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Marine Biodiversity Essay Contest

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Conservation: Humanity and its interconnection with Biodiversity

“We need a newer, and a wiser, and perhaps a more mystical sense of the animal. Remote from universal nature and living by complicated artifice, man in a civilization regards the animals through the glass of his knowledge, and sees thereby a feather greatly magnified and the whole image in distortion. We patronize them for their incompleteness, their tragic fate of having been formed so far below ourselves, and thereby we error, and greatly error, for the animal shall not be measured by man. In a world older and more complete than ours, they live finished and complete, gifted with extensions of the senses we have lost or never attained, living by voices we shall never hear. They are not brethren, they are not underlings, they are other nations, caught with ourselves in the net of life and time, fellow prisoners of a splendor and the travail of the earth.” (Henry Beston)

Walking along the shores of the Atlantic Provinces, It is amazing to see the abundance of life hidden in the rocks and clinging to the shoreline. If one looks long enough, turns enough rocks, and wades in just deep enough, one will be pleasantly surprised at the great biodiversity found there. However, our coastal biodiversity is but the tip of the iceberg as far as life that exists on this blue planet.

What is marine biodiversity? It is the variability among organisms that exists in or interacts with the marine environment and the ecosystems they create. It is the differences and similarities in genetic makeup, their distribution and richness of populations and it is the distribution of different ecosystems over a geographical area. In a nutshell, it is life on earth, every animal, plant and microorganism that exists. It is the result of over a billion years of evolution, an intricate web of life that exists in a delicate balance, one that we are very much a part of.

Now imagine you woke up the one morning and all life had been wiped off the face of the earth with the exception of humanity. You would probably start your day with some sort of breakfast, but there would be no coffee or cereal, for they are products of biological resources. So with out breakfast, you walk out the door to go to work, but the air is relatively thin this morning. The most crucial use of biodiversity, maintaining this world's atmosphere, would no longer exist. At that point, humanity would die without food or oxygen. If biodiversity falls, humanity will be dragged down with it. The amount of effort on a global scale to conserve biodiversity is insufficient. There is a great need to conserve our biodiversity, not just in Canada, but globally, before it is too late.

Living near the Bay of Fundy, I have had the pleasure of viewing the majestic North Atlantic Right Whale, one of the most endangered whales in the world. And it can be said with all certainty that every person on that whale-watching cruise was in awe at the sight of these gentle leviathans. From the ocean we derive much aesthetic pleasure. Whether from exploring coral reefs, to whale watching, to simply staring out the window at an endless sea, people draw great pleasure from observing this world's great biodiversity. People enjoy the ocean in many different ways. Some enjoy the adrenaline pumping feeling of standing in a cage underwater

with a sixteen-foot Great White Shark swimming round. Some enjoy the epic struggle between man and beast, the fisherman's battle to land his catch. Others simply enjoy observing the brilliant array of colours, as fish swim in and around the Great Barrier Reef.

The tourism industry has built around supplying these aesthetic pleasures and people travel long distances just to bask in the presence of the biodiversity of our oceans. In Atlantic Canada, whale watching is a growing industry, with much popularity. The mighty whales have been decimated by whaling and their need for conservation has drawn the public's attention. Their popularity has grown over the years. Whale watching offers a chance to see one of these awe-inspiring creatures, but if we do not conserve these species, it may be a last chance to enjoy that aesthetic pleasure. Without conservation of biodiversity, those aesthetic pleasures, one and all, will slowly slip away forever.

