# Fun With Analyzing Ocean Data

By Katie McDonnell, August 2020

## Teacher Notes

It is recommended that the teacher goes over the first two paragraphs with the whole class, allowing students to have a good understanding of how data is collected and the importance of data analysis. Next, the teacher should either have students work independently or in small groups on questions 1-5, allowing each student to have the opportunity to think through the questions. When all students are finished with questions 1-5, the teacher should ask if students have any questions and go over the answers.

## Possible Answers

1a. ~14.4 C

1b. ~14.0 C to ~18.4 C

1c. ~15.9 C. Answers may vary slightly depending on how students estimate the graph values, but students should understand the process of calculating an average using graph data.

2a. Sea surface temperature increases with time. The trendline would be positive (upward sloping) and could be linear for this time period.

2b. ~14.0 C to ~22.3 C. The range of temperatures experienced over the full month of June is about 4 degrees C greater than the range of temperatures experienced during the first week of June only.

3a. The sea surface temperature increases during the spring and summer months and decreases during the fall and winter months.

3b. The sea surface temperature is coldest in January and warmest during August.

3c. Answers vary, but students should understand that ocean water is warmer during the summer than the winter.

4a. The sea surface temperature roughly oscillates, where the sea surface temperature increases to ~25-30 C during the summer and decreases to ~0-5 C during the winter each year.

4b. 2014 had the highest maximum sea surface temperature, and 2018 had the lowest minimum sea surface temperature.

4c. The minimum sea surface temperature in 2020 is greater than the minimum sea surfaces temperatures in the preceding years. Students might hypothesize that this warm year is potentially due to climate change, but we would need a longer dataset to verify this is actually a long-term trend and not just year-to-year variability.

5a. The sea surface temperatures in Key West are greater than the sea surface temperatures in Atlantic City year round. The range of sea surface temperatures experienced in Key West is smaller than the range of sea surface temperatures experienced in Atlantic City.

5b. Answers vary, but students should understand that the ocean water is generally warmer in Key West than Atlantic City year round. However, some students may note that in the summer, the warm waters off Atlantic City may be more desirable than the very warm waters off Key West at that time of year.