



# Focus

---

## Controlling Lake Plants With Chemicals

### Is There an Alternative?

*Ecology's recently published aquatic plant management EIS sets a new direction for dealing with plants that grow in lakes, rivers, or other waterbodies. More information about managing plants and improving water quality is outlined below.*

### Background

---

Chemicals such as herbicides are sometimes used by lakeside property owners to control plants that cause problems for swimmers and boaters, and that may interfere with other lake uses. State standards that govern the use of chemicals to control plants in lakes, rivers, and other waterbodies are found in the Washington State Surface Water Regulations. These regulations help protect public health and the benefits that water provides. Benefits specifically protected include recreational uses like swimming, skin diving, water skiing, and aesthetic enjoyment; public water supply; stock watering; fish and shellfish migration, rearing, spawning, and harvesting; wildlife habitat; and commerce and navigation.

Some exceptions to the water quality standards may be permitted by Ecology, but only if the activity is short-term, and will not harm people or cause long-term harm to the environment. To help decide which herbicides should be used and where, Ecology wrote an environmental impact statement (EIS) in 1980. This EIS reviewed several herbicides that were available for use in lakes, streams, or other waterbodies.

### Why Is Ecology Supplementing the 1980 EIS?

---

Since 1980, more has been learned about managing aquatic plants. We have learned more about how herbicides that kill plants might also kill the microscopic animals that fish and birds need for food. We are becoming increasingly concerned that what we put in our lakes might end up in our groundwater, or in lake sediment where these chemicals might stay for years.

We have also learned more about how what we do as individuals changes our world. As we remove trees, brush, and other plants from around a lake, we remove a natural filter. Without this natural filter, more lawn fertilizer, dirt, oil, and other contaminants can get into our lakes. If we have old, under-maintained septic tanks and inadequate drain fields that are close to a lake, we might be adding nutrients to the lake. More fertilizer, nutrients, and dirt in the lake may in turn mean more aquatic plants and more algae in the lake.

Another reason we have updated the EIS is that since 1980, new herbicides have entered the market. These new herbicides were not addressed in the old EIS, and we needed to know more about the effects that they might have on the environment. Also, more studies have been done on these herbicides that were discussed in the 1980 EIS. This additional information had to be examined to see if it would help us better understand how these herbicides might affect people and the environment.

### How is the Supplemental EIS Different than the 1980 EIS?

---

The new EIS introduces "Integrated Plant Management", which combines a variety of methods for managing aquatic plants. These alternatives include education and prevention as part of the

solution. And, instead of looking only at how to kill plants and algae, we encourage looking for ways to help keep excess plants and algae from becoming a problem in the first place. We propose that waterbody planning be done before deciding if and how to control aquatic plants.

Some of the questions raised in the EIS, answers to those questions, and proposed long-term solutions are presented below.

## **Should Aquatic Plants Be Controlled?**

---

Ecology may issue a permit to people who want to use herbicides to control plants that pose a problem. For the most part, permits are requested on behalf of lake residents who want plant growth controlled because excess plants interfere with swimming, boating, and/or waterskiing. Some believe that open water looks better than water with plants growing in it. Residents also want to be able to kill algae. Some types of algae have a foul odor, look ugly, and reduce water clarity and visibility.

Though some lake residents might want plants killed, other people feel that plants are a natural part of the lake ecology and should not be disturbed. Some may agree that certain plants should be removed, but not with herbicides. They support the use of other methods, such as pulling out the plants by hand, cutting them with a mechanical plant harvester or rotovator, smothering them with bottom barriers, or letting grass carp eat the plants. Some people believe it is okay to use herbicides to kill harmful plants like milfoil, but not other plants that are good for fish and wildlife.

## **Do We Need More Than Chemical Control?**

---

There is still a lot that we do not know about herbicides. Some ingredients in aquatic herbicides are trade secrets. Because we do not know what these ingredients are, we cannot know for sure how they will affect people or the environment.

Often people use chemicals year after year, without understanding that they may be contributing to excess plant growth. Our everyday activities add sediment, fertilizers, and other plant nutrients to nearby waters. These nutrients make it easier for plants and algae to grow. We unintentionally help the plants grow and then continue to apply chemicals to kill them. Repeat chemical treatments upset the natural balance of a lake. And some herbicides, like copper, stay around for a very long time.

For these reasons, people should not continue to rely solely on herbicides to control plants.

The Supplemental EIS includes an evaluation of various methods for managing aquatic vegetation, including ideas that will help people improve Washington's waters. These helpful ideas are presented in the following two sections: [Waterbody Planning](#), and [Alternatives](#).

## **Waterbody Planning**

---

### **How Will Planning Help?**

Lakes, and other waterbodies such as streams and saltwater bays, support a variety of uses. Some of these uses may conflict with others. For example, fish need plants as a place to raise their young, to hide, and to feed. These same plants may get tangled in boat propellers, or make swimming in certain areas difficult or impossible. Planning is a way to identify benefits furnished by a lake, stream, or bay; help balance these uses; improve the health and water quality of each waterbody; and find the best ways for meeting as many needs as possible for as long as possible.

Waterbody planning helps to:

- Identify sources of pollution, including nutrients that contribute to plant growth
- Find ways to stop or reduce pollution
- Determine uses supported by a lake, stream, or bay
- Decide if the waterbody can continue supporting all uses
- Decide what should be done to improve uses, if anything

- Determine the best ways for making changes
- Assess the impacts of changes, and ways to avoid or reduce these impacts
- Determine how changes will be measured.

