



# Community Science with Public Lab

*Jeff Warren*



# Public Lab

*is a community and a non-profit, democratizing science  
to address environmental issues that affect people.*





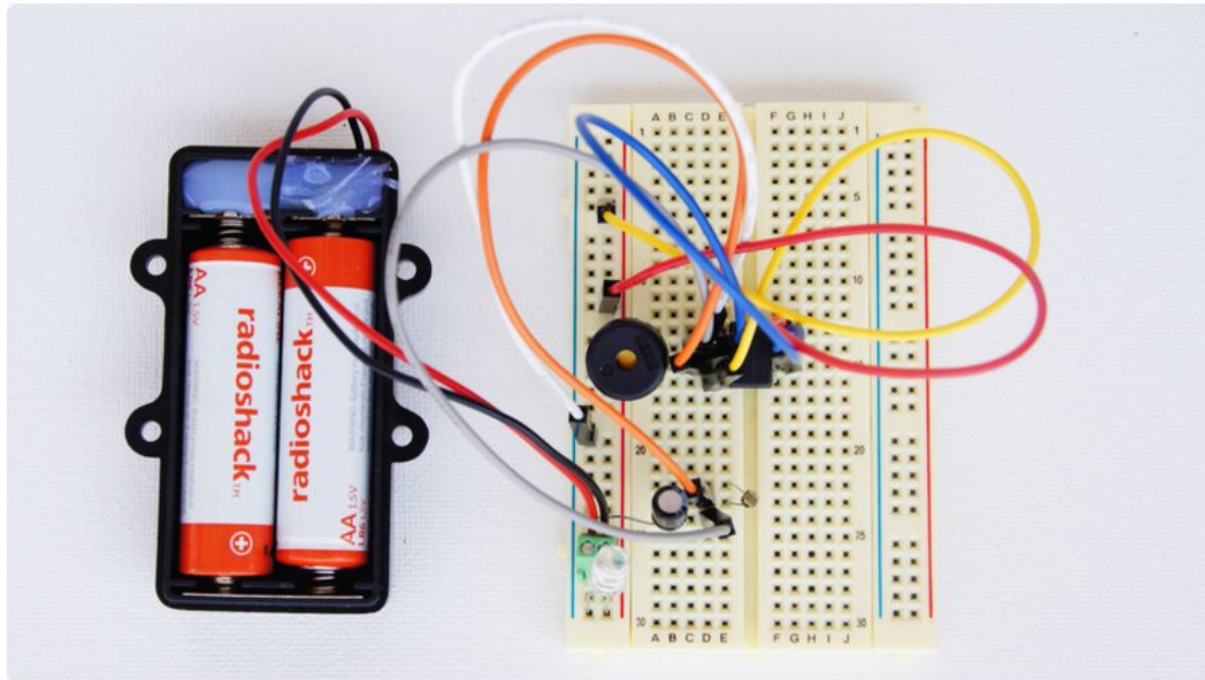
A photograph of a person in a dark blue shirt using a handheld electronic device in a forest at night. The person is looking down at the device. A black strap with a silver buckle is visible on the right side of the image. The background is dark and blurry, suggesting a forest setting.

