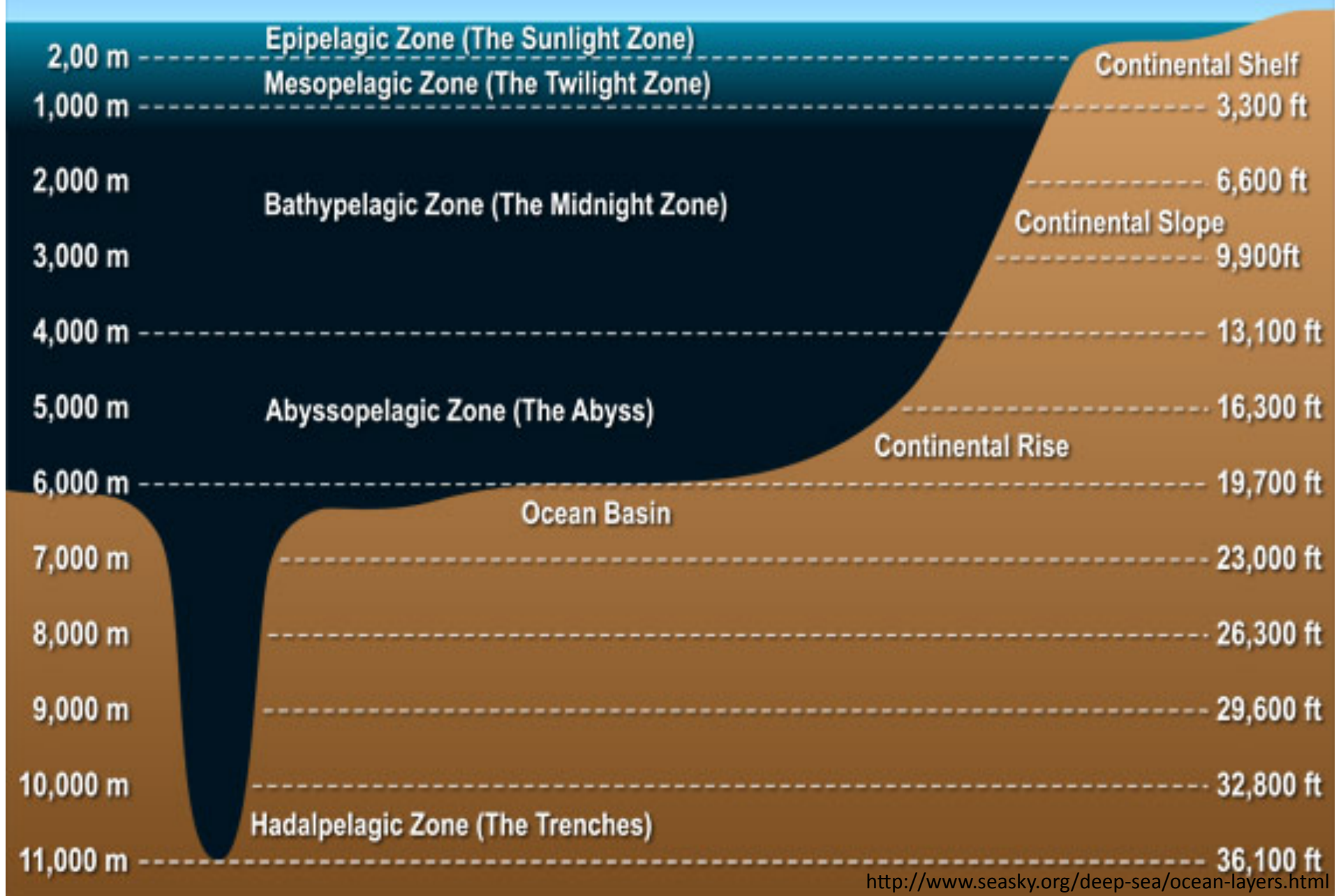




DEEP—SEA SHARKS

OCEAN REALMS



EPIPELAGIC



MESOPELAGIC ZONE

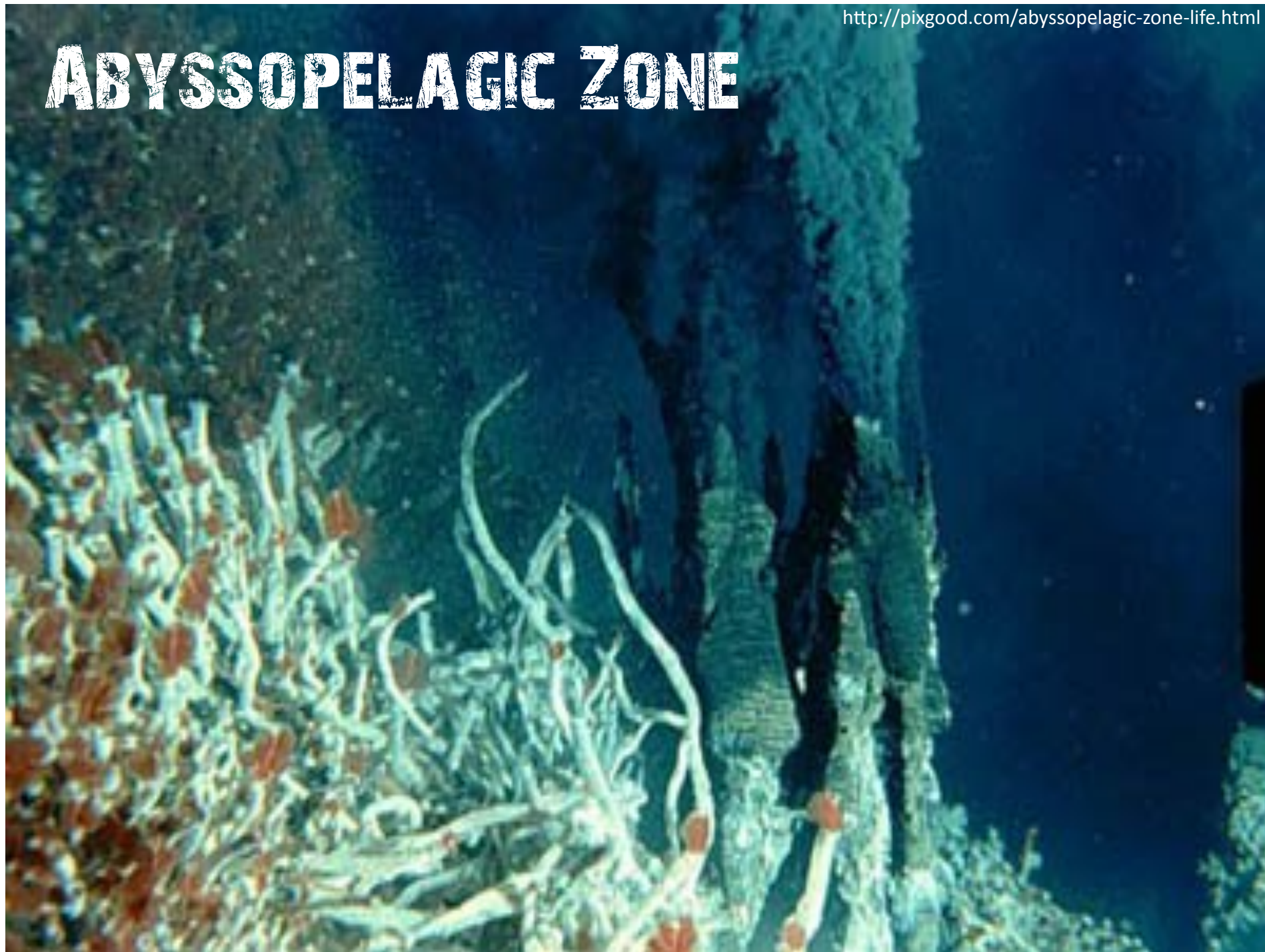


©Chris BirdShark Devocean

