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# Community, Conservation, and Climate Change: Reviews of *Fresh Banana Leaves and Coral Gardeners*

REVIEWS OF BOOKS OR OTHER MEDIA

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## ABSTRACT

This article reviews two pieces of relevant media. The first review examines *Fresh Banana Leaves: Healing Indigenous landscapes through Indigenous science* by Jessica Hernandez (2022), highlighting the author's argument that Indigenous knowledge must be central in environmental conservation and policy. Hernandez draws from lived experience, ancestral history, and studies across the world to demonstrate how Western conservation practices often disregard Indigenous expertise, perpetuating colonial and exclusionary structures. This review also connects these themes to contemporary issues in Miami, where historically marginalized communities face climate gentrification and limited inclusion in environmental decision-making. Although *Fresh Banana Leaves* is not exclusively a marine science text, Hernandez's discussions of coastal Indigenous communities and environmental displacement have direct implications for marine science education, ocean literacy, and community-centered coastal conservation. The second review examines *Coral Gardeners,* a 20-minute documentary directed by Jon Bowermaster for Bullfrog Films following a novel experiment in the Maldives to regrow coral reefs, which offer protection, food, and income to their communities.

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# INDIGENOUS SCIENCE: NATURE PROTECTS YOU AS LONG AS YOU PROTECT NATURE. A BOOK REVIEW OF FRESH BANANA LEAVES

**Cameron Shaw**

## INTRODUCTION

Indigenous communities are among the most affected by climate devastation and natural disasters (Baird 2008), yet they have long been ignored in conservation, restoration, and environmental policymaking. Western science has historically dominated these processes, often discounting the millennia of practices embedded within Indigenous science, and perceiving it as "soft" – a misconception rooted in systematic racism, colonialism, capitalism, and longstanding delegitimization (Hernandez 2022). In *Fresh Banana Leaves* (2022), Jessica Hernandez, an Indigenous scholar, scientist, and community advocate, introduces Indigenous environmental knowledge and discusses the harm caused by Western science through case studies, historical narratives, and lived experiences. Although *Fresh Banana Leaves* is not exclusively a marine science text, Hernandez's discussions of coastal Indigenous communities and environmental displacement have direct implications for marine science education, ocean literacy, and community-centered coastal conservation.

I titled this book review *Indigenous Science: Nature protects you as long as you protect nature* because it reflects Hernandez's central story. At just fourteen years old, Hernandez's father's guerrilla encampment was bombarded by the military during the civil war of El Salvador. During the bombing, he sought refuge under a banana tree, which for months had fed the guerrilla fighters; in that moment, it saved his life. As a bomb dropped above him, the banana tree wrapped its leaves around it, preventing detonation – a shield that protected him. Hernandez explains that she titled *Fresh Banana Leaves* in honor of her father, whose life was saved by the banana tree, emphasizing an important lesson her father taught her: **as long as we protect nature, nature will protect us** (Hernandez 2022: pg. 24). To continue his legacy, I titled this review after Hernandez's first chapter that captures her childhood learning through her father's experiences.

## THE IMPORTANCE OF COMMUNITY VOICES

As a marine scientist that works alongside minoritized communities, I chose to read and review this book because I believe lived experience and personal stories are essential to shaping environmental laws and policies – an argument Hernandez makes throughout her text. Miami, the city in which I reside, is unique in this way because it is 'ground zero' for climate change, yet those most affected are often silenced. Similar to the experiences Hernandez documents, Miami's Indigenous, under-resourced, and minoritized communities are not only routinely rejected a seat at the table but are also facing the growing threat of climate gentrification (Bachin et al. 2025). Climate gentrification refers to the displacement of communities –particularly low- income residents, migrant communities, and BIPOC– due to environmental changes such as sea level rise, flooding, increased storm frequency, and other coastal hazards (Anguelovski et al. 2019). As Miami's wealthiest coastal properties experience these climate impacts, developers have begun to target higher-elevation neighborhoods, many of which historically marginalized communities of color reside (Taylor & Aalbers 2022). These communities are now being forced out of the neighborhoods that they were originally forced into with little power to influence their futures.

