

## Can you swim in the Hudson River? Answers

Graph 1 Answers: 1. highest: 1967, lowest: 1927

2. Surface DO is usually higher due to circulation with the air from wind or waves. The water at the bottom of a water body usually does not mix with the atmosphere very much, due to thermal or saline stratification. Based on student knowledge, they may or may not know whether the rest of the Hudson should behave similarly (it should, except for the shallow reaches of the headwaters).
3. Overall, the DO levels have increased in the Hudson, both in the surface waters and in the bottom waters. This indicates that the health of the river has improved, as higher DO levels are important for aquatic organisms.
4. Students should realize that they only know about this area of the Hudson, near Manhattan. They should want to know more about the health of the river in other parts of the estuary.

Graph 2 Answers: 1. The overall levels of fecal coliform bacteria have decreased.

2. The last time fecal coliform levels went above the primary level was in 1991, and the secondary level in 1987. Events that might affect coliform levels include large storms that caused a combined sewer overflow event, or a problem with one of the sewage treatment plants.
3. The health of the Hudson has improved because fecal coliform levels have gone down over time. Improvements to local sewage systems and treatment plants can explain much of this change.
4. Depends on the location, and the time of year. Swimming after a large storm is not advisable due to stormwater runoff and combined sewage overflows.
5. As sewage levels decrease, dissolved oxygen levels generally increase. Sewage encourages the growth of bacteria who feed on the waste product. As the bacteria thrive, they use up the dissolved oxygen, decreasing the amount remaining for other organisms.