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Aquatic Biodiversity

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Ecological Services of Biodiversity

Ecological services:

- Balance of nature
- Biological productivity
- Regulation of climate
- Degradation of waste
- Cleaning of air and water
- Cycling of nutrients
- Control of potential pest and disease causing species
- Detoxification of soil and sediments
- Stabilization of land against erosion
- Carbon sequestration and global climate change
- Maintenance of Soil fertility

Water

- Earth is Covered with Water (97%)
- Salt water (71%)
 - Oceans and Estuaries
 - Coastlands and shorelines
 - Coral Reefs
 - Mangrove Forests
- Fresh Water
 - Lakes
 - Rivers and Streams
 - Inland Wetlands



The Ocean Planet

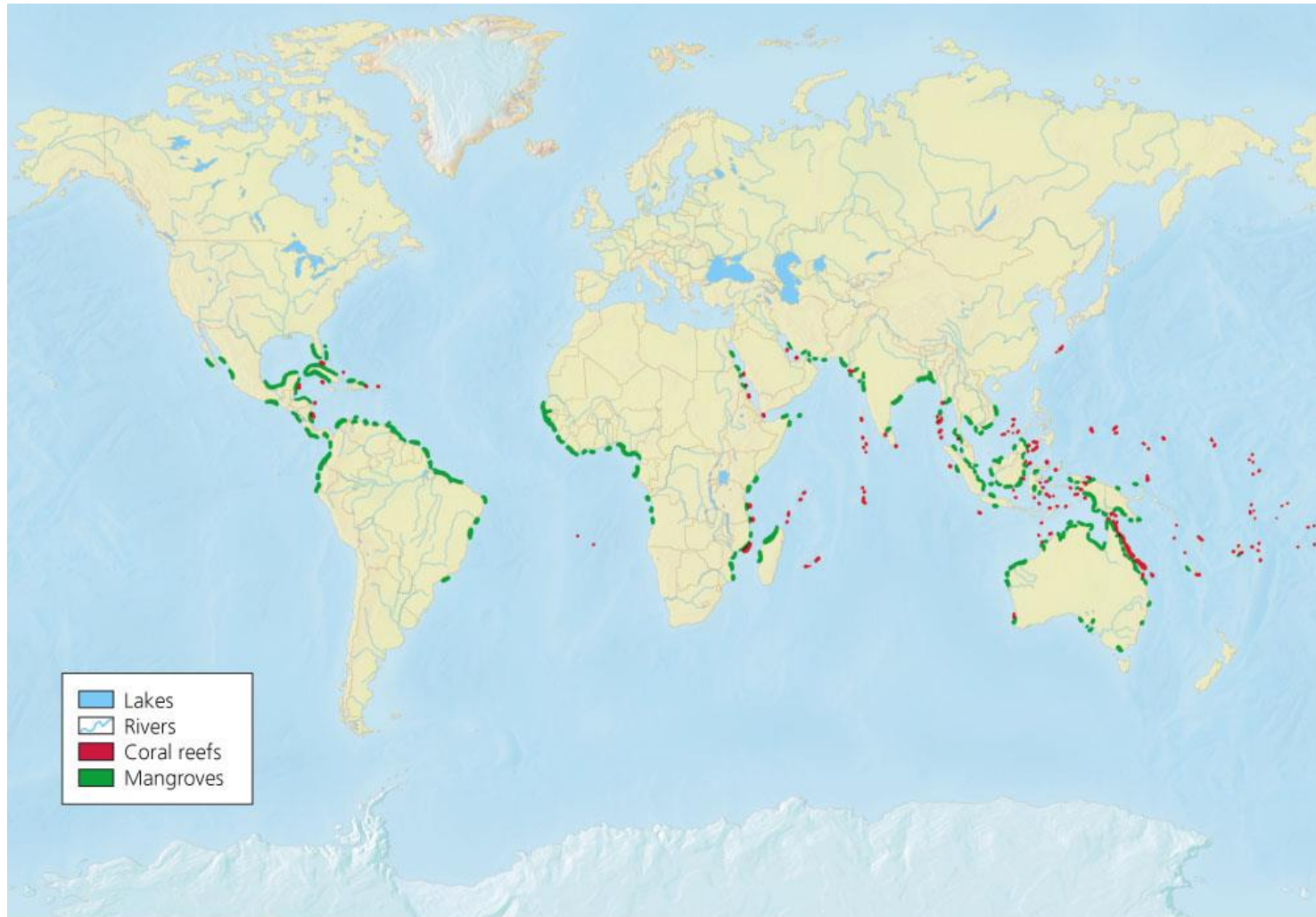


Ocean hemisphere



Land-ocean hemisphere

Distribution of the World's Major Saltwater and Freshwater Sources



© Brooks/Cole, Cengage Learning

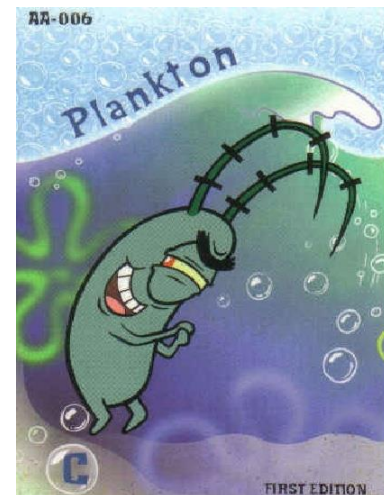
Marine Ecosystem

- Salt marshes
- Intertidal zones
- Estuaries
- Lagoons
- Coral Reefs
- Deep Sea
- Sea Floor



Aquatic Zones

- Saltwater and Freshwater portions of the biosphere- support life
- Aquatic Zones
- **Plankton:** Free Floating (Plants, Algae etc)
 - Zooplankton: Plankton that feed on other plankton
 - Ultra plankton: Photosynthetic bacteria.



