CHN and ISOTOPE FILTRATION PROCEDURE

GET IT TOGETHER:

- square 1000ml PP bottle for measuring sample volume
- pre-combusted 25mm GF/F filters – 450^{o}C for 5 hours
- 25mm screw together filtration towers
- forceps
- pre-combusted foil pouches – 450^{o}C for 5 hours
- Sharpie, tape and stick on coloured dots

SAMPLE COLLECTION:

- Use a square 1000ml PP bottle to measure sample.
- Rinse bottle and cap 3 times with water from the 4L carboy.
- Fill bottle to brim and cap – this volume is 1240ml.
- Filter samples immediately.

SAMPLE FILTERING:

Blank Preparation:

- Place a blank pre-combusted filter (25mm GF/G) in a pre-combusted foil packet. Label the packet using the date and "BLANK". Do a blank for every set of samples.

Sample Preparation:

- Rinse 25mm filter towers with Nanopure and shake to remove excess water. Do this before every sample.
- Place filter on base with tweezers; do not use fingers.
- Carefully place tower on base, do not crease filter, and twist together.
- Shake sample container, then pour seawater sample into filter funnel. If the sample bottle is filled to the rim, samples are usually the same volume.
- Turn vacuum pump on; vacuum should be around 10 mm Hg. Pump only until filter dries, do not maintain vacuum on dry filters.
- Using forceps, carefully fold filter in half and slide into foil pouch, fold pouch shut.
- Label foil pouch as per labeling protocol.
- Keep foil pouches in freezer until >60 have accumulated and they can be submitted for analysis.

PRE-SUBMISSION PREPARATION:

- Acid wash glass scintillation vials and lids.
- Pre-combust (450^{o}C, 2 hours) glass scintillation vials without lids.
- Rinse lids well with Nanopure and place in clean (acid-washed) plastic tri-pour beaker. Cover with large clean (acid-washed) petrie dish. Place on top of drying oven, heat from oven will dry the lids.
- Thaw frozen filters in foil packets and allow to dry in 65^{o}C oven overnight.
- Transfer filters to scintillation vials – be sure to label vials the same as foil packets.
- Place all vials in a deep Pyrex dish with lid, put dish in fume hood.
- Place a 25ml beaker containing ~20ml of concentrated HCl in the centre of the pyrex dish and put the lid on. Allow to sit fuming overnight.
- Remove HCl and place Pyrex dish containing scintillation vials in 65^{o}C drying oven.
- When dry, remove from oven, cap with dry acid-washed lids and submit to the MSI analytical lab for analysis.

LOG EVERYTHING:

Record ALL information to log sheet. Make a note on the log sheet if any problems were encountered during filtration; i.e. a torn filter, leaking funnel - ANYTHING. Fill out entire log sheet – it may take a little time now, but it's worth it in the long run! Check your labeling.

CLEAN EVERYTHING:

Rinse all sample bottles 3X with Nanopure.
Rinse all filter towers and frits 3x with Nanopure.