



Bahamas Naturalist





In Search of Marine Mammals

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with Kenneth Balcomb

While en route from North Eleuthera to Abaco we stop to fish off Hole in the Wall. It's a bright, calm afternoon in May; the sort of day when you stand on the bow watching turtles, sharks, or schools of tunas moving at ease eighty or more feet below the surface. As we're slowly trolling, Ken scans the horizon for any clues of whales or dolphins, as we have done since leaving Spanish Wells. This time, though, something over the horizon catches his eye. He doesn't move, doesn't speak, concen-

trating to determine what it is that has attracted his attention. I get the binoculars for a closer view. Together, we see a huge plume of water sprayed high in the air as if a rogue wave has crashed against the shore. But there is no shoreline to the northeast of us, only North Atlantic ocean two miles deep. The plume is much too big to be a whale blow... it is more like an underwater eruption. Then, another splash, so large that it can only be one thing... a breaching whale! I note the time, our position,

and the compass bearing to the splash as Ken reels in the fishing lines, preparatory to heading over to check it out.

As we approach the whale continues breaching, throwing its 18 tons almost clear above the water a total of six times. We slow down and approach cautiously, realizing that there are probably other whales in the area. Within minutes a group of eight sperm whales surface 100 feet off the starboard side. Their dark brown, wrinkled bodies and squarish foreheads give them the appearance of enormous semi-submerged logs bobbing at the surface. We count five 35-40 foot adults, two with calves alongside, and one subadult about 30 feet long - a "nursery school" of adult females and their young. We begin taking photographs to get identifying shots of each individual.

The subadult leaves the group and heads directly for our boat, slowly and inquisitively approaching. When it is less than 50 feet away it turns to view us with both eyes, its length just slightly less than that of our 32 foot boat. After about a minute of mutual observation, it moves off 100 yards and breaches twice in front of us. We surmise that it is probably an immature male offering us a brief but spectacular power display. After the display, the whale rejoins the female group lolling at the surface. Then, they raise their broad flukes and dive.

Sperm whales may dive for as long as an hour, so we begin scanning the sea for more blows from other whales. Soon we are with another mother and calf pair, and are able to photograph the female's flukes as she dives. We shut down the engine and put over the hydrophone, an underwater microphone. Immediately we hear the powerful clicks, like someone rapping loudly and quickly on a door. We turn on the cassette recorder to tape the whales' vocalizations. Sitting on deck, rocking slightly, with the headphones on, I try to imagine what the whales are doing in the depths of Northeast Providence Channel with canyons miles deep, where the only means of communication in the intense darkness is through touch and sound.

Anyone who has spent time on the water has seen dolphins playfully riding the bow of the boat, or even occasionally seen whales resting at the surface on a calm day. But how often are marine mammals sighted in The Bahamas and what species are people seeing? How

abundant are they; and, most importantly, are the numbers and variety found today reflective of what occurred in the islands historically?

Marine mammals were certainly more abundant in The Bahamas when Christopher Columbus arrived than they are today and their decline is due almost entirely to over-exploitation. The most extreme example of this over-exploitation is that of the West Indian monk seal, the endemic and only species of seal in the Caribbean region. The Bahama Islands provided ideal habitat for the monk seals to feed near coral reefs and haul out on extensive sandy, flat beaches adjacent to shallow, protected waters for pupping. These docile and fat 7-foot long seals knew no predators except the occasional shark. They were totally unafraid of people and absolutely harmless to them. Their demise is a classic example of human industrial enterprise driving a fellow species to extinction.

Columbus' crew were the first Europeans to spill the blood of the West Indian monk seal, returning to Europe with tales of the great abundance of seals in the New World. A full-fledged slaughter of these docile seals commenced in the 1700's as demand for lantern and stove oil increased. The *Proceedings of the Government and Council of the Bahamas* from 1721-22 states that each seal produced 20 gallons of oil which could be exported for much needed revenue. By 1880, extremely few seals were to be found in the Bahamas... the sealers, having killed as many as 100

seals a night, had depleted their resource beyond sustainable yields. Cay Sal Bank between The Bahamas and Cuba was the last place where seals were recorded in the region.

