

Endangered Leatherback Teacher's Kit



Sea Turtle Restoration Project

P.O. Box 400

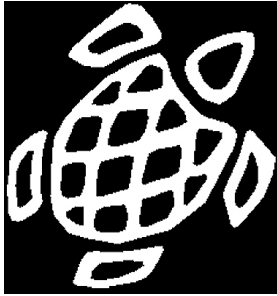
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Lesson Plan for Teaching About Endangered Leatherback Sea Turtles (grades 6-12)

Lesson Plan for Teaching about Endangered Leatherback Sea Turtles

(appropriate to grades 6-12)

Developed by Pat Masters

with Robert Ovetz, PhD*

Objective – Students will write letters to the **United Nations** emphasizing action in order to stem the decline of the endangered Pacific leatherback sea turtle.

Subject Area – Written to satisfy California, USA teaching standards for Life Sciences, specifically Ecology Grades 6 and 9-12; and Evolution Grade 7 and 9-12. Language Arts for all grades 6-12. Expository writing is required at each grade level. This includes writing in descriptive, persuasive and explanatory prose, and to present a solution to a problem.

Vocabulary – Words found in the vocabulary list following the lesson are highlighted in **bold**.

Anticipatory Set – The teacher shows a picture of a leatherback sea turtle to the class, describing the reptile as an endangered species.

Then – The teacher tells the students to take everything off their desks, put their heads down and close their eyes. The instructor then puts on some background music, soothing ocean music that can be bought at a nature store. The students are to imagine themselves as adult leatherbacks, with the ocean as their playground. The teacher narrates with a deep ancient voice as the students/leatherbacks dream:

* Pat Masters is a Certificated Elementary School Instructor, with an MA in Environmental Education who teaches in Sonoma County, California. Robert Ovetz, PhD is the Save the Leatherback Campaign Coordinator with the Sea Turtle Restoration Project and an adjunct instructor of Environmental Science at The Art Institute of California-San Francisco.



Leatherback Lesson Plan



“My plan for today, swim, dive down, maybe 2,000 feet or more, eat and enjoy the sun. Maybe meet someone I share this vast water with; jellyfish (ummm, food), a gray whale, humpback, dolphin, other turtles (*but* not nearly as many as I used to see), and some fish, maybe tuna or a swordfish. Thousands of miles of water, across and deep. To myself, family, and my buddies. Swim, eat, dive. Migrating. Life is very good.”

“Hmmm. What’s that large beast on the horizon? Let’s dive just to be safe. There is a couple of swordfish. But, I don’t understand. They don’t seem to be swimming.”

NOW – Music switch. Teacher puts on louder music, such as a thunderstorm.

“It appears that they’re just being dragged. Towards me! Ouch!! Escape only seems to make the pain worse! Whatever this is just digs deeper into my bleeding and tearing flesh! I’m being pulled along these swordfish! I don’t have any control! And the pain! Then I’m finally pulled up on that large beast. Me, and some other fish, and then over there, a smaller turtle. Is that a dolphin too? The only other time I’ve been out of water was to give birth on a sandy beach. This isn’t right. Finally someone pulls that sharp object from my leathery flipper. Ohhh, that stings. I don’t belong here. Will someone just let me back in the water...where I belong.”

Shut off music

Show the documentary video – *Last Journey for the Leatherback?* And ask the students the following questions to consider as they watch the film. These questions could also be used to guide a discussion after the showing.

Why are sea turtles “**ambassadors** of the oceans?”

They travel long distances to feed and nest, connecting many species and ecosystems of the ocean and land together.

How many kinds of sea turtles are there?

7: leatherback, loggerhead, green, hawksbill, Kemps' Ridley, olive ridley and Australian flatback

What is an **arribada**?

A mass nesting event where hundreds and until recently thousands of turtles would come up on the beach in waves to lay their eggs.

What threats are there to sea turtles in the ocean and on land?

In the oceans: industrial fishing gillnets and longlines, pollution, **predators**

On land: **predators, poachers**, development which destroys their nesting beaches



Leatherback Lesson Plan



What kinds of fish are caught by **longline** fishing?

Tuna, swordfish, shark and other species

Why is **longlining** dangerous for sea turtles?

They either try to eat the bait and get hooked and either drowning before the hook is retrieved or they are injured and killed.

Why is eating fish caught by **longlines** dangerous to humans?

