

= Loggerhead sea turtle =

The loggerhead sea turtle (*Caretta caretta*), or loggerhead , is an oceanic turtle distributed throughout the world . It is a marine reptile , belonging to the family Cheloniidae . The average loggerhead measures around 90 cm (35 in) long when fully grown , although larger specimens of up to 280 cm (110 in) have been discovered . The adult loggerhead sea turtle weighs approximately 135 kg (298 lb) , with the largest specimens weighing in at more than 450 kg (1 @, @ 000 lb) . The skin ranges from yellow to brown in color , and the shell is typically reddish @-@ brown . No external differences in gender are seen until the turtle becomes an adult , the most obvious difference being the adult males have thicker tails and shorter plastrons than the females .

The loggerhead sea turtle is found in the Atlantic , Pacific , and Indian Oceans , as well as the Mediterranean Sea . It spends most of its life in saltwater and estuarine habitats , with females briefly coming ashore to lay eggs . The loggerhead sea turtle has a low reproductive rate ; females lay an average of four egg clutches and then become quiescent , producing no eggs for two to three years . The loggerhead reaches sexual maturity within 17 ? 33 years and has a lifespan of 47 ? 67 years .

The loggerhead sea turtle is omnivorous , feeding mainly on bottom @-@ dwelling invertebrates . Its large and powerful jaws serve as an effective tool for dismantling its prey . Young loggerheads are exploited by numerous predators ; the eggs are especially vulnerable to terrestrial organisms . Once the turtles reach adulthood , their formidable size limits predation to large marine animals , such as sharks .

Loggerheads are considered an endangered species and are protected by the International Union for the Conservation of Nature . Untended fishing gear is responsible for many loggerhead deaths . Turtles may also suffocate if they are trapped in fishing trawls . Turtle excluder devices have been implemented in efforts to reduce mortality by providing an escape route for the turtles . Loss of suitable nesting beaches and the introduction of exotic predators have also taken a toll on loggerhead populations . Efforts to restore their numbers will require international cooperation , since the turtles roam vast areas of ocean and critical nesting beaches are scattered across several countries .

Loggerhead turtles , along with green sea turtles , are the sea turtle species that are most commonly kept in captivity .

= = Description = =

The loggerhead sea turtle is the world 's largest hard @-@ shelled turtle . Adults have an average weight range of 80 to 200 kg (180 to 440 lb) and a length range of 70 to 95 cm (28 to 37 in) . The maximum reported weight is 545 kg (1 @, @ 202 lb) and the maximum carapace length is 213 cm (84 in) . The head and carapace (upper shell) range from a yellow @-@ orange to a reddish @-@ brown , while the plastron (underside) is typically pale yellow . The turtle 's neck and sides are brown on the tops and yellow on the sides and bottom .

The turtle 's shell is divided into two sections : carapace and plastron . The carapace is further divided into large plates , or scutes . Typically , 11 or 12 pairs of marginal scutes rim the carapace . Five vertebral scutes run down the carapace 's midline , while five pairs of costal scutes border them . The nuchal scute is located at the base of the head . The carapace connects to the plastron by three pairs of inframarginal scutes forming the bridge of the shell . The plastron features paired gular , humeral , pectoral , abdominal , femoral , and anal scutes . The shell serves as external armor , although loggerhead sea turtles cannot retract their heads or flippers into their shells .

Sexual dimorphism of the loggerhead sea turtle is only apparent in adults . Adult males have longer tails and claws than females . The males ' plastrons are shorter than the females ' , presumably to accommodate the males ' larger tails . The carapaces of males are wider and less domed than the females ' , and males typically have wider heads than females . The sex of juveniles and subadults cannot be determined through external anatomy , but can be observed through dissection , laparoscopy (an operation performed on the abdomen) , histological examination (cell anatomy) ,

and radioimmunological assays (immune study dealing with radiolabeling) .

Lachrymal glands located behind each eye allow the loggerhead to maintain osmotic balance by eliminating the excess salt obtained from ingesting ocean water . On land , the excretion of excess salt gives the false impression that the turtle is crying .

= = Distribution = =

The loggerhead sea turtle has a cosmopolitan distribution , nesting over the broadest geographical range of any sea turtle . It inhabits the Atlantic , Indian , and Pacific Oceans and the Mediterranean Sea .

