I got a lot of funny looks at the airport when I opened the oversized cooler for the baggage inspector. As a marine biologist conducting research everywhere from the Antarctic to the Galapagos, I've carried a lot of strange things through airports in the name of science, but this was the first time in the name of art. My cargo was a collection of live mangrove roots teeming with life. Each was encrusted with a unique assortment of organisms including sponges in a rainbow of colors, razor-sharp oysters, and the intricate floral structure of feather duster worms. I was transporting my precious cargo from the Smithsonian Tropical Research Institute (STRI) Bocas del Toro Research Station on the Caribbean coast of Panama to Irene Kopelman’s exhibit in the historic Casco Antiguo district of Panama City.

Irene is an internationally recognized artist based in Amsterdam who has pioneered the use of various media including ink, watercolor and oil paints, and ceramics to capture in her words the intricacies of nature, with particular attention to how scientists put boundaries on the vast continuum of the natural world in order to study a given pattern or phenomenon. Irene first came to STRI on a Smithsonian Artist Research Fellowship, and over several trips in the past four years she has partnered with scientists in Panama’s rain forests, sandy beaches, and laboratories to convey in her unique perspective on everything from the soaring vine-covered tree canopy to the pea-sized feeding pellets of fiddler crabs.

When Irene approached me for what would become my first collaboration with an artist, I was immediately struck by her capacity to communicate the essence of a complex living system with a steady hand, clear eye, and clean esthetic. I knew I had to find a challenge for her. I immediately thought of my research group’s study of life among the interwoven thicket of mangrove prop roots that function as a protective nursery habitat for juvenile fish. Larger predators are stymied by the complexity of the root structure. But not Irene. Undaunted, she created a series of drawings that committed the branching and twirling form of the roots to paper with her characteristic attention to scale and accuracy.

What next captivated Irene’s attention was the life attached to roots below the water line where the complexity of form has the added dimension of colors including pumpkin orange, sky blue, and candy-apple red. Irene wanted to depict the life ordinarily hidden below the water. She commissioned the construction of customized aquaria so that she could...
commit the hours of detailed observation needed for one of her pieces. Those earlier drawings of the mangrove root habitats and paintings of life on mangrove roots were published alongside her other recent productions in the book *Entanglement*. But for Irene, the creative process would not be complete until she could bring her art, the mangrove roots, and the creative process that connects the two, into a public forum.

In a 2016 exhibition, Irene was able to do just that. In her exhibit *Underwater Workstations* at the DiabloRosso gallery in Panama, Irene not only displayed her earlier mangrove works, but she herself was on display as she drew in real-time the mangrove roots showcased in another set of specially constructed aquaria. Hence, my trip through the airport with a fresh supply of roots to stock the exhibit’s aquaria. I’ve taken dozens of students into mangrove root habitats on field expeditions, but by taking roots into the city for Irene’s exhibit, I estimate that hundreds if not thousands of viewers experienced the underwater life on mangrove roots for the first time with the added benefit of Irene’s artistic perspective as a guide.

Irene views *art as a compliment to science that offers another way to access knowledge about the nature*. She developed this perspective on the way to her Doctorate in Fine Arts from Utrecht Graduate School of Visual Art and Design and The Finnish Academy of Fine Arts. Within the Smithsonian, she is among the first Artist Research Fellows to venture to STRI in Panama, and she has further set herself apart by leaving behind archived museum collections in favor of immersing herself in nature at remote field stations. My experience working with Irene has taught me that understanding the natural world through first-hand observation, and blurring disciplinary boundaries by sharing perspectives through collaboration, are vital pursuits whether each of us interprets the natural world through data sets or paintings.
The text written by Andrew Altieri was first published at Smithsonian Ocean Portal in October 2017, at the time of a solo exhibition of Irene Kopelman at DiabloRosso gallery in Panama City, on the larger context of a long term collaboration with the Smithsonian Tropical Research Institute (STRI).

The Smithsonian Ocean Portal focuses on everything ocean — unusual and everyday organisms, ocean-inspired art, and researchers devoting their lives to exploring this still mostly mysterious ecosystem. The Ocean Portal is part of the Smithsonian Institution’s Ocean Initiative. Together with the National Museum of Natural History’s Sant Ocean Hall and the Sant Marine Science Chair, the Ocean Portal supports the Smithsonian’s mission to increase the public’s understanding and stewardship of the Ocean.

Andrew Altieri is Assistant Professor in the Dept. of Environmental Engineering Sciences in the Engineering School of Sustainable Infrastructure & Environment at the University of Florida. His research group examines the ecology of human-dominated coastal ecosystems. The land-sea interface is a rich and productive zone that provides benefits to human well-being. However, it is changing at an accelerating rate due to factors including overfishing, climate change, pollution, and threats to biodiversity and habitat. Altieri’s research group pursues field-based research questions wherever natural history and ecological pattern reveal how those globally relevant factors are driving change in marine ecosystems. Their investigations have taken them on adventures in temperate and tropical ecosystems including coral reefs, salt marshes, rocky shores, mangroves, and seagrass beds. This varied approach provides a general understanding of resilience, feedbacks, and thresholds to better predict trajectories of life in the marine realm.

Irene Kopelman is an artist who holds a Doctorate of Fine Arts from the Finnish Academy of Fine Arts, Helsinki/MaHKU, Utrecht Graduate School of Visual Art and Design, Utrecht. Originally from Argentina, Kopelman moved to the Netherlands in 2002 to participate in a residency at the Rijksakademie van Beeldende Kunsten, Amsterdam. Kopelman’s work explores the relationship between science and art.

Art critic Kevin Greenberg wrote: For the artist Irene Kopelman, exposure is everything. Whether it’s the seared expanses of Egypt’s White Desert or the freezing waters of the Antarctic, “If I’m not there, out in the elements and directly observing things, even if it’s windy or bitterly cold, the pieces won’t develop the way they should,” she says.
Kopelman’s work marries the clinical distance of scientific observation with an almost spiritual reverence for landscape and the objects, large and small, that comprise it. Wonder in the face of nature’s indifference to human striving is nothing new, of course. Bergsonian notions of the sublime consumed the psyche of pre-modern Europe and coloured much of the continent’s art and literature for decades. But much like the phenomenology of Edmund Husserl and Martin Heidegger, Kopelman’s work employs the otherness of nature to reveal something integral about the recesses of the individual self.
Irene Kopelman
*Underwater Workstation*
2016
DiabloRosso, Panama City

Photography by Raphael Salazar
Irene Kopelman
Mangroves
26.01.2015
Pencil on paper
30 x 42 cm
Photography by Art in Print
Irene Kopelman
Mangroves
06.02.2015
Pencil on paper
30 x 42 cm
Photography by Art in Print
Irene Kopelman
*Mangroves*
2015
Roots underwater
Watercolor on paper
30x 24 cm
Photography by Art in Print
Irene Kopelman
*Mangroves*
2015
Roots underwater

Watercolor on paper
30x 24 cm

Photography by Art in Print
Irene Kopelman
*Mangroves*
2015
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