

# Surf City XIX

Huntington Beach High School

## ECOSOC

Topic A: *Sustainable Support for Natural Disasters*

Topic B: *Habitat Loss through Human Activity*



# Welcome Letter

Dear Delegates,

On behalf of the Huntington Beach High School Model United Nations Program, we would like to welcome you to our Surf City XIX advanced conference!

Our annual Surf City conference upholds the principles and intended purpose of the United Nations. Delegates can expect to partake in a professional, well-run debate that simulates the very issues that those at the United Nations discuss every day. Both novel and traditional ideas will be shared, challenged, and improved.

It is our hope that all delegates will receive the opportunity to enhance their research, public speaking, and communication skills as they explore the intricacies of global concerns through various perspectives, some of which may be very different from their own. We hope their experiences here give them new insight and values that they can apply outside of the realm of Model UN for the betterment of the world community.

Please do not hesitate to approach our Secretariat or Staff Members with any questions or concerns that you may have throughout the day. We wish the best to all our participants and hope that they may share a fulfilling experience with us!

Enjoy the conference!

Sincerely,



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Zach Bernstein  
*Secretary General*



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Vivian Bui  
*Secretary General*



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Lauren Le  
*Secretary General*



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Alison Miu-Martinez  
*Secretary General*

# Meet The Dais

## Jordyn Kao

Hello Delegates! I am currently a senior and am so excited to be one of your chairs for this committee. On campus, I am the Co-President of the Red Cross Club, a member of the Link Crew Executive Board, and in NHS. Outside of school, I spend most of my free time working as an assistant manager at Blue Bowl Superfoods but also love doing Crossfit, yoga, and pilates when I can. I also love shopping... even grocery shopping and spending time with my friends. I believe that working towards sustainability is incredibly important as we are the first steps towards change and every little action really does count. I look forward to seeing all of you in committee and hearing your solutions for these topics. Please feel free to contact us if you have any questions. Good luck!!

## Sophie Jin-Ngo

Hi all! My name is Sophie and I am honored to serve as one of your chairs for Surf City! I am currently a senior at Huntington and I have been in the MUN program for all four years. I can't wait to hear all your policy proposals and speeches. Remembering one of my first conferences freshman year, I met so many incredible delegates from a variety of neighboring schools. What was most fascinating was the plethora of unique ideas, specifically tailored to each representative's nation. Think debate but on a global stage. I am so thrilled you will all have a chance to experience this. Beyond Model UN, I play doubles for the girls HBHS tennis team, my favorite show is Criminal Minds, and I love rocky road ice cream. Hope to see you all there! :)

## Taylor M. Jackson

Hi delegates! Like my fellow chairs, I am a senior at HBHS and excited to help lead this committee! At my school, I am the founder and president of the Book Club for Change; a club that reads literature through the lenses of modern-day issues. Looking towards the future, I am interested in pursuing a degree in Aerospace Engineering. I am enthusiastic about all things space-related and my favorite book/movie is the Martian. I also love the MCU- although the best movie of that genre would have to be Venom: Let There Be Carnage. In terms of outside activities, I enjoy hiking through the local wetlands and advocating for the implementation of nuclear energy- so far, I've got a few local government representatives on board! Beyond that, I love sweet potatoes, Italian culture, and spending time with my three cats! :)

All Papers are due on **JANUARY 30, 2022** by 11:59 pm to  
[surfcity.ecosoc@gmail.com](mailto:surfcity.ecosoc@gmail.com)