These fish are **predators** which reside at the top of the foodchain. Pollutants such as **methylmercury bioaccumulate** up the foodchain and are highest in these species. **Methylmercury** is dangerous to the development of fetuses as well as women of childbearing age.

What do scientists think can be done to save sea turtles?

A UN **moratorium** on **longline** fishing in the Pacific, protection for nesting beaches, reducing pollution in the ocean such as the dumping of plastic bags and chemicals

What can you do to help save the leatherback?

- Eat less or stop eating tuna, swordfish and shark
- Take a class trip to visit local supermarkets, restaurants, and fish companies area to talk to them about the dangers to sea turtles and ask them to stop selling these species, or clearly label these species for **methylmercury** poisoning in all their stores or on all their packages (if you live in California, Prop 65 requires that supermarkets post signs with a warning. Please contact Andy at STRP for more information at: andy@seaturtles.org)
- Reduce or stop using plastic bags; reuse bags by bringing them when they shop; or use canvas bags
- Write a letter to the **United Nations** Secretary General asking for a moratorium on **longline** fishing in the Pacific
- Write your country's UN ambassador asking for a moratorium on **longline** fishing in the Pacific
- Make a class poster or book for the **United Nations** Secretary General
- Take a class trip to visit **longline** fishermen in your area to talk to them about **sustainable** fishing and the dangers to sea turtles
- Organize a screening of the video to the whole school, in the community, at a local film theatre, on a local public, cable or public access TV station, or elsewhere and ask the audience to write letters to the **United Nations** Secretary General
- Ask the local libraries to order a copy for their collection. Please note that copies are free for teachers and school libraries.



Leatherback Lesson Plan



Lesson –

First, the class reflects on their leatherback dreams and the video by discussing their answers to the questions.

Then the teacher shares background information on leatherback turtle.

The instructor could pass out copies of one or more information sheets (see the Leatherback Sea Turtle Information & Map, Sea Turtle Fact Sheet – Leatherback, fact sheet from the Leatherback Trust and pages from the Sea Turtle Activist Kit included at the back of this kit).

Biology of Sea Turtles

Fossil records have traced the existence of sea turtles to about 200 million years ago. Modern species appeared between 60 and 100 million years ago. Sea turtles have witnessed the fall of dinosaurs and the rise of humanity. The seven sea turtle species include: leatherback, loggerhead, green, hawksbill, Kemps' Ridley, olive ridley and Australian flatback. Six of these species (except the Australian flatback) are listed as endangered; therefore, without some human intervention they are in imminent danger of extinction.

The leatherback, which is listed as critically **endangered**, is the only sea turtle without a shell. It has its name from the fact that it has a **carapace**, or a hardened outer covering, made of a leathery, scaleless skin formed by a tough, oil-saturated tissue raised into seven prominent ridges. Its back is brownish-black with white spots. Leatherback's forelimbs have developed into efficient swimming flippers. Individual leatherbacks may live as many as 90 years and typically weigh 1,100 pounds with a carapace (outer protection) length of six feet. The largest known leatherback was a male leatherback found on the coast of Wales. It was 9.5 feet, weighting almost 2,000 pounds. They eat very low on the **food chain**, almost exclusively jellyfish. As a result, they often mistake plastic shopping and trash bags as jellyfish which cause injury or death if swallowed.

Leatherbacks live all around the world in the tropical and subtropical waters of the Atlantic, Pacific and Indian oceans. Leatherbacks are the only sea turtle species which regularly visits the Pacific coast of North America. The leatherbacks dive deeper and swim into colder waters than other turtles because of their ability to regulate body temperature and their greater body fat. Adult males have been known to dive as deep 4,922 feet although leatherbacks remain nearly all their time in shallow surface waters less than about 600 feet deep. Their **habitat** spans the North Atlantic near the Arctic Circle to the South Pacific around New Zealand. The turtles



Biology of the Leatherback



may cover more than 6,000 miles between feeding grounds and mating and nesting sites, often traversing more than an entire ocean. It is still partially a mystery how leatherbacks accomplish this, but it is believed the turtles use a combination of physical markers, mineral **imprinting** and some sort of biological imprinting to continually find the same areas. They also utilize variations in earth's magnetic field. Magnetic compasses, as sailors know, don't always point to the magnetic North Pole, mainly due to variations in the magnetic field caused by, for instance, iron-rich ore inside mountains. According to scientists, the green sea turtle navigates using a built-in "map that is at least partly" based on geomagnetic clues.

