



# Green Laboratories & Sustainable Research in Tromsø

As scientists, engineers, students, and university employees working at the Department of Arctic and Marine Biology (AMB) at UiT, The Arctic University of Norway, many of us are investigating the effects of climate change and biodiversity loss on aquatic and terrestrial ecosystems, mainly focusing on biological implications but also including societal and economical aspects.

Knowing the tremendous impacts climate change and biodiversity loss has on local-, regional-, and global scale, it seems to be the logical consequence that we are also at the forefront when it comes to integrating sustainable work practices in our daily work life.

## But are we?

In 2022, inspired by [My Green Lab](#), [Green Labs Austria](#), and other non-profit organisations that commit themselves to develop and carry out sustainable laboratory practices, we, at the [Cells in the Cold Laboratory](#) started to re-think our daily workflows and try to change, wherever possible, to more sustainable solutions.

Here, we want to introduce our most promising efforts so far:



Reducing  
plastic  
waste



Reducing  
hazardous  
waste



*"Green Lab Tour"*  
Establishing a platform to  
present & discuss ideas

Looking for more information or want to get involved?

Please contact Andrea Söllinger, [andrea.soellinger@uit.no](mailto:andrea.soellinger@uit.no)





# Reducing plastic waste

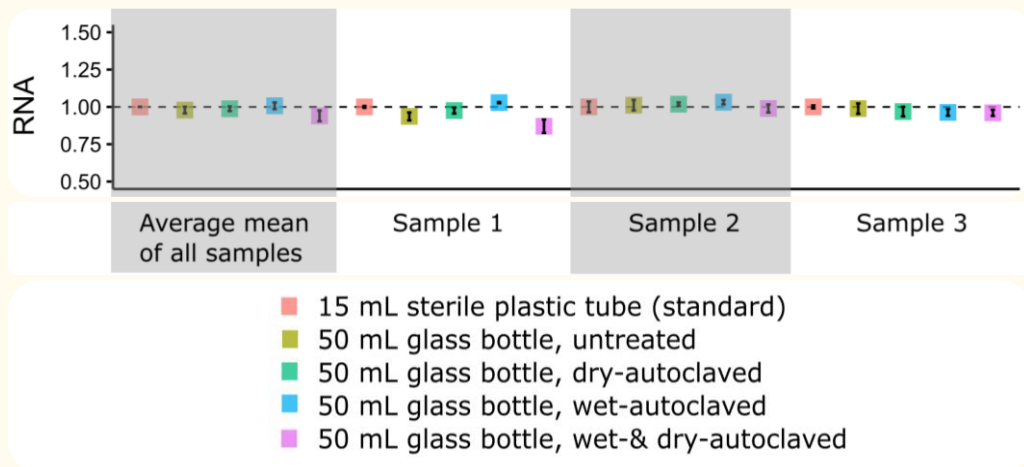
Laureen S. Ahlers, master student in the CECO lab, tested different options to prepare buffer solutions for using Qubit (Invitrogen) to measure nucleic acid concentrations after extraction from soils.

Previously, we used sterile 15 mL tubes like these:



Laureen wanted to test whether she could switch to glass bottles instead. She tested 4 different treatments ranging from non-treated glass bottles she took directly from our storage and glass bottles that were two times autoclaved before use (wet autoclaved for “extra cleaning” and dry autoclaved to make them “super sterile”).

Here is what she found out: No matter how she treated the glass bottles, she basically always got the same results (here RNA as example, but same goes for DNA):



In conclusion, we switched to untreated\* glass bottles.

**Laureen could save about 100 plastic tubes during her master thesis!** This may sound not like that much, but just imagine what 10, 20 or 100 master students could save.

\*untreated in our case means the bottles came straight from our storage where they are put when they are coming back from cleaning (dishwasher program rinses everything 2 times with distilled water) and drying (in a drying cabinet).





# Reducing hazardous waste

Previously, we used to throw all our used gloves into our hazardous waste bins.

Even though many of us questioned this practice for quite a while now, it was considered to be the safest way since no mix-ups could happen. And to be honest, it was also an easy solution...

However, after our first *Green Lab Tour* in September 2022, we decided that it's time to finally stir up our old habits and we came up with the following: We put up additional waste bins with gigantic signs, so no chance to miss it....

## ***Non-toxic\** Glove Waste**

**\*ONLY gloves that have NOT been in contact with any toxic or environmentally hazardous substances or genetically modified organisms**

### **YES**

Gloves that have been in contact with:

- Equipment and lab surfaces
- Non-genetically modified plant material & soil
- Non-genetically modified microbial cultures
- Ethanol or other evaporating chemicals
- Non-toxic chemical solutions & powders

### **NO**

Gloves that have been in contact with:

- Phenol or chloroform
- Toxic chemical solutions and dyes
- Toxic chemical powders
- Genetically modified organisms (GMOs) / material
- Anything you are not sure if it is potentially harmful



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Questions & comments?  
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Additionally, we informed all lab members and explained our new waste system. By that, we are currently collecting about **1 kg of gloves per week** (produced by ~10 people)!

**We are now reducing our hazardous waste quite significantly. We are currently expecting around 40 kg less per year!** However, we don't know yet how beneficial this actually is. Clearly, we save money and transport costs for the hazardous waste. But the gloves are still going straight into the normal waste...

Thus, in the future we want to investigate ways how to recycle our glove waste.





# Green Lab Tour

## Establishing a platform to present & discuss ideas

In September 2022 we met for our first **Green Lab Tour**. We walked through the labs in the Biology building to have a look at our most common consumables and discuss their use and the possibility of introducing more sustainable alternatives in our daily lab life.

For that we invited our account managers at VWR (avantorsciences) to get first-hand information on which possibilities are out there and easily available for us.

This first tour led to both, Laureen's glass bottle test (see page 2) and our new glove waste bins (see page 3).

In December 2022 we met for the second **Green Lab Tour**, again with one of our VWR account managers. We discussed our recent developments, learned about new sustainable products, and forged plans. Stay tuned for updates!

The next **Green Lab Tour** will probably be held in March 2023. If you want to make sure to not miss it or any other future **Green Lab Tour** announcement, please get in contact: [andrea.soellinger@uit.no](mailto:andrea.soellinger@uit.no)





# What next?

We are currently investigating several new directions for a more sustainable research, including reducing lab energy consumption and CO<sub>2</sub> output.

Furthermore, we plan follow-up Green Lab Tours – Maybe next time through your labs?

Contact [andrea.soellinger@uit.no](mailto:andrea.soellinger@uit.no) if you are interested to join next time.

## What would you propose?

We are always looking for new ideas and are happy if you share yours with us. Together we could expand the list of sustainable implementations.

