

## English Language and Composition

**Reading Time:** 15 minutes

**Suggested Writing Time:** 40 minutes

**Directions:** The following prompt is based on the accompanying six sources.

This question requires you to integrate a variety of sources into a coherent, well-written essay. *Refer to the sources to support your position; avoid mere paraphrase or summary. Your argument should be central; the sources should support this argument.*

Remember to attribute both direct and indirect citations.

### Introduction

Monsters prevail in mythology, history, fiction, and news articles written about the sea. How believable are these sea monsters? How much can science tell us that compels us to believe or disbelieve? What images have you seen and what tales have you heard?

### Assignment

Read the following sources (including any introductory information) carefully. **Then, in an essay that synthesizes at least three of the sources for support, take a position that defends, challenges, or qualifies the claim that sea monsters are creatures of our imagination.**

Refer to the sources as Source A, Source B, etc.; titles are included for your convenience.

Source A (Ellis)

Source B (Hathaway)

Source C (Krystek)

Source D (Lovgren)

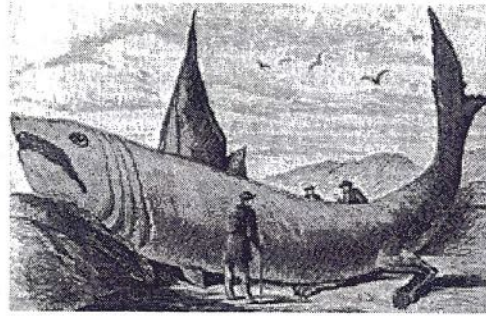
Source E (Kraken)

Source F (Kane)

Source G (CNN)

Source H (Skatsoon)

## Source A



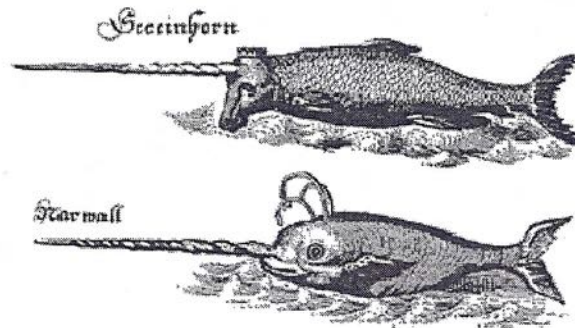
Year: 1868

Originally published in: *Harper's Weekly*

Now appears in: *Monsters of the Sea* by Richard Ellis

This "wonderful fish" described in *Harper's Weekly* was later identified as a basking shark, and the depiction is reasonably accurate if you ignore the legs. The shark had partially decomposed by the time it was described, and that may have led to the assumption that it was a sea monster with legs. The colossal size is no mistake. Basking sharks are among the largest fish alive today, and can measure up to 40 feet.

## Source B



Year: 1694

Scientist/artist: Pierre Pomet

Originally published in: *Histoire Générale des Drogues*

Now appears in: *The Unicorn* by Nancy Hathaway

Pomet pictured both a sea unicorn (top) and a narwhal (bottom). Unlike the first creature, the second was real, and its horn was often mistaken — or deliberately passed off — as a unicorn horn, believed capable of curing all kinds of diseases and poisonings. As Europe's upper-crust families showed such a fondness for poisoning their own, such antidotes were always in demand. Not long after Pomet's book was published, the narwhal was identified as a "false unicorn."

<http://www.strangescience.net/stsea2.htm>

## Source C

Sea Serpents  
Lee Krystek, 1996



An old print depicting a sea serpent attack.

On August 6th, 1848, the Royal Navy frigate *HMS Daedalus* was cruising near the Cape of Good Hope when the Officer of Watch spotted an object in the sea. He drew the attention of the Captain and several crew members on deck to it. It was a large sea snake, or sea serpent, that they estimated to be sixty feet long, 15 inches in diameter, and moved through the sea with its head some four feet out of the water.

