

= Bottlenose dolphin =

Bottlenose dolphins, the genus *Tursiops*, are the most common and well known members of the family Delphinidae, the family of oceanic dolphin. Recent molecular studies show the genus contains two species, the common bottlenose dolphin (*Tursiops truncatus*) and the Indo-Pacific bottlenose dolphin (*Tursiops aduncus*), instead of one. Research in 2011 revealed a third species, the Burrunan dolphin (*Tursiops australis*). Bottlenose dolphins inhabit warm and temperate seas worldwide.

Bottlenose dolphins live in groups typically of 10 ? 30 members, called pods, but group size varies from single individuals up to more than 1 @, @ 000. Their diets consist mainly of forage fish. Dolphins often work as a team to harvest fish schools, but they also hunt individually. Dolphins search for prey primarily using echolocation, which is similar to sonar. They emit clicking sounds and listen for the return echos to determine the location and shape of nearby items, including potential prey. Bottlenose dolphins also use sound for communication, including squeaks and whistles emitted from the blowhole and sounds emitted through body language, such as leaping from the water and slapping their tails on the water surface.

Numerous investigations of bottlenose dolphin intelligence have been conducted, examining mimicry, use of artificial language, object categorization, and self @-@ recognition. They can use tools (sponging) and transmit cultural knowledge across generations, and their considerable intelligence has driven interaction with humans. Bottlenose dolphins are popular from aquarium shows and television programs such as Flipper. They have also been trained by militaries to locate sea mines or detect and mark enemy divers. In some areas, they cooperate with local fishermen by driving fish into their nets and eating the fish that escape. Some encounters with humans are harmful to the dolphins: people hunt them for food, and dolphins are killed inadvertently as a bycatch of tuna fishing and by getting caught in crab traps.

Bottlenose dolphins have the second largest encephalization levels of any mammal on Earth (humans have the largest), sharing close ratios with those of humans and other great apes, which more than likely attributes to their incredibly high intelligence and emotional intelligence.

= = Taxonomy = =

Scientists were long aware that *Tursiops* dolphins might consist of more than one species. Molecular genetics allowed much greater insight into this previously intractable problem. The IUCN acknowledges two species, although a third distinct species was described in 2011: the common bottlenose dolphin (*T. truncatus*) is found in most tropical to temperate oceans, and it has a grey color, with the shade of grey varying among populations, but it can be bluish @-@ grey, brownish @-@ grey, or even nearly black, and is often darker on the back from the rostrum to behind the dorsal fin; the Black Sea bottlenose dolphin (*T. t. ponticus*), a subspecies of *T. truncatus* lives in the Black Sea; The Pacific bottlenose dolphin (*T. gillii* or *T. t. gillii*), another subspecies of *T. truncatus*, lives in the Pacific, and has a black line from the eye to the forehead; the Indo @-@ Pacific bottlenose dolphin (*T. aduncus*) lives in the waters around India, northern Australia, South China, the Red Sea, and the eastern coast of Africa, with the back being dark @-@ grey and the belly being lighter grey or nearly white with grey spots; the Burrunan dolphin (*T. australis*), found in the Port Phillip and Gippsland Lakes areas of Victoria, Australia, was described in September 2011 after research showed it was distinct from *T. truncatus* and *T. aduncus*, but is not considered a separate species by the IUCN.

The two ecotypes of the common bottlenose dolphin within the western North Atlantic are represented by the shallower water or coastal ecotype and the more offshore ecotype. Their ranges overlap, but they have been shown to be genetically distinct. They are not currently described, however, as separate species or subspecies. In general, genetic variation between populations is significant, even among nearby populations. As a result of this genetic variation, other distinct species currently considered to be populations of common bottlenose dolphin are possible.

Old scientific data do not distinguish between the two species, making it useless for determining

structural differences between them . The IUCN lists both species as data deficient on their Red List of endangered species because of this issue .

Some recent genetic evidence suggests the Indo - Pacific bottlenose belongs in the genus *Stenella* , since it is more like the Atlantic spotted dolphin ( *Stenella frontalis* ) than the common bottlenose .

