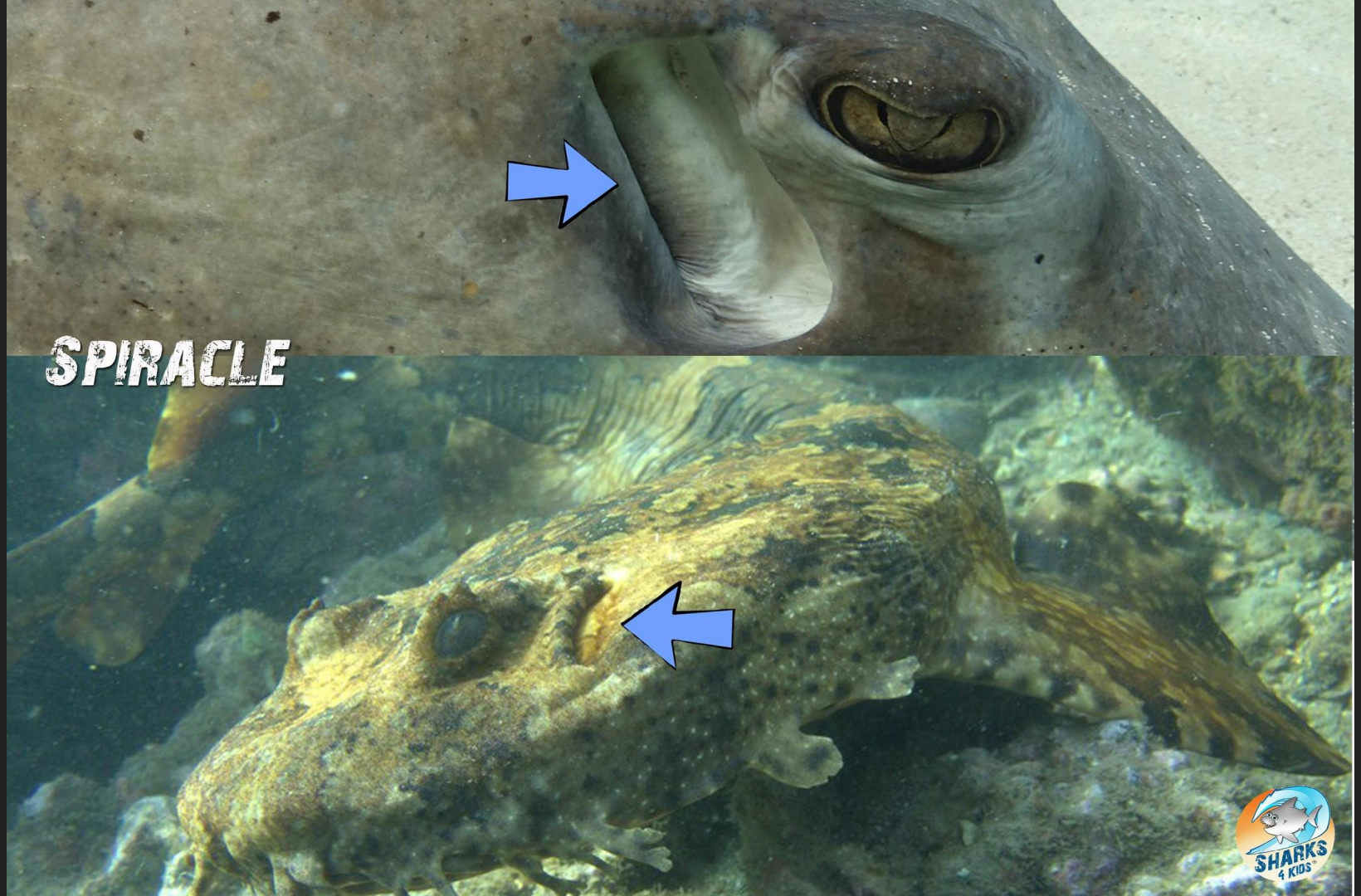
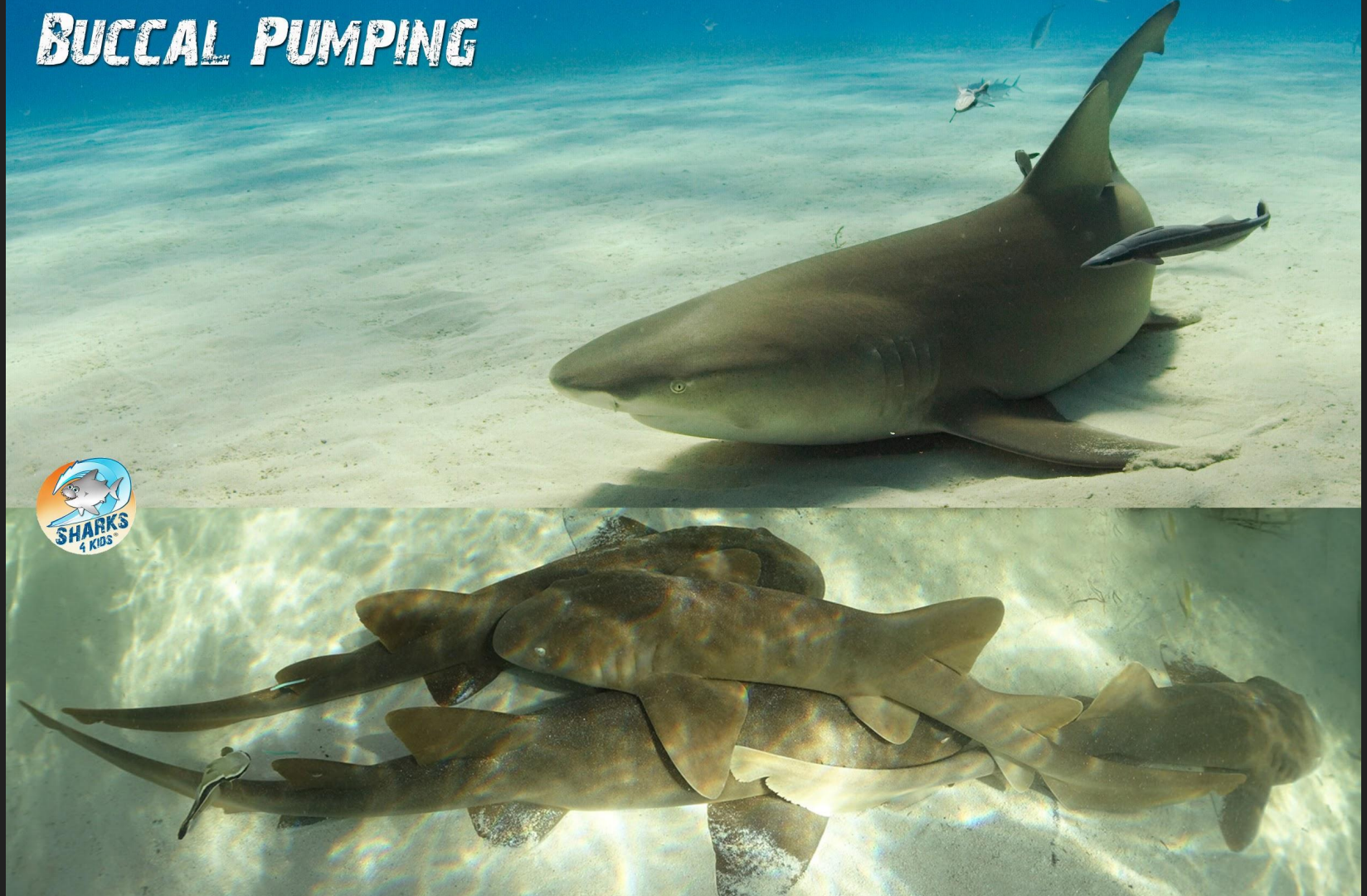
LET'S INVESTIGATE SHARK ANATOMY AND PHYSIOLOGY


