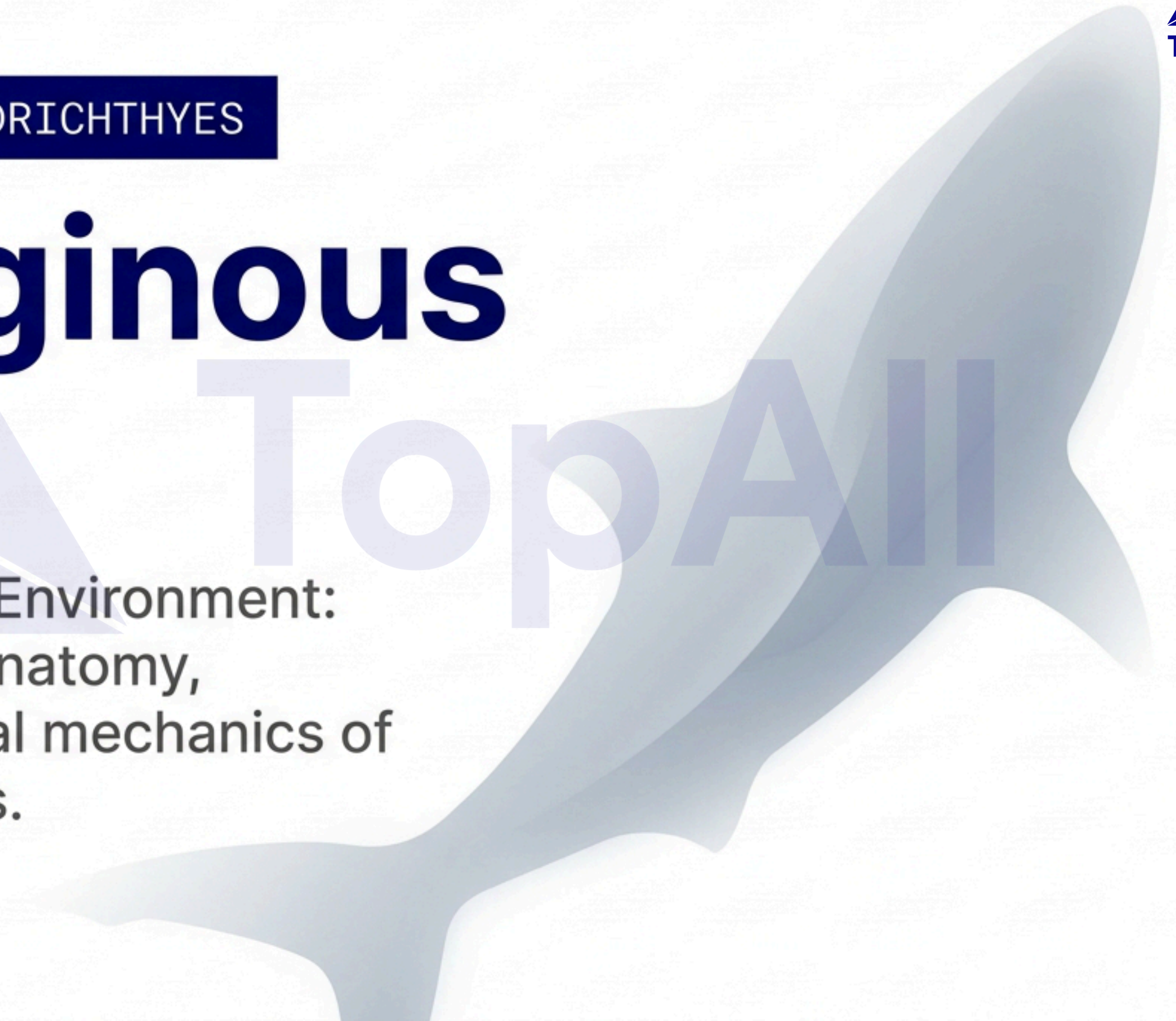


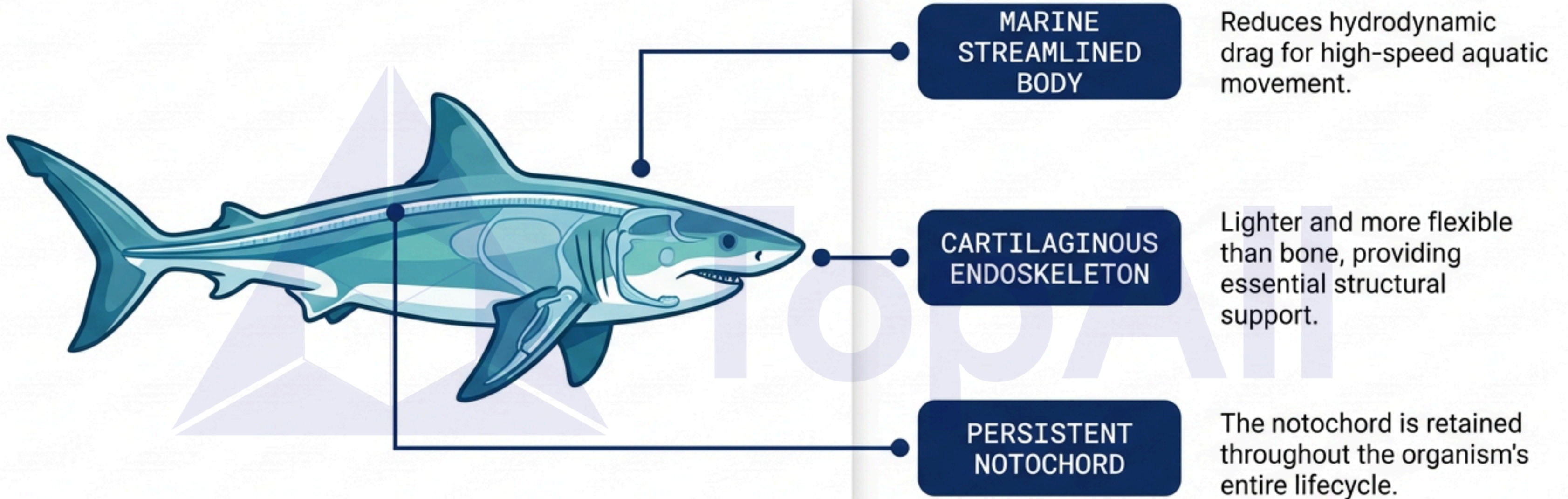
TAXONOMIC CLASS: CHONDRICHTHYES

Cartilaginous Fishes

Masters of the Marine Environment:
An exploration of the anatomy,
physiology, and survival mechanics of
cartilaginous predators.



