A large, translucent blue jellyfish with a textured, mottled pattern on its bell and long, trailing tentacles, swimming against a dark blue background.

BASIS

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INQUIRER

BEWARE THE DEEP

THE BASIS SCOTTSDALE SCIENCE MAGAZINE

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THE PLASTIC PROBLEM

By Anamika Basu

ANIMAL AFFECTED

BEACHED KILLER WHALE'S STOMACH CUT OPEN

Recently, over this holidays break, a beached killer whale was found on the South African coast. When conservation experts performed dissections on the animal, they found a stomach full of garbage. Some of the items found were yogurt containers, old shoe soles, and ripped food wrappers.

This discovery illustrates the amount of garbage thrown into our coasts. Researchers at the National Sea Rescue institute predict that the orca was isolated from its pod and left to hunt on its own. In the South African shallow bay area, the whale apparently ingested the only food item available, plastic.



Photo Credit: Facebook/Orca Foundation

ANIMAL AFFECTED



Photo Credit: Chris Jordan

PLASTIC INGESTION BY BIRDS

Many birds are harmed by plastic drifting in the ocean, especially the Laysan Albatross (the bird depicted in this photograph). This unique species has been critically affected due to their method of hunting which is by skimming the surface of the water with their beak. Although adult albatross birds can regurgitate the garbage, chicks that have been fed the plastic are unable to, leading to the death of many young birds of this species.



Photo Credit: CYBERBORGJohnson

STATS

FRIGHTENING FACTS ABOUT PLASTIC

1. We currently recover only 5-10% of the plastics we produce.
2. A single plastic microbead can be 1 million times more toxic than the water around it.
3. The Great Pacific Garbage Patch is located in the North Pacific Gyre off the coast of California and is the largest ocean garbage site in the world. This floating mass of plastic is twice the size of Texas.
4. One million sea birds and 100,000 marine mammals are killed annually from plastic in our oceans.



HOW YOU CAN
HELP

USE LESS-TOXIC
HOUSEHOLD
CLEANING
PRODUCTS, AS
THESE CAN KILL
MARINE LIFE

SPREAD THE
WORD! TELL YOUR
FAMILY AND
FRIENDS ABOUT
THE DANGERS TO
THE GREAT
BARRIER REEF

WHEN GROCERY
SHOPPING, LOOK
FOR LOCALLY-
GROWN PRODUCE!
BUYING THESE WILL
HELP REDUCE
EMISSIONS AND
POLLUTION

THE ~~CREAT~~ BARRIER REEF

BY JERRY MIAO

The Great Barrier Reef, located off the coast of Queensland, Australia, is one of the Seven Wonders of the World. The only living system able to be seen from space, it is home to over 400 species of coral and thousands of species of fish, turtles, and whales, many of which are endemic to the region.

However, this spectacular wonder may not be around for long. Last year, members of the UNESCO world heritage committee labelled the reef as “in danger.” Since 1975, the Great Barrier Reef has lost half of its coral and continually endangered by climate change, pollution, and over-fishing. The Great Barrier Reef Marine Park Authority claims the greatest threat to this habitat to be climate change since the ocean warming has increased coral bleaching. Furthermore, pollution has been another contributor to the destruction of the Great Barrier Reef. According to the Environmental Protection Agency of Queensland, 90% of the pollution is caused by farm runoff as most of the land surrounding the reef is used for intensive farming. Finally, over-fishing has also destroyed the natural wonder. The unsustainable fishing of keystone species (species that have a disproportionately large effect on its environment relative to its abundance), such as the Giant Triton, has disrupted food chains vital to reef life.



