

November 2022



HNP

Newsletter

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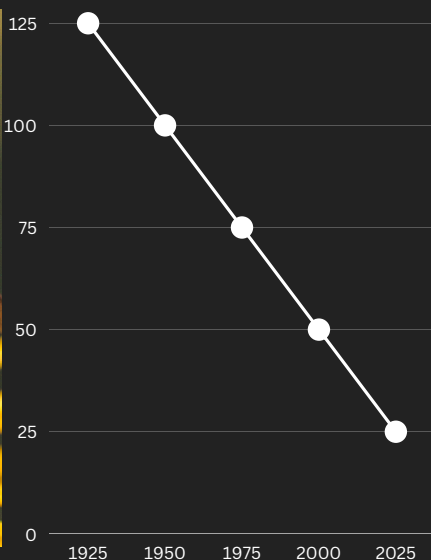
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(CNN, 2022)



(The Guardian, 2020)



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# Ocean Warming Increases Exponentially in Japan



## Greenhouse Gas' Correlation to Ocean Warming

During the last few months, Japan's seas have experienced unprecedented temperatures, considered an extreme case of ocean warming. Climate change has been the most prominent factor influencing these concerns. As the first incident of human-induced global warming in the oceans since August 2020, a study by the National Institute for Environmental Studies (NIES) links the surge in industrialization of the past two decades to an increase in sea surface temperatures (Phys Org, 2022). While the direct implications of human activity have yet to be specified, it has been speculated that the culprit lies in greenhouse gas emissions.

## Ocean Warming Affects Japan's Economy

An unlikely impact of ocean warming is the damage dealt to Japan's fishing industry, a significant economic stakeholder. It is reported that salmon yields have decreased as much as 70% compared to the quantities back in the early 2000s. Rising temperatures in the Sea of Okhotsk, located between Siberia and Japan, are to blame. In some areas, the waters have warmed by 3°C, and are considered among the "fastest warming on Earth." The sea is primarily responsible for producing large volumes of ice, which further contributes to denser, oxygen and nutrient-rich water. Climate change and ocean warming have shrunk ice sheets by 30%, eliminating 130,000 square miles of the precious resource. The lack of Okhotsk seawater threatens Northern Pacific wildlife, even with the continuous release of juvenile salmon. Between 2003 and 2018, catches dropped from 258,000 tons to a meager 80,000 tons. The livelihoods of fishermen are in jeopardy as imported fish becomes cheaper than wild-caught, and some are considering aquaculture (Denyer et al., 2019).



(Georges, 2019)

# Ocean Warming Increases Exponentially in Japan



## Call To Action

Global climate action is necessary to address ocean warming. In Japan, JAMSTEC's Research Institute for Global Change contributed to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (Japan Brandvoice, 2022). The document was delivered during the 2021 UN assembly to promote global warming issues. The organization has also developed AI technology to predict the most appropriate fishing grounds, reducing carbon emissions from sea-faring vessels. Other initiatives to explore could include the growth of aquatic plants, such as seagrass and kelp, which help absorb greenhouse gas emissions along the Japanese coastline (Editorial: Japan Needs to Do More to Tackle Ocean Warming, 2019). Slowing the progression of climate change is key to reducing ocean warming, meaning individuals can also contribute, to an extent. Consuming seafood from reliable, regulated sources and cutting down on plastic waste can help individuals minimize their carbon footprint (Thomson, 2019).