The "scientific" value of specimens of a near-extinct species sent two competing American museums in the late 1800's on a collecting expedition to Seranilla Bank off the Yucatan Peninsula, the last

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place on earth where an aggregation of the West Indian monk seal could be found. In two brief and grisly episodes, the museum collectors killed every seal they could find - 73 seals in all, including a pup and several pregnant females. A few skulls and skins on dusty shelves is all that remains of a once charismatic species that was unique to this part of the world. The very last reliable report of a living West Indian monk seal was of *one* seen at Seranilla Bank in 1952, although fishermen in both the Yucatan and the southern

Bahamas have occasionally reported sightings of "seals" as late as 1979. Maybe we all hope for a miracle of survival, like that of the Guadalupe fur seal off Mexico; but, aerial surveys of the region and extensive visual searches ashore for scats or tracks have produced no further evidence of the existence of any living representatives of this species. The ideal habitat in The Bahamas for the monk seal has remained, for the most part unchanged, awaiting and available for a miracle of regeneration should any survive.

Columbus was also the first European to note the presence of whales (probably sperm whales) in The Bahamas, seen while sailing southward on the eastern side of Long Island during his first voyage. Reports of whales and seals may have piqued the interests of a few promoters of the "New World", but for most the real money was in gold. A century later people were looking to the area to offer them a new life free from persecution, with the means to make a living. Between 1663-1668 the Eleutheran Adventurers commenced "fishing" for whales on voyages between The Bahamas and Bermuda. Although there is no evidence that they ever landed a whale in the Bahamas, the Adventurers did export ambergris, a waxy substance passed from the bowels of sperm whales and used for making perfumes, which they found along the shores of Eleuthera (attesting to an abundance of sperm whales offshore to windward).

The first record which we have found of a whale landed in The Bahamas is in a letter dated April, 1688 in the Calendar of State Papers - a Jamaican sloop was sent to whale in The Bahamas where "many whales have been found...; but it seems difficult to take them there, as the seas are full of rocks and sands....".

The peak of Yankee sperm whaling in the NW Atlantic was before 1780; but, regrettably, logbooks from whaling ships operating prior to the 1800's are scarce. There is a record of the sloop *Dolphin* that sailed from Nantucket in February, 1790 for The Bahamas to go sperm whaling. The *Dolphin's* logbook noted lowering

small boats for harpooning blackfish (pilot whales) while in The Bahamas but doesn't mention catching any sperm whales. Piecing together the historical locations of catches of sperm whales in the 1800's, Charles Townshend in 1935 described what the whalers called a "Charlestown Ground" which was primarily a summer habitat for this species between Cape Hatteras and the Bahamas, East of the Gulf Stream (some called a southerly extension of this area the "Bahama Ground"). He also described a "Twelve-Forty Ground" between the West Indies and Cape Verde Islands which was primarily a wintering habitat. Sperm whales travelling between these habitats would no doubt pass through The Bahamas, perhaps allowing for opportunistic catches by whaling ships passing through the islands. Virtually no recent distribution or population studies of sperm whales have been done in this part of the North Atlantic since the Yankee whalers depleted them before our great-great-grandfathers were born.

What remains of the great whales in the islands today? Of the estimated 100,000 sperm whales remaining in the North Atlantic after the fishery collapsed in the late 1800's, how many still pass through our deep water channels? What is the status of species that were never targeted by whalers? Scientific publications reveal some information on the occurrence of marine mammals in The Bahamas,