*community science*

*civic science*

*citizen science*





## Build a Coquí: A Simple Water Conductivity Sensor

by [akshaya](#) with [kanarinka](#) | 17 Sep 23:21

This is a beginner's guide to assembling the Coquí





**@AssemblePapers**









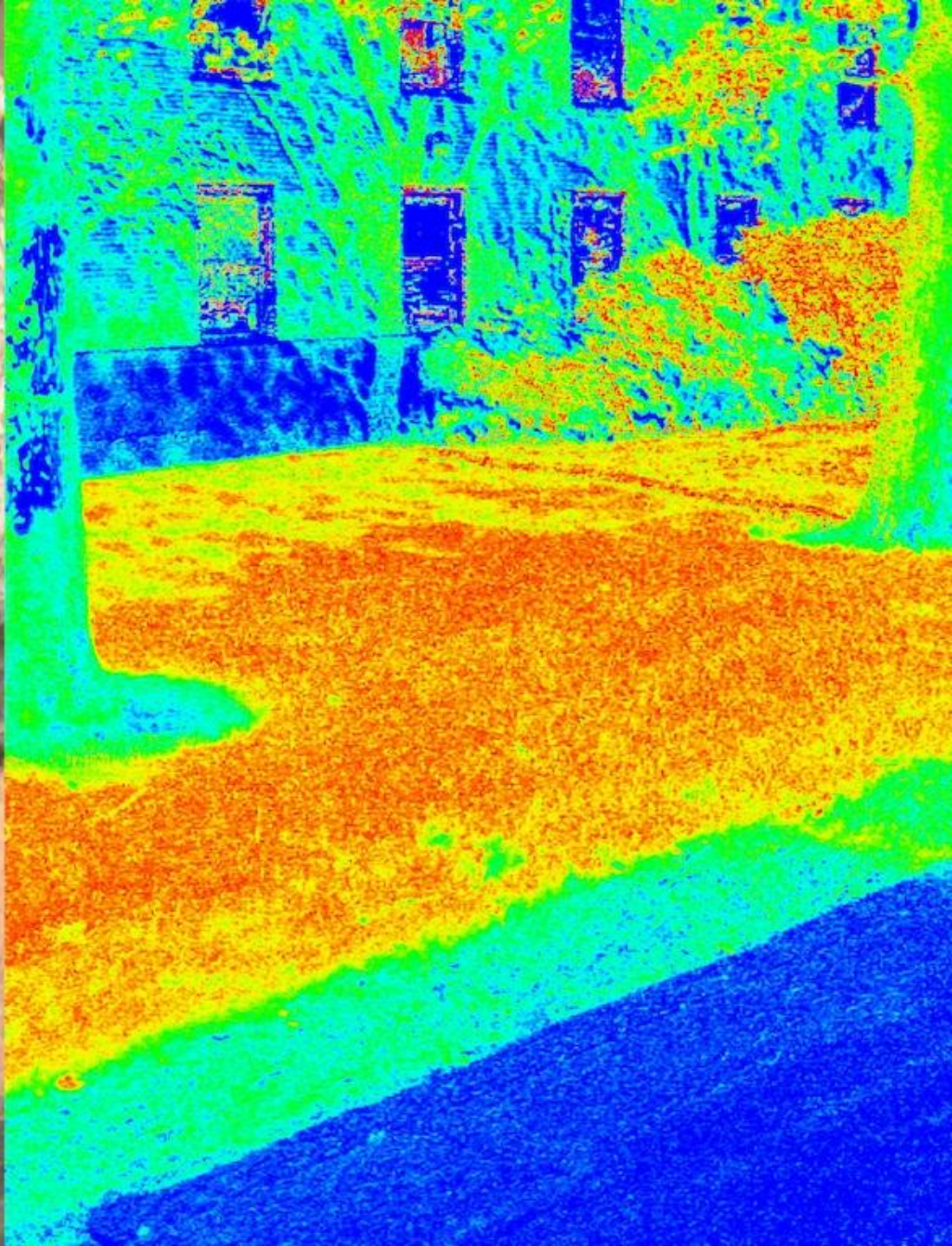




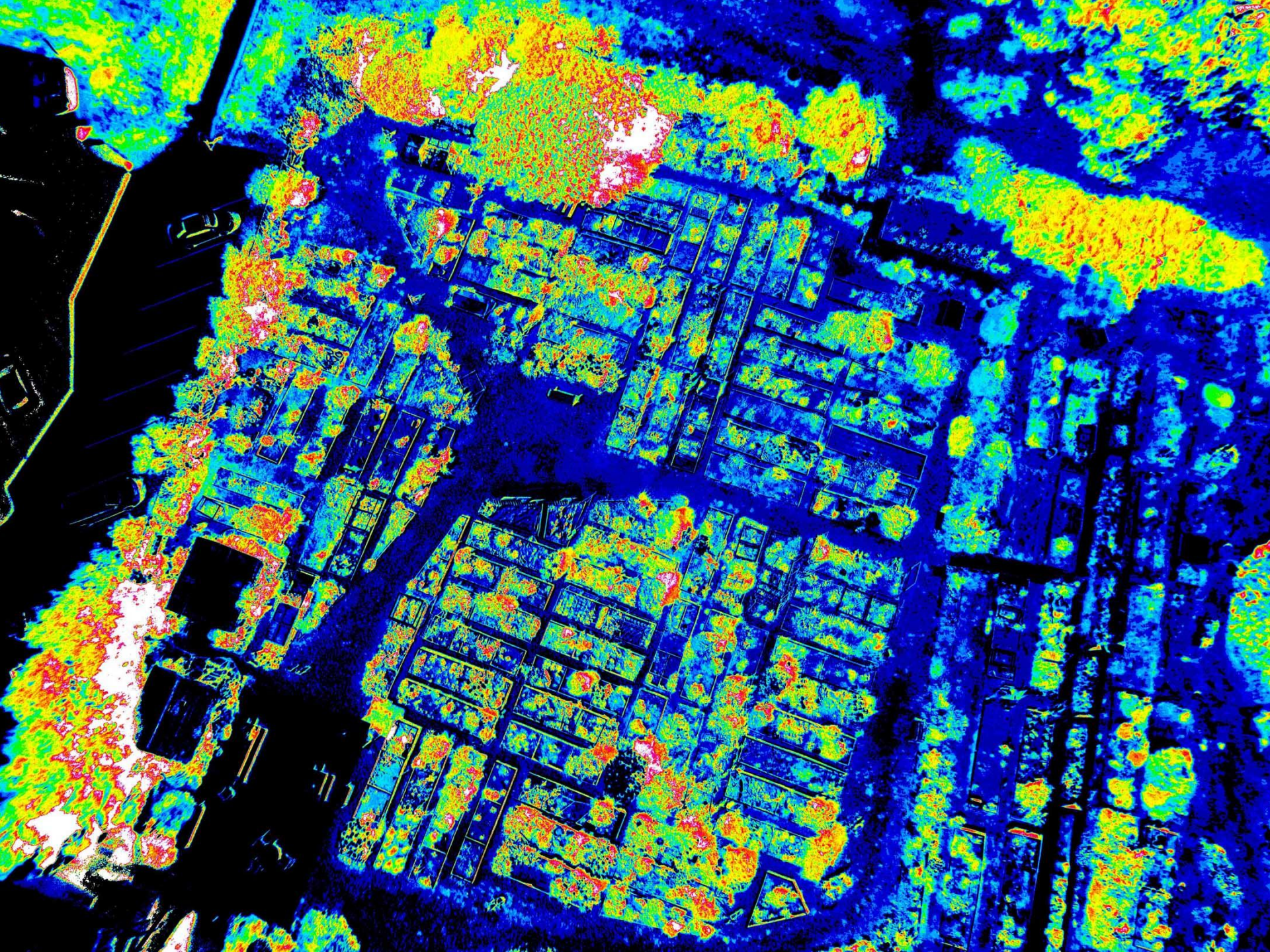














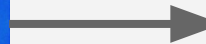
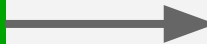
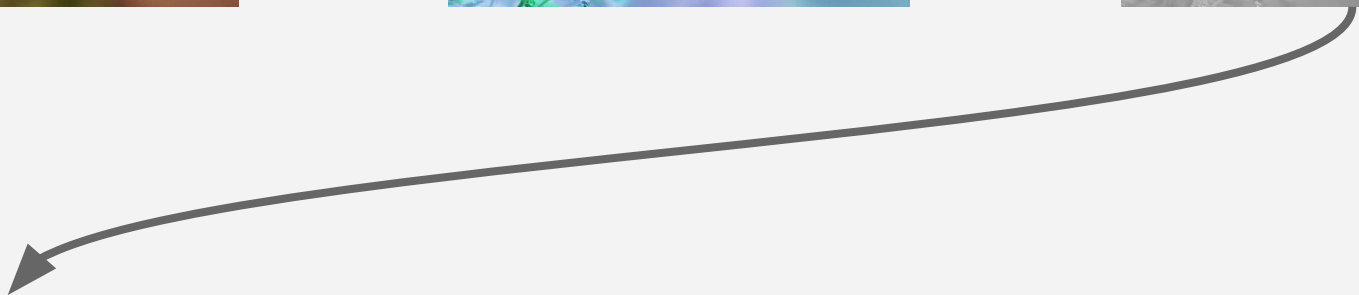
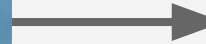
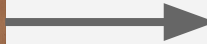
## Typical workflow



## Image Sequencer workflow









*Why Do It Yourself?*

*Why go beyond  
“public understanding of  
& involvement in science”?*





*DIY means changing how we  
produce knowledge*

# PublicLab.org

## Q&A

How do I do this? Can someone help me test this out?

## Topics/Methods

Agriculture, Drinking water, Fracking, Indoor air, Chemical processing, Land use & change, Mining, Oil & gas, Transportation, Urban planning

