

Doing the

Paul Emling has transformed Arcadia Bluffs' image with a golf course maintenance program based on his genuine appreciation for the environment

BY LARRY AYLWARD, EDITOR



Upon hearing the news, Paul Emling rushed to the edge of the golf course on the towering bluff overlooking Lake Michigan. Stunned and shaken, Emling couldn't believe what he saw. He crumpled to his knees on the rain-soaked ground.

Emling stared down at the thousands of tons of soil that had eroded into the lake through a ravine from the golf course above. The soil created a delta in the shimmering, blue water and formed an ugly, brown plume extending well beyond the shoreline.

It was a frightening sight to Emling, the young superintendent of the new course, Arcadia Bluffs Golf Club, which was still under construction in the picturesque northwest Michigan small town.

"I was devastated," Emling recalls of the erosion accident that occurred on the morning of Sept. 26, 1998, after the village of Arcadia was soaked with 3 inches of rain in about an hour.

Emling, then 27, was six months into his job at Arcadia Bluffs. He wondered what impact the calamity would have on his young reign of the course. Emling's natural response to the accident was, "Why now?" The links-style course, located on about 225 acres and situated along a 150-foot-tall bluff on the lake, was nearly finished and scheduled to open the following spring. "I couldn't believe we'd

gotten that far to have this happen," Emling says.

Worse, environmentalists viewed the incident — despite the role of a ruthless Mother Nature in it — as an environmental catastrophe because of the alleged pollution it caused to Lake Michigan. Keith Schneider, deputy director of the Michigan Land Use Institute, said what happened became a "prominent symbol of corporate neglect for natural resources."

Nonpartisan bystanders took a more diplomatic view. Greg Lyman, director of environmental programs for the Golf Course Superintendents Association of America (GCSAA), called the accident a "terribly unfortunate circumstance." But Lyman adds, "It gave the golf industry in Michigan a black eye."

Richard Postma, the owner and developer of Arcadia Bluffs, was held most accountable for the accident. Postma was criticized for "running roughshod" over the area to build the course. He was labeled an "overzealous developer."

While Emling was spared any blame for the accident, it was easy for him to be labeled guilty by association.

"It was a hard time for me," Emling, now 33, says softly. "It was frustrating."

"Frustrating" because those who know Emling say he's about as environmentally minded a superintendent as one can get.

Rumors and accusations directed at

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RON MUSZYNSKI

Right Thing



Those who know him say Paul Emiling is the ideal person to be superintendent at Arcadia Bluffs.

Doing the Right Thing



ARCADIA BLUFFS

Emling adheres to a foliar-feeding program for the obvious reason — he doesn't want granular fertilizer to end up in Lake Michigan.

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Arcadia Bluffs flew around town like debris in a nasty tornado. The Michigan attorney general sued Postma and his company, RVP Development, for the accident and alleged the company was responsible for several sediment discharges from the course into Lake Michigan during an eight-month period in 1998.

Talk circulated that the course was going to cease construction and shut down. Some grumbled that the accident made the golf industry look terrible. Superintendents and others approached Emling with the subtle advice that he should bolt Arcadia Bluffs for another job. "No, I'm going to stick it out," Emling told them. "We didn't do anything wrong."

But even as the course continued its construction and the erosion problem was rectified, Emling and other personnel at Arcadia Bluffs knew they had a challenge on their hands. Emling believed in his heart that he and the others at Arcadia Bluffs, including Postma, would never do anything to harm the spectacular environment in and around Arcadia Bluffs. The problem was convincing outsiders, including Emling's peers in the industry, that their aim was true.

"One of my biggest frustrations is that we knew what our potential problems were going to be during construction," Emling says, noting that erosion was on the list. "But along the way we had a massive rain that came at a vulnerable time and showed us what Mother Nature can do."

The ravine where the erosion occurred is now covered with vegetation and stabilized, Emling says.



LARRY AYLUWARD

Flash-forward to July 2004. There have been no more erosion problems and it has never been proven that the accident caused any environmental harm to the lake. Postma has paid \$125,000 in civil penalties to settle the lawsuit. Arcadia Bluffs, designed by Rick Smith and Warren Henderson, has matured into a magnificent-looking and challenging course that commands \$175 for 18 holes and attracts players from throughout the Midwest.

And then there's Emling, in his seventh season as superintendent of the course, who has quietly helped Arcadia Bluffs heal its neglect-for-natural-resources image by implementing an aggressive and impressive golf course maintenance program with an emphasis on environmental awareness and integrated pest management (IPM).

Bill Shriver, general manager and chief operating officer for Arcadia Bluffs, says Emling is the ideal person to be superintendent of Arcadia Bluffs because of his environmental prowess.

"The first question he asks with every decision he makes is: 'What impact is this going to have on our surroundings?'" Shriver says.

A bookshelf in Emling's office is packed with various publications on turf management. One of the thickest offerings is his IPM Handbook.

Emling could talk for hours about what he and his staff do to strive for excellent turf conditions while preserving the environment in the process. But as he sits at his desk, with his bright-orange Arcadia Bluffs cap fit snugly on his head, Emling insists that he's just "doing the right thing."

"I feel that being environmentally sensitive is a way of life — something that's more inherent than learned," he says, noting that he believes many superintendents share his sentiments.

Emling's favorite television station is any broadcast with an in-depth report on the local weather. On a recent day, the TV jutting from the wall above his desk is tuned to the Data Transmission Network (DTN), a leading business-to-business provider of real-time information services for weather-sensitive industries and other markets. "We can get radar instantly and know when storms are coming," Emling says.

Emling pursues up-to-date weather forecasts, not so much to track major storms that could cause possible flooding, but because it

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plays such an important role in his IPM program. "Everything we do revolves around the weather," he says. "All the decisions we make are based on the weather."

