Terra Cognita

A student's way of understanding the earth

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Welcome to Terra Cognita,

a student-written, environmentally-focused news report on events within Skills Center Natural Resources Program, the Olympic Peninsula, and the globe.

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Skills Center
Natural Resources
www.nopsc.org/naturalresources

Atrocious Fate of Albatross

By Conan McCarty

Conan saves a plastic poodle from becoming marine debris

A truly beautiful creature, the albatross has been a sign of good fortune to generations of sea farers. With the largest wingspan of any bird these majestic animals spend a majority of their life gliding on the ocean air, foraging for their favored meals of squid and fish.

Albatross are colonial birds meaning that they meet up in the same group at the same spot every year to spawn the next generation. There are twelve species of albatross, some of which have been heavily hunted for their feathers that were used to make down and women's hats. But now there is another force that threatens the albatross, and it isn't quite what you would expect.

Recently there have been many albatross corpses that have been found full of plastic. The plastic is not placed there after death. It is actually exposed after the decaying process eats away the dead flesh. A wide variety of plastic products are consumed on the ocean everyday by these poor birds. Often mistaken for fish eggs, many pellet size pieces of plastic are fed to albatross chicks, starving and ultimately killing the newborns. Where is all of this trash coming from? There must be a source from which all this hazardous debris originates.

The great pacific trash patch is an anomaly that was discovered by Charles J. Moore in 1997 and predicted by NOAA of the United States in 1988. The trash patch is a gyre of plastic garbage from all over the world that was swept up in major ocean currents.

We have been adding to this monstrosity for decades now. Every day we make it worse when we decide to litter on beaches or next to any body of water.

Plastic does not bio-degrade through conventional processes. What it does is photo-degrade in the sun over time. This is not a good thing at all. Plastic, when it photo-degrades, breaks up into smaller and smaller pieces until it eventually enters the food chain through being consumed, along with phyto-plankton and other macro invertebrates, by filter feeding marine life and other creatures, like the albatross. The plastic that does not get consumed is eventually broken down into toxic clouds of noxious chemicals that float down to the ocean floor, killing everything that swims through them.

The future holds little for the albatross, save the last breaths of a lone survivor. The evidence that is being collected by local student Loren Henry will help us track marine debris.

Students Loren Henry and Jessica Betts investigate a piece of Marine Deebris on West Elwha Beach

An albatross full of plastic (Image: http://eco-rangersnz.blogspot.com)

NR 1 Students at Work

Students measure sediments and create a beach profile on Ediz Hook.

Student Andrew Colvin observes an engine near the Elwha River.

Reed Wendel of Green Crow provides tree ring samples for students Conan McCarty and Troy Nicolaysen.

Student Andrew Colvin circles a sediment-covered stump in the Elwha Restoration area.

Read more about how you can enroll in Natural Resources Program on page 4

Sticky Road Block By Andrew Colvin

Landslides occur every year in Washington State. Our climate and land formations create a perfect setting for landslides. In Western Washington, the most landslides are triggered during fall and winter; reason being they are the rainiest seasons and when the ground tends to be the wettest. Most landslides are caused from an over dose of rain on hill sides that have loose dirt or other forms of sediment, or from minor earthquakes that shake loose dirt.

One of the most recent landslides to have occurred is on highway 112 near Neah Bay. A small tremor in the earth caused mud from a nearby hill side to shift and damage a big portion of the highway. There was an estimated 3,500 to 4,000 cubic yards of debris covering the highway and leaving nearly100 feet of guard rail damaged.

The landslide caused enough damage that road workers had to remove some trees around the mud slide to keep more land from shifting before they replaced the highway. This in turn caused all local traffic to be detoured with possible delay through a log truck route in order to commute to and from Neah Bay.

According to the public transportation services the highway was cleared and fully operational around the end of February, 2012. Before that the locals were left to fend for themselves taking extremely long routes to detour into Neah Bay from Sekiu. Thankfully, the road was cleared and there were no accidents or injuries during the maintenance on the highway.

Natural Resources 1 crew below a questionable slope at Dungeness Spit

Canada Finds Natural Gas By Lauryn Last

Yes, while natural gas is a nice alternative to using oil to produce gas, it is still a non-renewable resource meaning that once it is gone we cannot get it back for millions of years. The Canadian Natural Resources (which is BC Oil Company) has reported that on average they are producing 1.23 billion cubic feet of natural gas per day, and they estimate that they could produce about 19,000 barrel a day of natural liquid gas [1]. Canada's oil company has over 15.5 million acres of land to develop for oil reserves all over the western part of the country.