- **Nekton:** Strongly fishing Consumers – Fish, Turtles and whales



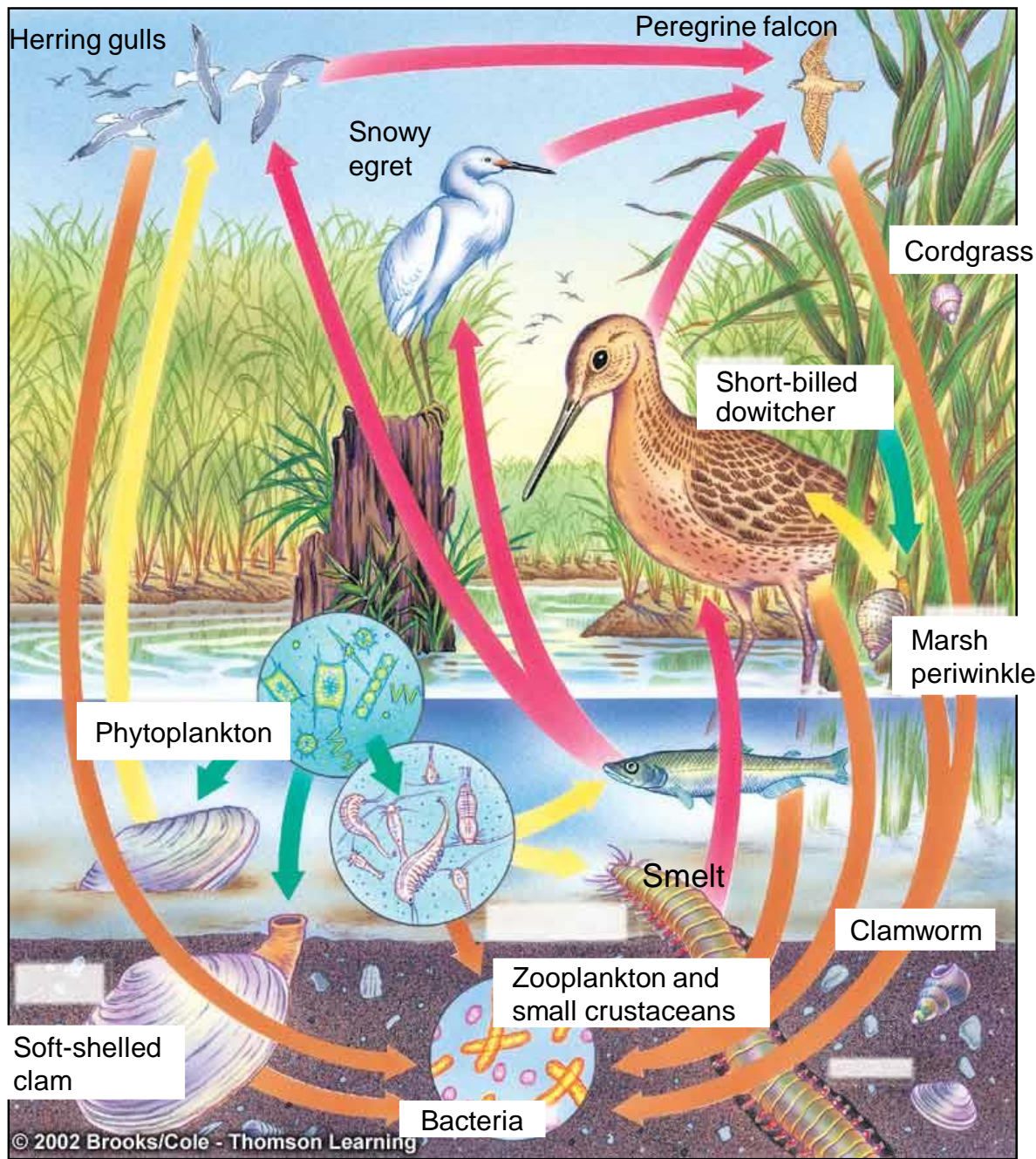
- **Benthos** or bottom Dwellers: Oysters, Clams and Lobsters



- **Decomposers:** bacteria



Figure 7-8
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Producer
to primary
consumer

