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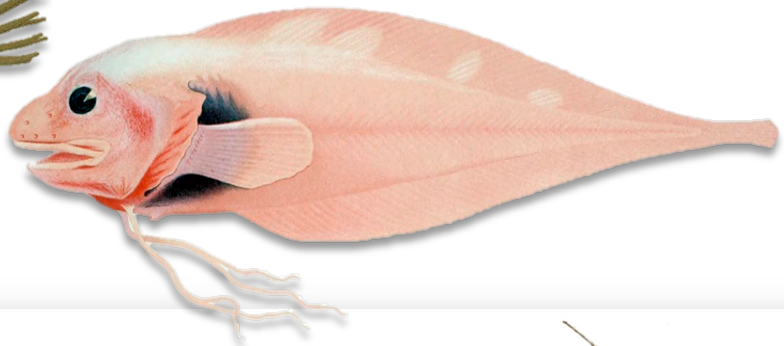
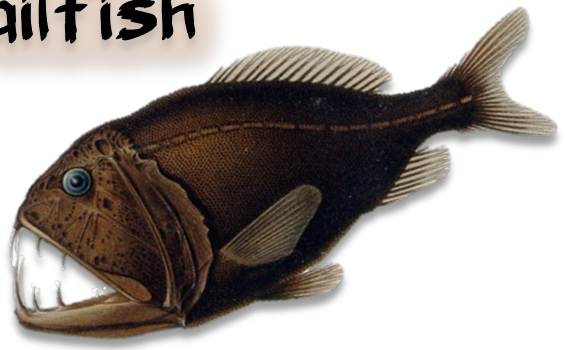
Deep Sea Fish I : Anglerfish, Fangtooth, Sloane's Viperfish, Snailfish





By Gloria A. Brooks

Cover – Left to right: A Humpback anglerfish, a snailfish, *Rhodichthys regina*, a Common fangtooth and the bottom image: Sloane's Viperfish. All images are in the public domain.

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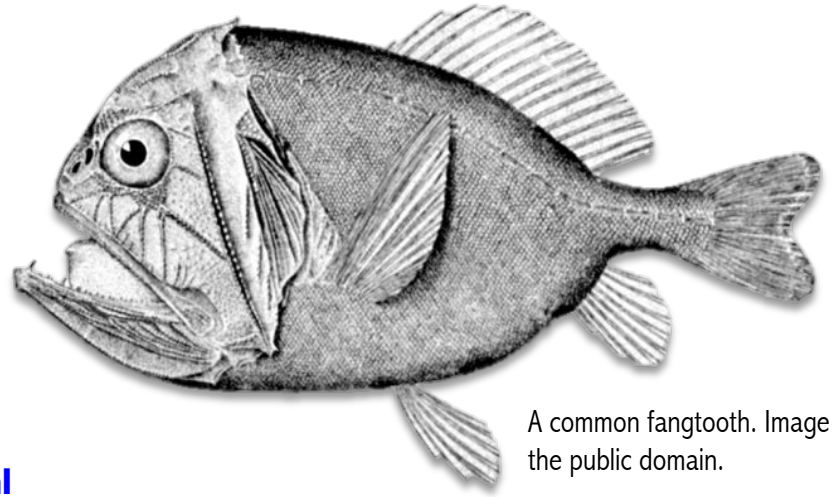


A common fangtooth. Image in the public domain.

Order Lophiiformes: The Anglerfish

Image – A female Humpback anglerfish. Credit: NOAA

Order Lophiiformes: The Anglerfish

- Approximately 322 living species, 65 genera, 18 families
- Bony fish named for predation with fleshy growth lure which hangs above fish's head
- Sexual dimorphism & sexual parasitism of small male on much larger female, seen in suborder Ceratioidei; males typically smaller than females
- Occur worldwide
- Pelagic forms - most laterally compressed (pressed from side to side like pancake)
- Benthic or deep sea forms - often extremely dorsoventrally compressed (depressed) from top to bottom, often with large upward-pointing mouths

