I.D. Antarctica

with Andrew Corso

This slide deck has been reconstructed from the archived blog posts of Andrew Corso, a scientist working at Palmer Research Station in Antartica. Andrew will take you on a journey through the unique pockets of life found on the most southern reaches of our planet.

Help Andrew identify some of the amazing species that he found during his last research cruise and find out what makes these animals so uniquely adapted to this icy environment.

Worksheets are hyperlinked PDFs that require Internet access to view.

Let's Meet Our Scientist

Andrew Corso isn't your typical scientist. While most people think of white lab coats, goggles, computers, and charts, Andrew gets to go out "in the field" to collect samples. In this case, the field is Antarctica. Right now, as you're reading this, there are creatures smaller than any human being can see living in one of the coldest places on Earth. Without them, there might not be any life on Earth at all!

"My name is Andrew Corso, a PhD candidate at the Virginia Institute of Marine Science, and I will be leading I.D. Antarctica. While I am primarily researching the impacts of climate change on Antarctic fishes, I have the opportunity to work with scientists studying a variety of Antarctic organisms, ranging from bacteria to whales. My greatest passion is photography and my specialized equipment will help illustrate the otherworldly animals of the Southern Ocean."

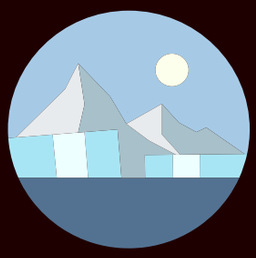
-Andrew

Introduction

"Antarctica is the southernmost continent and is surrounded by the Southern Ocean. Sea ice in the Southern Ocean thickens during the 24-hour darkness of winter, and partially melts during summer. When there is enough light in early spring, whole communities of microscopic organisms called algae form below and within the sea ice. They convert sunlight to energy through a process called photosynthesis and serve as a valuable food source for all the marine creatures that live underneath the ice."

"We left from the tip of Chile in South America on our research vessel, the *R/V Laurence M. Gould*. After crossing some of the roughest seas on Earth, we have arrived at Palmer Research Station near the Western Antarctic Peninsula. Over the next weeks, I hope you can help me use the scientific method of dichotomy to identify animals."

