

# QUILL LAKE – 6.8 METRES AND RISING

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## 6,8 MÈTRES ET LA HAUSSE SE POURSUIT

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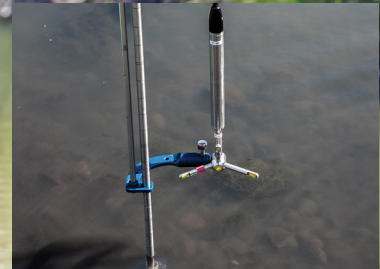
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IN CELEBRATION OF CWRA'S 70<sup>TH</sup> ANNIVERSARY!

CWRA is launching a video contest in early October and would like to invite video entries to celebrate Canada's water resources.

The contest will highlight the best **70 videos for 70 days**. The goal is to showcase Canada's outstanding water resources and issues which impact us all. Short videos (maximum 30 seconds) are to highlight places, projects or people that demonstrate effective water management.

Winners will be announced in early 2018 at various CWRA events, through our website and social media. **Prizes to be won!**

To ensure you don't miss the **70x70 contest** launch in September, visit us online and start thinking about what content will be in your water video entry.



**Help us  
celebrate 70  
years! Canadian  
Water Resources  
Association!**

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Association Canadienne des Ressources Hydrauliques

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Rick Ross, Lethbridge, AB

# FROM THE HELM

## Theme: June 2017 SO-LONG



**BY DAVE MURRAY**  
 @CWRA\_Pres

### Top 5 from @CWRA\_Pres

- 1 Has it really been two years?
- 2 SYP Corner
- 3 CWRA Factoid: Incredible Ute
- 4 We are getting a new Executive Director
- 5 Flood Management Across Canada

### SYP Chapters

Vancouver  
 Victoria/Vancouver Island  
 Edmonton  
 Calgary  
 Winnipeg  
 Toronto  
 Ottawa

*"Does the appetite for a national water strategy exist, some think it does!"*

**A**nd now the moment you all have been waiting for. My 2 years as president is done and I am leaving you in the capable hands of your New President Sean Douglas from Alberta Environment.

So, reflecting on what was happened over my time at the CWRA helm, we moved forward on several fronts:

1. We engaged with the Federal Government on several fronts including flood mapping and management, irrigation and drainage.
2. CANSID was awarded ICID IEC 2018 in Saskatoon Saskatchewan.
3. We met in Montreal for a successful board meeting and conference.
4. We took part in the development of the new National Flood Mapping Guidelines.
5. Our SYP groups grew and new groups started up.
6. We launched our webinar program.
7. We expanded our communications including our weekly e-blast.
8. We reviewed the delivery of our services.
9. We hired a new Executive Director.

So, I would like to thank the membership of CWRA for putting your confidence in me and for the experience of leading CWRA. We are truly at an important cross road in terms of our impact on water management in Canada. The opportunities for CWRA to assist Canada in moving forward are growing each month. As Past President, I will chair the CWRA Communications Committee and will be supporting President Sean so I am sure you will hear from me again.

Regards  
 Prez Dave  
 Skipper Dave

### SYP CORNER

SYP activities are growing across the country and so we need assistance helping to coordinate this. It is gratifying to see the successes of our SYPs as they embark on their careers. They go on to be some of our most valuable CWRA members. If you have the interest to get more involved in this then please contact Greg and Jennifer our past national co-chairs!

[umschel8@myumanitoba.ca](mailto:umschel8@myumanitoba.ca)

### CWRA FACTOID: INCREDIBLE UTE

Ute Holweger our Past President is a Professional Landscape Architect with over 20 years of public sector experience in water and watershed management, natural resource management, landscape-based planning, agricultural sustainability and landscape ecology. Ute has been an active with CWRA for over 16 years. She has served as a national board member, National President and Past President and is tireless in her efforts for CWRA. Ute also is quite the paddler and has competed at a very high level this has helped when as President I needed to learn how to tread water. I would like to extend my gratitude to Ute for the great support and advice she gave me during my term as President.

### FLOOD RISK MANAGEMENT ACROSS CANADA— A PATCHWORK QUILT

I recently co-presented with Nancy Davy from GRCA on Flood Risk Management Approaches across Canada. In doing the research for this we gathered together as much info as we could from different Provinces, Territories and First Nations. The diversity of approaches across Canada is startling. The confusion on First Nations water issues and lack of consultation and coordination is also startling. My hope is that in the same way that climate change is starting to be coordinated nationally and addressed across Canada that Canada can move toward a more cohesive approach on Flood Risk Management. CWRA is well positioned to assist.

### WE ARE GETTING A NEW EXECUTIVE DIRECTOR! DETAILS ELSEWHERE IN THIS ISSUE

Rick Ross, Executive Director became a CWRA member in 1974 held several positions with the Alberta Branch and National President then became permanent Executive Director in 2006 until present. They say all good things come to an end and so it is with Rick who is ready to fully retire. Over the past few months we have been undertaking a new

*Continued on page 7*

# À LA BARRE

## Thème : juin 2017 - AU REVOIR



**PAR DAVE MURRAY**

@CWRA\_Pres

### 5 thèmes majeurs @ CWRA\_Pres

- 1 Est-ce que ça fait déjà deux ans?
- 2 Le coin des EJP
- 3 Factoïde de l'ACRH : Incroyable Ute
- 4 Nous aurons bientôt une nouvelle D. E.
- 5 La gestion des crues partout au Canada

### SYP Chapters

Calgary ÉJP  
Edmonton ÉJP  
Toronto ÉJP  
Vancouver ÉJP  
Winnipeg ÉJP

« Existe-t-il un  
appétit pour  
une stratégie  
nationale de  
l'eau? Certains  
le pensent! »

**V**oici le moment que vous attendiez tous. Mon mandat de deux ans comme président prend fin et je vous laisse entre les mains (compétentes) de votre nouveau président, M. Sean Douglas d'Alberta Environment.

Si nous passons en revue nos accomplissements pendant que j'étais à la barre de l'ACRH, nous avons accompli des progrès sur plusieurs fronts :

1. Nous nous sommes engagés auprès du gouvernement fédéral sur plusieurs fronts, notamment la gestion et la cartographie des inondations, l'irrigation et le drainage.
2. Le CNCID sera l'hôte de la Réunion du CEI de la CIID 2018 à Saskatoon, en Saskatchewan.
3. Nous nous sommes réunis à Montréal pour une conférence et une réunion du Conseil couronnées de succès.
4. Nous avons participé à l'élaboration des nouvelles lignes directrices nationales en matière de cartographie des inondations.
5. Nos groupes EJP ont pris de l'essor et de nouveaux groupes se sont formés.
6. Nous avons lancé notre programme de webinaires.
7. Nous avons étendu nos communications, pour inclure nos courriels éclair hebdomadaires.
8. Nous avons examiné l'exécution de nos services.
9. Nous avons embauché une nouvelle directrice exécutive.

J'aimerais remercier les membres de l'ACRH de m'avoir accordé leur confiance et confié la présidence de l'ACRH. Nous sommes véritablement à la croisée des chemins pour ce qui est de notre incidence sur la gestion de l'eau au Canada. L'ACRH a de plus en plus d'occasions tous les mois d'aider le Canada à aller de l'avant. À titre de président sortant, je présiderai le Comité des communications de l'ACRH et j'offrirai mon soutien à Sean, notre président. Vous continuerez ainsi d'avoir de mes nouvelles.

Mes salutations distinguées,  
Président Dave  
Capitaine Dave

### LE COIN DES EJP

Les activités EJP prennent de l'ampleur à la grandeur du pays et nous avons besoin d'aide pour coordonner le tout. Il est gratifiant de constater le succès de nos EJP à l'aube de leur carrière. Ils sont en voie de compter parmi nos membres les plus précieux de l'ACRH. Si vous souhaiteriez vous engager plus à fond, communiquez avec Greg et Jennifer, nos anciens coprésidents nationaux!

[umschel8@myumanitoba.ca](mailto:umschel8@myumanitoba.ca)

### FACTOÏDE DE L'ACRH : INCROYABLE UTE

M<sup>me</sup> Ute Holweger, notre présidente sortante, est une architecte paysagiste professionnelle qui possède plus de 20 ans d'expérience dans le secteur public en gestion de l'eau et des bassins, en gestion des ressources naturelles, en planification axée sur le paysage, en développement durable de l'agriculture et en écologie du paysage. Ute a été active auprès de l'ACRH pendant plus de 16 ans. Elle a siégé en tant que membre du conseil d'administration national, a exercé les fonctions de présidente nationale et de présidente sortante et déploie inlassablement des efforts pour le compte de l'ACRH. Ute est aussi une payeuse hors pair et elle a compétitionné à un très haut niveau, ce qui m'a été utile lorsque, en tant que président, je devais apprendre à garder la tête hors de l'eau. J'aimerais exprimer toute ma gratitude à Ute pour l'excellent soutien et les conseils qu'elle m'a offerts durant mon mandat comme président!

### GESTION DES RISQUES D'INONDATION À LA GRANDEUR DU CANADA – UNE COURTEPOINTE

Dernièrement, Nancy Davy du GRCA et moi avons fait un exposé sur les approches de gestion des risques d'inondation à l'échelle du Canada. En effectuant nos recherches en vue de cette présentation, nous avons rassemblé autant de renseignements que possible auprès de différents territoires, provinces et Premières Nations. La diversité des approches à la grandeur du Canada est renversante! Mais la

*Suite à la page 7*

# 6.8 METRES AND RISING

## 6,8 MÈTRES ET LA HAUSSE SE POURSUIT

**T**oday Saskatchewan faces a complex water management issue associated with record high levels of the Quill Lakes. The Quill Lakes are a series of closed basin lakes located in east central Saskatchewan (Figure 1). Since 2005, Big Quill Lake has increased in elevation by over 6.8 m from near record low levels following the drought years of the late 1980s and early 2000s to new record highs in five of the last six years (Figure 2). In the process, it has swallowed up Mud and Little Quill lakes to form a single waterbody with a surface area in excess of 78,000 ha. These lakes, collectively referred to as the Quill Lakes, have inundated agricultural lands and are threatening rural residences, private industries, and major transportation corridors including provincial highways and a railway line.

Over the past decade, the increasing water levels have flooded approximately 7000 ha of private farm land and nearly 24,000 ha of Crown land (Figure 3). The provincial government is proactively investing millions of dollars to mitigate the risk to transportation infrastructure, including components of the National Highway System. Works

*Continued on page 7*

**A**ujourd'hui, la Saskatchewan fait face à un enjeu complexe de gestion de l'eau associé à des niveaux élevés records des lacs Quill. Les lacs Quill consistent en une série de lacs de bassin fermés situés dans le centre-est de la Saskatchewan (figure 1). Depuis 2005, l'élévation du lac Big Quill s'est accrue de plus de 6,8 m par rapport aux bas niveaux presque records ayant suivi les années de sécheresse de la fin des années 1980 et du début des années 2000 pour atteindre de nouveaux sommets records pour cinq des six dernières années (figure 2). Au cours de ce processus, les lacs Mud et Little Quill ont été avalés pour former un plan d'eau unique ayant une superficie dépassant les 78 000 ha. Ces lacs, qui sont désignés collectivement sous le nom des lacs Quill, ont inondé des terres agricoles et menacent des résidences rurales, des industries privées et des corridors de transport majeurs, y compris des autoroutes provinciales et une ligne de chemin de fer.

Au cours de la dernière décennie, les niveaux d'eau croissants ont inondé environ 7 000 hectares de terres agricoles privées et près de 24 000 ha de terres publiques (figure

*Suite à la page 8*

completed or committed including raising 1.2 km of grade in 2015, erosion protection works and temporary barriers, and an additional 2.7 km of grade to be constructed in 2017; further work will be required if water levels continue to rise.

