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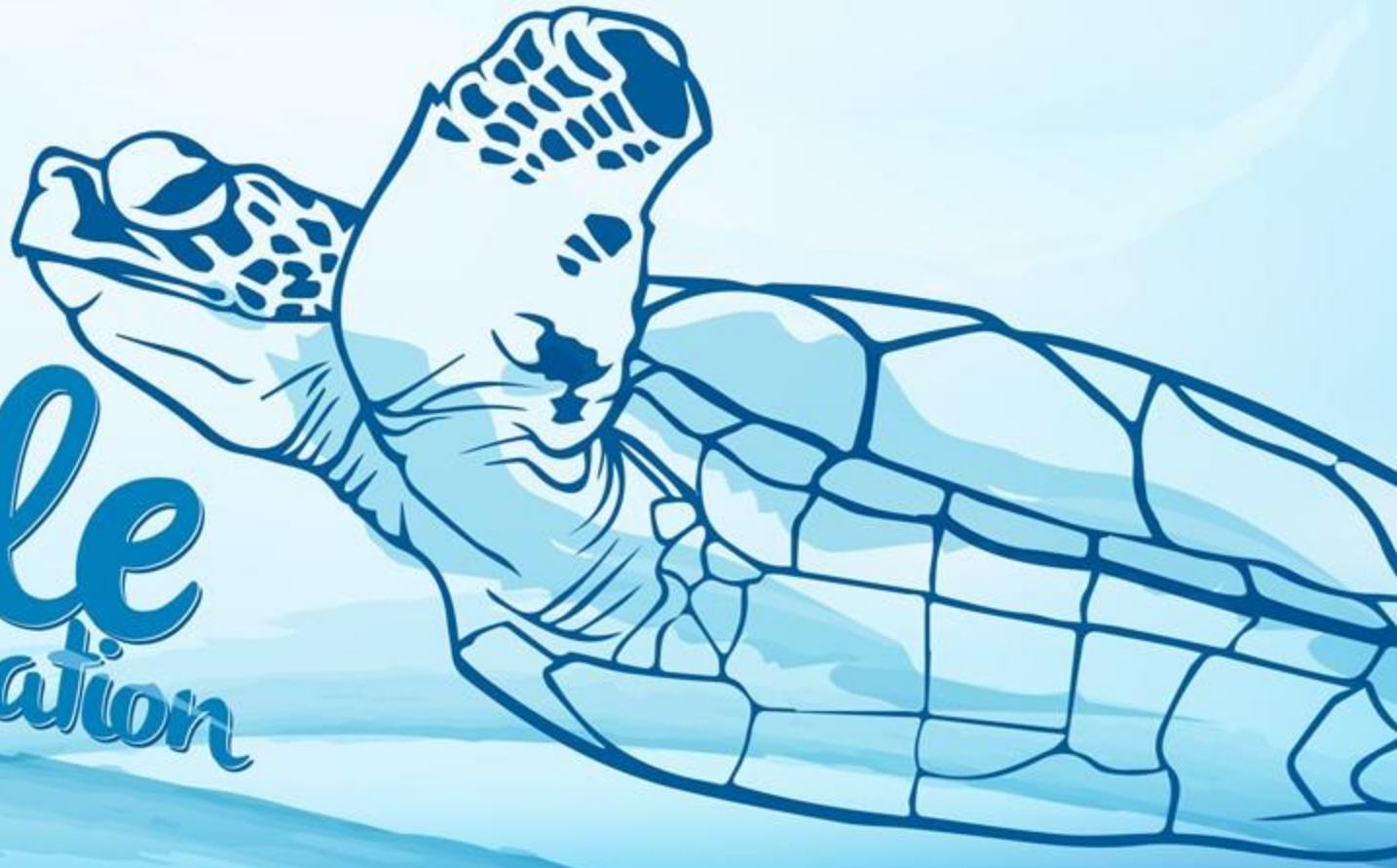

Sea Turtle Biology & Conservation

UNIVERSITI MALAYSIA TERENGGANU

TOPIC 4
NATURAL THREATS

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Topic Outline

Natural Predators

Climate Change

- Temperature effects on nesting ecology
- Severe weather events
- Sea level rise

Diseases

Natural Predators

Natural Predators

In nature, sea turtle eggs, hatchlings, and small juveniles experience considerable risks from predators.

