



Lost City of Mer: Chapter 1

Producer/Director/Writer: Liz Canner

Co-Producer/Co-Director/Animator: Gregory Bennett

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Logline

Innovative “swimming” navigation, game play, elements of sci-fi and mystery inspire users to reduce their carbon footprint in the real world in order to restore a magical lost civilization in the virtual world.

Challenge

The mysterious underwater Mer civilization and much of its flora and fauna have been destroyed. Only spirit creatures remain. You are the first Mer (maid) born in decades. Athina, a baby seal spirit, befriends you and takes you on a journey through the remnants of the stunning, complex Mer metropolis, hoping that you will resurrect the collapsed ecosystem. You witness the devastation caused by climate change and other environmental hazards. Will you take the necessary steps to generate new life and win rewards to revive the natural splendor of Mer and her otherworldly inhabitants?

Synopsis

Lost City of Mer: Chapter 1 is an innovative interactive cross-platform VR and mobile app experience that immerses the player in a magical undersea civilization devastated by climate change. The player is the last Mer baby in a dying ocean. The rest of the Mer(maids) are extinct. Guided by a lonesome seal spirit, the player explores the ruined metropolis, tends to secret gardens of coral threatened by pollution, and plants coral to revive the Mer(maids), in the process learning the impact of their real world actions. *Lost City Of Mer* represents an innovative approach to climate change awareness, one that spurs action by showing the beauty of our real and mythical creatures, and the stakes of our neglect.

The project was created by Astrea Media, a US nonprofit organization, in collaboration with Auckland University of Technology in New Zealand. It was developed with the input of environmental scientists from Harvard University and Dartmouth College. The experience is based on real science, but told through fantasy, as it draws on the cross-cultural myth of the mermaid to appeal to people across the globe. It will be available in over 20 languages and distributed internationally to VR arcades, schools, museums, aquariums, film festivals, international NGOs, the United Nations, community centers, libraries, conferences, religious organizations, .

The colorful palette and dreamy sci-fi aesthetic of Mer shows not just devastation, but the splendor and wonder of a world worth fighting for-- and provides the tools to do it. The otherworldly architecture of the city was inspired by the work of Antoni Gaudi and Georgia O'Keefe. The stunning coral gardens reference Claude Monet's garden at Giverny, and Butchart Gardens in Canada.

Lost City of Mer utilizes a groundbreaking living narrative structure where the audience's real world actions impact the story that unfolds. The accompanying phone app, for Apple and Android phones, extends game-play to the user's everyday life by challenging them to

lower their carbon footprint, in order to resurrect Mer and keep Athina alive. In the process, they will learn about of their own impact on the environment and will be provided with an educational and entertaining tool to mitigate their carbon footprint. The app will incentivize and reward strategies such as lowering the use of single plastics, walking or taking public transportation instead of driving, and choosing a plant-based diet.

Coral reefs are the most majestic gardens on earth, and support a quarter of ocean species. It is estimated that by 2050, if drastic measures aren't taken, 90% of them will be gone. *Lost City of Mer* will hopefully educate thousands of people about the beauty and importance of the reefs and inspire and incentivize them to take action.

Key Production Personnel Bios

Liz Canner – Director/writer/producer:

Liz Canner is an award-winning filmmaker, digital artist, sculptor, and writer who creates films, cross-platform digital media projects, and installations intended to inspire positive change. She likes to employ cutting-edge technologies to explore human rights and environmental issues from a new perspective. A prime example of this is her critically acclaimed public cyber art documentary *Symphony of a City* on the housing crisis. Her feature documentary *Orgasm Inc.*, a *New York Times* “Critics’ Pick”, about the pharmaceutical industry and women’s health played at over a 100 film festivals internationally, was theatrically released, broadcast on many TV stations globally, and streamed on sites such as Sundance Now, Netflix internationally (“Most Popular” in “Critically Acclaimed” and “Social and Cultural Documentaries” in 2011 and 2012) and Kanopy (“Most Popular” in “Science, Nature & Technology”, “Medicine”, “Feminism”, “Biology”, “Health & Wellness”, “Advertising”, “Consumerism”, “Pharmaceuticals” and “Sexuality” in 2018 and 2019)

