Introduction: In recent years, the accumulation of heavy metals in aquatic ecosystems has become a great problem throughout the world, especially in developing countries like Bangladesh. In the Bangladesh context, the accumulation of heavy metals in coastal areas has been paid less attention and no complete study have been carried out so far. Besides, unfortunately the concerned authorities, public administration, and overall general people have not been aware to this severe lethal health risk problem. Eventually, it will be a severe public health concern in near future. Hence, it is high time to concentrate our views to this problem with integrated approaches.

Objective: To determine the concentrations of certain heavy metals and their spatial and temporal distribution in water, sediment and some commercial fishes emphasizing on public health risk assessment in the coastal area of Bangladesh.

Materials and methods

Water sample:
surface water samples → 100 ml polyethylene bottles previously washed with dilute nitric acid and deionized water → different stretches and acidified with 10% concentrated nitric acid

Sediment sample:
Coastal bed sediment (top to 5 cm) by Ekman grab sampler → acid-rinsed polypropylene bags → oven dried at 105 °C for 24 h → an agate mortar and pestle → sieved through a plastic mesh (aperture 63µm) → stored in polyethylene bottles until sequential extraction analysis

Fish sample:
Fish samples → deionized water to remove surface adherents → about 300 g of fish muscle → dried under oven at 105 °C for 24 h → polypropylene bottles or Ziploc bag for chemical analysis

Health risk assessment:
Target Hazard Quotient (THQ)

Inductively Coupled Plasma-Mass Spectrometry (ICP-MS)

Summary of Experimental Design

Heavy metals contamination in water, sediment and fish

Environmental Challenges for Bangladesh

Public Health Risk

Implications for new generation

Future plan

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