[Speaker Zoom video]

The effect of ocean acidification on marine species population and coastal industry/community health

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What is ocean acidification?

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Seawater more acidic due to the increase of carbon dioxide in the atmosphere.

- ➔ Changes in the ocean chemistry
- ➔ Reduction in the pH of the ocean
- ➔ Influence of temperature

Does ocean acidification affect marine species?

The health of marine species depends the stability of physical characteristics of their habitats.

Ocean pH in 2100 (RCP 8.5)

Study Description

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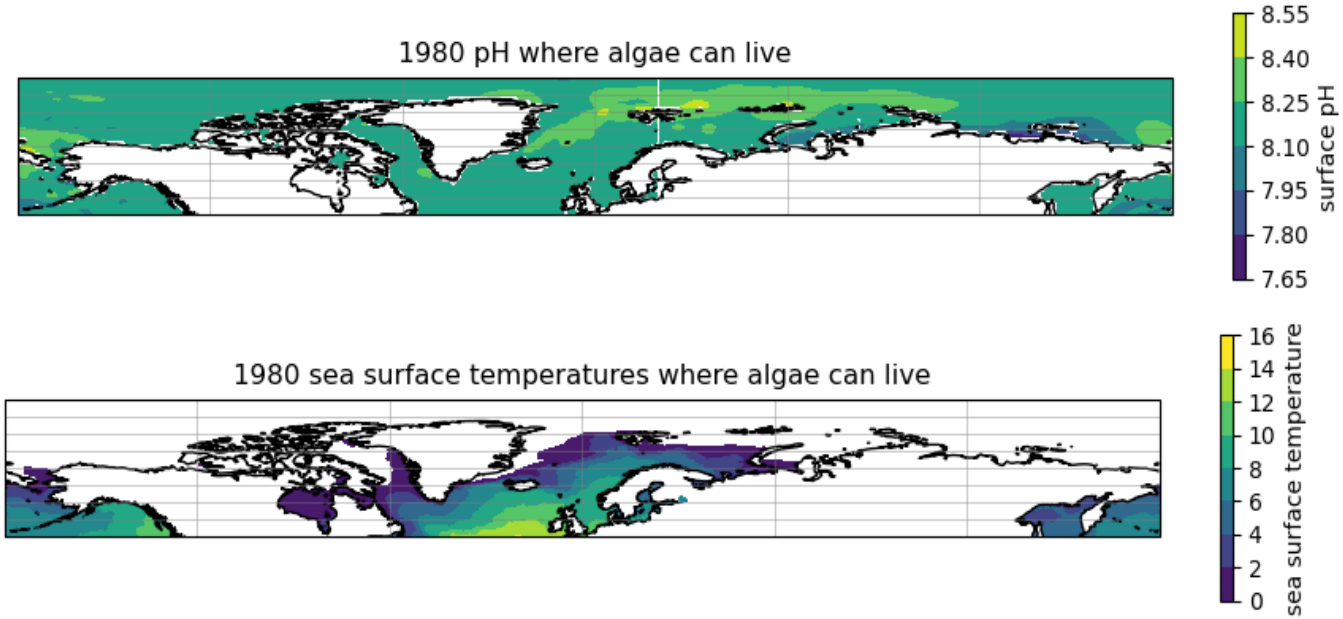
Hypothesis:

“Long-term ocean acidification will have large negative impacts on fishing economies in the Arctic, which will have negative economic and social consequences for coastal communities”

In this study:

- Focus on Arctic region
- Choose 3 key species: (beluga whales, algae, Arctic cod)
- Analyze how changing ocean pH and temperature affect these 3 species
- Explore how this affects indigenous community health and fishing industry health
- Note: Our sea surface pH and sea surface temperature data were taken from NOAA