Crispy Tilapia in Curry Sauce

by Anetta (The Wanderlust Kitchen)

Photo By: Tasty Kitchen

Ingredients

4 whole (4 Oz Size) Tilapia Fillets
2/3 cups All-purpose Flour
1/2 teaspoons Ground Black Pepper
2 Tablespoons Wok Oil (or Use Vegetable/grapeseed)
1 can (14 Oz. Can) Unsweetened Coconut Milk
2 Tablespoons Panang Curry Paste (or Use Red Or Massaman)
1/4 cups Water
1 Tablespoon Palm Or Brown Sugar
2 Tablespoons Fish Sauce
2 whole Wild Lime Leaves (optional)
2 Tablespoons Chopped Cilantro
1 whole Lime, Cut In Wedges
Cooked Jasmine Rice, Cilantro And Lime Wedges For Serving

Eat More Fish!

BY ALONZO ARAMBULO

After reading the previous articles, you may be freaking out about the fate of our oceans, but the thing is, fish tastes great, and it does wonders for the body and the mind! It is by far the healthiest animal protein with the lowest harmful fat and calorie content of them all (a single fillet of tilapia has twenty three grams of protein and only about a hundred calories). While other meats are higher in omega-6 fatty acids, the fantastic fish sports high quantities of omega-3s which helps maintain cardiovascular health and reduce tissue inflammation. So, you should definitely consider making seafood a large part of your diet. As promised, a recipe to help you get started on that:

Preparation

1. Pat each of the fish fillets dry with a paper towel, then cut each into quarters. Stir together the flour and pepper in a pie plate or shallow dish. Place the fish pieces into the pie plate a few at a time and coat them with the flour mixture. Shake off any excess flour and set aside.
2. Heat the wok or vegetable oil in a large skillet over medium-high heat. Once hot, lay half of the fish pieces into the pan in a single layer. Cook for 1-2 minutes per side, until crisp and brown. The fish doesn't need to be cooked all the way through at this point because it is going to simmer later on. Once crisp, remove from pan and set aside. Repeat this process with the remaining half of the fish pieces.
3. Reduce the heat to medium and wipe out any excess oil in the pan, then add half a can of coconut milk. Cook, stirring occasionally, until the coconut milk is hot and foamy. Add in the curry paste and stir for about 2 minutes to work it into the coconut milk, using the back of a wooden spoon to break up any large pieces.
4. Add the rest of the coconut milk, as well as the water, sugar, fish sauce, and lime leaves (if using). Stir for one minute, then return the fish pieces to the pan. Spoon the curry sauce over the top of the fish. Reduce the heat to low and let it simmer for 10-12 minutes, or until fish has cooked through. Discard lime leaves.
5. Put some rice into each bowl. Top it with fish and some pan sauce. Garnish with cilantro and lime wedges for squeezing.

THE ULTIMATE LIST OF MONSTERS OF THE DEEP

By: Devon Harris

We've all heard the stories, giant serpents hovering just below the surface of the water, ready to snatch up unsuspecting victims, gargantuan beasts that fight for supremacy of the deep. In this article, we will describe the most terrifying sea monsters that are hidden beneath the sea.



The Anglerfish
Lophius piscatorius

Photo Credits: Knowledge Base Lookseek

This fish has a dorsal fin that protrudes from the back shaped like a fishing pole with a light hanging from the tip to attract predators

Gulper Eel
Eurypharynx pelecanoides



Photo Credits: Bob Robinsom

This fish has a mouth that is loosely hinged, and can be opened wide enough to swallow an animal much larger than itself.



Giant Squid
Architeuthis dux

Photo Credits: Tsunemi Kubodera

The frilled shark is not commonly observed, but it is thought to capture prey by bending its body and lunging forward like a snake with its long, extremely flexible jaws and many rows of small, needle-like teeth.



Photo Credits: Awashima Marine Park/Getty Images

So far, the largest giant squid ever recorded by scientists was almost 43 feet long and weighed about a ton.

Blue-ringed Octopus
Hapalochlaena lunulata



Photo Credits: Yusran Abdul Rahman/Shutterstock

Blue-ringed octopi are among the deadliest animals in the sea. They contain a poison in their saliva similar to tetrodotoxin (TTX), the extremely deadly toxin found in puffer-fishes.



Photo Credit: Christoph Gerigk

An underwater photograph showing the remains of a wall or street. The structure is made of large, rectangular stones and appears to be partially submerged in clear blue water. The texture of the stone and the surrounding sand are clearly visible.

