

UC San Diego

Capstone Projects

Title

Theatricalizing ResilienSEA: The Role of Immersive Performance in Ocean Conservation and Climate Action

Permalink

<https://escholarship.org/uc/item/1c21z41p>

Author

Dressel, Ali M

Publication Date

2023-02-14

Supplemental Material

<https://escholarship.org/uc/item/1c21z41p#supplemental>

Theatricalizing ResilienSEA:
The Role of Immersive Performance in Ocean Conservation and Climate Action



Ali Mariko Dressel
Masters of Advanced Studies, Marine Biodiversity and Conservation
Scripps Institution of Oceanography, UCSD
June 10, 2022

Capstone Report
Capstone Advisory Committee

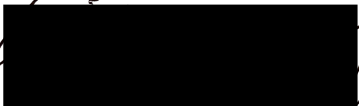
Sean Cook, MFA (Chair)
SAG - AFTRA / AEA, Performance Pedagogy
Sean Cook Studio

Approval Signature 

Corey Gabriel, PhD, JD
Executive Director of MAS-CSP
Scripps Institution of Oceanography, UCSD

Approval Signature 

Emi Koch, MAS MBC
Founder and Director
Beyond the Surface International

Approval Signature 


Sarah L. Mesnick, PhD
Ecologist / Science Liaison
Southwest Fisheries Science Center, NOAA Fisheries

Approval Signature 

Monica Stufft, PhD
Associate Professor, Theatre Department
University of San Diego

Approval Signature 

Brian Zgliczynski, PhD
Coral Reef Scientist and Project Manager for the 100 Island Challenge
Scripps Institution of Oceanography, UCSD

Approval Signature 

Abstract

The biggest conservation and climate-related challenges of our times require unprecedented coordination, communication, and collaboration on local, regional, and global scales. These challenges rely on a fundamental shift in values *away* from extraction-based systems and *toward* systems rooted in reciprocity and regeneration. My overall mission is to drive social action toward conservation, climate resilience, and social justice by using the performing arts to engage communities with ocean conservation issues and identify calls to action that are informed by science, policy, economics, collective action, and Indigenous wisdom and leadership. For my capstone project, I produced an immersive performance event called *ResilienSEA* at the Birch Aquarium on May 18, 2022. This event highlighted how climate change impacts coral reefs and the roles that we play in building climate resilience. Through a collaboration with the Birch Aquarium, EventAVision, UCSD Department of Theatre and Dance, the 100 Island Challenge team, the Sandin Lab at Scripps Institution of Oceanography, and many more artists, scientists, and scholars, we created and engaged the local community through immersive theatre, which featured dance, music, interactive performance, spoken word, projection mapping, and audience participation. In addition to writing, producing, and directing the featured performance, I designed and implemented a community-dialogue performance model to facilitate small-group collaborative discussions around four key topics, or *pillars of resilience*. These *pillars of resilience* provided a conceptual framework through which to orient the discussions and create an opportunity for the audience to collaborate in real time to identify climate-based solutions and calls to action. Testimonials reflected the high level of engagement that guests experienced, and they demonstrated how the *ResilienSEA* model was effective in 1) connecting and engaging communities 2) inspiring hope, and 3) galvanizing conservation and climate action and commitments to personal actions and/or lifestyle changes. While there is still much work to be done to substantively reduce carbon emissions, this *ResilienSEA* event has shown that these kinds of theatrically-based community events do have the potential to inspire the ripple effects of change and collective actions that we need to build systems based in climate resilience, sustainability, environmental justice, and social responsibility. With this work as a foundation, my next steps are to build a 501 c(3) non-profit organization, website, and social media campaigns, and I intend to continue to collaborate with scientists, artists, and local communities to devise effective forms of communication, engagement, and action.