Variety of predators on sea turtle nests including insects, birds, native and introduced mammals, large lizards, and crocodiles.

Natural Predators

Images from pixabay.com

Predators such as monitor lizard, crabs and fire ants raid eggs and hatchlings while they are still in the nest.

Natural Predators

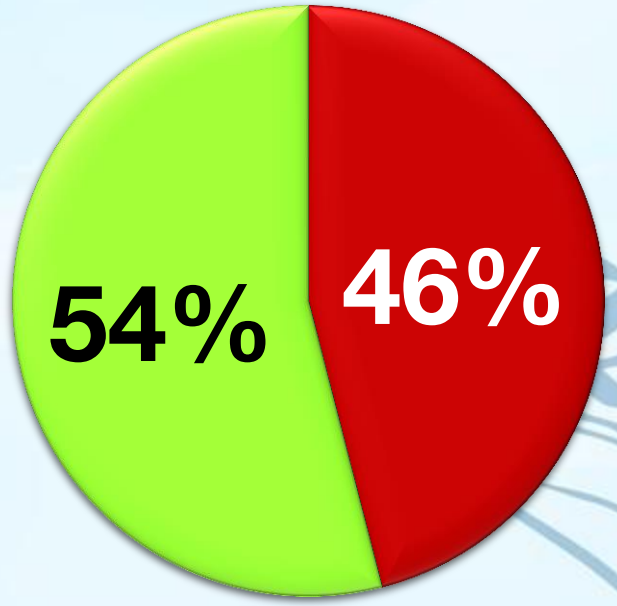