It takes leatherbacks 8-15 years to reach reproductive maturity. Like all other sea turtle species, the leatherback must return to the beach to lay their eggs. Leatherbacks lay 50-180 eggs per nest and incubation takes 50-55 days. The **hatchlings** are only 2-2.25 inches and weight 1.6 oz. Hatchlings are vulnerable to **predators** including ghost crabs, herons, dogs, mongooses and ants. Likewise, hatchlings can become disoriented by artificial light from nearby roads and developments that they may confuse with the moon or horizon of the ocean. Crawling into the wrong direction makes them more vulnerable to **predators**, becoming tangled in vegetation, or being crushed by cars.

The ocean is no sure thing either. Any fish, such as groupers, red snapper or sea bass can swallow the hatchlings. Because the **hatchlings** are so **buoyant**, they can only dive a few feet, they can become easy prey for sea birds. Primary breeding grounds include: Pacific coasts of Mexico and Costa Rica; French Guyana and Suriname in the Western Atlantic and Gabon in the Eastern Atlantic; the Caribbean coasts of Costa Rica, Trinidad and Colombia; and Indonesia.

Leatherbacks At Risk of Extinction

The world population of the leatherback is estimated between 30,000 and 40,000. In 1980 there were over 115,000 adult females, but now there less than 25,000 worldwide. Pacific leatherback populations seem to be crashing. Its population has suffered a 95% decline since 1980 from 90,000 nesting females to 3,000-5,000 today. Scientists believe commercial fishing is the chief cause for decline. Between 1985 and 1995, the number of leatherback nests at a key beach in Mexico dropped from 6,500 to less than 500. Coincidentally, the South American swordfish fishery expanded tremendously during this time.

Major threats to the leatherback's survival include:
the accidental capture and drowning of sea turtles as **bycatch** in the tuna and swordfish **pelagic longline** fisheries
commercial exploitation of sea turtle eggs



Activity



use of shells for jewelry and trinkets, and their exotic skin which is processed into turtle leather for shoes and purses
development and destruction of nesting beaches
ocean pollution
ingestion of plastic bags and other garbage.

Activity -- The students will write a letter addressing action needed to save the leatherback sea turtle. The teacher could hand out some background information to aid the student in this activity (fact sheets can be found at the end of this kit including one from the Leatherback Trust, and five from the Activist Kit: three on **longline** fishing and two on ways to save endangered sea turtles). The letters should be friendly but poignant, including information on the leatherback's decline in numbers, why the sea turtle is important to save, and what needs to be done. The teachers may encourage to students to either colorfully design or decorate their letters, possibly in collage form. The students may make a class book, collage or poster to accompany the letters. In that case, the teacher/class will need to collect magazine scraps and other materials and supplies prior to beginning this assignment. Exceptionally creative letters, books or posters may be posted on the www.seaturtles.org website. Address the letters to the UN Secretary-General (the current Secretary-General Kofi Annan will remain in office through 2004) asking for a **moratorium** against **longline**, **gillnet** and other fishing techniques harmful to the leatherback.

Secretary General
United Nations
New York, NY 10017
USA

Fax: +1 (212) 963-4879
Phone: +1 (212) 963-4475

Please send copies of the letters to the Sea Turtle Restoration Project in California to be included in their books of letters to be submitted to the UN. Send them to:

Sea Turtle Restoration Project
Attn: Robert Ovetz, PhD
PO Box 400
Forest Knolls, CA 94933
USA

robert@seaturtles.org
+1 (415) 488-0370



Closure



Closure -- Read some of the letters in class or discuss any other projects the students do. Reflect on the leatherback's plight, and future. The teacher may include the following anecdotes about successful efforts to protect sea turtles:

In the 1990s, a shrimp fisherman from Georgia named Sinky Boone invented a metal gate that when installed in a shrimp net would allow sea turtles and other large marine species to escape the net. This device, called the TED (**Turtle Excluder Device**) is now required by law in the US and a number of other countries around the world. No shrimp may be imported into the US without use of the TED on the vessel that caught it. As a result, sea turtles most threatened by shrimp nets are starting to show signs of improvement in areas where they are consistently used.

