, movement and texture of the object in question.

Scientific tests have proven that porpoises can tell the difference between brass and aluminum, mullet and skipjack, even while they can't see them. The porpoise sonar works by "echo location." It sends out a sound that strikes the object and bounces back. The porpoise interprets the distance between itself and the object by the length of time it takes the sound to come back, and also, according to Norris, probably by frequency content of the echo as compared to the outgoing sound. It tells the size of the object by the strength and shape of the returning echo. The internal characteristic of the object is determined by the quality of sound of the returning ping. With this ping the porpoise can tell what the material nature is — its hardness, internal structure and whether there are air spaces.

Author Elgin Chiampi (*Those Other People — The Porpoises*) tells of a test wherein a porpoise distinguished between a fish that had been dead one-and-a-half days and one that had been freshly killed. The fishes were both the same species, size and shape. Chiampi has felt the sonar pulses of the porpoise, and described them as feeling like sand hitting against his body. The marvelous miniature sonar of this animal is the subject of much scientific research, and navy scientists are trying to duplicate this sonar for use in nuclear submarines; not a bad idea considering that a U.S. submarine only recently collided with a Russian submarine in the depths.

The obvious intelligence of the porpoise is something that has captivated the imaginations and hearts of mankind throughout history. There are several big indicators that porpoises have superior minds. Psychologists say that there is more play in animals as one moves up the evolutionary scale toward man. In the wild, the porpoise will go out of its way to play in the bow waves of a moving boat. In captivity it soon accepts its surroundings and the presence of man, and begins playing again. A new porpoise put into a pool with other, already trained por-

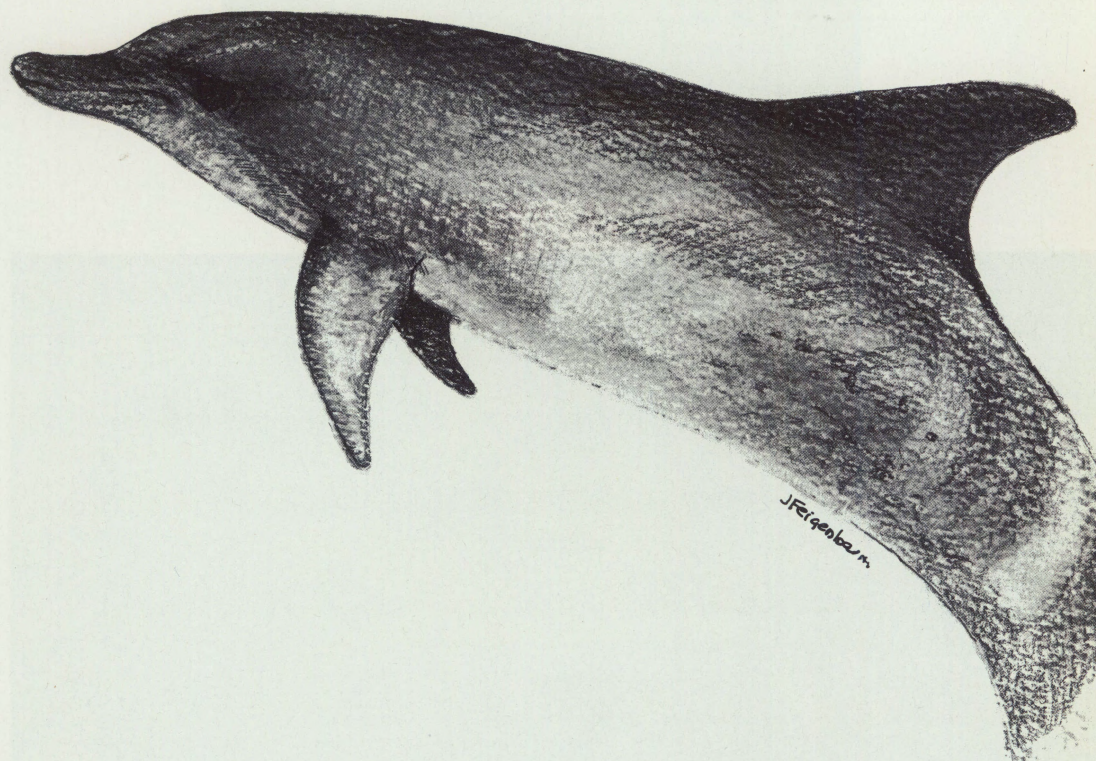
poises, soon learns from his pool mates what they do to get the rewards (fish), and soon will be doing the same things. Some porpoises have been known to think up their own tricks.