Strangely enough it seemed to be able to move quickly through the water with neither vertical or horizontal undulation. The creature was dark brown, shading to yellow-white under the throat. On the back there seemed to be a seaweed-like mane. The *Daedalus* observed it for about twenty minutes.

In 1937 Alfred Peterson, a nurse aboard a British troopship in the China Sea, spotted what at first he thought was a big tree floating in the sea. A few minutes later he noticed it was still there, keeping pace with the ship. This peaked his interest and he took a closer look. What he saw was a 25 foot long, grey-black, body with a head shaped like a giraffe.

Tales about sea serpents have been told and retold by sailors down through the ages. Skeptics have pointed out that many of these incidents could be the result of misidentifications. A floating log, or in the case of the *Daedalus*, an abandoned native canoe painted like a snake. Some encounters are so close, though, that it is hard to believe someone could be mistaken:

Clyde Taylor and his daughter, Carol, were walking along the beach near the mouth of the Chester River in the Chesapeake Bay. Out in the bay they spotted a ripple moving across what was otherwise smooth, calm water. Following the ripple they spotted a creature in the water. It was black or amber in color, thirty feet long and as thick as a telephone pole. It traveled through the water with a up and down undulating motion.

"The eye looked like a serpent's eye, like a large snake eye," said Clyde. "I could see no marking on the body - it was just a long tube, like an anaconda or python. It didn't look like a fish, but like a giant serpent."

Carol Taylor got within 30 feet of the creature before it spotted her and disappeared into the water. "There was no way that it could have been someone faking something," she said, "there was no one in sight, there were no boats around, the water was only about knee-deep." The Taylors' encounter was only



one of many sightings of a sea serpent that supposedly lives in the Chesapeake Bay. Appropriately the creature has been nicknamed "Chessie."

Chessie, or the Chessies, since they have been seen in groups and differ in size, is a creature usually 30 to 40 feet in length, with a snake-like body, dark in color, having an elliptical, football-sized head. Enough reports have been filed about Chessie that Mike Frizzell, Director of Project Enigma, a study of the Chessie phenomena, was able to correlate its appearances with motion of Bluefin fish in the area, suggesting that the serpent uses the fish as a food source.

Large groups of people have spotted Chessie. In 1980 four charter boats carrying 25 people observed a version of the creature. Chessie has also been captured on video and film, though none of these has been clear enough to be accepted as proof of the monster.

What's most remarkable about the large number of Chessie sightings is that they have been so consistent in the creature's description. One theory that has been advanced to explain Chessie is that a vessel from South America had a giant anaconda, a snake capable of living in freshwater, on board. The snake escaped and adapted to the brackish water. It would take several snakes, or a pregnant female to explain the multiple sightings, though, and an anaconda would not fair well in the cold northern winters. Other explanations, like the oarfish, have been proposed, but the color and shape of the creature seems wrong for these.

In the 1800's animals very similar to Chessie were reported to be living off the coast of New England, and particularly the port of Gloucester. The description of the creatures are so similar that some have speculated that the New England creatures migrated south to the Chesapeake Bay at the beginning of the century.

Sea Serpents have also been reported off the North American West Coast too. There have been many reports from along the Pacific coast near Vancouver of several different shaped creatures including a snake-like sea serpent. Further south more reports center around the city of San Francisco.