## Blog

Stories and people

People and discussions to support your work

People and discussions to support your work

Method or topic w/  
Activities + Q&A

Method or topic w/  
Activities + Q&A

Method or topic w/  
Activities + Q&A

Blog post

People and discussions to support your work

People and discussions to support your work

Method or topic w/  
Activities + Q&A

Method or topic w/  
Activities + Q&A

Method or topic w/  
Activities + Q&A

Blog post





# Methods

developed by Public Lab contributors

Public Lab's community collaboratively develops many different techniques and methods for DIY environmental monitoring. Browse many of them here and learn how to get involved.



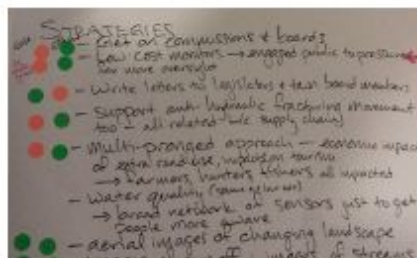
## Potentiostat

last edit by [dwheeler](#) about 7 hours ago | 👁

26,798 views | ⭐ 13

👤 0 activities 📈 0 upgrades

[Read more](#)



## Choosing advocacy pathways

last edit by [stevie](#) 26 days ago | 👁 448 views | ☆

0

👤 0 activities 📈 0 upgrades

[Read more](#)



## Host an event

last edit by [stevie](#) 26 days ago | 👁 41 views | ☆ 1

👤 2 activities 📈 0 upgrades

[Read more](#)



## Site Survey

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👤 0 activities 📈 0 upgrades

[Read more](#)



## Stormwater Monitoring

last edit by [stevie](#) 26 days ago | 👁 126 views | ☆

1

👤 4 activities 📈 0 upgrades



## Photo Monitoring

last edit by [warren](#) about 1 month ago | 👁 518

views | ☆ 2

👤 9 activities 📈 0 upgrades



## Riffle: an Open Source Water Monitoring Approach

last edit by [liz](#) about 1 month ago | 👁 24 642



## KAPtery Aerial Rigs

last edit by [cfastie](#) about 1 month ago | 👁 4,602

views | ☆ 15

👤 0 activities 📈 0 upgrades



A person wearing a winter jacket and hat is in a small boat, looking down at a white sheet of paper. The boat is on a body of water that has a large, colorful oil spill on its surface. The text "We support communities in applying science to local problems." is overlaid on the image.