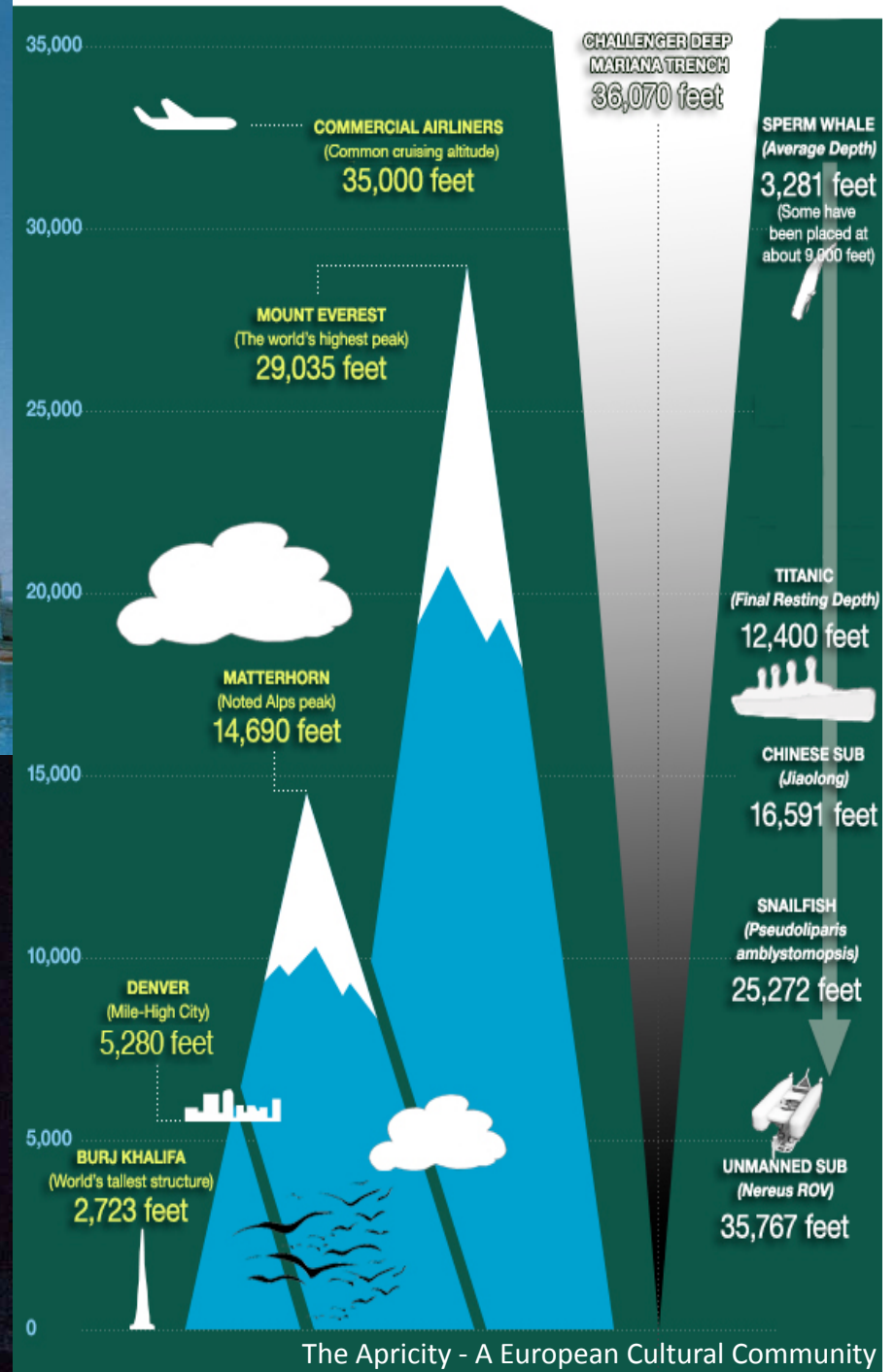


BATHYPELAGIC ZONE

ABYSSOPELAGIC ZONE



HADOPELAGIC ZONE



Pelagic

Paraprofundic (0-200 m)

Mesoprofundic (200- 600 m)

Holoprofundic (600+ m)

