

Toxic and Harmful Algal Blooms *“Finding a ‘Cure’”*

Preventing and eliminating harmful algal blooms are not easy tasks. There are numerous factors that influence the formation, distribution and duration of blooms. As you know, it's difficult to control one factor in the environment, let alone all factors for all algae in all locations. In addition, any action taken to prevent or to remove a bloom has consequences for the other organisms in the environment.

Your class is going to evaluate the techniques that have been proposed, tested, and in some cases are being used to detect, prevent and control HABs and their effects.

As a class, compile a list of possible detection, prevention and control techniques that have been used or have been proposed for use in dealing with HABs. Some suggestions of some techniques that could be included in your list can be found at <http://www.bigelow.org/edhab/techniques.html>.

Divide the different techniques between lab groups. Each group is responsible for investigating their assigned techniques and presenting their findings to the rest of the class. Topics you want to make sure to include in your report are:

- 1) Description of the technique
- 2) Purpose of the technique (e.g. detection, prevention, remediation)
- 3) Current state of the research on this technique
- 4) Has this technique been used in real-world applications? When and where? With what results?

The results from your class research will be compiled in a summary table that can be created on the chalk/marker board or on poster board. After each group gives their presentation, your class will discuss the costs and benefits of the technique that was just presented. The results of the discussion will then be entered on the summary table to compare the advantages and disadvantages of each technique. A simple example table is shown below. Although only one advantage and one disadvantage is listed in the table below, you will most likely have more than one of each for every technique.

Technique	Use	Advantages	Disadvantages
Mouse bioassay	Detection	works well for monitoring overall toxicity	does not provide information on levels of individual toxins
Treating ballast water with algicide	Prevention	prevents transport of algae by ballast exchange	effects of releasing algicide-treated ballast water into environment is unknown
Copper sulfate addition	Remediation	effective at killing algal cells	costly procedure and results are short-lived