

# Palmer penguins productivity and reproducibility preregistration

Olivia Boven

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## Study Information

### 1. Title

Palmer penguins productivity and reproducibility.

### 2. Authorship

Olivia Boven <sup>1</sup>

<sup>1</sup> University of British Columbia Okanagan

### 3. Description

This study is intended to demonstrate a reproducible scientific workflow using the *palmerpenguins* dataset.

### 4. Hypotheses

1. Bill length and depth will vary between penguin species.

## Design Plan

We will download the readily accessible *palmer penguins* dataset and create a scatterplot of bill length and bill depth color-coded by species. We will visually assess this plot to see if the three species overlap or not.

### 5. Study Type

- Observational Study - Data is collected from study subjects that are not randomly assigned to a treatment. This includes surveys, natural experiments, and regression discontinuity designs.

### 6. Blinding

- No blinding is involved in this study.

### 7. Is there any additional blinding in this study?

Not applicable.

## 8. Study design

We have three species with basic measurement taken (bill length, bill depth, mass, flipper length, sex, etc.).

## 9. Randomization

Not applicable.

## Sampling Plan

We will be using the “penguins” dataset from the existing *palmerpenguins* package.

## 10. Existing data

- Registration following analysis of the data: As of the date of submission, you have accessed and analyzed some of the data relevant to the research plan. This includes preliminary analysis of variables, calculation of descriptive statistics, and observation of data distributions. Please see [cos.io/prereg](https://cos.io/prereg) for more information.

## 11. Explanation of existing data

I have not taken any steps.

## 12. Data collection procedures

This data was previously collected by Horst et al. (2020).

## 13. Sample size

124 Gentoo penguins, 152 Adelie penguins, and 68 Chinstrap penguins.

## 14. Sample size rationale

This dataset was collected previously, so I could not choose the sample size.

## 15. Stopping rule

Not applicable.

## Variables

flipper length: millimeters bill length: millimeters bill depth: millimeters body mass: grams island: where the individual was found species: the species of an individual sex: the sex of an individual (male or female) year: the year of data collection

## 16. Manipulated variables

Not applicable.

## **17. Measured variables**

flipper length: millimeters bill length: millimeters bill depth: millimeters body mass: grams island: where the individual was found species: the species of an individual sex: the sex of an individual (male or female) year: the year of data collection

## **18. Indices**

Not applicable.

## **Analysis Plan**

Make a scatter plot of bill length versus bill depth, then look at the scatter plot.

## **19. Statistical models**

N/A.

## **20. Transformations**

Not applicable.

## **21. Inference criteria**

Not applicable.

## **22. Data exclusion**

Not applicable.

## **23. Missing data**

Not applicable.

## **24. Exploratory analysis**

Not applicable.

## **Other**

## **25. Other**

Not applicable.

## **References**

Horst AM, Hill AP, Gorman KB (2020). palmerpenguins: Palmer Archipelago (Antarctica) penguin data. R package version 0.1.0 <https://allisonhorst.github.io/palmerpenguins/>. doi: 10.5281/zenodo.3960218