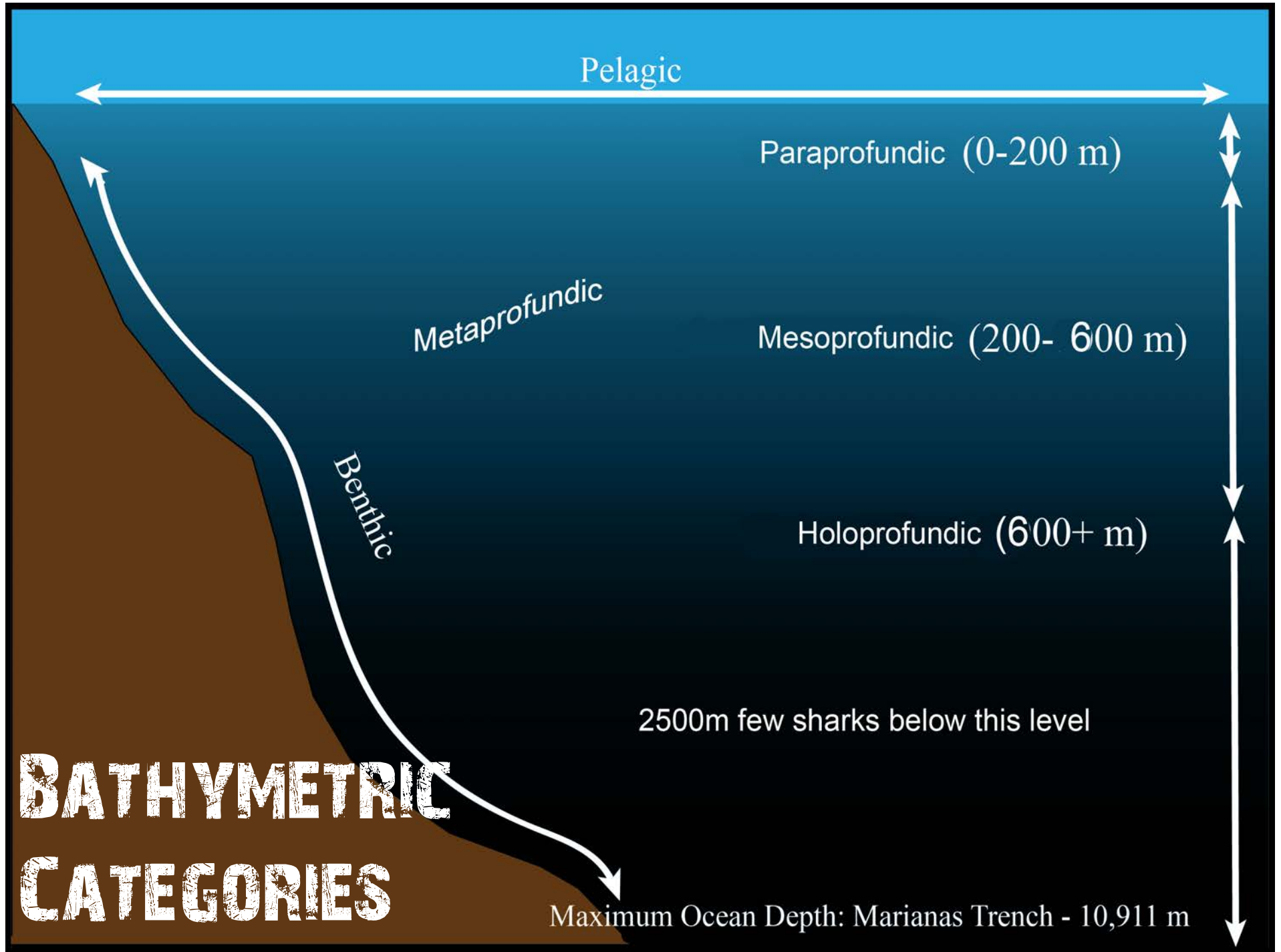
Metaprofundic

Benthic

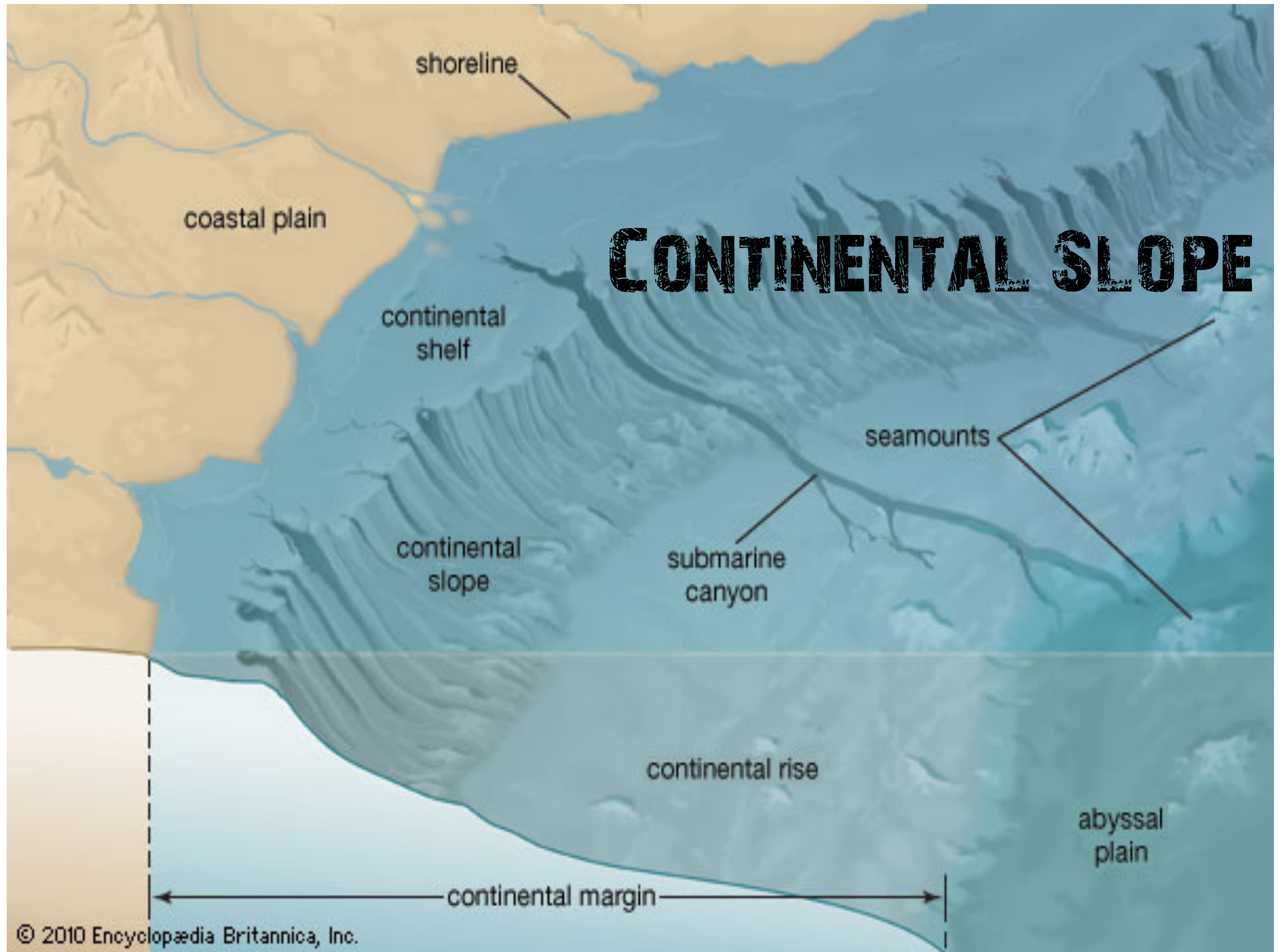
2500m few sharks below this level

Maximum Ocean Depth: Marianas Trench - 10,911 m

BATHYMETRIC CATEGORIES



CONTINENTAL SLOPE



DARK

COLD

OXYGEN LOW

HIGH PRESSURE

ENERGY SOURCE?



