

NatureGlo's  eScience

Deep Sea Fish II: Gulper eel, Slender Snipe Eel, Barreleye, Oarfish



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Cover – Right to left, top to bottom: Gulper eel, Slender Snipe eel, Mirrorbelly barreleye, and Giant oarfish. All images in the public domain.

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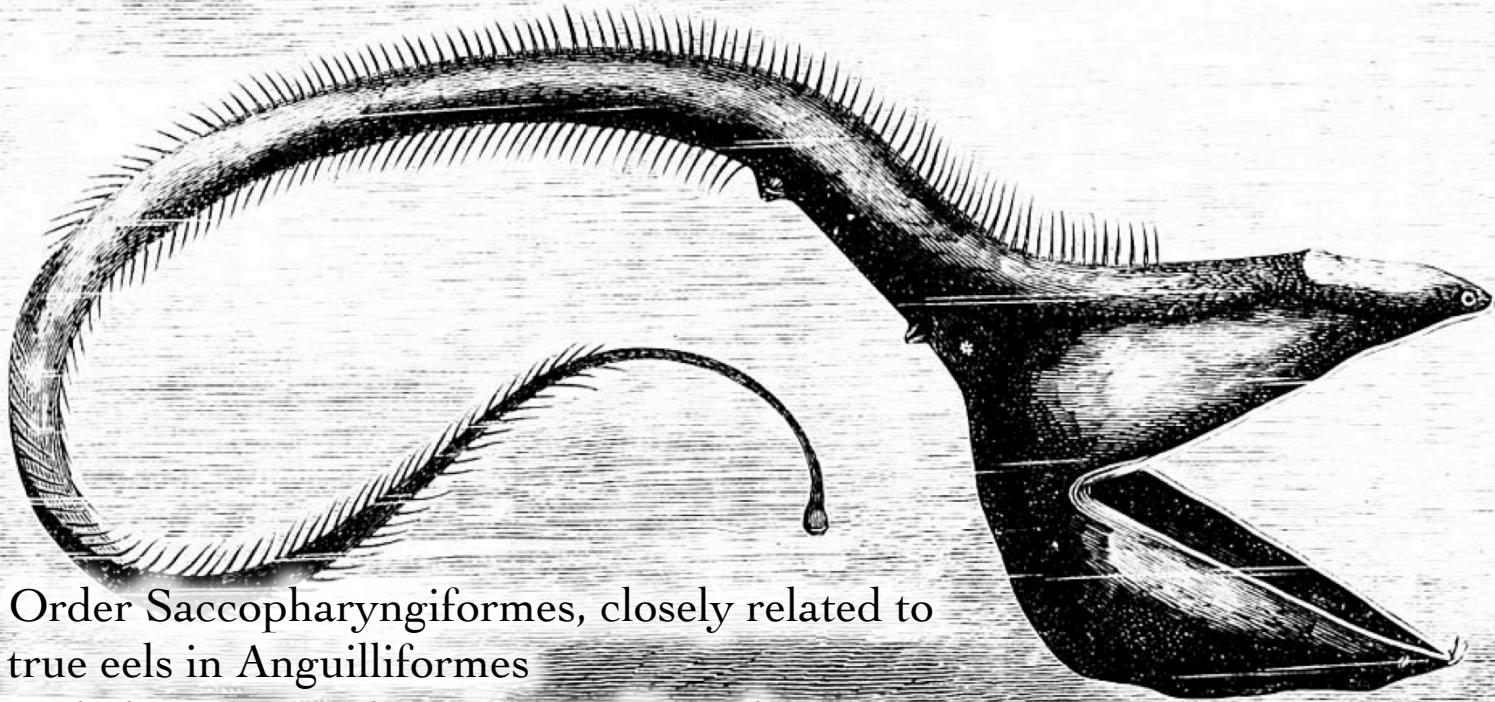
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Family Eurypharyngidae: The Gulper Eel



Gulper Eel photographed by Claf Hong.
Background oceanic scene by NOAA.

The Gulper Eel or Pelican eel, *Eurypharynx pelecanoides*



- Order Saccopharyngiformes, closely related to true eels in Anguilliformes
- Only known member of genus *Eurypharynx* and family Eurypharyngidae
- Eel-like, deep-sea ray finned fish rarely seen by humans; occasionally caught in fishing nets
- Different names - gulper eel, pelican gulper, umbrella-mouth gulper
- *Pelecanoides* refers to pelican for fish's large mouth similar to pelican's mouth

Distribution and habitat

- Temperate & tropical oceans worldwide
- North Atlantic range depth - 500 to 3,000 m (1,600 to 9,800 ft.)

