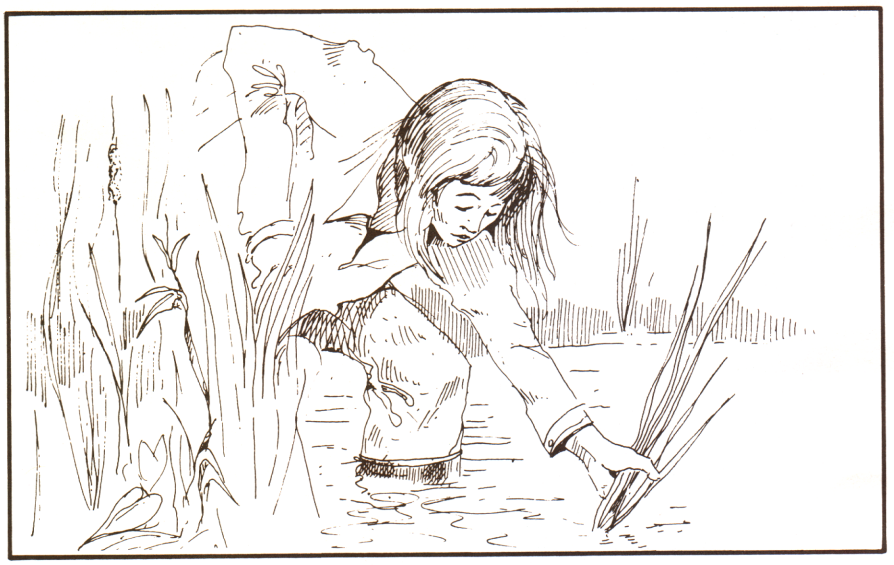

Pulling plants out by hand will often be the simplest way to control vegetation in shallow water.

Physical Disruption and Removal

This method can be one of the simplest and most practical of temporary plant control methods. The cost can be low for some methods—or quite high for others. The methods are akin to cultivating, weeding and hoeing in a garden, or to mowing a meadow. Most aquatic plants are more fragile than garden weeds, however, and to this extent physical control may be easier for water plants than for land plants.

Frequent disturbance, such as raking of pond shallows, or trampling of beach areas by swimmers, can keep areas weed-free. Cattails are easily killed by trampling or cutting the new shoots in springtime. This may also work for most other emergent plants.

You can simply wade in and uproot many kinds of plants by hand. This works for cattails, rushes and other emergents when they are growing as isolated plants, as well as for submergent plants that can be reached in this manner. The first "weeding" of a well-established plant bed may be hard work, but follow-ups repeated often enough may keep the difficult situation from developing again.

A scythe or hoe can be useful for cutting aquatic weeds in shallow areas. **Caution:** Wielding a blade under water can be much more dangerous than in the air! Always wear protective boots! The cut plants will float and should be removed from the pond as soon as possible. Deposit them where the nutrients will not run back into the pond as the plants decay.

A rake can be used for uprooting, tearing loose and dragging out plants. The head of a garden rake, fitted with an extra-long handle and manipulated from a boat or wading position is suitable for reaching into deep water. A floating rake is less tiring for work near the surface. If you don't have an all-wooden, pegtined rake, make a floating rake. Fashion a rake-head block by driving long spike nails at 2-to-3-inch intervals into a piece of light wood which is about 2×2 inches in cross-section and 18 to 24 inches long—or longer if you can handle it. Cut the spike heads off. Drill a hole in the block so a handle can be affixed. A bamboo pole makes a good handle. It can be very long yet light.

For weed growths too extensive to scythe or rake, a log loosely wrapped and stapled with barbed wire can be dragged through the pond behind a tractor driven along the shore. A heavy chain connecting log to tractor helps to sink the log to the pond bed. Add more weight as needed. The log can be guided with a rope manipulated by a person on an opposite shore. The barbwire log seems to be an improvement over the dragging often tried with bedsprings—from which it is more difficult to disentangle weeds.

Mechanized harvesters are available in a wide range of sizes. Small models, costing less than $1,000, can be mounted on a rowboat. These have cutter bars like those on hay mowers. With such boat-mounted units, weeds can be cut to a depth of about 4 feet. After the weeds are cut, they are raked to a removal point on shore. Other weed cutters are manufactured as mower bars on small paddlewheel barges. These can operate in very shallow water, as well as to depths of 5 feet or so. They range in price from about $2,000-$20,000. Large "harvester" units which draw plants onto the barge as they are cut are available for upwards of $50,000.

Some plants are difficult to control with mechanized harvesters. Chara sinks when cut and is therefore hard to pick up. Milfoil, coontail and elodea are also hard to collect once they are cut. These kinds of plants spread by fragmentation. Each piece cut and not picked up may become a new plant. In small ponds, removal of these plants by hand or rake is probably preferable to mechanical harvest. Most plants are, however, easier to harvest mechanically than chara, milfoil, coontail and elodea.

Plant removal is best done at times of spring or summer when it will result in the maximum amount of plant material removed and still allow full recreational use of the pond. Such timing depends on your knowledge of the growth of the plants in the pond and your plans for pond use. Often, the best approach in a small pond will be periodic trimming as in caring for a lawn or garden. In new ponds, control plants by frequent hand or rake removal before they become abundant.

Harvested plants make good garden mulch, soil conditioner and composting material. The thin cell walls of aquatic plants break down rapidly and the resulting fine-textured matter may even be suitable for spreading on lawns.