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# Can citizen science activism come to the rescue?

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*A group of 36 students in Western University's Master of Arts in Journalism class has spent three months studying and reporting on citizen science. Over the next three weeks, we will be sharing our*



<http://rabble.ca/features/series/citizen-science>).

### While **the 'muzzling' of Canadian government scientists**

[http://www.thestar.com/news/canada/2013/04/01/information\\_commissioner\\_suzanne\\_legault\\_launching\\_probe\\_into\\_muzzling\\_of\\_government\\_scientists.html](http://www.thestar.com/news/canada/2013/04/01/information_commissioner_suzanne_legault_launching_probe_into_muzzling_of_government_scientists.html)) is worrying to some democracy advocates, citizen science activism is one movement that is providing greater transparency.

"I think, there's definitely an opportunity for citizens concerned in this area to speak up and speak out," says Tyler Sommers, coordinator at Democracy Watch. "I think that citizen science and any way citizens can become more engaged and learn more about their community and share what they've learned is incredibly valuable because it contributes to making our community a better place. People are upset about the way things work or the way things are. Getting involved in these sort of projects is a way for them to help make things just a little bit better."

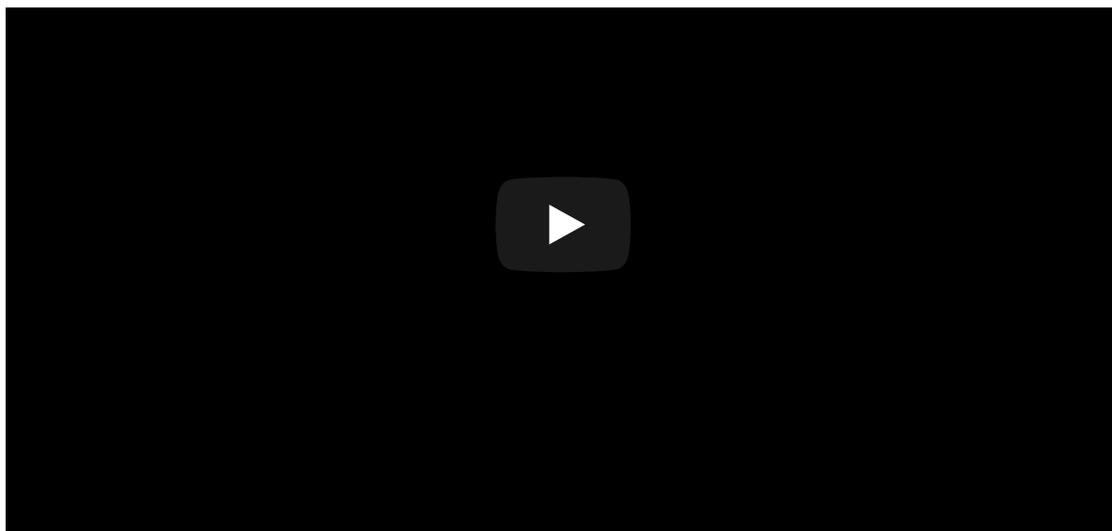
Citizen science activism is perhaps now more than ever necessary to ensure that science remains more open, accessible and inclusive. Science activism is about taking science out of labs and bringing it into communities to create positive, lasting change by engaging people, and incorporating their testimonies into the research.

### 'No more research about us without us'

Today, community members want to see themselves better reflected in the science taking place around them, and it's being advocated for more and more. Ben Duncan is a program manager in the health equity initiative at the Multnomah county health department. He believes citizen science allows communities to take greater ownership of the issues that affect them. Citizen science activism also ensures that the knowledge and expertise remains open to include the very people it impacts.

Duncan says there are regions in Oregon, where he lives, that have a high proportion of people living with cancer. These regions are known as "cancer clusters." Although links can't always be found from analyzing scientific data, Duncan believes communities can play a larger role in advancing policy by sharing their own stories when pure causative links aren't present.