# Topic A: Sustainable Support for Natural Disasters

## Background

Natural disasters can be separated into categories such as: geophysical, hydrological, climatological, meteorological, and biological. A geophysical hazard originates from earth (earthquakes), a hydrological is caused by the movement of water (flood), a climatological relates to the climate (wildfire), a meteorological relates to weather conditions (cyclone), and biological is caused by exposure to living organisms (disease). According to a study completed in 2012, natural disasters caused 891 billion dollars in damage worldwide in the years 2000-2009 and this number will only continue to increase because of the rise in climate change in recent years.<sup>1</sup> Climate change is proven to have an effect on natural disasters because, with increasing global temperatures, there is a higher possibility of droughts. As a consequence of the extra heat in the atmosphere, there have been increased wind speeds and more powerful storms- in part due to additional water being evaporated. Furthermore, the heat then causes glaciers to melt leading to a rise in sea level which exposes typically elevated locations that are not adapted to water to face the erosive waves and currents.<sup>2</sup> Overall, climate change is the major contributing factor towards the increases in frequency and intensity of disasters which leads to both death and economic loss. Therefore, it takes global effort to make a change as this is something that affects every country in the world. Scientists at the US Geological Survey (USGS) have already made predictions of what will happen if climate change continues. Each country will be affected by climate change differently based on where they are located in the world. In North America, it is predicted that heat waves will increase in intensity and duration. In Latin America, significant biodiversity loss and changes in water availability are likely, which can be detrimental to agriculture. In Europe, there is a foreseen increase in risk of flash floods and a rise in sea level. In Africa, it is expected that there will be between 75 and 250 million people in need of water with agriculture being reduced by up to 50 percent in some regions. In Asia, freshwater availability is expected to decrease with an increase in death rates from disease all by 2050.<sup>3</sup> Already in the last decade, over 730,000 people have died, 1.9 million have been injured, and 15 million have been left homeless due to natural disasters, as reported by the Emergency Events Database.<sup>4</sup> The economic losses made by disasters are also growing as shown in the 2017 study done by Munich Re, where it is reported that 175 billion was lost globally in 2016 and as compared to 103 billion the previous year. Making matters worse, the likelihood of disasters are increasing due to urbanization, deforestation, and environmental degradation leading to the tripling of natural disasters between 2000-2009 from 1980-1989.<sup>5</sup> In a study done by the World Meteorological Organization (WMO), 11,000 weather disasters in a 50 year period from 1970 to 2019 were surveyed and they found that the five most expensive weather disasters all occurred in the United States with the US accounting for 1/3 of all global losses caused by climate hazards.<sup>6</sup> Overall, the study found that the hazards with the greatest human losses were droughts with 650,000 deaths, storms with 577,232 deaths, floods with 58,700 deaths, and extreme temperatures with 55,736 deaths. Because of these disasters, people are often left displaced from their homes, as a 2014 study done by the Center for Research on the Epidemiology of Disasters estimated that 1,298,848 people were left homeless due to natural disasters.<sup>7</sup> Even worse, when shelters are crowded, infectious diseases are easy to spread leading to increased mortality. This is

an especially important issue today as the COVID-19 pandemic continues to affect millions around the world. It is important to note that disaster risk reduction is essential to contributing to a sustainable future and remains a goal of the 2030 Agenda for Sustainable Development. Targets of the 2030 Agenda include promoting the building and upgrading of education facilities under SDG 4, ensuring healthy lives under SDG 11, and building more adaptable and durable infrastructure under SDG 9.<sup>8</sup> The UN Environment Programme (UNEP) estimates that developing countries are spending around 70 billion a year to adapt to climate change and this is expected to rise to 300 billion by 2030 and 500 billion in 2050.<sup>9</sup> Economic recovery after these disasters is much more difficult for developing countries rather than developed ones. For example, the 7.0 magnitude earthquake that occurred in Haiti in 2010 caused intense damage such as loss of housing, school, and roads whereas the magnitude 9.1 earthquake in Chile had a minuscule impact on the economy. In addition to the capital and infrastructure that is lost, human capital is affected by natural disasters because of the loss of skilled workers and educators. And, if these disasters keep happening, citizens of these countries begin to fear for the worst- which results in adaptive behavior such as when a farmer invests less into the productivity of their land for fear of their investment being lost- this leads to a downward spiral of the economy. Natural disasters also shock the economies of developing countries with effects that can span generations. Because parents might pull their children out of school to help with the family income, they lose the opportunity to get educated and therefore may contribute less to the economy in the long run. Additionally, when there is lack of food, the malnutrition in children affects their cognitive capacities and their potential for success shrinks as seen in Zimbabwe and Tanzania where studies have shown that the malnourished children have lower lifetime earnings. Since climate change is a global issue, developing adequate policies and feasible actions is extremely important for all nations to consider.<sup>10</sup> Each country will be unique in their recovery and implementing successful solutions tailored to each will reduce the amount of human and economic suffering as a result of these natural disasters. Recovery from natural disasters does not merely mean rebuilding the city just as it was before, rather, it is necessary to upgrade and implement disaster preventive measures in order to reduce vulnerability in the future.<sup>11</sup> The quality of recovery is extremely important because it gives countries an opportunity to improve their practices.<sup>12</sup> The goal of each country after a disaster would be to invest in building back up in a way that is more resilient. In “building back better” as the United Nations likes to emphasize, it is also important to take into consideration minority and challenged groups that need their rights to be recognized in the rebuilding process. These groups include women, tenant farmers, and sharecroppers who will suffer if resettlement plans are taken over by more powerful entities. It is also important to consider outside factors of recovery, such as ending child poverty in order to boost human capital which is beneficial to the economy especially in the face of a natural disaster.<sup>13</sup> Countries need to take action in implementing sustainable practices, including the availability of basic necessities such as clean water, shelter, and proper sanitation. Nature-based solutions, such as the conservation of forests, sea walls, and wetlands while sharing and collaborating with countries amongst the humanitarian sector and environmental community, is detrimental to making a difference. Having sustainable, lasting solutions for natural disasters is needed in order to improve current practices and prevent disasters in the future. Reducing the number of disasters and minimizing its impacts will ultimately lead to a better environment for all.