In the Atlantic Ocean , the greatest concentration of loggerheads is along the southeastern coast of North America and in the Gulf of Mexico . Very few loggerheads are found along the European and African coastlines . Florida is the most popular nesting site , with more than 67 @, @ 000 nests built per year . Nesting extends as far north as Virginia , as far south as Brazil , and as far east as the Cape Verde Islands . The Cape Verde Islands are the only significant nesting site on the eastern side of the Atlantic . Loggerheads found in the Atlantic Ocean feed from Canada to Brazil .

In the Indian Ocean , loggerheads feed along the coastlines of Africa , the Arabian Peninsula , and in the Arabian Sea . Along the African coastline , loggerheads nest from Mozambique 's Bazaruto Archipelago to South Africa 's St Lucia estuary . The largest Indian Ocean nesting site is Oman , on the Arabian Peninsula , which hosts around 15 @, @ 000 nests , giving it the second largest nesting population of loggerheads in the world . Western Australia is another notable nesting area , with 1 @, @ 000 ? 2 @, @ 000 nests per year .

Pacific loggerheads live in temperate to tropical regions . They forage in the East China Sea , the southwestern Pacific , and along the Baja California Peninsula . Eastern Australia and Japan are the major nesting areas , with the Great Barrier Reef deemed an important nesting area . Pacific loggerheads occasionally nest in Vanuatu and Tokelau . Yakushima Island is the most important site , with three nesting grounds visited by 40 % of all nearby loggerheads . After nesting , females often find homes in the East China Sea , while the Kuroshio Current Extension 's Bifurcation region provides important juvenile foraging areas . Eastern Pacific populations are concentrated off the coast of Baja California , where upwelling provides rich feeding grounds for juvenile turtles and subadults . Nesting sites along the eastern Pacific Basin are rare. mtDNA sequence polymorphism analysis and tracking studies suggest 95 % of the population along the coast of the Americas hatch on the Japanese Islands in the western Pacific . The turtles are transported by the prevailing currents across the full length of the northern Pacific , one of the longest migration routes of any marine animal . The return journey to the natal beaches in Japan has been long suspected , although the trip would cross unproductive clear water with few feeding opportunities . Evidence of a return journey came from an adult female loggerhead named Adelita , which in 1996 , equipped with a satellite tracking device , made the 14500 @-@ km (9000 @-@ mi) trip from Mexico across the Pacific . Adelita was the first animal of any kind ever tracked across an ocean basin .

The Mediterranean Sea is a nursery for juveniles , as well as a common place for adults in the spring and summer months . Almost 45 % of the Mediterranean juvenile population has migrated from the Atlantic . Loggerheads feed in the Alboran Sea and the Adriatic Sea . Greece is the most popular nesting site along the Mediterranean , with more than 3 @, @ 000 nests per year . Because of this , Greek authorities do not allow planes to take off or land at night in Zakynthos due to the nesting turtles . In addition to the Greek coast , the coastlines of Cyprus and Turkey are also common nesting sites .

One record of this turtle was made in Ireland washed ashore on Ballyhealy Beach in Co . Wexford .

= = Habitat = =

Loggerhead sea turtles spend most of their lives in the open ocean and in shallow coastal waters . They rarely come ashore , except for the females ' brief visits to construct nests and deposit eggs . Hatchling loggerhead turtles live in floating mats of Sargassum algae . Adults and juveniles live

along the continental shelf , as well as in shallow coastal estuaries . In the northwestern Atlantic Ocean , age plays a factor in habitat preference . Juveniles are more frequently found in shallow estuarine habitats with limited ocean access compared to non nesting adults . Loggerheads occupy waters with surface temperatures ranging from 13 @-@ 3 @-@ 28 @-@ 0 ° C (56 @-@ 82 ° F) during non nesting season . Temperatures from 27 @-@ 28 ° C are most suitable for nesting females .

Juvenile loggerheads share the Sargassum habitat with a variety of other organisms . The mats of Sargassum contain as many as 100 different species of animals on which the juveniles feed . Some of the prey , such as ants , flies , bugs , leafhoppers , and beetles , are carried by the wind to these areas. plant prey of the mats include barnacles , small crab larvae , fish eggs , and planton colonies . Marine mammals and commercial fish , such as tuna , also inhabit the mats .

