IN HOT WATER: A global change in biodiversity

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Figure 1: (above) World map displaying the 11 areas each study was conducted in, including Southwest Ethiopia, Germany, Australia, Canada, Netherlands, Southwestern USA, Austria, Finland, Florida, showcasing that water temperatures are rising all over the planet.

Figure 2: (left) "Fish have been migrating to cooler water so we just parked here and got the last of them." (Source: Tom Toles, The Washington Post, 2013)

Name	Contribution to group
Alyssa	Read 56 papers, Figure Captions, Conclusion, Poster
Marina	Read 56 papers, Introduction, Purpose, Poster
Patrick	Read 56 papers (+28), Forest Plot, Conclusion, Poster
Sharan	Read 56 papers, Map, Poster
Amrit	Read 56 papers (+28), Figure Captions, Conclusion, Poster

Introduction: Rising water temperatures, as a result of climate change, is a widespread problem occurring in all of the earth's major water bodies. It can lead to devastating effects on biodiversity; with species rapidly declining due to increased salinity, eutrophication, heightened toxicity of pollutants, and reduced concentrations of dissolved oxygen. This issue is driven primarily by human impact and will continue to grow in scope, if we are to do nothing about it.

Purpose: This analysis explores the extent of increasing water temperatures due to climate change and the effects it has on species decline.

Figure 3: (above) Human gazes upon its victim, ignorant to the cause of death. (Source: Fiza Pirani, The Atlanta Journal-Constitution)

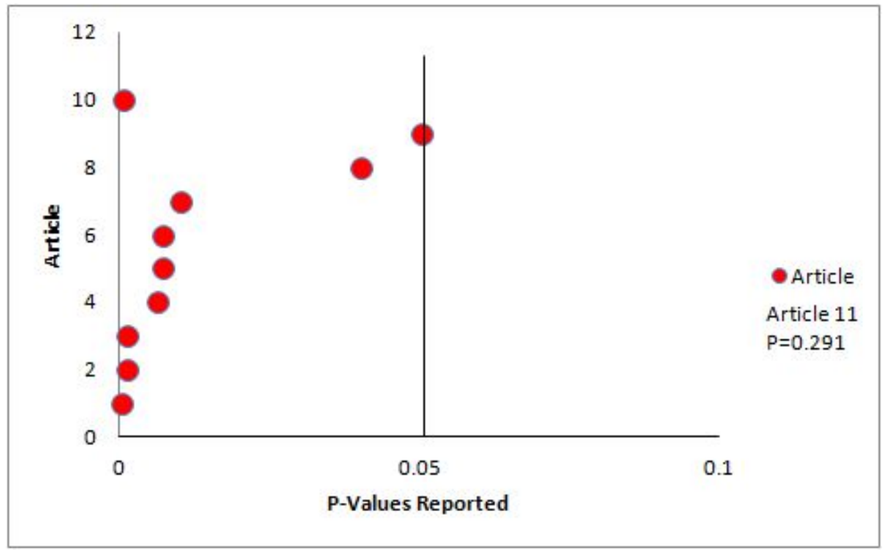

Figure 4: (above) P-value forest plot representing effect of increasing water temperature on species decline. Values below 0.05 indicate strong results significance, while those above indicate weaker significance.

Methods: Analyzed 340 papers from Web of Science on how species diversity is declining due to increasing water temperatures (N=340, n=11).
Search terms: "water quality OR water temperature" AND "species loss OR biodiversity loss".

Conclusion: 90.9% of relevant studies showed statistical significance between species biodiversity decline and increasing water temperatures (one outlier).

Concern- It wasn't solely water temperature increase that affected the species- multiple factors were included in the experimental design of some studies.

If water systems around the world continue to warm at this current rate, species are expected to decline in response, which will directly impact the needs of many people.