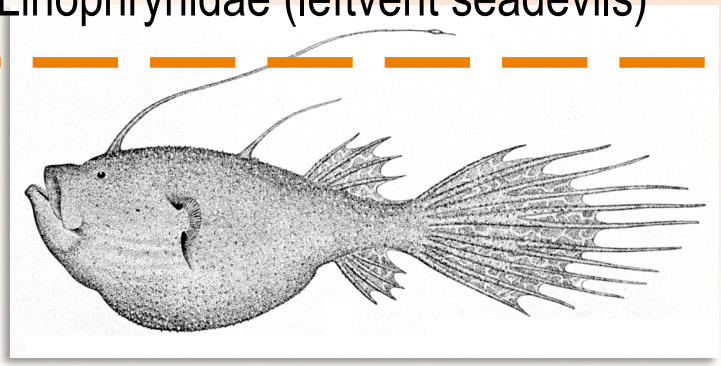
What Oceanic Zones do the anglerfish live?

- Pelagic (living in upper oceanic zones)
- Benthic (living in lower oceanic zones
- Deep sea (e.g., Ceratiidae)
- Others live on continental shelf such as frogfishes Antennariidae, monkfish/goosefish

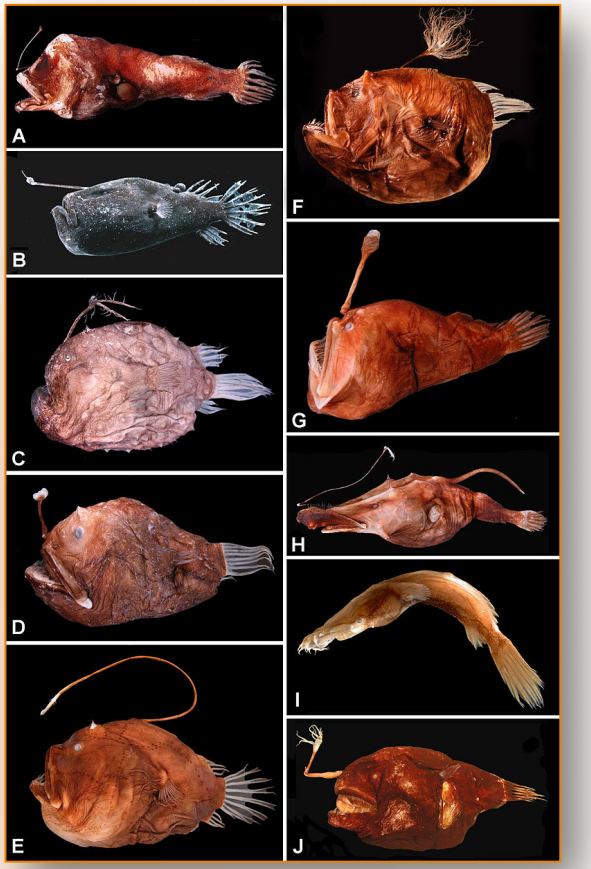
Background image – water droplets from Pixabay.

The Deep Sea Anglerfish: Suborder Ceratioidei

Centrophrynidae (prickly seadevils)
Ceratiidae (warty seadevils)
Himantolophidae (footballfishes)
Diceratiidae (doublespine seadevils)
Melanocetidae (black seadevils)
Thaumatichthyidae (wolf-trap seadevils)
Oneirodidae (dreamers)
Caulophrynidae (fanfin seadevils)
Neoceratiidae (needlebeard seadevil)
Gigantactinidae (whipnose seadevils)
Linophrynidae (leftvent seadevils)



Ceratias holboelli, a deep sea anglerfish. Image in the public domain.



(A) Centrophryne spinulosa, 136 mm SL
(B) Cryptopsaras couesii, 34.5 mm SL
(C) Himantolophus appelii, 124 mm SL
(D) Diceratias trilobus, 86 mm SL
(E) Bufoceratias wedli, 96 mm SL
(F) Bufoceratias shaoi, 101 mm SL
(G) Melanocetus eustalus, 93 mm SL
(H) Lasiognathus amphirhamphus, 157 mm SL
(I) Thaumatichthys binghami, 83 mm SL
(J) Chaenophryne quasiramifera, 157 mm SL.