CAUDAL FIN
PECTORAL FINS
DORSAL FINS
ANAL FIN 2
1
2
PELVIC FINS 1


FIN TASTIC ADAPTATIONS
Image: Alex Mustard


SPIRACLE
SHARKS 4 KIDS

Buccal Pumping



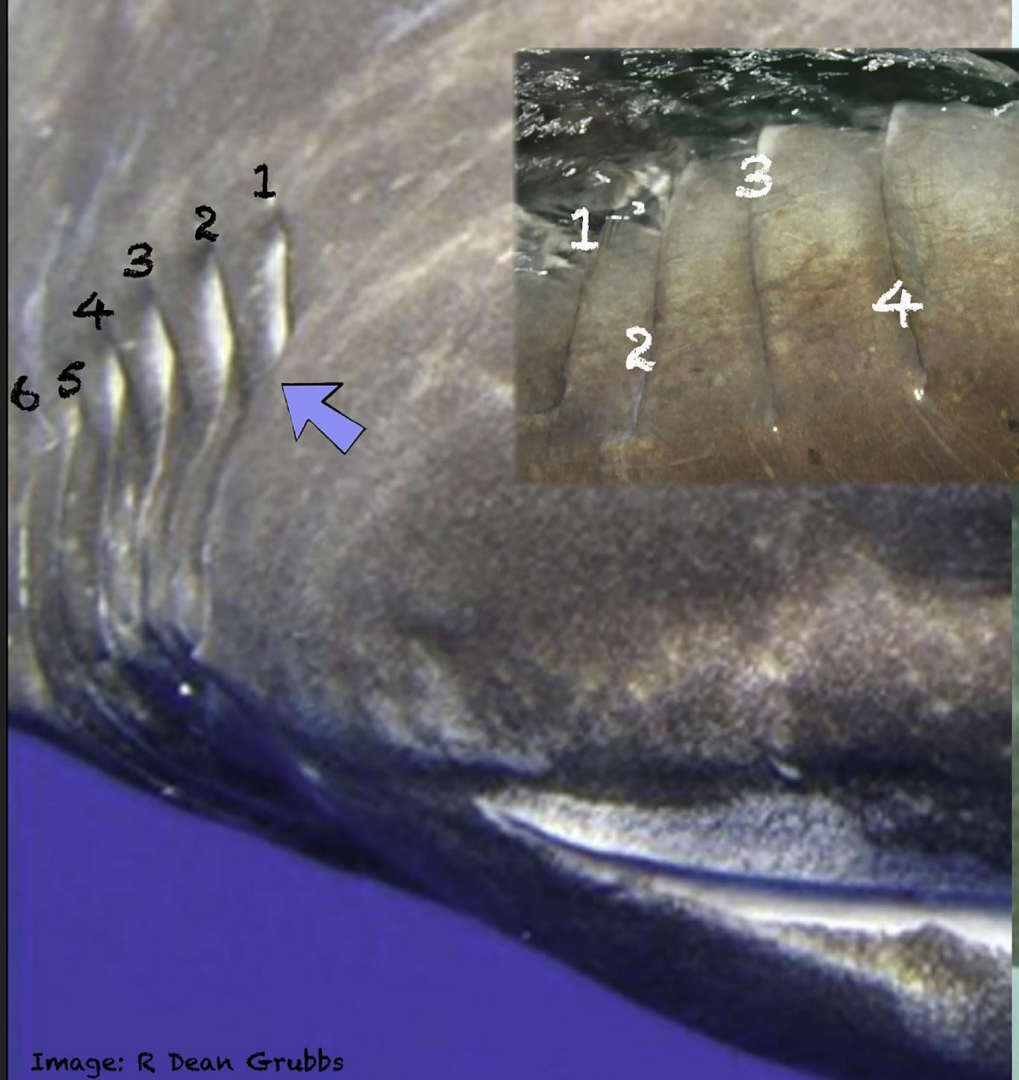
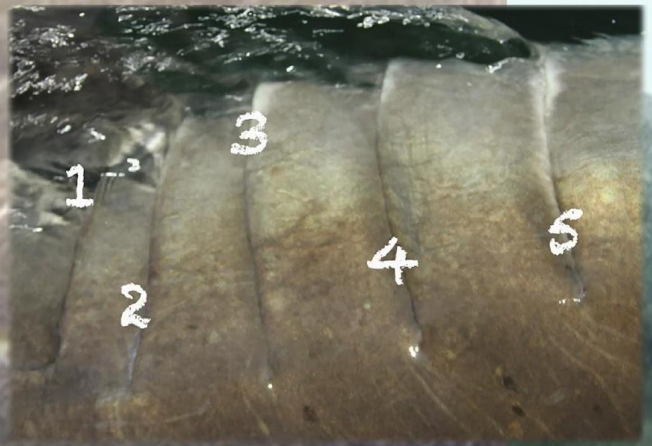


