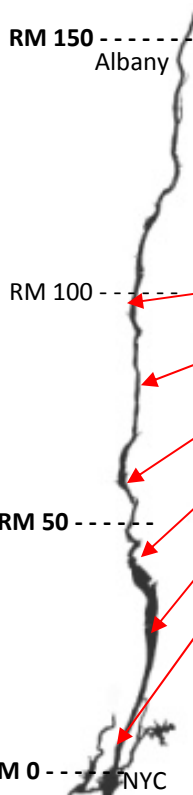


A Day in the Life of the Hudson River 2013: *Salinity*



Your site: _____ If measured, your salinity on Oct 10: _____

2013 was the eleventh 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 results from 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	2010	2011	2012	2013
97	Ulster Landing	28 ppm	18 ppm	28 ppm	40 ppm
76	Poughkeepsie	28 ppm	32 ppm	28 ppm	32 ppm
57	Kowawese	29 ppm	26 ppm	96 ppm	447 ppm
41	Verplanck	55 ppm	55 ppm	1,610 ppm	3,212 ppm
25	Piermont Pier	488 ppm	1,250 ppm	4,428 ppm	5,136 ppm
4	Pier 84 NYC	3,321 ppm	1,383 ppm	8,580 ppm	9,415 ppm



Blue crabs can live in a wide range of salinities.

Comb jellies (ctenophores) live in brackish to marine water.



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

a) In which of the four years shown in Table 1 did the salt front reach up to or past Verplanck?

The salt front reached past Verplanck in 2012 and 2013.

b) Which sites were considered freshwater in 2013?

Ulster Landing and Poughkeepsie.

c) What might be a reason for the **differences** in salinity at all sites between 2013 and 2011? Hint: How might weather affect salinity?

In October 2011, runoff from tropical storms Irene and Lee was still flowing from the river's watershed. In 2013 there was much less rain prior to Day in the Life, so salty seawater moved further up the river.

2. Where was the salt front on October 10, 2013?

Use a pencil to plot salinity readings for 2013 (found in Table 1) on the graph below.

a) Place a point for all salinity readings directly above the listed river mile.

b) 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.

c) The salt front is located where salinity equals 100 ppm. Using your graph plot and the horizontal line at 100 ppm, estimate (in river miles) the position of the salt front on October 10.

According to the U.S. Geological Survey, the salt front was at RM 69. Our graphed results will place it a bit further upriver – about RM 72.

Hudson River Salt Front Location - October 10, 2013

