Biology Student,

My AMI packet for you consists of science news/research articles with analysis questions. Please read the article for the appropriate AMI day and answer the questions on the space provided or a separate sheet of paper (some articles do not leave much room for answering). Answers need to be complete. Restating is not necessary but answers should be in proper sentence form. Don't forget to put your name on your work. I don't anticipate these assignments to take you more than 20 minutes to complete. Each AMI assignment will be due the day you return from corresponding snow day. Leave the rest of your packet at home. If you need help shoot me an e-mail. I hope you enjoy your snow day (spend some time outside).

Mrs. Donaldson

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AMI Day 1: *How Do Carbon Dioxide Levels in the Atmosphere & Photosynthesis Vary by Season and Latitude?*

AMI Day 2: *Invasive Species Cost the World Billions a Year*

AMI Day 3: Microplastics are Showing Up in Mount Everest's Snow

AMI Day 4: Electric Eels' Zaps Are More Powerful Than a Taser

AMI Day 5: The Nutrients from Sewage May Harm Coastal Ecosystems

ScienceNewsExplores
(formerly Science News for Students)

Bio AMI #3

ANALYZE THIS! // ENVIRONMENT

Analyze this: Microplastics are showing up in Mount Everest's snow

Tiny plastic fibers have been found in snow near the summit of Earth's tallest peak

Tents abound at Everest Base Camp, a gathering spot for people attempting to reach the summit. Climbers' clothing, gear and the garbage they leave behind may be the source of plastic pollution recently found in Everest's snow.

R.M. NUNES/ISTOCK / GETTY IMAGES PLUS

By **Carolyn Wilke**

January 6, 2021 at 6:30 am

Bits and pieces of plastic are turning up all over, including in the snow on Mount Everest.

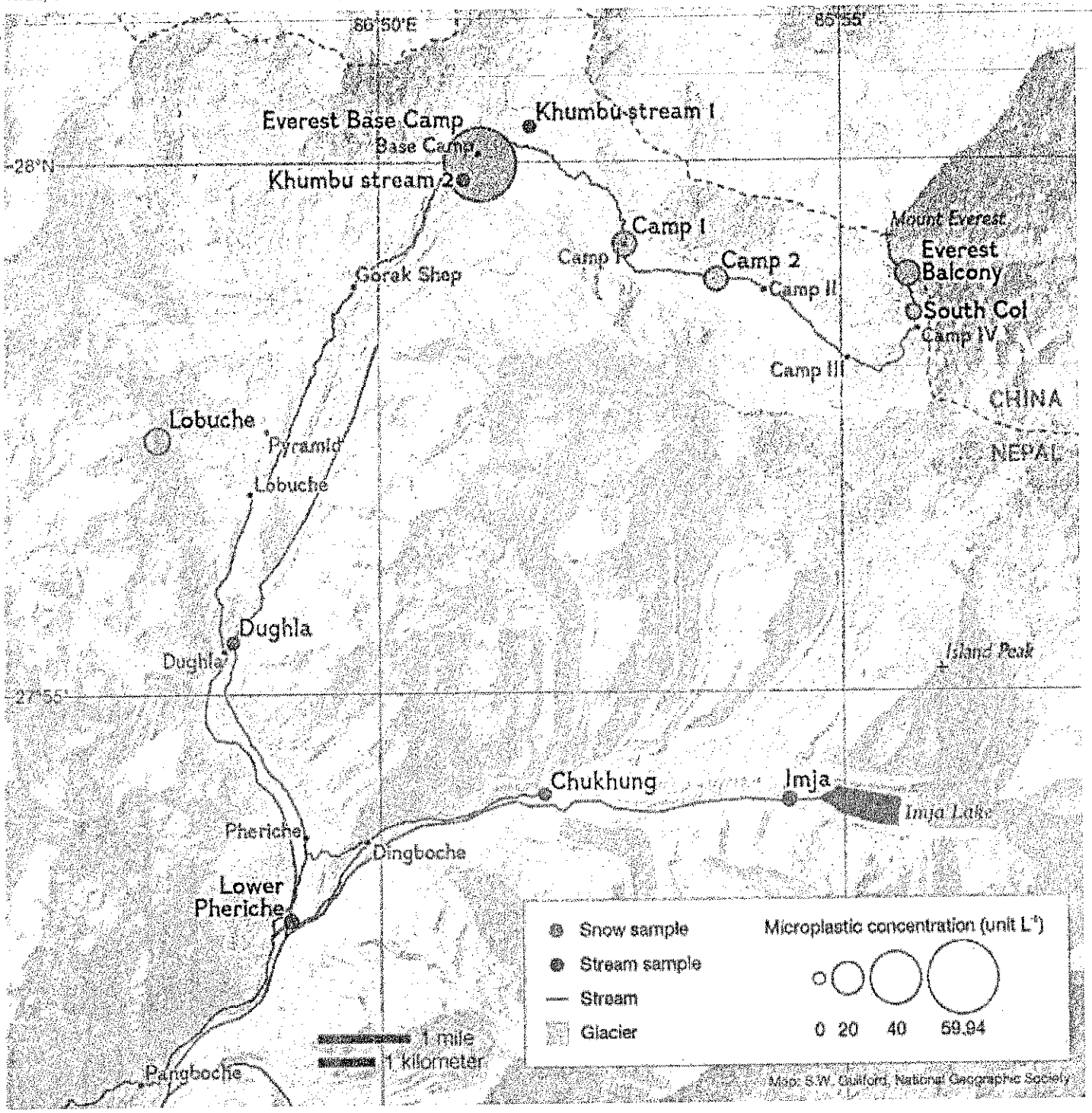
Reaching 8,850 meters (29,035 feet) above sea level, that mountain is Earth's tallest peak. Researchers found plastic in snow scooped from a spot 8,440 meters (27,690 feet) high, near Everest's summit.

