9. SUMMARY

- The marine water and sediment sample was collected from Gulf of Mannar coastal region during post monsoon, monsoon and pre monsoon seasons at 30 sampling stations.

- During monsoon season high rainfall was recorded at all sampling stations compare than other seasons (Post monsoon and pre monsoon).

- The physico chemical properties were analyzed in marine water sample at Gulf of Mannar region. Temperature, pH, electrical conductivity, turbidity, salinity, total solids, total dissolved solids, total suspended solids, dissolved oxygen, biological oxygen demand, chemical oxygen demand, nitrate, nitrite, phosphate, sulphate, silicate, ammonia, oil and grease, total hardness, chloride, calcium and magnesium was varied in between the seasons and between the stations p<0.05.

- The physico chemical properties were analyzed in marine sediment sample at Gulf of Mannar region. pH, organic carbon, organic carbon, total phosphorus, total phosphorus, oil and grease was varied in between the season and station pp<0.05.

- The heavy metal concentration was analyzed in marine water sample at Gulf of Mannar region. Copper, zinc, nickel, cadmium, chromium, lead and mercury was varied between the seasons and between the stations p<0.05. Arsenic was not varied in between the seasons p>0.05 and between the stations was varied p<0.05.

- The heavy metal concentration was analyzed in marine sediment sample at Gulf of Mannar region. Copper, zinc, nickel and lead was varied between the season and between the stations p<0.05. Cadmium, chromium, arsenic and mercury was not varied in between the season p>0.05. Cadmium, arsenic and mercury was not varied in between the stations p>0.05.

- Chlorophyll content was measured in marine water sample at Gulf of Mannar region. productivity level was measured in marine water sample. Chlorophyll, gross primary
productivity, net primary productivity and respiratory activity was varied between the seasons and stations $pp<0.05$.

- Total coliform level was counted in marine water sample at Gulf of Mannar region. The high amount of total coliform was reported in Kilakarai (460 MPN/100 ml) and Theraspuram (460 MPN/100 ml) compare than other stations.

- Faecal coliform level was counted in marine water sample at Gulf of Mannar region. The high amount of faecal coliform was reported in Kilakarai (210 MPN/100 ml) and Theraspuram (210 MPN/100 ml) compare than other stations.

- Total coliform level was counted in marine sediment sample at Gulf of Mannar region. The high amount of total coliform was reported in Kilakarai (460 MPN/100 ml) and Theraspuram (460 MPN/100 ml) compare than other stations.

- Faecal coliform level was counted in marine sediment sample at Gulf of Mannar region. The high amount of faecal coliform was reported in Kilakarai (210 MPN/100 ml) and Theraspuram (210 MPN/100 ml) compare than other stations.

- GIS Map prepared for differentiate spatial and temporal variation in marine water and sediment values.

- Physico chemical, biological and bacteriological properties were varied in Thoothukudi covered sampling station compare than Ramanathapuram.