Image: R Dean Grubbs



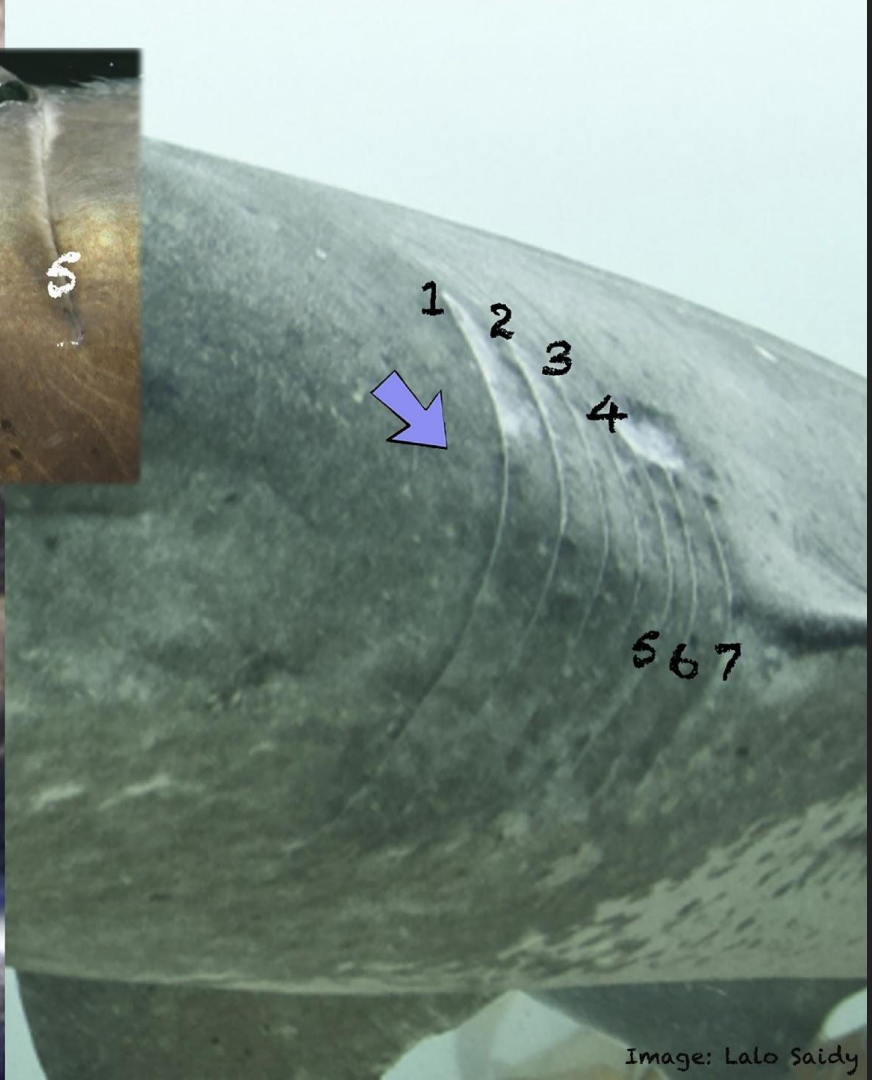
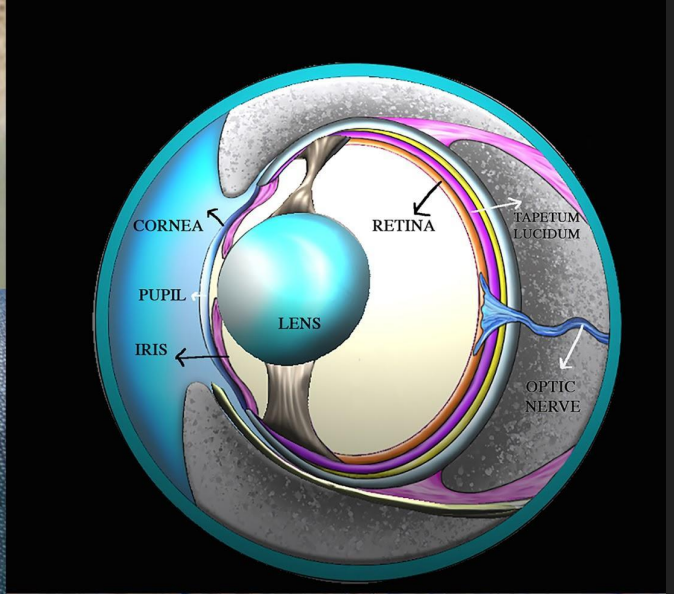