### == Hybrids ==

Bottlenose dolphins have been known to hybridize with other dolphin species . Hybrids with Risso 's dolphin occur both in the wild and in captivity . The best known is the wolphin , a false killer whale - bottlenose dolphin hybrid . The wolphin is fertile , and two currently live at the Sea Life Park in Hawaii . The first was born in 1985 to a female bottlenose . Wolphins also exist in the wild . In captivity , a bottlenose dolphin and a rough - toothed dolphin hybridized . A common dolphin - bottlenose dolphin hybrid born in captivity lives at SeaWorld California . Other hybrids live in captivity around the world and in the wild , such as a bottlenose dolphin - Atlantic spotted dolphin hybrid .

### == Description ==

Bottlenose dolphins are grey , varying from dark grey at the top near the dorsal fin to very light grey and almost white at the underside . This countershading makes them hard to see , both from above and below , when swimming . Adults range from 2 to 4 metres ( 6 @. 6 to 13 @. 1 ft ) , and 150 to 650 kilograms ( 330 to 1 @, 430 lb ) . Males are , on average , slightly longer and considerably heavier than females . In most parts of the world , the adults are about 2 @. 5 m ( 8 @. 2 ft ) , and 200 to 300 kilograms ( 440 to 660 lb ) . Their size varies considerably with habitat . Except in the eastern Pacific , dolphins in warmer , shallower waters tend to be smaller than those in cooler , pelagic waters .

Bottlenose dolphins can live for more than 40 years .

### == Anatomy ==

Their elongated upper and lower jaws form what is called a rostrum , or snout , which gives the animal its common name . The real , functional nose is the blowhole on top of its head ; the nasal septum is visible when the blowhole is open .

Bottlenose dolphins have 18 to 28 conical teeth on each side of each jaw .

The flukes ( lobes of the tail ) and dorsal fin are formed of dense connective tissue and do not contain bone or muscle . The animal propels itself by moving the flukes up and down . The pectoral flippers ( at the sides of the body ) are for steering ; they contain bones homologous to the forelimbs of land mammals . A bottlenose dolphin discovered in Japan has two additional pectoral fins , or " hind legs " , at the tail , about the size of a human 's pair of hands . Scientists believe a mutation caused the ancient trait to reassert itself as a form of atavism .

### == Physiology and senses ==

In colder waters , they have more body fat and blood , and are more suited to deeper diving . Typically , 18 % ? 20 % of their bodyweight is blubber . Most research in this area has been restricted to the North Atlantic Ocean . Bottlenose dolphins typically swim at 5 to 11 km / h ( 1 @. 4 to 3 @. 1 m / s ) , but are capable of bursts of up to 29 to 35 km / h ( 8 @. 1 to 9 @. 7 m / s ) . The higher speeds can only be sustained for a short time .

### == Senses ==

The dolphin 's search for food is aided by a form of sonar known as echolocation : it locates objects

by producing sounds and listening for the echos . A broadband burst pulse of clicking sounds is emitted in a focused beam in front of the dolphin . To hear the returning echo , they have two small ear openings behind the eyes , but most sound waves are transmitted to the inner ear through the lower jaw . As the object of interest is approached , the echo grows louder , and the dolphins adjust by decreasing the intensity of the emitted sounds . ( This contrasts with bats and sonar , which reduce sensitivity of the sound receptor . ) The interclick interval also decreases as the animal nears the target . Evidently , the dolphin waits for each click 's echo before clicking again . Echolocation details , such as signal strength , spectral qualities , and discrimination , are well @-@ understood by researchers . Bottlenose dolphins are also able to extract shape information , suggesting they are able to form an " echoic image " or sound picture of their targets .

Dolphins have sharp eyesight . The eyes are located at the sides of the head and have a tapetum lucidum , or reflecting membrane , at the back of the retina , which aids vision in dim light . Their horseshoe @-@ shaped , double @-@ slit pupils enable dolphins to have good vision both in air and underwater , despite the different indices of refraction of these media . When under water , the eyeball 's lens serves to focus light , whereas in the in @-@ air environment , the typically bright light serves to contract the specialized pupil , resulting in sharpness from a smaller aperture ( similar to a pinhole camera ) .

