

Freeman Seabird Preserve Wedge-tailed Shearwater Chick Data from 2009

In 2009 Dr. David Hyrenbach followed twenty-two nests that season. Below you will find his data for the hatching dates and the final chick mass (at fledging time – Nov. 15) for the chicks in each nest. Follow the directions below to calculate the average and the median hatch date and the average and median mass of the chicks. Make correlations between the data sets to determine if hatch date and mass are related.



Nest Number	Hatch Date	Final Mass (g)
1	August 12 th	355
3	August 12 th	325
5	August 4 th	395
6	August 20 th	--
8	August 4 th	475
10	August 12 th	--
11	August 12 th	430
12	August 12 th	360
15	August 4 th	425
16	August 20 th	--
17	August 4 th	335
19	August 27 th	280
20	August 12 th	400
22	August 12 th	310
23	August 4 th	440
24	August 12 th	390
25	August 28 th	310
26	August 20 th	380
27	August 12 th	495
28	August 20 th	380
30	August 20 th	315
31	August 12 th	395



Directions for Analyzing Data

- In order to calculate the average hatching date, researchers turn the date into the day number of the year (the Julian Date). For example, August 12th is the 224th day of the year (out of 365 days).
- Complete the data conversation for hatching date below. Check out NASA's Julian Day table: <http://landweb.nascom.nasa.gov/browse/calendar.html>
- Once you have hatching data in number form calculate the mean (or average) by adding all of the hatching data together and dividing by the number of samples collected.
- The median is the value that occupies the mid-point of the dataset (the 50% percentile of the values). For example, the median of 224, 225 and 226 is the middle value (225 - the value in the middle). For example, the median of 224 and 225 is 224.5 (half-way between the two values).
- Calculate the median of the 19 weights by ranking the values from the smallest to the largest. Then, the median will be the value that is the middle of the list (with the rank position of 10): so 9 weights are smaller and 9 weights are larger. If you have ties, it does not matter. You can still rank the data.
- Calculate the median of the 22 hatching dates by identifying the dates ranked on position 11 and 12 (10 dates are equal or smaller and 10 dates are equal or larger). Then, average these values. The median is the average of the values ranked in position 11 and 12.
- Follow the directions above for calculating the mean and the median of the final mass of the chicks.
- Use the data and your calculations to help you answer the following questions.

Hatching Date

Hatching Date	Julian Day (Day Number of the Year)
August 4 th	
August 12 th	224
August 20 th	
August 27 th	
August 28 th	

Weight Data:

Smallest value: _____

Largest value: _____

Hatching Date Calculations

Mean Hatching Date	Day Number of Year	Month/Day
Median Hatching Date	Day Number of Year	Month/Day

Chick Mass Calculations

Mean Chick Mass (g)	
Median Chick Mass (g)	

Mass Data:

Smallest value: _____

Largest value: _____

Discussion Questions

1. Explain a possible reason for the missing nest numbers in this data set.

2. Explain a possible reason for the missing final chick mass data in this dataset.

3. Describe the relationship between the hatching date and the chick final mass.

4. Describe the steps you took (or how you analyzed the data) so that you could compare the hatching date and chick final mass data?

5. Provide a possible explanation for the relationship you found between these data sets.

Use this space to show your work for finding the average and the median values of the chick hatching date and the chick mass, and to find the relationship between these two datasets (Question 3).