Porpoises also need sleep — another sign of advanced brains. It is not known exactly how they sleep, but apparently they take many catnaps at the surface and do not sleep too deeply. According to the noted neurophysiologist, Dr. John C. Lilly, a porpoise cannot sleep for great lengths of time because its respiration will stop: While the automatic nervous system of humans provides for breathing when we are asleep or even unconscious, the breathing of the porpoise is under conscious control. If given a general anesthetic, the animal will die. Porpoises normally don't hold their breath more than about six minutes.

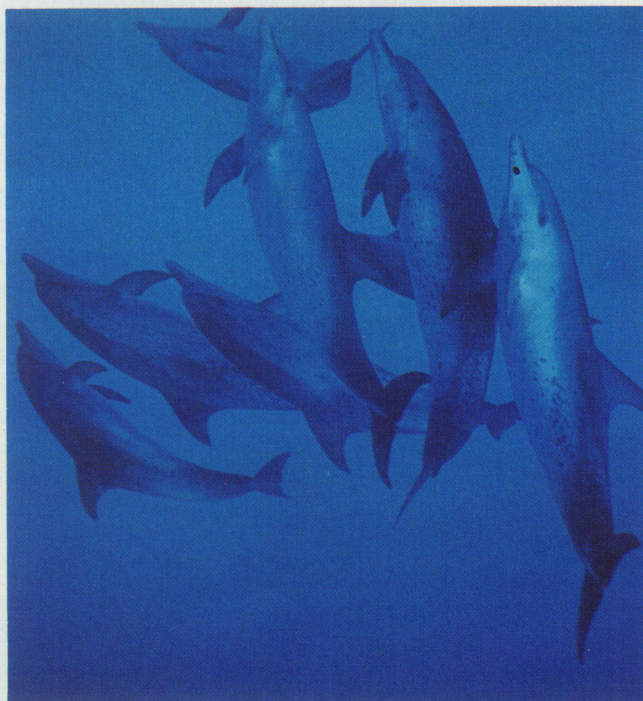
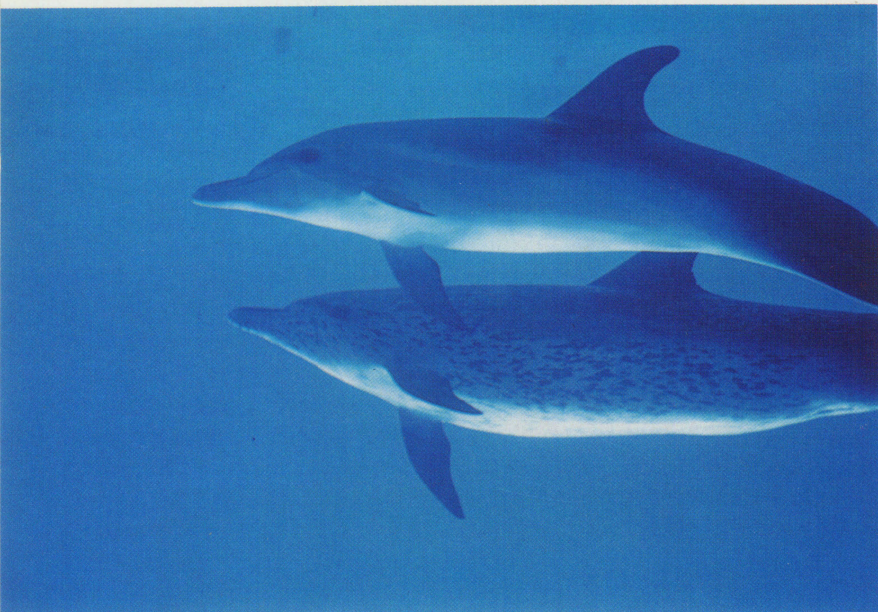
How porpoises interact and communicate with each other is almost inexplic-

able, as is their uncanny affinity to man. It begins with the story of birth.