# United Nations Involvement

Bearing in mind that natural disasters often require complex responses, ECOSOC holds Special Meetings on Emergency Situations in order to draft sustainable plans from a socioeconomic lense<sup>14</sup>. These meetings have addressed core world disasters in the past, such as the global food crisis in 2008 and the 2004 Indian Ocean tsunami<sup>15</sup>. In these meetings, it was discussed how such emergencies impacted sustainable development in the larger scheme of things, as well as how to properly coordinate action to countries in need.

One recent example of this in action was the ECOSOC Special Meeting on “Aftermath of Recent Hurricanes: Achieving a Risk-Informed and Resilient 2030 Agenda” held in October of 2017<sup>16</sup>. With the uptick of hurricanes, exaggerated by climate change and wreaking more havoc, ECOSOC met to discuss the social, economic, and ecological impacts of the hurricanes. This discussion also included an emphasis on the aftermath, the immediate response and recovery, and efforts towards rehabilitation and reconstruction. One of the important aspects of this meeting was the consideration of how the recent hurricanes will influence the impacted countries capacity to carry out the 2030 Agenda for Sustainable Development and achieve SDGs<sup>17</sup>. The conclusions from this meeting—what each country needed, how much aid was required, the financial burden placed on each country, and more—gave other UN organizations the guidance needed to carry out actions of sustainable support. For example, in response to Hurricane Maria (which devastated Dominica and left over 3000 dead) and guided by ECOSOC’s determinations, the World Food Program distributed over 60 metric tonnes of food to half of Dominica’s population<sup>18</sup>.

In addition to Special Meetings, ECOSOC has created Ad Hoc Advisory groups in the past, the most notorious one being the Ad Hoc Advisory Group on Haiti. Created in May of 1999, the group was originally designated to last for three months<sup>19</sup>. However, after careful consideration of the ongoing need for sustainable support in Haiti, the group was reactivated in 2004 and is still in effect today. In August of 2021, a magnitude 7.2 earthquake struck Haiti; this was devastating, resulting in the death of over 2,200 people, as well as severe damage to essential infrastructure. The Ad Hoc group determined that over 40 percent of the Haitian population necessitated aid and called for increased funding towards humanitarian missions already present in Haiti<sup>20</sup>. Urgency was emphasized in the report given to ECOSOC, as the country has already fallen victim to other natural disasters. In October of 2016, Hurricane Matthew hit Haiti and caused an estimated 1.9 billion dollars in damage—the equivalent of 23 percent of the country’s GDP<sup>21</sup>. This indicates, according to the Ad Hoc Advisory Group, that Haiti’s government does not have the capacity to mitigate any future natural disasters<sup>22</sup>. As such, the group called for the activation of the External Aid Coordination Framework for the Development of Haiti, which is a framework for support created in the name of having a prepared humanitarian response should the need for it ever arise<sup>23</sup>.

