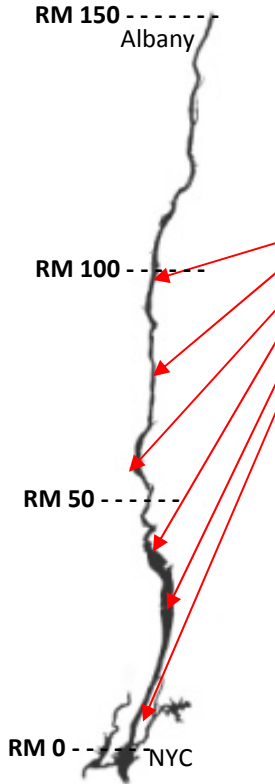


A Day in the Life of the Hudson River 2012: *Salinity*

Your site: _____ If measured, your salinity on Oct 4th: _____

2012 was the tenth year of A Day in the Life of the Hudson River. Thanks to all of the participants who made this year a success! Let's compare some of the data you collected with data from earlier years.



Salinity Data Table

Salinity can be reported in many different units. Here the units are **parts per million (ppm)** of chloride (Cl) to help compare between sites far apart on the **estuary**. In saltier areas, like New York City, salinity is usually measured in **parts per thousand (ppt)**. **River miles (RM)** are measured north from the Battery in NYC.

RM	Site	2009	2010	2011	2012
97	Ulster Landing	33 ppm	28 ppm	18 ppm	28 ppm
76	Poughkeepsie	50 ppm	28 ppm	32 ppm	28 ppm
57	Cornwall Landing	68 ppm	29 ppm	29 ppm	138 ppm
41	Verplanck	1190 ppm	55 ppm	55 ppm	1610 ppm
25	Piermont Pier	3653 ppm	488 ppm	1250 ppm	4428 ppm
4	Pier 84 NYC	9521 ppm	3321 ppm	1383 ppm	8580 ppm



Blue crabs are found in a wide range of salinities; windowpane flounder prefer saltwater.

1. The salt front (the leading edge of dilute sea water entering the Hudson) is located where salinity reaches 100 ppm.

a) In how many of the four years included in Table 1 did the salt front reach up to or past Cornwall Landing?
The salt front reached past Cornwall Landing in one year, 2012.

b) In which years did it reach up to or past Verplanck?
It reached Verplanck in two years: 2009 and 2012.

c) What might be a reason for the **differences** in salinity at all sites between 2012 and 2011? Hint: How might weather affect salinity?
In October 2011, runoff from tropical storms Irene and Lee was still flowing from the Hudson's watershed. All that fresh water pushed the salt front much further south than in the relatively dry year of 2012.

2. Where was the salt front on October 4, 2012?

Use a pencil to plot salinity readings for 2012 in the table above on to the graph on the next page.

- Place a point for each salinity reading directly above the river mile where the reading was made.
- Using a ruler, draw a line from one point to the next. Start at the point for the lowest river mile, and continue to the highest.
- The salt front is located where salinity equals 100 mg/L. Using your graph and the horizontal line at 100 mg/L, estimate (in River Miles) the position of the salt front on October 4, 2012.

River Mile **Answer will vary slightly depending on accuracy of plot, but should be in the range of 60-65.**

Hudson River Salt Front Location - October 4, 2012