MARINE SNOW

©Chris BirdShark Devocean

STUDYING THE DEEP—SEA



DEEP-SEA FISHING LINES AND NETS

©Chris Bird Shark Devocean

BAITED CAMERAS



©Andrew Gates - SERPENT

MANNED SUBMERSIBLES

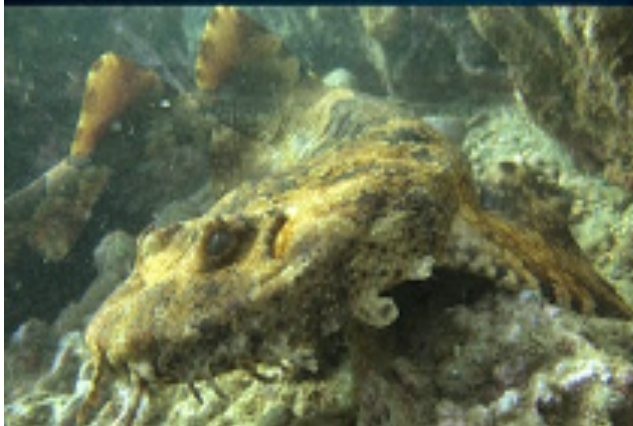


US National Oceanic and Atmospheric Administration

US National Oceanic and Atmospheric Administration



R(EMOTELY) O(PERATED) V(EHICLE)s



© Lyle Sady - Sharka Productions

GREAT HAMMERHEAD SHARK



LEMON SHARK



GALEOMORPHS

TIGER SHARK



CARIBBEAN REEF SHARK



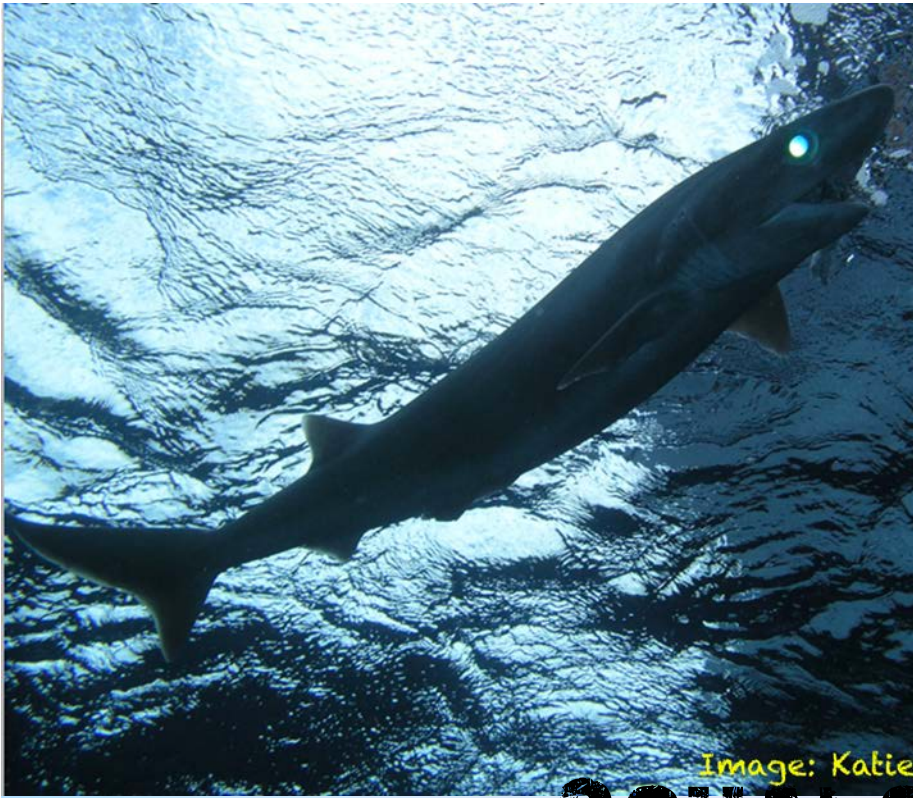


Image: Katie



©Chris Bird Shark Devocean

SQUALOMORPHS



CATSHARKS

CHAIN CATSHARK



© Andy Murch

DOGFISH



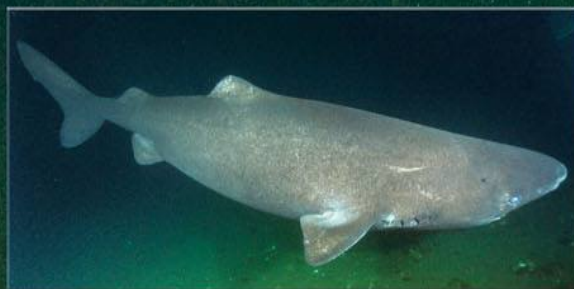
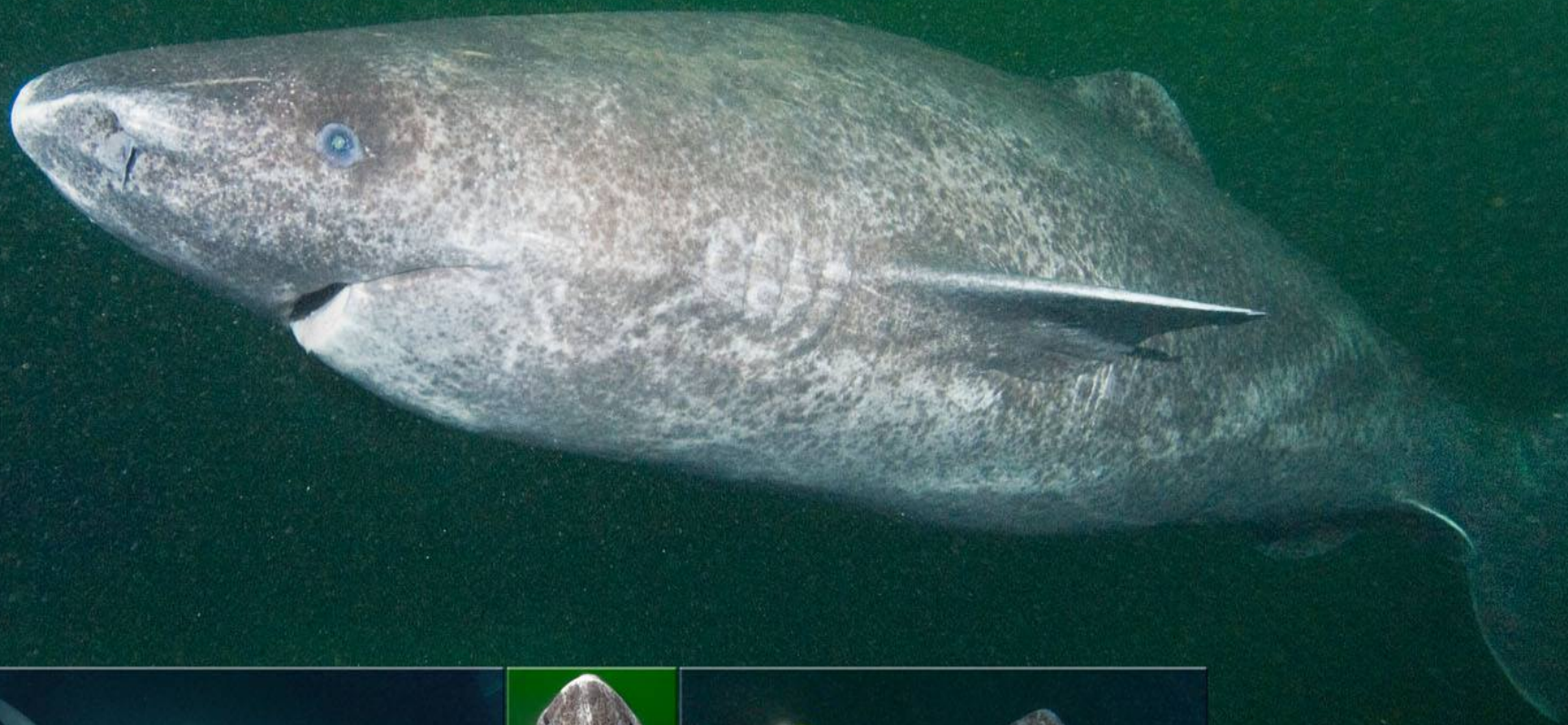
Roughskin Dogfish

Image: R. Dean Grubbs



GREENLAND SHARK

(Somniosus microcephalus)



© Andy Murch

www.sharks4kids.com



BLUNTNOSE SIX-GILL SHARK

(*Hexanchus griseus*) © Dean Grubbs



©Chris Bird Shark Devocean

©Chris Bird Shark Devocean

ARROWHEAD DOGFISH
(*Deania profundorum*)

BIRDBEAK DOGFISH

(*Deania calcea*)



©Chris Bird Shark Devocian



VELVET BELLY LANTERN SHARK

(*Etmopterus spinax*)

©Chris BirdShark Devocean



COOKIECUTTER SHARK

(*Isistius brasiliensis*)



Image: R. Dean Grubbs

©R. Dean Grubbs



CHAIN CATSHARK

(*Scyliorhinus retifer*)



©Andy Murch

GULPER SHARK

(*Centrophorus granulosus*)