Federal authorities in Florida learned that sea turtle eggs were being sold behind a restaurant. A biological scientist at the University of Florida analyzed the egg's DNA determining that they came from a sea turtle species that nests in the Pacific. After further pinpointing their exact origin, six months later authorities broke up a smuggling ring that was importing the eggs from Nicaragua and then selling them to people who believed they were an aphrodisiac.

The teacher may include the following anecdotes about successful efforts to protect other endangered species:

In 1991, the **United Nations** banned **driftnets** that were used to catch tuna and swordfish. These nets, which could reach 50 miles long, were left drifting for long periods of time and would kill everything that got caught in it, including sea turtles, whales, dolphins, and other fish, earning it the name "curtains of death."

In the 1980s a fisherman released video footage showing dolphins being crushed alive by *purse seine* nets used to catch tuna. The international outrage caused by the video revealed that about 1 million dolphins were killed worldwide each year by these nets. As a result of public pressure and negative media coverage tuna companies and fishermen all over the world were forced to stop using their nets on dolphins (who often swim with tuna) to catch tuna. Today, the "dolphin safe" label on tuna fish cans is a verified guarantee that no dolphins were killed while catching the tuna.

Remind the class that the American bald eagle was recently taken off the **threatened** list (previously the endangered species list) in 2004. It can be done.

The gray whale population dropped in the hundreds due to intense whaling, but now the population is more than 20,000. The western Pacific population of the gray whale is listed as **threatened**, but the California population was recently de-listed (no longer **threatened**).



Vocabulary Terms



Assessment -- Grade based on rubric/Teacher's grade level expectations

Extension -- Writing letters to different authorities or other forms of action. Sheets included in lesson packet.

Sources -- California Department of Education 2003 Content Standards; Sea Turtle Restoration Project, Forest Knolls, CA; *San Francisco Chronicle*, May 3, 2004; *Viva La Tortuga!*, Issue No. 1, 2003, a newsletter of the Sea Turtle Restoration Project; *The New Lexicon Webster's Dictionary*, Lexicon Publication's Inc., New York, 1989; Penelope Reville and Charles Reville, *The Environment*, 1988; John Allen, Ed., *Environment 88/89*, 1989; <http://www.leatherback.org>; <http://www.leatherback.org/>; <http://www.turtles.org/leathert.htm>; <http://www.turtles.org/leatherd.thtm>; <http://www.nature.ca/notebooks/english/leather.htm>; <http://www.nature.ca/notebooks/english/leather.htm>; <http://www.wsdot.wa.gov/environment/biology/usfw-list/Leatherback.htm>

[9](#)

VOCABULARY TERMS

Ambassador – An official representative of a government located in a foreign country.

Arribada – A mass nesting event where hundreds, and until recently, thousands of turtles would come up on the beach in waves to lay their eggs.

Bioaccumulate – The increasing concentration up the food chain of pollutants in fatty tissue.

Biodiversity – A diversity of habitats, genetic traits of individual species and a diversity of species which co-exist in, are interdependent and determine the health of an ecosystem.

Buoyant – To float, remain near or at the surface of water.

Bycatch – The undesired catch of unwanted marine species by fishing that is thrown back into the ocean dead or dying. For example, at least 25 percent of **longline** catches are thrown away as bycatch.

Calipee – The vital ingredient in turtle soup. It is the cartilage cut from the bones of the bottom of the shell. **Poachers** have turned sea turtles over, cut the calipees out, and left the turtles to die.

Carapace – The top shell of a turtle. The leatherback is the only sea turtle without a carapace. Instead, its outer protection is a leathery, scaleless skin made of tough, oil-



Vocabulary



saturated tissue raised into seven prominent ridges.

Driftnets – A very long fishing net used on the high seas that catches anything that swims into it. Used to catch many kinds of marine species, it is especially dangerous to sea turtles.

Endangered Species – A species with so few living members or so little habitat that it will become extinct unless measures are begun to slow its loss, allow its population to increase again, and restore needed habitat.

Food chain – The sequence of organisms in a community, each of which uses the lower source for its energy supply, hence a **predator-prey** relationship.

Gillnet – A very long fishing net that catches anything that swims into it. Used to catch many kinds of marine species, it is especially dangerous to sea turtles.

Habitat – The natural environment in which a plant or animal lives; the habitat of the Pacific leatherback ranges from New Zealand to the Pacific Northwest of the US and from Malaysia to Equador.

Hatchling – The first twelve months of life for a sea turtle after it emerges from its shell.

