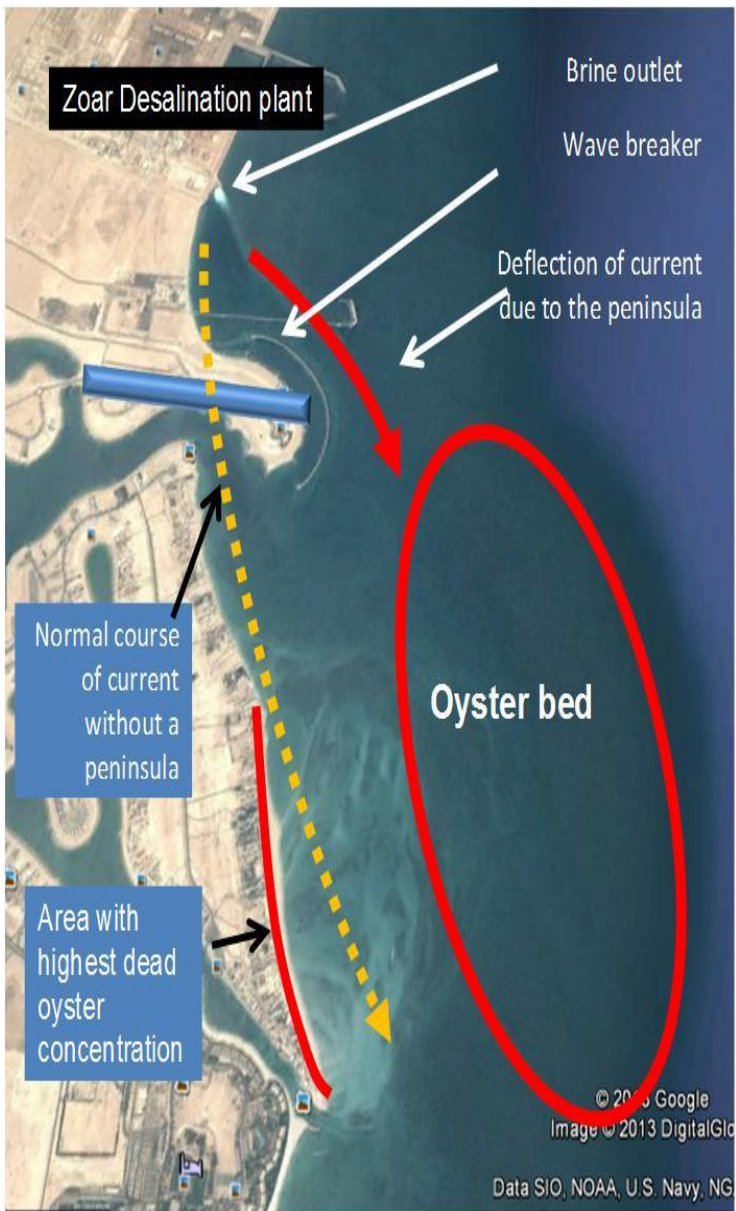


Oyster mortality (October 2013)

Background

- **An Oyster Kill at Khiran beach was noted on 30th of October 2013.**
- **The Oceanography Cruise and field Team From KISR in cooperation with representative of the Public Authority for Agriculture and Fisheries started the emergency investigation plan and collected the samples from approximately reported area on 31st Oct, 1st Nov and 14th Nov, 2013.**
- **The samples were collected from 11 sites**





Sampling and analyses

- Samples were collected from the sites

The following oceanographic measurements were done in triplicates. (Dissolved oxygen (DO)), **Salinity**, **Temperature**, **conductivity** and **pH**, **Macronutrients** (nitrate, phosphate, silicate, and ammonia), **Turbidity**, **Chlorophyll-a**, ***and trace metals***

Observations

- In general, the high metal concentrations of Cu and Fe observed at the selected sites was inferred due to possible metal input from the industries and desalination plants close to the observed site.

Observations

- The concentrations of Ni (6.06 ± 0.05 nM) on 31st October, 2013 and Co (0.56 ± 0.01 nM) on 14th November, 2013 was compared with previous concentration in 2012. there was some variability in the results between both occasions.
- The concentration of Cu at the selected sites was higher than the values reported in 2012 for Kuwait's water and the average concentration at the nearby Kubbar Island for the past 2 years. **It was suggested, therefore, that a source of metals was dumped into the Khiran area.**

Observations

- The condition of the surface of shells and valves suggested that most the mortality of mollusks must have occurred some days before October 2013.
- **Bivalves** *P.radiata* and *C.livida* are filtration feeders and thus they are **sensitive to toxic agents.**

Observations

- Together with pearl oysters, high abundance of dead scallops *Chlamys livida* (Family Pectinidae) and shells of gastropods *Bulla ampulla* (Family Bullidae) were observed in the intertidal zone.

Conclusions

- **No significant abnormality was observed as far Oceanographic measurements**
- **The mortality is hardly be attributed to change in water quality or possible input of harmful chemical substances into the area.**
- **Most probably the mortality was due to sport diving for pearl collection.**