Form Engineered for the Deep



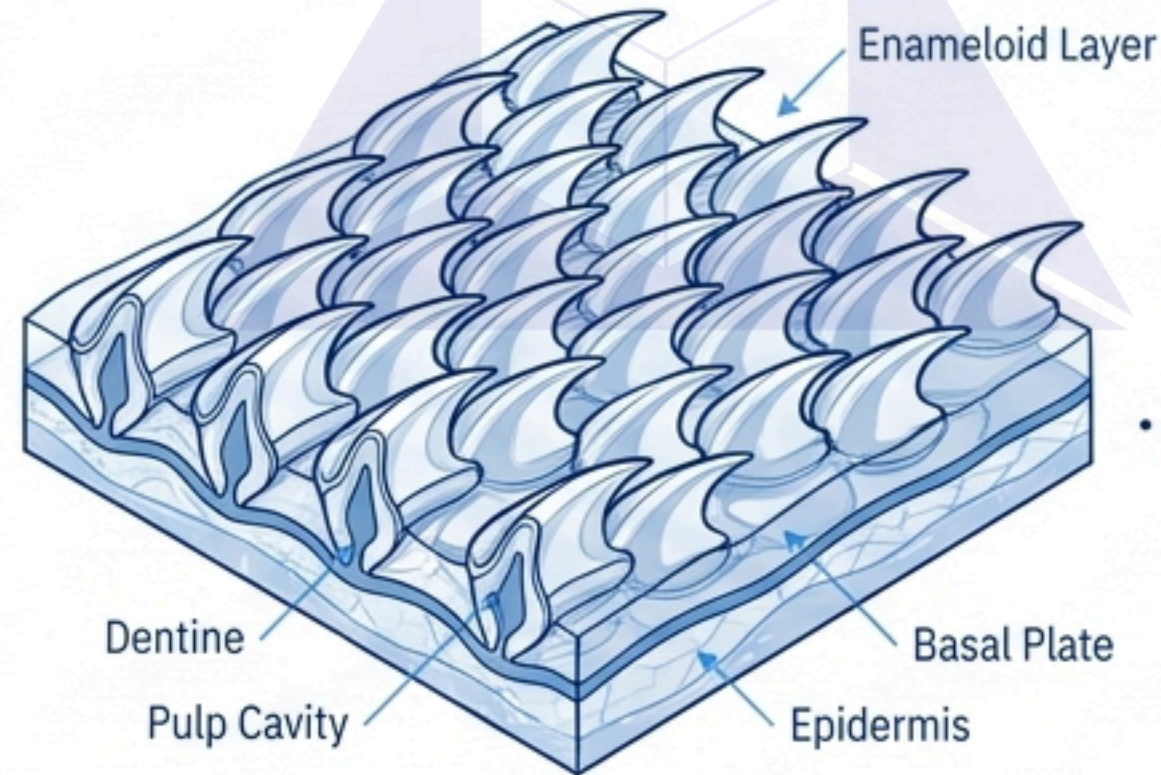
Evolutionary advantage: The combination of a streamlined form and a lightweight cartilaginous skeleton allows for unparalleled agility and predatory efficiency in marine environments.