Fire ants can kill sea turtle hatchlings while emerging from eggs OR just after their emergence from eggs while hatchlings are still belowground.

hatchlings make bite-sized meals and must escape the clutch of predators

Ocean = predators such as fishes, sharks, crabs

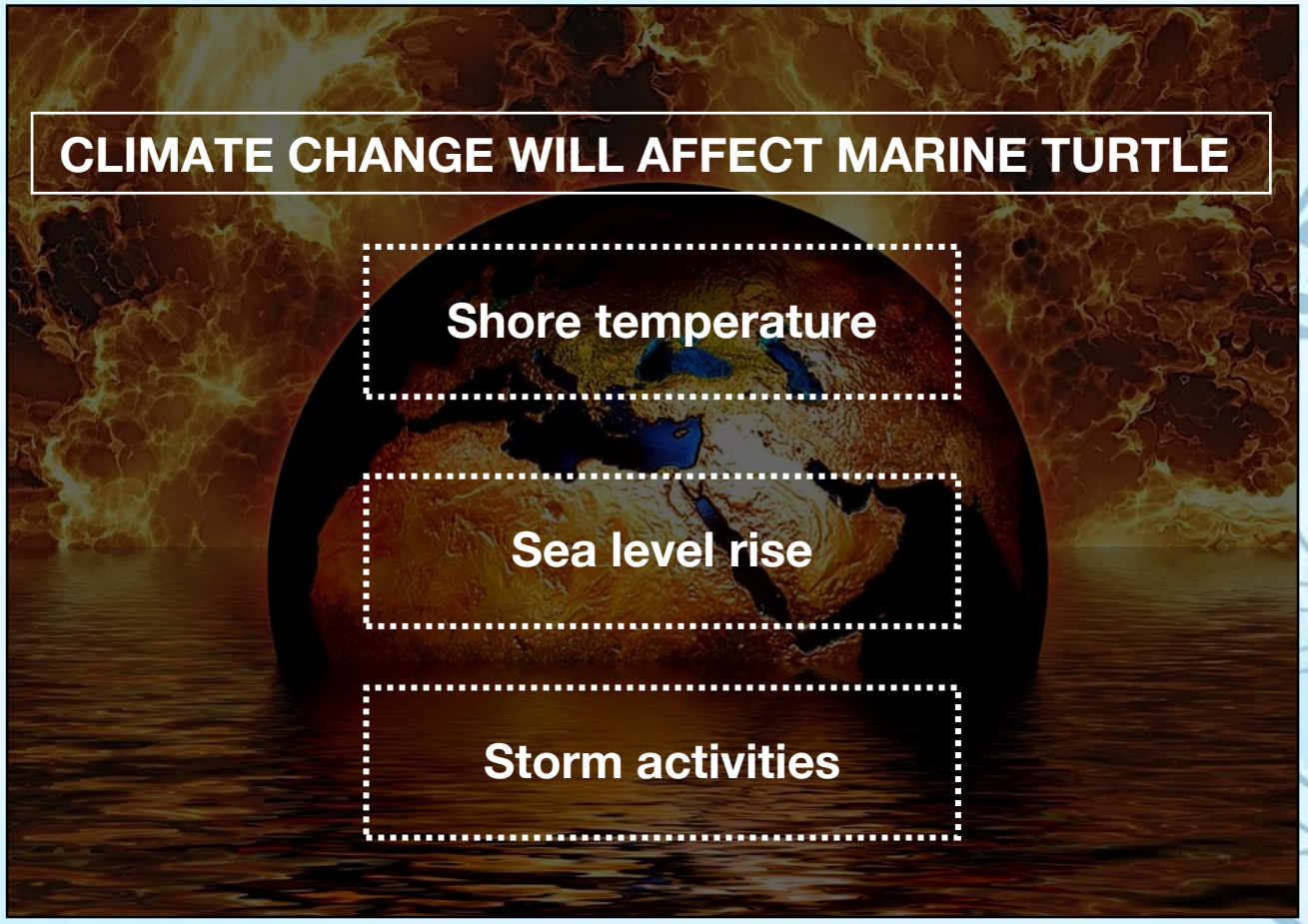
Land = foxes, monitor lizards, and birds

