

## **Considering organic carbon, total organic matter and total nitrogen in sediments of Strait of Hormoz to detect the pollution sources**

Project manager: **Dr. Homeyra Agah**

Contributors: **Shirin Rahmanpour, Neda Sheijoni**

### **Abstract**

The variations of total organic carbon (TOC), organic matter (TOM) and total nitrogen (TN) contents, and the carbon-nitrogen ratio in superficial sediments collected from 33 stations at the strait of Hormoz were investigated. Sampling was performed at the depths of 12 to 59 meters in spring of 2010 after sitting down algal bloom in the area.

Organic carbon, organic matter and total nitrogen (Sum of organic nitrogen, ammonium, nitrite and nitrate) were determined using TOC analyzer and Loss on Ignition (LOI) method at  $\pm 450$  °C, Kjeldahl and spectrophotometer (Hach), respectively.

TOC concentrations were in the range of 0.5 to 3.5 % with an average of 1.9 % (Standard deviation of 1.3%, n=99), organic matter were in the range of 3.5 to 10 % with an average of 7 %. According to the standards of Environmental Protection Agency of United State (US EPA, 2002), the organic carbon levels in the analyzed sediments were in the range of sediments with low to medium organic carbon level.

Our investigation demonstrated that in addition to increasing TOC level in the sediments

of the Strait of Hormoz in comparing with the background of the area, the C/N ratios for 33 sediment samples from the depth of 12 to 59 meter, were less than 10, which suggest that the background of algal bloom in the area could effected on TOC level in the sediment of Hormoz strait.

**Keywords:**

Organic Carbon, Organic Matter, Total nitrogen, strait of Hormoz, algal bloom, Persian Gulf