Marine Reptiles

Four types of marine reptiles exist today:

1. Sea Turtles
2. Sea Snakes
3. Marine Iguana
4. Saltwater Crocodile
Sea Turtles

• All species of sea turtles are threatened or endangered

• **Endangered** means that a species is under direct threat of species survival (extinction is a definite threat)

• **Threatened** means that the species may become endangered

• Both designations give these species protection under the **Endangered Species Act**
Sea Turtles - Species

• Seven or eight species of sea turtles exist today:
  - Leatherback sea turtle
  - Loggerhead sea turtle
  - Hawksbill sea turtle
  - Olive ridley sea turtle
  - Kemps ridley sea turtle
  - Australian flatback sea turtle
  - Green sea turtle
    - Pacific green turtle
    - Atlantic green turtle
Sea Turtles - Skeleton

Lateral or side view of a generalized sea turtle skeleton.
Sea Turtles - Anatomy

- Upper shell known as the **carapace**
- Lower shell known as the **plastron**
- The ribs are expanded in size and fused to shell
- All sea turtles have powerful **jaws**, but no teeth
- **Poikilothermic** and **ectothermic**
After hatching, baby turtles race towards the sea.

In between breeding seasons, adults migrate back to adult foraging areas until ready to breed again.

Turtles spend several years in passive migration.

Turtles return to the original birth site to breed.

Migrates to adult foraging areas until ready to breed.

Turtles migrate to nearshore waters to mature.
Sea Turtles - Reproduction

- Sea turtles breed at sea
- **Internal fertilization occurs**
- Females can store sperm
- One **clutch** of eggs can have multiple paternity
  - males and females are not monogamous
Sea Turtles – Egg laying

- Females normally breed every 2-4 years
- These females must **return to land** to deposit their eggs near the dune line (above the high tide)
- Females dig a **hole** in the sand using only the back flippers
- During their breeding year, females may lay up to **7 clutches** of eggs
- Each clutch of eggs normally has an average of **120 eggs**, although large variations in these numbers have been recorded
Sea Turtles – Egg Incubation

- Typical incubation period of around 60 days—varies according to air temperature.
- **Warmer** temperature: eggs will develop faster
- **Colder** temperatures elongate incubation time—range of 45-75 days is not unusual
- The eggs are very **leathery** at the time the mother lays the eggs
- As they incubate, they become more **brittle,** making it easier for the hatchlings to escape the egg
Sea Turtles

• **Temperature dependent sex determination**
  - Gender of hatchling is not genetically predetermined
• **Gender is determined by the temperature of the environment in which the egg was incubated**
• **For each species, there is a “pivotal” temperature that will generate 50% males and 50% females**
  - Temperatures higher than pivotal will produce more females
  - Temperatures lower than pivotal will produce more males
Sea Turtles – Kemps Ridley

• The smallest of the sea turtles is the **Kemps Ridley** at around 100 cm and just over 100 pounds

• The Kemps Ridley was long thought to be a hybrid of other species of sea turtles because for MANY years, no nesting site for the Kemps Ridley turtles was ever seen

• Then, one nesting site was finally located in Rancho Nuevo, Mexico

• Due to the critically endangered status of this species, this nesting site is now jointly managed by the US and Mexican government wildlife agencies
Sea Turtles - Green

- The green sea turtle is the only “vegetarian”
- It is called the green sea turtle because the fat in its body is slightly green as a result of its diet of seagrasses and algae
- Green sea turtles are normally considered tropical nesting turtles, but green sea turtles have nested regularly in Florida as long as records have been kept.
Sea Turtles - Green

- Interestingly, green sea turtles are now nesting as far north as North Carolina.
- Each summer, dozens of nesting reports for green sea turtles come in from all over the NC coast.
- The first report of green turtle nesting in NC occurred in the 1950’s.
Sea Turtles - Loggerhead

• The **loggerhead** sea turtle is the least vulnerable of the sea turtles with regards to numbers – its status is listed as threatened

• Feeds mainly on **invertebrates** such as crabs and molluscs
Sea Turtles

- The leatherback is the **largest** of the sea turtles reaching over 6 ft and 1000 lbs
- These turtles feed often on **jellyfish** but can dive to deep depths to feed on other prey items
The **hawksbill** is a tropical species of sea turtle. This species feeds mainly on corals, sponges and associated **invertebrates**.
Sea Snakes

• There are 55 species of sea snakes
• These snakes are found only in the Indian and Pacific Ocean
• These snakes have a laterally flattened body with a paddle-like tail for propulsion through the water
• Most species are 3-4 feet in length as adults
Sea Snakes

• Sea snakes breed at sea and most species are ovoviviparous
• A few species still return to land to lay eggs
• Bites from sea snakes can be fatal for humans— the sea snakes are related to the cobra and have a powerful venom
• Fortunately, sea snakes are not known to be aggressive
• Sea snakes are carnivorous and mainly feed on fish
• [https://www.youtube.com/watch?v=9gQY4m2HPYk](https://www.youtube.com/watch?v=9gQY4m2HPYk)
Saltwater Crocodile

- This species is found in Australia, the Indian Ocean and some Western Pacific Islands.
- It can be found in estuaries, mangrove swamps, rivers and the open ocean.
- It is a **predatory** species that eats all types of prey items including humans.
- The saltwater crocodile is a large species reaching lengths of over **30 feet** (although individuals over 20 feet are rare).
- This species is not secretive like the **American Crocodile**, but is an aggressive hunter.
22 ft long Crocodile
ALLIGATOR VS CROCODILE

American Alligator
Alligator mississippiensis

- Broad snout
- Blackish coloration in adults
- Only teeth of upper jaw visible when mouth closed
- Range: Southeastern United States
- Nest in freshwater: mound of vegetation
- Parental care by mother

American Crocodile
Crocodilus acutus

- Narrow Snout
- Olive brown coloration
- Teeth of both jaws visible when mouth closed
- Range: southern tip of Florida, some sightings S & C America
- Fewer than 300 individuals alive
- Nest in brakish or salt water
- Parental care by female

Mississippi, or American, alligator
(Alligator mississippiensis)

Mississippi, or American, alligator
(Alligator mississippiensis)

Estuarine, or saltwater, crocodile
(Crocodilus porosus)

Estuarine, or saltwater, crocodile
(Crocodilus porosus)
Marine Iguanas

• Marine iguanas live on the Galapagos Islands

• While they are called marine, they only spend a **portion** of their time in the water

• They dive to feed on **seagrass** near the shore

• A large portion of their day is spent basking on the shore to warm up from their dives in the cold water surrounding the Galapagos