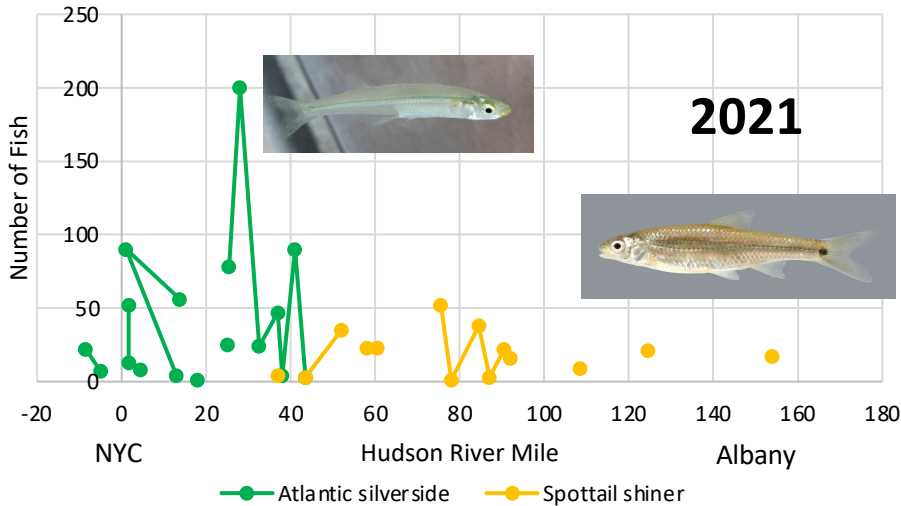


A Day in the Life of the Hudson and Harbor 2021: Fishing

Teacher Version

Atlantic silversides are found in salty water up to the salt front, and spottail shiners are found in freshwater down to the salt front (100 ppm Cl). You can use where the ranges of those two species of fish meet to predict the location of the salt front.



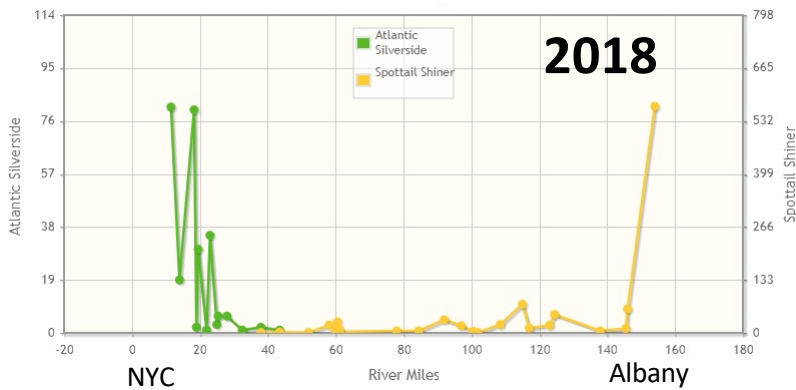
Data on distributions of Atlantic silversides and spottail shiners from 2021's Day in the Life of the Hudson and Harbor are shown in the graph to the left. What Hudson River Mile (starting at lower Manhattan) do you estimate the salt front was located on October 14th?

2021 salt front (100 ppm Cl):

River Mile _____

Anything in the range of RM 40-50 could be considered correct here, since it is not making a precise measurement. Using salinity data, we know that the salt front was around RM 49 on 10/14/21.

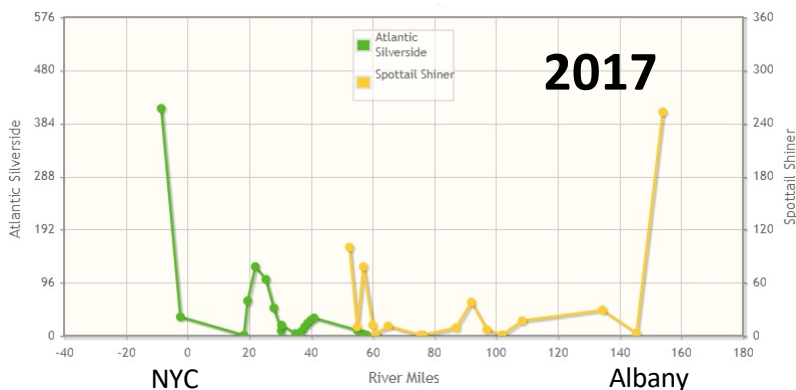
Below are graphs from 2018 and 2017 also showing where Atlantic silversides and spottail shiners were caught. Where do you predict the salt front was in those years?



2018 salt front (100 ppm Cl):

River Mile 25 based on salinity data _____

Students will likely predict higher based on the graph (and that's okay!), but you can discuss with them that the fish and salinity data may not match up quite perfectly, but rather gives you a general sense of the location of the salt front. This could be a good place to discuss preference vs tolerance (i.e. Atlantic silversides prefer saltwater habitats, but can tolerate freshwater so can also be found just above the salt front).



2017 salt front (100 ppm Cl):

River Mile 70 based on salinity data _____

Again, the location of the salt front is not EXACTLY where the fish catches match up, but it is close. Here the spottails were found a little below the salt front, whereas in 2018 the silversides were found a little above the leading edge of salt in the river.

What could cause the difference in the location of the salt front from year to year?

Precipitation amount is a key factor in the location of the salt front. This year and in 2018 there was more rain in the summer and fall that pushed the salt front down, compared to 2017 which was more dry.