Fishing is a way of life for many people in the Atlantic Provinces. Seafood is an important industry and important for Atlantic Canada's economy. These fishermen depend on the stocks of fish that they catch to be sustainable if they are to continue fishing into the future. But one of the leading threats is overfishing which has and still happens today. Overfishing is the primary cause for the collapse of the cod stocks, which has decimated them to the point that they may not ever be a sustainable stock again. Sixty percent of the global stocks of valuable fish are either overfished or fished to the limit. This is not to mention that seventy-five percent of catch for certain types of fisheries is bycatch, an estimated 27 million tons of often dead or dying fish being thrown back each year. This bycatch is also the killer of many other unwanted creatures such as rays, turtles, seabirds and cetaceans. (Working for Wildlife, spring 2003) Another imbalance is occurring as more and more of our large predatory fish are beginning to decline in numbers. This decline can be attributed largely to industrial fishing vessels, factory ships in

international waters, hauling enormous amounts of fish with little regulation. In fact it has been reported that global stocks of large predatory fish have suffered a ninety percent decline since industrial fishing began in the mid-1950's. It was also observed in the records of Japanese boats using lines of sixty miles in length with around 2000 baited hooks, a decline in catch from ten to one catch per hundred hooks, within a 15 year period. (M.W.Robbins, 57) These large predatory fish, such as swordfish, tuna and sharks, are unable to rebound quickly because of a slow reproductive rate. Scientists don't believe these fish are threatened with extinction yet, but a disruption like this could have terrible repercussions. Lack of knowledge keeps us from knowing what exactly these repercussions are, but that is no excuse to continue these atrocities. Unless we push to conserve these species we may lose them and the fishing stocks with them.

Humanity itself can benefit from biodiversity. We are always trying to better ourselves, and more often than not, nature is our teacher. Scientists have discovered a deep-sea sponge (Euplectella) that grows thin glass fibers at its base. These glass fibers are capable of transmitting light better than man-made industrial fiber optic cable. The fibers are created at cold temperatures and are much more flexible than man-made cable, which requires high temperatures to produce and creates much more brittle cable. One of the key components of these glass cables is the addition of trace amounts of sodium, which increases their ability to conduct light. This doping of the glass has never been achieved by man before. (McCall, C5) Therefore, scientists can learn and benefit from the processes of this glassy sponge to find out how it dopes the sodium into the fibers at low temperatures. However, if we do not conserve biodiversity, what knowledge will be, or already has been lost?

The ocean is a vast body of water, yet to be completely explored and there are large gaps in our knowledge of it. Discoveries continue to occur each day, with more and more species

being identified, more of the ocean floor being mapped, and more and more knowledge is acquired with each new discovery. A once considered to be extinct species, the coelacanth (Latimeria), was found alive and well with populations living in deep water off South Africa and Madagascar. Another population off Indonesia may represent another species of coelacanths. (Campbell and Reece, 690) Identified by fossil records, the last known living species of the lobe finned fish, is one of the oldest vertebrates in the world. Almost unchanged for ninety million years, the first living specimen was not discovered until 1938, the second living specimen not caught till 1952, and it was only filmed in its natural habitat in 1987. (Collier's Encyclopedia, 683) It was not till 1976 that the rare megamouth shark was discovered accidentally caught up in a deep water line. The time span since they were discovered does not even amount to a human lifespan, being only thirty years. It is hard to believe that an animal that can grow to 5.2 meters and have around a 1meter wide mouth could remain undiscovered for so long. (Sharks and Rays, 154) If something that big, that old, could remain unseen for so long, it makes one question what else is living right under our noses, what else remains unknown under those rolling seas? What species yet to be discovered are we impacting on without knowing it?

Each species on this planet is interconnected. From the microscopic plankton, to the great whales, even to humanity, we all depend on the survival of the other, but what happens when we lose any one species? The lose in red seaweed populations in the Bay of Fundy, as observed by Prof. Gary Saunders of the University of New Brunswick, may have terrible repercussions. This seaweed offers food and shelter for fish, lobster and other sea life. The long-term impact of a continued decline cannot be predicted for certainty, but it is certain that, without concrete evidence as to why this is occurring, without conservation, these species may disappear. (Brown, A11) Each animal cannot be viewed simply as another organism. They are as Henry Beston

described them in his book The Outermost House, “separate nations”, of equal importance to us. They too are “caught with ourselves in the net of life”. That is why we have the responsibility to preserve each and every species, to conserve the ocean’s biodiversity for the future.