"My hope is that we continue to move citizen science to that kind of community-based participatory research model, and have people not just help in collecting data, but actually help drive what the research looks like," says Duncan.



(Interview with Ben Duncan.)

### **Ordinary citizens pairing personal Narratives with quantitative data**

Duncan believes that individuals or companies who only use hard data to show what is happening in their community are going to "lose out," especially when trying to advance public policy. "The experience and the narrative of communities when they're dealing with policy that relates to scientific exposure issues adds strength to the research," says the health advocate.

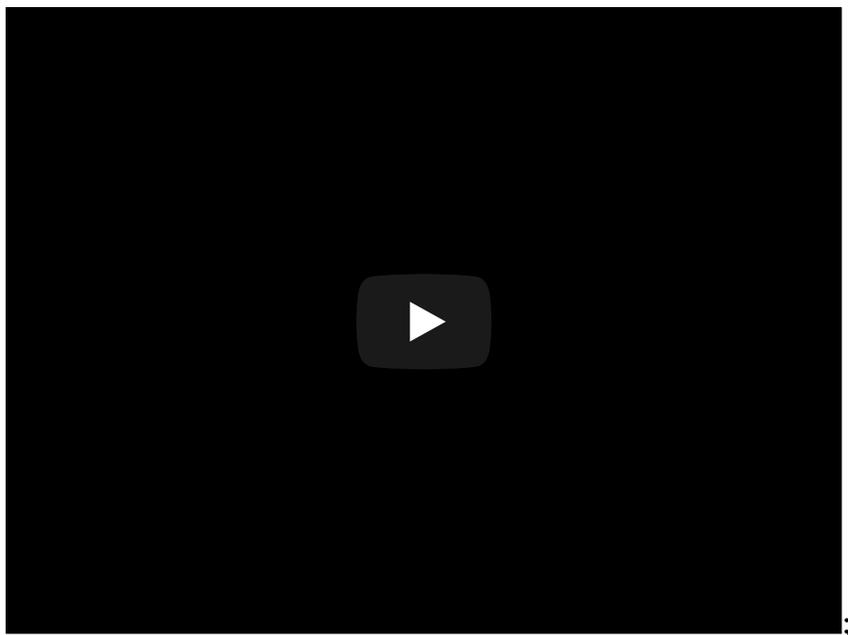
"It's what's so exciting about citizen science and community-based participatory research. You're both taking the expertise of the academic and overlaying it with the expertise of the community. And oftentimes, that expertise looks and sounds very different. The community perspective is from the heart, and the science perspective is from the brain."

Making personal stories a part of the research is a key component of citizen science activism. Pairing qualitative personal narratives with quantitative 'hard data' validates the experiences of community members, and gives activists the tools they need to create positive change.

Anne Rolfes, founder of the Louisiana Bucket Brigade, also believes that people's experiences should help shape science. Her non-profit, grassroots organization works with communities that neighbour oil refineries to monitor air quality by using air sampling 'buckets'. Rolfes is certain that incorporating people's experiences into the research makes science better.



Ordinary citizens become citizen science activists when they have the tools to not only collect hard data, but also incorporate what they experience day-to-day into the scientific research. People are then able to advocate for change using science that reflects their experience and speaks to the needs of their community.



(Anne Rolfes interview.)

Gregor MacLennan, was a Project Coordinator with Amazon Watch, and a part of a citizen science project in Peru that involved giving GPS locators to the Achuar people of the Amazon. Thirty-five different Achuar communities were taught how to use GPS locators and cameras in order to capture data that showed the effects of oil spills from nearby drilling projects.

The Achuar had been telling their governments and the oil companies that the spills were polluting rivers and streams, but their pleas were largely ignored. Knowing they needed scientific data to prove their case particularly in the eyes of the government and the oil company. The Achuar approached MacLennan to help them prove scientifically what they already knew through personal experience.

The Achuar eventually used the hard data they gathered along with their personal testimonies to challenge the polluting oil companies and government representatives.