The oil company plans to spend up to $750 million on its natural gas production, which would bring them up 8% from last year. The cause and effect of this production is that it is a cleaner burning fuel and does not release as many particulates into the air as coal and oil burning does. And it also creates energy independence for a country.

What is the "fracking" problem? Hydraulic fracturing, which is commonly called fracking, is where people take huge hydroelectric pumps and drill into the Earth's crust and remove the natural gas found there.

There are many down sides to fracking. Many people think the down sides out number the good things [2]. The downsides to fracking are the flowback of water has to be managed and 80% of what is blasted down comes back up. It is ridden not only with chemicals, but also with radioac-tive materials and salts from the under-ground layer.

Since most of the gas we drill is under water, it is causing our drinking water to be severely contaminated with chemicals and it is causing habitat loss for certain aquatic life forms. Underwater wells are also causing the tectonic plates to shift which is causing places like Alaska to have minor to major earthquakes [3].

People need to know the damaging affects that fracking has on our planet; I just want people to think about what they are actually doing, whether or not it is to benefit mankind.

Sources Cited: [1] www.vancouversun.com/technology/Most+Canadians+oppose+natural+fracking/6107022/story.html
[2] canadians.org/water/issues/fracking/index.html
[3] www.irishtimes.com/newspaper/sciencetoday/2012/0216/1224311839654.html

Gulf of Mexico Oil Spill By Troy Nicolaysen

In this article I will be talking about the dangers of drilling for oil and how it affects the natural world. The oil spill started on April 20, 2010 by BP's Deepwater Horizon, which is an oil rig that exploded as it was drilling in the Gulf of Mexico. 'BP' is an oil and gas company and Deepwater Horizon is their oil 'rig'.

After the explosion the oil rig started to sink and a pipe broke leaking a lot of oil in to the water. The pipe that broke once channeled oil 1,400 meters up from the sea floor. Some 4.9 million barrels of oil, and an equivalent volume of gas, spewed out over three months, according to the US government (rucool.marine.rutgers.edu/deepwater). BP spread 9 million liters of chemical dispersants in to the oil. Roughly a third of the chemical dispersants were added to the oil under the water as well to help the oil spill dissolve.

The oil and dispersants are toxic to both shallow and deep water habitats. They are also affecting squid around the oil spill. According to Scientific American (www.scientificamerican.com) the death toll is around 6,104 birds, 609 sea turtles, and 100 marine mammals. But that only is animals we have colleted data and knowledge of. Scientists also see and know that the death rate of sea turtles as well as other plants and animals and remember that not just oil kills the environment but the chemicals used to help clean it up also hurt.

You might be wondering what caused the accident?

Human error and equipment failure. "Complex systems such as deepwater drilling rigs fail in complex ways," says Tad Patzek, Chairman of the Petroleum and Geosystems Engineering Department at The University of Texas at Austin. Some reasons that the oil drilling platform exploded and sunk can be that the cement did not set right, the amount of cement was not sufficient, misinterpretation with the machinery and the wrong amount of pressure. But some people think it has to do with bad management of the place

So what do you think is the best solution for drilling for oil and transporting it in to other areas?

Oiled wildlife resulting from the Deepwater Horizon Explosion. Photos counter-clockwise from top: www.yuumei.deviantart.com, oilspillgulfofmexico.wordpress.com, planetgreen.discovery.com

Skills Center Natural Resources

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Skills Center Natural Resources offers a variety of hands-on skills training options for students 16-21 who do not have a high school diploma. Enrollment is open now.

Below: Student Conan McCarty enjoys the view from Hurricane Ridge Road

Please contact us if you can donate equipment or funds to help replace our broken camera.

Thank you!

Join the Adventure!
Enroll in Natural Resources Program Today!

Natural Resources Summer Program

Students 8th-12th grade from across the Olympic Peninsula are invited to enroll in Natural Resources this summer. Students will have the opportunity to be outside and earn science or CTE credit in the 'Summer Elwha Field Course.' Skills Center summer school runs June 25 - July 13. Call 565-1533 to enroll.

Natural Resources also has these school year options for students:

- Natural Resources 1 class M-F from ~12:30-3:00p
- Senior Culminating Projects 1 day/week in the community
- Natural Resources Internships with real professionals
- Natural Resources 2 Internships with AmeriCorps Awards

These exciting options are running now and will be available again next fall for students.

Natural Resources I Class Preview: Upcoming Spring Units and Projects

Wetlands and Waterfowl Unit	Students will look for ducks on ponds and report data to WA Department of Fish and Wildlife. Then, students will conduct inter-tidal studies following professional protocols.
Marine Science Unit	