Numerous conservation efforts have been implemented since there was a ban on whaling the North Atlantic Right Whale over half a century ago. It was once estimated that there was only around 350 left in the world and with a slow reproductive rate, their future was foggy. They continue to get caught in fishing gear and to be hit by ships. (Hoyt, 57) People have been trying to save these whales from extinction for years. They have gone to great lengths just to free entangled whales, because every single individual whale is important to the species’ conservation. Institutes continue to keep checks of the whales’ population, and there is much public support to help these whales. Thanks to immense support of the World Wildlife Foundation from the public, and other participants, in spring of 2003, the shipping lanes in the Bay of Fundy were changed to avoid disturbing the summer feeding grounds of these gentle giants. It is the public’s awareness that makes the difference. (WWF, Working for Wildlife, spring 2003)

Another recent win for conservation is the Gully, an underwater canyon of great biodiversity found off Nova Scotia, which became a possible national protected site in Canada. This diverse area is home to many unique species of whales, such as the rare bottlenose whale and some unique deep, cold-water corals. This is truly a unique area, but oil and gas development and bottom trawling threaten it. The damage done by these threats could take over 300 years to recover. The Gully was granted interim protection, and with the continued support of the public, the area may become a permanent protected area. (Working for Wildlife, Spring 2001)

The Convention on Biological Diversity (1992) was signed by nations around the world in an effort to conserve our biosphere. The parties that signed were aware of the lack of knowledge about biodiversity and the need to prevent the loss of it, not use that lack of knowledge as an excuse to ignore it. The objective of the convention was to conserve biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits that arise from the sharing of genetic resources and technologies. It requires the development of national strategies to preserve our biodiversity. This is achieved by identifying human activities that threaten biodiversity, the establishment of protected areas, adoption of regulations on the use of biological resources, and cooperation between government authorities and its private sector to develop methods for sustainable use of biological resources. These strategies would limit the human impact on biodiversity. The convention also requires to promote the protection of ecosystems, natural habitats and the populations of species that inhabit them as well as to rehabilitate and restore degraded ecosystems and promote the recovery of threatened species. Also, it requires preventing the introduction of alien species and to control or eliminate all those which threaten ecosystems, habitats or species. (<http://www.biodiv.org/doc/legal/cbd-en.pdf>) But even with all these conservation efforts in place, if we are to conserve biodiversity on a global scale, all nations must work together to come to an understanding of biodiversity and act to conserve it, or it will be lost.

Humanity is the main threat to our biodiversity and humanity is also the solution. People need to be made aware of the important role biodiversity plays in our world and in our lives, and the importance of conserving it. This is where our younger generations become very important. They are the decision makers of the future. It is up to them to pick up the torch and hopefully surpass the conservation efforts of the generations of conservationists before them. For the future

of our biodiversity is our future. It is important to educate these generations about the importance of biodiversity at all stages of their educational development. Living near the Huntsman Marine Science Center in Saint Andrews, most elementary students have had the opportunity to visit its aquarium and learn of the great biodiversity in our region. At a middle school level, in past years, the University of New Brunswick has offered Marine Biology camps where students have the opportunity to experience marine science and marine biodiversity first hand, with excursions and labs. I am also aware of programs at the Huntsman Marine Science Center for high school students where they have the opportunity to experience biodiversity at a deeper level, focusing on ecosystems and their inhabitants. These are some of the major educational tools that are used to teach students about biological diversity and its conservation. Another more recent educational tool is the Atlantic Canada Marine Biodiversity Essay Contest, where students going on to post secondary schools write an in-depth essay on biodiversity and its conservation. These are all good ways of teaching our younger generations and with the continued education of this knowledge, we can make a difference and conserve our biological diversity for future generations to come.

The necessity to act quickly to conserve biodiversity is immense, for even today we are slowly losing species and populations. Like the canaries that were used in coal mines to warn the miners of a gas build up, the losses like the decrease of red seaweed and the North Atlantic Right Whale are warnings, telling us there is a great need to act to conserve biodiversity. And if we continue to learn about our oceans, continue to educate our younger generations, and work cooperatively with our fellow man, it may not be too late to conserve our great marine biological diversity.

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