Image in the public domain.

Gulper Eel Characteristics

- Color - black; some subspecies may have thin lateral white stripe
- Lack - pelvic fins, swim bladders, scales
- Muscle segments - "V-shaped", other fish "W-shaped"
- Very small eyes. detecting faint traces of light rather than form images
- Length - about 0.75 m (2.5 ft.) in length
- Tail end with bioluminescent pink lure sometimes flashes red

Large mouths

- Bigger than its body
- Loosely hinged
- Opens wide enough to swallow large prey
- Lower jaw hinged at head base; no body mass behind it, making head look disproportionately large
- Water ingested, expelled via gills

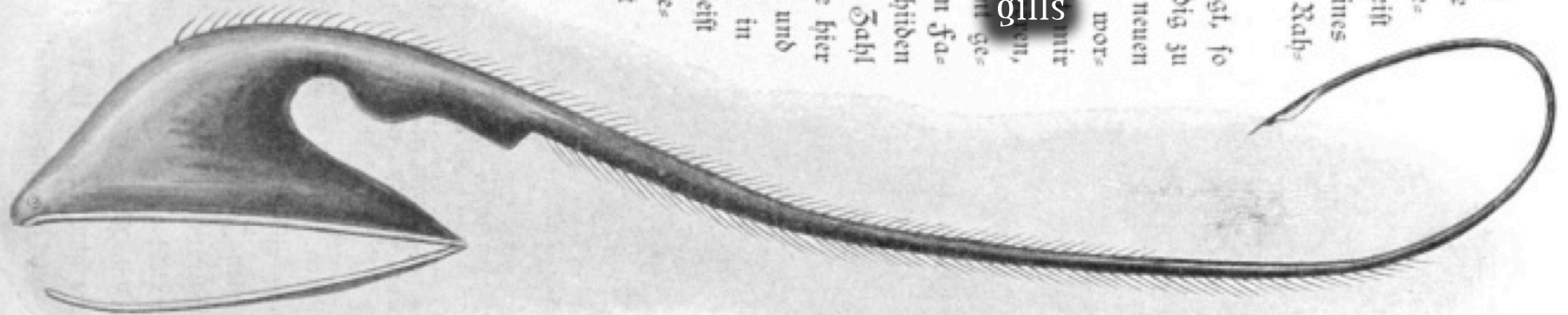


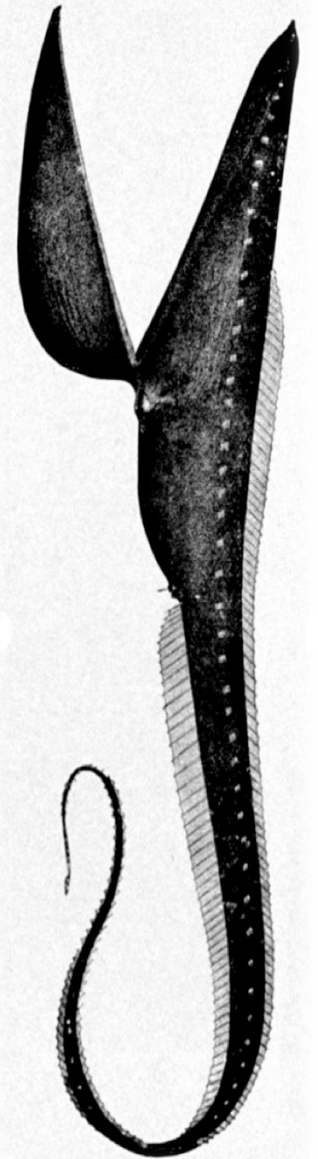
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Megalopharynx longicaudatus n. gen. n. sp. Brauer (fam. Eurypharyngidae).
Golf von Guinea. Vertiefungen in 3500 m. 1,5.

(Brauer gez.)

Gulper Eel Diet & Eating


- Stomach stretches and expands to fit large meals
- Diet – mainly small crustaceans; also cephalopods (squid) & other small invertebrates
- Large mouth may be adaptation to allow wider prey variety when food scarce
- Mouth with tiny teeth used like large net
- Swim into large groups of shrimp or other crustaceans with mouth wide open, scooping them up while floating/swimming along
- Slowly expels gulped water through gill slits
- Predators – lancet fish & other deep sea predators





**Family Nemichthyidae:
The Slender Snipe Eel**

Image credit - Neumann V. found in Portugal.

A detailed illustration of a Slender Snipe Eel, showing its long, thin body with a dark dorsal side and a lighter ventral side. The eel has a long, pointed snout and a small, round eye. It is depicted in a curved, S-shape, with its head at the top left and its tail at the bottom right.