= = Ecology and behavior = =

Loggerhead sea turtles observed in captivity and in the wild are most active during the day . In captivity , the loggerheads ' daily activities are divided between swimming and resting on the bottom . While resting , they spread their forelimbs to about midstroke swimming position . They remain motionless with eyes open or half @-@ shut and are easily alerted during this state . At night , captives sleep in the same position with their eyes tightly shut , and are slow to react . Loggerheads spend up to 85 % of their day submerged , with males being the more active divers than females . The average duration of dives is 15 ? 30 min , but they can stay submerged for up to four hours . Juvenile loggerheads and adults differ in their swimming methods . A juvenile keeps its forelimbs pressed to the side of its carapace , and propels itself by kicking with its hind limbs . As the juvenile matures , its swimming method is progressively replaced with the adult 's alternating @-@ limb method . They depend entirely on this method of swimming by one year old .

Water temperature affects the sea turtle 's metabolic rate . Lethargy is induced at temperatures between 13 and 15 ° C (55 and 59 ° F) . The loggerhead takes on a floating , cold @-@ stunned posture when temperatures drop to around 10 ° C. However , younger loggerheads are more resistant to cold and do not become stunned until temperatures drop below 9 ° C. The loggerheads ' migration helps to prevent instances of cold @-@ stunning . Higher water temperatures cause an increase in metabolism and heart rate . A loggerhead 's body temperature increases in warmer waters more quickly than it decreases in colder water ; their critical thermal maximum is currently unknown .

Female @-@ female aggression , which is fairly rare in other marine vertebrates , is common among loggerheads . Ritualized aggression escalates from passive threat displays to combat . This conflict primarily occurs over access to feeding grounds . Escalation typically follows four steps . First , initial contact is stimulated by visual or tactile cues . Second , confrontation occurs , beginning with passive confrontations characterized by wide head @-@ tail circling . They begin aggressive confrontation when one turtle ceases to circle and directly faces the other . Third , sparring occurs with turtles snapping at each other 's jaws . The final stage , separation , is either mutual , with both turtles swimming away in opposite directions , or involves chasing one out of the immediate vicinity . Escalation is determined by several factors , including hormone levels , energy expenditure , expected outcome , and importance of location . At all stages , an upright tail shows willingness to escalate , while a curled tail shows willingness to submit . Because higher aggression is metabolically costly and potentially debilitating , contact is much more likely to escalate when the conflict is over access to good foraging grounds . Further aggression has also been reported in captive loggerheads . The turtles are seemingly territorial , and will fight with other loggerheads and sea turtles of different species .

= = = Feeding = = =

The loggerhead sea turtle is omnivorous , feeding mainly on bottom @-@ dwelling invertebrates , such as gastropods , bivalves , and decapods . It has a greater list of known prey than any other sea

turtle . Other food items include sponges , corals , sea pens , polychaete worms , sea anemones , cephalopods , barnacles , brachiopods , isopods , insects , bryozoans , sea urchins , sand dollars , sea cucumbers , starfish , fish (eggs , juveniles , and adults) , hatchling turtles (including members of its own species) , algae , and vascular plants . During migration through the open sea , loggerheads eat jellyfish , floating molluscs , floating egg clusters , squid , and flying fish .

Loggerheads crush prey with their large and powerful jaws . Projecting scale points on the anterior margin of the forelimbs allow manipulation of the food . These points can be used as " pseudo @-@ claws " to tear large pieces of food in the loggerhead 's mouth . The loggerhead will turn its neck sideways to consume the torn food on the scale points . Inward @-@ pointing , mucus @-@ covered papillae found in the fore region of the loggerhead 's esophagus filter out foreign bodies , such as fish hooks . The next region of the esophagus is not papillated , with numerous mucosal folds . The digestion rate in loggerheads is temperature @-@ dependent ; it increases as temperature increases .

