OPEnS eDNA Sampler Function (This falls under “Hardware Description” Section)

Outline:

* General Specs
  + 24 Filter Housings capable of holding 47mm samples.
  + Sampling Rate (1L sample takes 10-15 minutes with a 5um filter.
  + Cross Contamination Value?
  + Temperature, Flow, and Volume measurements taken for researchers.
  + Pressure data taken in for safety measures and general sampler operation.

The eDNA sampler we have developed is a water sampling device that collects DNA samples via 47mm filter holders and provides a non-invasive, safe and autonomous means of DNA collection.

The sampler can hold 24 of these filter holders and they are designed to be easily replaced and reusable.

A browser application is used for real-time monitoring, scheduling tasks, and data logging for time, pressure, flow, and filtered volume. In addition, the sampler design is openly published, modular and is being constantly tested to help us optimize our software and hardware to give us the best results.

Having worked on multiple iterations of the sampler, we have decided to go with a 9-step sampling sequence that helps reduce cross contamination significantly.

Recent tests have also revealed that the sampler is capable of sampling 100~150ml of water through 0.45-micron filters with an accuracy of ±10%. As a result, we have a machine that can be deployed for an extended period, while being completely autonomous in terms of sampling at a cost around $6000 per sampler.