

How are Estuaries the “Nurseries” of the ocean?

What is an Estuary?

Flooded river valley

(Chesapeake Bay, Delaware Bay)

Most of the sea-life spends most of its time close to the coast.

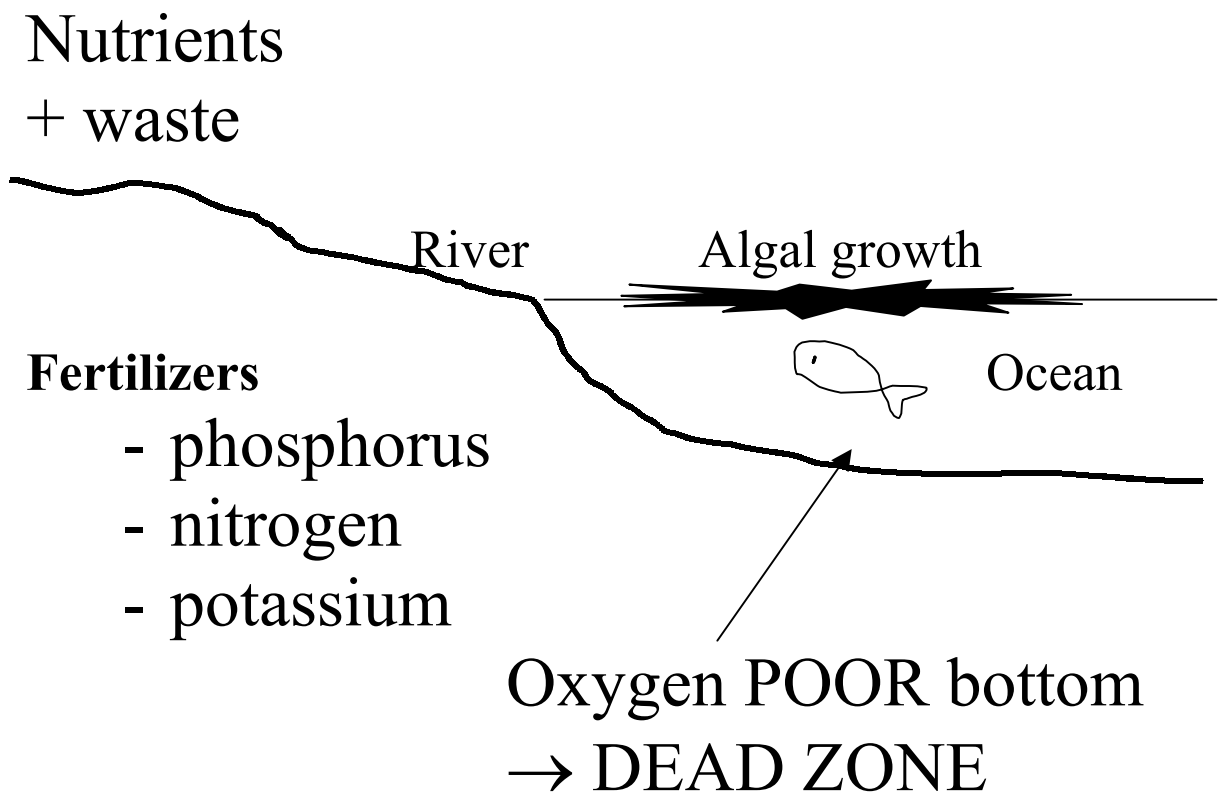
Estuary is a very specific environment

- nutrient rich
- sheltered from big waves
- fairly shallow
- conducive to success of offspring
- salty enough to support marine life
- lots of interesting little habitats
- **EXTREMELY FRAGILE**

Rivers bring nutrients into an estuary.

More nutrients → more biological productivity

What happens when too much of the nutrients (miracle grow) arrive?



Blue green algae – if grow too much → poison themselves

- Algal mats produce lots of Oxygen
- As the mats grow they cut sunlight to the life below
- Algae die and fall onto the bottom
- They are oxidized at the bottom (consuming oxygen)

TO MUCH OF GOOD THING KILLS THE SYSTEM

(Take a look around the lakes and ponds)

What about Herbicides, Pesticides and Heavy metals brought by the rivers?

Junk, such as plastic containers, holders...?

Can the estuaries clean themselves?  
(self-cleaning power)

## Types of Estuaries

1. Salt wedge
2. Mixed estuary
3. Fjord
4. Reverse

**Salt wedge** type can be flushed with vigorous flow of the river.

### **Mixed estuary**

- Needs more time to flush
- the gradient is established because there is no intense flow of water

### **Fjord**

- has very long flushing time
- bottom water is stagnant behind the sill

Cleaning also depends on the size of the estuary and how much pollution is added.