

Data Entry & Exploration Exercise

- McInerny and Cross (2000) examined the effect of time of year, time of day, and density on CPE and the relationship between CPE and density for largemouth bass > 200 mm in 12 lakes in Minnesota. The day and night electrofishing CPE (± 1 SE) and population density (with 95% CI) are shown for fall and spring samplings in the table below.

Lake	Day CPH	Night CPH	Population density (number/ha)
Fall			
Bass	4.6 \pm 1.4	15.0 \pm 2.7	8.0 (5.0–13.4)
Camp	18.2 \pm 5.8	38.0 \pm 4.8	43.6 (26.2–77.3)
Carnelian	7.0 \pm 0.4	20.6 \pm 5.0	12.6 (8.8–18.6)
Dog	10.6 \pm 3.4	12.7 \pm 1.1	12.2 (7.8–20.2)
Elkhorn	1.9 \pm 0.6	8.5 \pm 2.0	26.5 (14.6–53.0)
Erie	12.9 \pm 5.9	37.4 \pm 1.2	35.0 (24.2–52.4)
Games	12.2 \pm 2.8	7.0 \pm 0.4	18.9 (8.9–43.7)
Ida	34.2 \pm 4.7	34.6 \pm 4.0	48.3 (29.0–85.6)
Little Swan	16.3 \pm 1.0	25.9 \pm 2.4	17.4 (12.2–25.6)
Pleasant	13.0 \pm 3.4	40.2 \pm 3.0	39.3 (26.5–61.1)
St. Anna	15.6 \pm 7.0	45.6 \pm 16.5	27.0 (20.1–36.9)
Stahls	14.8 \pm 3.4	10.8 \pm 0.6	17.3 (10.0–32.4)
Spring			
Bass	3.0 \pm 1.0	32.5 \pm 6.1	6.6 (3.3–14.5)
Camp	8.2 \pm 0.7	41.3 \pm 2.5	38.8 (17.3–97.1)
Carnelian	11.8 \pm 4.6	54.8 \pm 8.8	13.0 (8.3–21.5)
Dog	9.4 \pm 9.4	14.8 \pm 3.7	7.2 (4.1–13.8)
Elkhorn	34.6 \pm 6.0	46.6 \pm 3.6	18.2 (11.3–30.9)
Erie	16.4 \pm 2.2	65.6 \pm 5.2	22.9 (14.2–39.0)
Games	5.8 \pm 0.7	20.0 \pm 3.4	6.5 (3.5–13.2)
Ida	19.8 \pm 15.2	43.3 \pm 13.8	29.4 (16.2–58.7)
Little Swan	19.5 \pm 6.5	32.3 \pm 9.2	21.1 (11.3–43.1)
Pleasant	6.3 \pm 3.2	46.2 \pm 5.3	22.8 (14.8–37.1)
St. Anna	26.8 \pm 2.6	74.4 \pm 3.6	42.8 (21.3–93.8)
Stahls	6.0 \pm 1.3	20.4 \pm 4.6	8.1 (4.2–17.1)

Enter the fall data (don't include SE and CIs) into a table in Excel, load those data into R, and answer the following questions.

- Construct a plot of night CPE versus day CPE. Comment.
- Construct a plot of night CPE versus population density. Comment.
- Identify and show the data (from you R data frame) that correspond to the four lakes that appear to diverge from the expected relationship between night CPE and population density. [Hint: use `identify()`.]
- Because they included other seasons, McInerny and Cross plotted the night CPE versus population density on a scale of 0 to 50 for density and 0 to 80 for night CPE. Modify your plot to use these scales. Does this affect your comments about this relationship?