

# Analysis of NaCl Data

## Using Descriptive Statistics

### EVS 430 Advanced Quantitative Methods

The data in file *NaCl.xls* are concentrations in ppm for sodium and chloride from shallow water wells in an area that is believed contaminated by oil-field brine. The brine was dumped in open pits on the ground surface. Characteristics of brine are its high sodium and chloride concentrations and its Na/Cl ratio of 0.49. Uncontaminated water in the area has low chloride concentrations, perhaps 10 ppm or less. Other possible sources of contamination include septic tanks and agriculture.

On the basis of this limited data, answer to the best of your ability the following questions.

1. Which wells are clearly contaminated by brine?
2. Which wells are clearly uncontaminated?
3. Which wells can you not classify as either contaminated or uncontaminated?
4. How would knowing the locations of the wells impact your classification? Why? Why are you told that the wells are shallow?
5. What additional information would assist you in classifying the water? What type of data would you like to gather?

### Hints

Construct histograms and determine descriptive statistics for sodium, chloride, and sodium/chloride ratio. Also construct cross-plots of sodium vs chloride, chloride vs sodium/chloride ratio, etc. If only NaCl was dissolved in distilled water, what would the ratio of sodium to chloride be when each are expressed as ppm?