Imprinting – Phenomenon of learning process that conditions rapidly to a narrow response, e.g., sea turtle hatchlings will return many years later to the beach where they were born to lay their eggs.

Longlines – Miles of fishing line with thousands of baited hooks. Longlines can be up to 60 miles long and are used to primarily catch tuna, swordfish and shark. Leatherbacks can become entangled and often drown in the lines.

Methylmercury – A form of mercury related to mercury emitted by power plants and automobile exhaust which is chemically altered once it enters the ocean.

Migration – Act of changing habitat at certain seasons for purposes of finding a mate, eating or laying eggs. Leatherbacks migrate across the entire Pacific ocean to feed, mate and lay its eggs.

Moratorium – A temporary closure or prohibition on an activity.

Nest – A place built or prepared by certain animals to rear their young. Leatherbacks prefer open access beaches for their nesting environment, possibly to avoid damage to their soft **plastron** and flippers.



Vocabulary



Pelagic – Comes from the Greek word *pelagos*, meaning sea, and is an adjective describing things of or relating to the shallow water column of the high seas.

Plastron – The bony plate that forms the underside of a turtle's shell, the turtle's underbelly. Remember, a leatherback has no outer shell, and a softer plastron.

Poaching – Act of taking or killing wildlife or fish illegally from either within their protected habitat or without permission.

Predator – A species which eats other species lower in the **food chain**.

Prey – A species eaten by other species higher in the **food chain**.

Sustainable – Using natural resources in a way that ensures that it will still be available for future generations. The unsustainable use of our oceans is having a negative consequence of sea turtles.

Threatened – A species at risk of significant declines in population and loss of habitat.

Trawl – Large wide-mouthed net dragged along the bottom of the sea by a boat to catch shrimp. The use of **Turtle Excluder Devices** can allow captured sea turtles to escape without drowning.

Turtle Excluder Devices (TED's) – A metal grate placed in a trawler net that allows sea turtles to escape, while retaining the desired catch. A turtle in a trawler net can escape before being drowned; however, leatherbacks usually are too big to escape.

United Nations – An international organization of nearly every government on earth that is based in New York City. Created after WWII, the UN serves as a means for cooperatively solving global problems of war, the environment, poverty and a wide range of other issues.



What is Longline Fishing?



What is Longline Fishing?

Next to shrimp fishing, swordfishing is one of the worst contributors to a total 2.3 billion pounds of fish that are discarded every year—a figure representing an estimated 25% of the total catch. In the Atlantic, bycatch has been found to be as high as 50% of the total catch.

Pelagic longline fishing, which primarily targets swordfish and tuna, is the world's most widespread hunting activity, with approximately 5 million baited hooks set each day on 100,000 miles of line throughout the world's oceans. An estimated 660 million hooks are annually set in the Pacific.

Longline fishing vessels cruise the surface for up to 50 miles spooling mainlines, floats, branchlines and hooks into the water. Between 500 and 3,000 hooks hang from each of the mainlines, with bait attached. Radio transmitters, light sticks, pingers and other implements also may be added. All of this gear drifts overnight or all day in the ocean and is then hauled in along with everything that has been hooked or entangled on the lines.

Until the 1960s, swordfish were caught almost exclusively by harpooning. The use of longlines remained insignificant until the combination of new permitting for swordfishing, technological advances in engine power and refrigeration, expansion of subsidies, credit and financing, and a moratorium on driftnetting in 1991 led many to switch over to longlining.

Longlines and Bycatch

Longlines are the most indiscriminate of the five large-scale industrial fishing methods in the Pacific, and thus catch the most non-target and bycatch species. One half of all animals caught in tropical regions are bycatch, which wastes countless juvenile and unwanted fish and needlessly kills highly valued and in many cases endangered species including marlin, sea birds and marine turtles.

In total, 7 pounds of bycatch, species with either no or too little “market” value, for every pound of swordfish caught is tossed over the side of longline vessels to a slow death injured by deadly metal hooks that are often swallowed or left in the mouth.

