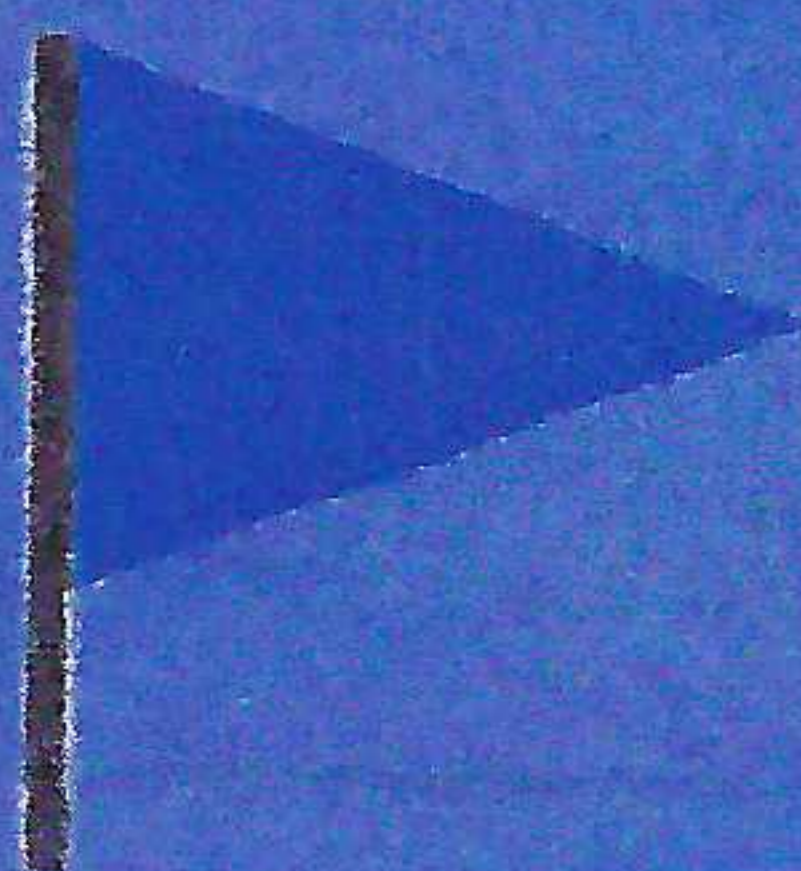




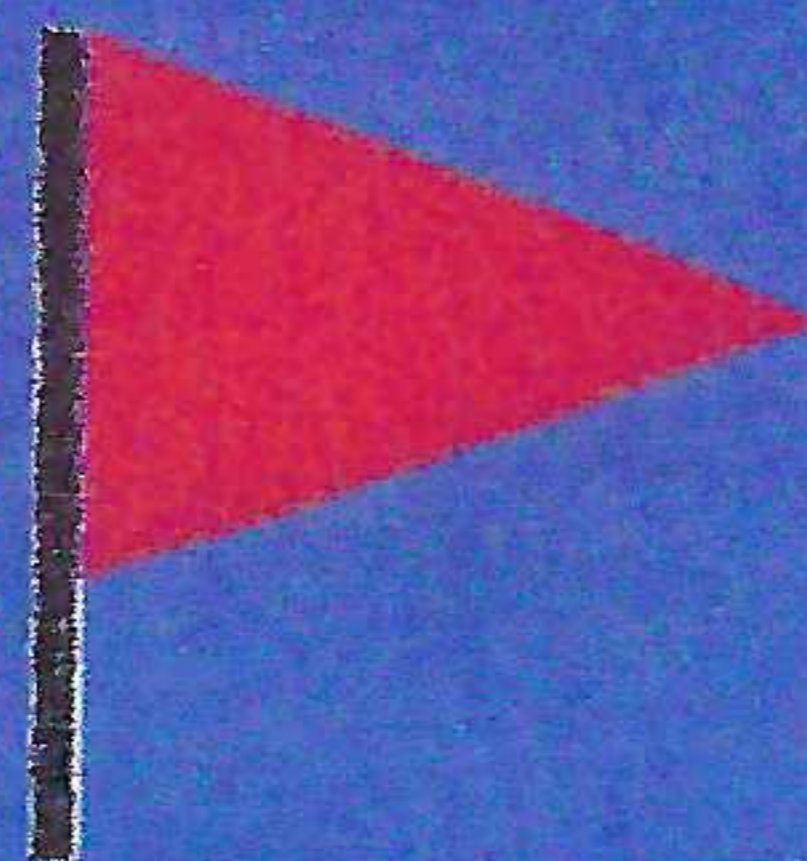
Charles River Watershed Association

Flagging Program

CRWA's Flagging Program notifies boaters about water quality in the Charles River Lower Basin through a system of color-coded flags that fly at CRWA's partner boathouses. The program runs every year from May through October.