*We support communities in  
applying science to local  
problems.*



*Data and its interpretation  
increasingly drives decision  
making in our society.*



## Challenges:

*Limited ability to evaluate or test*

*Processes too big to see feedback  
loop in individual actions*



An aerial photograph of an industrial facility, likely an oil refinery or port, showing a large, dark, irregular spill of oil or heavy liquid that has spread across a significant portion of the ground. The spill is surrounded by various industrial structures, including storage tanks, pipes, and buildings. A prominent red structure is visible in the lower right corner. The overall scene suggests a major environmental disaster.

*Environmental issues  
“affect someone else”*

*Trust issues with industry -- and  
the science they produce*



An aerial photograph of a large, irregularly shaped pond or lake. The water is mostly frozen, with a mix of white snow and greyish-blue ice. There are some dark, open water areas, particularly on the left side. The surrounding land is covered in snow and some bare, brown vegetation. A fence line is visible in the upper right corner. The text "Local expertise" is overlaid in the center of the image.

*Local expertise*

**GLAM**









# Dashboard

Welcome, **warren**! [60 notes](#) and [111 wiki edits](#) posted in the past week. You've shared [523 research notes](#).

[+ Share your work](#) ▾

Enforcing Stormwater Permits with Google Street View along the Mystic River by [mathew](#) From the [Public Lab Blog](#)

## Activity

Selected updates ▾

from other [community scientists](#) in the past week | [Your work](#)[+ Share your work](#)

### OpenHour

Join Public Lab community members for a monthly call

[Wiki](#)[Discussion lists](#)

A [shared knowledge base](#) for community science

Search for...

[+ New page](#)

New edit by [liz](#) about 5 hours ago - changes

### OpenHour

New edit by [pablo](#) about 6 hours ago - changes

### Desktop Spectrometry Kit 3.0

New edit by [stevie](#) 3 days ago - changes

### Coqui

New edit by [stevie](#) 3 days ago - changes

### Mapping the Waste Stream of Southern

[Write a research note](#)[Tools ▾](#)[Browse the Public Lab Wiki »](#)[Discussion lists »](#)

Much of our work happens on our regional and topical discussion lists. [Join one today!](#)

## Refine Questions by tags

Refine questions by entering tags to search or answer question on specific topics



## Recent wiki edits

[Riffle: an Open Source Water Monitoring Approach](#)

updated 4 days ago by pdhixenbaugh

[OpenHour](#)

updated about 2 hours ago by liz

[Mapping the Waste Stream of Southern California](#)

updated 3 days ago by stevie

[Desktop Spectrometry Kit 3.0](#)

updated about 6 hours ago by pablo

[Public Comment](#)

updated 3 months ago by stevie

[Aerial Photography](#)

updated 24 days ago by liz

# Questions and Answers

Public Lab's growing knowledge base

Ask a question to the Public Lab community to help you in your environmental exploration.

New to Public Lab? [Learn how this works »](#)

[Ask](#)[Recently Asked](#)[Recently Answered](#)[Popular](#)[☆ Liked](#)

### Error on calibrating uploaded spectrum

asked by sarahcm about 3 hours ago |

🗨️ 1 | 👁️ 33 | ☆ 0

[spectralworkbench](#)[spectral-workbench](#) [export](#)[question:spectrometry](#)[🗑️ Spam](#)[Post an answer](#)

### Progress? Options...

asked by bbran 3 days ago | 🗨️ 0 | 👁️ 70 | ☆ 0

[research](#)[environment](#)[audio](#)[question:generalarduino](#)[🗑️ Spam](#)[Post an answer](#)

