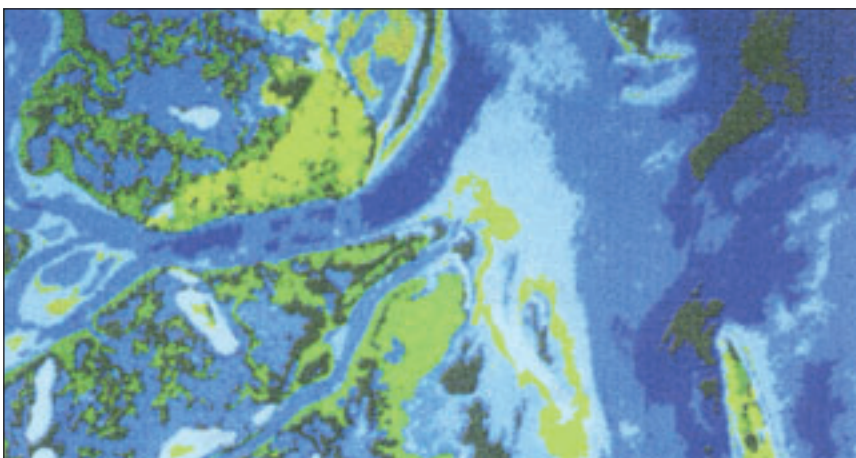




## ESTUARIES



### **What is an estuary?**

An estuary is a firth, it is a semiclosed area for coastal water having a direct connection with sea water. Sea water is being diluted to great extent in its water by the fresh water resulting from land drainage.

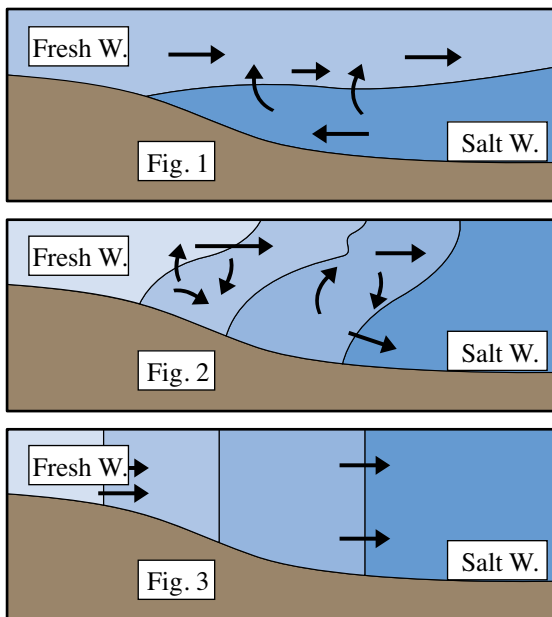
### **Classifications of estuaries:**

In some semiclosed estuaries, the rate of evapora-

tion is equal to or more than the rate of fresh water gushing (flowing). By this, the ratio of salinity is either equal or more than the sea water.

Estuaries which are the most salty ones are called negative estuaries (*Fig.1*), while those where the rate of evaporation equals the rate of fresh water gushing are called balanced estuaries (*Fig.2*). As for estuaries where the rate of fresh water gushing is more than the rate of evaporation they are known as positive estuaries (*Fig.3*).

**Rate of evaporation = Rate of fresh water gushing balanced estuaries**  
**Rate of evaporation > Rate of fresh water gushing → - ve estuaries**  
**Rate of evaporation < Rate of fresh water gushing → + ve estuaries**  
*\* The sign (>) more than the sign (<) less than*



## **Estuaries environments**

The environment of estuaries is considered to be a complicated one if compared to other marine environments. It is a rich and a productive environment. As a result of its variation, only few types of organisms can permanently survive in it and take a residence in it more than their residence in other marine environments.

Some organisms take the estuaries environment places to bring up their children for limited time only.

In one of the richest regions for fishing in the world located in the east of the U.S., three quarters of the fish with an economical value spend a period of its life in the estuaries.

## **Estuaries precipitations**

Precipitation of estuaries takes place because of the deposits brought by rivers as a result of the land drift. It also takes place by the deposits brought from the seawater. Deposits with the small particles hang in water and move with the water current and then settle in the times when the speed of water is low. Those particles which are large move towards the seabed according to the speed of the current.

There is a great importance of both types. In case of some estuaries, the valleys become completely filled that they form a delta for the river. This delta is in its

best forms in places where the results of Tidal flow decrease, in which the capability of the currents to distribute the deposits which the rivers carry seasonally vanish. They are usually formed in the tropical and semitropical regions where the amount of the river precipitates are rich.

Usually the water ways of the delta are shallow and especially at the mouth of the estuary for example, the Mississippi and the Thames rivers.

## Do you know ?

1 - Rivers water pouring out in the estuaries are considered as a basic source for foodstuffs to include phosphates and nitrates

2 - Oysters are considered most animals that can bear short times of drastic circumstances.

3 - The concentration of phosphates and nitrates in the rivers water that pour out in the estuaries are more than its concentration in the sea water.

---

**Realised by :** Prof. Dr. Mohamed SABER SELIM  
Prof. Dr. Kamal El-Din Hassan EL-BATANOUNY  
Academy for Scientific Research and Technology,  
Cairo University, Cairo, Egypt.  
Tel and Fax: (202-5) 71 58 85  
E-mail: batanouny@frcu.eun.eg



Ain-Shams University



Academy for Sc. Research  
& Technology

**Coordinateur Régional :** Prof. Dr. Abdelhamid BELEMLIH  
Société Protectrice des Animaux et de la Nature «SPANAs» 41, Résidence Zohra, Harhoura  
12 000 Témara - Maroc - Tél : (212-7) 74 72 09 - Fax : (212-7) 74 74 93 - E-mail : spana@mts.net.ma