The Slender Snipe Eel, *Nemichthys scolopaceus*

- Other names - Deep sea duck, Threadfish
- A deep sea fish
- Range - midwater (1,000-13,000 feet, or 300-4,000 meters)
- Weight - a few ounces
- Length - can reach 5 feet or 1.5 m in length

Image — A Slender Snipe eel in the public domain.

Slender Snipe Eel Characteristics

- Bird-like beak with curved tips, covered with tiny hooked teeth; can't close mouths completely
- Beak/teeth use - sweep through water to catch shrimp and other crustaceans
- Lifespan - ten years
- Vertebrae - most of any vertebrate worldwide; around 750 bones!
- Anus - located on throat
- Larvae - shaped like leaves & get smaller before adult stage
- Many specimens found in museums were spat found in larger fish caught in trawls



Images of a Snipe eel body and head - Creative Commons Attribution-ShareAlike 2.5 license.

Family Opisthoproctidae: The Barreleyes

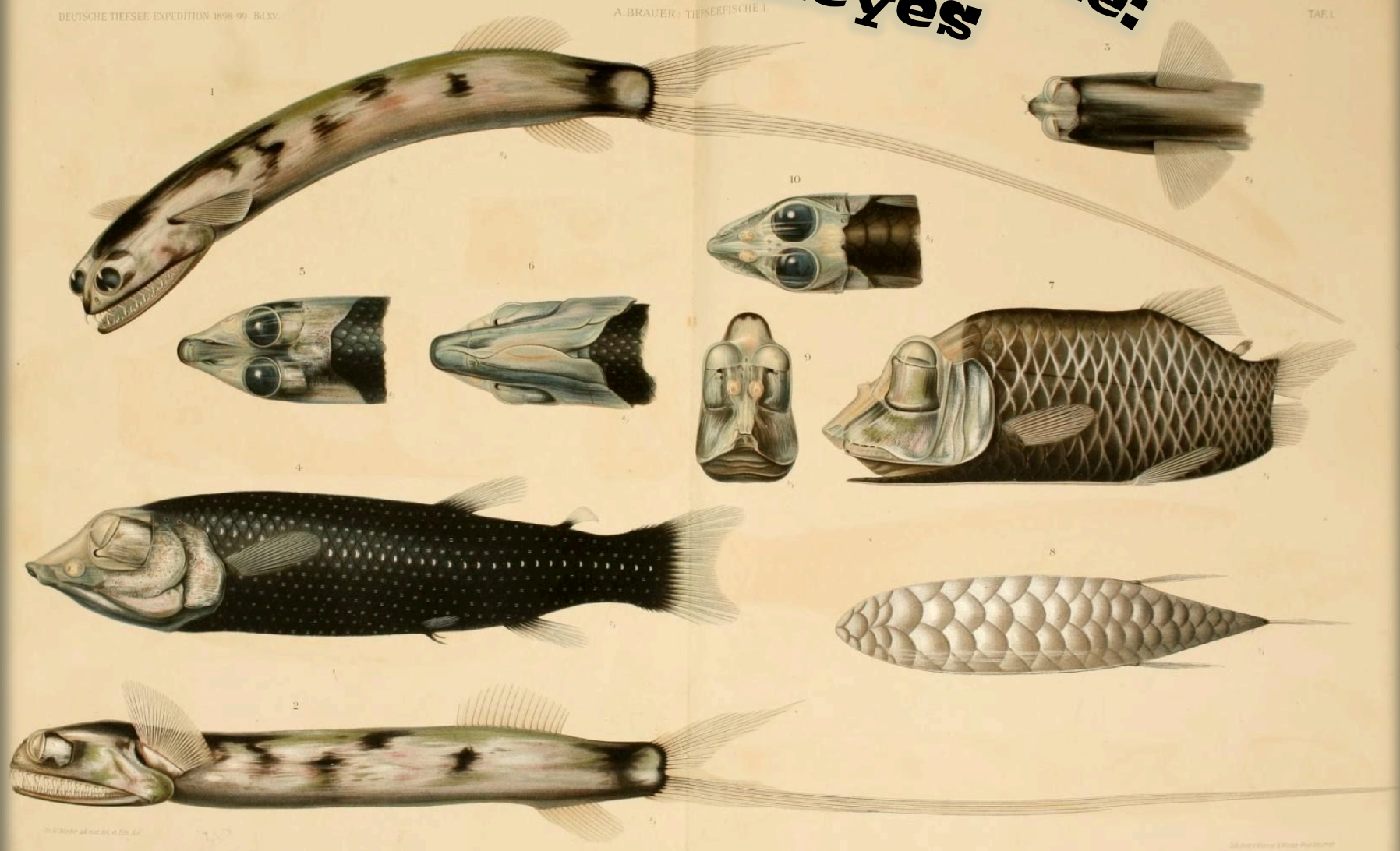


Image – Assorted barreleye fish species in the public domain.

