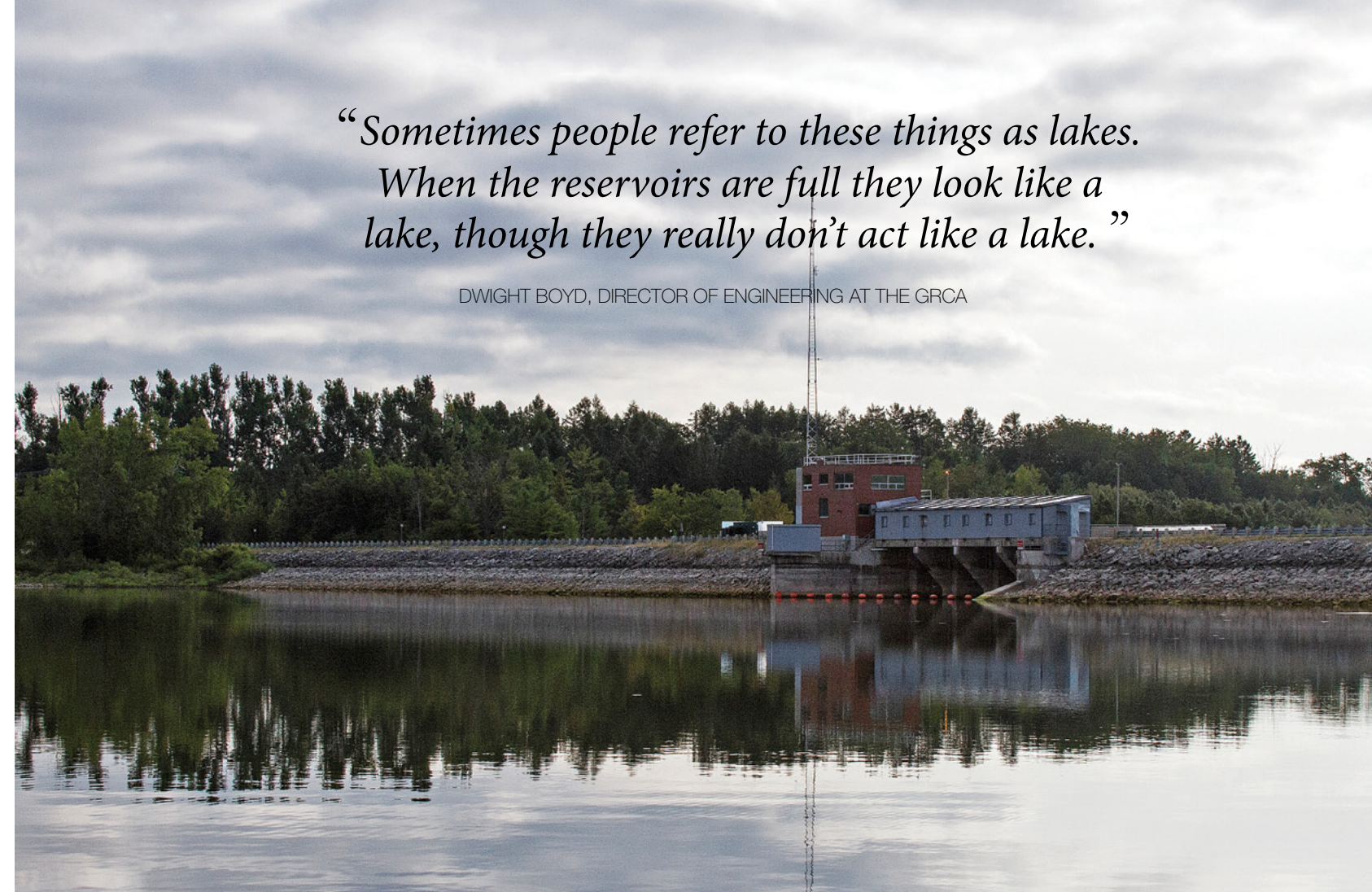


HARNESSING THE RIVERS' POWER

This dam, built in 1958, created what we now call Conestogo Lake, which is not actually a lake at all, but an expanse of the Conestogo River.



“Sometimes people refer to these things as lakes. When the reservoirs are full they look like a lake, though they really don’t act like a lake.”

DWIGHT BOYD, DIRECTOR OF ENGINEERING AT THE GRCA

Dams and the reservoirs they’ve created have been invaluable to the community; they prevent flooding when the water level is high and curb drought when it’s dry. They’re also a source of power and a great place to spend an afternoon

BY SAM TOMAN

PHOTOGRAPHY • JESSE BRENNEMAN

Sorry to be the bearer of bad news, but your favourite local lake might be living a lie.