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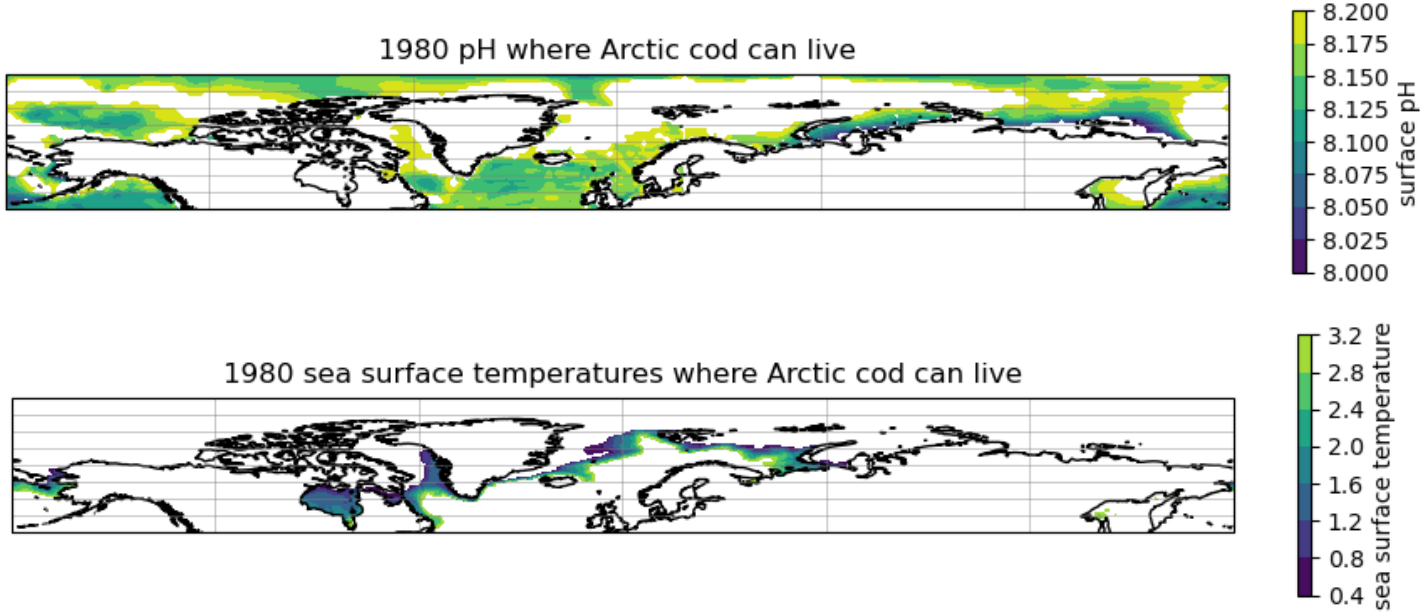
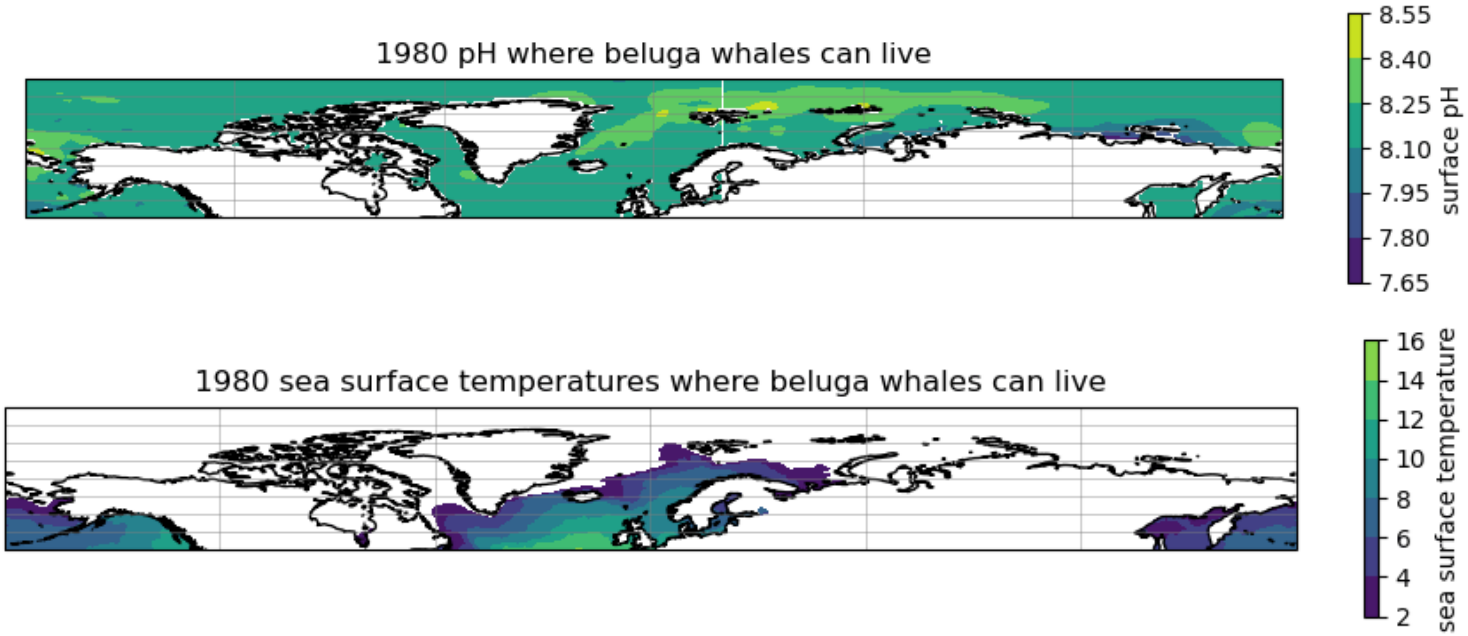
Habitable zones for algae might change, shifting northwards

[Speaker Zoom video]



In the short-term future, arctic cod populations might migrate northwards for more favorable conditions



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Beluga whales are more robust to environmental conditions, but are likely to feel the bottom-up effects on the food chain

Socio-Economic Effects

- Recession of Arctic ice will lead to increase in shipping and resource exploration activities. This can destroy habitat of Arctic cod (keystone species).

- Belugas are top consumers of Arctic cod, and are flagship species for Arctic ecotourism.

[Speaker Zoom video]

What impact will decline of these marine species have ?

- Indigenous communities (10% Arctic population)
- Fishing Industry
- Tourism

Future Research Recommendations

[Speaker Zoom video]

- Impact of changing habitat on species (e.g., ice cover, nutrient-rich seawater)
- Possible acclimatization and adaptation for species with climate change
- Quantify economic losses, including intangible impacts on the environment and communities.

Citations

[Speaker Zoom video]

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