### **Who Should Develop the Plans?**

Lake or waterbody planning groups should be set up to involve all people who have an interest in the waterbody. This includes:

- People who live next to the waterbody.
- People who may live far away from the waterbody but who use it for fishing, swimming, hunting, bird watching, boating or other activities.
- People interested in protecting fish, wildlife, water quality and other environmental resources.

People with these varied interests may have already formed groups, such as lake associations, wildlife interest groups, or environmental organizations. If practical, time and energy can be saved by building from these existing organizations instead of starting from scratch. Also, help may be available from groups who have already gone through this process.

### **Who Will Pay for Plan Implementation?**

Solutions will require creativity and cooperation. We are asking citizens to search out and tap available resources.

People working on waterbodies in the Puget Sound Basin may be able to get funding through the Puget Sound Watershed Management Process. Funds may be available through various grants, loans, taxes, other special fees, or from the private sector. Grants may be available from sources such as the Department of Agriculture Noxious Weed Grant Program, the Department of Ecology Centennial Clean Water Fund, the Puget Sound Water Quality Authority Public Involvement and Education Model Projects Fund (PIE), or other local, state, or federal agency grant or loan programs. Special districts, such as lake management districts or sewer districts, may also be established.

Direct technical assistance may be as useful as money, and may be available from the Soil Conservation Service, tribes, or other local, state, and federal agencies. Local businesses may also offer to help. Planning group members may also have special talents or may be able to call on the expertise of friends.

The planning group can also research inexpensive methods for improving water quality, and may incorporate these methods as a first step towards waterbody restoration. These methods vary depending on the pollution source (on-site sewage disposal, stormwater and erosion, poor farming practices, sewage discharge from boats, poor forest practices or other point or non-point sources). Improvements can be as easy and inexpensive as maintaining or adding native vegetation along shorelines.

## **Alternatives**

---

Plant management alternatives evaluated in the Supplemental EIS (1992) are:

- Use of all available methods in an integrated management approach
- No action
- Continuing current practices
- Use of mechanical/manual methods only (hand removal, bottom barriers, suction dredge, mechanical cutting and harvesting, and rotovation)
- Use of chemicals only (copper compounds, glyphosate, endothall, diquat, and fluridone)
- Use of biological methods only (grass carp, plant pathogens)

## **Manual Methods**

We found that all alternatives cause some level of impact to the environment. Removing plants by hand or with small, hand-held cutters has the least impact. Smothering plants with cloth-like or plastic sheets (called bottom barriers) also has minimal impacts as long as they are put in the right place. Putting them in the wrong place, like on top of areas where fish lay their eggs, is harmful for the fish. Also, if too much bottom barrier is put down in a given area, too many of the critters that live on the bottom would be killed.

## **Mechanical Methods**

Barge-like mechanical cutting machines or rotovators cut everything in the area where they are used. For this reason they may impact fish and wildlife habitat or kill special, rare, or other desirable plants. Mechanical harvesters have been shown to kill up to 25 percent of small fish in a given area. Rotovators are less likely to kill fish than mechanical harvesters, but rotovators stir up sediment that might be contaminated. Suspended sediment may also smother fish eggs or abrade fish gills. Permits are required for this activity.

## **Biological Controls**

Studies are being conducted on some insects and plant viruses to find out if they will destroy “bad” plants while not harming “good” plants. It is important to know as much as possible about these insects and plant viruses before putting them where they do not occur naturally. Someday, plant-eating insects or plant pathogens might be useful for managing plants, but additional research is needed.

Grass carp, which are plant-eating fish, are another biological alternative just last year, the Department of Wildlife began allowing grass carp to be put into several small ponds and some larger lakes. Because grass carp eat plants, they might help manage plant growth. These fish must be sterile, certified disease free, and meet other permit requirements developed by the Department of Wildlife. Because this program is new to Washington State, we are still learning whether these fish will keep vegetation in a healthy balance. Some fear that they might eat too many plants or the wrong kind of plants.

## **Aquatic Herbicides**

Use of aquatic herbicides requires a permit from Ecology. Aquatic herbicides vary in the types of impacts that they cause. We focused most of our studies on 5 chemicals: copper, endothall, fluridone, glyphosate, and diquat. Using some of these chemicals may mean that people cannot use water for swimming, drinking, or for watering their plants for awhile. In some cases, people cannot eat fish caught in water that has been recently treated with herbicides.

In general, most of these chemicals will not harm people if instructions on the label and permit conditions are followed. The concerns raised about diquat were serious, so we will not permit the use of diquat in Washington water. We also have concerns about the affect of Endothall on people. To help protect people, we will require longer waiting periods before water treated with endothall can be used for swimming or drinking.

Because these chemicals are designed to kill plants, they have serious impacts on the environment. Many of these herbicides will kill rare plants or plants that provide food and homes for fish and wildlife. Copper and certain other herbicides kill fish and microscopic animals that fish and birds need for food.

Aquatic herbicides do have a place in aquatic plant management. They may be especially useful in helping to control “noxious” plants like milfoil, spartina, and purple loosestrife. These plants are not native to Washington State. They do not have any natural enemies and can choke-out natural habitat where birds, fish, and other animals live.

## **Where Can I View this SEIS?**

---

Copies of the SEIS are available for viewing. For more information, please call Kari Rokstad in Ecology’s Water Quality Program at (206) 459-6366, or Jonna VanDyk in Ecology’s Public Information Office at (206) 438-7760.