The Anatomy of a Predator

PLACOID SCALES

The Armor

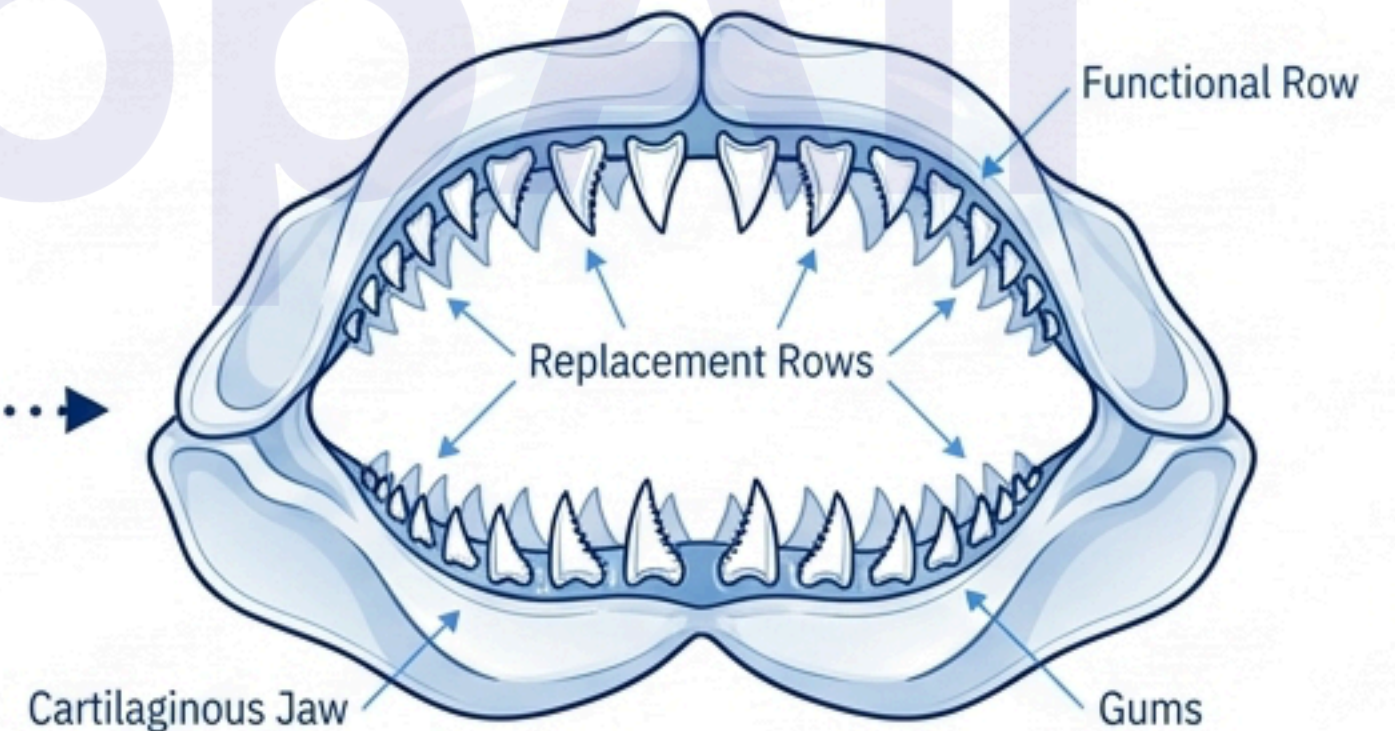
The skin is incredibly tough, embedded with minute, backwardly directed placoid scales that provide armor and reduce friction.