Image: Lalo Saidy

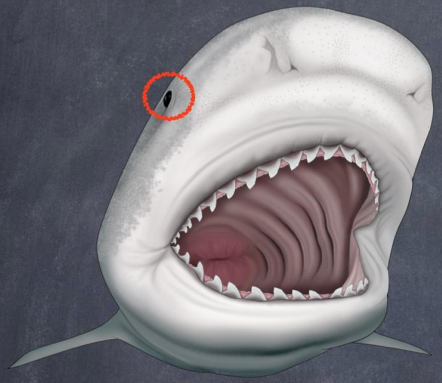
Dermal Denticles

Nurse Shark Skin


CORNEA
RETINA
TAPETUM LUCIDUM
PUPIL
LENS
IRIS
OPTIC NERVE


Nictitating membrane
SHARKS 4 KIDS.

Shark Senses



Sight

Great Vision in Low Light.

Sharks can dilate their irises.

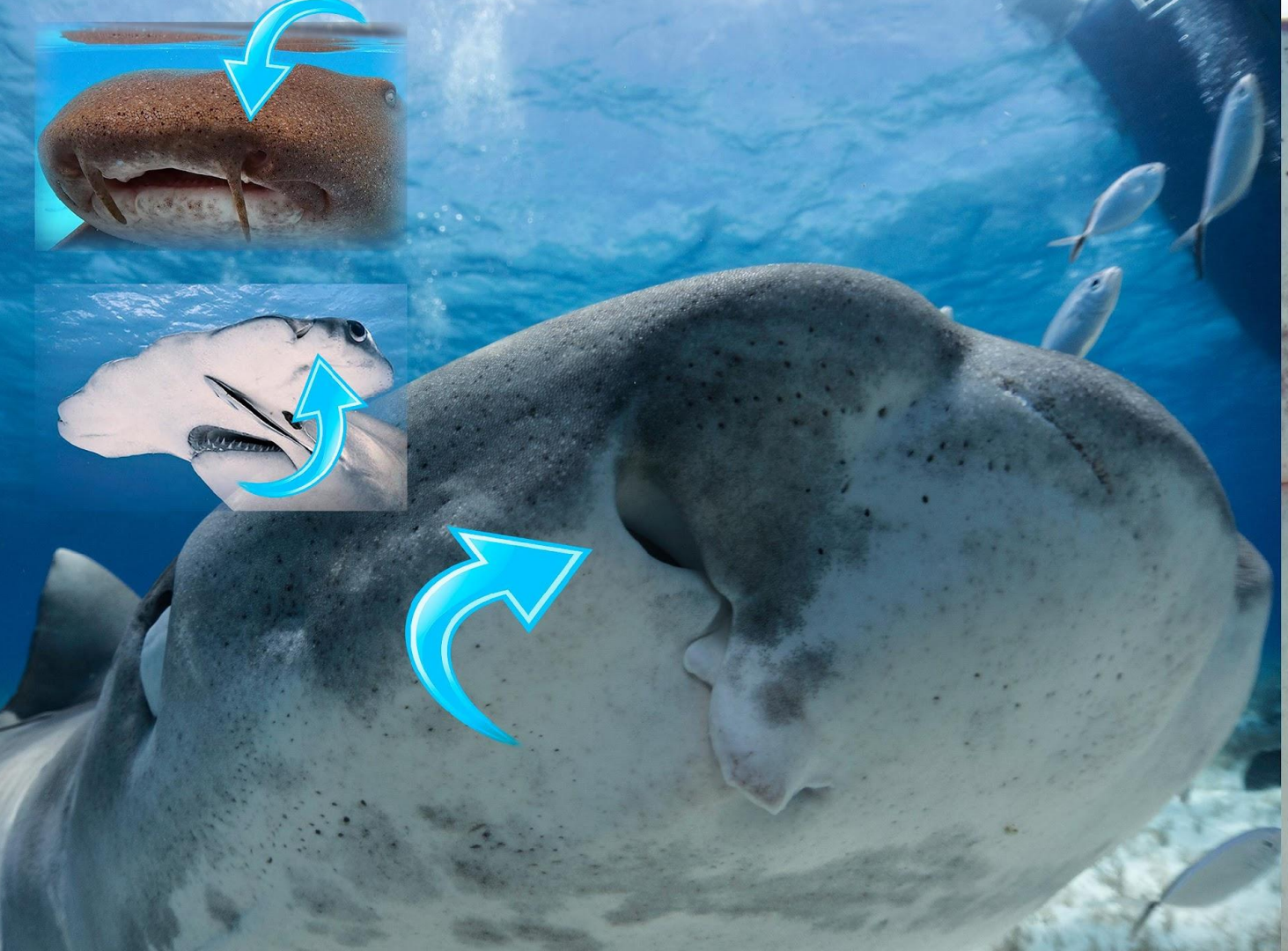
Bony fish can not.

Some sharks have a Nictitating membrane.

Some sharks can roll their eyes.

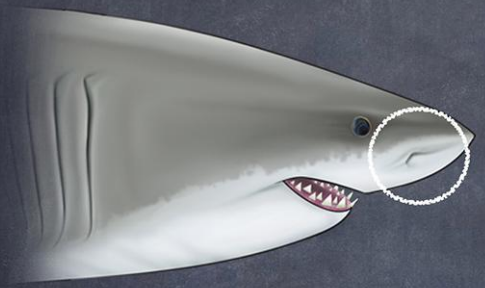
Protection whilst feeding.

