

The State of the Charles

Jumping into rivers and lakes is a welcome rite of summer. That hasn't been the case on Boston's Charles River for better than half a century. What will it take to make this river safe for swimmers?



The Charles River has become a more popular place for boaters.

The Charles River winds 80 miles between Hopkinton, Massachusetts — the traditional starting point of the Boston Marathon — and Boston Harbor. Making the river water safe for recreation has turned into a marathon in itself. The Environmental Protection Agency (EPA) began its "Charles River: Swimmable by 2005" project five years ago.

At the project's halfway point, EPA officials say the future of the Charles is becoming less murky, literally. Factory chemicals, municipal sewage, and even waste from individual homes poured into the Charles throughout much of the twentieth century. Bacteria and toxins ruled the river as the fish disappeared, swimmers stayed ashore, and rowers had to take tetanus shots before their first day on the river.

Those conditions are fast changing. In April, the most recent "report card" from the EPA gave the river water a "B" for cleanliness. That was up from a "B-" the year before, and a "D" in 1995, when cleanup efforts began. The key to success, say EPA officials, has been cutting out a million gallons of polluted water flowing daily from sewer pipes into the river.

"The bacteria levels are way down," says Bill Walsh-Rogalski, who directs the EPA project. "On a summer's day, you see people windsurfing, sailing, and rowing. It's a lot safer for people now that the river is a lot cleaner. You also see the fish returning. On a biological level, there is a lot of rebirth going on up the food chain."

The EPA has recorded a steady increase in the percentage of days on which bacteria levels have been low enough for boating and swimming:

Year	% Safe Boating Days	% Safe Swimming Days
1995	39%	19%
1996	57%	21%
1997	70%	34%
1998	83%	51%
1999	91%	75%

- Approximately how many more times was the river safe for boating in 1999 than in 1995?
- Approximately how many more times was the river safe for swimming in 1999 than in 1995?
- How many days in 1995 would the river have been safe for swimming?
- How many days in 1999 would it have been safe to go boating?

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Tale of the Gunderboom

Even though bacteria levels are falling, there are other factors that keep swimmers from entering the waters of the Charles right away. Chief among them is the limited visibility of the murky water.

"There is a state standard in Massachusetts requiring that there be at least four feet of visibility," notes the EPA's Walsh-Rogalski. "And for a long time, those who did not want to advance the issue of swimming said, 'Don't waste your time.'"

Instead, the "Swimmable by 2005" project is experimenting with a giant floating net called the "Gunderboom," which filters out particles floating in the river before they reach local swimming



Rowers on the Charles pass the floating top of the Gunderboom near Magazine Beach.

areas. In June, technicians installed one at Magazine Beach on the Charles.

This device uses a very fine mesh curtain to trap sewage from overflowing storm drains, algae growing in the river, and decaying soil and vegetation that have fallen in from the banks.

An added benefit is that the mesh also keeps out bacteria attached to the particles. Gunderbooms have been performing the same job over the past decade in Sea Cliff, New York, and more recently at the beach in Mamaroneck, New York.

The Extended Classroom

Students from schools near the Charles River have been doing their part to help. For the past two years, they have participated in an educational partnership between the EPA and the environmental advocacy group, The Watershed Institute, which is based at Boston College.



The contents of local sewers have made the Charles unswimmable for better than half a century

As part of the program, 250 students a year study the science and biology of watershed areas, such as the Charles River and its surroundings. Their assignment has been to track the recovery of plant and animal species in and around the river.

The students design the studies of these species and report their findings monthly. They also compare their own observations with real-time data provided online by the U.S. Geological Survey (USGS) from its own study of the Charles. Eventually, the students present the results of their studies in papers and at a conference.

- Learn about the program for students at [The Watershed Institute](#).
- Get the latest [U.S. Geological Survey data](#) on the water quality of the Charles River.

Related Resources

- Get [Exploring the Hidden Charles : A Guide to Outdoor Activities on Boston's Celebrated River](#).

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