Tangled Truths: Unveiling the Plight of Oceanic Species

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"Ouch," the struggling noises murmured as sea turtles hoped to keep their heads barely above the ocean waters. What if our body was entangled with ropes, nets, and plastic rings? The sad reality in our current generations is the reliabilities we have to plastic at our convenience. As we use those Coca-Cola bottles and disposable cutlery at family gatherings, we forget the direct damage posed to marine wildlife species in the oceans. The fast fashion industries may be booming (with their clothes using plastic synthetics to hook consumers into the products), but the wildlife creatures are simultaneously KABOOMING. From creating minimal plastic usage goals within households and educating the public in schooling and work environments to transforming plastic into artworks and opening up galleries promoting this means to connect the local community, we can more interactively raise awareness of plastic pollutant harms. Moreover, the precious lives of those innocent marine-dependent species can be preserved inevitably!

Plastic pollution has disrupted the marine ecosystem, with 11 million tons of plastic contaminating the oceans annually, harming birds, seals, fish, sea lions, and whales that rely on this very habitat to survive. As the parents unknowingly feed their albatross chicks plastic debris (appearing as floating food at first glance), severe digestive challenges can arise. Ingestion of plastic debris may indirectly cause detrimental long-term reproductive systems of marine species, hindering the anticipated offspring population size. Not only that, but cardiovascular blockages can contribute hugely to malnutrition, injuries, stomach ruptures, starvation, and horrible death since these aquatic organisms are unable to reverse their pre-adaptive breathing systems sufficiently. One prevalent example is plastic rings, which remain uncut, foreseeing as a choking hazard imposed on the necks of sea turtles swimming to remain afloat. As widespread hotspots induced by plastics enlarge at exponential rates, the

habitual landscapes that were once considered homes are infested with harmful chemical pollutants with plants and animals given no time to adapt quickly, disrupting the equilibrium of ecosystems with no means for species-related interdependence on their surrounding environment; hence manipulating their ability to thrive in motion.

For instance, in critical coral reef habitats, plastics have prevented coral species from retrieving adequate sunlight, which is an essential component of their survivability. And it doesn't stop here. As the plastics disintegrate into microplastics, the harmful chemicals are also absorbed, which can increase health complications for marine wildlife that barely guarantee a clean natural environment on a daily basis. The plastic dumps aren't just located in some regions but are rather tossed from the Arctic to Antarctica, and with plastic production dramatically on the rise, with a global total of 380 million metric tons in 2015 alone, the plastic problem is only escalating heavily; worsening the rabbit holes we have dug. We need to understand that plastic is not only a less-wealthy nation issue (with inefficient garbage collection systems set in place) but rather a personal issue significantly impacting even the nations on the wealthier end of the spectrum (facing similar difficulties with discarding plastics). Marine wildlife species (including endangered ones) are directly in the line of fire with plastic pollution (although we may occasionally find plastic in our seafood due to **our very human-inflicted issues**) targeted at a large scale with slim to no resources to turn the tables for them. One case study indicates that sea snails, like common periwinkle, are impaired in their defence mechanisms against predators like crabs, making them vulnerable with not even the nick of time to embody a "fight or flight response," and rather freeze on the spot.

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What's surprising is that plastic production came into play nearly a century ago, revolutionizing numerous industries and easing our lifestyle with single-use plastic bags just out of our reach and a "throw-away culture" dominating our existence. Such products account for 40% of the annual plastic produced, with half of all the plastics manufactured till now being produced an astounding fifteen years ago. Additionally, additives extend the lives of plastics, with some suggesting that it could potentially take an average of four hundred years to degrade. The route of plastic waste ending up in the oceans starts from the land, with rivers acting as conveyor belts that carry trash to the seas. Eventually, these microplastics found in water columns end up in remote locations such as Mount Everest and the Mariana Trench. So what can be done to derail our future conflicts, which don't appear so bright (with an expected doubling predicted by 2050, the year when multiple companies are awaiting a decline in utilizing an overbearing range of our available environmental resources)?