A **BLUE FLAG** indicates suitable boating conditions and that health risks are at a minimum.



A **RED FLAG** indicates potential health risks from bacteria or cyanobacteria. Boaters should be aware of the risks and minimize contact with the water.

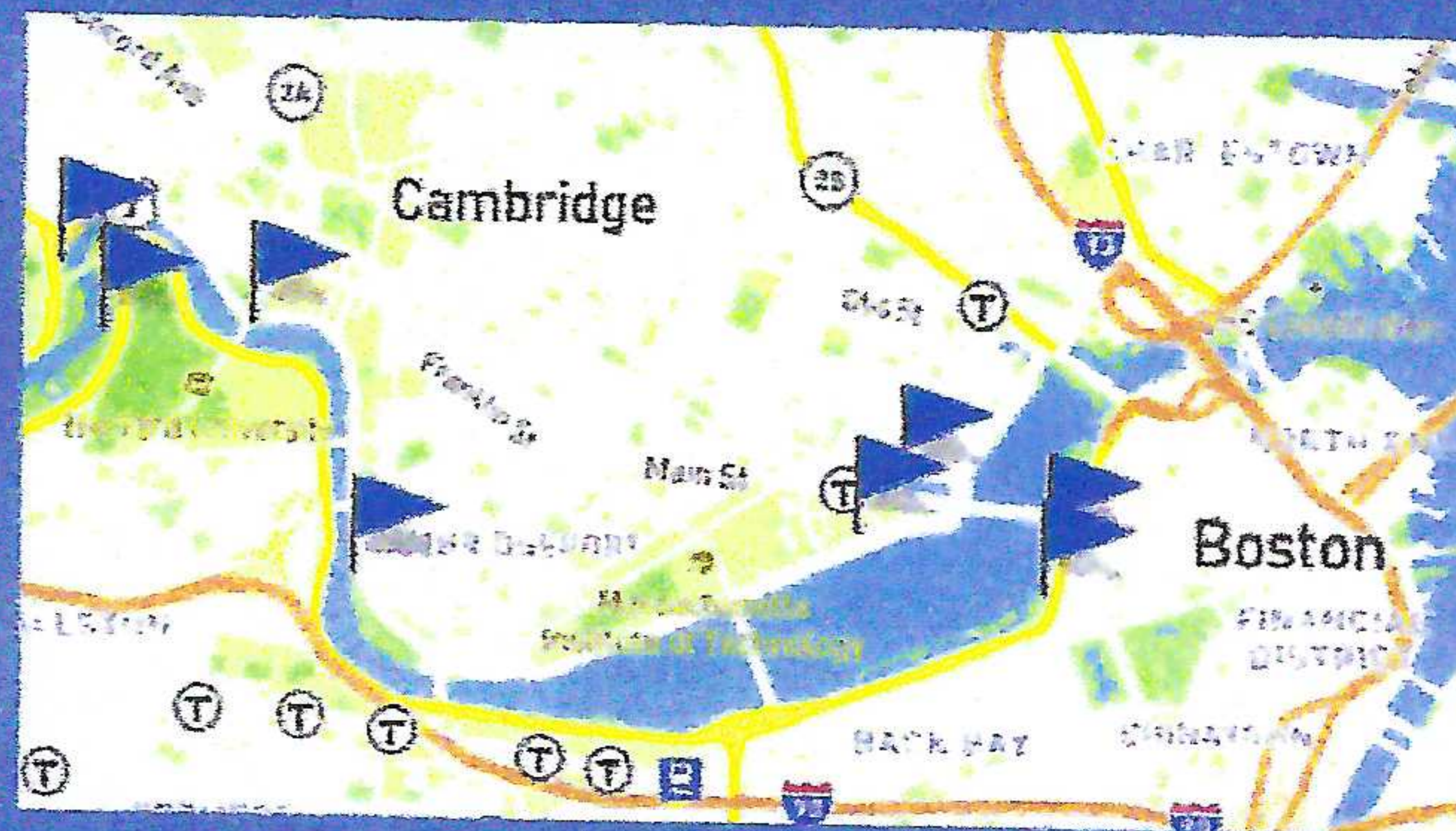
IF A RED FLAG IS FLOWN, DECIDE IF BOATING IS RIGHT FOR YOU.

Bacteria or cyanobacteria levels are likely high, and some individuals may choose to skip boating while these risks are present.