The Barreleye Fish

- Other name - spook fish (name used with several chimaera species)
- Range - tropical-to-temperate waters of Atlantic, Pacific, and Indian Oceans
- Barrel-shaped, tubular eyes, generally directed upwards to detect prey silhouettes but capable of directing eyes forward
- Eyes set in large, dome-shaped, soft tissue transparent head
- Habitat/depths - mesopelagic to bathypelagic zone, circa 400–2,500 m



A Mirrorbelly barreleye fish created by Albert I, Prince of Monaco, 1848-1922. Image in the public domain.

The Three Main Barreleye Fish Forms

- Genera *Opisthoproctus* and *Macropinnastout* – stout, deep-bodied
- Spookfishes of genera *Dolichopteryx* and *Bathylchnops* extremely – slender & elongated
- Spookfishes of genera *Rhynchohyalus* and *Winteria* – intermediate fusiform



Spookfish or Barreleye *Opisthoproctus soleatus*



Javelin spookfish
Bathylchnops exilis



Binocular fish
Winteria telescopa

Background image of ocean water CC BY 4.0. All other images in the public domain.

BARRELEYE EYES & TRANSPARENT HEADS

- Remain just below light limit penetration
- Use sensitive, upward-pointing tubular eyes adapted for enhanced binocular vision to survey waters above
- Binocular eyes accurately track and home in on small zooplankton such as hydroids, copepods, and other pelagic crustaceans
- Large, dome-shaped, transparent heads allows eyes to collect more light
- Transparent dome likely protects sensitive eyes from nematocyst (stinging cells) of siphonophores from which barreleye believed to steal food
- *Dolichopteryx longipes* - only vertebrate known to use mirror (as well as lens) in eyes for focusing images

Barreleye or Spookfish
Opisthoproctus
soleatus 1888. Image
in the public domain.



FAMILY REGALECIDAE: OARFISH

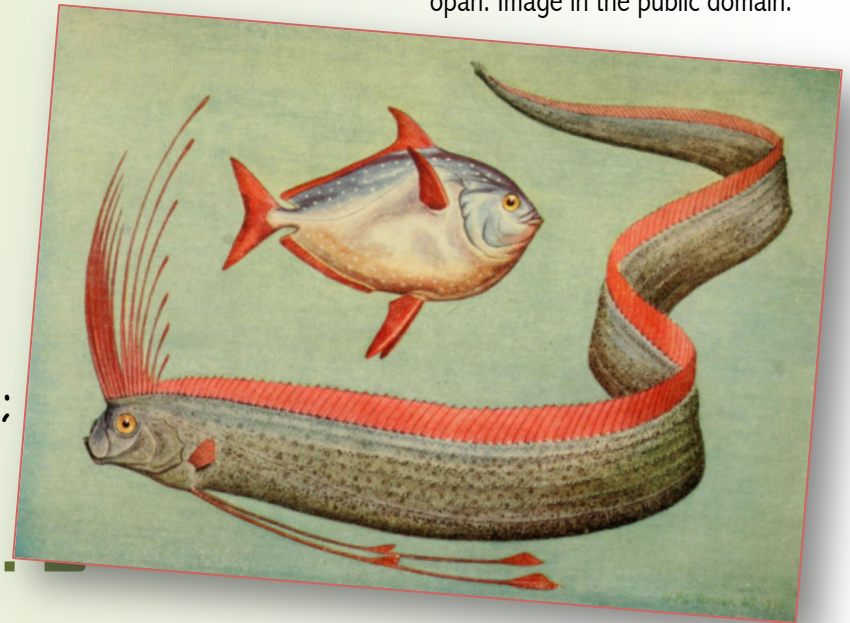




Oarfish Introduction

- Order Lampriformes, including: crestfishes, opahs & ribbonfishes
- Large, greatly elongated, pelagic ray-finned fish
- Four species, two genera
- Range - epipelagic to mesopelagic, all temperate to tropical ocean layers, from 1,000 meters (3,300 ft.)
- Giant oarfish (*Regalecus glesne*) - longest bony fish alive, growing to up to 11 m (36 ft.); some cartilaginous fish, basking shark & whale shark longer

Oarfish (same as top frame) & opah. Image in the public domain.