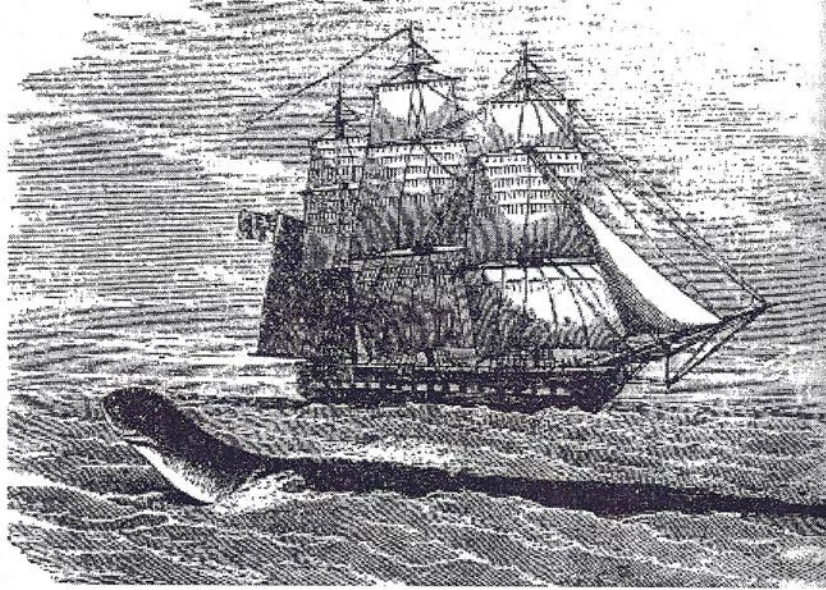
On November 1st, 1983, a construction crew was working on Route 1 just north of the Golden Gate Bridge near Stinson Beach. Suddenly they spotted a creature, underwater, approaching the land. They estimated the creature's length at 100 feet and its diameter at five. Using binoculars they watched it making coils, throwing its head about and whipping its body around. Two years later, in San Francisco bay, twins Robert and William Clark were sitting in a car near the sea wall. They watched two seals swimming extremely fast across the bay. Then they noticed a "large black snake-like" animal" chasing the seals. They saw that the creature moved by forming its body into coils and wiggling up and down. The animal apparently also had small, translucent fan-like fins that acted as stabilizers. Was this a real sea serpent? Or a more common creature, like a seal, misidentified? The descriptions do bear a resemblance to "Chessie."

One final sea serpent story. The *SS Tresco* was cruising 90 miles south of Cape Hatteras when Joseph Ostens Grey, the ship's Second Officer, spotted what he first thought was a derelict hulk in the water. On closer examination they realized it was no wrecked ship:

"With a conviction that grew deeper, and ever more disquieting, we came to know that this thing could be no derelict, no object that hand of man had fashioned..." reported Grey. He described a head that emerged out of water on a tall and powerful neck. It was "dragon-like" and accompanied a body some 100 feet in length and eight feet across at the widest. The head was five feet long and eighteen inches in diameter. There was concern that the ship, running light without cargo, might be tipped and overturned if the creature attempted to clamber aboard.

"Presently I noticed something dripping from the ugly lower jaw," continued Grey, "Watching, I saw that it was saliva, of a dirty drab color, which dripped from the corners of the mouth." Eventually the creature turned away and the danger was averted. As the years went by skeptics labeled the story, which appeared under Grey's name in *The Wide World Magazine*, "total fiction." That is until someone looked up the *Tresco's* log for Saturday 30 May 1903. It reads: 10AM Passed school of sharks followed by a huge sea monster.

The Daedalus and the Sea Serpent.



<http://unmuseum.mus.pa.us/seasnake.htm>



## Source D

### "Godzilla" Fossils Reveal Real-Life Sea Monster

Stefan Lovgren for National Geographic News, November 10, 2005

Researchers have unearthed fossil evidence of a 135-million-year-old "sea monster" they're calling Godzilla. A large skull of the animal was found in southern Argentina in an area that was once part of the Pacific Ocean. Named *Dakosaurus andiniensis*, the creature is an entirely new species of ancient crocodile. It had a head like a carnivorous dinosaur and a tail like a fish. With its massive jaws and serrated teeth, it preyed on other marine reptiles. Totally unique among marine crocodiles, "it is one of the most evolved members of the crocodylian family and also one of the most bizarre," said Diego Pol, a paleontologist at Ohio State University in Columbus, who served on the research team. The research, led by Zulma Gasparini, a paleontologist at Argentina's Universidad Nacional de La Plata, was funded by the National Geographic Society. The discovery is described tomorrow in the journal *Science* and will appear on the cover of the December 2005 issue of *National Geographic* magazine.

