Think twice before you call it pond weed. That plant not only may be enhancing the aesthetics of the pond, it may improve the fishing.

Story and Photos
By Michael Mounce

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Recently, aquatic plants are taking on a new level of respect and interest, especially among fisheries biologists, enlightened anglers and pond owners interested in maximizing their fishing opportunity. Aquatic plants are now recognized not just as something that fouls a fisherman's hook or lure, but potentially are key to higher-quality fishing. Not only can aquatic plants provide biological benefits, but they also can provide aesthetic benefits, such as clearer water, as well.

Aquatic plants come in a wide variety of forms. Algae are the most abundant, and simplest, of plants and lack a vascular system, roots and flowers. Reproduction is by spores and fragmentation.

There are many different species and forms of algae. The most common types are free-floating, single-cell microscopic forms, known as phytoplankton. Colonial forms, which may or may not be microscopic, often have an intricate structural form. Filamentous types form large, dense, cotton-like mats which may float on the surface of lakes, ponds and occasionally on streams, and are most commonly referred to incorrectly as "moss." Finally, some forms resemble true vascular plants, but reproduce through spores, not seeds.

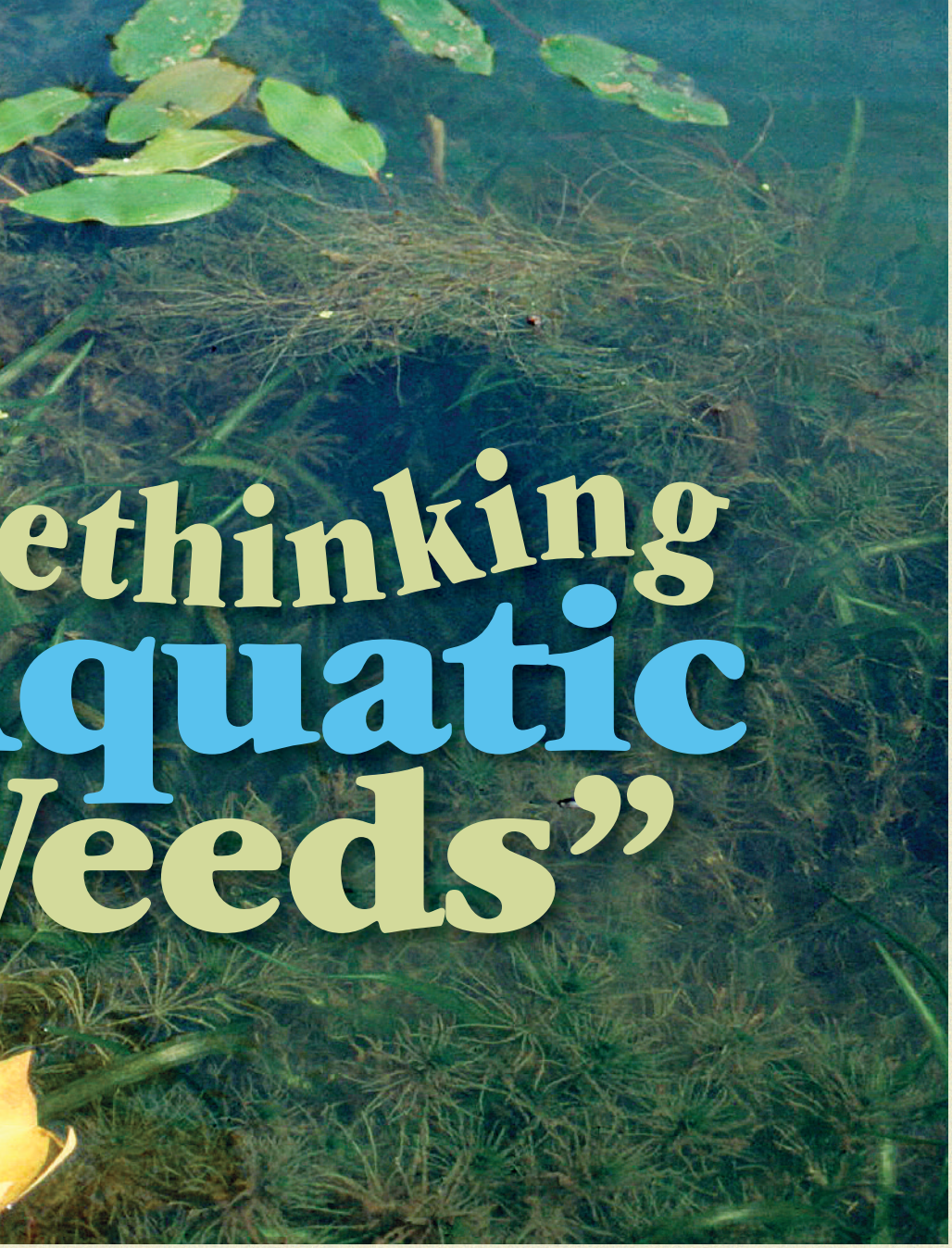
Green filamentous algae (*Spirogyra* sp.)

