

**VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT**

**S.Y.B. Sc. SEM – III**

**MARINE SCIENCE (E. G.)**

**(Effective from June 2020)**

**UNIT - 1 Scope of marine science:**

- Introduction to marine science and career
- Classification :
  - Prokaryotes
  - Eukaryotes - Fungi, Protista, Plant, Animalia – Five Kingdoms

**UNIT – 2 Geology of the ocean:**

- Physico-chemical properties of Marine Environment
- Zonations of ocean

**UNIT - 3 Marine Biology:**

- Adaptations:
  - Bony fish surviving in near freezing water (or adaptations in deep sea fishes)
  - Sea birds
  - Whales and their relations
- General characters of bony and cartilaginous fishes.

**UNIT - 4 Marine organisms:**

- Microorganisms:
  - Phytoplanktons
  - Zooplanktons
  - Red algae
  - Brown algae
  - Green algae
  - Multicellular algae
- Economic importance of algae

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**MARINE SCIENCE (EG)**

**UNIT-1**

➤ Types of seashores and their fauna:

- Sandy shore
- Rocky shore
- Estuaries

**UNIT-2**

➤ Coral and coral reefs:

- Types
- Economic importance and threats.

➤ Voyage of green sea turtle.

**UNIT- 3**

➤ Introduction to aqua culture:

- History
- Scope
- Present status

General idea of different aquaculture practices:

- Monoculture
- Polyculture
- Extensive culture
- Intensive culture

**UNIT-4**

➤ Marine Pollution:

- Causative factors and impacts
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### **Reference Books For Marine Science:**

- 1) Fundamentals of Ecology- E.P.Odum
  - 2) Marine biology and Ecology-N.K.Pillai
  - 3) Fishes-Mary Chandy
  - 4) Fish and Fisheries of India-V.G. Jhingran
  - 5) Fish and Fisheries-S.S.Khanna.
  - 6) Marine Fish Farming for India-James Hornell
  - 7) Introduction to Marine Biology-Karleskint
  - 8) Marine fisheries Extension-P.N.Ananth
  - 9) General and Applied Ichthyology( fish and fisheries)-S.K.Gupta & P.C.Gupta.:S.Chand and Co.NewDelhi.
  - 10) Aquaculture Technology & Environment-Ujwala Jadhav.
  - 11) Economic Zoology- Dr.G.S.Shukla &Dr.V.B.Upadhyay
  - 12) Fish and Fisheries,2013,Dr.Arvind N.Shukla,D.P.H.Pvt.Ltd.New Delhi
  - 13) Economic Importance of Fisheries and Aquaculture,2013,S.K.Rao & S.Rawat,Campus Books, New Delhi
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