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WATERAX
MAGAZINE

Volume 3

On the Road
with Watson



Vision, Reliability and
R&D: An Interview
with Raffaele Gerbasi,
WATERAX President



Testing the MARK-3®
Watson Edition
in Maniwaki



Continuing to move water

Although COVID-19 has brought many aspects of our lives to a grinding halt, wildfires continue to have a devastating impact on our forests and our communities. This is why WATERAX never stopped working to continue improving and developing the new MARK-3® Watson Edition, and to provide wildland firefighters with the equipment they need. Take a look at our progress and advancements in the Ax Magazine Volume 3.

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WATERAX...
We Move Forward

Our Planet is Burning

“

Rising temperatures continue to melt records. The past decade was the hottest on record. One million species are in near-term danger of extinction. Our planet is burning.”

António Guterres / United Nations Secretary-General

The scale of the devastation over the past year is a stunning example of the horrific impact of wildland fires in an increasingly unpredictable world. At WATERAX, we work day in, day out to provide wildland firefighters with the next-generation tools they need to fight fires, save lives and protect communities. The fire-related catastrophes around the world make us more committed than ever to engineer, test and build the best possible products to support the heroic work of firefighters all around our planet.



Australia

- 5.8 million hectares—more than 20% of Australia's forests—were burned
- At least 34 people were killed and countless communities were evacuated
- 1 billion animals are estimated to have died
- 3,000 homes and thousands of other buildings were destroyed
- Billions of dollars worth of damage was caused by fires, in addition to immense human distress

The latest data indicates that the 2019-2020 Australian wildland fires followed years of chronic drought and Australia recorded its warmest temperatures ever in December 2019.

Special Deliveries from WATERAX

Shortly before Christmas 2019, teams of American and Canadian firefighters from across the continent answered Australia's call for assistance to contain their deadly forest fires and flew down under to help. WATERAX was thrilled to send holiday care packages to these outstanding women and men, as a token of the respect we have for their courage and generosity. <https://youtu.be/D4mz53u2fZI>



California

- Cal Fire and the US Forest Service reported 6,506 separate fires in California²
 - Over 1.2 million acres burned in California this year¹
 - The Governor of California called on Australian and Canadian wildland firefighters for support
- “ We are essentially living in a mega-fire era.”
- Jake Hess** / California Fire Unit Chief¹

Fueled by global warming, prolonged and extreme drought, and record-breaking high winds, the 2020 wildland fire season in California has been the most destructive on record.

With its 40 million inhabitants making it the most populated US state, California is being ravaged by wildland forest fires that are destroying vast tracts of land and encroaching on residential areas, causing billions of dollars worth of property damage and intense emotional distress. In addition to this, these fires are also the cause of dangerous levels of air pollution, which are especially hazardous in the era of COVID-19.

1. Singh M. California: firefighters begin to turn tide but warn that 'mega-fire era' has arrived. August 26, 2020. The Guardian. <https://www.theguardian.com/us-news/2020/aug/25/california-fires-hope-warning-lifted-deadliest-blaze-25-contained> Accessed: August 28, 2020.

2. California Department of Forestry and Fire Protection. <https://www.fire.ca.gov/stats-events/> Accessed: August 28, 2020.



On the Road with Watson



Interrupting

#OnTheRoadWithWatson

When the shelter-in-place order was given, the WATERAX #OnTheRoadWithWatson tour came to a temporary halt, leaving Alex and Zach out in British Columbia. Here are pictures of what van life was like during quarantine.

In July, after several weeks confined in BC, Alex and Zach were finally able to make their way back to Montreal. Since their return, they have been hard at work across the province of Quebec field testing the MARK-3® Watson Edition.

Contact us via [watson.waterax.com](https://www.watson.waterax.com) if you're interested in an on-site demonstration and we'll do our best to add you to our tour schedule. We look forward to being back on the road and meeting you when it's safe to do so!



“

Despite the challenging situation, we were able to make the best of it by **working remotely and enjoying the outdoors** safely in British Columbia.”

Alexandra Lampron / WATERAX Products Specialist



“

Making the move back East in July allowed us to have an **active role in the exciting project of field testing the MARK-3® Watson Edition.**”

Zacharie Grigg / WATERAX Products Specialist





Firefighter Profile: An Interview with **Amanda Monthei**



Amanda Monthei, Firefighter, writer and winner of a wildland fire digital storytelling grant

Amanda is a freelance outdoor writer and former hotshot with the US Forest Service. She was a writer before becoming a firefighter, working primarily as a freelancer in the outdoor industry before getting a job with the Forest Service in 2016. Amanda recently shared her thoughts on her life, creativity and careers.

