



# AQUA HACKING

SOMMET DE LA RIVIÈRE DES OUTAOUAIS /2015

LISTE DES PROBLÉMATIQUES  
ET PROPOSITIONS  
PLATEFORME USERVOICE  
DÉCEMBRE 2014.

## Grid of remote water sensors to monitor water quality at all time - "The Internet of Things" arrives the River!

New, inexpensive sensors can be coupled to microcontrollers and GPRS transmitter to continuously monitor and transmit information on water quality. See for example: <http://www.libelium.com/smart-water-sensors-monitor-water-quality-leakages-wastes-in-rivers-lakes-sea/> (We are not associated with this vendor. This information is provided for the benefit of the community.) Why not building a grid of such sensors, with GPS tagging, along with a server to receive and post all data, so to have a live and continuous monitoring of water quality over a complete geo-localized grid? We need hackers to get on board to make this one happen! We need sponsors like libellium to provide the hardware...

PS: Information from an active vendor in the field: Libelium launched a Smart Water wireless sensor platform to simplify remote water quality monitoring. Equipped with multiple sensors that measure a dozen of the most relevant water quality parameters, Waspote Smart Water is the first water quality-sensing platform to feature autonomous nodes that connect to the Cloud for real-time water control. Waspote Smart Water is suitable for potable water monitoring, chemical leakage detection in rivers, remote measurement of swimming pools and spas, and levels of seawater pollution. The water quality parameters measured include pH, dissolved oxygen (DO), oxidation-reduction potential (ORP), conductivity (salinity), turbidity, temperature and dissolved ions (Na<sup>+</sup>, Ca<sup>+</sup>, F<sup>-</sup>, Cl<sup>-</sup>, Br<sup>-</sup>, I<sup>-</sup>, Cu<sup>2+</sup>, K<sup>+</sup>, Mg<sup>2+</sup>, NO<sub>3</sub><sup>-</sup>).

The Waspote Smart Water platform is an ultra low-power sensor node designed for use in rugged environments and deployment in Smart Cities in hard-to-access locations to detect changes and potential risk to public health in real time.

### S. MASSET

Hacker -

### Autre

Technologue en environnement forestier et de la faune

### JESSIE OSBORNE

Hacker -

To keep it simple and short: I prototype electronic and software inventions. I've done them both professionally and for fun. This initiative has me intrigued so far. Feel free to look up my linkedin profile for my skillset.

### GREG D'SOUZA

Hacker -

## Implication de professionnel en communication

Aurez-vous besoin de professionnels en Com dans vos équipes de projets?

### LAURENT IMBAULT

Hacker -

## Pourquoi pas les réseaux sociaux?

Pourquoi pas mieux capitaliser sur les réseaux sociaux, et Facebook en particulier, pour mobiliser les communautés et fournir plus d'information?

### LUC SIROIS

Hacker -

## Nutrient pollution

I live downstream of a golf course and they are fertilizing the greens. The stream that runs through the golf course is carrying the fertilizers and pesticides into the stream and eventually into the Ottawa River. In the stream I see algae growth and som...

### DOMINIQUE MONCHAMP

Hacker -

## Calling all satellites and drones !

### Aerial mapping of shoreline evolution

Le suivi des rives de la rivière est un exercice très long et fastidieux. En faire les relevés et l'inventaire des composantes est un exercice manuel dans bien des cas. Appelons les images satellites et même des drones à la rescousse! Satellite, GIS, drones. Any work done from GIS people already?

### MIRANDA GRAY

Hacker -

## Citoyen engagé

I can't help the pun, but I hope you are going to "stream" events. If not let me know and I will throw my hat in the ring along with some of my time and technology. I own a small production company with my partner/spouse she loves to fish and I am a fly fisher and we will do our part to protect our rivers for the generations to come!

### BRIAN

Citoyen engagé -

## Citoyen engagé

Indice baignade- Une application détaillée qui indique comment est établi l'indice de baignade et qui applique cette méthode quotidiennement.

