MICRONESIA

Micronesia is an area in the Pacific Ocean that is made up of thousands of islands, including the islands of Palau, Kiribati, and Guam. Over half a million people live on the islands in homes close to the shoreline. Many people make a living by fishing or by working in the tourism industry. Since 1870, sea levels have risen by eight inches on average and have already started to displace families and flood homes. What factors led to sea-level rise, and what are some potential future impacts if sea levels keep rising?

THE GREAT BARRIER REEF

The Great Barrier Reef is the longest living structure on earth (over 1400 miles!) along the eastern coast of Australia. Coral reefs support diverse communities of fish, turtles, sharks, and other marine life because they provide shelter and food for various species. In 2017, the Great Barrier Reef experienced two of the largest coral bleaching events in history. Coral bleaching happens when the coral (which are live animals!) expel the tiny colored organisms that live on them, which is what makes the coral turn white. If the coral stays white for a while, it will eventually die, which is bad news for the creatures that depend on the reefs for survival and for people who enjoy exploring the reefs. What factors led to coral bleaching, and what are some potential future impacts if corals don’t recover from bleaching? Alternatively, can you think of another climate impact pathway that would lead to coral bleaching?

THE ATLANTIC OCEAN

The Atlantic Ocean supports countless fisheries including lobster, black sea bass, bluefish, and blue crab. Like humans, fish are sensitive to temperature, and can get too hot or too cold when the temperature increases or decreases. If the fish are uncomfortable for an extended period of time, they might start to look for new waters to live where the temperature is more comfortable for them. If the fish move far away, this creates problems for fishermen, who rely on catching these fish in a certain area. With no fish around, there’s nothing to catch! Trace the climate impact pathway that leads to this disruption of fishing patterns. Can you think of another impact of changing fish migrations?

THE EVERGLADES

Coastlines are the parts of land that are closest to the ocean, and are therefore usually very close to sea level, or at “low elevation”. The Everglades in Florida are one example of a low elevation coastline. The Everglades also represent an estuarine wetland habitat, which is an area where freshwater near the coast mixes with saltwater from the ocean that washes up with the tides. This unique interaction supports a special variety of life that depends on this mixing. How can changes in the ocean affect this unique habitat? What climate impact pathway leads to those changes?

THE AMAZON

The massive Amazon rainforest spreads across 8 South American countries and is home to the greatest biodiversity on the planet. The vastness of the forest represents one of the largest carbon “sinks,” or carbon storage, in the world. Can you think of a pathway that would decrease the Amazon’s ability to store carbon (hint: think of what makes the Amazon a forest)? What other effect(s) would that pathway have?

THE HIMALAYAS

The highest mountain range in the world supports animals that are especially adapted to cold temperatures, such as the snow leopard. Warming temperatures in high altitude lead to melting snow and warmer climates. Snow leopards, which have adapted to live in cooler temperatures, are especially vulnerable to these shifts. Seeking colder weather, snow leopards continue to migrate north to find weather that is more suitable for them to live in. They have already disappeared from places they used to live because the habitat is no longer suitable. Trace the climate impact pathway that has led to snow leopards leading north. How has this migration affected the lives of snow leopards?

THE ARCTIC

The northernmost part of the globe, the Arctic, is home to terrestrial and marine animals who depend on the ice for their daily activities. Recently, polar bears who rely on the ice as platforms for hunting their favorite source of food, seals, have had an increasingly difficult time hunting. If polar bears continue to have difficulty finding enough food for themselves and their cubs, they will face an even greater danger of becoming extinct. Can you trace the climate impact pathway that may be making it more difficult for polar bears to hunt?

CITIES

Over one half of the world’s population lives in cities or urban environments. Cities are impacted by climate change in different ways. Cities on the coast can be at-risk of sea-level rise, while cities that are inland can be at risk of drought or intense heat waves. Many cities are trying to adapt to or mitigate the effects of climate change. Can you think of a climate impact pathway in cities that either shows how cities might contribute to climate change (think of factories, or maybe lots of traffic), OR a pathway that shows how people who live in cities might be affected by climate change?

SAHARA DESERT

The Sahara Desert is the largest and driest desert on earth. In the face of climate change, these conditions are becoming even more extreme and leading to the expansion of the Sahara Desert, a process known as desertification. What is a possible climate impact pathway that could be expanding the area of the Sahara, and what are some human or animal impacts from desertification?

CALIFORNIA-- HOME!

The area that we live in has lots of trees and gets plenty of sunshine. Climate change is causing less rainfall in this area and warmer temperatures than usual. With less rain, the trees are getting drier, and when temperatures get very warm, wildfires can spark more easily. Can you create a climate impact pathway that connects greenhouse gas emissions to problems we are already experiencing due to a changing climate?

OR— THE PACIFIC NORTHWEST-- HOME!

The area that we live in has lots of and lots of trees and usually gets plenty of rain. Climate change is causing less rainfall in this area and warmer temperatures than usual. With less rain, the trees are getting drier, and when temperatures get very warm, wildfires can spark more easily. Can you create a climate impact pathway that connects greenhouse gas emissions to an increase in wildfires?