- Common name perhaps references highly compressed, elongated bodies, or discredited belief of "rowing" themselves through water with pelvic fins
- Family name Regalecidae - Latin *regalis*, meaning "royal"
- Beachings - occasional; occur after storms or from sick or dying lingering at surface

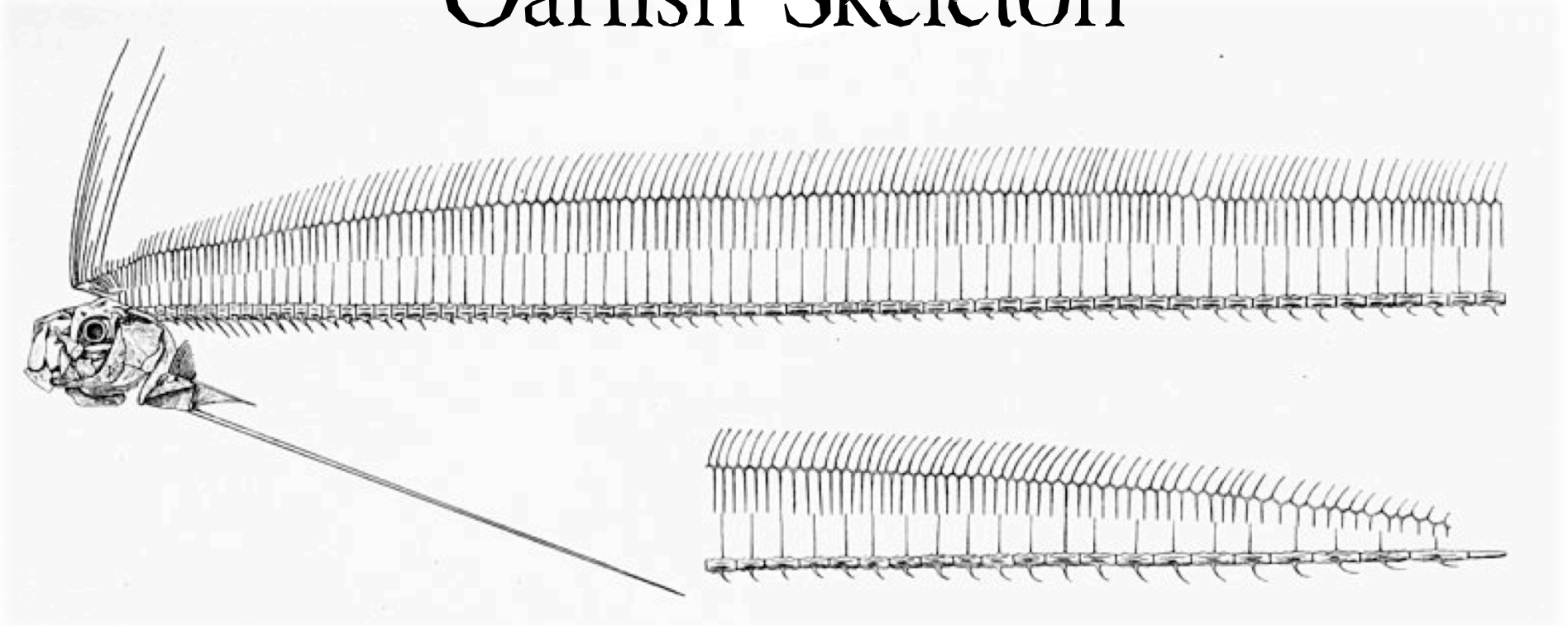
Oarfish Anatomy

- Dorsal fin originates from above eyes and runs entire top length of fish
- Approximately 400 dorsal fin rays; first 10 to 13 elongated to varying degrees, forming trailing crest embellished with reddish spots and flaps of skin at ray tips
- Pelvic fins - similarly elongated and adorned, reduced to 1 - 5 rays each
- Pectoral fins - greatly reduced & situated low on body
- Anal fin - completely absent

- Fine point body tapering at end
- All fins lack true spines
- Small, protrusible oblique mouth with no visible teeth
- Scale less; skin covered with easily abraded, silvery guanine
- Lack gas bladders
- Color - variable; flanks commonly covered with irregular bluish to blackish streaks, black dots, and squiggles; markings quickly fade following death

Oarfish drawings in the public domain.

Oarfish Skeleton



The Giant oarfish *Regalecus glesne* skeleton, a public domain image.

