

A large school of Arctic Char fish swimming in dark water. The fish are silvery with a hint of blue and green, and their scales are visible. They are moving in various directions, creating a sense of a busy, natural environment.

The Extinction of Arctic Char

By Happy Chars

What Are Arctic Char?

Arctic Char (*Salvelinus Alpinus*) are a species of cold-water fish in the Salmonide family, closely related to trout and salmon. They are only found in **deep, cold lakes** or high altitudes due to their sensitivity to temperature. In Ireland they are mostly found in western counties. They mostly eat shrimp or insect larvae.

Arctic Char are at significant risk of extinction, around 34% of their population has already been wiped out. Their threatening extinction is related to **climate change** – human activity & the rising of water temperatures in Ireland & Central Europe. This poses a great threat to Arctic Char as they are unable to survive at high temperatures.





Why Are They Going Extinct?

Human activity specifically the modifications of the fish's natural habitat is the main cause of their extinction. The **overusing of chemicals** in agriculture, like phosphorus, causes algae and aquatic plants to grow rapidly and then decompose. This consumes the oxygen necessary for other species, like the Arctic Char. This process is known as eutrophication.

In addition to eutrophication large amounts of **water are being withdrawn**, further damaging the natural habitat of Arctic Char.

On top of that **non-native species** are being introduced to the lakes that were originally only home to Arctic Char. Some of these species are predators while others compete for the same food as Arctic Char. These fish can also spread new diseases.

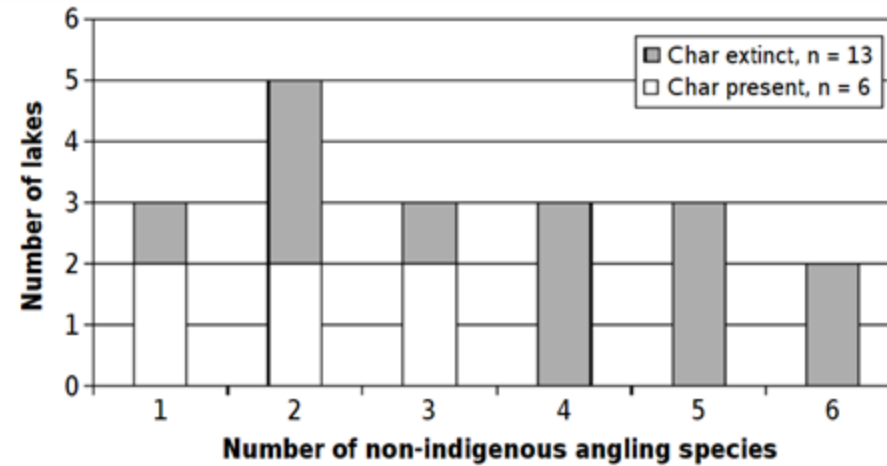
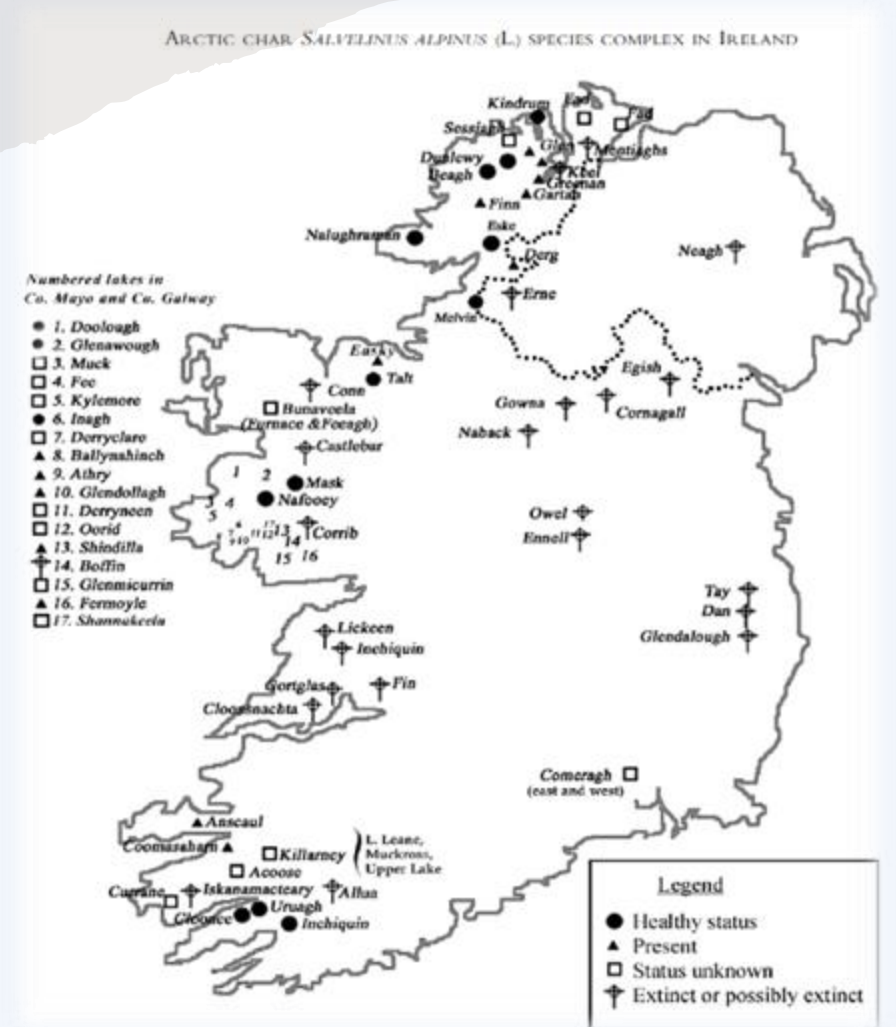


Fig. 12— Illustration showing the association between increasing numbers non-indigenous angling fish species and extinction of char from Irish lakes.



