



ENVIRONMENTAL STEWARDSHIP

NEWSLETTER

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VISION

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“We, the Musqueam, will work together to take care of our territory so the following generations will know how to be self-reliant. We will remember our own history and as well, use our traditional teachings to take care of everyone and everything on this earth”.

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FROM THE EDITOR

Hi everyone! On behalf of the Environmental Stewardship Department, I would like to wish everyone a happy June and a wonderful summer. We would like to thank everyone in the community for continuing to support our vision of a green and sustainable environment.

Given the circumstances regarding COVID-19, I would like to acknowledge all of the hard working staff and community members that have done their part to keep MIB operating in these uncertain times. We are truly thankful for everyone's contribution to keeping the community safe while the administration continues to operate accordingly.

Many thanks and have a great summer,

Yeganeh Asadian, M.Sc., P.Ag., Environmental Stewardship Department Manager

MICROPLASTICS & OCEAN HEALTH



Plastic is one of the most rampant types of marine debris found in our oceans and Great Lakes. Plastic debris that is displaced or discarded into water bodies can come in all shapes and sizes, and from various sources - but those that are less than five millimeters in length (or about the size of a sesame seed) are considered "microplastics."

New research from National Ocean Service, National Oceanic and Atmospheric Administration and other environmental organizations suggests the magnitude of plastic pollution in our oceans could be substantially worse than previously recorded. Researchers have analysed various marine micro-invertebrates, finding previously undetected microplastics. Although many ocean plastics eventually

break down, microscopic fragments remain in the water resulting in detrimental health to saltwater, organisms and ecosystems.

Some microplastics are so small that the nets traditionally used to collect pollutant samples are not able to catch them, allowing them to spread and remain unnoticed in the waters. However, researchers and engineers are developing new techniques that enable more accurate measurements, catching pieces smaller than the width of a human hair. One innovative young student, Fionn Ferreira, won the 2019 Google Science Fair with his concept of removing microplastics from the ocean using NASA's "magnetic liquid" – a substance that is capable of attracting microplastics in water without degrading water quality.

Major sources of microplastics:

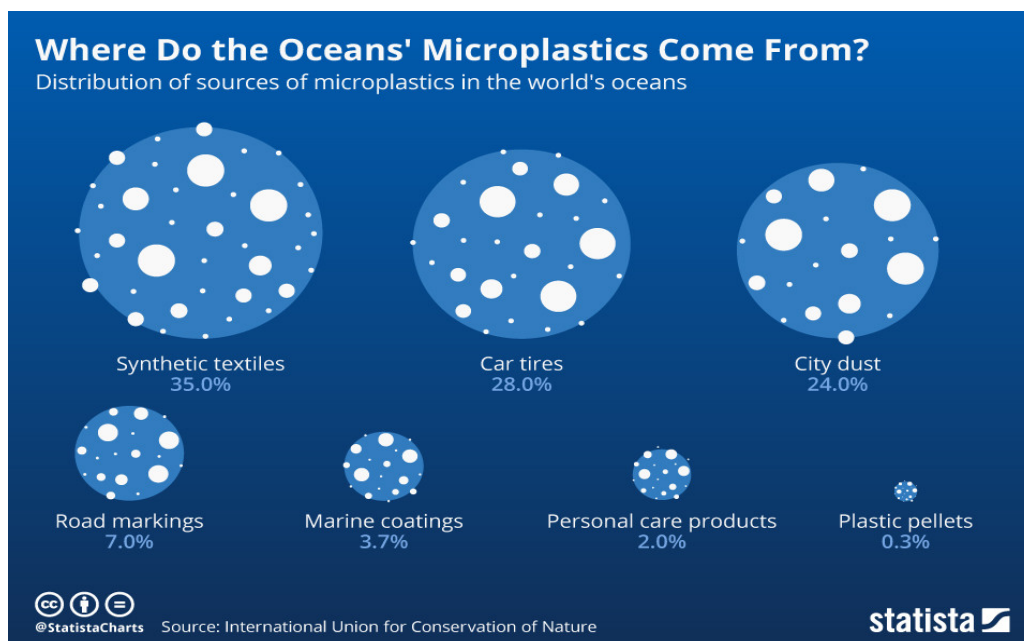


Figure 1. International Union for Conservation of Nature – Top sources

Microplastics are persistent in the marine ecosystem and due to their micro-sized particle nature, these fragments are mistaken as food and ingested by a range of marine biota which includes sea urchins, planktons, corals, lobsters, fish etc. and eventually get transferred to higher food chain levels. The effects of microplastic on marine biota is a concern as it leads to the entanglement and ingestion which can be devastating and lethal to marine life. Microplastics mainly come from a terrestrial source and thus coastal ecosystems (i.e. coral reefs) face a great threat due to microplastic pollution. The process of 'microplastic feeding' of corals involves ingestion, retention of plastic fragments and digestion. This harmful effect of microplastics on corals causes the presence of plastic fragments in tissue which leads to reduction in feeding capability and lowering in energy reserves.

Microplastics' features such as size, colours and their high buoyancy makes them easily available for fish. Fish consume microplastics by mistaking these fragments as planktons or other natural prey. Studies have shown that microplastic ingestion was found in the Spiny Chronis fish species where microplastics was present. In one of the experiments, ingestion of microplastics by fish showed that exposure of these

plastic fragments causes modifications in the intestine, resulting in alterations in the biological structure of cell membranes of fish.

Methods to Reduce Microplastics Levels in the Oceans

Here are some ways to help reduce the amount of microplastics that make their way into the waters:

- Avoid Plastic Containers – in modern society, it is difficult to not use and consume plastic products; however, the more of a conscious effort made to avoid using plastic and looking into alternatives, the more plastic is diverted from the ocean.
- Avoid Skin Care Products with Microbeads - microbeads are small pieces of plastic added to some health and beauty products, such as soaps, toothpastes and facial scrubs. By limiting or avoiding products with microbeads, you can help discourage manufacturers from producing them while reducing your own exposure to plastics.
- Practice Proper Recycling – one of the best ways to make an impact on the environment is through efficient diversion of harmful material into the waters. By being conscious of how you are disposing of waste, less material will turn into ocean pollution and you will actively reduce your ecological impact.
- Filter Your Tap Water – researchers have said that microplastics can be present in 70-95% of tap water in the US and Europe.

It is often easy to overlook the environmental impacts that are not directly visible in our everyday lives and areas of occupancy – given the vast depths of the oceans, the pollution and degradation can be hard to visualize; however, with the help of environmental organizations and education we can continue to move towards measures and practices that will offset destructive health to our waters and ecosystems.

NEW FIRST NATIONS AGREEMENT FOR CARIBOU



Towards the end of February 2020 there was a celebration between First Nations and environmental groups as the signing of a ground-breaking caribou partnership agreement took place. This new agreement led by 2 First Nations communities will protect endangered southern mountain caribou in the Peace Valley region, located in northern BC.

Saulteau and West Moberly First Nations signed the agreement with the provincial and federal governments to provide recovery and protection measures for southern mountain caribou herds in the central group. This agreement serves as a historical moment for endangered caribou, a species whose status has remained one of the most significant and controversial in regards to habitat protection and population decline. The agreement also highlights the impressive leadership of Saulteau and West Moberly First Nations. This plan is one of the first of its kind for BC in that it is prioritizing the endangered caribou issues that need to be addressed and acted upon, it also demonstrates the significance of following the leadership of First Nations in protecting wildlife and wilderness areas.

