ANALYSIS OF TRACE ELEMENTS IN COASTAL SEAWATER USING THE NEXION 2200 ICP-MS. **Sandeep Kumar,** Liyan Xing, Chady Stephan, and Aaron Hinemann, Perkin Elmer Scientific Canada ULC, 501 Rowntree Dairy Road, Unit # 6, Woodbridge, ON, L4L 8H1, *Canada.* (Sandeep.Kumar@PERKINELMER.COM)

Seawater is one of the most challenging sample types to analyze by inductively coupled plasma mass spectrometry (ICP-MS) due to its high total dissolved solids (TDS) content in the matrix. Trace elemental analysis using ICP-MS has the advantages of multi-element analysis capability, high sensitivity, low detection limits, wide linear dynamic range, and easy automation. Nevertheless, ICP-MS analysis is also subject to interferences. The high concentrations of matrix components in seawater, such as sodium, magnesium, and chloride ions, may form polyatomic spectral interferences making the determination of trace elements, such as arsenic, cobalt, vanadium, and iron, challenging. Even for elements like cadmium, thallium, and lead, that have fewer spectral interferences, their low concentrations make them difficult to determine with accuracy and precision. Historically, for ICP-MS analysis of high TDS samples, several strategies have been employed, such as matrix separation, analyte preconcentration, reductive precipitation, hydride generation techniques, etc. These involve offline sample preparation and/or use of extra equipment. In this work, we present the direct analysis of seawater using a straightforward online dilution approach and using NexION 2200 ICP-MS equipped with High Throughput System (HTS). The data quality and instrument performance were evaluated by the method detection limits, the linearity, the accuracy, and long-term stability.