### KATHERIN ADAMS

Citoyen engagé -

## Moi aussi j'agis, une goutte à la fois

A ma naissance ma grand mère m'as nommé Aki Ikwe et je suis anishanabe. l'eau est ma priorité, afin d'assurer que les générations futures est accès à l'eau potable gratuitement. Chaque citoyenne, citoyen sont une goutte dans la rivière. Campagne de sensibilisation: les cours d'eau et le plastique, le droit humain à l'accès à l'eau propre...un jour à la fois, une goutte à la fois c'est ce que je propose..

### ANIK LAVIGNE

Citoyen engagé -

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### ANIK LAVIGNE

Citoyen engagé -

## Aménagement des rives de l'Outaouais

Planifier l'aménagement des zones riveraines de l'Outaouais pour les rendre accessible aux citoyens et permettre la navigation (voie navigable) tout au long de la Rivière des Outaouais jusqu'en Abitibi (moteur économique et touristique).

Transformer les eaux usées en biomasse pour générer de l'énergie aux communautés

### CHANTALE MORASSE

Citoyen engagé -

## Gestion de l'écosystème - faune et flore

- Inventaire faunique et floristique de la rivière (base de données) - Espèces menaçantes (comment faire grâce à une application pour les surveiller) - Créer une application pour déterminer les migrations d'espèces.

### OLIVER AMADOU

Citoyen engagé -

## Application web - Répertoire réglementation sur l'eau

Il serait fort intéressant de créer une application web regroupant toutes les politiques et règlements qui régissent l'eau au Canada ou au Québec. On pourrait diviser le tout par thème - eau potable, eaux usées, aménagement des berges et rives, protection des espèces, etc... on pourrait aussi diviser par différents paliers de gouvernements tels les municipalités, les ministères provinciaux, les ministères fédéraux, etc..

Il faudrait créer une application qui vulgarise le contenu des lois et règlement afin que nos élus puissent mieux comprendre leurs rôles et responsabilités ainsi que les outils qui sont mis à leur disposition.

Une organisation tel que le Centre québécois du droit de l'environnement (CQDE) pourrait être intéressé de contribuer?

Il pourrait y avoir des exemples de jurisprudence.

### GUY CARRIÈRE

Citoyen engagé -

## Ideas to make others think about the watershed

I read on twitter how a team in Russia had sent a bunch of GPS trackers down the toilets in Russia and provided a map of where the trackers went over time. It might be interesting to try something like this here to help people understand how water flows through the watershed. You can see their picture here: <http://t.co/eO5XmI79uf/r/n>

### MIRANDA GRAY

Citoyen engagé -

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### MIRANDA GRAY

Citoyen engagé -

## Open sewer dumping reporting tool

I am a pedestrian and from time to time I run across a street sewer which is clearly being used by a local restaurant to dump liquids. I'd like to see a tool for reporting these issues to someone for re-education or fines. I understand why restaurants (and food trucks) are tempted. Many of the things dumped are stinky and likely to clog the drains but when they are dumped into storm sewers they bypass sewage treatment before the water returns to the watershed.

**MIRANDA GRAY**

Citoyen engagé -

## Reporting on the health of the river

We want reports that are really helpful for average people. People taking the decisions are not scientists and experts / PhD, but must take decision. So water keepers use the swimability index, can I swim, can I drink, can I fish. One project could be to transform obscure reports into highly understandable ones by the user. There is also the geographical problem: Varies by sections, upstream, downstream of cities How they vary overtime

How you plan to solve it?

Research mapping - <http://nexalogy.com/> for social media tracking

**MIRANDA GRAY**

Citoyen engagé -

## Sewage tracker tool

Perhaps we could copy the "Is there sewage in the Chicago river" tool. You can see it in action at: <http://istheresewageinthechicagoriver.com/> Make sure to scroll down. Those are fascinating warning signs posted on the river front.

**MIRANDA GRAY**

Citoyen engagé -

## Pollution

With climate change, there are increasingly sudden rainfalls that saturate farmer's fields and then drain with chemicals into the streams exiting in the Ottawa River. How do we control this?

**PETER RANSON**

Citoyen engagé -

## Gestion de l'écosystème - faune et flore

- Inventaire faunique et floristique de la rivière (base de données) - Espèces menaçantes (comment faire grâce à une application pour les surveiller) - Créer une application pour déterminer les migrations d'espèces.