Background/Problem Statement

Our oceans and climate systems are fundamentally interconnected and remain in balance through a series of finely-tuned feedbacks and cycles. Humans, however, have largely disrupted these cycles through hundreds of years of unsustainable extraction, domination over nature (and of each other), and burning fossil fuels at unprecedented rates. In May 2022, carbon dioxide levels reached 421 ppm, the highest level ever recorded in human history and more than 50% higher than pre-industrial levels.¹ Now, we are facing the consequences of this change, as we are directly experiencing the increasing temperatures resulting from high atmospheric carbon dioxide levels and the associated impacts on ecosystems and communities worldwide.

¹ “Carbon Dioxide Now More than 50% Higher than Pre-Industrial Levels.” n.d. Accessed June 3, 2022. <http://www.noaa.gov/news-release/carbon-dioxide-now-more-than-50-higher-than-pre-industrial-levels>.

Coral reef ecosystems, for example, are especially susceptible to rapid changes in climate. Globally, coral reefs face a multitude of threats, including climate change, overfishing, pollution, increased storms, and sedimentation from coastal development. However, because corals cannot survive conditions that are outside their temperature or pH thresholds,² they are particularly sensitive to increasing sea surface temperatures, ocean acidification, and the compounding effects of climate change. Some of the most biologically diverse ecosystems on our planet, coral reefs are home to 25% of all known marine species³ and over half a billion people depend on coral reef ecosystems for their primary source of food, income, cultural connections, and coastal protection.⁴ Consequently, the rapid rate of burning of fossil fuels and the resulting effects that high carbon emissions have on the global climate system are existential threats to coral reefs, thereby also greatly impacting both the wildlife and human communities that rely on them.

Decreasing worldwide carbon emissions, however, is no easy task. Fundamentally, to combat climate change, we need to create systems that are based on *reciprocity, regeneration, and balance with* rather than *exploitation, colonization, and domination of* our planet and resources. The biggest conservation and climate-related challenges of our times require unprecedented coordination, communication, and collaboration on local, regional, and global scales, all of which rely on a necessary shift in social consciousness and value systems. How can we better facilitate social change toward a resilient future, and how can we more effectively communicate the changes that we need?

Community-dialogue performance model centered around conservation and climate action

Performing arts, theatre, media, and entertainment play a substantial role in influencing social norms. Current events and concerns that inform social behaviors influence the content of performance-based media, and in turn, performance-based media shapes social norms and values. Historically, theatrical performances have been at the forefront of voicing critical sociopolitical concerns. El Teatro Campesino, for example, was instrumental in establishing workers' rights for Chicano farm workers throughout the 1960s-1970s. Performing at site-specific locations in fields or in union halls, the theatre group characteristically directly engaged public audiences with their performances to voice critical socio-economic concerns relating to equality, cultural heritage, and economic independence.^{5 6} Meanwhile, the contemporary Sojourn Theatre implements an audience participation model that actively engages audience dialogue and input to influence the outcome of not only the nightly live productions but also local policy measures around ending poverty.⁷

² Speers, Ann E., Elena Y. Besedin, James E. Palardy, and Chris Moore. "Impacts of Climate Change and Ocean Acidification on Coral Reef Fisheries: An Integrated Ecological–Economic Model." *Ecological Economics* 128 (2016): 33–43. <https://doi.org/10.1016/j.ecolecon.2016.04.012>.

³ Brander, L. M., Van Beukering, P. "The Total Economic Value of U.S. Coral Reefs: A Review of the Literature." *NOAA Coral Reef Conservation Program*, (2013): Silver Spring, MD.

⁴ "Coral Reef Ecosystems | National Oceanic and Atmospheric Administration." Accessed December 4, 2021. <https://www.noaa.gov/education/resource-collections/marine-life/coral-reef-ecosystems>.

⁵ "About El Teatro Campesino." El Teatro Campesino. *El Teatro Campesino*, 2011. Web. 14 May 2012.

⁶ Elam, Harry Justin. *Taking it to the Streets*. The University of Michigan Press, 1997. Print.

