

Investigating a Mass Stranding of Rough-Toothed Dolphins in Brazil

by Bia Hetzel and Liliane Lodi

On the evening of July 11 or early in the morning of July 12, 1997, a group of six rough-toothed dolphins (*Steno bredanensis*), consisting of five adults and one juvenile, live-stranded in a mangrove swamp near the mouth of the Cairuçu River, in Mamanguá Gulf (Figure 1). The stranding site is located in Ilha Grande Bay, south of Rio de Janeiro State, on the southeastern coast of Brazil. The stranding site was remote and news of the event took more than a week to reach the office of Projeto Golfinhos (Dolphins Project), whose research team did not interview members of the rescue team until July 24.

Mamanguá Gulf shelters the largest and best preserved mangrove vegetation of Ilha Grande Bay, which sustains especially rich marine life in its inner waters. Inside the Gulf, the water depth varies from 9 meters (m) to less than 1 m. The sea is always calm and the water currents and waves are very gentle. Rough-toothed dolphins are regularly seen in the vicinity of the Gulf and may use this region as a

feeding ground. On the Brazilian coast, especially in Ilha Grande Bay, research has shown that this species, originally considered pelagic, may occur in coastal habitats in several locales.

On the morning of July 13, local fishermen discovered the stranded dolphins still alive in the mangrove swamp. The men went to the town Paraty to notify the authorities and get help to rescue the animals. Unfortunately, despite the fishermen's efforts, no official support was obtained. That afternoon, Mr. Salgado, a fisherman, and six others went to the stranding site intending to rescue the dolphins.

Three dolphins, one of which was a juvenile (about half of the adults' size), were stranded side-by-side (Figure 2, #1, 2, and 3). Two other dolphins, which were stranded approximately 1-1/2 m behind the first group, were separated from each other by about 2 m (Figure 2, #4 and 5). The sixth dolphin, which was significantly larger, was stuck in the mud approximately five meters behind the first group (Figure 2, #6). The dolphins were found lying on their sides, a position that forced them to raise their heads out of the water at high tide to breathe. The only exception was the animal found in the middle of the first group, which was lying on its belly supported by the two other dolphins. At the stranding site, the water depth was less than one meter.

The group of volunteers tried unsuccessfully to push the dolphins back to the water. Salgado decided to dig holes in the mud around the dolphins in order to release their pectoral fins and make it easier for them to move, and also to cool them with water. Before leaving the stranding site, the volunteers covered the dolphins' bodies with wet mud, to try and protect them from the heat, leaving only their eyes and blowholes uncovered. The weather was cloudy but heat was already causing burns in the dolphins' skin. Apart from the burns, Salgado did not notice any other external injuries to their bodies. The animals were very alert, struggling to move and whistling loudly every time they were approached by the volunteers.

