Impacts of Climate Change: Marine Species Loss

Introduction

Climate Change has a significant impact on the loss of Marine Species life! Rising ocean temperatures, increased carbon emissions and acidic precipitation have all been factors in this.

Why is this happening?

- Human carbon emission into the air pollutes water molecules, causing acidic rain and increased dissolved CO_2
- Greenhouse Effect causes water temperatures to rise
- Many more factors that cause climate change and in return, damage marine species!

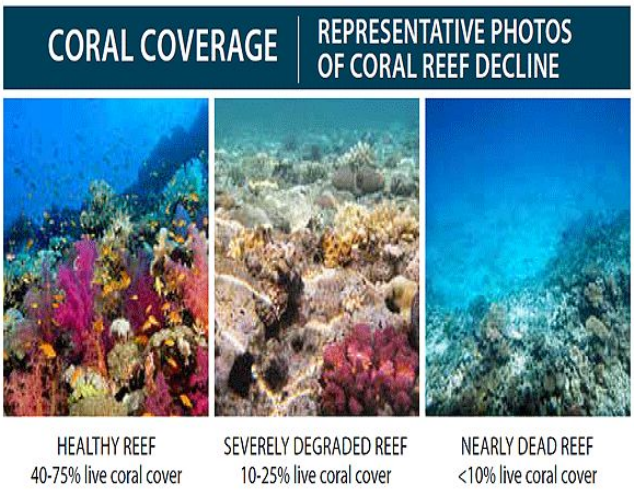

Figure 1: The image above shows the amounting coral reef decline and habitat decline due to climate change and acidification of ocean water.

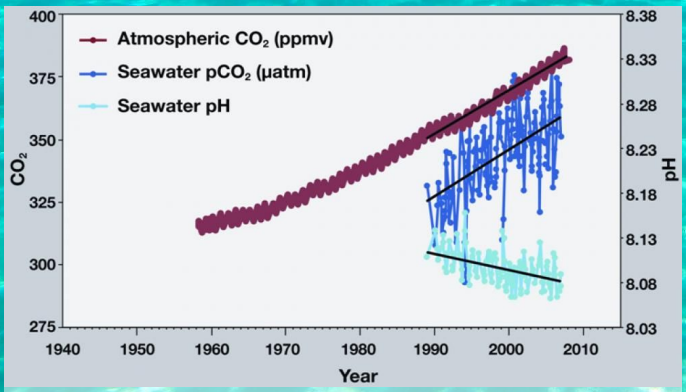

Figure 2: This graph demonstrates oceanic carbon concentrations increasing with atmospheric carbon concentration. Increased CO_2 in seawater leads to decreased ocean pH. (5)

How Current Global Change is Making This Worse

- **Rising ocean temperatures** cause species to migrate or die (2)
  - Example: East Africa's Lake Tanganyika: Declined fish harvest due to heated waters (4)
- **Ocean acidification** prevents species from forming calcium carbonate skeletons
  - Coral reefs support a quarter of all marine species (4)
- **Rising carbon concentrations** disrupt the sense of smell of fish, which aids navigation
  - Some Australian fish populations have declined by 32% over ten years (4)
- **Dead zones** have quadrupled (4)
  - Lack of oxygen chokes out all species
  - Due to global warming and pollution

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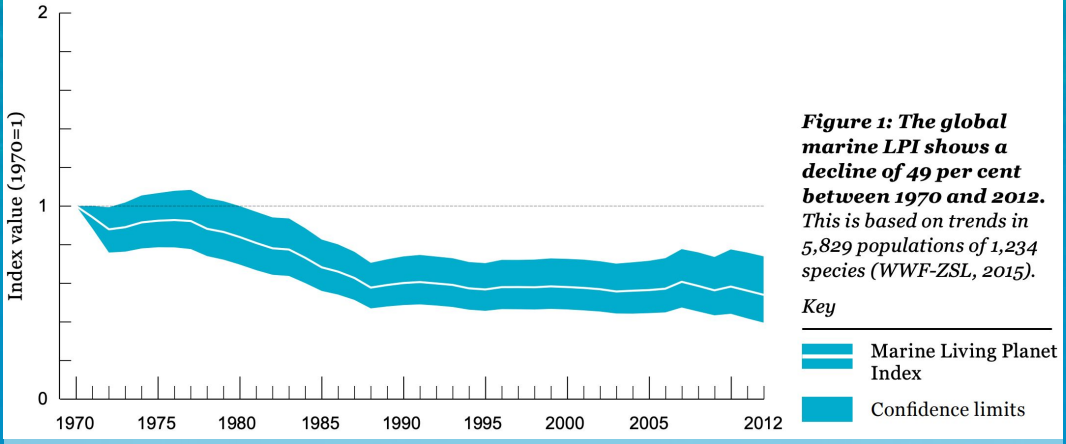


Figure 3: This graph shows the recorded decline in marine species from 1970 to 2012. (6)

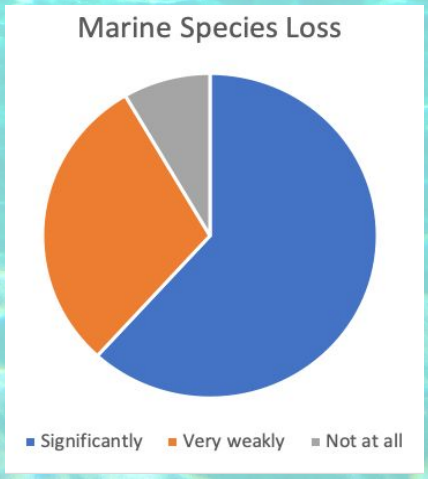
How will this change impact humans &/or wildlife in the near future?

Fish and other aquatic organisms are a primary source of food for much of the human population, so continued marine species loss will limit the food resources available to humans (1). In addition, if a species at the bottom tier of the food chain dies out, species at higher tiers will lose their food source and their populations will subsequently decrease. Marine species loss also decreases ocean biodiversity, weakening the ecosystem (1). Without the ability to withstand future disturbances, ecosystems may experience mass marine species loss.

Figure 4: Image of a Hawaiian Monk Seal. (2)

Hawaiian Monk Seal: This Hawaiian native species is endangered mainly due to the consequences of climate change and human interactions. As food becomes limited, competition with other species increases with other larger predators. Also, because of storm erosion and sea level rise, habitats on the beaches become scarce. In addition humans have been encroaching in their beach habitat as well as causing entanglement. (3)

Public Perception of Marine Species Loss



Results of 333 respondents conducted in Spring 2020 to the query "Please indicate if in your opinion the degree to which this phenomena is affected or intensified now or in the near future (within the next 30 years) by global climate change."

References

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