Deep Sea Angler Species Spotlight:
The Humpback Anglerfish
Melanocetus johnsonii

- Other name - common black devil
- A deep-sea anglerfish in family Melanocetidae
- Geographic range – tropical to temperate oceans worldwide
- Depths found - 2,000 m (6,600 ft.)
- Length – males: up to 2.9 cm (1.1 in); females 18 cm (7.1 in)

- Males remain free-swimming into adulthood
- Doesn't feed but only attach briefly to female

Most other deep-sea anglerfish males:

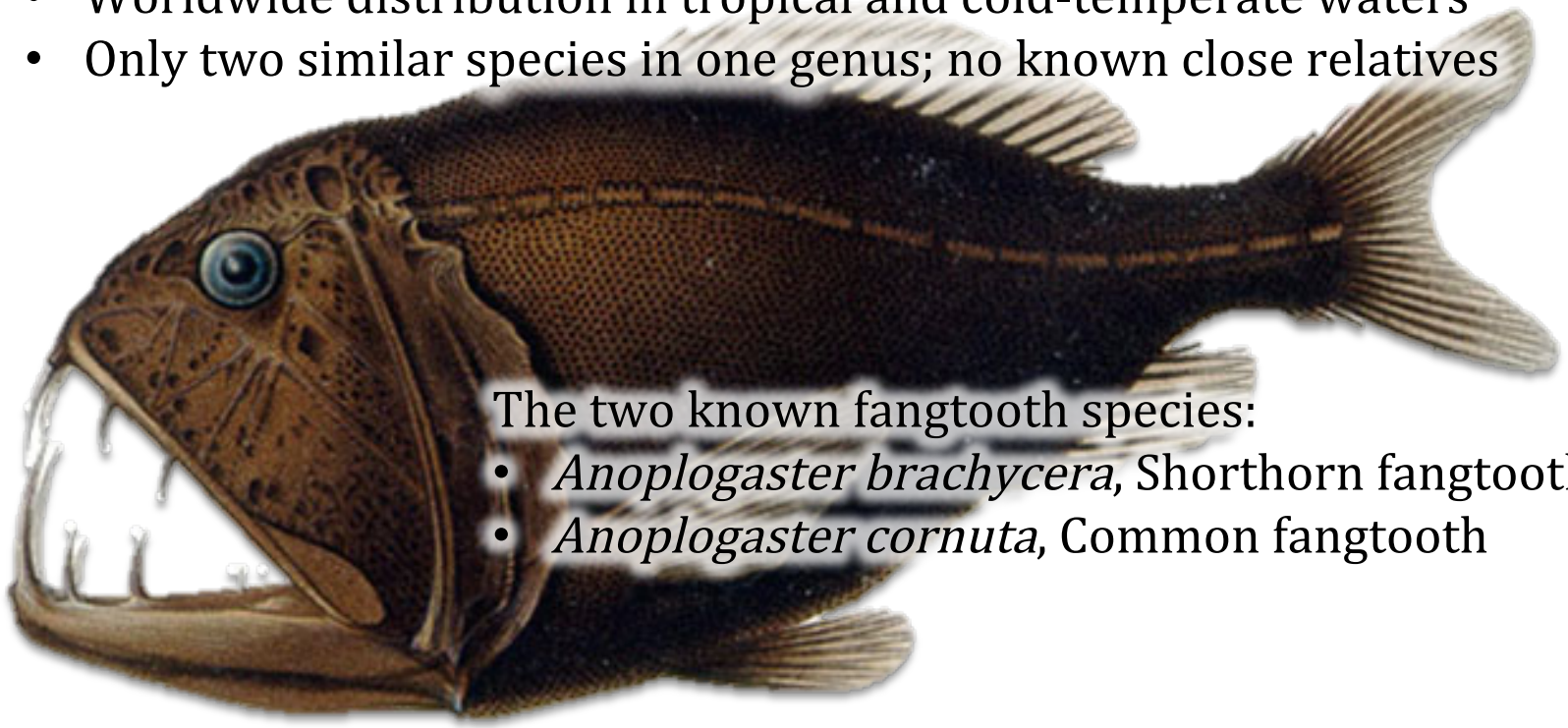
- Swim freely when young
- Before adulthood, males fix permanently to female's body rear, living as her parasite
- Male's internal organs disappear & shares female's blood; becomes sperm provider