#### **Carnivorous Dinosaur**

The creature's almost intact, 135-million-year-old skull was found in 1996 in Argentina's Neuquén Basin, a region that was once a deep tropical bay of the Pacific Ocean. Prior to the find, researchers had only sketchy fossil evidence of the fearsome sea monster. They have now established that the giant animal belongs to the crocodyliforms, which include today's crocodiles and their extinct relatives. Marine crocs were abundant during the Jurassic period some 200 million to 145 million years ago. At that time they were found worldwide.

"This [animal] forms a very distinct lineage that appears early on in the evolutionary history of crocodiles—invading the sea and showing outstanding adaptation to the marine environment," Pol said. Unlike today's crocodiles, *Dakosaurus andiensis* lived entirely in the water. It measured 13 feet (4 meters) from nose to tail. Instead of legs, *Dakosaurus* had four paddle-like limbs, used mostly for stability. A fish-like tail propelled the beast through the water. What made it especially unusual was its snout and teeth.

Until now, every known marine crocodylian had a head of one basic type, with a long snout and many sharp, identical teeth. But "Godzilla" had a short, high snout and teeth that were large and serrated, like a terrestrial reptile's. "It is more like a carnivorous dinosaur than like a marine crocodylian," said James Clark, a dinosaur expert at George Washington University in Washington, D.C.

#### **Jagged Teeth**

Pol says *Dakosaurus*'s anatomical changes over the generations represent "the most drastic evolutionary change in the history of marine crocodiles." The animal's unusual features suggest that it had completely different feeding habits from its relatives. While other marine crocs fed on small fish, *Dakosaurus* hunted for marine reptiles and other large sea creatures, using its jagged teeth to bite and cut its prey.

"The most perplexing thing about the animal is that its head shape does not appear to be well suited to a fast swimming crocodylian, because rather than being streamlined, it is somewhat high and flattened from side to side," said Clark, who was not involved with the research. "Presumably it moved its head mainly up and down rather than sweeping it from side to side, like fish-eating crocodylians." Other paleontologists expressed admiration over the find.

"This new species is another expression of the incredible diversity of crocodile life during the dinosaur era," said Paul Sereno, a University of Chicago paleontologist and National Geographic Society Explorer-in-Residence. "If you went to a crocodile worker and said, Let's say you had a chance to evolve something new out of this group, what would you do? And you gave them a pad and a pencil, the last thing they would draw would be a skull that looks like *Dakosaurus*."

"It's a beautiful example of the unpredictable nature of evolution, and the variety of things that dinosaur-age crocodiles did. The cranial anatomy of this species expands the known range of anatomical diversity to a realm no one thought could exist," said Hans Larsson, a paleontologist at McGill University in Montreal, Canada. "It's hard to imagine now a skull shape and ecological role that crocodyliforms did not



achieve." Sereno and Larsson were among a group of paleontologists working in Niger from 1997 to 2000 that found remnants of a 40-foot-long (12-meter-long) crocodilian they dubbed Supercroc.

### Sea Monsters

Surprisingly, the nostrils, eye sockets, and other areas of *Dakosaurus's* skull suggest the animal was more closely related to the smallest of its crocodile relatives than to any of the larger species. The researchers don't yet know what events triggered the relatively sudden emergence of *Dakosaurus*, nor do they know what caused it to go extinct. But scientists do know that it was just one of the "sea monsters" that inhabited the world's oceans 250 million to 65 million years ago. Others included a Loch Ness monster-like plesiosaur, with a 20-foot-long (6-meter-long) neck, and ichthyosaurs that may have grown to be 75 feet (23 meters) long. "These groups all went extinct about the same time as the dinosaurs ... and the whales appeared shortly afterward and seemed to have replaced them ecologically," Clark said.