LOST
ANCIENT CITIES
OF THE DEEP

By Kishore Rajesh



Photo Credit: OrangeSmile

Thonis-Heracleion

Archeologist: Franck Goddio

Time Period: 6th century CE

Location: The Mediterranean

Details: Found in 2001, Thonis-Heracleion was an important ancient Greek port city, which was supposed to have a lot of gold. However, as Alexandria became Egypt's main port city, Thonis-Heracleion lost power, and eventually sunk from its demise. Its discoverer, Franck Goddio, solved the ancient puzzle about the Greek Heracleion and the Egyptian Thonis and proved that they were one and the same city. The picture on the left shows Franck Goddio with the intact engraved Thonis-Heracleion stele.

Bronze-Age City

Archaeologists from University of Geneva and the Swiss School of Archaeology

Time Period: 2400 BCE

Location: South of Greece

Details: Found in 2014, the massive bronze city has huge fortifications and dates back to about the same time as the pyramids of Egypt. Its importance is partly due to its large size. Also, there are large horseshoe shaped foundations that are unknown in Greece. The archaeologists also found a range of artifacts from stone roads to obsidian blades. The picture to the left presents the remains of a street or wall at the Lambayanna site.

Mahabalipuram

Archeologist: Alok Tripathi

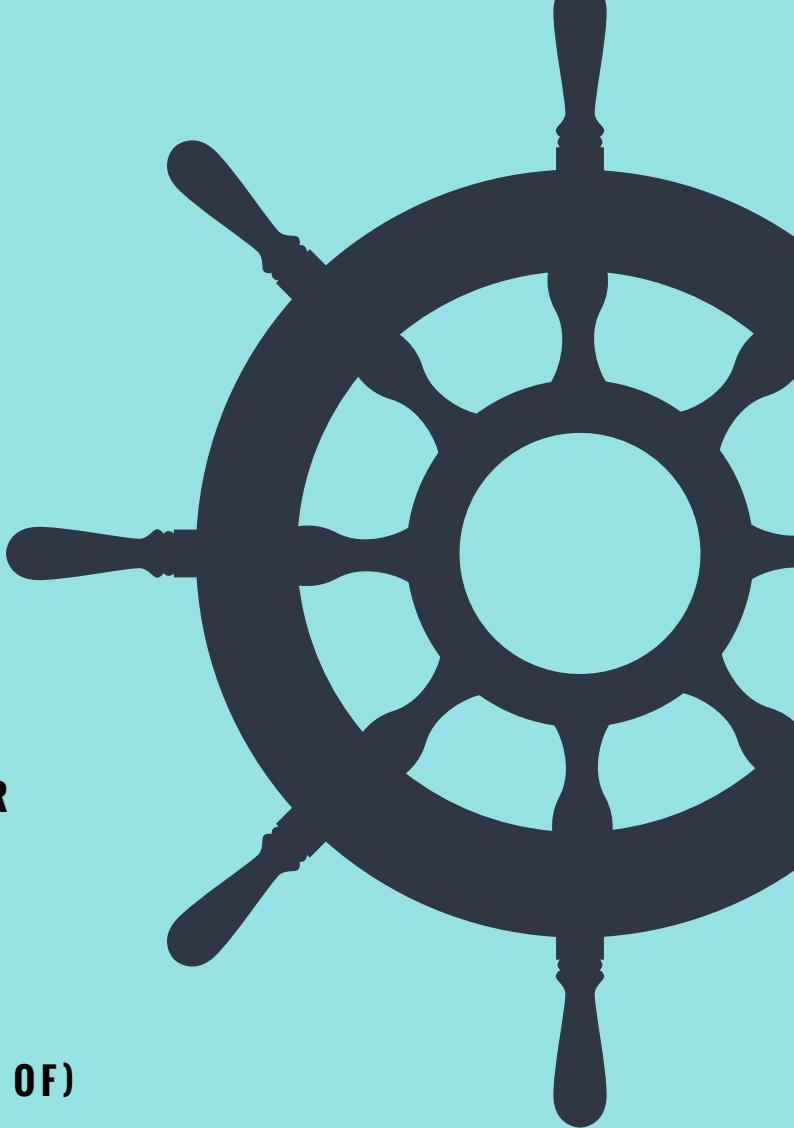
Time Period: 1500 BCE

Location: The south side of India

Details: Mahabalipuram was an ancient Indian port city from 1500 BCE to its fall in the 10th century CE. The Pallava kings ruled it from the 3rd century to the 9th century. A tsunami on December 26, 2004, revealed some of this ancient ruin, including a lion statue and half an elephant. The picture to the left shows one of the seven pagodas discovered.

6 THINGS YOU DIDN'T KNOW ABOUT OUR OCEANS

by Rizwan Mannan



1 RIVERS UNDERNEATH THE WATER

These rivers are actually visible in the water, and they look like actual muddy rivers on the ocean floor. The science of this phenomenon is that this water has a higher salinity than the rest of the ocean.

2 UNDERWATER WATERFALL (SORT OF)

Unfortunately an actual underwater waterfall doesn't exist, not scientifically at least. But, near the island nation Maritius, there is a large runoff of sand and silt deposits. These deposits runoff into a deep abyss below.

3 BLACK HOLE IN OCEAN

Do we mean black holes like the scary black spheres of gravity and death in space? No. But it looks like that from the atmosphere. These are giant sinkholes that appeared during the ice age that just never left. You get the idea.

4 UNDERWATER SPIDERS