Credit David Gruber Luminescent Labs



Shark Senses

Smell



10,000 times better than humans

Nares look like our nostrils

Directionality

Can locate prey over hundreds of meters

S-shaped pattern

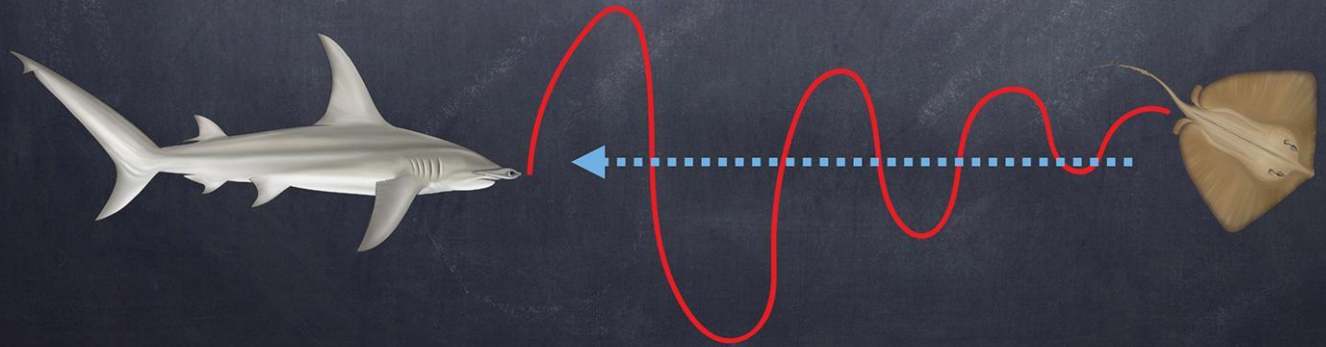



Image: R. Dean Grubbs

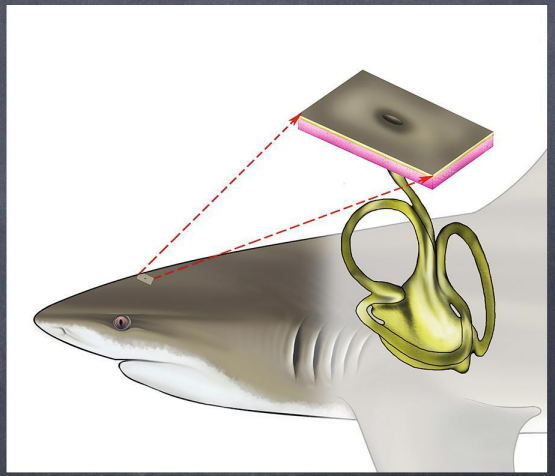
Sand Tiger Shark

Porbeagle Shark

Shark Senses

Hearing / Sound

Sound travels underwater four times faster than on land.
Lower frequencies dissipate slower than higher ones.

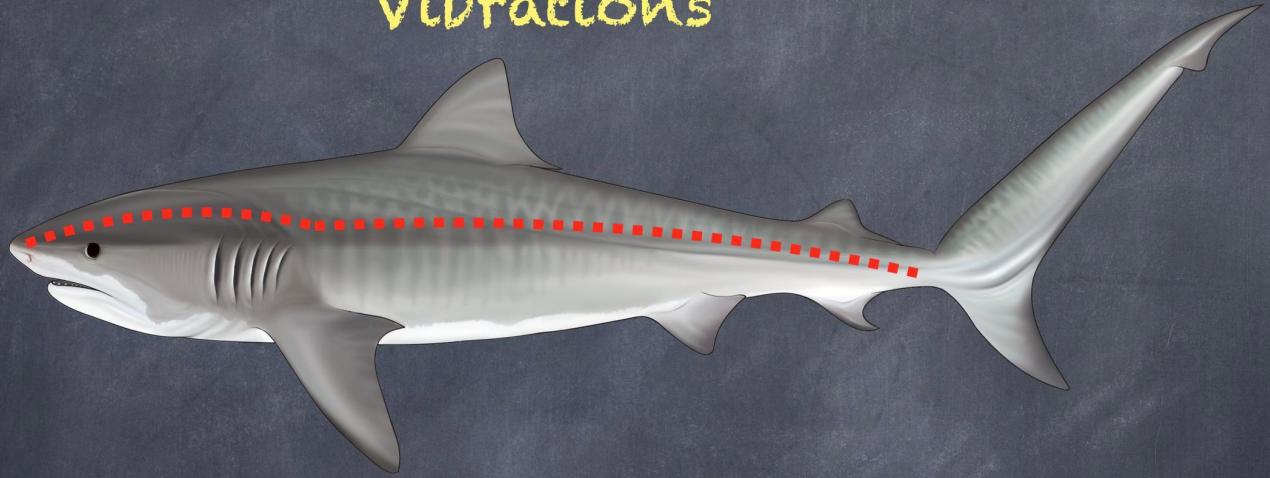


Some species can locate their prey over several hundred meters.

An injured or struggling fish gives off a frequency around 20 Hertz.

Shark Senses

Vibrations



The Lateral Line - Detects movements and vibrations in the water.

