

Can We Cope with Mother Nature and Governmental Regulation?

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LEGEND HAS IT that early lumbermen, while piloting huge log rafts down the Wisconsin River on their journey to sawmills in the upper Midwest, would navigate stream channels at night by aiming at oil-powered lanterns. The cut-glass prisms used to magnify the small candle of light, when viewed from the water, resembled the shape of a bull's eye. One such lantern location, high atop the hill overlooking the river, is the present site of a golf club that took on the namesake of the light pattern that guided those logs to market. Today, the Bull's Eye Country Club is an 18-hole private country club with an adjacent nine-hole public golf course.

The Wisconsin River, dubbed the hardest-working river in the nation because of the large number of hydroelectric generating stations along its banks, was held hostage by the drought of 1988. The headwater region of the river system, consisting of much of northern Wisconsin, suffered through a similar drought in the summer of 1987, leaving the groundwater supply very low. Compounding the problem was dry, hot air blowing across open waters, quickly evaporating large volumes of water and further reducing an already anemic stream.

As the golf course superintendent at Bull's Eye Country Club, I was alerted on June 20, 1988, to the total ban on diverting water from the river by the Wisconsin Department of Natural Resources. The DNR invoked its right to do this under state statute that "protects the public's rights and interests." In short, it was protecting the rights of sport fishermen, game, and wildlife. Recreation came before golf courses. In fact, we weren't even considered on the priority list. The argument that we were a business and served the recreational industry fell on deaf ears. Television pictures of barges stranded up and down the Mississippi River also served as a vivid reminder of the serious nature of the drought. The DNR officials were caught between a rock and a hard spot.



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Approximately one week before the water cutoff, a department official told us it would be a wise idea to start seeking alternative sources of water. Club officials, sensing urgency, authorized money to have well-drilling firms make exploratory searches for a viable source of water. But the cutoff couldn't have come at a worse time. Local farmers, with small seedlings dying in their fields, had tied up most well drillers' time for weeks to come. Even if we could have secured a well, there was no guarantee that a pump would be available.

At first we considered ourselves lucky, since Bull's Eye Country Club had mothballed a pump-station on one of the course ponds in 1980 when a higher-capacity pump station was constructed on the river bank. Water in this pond would last about one week, at best, if irrigation was limited to tees and greens — much less if fairways were kept in the irrigation program.

With the river as its source of recharge, alternatives to recharging the pond were sought. Our first and closest source of water was a fire hydrant located adjacent to the public course. Under a declaration of emergency, an

agreement to sell water to the club was signed by the Mayor of the City of Wisconsin Rapids. It seemed as though we were set.

Unfortunately, headlines in that evening's newspaper edition spelled political disaster to the club. "Course Gets OK to Use Hydrant Water for Greens," read one headline. Yet placed directly beneath was an article with the headline, "Sprinkling Ban? City Will Draft Ordinance that Could Lead to Mandatory Ban!" Angry constituents flooded aldermen's telephones with questions as to why a golf course outside the city limits would be sold their water! The temporary permit was rescinded, and we were forced to look for water elsewhere.

We soon learned that a local stone quarry operator had to constantly empty its quarries of water to keep its pits open. With this surplus available to us free of charge, it meant that the only expense to be incurred would be in finding the means to transport the water to the pond on the golf course. An 18-wheel tractor and tanker was leased from a local trucking firm to haul the water the five miles between pond sites. The water came to us one load at a time, 7,000 gallons per trip. The trucking charges came to one cent per gallon, about ten times the cost of the water we had been purchasing from the city.

The greens on the private course were watered by hand-held hoses connected to the irrigation system, as the mothballed pumps could supply water to those 18 greens. Getting water to the nine greens at the public course was a different story. Ultimately, our spray equipment, outfitted with hand-held hoses, was pressed into service. An old hay wagon, a 1,000-gallon fuel tank, and a series of sump pumps also aided our efforts. This method was barely adequate to keep the putting green turf alive. We soon found ourselves outstripping the ability of the truck to supply water to the pond, so it was decided to eliminate the watering of the tees.

(Right) Water was conveyed to the course by means of this 7,000-gallon stainless steel "pipeline."

(Below left) Fairways cracked and peeled apart under the blistering heat.

(Below right) The drought's devastation as seen from the air. The overlaps and scallops from the sprinkling pattern are readily apparent.



Water conservation methods included hand-watering, raising the height of cut on the greens, increasing the use of wetting agents and anti-transpirents, keeping mowers sharp to minimize mower shock, and watching our fertilizer applications. At best, these measures represented Band-Aid solutions.