A graduate of Brown University with Honors in both Visual Arts and Anthropology, she has received over 60 awards and grants for her work including a Radcliffe Institute for Advanced Study Fellowship from Harvard University, a Rockefeller Foundation Next Generation Leadership Fellowship, a National Endowment for the Arts grant and the Dartmouth College Visionary Award. Her documentaries have broadcast on television on PBS stations, cable, and internationally in many countries. Her media art projects have shown at museums and galleries including Boston's Institute of Contemporary Art, The Museum of Fine Arts, Boston, and the California Museum of Photography. She has given over 150 talks about her work at universities, museums and screening venues. Committed to helping other independent filmmakers, she served on the board of directors of The Association of Independent Video and Filmmakers, the Boston Film and Video Foundation, Boston Cyberarts and White River Indie Films. She is the founder and director of Astrea Media Inc., a nonprofit media company dedicated to creating innovative projects on human rights and environmental issues.

Gregory Bennett - Co-director/co-producer/animation:

Gregory Bennett is a New Zealand-based digital artist who works with 3D animation, motion capture, projection mapping, virtual and augmented reality and interactive media. He has exhibited internationally in New Zealand, Australia, the USA, and Europe, and his work is represented in both public and private collections. Recent exhibitions include the real-fake.org.2.0, a survey of international digital artists at the BronxArtSpace in New York, the juried exhibition at the 2016 International Symposium on Electronic Art in Hong Kong, and the Supernova 2017 Digital Animation Festival in Denver. He is currently Head of Department for Digital Design and Visual Arts at Auckland University of Technology.

Project Advisors

Alex Barnett – Scientific Advisor:

Alex Barnett is an applied mathematician and numerical analyst. He was a Professor in the mathematics department at Dartmouth College for 12 years. He attended Cambridge University and obtained his Ph.D. in physics at Harvard University, followed by a postdoctoral fellowship in radiology at Massachusetts General Hospital and a Courant Instructorship at New York University. His research interests include scientific computing, partial differential equations, integral equations, biomedical imaging, neuroscience, inverse problems, and quantum chaos. Barnett is well known for numerical work in wave scattering, high-frequency eigenvalues, potential theory, periodic geometries, and fast algorithms. He has received several grants from the National Science Foundation, received Dartmouth's Karen E. Wetterhahn Memorial Award for Distinguished Creative or Scholarly Achievement, and won the XXI International Physics Olympiad.

Winslow Burleson – Advisor

Winslow Burleson, a professor at New York University, leads the NYU-X Lab he is developing a transdisciplinary research and innovation holodeck. Win was recognized by the National Academy of Engineering (NAE) as "one of the nation's leading engineering researchers and educators". He received the best paper award at the 2009 International Conference on Artificial Intelligence, the field's top conference, showing Affective Learning Companions' ability to have a large-scale societal impact on thousands of students, by bringing cyber-enabled learning research into classroom settings. Win has been awarded 10 patents, four inventor and innovator awards from IBM Research, two Time Magazine Awards for the top 10 and top 50 inventions of the year, authored over 100 scientific publications, exhibited at the Pompidou Centre, and performed in Carnegie Hall.

Paul Moorcroft – Scientific Advisor

Paul Moorcroft, a professor at the Harvard University Center for the Environment, has done extensive research on the impact of climate change. He uses mathematical models to study ecological dynamics of terrestrial plant communities and ecosystems and biosphere-atmosphere interactions.

DG Webster – Scientific Advisor:

DG Webster, a professor of Environmental Studies at Dartmouth College, focuses her research on understanding feedbacks within global scale social-ecological systems.

Primarily, her work looks at the impact humans have on the oceans. Currently, she's studying coral reefs.

Marc Weiss – Advisor:

Marc Weiss is the creator of the celebrated PBS series P.O.V., a climate educator and former board member of the Sierra Club Foundation. He has been a leader in the independent media movement for more than 40 years, first as a filmmaker and journalist, then as a co-founder of several key organizations including Web Lab, an online laboratory that uses the Internet to engage a wide range of people on important issues.