Thousands of other waterbodies, ranging from small wetlands to large lakes, across southern Saskatchewan and extending into western Manitoba and northern North Dakota have also experienced record high inflows and water levels during this recent wet period. From 2010 to the present, the area has experienced the wettest period in an instrumental record of over 100 years.

Located within the prairie pothole region within the Great Plains, the Quill Lakes are what is referred to as a closed drainage basin, meaning it characteristically has no natural outlet. Typically, the only outflow flux from the lake is evaporative losses as the Quill Lakes are normally a groundwater discharge area for the Wynyard Formation. However, beginning in 2012, the water level of the lakes exceeded the groundwater levels in some nearby wells, potentially reversing the direction of the gradient. The lakes would need to reach an elevation in excess of 521.47 m, 0.73 m above the March 1, 2017, elevation, before they would begin to spill via Saline Creek into Last Mountain Lake and the Qu'Appelle River, which ultimately leads to Lake Winnipeg and Hudson Bay.

Complicating the situation is the saline nature of the Quill Lakes. Historical observations of total dissolved solids (TDS) within the lakes have ranged from around 9000 mg/L to over 70,000 mg/L with changes principally depending on lake level. To put that into context, the world's oceans typically have a salinity of about 35,000 mg/L and a common biological threshold for freshwater is 1000 mg/L. Last Mountain Lake, which would be the receiving body in the event that the Quill Lakes were to reach their spill point, currently has an average TDS of 1200 mg/L. At the water level that would be required for the Quill Lakes to spill into Last Mountain Lake, it is estimated that

the TDS would be about 7500 mg/L or over six times that of the receiving body.

Since 2011, the Province's Emergency Flood Damage Reduction Program, administered through the Water Security Agency (WSA), has provided \$1.24 million in grant funding for the design and construction of temporary flood mitigation works around the Quill Lakes. This has assisted a total of 86 municipal, business, and individual clients.

The WSA has been leading efforts to find a permanent flood mitigation solution. In 2014 the WSA retained Golder Associates Ltd. to provide a preliminary assessment of flood mitigation options for the Quill Lakes. Options examined during this study included allowing natural spills, building a berm to prevent the spill of water from the lake, diverting tributary inflows into neighbouring basins, constructing an outlet from the lake, and closing agricultural drainage works. Based on this work, the Province elected to move forward with what was referred to as the Kutawagan Creek Project. This project consisted of the construction of a dyke to isolate inflows from Kutawagan Creek and a channel to divert the relatively fresh water directly into Last Mountain Lake. In September 2015, faced with environmental and flood concerns from downstream stakeholders within the Qu'Appelle River Valley, the Province elected to scrap the proposal.

Also in 2015, the WSA retained SNC-Lavalin to examine the feasibility of deep well injection options. The study indicated that both the Basal Deadwood and Mannville Aquifers had sufficient injection capacity but found that the salinity of the water injected into the wells would need to be increased to avoid potential issues related to incompatibility of fluids. This was therefore not a feasible option.

In the fall of 2015, the WSA announced a new Agricultural Water Management Strategy and regulations governing agricultural drainage. The new regulatory approach seeks to bring all drainage works into

*Continued on page 8*

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## FROM THE HELM

*Continued from page 4*

Executive Director Search. We had over 70 applications from across Canada emphasizing the importance that water management now has in our country. At the time of writing this I am now able to announce our new E D Deirdre Laframboise, who is a highly qualified Executive Director and we hope this will take CWRA to a whole new level. 🍁

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## À LA BARRE

*Suite de la page 5*

confusion entourant les enjeux liés à l'eau des Premières Nations et le manque de consultation et de coordination ne sont pas moins renversants. J'ai bon espoir que, au même titre que le changement climatique commence à être coordonné à l'échelle nationale et que le Canada traite cet enjeu avec sérieux, le gouvernement du Canada adoptera une approche cohérente de la gestion des risques d'inondation. L'ACRH est très bien placée pour offrir son aide.

## **NOUS AURONS BIENTÔT UNE NOUVELLE DIRECTRICE EXÉCUTIVE! VOIR LES DÉTAILS AILLEURS DANS LE PRÉSENT NUMÉRO**

M. Rick Ross, directeur exécutif, est devenu membre de l'ACRH en 1974. Il a occupé plusieurs postes auprès de la section de l'Alberta avant d'exercer les fonctions de président national, pour ensuite devenir directeur exécutif permanent en 2006, poste qu'il a occupé jusqu'à ce jour. À ce qu'on dit : « Toute bonne chose a une fin » et il en est ainsi pour Rick qui est prêt à savourer pleinement sa retraite. Au cours des derniers mois, nous avons entrepris de trouver un nouveau directeur exécutif. Nous avons reçu 70 candidatures de partout au Canada, ce qui témoigne de l'importance que la gestion de l'eau revêt aujourd'hui dans notre pays. Au moment de rédiger ces lignes, je suis en mesure d'annoncer la nomination de notre nouvelle directrice exécutive, M<sup>me</sup> Deirdre Laframboise, qui est hautement qualifiée pour exercer de telles fonctions. Nous espérons qu'elle portera l'ACRH vers de nouveaux sommets. 🍁

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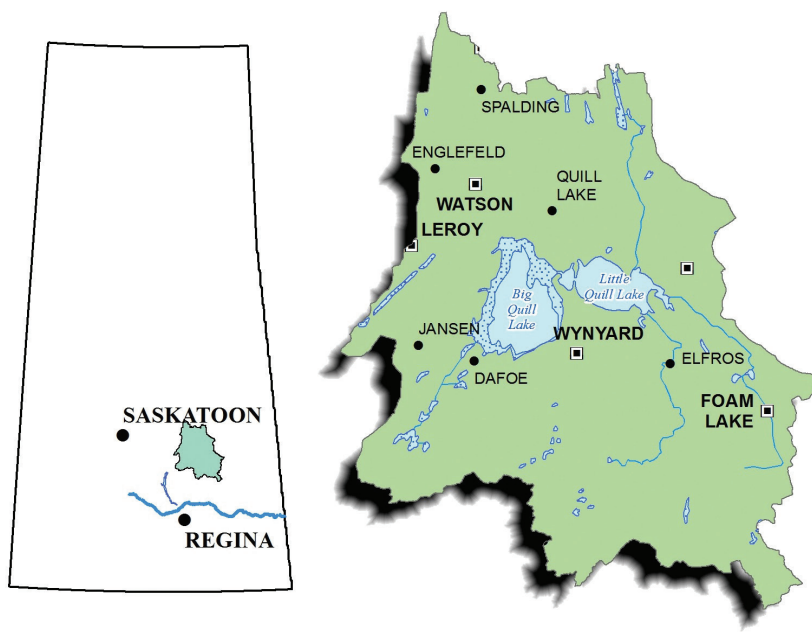
compliance over the next number of years, starting with the highest risk areas. The Quill Lakes Basin is one of the highest risk areas in the province because of the flooding impacts to farmland and infrastructure. Under the new regulations, to be considered for an approval, drainage works must have an adequate outlet. The Quill Lakes are not an adequate outlet because of the flooding and environmental impacts. Currently, the WSA is focused on drainage works around the Quill Lakes that are creating the most significant impact. These landowners are being contacted to begin the process of either obtaining an approval or closing their drainage works.

In 2016, the WSA engaged KGS Group to produce a flood mitigation report. As part of this work, KGS Group developed a Monte Carlo autoregressive model to generate synthetic runoff sequences based on historically observed inflows and net evaporation, and a water balance model to simulate the lake levels for the synthetic sequences. Figure 4 illustrates the spread in the simulated lake levels over a 50 year horizon under existing conditions. KGS Group used this model to examine a suite of mitigation options including holding water in the Quill Lakes, various inflow diversions, upland storage projects, removal of water from the lakes, inflow reduction proposals, and the use of legislative policy. The options were then evaluated based on their impact to the lake levels, project cost, operating cost, environmental impacts, and social considerations. No clear choice emerged from this process with all options having a large overall cost associated with them, including the do nothing scenario.

More recently, the Quill Lakes Watershed Association (QLWA), with membership from eight local municipalities, was formed. In Saskatchewan, a Watershed Association is a form of local government acting with the legal authority created under the *Watershed Associations Act*. The QLWA is currently working to build awareness and

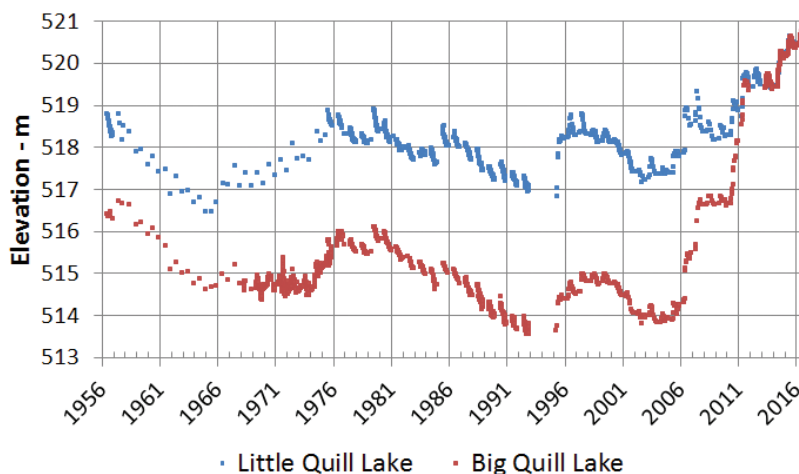
**Figure 1: Location Map of the Quill Lakes Drainage Basin (Last Mountain Lake and the Qu'Appelle River are shown on the left pane to the south of the Quill Lakes Basin)**

**Figure 1 : Carte de localisation du bassin de drainage des lacs Quill (le lac de la Dernière-Montagne et la rivière Qu'Appelle sont illustrés dans le panneau gauche au sud du bassin des lacs Quill)**



**Figure 2: Observed Quill Lake Water Levels**

**Figure 2 : Niveaux d'eau observés du lac Quill**



consensus among municipalities within the basin to explore advancing one or more of the options in the KGS Group study.

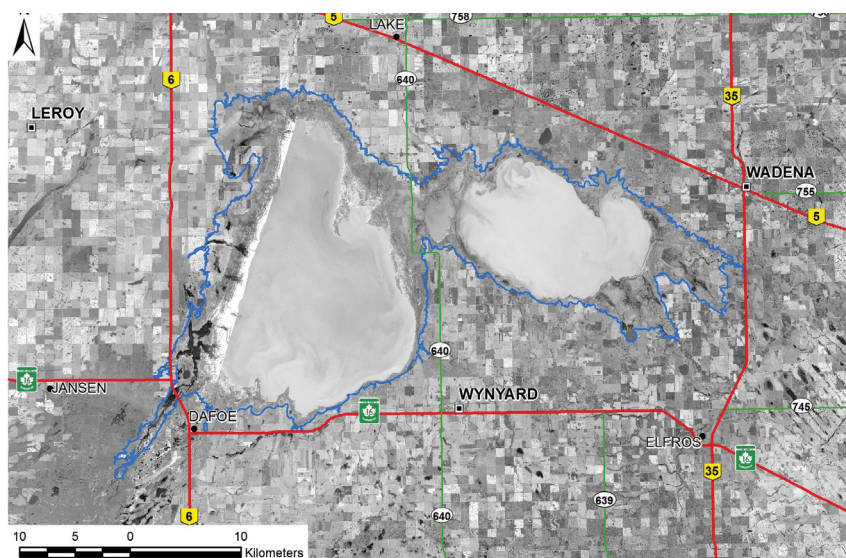
In their Spring Runoff Forecast issued in early March, the WSA is expecting a 10 cm increase in the Quill Lakes water levels from snowmelt runoff in 2017, which would bring them to

yet another record level. This story may be far from over. 🍁

**Curtis Hallborg, P.Eng.**  
Manager, Flow Forecasting &  
Operations Planning  
Water Security Agency  
curtis.hallborg@wsask.ca