### Can anyone help me troubleshoot my NDVI imagery?

asked by abdul 3 days ago | 🗨️ 2 | 👁️ 64 | ☆ 0

[ndvi](#)[calibration](#)[infrared](#)[question](#)[🗑️ Spam](#)[Post an answer](#)

### How to process images using a mobius with an IR lens?

asked by miguel\_rosas 6 days ago |

🗨️ 0 | 👁️ 146 | ☆ 1

[ndvi](#)[ir](#)[lens](#)[mobius](#)[🗑️ Spam](#)[Post an answer](#)

### How does bio-waste move within the waste stream?

asked by sarasage 3 days ago | 🗨️ 0 | 👁️ 114 | ☆ 1

[waste-management](#)[waste](#)[open-water](#)[groundwater](#)[🗑️ Spam](#)[Post an answer](#)

### Trail camera on State Park Land?

asked by DMerwitz 7 days ago | 🗨️ 0 | 👁️ 136 | ☆ 1

[park](#)[timelapse](#)[mining](#)[trap-cam](#)[🗑️ Spam](#)[Post an answer](#)

### Is it possible to generate a

### lightweight air quality

### MobiusActionCam vs S100



PublicLab.org  
CERN Open Hardware License v1

Public Lab Foldable  
Mini-spectrometer



UMOP 1/1/14





public Lab

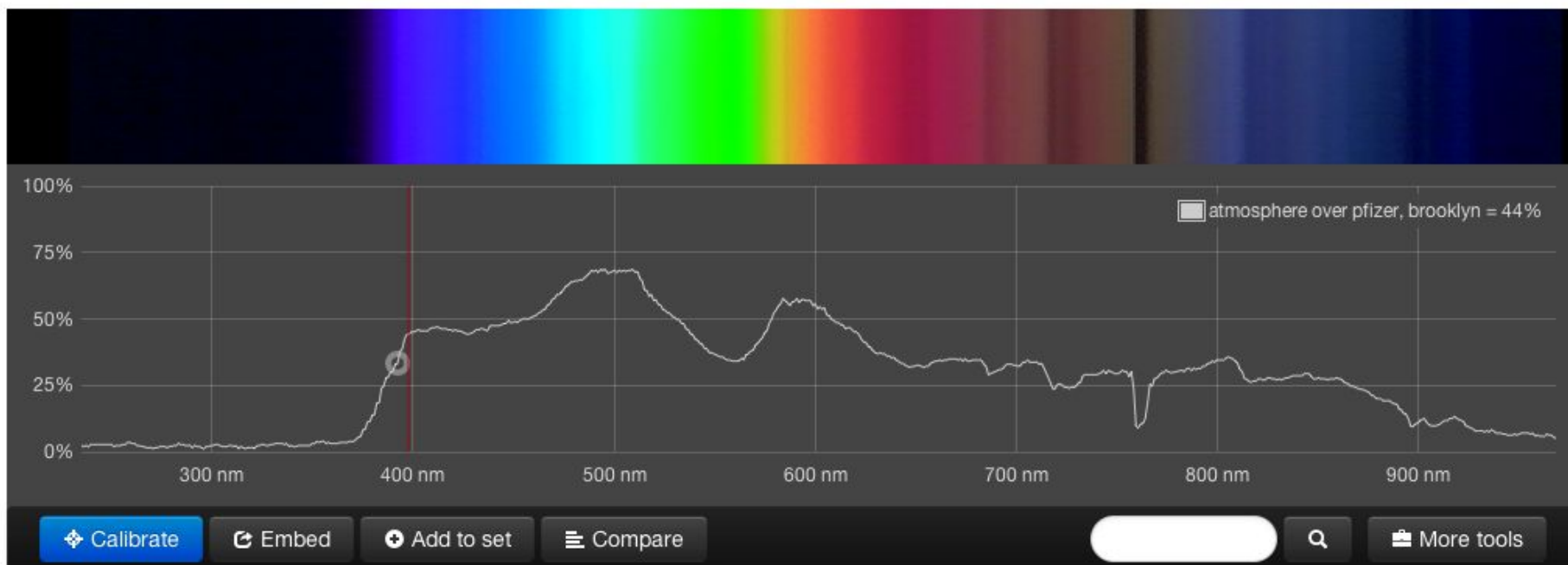


# Public Lab Spectrometer 3.0

Open hardware released under the CERN Open Hardware License 1.2

- connect to a computer and spectralworkbench.org
- see and share research at publiclab.org
- see the bottom of this box for project ideas





