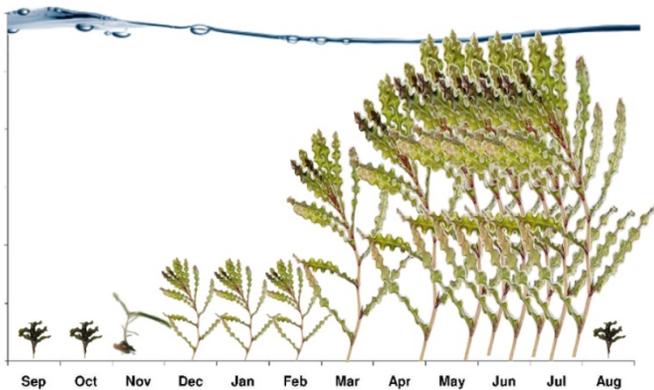




# Aquatic Nuisance Series: Curly-Leaf Pondweed

Curly-leaf pondweed (*Potamogeton crispus*) is an invasive aquatic perennial native to Eurasia, Africa, and Australia. It was accidentally introduced to United States waters in the mid-1880s by hobbyists who used it as an aquarium plant. This non-native plant can tolerate low temperature water like those found in its native region of northern Europe and Asia.



*Image from Aquatic Biologists, Inc.*

Curly-leaf pondweed will thrive early in the season and naturally die back in mid-July when other aquatic plants are just reaching their peak growth for the year. In lakes where curly-leaf is dominant, the summer die-off causes increased nutrient levels that can trigger algae blooms and habitat disturbance. Curly-leaf does an excellent job of absorbing phosphorous and the last thing a lake needs in mid-summer is a sudden increase in the availability of phosphorous. The die-off can also result in lower dissolved oxygen levels in the lake. For these reasons, curly-leaf is considered a nuisance aquatic plant.

## Description and Habitat

Curly-leaf pondweed is mainly a deep-water plant, but it can be found growing in depths of 1-2 feet. It is often found in deeper water, up to 12 feet and beyond.

This plant appears early in the growing season on many New Jersey lakes, where it gets a head start against the native plants. It has a competitive advantage because of its ability to grow in low-light conditions. It can even grow under a frozen lake whose surface is covered with

snow. When the lake is thawed, curly-leaf pondweed can tolerate the low-light conditions of an algae bloom better than most native plants.



In New Jersey, the spaghetti-like stems will often reach the surface during the month of May. The oblong leaves attach directly to the stem in an alternative pattern. The leaves are wavy (like long, skinny lasagna noodles) presenting an overall texture that looks "crispy." The leaves are about a half inch wide and two to three inches long.



*Photo from Minnesota Waters*

If left uncontrolled, the plants will produce small flowers and, by June, nutlets (achenes) are mature on the stalks and may drop to the sediment. These seeds play a relatively small role in spreading the plant through the lake compared to their vegetative winter buds (turions). It is the turions that allow the plants to spread quickly across our lakes.

## Management and Control

Curly-leaf does have some benefits to the ecosystem that should be considered. First, as it begins its growing year at the end of the summer, it is available in the winter as a source of food. It also provides early season cover for fish and other animals before native vegetation fills in.

That said, it is not advisable to let curly-leaf dominate a lake year after year. As with all invasive species, there are many options for control. A few are listed here, but it is best to consult your lake treatment professional to determine which options are appropriate for your lake.

### Habitat Control

Like all invasive plants, the best method of control is prevention. It is always a good policy to make sure boats are thoroughly cleaned before they enter your lake.

Since curly-leaf is active during the fall and winter, lake lowering with a hard freeze may help kill off the exposed stems of the young plants. It can also inactivate the turions from sprouting into new plants.

Stocking a lake with triploid grass carp may also be an effective way to control the dominance of curly-leaf. Grass carp have been shown to have a preference for it above other aquatic plants.

### Mechanical Control

Another approach to controlling curly-leaf is to deploy mechanical harvesters to get to the weed before it reaches the surface. In small areas, this can be done by cutting or pulling by hand. To cover a larger area, a specialized boat is required. This involves a mechanical puller and a platform to remove the plant matter.



Zach Boyden-Holmes, *The Register*

## Chemical Options

There are various chemical treatments to eliminate curly-leaf pondweed in the Spring. Lake managers should contact their certified herbicide applicator to determine the appropriate method. Here are some tips to consider when choosing to treat with chemicals:

- Consider the use of the waterway to be treated. Most herbicides restrict the use of the water until the herbicide has been degraded, inactivated or dissipated.
- New Jersey DEP administers the regulations regarding application of chemicals to waterways in New Jersey. Applications require a permit and certified applicator.
- Calculation of water area/volume to be treated is needed for proper dosage.
- Method of application may affect choice if a certain type of equipment is needed for treatment to be effective.
- Timing is important when deciding which herbicide to use. For curly-leaf it is best to treat in late winter or early spring when the plants are actively growing, but before they create a dense mass. This will reduce the amount of algae needed to be killed and reduce the chance of fish kills due to low dissolved oxygen caused by decaying plants.
- Temperature affects the efficacy of some herbicides. Application should be when plants are actively growing with a compatible temperature. Label recommendations should be followed.

March and April treatments using contact herbicides with active ingredients of diquat or endothall have shown positive effects in reducing curly-leaf pondweed biomass as well as suppressing turion production. Whole pond treatments with fluridone, a systemic herbicide can also be used, but may take additional time. Potential problems in controlling curly-leaf pondweed include a lag time between initial treatment and plant die-off, regrowth the following year and removal of beneficial native plants. Because the turions are extremely hardy and can lie dormant for years, control is often necessary every year or multiple times a year.

### Additional Resources

<https://aquaplant.tamu.edu/management-options/curly-leafed-pondweed/>

<https://njaes.rutgers.edu/fs1235/>

<https://www.lakegeorgeassociation.org/wp-content/uploads/2017/03/curly-leaf-fact-sheet.pdf>