Images from pixabay.com



In one study – in the first 2 hour after reaching the ocean, an average of 46% of released hatchlings was taken by predators.

Climate Change



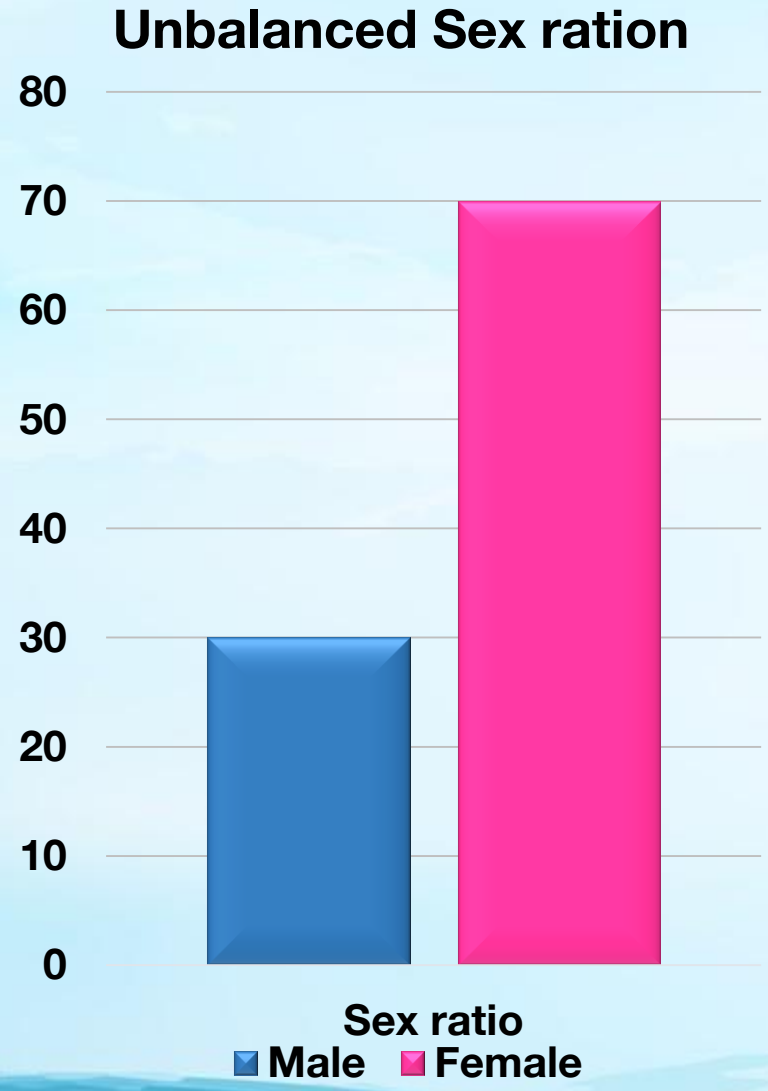
Images from pixabay.com

Temperature Effects on Nesting

Marine turtles are vulnerable to changes in global temperatures:
seasonal breeding temperature-dependent sex determination (TSD).

Timing and length of the breeding season is determined by whether the beach is warm enough to incubate eggs.

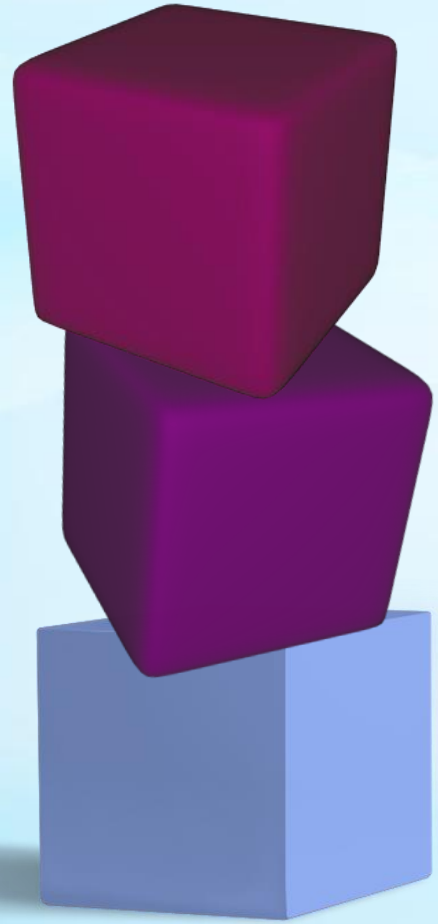
Temperature Effects on Nesting



Embryo development, sex, and phenotype for each marine turtle species - influenced by the temperature of the sand

Unusually warm temperatures caused by climate change are disrupting the normal ratios

Temperature Effects on Nesting



Pivotal temperatures are generally between 27°C and 30°C

A sligth transitional temperature of ~2°C can lead to prodcution of 100% male or 100% female

Increased sand temperatures can also influence embryology and shorten the incubation duration of eggs

Temperature Effects on Nesting

Eggs incubated at the upper thermal limits (i.e., ~35°C) likely produce hatchlings with higher rates of scale and morphological abnormalities.