Commonly called "moss," abundant algae is indicative of a lack of rooted aquatic plants and excess nutrients.

Blue-green filamentous algae (*Pithophora* sp.)

Green algae are the primary food source at the base of the food chain in freshwater and saltwater environments and therefore are an essential part of the aquatic environment. Planktonic algae are the primary oxygen producers in most water bodies, especially the oceans.

The other large group is the vascular plants, which have true roots and flow-



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Aquatic plant diversity benefits fish, anglers and water quality.

ers and are collectively known as aquatic macrophytes. Often they are incorrectly referred to as grass or cabbage when found in aquatic habitats. Aquatic macrophytes range in form from the tiniest of flowering plants (watermeal) to true grasses (cattails and bulrushes) and broad-leafed forms (pondweeds and lilies). Macrophytes generally do not contribute as much as algae to food pyramids, but are eaten by a wide variety of insects and crustaceans. Macrophytes provide much better cover or habitat than algae. Both fry and the adults of many fish species rely on the cover provided by macrophytes for survival.

Aquatic environments tend to develop into one of two stable states. The less desirable state is characterized by the lack of rooted aquatic macrophytes and is dominated by various forms of algae, often resulting in turbid, green-colored water. Unfortunately, this state is all too common in many Illinois lakes

Blue flag (*Iris virginica*)

and ponds. Ponds and small lakes in this condition are prone to summer fish kills. Larger lakes in this condition, as a rule, do not have adequate largemouth bass recruitment, resulting in an over-abundance of prey species and lower fishing quality.

The other stable state is characterized by the presence of rooted aquatic plants providing much clearer water. The clear water often is considered cleaner and thus more aesthetically appealing to fishermen, homeowners, and others who enjoy water sports. The physical presence of plants produces an abundance of cover for young fish. This has been demonstrated to be especially important for largemouth bass fry, redear sunfish and a number of small, endangered species of fish. In addition, the large amount of surface

Lizard's-tail (*Saururus cernuus*)

area (substrate) the plants provide supports a wide variety of invertebrates. This provides a greater diversity of food organisms for the fish species that we rely on for recreation and food.

Fisheries biologists throughout the state have introduced aquatic plants into impoundments and streams or rivers for biological and aesthetic benefits. In addition to clearer water and more gamefish, aquatic plants reduce shoreline erosion, and in some instances produce showy flowers or foliage that are aesthetically appealing. Aquatic plants not only benefit the fish and the organisms that fish rely on for food, but are important for a wide variety of other animals including mammals, birds, reptiles and amphibians.

When transplanting plants from one lake to another, biologists are careful to choose donor lakes that do not have

Dormant tubers (displayed left) and transplants are used to introduce desirable aquatic plants and enhance habitat.

established populations of exotic species of plants or animals. Exotic species may be hiding in, or attached to, the desirable plants and possibly transferred to new water bodies. Transporting exotic species from one water body to another can result in conditions that significantly reduce fishing quality and other recreational activities, resulting in fewer fishing trips by visiting fishermen and less revenue for the local community providing services and goods to fishermen.

Although the benefits of aquatic plants are well documented, too much of a good thing can be less than desirable. When aquatic plants become too abundant, prey fish may have too much escape cover and growth rates of both prey and predator species are reduced. Too many plants may inhibit fishing, boating and swimming. At night, an overabundance of plants may result in too much competition for oxygen resulting in the death of many fish.

Ideally, from 10 to 30 percent of the lake surface area should be inhabited by aquatic macrophytes. When plant cover exceeds these recommendations, corrective measures—spot treatments using herbicides, mechanical removal, or the complete removal of undesirable species and the introduction of more desirable species of plants—are taken to reduce the plants to appropriate levels.

Introducing desirable species of plants into a water body is not as easy as planting them and walking away. Some extensive attempts to introduce plants have been met with complete failure. Department of Natural Resources fisheries biologists are working on improved methods to introduce desirable species of plants. This will result in an improved environment, as well as a better use of the limited time and resources biologists have for this or other fisheries management activities. For many species of aquatic plants, especially submersed species that grow under water, the limiting factors to their survival are not well understood. Identification of these factors and the development of methods to introduce these species will be required to produce significant results in many lakes, ponds and streams.

The next time you reel in a sprig or ball of aquatic plants with your lure or hook, keep in mind that the fishing in that lake would not be nearly as good without the benefits of plants to the fish. In addition, without the presence of the plants it may not be as attractive of a place to spend your time. If you hear someone complain about the "weeds" growing in a lake or pond, you may not be able to convince them of their benefits, but hopefully you will understand that native aquatic plants, in the correct abundance, are an important and necessary component of a healthy aquatic environment.

In cooperation with DNR fisheries biologists, your support of, and assistance with, projects to introduce aquatic plants will eventually provide better recreational opportunities for you, your family and your friends.

Mike Mounce is a district fisheries biologist and based at the Charleston office.

Boy Scouts assisted fisheries research biologist Matt Diana plant wild celery tubers in protective exclosures.