For instance, Emling knew from Arcadia's beginning that the weather would affect any pesticide spraying programs. There's always a nice breeze — and sometimes a stiff wind — blowing around the course. When Emling was pricing boom sprayers, he told Postma the course would have to spend more to purchase covered sprayers to keep pesticides from drifting.

Arcadia Bluffs invested in covered boom sprayers to control drift on the windy course.



LARRY AYLWARD

By the IPM Book

Timing is everything when it comes to pesticide applications at Arcadia Bluffs Golf Club. Below is superintendent Paul Emling's philosophy for timing and techniques of pesticide applications, according to his Integrated Pest Management (IPM) Handbook.

- Don't spray the adult version of an insect if the larval stage is the cause of the damage. Weather is also an important factor to consider. It's not appropriate to spray an insecticide that could get into the storm-water system before a heavy rain-fall. When possible, late-evening applications of pesticides are made when there is typically a lack of golf. Evening applications increase the efficacy of the application by reducing sunlight exposure that can break down pesticides.
- Proper calibration of spray equipment is crucial to obtain maximum results. Improper calibration can result in under or overdoses which may result in turf and environmental damage.
- All of Arcadia Bluffs' spray equipment has been outfitted with sophisticated shielding systems that virtually eliminate off-target drift.
- Arcadia Bluffs strives to use pesticides that cause the lowest detrimental impact to nontarget pests and plants. New biological pesticides are used at Arcadia Bluffs quite often and when feasible.

Emling and his crew take a curative approach toward problem insects and turf disease. He likes to use premium products at lighter rates. "We're not afraid to spend the extra dollar on products that are environmentally friendly," he says.

Emling's herbicide program focuses almost strictly on spot treatment. Crew members travel the course with a large sprayer and scout for weeds. Emling and his two assistants carry small spray jugs in their utility vehicles. "If we drive by and see weeds, we get out and spray them," he says matter-of-factly.

With fertilization, Emling adheres to a foliar-feeding program for the obvious reason — he doesn't want granular fertilizer to end up in Lake Michigan. He also uses organic fertilizer in the spring and fall to build soil structure. The staff does make one light granular application of an IBDU slow-release fertilizer in the spring to green up the course.

Emling's goal is to achieve a strong root system throughout the course and at all times of the year. That way, turf will fight off disease and insect infestations naturally and not require a lot of pesticides.

Emling also monitors water use closely to lessen the chance of water waste and to decrease turf disease pressure. He likes to use wetting agents, especially on greens. "We can turn the water down 60 percent when we use them," he says.

Equipment maintenance also focuses on what's best for the environment. Only synthetic oil is used in mowers and other equipment. The result is one-fifth less waste than if regular motor oil is used. Emling says he's also contemplating a switch to biodiesel fuel to operate some equipment.

Emling is especially proud of the maintenance facility's biological wastewater treatment and recycling system, manufactured by Environmental Systems Design. The system sounds like an enormous vacuum cleaner while running. It collects grass clippings and separates them for proper disposal. It also breaks down pesticides, grease and other chemicals washed from equipment with aerobic microbes.

Arcadia's maintenance facility also features a double-vaulted fuel station, which can contain any leaks if the fuel tank ruptures.

Drainage, of course, is a major issue (for obvious reasons) at Arcadia Bluffs. The course has an intense drainage system in place to prevent

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another erosion accident from happening. The course spent several million dollars after the accident to improve drainage. In addition to the drainage, the course designed a water-retention system on site to contain flooding from the worst-possible storms.

"We made adjustments to an already extensive system to make it that much better," Emling says, noting that drains are inspected for

problems once a month and immediately after storms to make sure they're not clogged.

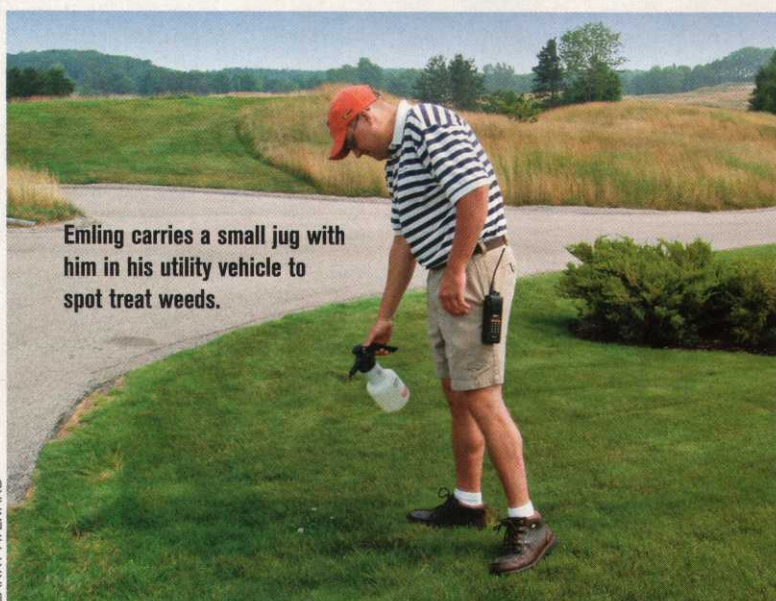
Emling also took a class to become a certified storm-water operator so he could better understand the science of drainage.

"Nobody made me do it," he says. "I did it because I knew it would be the best thing for the site and good for me."

Lyman is impressed with Arcadia's maintenance operation and credits Emling as the catalyst for creating it. Lyman, the former turfgrass environmental education specialist at Michigan State University, has known Emling for several years. In 2001, he helped Emling enroll Arcadia Bluffs in the Michigan Turfgrass Environmental Stewardship Program, which helps golf courses improve their environmental stewardship by protecting water resources, enhancing wildlife habitat and promoting native vegetation. "It's a part of Paul's fabric to be an environmental steward," Lyman says.