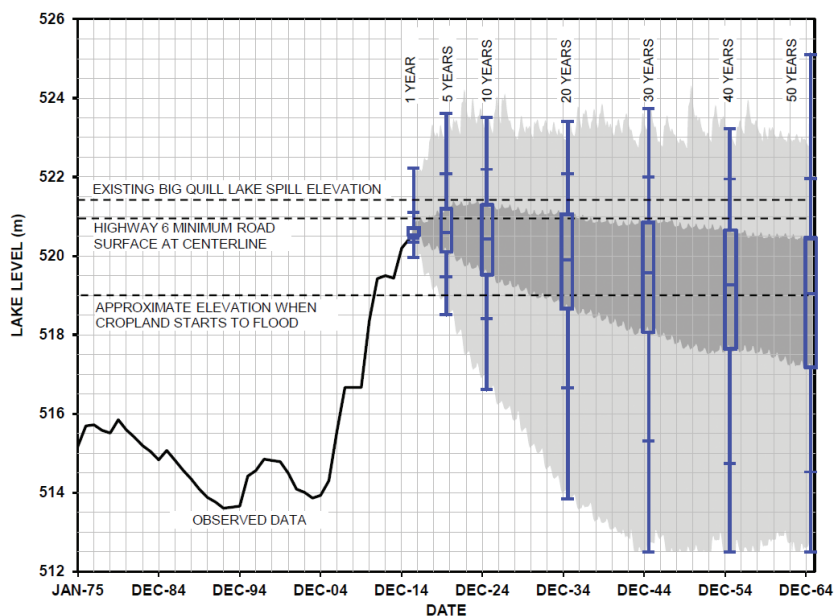
**Figure 3: 2006 Satellite Image and September 2016 Flooded Area (blue polygon)**

**Figure 3 : Image satellite de 2006 et zone inondée en septembre 2016 (polygone bleu)**



**Figure 4: Statistics from KGS Group Simulated Big Quill Lake Water Level Ensemble**

**Figure 4 : Statistiques du Groupe KGS entourant le niveau d'eau simulé du lac Big Quill**



Suite de la page 6

3). Le gouvernement provincial investit de manière proactive des millions de dollars afin d'atténuer les risques qui pèsent sur les infrastructures de transport, notamment les tronçons du réseau routier national. Certains travaux sont achevés, et d'autres font

l'objet d'un engagement de la part du gouvernement, notamment des travaux d'élévation de 1,2 km de pente en 2015, des ouvrages de protection contre l'érosion et des barrières temporaires, ainsi que l'aménagement de 2,7 km de pente supplémentaire dont la construction est prévue pour

2017; d'autres travaux d'aménagement seront exigés si les niveaux d'eau ne cessent d'augmenter.

Des milliers d'autres plans d'eau, qui vont des petits milieux humides aux vastes lacs, lesquels traversent le sud de la Saskatchewan et s'étendent jusque dans l'ouest du Manitoba et le nord du Dakota du Nord, ont aussi enregistré des débits entrants élevés et des niveaux d'eau records au cours de cette période humide récente. De l'année 2010 à ce jour, la région a connu la période la plus humide selon un relevé instrumental de plus de 100 ans.

Situés dans la zone des marmites torrentielles des Prairies dans la Région des grandes plaines, les lacs Quill sont désignés comme étant un bassin de drainage fermé, ce qui veut dire que, d'un point de vue caractéristique, il n'existe pas de décharge naturelle. En général, le seul débit sortant du lac se résume à des pertes par évaporation du fait que les lacs Quill sont normalement une zone de décharge d'eau souterraine pour la formation Wynyard. Cependant, à partir de 2012, le niveau d'eau des lacs dépassait les niveaux d'eau souterraine dans certains puits à proximité, ce qui renversait peut-être la direction de la pente. Il faudrait que les lacs atteignent une élévation supérieure à 521,47 m, soit 0,73 m au-dessus de l'élévation du 1<sup>er</sup> mars 2017, avant qu'ils ne commencent à déborder via le ruisseau Saline jusque dans le lac de la Dernière-Montagne et la rivière Qu'Appelle, qui mènent ultimement au lac Winnipeg et à la Baie d'Hudson.

La nature saline des lacs Quill vient compliquer la situation. Les observations historiques des matières dissoutes totales (MDT) dans les lacs variaient entre 9 000 mg/l environ et plus de 70 000 mg/l, les variations étant fonction principalement du niveau du lac. Pour situer le tout en contexte, les océans présentent en général une salinité d'environ 35 000 mg/l et le seuil biologique courant pour l'eau douce est de 1 000 mg/l. Le lac de la Dernière-Montagne, qui serait le milieu récepteur au cas où les lacs Quill atteindraient leur point de débordement, présente

actuellement des MDT de 1 200 mg/l. Au niveau d'eau qui serait exigé pour que les lacs Quill débordent dans le lac de la Dernière-Montagne, on estime que les MDT seraient de l'ordre de 7 500 mg/l, c.-à-d. plus de six fois supérieures à celles du milieu récepteur.

Depuis 2011, le Programme de réduction des dommages dus aux inondations en cas d'urgence de la province (Emergency Flood Damage Reduction Program), administré par le biais de la Water Security Agency (WSA), a versé 1,24 million de dollars en subventions pour la conception et la construction d'ouvrages temporaires d'atténuation des inondations tout autour des lacs Quill. Cette initiative a été utile pour un total de 86 municipalités, entreprises et clients individuels.

La WSA a dirigé des initiatives en vue de trouver une solution permanente pour l'atténuation des inondations. En 2014, la WSA a retenu les services de Golder Associates Ltd. en lui confiant pour mission de lui fournir une évaluation préliminaire des options d'atténuation des inondations pour les lacs Quill. Voici certaines des options examinées au cours de cette étude : permettre les débordements naturels, construire une berme afin d'empêcher que l'eau ne déborde du lac, dévier les affluents vers les bassins avoisinants, construire une décharge du lac et fermer les ouvrages de drainage agricole. À la lumière de ces travaux éventuels, la province a choisi d'aller de l'avant avec ce qui a été baptisé le projet Kutawagan Creek. Ce projet consistait à construire une digue afin d'isoler les débits entrants du ruisseau Kutawagan de même qu'un chenal afin de dévier l'eau relativement douce directement vers le lac de la Dernière-Montagne. En septembre 2015, faisant face à des enjeux d'inondation et aux préoccupations environnementales soulevées par les parties concernées en aval dans la vallée de la rivière Qu'Appelle, la province a décidé de laisser tomber la proposition.

Par ailleurs, en 2015, la WSA a retenu SNC-Lavalin pour qu'elle examine

la faisabilité des options d'injection en puits profond. L'étude a révélé qu'à la fois les aquifères Basal Deadwood et Mannville présentaient une capacité d'injection suffisante, mais que la salinité constatée de l'eau injectée dans les puits devait être augmentée afin d'éviter d'éventuels problèmes liés à l'incompatibilité des liquides. Ce n'était donc pas une option praticable.

À l'automne 2015, la WSA a annoncé une nouvelle stratégie de gestion des eaux agricoles ainsi que des règlements régissant le drainage agricole. La nouvelle approche réglementaire cherche à assurer la conformité de l'ensemble des travaux de drainage au cours des prochaines années, en commençant par les zones les plus à risque. Le bassin des lacs Quill correspond à l'une des zones les plus à risque de la province étant donné les répercussions des inondations sur les terres agricoles et sur l'infrastructure. Selon les nouveaux règlements, qui doivent encore être soumis au processus d'approbation, les travaux de drainage doivent s'accompagner d'une rigole de colature ou d'une décharge adéquate. Les lacs Quill ne constituent pas une décharge adéquate en raison des inondations et des incidences environnementales. À l'heure actuelle, la WSA met l'accent sur les travaux de drainage autour des lacs Quill qui créent l'impact le plus important. Les autorités responsables sont en train de communiquer avec les propriétaires fonciers concernés soit pour qu'ils entreprennent le processus d'obtention d'une approbation, soit pour qu'ils mettent un terme à leurs travaux de drainage.

En 2016, la WSA a engagé le Groupe KGS et lui a demandé de produire un rapport sur l'atténuation des inondations. Dans le cadre de ce travail, le Groupe KGS a élaboré un modèle autorégressif Monte Carlo pour générer des séquences de ruissellement synthétiques en fonction des débits entrants observés par le passé et de l'évaporation nette, et a créé un modèle d'équilibre hydrique pour simuler les niveaux du lac pour les séquences synthétiques. La figure 4 illustre l'étendue des niveaux de lac

simulés sur un horizon de 50 ans dans les conditions existantes. Le Groupe KGS s'est servi de ce modèle pour examiner une série d'options d'atténuation, notamment la retenue de l'eau dans les lacs Quill, diverses méthodes de dérivation des débits entrants, des projets de stockage en zone sèche, l'extraction de l'eau des lacs, les propositions de réduction des débits entrants et le recours aux politiques législatives. Les options ont ensuite été évaluées d'après leur incidence sur les niveaux des lacs, le coût du projet, les coûts d'exploitation, les impacts environnementaux et les considérations sociales. Aucun choix clair n'a pu être dégagé de ce processus puisqu'un large coût global était associé à chacune des options, y compris pour le scénario de l'inaction.

Plus récemment, la Quill Lakes Watershed Association (QLWA) a été créée. Elle regroupe des membres provenant de huit municipalités locales. En Saskatchewan, une Association de bassins versants est une forme d'administration locale qui agit avec l'autorisation légale que lui confère la *Watershed Associations Act*. La QLWA s'efforce actuellement de sensibiliser les municipalités à l'intérieur du bassin et d'établir un consensus entre elles en vue d'envisager la possibilité de mettre de l'avant une ou plusieurs des options proposées dans l'étude du Groupe KGS.

Dans ses prévisions de ruissellement du printemps publiées au début mars, la WSA s'attend à une hausse de 10 cm des niveaux d'eau des lacs Quill attribuable au ruissellement provoqué par la fonte des neiges en 2017, ce qui porterait ces niveaux vers un autre niveau record. Ce chapitre est donc loin d'être clos. 🍁

#### **Curtis Hallborg, ing.**

*Gestionnaire, Prévision des débits et planification des opérations*  
Water Security Agency  
curtis.hallborg@wsask.ca

# DUCKS UNLIMITED CANADA PROFILE PROFIL DE CANARDS ILLIMITÉS CANADA

## Canadian Water Resources Association Magazine

**H**istory has shown that when situations become dire, people often find courage and creativity they never knew they had. They exhibit hope and determination that inspire others to follow their lead.

This spirit is what gave wings to one of Canada's leading conservation organizations.

The year was 1938. Across the Canadian prairies, it was hot, dry and dirty. The landscape was parched, and times were tough for people, wildlife, and waterfowl. A small group of hunters realized how serious the situation was. Worried that the birds and habitat they depend on might never recover, they decided it was time for action. They banded together with Ducks Unlimited Inc. to give back to the areas that had given much to them. The organization they formed is Ducks Unlimited Canada (DUC); its mission remains habitat conservation.

*Continued on page 12*

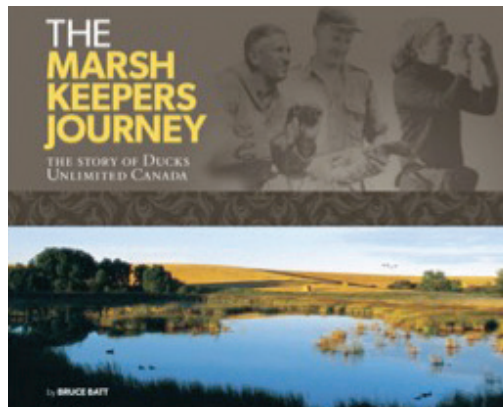
## Magazine de l'Association canadienne des ressources hydriques

**L'**histoire nous enseigne que lorsque la situation devient critique, les gens trouvent souvent le courage et un sens de la créativité qu'ils n'auraient jamais cru avoir. Ils font preuve d'espoir et de détermination et ils inspirent ainsi les autres à suivre leurs traces.