Furthermore, the General Assembly of the United Nations has passed various resolutions regarding sustainable support for natural disasters- one of the most notorious being document A/73/L.53 which discussed the role of volunteers in delivering humanitarian relief. The document called upon countries to ensure adequate preparation in case an emergency strikes. This would be beneficial towards preventing severe loss of capital and economic capacities, as international governments could have a swift response prepared allowing for life-saving humanitarian aid to be administered immediately should a natural disaster occur. The resolution was backed by A/73/170, a document establishing the Central Emergency Response Fund in order to handle the financial response to natural disasters and other emergencies.

## Case Study: 2004 Indian Ocean Tsunami

On December 26, 2004, local residents of Sumatra and surrounding areas had just woken up, ready to enjoy a relaxing and normal Sunday morning. Unbeknownst to them, nearby continental tectonic plates underneath the Andaman Sea were brewing with energy. At about 7:58 local time, in the depths of the Sunda Trench off the west coast in northern Sumatra, a powerful earthquake struck. Registered at a magnitude of 9.1, this earthquake was the result of a tectonic subduction zone in which the Indian Plate has slipped underneath the Burma microplate.<sup>24</sup> When an earthquake occurs in this manner—within a subduction zone—it is classified as a megathrust earthquake and since 1900, all earthquakes with a magnitude greater than 9.0 have been as such. The 2004 earthquake, rupturing along a 900 mile stretch of faultline, immediately disrupted sea level, disrupting the water.<sup>25</sup> During the event, the seafloor of the Burma plate was deformed and sent upwards by about 40 meters, resulting in an N-shaped tsunami that split into two. One wave traveled across the Bay of Bengal, towards Sri Lanka and India, and the other towards the nearby islands of Indonesia and Thailand. Both tsunamis ripped across the tsunami at speeds similar to that of a commercial airplane, about 500 miles per hour.

Growing to be as tall as 30 meters (or 100 feet) high, the tsunami upon hitting land in as little as twenty minutes proved to be immediately disastrous. According to Tad Murty, the VP of the Tsunami Society, the energy of the waves was equivalent to more than twice the explosive energy used in WWII- this is inclusive of the atomic bombs. With intense power and energy behind it, the tsunami was able to stretch as far as two kilometers inland in some places. The tsunami first struck Banda Aceh, a city that at that point in time, had a population of over 300,000 people. It then continued to spread outwards from the point of origin, hitting other regions of Indonesia, the Maldives, Thailand, India, and Sri Lanka. Other impacted areas include Malaysia, Seychelles, Myanmar, Tanzania, and Somalia. All of these regions being coastal and without efficient warning systems in place, much of the population was caught off guard. The damage was critical. The U.S. Geological Survey estimated that around 227,898 people were killed, with over 14,100 missing and a little over a million displaced.<sup>26</sup>

Immediately, states of emergency were declared in Indonesia, Sri Lanka, and the Maldives. Along with the loss of life, the economic waste was steep and unprecedented. One of the first declarations by the United Nations on the situation stated that the relief operations would likely be the costliest in all of human recorded history. Even more, UN Secretary-General Annan stated that reconstruction would take upwards of ten years, likely with a minimum of five. The impacts of the 2004 Indian Ocean Tsunami are still evident today.<sup>27</sup> Much of the coastal agricultural lands, farms, and storages of drinking water were contaminated by the saltwater for years following the disaster. Even more so, the livelihoods of local fishing communities were completely decimated as the tsunami destroyed more than 66% of the fishing infrastructure.<sup>28</sup> This meant the main source of income for these communities was, for the most part, gone, resulting in economic instability for an already vulnerable population—many of those within the region were extremely impoverished. Adding insult to injury, the Malacca Strait, the main shipping channel between the Indian and Pacific oceans and one of the most important shipping lanes in the world, was altered by the earthquake. Located between Malaysia and Sumatra, during the earthquake and tsunami, the depth of the seabed was notably altered and navigational buoys were distributed from their locations. Where water had once previously been 4,000 feet, is now reduced to 100 feet in some areas. This has made the delivery of relief aid significantly more challenging in the immediate aftermath of the disaster.



With the framework in action, the United Nations started working on a tsunami warning system in the Indian Ocean in 2005. With initial steps in place, the World Food Program then assisted and provided aid to more than 1.3 million individuals that were affected by the tsunami. The UNEP task force then endorsed a series of emergency guidelines that was established by an emergency fund. In response to countries that were affected by the tsunami, they were able to request assistance in order to distribute and mobilize more than 9.3 million dollars for disaster risk reduction and environmental recovery between the years 2004 and 2007.<sup>29</sup> Funding also came from countries that included the United Kingdom, Sweden, Spain, Norway, and Finland, as well as international agencies.