Family Anoplogastridae: The Fangtooth Fish

Anoplogaster cornuta, the Common Fangtooth photographed By Citron CC-BY-SA-3.0.

The Fangtooth Fish

- Beryciform, or ray-finned fish of family Anoplogastridae
- Live in deep sea
- Name is from Greek anoplo meaning "unarmed" and gaster meaning "stomach”
- Worldwide distribution in tropical and cold-temperate waters
- Only two similar species in one genus; no known close relatives



The two known fangtooth species:

- *Anoplogaster brachycera*, Shorthorn fangtooth
- *Anoplogaster cornuta*, Common fangtooth

Image – A Common fangtooth. Image in the public domain.

Fangtooth Species & Characteristics

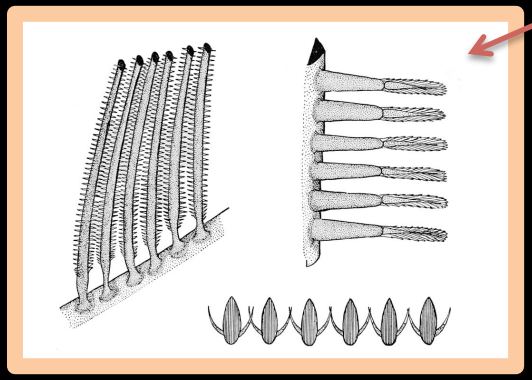
- Common fangtooth length: up to 18 cm (7.1 in); Shortthorn fangtooth - less than half this size & currently known just from juveniles
- Two fangs in adults - largest two fangs of lower jaw so long, pair of opposing sockets on either side of brain to fit teeth when mouth closed
- Some of largest fish teeth in ocean, proportionate to body size; can't close mouths

A juvenile fangtooth. Image from Scienceheathen.com.

Juvenile differences from adults:

- Long spines on head and preoperculum, larger eyes, functional gas bladder, long and slender *gill rakers, much smaller and depressible teeth,
- Differences once caused two life stages to be classed as distinct species

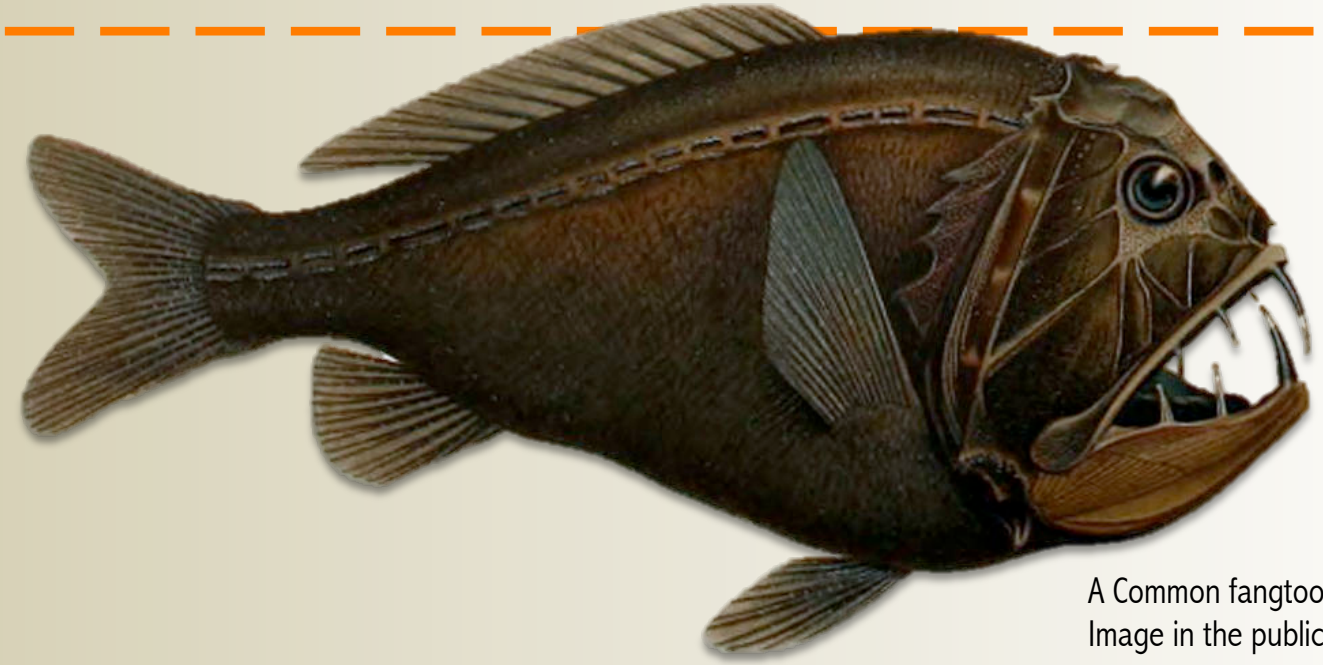
A Common fangtooth photographed by Brian Suda.