Why Are They Going Extinct?

Increasing water temperatures are another reason why Arctic Char are being forced out of their native waters. As already mentioned, they are only found in cold, high-altitude lakes due to their sensitivity to temperature. And with temperature levels increasing survival is getting harder for Arctic Char. For example, a lake where Arctic Char are extinct, Lough Corrib's temperature ranged between 5.3 C° and 14.9 C°. While a healthy lake that is home to Arctic Char, Lough Inagh's temperature ranged between 2.99 C° and 10.5 C°. Though this might not seem like a shockingly huge difference, to such a temperature-sensitive species such as Arctic Char it poses a serious threat especially if the situation worsens.



Status of Arctic Char populations in Ireland as of 2003

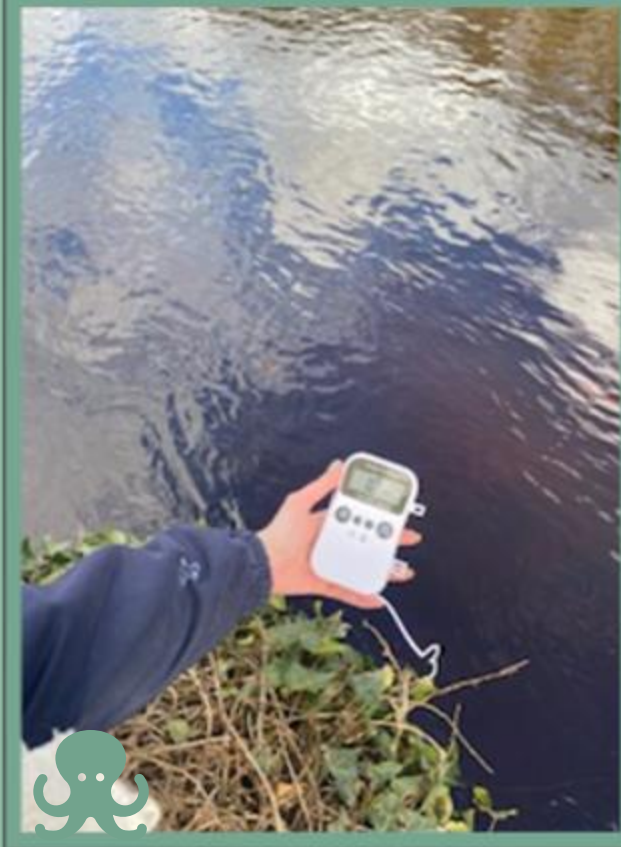
sources: - [researchgate.net](https://www.researchgate.net) & [waterlevels.ie](https://www.waterlevels.ie)

Measuring The Temperature of The River



For our primary research, we measured the temperature in the river Dodder, located in Dublin. For that we used a thermometer, dipping it into the water to give us a result.





What We Found Out

The Dodder is a river in Dublin where Arctic Char are not present.

From measuring the temperature in three different locations of the river, these were the results we got.

Our results were 10.2 , 10.3 and 10.4 degrees

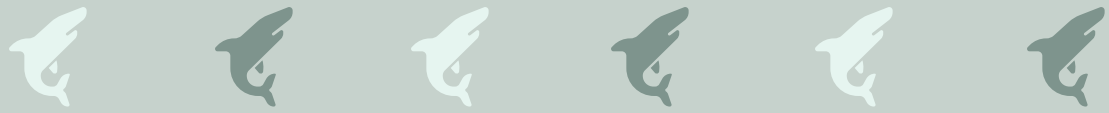




Conclusion From Primary Research

Comparing our results of water temperatures in waters where Arctic Char are not present to the waters where they were, we can see that the temperatures of their native waters are **similar**. Therefore, this is proof of our main reason for their extinction: Arctic Char are going extinct because of temperature rise in their native waters. As they are not and couldn't be present in the Dodder, which is of a similar temperature to Lough Corrib.





What can we do?

The issues are known we just must act out to help prevent the future extinctions of arctic chars as much as we can. Some things we can do are:

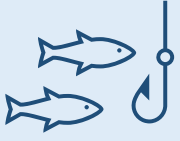
- ❖ According to the information we have discussed above, we have mentioned that Arctic Char are going extinct because of non-native species present in the Arctic Char's native lakes. Therefore, to help prevent their extinction we should **stop the introductions of non-native fish** and other organisms to the lakes of Arctic Char.



What can we do?



- ❖ We also have discussed that another reason that led to this issue was the intensive use of chemicals in agriculture that end up in Arctic Char lakes. We can control and prevent water pollution from phosphate use by **cleaning the waters** and using **less of these chemicals** around Arctic Char lakes.
- ❖ We have also said that Arctic Char are going extinct because of the withdrawal of too much of the water for agricultural use. Investigate impacts of **water abstraction projects** in Arctic Char lakes.
- ❖ Finally, we must inform people, we must **raise awareness** about this issue so that the members of society will know what's going on and therefore make actions and decisions that we will hopefully see the effects of.



Why Is It So Important To Save Arctic Char?

Arctic Char's sensitivity to water pollution and temperature makes them an **excellent indicator of long-term water quality** and **ideal models to climate change**. In other words, Arctic Char are a great guideline for the climate world and once we can see differences, issues and extinction in their habitat, we know something needs to be done.

Arctic Char are also **necessary to keep their ecosystem alive and going**. Their extinction can cause great damage to the other wildlife present in their native waters.