Porpoises stick together in big herds that are usually comprised of relatives: mothers, fathers, children, grandparents, aunts, uncles. The gestation period of the mother porpoise is approximately one year, during which time the unborn baby grows to about three and a half feet. Sometimes the mother will be befriended by another female in the herd about two weeks before birth. This female becomes her attendant midwife, staying close by her side. When birth begins, the other porpoises, notably the big bulls, form a loose circle around the natal scene. (Even when there is no birth taking place the mothers and young travel in the center of the school, according to Norris.) Sharks are one of the natural enemies of the porpoise and the blood of birth may be an attraction to them. However, the porpoises have been known to fend well for themselves, the bigger ones sometimes becoming subsea ramming bars, and smashing sharks to death, although only the stoutest porpoises have strong







enough snouts for this sort of thing. Many sharks have been taken with porpoise meat in their bellies. The porpoises' best defense, it would seem, is their sonar beaming device which enables them to steer clear of danger.

The baby is born tail first, like most cetaceans. When it is completely out of the womb, the mother gives a burst of speed and breaks the umbilical, turning back to push the baby to the surface to breathe. The fins of the newborn are folded up like weak, wet towels. In the first attempts at swimming the little tail pumps furiously up and down, rather ineffectively. However, the baby is pushed along by the hydrodynamic force of the mother's own wake, and it can hitch a free ride without swimming at all.

The tie between mother and baby is extremely strong, and scientists Margaret Tavolga and Frank Essapian tell us that the baby may return to its mother in times of stress for six years or more. One porpoise trainer capitalized on this bond when he set out to collect a mother and baby porpoise team for his training school. He first captured the baby, put it into his boat, and headed for shore. The alarmed mother swam in circles, whistling, clicking and raising a huge ruckus. She followed the boat inshore, where she was reunited with her baby in their new home.

Even outside the baby-mother relationship, porpoises have an uncanny instinct about protecting each other. It is a well-known fact that if a porpoise is sick or wounded, another porpoise or porpoises in the herd will attend to it, pushing it to the surface to breathe. Lilly points out that a sick porpoise must be attended



twenty-four hours a day and that one porpoise will do this for another until the sick one recovers. At the National Institute of Mental Health, porpoises have done this for each other time after time, for periods ranging from several days to weeks.

There is a peculiar awareness within porpoises of the intelligence of man, which is one purported reason that porpoises adapt so readily in captivity. Porpoises will exhibit excessive faithfulness toward their trainers, sometimes returning to them even when set free in the open ocean. However, Lilly points out that no matter how large the pen, a confined territory is static, and porpoises brought in from the wild face a radical, tough change. Lilly advocates the establishment of facilities by the sea where porpoises are free to come and go.

Such a concept is not unreasonable. Ken Norris and a group of scientists worked with a polka-dotted dolphin named Pono, off Hawaii, often in the open sea. Pono learned to swim onto a sunken stretcher whereupon she would be winched free of the water. Then she would be carried to a truck where she would lie unconcernedly, for the trip to the boat. She then would be allowed to swim around at leisure in the water, coming back to the humans at the sound of an underwater recall buzzer. The playful porpoise would sometimes dart away to cavort in the bow of another boat, or to play with a clump of floating sargasso weed, but she would always come back, eager to perform the tests her human friends had mapped out for her. It was only when she was confronted with the danger of sharks that she fled permanently from the scientists, but not until she had exhibited tenseness and panic, finally darting off when rescue wasn't forthcoming.

Pono's case is only one example of how porpoise-man relationships can succeed without confines. Tuffy, a noted Navy bottlenose dolphin, made news in 1965 by running messages, tools and other supplies to the aquanauts of *Sealab II* at 200 feet. He later located missile cradles and recovered drill mines in the Pacific. And, after months of training in the open sea, Tuffy would go down to 990 feet and do a complicated series of tasks.