Dives in *Lost City of Mer*

9th Annual New York Videogame Awards: celebration and ceremony dives, The New York Videogame Critic Circle, SVA Theatre, New York City. January 21st, 2020.

Virtual Reality and Environmental Storytelling Festival: dive and invited talk, The University of Pennsylvania, Philadelphia, PA. November 22nd, 2019.

S|GGRAPH Asia, International Premier, Winner: 2nd place for Best XR Content, Brisbane, Australia. November 17th – 20th, 2019.

Champlain College: Dive and invited talk, Burlington, VT. October 21st, 2019.

The Media Factory, VR for social impact workshop with *Lost City of Mer*, Burlington, VT. October 18th, 2019.

Vermont International Film Festival, Burlington, VT. October 19th – 20th, 2019.

United Nations General Assembly Climate Summit, SDG Action Zone dives during the General Assembly Climate Summit, United Nations, New York City. September 23rd, 2019.

New York Public Library Event for Administrators and Educators, dives, NYPL Battery Park City Branch, New York City. August 28th, 2019.

The Explorers Club: Presented for World Oceans Week, New York City. June 4th, 2019.

White River Indie Film Festival, White River Junction, Vermont. May 31st, June 1st – 2nd, 2019.

The Rockefeller University, prototype dives, New York City. May 17th, 2019.

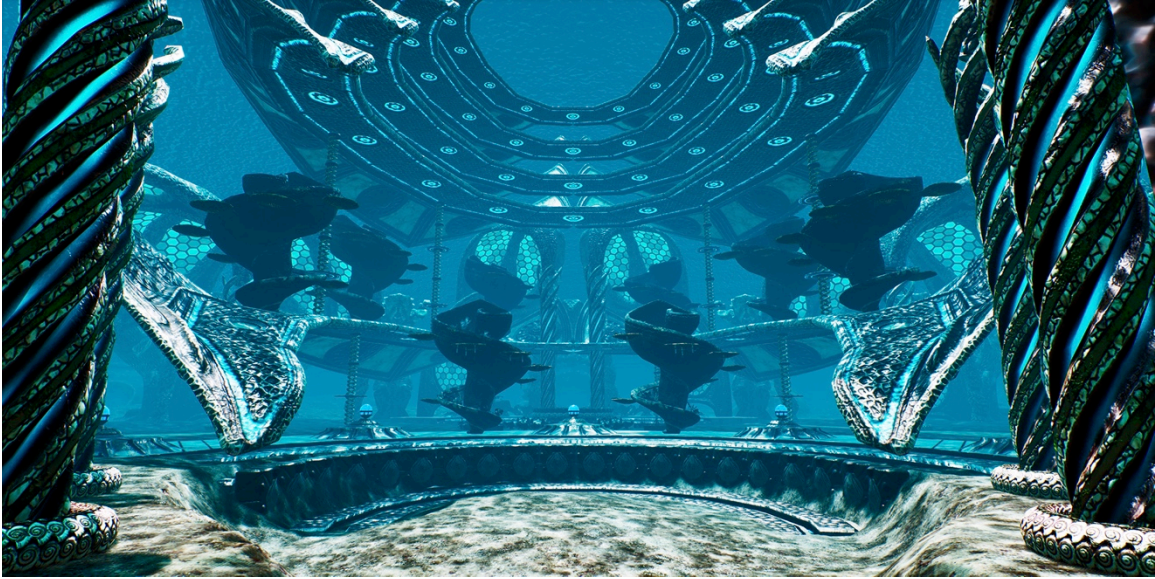
The New York Videogame Critics Circle, prototype dives New York City. May 15th, 2019.

Dartmouth College: dives and invited talk, Hanover, New Hampshire. May 13th – 14th, 2019.

D.C. Environmental Film Festival, Carnegie Institution for Science and National Geographic, Washington D.C. March 23rd, 2019.

Mixed/Augmented/Virtual Reality Innovation Conference: Dive and invited talk, University of Maryland, College Park, MD. 2018.

Games for Change Festival, New York City. 2018.