In *Fresh Banana Leaves,* Hernandez centers the environmental knowledge of Indigenous communities through case studies and interviews. She reminds readers that Indigenous peoples are not monolithic; instead, each community embodies distinct cultures, histories, and intersectional identities (Hernandez 2022: 126). One interview that resonated deeply with me was with Ana Laura Palacios Cepeda, the founder of Manos del Mar Oaxaca, an Indigenous women-led artisan collective in Mexico. Established after the devastating 2017 earthquakes, Manos del Mar, translated in English as "hands of the ocean", provided economic and cultural resilience within the Ikoots community of Oaxaca (Hernandez 2022). When asked about her relationship with the ocean, Ana described it using words such as sacred, respect, care, and strength (Hernandez 2022: 174). Her reflections echoed Hernandez's father's story – different

in circumstance yet unified by a shared belief that the environment is sacred, and that nature protects those who protect it.

Throughout my academic journey in marine science, I have learned the ecological pyramid in two models: the top-down approach and the bottom-up approach. An ecological pyramid helps environmental scientists understand ecosystems by illustrating different trophic levels and

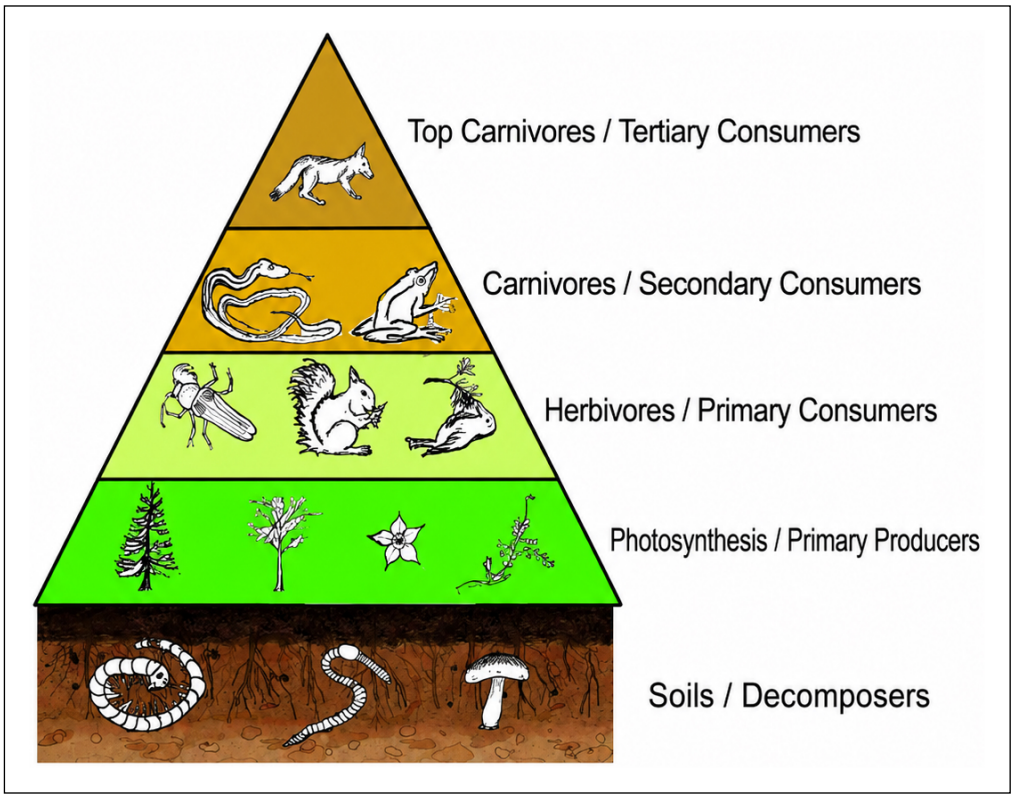


**Figure 1** Graphic from Eco-Intelligent demonstrating an ecological pyramid (Babu 2020).

how population dynamics and energy flow are controlled (Figure 1). The top-down approach describes the ecosystem as primarily controlled by organisms at the highest trophic level, also known as predator-controlled systems (Babu 2020). Alternatively, the bottom-up approach highlights how ecosystems depend on organisms at the lowest tropic level, known as resource- or producer-controlled systems (Babu 2020).