Even without training, porpoises have been known to aid man. There has been a significant number of accounts where wild porpoises have rescued humans at sea. In March of 1960, Yvonne Bliss of



Florida fell overboard from a boat in the Bahama Channel at night and had been swimming for a long time without knowing where she was going. Suddenly, a porpoise nudged her and forced her to the right so that she was carried by a current that took her into shallow water. The porpoise stayed with her until she arrived on dry land, and then darted off.

In recognizing their superior intelligence, and their place as the marine brothers of mankind, humans should do their best to protect the porpoise from unnecessary slaughter. Today, approximately 200,000 porpoises a year are killed accidentally in tuna nets. (American tuna fleets account for about 100,000, 78,000 being the established quota set by the National Marine Fisheries Service for 1976.) Porpoises feed on the same thing as tuna and travel with tuna schools in significant numbers. Yesterday, fishermen took the tuna by lines. Now, it is with big sweeping motions of huge nets — which effectively capture the tuna, but also the accompanying porpoises which become entangled in the nets and suffocate. The recently developed Medina panel, made of small mesh, helps to keep them from entangling and has reduced the kill significantly. Ken Norris is doing significant research, and in November of last year he led an expedition aboard the *Elizabeth C.J.* fishing vessel, off Mexico, to conduct experiments designed to lessen porpoise kills. After 20 placements of the net, only 11 porpoises were killed. (Normally the fatality would have been about 550.) The crucial moment is after the fishing vessel backs down, allowing the lines to slacken so the net partially dips and enables the porpoise to escape. Norris found that 50% of the mortalities occur at this time. To make their observations, the scientists would paddle around inside the perimeter of the net in a rubber raft, and they observed that the porpoises would sink 40-50 feet to the bottom of the net and wait. Says Norris, "Any old porpoise trainer knows this is frustration. They'll blow a big bubble and just lie there, but after a while they'll come up." Norris feels mortality could be cut by at least 30% with crews trained in porpoise behavior, and also by the use of improved, "tuned" nets.

Right now there is a battle over quotas; at time of publication the tuna industry wanted an increase to 85,000, while NMFS recommendations for 1977 were

somewhere around 30,000. American tuna boats had threatened to leave, or had already left, for other countries that have no quotas at all (Ecuador, Mexico, New Zealand). Norris, and other biologists and/or conservationists, have expressed alarm at this, and advocate a realistic mortality quota for the fishing fleet. If boats are going where there is no restriction at all, it would do the porpoise more harm than good.

The sailor's best friend has been loved since classical times. Recent experiences bear out the validity of the ancient tales we hear about wild porpoises making friends with humans. The Greeks put the porpoise on their coins and medals. The god Apollo used the porpoise as his symbol. Dauphine, a historical region in southeast France, was named after the heir to the French throne, who came to be called "dauphin." There are numerous stories of Pelorus Jack, a porpoise who for twenty-two years guided ships across the straits of New Zealand. The porpoise of Hippo, an ancient Roman seaport now called Bizerte, was famous because it would come inshore to play with the town children. In more modern times, there is the story of Opo, who in 1955 came regularly of her own free will to play with the bathers and children at Opononi, north of Auckland. Visitors flocked to the town to watch the action. When Opo was found dead in 1956, condolences came in from around the world, stores in Opononi closed for the day, flags were lowered to half-mast, and Opo was buried next to the Old Soldier's Home.

The instinctive bond between man and porpoise is well represented in the classic "boy on a dolphin" figure. In the past, the special qualities of these animals have been celebrated in the songs of poets and in the journals of writers. Today, scientists also know and write of their special worth.

I had come to know the porpoises. For that brief summer we swam and played with them — freely, openly and naturally. As I look at my pictures of that rare time, which may or may not happen again in my life, I occasionally compare them with the two million dollars that was found after my departure from the *Maravilla* expedition; and I feel that, in the final analysis, I got more than my share of the treasure.

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