Those who choose to go out on the Charles River should take the following precautions:

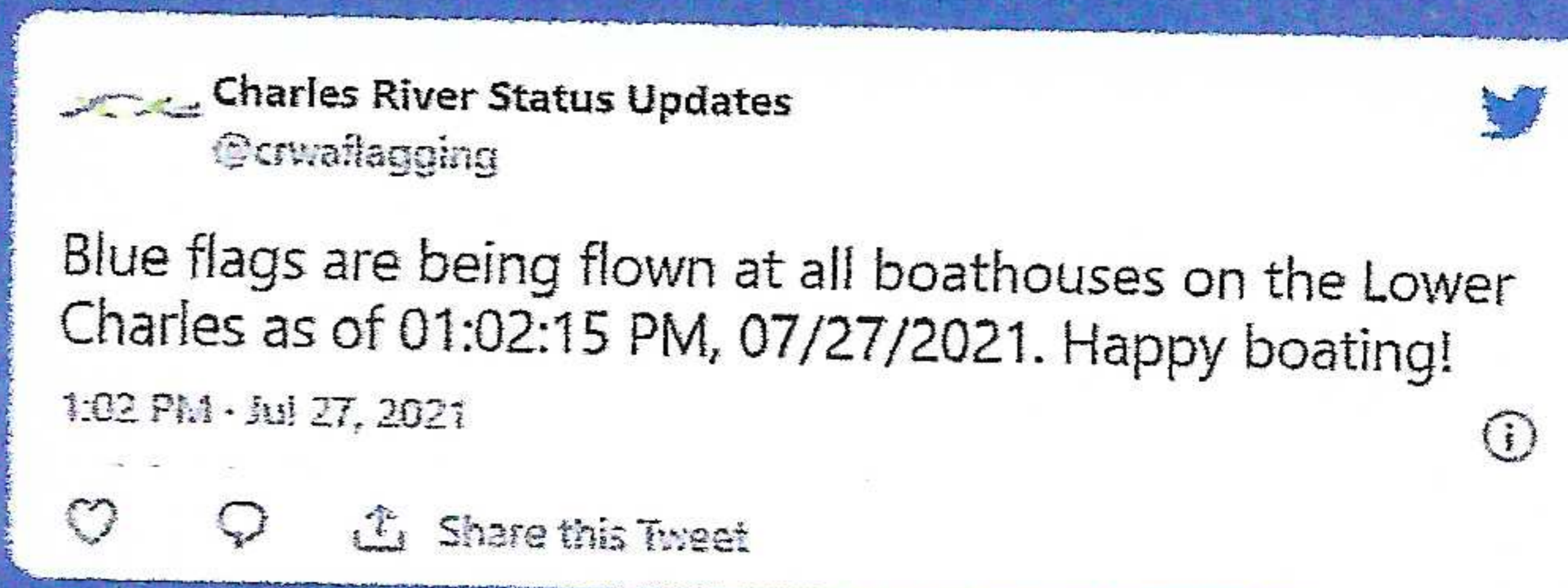
- Wash hands (or shower) with clean water as soon as possible after boating, and especially before eating.
- Avoid eating while on the water and protect your water bottle from splashing water.
- Watch out for discolored green water or green scum (as commonly seen during a cyanobacteria bloom), and avoid contact with the water in those areas.
- Minimize direct contact with the water.

The level of precaution you take is your personal choice, so be sure to make an informed decision. Let's continue to make boating a safe and enjoyable activity for you and your family!



STAY INFORMED

- Sign up for Water Quality Alerts via email.
- Follow @crwaflagging on Twitter.
- Look for flags at your boathouse.



VISIT crwa.org/flagging-program to learn more!



Charles River Watershed Association

190 Park Road Weston, MA 02493 t 781 788 0007 f 781 788 0057

www.crwa.org

Flagging Program

Live Water Quality Alerts

Project Overview

CRWA's Flagging Program uses a system of color-coded flags to indicate whether or not the river's water quality is safe for boating at twelve boating locations between Watertown and Boston. Blue flags indicate suitable boating conditions and red flags indicate potential health risks.

Subscribe to water quality alerts through the sign up form below, and follow our Twitter Bot @crwaflagging

Water Quality Today

CRWA's water quality models are predicting blue flags at all the boathouses, based only on *E. coli* bacteria predictions. Happy boating!

What Do the Flags Mean?

Blue flags indicate suitable boating conditions.

Red flags indicate potential health risks. Consider avoiding areas where red flags are posted or make sure you wash after boating nearby.

About CRWA's Flag Color Predictions

CRWA uses 3 different indicators to determine flag colors at each boathouse.

(1) If any **Combined Sewer Overflow (CSO)** discharges took place in the past 48 hours in the Lower Basin, red flags will be flown at all boathouses.

(2) If a **cyanobacteria (blue-green algae) bloom** is present in the vicinity, red flags will be flown at the affected boathouses for the duration of the bloom. Cyanobacteria monitoring is conducted at least every two weeks while the notification program is active and CRWA coordinates closely with the MA Department of Public Health who recommends blood

(3) If **CRWA's water quality models** predict *E. coli* bacteria levels that exceed the State's recreational water quality standards, red flags will be flown at the affected boathouses. CRWA estimates *E. coli* bacteria levels using models that take into account a variety of environmental factors including rainfall and river flow. CRWA collects water samples weekly to verify the model forecasts.