As an Indigenous scientist, Hernandez applies the structure of the ecological pyramid but reinterprets it through the lens of local communities (Figure 2). She explains that a top-down approach is common, wherein scientists often assume that academic credentials outweigh lived experience and local knowledge. In contrast, the bottom-up approach centers communities

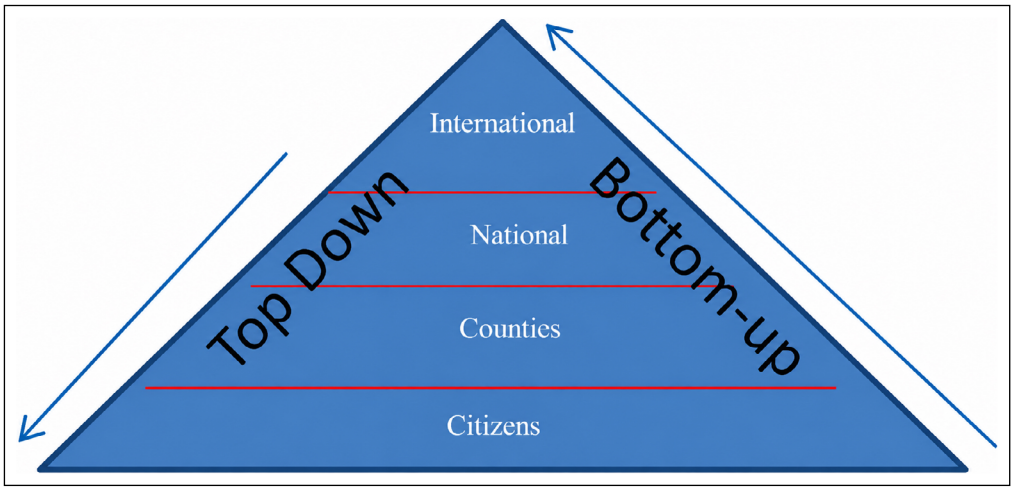


**Figure 2** Graphic showing the difference between a top-down approach vs. bottom-up approach within community work (Fossum, Lopez-Aparicio, & Røen 2018).

from the beginning, focusing on the resources themselves: the environment and the people who inhabit it (Hernandez 2022: 87). This approach challenges the demands imposed by top-level scientists who lack direct experience in the environments they aim to conserve. Indigenous communities possess intimate knowledge of their surroundings, grounded in daily interaction, stewardship, and cultural practice. Protecting these areas requires integrating their histories, perspectives, and voices into conservation efforts and policy dialogue.

## CONCLUSION AND FUTURE IMPLICATIONS

Hernandez's central argument, to center Indigenous and community voices in environmental conservation and policy, is woven through her lived experience, ancestral history, and narratives she shares from Indigenous communities and women-led collectives. Parallel to my beliefs as a marine scientist committed to a more diverse and inclusive field, Hernandez urges that:

> "[it] is time that the hard work and sacrifices are not only done by Indigenous peoples, but also settlers and non-Indigenous peoples so that we can truly create just worlds where Indigenous peoples do not have to constantly fight these ecowars... It is time we stop trying to have our knowledge validated and rather build our own tables and be the ones who validate Western knowledge systems," (Hernandez 2022: 152, 240).

*Fresh Banana Leaves* is an eloquently written and deeply necessary text – one that should be read by anyone working in STEM fields, especially researchers who engage in community-based research. The book powerfully illustrates the importance of community voices and challenges the positioning of Western knowledge at the top of the ecological pyramid. Instead, Hernandez makes clear that conservation must begin from the bottom-up.