University of Human Seduction, where Mer learn how to seduce humans into loving nature, *Lost City of Mer*



Secret Coral Garden, *Lost City of Mer*

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JUNE 12, 2019

'Lost City of Mer' Game Uses VR to Address Climate Change

By SABINE POUX @SABINEPOUX



The University of Human Seduction in *Lost City of Mer*

Mermaids are unlikely agents in the climate action movement. But in Liz Canner's new virtual reality video game, ***Lost City of Mer***, they might be the key to galvanizing people to give a shit.

"As I started doing research into what moves people in games, I learned that if you make games that are about imaginary creatures, people are actually more moved to save them and take action," the Vermont-based filmmaker said, demonstrating the game at the **White River Indie Festival** in White River Junction two weekends ago. *Lost City* has traveled far and wide to other festivals and exhibitions over the past year; it will be released to the public in November.

I had been looking forward to trying the game (and losing my VR-ginity) since I read about the project. While some VR takes players to landscapes they can only imagine, Canner's game immerses users in a fantastical adaptation of her own experiences. Canner, 51, who lives in Norwich, Vt., and New York State, snorkels for fun; that's how she learned coral reefs are deteriorating as the climate crisis worsens.

Horried by the denial of the problem in Washington, D.C., the activist and artist set out to create something that would evoke the same visceral reaction in others. *Lost City* allows users to swim through an underwater world ravaged by pollution and witness the impacts of human actions, both positive and negative, with Canner's own mythical, technological twist.

Before it was my turn to take *Lost City* for a spin, I watched two other users try it at one of two stations in the lobby of **Barrette Center for the Arts**, where the demo was held during WRIF. The second station had been set up to

accommodate walk-ins after most of the 15-minute time slots filled up in advance.

The first player, Ivy Schweitzer of Norwich, has been diving IRL in Bonaire with her husband, Tom Luxon, for more than 10 years. She loved being able to look around in the game without the constraint of heavy diving equipment and audibly “oohed” and “aahed” throughout her trial. “I’m a little dizzy, ‘cause I just really got into it,” she said when she finished.

Luxon, who’d already done the demo, was equally excited about his dive. “But I would do it with my contact lenses next time,” he noted, touching his glasses’ frames.

Heartened by my predecessors’ rave reviews, I had Canner fit me with the headset and handheld controllers as she gave me an instructional spiel. Talking slowly and holding the controllers above her head, she looked like a flight attendant explaining emergency protocol. I learned to bring the controllers down to swim up, up to swim down. Pull the trigger to pick something up, and swivel your head to look around. Reach out your hand to give the narwhal a snack.

Though I had watched the others play — through a small monitor that showed what they saw in their goggles, like a movie — no amount of 2D diving could prepare me for the sensation of the real thing. With the VR gear on, I was so transported that I bumped into the wall once or twice as I breaststroked forward.

I began to understand why Canner, who grew up on Pac-Man,* chose virtual reality as the platform for her project: The experiential technology is uniquely evocative in a way that fosters empathy for the game’s world and characters.

Lost City opens in a cave, where a small seal named Athina informs the user that she is the sole survivor of Mer; the rest of the population has died from ocean acidification and rising temperatures. As users get their bearings and learn to swim around, they begin to piece together the background of this world.

They navigate through the Metamorphosis Lab, where the arrow on a large CO₂ meter shows that the ocean is oversaturated with carbon dioxide; the empty University of Human Seduction, where the mermaids once practiced singing to lure humans into loving and saving the environment; and, finally, the secret coral gardens.

There, players are instructed to plant coral to revive the ecosystem (analogous to the robotic planting of coral that scientists are doing today). And *voilà!* The mermaids begin to return to life. At this point, the screen darkens, and users are encouraged to go to the game’s website to see how they can reduce their damage to the real environment.

Lost City, which was made using the same program as the popular game *Fortnite*, is visually stunning, with a glow-in-the-dark color palette. The VR technology is thrilling, too; though the game is animated, the swimming movements and slooshy white noise of the ocean are surprisingly lifelike.

In an interview, Canner said she hopes the game’s vividness and optimism will help users combat feelings of paralysis as they confront the climate crisis. While the dead coral in the game visually represents climate destruction, the act of replanting is meant to be empowering, even creative. In the complete version of the game (this one was tailor-made for the festival circuit), users will have even more chances to interact with the forces wreaking havoc on Earth’s oceans.

