ANNUAL REPORT ON GEOTRACES ACTIVITIES IN KUWAIT

June 1st, 2015 to April 30th, 2016

Recent Trace Metal Analysis activities at Chemical Oceanography Laboratory, KISR, Kuwait

Kuwait is in the northwestern part of the Arabian Gulf and receives flow from Shatt Al-Arab River as the main fresh water input to the Gulf. Kuwait's waters can be described as eutrophic, euphotic, and highly saline waters.
In 2011, new trace metal laboratory has been established in Kuwait Institute for Scientific Research, by Dr. Turki Al-Said. Dissolved trace metals (Copper, Nickel, Cobalt and Zinc) in seawater samples are measured using electrochemical technique Adsorptive Cathodic Stripping Voltammetry (AdCSV) (797VA Computrace Instrument) and dissolved Iron is measured using Chemiluminoscence based Flow Injection Analyzer (FeLume-FIA).

New Scientific Results

- Recently, transactional survey was conducted for assessing the trace metals distribution in Kuwait water using acid clean polyethylene sampling devices during two seasons in June (summer) and November (winter), 2015. Figure 5 display the location of sampling conducted in Kuwait's seawater.

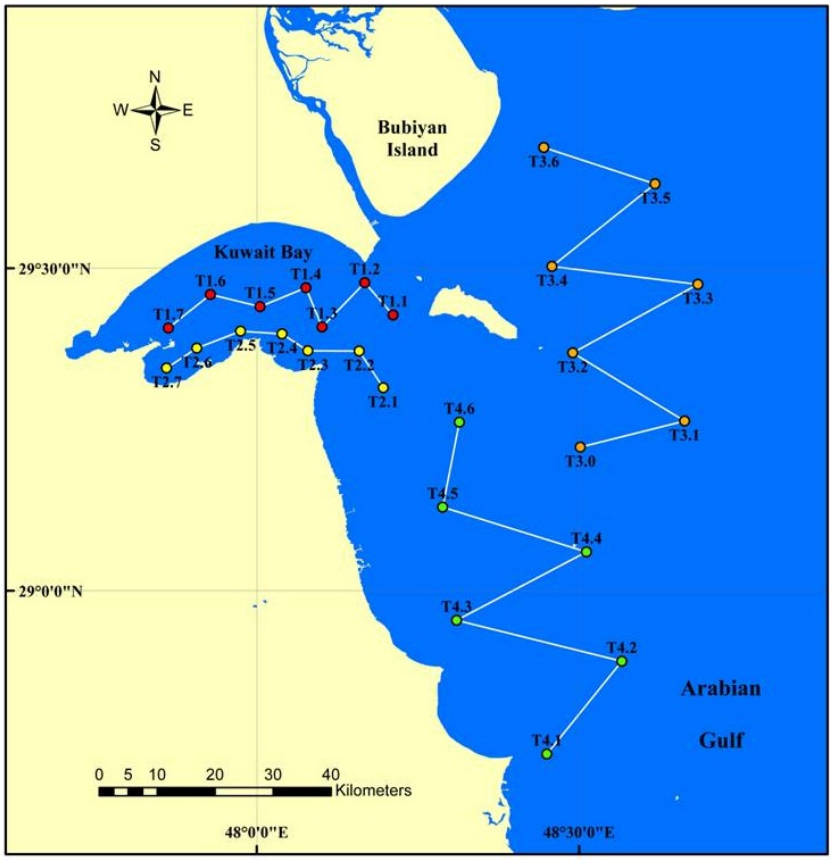

Figure. Location of sampling in Kuwait's waters

The average concentrations of Copper, Nickel, Cobalt, Zinc and Iron during the study in Kuwait's waters were 12.05nM (3.94 to 27.17nM), 17.67nM (7.80 to 34.80nM), 0.74nM

(0.51 to 1.34nM), 12.04 nM (5.14 to 33.17nM) and 4.54nM (0.44 to 28.16nM) respectively.

Although the dissolved trace metal values were within the range of published values in similar coastal regions, it was considerably lower than the earlier reports by Bu-Olayan et al. (2001) in Kuwait's water a decade ago. This shows the effectiveness of the clean technique used in this study.

The recent study is the first attempt towards describing trace metal in Kuwait waters using trace metal clean techniques. Future studies will confirm the importance of trace metal speciation to phytoplankton dynamics in Kuwait's waters.

Future Projects

- Effects of dust on biological activity, speciation studies on copper and Iron distribution in Kuwait waters.

Published Conference Paper

- Al-Said, T., T. Pokavanich, A. Al-Hashem, and R. Kedila (2016). Distribution of Bioactive Trace Metals (Fe, Co, Ni, Cu, and Zn) in the Semiarid Kuwait Bay: Role of Anthropogenic Sources. 2016 Ocean Sciences Meeting, February 21 - 26, New Orleans, LA 70130.

Reference

- Bu-Olayan, A.H., R. Al-Hassan, B.V. Thomas and M.N.V. Subrahmanyam. 2001. Impact of trace metals and nutrients levels on phytoplankton from the Kuwait Coast. Environ. Intern. 26:199–203.

Submitted by Turki Al-Said (trsaid@kisr.edu.kw).