"When you're denying that an oil spill happened and someone has a photo of it, I think it really lends credibility. But the testimony and the personal stories are also part of the science, because part of what is

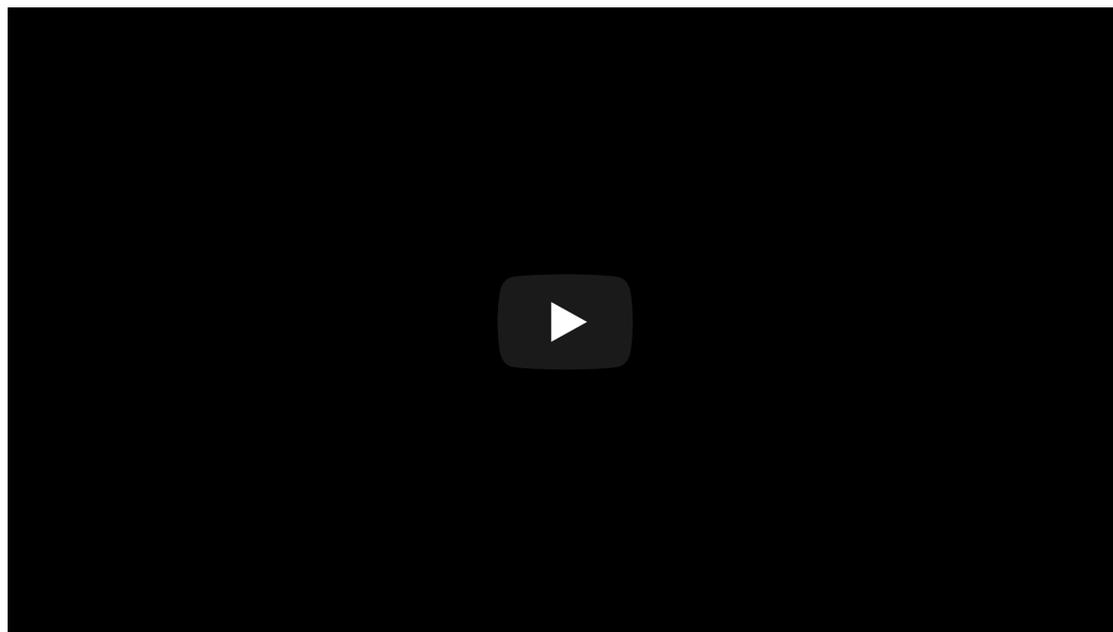


MacLennan believes that personal stories are what advocacy strategies need because they engage people and make them interested.

### **Community-based science vs. citizen science**

Another important issue in citizen science activism is language because it has the capacity to connect or divide people.

ZoAnn Morten is the executive director of Pacific Streamkeepers Federation, a non-profit organization that works to preserve local waterways in B.C. and the Yukon. She prefers to call the work she does advocacy because of the negative connotations associated with the word 'activism' in Western Canada. "I have found that if I'm really cautious with my words that I can get into rooms that I wouldn't be invited into otherwise, and then my voice can be heard," says Morten.



(Interview with ZoAnn Morten)

For Ben Duncan, at the Multnomah county health department, shifting rhetoric and language is one way to make citizen science more inclusive. "In the United States, the concept of citizenship is a political one. It's also rife with a lot of social injustice and marginalization with folks that are undocumented or don't have citizenship," says Duncan. In an effort to remain inclusive, Duncan prefers to use the words 'community-based' or 'participatory science' because they don't carry politically alienating connotations.



"Being able to be seen as a rigorous scientist without bias can be a real challenge [for citizen scientists]," says Duncan. However, he thinks this perception might shift if participatory research is encouraged and legitimized in academia. "Scientific research can be used to better the world. I think a lot of people who go into this work do it because they have this vision," says Duncan. In fact, he would like to see academic structures like the process for tenure examined, and scientific journals to create more space to acknowledge a qualitative community-based partnership approach as a way to advance ideas and public policy.