Furthermore, as a response, the world's vision center induced its largest-ever relief response actions over 5 countries which included Myanmar, India, Thailand, Sri Lanka, and Indonesia, raising over 350 million dollars in the process. Focusing on the needs of communities, families, programs, and children to provide the protection of livelihood, education, and healthcare, the program provided employment opportunities in training facilities to over 40,000 people<sup>30</sup>. There were also child awareness sessions for 30,000 people, as well as educational support for 438,000 children along with 2000 teachers. The World Vision implemented a disaster-free risk Reduction Program with the help of the community. Not only helping families, the world division was also able to build 27 health clinics, 60 playgrounds, 84 schools, 200 child-friendly spaces, and 12,000 homes. With all restored fishing harbors, boat building centers, marketplaces, factories, farms, bridges, and roads. Additionally, a restoration program was put into place which planted 60,000 mangroves in order to build a natural barrier to combat the rising ocean levels.

With most of the rehabilitation from the tsunami completed by 2007, the World Vision program is now expanded all across the world, with its main aspects targeting agriculture, food, water, education, health, and child security. They work to create income-generating activities, which are able to fund the countries affected by tsunamis. In the process, relief supplies are provided and they work to train the staff in areas, such as child protection, clean water provision, and reef supply management. Lastly, they have organized local first responders, training them for disasters, as well as reducing risks by organizing programs for disaster-prone communities.

## Questions to Consider

1. In what ways do natural disasters affect countries? How do you plan to combat each aspect of the issue?
2. How does your country respond to natural disasters? Can it be applied to another country in need?
3. What are some of the ways that climate change has negatively impacted your country and has it led to an increase of the natural disasters that your country may be prone to?
4. With the consideration that each country may be more prone to certain disasters (ex: Iceland with volcanoes, Cuba with hurricanes, etc), what plans does your country have in response to emergency support or aid should disaster strike?
5. What efforts has your country made in aspects of healthcare for citizens affected by natural disasters?
6. With technology advancing by the day, what mechanisms have been put into play, and how has our country implemented them?



# Endnotes

1. <https://www.ifrc.org/what-disaster>
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# Topic B: Habitat Loss Through Human Activity

## Background

Having an immense and detrimental impact on natural habitats throughout the world, humans have made a lasting negative effect on the environment in the forms of climate change, mining, energy, roads, urbanization, war, and deforestation. A primary threat to numerous wildlife, vying for their survival, ecosystems have been drastically shifted due to human activities. With gas and oil exploration, commercial development, and water diversion, species are slowly decreasing into extinction<sup>31</sup>. According to a study conducted in 1999, the majority of territory in the world has been converted into land for agriculture, as over 70% of the world's forests were turned for the purpose of human use. With over half of international forests gone, manufacturers still rapidly clear 17 million hectares every year, causing a dramatic loss to the earth. As the number of people increases, 5.8 million hectares have been converted into urbanized land from the 1970s to the 2000s. Roads, in addition, have played a dramatic influence on habitat fragmentation as industries claim to implement over 15.5 more million miles of roads stretching across countries by 2050<sup>32</sup>. First, in regard to agriculture, much fertile land is converted into cropland for the purpose of the survival of society. With increasing pressure in redeveloping lands for conservation, prices for biofuel and food have increased drastically. Land conversion for development is another hindrance for wildlife as streets, parks, and housing developments are taking over their habitat, where they flee and die out<sup>33</sup>. Furthermore, in water development as well as pollution, diversions of water and dams disconnect and siphon waters which change water chemistry and hydrology riddled with pollution. Fertilizers, pesticides, mining waste, untreated sewage, and acid rain, collect in rivers, lakes, and wetlands, collecting into estuaries, as well as the food web. In terms of climate change and global warming, ice caps are melting due to rising sea levels and worldwide temperature spiking up and down, causing a harmful disturbance to ecosystems and resulting in habitat loss for numerous animals in the north and south poles. These factors are primarily human-caused with habitats of wildlife decreasing by 46% since the beginning of civilization.