The Michigan Land Use Institute's Schneider doesn't doubt that superintendents can be environmental stewards, and he was glad to hear about Emling's approach at Arcadia Bluffs.

"He's sitting on one of the most gorgeous coast lines in the world," Schneider says. "Why shouldn't he treat that course with the respect that it merits?"



Emling carries a small jug with him in his utility vehicle to spot treat weeds.

LARRY AYWARD

Five Steps of the Integrated Pest Management Program

Scouting: A key component to any IPM program is to regularly monitor the golf course property to determine what kinds of pests, diseases or agronomic stresses might be present.

Pest ID: Successful monitoring requires proper identification of pests and pathogens and knowledge of their life cycles.

Setting thresholds: During the scouting process, insect count, amount of disease-damaged turf, and number and types of weeds will be determined. The decision to manage a pest and how to manage the pest will be determined by tolerance levels. These levels will vary for different portions of the course. For example, more weeds are tolerated on fairways than on putting greens.

Determine controls: In some cases it may be possible to eliminate a pest by mechanical removal or by cultural practices. In most insect cases, a curative pesticide application may be the only feasible way to lower or remove the pest population. In the case of weeds and fungi, a preventive application at lower rates than curative applications may be the best way to prevent intolerable damage or greater pesticide use in the long run.

Evaluation: This will determine whether the approaches taken are maintaining pest damage to an acceptable level, whether timing of biological or chemical applications needs to be modified, and whether the costs are justified in terms of results.

Source: Arcadia Bluffs Golf Club's IPM Handbook

Perhaps Emling's tree-hugging personality has something to do with instinct. It may sound sappy, but some believe Emling is supposed to be a superintendent.

"It just comes naturally to him," Shriver says. "He does it better than anybody because it's what he was probably born to do."

Emling, who is married with no children, grew up in Vassar, Mich., a small town near Saginaw. His father, Frederick, taught him the importance of environmental stewardship when Paul was a child.

Emling was 15 when he began working at a local course that his father helped operate. He chuckles when he recalls quitting the golf course for a job at a grocery store so he could work in the comfortable confines of an air-conditioned building. The job lasted only two weeks, however, because Emling missed working outdoors and longed to return to the golf course.

Emling received a bachelor's degree in

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Doing the Right Thing

Arcadia Bluffs has matured into a magnificent-looking and challenging course that attracts golfers from throughout the Midwest.

ARCADIA BLUFFS

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biology from Alma (Mich.) College. He then attended Michigan State University and received a two-year certificate in the school's Turfgrass Management Program. Then it was on to the famous Crystal Downs Country Club (located in Frankfort, Mich., about 30 minutes from Arcadia), where Emling worked for five years, including four years as assistant to certified superintendent Mike Morris.

Emling credits Morris for teaching him the ropes of environmentalism on the golf course, and Morris says Emling's reputation as a sound environmental superintendent continues to grow.

"I speak for myself and Paul when I say we bend over backwards to preserve this land and keep the character of our area as pure and natural as possible," Morris says.

Emling enjoys the outdoors so much that he's known to put in 12-hour days at the course and go home to work in the huge perennial gardens in his 3-acre yard.

Shriver says Emling surrounds himself with people who share his ideals. Emling credits his crew members, most who have been with the

course since the accident occurred, for the tenacity they bring to their jobs. One of Emling's crew members is Scott Tuthill, the course's foreman and spray technician, who says Emling takes an "extremely cautious" approach to balancing golf course maintenance with environmental preservation.

"Paul really enjoys the outdoors — boating, hunting and fishing — and he

doesn't want to ruin the environment that he treasures so much," Tuthill says.

While Lyman commends Emling for remaining modest about his environmental practices, he would like to see more people outside the golf industry find out about Emling's ecological doings at Arcadia Bluffs.

"We want to make stewardship efforts known to a lot of audiences, the least of which is in the golf industry," Lyman says. "We want to be able to document progress and tell it to the golfing public."

Shriver predicts that a more prominent course will someday make Emling an offer he can't refuse and steal him away to be its superintendent. But Emling insists he doesn't want to leave Arcadia Bluffs.

It's a wonder he didn't leave after the accident occurred, Morris says. "A lot of guys probably would have quit," he adds. "But Paul realized he had a job to do and stuck with it."

Frederick Emling is not surprised his son was so resolute immediately following the accident.

"He wasn't sad when it happened," the elder Emling says. "He was just the opposite — he was upbeat. He wasn't going to let that bother him."

One thing is for sure: Emling's blood pressure doesn't soar anymore when "bad" things happen to the course, like golfers complaining about the patch of clover near the No. 8 tee box. He says his perseverance after the accident made him a stronger person and superintendent.

"A few weeds out on the course aren't so bad in the grand scheme of things," Emling says with a toothy smile.

Standing on the bluff between the lake and the 11th hole, Emling scans the horizon — the waving trees, the fluttering fescue and the white-capped waves — and soaks in the sounds, sights and smells around him. It's clear he cherishes this area on the course, what with its spectacular view in all directions. It's surely a more pleasing view than Emling witnessed six years ago as he stood on the bluff.

That said, Emling doesn't dwell much on the past and the nightmare he endured in 1998. Just the opposite, he is a forward-looking person and says Arcadia Bluffs is his dream job.

"I thank God every day for this," Emling says of his job. "I feel so fortunate to be here." ■

Emling says Arcadia Bluffs is his dream job. With views like this, who can argue?

