

ROPME MUSSEL WATCH PROGRAMME

2014

TRACE METAL SCREENING

CONCLUSION

The levels for the most of the trace elements observed in oysters are generally in agreement with levels reported in the previous study (de Mora et al., 2004; Fowler et al., 1993; IAEA, 2005; IAEA 2013) for the same species. Some relatively high levels were observed for As, Cd and Pb in some stations. The sample collected in Iraq shows significantly higher levels for several elements but it is not clear if these results reflect a local pollution process, because this was the first time that samples were collected from this station. The continuation of sampling in the region will allow investigating if the enhanced trace element concentrations are consistent and if they are related to local pollution sources.

Overall the levels observed in sediments of the coastal zone of RSA collected during the ROPME Mussel Watch 2014 campaign are comparable with data obtained during previous studies (de Mora et al., 2004; Fowler et al., 1993; IAEA, 2005; IAEA 2013). It should be noted that the levels of Ni in the entire RSA region appear to be slightly increased in relation to the past. Continuation of monitoring is required to conclude if this is a real increasing trend or if it related to artifacts during the 2014 sampling campaign.

RECOMMENDATION

Despite the fact that most of the results observed in this study are in good agreement with the results from previous monitoring campaigns, additional investigations can be planned for the sites where higher concentrations of trace elements have been found. In order to obtain better evaluation of the level of contamination, an extensive and comprehensive sampling campaign could be envisaged, including the existing sampling stations for comparison purposes. In the present study, only few stations were common with previous sampling campaigns, which didn't allow the establishment of temporal contamination trends in many cases. Additional data on contaminants' concentrations will also allow the use appropriate statistical tools to better understand pollution processes in the region. It has to be underlined, that biological samples should be collected following rigorous standard operating procedures in order to obtain representatives and comparable samples with respect to species, size, gender, and spawning season. Also, sampling of sediments should be conducted in areas with relatively fine material,

because sediment samples consisting entirely (or mainly) of coarse sand and shell fragments cannot be used for trace element analysis.

In addition, sampling (of biota and sediment) should be carried out by competent and trained staff and sampling protocols should be followed consistently and rigorously for the different steps involved: such as collection of samples, pre-treatment (dissection of organisms, freeze drying, etc.), transport and storage.

In the present study two results were considered as “potential artifact” but it was not possible to check this hypothesis because no duplicate samples were available. It is strongly recommended that samples are regularly collected in duplicates.