Places we’ve internalized as lakes, such as Belwood Lake and Conestogo Lake, are in fact just pregnant expanses of the Grand and Conestogo rivers, pragmatically transformed into reservoirs by dams managed by the Grand River Conservation Authority (GRCA).

If this information is hitting you hard, relax, it’s OK to still call them lakes, even

the GRCA does.

In fact, these lakes and the dams that created them are some of the most valuable pieces of infrastructure in southwestern Ontario. They also occupy a unique place in Canadian history as the tangible reward for our region’s commitment to co-operation, conservation and engineering.

“Sometimes people refer to these things as lakes,” says Dwight Boyd, director of engineering at the GRCA, of the five major reservoirs surrounding the region. “When the reservoirs are full they look like a lake, though they really don’t act like a lake.”

They act like a fail-safe system designed

to prevent flooding when the water level is high from rain or melting snow and curbing drought when things get dry. As a plus, they generate hydroelectric power and play a part in keeping our drinking water safe and delicious.

And if that weren’t enough, the dams create a nearby opportunity to enjoy all the amenities of cottage country without driving for five hours.

Pretty much every conversation about how dams operate in the GRCA begins and ends with Boyd. His passion for the structures rivals what most people feel for their children. He knows their history, how tall they are, their achievements — and he’s delighted to chat about what they might be capable of in the future. However, any discussion about them begins with a brief history.

At the beginning of the 20th century, more people began settling the area and develop-

ing agriculture and industry requiring large amounts of water. “When the watershed was converted from natural to agriculture, the forests were removed, the wetlands were drained,” says Boyd. “That changed the hydrology from the watershed.”

In 1906, the Hydro-Electric Power Commission of Ontario was created with the dual mandate to power this emerging industry and manage drastic changes to the watersheds across the province.

Soon after, a series of brutal floods ravaged the Grand River watershed, resulting in costly municipal lawsuits.

Local businesses, represented by engineer William H. Breithaupt, got together to form the Grand River Improvement Association to put pressure on the province to build more dams. The province declined.

In 1929, the largest flood in living memory hit the Grand River. Following that, the region was hit with several severe

droughts. Businesses and homes in Galt, Paris and Brantford were hit particularly hard. Citizens even took to the streets and rioted for action. This time they were heard.

A collaborative government investigation into the flooding produced the Finlayson Report in 1932. The report acknowledged the health and safety risks associated with unmanaged water and laid a blueprint for dams and reservoirs that still exists today. It also led to the Grand River Conservation Commission Act, which evolved into the GRCA.

“This kind of getting together by many different communities to manage one problem was fairly unique for its time. Even today,” says Boyd proudly.

“The first project from that Grand River Commission was building the Shand Dam in 1942.”

Federal, provincial and local government all chipped in to get the dam built.

TOP LEFT: The Conestogo Dam generates about 600 kW of power. The Grand River Conservation Authority sells about \$500,000 to \$600,000 of electricity every year from its dams.

ABOVE: The control station for the Conestogo Dam, seen from the boat launch at Conestogo Lake, near Drayton.

“It’s remarkable in that it was built during the war. It was also the first dam to be built in Canada for the purpose of preventing flooding and flow augmentation.”

While parents aren’t supposed to pick favourites, Boyd clearly loves talking about the historic Shand Dam.

At 22.5 metres tall, the Shand Dam created the reservoir we commonly know as Belwood Lake. At 12 kilometres long, the reservoir holds 63,874,000 cubic metres of water.



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Ten years later, the Luther Marsh was created by the establishment of the relatively small Luther Dam. In 1958, a third dam on the Conestogo River was built, creating another massive 59,457,000 cubic metres of water storage.

Subsequent dams at Laurel Creek and the Speed River created the Laurel Reservoir and Guelph Lake.

Collectively these dams, along with scores of smaller water management projects, have kept the region relatively wet in the winter and summer and dry in the spring and fall. Boyd estimates the dams and reservoirs account for close to 70 per cent of the water in the Grand River.

The fact that nervously watching river levels isn't a part of our daily routine is a sign the dams are working.

Three of the dams controlled by the GRCA produce hydro power. The Shand Dam generates about 600 kilowatts (kW).

The Conestogo Dam operates at about the same capacity. The smaller Guelph Lake power plant produces about 100 kW. In total, Boyd estimates the GRCA sells about \$500,000 to \$600,000 of electricity per year.

For years, the GRCA has been trying to get a fourth power-generating dam approved by the Ontario Power Authority (OPA) but has already had two proposals for a generation station at the Park Hill Road Dam in Cambridge rejected.

