



Water Stewardship

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"Water, the liquid that means life." I don't recall who coined this phrase, but truer words could not have ever been expressed. Taken for granted all too often, this combination of elements is a priceless commodity. Beyond human sustenance, it is the life blood of our American golf economy.

So what would happen if Minnesota golf courses were mandated to not only a reduction in the amount of water legally permitted, but also limited to specific times for irrigation? Perhaps in the short term and during an average season not much. However, these restrictions would most likely only come up if there were a severe water crisis; a time when our turf probably needs the water most. Unlike water used for industry, agriculture and consumption golf course irrigation is unfortunately perceived as a luxury. As turf professionals we know this is not the case.

We already know that healthy turf acts as a filter of dust and controls erosion. It mitigates pollution, abates noise and reduces glare. Destinations for wildlife, golf courses are often the largest home for indigenous creatures in many communities. And economically our managed venues contribute over 2 billion dollars annually to the Minnesota economy.

Do the general public, state agencies or governing bodies understand the role we play in all of the aspects of the state environment? Nope...and why should they. We never toot our own horn or protect our interests, our product and our livelihood. Well, we never used too!

Several MGCSA Presidents ago, the rally cry for water management was brought to the attention of our Board of Directors. It led to the creation last year of a 'loosely-organized' Minnesota Turfgrass Government Affairs Committee who began working on the concept of a document intended to 'sell' the benefits of golf courses the importance of turf irrigation and the responsible attitude we as golf course managers have toward the most valuable resource, water. Where are we today?

Over the course of the winter, several other State water management documents were evaluated for their content including Connecticut, Georgia, Florida and Pennsylvania. The best of these reports was massaged and adapted to reflect the specific idiosyncrasies of Minnesota golf courses. Seventeen clubs or vendors' generated Best Management Programs relevant to water quality and use. Technical articles were reviewed for their merit and inclusion and partnerships established with parties interested in our industry and how we manage our resources. The end

result is the framework for the *Minnesota Golf Course Water Stewardship Guidelines*.

Throughout the project I have learned that we have a good message to share. No, we have an AWESOME story to tell. From using reclaimed water, establishing natural areas, maintaining our systems and using the latest technologies to maximize our irrigation efficiencies our attitude toward preserving water, a resource respected by all golf course personnel is well-documented and needs to be promoted.

The Minnesota Golf Course Water Stewardship Guideline is a long (over 150 pages) essay. It needed the length to first define for our partners and adversaries what a golf course really is. Secondly, emphasize the complexities involved in managing the unique aspect of a golf course that is so beneficial to our environment and economy. And thirdly, educate everyone as to our inherent interest in water stewardship including a series of locally-generated Best Management Practices that emphasize through example our responsible intentions.

The thrust of the project is to, assure Minnesota agencies and public representatives we are committed to quality control and responsible water use, provide our state courses a conservation resource and of utmost importance, and define our own future regarding water management. This goal requires an incredible amount of promotion, education and forward thinking.

The final chapter needs to be written.

Do we offer a plan, when mandated, to cut back our water use dependent upon a schedule out of our control? For example, we could be forced to irrigate only every odd day or even just Tuesdays and Saturdays.

Do we create a systematic 'phased' approach of each club reviewing their water use from source to destination and creating individual plans incorporating a five,

nine and 14 percent cut back? Perhaps each club left using their own independent

analysis could develop a plan to cut percentage-

wise according to what they can do in a time of crisis without compromising their product. Or should we wait and see what plan our state agencies come up with according to their perception of our needs?

Options, always options, but one thing is for certain, if we do not create our own destiny one will be created for us. Sure, we cannot control those clubs who operate beyond the scope of the MGCSA, but we can create a paper trail of responsibility to assure our member clubs will be able to determine their own future regarding our greatest resource - water.

In the upcoming months, should you so choose, you will have the opportunity to review the material for your own personal input. In fact I encourage, but bear in mind that the document is expansive and encompasses many concepts already incorporated in turf management today so that the general public, allied green industries, state agencies and elected representatives can rest assured we are doing our very best to preserve and maintain the quality of the water we utilize in providing a benefit for our communities.

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-Jack MacKenzie, CGCS

BMP #2: Knowing When and Where to Irrigate

Use irrigation controllers and automated devices combined with weather predictions and site conditions to improve efficiency.

Use drip irrigation for trees, shrubs, and other out of play areas requiring water. Choose landscaping plants that are drought resistant and mulch to conserve moisture.

Many older, timer-controlled irrigation systems are still in use. Irrigation should not be based on a time or calendar schedule but rather on site-specific conditions. This means your staff must monitor soil and weather conditions and operate the system accordingly. Take the time you need to evaluate your golf course. Consider the soils, topography, course layout, grass species, acreage, and the irrigation system design.

Consider, too, cultural practices such as mowing height, proper fertilization, and aeration that can reduce plant stress and, therefore, water needs.

Armed with this information, you can then begin to identify areas with similar water needs and irrigate each region accordingly. Prioritize areas to irrigate, making reductions in the fairways, roughs, and driving ranges.

Benefits of knowing when and where to irrigate:

- Reduces runoff and nutrient and chemical leaching.
- Conserves water.
- Protects surface and ground water from pesticide and nutrient contamination.
- Efficient water use reduces stress on streams and ground water levels.

Other Considerations

- Consider factors that affect plant water needs including evapotranspiration rates, recent rainfall, temperatures, exposure to prevailing winds, and soil moisture.
- Irrigate when wind speeds are minimal. Higher winds increase evaporation and blow water into non-targeted areas, both of which are a waste of water.
- Plant native species that are better adapted to local conditions, and whenever feasible, select drought-tolerant species.
- Spot water whenever possible to limit water use to those plants that truly need the water. Over-watering can cause nutrients to leach below the root zone where they are useless to the turf.
- Be aware of existing local and state regulations for ground water and surface water withdrawals.
- Document actual watering practices and set goals for yearly reductions. You might want to make this part of your monitoring program.
- When chemicals require water, try to plan irrigation times to coincide with chemical applications and synchronize fertilizer application with light irrigation.

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Wayzata Country Club uses a centrally controlled irrigation system that is connected to a weather station in order to determine site specific ET rates that are used to maximize irrigation efficiency. The ET rates are a major component in determining irrigation schedules and practices. A weather station equipped with a rain collection bucket will allow an immediate shutdown of an irrigation cycle during rain events, preventing unnecessary watering.



Constant scouting/inspection of turf and soils will help you to better understand what the irrigation needs are for all areas of a golf course, allowing for proper levels of irrigation. Hand watering, while a more labor intensive process provides the delivery of water in a more precise manner preventing the unnecessary use of overhead sprinklers.

Selection of nozzle size and head type will also greatly impact the efficiency of an irrigation system. Selecting sprinklers with adjustable margins to prevent unnecessary or over watering and using misting systems on steep slopes such as severe bunker faces will help keep water where it needs to be rather than creating irrigation runoff by using too large of a sprinkler head.

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