[http://news.nationalgeographic.com/news/2005/11/1110\\_051110\\_sea\\_monster.html](http://news.nationalgeographic.com/news/2005/11/1110_051110_sea_monster.html)



Fossils from a real-life sea monster—a massive crocodile-like species—have been unearthed in Patagonia, Argentina. The animal likely measured 13 feet (4 meters) long from nose to tail. The researchers who made the discovery say the marine reptile, nicknamed Godzilla, lived about 135 million years ago. They describe their find in the November 11, 2005, issue of the journal *Science*

<http://news.nationalgeographic.com/news/2005/11/photogalleries/godzilla/>



## Source E

### Kraken

Aka : Krabben, Sciu-Crak, Hafgufe

Probably no legendary sea monster was as horrifying as the Kraken, a giant sea monster. According to stories this huge, many armed, creature looked like an island when motionless and could reach as high as the top of a sailing ship's main mast with its arms deployed. When the Kraken attacked a ship, it wrapped its arms around the hull and capsize it. The crew would drown or be eaten by the monster. Kraken were mostly noticed in the seas of Scandinavia. Fishermen said that huge amounts of fish gravitate around Kraken and the boat that succeeds to fish around the monster without awaking it will take more than possible to carry aboard.

The Kraken of legend is probably what we know today as the giant squid or cephalopod. Though they are considerably less than a mile and a half across, they are large enough to wrestle with a sperm whale.

Early stories about Kraken, from Norway in the twelfth century, refer to a creature the size of an island. Even in 1752, when the Bishop of Bergen, Erik Ludvigsen Pontoppidan, wrote his Natural History of Norway he described the Kraken as a "floating island" one and a half miles across. He also noted: "It seems these are the creature's arms, and, it is said, if they were to lay hold of the largest man-of-war, they would pull it down to the bottom." Later Kraken stories bring the creature down to a smaller, but still monstrous size and assimilated it as a giant octopus. On at least three occasions in the thirties they attacked a ship. While the squids got the worst of these encounters when they slid into the ship's propellers, the fact that they attacked at all shows that it is possible for these creatures to mistake a vessel for a whale.

<http://www.monstrous.com/monsters/kraken.htm>



There have been myriad accounts of sea goers and their encounters with creatures unknown to the world. There are reported attacks, harmless sightings, or mysterious carcasses washing ashore. The descriptions range from giant versions of known species, such as squid or jellyfish, to horned serpents, sea monsters with hair, and anything else imaginable. Many of the "serpents" are said to swim in an undulating manner, unlike the side-to-side motion of fish. There have also been detailed encounters beasts resembling the thought-to-be-extinct dinosaurs, such as the plesiosaur.



## Source F

Why did sea monsters have long necks?  
Daniel B. Kane, Science Sept 23, 2004

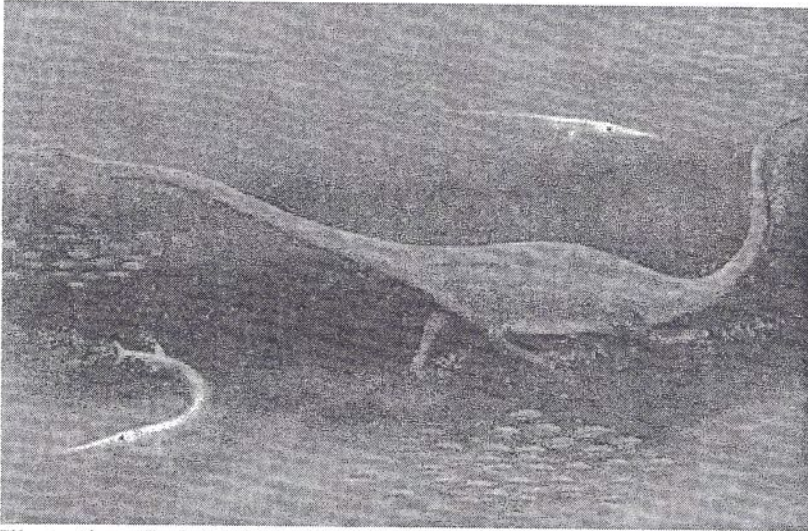


Illustration: Carin L. Cain / AAAS / Science

An artist's rendition shows *Dinocephalosaurus orientalis*, a long-necked sea reptile that probably preyed on fish and squid in a shallow sea in present-day southeast China more than 230 million years ago. The tail and soft tissues shown here, including the muscles, are a matter of conjecture.