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## Geo information

Watchers often find themselves in a planning role and should have access to geographic information maps like the professionals, especially so in rural areas where technical information is usually in the hands of consultants. The Renfrew County GIS is a good example that should be available for every county in the Ottawa River Watershed. Ready access to passive maps like the RVCA Ottawa River Hazard maps, or the City's stormwater drainage maps etc should also be available. For rural areas especially, these maps should be in close proximity to Official Plan documents. It would be useful to simplify the OPs to focus on water related issues in easily understood language.

**JOHN ALLMSTEDT**

Citoyen engagé -

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**JOHN ALLMSTEDT**

Citoyen engagé -

## Develop a Model to Manage the Closure of Beaches in a More Timely Manner

Currently samples are taken after rain storms, it takes 24 hours to grow cultures to determine if the ecoli count is high enough to warrant closing of beaches for swimming. A model that can utilize various environmental factors including rain fall, can predict if the beach should be closed with subsequent sampling to verify.

The Candian Shellfish Sampling Program is an example of such a program developed to control the harvest of shellfish. [http://www.ec.gc.ca/indicateurs-indicators/72040A1A-9CFA-40B6-ACD4-6E2B4148141A/ShellfishGrowingArea\\_EN.pdf](http://www.ec.gc.ca/indicateurs-indicators/72040A1A-9CFA-40B6-ACD4-6E2B4148141A/ShellfishGrowingArea_EN.pdf)

**ANONYME**

Citoyen engagé -

## Engagement of shoreline residents in protecting the river

In the municipality where I have a cottage, many people have cut trees and planted grass to the shoreline. Some have dumped huge amounts of fill to raise the level of their land. Some regularly dump sand on their shoreline to create a beach (that later washes away). Some are not aware of the provincial regulations regarding shorelines; others are aware but don't care. Similarly, some are not aware of the septic system regulations and there are incidents of tanks not pumped out for many years and systems that are not in compliance with the regulations. The municipality does not proactively try to educate the public on these issues nor do they often enforce the laws, even when violations are brought to their attention.

▶ **VIRGINIA MACLATCHY**

Citoyen engagé -

## Madawaska River

Control of water levels and it's impact on watershed.

▶ **TIM LABENEK**

Citoyen engagé -

## water policy, river mapping, environmental conservation

Google Street is now a well know tool providing immersive views of our city streets, with info on points of interest along the way. Why not the same for our river?

I believe this has been done for the Amazon...

More then just views, the crowds could populate the "River-View" with key facts and information, even making it a reference, à la wikipedia, but with information being geo-localized.

We need hackers and volunteers to make this happen!  
We need to convince Google to get on board with it!

▶ **KORICE MOIR**

Citoyen engagé -

## Climate change, extreme weather events, meteorology, hydrology

Examine how climate change is presently affecting flow rates, timing of peaks and ebbs, water temperature and health and is projected to do so in the future. Examine how extreme weather events (torrential rains in river basins, like the Calgary flooding event; and localized torrential rains over the city, like the Toronto flooding event) will play out when such torrential rains hit Ottawa and regions.

▶ **PAUL BECKWITH**

Expert terrain -

## Water quality monitoring data

Developing a platform through which students can get engaged in water quality monitoring and contribute to the collection of official (and useful) data while learning.

▶ **INGRID KHOUZAM**

Expert terrain -

## Citizen data collection

Citizen engagement

▶ **MICHAEL MARTINEAU**

Expert terrain -

## Data Visualization

Real-time Visualization of latest quality data  
- Chart of water contaminants precursors in consumer products  
- Look up by bar code  
- Write a script to gather current readings on water quality / contaminants, and send to a performance monitoring as-a-service solution, for example DataDog (<https://datadoghq.com>).

▶ **NICK EDGAR**

Expert terrain -

## Use QR codes to facilitate information sharing and management of our beaches

Use QR codes to facilitate information sharing and management of our beaches. People could use their smartphone, capture the QR and quickly access up to date information on the quality of the water and the beach. This would also allow municipalities and government agencies to track activity levels for each beach.