Though there is some waste management machinery in existence, picking up large pieces of trash, renovating systems for waste removal, recycling, product enhancements, and even advocating for a low in single-use plastics (and rather banning it) are ideas in demand to prevent plastic from entering water bodies. But fostering communal efforts on a global level to combat plastic pollution is an effective approach, and involving governments, environmental-oriented organizations, and passionate individuals in campaigning, conferences, implementing policy changes, and working on collectively agreed innovative projects can set us up for success (or we can at least give it a shot, what more do we have to lose other than our "dignity"?). According to a seminal report in 2014, an estimated **5.25 trillion plastic fragments** were floating in the world's oceanic areas, with a whooping over 92% microplastics identified! Marcus Eriksen used a real-life experience as an inspiration to promote change after embarking on a rafting trip down the Mississippi River, deciding to

found the 5 Gyres Institute to address ocean plastic contamination. Others, like The Ocean Cleanup's barrier, have attempted to remove plastic wastes witnessed in oceans but have received backlash for their inaccurate goals, being criticized for not focusing on prevention. Despite disputes and skepticism held against some organizations have occurred (and is a given due to the number of diverse humans at the moment), it should be made clear that one small act of advocacy or real efforts in reducing plastic pollution and marine life mortality rates should alternatively be applauded since many aren't even proactively setting some plastic deduction-related milestones for themselves and appear to be the people raising their voices in opposing the individuals who have at least changed their fixed mindset on valuing their contributions. It is important to note that a domino-like effect can positively influence people neighbouring those doers in the community. With social media platforms receiving views from millions of unique people, this generation is at an advantage in creating stability for the upcoming human and marine wildlife generations, one click away from reaching even the furthest of northern or southern populations. So change is at the palm of our hands, and the decision to use it for the betterment of humanity is simply our's to choose.

Plastic pollution, which is human-affiliated, has led to long-term consequences posed upon marine wildlife species that heavily rely on their aquatic habitats for survival, as they mistakenly digest microplastics or get entangled by plastic rings, leading to reproductive mishaps, malnutrition, and death. It's up to our generation to save the species of tomorrow by attempting to reuse plastics, team up with local MLAs or professionals, and advocate for communal activities on a global scale using social media to reach diverse populations alongside networking or building connections. I created various artworks out of the numerous plastic bags I had sitting in my cabinet, producing rugs, pot holders, and even abstract pieces and shared them with my local elementary students in grade four I have also been very

connected with my high school's environmental club to implement an engaging bring your mug for hot chocolate days and such ideas, raising money for environmental organizations focused on plastic pollution and even nature sustainability forums. Oceana Canada is an organization that is committed to addressing the severity of plastic pollution and the harmful actions targeting marine species by advocating for change via an online petition linked to their official website. The Oceana country offices are collectively working on passing policies in Canada to promote a circular economy where the plastic produced is minimized. Additionally, by allowing the public to view a roadmap to cut down ⅓ of Canada's single-use plastic rates created by Oceana Canada themselves, this union has proven their reliability, realism, and transparency in approaching an issue requiring large-scale efforts.

Over time, I even received a five-hundred-dollar cheque from SFU's Climate Action Fellowship Program (as the youngest recipient present), where I paired up with other like-minded individuals to target relevant climate change issues in a 3-month captivating journey to learn more about things that enlightened and resonated with me (specifically focused on overheating challenges in the Burnaby community- contributing to City of Burnaby's Climate Action guide)! I am fifteen, but understanding that change has no age, I engraved my path to a single-waste plastic household resilience campaign! So, what would you do if your body was entangled with ropes, nets, and plastic rings?

References

Morunga, A. M. (2023, September 7). *Plastic pollution's devastating impact on wildlife*. Greenpeace Aotearoa.

https://www.greenpeace.org/aotearoa/story/plastic-pollutions-devastating-impact-on-wildlife/

Parker, L. (2022, May 20). *The World's Plastic Pollution Crisis Explained | National Geographic Society*. Education.nationalgeographic.org; National Geographic. https://education.nationalgeographic.org/resource/worlds-plastic-pollution-crisis-explained/

Plastic Soup Foundation. (n.d.). *Marine Ecosystem Threats and Pollution*. Plastic Soup Foundation. https://www.plasticsoupfoundation.org/en/plastic-problem/plastic-affect-animals/pollution-ecosystem/

Wong, C. (2022, January 19). *Problems Plastic Pollution Creates for Wildlife in the Ocean*. Earth.org - Past | Present | Future. https://earth.org/problems-plastic-pollution-creates-for-wildlife-in-the-ocean/

Yeoman, B. (2019, June 1). *A Plague of Plastics*. National Wildlife Federation. https://www.nwf.org/Home/Magazines/National-Wildlife/2019/June-July/Conservation/Ocean-Plastic