*"Left: Gill-rakers attached to the branchial arch, showing the projecting rows of hooks (x50) Top right: Hooks attached to the gill-raker, (x180) Bottom: Gill-rakers in cross section, showing angle at which hooks project from their point of attachment (water flow is downwards)"

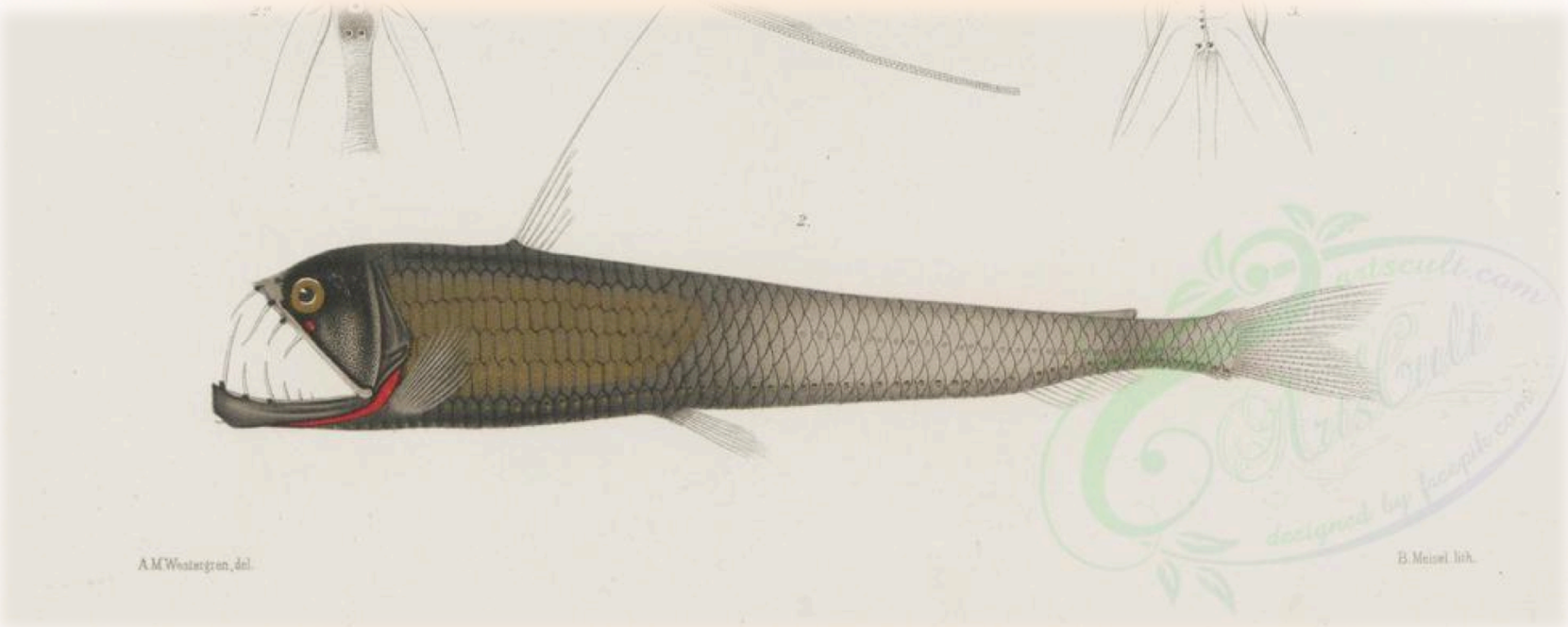
Fangtooth Ecology

- Among deepest-living fish, as deeps as 5,000 m (16,000 ft.) down
- Commonly found between 200 and 2,000 m (660 and 6,560 ft.); juveniles stay within upper ranges
