

A Day in the Life of the Hudson and Harbor 2021: Can you solve the salinity puzzle in New York City?

Teacher Version

When we looked closed closely at Day in the Life salinity samples from around New York City we were puzzled by what we saw! Here is salinity (parts per thousand, ppt) at a few sampling sites. Can you help us solve the puzzle?



Site	Time of sample	Salinity (parts per thousand)
63 rd Street, East River	10:45 AM	25 ppt
Pier 45, Hudson River	10:45 AM	13 ppt
Shirley Chisholm Park, Jamaica Bay	2:25 PM	30 ppt

1. **Why is the East River saltier than the Hudson River, even though the samples were taken at the same time and the sites are just across Manhattan from each other?** (Hint: Where does the water come from at both sites?)

The East River connects two salty bodies of water (Long Island Sound and New York Bay/the Atlantic Ocean), while the Hudson River has more freshwater inputs from the watershed and upstream.

2. **Why was the salinity in Jamaica Bay the highest of the three readings?** (Hint: There is more than one thing going on here, so be sure to check the tide charts!)

Two reasons: 1) Jamaica Bay is even closer to the ocean, and 2) on October 14th low tide was at 10:06am and high tide was at 4:06pm. At 2:25pm when the Jamaica Bay sample was taken, the tide would have been coming in, delivering more salty water to the shore where the sample was taken.