C'est ce même esprit qui a donné des ailes à l'un des organismes de conservation chefs de file au Canada

Nous sommes en 1938. Partout dans les Prairies canadiennes, il fait chaud et tout est sec et sale. Le paysage est desséché et les temps sont durs pour les gens, la faune et la sauvagine. Un petit groupe de chasseurs a pris conscience de la gravité de la situation. S'inquiétant du fait que les oiseaux et l'habitat dont ils dépendaient pourraient ne jamais s'en remettre, ils ont décidé que l'heure était à l'action. Ils ont fait équipe avec Canards Illimités Inc.

*Suite à la page 13*



*"The Marsh Keepers Journey", available online at [ducks.ca](http://ducks.ca)  
« Big Grass Marsh », premier projet de conservation de CIC*



*"Big Grass Marsh," DUC's first conservation project.*

*« Big Grass Marsh », premier projet de conservation de CIC*



*DUC provides mutually beneficial programs to landowners.*

*CIC offre des programmes mutuellement bénéfiques aux propriétaires fonciers.*

*Continued from page 11*

These founders set out with the vision to put water back on the landscape so that waterfowl populations would flourish again. At the time, conservation efforts focused in the Prairie Pothole Region, and for the first 50 years of the organization's history, funding and effort were dedicated to building water control projects. In total, an impressive 3,911 wetland projects were constructed and over 2.1 million acres of wetland and upland habitat was restored and enhanced. These successful projects provided stable managed water levels that benefited waterfowl, often provided a water

supply during dry years and flood control benefits, such as infrastructure protection, in wet conditions.

Due to periodic wet cycles, wetland loss continued across Canada, especially on the prairies. Advancement in agriculture and an increased price for commodities resulted in drained wetlands and upland loss associated with cultivation. The loss of wetland and upland habitat caused conservation managers, including DUC to evolve their conservation priorities to mirror the changing conditions of the land. Wildlife managers, governments, and other conservation agencies shared this opinion. It was in 1986 that the groups conceived and

created the *North American Waterfowl Management Plan* (NAWMP). NAWMP is a shared partnership-funding source that leads conservation efforts in Canada and the USA, and it has proved to be the largest conservation success in the world.

In partnership with governments, individuals and an array of conservation organizations, DUC continues to deliver programs across Canada that directly benefit waterfowl, wildlife, and people.

Since 1989, this funding has enabled DUC to promote new techniques and deliver mutually beneficial programs with agriculture producers. These programs include; forage conversion, perimeter and cross fencing, winter wheat, revolving land conservation, conservation easements and has opened up new grazing opportunities for producers. Working in partnership is critical to the success of DUC and the NAWMP plan.

Today, nearly 80 years later, DUC conserves, restores and manages wetlands and other associated habitat in every province and territory across Canada. This includes vast networks of wetlands in the boreal forest, coastal saltwater marshes and a myriad of other bogs, fens, and swamps that extend from coast to coast to coast. To date, DUC has conserved 6.4 million acres and positively influenced 143.9 million acres more. However, there is more work to do.

Recent excessive moisture on the prairies has resulted in flooding of cultivated land and has driven accelerated drainage and exasperated wetland loss (<http://maps.ducks.ca/smithcreekwatershed/#>).

This loss is the most important issue affecting waterfowl and wildlife habitat, and other ecological goods and services provided by natural features; clean water, flood protection, carbon storage, etc... The DUC policy team works diligently to educate and influence key decisions makers about the need for a sound wetland policy; one that protects wetlands and mitigates for wetland loss.

Science is critical to the success of DUC. DUC's world-leading research arm, Institute for Wetland and Waterfowl Research (IWWR), uncovers the unique relationships between wetlands, waterfowl, watershed health,



*DUC Allan Hills Project near Saskatoon.*

*Projet Allan Hills de CIC près de Saskatoon*

biodiversity and more. It equips DUC with reliable knowledge to take a meaningful message to Canadians. It gives DUC credibility and influence with governments, industries, and land-owners. It guides the on-the-ground conservation work to achieve the best outcomes for people and wildlife. Science empowers DUC to make a real difference and is what sets DUC apart as Canada's leader in wetland conservation.

DUC has not realized this success by working alone. Sharing in these achievements are nearly 18,000 land-owners who conserve habitat in partnership with DUC, as well as hundreds of partners from industry, government and other non-profit organizations. Nearly 5,900 volunteers organize approximately 400 annual fundraising events across the country to provide important financial support for DUC to deliver on-the-ground results and educate the public and our leaders about the value of wetlands.

The world has changed dramatically since the Dust Bowl days of the 1930s. And while significant progress has been made, wetland loss continues. Pressures on the landscape are relentless, and wetland loss across Canada is estimated at 80 acres per day. However, just like its founders before them, Ducks Unlimited Canada's staff, volunteers, educators, and supporters are responding with an ambitious undertaking.

Looking to the future, the responsible conservation of Canada's most precious resource – water – depends on abundant, healthy wetlands. Wetland conservation continues to be one of the best things we can do for the planet – and for people. Finding innovative solutions, influencing decision makers to protect wetlands and working with volunteers, the public and industry will shape the next chapter in DUC history. 🍁

*For more information about Ducks Unlimited Canada, visit [www.ducks.ca](http://www.ducks.ca)*

*Suite de la page 12*

afin de redonner aux régions qui par le passé leur avaient tant donné. L'organisation qu'ils ont mise sur pied est connue sous le nom de Canards Illimités Canada (CIC); sa mission demeure la conservation de l'habitat.

La vision de ces fondateurs consistait à rendre au paysage toute l'eau qui s'y trouvait jadis de sorte que les populations de sauvagine puissent s'épanouir à nouveau. À l'époque, les initiatives de conservation étaient concentrées dans la région des marmites torrentielles des Prairies et, au cours des cinquante premières années d'histoire de l'organisation, le financement et les efforts étaient consacrés à la construction d'ouvrages de régularisation des eaux. Un total impressionnant de 3 911 projets d'aménagement des zones humides ont vu le jour et plus de 2,1 millions d'acres de zones humides et d'habitat en milieu sec ont été restaurés et améliorés. Ces projets couronnés de succès ont favorisé une gestion stable des niveaux d'eau qui a profité à la sauvagine. De plus, ces projets ont permis de dégager des réserves d'eau au cours des années sèches ainsi que des avantages liés à la lutte contre les inondations, par exemple la protection de l'infrastructure, dans des conditions humides.

En raison des cycles humides périodiques, les pertes de milieux humides se sont poursuivies partout au Canada, en particulier dans les Prairies. Les avancées agricoles et la hausse du prix des produits de base se sont traduites par le drainage des zones humides et par des pertes de zones sèches associées aux cultures. Les pertes de milieux humides et de l'habitat en milieu sec ont amené les gestionnaires de la conservation, dont CIC, à évoluer dans l'établissement de leurs priorités en matière de conservation afin de refléter les conditions changeantes des terres. Les gestionnaires de la faune, les gouvernements et les autres organismes de conservation partageaient cette opinion. C'est en 1986 que les groupes ont conçu et créé le *Plan nord-américain de gestion de la sauvagine* (PNAGS). Le PNAGS consiste en une source de

partenariat-financement partagé qui dirige des initiatives de conservation au Canada et aux États-Unis. Il s'est avéré le plus grand succès au monde en matière de conservation.

En partenariat avec les gouvernements, les particuliers et un éventail d'organismes de conservation, CIC continue d'offrir des programmes partout au Canada qui procurent des avantages directs à la sauvagine, à la faune et aux gens.

Depuis 1989, ce financement a permis à CIC de promouvoir de nouvelles techniques et d'offrir des programmes mutuellement bénéfiques de concert avec les producteurs agricoles. Ces programmes englobent la conversion des fourrages, les clôtures de périmètres et à l'intérieur d'enclos, le blé d'hiver, la conservation des terres renouvelables, les servitudes de conservation et ils ont donné naissance à de nouvelles occasions de pâturage pour les producteurs. Le travail en partenariat est essentiel au succès de CIC et du PNAGS.

CIC offre des programmes mutuellement bénéfiques aux propriétaires fonciers.

Aujourd'hui, près de 80 ans plus tard, CIC conserve, remet en état et gère les zones humides et les autres habitats connexes dans chaque province et territoire du Canada. Cela comprend de vastes réseaux de milieux humides dans la forêt boréale, des marais salés côtiers et une myriade d'autres tourbières, marais et marécages qui s'étendent d'un océan à l'autre. À ce jour, CIC a assuré la conservation de 6,4 millions d'acres et a influé de manière positive sur 143,9 millions d'acres supplémentaires. Cependant, il reste encore beaucoup de travail à accomplir.

Récemment, une humidité excessive dans les Prairies a entraîné l'inondation de terres cultivées et a provoqué un drainage accéléré et exacerbé les pertes de milieux humides (<http://maps.ducks.ca/smithcreekwatershed/#>).

Cette perte est l'enjeu le plus crucial qui touche l'habitat de la sauvagine et de la faune ainsi que les autres biens et services écologiques qui

découlent de caractéristiques naturelles; eau propre, protection contre les inondations, stockage de carbone, etc... L'équipe de l'orientation stratégique de CIC travaille avec diligence afin d'influencer les décideurs clés et de les sensibiliser au besoin d'une politique solide en matière de milieux humides; c'est-à-dire une politique qui protège les milieux humides et qui atténue les pertes de milieux humides.

La science est essentielle au succès de CIC. Chef de file mondial, l'organe de recherche de CIC, l'Institut de recherche sur les terres humides et la sauvagine (IRTHS), permet d'approfondir les liens uniques qui unissent les milieux humides, la sauvagine, la santé des bassins versants et la biodiversité, pour ne nommer que ces volets. La recherche apporte à CIC les connaissances fiables dont l'organisme a besoin pour adresser un important message aux Canadiens. Elle apporte à CIC la crédibilité et l'influence nécessaires pour mieux intervenir auprès des gouvernements, des industries et des propriétaires fonciers. Elle guide les travaux de conservation sur le terrain et permet à CIC de produire les meilleurs résultats possibles pour les gens et pour la faune. La science permet à CIC de faire une véritable différence et de se démarquer en tant que chef de file au Canada dans la conservation des milieux humides.

De nombreux intervenants ont eu un rôle à jouer dans le succès qu'a connu CIC. Ont notamment contribué à ce succès près de 18 000 propriétaires fonciers qui veillent à la conservation de l'habitat en partenariat avec CIC, ainsi que des centaines de partenaires de l'industrie, du gouvernement et d'autres organismes sans but lucratif. Presque 5 900 bénévoles organisent environ 400 activités de financement chaque année aux quatre coins du pays afin de fournir un important soutien financier à CIC pour l'atteinte de résultats sur le terrain et aussi dans le but de sensibiliser le public et nos leaders à la valeur des milieux humides.

Le monde a changé du tout au tout depuis l'époque des grandes sécheresses des années 1930. Bien

que des progrès considérables aient été accomplis, les pertes de milieux humides se poursuivent tout de même. Les pressions sur le paysage sont incessantes et les pertes de milieux humides à la grandeur du Canada sont estimées à 80 acres par jour. Toutefois, tout comme les fondateurs avant eux, le personnel, les bénévoles, les éducateurs et les adeptes de Canards Illimités Canada prennent un engagement ambitieux en réponse à ces pertes.