- Juvenile diets - most likely zooplankton
- Deeper-living adult diet - fish and squid
- Predators - other large pelagic fish, tuna and marlin, & some sharks
- Robust adults can be kept alive for months in aquariums although conditions greatly different from deep-sea habitat



A Common fangtooth.
Image in the public domain.

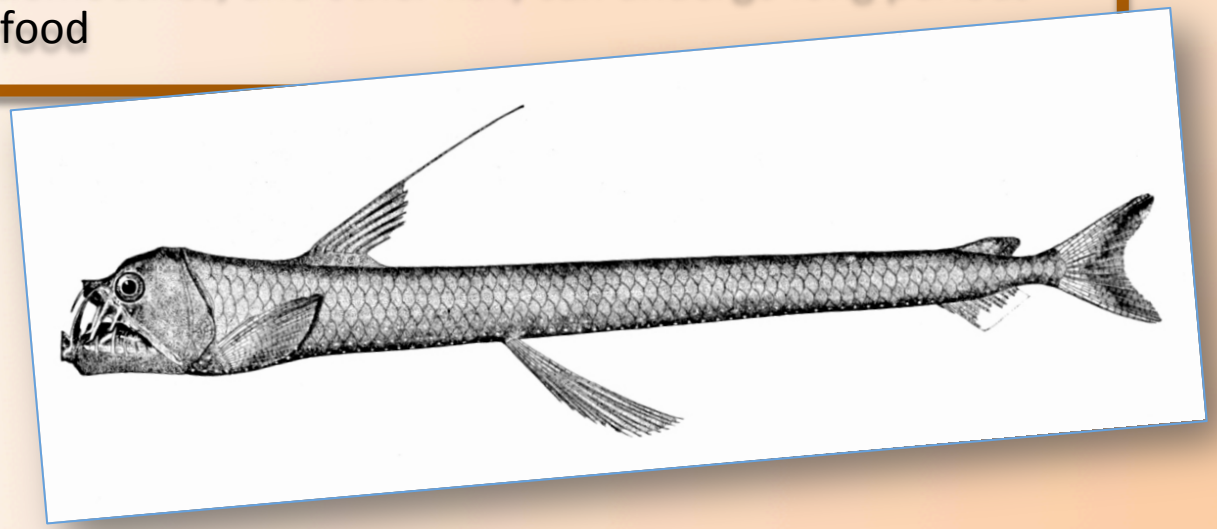
The Viperfish



Sloane's Viperfish. Image in the public domain.