“Part of the problem is, we don’t feel a sense of agency because [the climate crisis] feels so huge,” Canner said. “But, actually, we’re a piece of the whole thing. So we do have agency.”

Rutland’s Pat Hunter found that aspect of the game powerful. Like Schweitzer and Luxon, she falls outside the typical gamer demographic, but she quickly picked up the movements she needed to propel her virtual self through the water and pick up coral stalks. “To make something grow and create, as opposed to watching it die off, was part of the impact,” she said. “Being a creator rather than a destroyer, as the human being.”

Research supports the logic behind Canner's creation. **The Stanford Ocean Acidification Experience** showed that a VR simulation illuminating the causal relationship between human action and environmental degradation was likely to make participants feel more ownership of the environment and encourage them to change their behavior. Participant Media's ***This Is Climate Change*** also uses VR technology to yank viewers out of denial by showing them scenes of deforestation in the Amazon and climate-caused famine in Africa.

"We know that when people are perceiving risk, two main things are important," said **D.G. Webster**, an associate professor of environmental science at Dartmouth College and one of *Lost City*'s scientific advisers. "One is called availability, which basically means that it is both vivid and salient to the individual. The other is affect, which is essentially your gut response to the risk."

Through its amalgamation of the natural and supernatural, *Lost City* tackles both.

To bring the game even further into the real world, Canner and her developers have created an app of the same name, currently available for beta testing. It functions like a nautically themed pedometer, meant to influence users' everyday habits by highlighting how many pounds of carbon dioxide they can save by walking instead of driving. Their actions are linked to prizes they can receive in the VR version.

Although I didn't connect the app to the game to reap its virtual rewards, I did try it and found it sneakily satisfying. It was gratifying to see my step count climb in tandem with the "CO2 saved" meter. At the very least, it was a departure from my usual gloom-and-doom thoughts about the climate crisis.

The game is packed with artistic influences, from Georgia O'Keeffe and Antoni Gaudí to Claude Monet's gardens at Giverny. Canner, the daughter of two anti-nuke activists from Groton, Mass., has practiced artistic activism since her teens. For years, her chosen medium has been documentaries; her best known is ***Orgasm Inc.*** (2009), which traces the pharmaceutical industry's quest for a "female Viagra."

While *Lost City* is Canner's first foray into both VR and climate activism, it doesn't come out of nowhere. She's been pushing the envelope for years, looking at social issues through the lens of new technologies even in her earliest documentaries. A **WearCam-based doc** chronicled the lives of nine people in Arlington, Va., after the 9/11 attacks. A **2006 project** for iPhone Video allowed viewers to interact with the erased history of Native Americans in Canner's hometown based on their geolocation.

Canner has been eyeing VR for a while, she said, but only recently decided the technology was up to snuff. To gamify her artistic vision, she enlisted a large team of experts, programmers, designers and interns. Among them are **Gregory Bennett**, the game's animator, codirector and coproducer; and 17-year-old Eli Marcoux, a competitive gamer who will help Canner market *Lost City* to a more serious gaming audience.

