

The World of **Watermaster**

NEWSLETTER • 2018

smart solution for hard work

Let's fix this

Clean, safe and well-functioning waters

Restoring Lake Fúquene





*"No water, no life. No blue, no green."
- Sylvia Earle*

Pollution must end:
Let's fix this

Water is vital; no living thing can survive without it. Yet only a small fraction, about 0,014%, of all water on earth is easily accessible freshwater that people, animals and plants mainly rely on. The majority of all water is salty seawater and the majority of freshwater is locked in icecaps and glaciers. You might think that something as rare and important as freshwater would have always been treated with great respect. Surprisingly this is not true. Many of the world's rivers, lakes and other sources of freshwater are heavily polluted. Clean water is now a luxury that only some can enjoy. This should not be the case. We need to take better care of this precious resource.

For centuries individuals and businesses alike discarded their waste directly into natural waters and sadly this is still happening widely. It is the easiest and cheapest way to get rid of unwanted trash, but it is also a very short-sighted thing to do. Floating plastic-waste is easy to see, as in the picture above, but it is only the tip of the iceberg. Massive nutrient pollution from agriculture, large amounts of heavy metals and other toxic substances from industries and tons of litter and untreated wastewater from residential areas are now choking rivers, lakes and oceans across the globe. The world is getting more and more thirsty and we have less and less of clean water available. Water pollu-

tion is one of the most critical problems we are facing today.

The condition of our waters is a reflection of our way of thinking. Our way of thinking clearly has to change. We have plenty of information now on how our actions affect the environment. With increased knowledge we can make better, smarter decisions than what we have made in the past. **We have to stop polluting the resource we need the most. We also need to clean up the mess we have already made.**

We all want the same - **clean water to drink and a healthy, safe and enjoyable environment to live in.** With strong col-

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operation, determination and modern technology it is completely possible to **restore, protect and develop our waters** to make this dream a reality.

We should not settle for anything less. Let's celebrate all progress that takes us closer to this collective goal. All waters were clean once, together we can restore what we have damaged. And we must. Let's fix this.

Yours faithfully,
AQUAMEC LTD.

Lauri Kalliola
Managing Director

Watermaster Dredgers help to secure the supply of clean drinking water in Yaracuy, Venezuela by keeping the freshwater reservoirs in good condition

Clean, safe and well-functioning waters

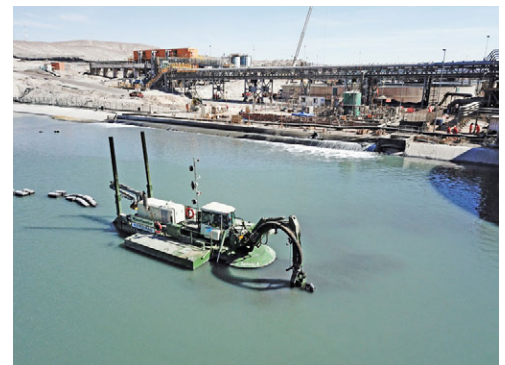
We believe that making our living environment healthy, safe and enjoyable is the best investment there is. We believe that all rivers, lakes and other sources of freshwater should be so clean that you can drink from them and that people should be always safe and protected from floods. We believe that keeping waterways well-maintained will help millions of people in their everyday lives. We want to contribute by developing and supplying tools for this important restoration and development work – the Amphibious Multipurpose Watermaster Dredgers. Money is always limited, but by using more multipurpose machinery we can achieve greater progress with less machines and less money, taking us a step closer to the goal.

Plastic-waste and all other trash and pollution do not belong in our waters. There should be no toxic chemicals, heavy metals or other harmful substances spoiling our aquatic environment. And there needn't be. Water pollution and large-scale eutrophication are problems that we have created and we are the ones who can solve them.

Watermaster takes out polluted sediments and excess siltation from waterways by suction dredging the materials away. It removes trash and invasive aquatic vegetation by excavating and raking. It reinforces riverbanks and seashores by pile driving to prevent ero-

sion and floods and to enhance functionality and the safety of urban areas. Watermaster helps in the building, maintaining and developing of water infrastructure, such as marinas, piers and floodwalls.