Undergoing the physiological process of dormancy, our unirrigated fairway turf turned a straw color. What we were not prepared for, though, was the actual drying and shrinking of the turf. Dense *Poa annua* fairways and areas that served as surface drainage passageways began to shrink and curl as the tissues dried. Unwatered tee surfaces also began to crack and peel apart. Damage was enhanced by a recent aerification. Holes that were not completely filled by post-aerification topdressings hastened the drying action and onset of death. These turfs began to pull apart between the rows of aerification holes.

The death of the turf was confirmed when plugs removed from the affected areas were brought into a greenhouse

environment. When little or no regrowth occurred, a complete strategy for renovation was drawn up.

Because golf course contractors were tied up with new course construction, it was apparent that the renovation work would have to be done by our own crew. Fortunately, we were blessed by the willingness of many Wisconsin golf course superintendents to make available their equipment and work crews to bolster our staff. With that in mind, and having a renovation strategy in place, equipment was brought in from all over the state. It boiled down to using whatever I could beg, borrow, or steal.

The actual reconstruction on the Bull's Eye Country Club course started on August 8, 1988. A scheduled application of glyphosate herbicide was cancelled because there was very little green vegetation at that time. All 25 acres of fairway turf received multiple aerifications, and aeroblades were used to slice open the turf to create additional seed channels, break apart the aerification plugs, and pulverize the thatch.

A three-way blend of bentgrass seed was mixed with a fertilizer carrier and was broadcast over the newly prepared seedbed. As soon as seeding was completed, the treated areas were drag-matted and rolled. Severely damaged areas were rototilled with tractor-driven tillers. Rough grades were established by using specialty construction equipment, and finish grades were done by hand. These areas were then seeded and mulched with straw.

Tees represented yet another hurdle. Sod was cut at the soil-thatch interface, and tractors with box scrapers were used to move this dead organic matter to areas where it could be loaded into dump trucks and hauled to the compost pile.

An 80-20 topmix was placed on the tees to compensate for the thatch and soil removed. The surfaces were leveled, soil amendments were added, and overseeding was completed, and the surface was lightly hand raked to insure good soil/seed contact. Rollers were used to firm the surface and to further press the seed into the soil. Due to the extreme

dryness of the soil, a pre-rolling was occasionally done to firm up the seed-bed.

All of the renovation and overseeding was done without the benefit of water. Logic told us it was better to do the renovation work now and have all the pieces in place should rainfall resume. To wait until the spring of 1989 or beyond would cost our club more in lost membership revenues than in wasted seed dollars.

Fortunately, Green Chairman William Brazeau managed to arrange political commitments to gain a two-month reprieve of sorts. The Wisconsin DNR approved a temporary, two-month grow-in permit by granting us a pump-back permit. This gave us the ability to use a high-capacity well located 13 miles by road upstream from our course. By piping the water to a wetland adjacent to the river, we could turn on our pumps downstream to irrigate the golf course. In simple terms, the river became a conduit for the water we would be

adding upstream. One stipulation we faced in using this technique was that only 80 percent of the total we pumped into the river upstream could be diverted downstream for irrigation purposes. The other 20 percent was presumed lost to evaporation.

Sixty days after being shut off, we were allowed to use our pumps once again. Five days after we began to irrigate, seed germination was noted on both tee and fairway surfaces. Mother Nature blessed us with a couple of brief but very welcome showers to augment our growing efforts, and 21 days after germination, the fairways were cut for the first time.

Through it all, 112 acres were re-grassed. This completed all fairways, tees, roughs, approaches, green and tee banks, and collars. However, renovation costs continue to mount. The club is still looking for viable backup options should we be forced to do without our primary irrigation permit, which is based on using surplus water in the

river. Our pumpback agreement, which sounded so promising as a permanent solution to our water woes, was disallowed by the Wisconsin DNR.

Rumors persisted that our club would be closed well into June 1989. Our early renovation start, combined with perfect fall growing weather, allowed us to open a few holes at a time. We were able to open 11 holes in the spring, and by Memorial Day, we had the entire course open for play. There were a few rough spots that required attention, as occurs in all such situations, but they were handled quickly on a spot-treatment basis.

Like a scraped knee that is healing slowly yet properly, before we realized it, the wound was no longer evident. The results exceeded my expectations.

The drought of 1988 will not be soon forgotten. Yet after all is said and done, the Bull's Eye Country Club will benefit from the face-lift forced upon it by Mother Nature and governmental regulations.

One of our renovated fairways is well on the way to recovery.