Tournons-nous maintenant vers l'avenir. La conservation responsable de la ressource la plus précieuse du Canada, c'est-à-dire l'eau, repose sur des milieux humides sains et abondants. La conservation des milieux humides continue d'être l'un des meilleurs gestes que nous pouvons poser pour la planète... et pour l'humanité. C'est en trouvant des solutions innovatrices, en influençant les décideurs en faveur de la protection des milieux humides et en collaborant avec les bénévoles, le public et l'industrie que nous écrivons le prochain chapitre de l'histoire de CIC. 🍁

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*Pour obtenir de plus amples renseignements sur Canards Illimités Canada, consulter [www.ducks.ca](http://www.ducks.ca)*



INTERNATIONAL CONFERENCE AND 69<sup>th</sup> INTERNATIONAL EXECUTIVE COUNCIL  
MEETING OF THE INTERNATIONAL COMMISSION ON IRRIGATION AND DRAINAGE

12-17 August 2018 | Saskatoon, Saskatchewan, Canada



ICID • CIID

## SAVE THE DATE / RÉSERVER CETTE DATE

12-17 AUGUST 2018 / Du 12 au 17 août 2018

SASKATOON, SASKATCHEWAN  
CANADA



CONFÉRENCE INTERNATIONALE ET 69<sup>e</sup> RÉUNION ANNUELLE DU CONSEIL EXÉCUTIF  
INTERNATIONAL DE LA COMMISSION INTERNATIONALE DES IRRIGATIONS ET DU DRAINAGE

Du 12 au 17 août 2018 | Saskatoon (Saskatchewan) Canada



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## International Conference and 69th International Executive Council Meeting of ICID

On behalf of the Canadian Water Resources Association (CWRA) and the Canadian Committee for Irrigation and Drainage (CANCID), we would like to welcome you to

# OUR COMMON WATER FUTURE: BUILDING RESILIENCE THROUGH INNOVATION

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"Our Common Water Future: Building Resilience Through Innovation" will bring water resource professionals and others together to help chart the path to that safe, sustainable and resilient water future. We will learn from each other's experiences and share our innovative ideas for building a common water future in a range of water-related themes that include:

- Planning, Policy and Governance
- Transboundary Water Management
- Watershed Management
- First Nations and Water
- Climate Change Adaptation
- Flood and Drought Hazard Management
- Technology and Infrastructure
- Ecosystems
- Agriculture, Irrigation and Drainage
- Hydrology, Hydraulics and Hydrotechnical Engineering

Special streams, workshops, and training sessions are planned for CANCID, CSHS, and NASH, amongst others. The conference will include field trips in the beautiful natural environment of Vancouver Island on Canada's west coast. Further information will be posted on [conference@cwra.org](mailto:conference@cwra.org) soon.



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# NATIONAL AWARDS PRESENTED!



*Nadine Taube-Our Water Our Life Award*



*Left to right Wayne Jenkinson, Emily Anderson, Abdel-Zaher Abdel-Razek.-Bill Stolte student award*



*Past President Dave Murray welcoming incoming president Sean Douglas*



*Past President Dave Murray making presentation to retiring Executive Director Rick Ross*



*Conference chair Rick Carnduff making presentation to National Distinguished Service Award winner Monica Wagner*



*L to R Frank van der Have, Lavinia Haase, Abdel-Zaher Abdel-Razek-Hoskin scientific best student poster*



*Ed Dean presenting Project wet award to Maggie Romuld.*



*Past Pres L to R Dave Murray, Ute Holweger, Rick Ross, Valerie Cameron, Michael Campana, Andrew Szojka*

**D**r. Abdel-Zaher Kamal Abdel-Razek took the lead coordinating the work on the 2017 students' papers and posters competitions and presentation of students' awards. Emily Anderson, MSc student of University of Saskatchewan won the 2017 Bill Stolte Student paper award. Nadine Taube, PhD student of University of Calgary won the 2017 Our Water - Our Life - The Most Valuable Resource student paper award, and Lavinia Hasse, MSc of University of Lethbridge won the 2017 Hoskin Scientific student poster award. CWRA congratulates winners and appreciates their contributions to the great success of the 2017 conference

with special thanks to Dr. Abdel-Razek tireless efforts.

The National Distinguished Service award was won by Monica Wagner of Amec Foster Wheeler who has provided exemplary service and assistance to CWRA over many years. She has been program coordinator for the last 3 conferences held in Alberta including the previous national conference which was held in Banff. She has been on the National Board of Directors for many years and continued after her term as Alberta branch president had ended.

Evelyn Asidou was the Dillon Consulting scholarship winner and a luncheon speaker. The presentation was made by Paul Donahue of the Dillon Consulting Vancouver office. 🍁



*Past President Ute Holweger assisting presentation to Evelyn Asidou by Paul Donahue of Dillon consulting*



## Deirdre Laframboise BES, MES

*Executive Director, Canadian Water Resources Association (CWRA)*

Deirdre has worked for over 25 years in the not-for-profit sector in the areas of sustainability, climate change, health and related policy work. She co-founded and led several national charities, one of which went on to win international and national awards for its thirteen years of groundbreaking, curriculum-connected programming (sustainability, air quality and health). Deirdre is a two-time certified trainee of The Climate Reality

Project (Al Gore) and serves on several national advisory committees related to climate change science and knowledge mobilization. She was a member of the National Equestrian Team for four years, and lives an active lifestyle participating regularly in many sports including cycling, trail running and skate skiing. In 2013 Deirdre was awarded 'Alumni of the Year' from the Faculty of Environment, University of Waterloo. Deirdre has an undergraduate degree in Environmental Studies (minor in Biology) University of Waterloo (1984), and a Master's degree in Environmental Resources Management (minor in Business Administration), York University (1994).



# CANCID REPORT



**CANCID CNCID**  
Canadian  
National  
Committee  
on Irrigation  
and Drainage  
Canadian Water  
Comité  
National  
Canadien de  
l'Irrigation  
et du Drainage  
Association Canadienne

## UPDATE ON ICID 69<sup>TH</sup> IEC MEETING AND CONFERENCE, 2018 IN SASKATOON



### **CWRA AND CANCID ANNUAL GENERAL MEETING LETHBRIDGE, AB JUNE 5-7, 2017**

1. CANCID has had a very busy year in 2016/17 due to extra activities aligned with hosting to the ICID 69<sup>th</sup> IEC and Regional Conference. **Canada through the Canadian Water Resources Association made application to host the event in Saskatoon in 2018. The bid was successful and the event was awarded to Canada / Saskatoon to host.** Much of this report will detail some of these activities.
2. CWRA through, CANCID continues its involvement in the International Commission on Irrigation and Drainage (ICID) and has been very well represented in ICID by Laurie Tollefson, CANCID Secretary. Laurie has been ICID Vice President Honorary (VPH) for the past two years and his term has now expired. We would like to thank him for his excellent representation of Canada during this term.
3. Mr. Tollefson did participate in ICID 67<sup>th</sup> International Executive Council (IEC) meeting and conference in Thailand, 2016. These ICID events attracted about 800
4. participants from 65 countries. He was the chairman of ICID Permanent Finance Committee and a member of the Management Board. In addition, he served as the chairman of the Task Force on Water for Bioenergy and Food.

to answer questions on logistics and take notes and photos that will be useful when planning our conference. The Thailand conference was very well organized and final approval was received for the 69<sup>th</sup> conference to come to Canada.

5. With the formal acceptance in place, the Co-Chair for the 69<sup>th</sup> conference have taken the lead and moved forward quickly with the establishment of a conference committee. The organizing committee is actively working on the preparation and logistics for ICID events including preliminary program, RFP for events' planner, scientific, preliminary program, finances, in-house website, venue/facilities, marketing including Thailand and Mexico ICID events, technical tours, fundraising/supporters, etc. ICID Handbook Procedures will also be considered in the preparation and logistics for 2018 ICID events.
6. Contact with the Canadian Embassy to help with set up and running of the reception. The cost of attendance in Mexico will be approximately \$3000 per person. In general, the message in Mexico will be "On behalf of the Canadian Water Resources Association (CWRA) and the Canadian Committee for Irrigation and Drainage (CANCID), we would like to extend an invitation to participate in the 69<sup>th</sup> International Executive Council Meeting (IEC69) and Regional Conference hosted in Saskatoon, Saskatchewan, Canada, August 12 – 17, 2018".
7. Canada has a reputation for being warm and cordial hosts for international events as well as being known for our leading-edge irrigation and water management technologies. The conference is being hosted in the heart of the Canadian Prairies! With more than 25 million hectares of farm land, this region of Canada has adopted many leading-edge technologies to manage and distribute its limited water resources. Through

your participation at IEC69, we hope to showcase some of Canada's strategies related to effective water management with the understanding of climate change and impacts on water security, the environment, and social values of all Canadians.

8. The theme of the 69th annual ICID conference, "Innovative and Sustainable Agri-water Management: Adapting to a Variable and Changing Climate," will focus on these issues and more. It is our intention to give participants the opportunity to share ideas and experiences in a setting congruent to learning and issue solving.
9. The events in Mexico is October 8-14, 2017.
10. As part of the planning for the 2018 conference we have been working closely with the Saskatchewan Government and Tourism and have considerable financial support for these groups already. Part of this financial success is due to the Conference planning for additional opportunities to enjoy the multiple tourist attraction.
11. The committee has hired an event planner (VenueWest) to help with the logistics and overall planning of the event, including venue booking and organization, hotel, transportation and sponsorship support. Detailed planning is well underway. One issue the committee had was setting of registration fees as these are set by ICID and have been approved with a base rate of US\$750. Young professionals will be US\$350; retired professionals will be US\$375; non-members will be US\$800.
12. Some other news - A number of CANCID members continue to be involved in both domestic and international irrigation and drainage activities and continue to contribute to through Editorial Board for ICID Irrigation and Drainage Journal and other technical development. Initiatives on irrigation and water management conservation, efficiency and

productivity continue to be led by CANCID members.

13. CANCID Executive and members from across the country have been leading several ag-water events, projects and issues.
14. CANCID President has been actively participated in CWRA executives' teleconferences.
15. Similar to previous years' national conferences, CANCID has been actively involved in the Scientific Committee to help promoting and soliciting abstracts for its sessions. Special thanks to Abdel-Zaher for his work on the conference again this year and the development of 4 CANCID sessions...
16. CANCID plans to continue its international involvement in ICID and other international events where possible and in support of CWRA. CANCID also plans to actively participate and help in the 2017 CWRA National Conference in Lethbridge.
17. CANCID plans for potential i) pre-conference workshops during CWRA annual conferences; ii) regional workshops; and iii) webinars. In this regard, CANCID solicited proposals for webinars and held one webinar in November 2016. Based on the great response received and other proposals on irrigation, drainage and other agriculture topics we are hoping to host a number of webinars in 2017/18. Those webinars are being scheduled based on presenters' availability.
18. CANCID President continued his efforts to promote and increase CANCID membership (currently ~ 90 members in good standing) who also paid their CWRA membership dues. We will be promoting the need for new members and hope our hosting of ICID-EIC 2018 will help in our efforts to increase memberships. 🍁

**Respectfully submitted by**

Roger Hohm P.Ag., CANCID President  
May 25, 2017

## BRITISH COLUMBIA



## BRANCH UPDATE

Executive	
President*	Michael Florendo*
Vice-President	Matthew Graham
Past-President*	Tamsin Lyle*
Finance Chair	Lawrence Francois
Treasurer	Nikou Jalayeri
Secretary	Craig Sutherland
Communications	Navratna Sharma
SYP Chair	Rebecca Chaster
National Director	Stephanie Smith
National Director	Stefan Joyce

\* also National Director

## BRANCH ACTIVITIES

**Priority Goal 1: Improved communications among water resources professionals.**

- BC Branch hosted two technical talks in early 2017 and advertised a lecture by Dr. Jorg Imberger as part of UBC's Environmental Fluid Mechanics Lecture Series (more information is presented as part of Priority Goal 2).
- Increased collaboration with CSHS through our new Branch Liaison
- The BC Branch has started to reach out to other local and provincial organizations to increase communications and find opportunities to collaborate.
- Check out our branch website ([www.cwrabc.ca](http://www.cwrabc.ca)) for updates on events, seminars, and information on how to get involved.