▶ **JÉRÔME MARTY**

Expert terrain -

## Bluefish Canada's ideas for monitoring water quality

- standard list of parameters - collection of certain fish as "canary in cage" measure of water health

▶ **LAWRENCE EUTENEIER**

Expert terrain -

## General Comment on Preservation

Preservation is a very broad concept for this Aqua Hacking. A suggestion would be consider sub-themes like:  
- Preserving Water Quantity  
- Preserving Water Quality (chemistry, drinking water properties, swimmable areas etc...)  
- Preserving Water ecosystems (ecology, humans (health) and social and spiritual features)  
This would help sorting the numerous projects submitted.

▶ **JÉRÔME MARTY**

Expert terrain -

## Bluefish Canada's ideas for monitoring water quality

- standard list of parameters - collection of certain fish as "canary in cage" measure of water health

▶ **LAWRENCE EUTENEIER**

Expert terrain -

## An app for surfers and kayakers

How about an app that shows daily flows and fluctuations of flows for people who surf and go kayaking?

▶ **CHRISTOPHER ROSE**

Expert terrain -

## Use data visualization to educate and understand water quality

How to educate with the support of easy visualization of water pollution? How to accelerate and facilitate the visualization of data on water pollution? What would be the best platform for collecting and monitoring?

▶ **NICK EDGAR**

Expert terrain -

## The River View project: A "Google Street view" of the Ottawa river

Google Street is now a well know tool providing immersive views of our city streets, with info on points of interest along the way. Why not the same for our river?

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▶ **MIRANDA GRAY**

Expert terrain -

## Digital Social Awareness Plan

We realize we are sensibilizing, teaching, informing always to the same kind of person. How to reach the other people, the ones that are not interested.

How can we reach more people to add on water problems? How can we change their attitudes?

We need social media campaigns with digitized educational material.

▶ **MIRANDA GRAY**

Expert terrain -

## Water quality and wetland protection

We need clear shoreline regulations through the watershed as well as education and enforcement of these regulations! Shoreline destruction and modification is rampant in the watershed.

▶ **MEAGHAN MURPHY**

Expert terrain -

## Water quality

One issue is the runoff from the City of Ottawa snow disposal sites and how to reduce the amount of salts (chlorides) that flow into nearby waterways during the spring melt. Currently the only method of treatment is through dilution when runoff flows into treatment ponds and larger streams. Additionally there are not any hard limits for Chlorides over the long term and there is not good information about the impacts of these high concentrations of chlorides in spring melt on the biota that inhabit the streams that receive this runoff.

▶ **MEAGHAN MURPHY**

Expert terrain -

## Direct fish away from turbines

The problem:

Turbines impact how the water flows in the river. They also impact migration, prevent species from accessing the river. American eel, trouts, etc are endangered accordingly. eels travel up from the ocean into the river, live there for 10 years, then travel down back to the ocean. But, only few succeed traveling up, most get chopped up by the turbines. on the way down.

Could this be solved with sound or energy waves direct fishes away from turbines? Could hackers figure out such a solution?

▶ **HOWARD**

Expert terrain -

## Collaborative water governance

How to overcome challenges of distance, culture, language and improve effective interaction, communication and knowledge co-creation between actors and stakeholders across boundaries?

▶ **WIETSKA MEDEMA**

Influenceur -

## Recenser les espèces envahissantes et nuisibles

Développer une application pour recenser les observations d'espèces envahissantes (myriophylle à épis, moules zébrées) ou nuisibles (bernaches). Prendre une photo de nos observations avec nos coordonnées géographiques (GPS). Y intégrer des fiches explicatives sur les espèces pour faciliter l'identification. Ces informations seraient utiles aux municipalités et aux organismes de bassin versant.

▶ **ANNIE-FRANCE MAJOR**

Influenceur -

## An app for in-river monitoring for water quality and species

Challenge 1: Lack of easily accessible data repository on water quality (eg drinking water)\r\n\r\nChallenge 2: Lack of access to monitoring data from environmental assessments\r\n\r\nChallenge 3: App for anglers where they would record the site they caught fish, help identify species by submitting photos with geolocalization tag (an instagram for anglers)