Severe Weather Events

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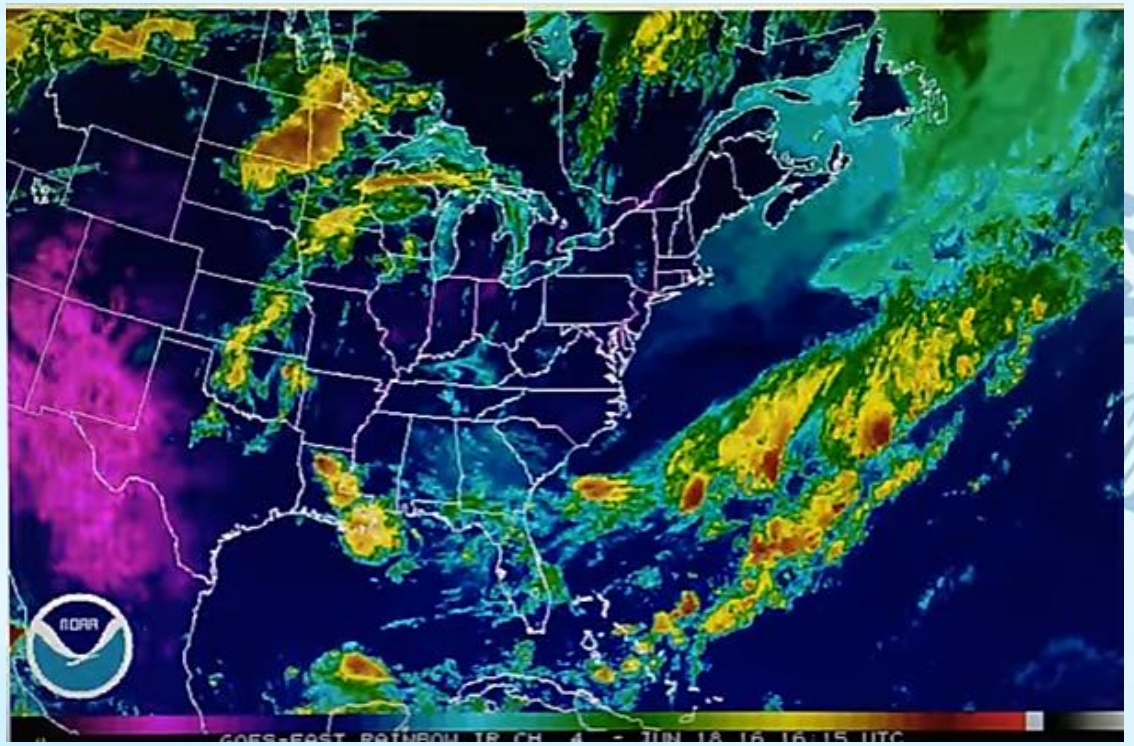
YouTube **Thunderstorm Supercells over NE, KS & OK Superheated & Destroyed With Microwave**

url: www.youtube.com/watch?v=T1IdeVQX1gg

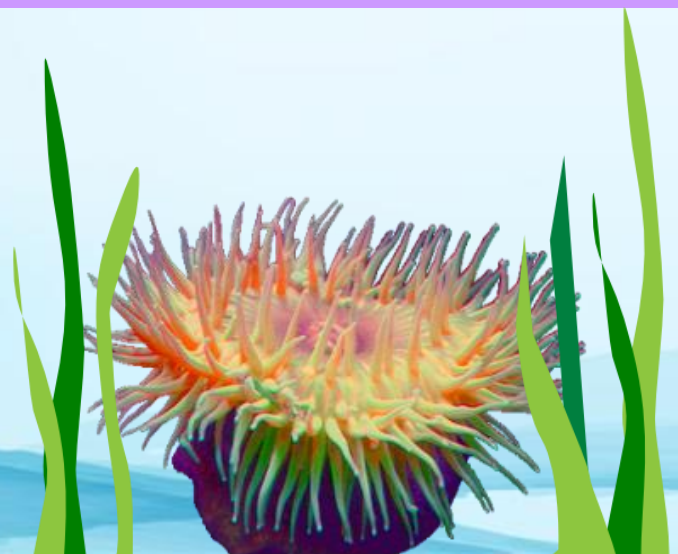


Many of the world's marine turtle populations are impacted by severe weather events

Severe Weather Events

Key habitats for marine turtles—sandy beaches, sea grass meadows, coral reefs, subtidal and deep water benthic communities, and the pelagic zone— are projected to alter as the climate changes.

Cyclones events has been reported to be associated with decrease annual hatchling production.