Longlining has been identified as one of the primary causes of the sudden crash in the population of Pacific leatherback sea turtles. These gentle giants get hooked or entangled on the lines, and, when they cannot reach the surface, drown. **Longlining must be stopped!**



What You and Your Students Can Do



What You and Your Students Can Do

- To take action on this critical issue, please ask your students to send a letter (see the next page) to Secretary-General Kofi Annan asking the UN to institute a moratorium on longline fishing in the Pacific. Your students can just sign the form letter, rewrite or retype the letter in their own words or make a collage, drawing, video or class book with the same request.
- Give a copy of the petition to your students for them to ask their friends, family and neighbors to sign (see attached petition).
- Whatever you do please let us know about your experience. We are happy to send your class letters, projects and petitions to Secretary-General Annan. If you wish to send them yourself, ***please send us copies*** so we can include them in our multi-volume set of books of letters, drawings and petitions that we are submitting to the Secretary-General. If postage costs are an issue please let us know and we will attempt to assist you.

Keep an eye on our website at www.seaturtles.org for updates on the campaign and new and other ongoing actions.

Please return or send a copy of the letters/projects to:

Sea Turtle Restoration Project
P.O. Box 400
Forest Knolls, CA. 94933
USA

Fax: +1 (415) 488-0372

Dear Secretary-General Kofi Annan,

According to the United Nations Food and Agriculture Organization 70 percent of marine fish species are on the brink of collapse due to overfishing. Meanwhile, globally, 44 billion pounds of fish are discarded every year, 25 percent of the entire world catch. This figure doesn't include sea turtles, dolphins, sea birds and sharks that are being caught and killed as well.

The impact of pelagic longline and gillnet fishing in the Pacific on endangered leatherback sea turtles is driving the species to the brink of extinction. Hundreds of prominent marine scientists and non-governmental organizations have joined together in calling for a UN moratorium on pelagic longline and gillnet fishing in the Pacific. This broad support from marine experts should send a clear signal that the UN and the US need to rise to the challenge of creating more sustainable global marine policies.

I urge you to support a United Nations moratorium on pelagic longline and gillnet fishing in the Pacific that harm or kill endangered sea turtles and other species. Thank you for your support.

Sincerely,

Name: _____

Address: _____

City, State/Province: _____

Zip/postal code: _____

Country: _____

HELP PROTECT ENDANGERED SEA TURTLES!!!

Dear Secretary General Kofi Annan:

I urge the United Nations to help reverse the precipitous decline of leatherback sea turtles in the Pacific, where they are threatened with imminent extinction. In the past, the UN has provided a forum for cooperative problem solving by banning high seas driftnetting. **I urge you to champion a UN moratorium on high seas longlining and gillnet fishing in the Pacific.** This will not only benefit turtles and other marine species but also poor coastal communities that depend on healthy fish stocks for food. Please let me know what action you will take. Thank you.

Name (please print legibly)	Address	Phone Email	Take Action
			<input type="checkbox"/> I want more info <input type="checkbox"/> I want to get involved
			<input type="checkbox"/> I want more info <input type="checkbox"/> I want to get involved
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Return to: Sea Turtle Restoration Project P.O. Box 400, Forest Knolls, CA USA 94933 Fax: +1 (415) 488-0372, +1 (415) 488-0370 x106, www.seaturtles.org, robert@seaturtles.org

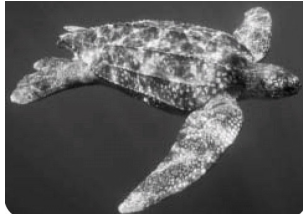


Leatherback Fact Sheet



Leatherback Fact Sheet

(*Dermochelys coriacea*)



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Endangered Sea Turtles

Ancient ocean dwellers, sea turtles have lived on the Earth for 150 million years, since before the time of the dinosaurs. All seven species of sea turtles are endangered and protected

under various national laws and international treaties. Sea turtles' hydrodynamic body shape and paddle shaped limbs or flippers make them agile swimmers. Though fully adapted to marine life, sea turtles depend on land to complete the most critical stage of their life cycle, reproduction. They build their nests and deposit their eggs only on tropical and subtropical sandy beaches.

Appearance

The leatherback is the only sea turtle without a shell. Its outer protection is a leathery, scaleless skin made of tough, oil-saturated tissue raised into seven prominent ridges, giving rise to its name. Its back is brownish-black with white spots. *Weight:* 1,100 pounds (499 kg) *Carapace length:* 6 feet (1.8 meters) The largest known sea turtle was a male leatherback, found on the coast of Wales in 1988. It was 9.5 feet long (about 3 meters) and weighed almost 2,000 pounds (908 kg).

