



## Managing Water Features

*“Of all the hazards, fear is the worst” – Sam Snead*

Golfers often have a love-hate relationship with water features. Depending on your lie, they can be diabolical hazards or attractive landscape features. No matter how you choose to view them, streams, wetlands, ponds and lakes are integral components of many golf courses that serve a number of important functions; they provide water for irrigation, mitigate flooding by holding stormwater and can serve as important design features. Water features are rich, complex, living ecosystems that provide habitat for plants, animals and microorganisms.

Water features evolve over time and most require some level of management to remain in good condition. The maintenance practices used to manage a water feature depend on its age, size and depth, water source, how it is used and even its location.

Controlling aquatic plant growth is an important part of managing golf course water features. Algae and aquatic plants are important components of all water bodies, but when left unmanaged they can become unsightly and damage the health and functionality of a water feature. Herbicides and algaecides are the primary tools for managing aquatic plants and algae.



***Native plants and aquatic vegetation growing along the shoreline help protect and clean the water while providing natural beauty and valuable habitat.***



Cultural practices such as water circulation, aeration and mechanical removal also can be effective management tools. Additionally, there are several biological control agents being used to manage aquatic plants and algae.

A comprehensive strategy that includes cultural, biological and chemical management options provides the best opportunity for successfully managing aquatic systems. Comprehensive plans usually are developed with the help of aquatic system specialists that can help thoroughly evaluate water features.

Managing the depth and edges of water features also is important. **Dredging** can restore pond depth and increase water storage. **Restoration** projects can stabilize eroded creek banks and restore riparian habitat. Creating vegetated areas of shallow water along the edge of a pond or lake, known as **littoral shelves**, can provide habitat and help filter water. Furthermore, vegetated buffer strips around shorelines can filter nutrients and sediments before they reach the water. Preventing nutrients from entering water features helps preserve water quality and reduces algal blooms and plant growth. The dense and deeply-rooted vegetation found in buffer zones also helps stabilize water feature banks. While some golfers may prefer water features that have manicured edges, naturalized buffer zones and emergent plants growing along the water's edge play an important role in aquatic systems.

Water features are more than design elements or water-storage areas; they are living systems that can add ecological and aesthetic value to a golf course. Practices that protect and improve water quality while creating more balanced and natural aquatic systems are the key to successful long-term management of water features.



*Well-managed water features can provide challenging hazards and add interest to a golf facility.*