Professor Muki Haklay is the co-director of Extreme Citizen Science, which brings together scientists and non-scientists to conduct scientific research about issues such as air pollution Haklay believes scientists should include the public in their work because the public for the most part funds science.

"I see it as their obligation to work together with people. It's part of their civic action," says Haklay. "Science is a sort of truth about the world. It's independent. It's objective. It's disinterested, and therefore apolitical."

### **How technology helps to drive citizen science activism**

Rayan Makarem, is a campaigner with Greenpeace Lebanon. When his organization suspected their coastline was becoming increasingly polluted as a result of industry, they needed scientific proof. The Lebanese government wasn't interesting in releasing any information to the environmental organization, and Greenpeace only had six employees. So, Makarem and his team recruited citizen science activists through the use of a dynamic website and social media to participate in a 'secret mission' to help conduct the labour intensive research.

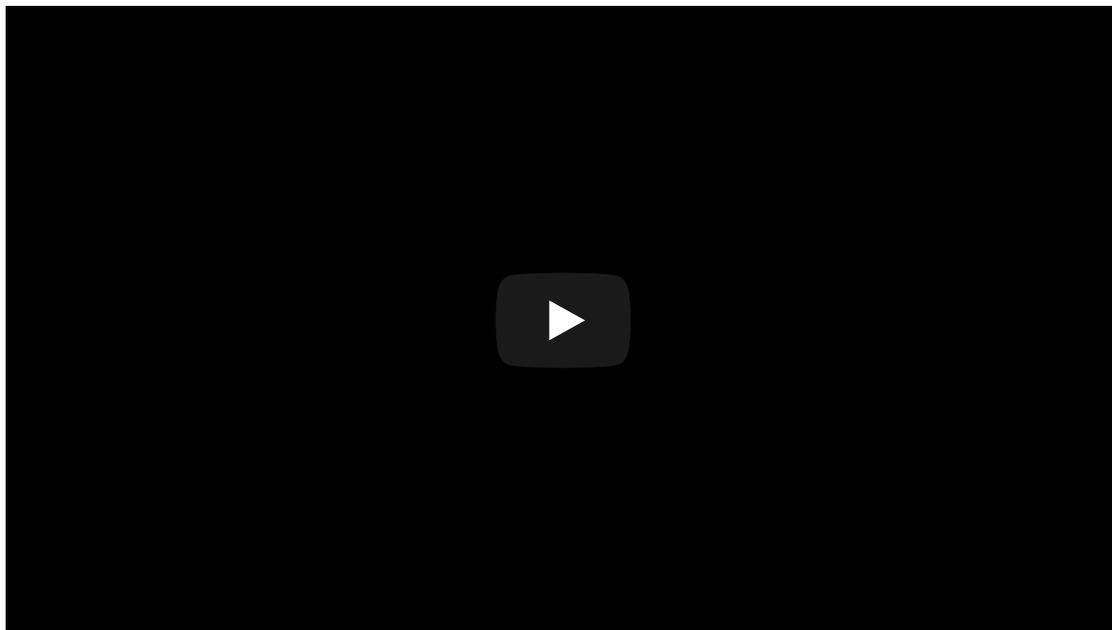
"We [created] this beautiful website that we had called GP Secret Mission. People would sign up and once they were signed up they would get an email from us saying you're in on our 'secret' which is exposing our polluters on the coast." Makarem recognized early on the importance of using social media to spread the word and generate participation. In fact, his organization now devotes part of their communication efforts to those specific areas alone.

"We [now] have a communications department that's divided into classic communication and into new media communication. New social media has been vital in building online support for our organization," he says.



tools have evolved, social media has made it easier for him to connect and stay in contact with fishermen in remote communities who he works with to save sea turtles.

