

DO pH-VARIABLE HABITATS PROVIDE REFUGE FOR STONE CRABS FROM COASTAL ACIDIFICATION?

ACTIVITY 1 – DIRECTIONS AND ANSWER KEY

Please use the directions and answer key in this handout if students are unable to access the Tampa Bay LOBO website. A link to an Excel file of data is included below.

DIRECTIONS FOR STUDENTS

1. Use the summarized data in **Table S1** to create dot plots in Excel or Google Sheets that depict the following comparisons.
 - a. $p\text{CO}_2$ vs. pH
 - b. Temperature vs. pHEach comparison (a and b) should be its own independent plot and pH should always be on the y-axis. Include labels and units where appropriate.
2. Add a linear line of best fit to the plots in Excel or Google Sheets to represent the trend in the data.
3. Using the dot plots, answer the Activity 1 discussion questions.

TABLE S1. Average daily pH, seawater $p\text{CO}_2$ (ppm), and temperature ($^{\circ}\text{C}$) collected during July 2021 from the USGS LOBO monitoring site in Tampa Bay (<http://tampabay.loboviz.com/>). This table is also available as an Excel file at <https://tos.org/oceanography/assets/docs/36-gravinese-tableS1.xlsx>. Please note: All data from the tampabay.loboviz buoy are considered provisional and are subject to revision upon final approval by the US Geological Survey.

DATE	pH	$p\text{CO}_2$ (ppm)	TEMPERATURE ($^{\circ}\text{C}$)
7/1/2021	7.90	466.95	28.84
7/2/2021	7.93	427.84	28.88
7/3/2021	7.95	410.59	28.79
7/4/2021	7.99	373.97	28.96
7/5/2021	8.01	349.45	29.33
7/6/2021	8.00	358.07	29.05
7/7/2021	7.98	373.52	28.58
7/8/2021	8.03	322.84	28.73
7/9/2021	8.08	287.06	29.22
7/10/2021	8.09	276.84	29.67
7/11/2021	8.07	289.59	29.84
7/12/2021	8.04	311.25	29.77
7/13/2021	8.01	336.64	29.52
7/14/2021	8.00	343.42	29.44
7/15/2021	7.97	370.86	29.36
7/16/2021	7.94	397.58	29.40
7/17/2021	7.94	398.43	29.64
7/18/2021	7.91	441.40	29.85
7/19/2021	7.89	457.21	30.18
7/20/2021	7.88	464.47	30.51
7/21/2021	7.86	484.05	30.84
7/22/2021	7.83	516.18	31.16
7/23/2021	7.80	552.10	31.32
7/24/2021	7.80	566.34	31.53
7/25/2021	7.78	571.15	31.68
7/26/2021	7.77	594.96	31.61
7/27/2021	7.76	614.18	31.46
7/28/2021	7.74	636.32	31.35
7/29/2021	7.74	630.69	31.16
7/30/2021	7.74	641.38	30.99
7/31/2021	7.74	647.90	31.09

ANSWER KEY

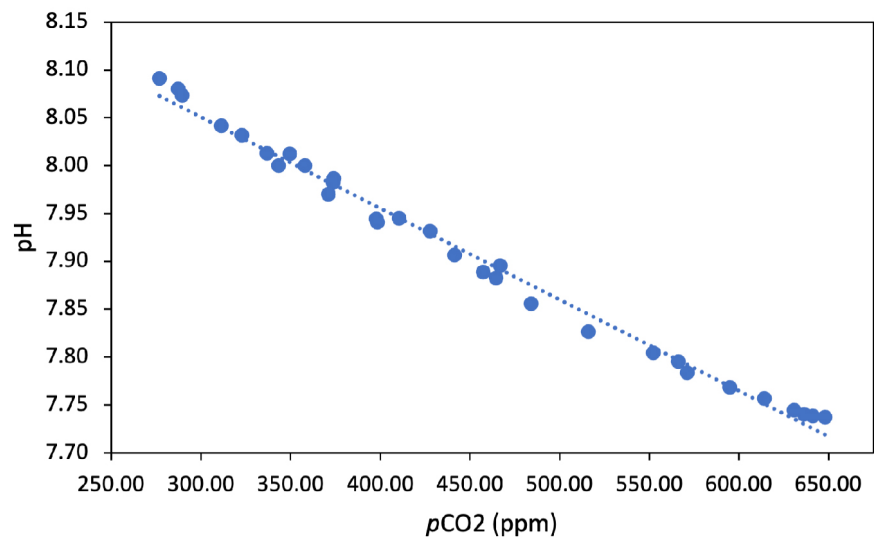


FIGURE 1. The relationship between pH and $p\text{CO}_2$ in Tampa Bay as daily averages during July 2021. The dotted line represents the line of best fit.

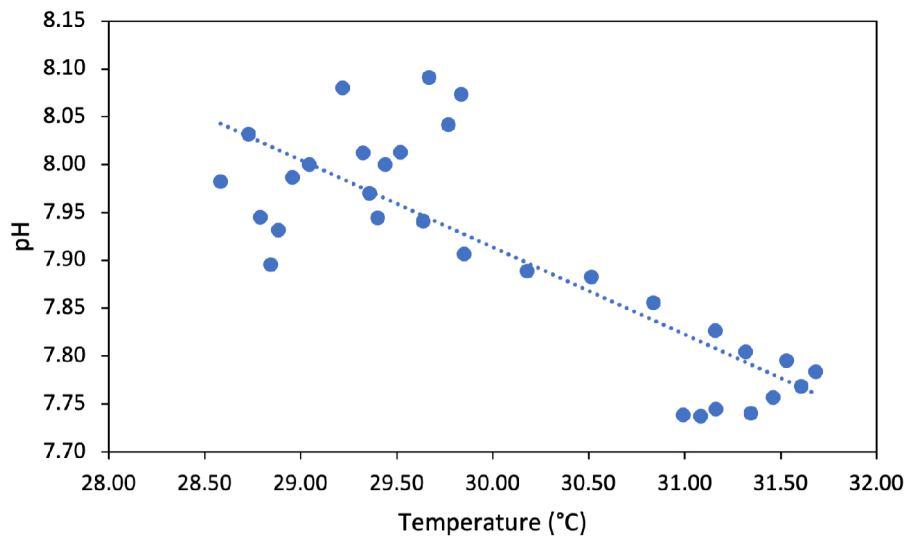


FIGURE 2. The relationship between pH and temperature in Tampa Bay as daily averages during July 2021. The dotted line represents the line of best fit.