Biostats Practice Problem

The following data sets are measurements made of the thickness (mm) of snail shells found in New England. Samples were collected from sites with crab predators and without crab predators.

|  |  |
| --- | --- |
| **Habitat** | **Thickness (mm) of snail shell** |
| **With crabs** | 1.02 | 0.88 | 0.75 | 0.94 | 0.81 | 0.98 | 0.79 | 0.83 | 0.86 | 0.93 | 0.91 | 1.05 |
| **Without crabs** | 0.71 | 0.78 | 0.55 | 0.42 | 0.61 | 0.58 | 0.49 | 0.33 | 0.36 | 0.82 | 0.62 | 0.54 |

**Part A: Standard Deviation**

1. Calculate the mean snail shell thickness in habitats with crabs and without crabs.
2. Calculate the standard deviation of shell thickness in habitats with crabs and without crabs.
3. Summarize your results in a complete data table on Excel.
4. Which habitat has snails with thicker shells? Suggest a reason for this finding.
5. For which site is the snails’ shell thickness more variable?

**Part B: Graphing**

1. Use Excel to draw an appropriate graph to display the *processed* data.
2. Add your standard deviation as error bars.

**Part C: T-Test**

1. Complete a t-test for the 2 different snail populations.
2. Explain if the populations are significantly different in the 2 different habitats. How do you know?