



## Seasonal variability of some traces metals in particulate matter and sediment in a tropical monsoon driven estuary (Godavari) Natural and Anthropogenic influences

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**Abstract:** Rivers are the routes from land to the sea via estuaries which contains of materials of natural weathering and manmade activities compared the total amount of naturals carried by rivers, the amount carried through atmosphere, run off from land and through ground water is believed to be very small. The author has undertaken a systematic investigation of the distribution of some particulate metals along with physico-chemical parameters in this area and their impact on particulate metals.

**Key words:** Godavary estuary, particulate matter, sediment

### Introduction

Godavari originates at an altitude of about 1600 at Triambak near Nasik (Maharashtra) in the western ghats and traveled about 1530 km east wards across the peninsular India and drains in to the Bay of Bengal particularly during monsoon season several small tributaries such as Manjira, Kaudalear, Dundo, Purna, Penganga, Indravathi, Sabari and Sileru join the river. Godavari flows in AP as three branches Gowthami, Vasista and Vynatheya.

Hydrography, Nutrients, particulate trace metals, sediment trace metals analysed by the author.

**Particulate trace metals:** Particulate trace metals like Cadmiums copper, iron. Nickel, lead, and zinc were estimated in the collected particulate matter from the waters of the Gowthami Godavary estuary. The

particulate cadmium concentration in the surface waters were in the range of 1.86 to 9.79  $\mu\text{g/g}$  with an average of 5.18  $\mu\text{g/g}$ . The particulate copper concentrations in the surface waters were in the range of 13.68 to 52.32  $\mu\text{g/g}$  with an average of 32.05  $\mu\text{g/g}$ . Whereas the bottom water ranges from 6.02 to 35.16  $\mu\text{g/g}$ . The particulate Nickel concentration in the surface waters were in the range of 3.78 to 34.63  $\mu\text{g/g}$  with an average of 16.70  $\mu\text{g/g}$  whereas the bottom water concentration ranged from 2.10 to 23.65  $\mu\text{g/g}$  with an average of 10.01  $\mu\text{g/g}$ .

Relatively higher concentration was observed in head of the estuary and low concentration in the mouth of the estuary.

### Trace metals in sediment:

Sand content in the sediment ranged from 22.35 to 79.25% with an average of 47.45%. The silt content in



the sediments ranged from 8.35 to 43.45% with an average of 25.54%. The clay content ranged from 12.40 to 45.48% with an average of 27.97%.

Cadmium is the least abundant metal in the sediment of Gowthami Godavary estuary ranged from 17.16 to 35.14  $\mu\text{g/g}$  with an average 25.10  $\mu\text{g/g}$ . Higher values were observed in monsoon season.

Copper concentration ranged from 21.25 to 207.50  $\mu\text{g/g}$  with an overall average 78.78  $\mu\text{g/g}$ . Higher values were observed during monsoon season.

Iron concentrations are ranged from 902 to 1472  $\mu\text{g/g}$  with an overall mean concentration of 1194.50  $\mu\text{g/g}$ .

The concentration of Necked ranged from 43.15  $\mu\text{g/g}$  to 116.48  $\mu\text{g/g}$  with an average 82.07  $\mu\text{g/g}$ .

The above metal concentration are maximum during monsoon season.

**Conclusion:** From the observation it was observed that the sediments of Gowthami Godavari is not much polluted.

#### **References**