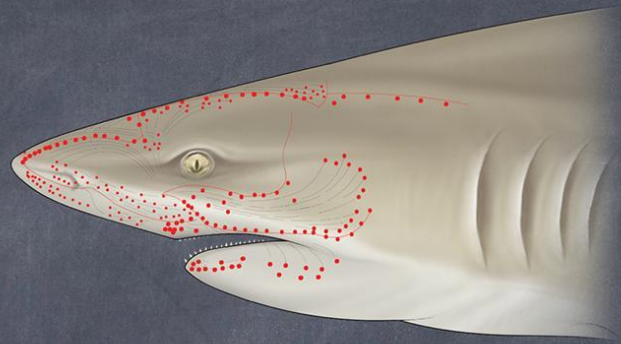
Canals filled with fluid with tiny modified epithelial (hair) cells.

Vibrations cause these cells to move and sway within the liquid.

Can detect odor plumes to locate prey or a potential mate.

Sharks can detect frequencies as low as 25 Hertz.

The Ampullae of Lorenzini

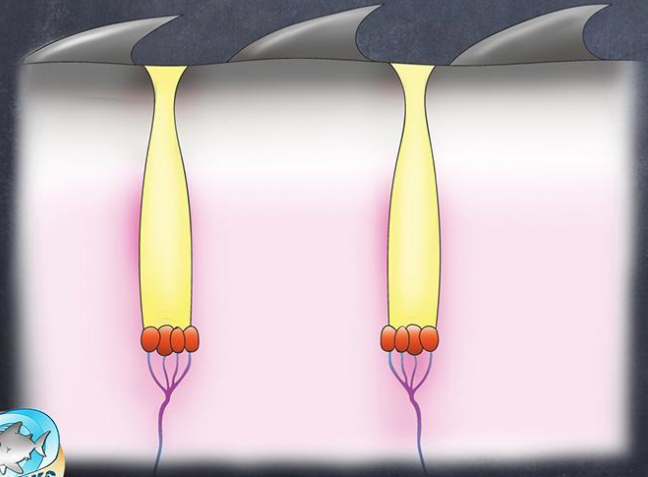


Detection of:

Electric Fields - muscle contractions

Magnetic Fields - navigation

Temperature Gradients



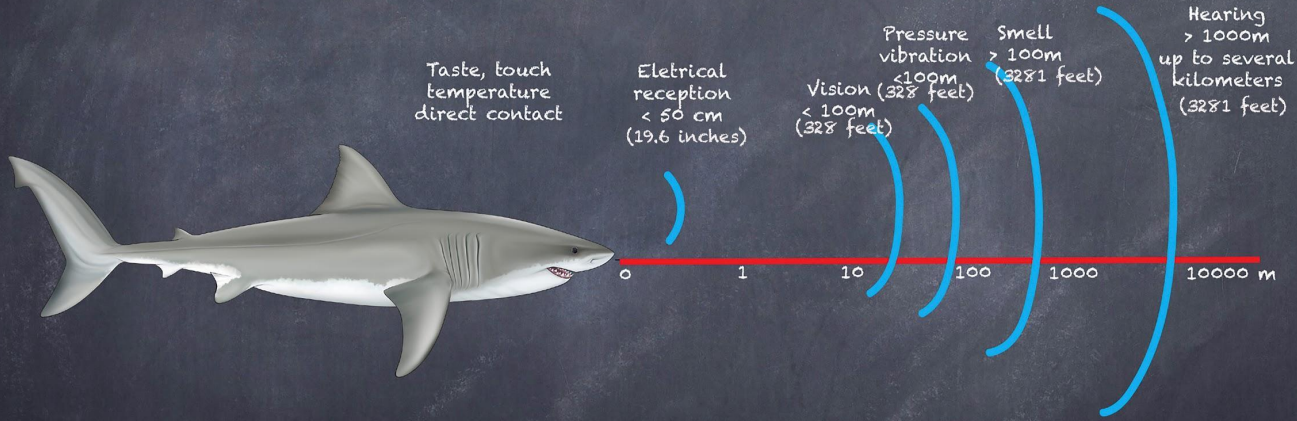
Voltage difference between the skin pore and the base of the electroreceptor cell.

Positive pore stimulus decreases nerve activity.

Negative pore stimulus increases nerve activity.

Shark Senses

Approximate range of each sensory system



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