



The Mouseion

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FISHYTALES

- Goldfish can live for decades. The oldest known goldfish, "Goldie," died in 2005 at the ripe old age of 45. The second oldest was "Tish" who died at age 43.
- Few people would think about kissing a fish, despite the fact that most brands of lipstick contain fish scales.
- A scallop has thirty-five eyes, all of which are blue.
- Whale sharks get their name from their size and not their diet. Although the whale shark does have teeth, they do not use them for feeding. Instead, they filter out plankton and other small animals in the water for food.

Source:
<http://ivegonefishing.co.uk/interestingthings-fishing-wales/fish-trivia.htm>



On February 9-10, 2012, Jo Annie Corvera and Leonardo Moco of the Museum of Natural Sciences (UPV-MNS) and David Arbizo of the Institute of Marine Fisheries and Oceanology staff (IMFO) attended Marine Wildlife Response Training sponsored by Conservation and Appreciation of Philippine Ecosystems (CAPE) Foundation

MARINE DEBRIS EXHIBIT

Do you know that plastics can stay in the ocean for 20 years? Or that a styrofoam can stay in the ocean for 50 years? These trash become marine debris. The National Oceanic and Atmospheric Administration (NOAA) defines MARINE DEBRIS as "any manmade object discarded, disposed of or abandoned that enters the coastal or marine environment." Each year, tons of plastics and other litter are tossed into rivers, left on beaches, or dumped to the ocean overboard from recreational and commercial vessels.

Plastic bags look like floating jelly fish under the ocean, which marine turtles

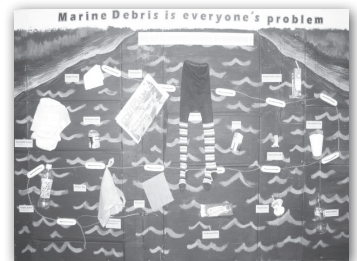
mistakenly eat causing their eventual death since plastic cannot be digested. There are also sightings of carapace deformity on turtles, which are caused by plastic holders of beer cans or nets when they accidentally get entangled with such materials.

The common litter includes glass, cigarette butts, aluminium and tin cans. These items remain in the marine environment for a very long time; these items do not disappear nor get dissolved in the water, but instead float around and pose threat to the people and danger to wildlife like birds, marine mammals, and turtles.

Let us help the marine

By: J.A.D. Corvera

environment by eliminating marine debris. Properly disposed of your trash and do not throw them to the ocean, participate in coastal cleanup drives and spread awareness on the impacts of marine debris. For more information, visit the museum's exhibit on marine debris.



Common marine debris found along coastal areas.

MNS JOINS MARINE WILDLIFE RESPONSE TRAINING

By: J.A.D. Corvera

held at San Jose, Antique.

The training focuses on the proper response to stranding of marine mammals, turtles and whale shark. Most of the marine animals found along coastlines die because of incorrect handling. The guideline includes the notification of barangay officials, notification of the local government unit, and finally the notification of the government agencies like the Bureau of Fisheries and Aquatic Resources for whale shark and marine mammals like dolphins and whales and the Department of Environment and Natural Resources for turtles and dugong.

The trainers emphasized that these marine animals are hard to replace since it takes a

very long time for the animals to reach sexual maturity and be able to reproduce. Turtles, for example, needs to be at least 20 years old to be able to lay eggs.

One reason why marine mammals like whales and dolphins get stranded is because they are sick and cannot swim back to the ocean. The trainers cautioned the responders that they should be careful in touching whales and dolphins for they can carry virus that can also affect humans. It is important to lessen the stress on whales and dolphins by controlling the crowd and making sure that the body of whales or dolphins are properly hydrated and protected from the sun by putting wet towels on its body. A common mistake

that always happens in rescue sites is that the respondents put water on the whale or dolphin's blowhole, which should not be done because they will drown since they are mammals.

The correct measurement and basic identification of these animals were also taught. Identification guides were distributed to the participants. (For those who are interested of these identification guides, electronic copy is available at the museum.)

Marine mammals and turtles in the Philippines are protected by law. It is illegal to catch dolphins, whales or dugongs in Philippine waters or to sell, purchase, possess, transport or export them, dead or alive.

ON FOCUS...

The Tale of the Nautilus

By: Farisal U. Bagsit

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The *Nautilus pompilius* or the chambered nautilus is the best known species, widely distributed and the last surviving genus of the nautiloids. It belongs to Class Cephalopoda under Phylum Mollusca. The nautiloids were the largest predators in the seas of the Ordovician period, 450 million years ago. The chambered nautilus is found in the tropical waters of the Indo-Pacific Ocean, at depths of 600-800 feet but rise to 200 feet at night to feed on crustaceans and fish. It hatches from eggs after twelve months with its shell already consisting of four chambers. Its most familiar characteristic is its smooth, coiled shell, which is up to 11 inches in diameter. Interestingly, it is the only cephalopod that has well-developed shell. The shell is lined with mother-of-pearl and is separated into a series of progressively larger compartments; the most recent of which is inhabited by the animal. The form of the shell itself has fascinated naturalists, mathematicians and physicists because the chamber shell is perfectly proportioned mathematically. The walls (septa)

dividing the chambers are pierced by a tube (siphuncle) connected to the nautilus. Gas and liquid exchange occurs through the siphuncle walls, by means of which the nautilus can regulate buoyancy.

