

Manual Flotation: The Texas Archeological Society Method

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Equipment

- 1.0 mm or smaller mesh colander or screen box*
- Aquarium caulk, for sealing the edges of your mesh screen or colander
- 0.5 mm or smaller mesh** in 24" square sheets
- 2 five-gallon buckets
- 1-liter measuring cup or graduated cylinder
- Table screen (optional)
- Hose
- Nozzle
- Clean water source

Supplies

- Baking soda
- Flagging tape
- String
- Knife or scissors
- Sharpies
- Pencils
- Flotation log
- Towel
- Clothes line
- Clothes pins
- Poppy seeds, carbonized and counted into batches of exactly 100
- Numbered plastic or metal tokens

* Most window screen is 1/16" or 1.6 mm (i.e., far too large). You might be able to make your own screen if you find small enough mesh, create a waterproof frame and seal it properly with caulk. (British archeologists often cut the bottom out of plastic laundry tubs and sew mesh into the bottom.) Colanders are usually a better bet, but you'll need to take your calipers and a magnifier with you to the store to be sure you're getting an appropriate mesh size. Bed, Bath and Beyond was selling 1.0 mm colanders in the summer of 2012, and Williams Sonoma usually carries even finer meshes at commensurately higher prices. Whatever you use, don't neglect to caulk under the rim!

** We have used mosquito netting with triangular 0.3 x 0.3 x 0.5 mm openings, but others report good success with chiffon from the fabric store. The mesh should be cut into 24" square sheets. Each sample requires two sheets, although you can substitute a 24" square of bed sheet for the heavy fraction sheet. You'll need between six and ten times as many sheets as the number of samples you and your team can process in a day.

Procedure

1. Check to be sure that each bucket, colander and mesh is clean and contains no debris from previous uses. Check each mesh for rips or holes.
2. Fill out all entries in the flotation log except comments, volume and ending time.
3. Measure the soil sample into a 5-gallon bucket, packing the soil lightly into the measuring cup. If the sample is larger than five liters, it needs to be split. Record soil volume for the current sample in the flotation log.
4. Have a colleague sneak 100 poppy seeds into random samples while you are writing (here or in Step 6) and not tell you about it until afterwards.
5. Fill the bucket 2/3 full with clean water. Add 2/3 c. baking soda or more if soil has a high clay content. Stir and rinse your stirring stick into the bucket.
6. Label two flagging tapes with complete sample information. Don't forget to leave blank space on one end for wrapping. Prepare two 8" strings, gather 4-5 clothes pins and locate the two numbered tokens for this flotation sample.
7. Line the colander with a fine mesh, using clothes pins to secure it. Place the first flotation number token into the mesh-lined colander.
8. Use hand or stick to stir the sample, bringing botanical material into suspension. Remember to rinse your stirring mechanism back into the bucket. Large rocks and artifacts that get in the way may be rinsed and removed at this point, to be reunited with the rest of the heavy fraction later.
9. Carefully decant the liquid into the mesh-lined colander. Light material (botanicals, fish bones, etc.) will be poured into the mesh, leaving sediment and lithics in the bucket.
10. Add more water to the bucket, stir, pour and repeat until no additional material can be brought into suspension. Charcoal that simply refuses to float may be removed by hand and placed into the mesh.
11. Carefully spray the light fraction material into the center of the mesh-lined colander. Unpin the edges of the mesh and remove it from the colander. Gather the edges of the mesh and hold tightly in your hand. Spray the material again toward the center (bottom) of the mesh, spraying until the water runs perfectly clear. Tie the mesh tightly closed with string. Tie on the flagging tape label.
12. Attach the mesh bag to the clothes line and leave to dry in the shade.

13. Add water to material remaining in the bucket and stir. Carefully pour all the bucket's contents into a clean, unlined colander. Repeat until the bucket is clean and all material is in or has passed through the colander.
14. Spread out a fine mesh (or bed sheet square) and place the second flotation number token on it. Turn the colander containing the heavy materials onto the fine mesh. Spray the colander to move any remaining items onto the fine mesh. Gather the edges of the mesh and hold them tightly in your hand. Spray the material again toward the center (bottom) of the mesh, spraying until the water runs perfectly clear. Tie the mesh tightly closed with string. Tie on the flagging tape label. Attach the mesh bag to the clothes line.
15. Enter remaining information into the flotation log. Thank your colleague. Don't forget to move your samples inside at the end of the day.
16. Depending on temperature and humidity, it will take 2-5 days for the samples to dry. When thoroughly dry they may be transferred to plastic specimen bags for curation or transfer to a botanical analyst.