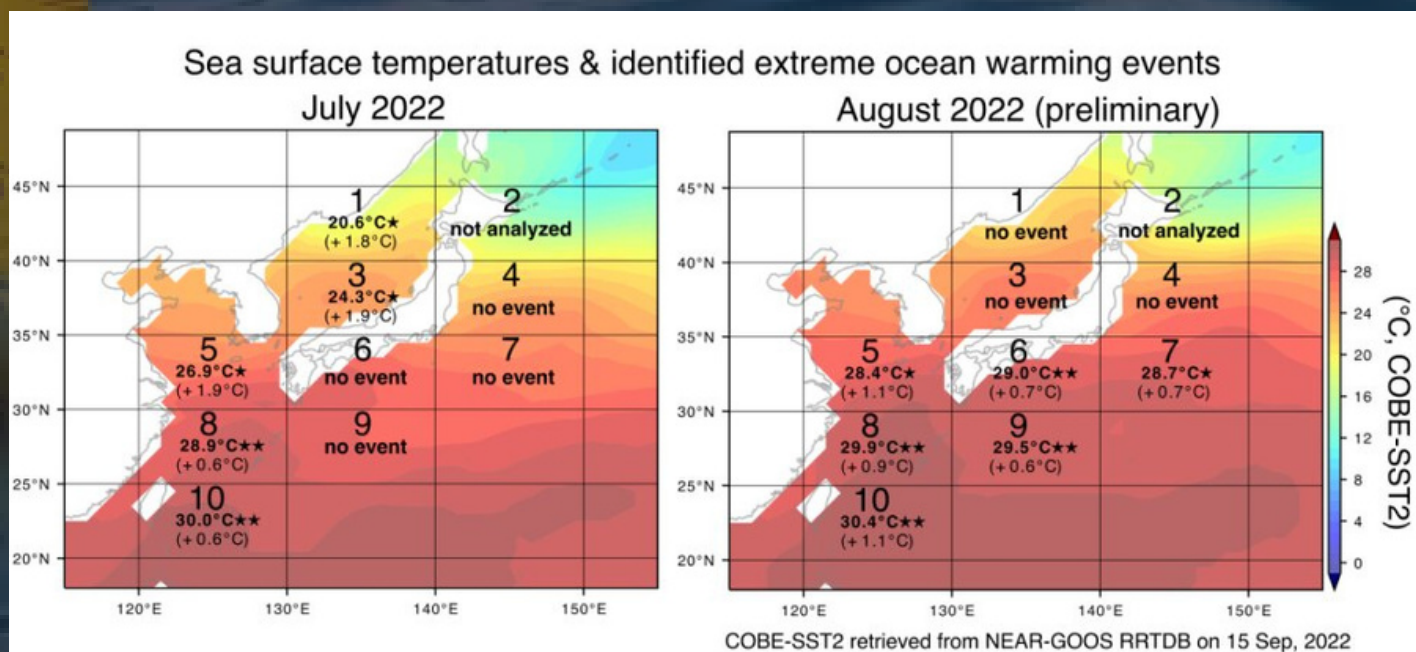


Figure 1: Changes in sea temperatures between July-August 2022 (NIES, 2022)



# Community Clean Up recap

HNP's Community Cleanup was a HUGE SUCCESS! Our cleanup held on October 16th was joined by over 200 people of all AGES, with the councillor of Brampton, Councillor Santos in attendance! Thank you to each and every one of you for coming out to support our initiative. Over sixteen bags of trash were collected including water bottles, pop cans, and food wrappers! We hope to see more events play out like this in the future!





# Community Clean Up recap

## Sponsors & Prizes

30% OFF  
COUPONS

\$50 GIFT  
CARD

Mermaid  
STRAW



La leur

Wanderruff

\$50 GIFT  
CARD

Our winners:

RAYNE  
MINI  
BAG



stone baked pizza

With Special Thanks to  
786 Pizza and Wings



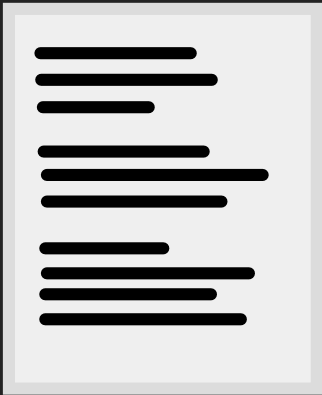


# NOVEMBER



# Essay Contest!!

The Human Nature Projects Ontario is currently planning to host a **Liberal Arts Competition throughout the month of November** in which participants will be able **explore** their **creativity through a variety of outlets** including **essay writing, article journalizing, and visual arts based on prompts**, with the **aim of driving the importance of sustainability in the corporate business world home**. This is an opportunity that will be able to **allow youth to delve into the urgency of environmental action**.



By participating in this competition, you will get the chance to...

EXPRESS YOURSELF through a format of your choice (i.e. written articles, artistic performances, visual media pieces, etc..)

GET FEATURED on the [hnpontario.org](http://hnpontario.org) website and social media handles!

WIN OVER \$200 in prizes!

BE HEARD from corporate companies internationally!

EARN UP TO 6 VOLUNTEER HOURS!



If interested, check HNP website and instagram for more updates!!