## atmosphere over pfizer, brooklyn

uploaded by [liz](#) [RSS](#)

-- (Cloned calibration from [calibration](#))

[JSON](#)[CSV](#)[XML](#)[?](#)[f Like](#)

0

[t Tweet](#)

0

## Comments (2)

2 months ago, [warren](#) wrote:

[https://en.wikipedia.org/wiki/Fraunhofer\\_lines](https://en.wikipedia.org/wiki/Fraunhofer_lines) Fantastic O2 lines at ~900nm, 760nm and 685nm! 760 especially. The double line at 717 and 725 that we were wondering about seems to be H2O according to the graph on Wikipedia: [https://en.wikipedia.org/wiki/File:Spectrum\\_of\\_blue\\_sky.svg](https://en.wikipedia.org/wiki/File:Spectrum_of_blue_sky.svg) I think that if it weren't as overexposed in the blue-green region we'd have gotten some of those lines as well.

[Delete](#)

about 1 month ago, [Fernando](#) wrote:

By the way, the spectrum you took looks really interesting! You can see the Oxygen absorption around 760nm quite well. Although there is a whole world of information in the IR which is not present, where you can see CO2, water vapour and other greenhouse gases: <http://www.stellarnet-inc.com/images/solar%20image%20200-2400nm.gif>

[Delete](#)