The Wildland Fire Digital Storytelling Grant, part of “The Smokey Generation”

I did a multimedia (video, photo and writing) project about some of the first women to work on the hotshot crew that I’ve worked on for the last two seasons. I spoke with a number of women who were pioneers in the fire world—being some of the first female hotshots not just on their crew but also in the country. It was awesome to be able to give them a platform to share their experiences, but the coolest part for me was to speak with them and realize that as different as our hotshotting experiences were (some of them were in my position 40 years ago!), there’s actually a lot we were able to relate over, as well. It felt like a really cool generational link that seems rare right now.

Creative and storytelling background

I’ve been a freelance writer for about seven years now. I’ve worked for newspapers and magazines in the past as well, but have found that freelance writing just jives with my lifestyle more than staff positions do. A defining element of my life is that I don’t really get along with desks.

The attraction of firefighting

I had some girlfriends who’d been doing it and I was like, hey, that looks pretty fun. So, I got some training and ended up with a job with Forest Service in Idaho in 2016. The challenging nature of the job is what attracted me to it and kept me coming back the last few seasons (though as of right now I may be taking this summer off). Fire really sucks sometimes and learning how to deal with the “suck” while also working hard, seeing beautiful places and having a good time with people who you get really close to over the course of multiple summers—it’s indescribable and quite addictive.

Working with the MARK-3® pump

Hah! For me, being put in charge of the MARK-3® is the scariest assignment I can get. I have a decent amount of experience with them, but they still often require a lot of problem solving and running around to make sure things are working effectively. You don’t want to have a problem with your water system when sh*t hits the fan, so being responsible for getting water to the line is about as high stress as it gets for

me. It’s also a huge source of pride for me to get one fired up without assistance. Always a good feeling.

Combining firefighting and writing

Manual labor and writing are an essential combination for me. I don’t think I could do one of them without the other. The biggest thing for me is having the time and space to think up new ideas while traveling to fires or working on the line.

“
Always consider
the people who
came before
you, consider
the work they
put in to make
your job more
diverse”

You have a lot of time where you’re not doing super intense stuff (digging indirect line, mopping up, hiking into fires, etc.) and you can allow your mind to wander. It’s like how you always get your best ideas while driving or showering or going on long walks (maybe this is just me...) but I think there’s a lot to be said about not always being in writing mode and just allowing your brain to go on autopilot, for lack of a better word. To be clear, I’m not on autopilot when we’re performing burnouts or digging hot line or working in sketchy situations, but there are plenty of moments in fire that are almost meditative in their repetitiveness.

When I was a kid

I always knew I wanted to write, but had never considered fighting fires until the year before I got my first job in fire. I always wanted to be an archaeologist, actually. Pursuing two careers at once like this was never really presented as an option in high school and college, but it's been incredibly gratifying to be able to make it work.

What I'd like people to remember

Particularly as a woman, to always consider the people who came before you, to consider the work they put in to make your job more diverse, more welcoming, more accepting and safe for both women and people of colour. I guess it comes down to respecting your elders and to put the time in to understanding more about their experiences. Being able to document the experiences of just a handful of these women was a privilege and I look forward to speaking with more women and continuing this project.

The Smokey Generation is a wildland fire oral history and digital storytelling project dedicated to collecting, preserving, and sharing the stories and oral history of wildland fire. To find out more, visit thesmokeygeneration.com.

We're excited to have sponsored another year with The American Wildfire Experience (The Smokey Generation's parent organization) and their 2020 Wildland Fire Digital Storytelling Micro-grant Winners!

Chosen from among many talented applicants, these selectees represent a cross-section of wildland firefighters and practitioners from all over the world intent on telling the story of wildland fire in creative, authentic, insightful, and compelling ways. Visit the website to learn more about our grantees and their projects:
<http://wildfire-experience.org/2020-micro-grant-winners>

See Amanda's work

amandamonthei.com
[instagram.com/A_monthei/](https://www.instagram.com/A_monthei/)
vimeo.com/user11565090

Courtesy of Amanda Monthei

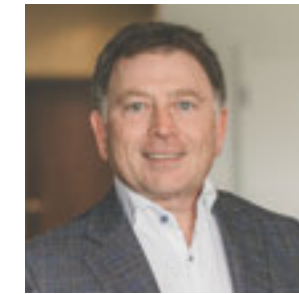


WATERAX at Wildland Fire Canada 2019

The WATERAX team was proud to take part in *Wildland Fire Canada 2019* at the Delta Ottawa City Centre hotel at the end of November. The theme for the conference was new paths and new partnerships, paving the way for research and technology in wildland fire initiatives.