VENTRAL MOUTH & JAWS

The Arsenal

Features a ventrally located mouth and exceptionally powerful jaws. The teeth are actually modified placoid scales, continuously replaced and strictly designed for a predaceous lifestyle.





You've Learned the Theory. Let's Test Them Now.

$$E=mc^2$$



Turn theory into marks with **unlimited MCQs, smart analysis, and focused revision.**

Practice Now



At prep.topall.app

Key Highlights

- » Free Study Material, Videos & Infographics
- » Push Your Limits with Level-Based Challenges
- » Climb the Leaderboard Among Fellow Aspirants
- » Practice Unlimited MCQs for NEET & JEE
- » Get Clear Explanations, Not Just Marks
- » Track Your Performance Smarter



Breathing and Buoyancy

Exposed Gills

SEPARATE GILL SLITS

Respiration occurs through separate gill slits. Crucially, they lack an operculum (no protective gill cover).



The Sinking Threat



AIR BLADDER ABSENT

Must swim constantly.

Because they lack the buoyancy-regulating air bladder found in bony fishes, Chondrichthyes will sink to the ocean floor if they stop moving.

Constant forward momentum is required to force water over the gills and maintain vertical position.



Internal Physiology



TWO-CHAMBERED HEART

Consists of a simple, efficient circuit featuring exactly one auricle and one ventricle.



POIKILOTHERMOUS

Cold-blooded. They lack the internal capacity to regulate their body temperature, relying completely on the ambient temperature of the marine environment.

Evolutionary Weapons



While powerful jaws and sheer speed are their primary tools, specific species within Chondrichthyes have developed highly specialized organs for defense and hunting.

ELECTRIC ORGANS

Found in species like Torpedo. Capable of generating powerful electric shocks to stun prey or deter potential threats.

POISON STINGS

Found in species like Trygon (Sting rays). Used as a potent defensive mechanism against larger marine predators.

Reproduction and Development

Dioecious Anatomy

Sexes are separate.

CLASPERS

Males uniquely possess specialized mating structures called claspers, located on their pelvic fins.

Gestation

INTERNAL FERTILISATION

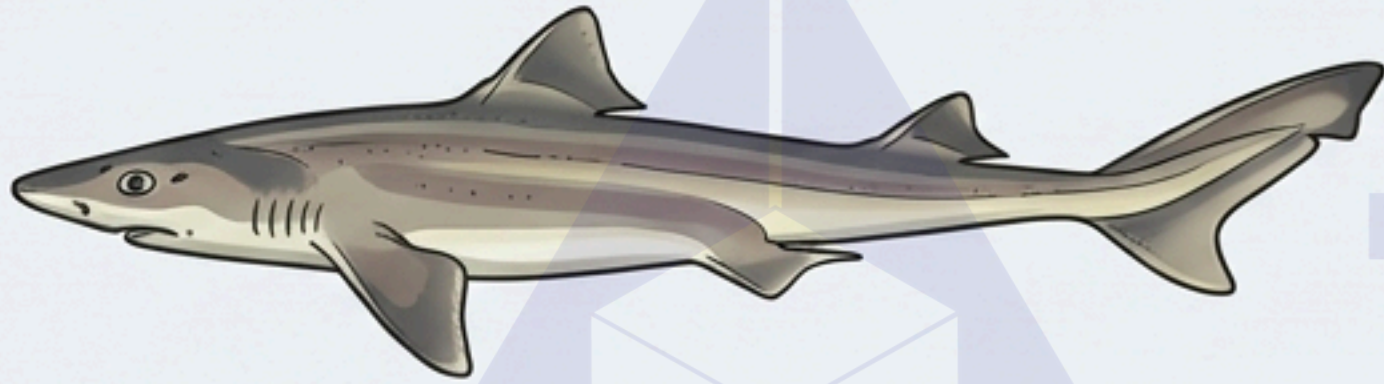
Unlike many bony fishes, fertilization occurs internally.