⁷ Leffler, Elliot. 2018. "How to End Poverty in 90 Minutes: Maximizing Participation and Managing Risk in the Work of Sojourn Theatre." *Contemporary Theatre Review* 28 (4): 488–503. <https://doi.org/10.1080/10486801.2018.1511545>.

In regards to theatre and society, Theatre scholar, Jan Cohen-Cruz voices that the role of the artist is to “generate dialogue”⁸ with the public community about socially relevant issues. Through a *civic-dialogue model*, she contends that social change-oriented theatre artists are committed to fully engaging the public community with civic concerns.⁹ This civic-dialogue model as well as the previous works of social change-oriented theatre and the science behind coral reefs and climate change provided the foundation for my capstone project. Using a community dialogue model as a framework for community engagement, social justice, and scientific communication, I created, produced, and directed, a live event called *ResilienSEA*. The event was held on May 18, 2022 at the Birch Aquarium in La Jolla, California.

Project Objectives

My ongoing, overarching goal is to use the performing arts as a platform to call attention to critical ocean and climate issues and facilitate local conservation and climate-based calls to action. While highlighting the importance of value systems centered around environmental stewardship, compassion, and reciprocity, my intention is to 1) engage communities through performing arts, 2) inspire commitment to corporate and social responsibility, and 3) galvanize collective action toward creating policies, management plans, and societies based on sustainability and resilience. In tackling the social consciousness and social change aspects of conservation and climate action through immersive theatre and community-oriented dialogue on what is required for positive change, I hope to meaningfully contribute to improving society from within, one person and one mindset at a time. My *ResilienSEA* capstone project was a small component of a much larger vision and was designed to provide the framework for developing future science conservation-based theatrical stories, dialogues, and campaigns.

For my *ResilienSEA* capstone project, I focused on how climate change impacts coral reefs, highlighting coral bleaching and coral resilience. My goal was to design an immersive event that featured: 1) collaboration among scientists and artists, 2) scientifically-informed characters, costumes, and character interactions, and 3) diverse community participation and engagement. Through the theatrical storytelling and immersive production elements, my intention was to amplify multicultural representation, and empathetic understandings of what is happening to coral reefs, evoke feelings of hope and inspiration, and generate a sense of agency that every person has a role to play with climate action and participating in the collective action necessary for transitioning to systems based in renewable energy, less consumption, resilience, and reciprocity. By creating small breakout discussion groups as part of the community-dialogue model, my objective was to create supportive spaces to facilitate conversations in which participants from very different backgrounds could share their perspectives and knowledge, and work together to identify local calls to action that have global impacts. Coral reefs may be oceans away from Southern California, and climate change may indeed be daunting, but by connecting communities together to identify and localize actions, my mission was to help participants recognize how interconnected we all are and understand the responsibility each of us has in contributing to the climate action that protects coral reefs and the planet in general.

⁸ Cohen-Cruz, Jan. “Motion of the Ocean: The Shifting Face of U.S. Theater for Social Change since the 1960s.” *Theater*. 31.3 (2001): 95-107. Web. 2 Nov. 2011.