Oarfish Diet & Feeding

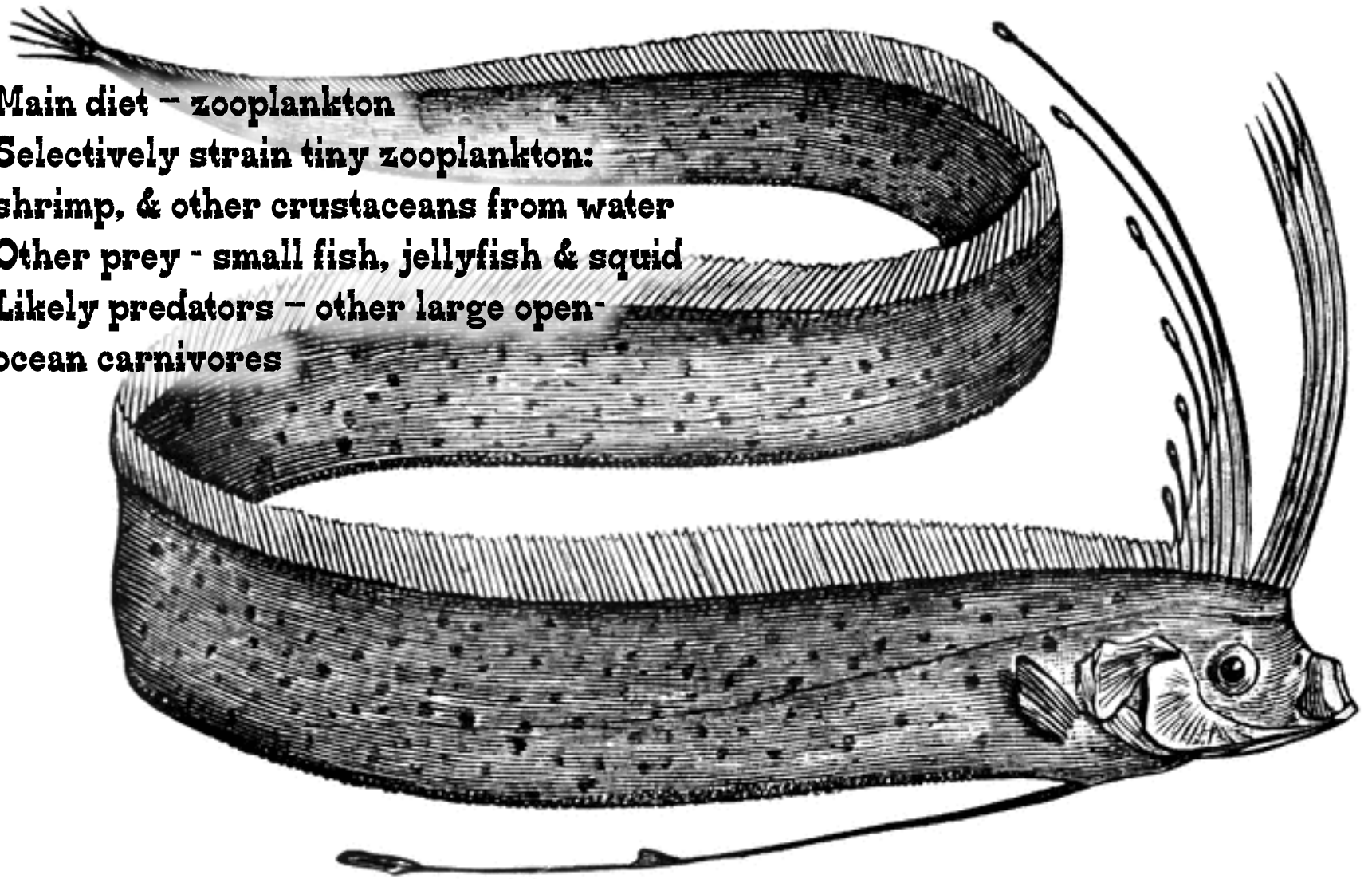
Main diet – zooplankton

Selectively strain tiny zooplankton:

shrimp, & other crustaceans from water

Other prey - small fish, jellyfish & squid

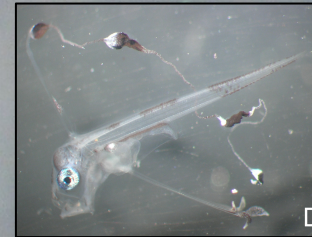
Likely predators – other large open-ocean carnivores



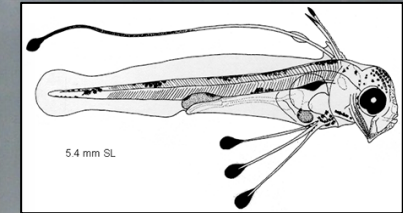
Images – Black & white oarfish. Image in the public domain.