VIVIPARITY

Many species are viviparous, meaning they give birth to live young rather than laying eggs.

Strategic Advantage: Internal fertilization and viviparity represent an advanced reproductive strategy that drastically increases the survival rate of offspring in hostile marine environments.

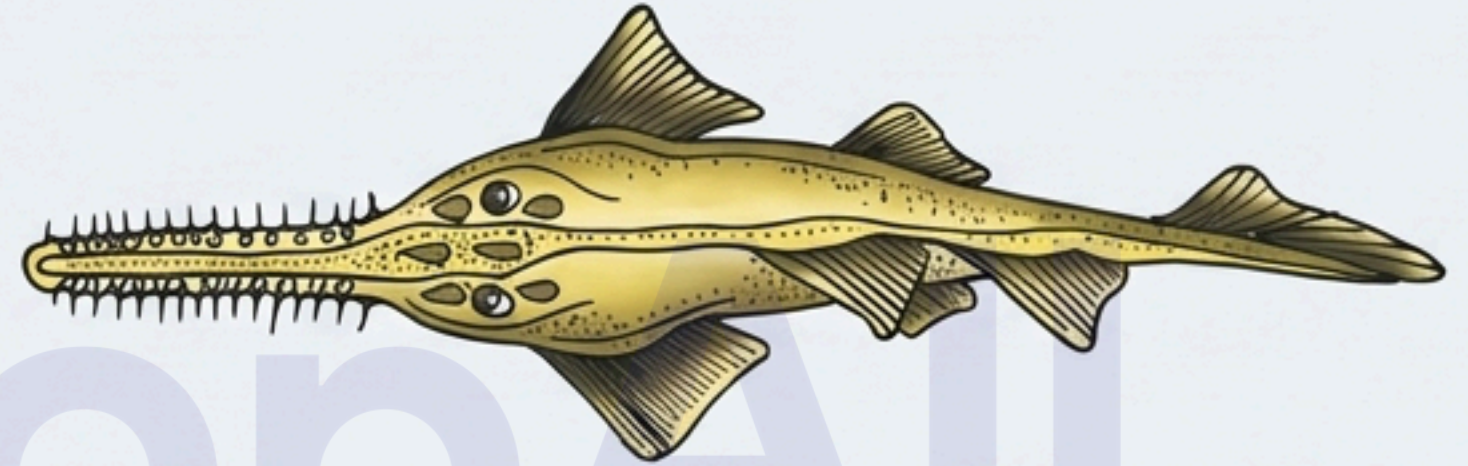
Representative Species



SCOLIODON

Dog fish

A classic example of the streamlined, predaceous cartilaginous fish.



PRISTIS

Saw fish

Features an extended rostrum lined with modified teeth for hunting.

Other notable members of Class Chondrichthyes include: **CARCHARODON** (Great white shark) **TRYGON** (Sting ray)



You've Learned the Theory.

Now Let's Test It.

Reading notes gets you knowledge.

Practicing MCQs gets you marks.

That's exactly what TopAll Pro is built for.

Try TopAll Pro Now

What TopAll Pro Does Differently

-  **Stuck? Snap it. Solve it. — Doubts AI**
Photo → step-by-step solution in seconds, 24/7
-  **Your AI Coach finds your blind spots**
Concept-level weakness detection — not just chapter-level
-  **4.5 Lakh+ questions. Never run out.**
13× more content than any other prep app in India
-  **Build your own test in 60 seconds**
Pick a chapter, set difficulty — AI does the rest instantly.
-  **AI Recommendation that helps you improve**
AI Recommendation Analysis your Tests and tell you where you need to improve.



Practice the moment you finish studying
Jump in while the concept is still fresh in your head

4.5L+
MCQs

1.5L+
Students

AI Powered
In-Depth Analysis