Watermaster simply does the work of several conventional machines. The one-man operated, multipurpose Watermaster vessel walks by itself into water without crane assistance and operates independently without needing extra vessels, cables or winches to work or anchor. It safely and efficiently covers all shallow water work at depths from 0 to 6 meters. You can do more



In addition to taking care of natural waters, it also benefits everyone to keep industrial wastewater and process water ponds well-maintained and safe for the environment.

work with less machines. **This saves the environment, money and time.**

Cleaning, restoring and developing all polluted and poorly maintained waters is, of course, a massive task that will require the help of countless people and machines. We are all in the same team working towards the same goal. Let's work in a safe and smart way and when possible, let's **do more with less** by using multipurpose technology.

See how Watermaster can help →

GOAL:
CLEAN, SAFE AND
WELL-FUNCTIONING WATERS



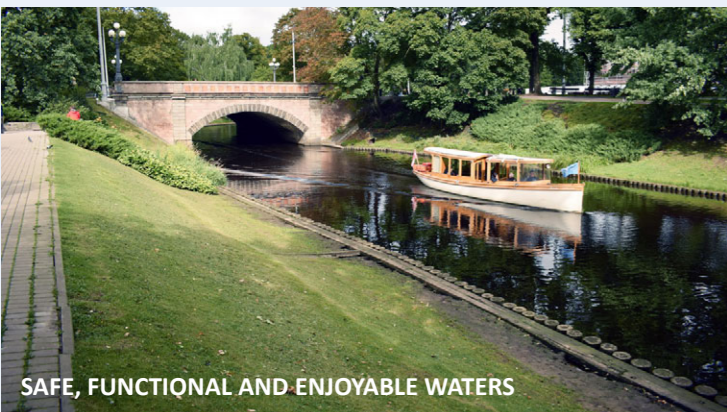
WELL-MAINTAINED WATERWAYS,
FLOOD-FREE CITIES AND FLUENT WATER TRAFFIC



POLLUTION- AND TRASH-FREE WATERS



HEALTHY WATERS, CLEAR OF HARMFUL
VEGETATION AND EUTROPHICATION



SAFE, FUNCTIONAL AND ENJOYABLE WATERS

DO MORE WITH LESS
Watermaster



MAINTAIN THE NAVIGABILITY OF WATERWAYS AND
PREVENT FLOODS BY DREDGING AWAY EXCESS SILTATION



CLEAN INLAND WATERS AND SHORES BY DIGGING OR
PUMPING POLLUTED SEDIMENTS AND TRASH OUT



REVITALIZE RIVERS, LAKES AND CANALS BY REMOVING
INVASIVE VEGETATION BY RAKING



DEVELOP THE SAFETY AND FUNCTIONALITY
OF WATERWAYS BY PILE DRIVING

LET'S FIX THIS

We must fix our waters
and stop pollution



FLOODS AND SILTATION



WATER POLLUTION



INVASIVE VEGETATION AND EUTROPHICATION



SAFETY AND FUNCTIONALITY

Examples of how Watermaster, the original amphibious
multipurpose dredger, can help in solving water problems

Examples of common water problems



Lake Fúquene in Colombia is suffering from massive eutrophication and sedimentation. CAR (The Autonomous Environmental Corporation of Cundinamarca) is committed to restoring the important lake to its former glory

Watermasters in Colombia Restoring Lake Fúquene

Lake Fúquene is a natural body of water located in the state of Cundinamarca at a height of 2,540 meters above sea level. It was considered sacred in the religion of the Muisca natives who inhabited the region before the Spanish conquest in 1530. In 1933 the lake had a surface area of 10,265 hectares whereas today that has shrunk to 3,145 hectares, of which approximately 60% is affected by invasive vegetation and sedimentation problems. If nothing had been done, the area would have continued diminishing at a rapid rate. Since this lake is of great importance in the social and economic development of the region, the Colombian government took the decision to start restoring it in 2006.



Lake Fúquene is situated in the state of Cundinamarca in Colombia, near the Capital Bogotá

PROJECT PLANNING AND GOALS

The Colombian government established a strategic plan for restoring the lake. The Autonomous Environmental Corporation of Cundinamarca – CAR was designated to be responsible for **developing the lagoon system of Fúquene**. CAR, under the leadership of its award-winning **Director, Mr. Nestor Franco**, has become known for its strong commitment to restoring and maintaining the environment, using the best technologies available.