It seems hell isn't fire and the devil after all; its water and spiders. The Diving Bell spider can spend almost its entire life underwater. From a scientific viewpoint, these marvels of evolution and adaptation are amazing.

5 THERE HAVE BEEN MORE PEOPLE SENT TO SPACE THAN IN THE MARIANAS TRENCHES

In total, with 38 countries, 536 people have been sent to space. How many people have been sent to the bottom of the ocean? Three. One of which is the millionaire film director James Cameron, who spent a whopping ten million on a submarine specifically designed to combat the intense pressure. So unless you have a submarine made of six inches of solid titanium, you're in deep water.

6 GREEK'S ANCIENT COMPUTER

Greek had computers, but not in the traditional sense. A very complex mechanism was found lodged in the seabed. It is believed that the mechanism predicts the movement of the lunar and solar eclipses, but it's unclear for the time being.

WHAT LIES BENEATH THE OCEAN BLUE

By Vignesh Sivakumar

Our world is comprised of mostly water. Over 70% of it in fact. As the blood of life on earth, oceans have given life to Earth. Its large vicinity is the reason behind the wonderful aspects of life given to us. Even though we have mapped discovered all parts of the ocean, we haven't explored it all. Only 5% has been explored, but what about the rest? What could be hidden, lying beneath the surface right under our own knowledge? The mysteries kept secret by the depth of the water, who knows what lies down below? New Life, strange new creatures, different habitats, and possibly even extraterrestrial life may all be lurking beneath our oceans.

Organizations such as the National Oceanic and Atmospheric Administration (NOAA) are currently focused and working towards undersea exploration beyond capable pressures. Currently, scientists have determined that the ocean is approximately 2.3 miles deep and the pressure at the bottom of the ocean is 15,750 psi! Lets just say, if one were to be at the bottom of the ocean without any protection, then they would turn into a crumpled ball and explode. Seems gruesome but that's just how it works. However, within the turn of the next ten to fifteen years, mankind will be able to venture to the depths of the ocean and find out what lurks under the sea.

The Team

Journalists: Alonzo Arambulo, Anamika Basu, Archit Chopra, Devon Harris, Rizwan Mannan, Jerry Miao, Kishore Rajesh, Vignesh Sivakumar

Editors: Anamika Basu, Jerry Miao, Vignesh Sivakumar

Page Layout: Anamika Basu, Devon Harris

Coordinator: Jerry Miao

Activity Manager: Ms. Cooney

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