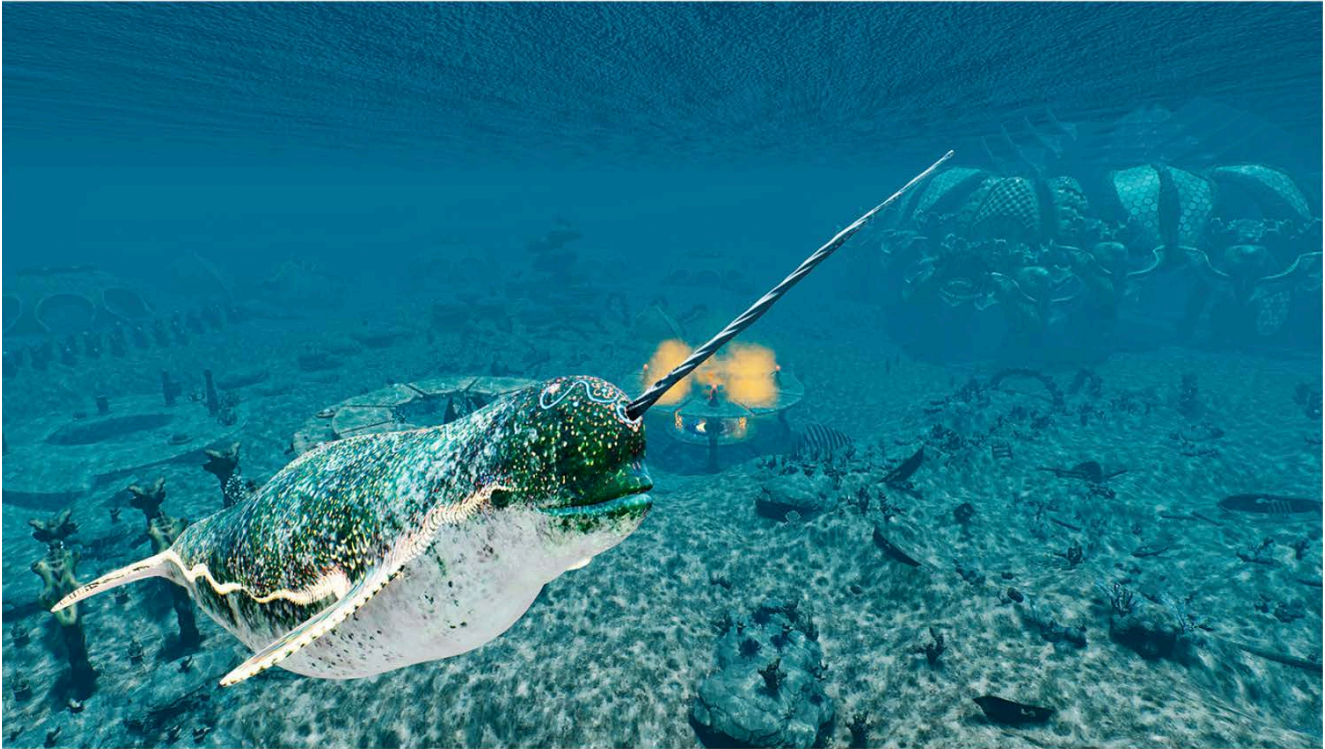
As she's devised and molded the 3D world of Mer, Canner has enjoyed coloring outside the lines. In the creative details of the game, her sense of play is palpable.

"That's the nice thing about doing something fantastical," she said, laughing. "I felt very liberated after doing documentaries for so long."

The full version of *Lost City* will be available for headset-owning audiences in November wherever VR games are sold. They'll be able to find a free updated version of the companion app in app stores.

Given adequate funding, Canner said, the game will have another chapter. She's not one to rest on her corals — er, laurels.

** Correction June 14, 2019: An earlier version of the story incorrectly said that Canner had no previous gaming experience. While she grew up on Pac-Man, she has also played and tested other video games and taken game design*