On the following day (July 14), about 36 hours

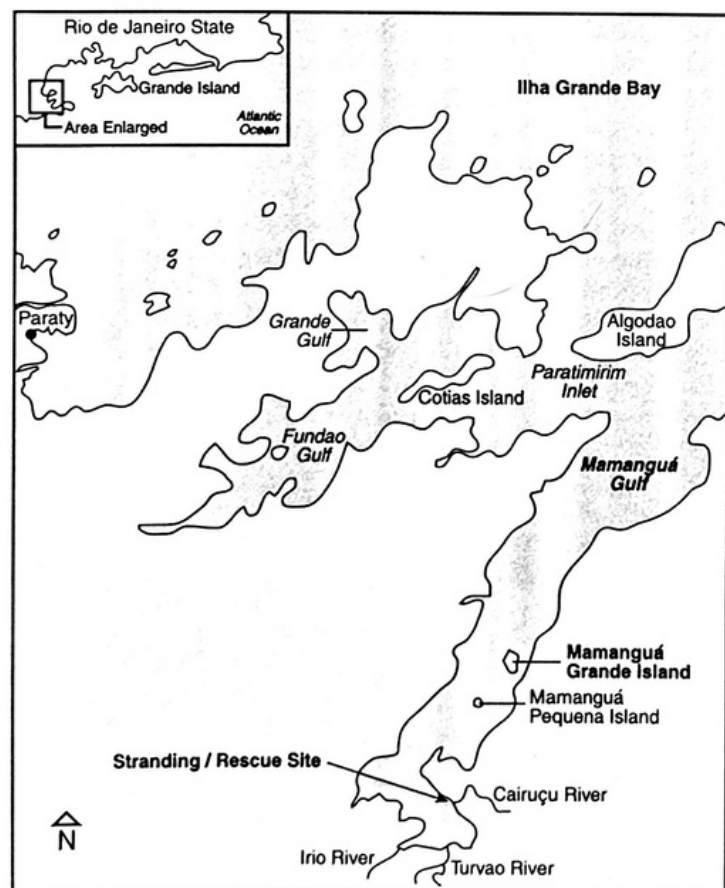
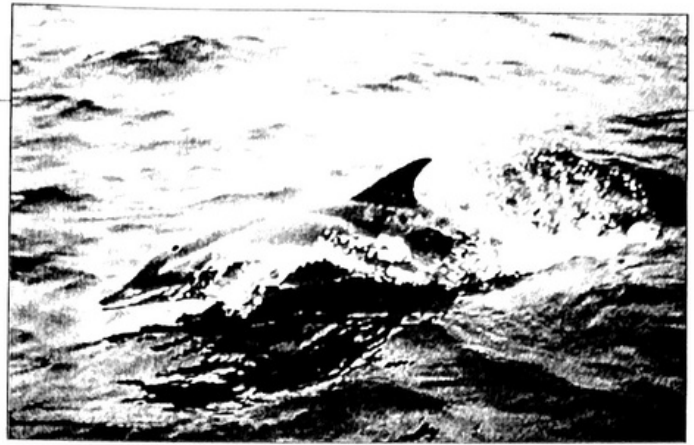


Figure 1. Site of the rough-toothed dolphin mass stranding in Mamanguá Gulf, Ilha Grande Bay, Brazil. Map by Jim Holdaway.

*A rough-toothed dolphin swimming in Ilha Grande Bay, Brazil.
Photo by Bia Hetzel.*



after the estimated time of the stranding, local authorities finally sent a rescue team to the stranding site, with eight firemen and two mariners. This group arrived at the scene just after the return of Salgado, the volunteers, and a crew from a local television station, Eco-TV. As the rescue team started its work, the tide was ebbing, and got even lower as they proceeded. Despite the tides, and the difficulties caused by the apparent poor health of the animals, the team succeeded in releasing the dolphins one by one.

The largest dolphin was the first to be rescued because it was the easiest to reach. As it found itself free in the water, the dolphin whistled loudly and swam very slowly in circles, rocking from side-to-side. After two or three minutes of this behavior, the dolphin tried to swim back to its former stranding site. It took the efforts of three men to return the dolphin to deeper waters. The next three dolphins rescued repeated this behavior. However, when the juvenile was released, the others swam very slowly in a tight formation around the juvenile and around the humans in the water, often touching the people with their beaks and rubbing themselves against the team members' bodies. The juvenile seemed to be in the worst health and had responded very weakly during the rescue. However, as it was being released, the juvenile became disturbed, moving and whistling a lot.

Due to sun exposure, some of the dolphins had blisters from the sunburns on their backs and on the right sides of their bodies. After the rescue, the dolphins remained in the area, swimming on one side as if they had lost their buoyancy or were having balance difficulties. By late afternoon the dolphins were still swimming very slowly in a tight formation. The rescue team directed the group of dolphins out of

the Mamanguá Gulf by swimming along with them and later following the dolphins by boat. By the time the rescue team left the area, the dolphins had left the shallow waters and were already in the middle of the Gulf. Overall, the rescue of the dolphins took about three hours. During this time the rescue team members stayed very close to the animals, petting their bodies and fins; the dolphins did not offer any resistance to this attention. The rescue team also tried, without success, to feed dead mullet to the most injured animals.