We were thrilled to introduce the newest member of the **MARK-3®** family, the **MARK-3® Watson Edition**. Featuring popular elements from the past with a stack of modern advances, this project represents a major innovation in forest firefighting and has never been undertaken anywhere before.

The **Watson Edition** is a pump for firefighters of today and tomorrow, using modern technology that plugs right into your current **MARK-3®** water-moving systems.



“ We would like to thank Wildland Fire Canada for hosting the congress. It is a great platform for us all to share experiences and best practices. Also, we’d like to thank all firefighters. Your work is what inspires us to spearhead innovation and challenge ourselves to find safer, more efficient ways to move water and fight fire. This has been a big year for us. After a century of building high pressure fire pumps, we can say that sometimes history is worth repeating.”

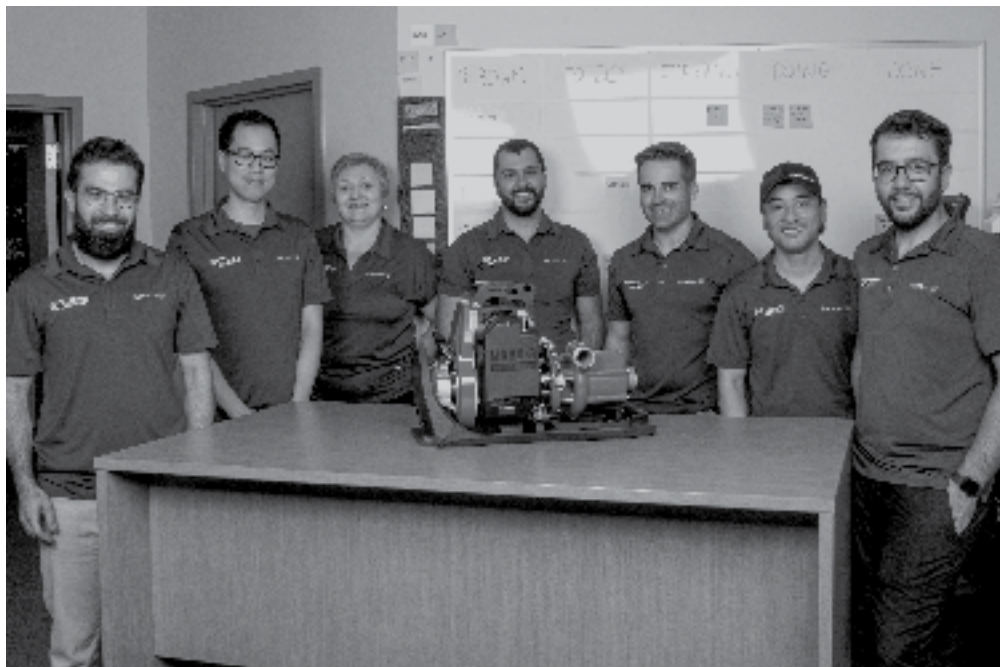
Raffaele Gerbasi
President, WATERAX



“ Our inspiration and drive comes from our profound respect for the courage, strength and determination that we see every time we meet with the firefighters who use and depend on our products. Today more than ever, we know that we must work together to ensure that we are properly equipped to deal with wildland fires. We believe that our village has never been stronger. On behalf of the entire WATERAX team, thank you for trusting us to move water when you need it the most.”

Marcello Iacovella
VP Sales & Business
Development, WATERAX

Vision, Reliability and R&D: An Interview with **Raffaele Gerbasi**



Top: Raffaele Gerbasi, WATERAX President / Bottom: Engineering team
Samer Fawaz, Norith Tan, Elena Tretiakova, Rabih Bouyakdan,
Frédéric Lefrançois, Jakson Yu, Jonathan Bousquet

The MARK-3® is an iconic pump that's been trusted by firefighters for decades. What makes the pump so popular?

The MARK-3® pump has been around since the early 1960s. Around the world the standards were written for that pump! Firefighters learn how to fight fires with the MARK-3® and they spend their careers using that pump. It's the most widely used pump in forest firefighting, and in fact we say that the MARK-3® pump has likely moved more water fighting forest fires than all other pumps combined.