LARRY AYLUWARD

Up With the EPA

How one superintendent embraced the agency's strict standards to strengthen his course's environmental image

BY FRANK H. ANDORKA JR., MANAGING EDITOR



Pat Blum, superintendent at Colonial Acres Golf Course in Glenmont, N.Y., took a phone call from his friends at Audubon International, who told him they had someone they'd like him to meet. When

they told him the person was an Environmental Protection Agency (EPA) representative — and that they wanted to meet him at the course in a half hour — Blum's heart fluttered for a moment.

But Blum, whose tireless work on behalf of protecting the environment has been recognized by the New York Department of Environmental Protection and the GCSAA over the past three years, quickly recovered his composure. Sure, he told them, bring the EPA representative down.

"In general, the EPA thinks of golf courses as toxic waste dumps, as do many members of the nongolfing public," Blum says. "I wanted to show people *that* perception was all wrong."

After that chance meeting last July with Tristan Gillespie, pollution prevention coordinator in the EPA's New York office who was at Colonial Acres to explore the course's Audubon initiative, Blum embarked on an effort to enroll his course in the EPA's Performance Track program, an agency program that recognizes businesses that go above and beyond their environmental requirements.

Gillespie was so impressed with Colonial Acres that he suggested Blum apply. The superintendent knew it wouldn't be easy, since Colonial Acres was the first golf course ever to try for the designation. But Blum, who never

Pat Blum uses algae-eating fish instead of chemicals in his course's ponds.



shies away from trying to improve the course's image, jumped at the chance to make his golf course even more environmentally sound.

Thanks to the efforts of Blum and its members, Colonial Acres earned the Performance Track designation in May, becoming the first — and so far the only — golf course to do it. Blum encourages other superintendents to consider joining him.

"There are some great environmentalists in this industry, and we should highlight them at every opportunity," Blum says. "Working with the EPA gives us another chance to do it."

What is the Performance Track?

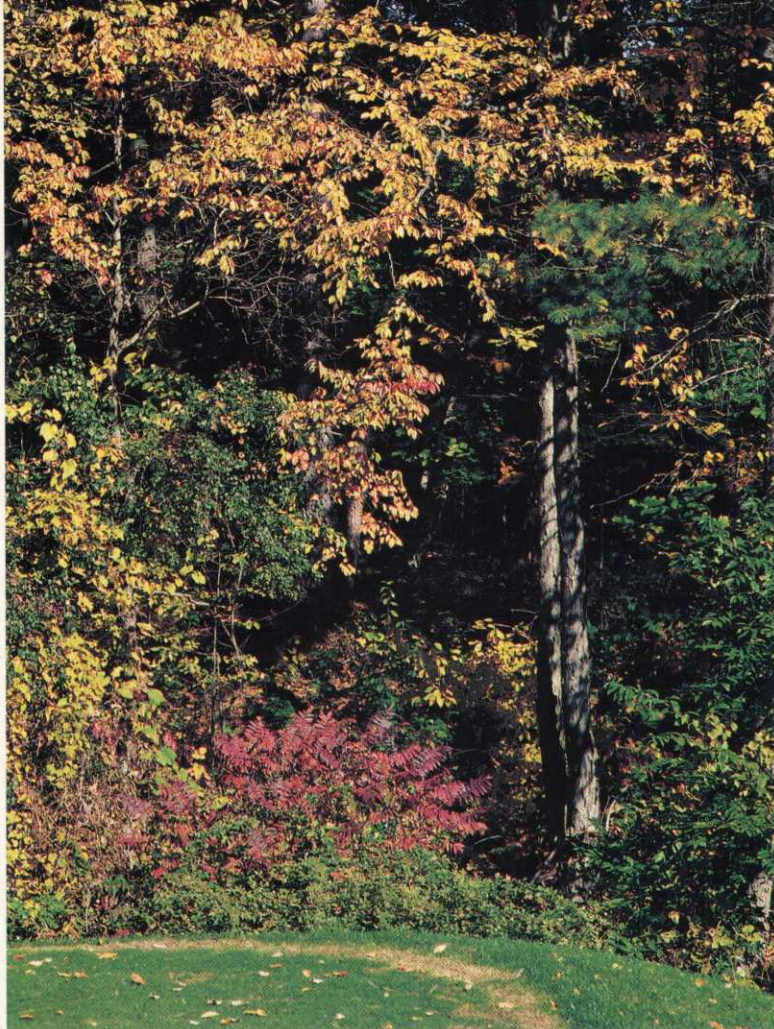
Before applying for the Performance Track program, Blum did his research to figure out what the program was all about.

The EPA launched its Performance Track program in 2000. It currently has more than 300 business members nationwide, but the agency had never targeted golf courses for enrollment. After hearing about Audubon International's Cooperative Sanctuary and Signature Sanctuary environmental programs, specifically Colonial Acres, the EPA contacted the organization to see how its work could dovetail into a Performance Track outreach program for golf courses.

To be involved in the Performance Track, businesses must meet the four following criteria:

- They must have a strong record of cooperating with state and federal regulations.
- They must also have a documentary history of environmental achievement (which is where Audubon's program gives superintendents a head start) and commit to two (or four) future achievements from a host of categories, including air improvements, water improvements and controlling pollutant discharges, among others.
- They must have an environmental management system in place, identifying each of the effects they have on the environment and demonstrating that they have methods of measuring them.
- They need to make their efforts public, whether that's in talking to the media, local community or being involved with the EPA in ongoing publicity projects.

The EPA liked the documentary side of what Audubon International did and used its programs as templates for other golf course projects.



"We wanted to measure some different items and cover some issues in a little more depth, so we had to modify what [Audubon] had already done," Gillespie says. "But we liked its basic programs, and I used it on another project I was working on."

What it takes

Blum started his quest to join the Performance Track last November. Although he's a member of the Audubon Cooperative Sanctuary Program, which superintendents often criticize for burdening them with too much paperwork, the amount of Performance Track paperwork staggered him — befitting the governmental program it is.