⁹ *Ibid.*

Methodology

Event Logistics & Immersive Performance Structure

To create a complete sensory experience that fully captivated and engaged guests, I designed the *ResilienSEA* event on May 18, 2022, as a fully immersive experience unique to the Birch Aquarium. The immersive design included interactive performers, theatrical lighting, surround sound, and projection mapping. Upon arrival, the guests checked in, signed a media release form, and explored the space. From 7:00 pm - 8:00 pm, a Parrotfish character interacted with the guests as a clown-type interactive character. Through his jovial personality, charisma, and charm, he helped break the ice and welcomed guests. As a Jamaican parrotfish, he represented the voice of Caribbean reefs, illuminating guests with knowledge about Caribbean coral reefs, the importance of parrotfish as a keystone species to the reef, and how the loss of his home parallels the loss of reefs to humans — all from the perspective of a parrotfish. At 8:00 pm, the guests were led to the outdoor tide pool area where the main performance took place. After the Parrotfish called everyone together by blowing the conch shell, the performance opened up with a traditional Hawaiian chant from the Kumulipo that honors and acknowledges coral reefs as our ancestors. This chant was performed and gifted to us by Kumu Kapena Malulani Perez, keeper of Hawaiian knowledge and culture. During the chant, the Coral dancers and Parrotfish honored the four directions to pay homage to Tahitian dance and Indigenous representation. The Coral dancers then performed a Tahitian-Polynesian fusion dance to *Ia Ora Na*, a song by Tahitian artist Ken Carlter. Polynesian dance in particular provided a voice for Pacific reefs and represented Pacific Island communities that have strong cultural, spiritual, and economic connections to coral reefs. The lively, vibrant, and joyous Coral dance was suddenly interrupted by an electronic dubstep song (*Rage City* by Purge) that was diametrically opposite in tone and style of music. The Climate Changer character entered the scene, wearing a suit with oil rigs and smokestacks bursting out of the shoulders and headpiece. He performed a break-dance solo to demonstrate his power, then approached the Coral Reef dancers and tore off their colorful fabrics to reveal white bodysuits underneath. After they were bleached, the Staghorn Coral dancer called for the Parrotfish who blew in the conch shell to call for help from the Sea Nymphs. Ancient ocean goddesses, the Sea Nymphs froze (or metaphorically sequestered) the Climate Changer with their trident and performed a belly dance choreography to the song *Mystic Descent* by Orenda & Equanimous. At the end of their dance, they reached out to me in the audience and I joined them as a transition into a spoken word portion of the performance. In my spoken-word piece, I highlighted the damage that we as humans are causing to coral reefs through climate change and the need for responsible action. I then instructed the audience to break off into four small groups called *Pillars of Resilience*. They were given 20 minutes to discuss their given topic, led by expert facilitators in their respective fields. We then brought everyone back together and opened up the opportunity to share what guests discovered, felt, or identified as calls to action. Guests who shared were then given the opportunity to “rebuild the reef” by placing the torn fabrics back onto the Coral dancers. I closed the night with some concluding remarks and guests were invited to take “ResilienSEEDs,” or ocean-themed charms as mementos of what they learned, were inspired by, or as personal commitments to climate action.

Theatricalizing Science & Climate Action

In order to meet the primary objectives of 1) engaging and connecting communities 2) inspiring hope and a sense of agency and 3) galvanizing collective action, I identified and implemented a framework for “theatricalizing science.” These interdisciplinary elements include scientific understanding, theatrical devices, and social justice components that underpin the structure of the *ResilienSEA* process. The steps to *ResilieSEA* are as follows:

- I. **Collaboration** - *Interdisciplinary collaboration is at the core of ResilienSEA.* For my capstone event, I closely collaborated with coral reef researchers from the Sandin Lab at the Scripps Institution of Oceanography, the 100 Island Challenge team, the UCSD Department of Theatre and Dance, the Birch Aquarium, EventAVision, Indigenous leaders, economists, policy consultants, climate science consultants, Sirena Dance Studio, Christine Ko (costume designer), headpiece/ prop fabricators (Sig Aberin and Eric Walti), videographers, and performers from San Diego and LA. For example, I worked with UCSD lighting design graduate student, Bryan Ealey, and 100 Island Challenge researcher, Clint Edwards to implement the coral reef photogrammetry video content for projection mapping on the rocks at the Birch Aquarium. This imagery was used specifically to illustrate how a coral reef in Palmyra bleached in 2015 but bounced back in 2016, highlighting the potential resilience of corals when conditions allow for recovery.

In another example, Dr. Brian Zgliczynski (from the 100 Island Challenge project), Denise Henry (Jamaican researcher and parrotfish consultant), David Booker (Parrotfish actor), and I collaborated to design the parrotfish character. We implemented Denise’s insights on parrotfish behavior and connection to Jamaican culture into the character that David played. Using improvisational theatre and clowning techniques, David was able to inform his character with science and firsthand knowledge about the importance and significance of parrotfish to Caribbean coral reefs.