By contrast , a bottlenose 's sense of smell is poor , because its blowhole , the analogue to the nose , is closed when underwater and it opens only for breathing . It has no olfactory nerves or olfactory lobe in the brain . Bottlenose dolphins are able to detect salty , sweet , bitter ( quinine sulphate ) , and sour ( citric acid ) tastes , but this has not been well @-@ studied . Anecdotally , some individuals in captivity have been noted to have preferences for food fish types , although it is not clear if taste mediates this preference .

= = = Communication = = =

Bottlenose dolphins communicate through burst pulsed sounds , whistles , and body language . Examples of body language include leaping out of the water , snapping jaws , slapping the tail on the surface and butting heads . Sounds and gestures help keep track of other dolphins in the group , and alert other dolphins to danger and nearby food . Lacking vocal cords , they produce sounds using six air sacs near their blow hole . Each animal has a uniquely identifying , frequency @-@ modulated narrow @-@ band signature vocalization ( signature whistle ) .

Researchers from the Bottlenose Dolphin Research Institute ( BDRI ) , based in Sardinia ( Italy ) have now shown whistles and burst pulsed sounds are vital to the animals ' social life and mirror their behaviors .

The tonal whistle sounds ( the most melodious ones ) allow dolphins to stay in contact with each other ( above all , mothers and offspring ) , and to coordinate hunting strategies . The burst @-@ pulsed sounds ( which are more complex and varied than the whistles ) are used " to avoid physical aggression in situations of high excitement " , such as when they are competing for the same piece of food , for example . The dolphins emit these strident sounds when in the presence of other individuals moving towards the same prey . The " least dominant " one soon moves away to avoid confrontation .

Other communication uses about 30 distinguishable sounds , and although famously proposed by John Lilly in the 1950s , no " dolphin language " has been found . However , Herman , Richards , and Wolz demonstrated comprehension of an artificial language by two bottlenose dolphins ( named Akeakamai and Phoenix ) in the period of skepticism toward animal language following Herbert Terrace 's critique .

= = Intelligence = =

= = = Cognition = = =

Cognitive abilities that have been investigated include concept formation , sensory skills , and mental representations . Such research has been ongoing since the 1970s . This includes : Acoustic and behavioral mimicry , Comprehension of novel sequences in an artificial language , Memory , Monitoring of self behavior , Discrimination and matching , Comprehension of symbols for various body parts , Comprehension of pointing gestures and gaze ( as made by dolphins or humans ) , Mirror self @-@ recognition , and Numerical values .

= = = Tool use and culture = = =

At least some wild bottlenose dolphins use tools . In Shark Bay , dolphins place a marine sponge on their rostrum , presumably to protect it when searching for food on the sandy sea bottom . This has only been observed in this bay ( first in 1997 ) , and is predominantly practiced by females . Sea otters are the only other known marine mammalian tool users . A 2005 study showed mothers most likely teach the behavior to their offspring , evincing culture ( behavior learned from other species members ) .

Mud plume feeding is a feeding technique performed by a small community of bottlenose dolphins over shallow seagrass beds ( less than 1 m ) in the Florida Keys in the United States . The behavior involves creation of a U @-@ shaped plume of mud in the water column and then rushing through the plume to capture fish .

Along the beaches and tidal marshes of South Carolina and Georgia in the United States , bottlenose dolphins cooperatively herd prey fish onto steep and sandy banks in a practice known as " strand feeding " . Groups of between two and six dolphins are regularly observed creating a bow wave to force the fish out of the water . The dolphins follow the fish , stranding themselves briefly , to eat their prey before twisting their bodies back and forth in order to slide back into the water .