Lost City Of Mer Debuted At Games For Change Festival

An underwater virtual reality experience about reducing carbon footprints



By Nikholai Koolonavi... Last updated Jul 1, 2018

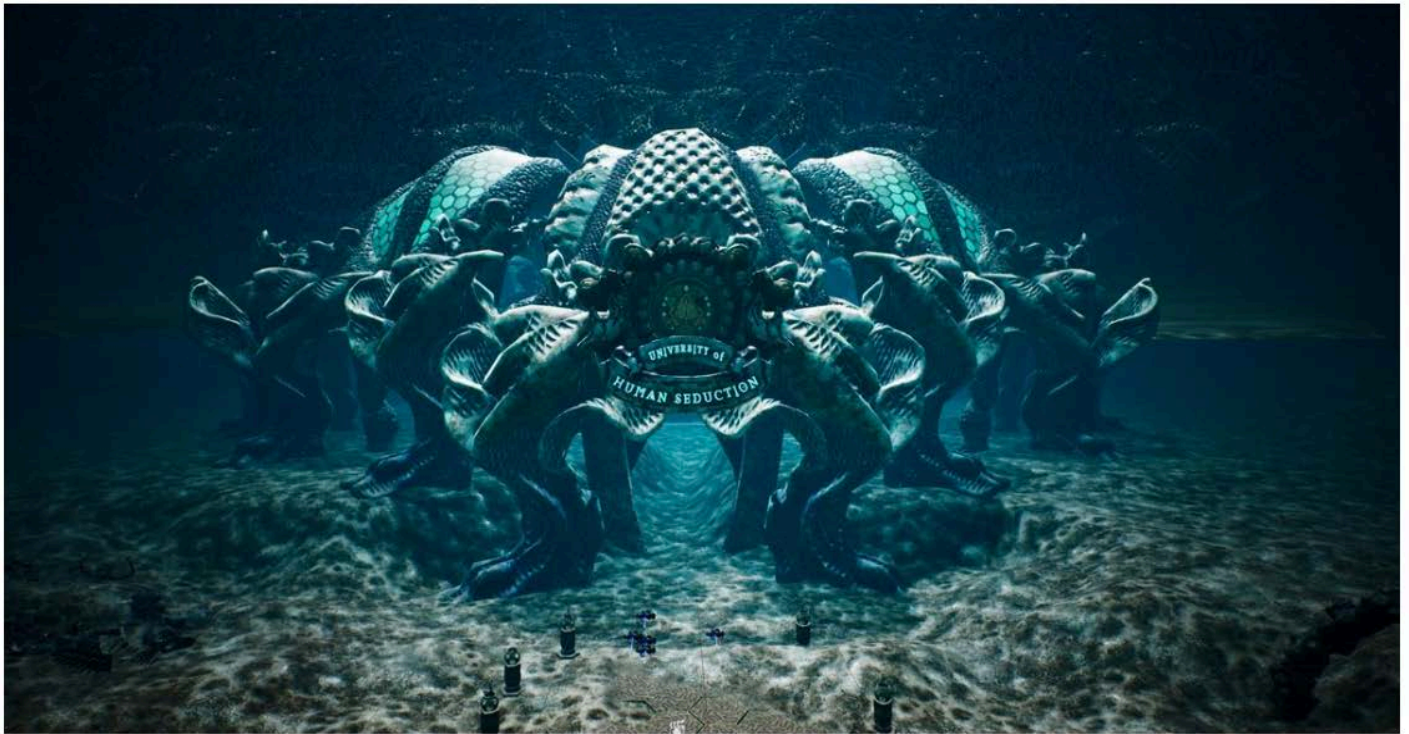


Gregory Bennett

Liz Canner

Lost City of Mer

Yesterday during the Games for Change Festival in New York City a new virtual reality (VR) title made its debut to players, allowing them to try an underwater experience. The title, *Lost City of Mer*, is being created by Liz Canner and Gregory Bennett and is hoping to inspire players about the impact that humans and their carbon footprint are having on the oceans.



The experience will take players to the mysterious underwater Mer civilization where much of its flora and fauna have been destroyed. Players will become the first Mer(maid) to have been born in decades and will befriend a baby seal spirit by the name of Athina before heading off on a journey through the remnants of the metropolis. Players will follow Athina using a unique swimming locomotion system that has been built especially for this title. On the journey Athina will show players the devastating effects of climate change and ocean acidification which have ruined Mer's ecosystem. All hope of restoring Mer falls into your hands.

Lost City of Mer has been created within the Unreal Engine for the HTC Vive and combines a smartphone application with VR platforms. By utilizing a groundbreaking living narrative structure, the title is able to provide a new dimension of gameplay where player's real world actions impact the story that unfolds in VR. The smartphone application will allow players to make progress within the videogame even when they are not in VR ensuring the experience can be enjoyed in many ways.

steps then unlock milestones that enhance the experience within the *Lost City of Mer* VR component and help restore the lost civilization. There are plans for future chapters of the title to reward other forms of carbon reduction as well which will further encourage players to think about their carbon footprint.

With a unique locomotion system in place and a story with elements of sci-fi and mystery, a mobile application along with a strong focus on educating players, the *Lost City of Mer* is shaping up to be a unique gameplay experience. You can see the trailer for the title below and for more on it in the future, keep reading **VRFocus**.