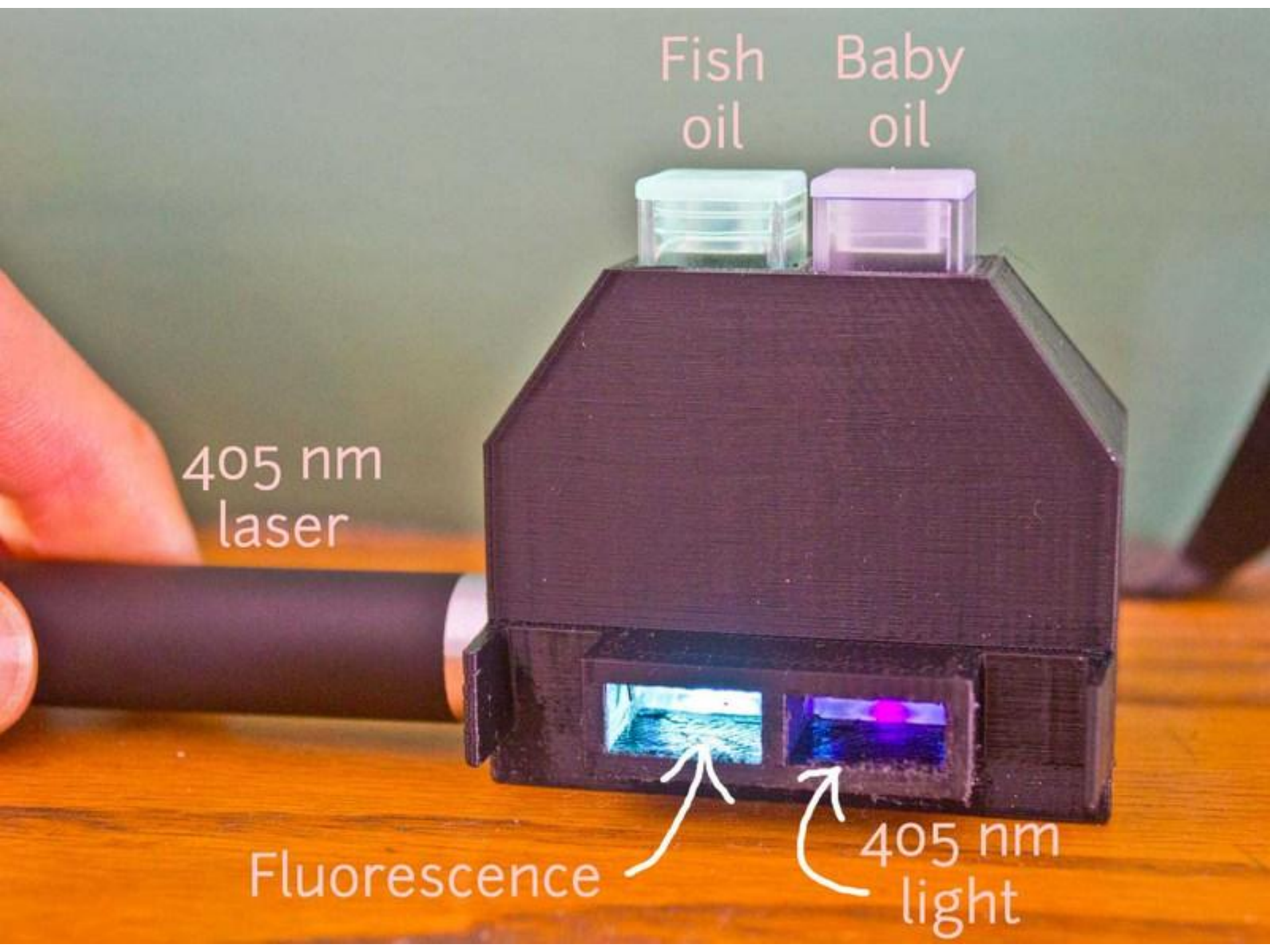
Fish  
oil

Baby  
oil

405 nm  
laser

Fluorescence

405 nm  
light





An aerial photograph of a beach cleanup activity. A long, red, segmented floating barrier runs diagonally from the top left towards the bottom center. A group of approximately 20-30 people, dressed in various casual clothing, are gathered on the sandy beach. Some are standing in small groups, while others are more isolated. In the bottom right corner, there are two bright green kayaks. The sand is a light tan color, and the overall scene suggests a community or organized beach maintenance event.

*Local groups can acquire expertise  
more readily today.*



A photograph of two men in a workshop setting. The man on the left, Gretchen Gehrke, is holding a glass jar filled with dark water. The man on the right, Nick Shapiro, is also holding a glass jar filled with dark water. They are both looking at the jars. The background shows a room with tables, chairs, and other people. The text "They can organize and build knowledge in parallel." is overlaid on the image.

*They can organize and build  
knowledge in parallel.*

 **Gretchen**  
Gehrke  
Public Lab Barnraising

**Nick**  
Shapiro  
Public Lab Barnraising





*Which is why we need to build bridges.*



9:00  
10:00  
11:00  
12:00  
13:00  
14:00  
15:00  
16:00  
FRIDAY

FRIDAY CLASSROOM  
Welcome  
Market place  
Lunch

FRIDAY CONFERENCE ROOM  
Welcome  
Market place  
Lunch

FRIDAY AUDITORIUM  
Welcome  
Market place  
Lunch

SAT CLASSROOM  
Market place  
Lunch  
Lightning Talk

SAT CONFERENCE ROOM  
Market place  
Lunch

SAT AUDITORIUM  
Market place  
Lunch

SUN CLASSROOM  
Mentor hour  
Clean up  
Vans Out

SUN CONFERENCE ROOM  
Mentor hour  
Clean up  
Vans Out

SUN AUDITORIUM  
Mentor hour  
Clean up  
Vans Out

FRIDAY  
SAT  
SUN





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