With dire actions needed to take place on land, the situation is just as dreadful as in the ocean. Providing breeding grounds for a plentiful amount of marine species, coastal estuaries are now filled and dredged with pollution, restricting species of a safe, clean environment to raise their young. Not only impacting the health of marine plants, birds, and fish, residing in these ecosystems, human waste also blocks sunlight for corals as it silt sits in the shallow waters obscuring any warmth down in the waters below. However, there is still hope. Calling upon the leaders of the world, the Campaign for Nature urges to take action in the protection and conservation of the ocean and land, with efforts in containing the pollution that has protected over 15% of the total land in nations where ecosystems reside. Due to numerous studies done by the UN Environment Programme (UNEP) and The Global Assessment Report on Biodiversity and Ecosystem Services, they claim by 2050 to protect over 50% of the world's land and water territory by 2030 in order to repopulate the lands with wildlife once again.

Over the years, substantial efforts have been made by numerous organizations as well as nations with the Nature Conservancy implemented in over 69 countries, protecting habitat as well as wildlife, saving millions of acres of land whilst the Fish and Wildlife Service protects the

open waters of the ocean. Working with the Bureau of the Department of the Interior, this program manages to conserve and protect natural resources and publicly owned wildlife. Accomplished through the managing and tracking of species, the federal wildlife law restores the wetlands and habitats to the bright green they once were thriving with living creatures. Enforcing ecological principles, as well as scientific knowledge, ensures that the nation's Wildlife and Fish resources hold the responsibility in absence of this program. The fish and wildlife services are guided by phenomenal citizens, managers, and researchers who recruit volunteer efforts in order for management and research to take place.

Working with the Defenders of Wildlife, a nonprofit conservation organization, UNEP highlighted how habitat loss was much more prevalent in non-protected private lands than in federally protected lands. Due to global climate change as well as habitat destruction, the study researches how throughout the Frontiers in ecology and the environment, it provides the wildlife to be listed underneath the world's endangered species, as well as the federal land protection. These are important tools as well as effective in order to save species habitats as well as prevent it from stemming losses. Rising up in 2015, the Integral Ecology and Research Center is dedicated to ecosystem and wildlife conservation; with their select diverse programs ranging from amphibian to carnivore research, this organization supports conservation measures as well as promotes biodiversity.

Habitat loss is the major factor for the decline in biodiversity throughout the world. In working with smaller population sizes, scientists have effectively worked in mechanisms to identify substantial habitat loss and limit the geographic scope of only focusing on a limited range of species on Earth. With a goal of now understanding how land restrictions work on a national level, many policies in conservation translate to protections of habitats on lands. According to the ESA, a study conducted by Tufts University portrayed how 24 endangered species were able to be protected under their program where it expands over 49% of the countries coast to coast, including all major habitats and ecosystems worldwide. Being able to use satellites to map out ecosystem ranges, they were able to track as well as use Google Earth to reveal data on federally protected lands and update their research on habitat loss in accordance to protected lands in the non-governmental organizations and private lands. With this level of research collected in 30 years of data, from 1986 to 2018, scientists were also able to realize and observe the residual effects over a long period of time comparing the list of endangered species.

Although there are efforts in order to prevent habitat loss, there is also ongoing economic pressure in order to convert major parts of the Amazon forest into arable land and pasture. For example, in sub-Saharan Africa, Indonesia, and Malaysia, soybean and corn are staples for these countries as well as major profit for farming sectors and raising pigs. In addition to converting land into farmable space, with the world's population increasing by the day, production rates at a fast level as well as demand increases. The proportion and number of individuals living in urban areas are rapidly increasing and in accordance with habitat fragmentation is also increasing. Environmental contamination in extractive industries poses an immense risk to potential habitat degradation and to wildlife, with wind turbines killing over 200,000 birds in the United States and over 800,000 bats worldwide. However, with rising efforts being made in countries and organizations striving to conserve ecosystems and habitats as well as stop human pollution.