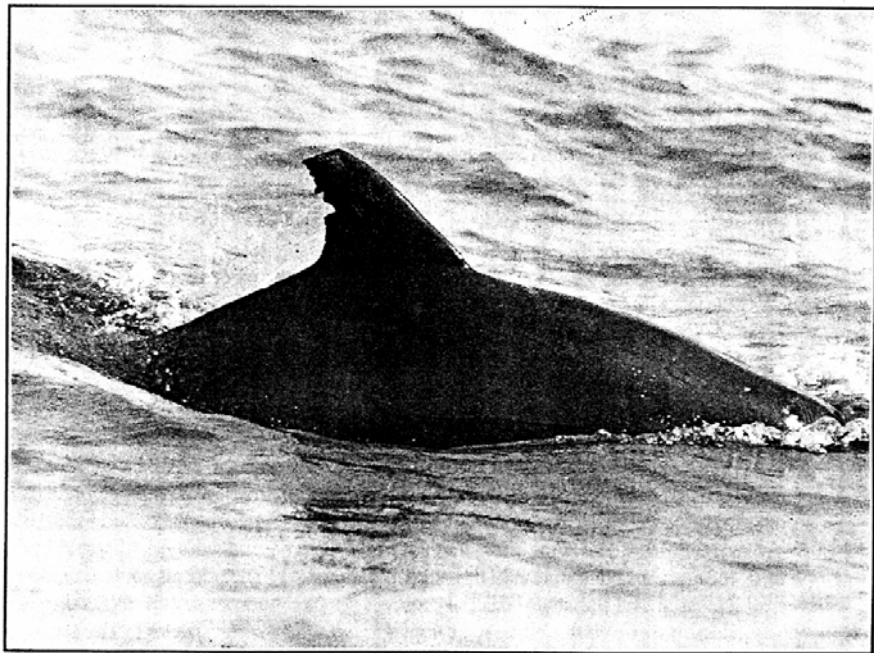


Fig.1 Photo-identification photograph of a bottlenose dolphin from the Abaco study group. This animal is distinguished from other dolphins by the unique pattern of nicks in the dorsal fin.

although almost all accounts are sightings from research vessels which, like the whaling ships of the last century, were just passing through the islands. Heretofore, there has been only one dedicated study of a marine mammal species in The Bahamas... that being a long-term study of a group of Atlantic spotted dolphins on Little Bahama Bank. There are also a few published reports of strandings of whales and dolphins. How many other species frequent these waters? Are there any populations that remain in the area year-round, so-called "residents"? If so, is there a location from which one could begin a study

discovered that people enjoyed talking about the whales or dolphins they saw... they usually represented some of the most memorable high-lights of a cruise. We heard tales, some 20 years old, of marine mammals seen in The Bahamas. During our inter-island travels, we encountered marine mammals ourselves and were excited to learn that on calm days as many as 5 different species may be seen in one area. The National Trust received a high rate of return on the forms sent to its members, greatly encouraging us that Bahamains were interested in contributing to the marine mammal survey.

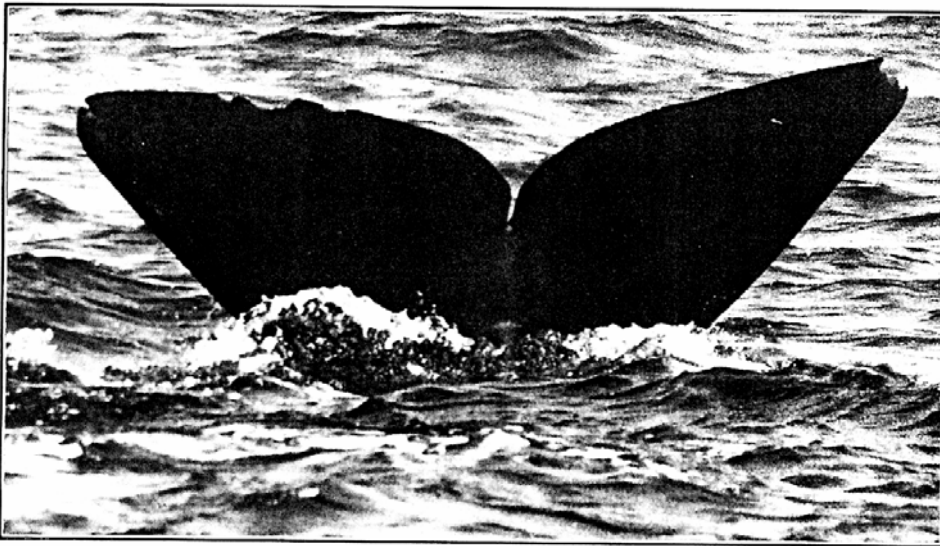


Fig.3 Photo-identification photograph of an adult sperm whale seen off Hole in the Wall. The serrated pattern on the trailing edge of the flukes allows biologists to distinguish between individuals.

of these "residents"? And, perhaps most importantly, how can we ever evaluate their future survival in the increasingly polluted oceans if we don't even know what is there now?

