

Reading Group Questions
Course Adoption Materials

Sea Change: An Atlas of Islands in a Rising Ocean

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About this guide

Thank you for your interest in islands and sea level rise. Hopefully, these questions will enhance your reading group or classes' discussion of Christina Gerhardt's *Sea Change: An Atlas of Islands in a Rising Ocean*.

1. Islands - When you think of islands, what comes to mind? How do you come to imagine or know islands? Discuss sources for the images and the information.

They might include knowledge by dint of being from islands, either oneself or by heritage; images from tourism; or experience from living on islands as part of the military - to name just a few examples.

2. Sea level rise - What do you know about sea level rise? What causes it? (There are two sources.) How do you know about its sources?

The two sources of sea level rise: 1. Melt of land ice and of glaciers at the poles; and 2. Thermal expansion, that is, when water warms, it expands.

Sources of knowledge about it might include scientific reports by the National Climate Assessment (NCA) report, issued roughly every four years, or the Intergovernmental Panel on Climate Change (IPCC), the United Nations' scientific body, which issues reports, the so-called Assessment Reports (ARs), roughly every six to seven years.

3. Sea Change has an interdisciplinary approach, weaving together art, science, poetry, maps and essays. How does this approach change how we learn and what we learn about sea level rise and islands?

Discuss the difference between scientific reports and this multi-disciplinary approach, different ways of learning and different types of learners. Discuss each of these media and what it contributes. Have participants discuss how they learn best and least well. Have them listen to one another consider these differences - general, and with regard to the topics engaged by *Sea Change*.

4. What are some of the impacts of sea level rise on islands and islanders?

Most of the islands in *Sea Change* have very small economies, measured either by GDP or individual average income. (There are definitely exceptions!) Most island residents are subsistence farmers and fisherfolk. That means, they rely on what they farmer and fish for their sustenance. When the saltwater intrudes it salinizes the soil. Plants cannot take up salty water. So it leads to decreased yields of agriculture.

Additionally, low-lying atolls typically do not have freshwater rivers. They rely on rainwater and aquifers for their freshwater, building rainwater catchment systems. When the sea levels rise, the saltwater lapses

into the freshwater aquifer. Humans, animals as well as plants cannot take up saltwater. And then, sea level rise also inundates home making them increasingly uninhabitable.

There are two types of islands: atolls or low-lying islands, on the one hand, and volcanic islands or high islands. Most at risk of sea level rise are atolls or low-lying islands.

By 2050, the IPCC's Sixth Assessment Report from 2022 predicts 1 foot of sea level rise. By 2100, it predicts up to 3 feet of sea level rise. Other reports, such as the National Climate Assessment report forecast even higher levels up to 8 to 10 feet of sea level rise by 2100.

Majuro, the main island of the Republic of Marshall Islands in the Pacific, rests 6.5 feet above sea level rise. So it is very much at risk. It is a low-lying island or atoll.

Volcanic islands or high islands will also be impacted. The population tends to cluster around the perimeter, leading to a population density around the coastline. And these humans tend to bring infrastructure with them, such as highways, airports, wastewater treatment facilities and power plants. On high or volcanic islands, along with humans, all of these things are clustered along the coastline. And when sea levels rise, while they may not lead the island to be under water, but they will inundate homes and infrastructure.

5. What are some of the solutions to the impacts of sea level rise on islands?

Sea Change presents two broad categories of solutions: hard engineering and soft engineering.

Hard engineering includes things like building sea walls or raising islands or building new islands. The four most at risk islands - Kiribati, the Marshall Islands, Tuvalu in the Pacific Ocean and the Maldives in the Indian Ocean - are all in conversations with environmental engineers to raise their islands or to build new islands.

Soft engineering or nature-based solutions include restoring and protecting coral and oyster reefs, mangrove forests and wetlands. Coral and oyster reefs do important work to buffer the coastline against waves. Waves naturally cause erosion. Many reefs have been removed because on islands in tropical zone, humans have built hotels along the beach. In cities, humans have removed coral and oyster reefs and wetlands, as humans have dredged for harbors and built up and fortified the coastline for streets and skyscrapers. But coral and oyster reefs do important work to buffer against waves, sea level rise and storm surge, the latter is often the most deadly part of hurricanes.

Suggestions for Further Reading

- Dionne Brand, *A Map to the Door of No Return*
- Sarah M. Broom, *The Yellow House*
- Amitav Ghosh, *The Hungry Tide*
- Jeff Goodell, *The Water Will Come: Rising Seas, Sinking Cities and the Remaking of the Civilized World*
- Alexis Pauline Gumbs, *Undrowned: Black Feminist Lessons from Marine Mammals*
- Epli Hau'ofa, *We Are the Ocean*
- Kathy Jetnil-Kijiner, *Iep Jaltok: Poems from a Marshallese Daughter*
- Jamaica Kincaid, *A Small Place*
- Orrin H. Pilkey, *Retreat from a Rising Sea: Hard Choices in an Age of Climate Change*
- Elizabeth Rush, *Rising: Dispatches from the New American Shore*
- Craig Santos Perez, *From Unincorporated Territory [hacha]*

- Craig Santos Perez, *Habitat Threshold*
- Michel-Rolph Trouillot, *Silencing the Past: Power and the Production of History*
- Rosanna Xia, *California against the Sea: Visions for our Vanishing Coastline*