Protecting Water Resources

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Introduction

Water on Earth is finite and less than 1% is freshwater that we can use. Climate change is worsening water scarcity, and 2 billion people still lack access to safely managed water services, so protecting our already limited water resources is more crucial than ever. Currently, only 74% of people have running water in their homes. (World Bank)

By helping to protect water resources, we can make a real difference in protecting valuable water resources, keeping them clean, and ensuring that communities around the world have equitable and reliable access to the water they need.

This playbook is designed to provide instructions, tools, and the resources you need to host and attend a volunteer event centered on how to protect water resources.

The rest of this playbook will walk you through the importance of protecting water resources, how to sign up and get ready to volunteer, tips on hosting your own volunteer event, and ways to stay engaged! **The activities in this playbook are designed so that anyone can do them, anywhere.**

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What is Plogging?

Plogging is the act of picking up trash while jogging, walking, riding your bike, or anything else that gets you outside and moving! Not only does plogging prevent litter from polluting our waterways and oceans, but it also improves the health of individuals and the local community. Plogging was derived from jogging, but you don't have to be a runner. You can even just plog along your normal walking routes or on a scooter or paddleboard!

How Does it Protect Water Resources?

Once litter is dropped on the ground, it is easily transported to storm drains, streams, canals, and rivers by the wind. The litter ends up in water bodies and becomes aquatic trash. Aquatic trash has detrimental environmental impacts, it negatively affects water quality, endangers plants and animals, and damages aquatic habitats such as coral reefs. Additionally, plastic pollution never fully biodegrades and continuously accumulates in oceans and waterways, so it's increasingly important to keep plastics out of waterbodies.

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Learn About Aquatic Trash | US EPA

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How to Plan Your Plogging Event

Location: In-person

Volunteers: No limit

Time: 1 hour+

Step 1: Recruit!

Find a group of people who want to participate in a plogging event! This can include colleagues, family members, friends, and anyone else you can think of!

Step 2: Schedule

Confirm the date and time for your plogging event.

Step 3: Map out a plogging route:

Before you start planning, check if your city has regulations on where you can pick up trash! If you're planning on plogging at a park, make sure to check with the parks department.

When picking your starting point, make sure to consider access to parking, restrooms, and drinking fountains

Consider a plogging route along or leading to a body of water, park, or walking trails.

Avoid traffic, busy crossings, and major roads. If this isn't possible, have volunteers directing traffic.

Step 4: Outline an event agenda:

Develop a timeline for your plogging event that includes a set-up, clean-up, and any plogging details.

Step 5: Coordinate required materials and safety equipment for plogging

Ensure everyone has proper footwear, gloves, trash bags, water, light snacks, a first aid kits, and litter pickers or reflective vests if needed.

Step 6: Identify properly disposal of trash:

Research where you can dispose of all trash and separate it into the correct recycling or trash bins.

Step 7: Promote your Event!

Ensure attendees in photos sign the photo release form before sharing photos on external channels.

Use #XylemWatermark to spread the word!

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What is Water Monitoring?

Water monitoring is an umbrella term for all the ways we can measure the quality of the water. We test the temperature, turbidity, dissolved oxygen, and pH to give us important information about the health of the water, how safe it is to drink, and if it is the right environment for plants and animals to thrive.

Temperature is important because it impacts dissolved oxygen, photosynthesis, and the food supply. If temperatures are too hot or cold, there will have severe negative impacts on aquatic life. Turbidity is the water's clarity, and it impacts photosynthesis, respiration, and reproduction. Dissolved oxygen measures the number of molecules in the water, high dissolved oxygen rates support healthier ecosystems and biodiversity. The pH is how acidic or basic the water is, a pH between 6.5-8.5 is most favorable.

How Does it Protect Water Resources?

Poor water quality can have significant impacts on the environment and public health. By observing trends in water quality over time, we can draw attention to areas with poor water quality that need assistance and major health problems can be avoided or caught early.

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How to Plan Your Water Monitoring Event

Xylem has partnered with EarthEcho to participate in their Water Challenge. Upon request, EarthEcho will provide testing kits and once results are collected, volunteers can enter their data through the international database.

Location: In-person

Volunteers: No limit

Time: 1 hour

Before the Event:

Step 1: Recruit & Schedule!

Find a group of people who want to participate in a water monitoring event! This can include colleagues, family members, friends, and anyone else you can think of!

Pick a date, time, and place to test the water.

You can choose any body of water that can safely tested.

Step 2: Create an account through EarthEcho

Visit the EarthEcho Water Challenge web portal at app.monitorwater.org and follow the instructions to create an account.

Step 3: Register your location:

Either locate an existing site on the website or hit "Create New Site."

Step 4: Order monitoring kits*

Visit monitorwater.org/order-kits to place your order!

Xylem employees and business partners please fill out the form to place your order.

*While supplies last

Step 5: Get Organized:

- Organize monitoring kits
- Gather pens for recording data
- Bring water, trash bags, first aid kits, & sunscreen

- Print data sheets from Volunteer Resources
- Print instructions
- Print Water Challenge Education Presentation

See the next page for more.