- II. **Costuming** - *Scientific understanding informs the costume designs.* For example, the Staghorn and Porites Coral costumes both reflected how the two different corals bleach. Staghorn coral tends to bleach completely but bounces back faster, while Porites typically bleaches partially but takes longer to recover. The Staghorn Coral costume, therefore, featured a full white bodysuit, whereas the Porites Coral costume included only partial white fabric reveals (bleaching effects). In addition, I incorporated the symbiotic relationship that corals have with the algae zooxanthellae into the Staghorn Coral fabric. Corals depend on the dinoflagellate zooxanthellae for nutrition, but when the zooxanthellae leave the coral because they cannot tolerate high temperatures, the corals bleach as a result. I lined the interior of the Staghorn Coral fabric with a greenish-yellow-brown fabric to represent the zooxanthellae and reflect this important symbiotic relationship in connection to coral bleaching.



Figure 1. (Left) Staghorn coral bleaches completely to reveal full white bodysuit. (Center) Porites coral bleaches partially as reflected in costume design and theatrical storytelling. (Right) Yellowish-green fabric interior reflects the symbiotic relationship that zooxanthellae have with corals. Photos by Justin Dressel.

III. **Character** - *Science, traditional knowledge, and multicultural representation inform character interactions for each character's personality as well as the story.* Because of staghorn corals' ability to bounce back faster, for example, the Staghorn Coral character “bounced back from being bleached” and called for help from the Parrotfish. As seen in Figure 2, parrotfish eat algae off the reefs, keeping them healthy. Similarly, this relationship was played out in the character interactions between the Parrotfish and Porites Coral characters. Meanwhile, the Hawaiian chant from the Kumulipo at the beginning of the performance highlighted and called attention to the critical importance of traditional knowledge and wisdom.



Figure 2. Parrotfish eat algae off the reef. Image credits: <https://viepscor.org/> (left), Justin Dressel (right)

IV. **Conflict** - *The theatrical devices of conflict and agents of change are important elements in crafting the overall story arc for the performance.* The Climate Changer character provided conflict by personifying the systems that prioritize short-term profits over sustainability and exploitation over reciprocity and resilience. Meanwhile, the Sea Nymph characters provided

agents of change by calling attention to the problem and providing a transition to the role of humans and audience participation.

- V. **Community** - *Community engagement is the core root of the ResilienSEA process.* Through the community-dialogue model, guests were able to connect with each other in ways they might not otherwise have, establishing new relationships, potential partnerships, and new ideas. By participating in the story, the guests were able to see themselves as agents of action—protagonists in the ongoing story building sustainability and resilience.



Figure 3. Audience participation to “rebuild the reef.” Photo by Justin Dressel

Pillars of Resilience

For the small breakout groups in the community-dialogue portion of the event, I identified the following four topics:

- **Decarbonization** - strategies on how to transition to renewable energy systems.
- **Civic Engagement** - holding legislators accountable and voicing input through public comments.
- **Reciprocity** - what reciprocity means, how it is connected to Indigenous knowledge and wisdom, and why Indigenous leadership is essential for creating more responsible, resilient, and sustainable paths forward.
- **Economy** - the role that economy plays in relation to climate change and how carbon pricing and regenerative and/or circular economies play a central role in coral reef conservation in connection to climate change.

These pillars of resilience provided a conceptual framework through which to orient the discussions and create an opportunity for the audience to collaborate in real time to identify climate-based solutions and calls to action. Each group was led by an expert facilitator: executive director of the MAS MBC program at the Scripps Institution of Oceanography, UCSD, *Samantha J. Murray*, J.D. (Civic Engagement), executive director of the MAS CSP program at the Scripps Institution of Oceanography, UCSD, *Dr. Corey Gabriel* (Decarbonization), research economist in climate, atmospheric science and physical oceanography at Scripps Institution of Oceanography, UCSD, *Dr. Tom Corringham* (Economy), Coastal

Defenders founder, *Jules Jackson* (Reciprocity), and professor at the USCD Anthropology department, *Dr. Keolu Fox* (Reciprocity).