WASHINGTON - Scientists working in China have discovered an ancient swimming predator with a neck nearly twice as long as its body. Neck ribs line the reptile's 5.5-foot-long (1.7-meter-long) neck and may have helped the creature hunt. The scientists describe the new predator in Friday's issue of the journal *Science*, published by AAAS, the nonprofit science society.

Some aspects of the animal's life are relatively easy to reconstruct: It probably ate fish and squid, and lived in a shallow sea more than 230 million years ago. The biggest remaining question about this animal is what purpose such a long neck served. With bones but no muscles to guide them, the scientists say that it's hard to be absolutely certain about how the creature used its neck. They have some ideas, however, that relate to hunting.

### **Terrible-headed lizard**

The new creature, *Dinocephalosaurus orientalis* or "terrible-headed lizard from the Orient," is the first fully marine member of a diverse reptile group called the protorosaurs. These reptiles are grouped together based on their long necks and elongated neck vertebrae. Their riblike bones extended parallel to the neck vertebrae and restricted neck movement, like straws that are slid down the neck of a turtleneck sweater.



Science author Chun Li from the Chinese Academy of Sciences in Beijing discovered the reptile in the autumn of 2002, in the Guanling Formation in China's Guizhou Province. The scientists compared this new creature to the famous long-necked reptiles and fellow protorosaurs from Europe and the Middle East called *Tanystropheus*. This comparison offers new insights into the ways protorosaurs hunted, as well as how they evolved and diversified during the Triassic Period.

While analyzing the new skeleton, Michael LaBarbera, a Science author from the University of Chicago, said he felt Mother Nature directing him to an interesting mystery: The existing explanations for why reptiles have long necks didn't seem to fit this new predator.

One of the ways the researchers tried to understand the purpose of the new creature's neck was to look at the long necks of its relatives, like *Tanystropheus*. The vertebrae in the necks of *Tanystropheus* fossils were longer than those in the newly discovered predator. With fewer vertebrae per meter, *Tanystropheus* necks were probably less flexible than the new reptile's, in the way that a giraffe's neck is less flexible than the neck of a heron. The scientists concluded that the necks from these two branches of the protorosaur family tree evolved separately and may have served different functions.

#### **Underwater hunting**

To try to make sense of the reptile's "ridiculous body proportions," Science author Olivier Rieppel from Chicago's Field Museum and his colleagues considered suction feeding, an underwater hunting strategy commonly used by many of today's fish and turtles. Fish and turtles drop the floors of their specially designed mouths, increasing volume and decreasing pressure inside their throats. This pressure drop creates a suction force that causes nearby water (and the potential meal swimming in that water) to flow into the predator's mouth and throat.

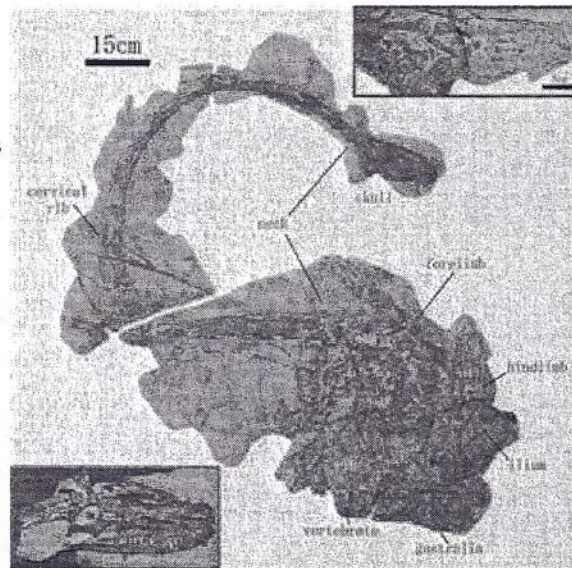
If the new reptile's neck ribs moved the way the scientists propose, the pliable neck ribs might have pushed on the tissue of the throat and expanded the throat enough to create suction. The scientists suggest that this suction might have allowed the reptile to swallow invisible pressure waves it created as it lunged forward in the water to try to catch a meal. This move would prevent the waves from alerting the fish or squid to the reptile's approach. Without information on how the creature's muscles attached to the bones, other underwater hunting strategies are also possible.