I conclude this review by echoing two questions Hernandez poses to her readers – questions that call each of us to reflect on our responsibilities in amplifying Indigenous voices and rights across the United States:

1. What are you willing to do to help Indigenous communities across the Americas that continue to face the ecowars?
2. What role do you play in the xenophobia, gender rights, violations, and anti-Blackness that are present throughout the Americas?




## REVIEW OF CORAL GARDENERS

**Katie Lodes**

*Coral Gardeners,* a 20-minute film by Jon Bowermaster, offers an insightful perspective of the coral crisis and climate change in the Maldives, in connection with global issues. *Coral Gardeners* could make a great addition for classroom use or even to view for the general public.

The film focuses on coral restoration in the Maldives specifically through work at the luxury, eco-conscious resort of Soneva Fushi in the Baa Atoll UNESCO Biosphere Reserve. The message

illustrates how change-makers in the Maldives are working to restore their coral reefs and thus their way of life. The video's two-part structure talks first about the solution of coral reef restoration and then follows with the cause: climate change.

The Senior Director of Marine Sciences, at Sovena Fushi and founder of Coralive, Ahmad Allahgholi, discusses the importance of coral in the islands' ecosystem stating that healthy coral prevents land erosion, protects fisheries, increases tourism and even plays a role in medical research for effective drugs. The Maldives Minister of the Environment, Climate Change and Technology H.E. Aminath Shauna emphasizes the importance of reefs to her nation, a nation that is part of the seventh largest reef system in the world. Initially, her lens is local–reiterating that coral reefs offer protection, food and income. She then emphasizes the broader negative impact of a greater than 1.5 degrees Celsius increase on 90% of the coral reefs in the world.

CEO and Co-founder of the Soneva Foundation, Sonu Shivdasani Obe, explains how a changing El Nino cycle, ocean acidification and warmer temperatures has slowed coral growth.

The video includes a short segment that discusses the biology of corals as both animal, vegetable and mineral that provides a foundation to understand the complexity of coral biology as an introduction to the work done at Soneva Fushi.

Video footage of divers collecting and cementing coral fragments is interspersed with audio explanations to allow viewers a greater understanding of the goal of this "assisted evolution" to change the dire outlook for coral health. Sovena Fushi as well as Aquaterra utilize laboratory developed methods and test them on living reefs. The video highlights the process of finding corals that withstand the heat and other environmental stressors. Once identified and collected, researchers grow these corals in a coral nursery and then plant in the wild in an attempt to accelerate the regeneration of coral in the Maldives. Finally, the video documents that these coral gardeners wish to share these best practices globally.

In the last six minutes *Coral Gardeners* turns from coral restoration to talk about the connected concerns of the Maldivian people. Thirty percent of their income is spent to combat a problem, climate change, that they did not cause. Representatives from Soneva Namoona, an independent Maldivian non-governmental organization (NGO) discuss the importance of engaging in education with people to promote change in cleaning up beaches. The take-home from this section identifies that grass roots efforts like beach clean-up can work in a community but larger countries need to find the political will to work towards a viable, global solution.

Possible drawbacks of the video include not fully fleshed out explanations. For example, one of the divers interviewed says that they bury the drupella snails, but he doesn't explain why (the snails eat the coral). The video also talks about genetic diversity of corals and mentions spawning and gametes but does not explain if the coral gardeners are sequencing the corals for their genotypes or just observing the expressed effects, the phenotype. Although the video highlights local beach clean-ups, it does not provide the impact these clean-ups have on coral health. Finally, they discuss how mineral accretion technology is used to speed up coral growth by saving energy by ionizing the water around coral but then don't provide an explanation of the process.

Overall, the video will spark conversations and offer hope. It covers multiple topics while combining underwater footage with information from those trying to make a difference. And in this time, when news stories and scientific reports only talk about the collapse of coral reefs, hope can be an instigator to action.

## COMPETING INTERESTS

The authors have no competing interests to declare.

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