Given the success of the MARK-3® series, why did you decide to make changes?

Our purpose at WATERAX is to help wildland firefighters move water. And one of their most important tools is the lightweight MARK-3® fire pump. We felt that we had an important product, that firefighters depend on, and that it needed to evolve technologically. Customers had been asking about new technologies to make the MARK-3® easier to handle and lighter. For us it was important to respond to their needs.

Did the request to make a lighter and improved pump come from firefighters?

Yes. Over the years, firefighters have always asked if there was a way to engineer a pump that's lighter, easier to start and easier to store. There's also a lot more diversity in the firefighting community than before. Some firefighters are smaller and lighter, and although the MARK-3® is extremely reliable, it can be a hard pump to start. The one thing that firefighters did not ask for is reliability. They don't ask for that because reliability is implicit. Reliability is a "must-have", it's a deal breaker if a pump isn't reliable. Every other fancy feature is completely off the table if a pump isn't reliable. Firefighters have always counted on the reliability of the MARK-3® pump. They know that a MARK-3® will run all day long, while maintaining pressure and performance. Other companies have tried to make lighter pumps, but firefighters need performance they can 100% trust.

Can you tell us about the role of R&D at WATERAX?

R&D is a key part of who we are at WATERAX. We're always looking to improve our products and take them to the next level. A big challenge for our R&D engineers is to take our

customers' requirements—and their ideas—and convert them into real products that we can then manufacture.

Because the MARK-3® is the "gold standard" fire pump, did you have concerns when you started the project?

Our main concern was that to reduce weight and size, we had to design a purpose-built engine. It was the first time a pump manufacturer custom-designed their own engine! It was a major challenge because we know that the engine is crucial for a pump's reliability and performance. We addressed some of these concerns by partnering with the right people: experts with a proven track record designing reliable engines. To achieve the same horsepower from a smaller and lighter engine was an incredible accomplishment.

“
**We're always
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the next level”**

When you think about the development of the MARK-3® Watson Edition, what are you most proud of?

We're really proud to have built a pump that's smaller, 30% lighter and both looks and works great. We're also very proud to have run several pumps for over 100 hours. That's a big step that shows just how reliable the engine is. To get that level of endurance on a number of units was a very proud moment for our entire team. The other thing that made us proud is the reaction of our customers. We went on a cross-country tour to show the MARK-3® Watson Edition to customers and gave them the chance to demo the pump outdoors. The feedback was very, very positive. It gave us a huge boost!

Building the Right Frame for the MARK-3[®] Watson Edition



Samer Fawaz, Mechanical Test Engineer

Room for Improvement

MARK-3[®] fire pumps are often used in rugged environments and extreme situations. They are very durable units that can endure a lot but they do sustain damage occasionally. One susceptible area is the steel frame. When falling from certain heights, the frame can get bent, distorted, and/or cracked. Vibration over the years can cause cracks in the frame welds which can require repair. As for backpacking, the frame must be attached to a separate carrying device which is not ideal since wildland firefighters have tight constraints on how much they can carry and the current carrying device can be quite uncomfortable as well. Finally, when we gathered feedback from firefighters, they indicated that the frame was susceptible to sinking into the ground in muddy or swampy terrain.

Designing a New Frame

Given these realities, our team set out to design a completely reimagined frame for the MARK-3[®] Watson Edition. We started by experimenting with different materials and decided on a very tough type of composite that has the highest impact strength of any thermoplastic material presently made. It is lighter than steel, has impressive vibration dampening properties, and can be moulded into any shape. We also designed angled engine vibration mounts that greatly increase vibration absorption.

The Right Shape

Our design was inspired by a snowshoe concept. It provides over 230% more contact area than the previous frame and greatly improves grounding in uneven terrain. We tested the new frame with wildland firefighters during our 2019 Watson tour and



participants were highly impressed with its buoyancy! They also appreciated the added comfort from the ergonomic design of the integrated backpack with military-grade Fidlock® quick-release carrying straps.

Endurance Tests

Endurance testing had already shown improved vibration dampening that will diminish frame fatigue and premature failure. The one thing that could not be tested in the field was its resistance to drops so our engineering team conducted a series of drop tests in the laboratory.

**Frame Drop Testing:
MARK-3® vs Watson Edition**

The drop tests were performed from different heights and orientations. The results demonstrated improved shock absorption and resistance caused by impact thanks to the new frame's flexibility.