The EPA demanded hard numbers about practices like gasoline and water use per year, and how many pollutants each piece of equipment emitted (measured in pounds per year). Then it wanted him to feed all the information into a preset formula to benchmark his course so the EPA could measure progress. Blum set some hard and fast environmental goals to reach within four years. He stopped and restarted the application three times be-

Colonial Acres keeps diverse layers of trees, shrubs and understory plants on its borders to create a good wildlife habitat.

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PHOTOS COURTESY OF AUDUBON INTERNATIONAL

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cause of the amount of information the EPA wanted.

"This was a whole new level," Blum says. "These were things we'd never documented before, even under Audubon's program, but the EPA wanted more — so we did it."

It wasn't all paperwork, however. Blum also got the opportunity to do what he enjoys most — educating the non-golfing public about the role superintendents play in protecting the environment. He explained to the EPA some of the proactive steps superintendents use to be good environmental stewards, like spot treating pests and the growing practice of turning more maintained turf back to nature.

Blum educated them about how careful superintendents are when they make chemical applications to avoid unintended environmental consequences. He says the EPA officials he spoke to



"It goes beyond what we do for our environment now — we need to worry about our children's environmental future, too."

PAT BLUM
COLONIAL ACRES GOLF COURSE
GLENMONT, N.Y.

seemed surprised and pleased by superintendents' environmental awareness.

"They'd never heard of some of those practices before," Blum says. "Some of the EPA people we talked to were golfers, but many were not. We had to teach them the building blocks of golf course maintenance. They were willing to learn about what we do. I found that encouraging."

Blum finally submitted his completed application in January, and the EPA

approved it the following month. Colonial Acres received its Performance Track certificate at a meeting for the program's newest members.

"I'm not going to pretend it wasn't a lot of work, but there's a payoff in getting our message out," Blum says. "I would encourage the rest of my colleagues to consider getting involved with the program for that reason alone."

Joellen Zeh, program manager for Audubon's Cooperative Sanctuary Program for Golf Courses, concurs.

"I'd like to see other environmental leaders in golf get involved in the program," Zeh says. "The positive publicity it would generate would be invaluable."

Rewards good behavior

In return for adhering to EPA's strict performance standards, members of the Performance Track earn some flexibility when it comes to EPA regulations, says Marcia Seidner, an EPA's regional Performance Track director who oversees New York, New Jersey and other territories. That doesn't mean they're exempt from the regulations, but it does mean they might get slight deadline extensions that nonmembers wouldn't get, have permits expedited or environmental impact decisions made ahead of others. Members are also inspected less frequently than other facilities.

"Since the EPA doesn't regulate golf courses directly, those perks don't apply as easily to them," Seidner says. "We'd love for superintendents to let us know what

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Up With the EPA



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incentives they could use so we can tailor a better program that would encourage golf courses to get involved."

Zeh says adding the EPA's visibility to a course's résumé makes its commitment to environmentally sound practices easier to understand for more golfers.

"It's not a replacement for the educational value and personal attention of the Audubon's programs, but it's certainly complementary to what we're doing," Zeh says. "It's a mutually beneficial relationship for both of us — and golf courses win with both programs."

For Blum, it allowed him to continue his advocacy for the golf course industry on a larger stage — and get some publicity for his executive course in the bargain. Blum now sits on the EPA Advisory Council for the program and has made it his mission to convince the EPA there are good environmental practices in the golf course maintenance industry. But Blum has a much more personal reason for advocating environmentally sound golf course maintenance.

"It goes beyond what we do for our environment now — we need to worry about our children's environmental future, too," says Blum, who has two chil-

Blum has installed nesting boxes around the course to attract bluebirds and tree swallows to nest on the course.

dren, Samantha, 8, and Zach, 3. "If we can get more golf courses involved in these kinds of programs, we can lead the way for others to join us."

Count Gillespie among those Blum convinced that superintendents can be excellent stewards of the environment. In fact, Gillespie says golf courses have made it easier for him to sell the voluntary environmental protection through pollution prevention to other businesses.

"Having the golf courses on board makes it easier to convince other industries to join us," Gillespie says. "Golf courses are often some of the most visible members of a community."

Gillespie also credits Blum for opening his eyes — and the eyes of others — to the possibilities of getting golf courses involved on good terms with the EPA.

"Pat's energy is contagious, and it's really exciting to see the work he's done with his course," Gillespie says. "The more I get involved in the industry, the more I realize there are more people like Pat out there — and that's a great story for the industry to tell." ■

Of Salmon and Superintendents

The issue of water and water rights in western Washington is as hot as any issue out there, and it's not going away anytime soon **BY RON FURLONG**



When grilling salmon, it's best cooked on the barbecue with a few alder sticks smoking in the coals. Avoid a gas grill if you can. A little lemon on top of the salmon and maybe a thin swipe of butter across one side (but not too much) is ideal. No seasoning is required. You don't want to kill the flavor.

Since I developed a sudden and very depressing allergic reaction to any shellfish about five years ago, my appreciation of salmon has grown immensely. So living here in the Pacific Northwest is a good place to be to appreciate this nonshellfish. I resemble a brown bear in that salmon have become a staple of my diet.

But the downside to these wonderful-tasting salmon is their habitat here in western Washington, and how that relates to my job as a superintendent. I love eating them, but trying to justify my need to irrigate the golf course to some of the more radical fish huggers — and the organizations the fish huggers have stuck into their back pockets — can be as frustrating as a downhill putt at Shinnecock Hills.

The issue of water and water rights in western Washington is as hot as any out there. It's been brewing for a few years and is not going away anytime soon. Salmon are just one facet of the issue — which is extremely complex and, dare I say it, convoluted.