Oarfish Life Cycle

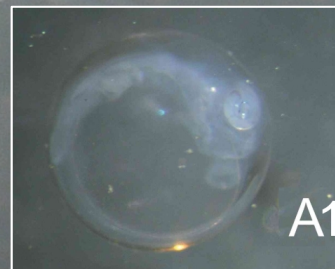
- Giant oarfish recorded as spawning off Mexico from July to December
- All species believed to not guard eggs
- Release brightly colored, buoyant eggs, up to 6 mm (0.24 in) across
- Eggs become zooplankton
- Eggs hatch after about 3 weeks



Background image thumbnail.



- Highly active larvae feed on other zooplankton
- larvae have little resemblance to adults with long dorsal and pelvic fins, extensible mouths
- Larvae & juveniles drifting just below sea surface



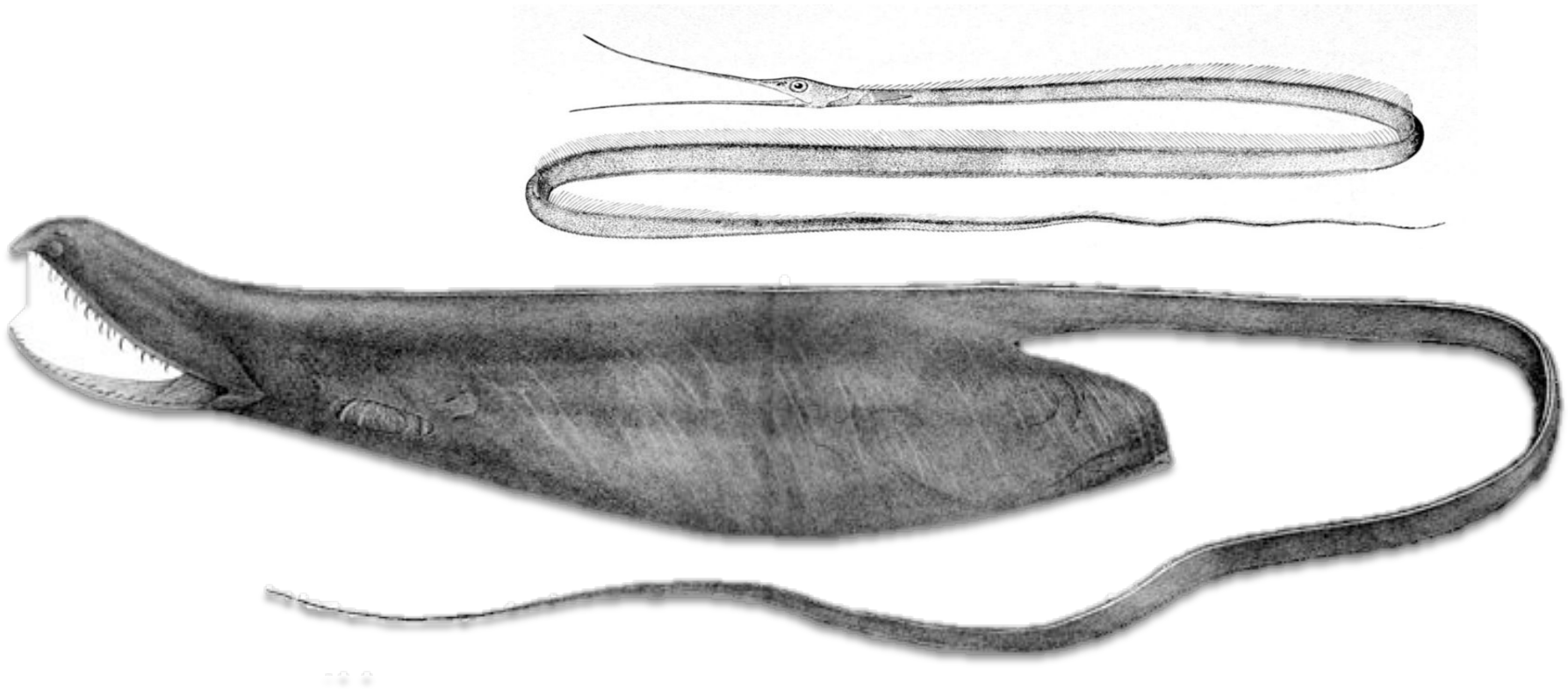
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All images (except black & white larvae) credit: Allan Connell and used with permission
<http://fisheggs-and-larvae.saiab.ac.za/CDIA1%20Regalecidae.htm>

Color images: Oarfish eggs (first two lower images) and larvae, background & lower right.