= = = Predators = = =

Loggerheads have numerous predators , especially early in their lives . Egg and nestling predators include ghost crabs , oligochaete worms , beetles , fly larvae , ants , parasitoid wasp larvae , flesh flies , snakes , gulls , corvids , opossums , bears , rats , armadillos , mustelids , skunks , canids , procyonids , cats , pigs , and humans . During their migration from their nests to the sea , hatchlings are preyed on by dipteran larvae , crabs , toads , lizards , snakes , seabirds such as frigatebirds , and other assorted birds and mammals . In the ocean , predators of the loggerhead juveniles include fish , such as parrotfish and moray eels , and portunid crabs . Adults are more rarely attacked due to their large size , but may be preyed on by large sharks , seals , and killer whales . Nesting females are attacked by flesh flies , feral dogs , and humans . Salt marsh mosquitos can also pester nesting females .

In Australia , the introduction of the red fox (*Vulpes vulpes*) by British settlers in the 19th century led to significant reductions in loggerhead sea turtle populations . In one coastal section in eastern Australia during the 1970s , predation of turtle eggs destroyed up to 95 % of all clutches laid . Aggressive efforts to destroy foxes in the 1980s and 1990s has reduced this impact ; however , it is estimated that it will be the year 2020 before populations will experience complete recovery from such dramatic losses .

Along the southeastern coast of the United States , the raccoon (*Procyon lotor*) is the most destructive predator of nesting sites . Mortality rates of nearly 100 % of all clutches laid in a season have been recorded on some Florida beaches . This is attributed to an increase in raccoon populations , which have flourished in urban environments . Aggressive efforts to protect nesting sites by covering them with wire mesh has significantly reduced the impact of raccoon predation on loggerhead sea turtle eggs . On Bald Head Island in North Carolina , wire mesh screens are used on every confirmed nest to prevent excavation by resident red foxes . A new concern with the steel cage technique is interference with the normal development of the nestlings ' magnetic sense due to the use of ferrous wire , which may disrupt the turtles ' ability to navigate properly . Efforts are underway to find a nonmagnetic material that will prevent predators gnawing through the barrier .

Up to 40 % of nesting females around the world have wounds believed to come from shark attacks .

= = = Disease and parasites = = =

Infectious bacteria such as *Pseudomonas* and *Salmonella* attack loggerhead hatchlings and eggs . Fungi such as *Penicillium* infect loggerhead sea turtle nests and cloacae .

Fibropapillomatosis disease caused by a form of the herpes @-@ type virus threatens loggerheads with internal and external tumors . These tumors disrupt essential behaviors and , if on the eyes , cause permanent blindness . Trematodes of the family *Spirorchidae* inhabit tissues throughout the body of the loggerhead , including vital organs , such as the heart and the brain . Trematode

infection can be highly debilitating . For example , inflammatory trematode lesions can cause endocarditis and neurological disease . A nematode , *Angiostoma carettae* , also infects loggerheads , causing histologic lesions in the respiratory tract .

More than 100 species of animals from 13 phyla , as well as 37 kinds of algae , live on loggerheads ' backs . These parasitic organisms , which increase drag , offer no known benefit to the turtle , although the dulling effect of organisms on shell color may improve camouflage .

= = Life history = =

= = = Early life = = =

Hatchlings range in color from light brown to almost black , lacking the adult 's distinct yellows and reds . Upon hatching , they measure about 4 @. @ 6 cm (1 @. @ 8 in) and weigh about 20 g (0 @. @ 7 oz) . The eggs are typically laid on the beach in an area above the high @- @ tide line . The eggs are laid near the water so the hatchlings can return to the sea . The loggerhead 's sex is dictated by the temperature of the underground nest . Incubation temperatures generally range from 26 @- @ 32 ° C (79 @- @ 90 ° F) . Sea turtle eggs kept at a constant incubating temperature of 32 ° C become females . Eggs incubating at 28 ° C become males . An incubation temperature of 30 ° C results in an equal ratio of male to female hatchlings . Hatchlings from eggs in the middle of the clutch tend to be the largest , grow the fastest , and be the most active during the first few days of sea life .

After incubating for around 80 days , hatchlings dig through the sand to the surface , usually at night , when darkness increases the chance of escaping predation and damage from extreme sand surface temperatures is reduced . Hatchlings enter the ocean by navigating toward the brighter horizon created by the reflection of the moon and starlight off the water 's surface .

Hatchlings can lose up to 20 % of their body mass due to evaporation of water as they journey from nest to ocean . They initially use the undertow to push them five to 10 m away from the shore . Once in the ocean , they swim for about 20 hours , bringing them far offshore . An iron compound , magnetite , in their brains allows the turtles to perceive the Earth 's magnetic field , for navigation . Many hatchlings use Sargassum in the open ocean as protection until they reach 45 cm (18 in) . Hatchling loggerheads live in this pelagic environment until they reach juvenile age , and then they migrate to nearshore waters .