Results and Observations

Drop Height	Unit Orientation	MARK-3®	Watson Edition
15"	Flat	No deformation	No deformation
30"	Flat	Slight crossmember distortion	No deformation
48"	Flat	Heavy crossmember distortion	No deformation

Drop Height	Unit Orientation	MARK-3®	Watson Edition
15"	90 degree	.75" handle deformation	No deformation
30"	90 degree	1.5" handle deformation	.25" handle deformation

Discipline, Training & Privilege: An Interview with **Mario Janson**



Mario Janson, Sales Manager at WATERAX

You worked for 10 years for the Royal Canadian Navy. Can you tell us about your position and your experience?

As a Marine Engineering Technician on a River-class destroyer, I was responsible for the safe operation of the boiler room to produce superheated high-pressure steam to supply the propulsion system, power generation, auxiliary equipment, distillation of boiler feed water and potable water, transfer of distillate, and at-sea refueling with Canadian and foreign tankers.

In your position at WATERAX, how do you draw on your experience in the Navy?

Together, the Navy's discipline and my professional training allowed me to gather technical knowledge on multiple types of equipment, like steam turbine driven pumps, diesel and steam driven generators, hydraulic systems and refrigeration compressors. This helped me learn the technical aspects of the equipment manufactured by WATERAX.

What do you like most about your position as sales manager at WATERAX?

The company's mission and the market we serve are very exciting, and the fact that WATERAX is constantly looking to innovate with new products makes it easy to support existing customers and prospect for new business.

You took part in the Watson road tour. What was it like meeting up with firefighters around the continent?

It was a privilege to have the chance to be part of this tour—with an awesome

team—and be the first one to show wildland firefighters the new technology and innovation that will be coming to them in the very near future. The smiles and positive comments from all levels sure made it worth the 23,000 kilometers and the month we spent on the road!

“
WATERAX
is **constantly**
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with new
products”

How do you see the introduction of the MARK-3® Watson Edition?

What impact do you think it will have on wildland firefighters around the world?

The new MARK-3® Watson Edition will be a game-changer in the industry and for all wildland firefighters around the world due to all its new attributes—from its light weight and ease of operation to the new user interface which facilitates information gathering. The safety and training of wildland firefighters will be drastically improved with the MARK-3® Watson Edition.



Testing the MARK-3[®] Watson Edition in Maniwaki

At the end of June 2020, Cédric Mainville, Head of land operations, and Martin Mantha, Equipment and infrastructure controller, at Quebec's *Société de protection des forêts contre le feu* (SOPFEU), welcomed WATERAX team members Mario Janson and Frédéric Lefrançois for a comprehensive on-site trial of the MARK-3[®] Watson Edition in Maniwaki. The goal was to run the new pump in field conditions as close to wildland fire as possible.

The choice of the site and the participants was exceptional!

The setting and terrain were truly appropriate, but without the danger of exposing people to a real fire. Going into the trial, the WATERAX team had 3 objectives:

- To confirm that the advantages of the MARK-3[®] Watson Edition resound with front line wildland firefighters.
- To familiarize wildland firefighters with the new platform.
- To determine if the MARK-3[®] Watson Edition is ready for deployment to fight fires.

The MARK-3® Watson Edition really impressed the firefighters in Maniwaki last summer. All four firefighters started the pump and got comfortable with it in record time. Firefighters who took part concluded that:

01 The 16 lb reduction in weight is a major advantage for firefighters

02 The new frame and harness are very comfortable and easy to use.

03 The pump is very easy to start (“it’s like starting a lawn mower”).

04 The new purge bulb is a practical way to prevent flooding the engine.

05 The LED with operation codes is a very useful addition that facilitates firefighter training.

06 The performance was impressive (3 hose lengths with a ½” nozzle).

We’d like to thank the team at SOPFEU for the opportunity to test the MARK-3® Watson Edition alongside their team! Testing of the MARK-3® Watson Edition continues.