In January, 1991 we set out to try to discover some of the answers to these questions by initiating a series of marine mammal surveys in The Bahamas. We designed a marine mammal sighting form to be distributed to residents and interested mariners travelling throughout the islands. The sighting form had drawings of representative species as a guide and asked people who saw marine mammals to fill in information on the form: date, time, location, and description of the animals seen, and mail it to us at The Bahamas National Trust.

The Trust sent a copy of the sighting form to its members, while we travelled in our small boat to various Out Islands distributing the form to fishermen and yachtsmen. We

group of whales or dolphins encountered... surprisingly, many are scared and pigmented uniquely. For most mammal species found in these waters, the dorsal fin and pigmentation on the side of the body is the area that is photographed; but, for sperm and humpback whales it is the underside of the tail. These photographs are accompanied by notes, such as in the beginning narrative of this article. Photo-identification is a method commonly used today by researchers to determine distribution, abundance, and population discreteness of many species of marine mammals. The catalogue can be likened to "mug shots" in a police file.

The success of the survey and marine mammal sighting response has allowed us to document the presence of some species in The Bahamas for the first time, as well as to begin to understand more about frequency of sightings and seasonality of whales and dolphins in these waters.

To date we have reports of 17 different species of marine mammals seen within the Bahama Islands during 1989-1992 (see Table 1). In our boat surveys, we have had just over 100 encounters with 11 of these species and have compiled a photographic catalogue of these recordings. The trick in photo-identification involves taking good quality photographs of individuals in a

Unbeknownst to most people, there is a rare group of toothed whales, known as beaked whales, that are shy inhabitants of deep oceanic areas of the world and whose life histories are barely understood by whale specialists. The deep waters within and immediately adjacent to The Bahamas may very well offer one of the most accessible habitats for scientists and students of these creatures. Almost all of the existing information on beaked whales derives from relatively few carcasses found by beachcombers... not from whaling or sightings at sea. In fact, some species have not been described sufficiently to be recognized at sea... and some are yet unknown.

Carcasses of three different species of beaked whales have been found in The Bahamas and reported in scientific journals, contributing to what little is known of these strange whales: a dense-beaked whale stranded alive on Green Turtle Cay, Abaco in 1944; an Antillean beaked whale found on Mira Por Vos Cay and another on East Plana Cay in 1980; and 4 Cuvier's beaked whales found on and near Norman's Cay, Exuma in 1968, possibly related to a mass stranding in the area. These species are between 14 and 23 feet long, much bigger than local dolphins, and all have a well-developed falcate dorsal fin located in the rear third of the back region, giving them the appearance of a half-dolphin\half-whale. They range in colour from rusty brown to almost black on the back, generally lighter ventrally with white or pinkish spots or blotches here and there. Adult males of this species have incredibly extensive white tooth scars, furrows and scratches across the body, inflicted by rival males of their own kind. These beaked whales have only two teeth in the lower jaw which erupt from the gumline in males as they reach maturity, so it is presumed that the teeth are more for aggressive interaction than for feeding purposes. Information about the shape, location and orientation of the teeth, erupted or not, is useful to specialists in identifying the species involved but, of course, this is not useful in identifying sightings at sea. Another distinguishing characteristic of beaked whales is a small, narrow depression or pouch that the pectoral fins or flippers tuck into when they dive, allowing for a quick streamlined decent a mile or more into the depths.