Chambered nautilus have pair of rhinophores which detect chemicals, and olfaction and chemotoxin in order to find their food. It has most primitive eyes than some other cephalopods such that it has no lens. It has about 90 tentacles with no suckers, which is also different from other cephalopods. These mollusks mature slowly and live up to at least 16 years.

An article posted in the New York Times website says that the Nautilus is a living fossil whose ancestors go back a half billion years. The unique design of its shell has drawn a lot of attention to this sea creature such that its population is now in danger. There has been a growing worldwide demand for it; the shells are polished and sold as jewelries and ornaments. In the Philippines, it is being sold as Osmeña Pearl. In the SeaShell World Com website, a pair of pearlized sliced chamber of the *Nautilus pompilius* sea shell is sold at \$49.99 USD; while an "Osmeña Pearl Sterling Silver Necklace" costs \$495 in another website. Sporadic alarms have been raised earlier by scientists but Patricia S. de Angelis of the United States Fish and Wildlife Service blew the distressing



259 *Nautilus pompilius*
Chambered nautilus

Source: White, 2000.

news during a conference in Dijon, France. According to De Angelis, United States alone imported a total of 579,000 specimens between 2005 and 2008. This led to the global census of this species in prominent areas for shell trade. A group of scientists contracted by the Fish and Wildlife Service visited the Philippine island of Bohol in the summer of 2011 to begin with the census wherein captured nautilus were x-rayed and returned to the sea. The team is hoping that data to be generated from 5 more sites will give them a sound estimate of the nautilus remaining population in the world.

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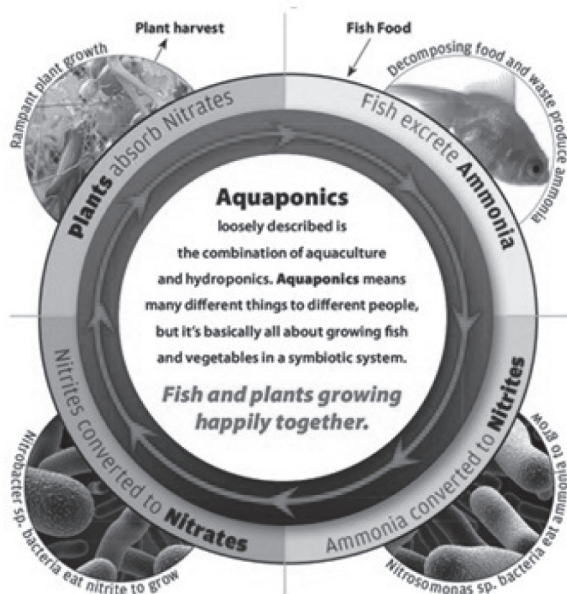
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Nautilus is a living fossil whose ancestors go back a half billion years

AQUAPONICS: A Flourishing Endeavor

Integrating Soilless Agriculture and Aquatic Farming



Source: <http://nourishtheplanet.com/tag/aquaponics/>

“One person’s trash is another person’s treasure.” This is the principle behind aquaponics is an interesting, recently explored sector of agriculture. Aquaponics is a sustainable food production system combining aquaculture and hydroponics. In this system, wastewater effluent comprising of fish excrements, uneaten food, and bacterial biomass supply nutrients for the growing plants. In the process, water is filtered by the plants and naturally-occurring bacteria (*Nitrosomonas* sp. and *Nitrobacter*

sp.) remove the ammonia in the water before it is channelled back to the aquaculture system.

History

The term aquaponics may be new to many but the concept has ancient roots. It can be traced to Aztec Indians sometime during 1,000 A.D. when they planted crops on large rafts made of reeds and rushes covered with dredged lake soil. These structures called “chinampas” allowed the roots of the maturing plants to grow through the substrate and dangle in lake waters where fish was also abundant. In one version, the Aztecs collected the fish waste and used this as fertilizers for the plants. The ancient Chinese also farmed finfish, catfish, ducks and rice in an integrated system. The ducks were housed in cages with partially open floors. Finfish fed on duck droppings and their wastes were processed by catfishes living in a lower pond. The ef-

By: Gaily Jubie S. Hontiveros
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fluent of the catfish pond was then irrigated to the vegetable beds and rice paddies. Scientific research on this technology began in the 1970s, while the first large-scale commercial facility was built in Massachusetts during the mid-1980s. Since then, techniques accumulated and manuals were published, spurring the utilization and development of aquaponics globally.