The plan includes involvement of an Indigenous Guardians Program with the support for ongoing recovery and protection efforts by the Saulteau and West Moberly First Nations. This plan was made possible through the perseverance of Indigenous communities to implement active and transparent solutions to protect caribou habitat – something that governmental agencies have continued to neglect and put on the back burner of environmental priorities. Saulteau and West Moberly have set an amazing example, and BC should take this initiative as an action to look to other interested First Nations to further the partnership on similar matters and future agreements to protect wildlife under the *Species at Risk Act (SARA)* and other related legislature.

The *Species at Risk Act* permits Canada to enter into agreements with First Nation and provincial governments to benefit species at risk. This partnership agreement ensures recovery and protection measures are consistent with the purposes and outcomes of *SARA*. It should be noted that this is a rare example, and highlights that the utilization and implementation of *SARA* is not used as often as it should be.



LLAMA ANTIBODIES FOR COVID-19



As around the clock research continues to find an effective treatment and solution to the COVID-19 pandemic, a unique finding in the studying of antibodies in Llamas has reportedly shown potential for a COVID-19 treatment.

The researchers, consisting of a team from the University of Texas, Ghent University in Belgium and the National Institutes of Health, have linked two copies of a special type of antibody that is produced by llamas to create a new antibody that attaches to protein on the virus that causes COVID-19. This protein is called the spike protein, and is responsible for letting the virus break into host cells. Early tests have shown that the antibody created from the llama can block viruses containing the spike protein from infecting host cells.

The team of researchers are preparing to move towards preclinical studies in other animals, and if all goes well eventually testing on humans. The objective is to develop a treatment that can assist people that have been infected as soon as possible. The distinction between vaccines and antibodies is that vaccines have to be taken 1-2 months before infection in order to provide immunity, whereas with antibody therapies there is direct protection immediately after treatment (even if you are already infected, in which case they would be used to reduce the severity of the virus). The immediate protection that antibody therapy has potential for is beneficial for everyone, especially elderly people and those at increased risk of exposure.

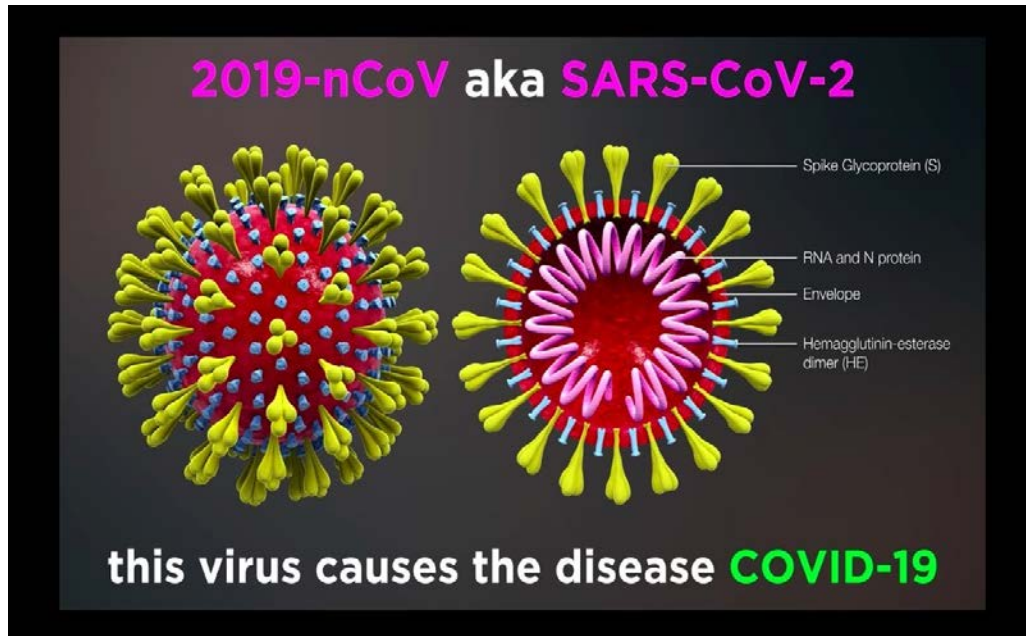


Figure 2. COVID-19 Breakdown – Professor Dave Explains (YouTube)

How it works: when llama’s immune systems detect foreign bacteria and viruses, the animal produces two types of antibodies – one of them being similar to human antibodies and the other being approximately 75% smaller. The smaller antibodies (also called nanobodies) can be used in an inhaler, allowing it to combat respiratory pathogens. This is unique and significant in that it allows for the antibody to be delivered right to the site of infection.

