

Something Fishy

Overview: Students invent their own species of fish.

Ages: 5 – 10

Time: 20 minutes

Materials Required: photos of fish from Antarctica, map showing high-latitude and lower-latitude study area, blank paper, crayons and/or markers

Objective: Students learn about some of the characteristics of Antarctic fish fauna. Students review the research mission of the IceFish Cruise to collect specimens of lower latitude Antarctic fishes in order to relate them to the high-latitude Antarctic fishes.

Instructions:

- Pass around the photos of the fish or look at fish on the web site's photo gallery.
- Show the map with the line separating the higher and lower latitudes.
- Tell students some of the characteristics of Antarctic fish:
 - Vent Shrimp:
 - Fish with antifreeze:
 - hemoglobin-less or “bloodless” fish
- Ask students to invent a new species of fish. Ask them to think about what their fish might look like, how it might act, what it might eat, what might eat it, where it might live, how it might move, etc. Then have the students draw the fish and give it a name.

Follow-Up Questions:

- Go around the room and ask, “What is your fish called?”
- What does the name mean?
- What does your fish do?
- What does your fish eat?
- What likes to eat your fish?
- What makes your fish able to survive in the Antarctic waters?

To learn more about Antarctic fish, go to:

<http://www.70south.com/resources/animals/marine/antarcticfish>

(Below are the fish located on the site – there aren't photos – but maybe selecting a few will pique the students' imaginations.)

Antarctic Fish

Although the first Antarctic fish were caught during James Clark Ross's expedition in 1840, it was not until the 1960's that commercial fishing started. Today fish like seals and whales in Antarctica are covered by the Conservation of Antarctic Marine Living Resources agreement.

75% of the 200 Antarctic fish species come from one genetic order, the Nototheniiformes. Most notably the Antarctic Cod and the Ice Fish, which are able to withstand the cold because their blood is loaded with glycoproteins that depresses the freezing point to below that of the surrounding sea water.

Antarctic Cod (*Notothenia coriiceps*)

The Antarctic cod is the largest of the Antarctic Fish species growing to a length of 1.5m and weighing on average 25kg.

Ice Fish (*Champsocephalus gunnari*)

Ice Fish is particularly famous as it is the only vertebrate that completely lacks hemoglobin (red blood cells) in its blood.

Patagonia Toothfish (*Dissostichus eleginoides*)

The Patagonia Toothfish is one of the two largest species of fish in the Antarctic, ranging from 70 cm to 215 cm. It is brown-grey in colour, has quite a large mouth with teeth making it look canine-like, and feeds on other fish and cephalopods. They can be found in all the shells of the sub-Antarctic islands, and also on the southern coast of Chile and the coast of Argentina (especially in the Patagonian area).

Marbled Notothon (*Notothenia rossii*)

The Marbled Notothon is sometimes called marbled rockcod, and has an average size of 92 cm. Its maximum weight is 10,000 g and can live up to a maximum of 16 years, however the males can only live up to only 12 years. The young fish feed on mesozooplankton, and adult fish are harmless to humans.

Eelpout (*Lycenchelys antarcticus*)

The Eelpout is a deepwater fish and has an average size of 24.8 cm. They can be found in Antarctic waters as well as the Atlantic Ocean (the Scotia Sea abyss and Peru-Chile Trench) and are harmless to humans.

Plunder Fish (*Harpagifer antarcticus*)

The Plunder fish has an average size of 9.5 cm and has a maximum lifespan of 9 years. They can be found along the coasts of the Antarctic Peninsula, the South Shetlands, the South Orkneys and the South Sandwich islands. They are usually found under rocks, and are harmless to humans.

Dragon Fish (*Parachaenichthys georgianus*)

Dragon fish are harmless to humans and can be found on the insular shelf of South Georgia and around the Sandwich Islands. They feed on other fish and mysids and their eggs measure 2.4 to 3.4 mm in diameter.

Rattail Fish (*Coryphaenoides filicauda*)

The Rattail fish is a deepwater fish (2500 – 5000 m) and its average size is 40 cm. They can be found only in the sub-Antarctic region, and are harmless to humans.

Eaton's skate (*Bathyraja eatonii*)

The Eaton's skate can reach a maximum size of 100 cm, and is harmless to human beings. They are found mostly on the Kerguelen Plateau, around the South Orkneys and the South Shetlands, as well as in the north eastern Weddell Sea and on the Gunnerus Ridge.

