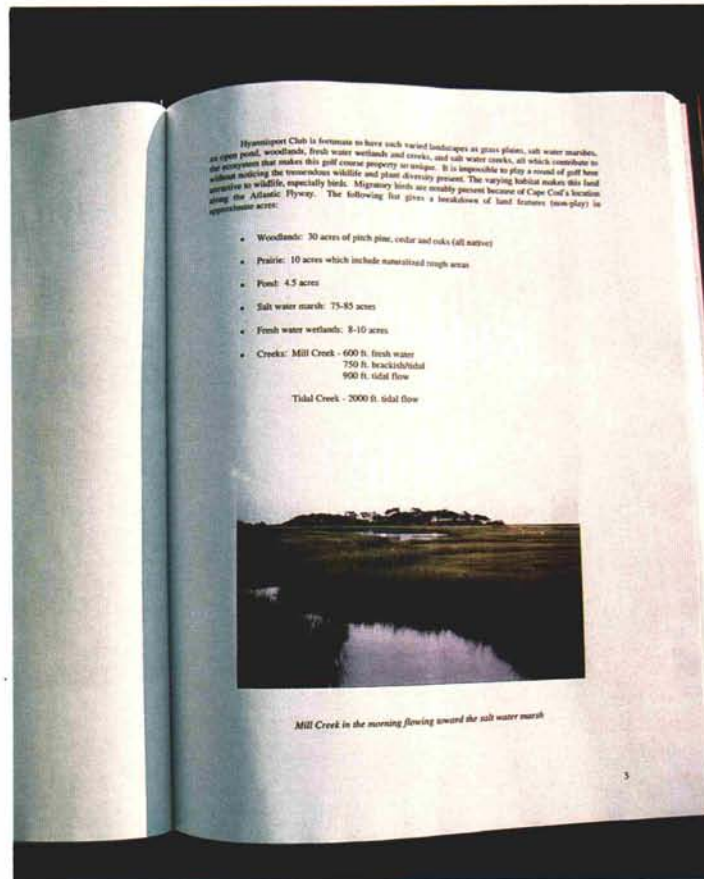


and habitat management were also listed. Finally, the success of objectives developed for pest management, water conservation, water quality, and facility management were documented, and goals for further improvement in these areas were outlined.

The written information, photographs, and maps were then compiled in a hardcover book and presented to the Audubon Society of New York for certification purposes. The publication provides clear objectives and lists future projects as a guide for the Hyannisport Club to further improve environmental aspects of the golf course operations and the property. The program has provided an excellent educational opportunity and experience for Mark, and at the same time has helped the Hyannisport Club obtain certification with ACSP.

The value of utilizing summer placement students for regular maintenance activities is recognized by superintendents throughout the country. Con-



Information in the project book included drawings and photographs that documented the various wildlife habitats throughout the golf course.

sider expanding the responsibilities of your placement students through activities associated with the ACSP. The environmental awareness of the students, staff, and the golfers can only be broadened, and at the same time the objectives of the ACSP can be fulfilled. Obviously, there are not many placement students with majors in both agronomy and the environmental sciences. However, the students can still be extremely helpful with developing resource inventory reports, and can become involved with projects concerning golf course pest management, water conservation, and water quality management.

Mark gained experience that will last a lifetime, and it will help him better meet the new challenges that occur as the industry evolves. The opportunity is available for placement students to become involved with the ACSP. Use this opportunity to the benefit of both the students and the golf course.

# FLOTATION DEVICES

by **PATRICK GROSS**

Agronomist, Western Region, USGA Green Section

**S**UPERINTENDENTS CAN BE considered pond scum and often take the blame when golfers can't see their golf ball at the bottom of a pond because the water isn't crystal clear. Algae and other aquatic weeds are not only a nuisance for golfers, but also are problems for superintendents. The main culprit in many of these lakes is filamentous algae. These floating mats make the water visually unattractive and cause serious problems with the performance of the irrigation system. Dave Rosenstrauch, superintendent at the Orinda Country Club, tackled this challenge on his 5½-acre irrigation lake by using a revolutionary *flotation device*.