## **United Nations Involvement**

Realizing that excess amounts of natural wildlife ecosystems and habitats have been disturbed by human activity, the United Nations has recognized there is an issue at hand. In



2010, the General Assembly convened to urge the UN Environment Programme (UNEP) to establish a new program to address this specific facet of wildlife destruction<sup>34</sup>. Passed by the 65th session, the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) was created in order to improve the interaction between science and policy in terms of global ecosystems and biodiversity. On May 6 of 2019, the IPBES released The Global Assessment Report on Biodiversity and Ecosystem Services which discussed the current global state of the world's habitats<sup>35</sup>. Strikingly, the report stated that the world's biodiversity had suffered catastrophically from the presence of humans; estimating eighty-two percent of mammal biomass lost, forty percent of amphibians threatened with extinction, and fifty percent of coral reefs destroyed<sup>36</sup>. Moreover, the report concluded that over one million species of animals and plants are under the active threat of becoming extinct. The final conclusion was clear- the health of local habits and ecosystems is dwindling fast and we must act expediently to prevent further destruction.

To help do so, the United Nations has deemed the next ten years (2021-2030) to be the Decade on Ecosystem Restoration. Working with the global community, this coordinated response will focus on restoring the already-lost environment as well as plant the seeds towards prevention via political will building. One example of this project in action is the 100 Million Trees for Borneo restoration project<sup>37</sup>. Having suffered from intense deforestation since the 1960s, Borneo exports half of the global tropical timber and furthermore has heavy connections to the palm oil industry<sup>38</sup>. This has led to much of the island's forest being lost and with the trade industry still active, the situation is not improving. In an effort to combat this, the project recruits local farmers to plant new, fast-growing trees in order to achieve the goal of one million planted trees<sup>39</sup>. Additionally, during the United Nations Secretary-General's Climate Summit in 2014, the New York Declaration on Forests was created<sup>40</sup>. A voluntary declaration, it pledges to end deforestation by 2030 and restore vast swatches of compromised land across the globe.

The UNEP also has the Convention on Biological Diversity (CBD), which is an international agreement ratified by 196 nations in order to discuss solutions for maintaining and conserving biological diversity<sup>41</sup>. It is regarded as a key document on the guidelines of how to sustainably use and converse biological diversity. As such, it provides a useful framework towards preventing human activity from damaging ecosystems. Recently, the convention passed CBD/COP/DEC/14/34, which is a resolution dictating the Post-2020 Global Biodiversity Framework to be established<sup>42</sup>. In it, plans for the future are laid out, including upcoming international projects designed to refocus global political aims to include the preservation of our environment<sup>43</sup>.

## Case Study: Sustainable Sushi

Bluefin Tuna is used to make one of the finest sushi in the world and it continues to grow in demand. Tuna, as a whole, is one of the most consumed fish in the world being sold raw, frozen, and canned. They are fished in over 70 countries and continue to be a staple in the diets of many. Over time, consumption of this fish, as well as fish in general, has increased especially in Japan, Western Europe, and North America.<sup>44</sup> Since the 1970s, tuna catches have continued to increase with the US alone importing 314,863 tons, equivalent to 1.3 billion dollars of tuna, in 2010. In Japan, people have even been willing to pay upwards of \$200,000 for a 1000 pound fish, hence why they are becoming extinct. The Bluefin Tuna specifically is the largest of the tuna species with the average weight being 550 pounds. These fish have a lifespan on average of 15 years and reach their full size within 3-5 years. Most Bluefins have been found throughout the