Finless Flounder (*Achiropsetta tricholepis*)

The finless flounder has an average length of 39 cm, and is known to be harmless to humans. They can be found in the ocean around Patagonia, the Falklands and the Burdwood Bank. They've also been seen around the Kerguelen Islands, the Crozet Islands, and around the Campbell Plateau. Finless flounders swim in depths around 100 to 1020 m.

Antarctic Dragonfish (*Bathyraco joannae*)

The Antarctic dragonfish is a deepwater fish, found at depths of 600 to 1800 m. They can be found in the Southern Ocean, on the upper slopes of the Scotia Sea islands, and are harmless to humans. The Antarctic dragonfish has an average size of 20 cm and are of no interest to fisheries.

Warming's Lantern Fish (*Ceratoscopelus warmingii*)

With an average size of 8.1 cm, the Warming's lantern fish has a depth range from 20 to 1500 m. They are reported to be common around the south of South Africa and the Indian Ocean. Young fish, measuring from 1.5 to 1.9 cm, do apparently not migrate. Warming's lantern fish feed mostly on zooplankton but are often herbivory.

(*Bathyraco scotiae*) This fish is part of the Antarctic dragonfish, and are found on the Antarctic continental slope and slopes of the South Orkney and South Sandwich islands. Their average length is 17 cm; they are harmless to humans and have a depth range of 2100 to 2950 m.

Pouched lamprey (*Geotria australis*)

The pouched lamprey has an average size of 50 cm (maximum 62 cm),

and can be found along the coasts of all southern continents, and even in rivers in Argentina and Chile. They are of no interest to fisheries and are also harmless to humans. The adult pouched lamprey stops feeding while in freshwater (they spawn only in freshwater), and dies shortly after the young fish are born.

Rakery Beaconlamp (*Lampanyctus macdonaldi*)

The rakery beaconlamp has an average size of 16 cm and has a depth range from 60 to 1000 m. The young fish can only be found from 60 to 175 m. Rakery beaconlamps can be found in the South Atlantic and in the Falkland region, and are harmless to humans.

Bogue Lanternfish (*Symbolophorus boops*)

The bogue lanternfish has an average size of 15.7 cm and an average depth range of about 500 m. It is a deepwater fish, and is harmless to humans. They can be found in the Eastern Atlantic (Benguela Upwelling Region), Western Atlantic (south of the Subtropical Convergence), Western Pacific (Australia and New Zealand), and Eastern Pacific (off Chile).

(*Sio nordenskjoeldii*)

This fish has an average size of 12.3 cm and is a deepwater fish. They are of minor interest to fisheries, and are found below 200 m. Young fish are found in warmer and more northern waters. These fish are found in the Southern Ocean, and only once was there a fish found in the Pacific Ocean.

South Georgia Icefish (*Pseudochaenichthys georgianus*)

The South Georgia icefish has an average size of 60 cm and a maximum weight of 1450 g. They have a depth range ranging from 0 to 475 m, and are of minor interest to fisheries. They are known only from the islands of the Scotia Sea and the northern part of the Antarctic Peninsula. The adult South Georgia icefish feeds mainly on krill and other fish, and is harmless to humans.

(*Oneirodes notius*)

This fish has an average size of 15 cm, has a depth range of 700 to 2000 m, and is a deepwater fish. They are of no interest whatsoever to fisheries and are found in the Southern Ocean (in sub-Antarctic as well as Antarctic waters). They are harmless to humans.

Yellowbelly Rockcod (*Notothenia coriiceps*)

With an average size of 62 cm, the yellowbelly rockcod has a depth range of 0 to 550 m (most commonly found in less than 200 m, however). They are of potential interest to fisheries and are harmless to humans. The yellowbelly rockcod has been found in the Ross Sea, the Balleny islands,

Adélie Land, around the Antarctic Peninsula, islands of South Georgia, around the Weddell Sea and the sub-Antarctic islands in the Indian Ocean.

Recommended Reading

DK Eyewitness Guides: Arctic and Antarctic by Barbara Taylor (1995)
Excellent illustrated book that describes how plants, animals and people survive in Antarctica.

Mr. Popper's Penguins by Richard & Florence Atwater
Newberry-award winning classic about a dreamer who receives a penguin from Sir Admiral Drake and ends up raising a show-stopping penguin troupe.

Draw Write Now, Book 4: The Polar Regions, Arctic, Antarctic by Marie Hablitzel, Kim Stitzer
Geared for ages 5–10, this drawing guide offers step-by-step instruction for drawing whales, penguins, krill and scientists.

Icy Antarctic Waters by Wendy Pfeffer
Amazing photographs and easy-to-understand text describe the fish, birds and plants that inhabit the Antarctic waters.