Some Mauritanian dolphins cooperate with human fishermen . The dolphins drive a school of fish towards the shore , where humans await with nets . In the confusion of casting nets , the dolphins catch a large number of fish as well . Intraspecies cooperative foraging has also been observed . These behaviors may also be transmitted via teaching . Controversially , Rendell and Whitehead have proposed a structure for the study of cetacean culture . Similar cases have been observed in Laguna , Santa Catarina in Brazil since during 19th century as well .

Near Adelaide , in South Australia , three bottlenose dolphins ' tail @-@ walk ' , whereby they elevate the upper part of their bodies vertically out of the water , and propel themselves along the surface with powerful tail movements . Tail @-@ walking mostly arises via human training in dolphinarium . In the 1980s , a female from the local population was kept at a local dolphinarium for three weeks , and the scientist suggests she copied the tail @-@ walking behavior from other dolphins . Two other wild adult female dolphins have now copied it from her .

= = = Cortical neurons = = =

Some researchers theorize mammalian intelligence correlates to the number of nerve cells ( neurons ) in the cortex of the brain . The neocortical neuron number of the bottlenose dolphin is unknown . However , the species with the highest number of neocortical neurons known to date is the Long @-@ finned pilot whale .

= = Life history = =

= = = Respiration and sleep = = =

The bottlenose dolphin has a single blowhole located on the dorsal surface of the head consisting of a hole and a muscular flap . The flap is closed during muscle relaxation and opens during contraction . Dolphins are voluntary breathers , who must deliberately surface and open their blowholes to get air . They can store almost twice as much oxygen in proportion to their body weight

as a human can : the dolphin can store 36 milliliters ( ml ) of oxygen per kg of body weight , compared with 20 ml per kg for humans . This is an adaptation to diving . The bottlenose dolphin typically rises to the surface to breathe through its blowhole two to three times per minute , although it can remain submerged for up to 20 minutes .

Dolphins can breathe while " half @-@ asleep " . During the sleeping cycle , one brain hemisphere remains active , while the other hemisphere shuts down . The active hemisphere handles surfacing and breathing behavior . The daily sleeping cycle lasts for about 8 hours , in increments of minutes to hours . During the sleeping cycle , they remain near the surface , swimming slowly or " logging " , and occasionally closing one eye .

### = = = Reproduction = = =

Both sexes have genital slits on the underside of their bodies . The male can retract and conceal his penis through his slit . The female 's slit houses her vagina and anus . Females have two mammary slits , each housing one nipple , one on each side of the genital slit . The ability to stow their reproductive organs ( especially in males ) allows for maximum hydrodynamics . The breeding season produces significant physiological changes in males . At that time , the testes enlarge , enabling them to hold more sperm . Large amounts of sperm allow a male to wash away the previous suitor 's sperm , while leaving some of his own for fertilization . Also , sperm concentration markedly increases . Having less sperm for out @-@ of @-@ season social mating means it wastes less . This suggests sperm production is energetically expensive . Males have large testes in relation to their body size .

During the breeding season , males compete for access to females . Such competition can take the form of fighting other males or of herding females to prevent access by other males . In Shark Bay , male bottlenose dolphins have been observed working in pairs or larger groups to follow and / or restrict the movement of a female for weeks at a time , waiting for her to become sexually receptive . These coalitions , also known as male reproductive alliances , will fight with other coalitions for control of females .

Mating occurs belly to belly . Dolphins have been observed engaging in intercourse when the females are not in their estrous cycles and cannot produce young , suggesting they may mate for pleasure . The gestation period averages 12 months . Births can occur at any time of year , although peaks occur in warmer months . The young are born in shallow water , sometimes assisted by a ( possibly male ) " midwife " , and usually only a single calf is born . Twins are possible , but rare . Newborn bottlenose dolphins are 0 @.@ 8 to 1 @.@ 4 m ( 2 @.@ 6 to 4 @.@ 6 ft ) long and weigh 9 to 30 kg ( 20 to 66 lb ) , with Indo @-@ Pacific bottlenose dolphin infants being generally smaller than common bottlenose dolphin infants . To accelerate nursing , the mother can eject milk from her mammary glands . The calf suckles for 18 months to up to 8 years , and continues to closely associate with its mother for several years after weaning . Females sexually mature at ages 5 ? 13 , males at ages 9 ? 14 . Females reproduce every two to six years . Georgetown University professor Janet Mann argues the strong personal behavior among male calves is about bond formation and benefits the species in an evolutionary context . She cites studies showing these dolphins as adults are inseparable , and that early bonds aid protection , as well as in locating females .