Sea Level Rise

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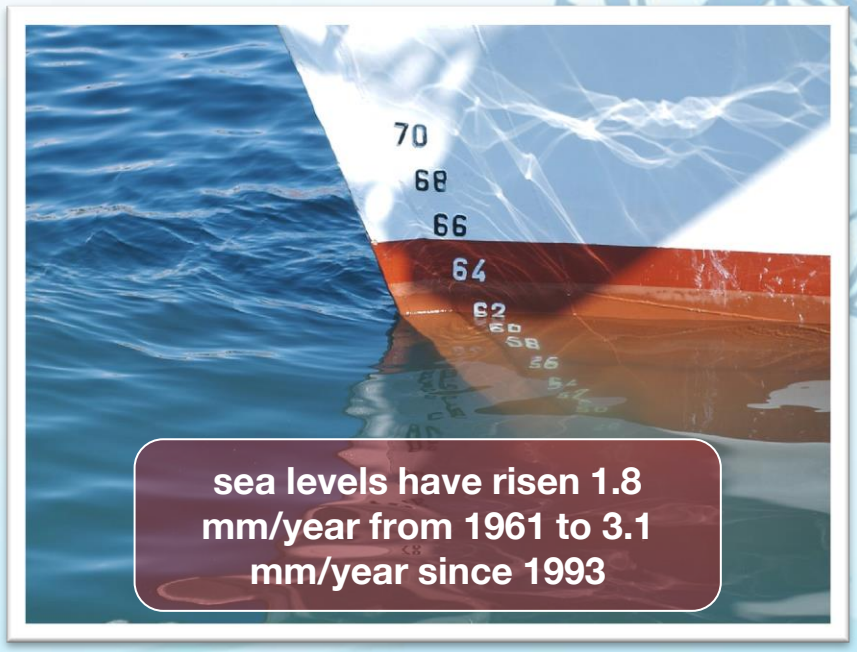
Marine turtles will be exposed to changes in sea level through nesting beach availability OR stability

Global sea level rise has been consistent with warming of the climate



Images from pixabay.com

Sea Level Rise

Images from pixabay.com

Diseases

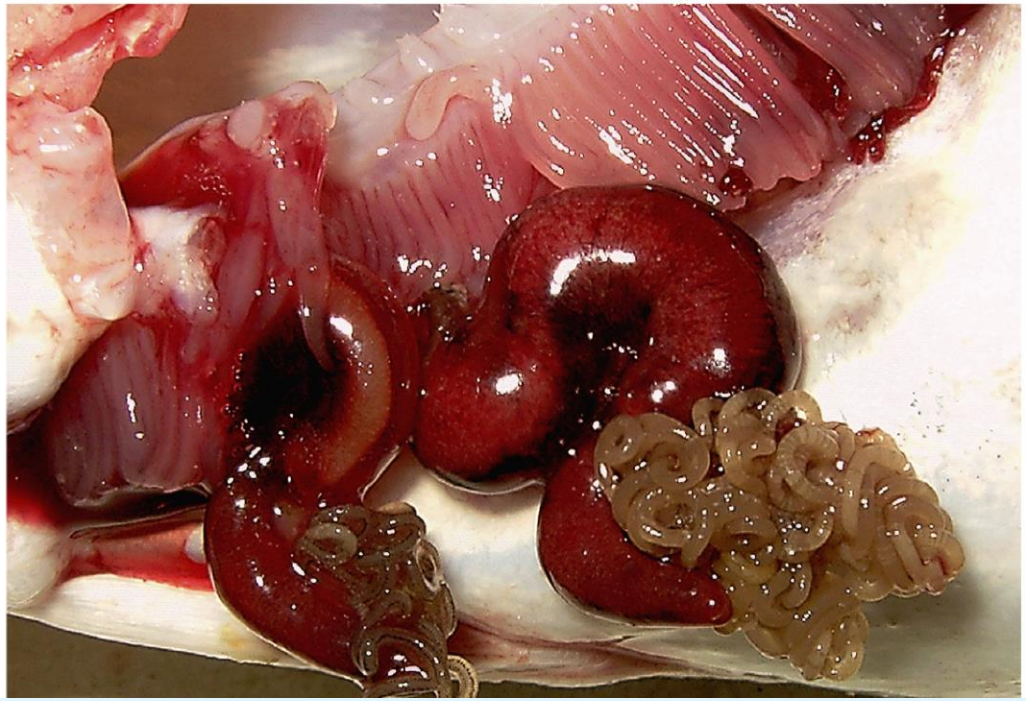
Disease, specifically fibropapillomatosis (FP), is a common cutaneous, apparently infectious condition in all species of sea turtles.