**Priority Goal 2: Enhanced understanding of water and integrated water management.**

- Our 2016/2017 Speaker Series has started!
  - » March 30 – Dr. Tom Gleeson at Philips Brewing and Malting for Victoria's first CWRA - Blue Drinks event. Dr. Gleeson, spoke about "How much groundwater do we

have on earth?" Or rather, got his audience to guess, in kegs.

- » May 11 – Rosie Sims from POLIS gave a presentation on the Water Sustainability Act and POLIS' Water Sustainability Project. The talk covered the context on the evolution of B.C.'s Water Laws, provided an overview of the new WSA and its core elements & opportunities in place now, and Phase 2 regulations and what the Act could mean for changing water management in B.C. more broadly.
- The Branch also assisted in advertising a lecture and webinar for UBC's Environmental Fluid Mechanics Lecture Series
  - » April 18 – Dr. Jorg Imberger – Real-time, Adaptive, Self-Learning Management of Lakes in a Changing Climate. Two prominent examples are used to illustrate problems presently encountered, and the range of control strategies available to manage the consequences. It will then be shown how adaptive, real-time, self learning technologies may be used to dynamically optimize ecosystem health, as both the impacts and the system change with time.

- Upcoming topics include:

- » Groundwater sustainability and groundwater-surface water interactions, Victoria
- » River Restoration, Lower Mainland
- » Drought/Water Scarcity
- » Urban Forest Hydrology / Stem-flow from Trees
- » Water Resources Asset Management
- » Potential training opportunities

**Priority Goal 3: Increased profile for the organization.**

- Connections to other water infrastructure related organizations:
  - » Opportunities to collaborate with BC Water and Waste Association (BCWWA)
  - » Continued involvement with Okanagan Basin Water Board (OBWB), Fraser Basin Council Floodplain Committee and POLIS water leaders.
  - » Participation of BC Branch Flood Hazard Management Committee chairs on the Fraser Basin Council Joint Program Committee for Integrated Flood Hazard Management
  - » Joint networking and technical events with local chapters of CSCE.
- Focus on increasing branch membership
  - » Reconnecting with past individual and corporate members
  - » Identifying new members through referrals from existing individual and corporate members

**Priority Goal 5: Effective management and development of the association.**

- Monthly Board of Directors meetings by conference call with in-person meetings once per quarter

*Continued on page 27*

# ALBERTA




## BRANCH UPDATE

### Executive

President	Rick Carnduff
Vice-President	Peter Morgan
Secretary	Sarah Fruin
Treasurer	Robyn Andrishak
Past President	Andrew Chan
WET Representative	Maggie Romuld

National Directors are Andrew Chan, Peter Morgan, Monica Wagner and Rick Carnduff.

### PAST ACTIVITIES

#### June 2016 Directors' Meeting (Priority Goals 1 and 5)

The Alberta Branch Directors regularly meet once a month via teleconference but on June 23, 2016 the directors got together for a BBQ at Fort Normandeau in Red Deer. This was a great opportunity to meet face to face and fellowship. Fort Normandeau is on the banks of the Red Deer River on the southern edge of the City. Thirteen (13) directors from Red Deer, Edmonton, Calgary and Lethbridge travelled through thunderstorms and arrived late afternoon just as the weather started to clear. The directors conducted their regular business and after the meal they were given a tour of the facility.

#### Student and Young Professionals (SYP) (Priority Goals 1, 2 and 3)

The Edmonton SYP regularly hosted Blue Drinks events in partnership with the Canadian Water Network, Western Canada Water Environment Association and AWWA Western Canada Section. The Calgary SYP held two (2) Blue Drinks events during the spring and summer at the Rose & Crown Pub.

#### Lunch-N-Learn/Webinar Sessions (Priority Goals 1, 2 and 3)

The branch's first lunch and learn webinar was held on September 27.

A presentation was given by Shelley Morris, Team Lead, Groundwater, Water Supply and Soil Contamination Alberta Environment and Parks. The presentation was a 30 minute discussion on how near-real time water data is acquired from the field monitoring stations (hydrometric, climate) and shared with the public Alberta River Basins webpage <https://rivers.alberta.ca/> and phone app. Other data sets used/managed by Alberta Environment and Parks were also presented with a Q&A session. By all accounts, the seminar was very successful, with over 50 registrants and 46 participants.

#### Alberta Branch Events Website (Priority Goals 1 and 5)

The Alberta Branch has established a permanent website address and email domains to communicate events and conferences to its members rather than to establish temporary domains specific for any event. This improves stability for individuals seeking a place to find information on branch events. For the Branch's 2016 annual conference a link was provided for individuals to download the "guidebook" app for mobile devices and download the conference program onto their mobile device.

#### Water Education for Teachers (WET) (Priority Goals 1 and 3)

Alberta Environment and Parks (AEP) staff were trained as Project

WET Facilitators but their job descriptions have changed significantly due to departmental reorganization. As the reorganization becomes clearer, a Coordinator will most likely be named from the staff at Bow Habitat Station in Calgary this coming winter. Joanne Barwise and Glenn Gustafson (AEP) will remain as coordinator-contacts for Project WET in the interim.

### PROPOSED ACTIVITIES

#### Student and Young Professionals (SYP) (Priority Goals 1, 2 and 3)

The Edmonton and Calgary SYP groups continue to plan regular activities. The Edmonton group is co-chaired by Cody Kupferschmidt ([ckupers@ualberta.ca](mailto:ckupers@ualberta.ca)) and Jeff Seaman ([seaman1@ualberta.ca](mailto:seaman1@ualberta.ca)). Calgary is chaired by Sarah Fruin ([sfruin@live.ca](mailto:sfruin@live.ca)). The Board is pursuing possible contacts for Red Deer, Lethbridge and Okotoks.

#### Webinar Sessions (Priority Goals 1, 2, 3, 4 and 5)

Several webinar sessions are planned for 2017:

- Lessons learned after the Canmore 2013 debris floods;
- Wildfire research;
- Wildfire impacts on hydrology and water quality; and
- Drought/climate change effects on forests.

*Continued on page 27*

# SASKATCHEWAN



## BRANCH UPDATE

### Executive

President	Jaime Hogan
Vice-President	Malcolm Conly
Secretary	Brad Uhrich
Treasurer	Curtis Hallberg
Past President	Bob Halliday

National Directors are Russell Boals, Brian Abrahamson and Dirk de Boer.

### PRESIDENT'S REPORT AGM 2017

During 2016-2017 year the branch has been involved in a number of new and ongoing activities, with participation from many of our board members to organize these activities. As we won't be hosting a CWRA national conference for awhile, planning workshops and webinars will be important to maintain our finances each year. I look forward to another interesting year for the branch.

### ACTIVITIES

#### Priority Goal 1: Improved communications among water resources professionals

Virginia Wittrock, one of the Saskatchewan Branch communications directors provides regular updates to members of local events through email. We have also provided occasional information about branch activities to the weekly E-blast organized by the national organization. Jeremy Pittman has kept our webinar series information update on the website(s).

#### Priority Goal 2: Enhanced understanding of water and integrated water management

#### Priority Goal 3: Increased Profile for the Organization. Connections to other water related organizations.

#### Monthly Webinar Series – Saskatchewan

7 noon-hour webinars have been held over the year, with about 45 people registering either for the entire series or individual presentations.

Several participants have been from out of province. Thanks to everyone who has prepared these presentations, and for attending! Thanks also to Serena, Jeremy and Curtis Hallborg for your efforts organizing the series.

#### Attendance and Display at the Indigenous Water Forum in Saskatoon in October

A two-day Indigenous Water Forum was held at the Whitecap Dakota First Nation near Saskatoon and was hosted by the Safe Water for Health Research Team from the University of Saskatchewan, the Touchwood Agency Tribal Council, and the Safe Drinking Water Team, an organization of indigenous water treatment plant operators. Bob Halliday attended and Bob Patrick delivered a presentation for this event.

#### World Water Day – March 23, 2017

The CWRA Saskatchewan Branch joined the Global Institute for Water Security in Saskatoon for an afternoon of talks tomorrow from both the Global Institute for Water Security and CWRA speakers (Jeremy Pittman), followed by a Student and Postdoctoral Fellow Poster Competition and Wine & Cheese Reception. Thanks to Bruce Davison for organizing this event on our behalf. Bob Halliday, Jaime Hogan, and

### SYP ACTIVITIES

CWRA-SYP Saskatoon Branch is up and running. Zilefac Elvis Asong and Hemle Richard share the leadership duties for the group. Volunteers are being recruited to lead upcoming

activities. As an initial step, our group has joined forces with GIWS-Student Committee at the University of Saskatchewan to co-host any events. We look forward to some exciting events this coming year. For more information, please contact UofSYP@gmail.com, new members are welcome.

#### Project Wet – Saskatchewan

In February and March this year four Project WET Workshops are being held in Saskatchewan. One is scheduled in each of the communities of Prince Albert, Meadow Lake, Saskatoon and Regina. There is always room for more! If you know of a group who would like a workshop please email [info@saskoutdoors.org](mailto:info@saskoutdoors.org).

At the end of January, Leah Japp stepped away from coordinating Project WET workshops in Saskatchewan as her family prepared to welcome their third child. Christine Thompson has taken over Leah's position for the next year and can be reached at [info@saskoutdoors.org](mailto:info@saskoutdoors.org).

#### Drainage Workshop Planning with Manitoba Branch

The Saskatchewan and Manitoba branches have formed a planning committee to organize a joint one-day workshop. Topics may include both policy and research initiatives related to wetland restoration and drainage in both provinces. Ed Dean, Gord Bell, Bob Halliday and Jaime Hogan are representing SK branch.

#### Priority Goal 4: Increased role in international water management activities

No activities

# MANITOBA




## BRANCH UPDATE

### 2016-2017 Executive

President	Eric-Lorne Blais
Vice-President	Stephen Carlyle
Secretary	Melissa Haresign
Treasurer	Dave Fuchs
Past President	Carly Deleveau

### 2017-2018 Executive

President	Stephen Carlyle
Vice-President	Nicholas Kehler
Secretary	Melissa Haresign
Treasurer	Dave Fuchs
Past President	Eric-Lorne Blais

National Directors for 2017/2018 are Eric-Lorne Blais, Trish Stadnyk, Ute Holweger and Stephen Carlyle. Nicholas Kehler wishes to remain on the National scholarship committee but is unable to serve as a National Director.

### PAST ACTIVITIES

Activities are planned keeping CWRA goals in mind. These are:

*Priority Goal 1: Improved communications among water resources professionals; and*

*Priority Goal 2: Enhanced understanding of water and integrated water management*

*Priority Goal 3: Increased profile for the organization*

*Priority Goal 4: Increased role in international water management activities*

### Luncheon Series

The luncheon program continued through the fall of 2016 and spring of 2017. This provides an opportunity for water professionals to present updates and information on water related topics in Manitoba, Canada and abroad. Luncheon talks were presented at a cost of \$25 for non-members and \$20 for members, inclusive of a hot lunch.

Eight presentations were organized between June 2016 and May 2017. These included:

- June 20, 2016, Chris Propp, Manitoba's Hydrometric Program: Where

*We've Been and Where We're Headed*

- September 27, 2016, Dr. Nora Casson, Lake Manitoba and its Watershed: Knowledge Gaps and the Next Steps
- October 25, 2016, Dr. Steven Frey, Recent Advances in Integrated Hydrologic Modelling: Application to the Assiniboine River Basin
- December 1, 2016, Parsa Aminian, M.Sc., The Hydrodynamics of Delta Marsh: Using Engineering Tools to Guide Conservation at a Coastal Wetland
- February 1, 2017, Phil Slota, M.Sc., P.Eng., Probable Maximum Floods and Dam Safety in the 21st Century
- March 15, 2017, C.C. Macey, P.Eng., A Brief Hydraulic History of the Shoal Lake Aqueduct
- April 12, 2017, Jeff Lewis, Nutrient Reduction Strategy for the Red River Basin: Weaving Together Who's on First, What's on Second, and I Don't Know on Third
- May 1, 2017, Dr. Feiyue Wang, Chemical Contamination in the Arctic Under a Changing Climate

### Webinar Series

A new four-part webinar series initiative was launched by the Manitoba Branch in association with World Water Day. The webinar package was delivered to registrants at a cost of \$20 for non-members and \$15 members.

