



New Brunswick • Future Floods

New Brunswickers living near rivers are scrambling to adapt as flooding becomes more frequent and severe



New Brunswickers face hard choices as trend of more frequent and severe flooding rises

[Hadeel Ibrahim](#) · CBC News · Posted: May 22, 2019 6:00 AM AT | Last Updated: 2 hours ago



Paul Arthurs spent eight months and \$50,000 to raise his home, hoping to escape the flood damage he experienced last year. (Hadeel Ibrahim/CBC)

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This spring, Paul Arthurs spent 12 days trapped on a house-sized island.

On a new foundation of gravel and rocks and surrounded by water, his Maugerville house towered over the swollen St. John River.

Out of the living-room window Arthurs could only see water where there should have been a driveway and a highway.

Being cutoff was inconvenient, he said, but it beat last year, when the river rose above the foundation of his house, filled it with half a metre of water and destroyed his belongings.

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Determined not to let this happen again, Arthurs spent eight months and \$50,000 to raise his home by seven feet, or about 2.4 metres. He and his wife lived in a camper in the meantime.

"It's either I'm going up or I'm out of here," Arthurs said. "We're always going to get more water. This is the new norm."





Arthurs's home was surrounded by water this year, but it escaped the devastating damage he saw in 2018. (Paul Arthurs/Submitted)

Arthurs is one of thousands of people in New Brunswick faced with the challenge of adapting to the trend of more frequent flooding. This spring, the river reached "historic" flood levels for a second year in a row. More than 1,400 people fled their homes, and businesses were closed and damaged.

Experts say it's a trend that will continue and even get worse, and New Brunswickers need to start making hard choices about how to adapt.

The Insurance Bureau of Canada says out of the 300,000 properties in New Brunswick, 49,000 are in areas at risk of storm-water, river and coastal flooding because of their locations. The majority of these homes can be found along the St. John River.





The view from Arthurs's Maugerville home during the 2019 flood. (Paul Arthurs/Submitted)

"The challenge remains that a lot of people still live in harm's way along that river," said Craig Stewart, vice-president of the industry group.

That's because that's where people settled hundreds of years ago — along the St. John River.

"People are essentially grandfathered into these locations," Stewart said.

To adapt, Arthurs and hundreds of others have already raised their homes. Some have installed [flood-resistant fixtures and pulleys](#) for their belongings.

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And it's not just homes. Billions of dollars worth of infrastructure is also at risk. This year, 147 roads were inundated, and 88 of them had to be closed. Many of the same roads were damaged by floodwaters in 2018.

Essential bridges connecting rural areas to highways were closed and some couldn't reopen without repairs. The resulting detours caused longer trips to town and to services such as hospitals and clinics. In downtown Fredericton, traffic jams caused hours of transportation delays.

The courthouse in Fredericton had to move uptown, and some schools were cut off or cancelled.



Premier Blaine Higgs said he is considering a floodway in Saint John, but that's still in the preliminary research phase. (CBC)

Last year the same roads that were flooded were repaired but not raised, Premier Blaine Higgs said earlier.

"We were hopeful and not expecting this two years in a row," he said during a question period this month.

Higgs is now promising to raise those frequently flooded roads and highways "to the right level, or at least to what we can forecast for the future."

What are we doing now?

That reaction — raise everything — has been the most common proposed solution.

New Brunswick's climate change secretariat, a branch of the Environment and Local Government Department, has developed a climate action plan that includes several pages devoted to protecting public infrastructure from future floods.

It mostly talks about committing to collect more data, better sharing of information among departments and educating the public.

The climate action plan also includes a commitment to help the owners of critical public infrastructure, such as the Department of Transportation, to develop climate adaptation plans by 2020.

DTI won't be interviewed

The Department of Transportation and Infrastructure declined to connect CBC News with an engineer or expert for an interview.

In a statement, department spokesperson Paul Bradley said engineers keep flooding in mind when designing new structures and repairing old ones. This is part of a long-term plan the province is developing.

He cited the Rockwell Stream Bridge on the Broad Road, which was replaced in 2016. He said by studying the waterflow in the area a redesign helped make the bridge better suited for larger volumes of water.

“I think that we have to be a lot more diligent now in relation to where people are going to build”

- Premier Blaine Higgs.

Bradley said DTI used flood mapping and projected coastal flood levels to design the new Anderson Bridge in Miramichi, to make sure the bridge "is adapted to future flooding scenarios that will ensure the bridge continues to be useable during flood events."

The current Anderson Bridge, which was built in 1953, has been down to one lane for years because of structural problems.

The province is also studying how to best rebuild homes or structures and when to approve or deny work permits and building permits on flood plains, Higgs said.

"I think that we have to be a lot more diligent now in relation to where people are going to build," he said.

"We have to step up the game here. The way of life is different now than it used to be. Climate change is a reality, and we have to deal with that."

For many New Brunswickers living in flood-prone areas, adapting to flooding might mean one of two things: moving up or moving out. 1:52

But whether these strategies are enough to make living in a flood plain tolerable is debatable.

Stewart said raising homes or putting their homes on stilts is one way homeowners can try to evade the rising waters. But like Paul Arthurs, they could still be cut off from everything, having to depend on canned foods and the military or emergency officials for drinking water.

"The real challenge is how do you convince people to either move out of these imperilled locations, given what's happening — what we know is to come? Or are there ways that we can,

you know, address them *in situ*?" Stewart said.

More action needed

Politicians and policy makers admit there is much more work to be done to adapt to the possibility of more flooding.

While helping fill sandbags on a windy day, Higgs said he is considering a spillway in Saint John to redirect floodwater away from populated areas. That's still in the preliminary research phase, he said.

Slobodan Simonovic, director of the Institute for Catastrophic Loss Reduction at the University of Western Ontario, said New Brunswick can consider dams and berms, or floodways that could divert water.

