Distributions of temperature and dissolved oxygen in the Terengganu estuary

ABSTRACT

This study provides new information on both the temperature and dissolved oxygen (DO) distributions in the Terengganu estuary. Temperature and DO were measured, along the Terengganu estuary and her two rivers, once a month for 12 months, using a Hydrolab multi-parameter probe. This is to determine the response of both temperature and DO distributions to seawater intrusion in the Terengganu estuary. Our results show that water is cooler upstream and the temperature increases downstream towards the mouth of the estuary. The highest water temperature is recorded in June (29.40°C), while the lowest water temperature is detected in January (25.84°C). We concluded that the temperature distribution in Terengganu estuary and both the rivers, is influenced directly by the monsoon seasons. DO values in the Terengganu estuary are generally high (5-6 mg/l) throughout the year except in August (3-4 mg/l). The values tend to increase from the estuary towards the sea from April to July, but the trend reverses from September to December. Therefore, two transitional stages can be identified. The first transitional stage starts from January to March (where seawater gradually intrudes the Terengganu estuary) and the second transitional stage occurs in August (where seawater gradually retreats from the Terengganu estuary). Thus, the DO distribution in the Terengganu estuary and both the rivers is influenced directly by seawater intrusion.

Keyword: Temperature; Dissolved oxygen (DO); Terengganu estuary