Primary
to secondary
consumer

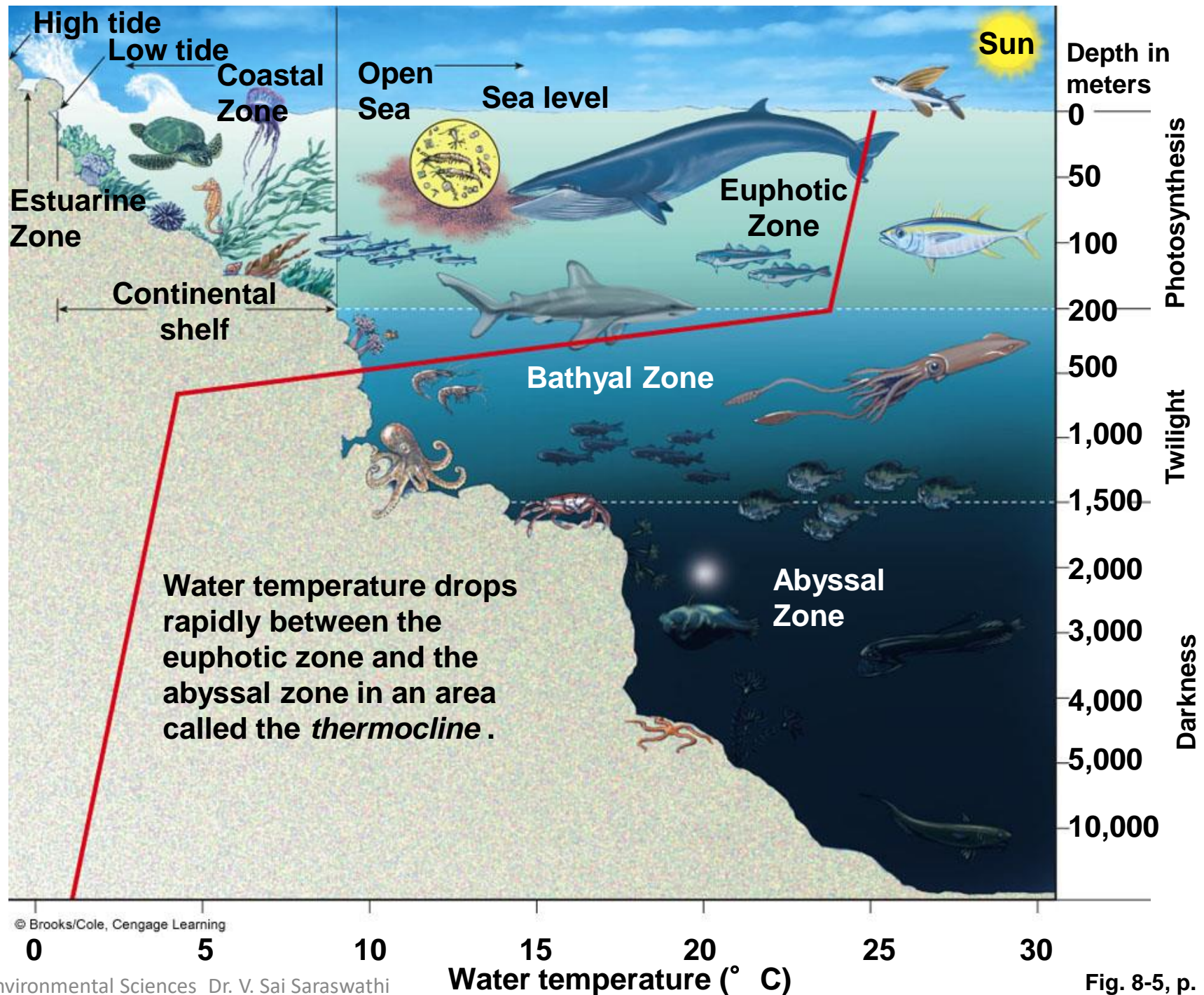
Secondary to
higher-level
consumer

All producers and
consumers to
decomposers

Salt marsh food web

Zones

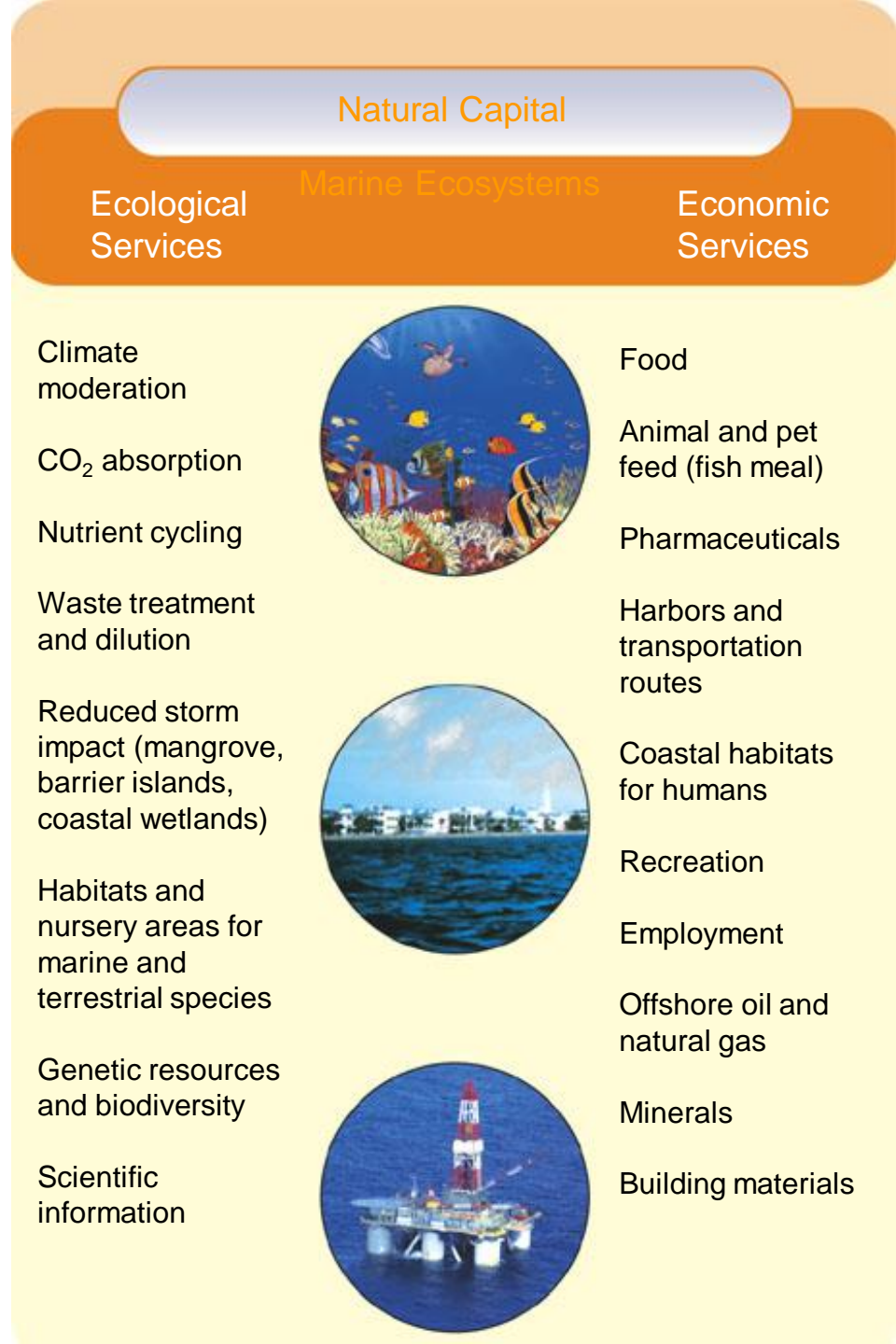
- Coastal zone: warm, Nutrient rich, shallow water that extend from high tide mark on land to the gently sloping.
- Shallow edge of continental shelf
- Coastal zone contains 10% ocean, but 90% of all marine species and is the site for commercial fishing.



Importance of Aquatic Biodiversity

- Enormous Economic
- Aesthetic value
- Food
- Medicines
- Materials – recreational and commercial purpose for fishing and Tourism

What are the major ecological and economic services provided by marine systems?



Treats to Aquatic Biodiversity

Human activities – Degrading fresh water

- Dams and canal alter and destroy- terrestrial and aquatic biodiversity.
- Reduces the water flow and increasing damage from coastal storms.
- Flood control – rivers disconnect the rivers from their flood plains.
- Pollutants – eutrophication
- Inland wetlands drain.

Conservation of Aquatic Biodiversity

- Reduce Carbon Dioxide
- Safe and sustainable seafood choice
- Reduce plastic pollution
- Take care while – Beach- walking – coastal zone – Not polluting
- Be eco-friendly
- Don't over exploitation

Conservation of Aquatic Biodiversity

- Aquarium – endangered and rare species
- Individual species conservation- Tertiary Consumers – Thereby Ecological Balance – Maintained

The Biggest Aquariums in the World

Rank	Aquarium	Location	Size (million gallons)
1	Chimelong Ocean Kingdom	China	12.9
2	Marine Life Park	Singapore	12.0
3	Oceanografic	Spain	11.0
4	Georgia Aquarium	United States	10.0
5	Moscow Oceanarium	Russia	6.6
6	The Seas with Nemo & Friends	United States	5.7
7	Shedd Aquarium	United States	5.0
8	uShaka Marine World	South Africa	4.6
9	Atlantic Sea Park	Norway	4.0
10	Ambassador Lagoon	United Arab Emirates	2.9

Thank You