Status

The leatherback sea turtle was listed as endangered on June 2, 1970 under the Endangered Species Act. The Pacific population is in imminent danger of extinction.

Habitat and Feeding Behavior

Leatherbacks live all around the world, in both tropical and subtropical waters of the Atlantic, Pacific and Indian Oceans. Highly migratory, they have been spotted as far north as Nova Scotia

and as far south as Chile. The leatherback is the only sea turtle that regularly visits the Pacific coast of North America. They dive deeper and swim into colder waters than other sea turtles because of their ability to regulate body temperature and their greater body fat. Adult leatherbacks have been known to dive up to 4,922 feet (1,500 meters) deep. *Food:* Jellyfish, especially "lion's mane" jellyfish. Turtles often mistake plastic bags for jellyfish and choke on them.

Nesting

It takes leatherbacks 8 to 15 years to reach reproductive maturity. Like all other sea turtle species, they return to the beach where they hatched to lay their eggs. Leatherbacks lay 50-180 eggs per nest and incubation takes 50-55 days. Hatchlings are tiny, only 2 to 2.25 inches (5 to 6 cm) long and weigh 1.6 oz (45.8 g). Their predators include ghost crabs, herons, dogs, mongooses and ants. *Primary breeding grounds:* Pacific coasts of Mexico and Costa Rica; French Guyana and Suriname in the western Atlantic and Gabon in the eastern Atlantic; the Caribbean coasts of Costa Rica, Trinidad and Colombia; and Indonesia.

Threats

The world population of this sea turtle is estimated between 30,000 and 40,000. Today, Pacific leatherback populations appear to be "crashing." This means that the number of leatherback sea turtles in the ocean is dropping quickly and dramatically. Scientists believe commercial fishing is the most likely cause of the decline. Between 1985 and 1995, the number of leatherback nests at a key beach in Mexico dropped from 6,500 to less than 500. The South American swordfish fishery expanded tremendously during this same time and may be a significant factor.



Be a Friend of the Leatherback



A Cosmopolitan Lifestyle

Leatherbacks migrate hundreds of miles every year. Males never leave the water, but females come back to land for a short time (1.5 hours) to lay eggs. Each female leatherback has the potential to nest up to ten times in one nesting season, and return every 3-4 years for as long as thirty years! No leatherback on the Pacific coast of Costa Rica, however, lives long enough to make this kind of contribution to her species. Most Pacific leatherbacks only nest once because they are killed at sea.

A Life in Peril

Adult leatherbacks have few natural predators, but hatchlings are a favorite prey of many animals from the time they hatch on the beach until they are grown. Their species has survived for millions of years, so why are they declining now? The answer is humans. Humans are the greatest danger that leatherbacks face. Untold numbers of adult leatherbacks die each year from drowning in fishing nets or on fishing lines. More acres of nesting beaches are lost every year to development for the tourist industry or for private residences. Eggs are stolen from nests to be sold on the black market as aphrodisiacs. Pollution can affect both adults and turtles in the egg. Scientists estimate that only 1 in 1000 leatherback hatchlings survive to adulthood.

Knowledge is Power

Scientists come to Costa Rica from all over the world to study the leatherback. They hope that knowledge of its biology, nesting habits, and early development will give us all the tools we need to preserve this national treasure. A management program built on a foundation of scientific information may be the answer to the complex problems that leatherbacks face in today's world.

Did you know?

- a leatherback's favorite food is jellyfish. They even have a special notch in their beak to help puncture the man-o-war jellyfish.
- leatherbacks in Costa Rica lay two kinds of eggs: yolked and yolkless
- the temperature in the nest determines if a hatchling will be a boy or a girl
- a leatherback's shell is covered by a leathery skin
- the "tears" that turtles "cry" are just their way of shedding excess salt

Be a Friend to the Leatherback

DO NOT:

- drive or walk on the beach above the high tide line- this crushes eggs and hatchlings in the nest!
- walk on the beach at night- this scares turtles away
- walk/stand in front of turtle
- plant anything on the beach or dunes
- use lights on the beach
- use flash photography or video around a turtle
- buy products made from turtles

DO:

- speak very softly if near a turtle
- use red lights instead of white on the exterior of your house if it is visible from the beach
- tell a park official if you see any practices that may be harmful to turtles
- appreciate this fascinating animal
- share your knowledge of leatherbacks with others