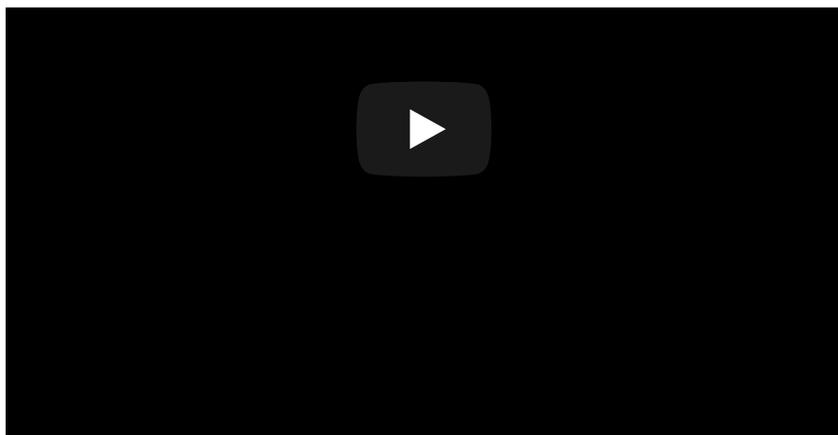
But technology isn't everything for him. "Still the most important piece is face-to -ace, sitting down, being in the same room together," says Nichols. "It's about building that trust and that relationship."



(Interview with Wallace J. Nichols)

## Conclusion

Citizen science activism has the power to not only change communities, but also transform ordinary citizens into activists. Bob Gelling is a 68-year-old retired railway worker who lives in North Vancouver. He stumbled upon the Pacific Streamkeepers Federation in a park one day, and joined just for fun.



(Bob Gelling interview.)

Gelling had no scientific background, and no activist leanings prior to joining. But, today he has become a Streamkeepers enthusiast, monitoring construction sites to ensure their waste isn't draining into nearby creeks. Gelling is an example of how community science can foster a new awareness of once coveted scientific knowledge, and inspire action.

"We're always telling kids you gotta' take care of the environment because it won't be here forever," says Gelling. "We have pamphlets, banners, and posters, and we give kids stickers with fish on them. When people go away, they know Streamkeepers are alive and well in North Vancouver, doing their thing."

*Andrea Smith, Dalal Kheder, Idil Mussa, Natalie Paddon are journalism students at the University of Western Ontario -- part of a team producing this Citizen Science series for co-publication by rabble.ca and The Tyee.*

### **Coming up next week: Is citizen science actually science?**

*From microscopic bacteria to counting different species of turtles, regular citizens are getting involved in all kinds of academic projects. Some are even taking charge of treatments options for their health by participating in projects to develop preventative medicine.*



*Partnership in Washington State, are not fully convinced.*

*"I don't think if skeptical is the right word but you've to be a bit choosy. If I was going to use data, I would want to know if there's some quality assurance plan and method to how the data is collected and analyzed," said Hamel.*

*While others we spoke to are big proponents of citizen science and think it may even be the future of academic pursuits.*

*"These are the first trickles of what will be an avalanche of a change in funding structures and a change in just the way science is perceived, less as an expert activity but something everyone can do," says Jessica Richman of the uBiome project. Human bodies are made up of trillions of bacteria and the uBiome project involves the public in collecting samples and testing hypotheses.*

*Next week we ask the question: Is citizen science actually science? We'll highlight what citizen science efforts are accomplishing and address issues raised by professionals about the importance of training, protocols and quality of data collection.*

## **Further reading**

-**Extreme Citizen Science** (<http://www.ucl.ac.uk/excites>), University College London, London, United Kingdom

-**Louisiana Bucket Brigade** (<http://www.labucketbrigade.org/>), New Orleans, Louisiana, United States of America

-**Citizen Scientists: Reconnecting science with civil society** ([http://www.demos.co.uk/files/Citizen\\_Scientists\\_-\\_web.pdf](http://www.demos.co.uk/files/Citizen_Scientists_-_web.pdf)), by Jack Stilgoe

-**Turtle Watch** (<http://turtlewatch.net/>).

-**Democracy Watch** (<http://democracywatch.ca/>), Ottawa, Ontario, Canada

-**Open Watch** (<https://www.openwatch.net/>).