On July 15, news reached the town of Paraty about the death of two dolphins, possibly from the group that was rescued. The bodies of these animals were seen floating inside Mamanguá Gulf. On July 20, Salgado saw four rough-toothed dolphins in water 5 m deep and less than 50 m from the shore near Cotias Island in Mamanguá Gulf. He assumed these were some of the same animals rescued from the stranding since one was the size of the stranded juvenile and all had sunburned backs. He reported that the animals appeared to be foraging and did not approach his boat.

Salgado took the Projeto Golfinhos team to the Mamanguá Gulf stranding site during the interview on July 24. There the team discovered the carcasses of two rough-toothed dolphins, perhaps the two seen floating in the Gulf days earlier, and possibly two of the animals rescued on July 14.

One of the dolphin carcasses was found on a very small sandy beach at Mamanguá Grande Island in a state of advanced decomposition; it had been mutilated by scavenging vultures. The other was stuck in a mangrove tree on a muddy beach, close to the mangrove swamp of the original stranding. This carcass was in a similar state of decomposition. The advanced state of decomposition made it impossible to determine the sex and total length of the animals, or to collect any samples. The skeletons also could not be collected.

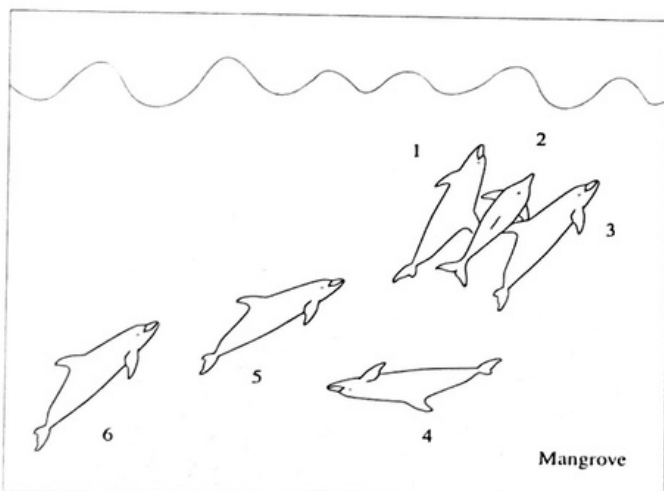


Figure 2. Stranding position of the dolphins at the moment of rescue (1-6). Illustration by Daniela Weil.

This episode is the first known mass stranding of rough-toothed dolphins on the South American coast. Worldwide, known mass strandings of this species have been reported for Hawaii, Florida, Belize, Mexico, and Senegal, with numbers of animals ranging from 2-100 individuals. The six rough-toothed dolphins that were stranded in Mamanguá Gulf may have followed mullet schools inshore and become trapped by the outgoing tide. There are at least three records of this species foraging on mullet in Ilha Grande Bay. During the summer season, mullet usually ascend the rivers of Ilha Grande Bay to spawn. In fact, mullet were seen in large schools moving upstream on the Cairucu River around the time of the dolphins' stranding. The long meandering channels of the Mamanguá Gulf and the spring tide conditions (lower tides than usual) may have contributed to the stranding of these six dolphins, which were probably foraging. Reinforcing this hypothesis is a record from 1947 of a mass stranding of a herd of dolphins (no description of the species was provided) at exactly the same location, also during the mullets' spawning season, and again possibly associated with a spring tide (M. Crispim, personal communication). Other mass strandings have occurred along the Brazilian coast among species including sperm whales, short-finned pilot whales, and melon-headed whales.

Research by Projeto Golfinhos has discovered that the widest diversity of cetaceans in Brazilian waters is within Ilha Grande Bay (13 species) and has learned about the many threats faced by these animals. Projeto Golfinhos depends upon the thousands of hours their volunteers work to accomplish educational campaigns for local communities and tourists. The group is funded by various small grants from organizations including Fundação O Boticário de Proteção à Natureza, the MacArthur Foundation, and Cetacean Society International.

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Bia Hetzel, a professional photographer, founded Projeto Golfinhos in December 1990 as a research and conservation project for cetaceans in Ilha Grande Bay.

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A rough-toothed dolphin found in an advanced state of decomposition on Mamanguá Grande Island in Mamanguá Gulf, approximately 13 days after a mass stranding. Photo by Bia Hetzel.