©Dean Grubbs

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LIFE HISTORY



FIN SPINES

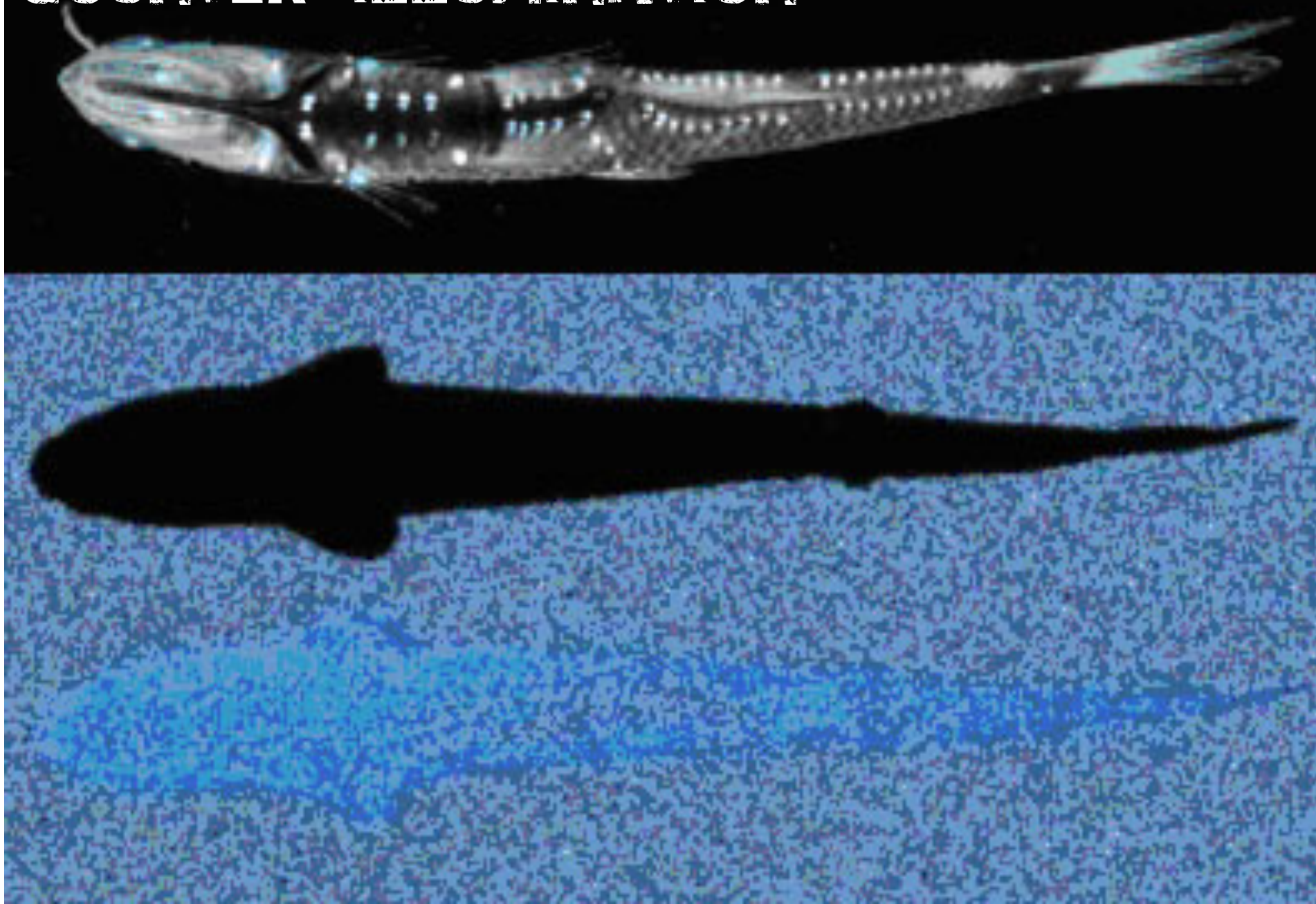


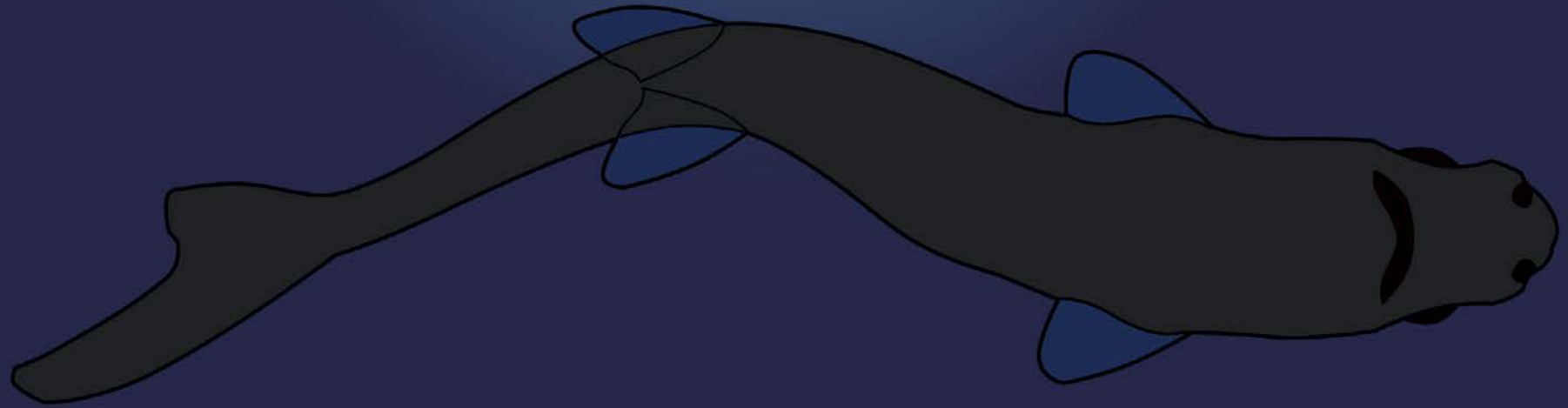
A close-up photograph of a person's hand holding a small, dark fish against a clear blue sky and a blue ocean. The fish has a glowing blue-green light around its eye and along its body, demonstrating bioluminescence. The person's hand is visible at the top, holding the fish by its body. The background shows a vast blue ocean under a clear blue sky.