"We've known that plastic is in the deep sea and now it's on the tallest mountain on Earth," says Imogen Napper. A marine scientist at the University of Plymouth in England, she was part of the research team. Plastic is everywhere in our environment, says Napper, who is also a National Geographic Explorer.

In the spring of 2019, Napper's team collected snow and stream water samples from several areas on the mountain. The researchers brought those samples back to the lab and tallied the number and type of microplastics each contained. Microplastics are plastic shreds smaller than 5 millimeters (0.2 inch). They come from bags, bottles and other items that have broken down into pieces.

All 11 snow samples from Everest contained microplastics. "I had no idea what the results were going to look like ... so that really took me aback," Napper says. A remote mountain that some consider pristine is polluted with microplastics, she says. Plastics also turned up in three of eight stream water samples, the researchers report November 20 in *One Earth*.

Perhaps the findings should not have been surprising. Each year hundreds of climbers attempt to reach the mountain's summit. They discard so much junk along their treks that the mountain has been called "the highest trash dump in the world." Most of the microplastics the team found were fibers made of a plastic called polyester. The plastic pieces likely come from climbers' equipment and clothes.



Researchers trekked much of the trail that leads to Mount Everest's summit. Along the way they collected stream and snow samples that they later searched for microplastic pollution. This map shows those locations and the concentrations of plastics samples contained.

I.E. NAPPER *ET AL/ONE EARTH* 2020

Data Dive:

1. Look at the map. Which sampling location is nearest to the summit (point marked "Mount Everest")? What is the distance (in either miles or kilometers) between the summit and the sampling location?

2. Which of the snow samples had the highest concentration of microplastics? Which had the lowest concentration?
3. How does the microplastic concentrations in stream samples compare with that for snow samples?
4. What factors may explain the differences between snow and stream samples?
5. How else might this data be presented?
6. In many studies, researchers will gather hundreds or even thousands of samples for analysis. In this study, though, they collected only 19 samples because it is difficult to transport materials up and down Everest. If that wasn't a problem, where else might the scientists have collected samples for their study to help them learn about how widely plastic is spread on Everest?

CITATIONS

Journal: I.E. Napper et al. Reaching New heights in plastic pollution — preliminary findings of microplastics on Mount Everest. *One Earth*. Published online November 20, 2020. doi: 10.1016/j.oneear.2020.10.020.