

The Big Picture – Adelie Penguins

Extension – Create your own data graph for The Big Picture

Summary

“The Palmer LTER, established in the Fall of 1990, is one of the National Science Foundation sponsored Long Term Ecological Research Sites which is funded by the NSF Office of Polar Programs. It focuses on the pelagic marine ecosystem along the west Antarctic Peninsula, and the ecological processes which link the extent of annual sea ice to the biological dynamics of different trophic levels. Sea ice is the major physical factor affecting the structure and function of polar biota. Inter-annual cycles and/or trends in the annual extent of pack ice are hypothesized to impact all levels of the food web, from total annual primary production to breeding success in seabirds. The Antarctic Peninsula region is experiencing the most rapid climate warming on the planet with large and rapid reductions in sea ice cover and corresponding responses at all levels of the food chain.” (<https://lternet.edu/sites/pal>)

Students can access the database of this Long Term Ecological Research (LTER) site to download data and create graphs, which they may choose to utilize in the accompanying lesson, The Big Picture.

*[TAGS: Antarctica, LTER, population change)*

Key Concepts

Graphing

Data analysis

Objectives

* ***Access*** the Palmer LTER database to ***collect*** ***and download*** data. This extension specifically targets data on Adelie penguin breeding pairs and chicks over the span of years from 1992-2013
* ***Manipulate the data spreadsheet*** to select only pertinent data
* ***Graph*** the data; in this example, the Adelie breeding pairs and chick counts
* ***Utilize*** this student-created graph in The Big Picture Lesson

Materials

* Tutorial: *Accessing Palmer LTER Data (Instructions for Datazoo)*
* Computers with Excel or other graphing programs

Procedure

1. Follow the instructions from the PolarICE\_Accessing Palmer LTER Data worksheet to access the database.
2. Follow the link to open the **Catalog**.
3. Log on to the database (Step 1)
4. Under **Datasets**, select **Adelie Penguin Adult and Chick Counts**
5. Information regarding data collection is found using the **Documentation** tab on the left and **Methods/Protocols** on the right.
6. To access data, click **Data** tab and **Download**.
7. Click **Download data**, then **Download XLS**.
8. This is a large database; students can delete the **Time** column and the **Colony** column. The colony number is just a code # to denote a specific colony site on an island. It is not necessary and may be confusing.
9. Select data from only **TOR**, the Torgersen Island colony.
10. Total the number of **adult** breeding pairs and **chicks** for each of the **years** 1992-2013.
11. Create a graph. Add appropriate title and axis titles.
12. This graph may be used to continue with The Big Picture lesson or other data analysis activities.

Additional Resources

* Sample Excel Spreadsheet and Graph of sample data on *Total annual count of Adelie breeding pairs and chick counts over time from 1992-2013*
* Tutorial for accessing data from Palmer LTER database
* Palmer LTER database: <http://pal.lternet.edu/data>
* Palmer LTER website: <http://pal.lternet.edu>