Presentation included:

- March 22, 2017, Patrick Pulak P.Eng., City of Brandon Water Reclamation Facility
- April 20, 2017, Chris Penner, B.Sc., MNRM, Wetland vegetation and urban runoff: A Case-study in Enhanced Landscape Environmental Performance
- May 17, 2017, Travis Parsons, P.Eng., Reduction of Trihalomethane Disinfection By-products in the Yellowhead Regional Co-op
- June 15, 2017, Steve Sager, P.Ag., Addressing Nutrient Contamination of Tile Drainage Effluent with Denitrifying Woodchip Bioreactors in Cooler Climate Areas

### Workshops

The Manitoba Branch is committed to hosting the National CWRA  
Continued on page 28

# ONTARIO




## BRANCH UPDATE

### Executive and National Directors

President	Jeff Hirvonen*
Vice-President	Nathan Garland
Secretary	Hanna Daniels
Treasurer	Gail Faveri
National Director & Past-President	Steve Brown*
National Director	Nancy Davy*

\* also National Director

### PAST ACTIVITIES (DECEMBER TO JUNE)

#### Priority Goal 1: Improved Communications among Water Resources Professionals

- The branch communications committee has continued regular email updates to members about Ontario Branch activities and continues to focus on Ontario Branch News web page and CWRA google calendar updates about upcoming water-related events in Ontario. The branch Twitter account @CWRAONT was used to promote and tweet about branch events.
- Representatives of CSHS (Ferdous Ahmed) and CANCID (Rebecca Shortt) have been participating in Branch Board meetings.
- The 2016-2017 ON Branch Mentorship Program included group networking events, one-on-one mentoring pairs, and peer mentoring meetings. All were well attended and informative for both mentors and mentees.

#### Priority Goal 2: Enhanced Understanding of Water and Integrated Water Management

- Ontario Branch members organized a one-day workshop in advance of the Mid-term meeting in Ottawa, in January 2017. The workshop, entitled "Climate Extremes: National Collaboration on Floods

and Droughts" explored the current resources, challenges and opportunities in water management for both flooding and droughts from Canadian and international perspectives with a variety of panellists and speakers from government and academia. Approximately 120 delegates attended the event.

- The Ontario Branch assisted the Ontario Ministry of Natural Resources and Forestry and the Ontario Flood Mapping Technical Working Group in hosting a workshop focused on technology transfer March 8-9 in Guelph, Ontario. The workshop was attended by almost 200 water resources professionals, and focused pilot projects on floodplain base mapping, hydrology and hydraulics.
- The Ontario Branch hosted the Federal Floodplain Mapping Guidelines Workshop on March 28, 2017 in Mississauga. The workshop, which launched the NDMP Guideline documents was attended by about 40 professionals.
- Hosted a technical tour of the Canadian Centre for Inland Waters facility in Burlington in conjunction with the AGM on March 11.

#### Priority Goal 3: Increased Profile for the Organization

- Both National and Ontario Branch

representatives spoke at the Ottawa workshop.

- Ontario Branch representatives hosted and spoke at both the Guelph and Mississauga workshops.

#### Priority Goal 4: Increased Role in International Water Management Activities

- Successful World Water Day events were hosted in both Toronto and Ottawa in March 2017.

#### Priority Goal 5: Effective Management and Development of the Association

- The 3<sup>rd</sup> annual ON Branch Mentorship Program ran from October 2016 to May 2017.

### PROPOSED ACTIVITIES

#### Priority Goal 1: Improved Communications among Water Resources Professionals

- The communication committee will continue to focus on eblasts, website and google calendar updates for members on upcoming events.

#### Priority Goal 2: Enhanced Understanding of Water and Integrated Water Management

- Ontario Branch members will look to host technical workshop or webinar. Topic and details still to be confirmed.

*Continued on page 28*

## BRITISH COLUMBIA

### BRANCH UPDATE

Continued from page 22

- AGM held in May 2017 --- two new board members:
  - » August Ustare – Hydrologica Environmental Consulting
  - » Derek Brzoza – Rain to River Consulting
- Very active SYP and more new board members over the past few years bode well to ensure long-term sustainability of board
- Active search for replacements to ensure long-term sustainability of board
- Finances are stable (details below)
- Increasing communication with members, in part thanks to National Communications and additional branch volunteers assisting our Communications Director

#### SYP ACTIVITIES:

The BC SYPs continued to be an active and growing group, hosting several events and expanding their membership. Two new members were elected to the roles of SYP Chair (Nilufar Islam) and Vice-Chair (John Bergese) for one-year terms at the May 2017 AGM, and the group continued to attract interested potential SYPs at monthly meetings.



#### 2017 activities included:

- Third Annual CWRA BC SYP Great Canadian Shoreline Cleanup, Summer 2017 – a great turnout of our SYPs participated in our annual shoreline cleanup event during a beautiful summer day in July 2017.
- Blue Drinks with Canadian Water Network and BCWWA, Spring 2017
- Snowshoe tour of Mt. Seymour watershed led by Metro Vancouver, Winter 2016
- World Water Day “Water Talks” & Blue Drinks event in conjunction with Canadian Water Network and BCWWA, Spring 2017
- Continued to develop relationship with parallel organizations (Canadian Water Network & BCWWA), including hosting World Water Day 2017 event together and future collaborations planned

- Victoria SYP group formed and hosted Blue Drinks event plus water-related presentations by SYPs in Victoria
- Monthly in-person meetings
- Upcoming activities for summer/fall 2017:
  - » Continue once/trimester “Water Talks (water-related field skills presentations by SYPs) in conjunction with Canadian Water Network and BCWWA
  - » Wastewater-focused brewery tour and Blue Drinks at Parallel 49 Brewing
  - » Tour of Metro Vancouver’s Filtration plant
  - » Tour of Capilano Watershed with Metro Vancouver staff
  - » Water-related bingo + Blue Drinks

Contact us if you want to get involved: [cwra.syp.van@gmail.com](mailto:cwra.syp.van@gmail.com)

## ALBERTA

### BRANCH UPDATE

Continued from page 22

Contact Person: Peter Morgan  
[Peter\\_Morgan@golder.com](mailto:Peter_Morgan@golder.com)

#### 2017 National Conference (Priority Goals 1, 2, 3, 4 and 5)

The Alberta Branch has been very busy in organizing the national 2017 conference in Lethbridge Alberta. The event was held at the Lethbridge Lodge on June 4-7, 2017. The conference theme Water: A Continental Asset and contacts have been made with our counterparts in the U.S. to determine their interest in being

involved in some way. In addition to AB branch volunteers, individuals have stepped forward for the planning and program committees from Saskatchewan, Manitoba, BC, the U.S. and I J C. Several workshops are planned for the days preceding and following the conference, including HEC-RAS, PCSWMM, Raven, Hoskin Scientific, NASH and ‘R’ Programming. Several tours are being planned along with an evening BBQ. 🍁

## MANITOBA

### BRANCH UPDATE

*Continued from page 25*

Mid-term workshop in 2019. Initial planning has also begun and in preparation for Manitoba hosting the 2020 National Conference.

An inter-branch workshop focussing on agricultural drainage on the prairies is currently being planned with a tentative delivery date of late fall 2017. This workshop will likely be a blend of policy and technical presentations and work to foster transboundary partnership within CWRA and within the larger water community of Saskatchewan and Manitoba.

#### Project WET

The Manitoba Branch continues to be committed to increasing Project WET participation amongst students in Manitoba. To this end, the Project WET Committee, with the support of the Board, has made significant progress towards expansion of the program.

Meetings with the Department of Sustainable Development and the Department of Education and Training have been undertaken with the goal of integrating Project WET into the Manitoba Curriculum. Supporting this, the Manitoba Branch is seeking a contractor to draw connections between the Manitoba Curriculum and each grade-level of Project WET.

Supporting this, the Manitoba Branch is seeking a contractor to draw connections between the Manitoba Curriculum and each grade-level of Project WET. Additional barriers to adoption are being examined and ways to reduce or eliminate these barriers are being pursued, including booklet cost, workshop availability/location, general program awareness, listing of the Project WET manual as an "Approved Textbook".

#### Committee Representation

Various CWRA national committees have representation from the Manitoba Branch Board members, including:

COMMITTEE	NAME
Communications	Ute Holweger
Publications	Tesfaye Kebede Gurnessa
CSHS	Tricia Stadnyk
Finance	David Fuchs
Project WET	Erin Dunbar
Website	Carly Delavau

#### Students and Young Professionals

The SYP chapter has been active at post-secondary institutions throughout Winnipeg, with events run mainly through the University of Manitoba. To start the year, the SYP chapter set up a booth during the technical society fair in the Faculty of Engineering, where over a dozen names were added to the email list to encourage prospective students to participate in future

CWRA events. This outreach event was followed up with the annual Meet & Greet student mixer event on September 29, 2016, where an interactive ice-breaker activity was facilitated at a local Winnipeg pub with an attendance of approximately 20 students and young professionals.

The SYP speaker series included two presentations through the 2016-2017 school year, including Dr. Annemieke Farenhorst of the University of Manitoba's Faculty of Soil Studies discussing water supply in remote communities (November 17, 2016) and Stephen Carlyle from Manitoba Habitat Heritage Corporation discussing measurement and mitigation of wetland effects (March 24, 2017). These events were well attended, and garnered interest and engaging discussions from students and professionals alike.

Lastly, the annual CWRA-SYP Networking Event was held at Engineers Geoscientists Manitoba's head office on February 16, 2017. This event included an informative presentation by event sponsor AECOM's representative, while providing opportunities for students to engage with professionals from a variety of agencies across Manitoba. The SYP chapter looks forward to continued speaker series and networking events; engaging undergraduate students interested in water issues; and fostering collaborations with University of Winnipeg and Red River College campuses. 🍁

## ONTARIO

### BRANCH UPDATE

*Continued from page 26*

- The Ontario Branch is planning to host a HEC-RAS training session in the fall of 2017. Details are still to be confirmed, but it may feature the new 2D capabilities of the program.

#### Priority Goal 3: Increased Profile for the Organization

- The Ontario Branch will be starting planning for the 2019 National Conference in the coming months.

#### Priority Goal 4: Increased Role in International Water Management Activities

- Ontario Branch members will once again organize World Water Day events in both Toronto and Ottawa. Details will be confirmed in the coming months.

#### Priority Goal 5: Effective Management and Development of the Association

- The ON Branch Mentorship Program will commence its fourth session in the fall of 2017.
- The Branch in co-operation with CSHS will continue to support BlueDrinks Ottawa events, run by SYP, to facilitate water networking in Ottawa. 🍁

# CSHS REPORT



## FOR THE 2017 ANNUAL GENERAL MEETING



**CSHS** **SCSH**  
 Canadian Society for Hydrological Sciences  
 Société Canadienne des Sciences Hydrologiques  
 Canadian Water Resources Association  
 Association Canadienne des Ressources Hydrologiques

Executive	
President	Wayne Jenkinson
Vice-President	Erika Klyszejko
Secretary	Kevin Shook
Director of Communications	Barret Kurlylyk
Member at large	James Craig
Member at large	Alan Barton
Member at large	Frank Seglenieks

### PAST ACTIVITIES SUMMARY

#### Priority Goal 1: Improved communications among water resources professionals.

- CSHS members will be chairing several sessions (at least 4) on hydrology and trans-boundary related themes at the CWRA 2017 conference in Lethbridge, AB
- CSHS will be hosting a Workshop at the CWRA 2017 conference on R
- CSHS has continued the CSHS webinar series to promote the society and other CSHS activities.
- Having established adequate interest among membership for a Canadian professional hydrology designation, CSHS formed a Professional Hydrologist Certification Committee (PHCC) to provide a guidance report on the issue, to be submitted near the end of 2017.