BIOLUMINESCENCE

©Chris BirdShark Devocean

COUNTER-ILLUMINATION



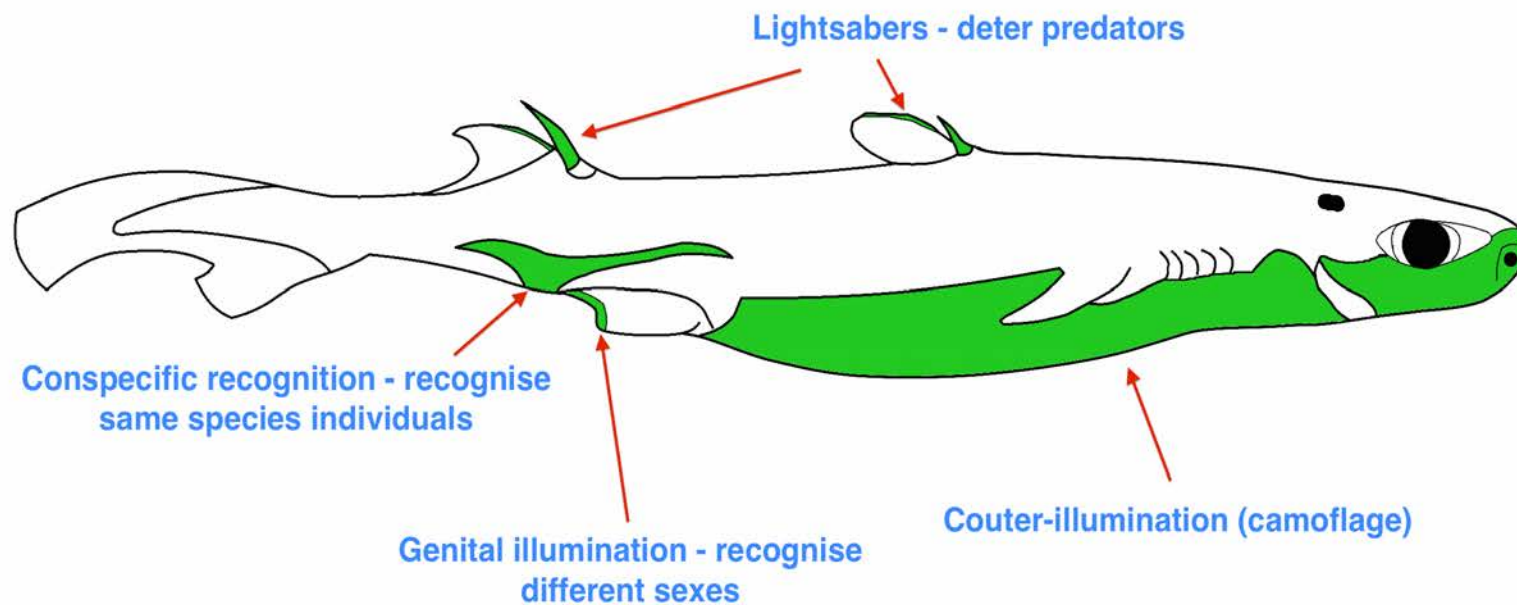


WITHOUT PHOTOPHORES



WITH PHOTOPHORES

ADDITIONAL ROLES OF BIOLUMINESCENCE



VISION



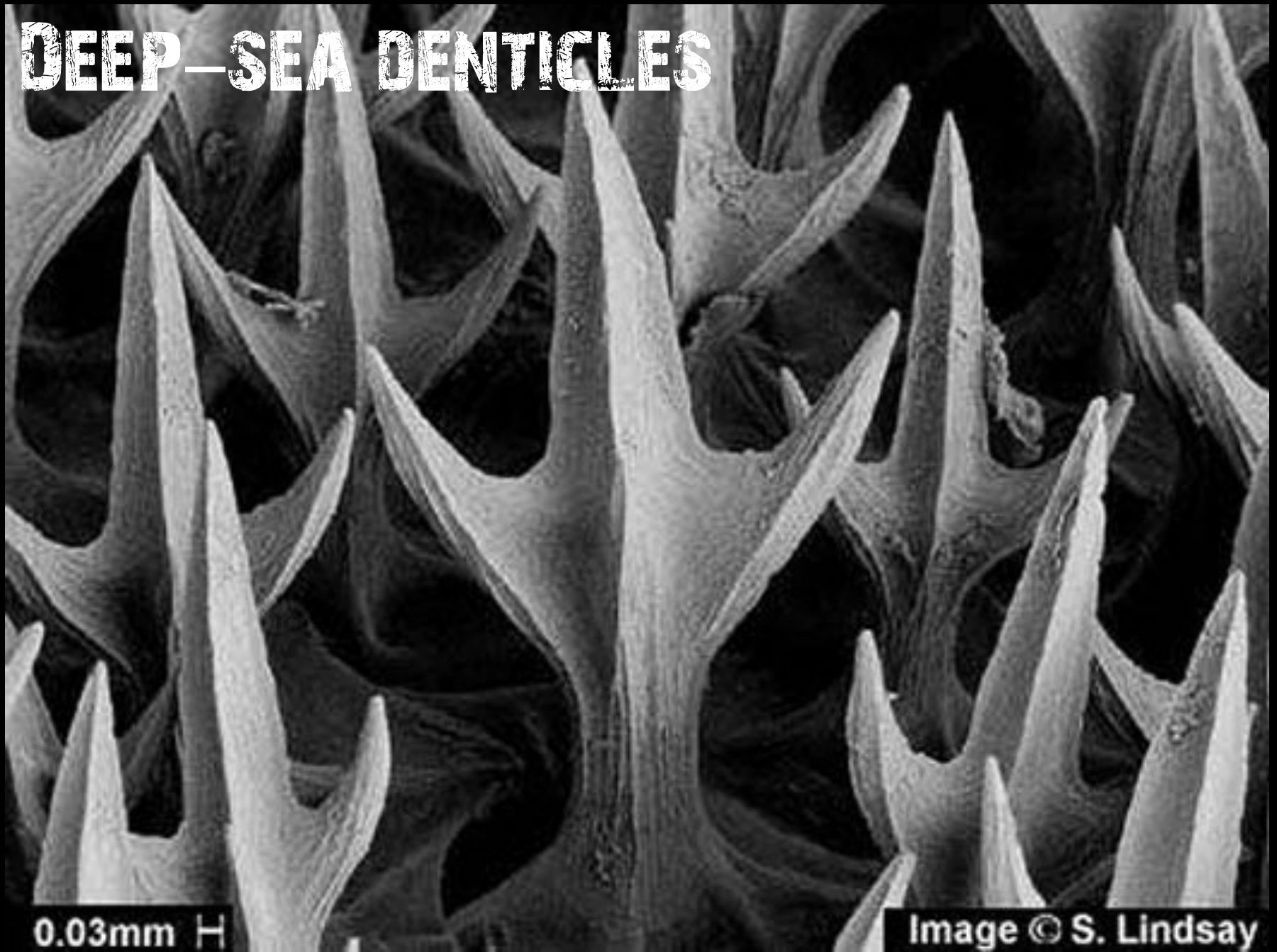
LIVER



SKIN



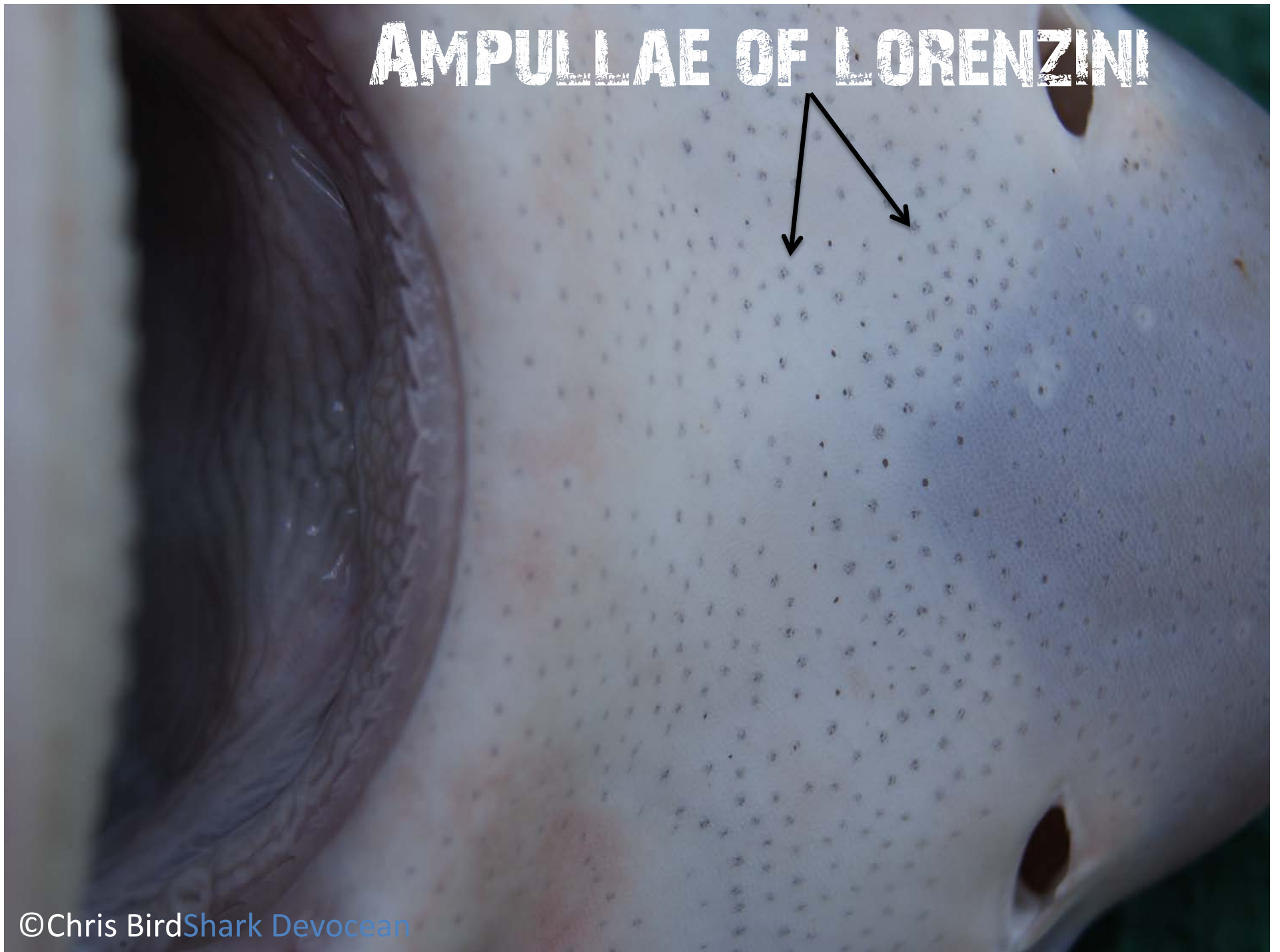
DEEP-SEA DENTICLES



0.03mm H

Image © S. Lindsay

AMPULLAE OF LORENZINI





©Chris BirdShark Devocean



DEEP-SEA FISHERIES

LONGLINER IN OPERATION

LONGLINE FISHING BOATS

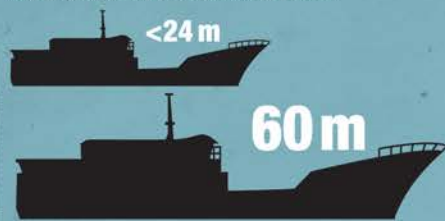
Nobody knows exactly how many longline boats are out in the ocean but estimates indicate there are over 5000 longline vessels fishing for tuna and tuna like species in the world.

OVER
5000
LONGLINE
VESSELS



SIZE

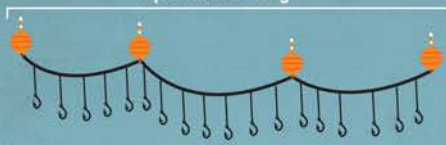
Longline fishing boats can be up to 60m long, however, most are so-called small scale vessels of less than 24m.



Source: Greenpeace Out of Line: The failure of the global tuna longline fisheries

