

A Scroll of a Sampling Sort

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I must first begin by thanking Tom Mumford for telling Sandra Lindstrom about these sample bags. Sandra encouraged me to write up a little scroll-bag-how-to for the wider phycological community. However, the real thanks must go to Christophe Destombe who introduced me to his clever scroll sample bag technique when I was a visiting MS student at the Station Biologique de Roscoff in 2007. Not only did he and Myriam Valero, among others, provide a constant source of inspiration in my fledgeling academic career, his scroll bags have stayed with me to this day.



Christophe and the author sampling *Chondrus crsipus* at the Pointe de Premel in Brittany, France in 2007. (photo credit: Myriam Valero)

The ingenuity of the scroll bags lies in the ease of use: samples are added into slots that are pre-labeled and in order! The chance of losing a sample is small. Note taking is easy as everything is in order and pre-numbered. You roll as you go, so samples are in order when you get back to the lab - a huge time saver.



Pre-labeled, heat-sealed slots make it easier to sample and process, both in the field and in the lab.

What you need:

1. **A heat sealer** - the tabletop poly bag sealer by ULine works great. We use the 12" sealer (Model No. H-190).

2. **Poly tubing** - when I started my lab at the University of Alabama at Birmingham in 2016, I bought 6 MIL Heavy Duty Poly Tubing (30" x 400' Model No. S-14495). I still have it and have made many sets of scroll bags (you can see how much is left after almost 5 years in the images below!). However, I do wish one could get a slightly heavier weight for cleaning when sampling in mudflats as the 6 MIL can be prone to coming unsealed when stretched while cleaning out muddy corners.
3. **Poly tubing dispenser** - you want this to put the roll of poly tubing on to dispense while heat sealing. We have the 12" roll (Model No. H-28). It seems to be a bit wonky under the weight of a full 400' roll so needs some adjustment when unrolling.
4. **Sharpie** - I used different colors during my PhD to denote different sets of 100. While this was especially useful when sampling more than 100 samples or from different sites in the same day, I've found that only dark blue or black Sharpie stands the test of weather, time, and washing.

How to make the scroll bags:



Step 1: Unfurl the poly tubing and set up the heat sealer.

Inset image shows the tubing - once a roll is ready to go, you'll cut off the top edge to make the slots.



Step 2: Label bag lot and start sealing.

Try out a few tester bags - the level 3 seems to be enough to seal a bag slot without heating all the way through the tubing.

I also do lots of 25 which seems to be the sweet spot for amount of samples and fewest number of scroll bag bundles. I also label as I go to keep count!



I use letters A 1-25, A 26-50, A 51-75, A 76-100, B 1-25 ...



Step 3: Cut off the “top” of the tubing so each bag is a slot into which you can place your algal samples.

After this last field trip in the COLD, we’ve thought about cutting one side of the tubing down lower than the other to facilitate opening when gloved.



Observations:

Hands-down, these were the best sampling bags for working in intertidal rocky shores. Compared to pre-labeled sandwich bags, I never lost a sample.

The down side is they aren’t the easiest things to clean. This never presented a huge problem sampling in rocky intertidal zones as you rarely got the bags that dirty, inside or out.

When we started working in mudflats and were traveling all over the Northern Hemisphere, these seemed like the natural choice. We’d be sampling rapidly and in far-flung places. We needed something efficient and easy to use. I made countless sets of scroll bags, but when you can’t clean them out thoroughly when processing samples in a hotel room or squatting briefly in someone’s lab, already having made a muddy mess, it becomes an olfactory problem! The scroll bags were abandoned at the end of the trip before flying back to home base.

They aren’t exactly light either when you have a couple of sets which can make packing for a flight a tricky business, but I’d still forego something for the ease of use.

I wondered if these scroll bags were a rocky intertidal phycologists delight. Perhaps when sampling muddy environs, sandwich bags were the way to go. I’ve since used both approaches and have finally converted fully to the scroll bag in mud.



I have since been much more diligent about cleaning them and can attest to their survival even in the pluffiest of mud. It does really help to have a hose or a bit of aquarium tubing on a sink faucet to get each slot well rinsed.

Sampling in a mudflat - dish washing gloves kept hands dry and somewhat warm, but made opening the bags a problem I’d not previously encountered. (photo credit: Will Ryan)