#### Priority Goal 2: Enhanced understanding of water and integrated water management.

- The short course on Principles of Hydrology was hosted for an eighth consecutive year from January 10 to 21, 2017 at the University of Calgary Biogeoscience Centre, Kananaskis, AB. The course provides state-of-the-art training in hydrology to graduate level students, and professionals. (See [http://www.usask.ca/hydrology/CSHS\\_PoH\\_Short-Course\\_2017.php](http://www.usask.ca/hydrology/CSHS_PoH_Short-Course_2017.php)) Steps taken in

the previous years to reduce the financial risk of the course have begun to pay dividends with several consecutive years of profitability of the course. This year the course had a financial return to CWRA of approximately \$6,100.

- CSHS has launched a second short course on the principles of hydrological modelling to be held in Waterloo, Ontario to act as a supplement to the Principles of Hydrology short course. This course will be held June 19 – 24, 2017. The course is sold out. CSHS is planning to hold the course again in 2018.

#### Priority Goal 3: Increased profile for the organization.

- CSHS has spent the last year exercising the CWRA webinar capabilities by virtually hosting several CSHS-branded presentations CSHS monthly meetings using this tool. This year CSHS introduced a fee structure for CSHS webinars in order to provide added value for the CSHS membership. These webinars are free for CSHS members, with fees for non-CSHS CWRA members and non-CWRA members.

#### Priority Goal 4: Increased role in international water management activities.

- IUGG will be holding a Conference in Montreal in 2019 and CSHS has

agreed to assist with IAHS Canadian section with that activity.

- CSHS has assisted the IAHS with announcements and other notifications of activities and nomination requests.

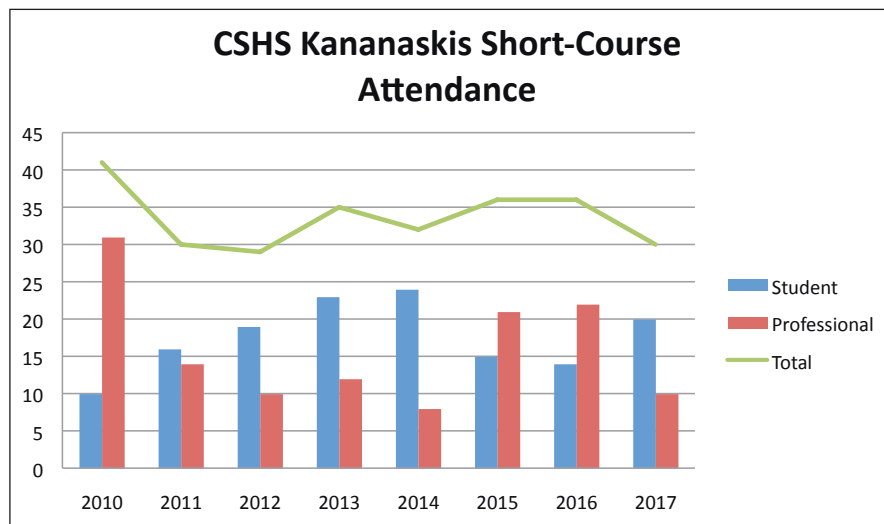
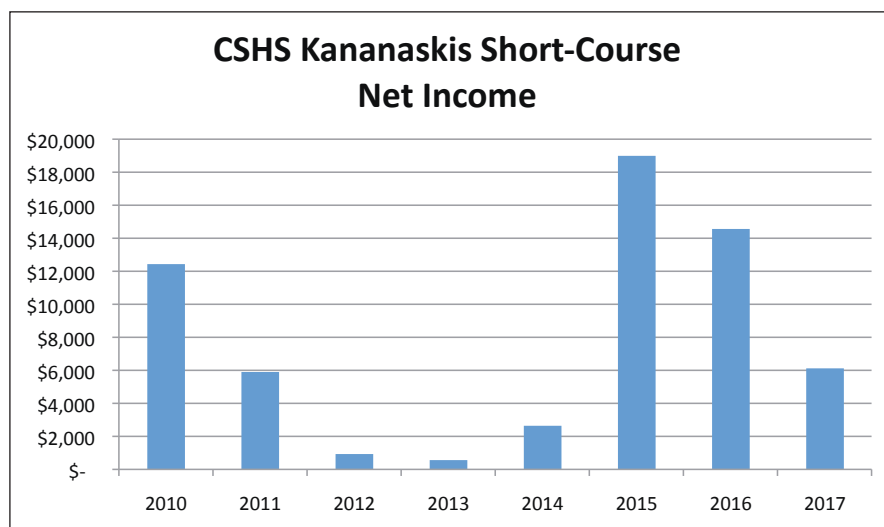
#### Priority Goal 5: Effective management and development of the association.

- The CSHS Executive continues to hold regularly monthly scheduled conference calls.
- CSHS is holding quarterly conference call with CSHS representatives at the Branch level to increase communication and cooperation between the national group and the branches.

#### Activity 1: Kananaskis Short-Course

Since 2010, the short course has generated over \$62,000, with approximately \$11,500 in student bursaries awarded between 2010 and 2013. In 2015, several actions were taken by CSHS and the University of Saskatchewan to further ensure financial sustainability of the course:

- The CSHS began early promotion of short course;
- The course was moved to mid-January from its original March timing, to allow professionals to avoid field-season conflicts;
- Course fees were changed to \$1000 for students and \$2500 for professionals.

**Figure 1 - CSHS Hydrology Short-Course Attendance.****Figure 2 - CSHS Short-Course Income**

2017 remained a successful year for the short course. The course attracted a total of 30 participants (20 students and 10 professionals). The 2017 short course generated approximately \$6,200 in revenue for CWRA.

Figure 1 illustrates the changes in attendance, and Figure 2 shows the changes in net income not including travel bursaries that were awarded during 2010 to 2013.

Planning for the 2018 Kananaskis short course is currently underway.

### Activity 2: Hydrological Model Stewardship Initiative

The CSHS continues to support numerical model stewardship for Canadian-developed numerical models, called the Canadian

Hydrological Model Stewardship (CHyMS) project. In 2015 the CWRA agreed to contribute to the support of a source-code server at the University of Waterloo, and to provide ongoing annual maintenance. CSHS this year launched the initiative officially, wrote an article about the project in WaterNews, and has formed a CHyMS steering committee, consisting of model developers across the country to direct the initiative. The team will be presenting progress at the 2017 CWRA Conference in Lethbridge, AB.

### Activity 3: New Principles of Hydrological Modelling Short Course

In view of the success of the Kananaskis Short-Course and the request from attendees of that course to provide a similar course related to numerical modelling in hydrology, CSHS will be running a course through the University of Waterloo that focuses on modelling techniques entitled "Principles of Hydrological Modelling". The course will be held June 19-24, 2017 and is currently sold out. The course summary is included here: [http://www.civil.uwaterloo.ca/jrcraig/CSHS\\_modeling\\_course.html](http://www.civil.uwaterloo.ca/jrcraig/CSHS_modeling_course.html).

### Activity 4: Canadian Hydrologist Certification Question

The CSHS executive continues to investigate the feasibility of Canadian hydrologist professional certification in Canada. In 2016 the CSHS executive disseminated an online survey which showed some strong interest in the CWRA/CSHS membership in having such a certification. The CSHS subsequently struck a Professional Hydrologist Certification Committee (PHCC) and with funding from the CWRA supported that committee with a consultant, so that a recommendations report could be provided to the CSHS articulating the recommended way forward. The PHCC will be presenting progress at the CSHS AGM in Lethbridge, AB, and will be providing their final report to the CSHS in the Fall of 2017. CSHS will be presenting their own recommendations to the CWRA at the mid-year CWRA Board meetings in early 2018.

### Activity 5: CSHS Webinars

The CSHS executive has continued to host CSHS webinars, but this year has introduced a fee structure for CSHS webinars. Webinars remain free for CSHS members, \$10 for CWRA (non-CSHS) members, and \$20 for others. The objective of this fee structure is to increase the value of the CSHS membership and to raise money to support the webinar platform for CWRA. During this first attempt CSHS appears to have garnered approximately 15 new CSHS members and raised \$70 directly through webinar registrations.

### Activity 6: Improved Communications and Outreach

The CSHS Director of Communications attends the CWRA Website and Communications Committee meetings, and as of this year has website editing permissions to maintain the CSHS website. Twitter activity has been increased substantially with the @CSHS\_Hydro account, with posts to the account almost daily. Currently we have 185 followers and the account activity (various metrics) has increased by at least 100% in the last four weeks.

### PROPOSED ACTIVITIES

#### a) Webinars

In 2017 and 2018, CSHS will continue to offer webinars to members on various hydrology-related topics. CSHS is targeting to host at least 4 webinars in 2017.

#### b) Kananaskis Short-Course

CSHS will continue to support and promote the University of

Saskatchewan's "Principles of Hydrology" short course. The short course will have its 9<sup>th</sup> year in 2018. Due to construction being held at the site of the short course, attendance is expected to be lower than in previous years, although the cost of renting the facilities will be reduced, likely alleviating any financial risk.

#### c) Modelling Short-Course

Considering the popularity of the new CSHS Principles of Hydrological Modelling Short Course this year, the CSHS executive will look to continue promoting the course in future years.

#### d) Hydrological Model Stewardship Initiative

Following a successful launch of the CHyMS program, CSHS will continue to work on growing the platform by including more model developers, models and practitioners in the project.

#### e) CWRA 70<sup>th</sup> Annual Conference, Lethbridge, AB

With assistance from the CSHS liaison Paul Whitfield, CSHS will host at least 5 sessions at the CWRA 70<sup>th</sup> annual conference in Lethbridge, AB. CSHS will also be hosting a technical workshop on R.

#### f) IAHS

The CSHS will develop its involvement with IAHS in support of the new research decade: Panta Rhei (everything flows). The CSHS will also be supporting The Canadian IAHS in support of the IUGG conference being held in Montreal in 2019.

### Communications

CSHS will continue to work with the website committee to improve CSHS content on the website, and to advertise CSHS webinars and activities more actively. 🇨🇦

# UPCOMING EVENTS



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

## 2017

**October 8-14** // 68<sup>th</sup> IEC and 23rd ICID Congress on Irrigation and Drainage, theme: Modernizing Irrigation and Drainage for a new Green Revolution, Mexico City, Mexico  
E-mail: [cnm@mxcid.org](mailto:cnm@mxcid.org), [brobles@tlaloc.imta.mx](mailto:brobles@tlaloc.imta.mx)

**October 13** // International Day for Disaster Reduction.

**October 16-21** // 2017 IFLA and CSLA World Congress and Summit.

**October 16** // World Design Summit in Montreal, Quebec.

**October 24-27** // The International Society of City and Regional Planners (ISOCARP) and the Oregon Chapter of the American Planning Association (OAPA)'s Joint International Conference, Smart Communities Conference, is held in Portland, Oregon.

**November 5 - 9** // Portland, Oregon. Annual Water Resources Conference, <http://bit.ly/2g2OgcZ>

**November 8** // World Town Planning Day

**December 5** // International Volunteer Day.

## 2018

**April 29 - May 2** // Ontario's Water Conference & Trade Show Niagara Falls, Ontario

**June 11-15** // AWWA ACE18 Las Vegas, Nevada

**July 19-22** // CIP/MPPI conference in Winnipeg, Manitoba.

**August 12-17** // 69<sup>th</sup> IEC and Local Congress on Irrigation and Drainage, Saskatoon, Saskatchewan.

## 2019

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

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

## 2020

**July 7-10**, 2020: CIP/PIBC conference in Whistler, British Columbia.



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