

# WATER NEWS

Vol 38 | No. 2

Spring/Summer 2019

OFFICIAL MAGAZINE OF THE CANADIAN WATER RESOURCES ASSOCIATION

## WORKSHOP ON FLOOD PLAIN MAPPING AND CLIMATE CHANGE

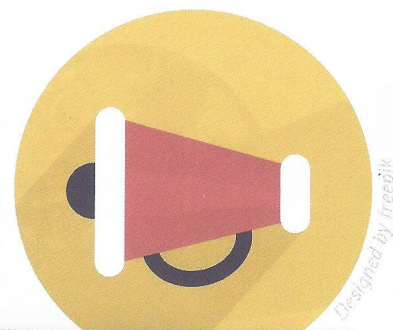
## ATELIER SUR LA CARTOGRAPHIE DES PLAINES INONDABLES ET LE CHANGEMENT CLIMATIQUE

FLOOD MODELLING,  
MAPPING & MANAGEMENT

LAKE OF THE WOODS CONTROL BOARD: A  
BRIEF HISTORY

CWRA MIDTERM WORKSHOP SUMMARY /  
SOMMAIRE DE L'ATELIER TENU DANS LE CADRE  
DE LA RÉUNION À MI-MANDAT DE L'ACRH

# RAMBLINGS OF AN OLD WATER GUY



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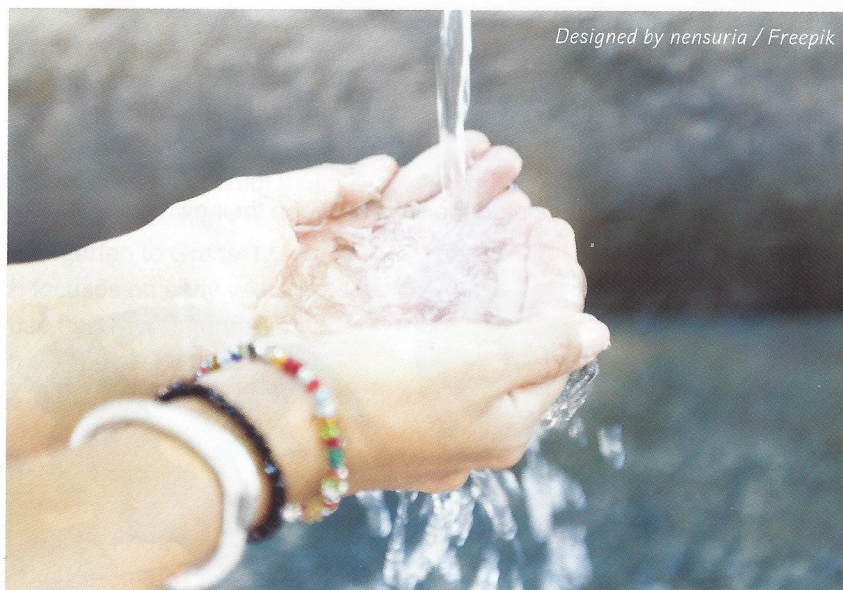
## WATER MANAGEMENT WHERE IS THE "WATER BALANCE"

I recently attended a workshop on drainage and drought and thought, "this is a step forward!". Regrettably, the workshop and our current thinking does not go far enough to change the way we look at managing water on the rural landscape and in general.

The problem with water is that is part of everything: the weather, our economy, our environment and everything we need to live.

So why do we not take the overall "water balance" into account during the planning process? If we are focused on flooding and drainage we do not seem to consider the impacts during periods of low water availability, except when these drought conditions directly affect agricultural productivity or domestic water supplies. When we are in a drought cycle all we focus on is getting more water from somewhere. When does the big picture on water and the environment get taken into account?

I have always believed that some land drainage is justified for farmers to be able to make a living from the land, but it is a delicate balancing act. Drainage can affect more than the ability of the land to support agriculture, it can affect the entire hydrologic cycle of a parcel of land. Across the country you can find the remnants of small rivers and streams that only carry water for a brief period in the spring and after heavy precipitation events. These used to be fed by



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upland wetlands and undeveloped land that stored water and released it slowly both through limited natural surface drainage and into the groundwater systems providing baseflow to the stream.

It doesn't take a genius to see that if we remove water from the land quickly in the spring, it won't be there in the summer. After all I figured it out! It's all part of the bigger picture, it's called the "hydrologic cycle".

The weather on the prairies, an area I know best, has always been variable enough to cause issues when trying to make a living off the land. I remember an extremely wet spring when the factory I worked in (a very long time ago) was inundated with orders for dual wheel kits for tractors and in some cases for

the new four-wheel drive tractors. Some farmers even attempted sowing grain from airplanes to get crops in the ground. Then the weather turned very hot and dry and by July the ground was baked hard and the crops withered in the heat.

Balancing the wet and the dry will be even more critical if the predictions of greater extremes and more variable weather patterns is correct.

There are many other examples of our current water management practices that fall short. In the 1960's a group of farmers were concerned with a number of sloughs that did not have adequate drainage. They contacted the appropriate government department and an inspection revealed there was no well-defined drainage course. This is a common problem across the

prairies. As a remedial action, a ditch was constructed that drained into a very small coulee and eventually into a larger river.

By the early 1970's there was a concern with this drainage project. The downstream ditch was now carrying about three times more water than it had in the past and its capacity was inadequate and snow blockage also caused problems. The water was now overflowing the banks of the ditch and flooding farmers who had not been flooded in the past. An inspection found that this overflow also caused significant erosion in the system and at the outlet of the project, eventually forming a gully more than 15 m deep.

A design and recommendations were proposed to limit erosion and to provide better flood control to the affected farmers. The estimate to implement the strategy was too

costly and the project was postponed while investigating more cost-effective solutions. By the late 1970's the cost to stabilize the slope had risen to millions of dollars.

It was determined that purchasing adjacent land would be the most cost-effective option for erosion management at the outlet, with the hope that the gully progression would stabilize at some time. This hasn't happened, and gully erosion continued making many acres of farmland unusable. Attempts to manage the erosion were unsuccessful at the time I read about it and the estimated costs for mitigation was more than government was willing to pay.

So where did this project go wrong? Hindsight is 20:20 but obviously the original design forgot that water can cause erosion. To say this is fairly common with till-based soils is an understatement and once

downcutting has started it is very difficult to control especially if the soil contains a large amount of silt. This is just another example of a focus on only one aspect of managing water, without the appropriate appreciation of the potential consequences.

The question that should have been addressed is whether any drainage improvement should have been attempted. Our narrow project focused approach has resulted in too many "unintended consequences". We have no idea of cumulative impact of our rural water management practices except that it has resulted in systems that are no longer in balance, or at least to the degree that we obtain maximum overall benefit that includes human economic benefits and protection of environment.

We have the tools and the intelligence to do better, so why don't we! 🍁



**CWRA ACRH**  
Canadian Water Resources Association  
Association Canadienne des Ressources Hydriques

## UPCOMING EVENTS

### 2019

**April 14-16** // Alberta Branch Conference

**May 5-8** // Ontario's Water Conference & Trade Show. Ottawa, ON.

**June 9-14** // 87th Annual Meeting International Commission on Large Dams Ottawa, ON.

**July 3-6** // CIP's Centenary conference in Ottawa, ON.

### 2020

**July 7-10** // CIP/PIBC conference in Whistler, BC.

**Jan 31 - Feb 1** // Maritimes Workshop and National BOD Meeting, Saint John, NB