Diseases

size from <1 to >30 cm diameter, occur on soft tissues including the oral, ocular, orbital adnexa, neck, limbs, and tail

Diseases

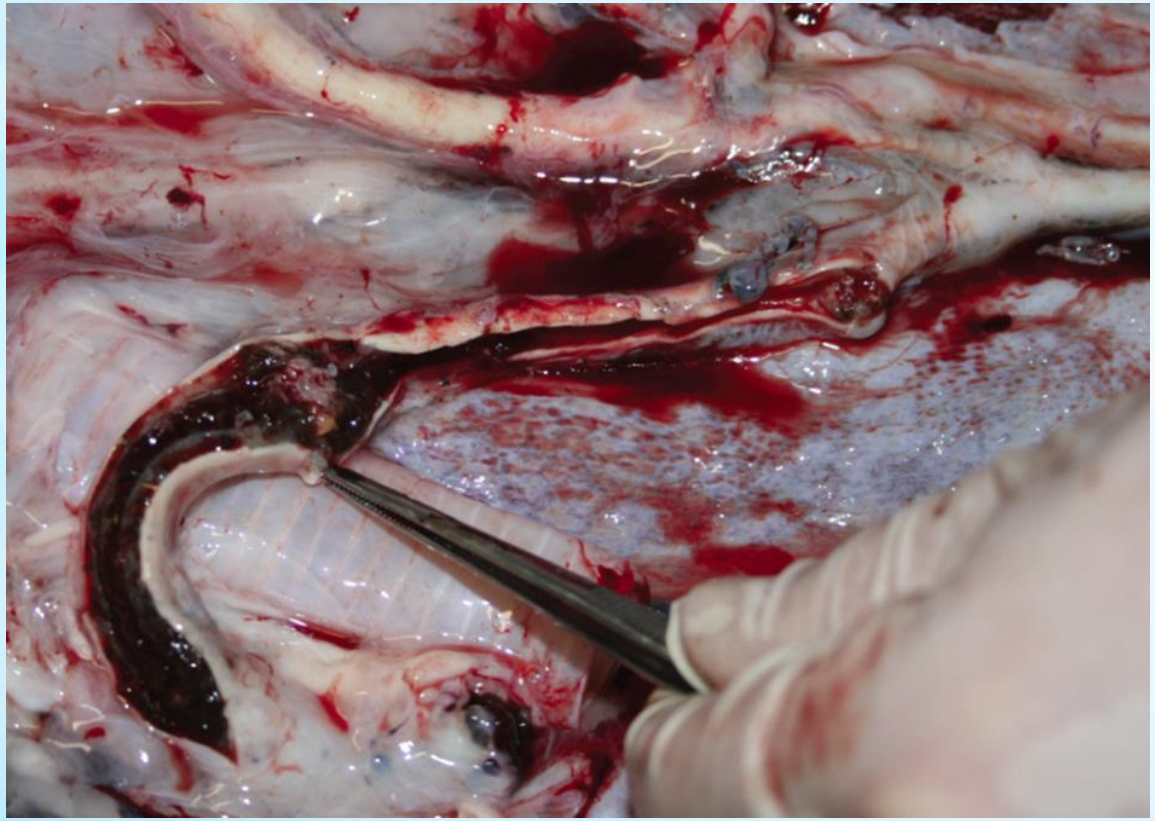
Parasite infections have been proposed as a significant cause of clinical disease and mortality in sea turtles



en.wikipedia.org/wiki/Diseases_and_parasites_in_cod

Spirorchiidae (digenetic trematode parasites) & *Caryospora cheloniae* (coccidia).

Diseases



High death rates in sea turtles have been associated with both parasites

Spirorchiid trematode infection has been proposed as a significant cause of clinical disease and mortality in turtles

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These natural threats, however, are not the reasons sea turtle populations have plummeted toward extinction.

To understand what really threatens sea turtle survival, we must look at the actions of humans

Of course, the most dangerous predator of all is Homo sapiens.

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THANK YOU

Terima kasih