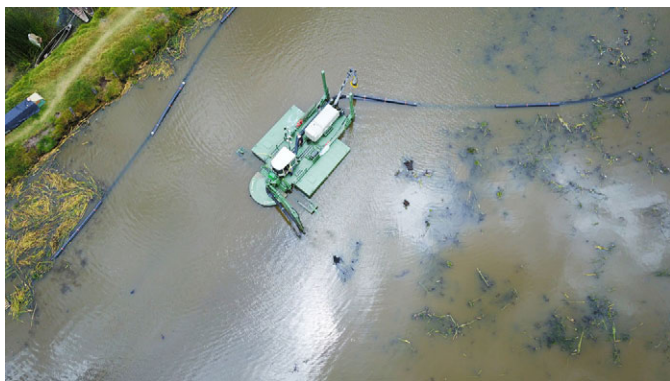
The goal of the Lake Fúquene project is to **restore its ecological condition and biodiversity** and to secure the availability of **clean drinking water and irrigation water** for the local communities.

EVALUATING WORK METHODS

CAR started the recovery project working with the various existing machinery, which was available in Colombia at the time. It turned out, that due to the conditions of the lake (shallowness, deep zones, windy conditions) these machines could not operate effectively. The invasive vegetation was growing at a faster rate than it was being removed from the lake. The project also required a wide range of varied tasks. Besides vegetation removal, suction dredging, backhoe dredging and piling were also needed. CAR started searching for suitable machinery that could meet these requirements. This is how, after thorough research, CAR identified **Watermaster** as

Briefly

- Lake Fúquene in Colombia suffers from heavy siltation and eutrophication
- The Colombian government took action to restore the lake through the CAR organisation
- The existing conventional machinery in Colombia could not handle the project requirements efficiently
- Watermaster was acquired to help complete the project successfully



Watermaster dredging the excess sedimentation out from the lake



Watermaster loading invasive vegetation into barges

the best option. Watermaster was found to be a machine with versatile multipurpose capabilities (multiple tools can be operated with the same machine) and excellent mobility (amphibious self-propelled machine that can work in very shallow waters and be transported by road in a trailer anywhere in the region without the need to disassemble the machine). In addition, it was a proven solution - Watermasters are successfully completing similar projects in over 70 countries worldwide. All these reasons favoured Watermaster as the most suitable technology with the **lowest overall investment cost and operational cost**, which was of high importance for the financial management of the project.

In 2017 a powerful Watermaster Classic V dredger was supplied to CAR by **KHALELA SAS**, the local Watermaster agent. This is how CAR was able to prove the advantages of Watermaster at their own site, during six months of operation at Lake Fúquene. Watermaster really did the work of many separate machines. This led to the acquisition of three new

Watermaster units for the maintenance of **Bogotá River**, which is another project developed by this environmental corporation.

WATERMASTERS IN COLOMBIA

Colombia is a country with many water resources which need to be cleaned and maintained. Watermaster has demonstrated itself to be very suitable for many of these projects.

Watermaster technology has been present in Colombia since 2012 when the first machines were delivered. From the very beginning Watermaster has shown that it is a very useful asset for private and public companies executing projects with current limited budgets. Its mobility and multipurpose capabilities enable efficient and productive cleaning, restoring and maintaining of water bodies. Watermaster's work area extends from dry ground to water depths of up to 6.5 meters. Watermaster can even navigate



Pile driving work at Lake Fúquene

in relatively strong water currents, such as in the **River Magdalena**, for example. Here Watermaster's success was due to its self-propelling capacity and good stability when navigating against the current of this river, during the execution of the projects.

CAR and many other organisations in Colombia are convinced that the original Watermaster is an essential addition to their machinery fleet and for their work to keep the water bodies of Colombia in good condition now and in the future.

Fabio Zapata

Naval Architect and Marine Engineer, member of PIANC - InCom

Watermaster is a fully amphibious multipurpose vessel that can walk in and out of water without crane assistance. Watermasters have been cleaning, restoring and maintaining rivers, lakes and other shallow water bodies in Colombia since 2012





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