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Think 2015 Was Hot and Weird? Get Ready for Worse, Experts Say

By Judith Lavoie • Friday, March 18, 2016 - 11:06

B.C. faces a future of disappearing salmon runs, more wildfires and dying forests with a temperature increase of two or three degrees and it is time to adapt to a new reality, a panel of experts told a packed audience at the University of Victoria's Ideafest.

The weird weather of 2015 broke records, but it is a harbinger of the future, said Pacific Climate Impacts Consortium climate scientist Trevor Murdock, adding that models showing a two degree temperature rise are probably optimistic.

By the end of this century, if greenhouse gas emissions are not curbed, there could be a temperature increase of six degrees Celsius, Murdock warned.

"With zero net greenhouse gas emissions and with some pulled out of the atmosphere — so pretty much what was agreed to in Paris — we are still looking at about two degrees of warming," Murdock said.

"For the 21st century it looks as if 2015 is our way to the new future."

Last year, which saw near record streamflow highs and near record lows, was "an uncomfortable glimpse into the future," agreed Faron Anslow, PCIC's climate analysis and monitoring leader.

"Between May and June (2015) things really went off the rails in terms of the snowpack," he said.

That meant high water flows in late spring and record-breaking low flows in the summer and the glimpse into the future shows wetter winters and hotter, drier summers, with inevitable effects on everything from fish and forests to agriculture and recreation.

"There's more precipitation in the wet season and less in the dry season. The biggest factor is the

change in timing," saidSybil Seitzinger, Pacific Institute for Climate Solutions executive director.

That is bad news for fish, said Fisheries and Oceans Canada research scientist Kim Hyatt who has studied problems with warming waters resulting from the 2014-2016 strong El Niño and The Blob of warm water that developed in the Eastern Pacific in 2014.

"With those things back-to-back you can expect biological outcomes in spades," he said.

The water, which was two-and-a-half to three degrees warmer than usual, brought a toxic algae bloom that extended from California to Alaska and caused the death of seabirds, fish and whales, Hyatt said.

Toxic algae blooms are not new, but they usually die off after a few weeks. The scope and duration of the 2015 bloom was unprecedented.

The warm water brought in species such as trigger fish and butter fish, usually found in the waters off Hawaii, and those ecosystem changes are likely to continue this year, so more research is needed on interaction with native species, Hyatt said.

Salmon runs in B.C. did not collapse in 2015, but the fish were smaller than usual and the warm water in rivers had disastrous consequences for some runs such as the Columbia River.

Last year, 400,000 sockeye were counted at the mouth of the Columbia and, with 100,000 caught, 300,000 were making their way to the spawning grounds, but only 11,000 made it because of river temperatures that were elevated by two or three degrees.

"Ninety-seven per cent of the fish died en route," Hyatt said.

"Two or three degrees doesn't sound like much if you can air-condition your house, but fish can't do that, so these fish expired," he said.

"If 2015 is a harbinger of what we are going to see routinely, we are going to have serious problems maintaining salmon populations in the Columbia."

Losses in the Fraser River were between 30 and 50 per cent because the more biologically diverse fish were better able to cope and that should provide a climate change adaptation lesson, Hyatt said.

"If we want fish in the future we are going to have to maintain biodiversity and look at fisheries systems that put demands on wild populations and make sure they are flexible and precautionary," he said.

If people want to eat fish they must start relying more on aquaculture, Hyatt said.

"Marine populations are already at the ceiling of what they can support in the long run and, if you bring the ceiling down you are going to have to look at other ways," he said.

Reduction of crop yields, increasing competition for water and wildfires are among the fallouts from drought, said Allen Dobb of the B.C. Agriculture and Food Climate Action Initiative.

Pests, diseases and pathogen patterns shift with warmer temperatures and, after the 2015 drought, salt water started coming further up the Fraser River and into irrigated areas, Dobb said.

“That is becoming a problem,” he said, pointing out that, in B.C., agricultural land is undervalued and underused.

“It is too easy to get produce somewhere else and I think that will have to change,” said Dob, who then skirted a question on the wisdom of flooding agricultural land to build the Site C dam.

“I can’t really respond to that dam situation,” he said diplomatically.

Drought will alter B.C.’s forests and species of trees planted, areas used for forestry and harvesting practices must change in order to adapt, Robbie Hember, a Pacific Institute for Climate Solutions research scientist, said.

British Columbians must expect more extreme weather events and there may be catastrophic mortality in some areas, Hember said, suggesting landscapes should be designed to be less vulnerable to wildfires.

“The timber supply will be more volatile and it’s going to be difficult to keep all the sawmills open all the time,” he said.

Anna Warwick Sears, executive director of the Okanagan Basin Water Board, watched the average snowpack suddenly melt away last year and, as the drought set in, she turned her mind to adaptation.

Her conclusion was that many solutions were basic common sense and she came up with a list of immediate actions for communities.

“Get the crap out of the water,” Warwick Sears said. “This is not rocket science, it’s manure and sewage and we know how to do this. With hotter, drier summers we’re going to grow more bacteria and algae and have a huge pollution problem. We’ve got to keep the water clean.”

Universal metering, expanded monitoring of streamflows and groundwater, local planning, a halt to lawn watering and going slow on new demands for water usage are among the actions suggested by Warwick Sears.

Then address obvious areas of difficulty, such as lack of communication between different levels of government and between governments and the public.

The number one piece of advice from Warwick Sears can be summed up with the word “collaboration.”

“Extreme weather events are going to cost more money and the only way we can get things done is to collaborate and get information from each other (on how to) adapt to climate change,” she said.

That may mean ditching preconceptions such as the necessity of preserving species in areas where they now exist.

In a world of imperfect solutions, resiliency is vital when addressing climate change, said Johanna Wolf, policy advisor with the Environment Ministry’s Climate Action Secretariat.

“Instead of focusing on species at risk, focus on the whole ecosystem. It’s a more resilient response.”

Image: BC Forest Fire Info via Facebook