-Andrew

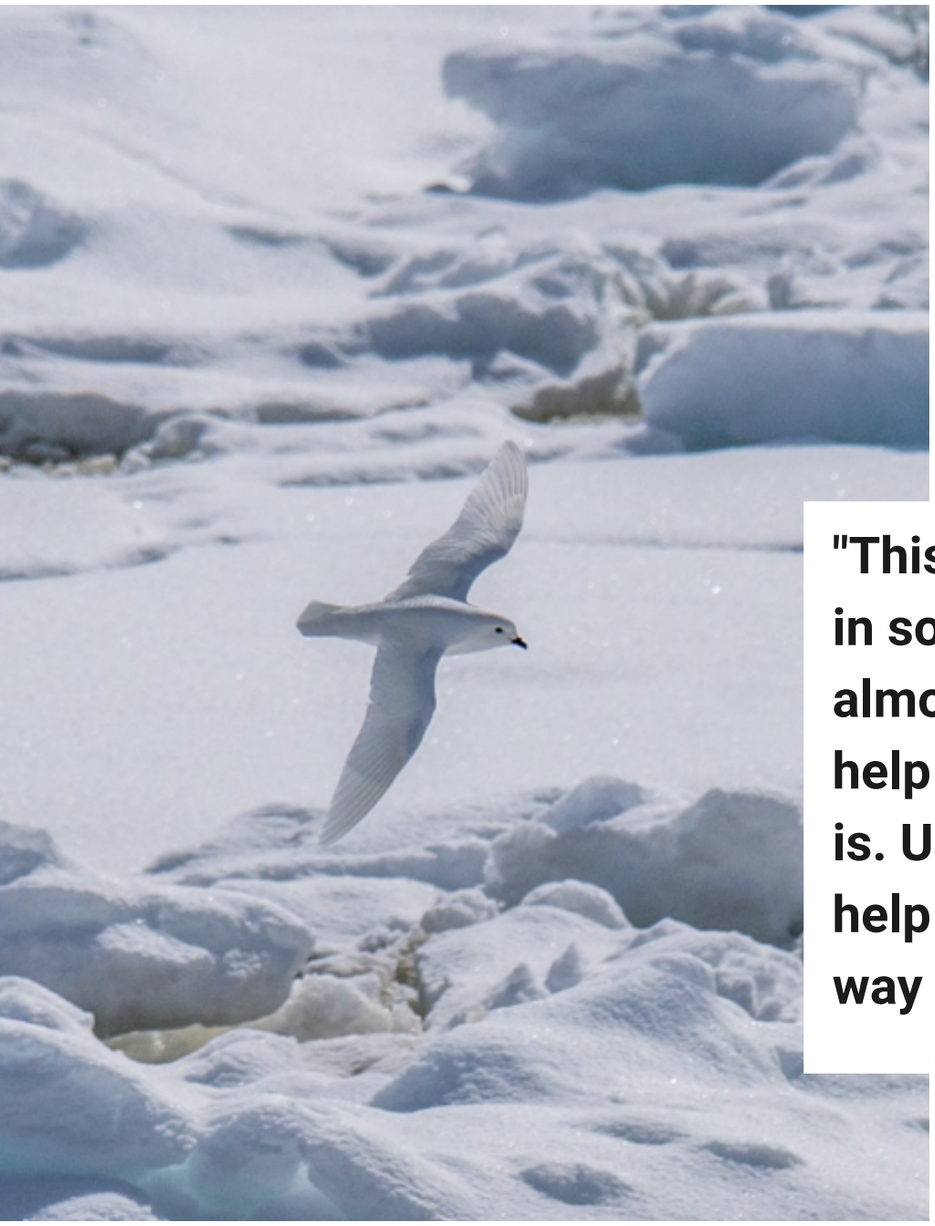


Click the iceberg to see a map of Antarctica and complete the following worksheet.

Circle the Western Antarctic Peninsula

Using Dichotomy to Identify Animals

This style is easy to use. Dichotomy is based on an old Greek word that means “dividing in two”. Therefore, we start at the beginning with a question that has two choices based on the animal’s appearance. One choice will lead us to another set of choices, then another, and another, until eventually we arrive at an identification. It’s important to consider your choice carefully and start at the beginning, and to not skip ahead, or you will end up with the wrong identification.



Week 1

PDF

"This beautiful white bird blends in so well with her surroundings, I almost missed her! Now I need help identifying what species she is. Use the worksheet above to help identify the bird the same way a real polar scientist would."

-Andrew

Week 2

"To the right is our scientific exploration vessel, the *Laurence M Gould*. We're using a fishing net to capture the tiny creatures that form a key link in the

Antarctic food chain called zooplankton. Zooplankton are so essential, Antarctica might not have any living things at all without them! Use the worksheet to help us identify the zooplankton pictured."

-Andrew

PDF

Week 3

"This week we have caught some larval fishes during a net tow in the bay pictured.

"Most adult fishes in the Southern Ocean are **benthic**, which means they live near the sea floor. However, many of these fishes have **pelagic** larval stages. So, adults lay their eggs on the sea floor, the eggs eventually hatch, and the larval fishes move to the upper ~200 meters of the ocean.

Zooplankton, like the one you identified last week, are eaten by large larval fishes, juveniles, and adults you see to the left."

Help us identify this fish with the worksheet linked here:

-Andrew

Week 4

"We normally send a single net down to a

certain depth in the water column and then bring it back onboard the ship. However, marine scientists are frequently interested in what specific depth an organism came from. This information informs us about their habitat, what other species they are interacting with, and whether they move to different depths during their life cycle. A MOCNESS net, like the one pictured above, is made up of 10 separate nets opened at different depths. When we opened it up, we found the two creatures pictured to the left.Can you identify which is predator and which is prey?" **-Andrew**

Click here for the worksheet

"We are heading back to Chile later this week. We said goodbye to our friends and colleagues at Palmer Research Station, which has been our base during this adventure. It is a very cool place filled with wonderful people. The base is pictured to the left."

"Yesterday, we were exploring an island near Palmer Station called Torgersen just for

fun and found a few of my favorite birds, pictured to the right. I would appreciate some help figuring out what species they are."

-Andrew

Click this guy for the worksheet

Heading Home

The coast of Chile in the distance mean we've completed the toughest part of our journey home.

"After a remarkably smooth crossing of the Drake Passage, we made it back to Punta Arenas, Chile. It's not always so smooth, though!

After being in a polar environmental for nearly two months, it's remarkable how sensitive you are to the odors of plants and dirt. For example, I loved getting my first smell of grass again. For the rest of Spring semester, I will be using a type of math called statistics to analyze trends in the abundance of fishes we caught. We generally spend more time doing statistics or work in the laboratory than we do in the field. Statistics is incredibly important for verifying what we hypothesize. Finally, it's important to remember you don't have to travel to the bottom of the world to discover unique animals. Insects in your backyard can be as interesting to look at as zooplankton, you just have to find them!" -**Andrew**

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