Features

Today’s aquaponics systems are mostly freshwater in nature and vary in size from small indoor or outdoor units to large commercial units. A wide variety of both cold and warm-water species have been adapted to aquaponics systems. The most commonly cultivated fish is tilapia since it is highly marketable and is resistant to fluctuating environmental conditions. Freshwater crayfish, prawns, Murray cod, trout, silver perch, Arctic char, barramundi, bluegill, catfish, koi and goldfish are also used depending on the purpose of production and their suitability to rearing conditions. Most green leafy greens and herbs thrive well in aquaponics systems. High-nitrogen content of the recirculated water promotes lush growth of vegetation. Among the most profitable are lettuce, Chinese cabbage, spinach, chives, basil and okra. Other options include beans, peas, radishes, onions, melons, strawberries, taro, turnips and

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Meet the newest member of the MNS:

By: S.S. Garibay



Mr. Ulysses B. Alama, also known as "Yuls", is now the newest member of the Museum of Natural Science's office. Many may not know but Yuls is one of those who originally transferred from U.P. Diliman to the

Miagao Campus in 1987. The original transfer were then known as the "advance party". Yuls is an Associate in Marine Transportation graduate from the Philippine Marine Institute (PMI) in 1979 before he joined the College of Fisheries in U.P. Diliman on March 16, 1982 as Marine Engineman and later a Quartermaster. With his exposure to Fisheries, Yuls was motivated to continue his studies and earned a B.S. Degree in Fisheries. Equipped with his BSF Degree, he can now qualify to work at the museum where he will be doing ichthyological

examinations.

Yuls' 30 years of service in the University has been very fruitful. He is married to Rosana G. Alama, also a CFOS employee, and is blessed with three children, one girl and two boys. He hails from Castilla, Sorsogon, Bicol. Yuls is a typical Bicolano who loves to cook "laing", a spicy hot dish of Bicolanos. You should try it too! Aside from cooking, Yuls is also gifted with artistic skills, he loves to draw and make paint subjects of his intentions. He is also a certified diver and member of the

Association of Diving School International (ADSI).

Currently, Yuls is the National Council member at large of the All UP Workers Union and Treasurer, All UP Workers Union, Iloilo Chapter. He is also the Staff Representative positions SGI-15 for the UP Provident Fund Inc. (UPPFI). Yuls is temporarily assigned to the Museum office after TRV Sardinella was sold officially. He joined the museum on February 20, 2012. WELCOME TO MNS, YULS!

contd. from p.3
sweet potato. Fruit yielding plants such as bell peppers, cucumbers and tomatoes have higher nutritional requirements and should be grown in more established, densely stocked systems. In appropriating the contents of the facility (1:4 water/fish to substrate/plant ratio is followed). This is dependent ,however, on the fish and plant being cultured, stocking density,

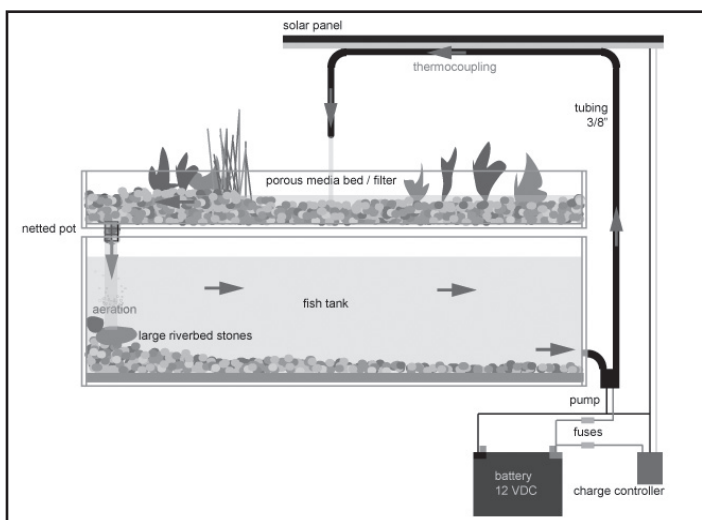
and other factors. Aside from these major components, it is also important to be mindful of the culture water itself. Physico-chemical parameters such as pH, dissolved oxygen and carbon dioxide levels, temperature, ammonia, nitrate, nitrite and chlorine should be regularly monitored. Failure to create an environment with optimum conditions will lead to stress and possible mortal-

ity of the cultured animals and plants. Pros and Cons A drawback of aquaponics is the initial outlay for the tanks, housing, plumbing, pumps and substrates. The wide variations in the structure designs may lead to reliance in man-made energy and inconsistency in the success of production. The collapse of either aquaculture or hydroponic components is also detrimental to the wellness of the other. However, these challenges could be overcome with careful planning and construction. In total, aquaponics maximizes the benefits of both systems and cancels out the downsides of each. The usual problems with soil-based gardening are eliminated. There are no more worries about growth of weeds, chemical fertilization, watering the plants and soil-borne insects. The system is also eco-friendly

since water use is lessened and polluted water is not discharged to open streams and waterways. A study found out that plants remove 86-98% of ammonium nitrogen from aquaculture wastewater. Water can be reused and will only need to be replenished when levels go down due to transpiration and evaporation.

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Source: <http://nourishtheplanet.com/tag/aquaponics/>