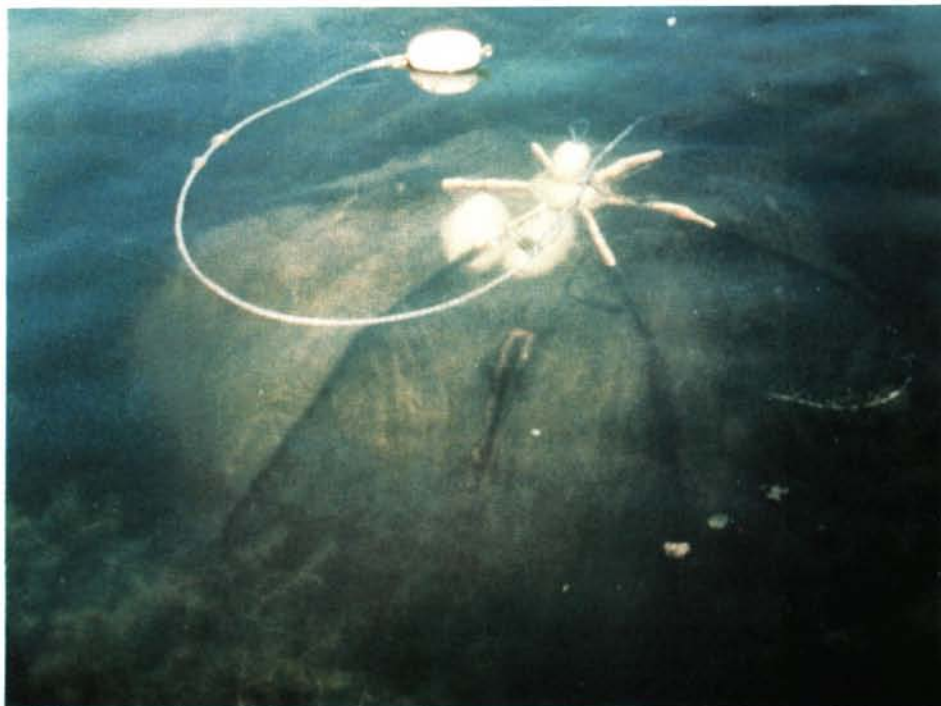
Several different treatments had been tried in the past to eliminate the algae, in-

cluding applications of copper sulfate, dyes and shading agents, aeration, and microbial products. None of the methods was totally successful, and they seemed to be treating only the symptoms and not the cause of the problem. What was needed was a way to remove nutrients from the water that were acting as a food source for the algae. Dave decided to try a product called Nutri-Pods, a new method that includes the use of aquatic plants to naturally remove nutrients from the water. This technology was developed by Dave Murray, a limnologist and president of the Limnion Corp. in Bayview, Idaho.

The Nutri-Pods are round underwater greenhouses constructed of aluminum, polypropylene, and fiberglass mesh that contain the aquatic plant coontail (*Ceratophyllum*

*demersum*). The coontail out-competes the algae by removing nutrients from the water, and the Nutri-Pods keep the plants contained and prevent them from growing out of control. The pods are manufactured in different sizes (3 feet and 6 feet in diameter) to accommodate lakes of various depths and sizes. They float in the water and are kept in place by a concrete anchor attached to a rope that runs through a PVC pipe in the middle of the pod. A float at the end of the rope marks the location of each Nutri-Pod. The number of pods needed per lake is largely dependent on the nutrient load and the size of the watershed. Roughly one pod per surface acre is recommended; however, 11 of the 6-foot-diameter Nutri-Pods were used in the lake at Orinda Country Club.





An alternative to chemical algae control in lakes is the use of aquatic plants placed in underwater greenhouses called "Nutri-Pods."

Nutri-Pods require routine maintenance for optimum performance. Dave hired a local landscape contracting firm, Contra Costa Landscape, to install and maintain the Nutri-Pods. Maintenance involves checking the pods on a monthly basis, cleaning the fiberglass mesh, adjusting the depth of the pod, and removing or restocking the coontail as necessary to maintain approximately 25 percent plant matter in the pod.

Although the Nutri-Pods have not completely eliminated algae growth, Dave is convinced they have made a positive impact and have significantly improved water quality. Monthly water tests have indicated that the Nutri-Pods have reduced the amount of nitrogen and phosphorus by 15 to 20 percent. This same biological technology is also being used in wastewater treatment plants to remove nutrients before the water is delivered to customers, and it shows promise for other applications. So if algae-infested lakes make you feel like abandoning ship, a new *flotation device* may be your lifesaver.

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# HOW DRY I AM

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by **ROBERT VAVREK, JR.**

Agronomist, North-Central Region, USGA Green Section

**W**HY IS IT that more putting green turf is lost each season due to overwatering than by underwatering? A common reason is the absence of a well-designed irrigation system for greens and the surrounds. The pattern of irrigation coverage is especially important when a green possesses significant undulations and contours. Such a green is frequently overwatered to minimize the development of localized dry spots on the elevated portions of slopes and knobs. Heavily shaded greens are also likely to receive excess irrigation because the lack of sunlight and air movement limit the evaporation of water from the putting surface and the root zone. Irrigation cycles often cannot be, or simply are not, adjusted for shaded greens and other site-specific requirements.

*Excessive irrigation during the peak heat stress of midsummer can contribute to the decline of turf on greens.*