= = = Maturation = = =

When ocean waters cool , loggerheads must migrate to warmer areas or hibernate to some degree . In the coldest months , they submerge for up to seven hours at a time , emerging for only seven minutes to breathe . Although outdone by freshwater turtles , these are among the longest recorded dives for any air @- @ breathing marine vertebrate . During their seasonal migration , juvenile loggerheads have the ability to use both magnetic and visual cues . When both aids are available , they are used in conjunction ; if one aid is not available , the other suffices . The turtles swim at about 1 @. @ 6 km / h (0 @. @ 9 kn ; 0 @. @ 4 m / s) during migration .

Like all marine turtles , the loggerhead prepares for reproduction in its foraging area . This takes place several years before the loggerhead migrates to a mating area . Female loggerheads first reproduce at ages 28 ? 33 in Southeastern United States and Australia , and at ages 17 ? 30 in South Africa . Age at first reproduction in the Mediterranean , Oman , Japan , and Brazil are unknown . Nesting loggerheads have a straight carapace length of 70 ? 109 cm (28 ? 43 in) . Because of the large range , carapace length is not a reliable indicator of sexual maturity . Their estimated maximum lifespan is 47 ? 67 years in the wild .

= = = Reproduction = = =

Female loggerheads first reproduce between the ages of 17 and 33 , and their mating period may last more than six weeks . They court their mates , but these behaviors have not been thoroughly examined . Male forms of courtship behavior include nuzzling , biting , and head and flipper movements . Studies suggest females produce cloacal pheromones to indicate reproductive ability . Before mating , the male approaches a female and attempts to mount her , while she resists . Next , the male and female begin to circle each other . If the male has competitors , the female may let the males struggle with each other . The winner then mounts the female ; the male 's curved claws usually damage the shoulders of the female 's shell during this process . Other courting males bite the male while he is attempting to copulate , damaging his flippers and tail , possibly exposing bones . Such damage can cause the male to dismount and may require weeks to heal . While nesting , females produce an average of 3 @. @ 9 egg clutches , and then become quiescent , producing no eggs for two to three years . Unlike other sea turtles , courtship and mating usually do not take place near the nesting beach , but rather along migration routes between feeding and breeding grounds . Recent evidence indicates ovulation in loggerheads is mating @-@ induced . Through the act of mating , the female ovulates eggs which are fertilized by the male . This is unique , as mating @-@ induced ovulation is rare outside of mammals . In the Northern Hemisphere , loggerheads mate from late March to early June . The nesting season is short , between May and August in the Northern Hemisphere and between October and March in the Southern Hemisphere .

Loggerheads may display multiple paternity . Multiple paternity is possible due to sperm storage . The female can store sperm from multiple males in her oviducts until ovulation . A single clutch may have as many as five fathers , each contributing sperm to a portion of the clutch . Multiple paternity and female size are positively correlated . Two hypotheses explain this correlation . One posits that males favor large females because of their perceived higher fecundity (ability to reproduce) . The other states , because larger females are able to swim more quickly to mating grounds , they have longer mating periods .

All sea turtles have similar basic nesting behaviors . Females return to lay eggs at intervals of 12 ? 17 days during the nesting season , on or near the beach where they hatched . They exit the water , climb the beach , and scrape away the surface sand to form a body pit . With their hind limbs , they excavate an egg chamber in which the eggs are deposited . The females then cover the egg chamber and body pit with sand , and finally return to the sea . This process takes one to two hours , and occurs in open sand areas or on top of sand dunes , preferably near dune grasses that the females can use to camouflage the nest . The nesting area must be selected carefully because it affects characteristics such as fitness , emergence ratio , and vulnerability to nest predators . Loggerheads have an average clutch size of 112 @. @ 4 eggs .