Key Takeaways

Based on observations, real-time feedback, and testimonials, the *ResilienSEA* capstone event was engaging, inspirational, and energizing. Guests commented that they felt inspired and they felt that this form of theatrical storytelling was conducive to evoking empathy for coral reefs as well as providing a creative format for scientific education. They were highly engaged with the Pillars of Resilience discussions and voiced that they learned about policy measures, public comments, local decarbonization initiatives, Indigenous representation initiatives, and other actions through which they would be able to participate. One guest commented that she learned that corals can bounce back after bleaching, illustrating the importance of resilience-oriented communication to the general public. Another guest spoke about the need for breaking out of silos and working together with diverse groups, fields, and communities to work toward conservation and sustainability goals. Guest Abbey Stevens expressed:

It makes me want to think more about my impact on the environment. Typically, I'd say it's a global issue and not necessarily personalize it, but after this, I want to look at what I can do to make a difference.

These testimonials reflect not only the high level of engagement that guests experienced, but also demonstrate how the *ResilienSEA* model was effective in 1) **connecting** and engaging communities 2) **inspiring** hope, and 3) **galvanizing** conservation and climate action and commitments to personal actions and/or lifestyle changes. While there is still much work to be done to substantively reduce carbon emissions, this *ResilienSEA* event has shown that these kinds of theatrically-based community events do have the potential to inspire the ripple effects of change and collective actions that we need to build systems rooted in climate resilience, sustainability, environmental justice, and social responsibility.

Next Steps

My capstone was a beginning step in creating a platform for science communications and community engagement through music, dance, and theatrical arts. I intend to turn *ResilienSEA* into a 501 c(3) non-profit (or organization under a fiscal sponsor), and it will be centered around using performance-based stories and community-dialogue models to captivate, inform, and energize audiences to take action toward urgent issues. An interactive, online website (ResilienSEA.net) will provide a digital platform that features all performance videos, calls to action, and additional resources where people can learn more about particular topics and solutions. All videos will be disseminated through social media channels, including YouTube, Instagram (@resilien_sea), TikTok, and Facebook as a way to capture attention and draw people toward the calls to action on the website. There are many more stories to tell, and by theatricalizing science, I hope to play a role in catalyzing meaningful change.

Acknowledgments

This project was the culmination of an incredible collaboration from a wide range and highly diverse group of scientists, artists, Indigenous leaders, academic researchers, technicians, and more. I am forever in gratitude to the spectacular teams of people who made this project possible. Special thanks to the Birch Aquarium for hosting the ResilienSEA event and for their incredible support. Many thanks to the Design Lab at UCSD, EventAVision, and the MAS MBC program for helping make this project financially possible. A huge shout out and thank you to my unbelievably talented cast and crew, Pillars of Resilience facilitators, media team (Justin and Samantha Dressel, Alejandro Herrera, and Martin Froger Silva), prop & headpiece fabricators, volunteers, and more. Special thanks to the UCSD Department of Theatre and Dance, CMBC, 100 Island Challenge, Sandin Lab, Kumu Kapena Malulani Perez, Denise Henry, Christine Ko, Sig Aberin, Eric Walti, and my ever-supportive and loving family. Finally, thank you to my extraordinary capstone advisory committee for their dedication, endless support, and guidance. I am forever thankful for working with the best interdisciplinary team imaginable.

ResilienSEA Links and Materials

ResilienSEA at Birch Aquarium **Recap Video:** <https://www.youtube.com/watch?v=K6v6efBqBEc>

Website: resilienSEA.net

Instagram: @resilien_SEA