Each golf course, although they may share some of the same problems and restrictions as their neighbors, has its own circumstances when it comes to water rights. Many facets are involved in determining each separate issue, such as:

- Do you draw from a well? If so, how deep is your well?
- Does water removal from your well affect any nearby streams or rivers?
- Do you have a stream or river running through the golf course?
- Are there salmon on your property?
- What is the exact hydrology of your watershed? Which watershed are you in?
- How much water is your course permitted to draw each year? Is that sufficient in a drought year? If not, what do you do?
- What is your relationship between surface and ground water?
- Do you conserve?
- Do you *really* conserve?
- Who was the 15th president?

If I closed my eyes and concentrated really hard, I could probably add about 20 more questions to that list, but you get the point. The gist of the argument is this: There are competing interests for the water in Washington, which include:

- fish and wildlife preservation and enhancement;
- recreation;
- municipal and industrial uses; and
- agriculture and hydropower.

The problem many golf courses face is that the first item on that list — fish and wildlife preservation and enhancement — has taken such a prominent and often radically substantial role in many groups' and individuals' minds that nothing else on the list seems to matter to them.



PHOTODISC

There has to be a common ground found that can keep a vital resource like golf courses and an equally as vital resource as salmon both happy.

Salmon have been around for tens of millions of years. Their lifecycle is rather complex when compared with most fish. They hatch in freshwater from eggs laid in the gravel beds of streams. Then they migrate downstream, eventually making it to the sea. They may spend years in the ocean, traveling thousands of miles. When salmon have matured, they make their way back to the freshwater streams where they were born. There they spawn and die soon after.

In 1998, lawmakers passed the Watershed Planning Act here, which is framed around watersheds or subwatersheds known as Water Resource Inventory Areas (WRIA). Forty-two of Washington's 62 WRIs are represented by 33 planning units engaged in watershed planning at some level. The goal is to develop a more thorough and cooperative method of determining the current water situation in each water-resource inventory area of the state and to provide local citizens with the maximum possible input concerning their goals and objectives.

A central element of planning under the Watershed Planning Act is an assessment of how much water is available and how much is being used and or needed in the watershed.

If the assessment indicates there is sufficient water for in-stream uses and there is additional water available for desired growth, then the state's Department of

Ecology uses that information as part of the basis for making water-rights permit decisions for growth. Among its other functions, the Department of Ecology is the state agency responsible for preserving and protecting water quality and administering the water-rights permit system.

In a report to the legislature from March 2003, the Department of Ecology warns: "Statewide monitoring and information systems should not be limited to activities centered on salmon recovery. Rather, these efforts should address a broad range of water-resource information, including demographic growth, land use, water rights and water uses."

My own situation here in western Washington is a fairly common one, but still has its own distinct variables that set it apart from anyone else's exact situation. The golf course of which I work, Avalon Golf Club, lies on the southern end of a watershed known as the Samish Watershed in Skagit County. I draw from a well that feeds the pond from which we pump water.

Ever since the golf course opened in 1991, Avalon has been allocated to draw up to 78 acre-feet of water per year from the well. We are now being told this number will be reduced, greatly reduced — perhaps by four times. It has been suggested, although never proven, that drawing from our well affects the nearby Samish River.

Avalon believes strongly of the possibility that there may be no hydraulic connection between the well and the river. Withdrawals from the well more than likely have no impact on the river at all. But we have now been told not to draw from our well when the river is at a certain low level, which is published daily on a state-run Web site. Of course, the times when we need to draw the most water are exactly the times the river is at a level when they don't want us to.

During a very dry 2003, I would not have been able to water the golf course from June through August. It's kind of a Catch-22 for the course. We can have 78-acre feet of water, but it would be great if we could use it in the rainy season of winter. Agghh!

From October through April, western Washington does live up to its reputation for a lot of rain and cool weather. However, May through September can be very dry, and the average rainfall we experience will surprise some. Check out some of the eyebrow-raising average annual rainfalls for a few cities around the country compared to Seattle, which receives 38 inches of rain:

- Chicago, 38 inches;
- Washington D.C., 41 inches;
- New York, 42 inches;
- New Orleans, 57 inches; and
- Miami, 63 inches.

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Of Salmon and Superintendents

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In 2003, our rainfall total on the golf course was 36.5 inches (Avalon is about one hour north of Seattle). Only 4.25 inches of that total fell from May through September. That's only a little more than 19 percent of the entire year's rainfall in five months. This sounds even more impressive when you state that nearly 90 percent of our rain fell during the winter months (January through April and October through December).

It almost goes without saying what a key ingredient water conservation becomes in all of this. Audubon International gives this view of water conservation: "To ensure adequate water supplies not only for irrigation, but also for the healthy ecological functioning of water bodies, such as rivers, streams, wetlands, lakes and ponds." It further states, "Water conservation and water-quality management are critical for ensuring adequate irrigation supplies, without taxing or degrading vital water sources."

State policies and laws need to balance the allocation of water for the different uses to support the economic vitality of cities and towns while being sensitive to long-standing legal water rights. But on the other end — the superintendent's end — there are some things that can be done to help lessen the consumption of water. They are:

- constructing more ponds and thus creating a larger holding capacity for the precious resource;
- deepening ponds;
- building more native areas on the course that don't need irrigation;
- using effluent water;
- implementing better irrigation systems and practices; and
- finally, not just joining an organization like Audubon International, but making it a part of your course's everyday management arsenal.

There has to be a common ground found that can keep a vital resource like

golf courses and an equally vital resource as salmon both happy. It just takes a little common sense from all involved.

On the golf courses' end, it's to ensure that every possible method of conservation is being used. On the salmon's end, it's making sure realistic requirements are set.