### = = = Social interaction = = =

Adult males live mostly alone or in groups of two to three , and join pods for short periods of time . Adult females and young dolphins normally live in groups of up to 15 animals . However , they live in fission @-@ fusion societies of varying group size , within which individuals change associations , often on a daily or hourly basis . Group compositions are usually determined by sex , age , reproductive condition , familial relations and affiliation histories . In a dolphin community near Sarasota , Florida , the most common group types are adults females with their recent offspring , older subadults of both sexes and adult males either alone or in bonded pairs . Smaller groups can join to form larger groups of 100 or more , and occasionally exceed 1 @,@ 000 . The social

strategies of marine mammals such as bottlenose dolphins " provide interesting parallels " with the social strategies of elephants and chimpanzees .

Bottlenose dolphins studied by Bottlenose Dolphin Research Institute researchers off the island of Sardinia show random social behavior while feeding , and their social behavior does not depend on feeding activity . In Sardinia , the presence of a floating marine fin @-@ fish farm has been linked to a change in bottlenose dolphin distribution as a result of high fish density around the floating cages in the farming area .

= = Ecology = =

= = = Feeding = = =

A dolphin 's diet consists mainly of small fish , crustaceans , and squid . Although this varies by location , many populations share an appetite for fish from the mullet , the tuna and mackerel , and the drum and croaker families . Its cone @-@ like teeth serve to grasp , but do not chew food . When they encounter a shoal of fish , they work as a team to herd them towards the shore to maximize the harvest . They also hunt alone , often targeting bottom @-@ dwelling species . The bottlenose dolphin sometimes hits a fish with its fluke , sometimes knocking it out of the water , using a strategy called " fish whacking " . " Strand feeding " , is an inherited feeding technique used by bottlenose dolphins near and around coastal regions of Georgia and South Carolina . When a pod finds a school of fish , they will circle the school and trap the fish in a mini whirlpool . Then , the dolphins will charge at the school and push their bodies up onto a mud @-@ flat , forcing the fish on the mud @-@ flat , as well . The dolphins then crawl around on their sides , consuming the fish they washed up on shore .

One type of feeding behavior seen in bottlenose dolphins is mud ring feeding .

Bottlenose dolphins conflict with small @-@ scale coastal commercial fisheries in some Mediterranean areas . Common bottlenose dolphins are probably attracted to fishing nets because they offer a concentrated food source .

= = = Relations with other species = = =

Dolphins can exhibit altruistic behaviour toward other sea creatures . On Mahia Beach , New Zealand , on March 10 , 2008 , two pygmy sperm whales , a female and calf , stranded on the beach . Rescuers , including Department of Conservation officer Malcolm Smith , attempted to refloat them four times . Shortly , a playful bottlenose dolphin known to local residents as Moko arrived and , after apparently vocalizing at the whales , led them 200 m ( 660 ft ) along a sandbar to the open sea , saving them from imminent euthanasia .

The bottlenose dolphin can behave aggressively . Males fight for rank and access to females . During mating season , males compete vigorously with each other through displays of toughness and size , with a series of acts , such as head @-@ butting . They display aggression towards sharks and smaller dolphin species . At least one population , off Scotland , has practiced infanticide , and also has attacked and killed harbour porpoises . University of Aberdeen researchers say the dolphins do not eat their victims , but are simply competing for food . However , Dr. Read of Duke University , a porpoise expert researching similar cases of porpoise killings that had occurred in Virginia in 1996 and 1997 , holds a different view . He states dolphins and porpoises feed on different types of fish , thus food competition is an unlikely cause of the killings . Similar behaviour has been observed in Ireland . In the first half of July , 2014 , four attacks with three Porpoise fatalities were observed and caught on video by the Cardigan Bay Marine Wildlife Centre in the Cardigan Bay .