The GRCA's latest proposal is a 500 kW station that could bring in close to \$1 million in annual gross revenues for the authority. A decision on whether the project will go forward is expected in the summer of 2017.

When pressed about what the dams are actually worth to the watershed, in terms of dollars, including all ancillary benefits, Boyd is reluctant to give a specific amount.

"If we had to replace the dams now, it

would cost billions," he says.

Boyd says it's nearly impossible to calculate the value of the dams. "You'd need a whole university study for that," he says.

What makes it so hard is all of the recreational value generated by the dams. How do you put a price on fun?

"We have probably one of the best walleye fisheries in southern Ontario, excluding the Great Lakes, obviously," says Derek Strub, superintendent for the GRCA at the Belwood Lake Conservation Area, and someone who, for the past 15 years, has been in charge of fun.

"Walleye is the No. 1 fish species Canadian anglers want to fish for from a time-spent perspective."

If that seems like an esoteric explanation, it's fair. Strub is a top-rated professional angler with sponsorships from Bass Pro Shops and Shimano.

"What the GRCA does have is parks built in and around all of the dams, so the actual



TOP: The Shand Dam, built in 1942, created the 12-kilometre reservoir known as Belwood Lake.

LEFT: The Grand River flows out of the Shand Dam.



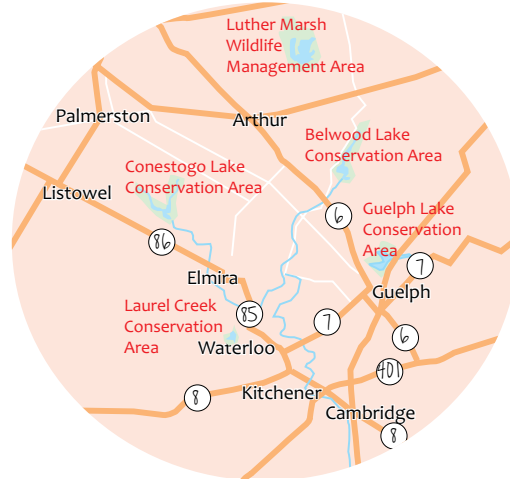
LEFT: Dwight Boyd, the director of engineering with the Grand River Conservation Authority, stands in the control room at the GRCA's main office in Cambridge.

park superintendents and assistants have the park responsibilities, as well as being here to do the two daily dam reports,” Strub explains.

“Every day of the year, Christmas included, we come in, we check all the lake levels, inflow and discharge, we have a good look at the turbine, make sure it’s running properly.”

There is a person like Strub at each one of the major dams operated by the GRCA, each one reporting back to Boyd at GRCA headquarters in Cambridge. That’s the technical side. The less technical part of Strub’s job is making sure people have the opportunity to enjoy any recreational opportunities, including fishing walleye.

There are close to 335 cottages on Belwood Lake. There is also a YMCA camp and opportunities for kayaking, canoeing, sailing, boating, hiking, cycling and even hunting. “If you were to see this lake on a Saturday, we have hundreds of boats on it either from the cottages or the conservation area, which launches an awful lot of boats



The Grand River Conservation Authority manages the largest dams and reservoirs in the area, including the Shand Dam in Belwood, Conestogo Dam near Drayton and the Guelph Lake Dam.

in a day,” says Strub.

The Shand Dam has no campsite, but Conestogo and Guelph both offer camping. In the summer, Guelph Lake hosts the Hillside Festival, a weekend of music where attendees can camp overnight at the conservation area.

Strub estimates that Belwood Lake Conservation Area hosts close to 60,000 visitors a year, with close to \$350,000 collected in fees at that location alone. It’s a symbiotic relationship that benefits both the GRCA and its guests. However, there can be misunderstandings which means Strub’s job requires more diplomacy than you might think.

“I think some people understand the function of a reservoir. Our engineers and resource people attend the cottage association meetings, so there is a lot of dialogue,” says Strub, whose job includes giving tours to reservoir stakeholders, including Friends of the Grand and various government staff, to explain that the primary function of the reservoir is to save property and lives.

“We’re not just increasing the flows to wreck your fishing day,” he jokes. “People will say, ‘Why is this so low?’ It’s not low. It’s exactly where it’s supposed to be.”

Lisa Weber, a local Grade 6 teacher, understands the function of the reservoir and she’s committed to helping others learn when she brings her class for a full-day program at Laurel Creek Conservation Area in Waterloo.

“One of the things I really appreciate about the conservation area is that the program they do for Grade 6 is very hands-on and engaging,” Weber says. “It’s something that I can’t give them in the classroom or out of a textbook or even off the Internet with their devices.”

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