Genus Chauliodus - The Viperfish

- Long, needle-like teeth & hinged lower jaws
- Length - 30 to 60 cm (12 - 24 inches)
- Stay near lower depths (250–5,000 feet) in daytime, shallower depths at night, primarily in tropical and temperate waters
- Bioluminescence – lure & photophores along ventral line attracts prey & communicate to potential mates
- Colors – vary; green, silver & black
- Fold & curve teeth behind head; first vertebra behind head absorbs prey biting shock
- Diet – varies; captured specimens stomach contents have contained lanternfish, bristlemouthes, and other fish; can undergo long periods with barely any food



Species Spotlight: Sloane's Viperfish

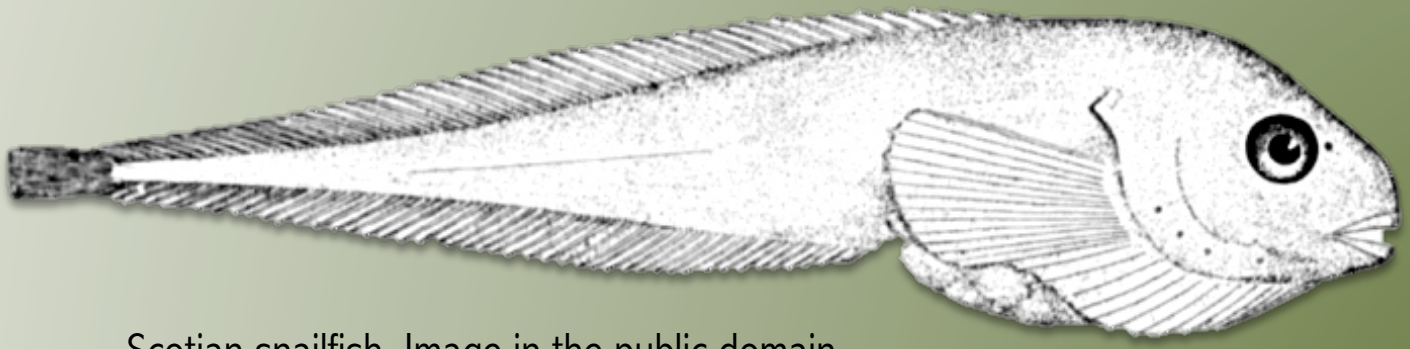
- Dragonfish of genus Chauliodus
- Geographic range – all tropical and subtropical oceans, at depths down to 2,500 m
- Length - between 20 and 35 cm or up to 11 inches
- Head length - 2 cm (0.8 in); teeth just over half head length
- Must open mouth to make jaws vertical before swallowing prey as teeth so large
- Eats large prey by lowering internal skeleton of gills, allowing prey to pass into throat without interference

Sloane's viperfish photographed by OpenCage.

The Snailfish

Family Liparidae – The Snailfish

- Other names – seasnails
- 30 genera, 410 species
- Geographic range - Arctic to Antarctic Oceans including northern Pacific; both cold and warm waters
- Depths - shallow intertidal zones; depths of 7,500 m (24,600 ft.) or more
- Closely related to sculpins of family Cottidae and lumpfish of family Cyclopteridae; sometimes included within latter family
- Size – ranges from *Paraliparis australis* at 5 cm (2.0 in) to *Polypera simushirae* at some 77 cm (30 in) in length



Scotian snailfish. Image in the public domain.

Snailfish Characteristics

- Benthic fish with pelvic fins modified to form adhesive disc
- Elongated, tadpole-like bodies similar in profile to rattails
- Heads large with small eyes
- Bodies slender to deep, tapering to small tails
- Scaleless with thin, loose gelatinous skin; some species, like *Acantholiparis opercularis* have prickly spines
- Teeth – small, simple with blunt cusps. The deep-sea species have prominent, well-developed sensory pores on the head, part of the animals' lateral line system

Rhodichthys regina, the Threadfin Seasnail

- Only known member of its genus
- Geographic range - native to Arctic and northeastern Atlantic Oceans
- Depths - from 1,080 to 2,365 meters (3,543 to 7,759 ft.)
- Length - 31 centimeters (12 in) SL