Mario Janson (on the right) and the SOPFEU team

WATERAX... We Move Forward

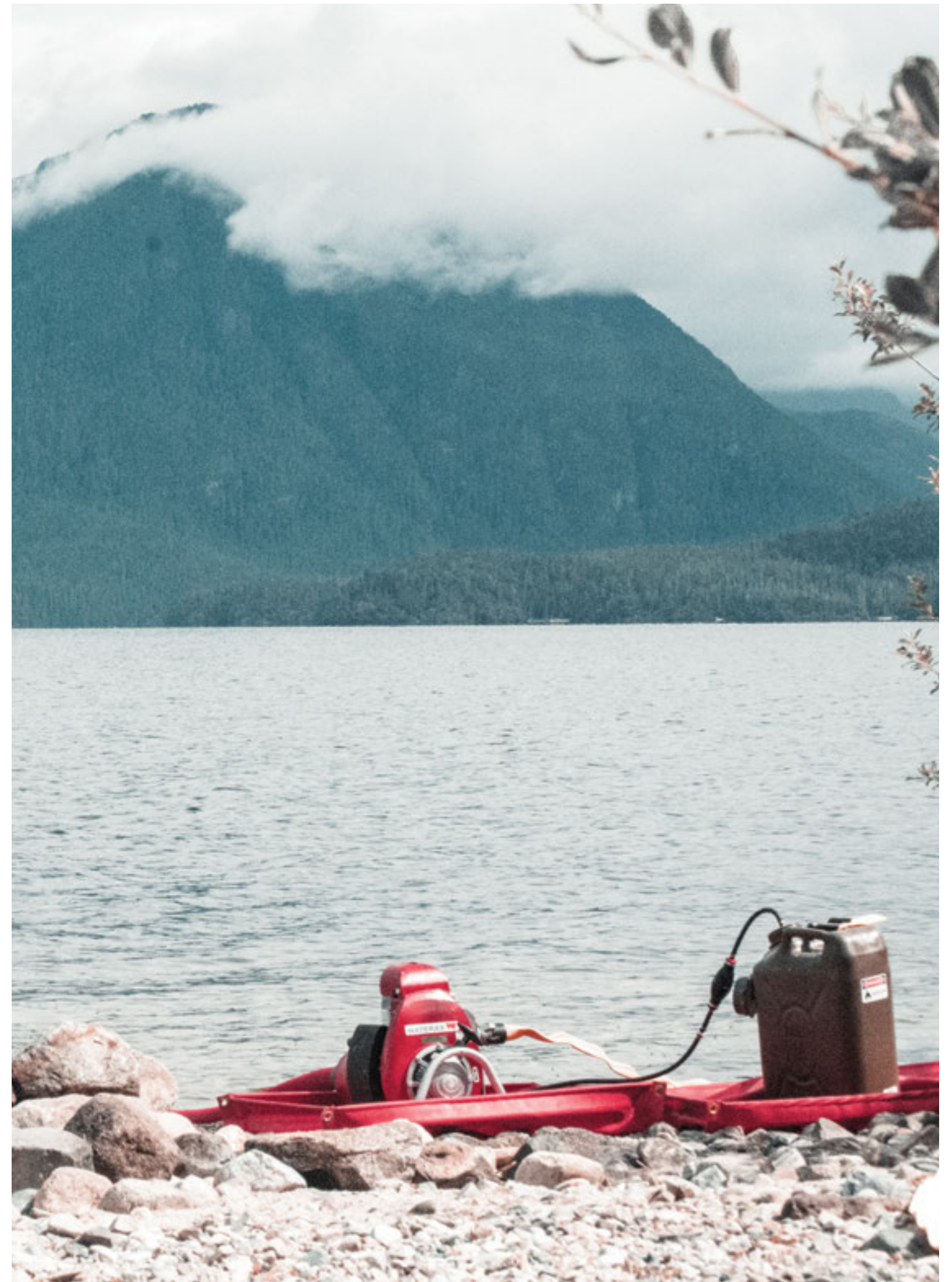


The world wasn't prepared for this. Equipping wildland firefighters is an essential service.

WATERAX has always been involved in the community and engaged in the fight against global warming. We've planted over 15,000 trees and are active stewards for the protection and conservation of oceans. While, like everyone, we've been forced to adjust our lifestyles and adopt social distancing practices,

wildland fires remain a critical danger. WATERAX is committed to equipping wildland firefighters with the pumps and water-handling equipment they need to protect wildland in Canada and around the world.

Our everyday work not only puts essential equipment in the hands of those fighting wildfires, but also has a positive impact on forests, oceans, the environment and the wellbeing of our communities.



A Next-Generation Website for a Next-Generation Pump

Pixel by pixel ... we've been hard at work building our new website. We'd love for you to take a look because we've made some exciting updates. And we're not finished yet. Keep an eye out for more improvements in the coming months!

WATERAX.COM

WATERAX 
WE MOVE WATER

Printed on recycled paper