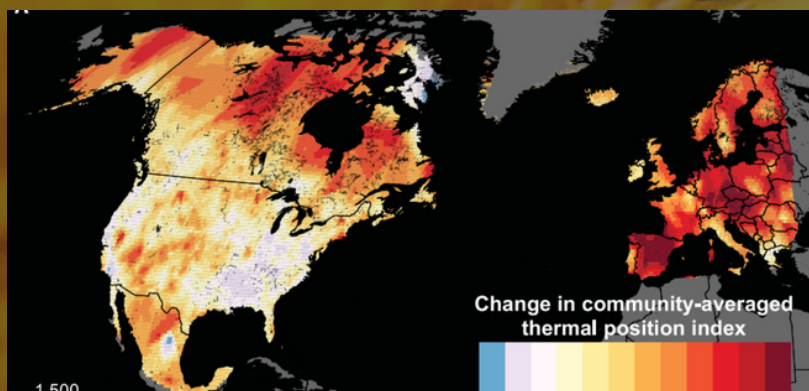
# Climate Change Causes the Population of Bumble Bees To Decline



## INTRODUCTION

Rises in temperature and shifts in rainfall attributed to climate change are causing a steady decline in bumble bees in both North America and Europe (Soroye, et. al, 2022). The driving force behind the steady decline is not habitat loss or pesticides, but rather global warming. A study that examined 66 bumblebee species in Europe and North America found that hot days increased extinction rates, while reducing colonization, presence and species diversity of bumblebees. Although bumblebees have colonized new areas, these rates are very low compared to the bumblebees that have reduced their spread. According to climate patterns, average temperatures continuing to rise pose an indefensible situation for bumbles to recover from (Soroye, et. al, 2022).

Figure 2: Change in temperature over places in NA and Europe. Red/Orange represents areas that have become intolerably hot for bumblebees to survive and reproduce in (Soroye, et. al, 2022).



## BUMBLEBEES VS

## HOTTER TEMPERATURES

As temperatures rise, bumblebees are slower to migrate North in comparison to other species, for instance monarch butterflies (Tonhasca, 2022). Bumblebees, when needed to lift off and fly, generate a lot of heat. Their body temperature rises above 30 degrees celsius, allowing them to withstand cold temperatures unlike many other insects. Moreover, bumble bees' bodies are insulated with thick hairs and their sections of black coloured furs also help them rapidly absorb heat. These physical properties make it difficult for bumblebees to live and pollinate plants in hotter temperatures (Tonhasca, 2022).



# Climate Change Causes the Population of Bumble Bees To Decline



## IMPACT of Findings

Bumblebees' population decreasing severely impacts ecosystem services. A very crucial ecosystem service bumblebees provide is pollination. Both humans and plants rely on pollination daily. Bumblebees are known as the best pollinators as they are able to fly faster and farther than many pollinating insects. They also start pollinating earlier in the spring and end later in fall, which makes them critical pollinators for some early and late blooming plants. Bumblebees also have tolerance for cool conditions and long distance flights in habitats such as high mountains and deserts, where plants may be miles away from each other. This allows them to pollinate in many diverse landscapes, whereas not many other insects are able to do this.

## METHODS + RESULTS

The study had bumblebee sighting datasets with approximately 550,000 observations of 66 bumble bees from Europe and North America, taken from 1902-1974 (baseline) and 2000-2014 (recent). The two distinct timelines allowed the tracking of extinction, presence of bumblebees over century of climate change and new areas in which they colonized. Through analyzing the data, it was concluded that the average presence of bumblebee occupying areas dropped by 46% in North America and by 17% in Europe. The richness (diversity) also declined in many areas across both continents (Soroye, et. al, 2022).



# Climate Change Causes Bumble Bees To Decline



## LIMITATIONS of the Study

There are certain limitations to this study as the data collected on observed richness in Europe may be inaccurate. Data were collected from regions that were cooler between the period 1901-1974 and to date have not been unusually hot compared to regions in North America. Thus, the decline of species richness reported for Europe is most likely an underestimation (Soroye, et. al, 2022).

## SOLUTIONS

Addressing climate change is the primary step to lessen the impacts on the bumble bee populations. Many people are not aware of the importance of bumble bees in our day to day lives, which is another point that needs to be addressed. Preserving natural areas in colder climates, in which the bumble bees thrive, can be crucial to keep bumblebees from declining. Some at home steps the general public can take is to plant bee friendly plants in their gardens (i.e. raspberries) to increase the bumblebee population.



(USA Today, 2021)



# Executive of the Month



*congratulations*



## **Finance Co-Director**

My name is William Lee and I am one of the Finance Directors here at HNP. I currently attend St. Michael's College, and I am in my senior year of high school. Watching political discussions, participating in and watching sports, and learning about environmental concerns are a few of my hobbies. I knew that by becoming a member of HNP, I would be able to assist in informing people on current environmental issues, and I am eager to address some of these issues with fresh and interesting ideas!



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<https://discord.gg/2rfG9SyBNW>



## Ocean Warming Increases Exponentially in Japan

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