In a complementary scenario, the sheer length of the neck could have helped the reptile in murky waters near the shore. The long neck placed the reptile's brain, mouth and sensory organs well in front of its body. This neck design could have made it hard for a fish to see the larger body at the other end of the neck. With this threatening profile hidden, the reptile might have been able to move into striking distance before the fish got scared and swam away.

#### **Follow-up in a fish tank**

With multiple explanations for the reptile's long neck and no solid conclusions, the researchers are anxious to find a fossil that tells the story of the reptile's muscles. In the meantime, LaBarbera said he might do some experiments in his giant fish tank to try to answer the question, "Is a predator with a long neck better equipped to sneak up on fish than a predator with a short neck?"

He is thinking about submerging predator models with different head shapes and neck lengths in his 90-foot-long, 6-foot-deep, 3-foot-wide (27-by-1.8-by-0.9-meter) glass-walled tank after filling it with



Science

The Middle Triassic marine protorosaur *D. orientalis* is known from a skull (bottom inset) and a nearly complete skeleton. The structure of its hindlimb (top inset) documents fully aquatic habits.



goldfish. He could tow the different models at a fixed speed and monitor the reaction of the fish. He would like to know if head shape or neck length changes the prey-alerting pressure waves the models generate, as he and his colleagues predict.

**Neck numbers**

While scientists can not yet say for sure exactly how the reptile used its neck, they are sure its long neck was made of 25 elongated neck or "cervical" vertebrae. Humans have only seven cervical vertebrae and no neck ribs. Our first neck vertebra, atlas, begins at the base of the skull. Reach back and feel the bump at the base of the back of your neck; that's your seventh and final cervical vertebra, "C7." If a 6-foot-tall (1.8-meter-tall) person had the same neck-to-body proportions as Dinocephalosaurus, her neck would be approximately 10 feet (3 meters) long.

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<http://www.msnbc.msn.com/id/6073578/>

## Source G

Tuning in to a deep sea monster, June 13, 2002

LONDON, England -- Scientists have revealed a mysterious recording that they say could be the sound of a giant beast lurking in the depths of the ocean. Researchers have nicknamed the strange unidentified sound picked up by undersea microphones "Bloop." While it bears the varying frequency hallmark of marine animals, it is far more powerful than the calls made by any creature known on Earth, Britain's New Scientist reported on Thursday. It is too big for a whale and one theory is that it is a deep sea monster, possibly a many-tentacled giant squid.

In 1997, Bloop was detected by U.S. Navy "spy" sensors 3,000 miles apart that had been put there to detect the movement of Soviet submarines, the magazine reports. The frequency of the sound meant it had to be much louder than any recognised animal noise, including that produced by the largest whales. So is it a huge octopus? Although dead giant squid have been washed up on beaches, and tell-tale sucker marks have been seen on whales, there has never been a confirmed sighting of one of the elusive cephalopods in the wild. The largest dead squid on record measured about 60ft including the length of its tentacles, but no one knows how big the creatures might grow.

For years sailors have told tales of monsters of the deep including the huge, many-tentacled kraken that could reach as high as a ship's mainmast and sink the biggest ships. However Phil Lobel, a marine biologist at Boston University, Massachusetts, doubts that giant squid are the source of Bloop. "Cephalopods have no gas-filled sac, so they have no way to make that type of noise," he said. "Though you can never rule anything out completely, I doubt it." Nevertheless he agrees that the sound is most likely to be biological in origin.