▶ **JAMES SNIDER**

Influenceur -

## Children's Environmental Health & Community Engagement

Hello Aqua Hacking, \r\n\r\nI just saw that you followed us, Gumption Inc., on Twitter - thanks for your interest! I didn't know about your organization until now. I am looking forward to following you and hope that you will add me to your newsletter and keep me updated on your activities, videos, etc.\r\n\r\nI created Gumption Inc., a not-for-profit, which aims to mobilize, equip and empower individuals and communities with the resources, knowledge and structure they need to identify significant local health issues, determine possible environmental causes and implement sustainable solutions. I founded this organization in 2013 because too many friends of mine in the Parry Sound area, under 30, are suffering from cancer and other chronic illnesses. I'm trying to find out why! ...in this very round about way. :) \r\n\r\nGreat website, by the way! \r\n\r\nI hope we can connect in person in the future. \r\n\r\nAnna Martin, \r\n\r\nExecutive Director\r\n\r\nGumption Inc. \r\n\r\nwww.gumptioninc.org

▶ **ANNA MARTIN**

Influenceur -

## Engaging students

Developing a platform through which students can get engaged in water quality or watershed monitoring and contribute to collecting official data on these topics

▶ **ISRAEL POIRIER**

Influenceur -

## Storm water management

Get homeowners thinking about ways to responsibly manage their storm water footprint and ultimately help divert storm water run off from Ottawa's combined sewer system. May be create a free easy-to-use app that helps people 1. determine the volume of storm water collected on their property based on, for example, lot size and the roof's square footage; then 2. calculates the impact of such measures as installing a green roof, permeable laneway, rain barrel(s), rain gardens etc. with visual messages i.e. "congrats you diverted one Olympic-sized pool of water by installing three rain barrels". \r\n\r\nIt would also be interesting to figure out the dollar value of diverting one Olympic-sized pool of water, then we could have a conversation(s) about whether a homeowner prefers to pay this amount up front or in the form of municipal taxes; and share this info with key influencers at the municipal level.

▶ **RUTH MCKLUSKY**

Influenceur -

## Lutte au myriophylle à épis

Il est important que nous puissions partager les expériences qui ont réussi pour enrayer rapidement cette plante qui envahit nos lacs de façon exponentielle chaque année.

### ► DENISE CLOUTIER

Influenceur -

## Passionate about the Great Lakes, the social and environmental health of rural communities, and engaging in meaningful dialogue with people!

There is a lot of great research being done on water quality, soil health and precision agriculture. Particularly with precision agriculture, adopters and innovators are using it for one reason (for example, reducing costs, increasing yield), but there are water quality benefits that they aren't aware of. It's AMAZING to engage with these people, harness their enthusiasm, and help them understand that they can play an important part in improving water quality!

There are amazing people doing innovative research on their own farms about soil health and water quality. These are the people with vested interests in the environment and making a living - speaking with them can lead to incredible insights about on-farm challenges and concerns. I believe that by understanding their challenges, we can learn a lot about why stewardship practices are adopted, and why not. We can also use this information to better create funding and education programs that focus on the REAL priorities and barriers to adoption.

### ► JACQUI EMPSON LAPORTE

Influenceur -

## Jacqui Empson Laporte

Developing a platform through which students can get engaged in water quality or watershed monitoring and contribute to collecting official data on these topics

### ► ISAEL POIRIER

Influenceur -

## Water Awareness and Communication

I am the publisher of Canada's national business publication on all aspects of water. Founded in 2001, Water Canada magazine is published 6 times a year and has over 40,000 readers across the country. [www.watercanada.net](http://www.watercanada.net)

Our company also organizes the annual Water'sNext awards competition which celebrates individuals and organizations who have excelled in water policy, driven water innovation, set best practices and enhanced water quality and conservation in Canada. The 2015 Water'sNext awards will be held in conjunction with the 6th annual Canadian Water Summit being held on June 25, 2015 in Vancouver, BC. [www.watersummit.ca](http://www.watersummit.ca)

I would be pleased to work with AquaHacking on collaborative and influential directives which advance water awareness by citizens, governments and corporations and help communicate the issues of water use and water treatment in Canada.

- Todd

### ► TODD LATHAM

Influenceur -

La protection des rives par le maintien de la végétation ou par la re-naturalisation.

## ▶ CHARLES THÉRIAULT

Autre -

Small hydro development that operate with environmental disregard and destroy shoreline and sensitive wetland areas. A pro- hydro Ontario government that has not considered the environmental cost. A ministry of natural resources that is directed to be ...