If further research, knowledge and funding is applied to these distinctive studies, these antibodies can have the potential to be fully engineered and pave the way towards accessible treatment for COVID-19 making it a key innovative medical achievement for health and safety worldwide.

SUMMER EVENTS AROUND VANCOUVER

* Please note that all events are pending BC Health & Safety Guidelines regarding COVID-19*

❖ National Indigenous People’s Day, June 21st

June 21st is National Indigenous People’s Day (previously called National Aboriginal Day) and is a time for celebrating First Nation’s culture. Vancouver’s main National Indigenous People’s Day celebrations begin at the Vancouver Aboriginal Friendship Centre at 1607 East Hastings Street. In addition, there are many places around the city to celebrate, including Trout Lake, Bill Reid Gallery, Gulf of Georgia Cannery, Holland Park and many others. Activities include First Nations dance performances, canoeing, art displays and cultural learning opportunities.

❖ Stanley Park Free Outdoor Movie Nights, July – August every Tuesday

Stanley Park is once again hosting free outdoor movie nights for select dates this summer. For its 12th anniversary, the Evo Summer Cinema Series at Stanley Park will take place every Tuesday in July and August starting on July 7, 2020. Hundreds of people gather for the weekly event that's held at the Grand Lawn at Ceperley Meadows near Second Beach.

❖ Khatsahlano Street Party, July 11th

The Khatsahlano Street Party is an annual event that takes place on July 11th, 2020 on West 4th Avenue in Vancouver's Kitsilano district. It is considered one of Vancouver's biggest arts and music festival, with festivities running on the Saturday from 11 am until 9 pm. This year will be the Khatsahlano Street Party's ninth anniversary. The same as in past years, the event features free concerts with local bands, street performances, artisan products for sale and many more activities. There are market stalls, food vendors, family-friendly activities and even a beer garden.

❖ Vancouver Pride Festival, July 27th – August 3rd

The Vancouver Pride Festival takes place each year around the first week of August. and the Pride Parade takes place on the Sunday (which is the second-to-last day of the festival). In 2020 Pride Week runs from July 27th until August 3rd and the parade occurs on the 2nd (which also happens to be the BC Day Long Weekend). Hosted by the Vancouver Pride Society, the week of events is celebrated not only by Vancouver's LGBTQIA2+ community, but by the entire city and visitors from around the world. Hundreds of thousands of people turn out each year to enjoy the music, rainbow colours, festive atmosphere and unique costumes.

❖ The Fair at the PNE, August 2nd – September 7th

For 110 years the PNE Fair has been a coveted summer gathering that transcends age, race, gender, religion and economic circumstance to bring our province together to celebrate and build collective memories. For British Columbians, it is a summer tradition that has always signified the fun-loving spirit of our province. The fair spans 5 weeks from August to September and offers a variety of events and activities, including the Playland amusement park, live entertainment, food vendors and carnival games.

CONTACT US

For further inquiries regarding the newsletter and our green initiatives, please contact:

Yeganeh Asadian, M.Sc., P.Ag.

Environmental Stewardship Manager

yasadian@musqueam.bc.ca

Ryan Kadoranian

Environmental Stewardship Technician

rkadoranian@musqueam.bc.ca

Office: [604.263.3261](tel:604.263.3261)

Website: <https://www.musqueam.bc.ca/departments/iga/environment/>

Instagram: @envirostew

Facebook: Enviro Stewardship