The bottlenose dolphin sometimes forms mixed species groups with other species from the dolphin family , particularly larger species , such as the short @-@ finned pilot whale , the false killer whale and Risso 's dolphin . They also interact with smaller species , such as the Atlantic spotted dolphin

and the rough @-@ toothed dolphin . While interactions with smaller species are sometimes affiliative , they can also be hostile .

= = = Predators = = =

Some large shark species , such as the tiger shark , the dusky shark , the great white shark and the bull shark , prey on the bottlenose dolphin , especially calves . The bottlenose dolphin is capable of defending itself by charging the predator ; dolphin ' mobbing ' behavior of sharks can occasionally prove fatal for the shark . Targeting a single adult dolphin can be dangerous for a shark of similar size . Killer whale populations in New Zealand and Peru have been observed preying on bottlenose dolphins , but this seems rare , and other orcas may swim with dolphins . Swimming in pods allows dolphins to better defend themselves against predators . Bottlenose dolphins either use complex evasive strategies to outswim their predators , or mobbing techniques to batter the predator to death or force it to flee .

= = Relation to humans = =

= = = Interaction = = =

The species sometimes shows curiosity towards humans in or near water . Occasionally , they rescue injured divers by raising them to the surface . They also do this to help injured members of their own species . In November 2004 , a dramatic report of dolphin intervention came from New Zealand . Four lifeguards , swimming 100 m ( 330 ft ) off the coast near Whangarei , were approached by a shark ( reportedly a great white shark ) . Bottlenose dolphins herded the swimmers together and surrounded them for 40 minutes , preventing the shark from attacking , as they slowly swam to shore .

In coastal regions , dolphins run the risk of colliding with boats . Researchers of the Bottlenose Dolphin Research Institute first quantified data about solitary bottlenose dolphin diving behavior in the presence and absence of boats . Dolphins responded more to tourist than fishing vessels . Driving behavior , speed , engine type and separation distance all affect dolphin safety . However , dolphins in these areas can also coexist with humans . For example , in the town of Laguna in south Brazil , a pod of bottlenose dolphins drives fish towards fishermen who stand at the beach in shallow waters . One dolphin then rolls over , after which the fishermen throw out their nets . The dolphins feed on the escaping fish . The dolphins were not trained for this behavior ; the collaboration began before 1847 . Similar cooperative fisheries also exist in Mauritania , Africa .

Commercial ' dolphin encounter ' enterprises and tours operate in many countries . The documentary film " the Cove " documents how dolphins are captured and sold to these enterprises while the remaining pod is slaughtered . In addition to such endeavors , the individuals swim with and surface near surfers at the beach . Bottlenose dolphins perform in many aquaria , generating much controversy . Animal welfare activists and scientists have claimed that the dolphins do not have adequate space or receive adequate care or stimulation . However , others , notably SeaWorld , counter that the dolphins are properly cared for and enjoy interacting with humans .

Eight bottlenose dolphins that lived at the Marine Life Aquarium in Gulfport , Mississippi were swept away from their aquarium pool during Hurricane Katrina . They were later found and returned to captivity from the Gulf of Mexico .

The military of the United States and Russia train bottlenose dolphins as military dolphins for wartime tasks , such as locating sea mines and detecting enemy divers . The U.S. ' s program is the U.S. Navy Marine Mammal Program , located in San Diego .

= = = Cultural influence = = =

The popular television show Flipper , created by Ivan Tors , portrayed a bottlenose dolphin in a

friendly relationship with two boys , Sandy and Bud . A seagoing Lassie , Flipper understood English and was a hero : " Go tell Dad we 're in trouble , Flipper ! Hurry ! " The show 's theme song contains the lyric " no one you see / is smarter than he " . The television show was based on a 1963 film , and was remade as a feature film in 1996 , starring Elijah Wood and Paul Hogan , as well as a second series running from 1995 to 2000 , starring Jessica Alba .