The system picking up Bloop and other strange noises from the deep is a military relic of the Cold War. In the 1960s the U.S. Navy set up an array of underwater microphones, or hydrophones, around the globe to track Soviet submarines. The network was known as SOSUS, short for Sound Surveillance System. The listening stations lie hundreds of yards below the ocean surface, at a depth where sound waves become trapped in a layer of water known as the "deep sound channel." Here temperature and pressure cause sound waves to keep travelling without being scattered by the ocean surface or bottom. Most of the sounds detected obviously emanate from whales, ships or earthquakes, but some very low frequency noises have proved baffling.

Scientist Christopher Fox of the U.S. National Oceanic and Atmospheric Administration's Acoustic Monitoring Project at Portland, Oregon, has given the signals names such as Train, Whistle, Slowdown, Upsweep and even Gregorian Chant. He told New Scientist that most can be explained by ocean currents, volcanic activity -- Upsweep was tracked to an undersea South Pacific mountain that had not been identified as "live." "The sound waves are almost like voice prints. You're able to look at the characteristics of the sound and say: 'There's a blue whale, there's a fin whale, there's a boat, there's a humpback whale and here comes an earthquake,'" he says. But some sounds remain a mystery he says. Like Bloop -- monster of the deep?

<http://archives.cnn.com/2002/TECH/science/06/13/bloop/>



## Source H

Judy Skatsoon ABC Science Online  
**Sea monsters found in desert**

Wednesday, 25 May 2005

Australia is emerging as a missing link in the evolution of giant prehistoric marine reptiles, says a scientist who has discovered what may be a new species of plesiosaur. A team from the University of Adelaide and the South Australian Museum unearthed the remains of the creature in Queensland, at what was once a vast inland ocean. Palaeontologist Dr Ben Kear says he thinks the reptile discovered at the Boulia site may be related to a group of long-necked plesiosaurs known as elasmosaurs. Kear says teeth found on its jawbone provide the best clue that scientists are dealing with something new. The jaw has a mouthful of "very large fangs" bunched together at the front and "no other plesiosaur ever discovered has teeth like that", Kear says.

This potentially new species of plesiosaur is one of two plesiosaurs found recently at Boulia. The other set of remains belong to a kronosaur, which Kear says was a fearsome predator resembling "a gigantic salt water crocodile with flippers instead of legs." The two plesiosaurs were found with remains of prehistoric sea turtles, sharks and ichthyosaurs, reptiles shaped like dolphins.

The finds date back to the early Cretaceous period about 110 million years ago when the world's sea levels were at their highest and the Eromanga Sea covered much of central Australia. "The beauty of the Australian deposits is that if you look globally at the early records of marine mammals you've got a lot of early stuff from Europe and a lot of very late stuff from the US.

"There's a critical gap around the early Cretaceous period and we're the missing link. "Australia is turning out to be a critical evolutionary melting pot for all of these kind of animals." Australia now has several plesiosaurs waiting to be described in addition to the ones at Boulia, including:

- Eric, a new species of leptocleidus found by an opal miner in the South Australian town of Coober Pedy in 1987
- what appears to be a polar plesiosaur discovered in South Australia in 1983, believed to be a species of cimoliasaurus, and
- polycotylid remains related to the so-called Richmond plesiosaur, which had a long snout and a crocodile's head.

### **Spread of the sea monsters**

As continental masses began to break up during the Jurassic period of 200 million to 140 million years ago, plesiosaurs spread across the world via shallow coastal seas. By the Cretaceous period the northern and southern continental masses were beginning to spread, marking the emergence of polar plesiosaurs in the south. Australia's polycotylids may represent the beginning of this southern polar radiation, while Eric probably represents the last of a long line of Jurassic plesiosaurs commonly found in Europe, Kear says. He says these marine giants are fascinating to study because plesiosaurs are unrelated to anything alive today. "You're trying to reconstruct an animal that has no living relatives or even a living analogue," he says. "It's beautiful mystery that we have to try and solve."



One of the marine reptile fossils found at the Boulia site. This nose once belonged to an ichthyosaur, which looked like a dolphin (*Image: Ben Kear*)