= = Taxonomy = =

Carl Linnaeus gave the loggerhead its first binomial name , *Testudo caretta* , in 1758 . Thirty @-@ five other names emerged over the following two centuries , with the combination *Caretta caretta* first introduced in 1902 by Leonhard Stejneger . The English common name " loggerhead " refers to the animal 's large head . The loggerhead sea turtle belongs to the family Cheloniidae , which includes all extant sea turtles except the leatherback sea turtle . The subspecific classification of the loggerhead sea turtle is debated , but most authors consider it a single polymorphic species . Molecular genetics has confirmed hybridization of the loggerhead sea turtle with the Kemp 's ridley sea turtle , hawksbill sea turtle , and green sea turtles . The extent of natural hybridization is not yet determined ; however , second @-@ generation hybrids have been reported , suggesting some hybrids are fertile .

= = Evolutionary history = =

Although evidence is lacking , modern sea turtles probably descended from a single common ancestor during the Cretaceous period . Like all other sea turtles except the leatherback , loggerheads are members of the ancient family Cheloniidae , and appeared about 40 million years

ago . Of the six species of living Cheloniidae , loggerheads are more closely related to the Kemp 's ridley sea turtle , olive ridley sea turtle , and the hawksbill turtle than they are to the flatback turtle and the green turtle .

Around three million years ago , during the Pliocene epoch , Central America emerged from the sea , effectively cutting off currents between the Atlantic and Indo -@-@ Pacific Oceans . The rerouting of ocean currents led to climatic changes as the Earth entered a glacial cycle . Cold water upwelling around the Cape of Good Hope and reduction in water temperature at Cape Horn formed coldwater barriers to migrating turtles . The result was a complete isolation of the Atlantic and Pacific populations of loggerheads . During the most recent ice age , the beaches of southeastern North America were too cold for sea turtle eggs . As the Earth began to warm , loggerheads moved farther north , colonizing the northern beaches . Because of this , turtles nesting between North Carolina and northern Florida represent a different genetic population from those in southern Florida .

The distinct populations of loggerheads have unique characteristics and genetic differences . For example , Mediterranean loggerheads are smaller , on average , than Atlantic Ocean loggerheads . North Atlantic and Mediterranean loggerhead sea turtles are descendants of colonizing loggerheads from Tongaland , South Africa . South African loggerhead genes are still present in these populations today .

= = Conservation = =

Many human activities have negative effects on loggerhead sea turtle populations . The prolonged time required for loggerheads to reach sexual maturity and the high mortality rates of eggs and young turtles from natural phenomena compound the problems of population reduction as a consequence of human activities .

= = = Threats = = =

Loggerhead sea turtles were once intensively hunted for their meat and eggs ; consumption has decreased , however , due to worldwide legislation . Despite this , turtle meat and eggs are still consumed in countries where regulations are not strictly enforced . In Mexico , turtle eggs are a common meal ; locals claim the egg is an aphrodisiac . Eating turtle eggs or meat can cause serious illness due to harmful bacteria , such as *Pseudomonas aeruginosa* and *Serratia marcescens* , and high levels of toxic metals that build up through bioaccumulation .

The US West Coast is a critical migratory corridor for the Pacific loggerheads , in which these turtles swim across the Pacific to California ' s coast from breeding grounds in Japan . Important foraging habitats for juveniles in the central North Pacific have been revealed through telemetry studies . Along with these foraging habitats , high levels of bycatch from industrial @-@ scale fisheries have been found to overlap ; with drift gillnets in the past and longline fisheries presently . Many juvenile loggerheads aggregate off the coast of Baja California Sur , Mexico , where small coastal fisheries increase these turtles ' mortality risk ; fishers have reported catching dozens of loggerheads with bottom @-@ set gear per day per boat . The most common commercial fishery that accidentally takes loggerheads are bottom trawls used for shrimp vessels in the Gulf of California . In 2000 , between 2 @,@ 600 and 6 @,@ 000 loggerheads were estimated to have been killed by pelagic longlining in the Pacific .

Fishing gear is the biggest threat to loggerheads in the open ocean . They often become entangled in longlines or gillnets . According to the 2009 status review of loggerheads by the Fisheries Service , drowning from entanglement in longline and gillnet fishing gear is the turtles ' primary threat in the North Pacific . They also become stuck in traps , pots , trawls , and dredges . Caught in this unattended equipment , loggerheads risk serious injury or drowning . Turtle excluder devices for nets and other traps reduce the number being accidentally caught .