References

1. "Eurypharynx pelecyanoides". Integrated Taxonomic Information System. Retrieved 20 February 2016.
2. "Gulper Eel - Pelican Eel, Frightening Deep Sea Jaws." Factzoo.com. CopyLeft, 2010.
3. Froese, Rainer and Pauly, Daniel, eds. (2005). "Nemichthys scolopaceus" in FishBase.
4. Froese, Rainer, and Daniel Pauly, eds. (2007). "Regalecidae" in FishBase.
5. Wikipedia Slender Snipe Eel article: <https://en.wikipedia.org/wiki/Oarfish>



Images — Top: Slender Snipe eel; lower: Gulper eel. Images in the public domain.

Thank you for watching!

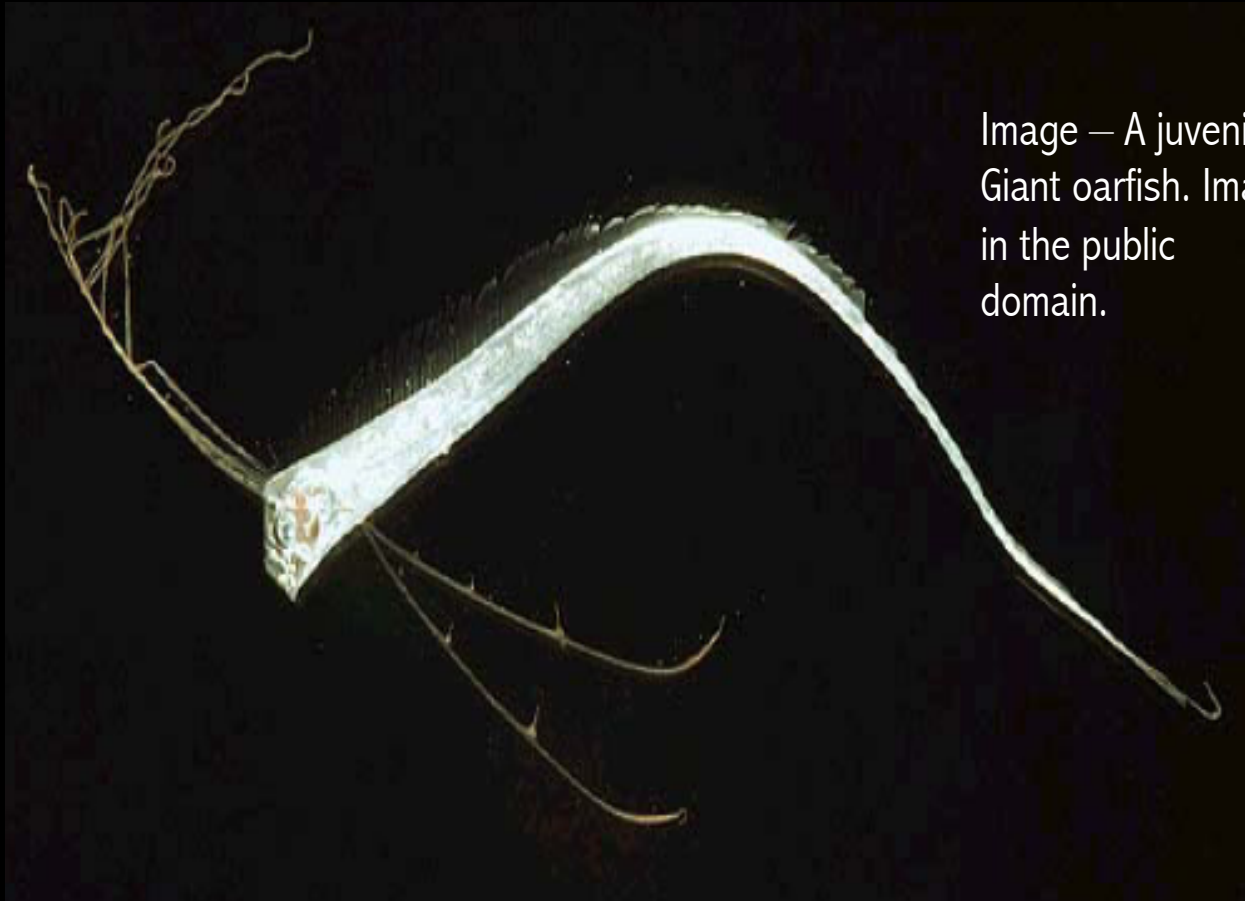


Image — A juvenile
Giant oarfish. Image
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