Plans for the Comparison Study

Taking concentration, salinity and seasonal variability into account, 100 paired samples will be analyzed on the Skalar San^{Plus} Continuous Flow Analyzer and the LACHAT QuikChem 8500 Series 2 Flow Injection Analyzer for the following parameters: ammonia, nitrite, nitrite + nitrate, orthophosphate, particulate phosphate, silicate, total dissolved nitrogen, and total dissolved phosphorus. Some of the samples will be below the Practical Quantitation Limit (PQL). The samples were collected from March 2011 through December 2011.

Two calibration curves will be used – one prepared in Artificial Sea Water (ASW) and one in Type I reagent water. Currently ASW matrix water is used on the Skalar, and Type I reagent matrix water will be used on the Lachat. For the study, the standards will be made manually so they can be used on both instruments. The samples and calibration curves will be processed on both instruments on the same date(s). After the switch over, the autodilutor on the LACHAT will be used to prepare the calibration standards, and a manually prepared Certified Reference Material (CRM) will be analyzed to verify the calibration.

However, prior to running any samples, a Method Detection Limit (MDL) study will be performed. Also, an Initial Test Method Evaluation [see Quality Manual, Section 18.3 and Appendix J] will be conducted. This involves the determination of the Limit of Detection (LOD), confirmation of the Limit of Quantification (LOQ), evaluation of precision and bias, and an evaluation of the selectivity of the method. The precision and bias will be determined by running a Demonstration of Capability (DOC) [see Quality Manual, Appendix J].

We will compare the following matrices: Skalar ASW versus LACHAT ASW; Skalar Type I reagent water versus LACHAT Type I reagent water; and Skalar ASW versus LACHAT Type I reagent water. Ultimately, the switch over will be from the current Skalar using ASW to the LACHAT using Type I reagent water.