LONGLINES + HOOKS

up to 150 km long



up to 3000 hooks

MARINE ANIMALS DYING
300,000 sea turtles and at least 160,000 seabirds and millions of sharks die annually in longline fisheries.

300,000
SEA TURTLES

160,000
SEA BIRDS

MILLIONS
SHARKS

OVERFISHING



All target tuna species now either overfished, being overfished or depleted.

SHARK FINNING

Sharks often targeted for their high value fins make up as much 50% of catches in some longline fisheries.



UP TO
50%
OF CATCHES CAN BE SHARKS

PIRATE FISHING AND TRANSHIPMENT

Many vessels transfer their catches at sea resulting in high amounts of unreported and illegal fishing.



MISTREATMENT OF CREW

Vessels can stay at sea for several years keeping their crew in a captive environment.

1 YEAR | 2 YEARS | 3 YEARS



SOLUTIONS

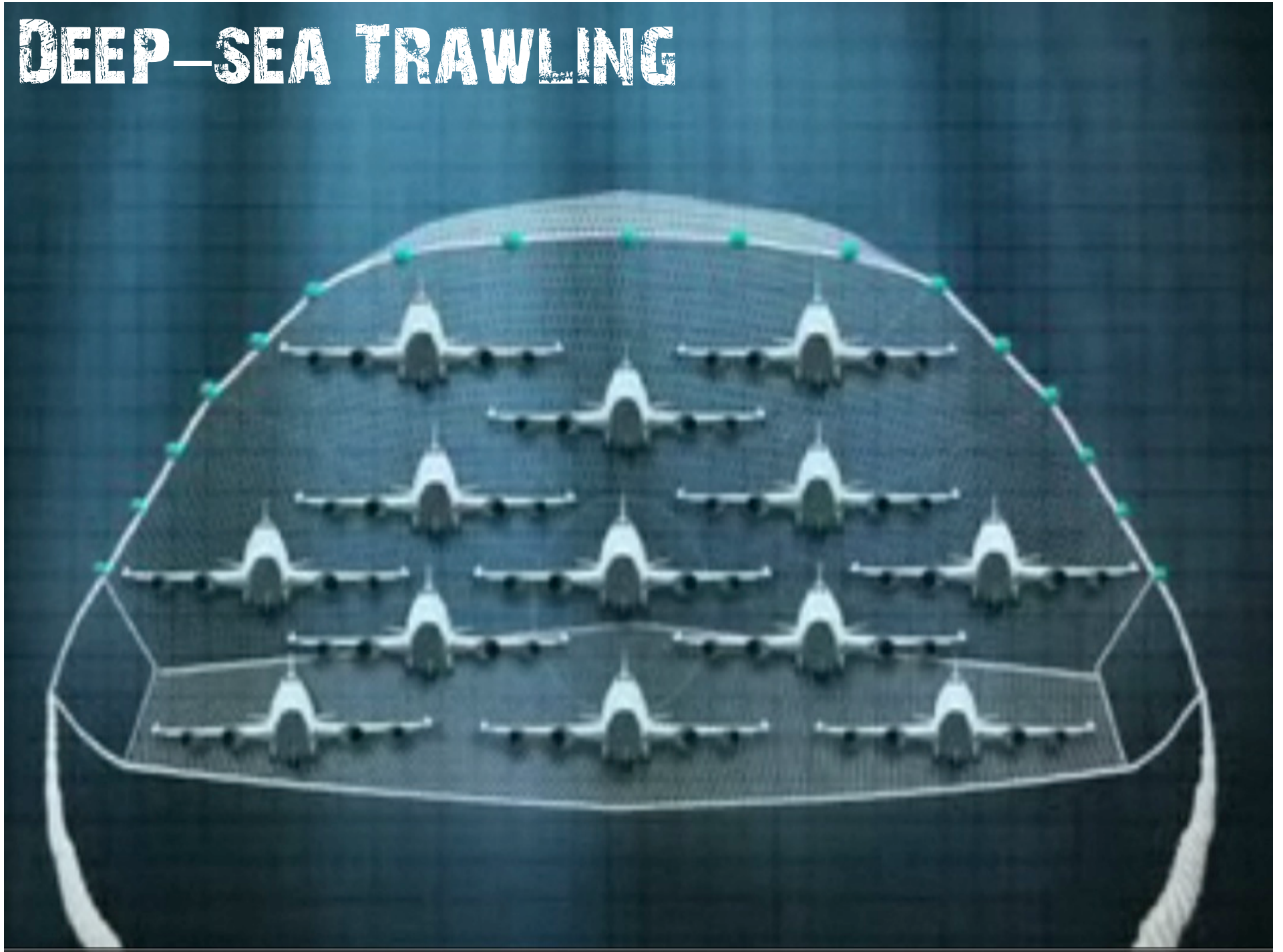
- ➔ Reduce fishing capacity and enforce sustainable catch limits
- ✕ Ban all at-sea transshipments
- ⚙ proper monitoring and 100% observer coverage

