Water Quality Management

BY JOHN FOY, DIRECTOR
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On our planet, water makes up over two-thirds of the entire surface area. It is also a basic requirement for survival of all life forms. Water bodies and wetlands are found on virtually every golf course in Florida.

John Foy

Protecting surface and groundwater quality should be a goal and an integral part of course management. To insure that your golf course is maintaining good water quality, it is important to have a strategy in place to monitor water quality, improve conditions if warranted and deal with any problems that may arise.

Water quality management will be the focus of this sixth and final article in this ACSP series. To achieve certification in this category, you need to consider the following things:

(1) Baseline Data and Water Quality Monitoring: What baseline information has been established for water quality, including clarity, dissolved oxygen, and pH? What water sources are tested? Who conducts the tests and how often are they carried out?

(2) Streams: If a stream or creek is on the property, what stream protection measures are in place to reduce erosion, maintain adequate shading, and reduce pollution inputs? Has anyone sampled for "macroinvertebrates" (insect larva and other organisms that lack a backbone)? Since many of these organisms are sensitive to pollution, they are a highly reliable indicator of pollution.

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ACSP: Part VI

In this final Part 6 of this series on the Audubon Cooperative Sanctuary Program for Golf Courses, methods of *Water Quality Management* are presented.

- ✓ Environmental Planning
- ✓ Member/Public Involvement
- ✓ Wildlife & Habitat Management
- ✓ Water Conservation
- ✓ Integrated Pest Management
- ✓ **Water Quality Management**

(3) Wetlands: If wetlands are present, what condition are they in (degraded? viable & productive? invaded by phragmites or purple loosestrife? protected?) What measures are taken to protect or improve wetland habitat?

(4) Buffers and "No Spray" Zones: Vegetative buffers around water features help to filter runoff and reduce erosion. Have you established buffers and "no spray" zones near water sources to minimize potential drift and runoff?

(5) Drainage: What areas drain to lakes, ponds or wetlands? What filtering mechanisms are present? If fertilizers are getting into lakes, that can be a major cause of algae problems.

(6) Chemical Additives: What (if any) chemicals have been added to water features? Have you made any changes in chemical management of water features? Have you tried alternatives such as biological remediation or aquatic planting? Is wildlife abundant or scarce?

(7) Maintenance Buildings: The maintenance area can be a potential source of contaminated runoff. Are all buildings safe and up to code? Are there repairs that need to be made? If someone came to inspect your facility, would they come away confident or wary about your management practices?

As an additional note on water quality management, research conducted by the USGA on the environmental impacts of golf courses revealed that when fertilizers and pesticides are used properly, the potential for leaching of these materials into ground water is minimal. However, this research revealed that minimizing runoff into surface water is an area that needs greater attention.

The creation of buffer strips and no spray zones should be pursued at all facilities. Although a vegetation buffer surround-

Water quality affects virtually every golf course

ing all sides of a water body would provide the best nutrient filter, this is usually not an acceptable situation when an area comes into play. Maintaining a higher height of cut turf buffer strip or grassed swale for those areas in play is a reasonable compromise that can also help minimize maintenance requirements. For the out-of-play areas of lakes or ponds, border shrubs and emergent plants should be established and maintained.

Ideally, "no-spray" zones approximately 50-feet wide should be enforced around all surface water bodies. However, adhering to this ideal is not always feasible on a golf course. When fertilizer applications must be made immediately adjacent to a water body, the use of drop spreaders is recommended.

Also, only slow release nitrogen sources and no more than 0.5 lbs. of actual nitrogen per 1,000 square feet should be applied at a time in sensitive areas. If an unacceptable level of pest activity develops in a "no spray" zone, naturally the first route to pursue would be the use of biological control agents. If a pesticide must be used in these areas, it should only be applied as a spot treatment.

Also, the chemical characteristics of the pesticide options should be carefully considered in selection of the material to use in these locations.

The Jan/Feb, 1995 issue of the *Green Section Record* contains a listing of commonly used pesticides and their characteristics.

Water management by design

BY STEVE EHRBAR, CGCS

OLD MARSH GOLF CLUB

Old Marsh Golf Club was built on a unique 460 acres of land. Architect Pete Dye routed many of the holes around protected wetlands and his design for the irrigation and drainage systems were very well thought out.

The irrigation system was installed with many different sized heads and half circles to ensure no irrigation water would be thrown into the wetlands or created marshes.

The drainage system on the course has approximately 30 catch basins per hole. All the excessive runoff water from rain or irrigation is collected by these basins and run through a series of pipes to containment lakes. From these containment lakes, the water is pumped to the main irrigation lake for reuse.

One design feature that each hole has is that all the perimeters of the fairways and roughs are built higher than the middle of the fairways to ensure no fertilizer or pesticides contaminate the wetlands. We are very selective on our use of products, and try to be environmentally conscious.

Pete Dye manages water at Old Marsh with unique design features.
Photo courtesy USGA Green Section.