## ▶ MIKE O'MALLEY

Autre -

We need to portect the rivers and lakes

## ▶ JULIE WYLIE

Autre -

We need to portect the lakes and rivers

## ▶ PETER JONES

Autre -

Bonjour ! Je suis écologiste aquatique sur Ottawa, spécialisé en qualité d'eau, espèces envahissantes et plancton. Je suis intéressé à apporter mon aide scientifique si besoin- Comme suggestion, il serait utile d'avoir des programmeurs pour mett...

## ▶ JEROME MARTY

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## ▶ RENÉ BERTHIAUME

Autre -

Plusieurs problèmes, mais celui prioritaire est relié l'enjeux de la qualité de l'eau: 1- absence d'installations septiques ou inadéquates 2- événements de surverses trop fréquentes ( amélioration du système/équipements et meilleure gestion de...

## ▶ RODRIGUE ISABELLE

Autre -

River edges erode and change over time. Why not using drones and automatic image analysis to capture and monitor the situation over time...

## ▶ LUC SIROIS

Autre -

## Jacqui Empson Laporte

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## ▶ ISAEEL POIRIER

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## ▶ RODRIGUE ISABELLE

Autre -

L'augmentation de la concentration des éléments nutritifs (phosphore, azote, etc.) et des matières en suspension vers les lacs et cours d'eau par les activités humaines telles les activités forestières (coupes et voirie), les travaux de voirie ...

## ▶ GENEVIÈVE GALLERAND

Autre -

The yamuna river, delhi ,india is very polluted. can u do any concern for that ?

## ▶ BHANU DUTT SHARMA

Autre -

Cinq défis en lien avec la rivière des Outaouais : 1. Trop de mains dans le même pot – beaucoup d'autorités gouvernementales impliquées dans la gestion de la rivière (plusieurs départements fédéraux et provinciaux – ON et QC, compagnies...

## ▶ JEAN YVES CARRIER

Autre -

We need a way to measure water levels accurately in remote portions of the river, like wetlands and report the information in real time to a publicly accessible web site or mobile app to allow monitoring on water level effects by hydro operations in sens...

## ▶ MIKE O'MALLEY

Autre -

I work in retail and we are required by the city of Ottawa to stock antibacterial soap in the washroom dispensers. It contains triclosan and sodium laureth ( -n ) sulphate. We should be allowed to choose a safer alternative....especially educating the pu...

## ▶ COLLEEN HULETT

Autre -

I have a drain at the bottom of a downward sloping drive way. A large volume of water is collected from rooftops and the street. How do I find out where that what goes once it hits that drain pipe? What is available in terms of front end filtration to...

## ▶ MARK KELLY

Autre -

Les usines de pâtes et papiers, pollution agricoles dans la region outaouais

## ▶ RACHEL BOURDON

Autre -

Une de nos préoccupations est les espèces aquatiques envahissantes, plus spécifiquement le myriophylle à épi. Tout récemment, nous avons fait l'achat d'une sonde pour identifier les plantes aquatiques. La sonde en question est Échosondeur Lowr...

## ▶ LUC SIROIS

Autre -

## Gestion de l'eau

Gaspillage d'eau dans un cadre scolaire.

## ▶ CLAUDIA RIBEIRO

Autre -

## Comparability and quality of water monitoring data

There is a need for standardized and accessible data.

## ▶ MARK

Autre -

## Social network for Water Researchers

A list of everyone doing research and publishing on the water related topics would enable greater collaboration and faster advances. What is the problem: A list of everyone doing research and publishing on topics relevant for water keeping and water man...

## ▶ MEREDITH BROWN

Autre -

## Le poisson que je mange, est-il bon?

Comment savoir si le poisson que j'ai pêché dans la rivière est consommable? How do I know if the fish I just caught can be eaten?

## ▶ MEREDITH BROWN

Autre -

## App to report suspicious activities on the river

Could we develop an app to report on poaching or illegal dumping? The issue also being that it must remain anonymous and still be efficient.

## ▶ MEREDITH BROWN

Autre -

## Pollution

With climate change, there are increasingly sudden rainfalls that saturate farmer's fields and then drain with chemicals into the streams exiting in the Ottawa River. How do we control this?

## ▶ JACQUI EMPSON

Autre -