HOT Sample Collection

For Sediment Traps:

1. If the brine did not get prepped during the last cruise, prep it now using 1kg NaCl/20L of seawater. Begin filling a 20L carboy with seawater in the wet lab (preferably station Aloha water). Mix the water with the NaCl in a separate container to dissolve the salt – decant the saturated seawater back into the filling carboy. Repeat this procedure until all the salt has been dissolved and added to the filling carboy. This ensures the salt is all dissolved and does not sit on the bottom of the carboy. Filter the solution through a 2μm cartridge filter (in the freezer on the ship right now, not sure where it will be stored at the beach lab).
2. Take a sample of the 0.2μm filtered initial brine in 2 labelled 50ml Corning tubes (label with Cruise# and "Initial Brine"), the tube does not need to be pre-rinsed. Store it in the fridge during the cruise, it will get sent back to UCSB post-cruise. Collect 2 samples in the 500ml PP bottles (630ml brim volume) and filter them on 0.6μm 47mm PC filters using the filtration rig in the main lab for the brine blank, fold/roll the filter and place in a labelled purple-capped 15ml PP tube (label with Cruise# and "Brine Blank"). Dry the filter in the drying oven overnight, then cap tightly for shipping back to UCSB.
3. Rinse the cartridge filter well with Nanopure – remove both screw-in plugs to be sure Nano flows through the entire cartridge. Store the rinsed filter in a clean ziploc bag in the freezer – BE SURE TO MARK IT "LIVE" SO NO ONE USES IT FOR DEAD TRAP BRINE FILTRATION.
4. Record the time the traps are recovered, siphon down to the brine/seawater interface discarding the seawater. Pour the brine into a 2L widemouth PP bottle. Measure the volume of brine – use either the HOT method of marking the cylinder and calculating the volume or mark the level on the PP bottle and measure the volume. Thorougly mix the brine prior to sampling. Collect duplicate samples in 250ml PP bottles (330ml brim volume) and filter them on 0.6μm 47mm PC filters using the filtration rig in the main lab, fold/roll the filter and place in a labelled purple-capped 15ml PP tube (label with Cruise# and Trap1-A, Trap1-B). Take ~60ml sample of the final brine from each trap in a 140ml syringe and filter through a 0.6μm 25mm PC filter in a syringe tip filter holder into a 50ml Corning tube (label with Cruise# and "Trap1 Final Brine") – be sure to push ~10ml through the filter before you collect the sample in the tube to wet the filter and clear it, the tube does not need to be pre-rinsed. Store it in the fridge during the cruise, it will get sent back to UCSB post-cruise.

Filling Bottles:

1. Collect water from the Niskins using a piece of silicone tubing. Start by rinsing the largest bottle 3x and rinsing/filling the other bottles while that bottle is filling – this saves both time and water. All bottles must be rinsed 3x prior to filling.

For PP Array:

1. You will fill 4 bottles from each of the 8 Niskins being sampled – 2 250mlPC round ^{32}Si production bottles (only 1 bottle is needed for planchette only production sampling), 1 125ml PP square dissolved Si bottle and 1 2.5L PC round particulate Si bottle ("i" series).
2. particulate Si: use the "i" series of the 2.5L PC round bottles for this, there are 8 of them – put 4 in each of the large carriers. Label 8 purple capped 15ml PP tubes with Cruise#, Cast# and Bottle# (199-S2C2-1).
3. ^{32}Si Production: get the 16 250ml PC round bottles for the PP array together, 12 of these bottles have the lanyards on them for hanging on the spreader bars, the other 4 will go 2 each into the dive bag (deep bottles #1 and #2). There are 8 bottles for "planchette" marked P, 1 bottle for "planchette" marked PK and 7 bottles for the "liquid scintillation counter" marked C. Label 7 scintillation vials (write on cap only, not on the vial) and 9 planchettes with Cruise#, Cast# and Bottle# (199-S2C2-1P or 1C or 7PK). Label each planchette on the bottom as well as on the top of a small petrie dish.
4. dissolved Si: there are 8 125ml square PP bottles in a small carrier. Label 16 50ml Corning tubes

(duplicates) with Cruise#, Cast# and Bottle# (199-S2C2-3).

For Gas Array:

1. You will fill 4 bottles from each of the 8 Niskins being sampled - 2 250mlPC round ^{32}Si production bottles, 1 125ml PP square dissolved Si bottle and 1 8L PP Si jerrican. You will also need to rinse the 2 corresponding 2.5L PC round bottles directly from the Niskin.
2. delta bSi / particulate Si: get the jerrican and corresponding 2.5L PC round bottles. After rinsing all three bottles and filling the jerrican, split the jerrican volume between the 2 PC bottles, filling the "f" series (final) bottle first, then fill the "i" series bottle – if there's not enough water to fill the "i" series (initial), mark the water level with a Sharpie on the bottle then measure the volume later using a graduated cylinder. Label 16 purple capped 15ml PP tubes with Cruise#, Cast# and Bottle# (199-S2C9-1i and 199-S2C9-1f). The initial series will be filtered immediately; the final series will be strapped to the gas array frames and incubated for 24 hours.
3. ^{32}Si Production: get the 16 250ml PC round bottles for the gas array together – none of these bottles have any attachment device, they go in pairs to the mounting brackets Blake made. Again, there are 8 bottles for "planchette" marked P, 1 bottle for "planchette" marked PK and 7 bottles for the "liquid scintillation counter" marked C. The deep bottles (#1 and #2) will be incubated in the dive bags. Label 7 scintillation vials (lid only) and 9 planchettes with Cruise#, Cast# and Bottle# (199-S2C9-1P or 1C or 7PK). Label the planchettes on the bottom as well as on the top of a small petrie dish.
4. dissolved Si: there are 8 125ml square PP bottles in a small carrier. Label 16 50ml Corning tubes (duplicates) with Cruise#, Cast# and Bottle# (199-S2C2-3).
5. then the volume in the jerrican will be split between the "f" series (final) and the "i" series (initial) 2.4L PC round bottles. Always fill the "f" series first, we can be a little short on the "initial" volumes. If you're short on the initial volume, mark the bottle and measure the correct filtered volume to fill in on the data sheet.