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How to Plan Your Water Monitoring Event

During the Event:

○ **Step 1: Present Water Challenge Presentation & provide overview of activities**

○ **Step 2: Open a testing kit and explain the four tests: temperature, pH, dissolved oxygen, turbidity**

○ **Step 3: divide participants into groups**
- Assign one person as the "facilitator," guiding the group
- Assign another person the "recorder," recording data
- All members will take turns conducting tests

○ **Step 4: Document activities**
Take photos! Make sure everyone has signed the photo release form. Record number of participants

○ **Step 5: Gather data sheets & submit data**
Enter data into app.monitorwater.org

○ **Step 6: Post!**
Share photos from your event and tag #XylemWatermark

How Does Tree Planting Protect Water Resources?

In addition to removing carbon dioxide from the air, increasing biodiversity, and providing habitats for animals, trees also protect water resources. Trees absorb water through their roots which filters out pollutants and slows the speed of running water towards water bodies, reducing erosion. This helps to reduce flood and landslide induced damage to ecosystems and infrastructure and improve the health of watersheds (OneTreePlanted).

How Trees Clean Water - One Tree Planted

How to Plan a Tree Planting Event

Location: In-person

Volunteers: No limit

Time: 1 hour

Step 1: Recruit!
Gather a group of people interested in planting trees. Think of any colleagues, friends, family members, kids, and anyone else you know who might be interested!

Step 2: Pick a date, time & place to plant the seeds!
Contact your town, local parks, schools, or a conservation focused non-profit to ask if they have space for you to plant trees.
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Step 3: Pick your tree species:
Different tree species thrive in different spaces and environments, so it's important to make sure you pick a species that can thrive in the chosen location. Consider soil type, amount of sunlight, weather, proximity to utilities, and site size.

Step 4: Buy the seedlings!
Go to a trusted local nursery or environmentally conscious online store and buy the appropriate number of seeds for your group. If purchasing from a nursery, they can also consult you on the best species.

There are 3 ways to purchase seedlings (NYSDEC):

Bare Root:	Container Grown	Balled & Burlapped:
- Bare root are typically only available for online ordering - Benefits: lower costs, lighter handling weight, greater portion of roots kept intact	- Have roots that encircle the root ball in the pot which can harm the tree, - Benefits: lighter than balled and burlapped trees, less disturbance to roots, are available at most nurseries	- Much heavier than other options - Lose a substantial amount of roots when dug at nurseries

Step 5: Meet with your group and plant!
How to plant trees depending on seedling type:

Bare Root:	Container Grown:	Balled & Burlapped:
- Plant within a few days of shipment - Keep roots moist and cool until planting time - Remove packing materials and soak roots in water before planting - Dig a hole wider than roots so they can spread - Backfill the hole as you water	- Before you remove the tree from its container, dig and hole and water thoroughly - Untangle the roots that encircle the root ball - Loosen soil and roots prior to planting - Backfill the hole with soil as you water it.	- Dig the hole 2-3 times the width of the ball to allow roots to grow - Only dig the hole deep enough for the ball - Once the tree is in the hole, be sure to remove twine, wrap, and wire baskets - Backfill the hole with soil and firmly pack it around the tree and roots - Water deeply

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Other Ways to Protect Water Resources

There are countless ways to protect water resources beyond the activities we organize at Watermark. While we've shared some key initiatives, there are many other actions you can take to make a difference. Here, you'll find more ideas and simple steps anyone can follow to help preserve water and ensure its availability for future generations.

Adopt a Storm Drain

Adopting a drain is a simple yet effective way to protect our water resources. By regularly cleaning and maintaining local drains, you can help prevent debris, trash, and pollutants from entering waterways, which ultimately affect the quality of our water. This small act of stewardship helps keep our drains clear, reduces flooding, and ensures that rainwater can flow freely into the environment without carrying harmful waste.

If your located in a qualifying state, visit Adopt A Drain and follow these simple steps:

○ **Step 1: Sign Up!**
Register to adopt a local drain in your area.

○ **Step 2: Commit!**
Choose how often you'll check and clean your drain.

○ **Step 3: Maintain.**
Keep your drain free of litter, leaves, and debris, especially after storms.

Don't have access to Adopt A Drain in your state? Don't worry! Do research in your community and look for local nonprofits or governments running similar programs.

Invasive Species Removal

Invasive species can harm local ecosystems by outcompeting native plants and disrupting natural water systems. Removing these species is an essential step in protecting water quality and biodiversity.

○ **Research Local Invasive Species**: Identify which species are invasive in your area and the impact they have on local ecosystems.

○ **Find Volunteer Opportunities:** Look for local organizations, parks, or environmental groups that organize invasive species removal events.

○ **Prepare:** Wear appropriate clothing (gloves, boots, long sleeves) and bring necessary tools like pruning shears, shovels, or weed pullers.

○ **Dispose Properly:** After removal, dispose of the invasive plants in the designated way (usually bagging or composting), as they can spread if not handled correctly.

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Stay Engaged!

Track your participation to activate a donation to our nonprofit partners!

Stay connected on **LinkedIn!**

Stay up to date with our **website** and lookout for upcoming volunteer activities!

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