By the way, I forgot to mention not to overcook the salmon. With fillets, don't cook more than 10 minutes, and don't flip them. Just close the top of the grill and smoke the dickens out of them. The steaks may take a little longer, and you'll want to hit both sides about eight minutes each.

It's hard to go wrong with any choice of wine, but I'll go ahead and recommend a good Riesling.

Enjoy. ■

Furlong, superintendent of Avalon Golf Club in Burlington, Wash., can be reached at rf7500@aol.com.



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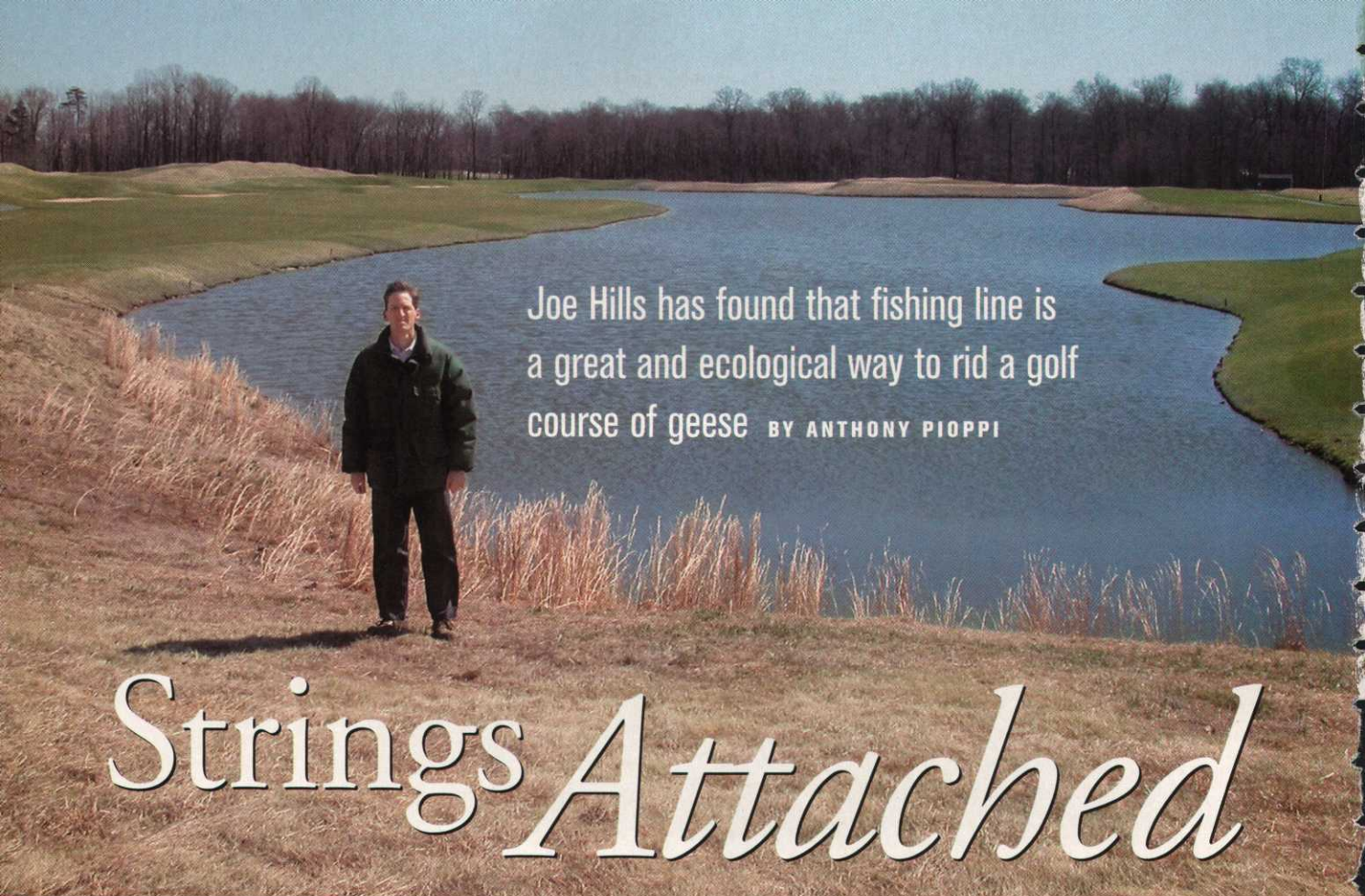


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Joe Hills has found that fishing line is a great and ecological way to rid a golf course of geese **BY ANTHONY PIOPP**

Strings *Attached*



When Canada geese began taking over Blue Mash Golf Course, owner Joe Hills tried a variety of methods to

rid his layout of the pests.

Once it became apparent none of them worked, he devised his own defense system using nothing more than 30-pound test fishing line. His ingenuity earned him top prize at the National Golf Course Owners Association annual meeting's Idea Fair earlier this year and accolades from the National Audubon Society.

"We opened more than two years ago, and within a year they were all over the place," Hills says about his Gaithersburg, Md., layout, designed by Arthur Hills.

He said the favorite gathering place for the geese was his 5-acre pond. There is no buffer between the pond and the holes that wind their way around it because the course is wide open. As a result, the geese weren't just eating grass, but also wrecking fairways as well as leaving behind large amounts of dung. "They were really destroying the place," Hills says.

First he tried a remote-control car to scare

them off. Later he added a remote-control speedboat to his arsenal when the geese began to retreat to the pond. To avoid the watercraft, the geese — sometimes in flocks of up to 100 — only visited the course at night.

"I was staying after dark trying to get rid of them," Hills says, indicating a growing obsession.

But, finally, when it seemed like Hills had exhausted all of his efforts to rid Blue Mash of the dastardly waterfowl, his inventive side kicked in.