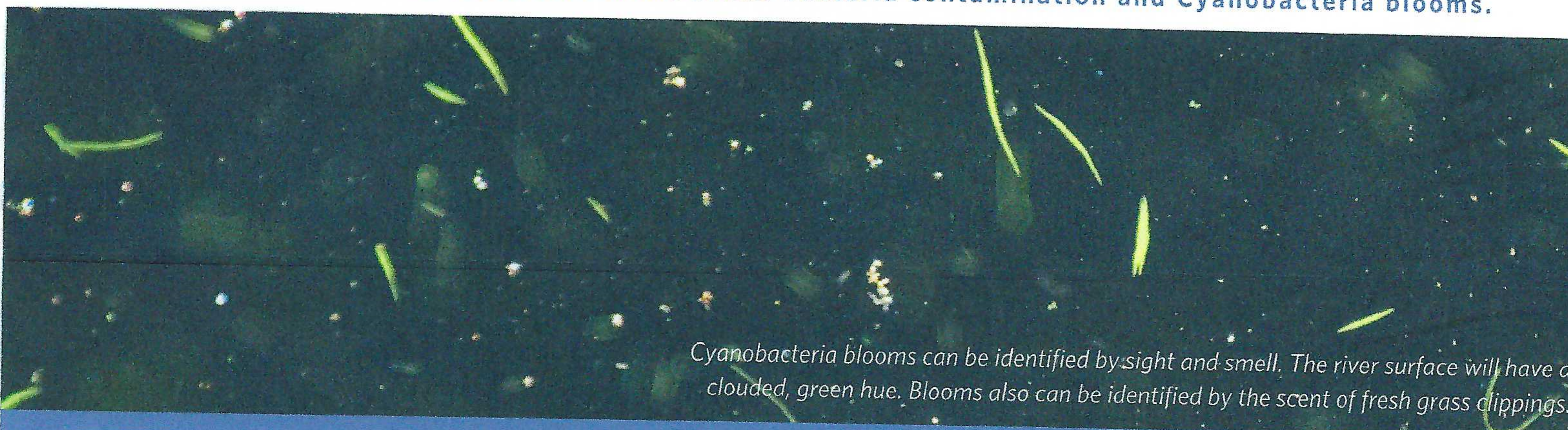
*Today's flag colors are a conservative estimate of water quality conditions.
Actual water quality may vary from predictions.*



Charles River Watershed Association

Understand the Hazards

The main hazards to recreation are E.Coli Bacteria contamination and Cyanobacteria blooms.



Cyanobacteria blooms can be identified by sight and smell. The river surface will have a clouded, green hue. Blooms also can be identified by the scent of fresh grass clippings.

BACTERIAL CONTAMINATION

High levels of E. coli bacteria often follow periods of heavy rainfall and indicate contamination from sewage in the Charles River. Sewage contains many disease-causing bacteria and viruses. Bacteria in the river also come from stormwater runoff from streets and lawns. Depending on the bacterial concentration, it can take up to three days for levels to return to normal.

CYANOBACTERIA

Cyanobacteria (also called blue-green algae) are microscopic organisms that live naturally in rivers, lakes, and ponds. In warm weather, cyanobacteria populations can explode into a "bloom."

Cyanobacteria blooms occur in areas where water is stagnant (such as ponds, lakes, or behind dams in rivers) and water temperatures are consistently high with excess nutrients, such as phosphorus.

RISKS OF E.COLI BACTERIA

Exposure to the bacteria and viruses found in sewage can lead to infections, gastrointestinal distress, or other more serious health conditions. You can be exposed to bacteria by contact with water on your skin, by open cuts, or by ingesting the water.

CYANOBACTERIA RISKS

Exposure to cyanobacteria can cause skin rashes and irritation in the nose, eyes, and throat. Ingesting the water may cause stomach aches, diarrhea, vomiting, and nausea. Repeated exposure can cause dizziness, headaches, fever, liver damage, and nervous system damage. Dogs are particularly susceptible - cyanobacteria exposure can kill your pet.

FORCASTING BACTERIA LEVELS

CRWA provides a water quality "forecast" of bacteria levels using a mathematical model, similar to the way meteorologists forecast weather. Forecasts are communicated using the color-coded flags: **RED** (warning) or **BLUE** (safe). Water samples are taken weekly at four sites from Watertown to Boston to verify water quality predictions.

MONITORING CYANOBACTERIA

CRWA works with Massachusetts Department of Public Health to monitor the Charles River Lower Basin during peak bloom season. If a cyanobacteria bloom is present, **RED flags** will be flown at affected boathouses the entire time the bloom is present.

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