Premier Blaine Higgs and Grand Bay-Westfield Mayor Grace Losier think it's wrong to build in a flood-prone area. Yet one couple is doing just that. 0:32

But population is the catch, Simonovic said.

In Winnipeg, a [floodway was built](#) where rising floodwater is channelled away from urban and inhabited areas. The 47-kilometre ditch around the community directs water back into the river, so it doesn't reach homes and infrastructure.

The project cost around \$63 million. Because it was protecting such a densely populated area, it potentially saved an estimated \$32 billion in damage.

"That is one of the potential structural solutions," Simonovic said. "But ... the floodway is protecting 360,000 people at one location."





In Manitoba, the Red River floodway channels water away from inhabited areas. (Courtesy of Jay Doering/University of Manitoba)

To Simonovic, this floodway is theoretically doable in New Brunswick. Dykes, dams and channels are all possible as well, he said, but geographical limits need to be studied.

Perhaps New Brunswick is too small, and too financially limited, to undertake such large projects to protect relatively few homes, he said.

"My sense for New Brunswick and Saint John is that you still have a relatively small population that cannot easily justify the very expensive measures like diversion channels or some, you know, development of [water] storage facilities," Simonovic said.

Conservation as adaptation

So what can New Brunswick afford? There are a few cheap ways to at least reduce the risk of flooding, such as conserving wetlands.

Sometimes structural adaptation means not building anything at all, especially on wetlands, said forest ecologist Vincent Zelazny.

"They're like a big sponge on the ground, and they just soak in the water," he said. "They soak it up and they hold it back."

Last month the federal government announced it will be spending \$542,000 to protect 345 hectares of land.



Forest ecologist Vincent Zelazny and Renata Woodward, CEO of the Nature Trust of New Brunswick, say conserving wetlands is a relatively inexpensive way to mitigate flooding. (Hadeel Ibrahim/CBC)

Renata Woodward, CEO of the Nature Trust of New Brunswick, who was involved in this project, said \$500,000 is a small price to pay for the protection of wetlands that could mitigate floods.

Compared to building new dams or flood structures, "it is actually one of the cheaper options," she said.

Lack of action can also cost the government money. EMO spokesperson Geoffrey Downey said New Brunswick has spent \$74 million on flood relief and repairs since the 2018 flood, and the cost will continue to rise as claims are finalized.

The federal government rebates a large amount of that to the province.

Higher ground?

Ultimately, many experts agree the answer could be moving people and infrastructure out of frequently flooded areas. That means moving to higher ground and letting nature reclaim the wetlands on which some parts of the province were built.

"I know that people are so attached to their lands, but if there's a way to potentially relocate to areas that are not flood prone," Woodward said. "We need to think in the long term."

Simonovic and Stewart both said all levels of government should work together to move buildings, or find a better solution.

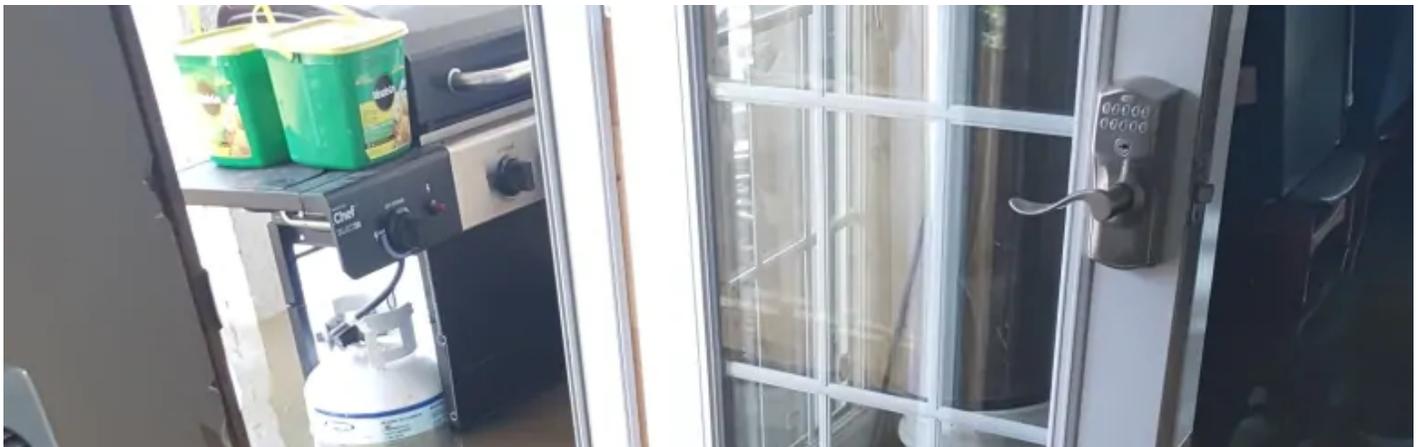
- [From 36K in flood damage to \\$143: How small changes saved one family heartache — and money](#)
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New Brunswick's only strategy to incentivise people to leave their at-risk homes is a buyout program.

The province will only buy a property if it's been damaged by up to 80 per cent of its value. In 2018, the government bought out 78 properties.

But people are reluctant, some because many homes along the river have been in the same families for generations, others because of finances.

Arthurs has lived in his house since 1987, still has a mortgage and doesn't have the money to buy a new one.





Arthurs's house took half a metre of water last year. He managed to escape the flooding this year by raising the building. (Paul Arthurs/Submitted)

"That's why I had to go ahead and keep going with lifting and fixing. Because I was trying to get back what I worked all these years for," he said.

But the boat mechanic said it's not just about the money.

"I've been here so long, I like it here," he said. "I'm not scared of it, I'm not scared of the water."

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