Other television appearances by bottlenose dolphins include Dolphin Cove , seaQuest DSV , and The Penguins of Madagascar , in which a dolphin , Doctor Blowhole , is a villain . In the HBO movie Zeus and Roxanne , a female bottlenose dolphin befriends a male dog , and in Bermuda Triangle , a girl named Annie ( played by Lisa Jakub ) swims with dolphins . Human and dolphin interaction segments shot on location in the Florida Keys with Dolphin Research Center as seen on a Halloween episode of The Simpsons , Treehouse of Horror XI .

Dolphin Tale , directed by Charles Martin Smith , starring Nathan Gamble , Ashley Judd , Harry Connick Jr . , Morgan Freeman , Cozi Zuehlsoord and Kris Kristofferson , is based on the real @-@ life story of the dolphin Winter , who was rescued from a crab trap in December 2005 and lost her tail , but has learned to swim with a prosthetic one . Dolphin Tale 2 , a sequel to the 2011 film , featured another dolphin named Hope and an appearance by Bethany Hamilton . The sequel was released on September 12 , 2014 .

Bottlenose dolphins have appeared in novels . In The Hitchhiker 's Guide to the Galaxy and one of its sequels , So Long , and Thanks For All the Fish , the dolphins try to warn humans of Earth 's impending destruction , but their behavior was misinterpreted as playful acrobatics . Bottlenose dolphins are central to David Brin 's series of Uplift Universe novels , particularly Startide Rising , where they are one of the four Earth species ( along with chimpanzees , gorillas , and dogs ) to have been ' uplifted ' to sentience . Bottlenose dolphins are primary characters in Anne McCaffrey 's Dragonriders of Pern series , especially The Dolphins of Pern . Bottlenose dolphins are incorporated into the science fiction video game series Ecco the Dolphin . Delphineus , a dolphin , is featured in the video game EcoQuest : The Search for Cetus , helping the boy , Adam , to find the sea king Cetus ( a sperm whale ) , as well as assisting in cleaning up the underwater environment where he lives .

T.D. , the Miami Dolphins ' mascot , uses the bottlenose dolphin as its mascot and team logo .

Factual descriptions of the dolphins date back into antiquity ? the writings of Aristotle , Oppian and Pliny the Elder all mention the species .

= = = Threats = = =

Bottlenose dolphins are still captured or killed in dolphin drive hunts for their meat , to eliminate competition for fish and for capture for marine parks . Bottlenose dolphins ( and several other dolphin species ) often travel with tuna , and can get caught in tuna nets , which can kill the dolphins . Boycotts of tuna products led to the concept of " dolphin @-@ safe " labeling for fishing methods that avoid endangering dolphins .

The man @-@ made chemical perfluorooctanesulfonic acid ( PFOS ) may be compromising the immune system of bottlenose dolphins . PFOS affects the immune system of male mice at a concentration of 91 @. @ 5 ppb , while PFOS has been reported in bottlenose dolphins in excess of 1 ppm . High levels of metal contaminants have been measured in tissues in many areas of the globe . A recent study found high levels of cadmium and mercury in bottlenose dolphins from South Australia , levels which were later found to be associated with kidney malformations , indicating possible health effects of high heavy metal concentrations in dolphins .

= = = Conservation = = =

Bottlenose dolphins are not endangered . Their future is stable because of their abundance and adaptability . However , specific populations are threatened due to various environmental changes . The population in the Moray Firth in Scotland is estimated to consist of around 190 individuals , and are under threat from harassment , traumatic injury , water pollution and reduction in food



availability . Likewise , an isolated population in Doubtful Sound , New Zealand , is in decline due to calf loss coincident to an increase in warm freshwater discharge into the fjord . Less local climate change , such as increasing water temperature may also play a role but has never been shown to be the case . One of the largest coastal populations of bottlenose dolphins in Shark Bay , Western Australia was forecast to be stable with little variation in mortality over time ( Manlik et al . 2016 ) .

In US waters , hunting and harassing of marine mammals is forbidden in almost all circumstances , from the passing of the Marine Mammal Protection Act of 1972 .