One of the most exciting results of The Bahamas Marine Mammal Survey has been the relatively prolific sightings of beaked whales. The only previously published report of beaked whales seen at sea in The Bahamas is of one

unidentified beaked whale [*Mesoplodon* sp.] seen off the east side of Long Island, and five more seen between Eleuthera and Little San Salvador in April, 1980 (Bahamas Naturalist, Summer 1981). To those we can now add 21 reports (summarized in Table 1) of beaked whales seen in 1991 and 1992 in the deep waters east of Abaco, off North Eleuthera, and in Mira Por Vos Passage, off the south end of Acklins Island.

On March 25, 1991 we were off Hole in the Wall in our inflatable boat with a group of rough-toothed dolphins, when three dense-beaked whales surfaced 100 yards away. Usually when approached by a boat, beaked whales will dive deeply and they are usually not seen again; but this small group remained at the surface for one and a half hours, allowing us extraordinary observations both on the surface and below as they swam around our boat. There was one adult male with stalked barnacles growing on top of his two erupted teeth, a very strange-looking animal indeed and an adult female and a smaller animal thought to be an immature male. They remained together throughout the encounter, approaching within 20 feet of the boat at times, as if curious. Although dense-beaked whales inhabit tropical and warm temperate

waters of all oceans they are known only from a few dozen strandings and a few confirmed sightings at sea. Needless to say, we were quite elated by this special encounter. It is probable that beaked whales are seen more often in The Bahamas but are mistaken for large dolphins.

Atlantic bottlenose dolphins are a common sight in The Bahamas, found on the shallow banks and offshore in oceanic regions. Most Out-Island communities have a resident dolphin or group of dolphins that regularly visit the harbours and bays. The bottlenose dolphins within The Bahamas

are of considerably smaller size, reaching only 8 feet in length, than those found off the coast of Florida which attain lengths of 13 feet. It is possible that the bottlenose found within the islands are a distinct genetic population. Just how many bottlenose dolphins inhabit The Bahamas is unknown. This is one of the questions that we are presently addressing in Abaco.

We've begun a population study on a group of bottlenose dolphins that are resident to the inshore waters between Marsh Harbour and Little Harbour, Abaco. We preliminarily estimate there are about 80

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animals, some of which certainly move out of the immediate study area while others seem to stay around. We have photo-identified 64 individuals within the population and can now recognize most individuals by eye. We have documented seven mother/calf pairs; four

of these calves were new-born, showing neonatal folds. Future observations of these pairs will allow us to determine calving rates for the population when the mother has another calf, as well as social bonds that develop between young dolphins.

Tab. 1. List of marine mammal species reported and seen by the authors in The Bahamas during 1989-1992.

Species	# Times Sighted
humpback whale (<i>Megaptera novaeangliae</i>)	13
minke whale (<i>Balaenoptera acutirostrata</i>)	5
sperm whale (<i>Physeter macrocephalus</i>)	8
dwarf sperm whale (<i>Kogia simus</i>)	3
pygmy sperm whale (<i>Kogia breviceps</i>)	1
dense-beaked whale (<i>Mesoplodon densirostris</i>)	5
Antillean beaked whale (<i>Mesoplodon europaeus</i>)	5
Cuvier's beaked whale (<i>Ziphius cavirostris</i>)	4
killer whale (<i>Orcinus orca</i>)	2
melon-headed whale (<i>Peponocephala electra</i>)	2
false killer whale (<i>Pseudorca crassidens</i>)	1
short-finned pilot whale (<i>Globicephala macrorhynchus</i>)	12
Risso's dolphin (<i>Grampus griseus</i>)	6
rough-toothed dolphin (<i>Steno bredanensis</i>)	2
Fraser's dolphin (<i>Lagenodelphis hosei</i>)	1
Atlantic spotted dolphin (<i>Stenella frontalis</i>)	30
Atlantic bottlenose dolphin (<i>Tursiops truncata</i>)	316

Note: In addition to these sighting reports, there are 24 more reports in which the species is not identified; 7 of these are reported as "beaked whales".