Atlantic Ocean but are especially prominent near the western Mediterranean and the Balearic Islands. However, since they are easily able to regulate their body temperatures through thermoregulation, Bluefins are capable of living in a variety of places spanning from North American to European waters.<sup>45</sup> Their diet consists of a plethora of species because of their position near the top in the food chain. Because they are a predator and one of the highest species in the chain, they are extremely important in maintaining the balance of the ecosystem. Without bigger predators in ecosystems, their habitats run the risk of imbalance which can cause other species to go extinct. In this scenario, it is predicted that if the Bluefins go extinct, it would lead to an increase in the squid population which would decrease the sardine population which is also needed to support the fishing industry. Another example of the removal of a keystone species, like the Bluefin, out of habitat was the removal of urchin predators on coral reefs which resulted in erosion of coral reefs and decreased diversity of the reef fish. Bluefins specifically are victims of overfishing due to their size and taste, becoming endangered because of it. It is estimated that their expected extinction risk is expected between 25 and 100 years as the Bluefin Tuna population has seen a sharp decline of over 97% since fishing began.<sup>46</sup> If this continues, it can offset the balance of the habitat which leads to prey species being able to expand which causes a destabilized food web and marine environment. Already, marine habitats are being affected by global climate change due to human actions. The rise in water temperature leads to a decrease in both carbon and oxygen in the oceans which can affect a Bluefin's ability to spawn, swim, and lay eggs as they are less likely to survive in warmer waters. Not only does this affect the Bluefins but the marine habitat as a whole which can have an even bigger impact on fisheries, the economy, and even our food supply due to our own actions. Through longline fishing, the UN has found that the average bycatch rate for tuna accounts for 28% which puts other species in danger. Some of the most common species that are known to travel with these tunas and often get caught are sharks, seabirds, and turtles. When other endangered species are caught as bycatch, such as the leatherback turtles in the Pacific, it worsens the issue. Although the UN has already created many fishing agreements and management organizations, they have still been unsuccessful in safely managing tuna fisheries because of the large amount of them. Also, because countries such as Spain and Morocco rely on the fishing industry as a large part of their economy, they are not as willing to stick to the quotas set. In Morocco specifically, there are 800 jobs solely associated with fishing and 500 in Spain. Currently, if fishers were only fishing the legal limit, it would result in a loss of around \$253,000 per year. In areas where their income is dependent on these entities, this quota can end up causing unemployment, economic hardship, and displacement, which would lead people to not want to follow the quotas and therefore, illegally fish.<sup>47</sup> In 2018, 76 people were arrested as 80 million tons of tuna were found on an illegal fishing boat. However, the International Commission for the Conservation of Atlantic Tunas (ICCAT), an organization that works to conserve the Bluefins as well as the other tunas in the Atlantic, has monitored and advised countries to reduce their catch by 50% or run the risk of a stock collapse which is extremely difficult to get out of. Based on the stock assessment model done in 2014 of the spawning stock biomass (SSB), it was estimated to be 17,000 mt which means that there were around 143,053 fishes capable of spawning. Although this may seem like a high number, it is small in comparison to the unfinished population that comes out to be 644,466 mt which would translate to 5,423,105 fishes capable of spawning if they weren't being consistently fished. Another regulation that was put in place as of 2019 was by The National Oceanic and Atmospheric Association (NOAA) which reports that each vessel obtains a Highly Migratory Species (HMS) permit to legally fish these tunas and limits vessels to three Bluefins per day. Even so, pirate fishing or illegal and unreported fishing stands as a constant threat to the tuna species as fishermen rely on these catches as their only income.<sup>48</sup> Overall, these unregulated

entities hurt the effectiveness of the science-based measurements put in place to monitor the fishing and therefore makes it more difficult for countries to enforce rules. Not only are our actions harmful to the habitats but they are harmful to us as well. Eventually, these fish make their ways into our bodies and if we continue to pollute water with plastic, oil, and pesticides, they will all come back to us. The two main pollutants that they ingest from the water are Persistent Organic Compounds (POPs) and mercury. These POPs then accumulate into the bodies of these animals because they are not readily broken down and these also play a negative impact on the reproduction process of the fish. Because Bluefins are also a top predator, they are at risk of accumulating the highest levels of chemicals that can produce harmful effects on our digestive, immune, and nervous systems. On June 20th, 2016, groups petitioned the Fisheries Service to protect these fish under the Endangered Species Act and that is where they will remain until countries combine their efforts to make a change.<sup>49</sup> Therefore, if humans remain ignorant of the detrimental effects that their actions play on these fish and the marine habitat as a whole, the Bluefin Tuna population will never recover.

## Questions to Consider

1. How can destruction of habitat be prevented when the economies of many countries- most of which are poor- rely on products whose harvesting methods are environmentally harmful?
2. Does your country rely on environmentally unsustainable products and is the local habitat impacted? If so, what is your country's plan- continue to use, or shift away towards products that are more sustainable?
3. What has your country done already in terms of implementing more sustainable practices in production to help combat topics such as climate change?
4. Has your country ever suffered from the loss of a certain species or habitat due to human activities?
5. What organizations have your country established and have they ever attended a UN convention on the aspect of habitat loss?
6. Has your country aided any nations struggling in conservation efforts? If so, how?

# Endnotes

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