Nearly 24 @,@ 000 metric tons of plastic are dumped into the ocean each year . Turtles ingest a wide array of this floating debris , including bags , sheets , pellets , balloons and abandoned fishing line . Loggerheads may mistake the floating plastic for jellyfish , a common food item . The ingested

plastic causes numerous health concerns , including intestinal blockage , reduced nutrient absorption and malnutrition , suffocation , ulcerations , or starvation . Ingested plastics release toxic compounds , including polychlorinated biphenyls , which may accumulate in internal tissues . Such toxins may lead to a thinning of eggshells , tissue damage , or deviation from natural behaviors .

Artificial lighting discourages nesting and interferes with the hatchlings ' ability to navigate to the water 's edge . Females prefer nesting on beaches free of artificial lighting . On developed beaches , nests are often clustered around tall buildings , perhaps because they block out the man @-@ made light sources . Loggerhead hatchlings are drawn toward the brighter area over the water which is the consequence of the reflection of moon and star light . Confused by the brighter artificial light , they navigate inland , away from the protective waters , which exposes them to dehydration and predation as the sun rises . Artificial lighting causes tens of thousands of hatchling deaths per year .

Destruction and encroachment of habitat by humans is another threat to loggerhead sea turtles . Optimum nesting beaches are open @-@ sand beaches above the high @-@ tide line . However , beach development deprives them of suitable nesting areas , forcing them to nest closer to the surf . Urbanization often leads to the siltation of sandy beaches , decreasing their viability . Construction of docks and marinas can destroy near @-@ shore habitats . Boat traffic and dredging degrades habitat and can also injure or kill turtles when boats collide with turtles at or near the surface .

Annual variations in climatic temperatures can affect sex ratios , since loggerheads have temperature @-@ dependent sex determination . High sand temperatures may skew gender ratios in favor of females . Nesting sites exposed to unseasonably warm temperatures over a three @-@ year period produced 87 ? 99 % females . This raises concern over the connection between rapid global temperature changes and the possibility of population extinction . A more localized effect on gender skewing comes from the construction of tall buildings , which reduce sun exposure , lowering the average sand temperature , which results in a shift in gender ratios to favor the emergence of male turtles .

= = = Conservation efforts = = =

Since the loggerhead occupies such a broad range , successful conservation requires efforts from multiple countries .

Loggerhead sea turtles are classified as endangered by the International Union for the Conservation of Nature and are listed under Appendix I of the Convention on International Trade in Endangered Species , making international trade illegal . In the United States , the Fish and Wildlife Service and National Marine Fisheries Service classify them as a threatened species under the Endangered Species Act . Loggerheads are listed as endangered under both Australia 's Environment Protection and Biodiversity Conservation Act 1999 and Queensland 's Nature Conservation Act 1992 . The Convention on Migratory Species works for the conservation of loggerhead sea turtles on the Atlantic coast of Africa , as well as in the Indian Ocean and southeast Asia . Throughout Japan , the Sea Turtle Association of Japan aids in the conservation of loggerhead sea turtles . Greece 's ARCHELON works for their conservation . The Marine Research Foundation works for loggerhead conservation in Oman . Annex 2 of the Specially Protected Areas and Wildlife Protocol of the Cartagena Convention , which deals with pollution that could harm marine ecosystems , also protects them . Conservation organizations worldwide have worked with the shrimp trawling industry to develop turtle exclusion devices (TEDs) to exclude even the largest turtles . TEDs are mandatory for all shrimp trawlers .

In many places during the nesting season , workers and volunteers search the coastline for nests , and researchers may also go out during the evening to look for nesting females for tagging studies and gather barnacles and tissues samples . Volunteers may , if necessary , relocate the nests for protection from threats , such as high spring tides and predators , and monitor the nests daily for disturbances . After the eggs hatch , volunteers uncover and tally hatched eggs , undeveloped eggs , and dead hatchlings . Any remaining live hatchlings are released or taken to research facilities . Typically , those that lack the vitality to hatch and climb to the surface die . Hatchlings use the journey from nest to ocean to build strength for the coming swim . Helping them to reach the ocean

bypasses this strength @-@ building exercise and lowers their chances of survival .

= = Symbols = =

The loggerhead sea turtle appears on the \$ 1000 Colombian Peso coin . In the United States , the loggerhead sea turtle is the official state reptile of South Carolina and also the state saltwater reptile of Florida .