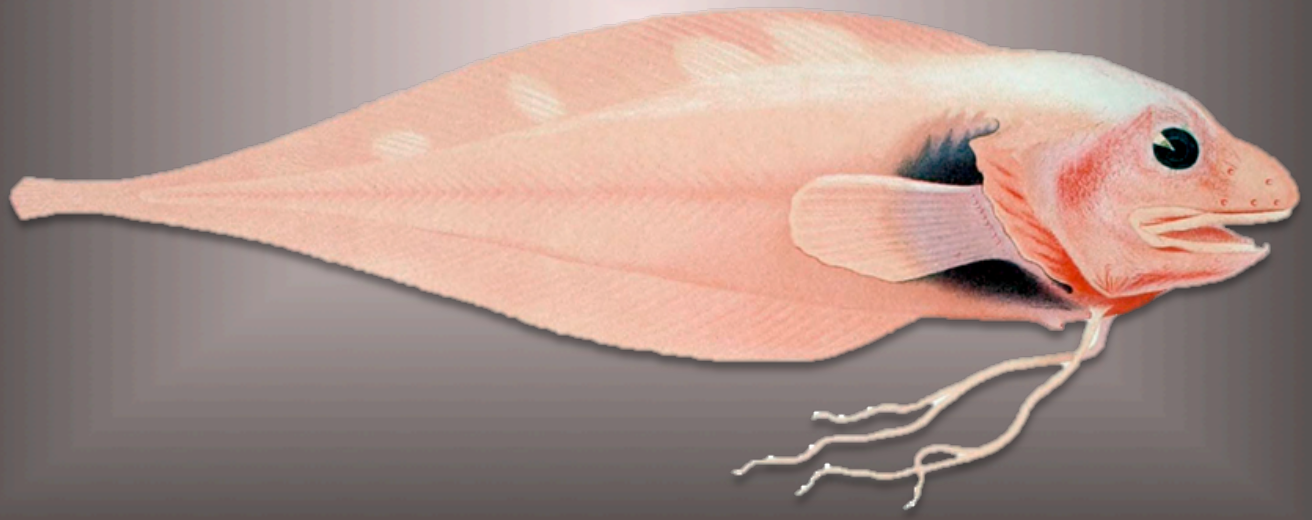


Image by Carl Nielsen - Den Norske Nordhavs-expedition, 1876-1878.

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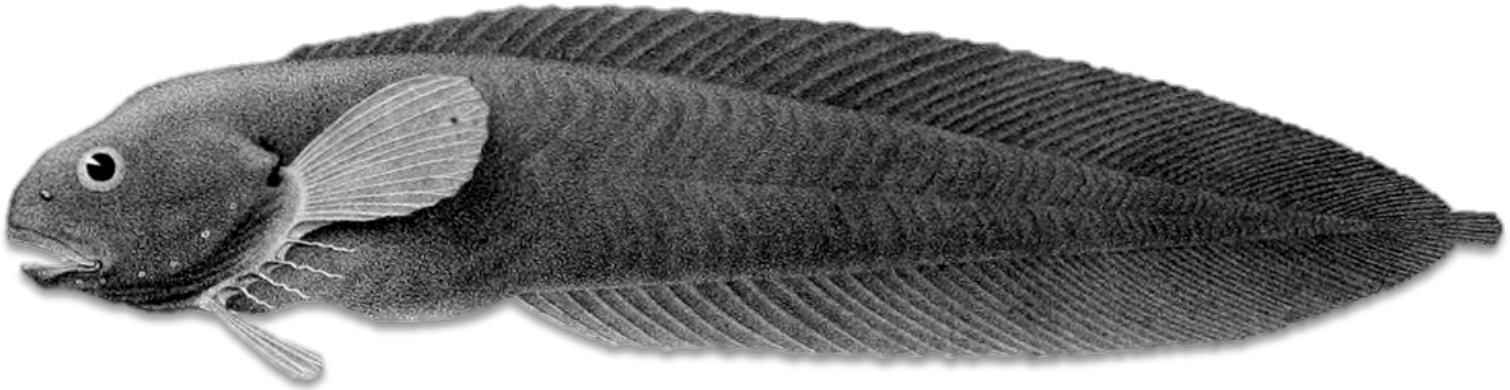

A Black seasnail. Image in the public domain.

Thank you for watching!

Head of a pacific Viperfish photographed by NOAA.