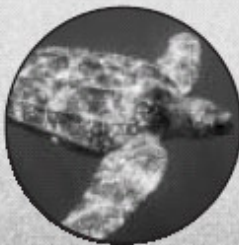
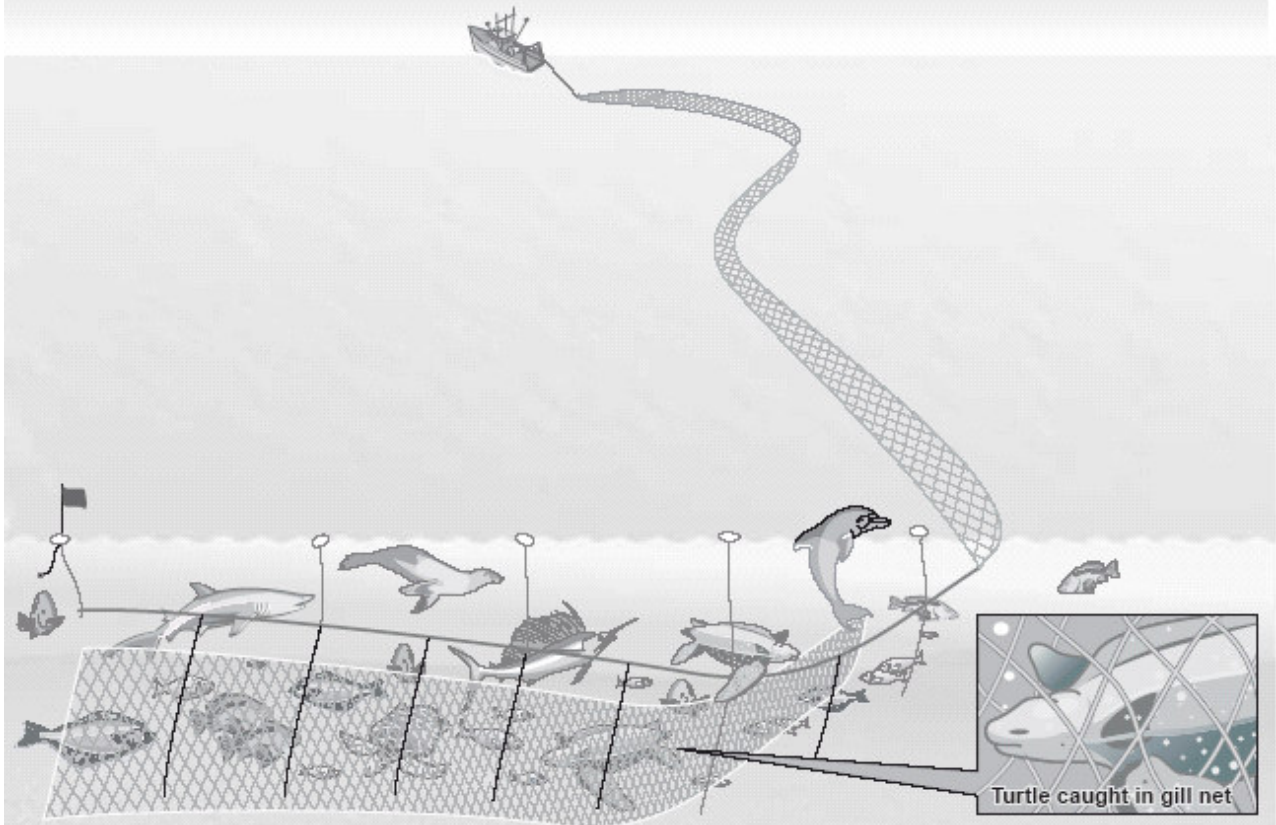


Gillnet Illustration



Gillnets

Gillnets, with nearly invisible monofilament mesh, entangle and kill a wide range of marine species, including the critically endangered Pacific leatherback sea turtle.



Leatherback



Swordfish



Albatross



Monk seal



Dolphin

Source: *San Francisco Chronicle*; Leatherback and dolphin photos courtesy of © Doug Perrine/Seapics.com; monk seal and albatross courtesy of Stan Minasian/EarthViews; swordfish courtesy of Jim Watt/EarthViews.



Longline Illustration



Longlines, which set up to 5 million baited hooks set each day on 100,000 miles of line throughout the world's oceans, kill a wide range of marine species, including the critically endangered Pacific leatherback sea turtle.