Calving rates found in other populations of bottlenose dolphins are between 2 to 3 years, after reaching sexual maturity around 5-12 years of age. Lifespan is estimated to be 30-35 years. The average group size in our inshore study is 3.6 individuals, but it ranges up to 15 in variable associations. We've observed the dolphins feeding, travelling, resting and playing, or socializing (see cover photo) over shallow sand bars and sea grass beds, sometimes in water depth of only 2.5 feet. We have seen them chasing ballyhoo, at times within inches of the rocky, somewhat treacherous-looking, limestone shoreline. They also feed regularly on burrowing fish and invertebrates by hanging upside down and digging their rostrum, or snout, into the grassy bottom, described as "crater feeding". This population of dolphins would appear to be well adapted to life in the land of the shallow seas.

A unique situation arose in June, 1992 when a captive bottlenose dolphin named "Bahama Mama" escaped from a swim-with-dolphins program at Great Guana Cay in the Abacos. Bahama Mama was captured at least 15 years ago off North Eleuthera and spent 10 years at the Nassau Sea Floor Aquarium. She was captured with another dolphin, believed to be her daughter because it was not yet weaned and continued to nurse for several months before accepting food. Upon the closure of the Nassau aquarium, both dolphins were sold to the facility at Guana Cay. Bahama Mama had been handfed herring, capelin and mackerel (not native fishes) for the 15 years she was held captive, although she sometimes playfully chased fish around her pen at Guana Cay. When she escaped, there was considerable concern that she would not be able to feed herself and would therefore die of malnutrition. This has been a concern expressed about many efforts to release and rehabilitate dolphins to the wild; but it has been rarely tested.

Therefore, it was with much excitement that in November, 1992 we found Bahama Mama near the Pelican Cays Land and Sea Park with a group of dolphins that we had previously identified. The group included two calves; one new-born travelled close to Bahama Mama for a while, giving Bahama Mama the appearance of being afforded "Auntie" status. "Aunties", believed to be relatives of the mother, play important roles as baby-sitters for the young, allowing the mother time to feed. It appeared that Bahama Mama had been accepted by the wild population- to be trusted with such a small calf. The wild dolphins occasion-

ally visited the captive dolphins at Guana Cay and perhaps relationships developed (through the fence) overtime that aided in Bahama Mama's survival in the wild. In any case, we have subsequently seen her with different groups of the local resident dolphins. Her survival and apparent acceptance in the wild population is significant at a time when oceanaria around the world are closing down and their dolphins are being rehabilitated, usually at great expense, to be returned to the wild. We will continue to monitor Bahama Mama and document her relationship with the wild dolphins to try to evaluate her long-term success.

The Bahamas Marine Mammal Survey has, in some ways, yielded information much faster than we had anticipated relating to the variety of species present, the finite and local nature of some populations, and the rehabilitation of one captive dolphin back into the wild. Thanks to a gratifying public response to the sighting report system, the survey results are much more extensive geographically than we originally envisioned.

Our hope is that as we learn more detail about some species, and people in general learn more about the presence and importance of these animals in Bahamian waters, that our uniquely human notions of progress will accommodate whatever it is that they require to survive. In

too many other areas of the world, industrial and economic progress has poisoned, confined and destroyed these highly evolved animals, largely from ignorance that they even exist, and without considering that they are brother and sister species to our own. Here, we're surrounded by water and we have no excuse for not knowing our marine mammal neighbors. They live in and depend upon the health of the Bahamian marine ecosystem every bit as much as Bahamians, and their presence is a good omen.

ACKNOWLEDGEMENTS:

Our sincere appreciation is extended to Susan Larson of The Bahamas National Trust and to the many people who took the time to send in sighting reports or otherwise share their knowledge and friendship; to the Friends of the Environment, Abaco; and to volunteers from EARTHWATCH who came from all over the world to help with many of our field expeditions.

Ed. Note: In addition to Diane Claridge's work as a marine mammal researcher, she has been employed by The Bahamas National Trust for the past two winters as warden of the Pelican Cays Land & Sea Park in Abaco.