

# BIOLOGIA RIPRODUTTIVA E DELLO SVILUPPO NEI VERTEBRATI MARINI (U0466)

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The aim of this course is to introduce the wide variety of vertebrates (fish, reptiles and mammals) that inhabit marine ecosystems, focusing on their reproductive strategies and development.

General concepts on reproduction. **Asexual reproduction:** Budding, Gemmules, Fragmentation, Regeneration, Parthenogenesis. **Sexual reproduction:** External and Internal Fertilization. Sexual strategies.

**Gametogenesis.** Primordial Germ Cell determination. Gonadal sex differentiation. Meiosis. Differences between spermatogenesis and oogenesis.

Developmental stages of Spermatogenesis. Sertoli cells. Leydig cells and hormonal regulation.

Developmental stages of Oogenesis. The composition of germ cells in the adult ovary varies among vertebrates. Fish ovary and oogenesis. Marine Mammal ovary and oogenesis.

## **Fertilization.**

**Marine organisms as development model systems:** Sea urchin fertilization and development

**Agnatha** reproduction strategies and development.

**Gnathostomata:** Chondrichthyes reproduction, Osteichthyes reproduction. Oviparity. Egg layers and external fertilization. Ovoviviparity and Viviparity: Internal fertilization. Embryo developmental stages.

Marine Reptiles reproduction and development. Temperature dependent sex determination. Sea Turtle reproduction and nesting. Marine Iguanas. Sea Snakes. Saltwater crocodiles reproduction and parental care.

Marine Mammal reproduction. Reproductive cycles. Female reproductive systems. Reproduction in Sirenia, Marine Otter, Polar Bear. Pinniped reproduction. Cetacean reproduction. Mammalian embryonic development.