

HOW DOES THE LATITUDE AFFECT THE FISHES?

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INTRODUCTION

Our situation don't help us so much. We have to work from our houses through different programmes as Zoom or hangout.

We have connected three different days and we have to work very hard and having lot of patience because it was our first time working with this new method. All the components of the group we have worked equally and we had helped each other so much. This project isn't very difficult but it is so large so we need to be very concentrated for not lose the track of the work. We have learn a lot, such us, different type of fishes, different characteristics of them, characteristics of the different oceans and seas and how fishes move from one place to another for survive.

We have worked through this question, ¿How affects the latitude to the biodiversity of fishes?

OUR RESEARCH GOAL

The objective of our group is to be allow to difference the biodiversity that we can find in Spain, Slovenia and Iceland. We also need to be able to compare the different information that we collected from the other groups . Our hypothesis regarding this question is that in seas and rivers where the latitudes are relatively high, more species are produced than in the topics. We have related all of this with the climate change and the possible loss of biological biodiversity. As consequence of the climate change. many species have moved to high latitude zones for search higher temperatures.

DIVERSITY OF FISHES

MAIN CHARACTERISTICS



TROUT-(Trucha)

- Lives in the sea near the coast
- Lives in cold and clean water from the sea, river and lakes
- Their colour depends in the environment, age and his mood
- Most of its sale is from human cultivation
- Is a blue fish from the Salmonidae family
- Go up the river to lay eggs
- Feeds on other fish and larvae



BARBEL (BARBO)

- The Barbel is a big fish that can reach 1 meter of length and 6 kg of weight
- He has an omnivore diet depending on the environment
- In our country they live in rivers from Navarra, Basque Country, Aragon and Catalonia
- The female's ones are bigger than the male's and in the reproduction epoch can lay between 5.000-25.000 eggs
- They usually go in groups including other species



HAKE (MERLUZA)

- Depending of the season you can find the Hake in one side of the atlantic or another, and also when there is summer they ascend from the deep water.
- They eat other fishes and the smallest eat shellfish
- They have a measure from about 30 cm to 1 m and can weight in their adult live from 2 to 10 kg.
- Is a white fish form salad water.



BASS (LUBINA)

- Also known as snook
- white or semi-fat fish depending on the time of year, they live in salt water.
- They live in depths of 10 to 15 meters.
- Weight 500 gr - 12 kg / length 10 cm - 1 m
- The body is large and fusiform.
- Two types *Dicentrarchus punctatus* and Striated or American sea bass *Morone saxatilis*.



PIKE (LUCIO)

- ESOX LUCIUS
- Its size is about 40-120 cm and its weight can reach around 15 kg.
- Its appearance looks like a real predator
- The pike that lives in dark waters can exhibit a dark colour of his body.
- The pike looks for shallow water bays full of reeds and even flooded fields, where there eggs are deposited.
- The pike is a predator that feeds on fish from the immature stage onwards.
- It is the most common fish in Finland after the perch.



COD (BACALAO)

- Has a big mouth and a little thread of beard on his chin and that he uses it to find food on the bottom of the ocean, where he usually is.
- The colour of cod is very variable and it depends on the age of the fish and the environment he lives in.
- They have light flesh which turns white when it is cooked, Cods are often in a yellowish-gray colour with dark dots on top and on the sides with a light colored belly, the young Cod fish are reddish or brownish.
- They are normally 70-90 cm long and weigh 3-7 kilograms, they can get very old and big and can get to 30 years old and weigh up to about 50 kilograms.



ARCTIC CHAR (SALVELINO)

- Lives in cold-water and can both be found in freshwater and in the ocean, is a type of Salmon fish.
- The fish has a pale pink or salmon coloured flesh and its skin can be in very variable colours, but it is often seen with a dark gray and a brownish colour and with a pink/reddish belly. It all depends on the environment of the water the fish lives in and what time of year, like cold or warm weather.
- Is closely related to salmon, their tribe is called salmoniformes, they both have the pale pink flesh in common and that they live in freshwater.
- Arctic Char can weigh up to 12 kilograms but normally it doesn't weigh more than about 500 grams.



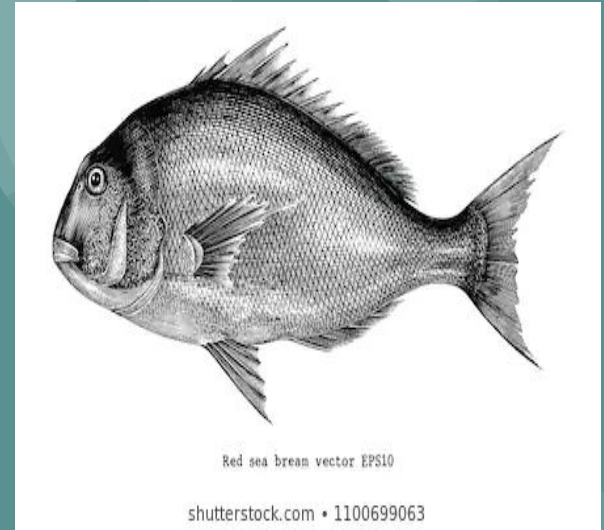
BLUEFIN TUNA (ATÚN AZUL)

- Lives in the Atlantic, Pacific and in the Mediterranean and Cantabric sea
- Lives in tropical waters from about 1000 m of depth
- His weight is around 250 kg and about 70-90 cm of measure
- The tuna can reach 70 km/h, allowing him to eat any tipe of fish
- He is in danger of extinction because its a delicious meat, especially for Japanese sushi



WHITE BREAM (BESUGO BLANCO)

- It is a white and a semi-fat fish. In winter it turns into a blue fish by its fat content.
- It is a sporadic and saltwater fish.
- It is an important fish for human consumption so it is fished intensively.
- Weight: 1-6 kg
- Dimensions: 25-65 cm.