MITIGATE BY-CATCH BY:

- ⚠ Not targeting sharks and banning shark finning
- 🌀 Use circle hooks and other best practise mitigation methods

GREENPEACE

DEEP-SEA TRAWLING



SHARK LIVER OIL



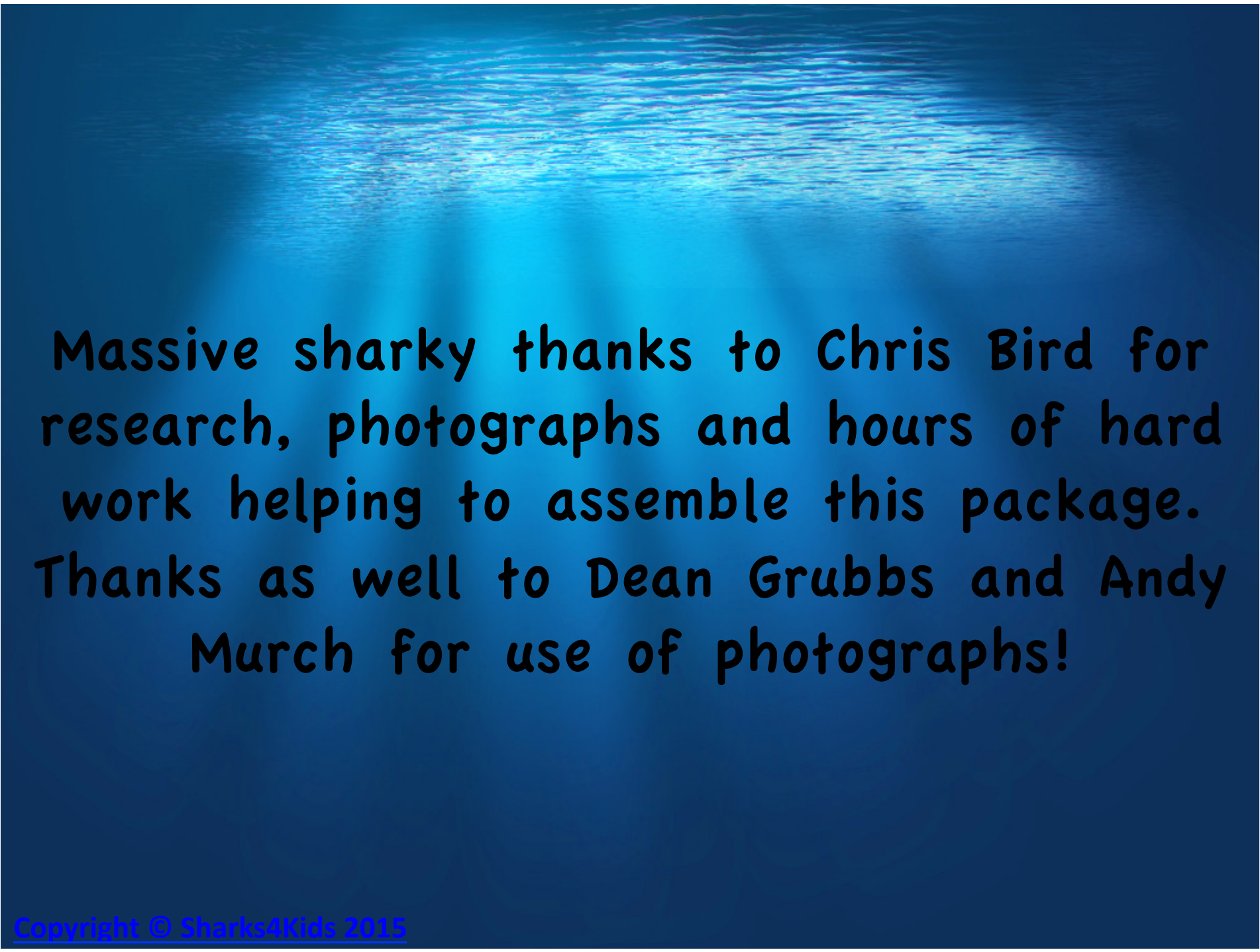
FUTURE STUDY

©Chris BirdShark Devocean

DEEP-SEA SHARK SCIENTIST:

CHRIS BIRD



An underwater photograph showing sunlight filtering through the water surface, creating a bright, shimmering effect. The water is a deep blue color, and the light rays are visible as they penetrate the water.

Massive sharky thanks to Chris Bird for research, photographs and hours of hard work helping to assemble this package. Thanks as well to Dean Grubbs and Andy Murch for use of photographs!

FOLLOW ALONG ON OUR SHARKY ADVENTURES!!!



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<https://plus.google.com/u/0/115411494637961640087/posts>

https://www.youtube.com/channel/UCCfqf_1S19kVjzQsLeHLDzA/



FAMILY: HEXANCHIDAE



Bluntnose Sixgill
(Hexanchus griseus)

©Andy Murch

FAMILY: SQUALIDAE



Spiny Dogfish
(*Squalus acanthias*)

©Andy Murch

FAMILY: CENTROPHORIDAE



Gulper Shark
(*Centrophorus granulosus*)

©Andy Murch

FAMILY: SOMNIOSIDAE



Greenland Shark
(Somniosus microcephalus)

©Andy Murch

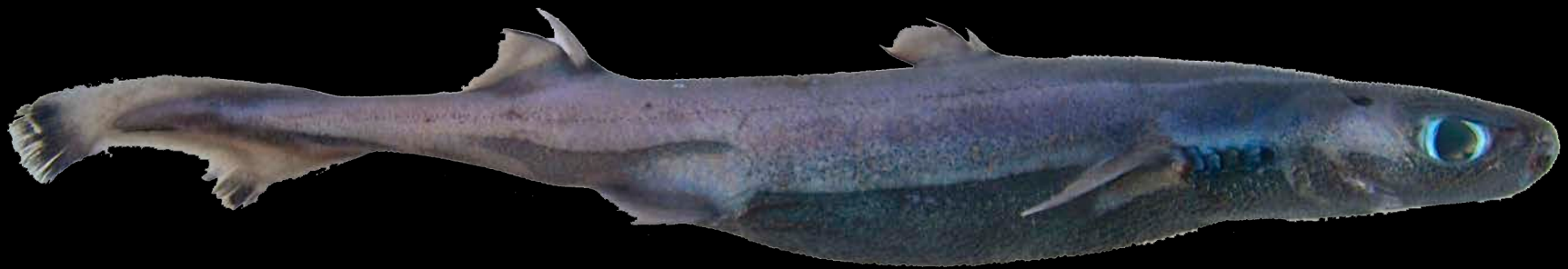
FAMILY: DALATIIDAE



Cookie Cutter Shark
(Isistius brasiliensis)

©Dean Grubbs

FAMILY: ETMOPTERIDAE



Velvet Belly Lanternshark
(*Etmopterus spinax*)

©Chris Bird