He came up with the idea of stringing clear fishing line across the pond. Using his remote-control boat to traverse the water, he placed the line in 30-foot increments with the line attached to the shore by sod staples.

Within a few days the geese were gone. On one occasion, Hills saw a pair of the birds land in the water and start swimming. One lightly bumped into one of the strands, and the pair turned and left the property.

The method did not work quite as well on a half-acre pond, so Hills added a second row of fishing line in the opposite direction. This created a grid, and the geese stayed away from

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BLUE MASH GOLF COURSE

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the small pond as well.

Hills also perfected his method of distributing the fishing line when he added a second layer to the larger pond. He now secures the ends to one side of the pond, places three or four spools on a pipe and walks the lines to the other side of the pond where they are again fastened with sod spikes. His total cost was \$75.

Greg Butcher, bird conservation director for the National Audubon Society, called the method "novel" for golf course use. He said the same strategy is gaining favor as a tactic in keeping nesting birds, such as pigeons, off buildings.

The use of the monofilament line is successful because Canada geese prefer to take off from and land in water. It is also their favorite place to sleep, says Audubon spokesman John Bianchi. He surmised the extra line was needed for

The use of the monofilament line is successful because Canada geese prefer to take off from and land in water.

JOHN BIANCHI
NATIONAL AUDUBON SOCIETY

the smaller pond because the geese were landing on the ground and walking to the water.

To make the lines even more effective, Butcher suggested Hills try attaching markers near the center of the pond.

This will not only remind previous visitors of the problem, but also serve as a warning to newcomers.

Sharon Pawlak, of the Coalition to Prevent the Destruction of Canada Geese, also did not object to Hills' method. She did, however, caution that the golf course could have problems if birds were injured by the monofilament. According to Pawlak, the best way to rid of any geese is through a variety of methods such as floating alligators, balloons and dogs.

"Geese will seek the least resistance," she says. "They will rehabilitate to an area where there is no harassment."

Pawlak said she would not be surprised if the geese returned to Blue Marsh, this time landing on the fairways, eating for a while, and then leaving. Golf courses are hard to resist for Canada geese. "We're creating a habitat they love," Pawlak says. "You're literally setting out a dinner table for them." ■

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Biopesticides Bazaar

If you're looking for alternatives to vary your pest control options, here are some good places to start



Keeping the storage facility stocked with a number of options allows superintendent the flexibility to meet different challenges as they appear each year.

One alternative that more superintendents are adding to the mix are biological pesticides, particularly in the face of increased scrutiny by governments who want to limit the cosmetic use of pesticides (a quick shout-out here to Montreal, Quebec, and Madison, Wis., just to name two of the latest examples). Researchers are looking more closely at the possibilities of biological control (see Sarah Thompson and Rick Brandenburg's article, "Scientists Pursue Biological Control for Turfgrass Pests Despite Challenges," in *Turfgrass Trends* on page 55), and more companies are realizing the possibilities of the products. Here is a list of some of the biopesticide products available from which you can choose.

Microbial fungicide

EcoGuard, a Novozymes Biologicals product, is a microbial biofungicide that the company says controls dollar spot as well as chemical fungicides when used in a rotation with them. EcoGuard is a concentrated suspension of the bacterial spores of the organism *Bacillus licheniformis* SB3086, which has been demonstrated to be a natural inhibitor of dollar spot and other pathogens.



Improved disease resistance

BioSafe Systems offers superintendents OxyGROW, a biological inoculant that combines oxygen, calcium and beneficial mycorrhizae to help establish healthy root systems. The product provides a slow-release oxygen, giving the root system an environment for establishing beneficial organisms. The calcium component helps the turf develop cell membranes that are more resistant to disease pathogens, according to the company.



Soil amendment

RUTOPIA is a soil amendment from Poulenger USA that the company says helps protect turf from soil-borne pathogenic fungi. The amendment contains six species of trichoderma, which the company says surrounds the root system and produces antibiotics, destroying the spores of pathogenic fungi and preventing diseases such as recurring fairy ring. The product also contains four strains of *bacillus thuringiensis* (Bt), which have an impact on plant-damaging nematodes and grubs, according to Poulenger.



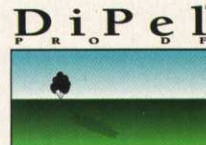
Biological insecticide

Certis USA offers Deliver, a biological insecticide designed to control caterpillar pests on trees, ornamentals and turf with low risk to humans, wildlife and nontarget insect species. Deliver is a Bt biopesticide that provides excellent coverage and is easy to use, according to the company. Certis says it controls a broad spectrum of

worm pests, including leaf rollers, cutworms, budworms and sod webworms. It's EPA-registered.

Worm control

Worms can be a big problem in golf course turf, flower beds and ornamental trees, but DiPel Pro DF from Valent works to control them, according to the company. DiPel provides control of worms, including loopers, tobacco budworms and armyworms. Its dry, flowable formulation is dust-free and allows convenient handling and measuring. DiPel Pro DF is also biodegradable and will not harm beneficial insects, the company says.



All-natural insecticide

St. Gabriel's Laboratories provides its SharpShooter insecticide, a product that kills common insects such as ants, flies, roaches and mites. The new formula now includes peppermint, clove oil and other environmentally friendly ingredients. SharpShooter is available in convenient 24-ounce and gallon ready-to-use sizes. For larger jobs, the quart or gallon-size concentrate will tackle the job quickly in a hose-end sprayer.

Mole cricket control

Mole crickets can cause devastating damage to turf. Becker Underwood says Nematac S, a strain of the insect pathogenic nematode *Steinernema scapterisci* that's a biological predator of the insects, quickly attacks and destroys mole cricket adults (and late instars) before they destroy turf. Nematac S is easy to apply and safe to use. It poses no threat to people, turf or beneficial insects, according to the company. ■