DIVERSITY OF OCEANS AND SEAS

The background is a solid teal color. It features several decorative elements: a large, semi-transparent pie chart in the upper right quadrant; several smaller, semi-transparent pie charts scattered in the upper right and middle right areas; and a bar chart in the bottom right corner with four vertical bars of increasing height from left to right.

MAIN CHARACTERISTICS

GREENLAND SEA: The Greenland Sea is the northernmost part of the North Atlantic Ocean, immediately south of the Arctic Ocean. It takes approximately 1,205,000 km² and its average depth is about 1,450 m. Winter temperatures are usually around -50 °C while in summer can't pass from 0°C. The Arctic Ocean has a large number of freshwater reserves that in the near future will be of great importance to the world population. Greenland alone has 10% of the world's freshwater reserves.

The **NORTH ATLANTIC OCEAN** is delimited between the arctic, in the north, and the antarctic ocean in the south and delimited between the American continent in the west and Europe and Africa in the east. The depth of this ocean is 3,646 meters. The temperature of the Atlantic Ocean is very varied because its extension is from pole to pole, obviously passing through Ecuador. In some places it is as low as -2° C While in hot regions it reaches more than 30° C. the salinity of this ocean is the highest of the five reaching between 3.3% and 3.7%. One curiosity of this ocean is that it has a big underwater mountain range that runs through it from north to south, called the Mesoatlantic Ridge, which forms the limit of four tectonic plates: Eurasian, North American, South American, and African.

ADRIATIC SEA: Located in a gulf of the Mediterranean Sea, between the Balkan and Balkan areas. It has an area of 160,000 km² and is 800 km long. Is a shallow sea with an average of 240 metres. Thanks to a lot of salinity and pollution there are a lot of sea species like the salmon or the bass. It has a salinity of 33‰.

CANTABRIAN SEA: The Cantabrian Sea is located in the Atlantic Ocean along the northern coast of the Peninsula Iberica. In total there are 1086 km of coast. The seabed alternates between rock, gravel and mud, during the first kilometers offshore the continental shelf maintains depths between 200 and 300 m, until reaching the continental slope where it falls to a depth of 4000 m. The average salinity on the surface of the Cantabrian Sea is 35.5 g/L, and decreases when precipitation occurs or when there are river channels nearby. In the Cantabrian Sea the water temperature changes throughout the year: while in summer it can reach 22°C in winter it drops to 11°C. From 1000 m depth the temperature remains at 5°C throughout the year. The density of water is around 1025 kg / m³, slightly higher than the density of pure water (1000 kg / m³) due to the high content of salts.

Adaptation to the aquatic environment

- (Spain-Slovenia): We can find Hake's in Spain (Cantabric Sea) and also in Slovenia (Adriatic Sea). Both seas are part of the life cycle of the Hake. In winter they need to go to the depth waters of the Atlantic to escape their predators (The most dangerous predator are the humans). And in Summer they go to this warmer seas to feed and reproduce. They also need a water from 3 to 18 grades and a salinity from about 33%, and we can find it in both seas.
- (Iceland): Arctic char are distributed throughout the circumpolar region of the northern hemisphere where they occur as both anadromous (can travel between freshwater and the marine environment, but spawn only in freshwater), and resident freshwater populations. We can find Arctic Char in lakes of all sizes, from very small, like lagoons with very little water under ice in winter, to very large lakes. Within the lakes, alpine trout can use all habitats, including deep areas. It survive and feed at temperatures very close to 0 ° C, avoids coastal temperatures of between 16 to 20 ° C.
- (Slovenia): White bream inhabit larger lakes as far north as central Finland and Slovenia. Also found in coastal waters of the Gulf of Finland, Slovenia and in the Gulf of Botnia as far north as Vaasa. Favours shallow, reedy lakes with rich feeding. Tolerates eutrophication well. Unlike common bream, which are exclusively bottom feeders, white bream also forage for food among aquatic vegetation.

(Spain-Iceland): Cod is a fish belongs to cold or tempered seas and establishes its habitat at depths of 500 to 600 meters, they undertake long migrations and many live near the bottom, although it is common to swim about 150 or 200 meters. It is mainly located in the North Atlantic, from North Carolina to Greenland, from the Bay of Biscay to the English Channel, as well as in the North Sea and the Baltic. Therefore, it is a fish that occurs both in Spain and in Iceland.

(Spain): Pike seek areas of dense vegetation in streams, lakes, and large rivers. They tend to occupy the shallow waters near the shore with covering. They prefer cool water, and therefore will head to the deeper water around midsummer.

Conclusion

Biodiversity has been changing in the space and also over time. For example, we find more species in the tropics and less in the Arctic or Antarctic regions. Following a latitudinal gradient of diversity, one of the patterns that we can observe more consistently in this difficult world.

What we know about about temporal gradients of biodiversity is much more limited. This occurs because a well-designed continuous monitoring program would be required, and these hardly persist beyond a few decades. However, luckily we have remains of ancient organisms such as fossils. Fossils are basically the only direct record of past biodiversity..